

FORM-PTO-1390
(Rev. 5-93)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

0859-96

U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5)

09/423284

INTERNATIONAL APPLICATION NO.
PCT/CA98/00439

INTERNATIONAL FILING DATE
6 May, 1998 (06.05.98)

PRIORITY DATE CLAIMED
7 May, 1997 (07.05.97)

TITLE OF INVENTION
SUBWAY TV MEDIA SYSTEM

APPLICANT(S) FOR DO/EO/US
Scott BLAIR

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and the PCT Articles 22 and 39(1).
4. A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. transmitted herewith (required only if not transmitted by the International Bureau).
 - b. has been transmitted by the International Bureau.
 - c. is not required, as the application was filed in the United States Receiving Office (RO/US)
6. A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. have been transmitted by the International Bureau.
 - c. have not been made; however, the time limit for making such amendments has NOT expired.
 - d. have not been made and will not be made.
8. A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. A **FIRST** preliminary amendment.
 A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. A substitute specification.
15. A change of power of attorney and/or address letter.
16. Other items or information:

Six (6) sheets of drawings (Figs. 1a-7)

U.S. APPLICATION NO. (If known, see 37 CFR 1.50)

09/423284

INTERNATIONAL APPLICATION NO.
PCT/CA98/00439

ATTORNEY'S DOCKET NUMBER
0859-96

17. The following fees are submitted:

CALCULATIONS

PTO USE ONLY

Basic National Fee (37 CFR 1.492(a)(1)-(5)):

Search Report has been prepared by the EPO or JPO \$840.00
 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$670.00
 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$760.00
 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$970.00
 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$ 96.00

ENTER APPROPRIATE BASIC FEE AMOUNT =

\$ 840.00

Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)). 20 30

\$ -0-

| Claims | Number Filed | Number Extra | Rate | | |
|---|--------------|--------------|------------|----|-----|
| Total Claims | 18 -20 = | -0- | X \$18.00 | \$ | -0- |
| Independent Claims | 2 -3 = | -0- | X \$78.00 | \$ | -0- |
| Multiple dependent claim(s) (if applicable) | | | + \$260.00 | \$ | -0- |

TOTAL OF ABOVE CALCULATIONS =

\$ 840.00

Reduction for 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).

\$

SUBTOTAL =

\$ 840.00

Processing fee of \$130.00 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492(f)). 20 30

\$ -0-

TOTAL NATIONAL FEE =

\$ 840.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +

\$ -0-

TOTAL FEES ENCLOSED =

\$ 840.00

Amount to be: refunded \$

charged \$

- a. A check in the amount of \$840.00 to cover the above fees is enclosed.
- b. Please charge my Deposit Account No. 19-2380 in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed.
- c. The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 19-2380(0859-96). A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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SIGNATURE

Jeffrey L. Costellia
NAME

35,483
REGISTRATION NUMBER

00220-162200

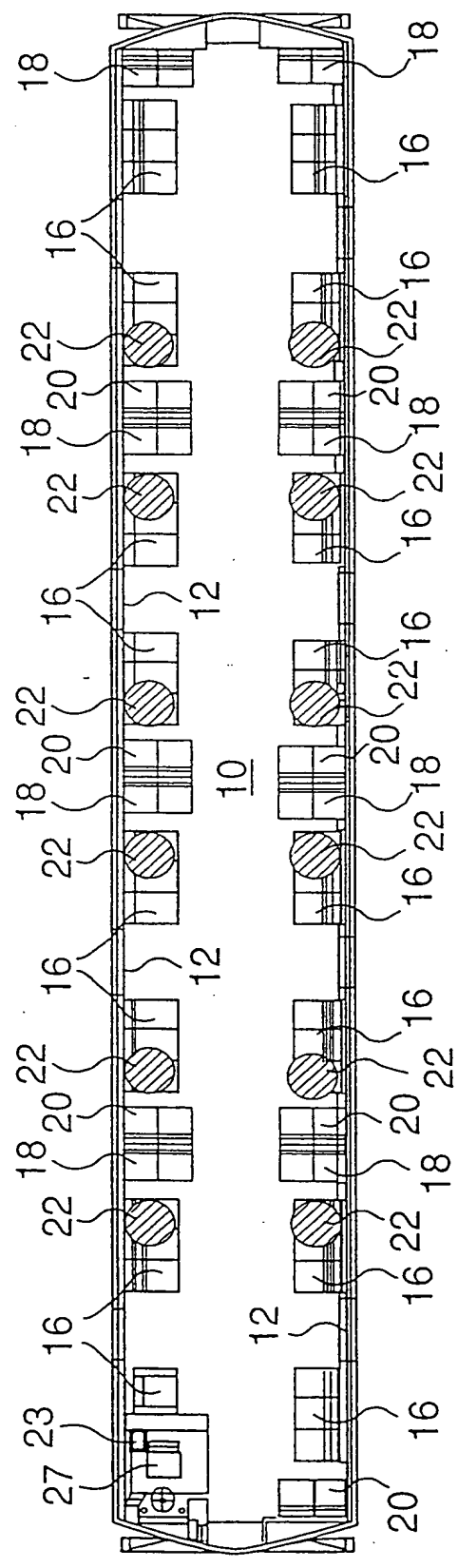


FIG. 1a

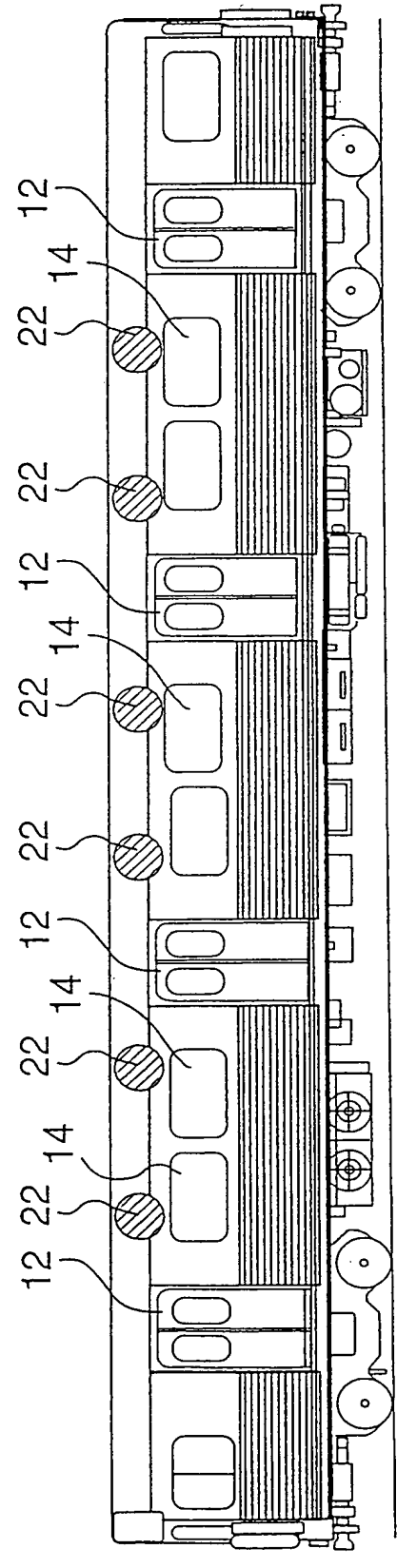


FIG. 1b

| | | |
|-----------|-----------|----------|
| APPROVED | O.G. FIG. | |
| BY | CLASS | SUBCLASS |
| DRAFTSMAN | | |

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3/6

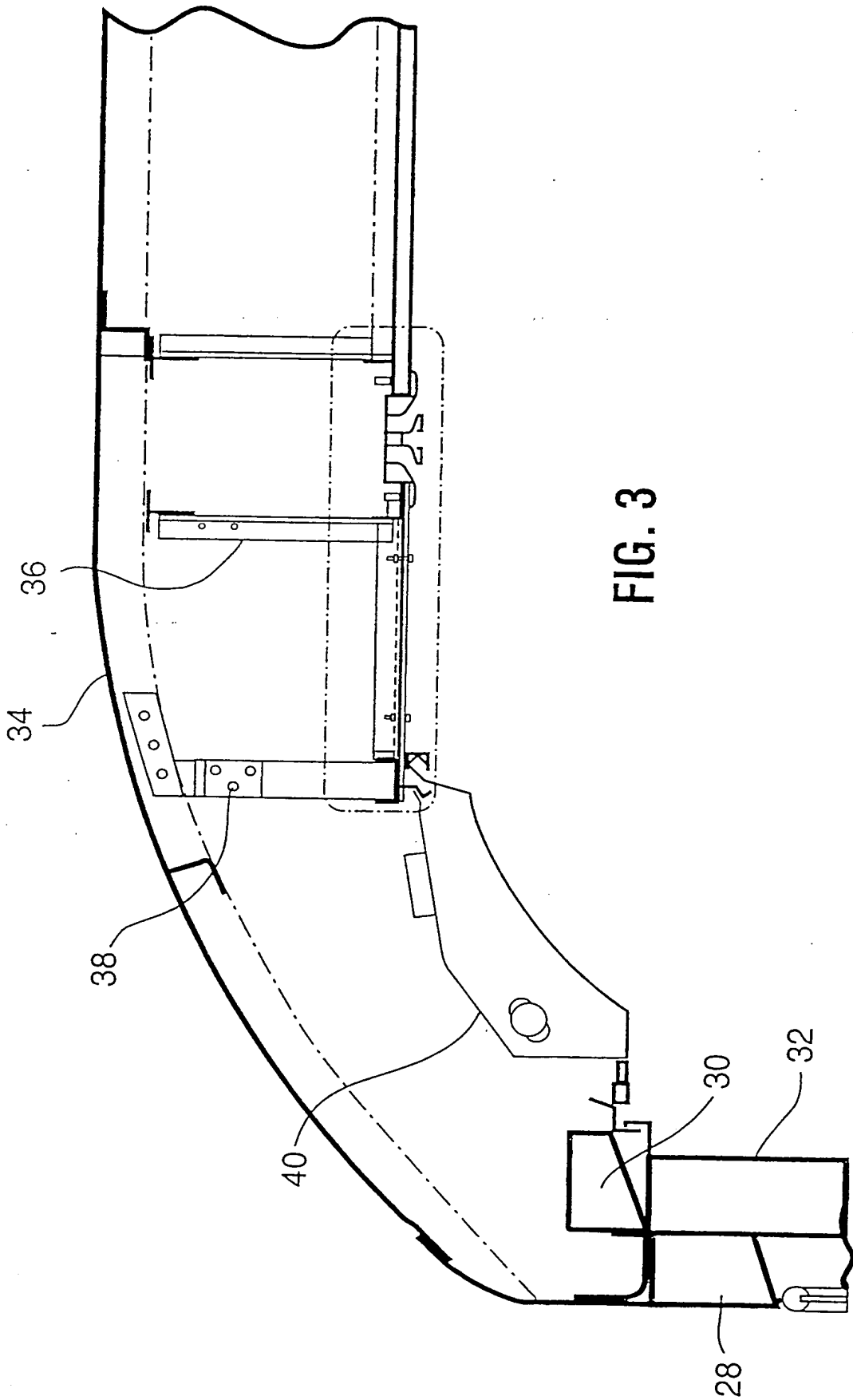


FIG. 3

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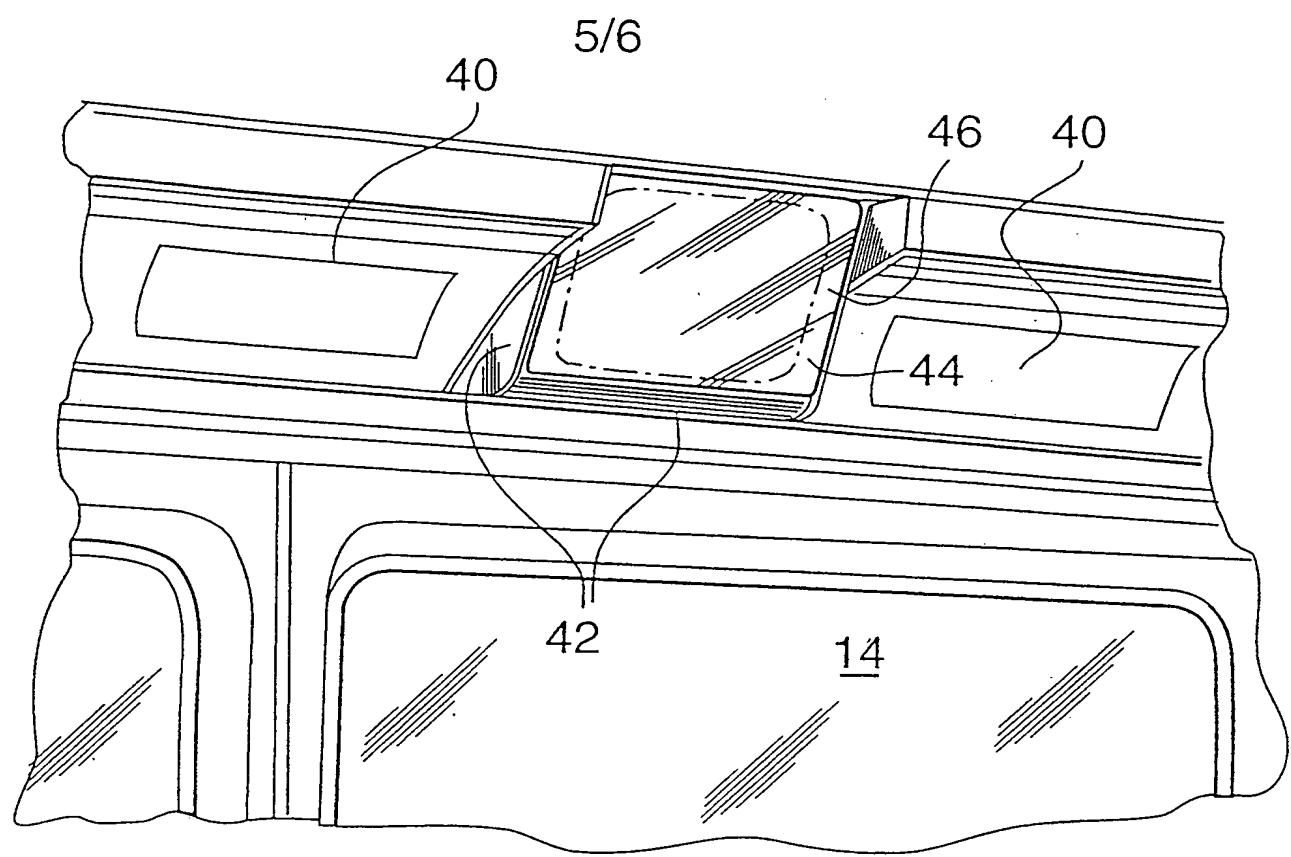


FIG. 5

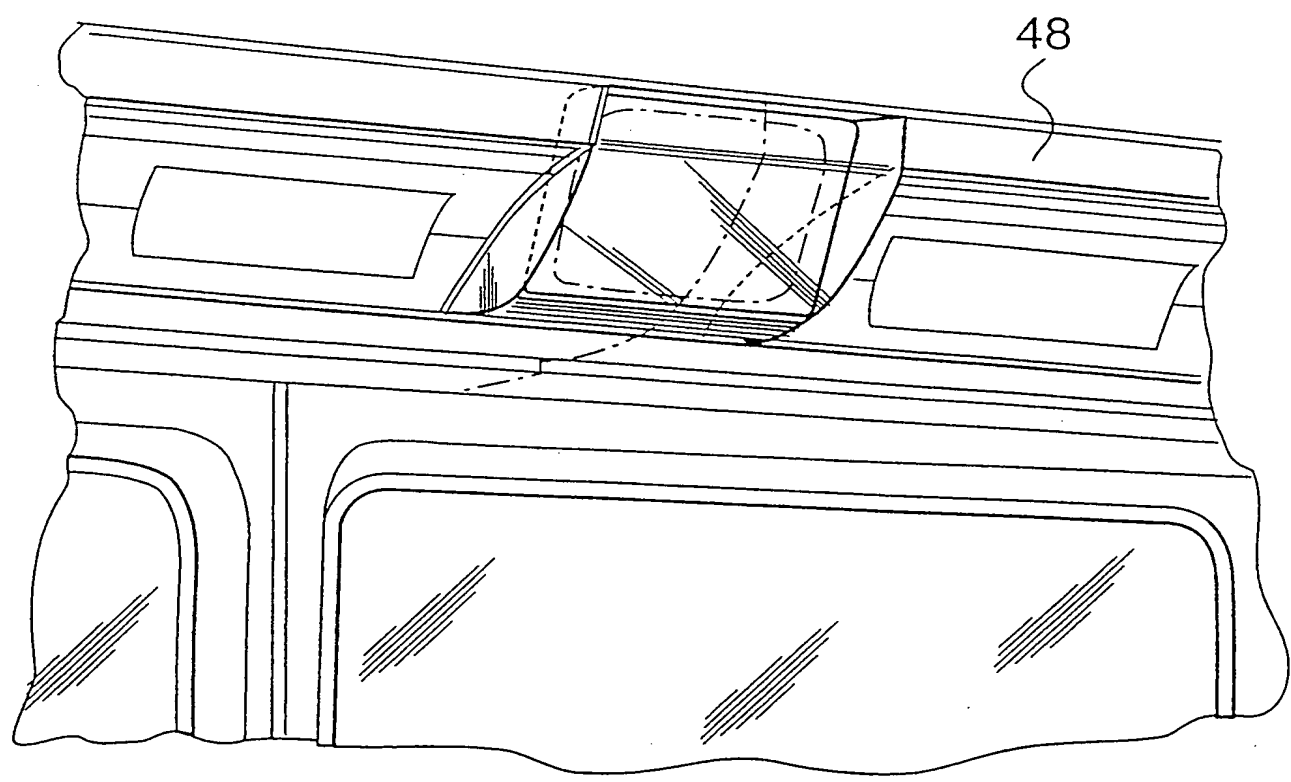


FIG. 6

00000-000000

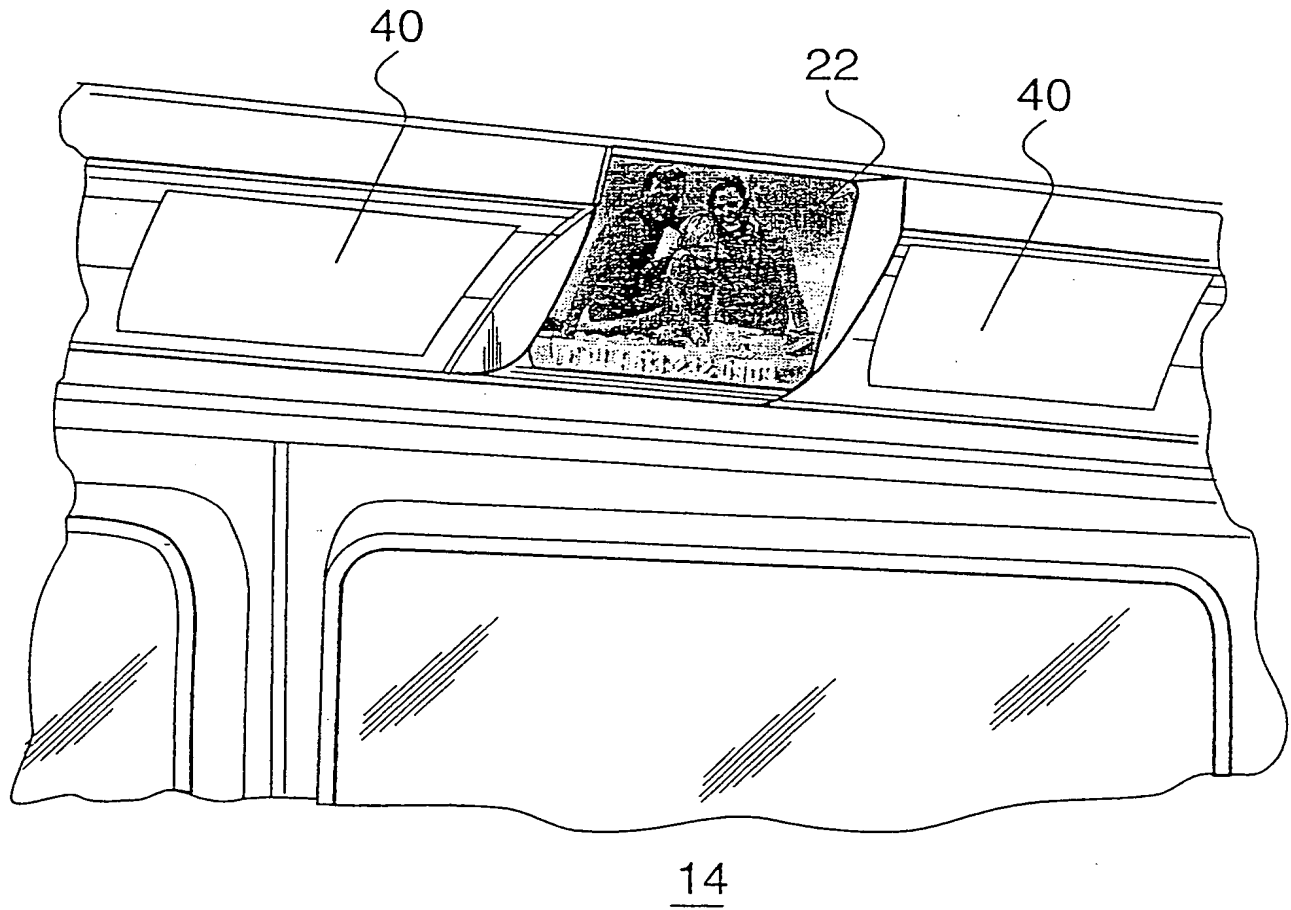


FIG. 7

SUBWAY TV MEDIA SYSTEM

This application claims benefit of provisional application No. 60/045,811, Filed May 7, 1994.

5 This invention relates to video display systems, and more specifically to video display systems mounted in and operating in mass transit subway cars.

10 It is commonplace to provide visual advertising displays such as posters in mass transit subway cars, where the displays are available for reading by subway passengers during travel. It is also known to equip subway cars with closed circuit television cameras, for surveillance of passenger behaviour and other safety checks. Images of such surveillance are either displayed at a central security facility, or recorded for subsequent viewing in the event of safety problems.

15 It is also commonplace to equip subway cars with audio public address systems for a myriad of uses, including transit service announcements, community service events, advertising, safety and emergency procedures, as well as inter-staff communications.

25 Proposals have been made previously to equip other transportation items, especially aircraft, with television or video systems, primarily for the entertainment of passengers on long journeys. Examples of such systems in the patent literature can be found in U.S. Patent 4,647,980 Steventon et al., U.S. Patent 4,630,821 Greenwald, U.S. Patent 4,352,124 Kline, U.S. Patent 30 5,123,728 Gradin et al., and U.S. Patent 3,457,006 Brown et al.

35 Entertainment of passengers on subway cars has until now generally been ignored, since the average journey taken by a passenger on a mass transit subway system is usually short, lasting perhaps fifteen minutes.

00220-18220

Nevertheless, subway transit riders offer an attractive audience for visual advertising messages, as evidenced by the proliferation of advertising signs which commonly adorn a subway car. In addition, mass transit systems such as subways are in need of extra sources of revenue, to keep passenger fare structures at an affordable level as operating costs rise, and to avoid decreased ridership as a result.

10 It is an object of the present invention to provide a public service message display system, entertainment system and advertising system for mass transit subway cars.

15 It is a further object to provide a novel source of extra revenue for a mass transit subway system.

20 The present invention provides a television public service message display, entertainment and advertising system for subway cars, in which television monitors are provided at spaced intervals in subway cars, to display short duration televisual entertainment and advertising features to subway riders. The system is designed so that advertising spots on it can be sold by the transit system to potential advertisers and sponsors, for extra revenues for the transit system. It takes advantage of the fact that subway riders are, for the most part, occupying a subway car under relatively crowded conditions but for only a relatively brief duration. They are looking for something on which to focus their attention during their brief ride, whilst at the same time often finding it inconvenient to open newspapers, magazines or the like under crowded circumstances and becoming bored by static advertising or other displays around them. The present

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invention provides properly positioned television monitors displaying moving images of news items, advertising material and the like, viewable by substantially all riders in the car, and filling their need for visual entertainment during the brief duration of their subway ride.

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Thus, according to the present invention, from one aspect, there is provided a video system for displaying televised material to passengers in a mass transit subway car, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised materials to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.

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According to a second aspect of the present invention, there is provided a subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

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→ The term "video signal source unit" as used herein embraces player units for playing pre-recorded video material, such as computer-based digital video recorders (including CD-ROM players), video tape players and video disk players, and television receivers for receiving live or pre-recorded broadcast television signals from a remote transmitter and supplying these to the video display monitors mounted in the subway cars. One system according to the invention utilizes receivers including computer-

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based digital video recorders for receiving broadcast television signals from a remote transmitter as the video signal source unit. Such video signal source unit can be located either within the mass transits' premises or on a remote broadcasting site. Alternatively, the invention utilizes a video tape player, a video disk player, or a computer-based digital video recorder, as the video signal source unit. The video signal source unit may be located in the same subway car as that in which the monitor or monitors are located, or in adjacent or remote cars of the same train, with the necessary operative connection between the player and the monitor(s). An individual subway car can be equipped with its own video signal source unit, connected to a plurality of monitors mounted at different, appropriately chosen locations along the length of the subway car. Alternatively, one central video signal source unit can be located in one car of subway train, and connected to monitors in some or all of the cars of the train, to provide a central video signal source unit for the train.

Computer (PC) based digital video recorders basically transmit video signals from a hard drive or CD-ROM storage. They are however also capable of receiving transmitted input at intervals, e.g. news item updates, at, say, hourly intervals, to add to their stored transmittable video data. In this sense they also act as television receivers.

The video signal source unit and video display monitors used in the present invention can be of known, standard form, obtainable as off the shelf items from manufacturers and sales outlets. The connections between them, for display of televised material, are also standard

and well within the skill of the art. For example, use can be made of the existing subway infrastructure by which audio announcements are currently transmitted. Alternatively, the connections may be by use of coaxial cables, fibre optics, cell phone systems or satellite transmission, or by other appropriate means.

A preferred system according to the invention is a subway car or plurality of subway cars equipped with a plurality of television monitors, especially LCD-based television monitors, and a video signal source comprising a video tape player, video disk player or computer-based digital video recorder, the video signal source and the monitors being interconnected by suitable electrical cable systems which are self-contained within the subway car. In this way, new subway cars can be built with the video system or parts thereof installed, and usable on substantially any transit system, since the operation of the video system is independent of any previously installed track, tunnel or control systems.

The video system according to the present invention provides a means for communicating a very wide range of information to viewers in an environment ideally suited to communicating short video messages to viewers, especially commercial messages or sponsored community service, or informational news bytes. Most subway rides are of short duration, e.g. 15-30 minutes or less. It is normally undesirable to play television programs of any significant length to subway passengers for fear of distracting them from their proper points of interchange and disembarkation on the subway system. However, the system according to the invention is ideally suited for displaying a series of short, 30 second - 1 minute

messages, in sequence, such as a series of commercial
messages. These can range from straightforward advertising
as seen on commercial television, or the type of news feed
with corporate sponsorship as seen by cable television
5 viewers, with news services provided by specialized
companies in this business. If the information is
delivered by video tape player, video disk player or
computer-based digital video recorder, it can be repeated
at intervals of, say, 5-15 minutes, based upon the average
10 duration of individual subway rides, i.e. the pre-recorded
program is of total duration of about 5-15 minutes. If the
feed is delivered from an outside source, its delivery
depends on the package of the server, and according to
agreement between the purchaser and the mass transit
15 management, and other interested parties as necessary.

Typically, the television images displayed by the
monitors of the system according to the invention do not
incorporate sound, though they may contain rolling script,
20 similar to cable television news channels, or similar to
closed-captioning for the hearing impaired. This avoids
risk of interference with announcements being played to
passengers through the normal audio address system carried
by the subway train, and avoids adding to the general noise
25 level experienced by passengers on the subway cars, a noise
level which is commonly quite high even under normal
running conditions. However, sound may be incorporated
where appropriate, for example in safety or emergency
situations, or to mark the beginning of a message to which
30 the subway or transmission provider wishes to call
attention.

The manner in which the video display monitors
are disposed and mounted in the subway car depends to some

extent on the design of the subway car itself. Such designs can vary between different subway systems. Normally from 6-12 such colour monitors are provided in each subway car, suitably of 12"-13" size, spaced along the length of the car, and disposed above the windows of the car, in a manner and at a location which does not interfere with the operation of any other essential element of the car (door operation, lights, heating, air conditioning etc.). A subway car is normally constructed so that it has a cavity wall, defined between its outer structural shell and its inner lining wall, the cavity providing for wiring and cables and other mechanical functions, and, at places, containing insulation. The video display monitors in the system of the invention are suitably mounted in the cavity wall.

In a preferred arrangement, the video display monitors have a strong metal frame construction, fixed to the frame of the subway car. The screens are preferably covered with a rigid transparent unit, e.g. of polycarbonate, shaped to coincide with the shape of the internal wall of the subway car at the location of mounting. For example, when the monitor is mounted at the junction of the wall and ceiling of the subway car, where there is commonly provided a concavely curved segment of internal wall, the transparent cover unit is suitably similarly concavely curved, so that it can be mounted as a continuum with the internal walls and blended to contours thereof, with the monitor mounted behind it. The screen is suitably angled downwardly, for best viewing by passengers seated opposite the screen. The entire structure of the monitor, including the cover unit if used, is suitably housed in a stainless steel or strong plastic casement, designed to appear integral with the subway car, without

visible edges or protuberances, and matching the materials and colours of the subway car interior.

5 The video monitors used in the system of the present invention can be of standard, cathode ray tube-based design. Such monitors have the advantage of economy, being mass-produced items manufactured on a very large scale. They are eminently suitable for use in most
10 embodiments according to the invention, and can be viewed clearly from a variety of angles. However, in circumstances where the subway car in operation encounters locations of large magnetic field, it is possible that the picture displayed on a CRT monitor will be distorted as the monitor moves through such location. Any such distortion effect
15 can be reduced by surrounding the monitor, to an extent practical and consistent with its provision of full visual display, with an appropriate shield such as a steel or other ferromagnetic casement. Where such a magnetic field problem turns out to be particularly acute, the CRT-type
20 monitor may be replaced by a monitor incorporating a colour liquid crystal display (LCD) screen, which is not sensitive to intermittent encountering of external magnetic fields.

25 Specific preferred embodiments of the present invention are illustrated in the accompanying diagrammatic drawings in which:

30 Figure 1 shows in plan view (Fig. 1A) and in side elevation (Fig. 1B), an existing subway car as used on the Toronto Transit System with indications of appropriate locations for mounting video monitors according to the invention;

Figure 2 is a sectional view of a subway car according to the invention with video monitors in place;

5 Figure 3 is a detail, in section, of an existing subway car illustrating the location for receiving a video monitor according to the invention;

10 Figure 4 is a detail similar to Fig. 3, with the video monitor in place;

15 Figure 4A is a view, similar to Fig. 4, of an alternative embodiment;

20 Figure 5 is a detail in perspective view, of a subway car equipped with a monitor according to one embodiment of the invention;

25 Figure 6 is a detail similar to Fig. 5 but of a further alternative embodiment;

30 Figure 7 is a view similar to Figure 6, showing the general appearance when the monitor is operating.

A typical subway car 10, as illustrated in Figs. 1A and 1B, is equipped with sliding doors 12 and windows 14, spaced at convenient intervals along the length of the car. Passenger seats, in sets of 2's and 3's, are disposed beneath and alongside the windows 14, clear of the doors 12, some sets 16 being inward facing, other sets 18 being forward facing and other sets 20 being rearward facing.

Suitable locations for video monitors 22 in accordance with the invention are at the junction of wall and ceiling of subway car 10, above the windows 14 and

clear of the doors 12. They are thus disposed opposite to sets of inward facing seats 16, and angled downwardly for ease of viewing of passengers 24 seated in such inward facing seats 16, as shown in Fig. 2, with direct sight lines 26, but visible to passengers seated elsewhere, and standing in the car 10. A video player 23 is suitably located in the driver's cab 27 (Fig. 1A), and connected to all the monitors 22 by cables (not showing) disposed in the cavity walls of the car.

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Fig. 3 shows a detail of the car 10, at the location where a monitor 22 is to be installed. The car wall has an outer shell 28 in which windows 14 are sealingly mounted, and structural pillars 30 mounted at intervals and secured to the vertical structural member 32. Centrally secured to the exterior skin and body structure of body 34 of the car is a main air duct 36 and a housing 38 carrying ceiling lights running substantially the full length of the car 10. The space between the ceiling housing 38 and the top of the pillars 30 is normally occupied by back lit advertising panels 40. Removal of appropriate portions of these panels 40 provides space for location of video monitors 22, according to the preferred embodiment of the invention.

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Thus as shown in Fig. 4, the video monitor 22 is enclosed and rigidly mounted in its own enclosure 42, of stainless steel, rigid plastic or the like. The enclosure in turn is secured to the top of structural pillar 30 and the side of housing 38, in a space between the ends of illuminated panels 40, and protruding rearwardly to a position adjacent the outer part of the exterior skin and body structure 34. The front wall of enclosure 42 is comprised of a clear transparent polycarbonate shield 44,

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through which the screen 46 the monitor 22 is clearly visible. The screen 46 is angled downwardly for best viewing by a passenger 24 seated opposite. The enclosure 42 with monitor 22 therein and connections protruding outwardly therethrough is removable as a unit, for replacement or service.

An alternative embodiment is illustrated in Fig. 4A, a view similar to that of Fig. 4. In this alternative embodiment, CRT video monitor 22 is replaced with an LCD-based video monitor 22A which is of thin, rectangular cross-section, and occupies less space in the ceiling structure of the car. Accordingly, it can be moved towards the ceiling so that its viewing screen is substantially flush with or even behind the light panel 40. This use of an LCD-based monitor gives a better aesthetic appearance to the inside of the subway car as a whole, as well as improving the display performance by minimizing the interference effects, as previously discussed. An appropriately shaped enclosure 42A for the LCD-based monitor, with transport screen 44A, replaces enclosure 42 for the CRT video monitor, and is similarly mounted in place.

Fig. 5 shows a front, perspective view of the arrangement shown in section in Fig. 4. The monitor 22 and its covering shield 44 are recessed behind the upper portion of the adjacent advertising panels 40, and the sides of the enclosure 42 protrude inwardly from the lower portion of panels 40. This provides ease of access to the enclosure 42 for its removal when necessary.

An alternative arrangement is shown in Fig. 6. Here the polycarbonate shield 44 is convexly curved, and is

disposed further forward from the monitor screen 44. The shield 44 now blends with forward facing part 48 the exterior skin and body structure 34, to provide a perhaps more aesthetically appealing arrangement. In Fig. 7, there is diagrammatically illustrated the arrangement of Fig. 6 in practical operation. Poster-type illuminated advertisements are provided by advertising panels 40 flanking the video monitors 22, whilst the video monitor 22, disposed at intervals along the length of the car 10, show video information and/or advertising spots, at convenient, easily viewed locations and disposition to passengers riding in the car 10.

It will be appreciated that the specific embodiments illustrated and described herein are by way of example only, and are not to be construed as limiting on the scope of the invention. The description pertains specifically to the type of subway car currently in use in the Toronto Transit System, and illustrates a means and location for mounting the video monitors in such a system. Details of construction, and hence details of appropriate mounting for video monitors may differ from subway system to subway system according to the form of car in use. Such mounting details do not depart from the scope of the present invention. In all cases, it is contemplated that a plurality of monitors will be provided in each car, each rigidly mounted at a convenient location clear of the doors and windows, and at a disposition where it can be viewed by passengers riding the subway car, without difficulty. The provision of such video monitors mounted in their own enclosures as described herein, and faced with a transparent screen of, for example, polycarbonate, allows for considerable variation in the detail of mounting means and locations, to adapt them to different constructions of

subway cars currently in use on different mass transit systems.

00220-1822100

CLAIMS:

1. A video system for displaying televised material to passengers in a mass transit subway system, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised material to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.

2. The video system of claim 1 comprising a plurality of video display monitors operatively connected to a single video signal source unit.

3. The video system of claim 2 wherein the video signal source unit comprises a video tape player, or video disk player or computer-based digital video recorder.

4. The video system of claim 3 wherein the video signal source system includes a pre-recorded video transmission program for feeding to display on the monitors of duration about 5-15 minutes.

5. The video system of claim 4 wherein the program is repeatable, and includes a series of commercial messages of 30 second - 1 minute duration.

6. The video system of any preceding claim wherein the video monitors are secured to the subway car at a location of junction between wall and ceiling of the car, with the screens of the monitors directed obliquely downwardly towards the car seats.

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7. The video system of any preceding claim which is sound free.

8. The video system of claim 1 or claim 2 wherein the video source unit is a television receiver for receiving broadcast television signals from a remote transmitter and supplying the signals to the video display monitors.

9. The video system of any preceding claim, in which the video display monitors include LCD screens.

10. A subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

11. The subway car of claim 10 including a plurality of said monitors, spaced along the length of the car on opposed sides thereof.

12. The subway car of claim 11 including longitudinal opposed sidewalls and a ceiling adjoining the sidewalls, and wherein each said monitor is mounted at the junction of the sidewall and ceiling, with the screens of the monitors directly obliquely downwardly towards the car seats.

13. The subway car of claim 12 wherein the video monitor screen is substantially flush with the adjacent wall surface structure of the car.

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cont

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ABSTRACT

A television system for subway cars (10) includes a plurality of TV monitors (22) mounted at intervals along the cars (10), at the junction of the sidewall and the ceiling, and a central video signal source unit (23) such as a video tape player, video disk player, computer-based digital video recorder or television receiver, connected to the video monitors (22). Programs of short duration, e.g. 5-15 minutes, matching the average length of a subway ride, and comprising advertising messages, news bytes and the like are played and displayed in the monitors repeatedly during the subway ride.

00000-1822200

DO/EO BIBLIOGRAPHIC DATA ENTRY

SERIAL NUMBER: 09 / 423284 RECEIPT DATE: 11 / 08 / 99
I NUMBER: PCT/ CA98 / 00439 IA FILING DATE: 05 / 06 / 98
FAMILY NAME: BLAIR DELAY WAIVED (Y/N): N
GIVEN NAME: SCOTT DEMAND RECEIVED (Y/N): Y
PRIORITY CLAIMED (Y/N): Y PRIORITY DATE: 05 / 07 / 97
BASIC FEE (Y/N): N US DESIGNATED ONLY (Y/N): N
ATTORNEY DOCKET NUMBER: 0859-96 COUNTRY: CAN
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PUBLICATION TITLES:
SUBWAY TV MEDIA SYSTEM

TAB TO LAST POSITION, PUSH SEND

PATENT APPLICATION SERIAL NO. 09/423284

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

11/10/1999 WCLAYBRO 00000040 09423284

01 FC:970 840.00 OP

Adjustment date: 02/01/2000 OWNER

11/10/1999 WCLAYBRO 00000040 09423284

01 FC:970 -840.00 OP

02/01/2000 OWNER 00000045 09423284

01 FC:971 420.00 OP

Regis. Ret: 02/01/2000 OWNER 001593500

001192380 Name/Number: 09423284

FC: 704 840.00 CR

PTO-1556

(5/87)

PATENT APPLICATION FEE DETERMINATION RECORD
Effective November 10, 1998

Application or Docket Number
09/423284

CLAIMS AS FILED - PART I

| FOR | (Column 1) NUMBER FILED | (Column 2) NUMBER EXTRA |
|----------------------------------|----------------------------|----------------------------|
| BASIC FEE | | |
| TOTAL CLAIMS | 17 minus 20 = * | |
| INDEPENDENT CLAIMS | 2 minus 3 = * | |
| MULTIPLE DEPENDENT CLAIM PRESENT | | |

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

| AMENDMENT A | (Column 1) | (Column 2) | (Column 3) |
|--|----------------------------------|------------------------------------|---------------|
| | CLAIMS REMAINING AFTER AMENDMENT | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA |
| Total | * 17/6/6 Minus | ** 21 = | |
| Independent | * Minus | *** 3 = | |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM | | | |

| AMENDMENT B | (Column 1) | (Column 2) | (Column 3) |
|--|----------------------------------|------------------------------------|---------------|
| | CLAIMS REMAINING AFTER AMENDMENT | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA |
| Total | * Minus | ** = | |
| Independent | * Minus | *** = | |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM | | | |

| AMENDMENT C | (Column 1) | (Column 2) | (Column 3) |
|--|----------------------------------|------------------------------------|---------------|
| | CLAIMS REMAINING AFTER AMENDMENT | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA |
| Total | * Minus | ** = | |
| Independent | * Minus | *** = | |
| FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM | | | |

• If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
 • If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
 • If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

SMALL ENTITY TYPE

OR OTHER THAN SMALL ENTITY

| RATE | FEE |
|--------|-----|
| X\$ 9= | 420 |
| X39= | 36 |
| +130= | 130 |
| TOTAL | 586 |

| RATE | FEE |
|--------|-----|
| X\$18= | |
| X78= | |
| +260= | |
| TOTAL | |

SMALL ENTITY OR

OTHER THAN SMALL ENTITY

| RATE | ADDITIONAL FEE |
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| X\$ 9= | |
| X39= | |
| +130= | |
| TOTAL ADDIT. FEE | |

| RATE | ADDITIONAL FEE |
|------------------|----------------|
| X\$18= | |
| X78= | |
| +260= | |
| TOTAL ADDIT. FEE | |

| RATE | ADDITIONAL FEE |
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| X\$ 9= | |
| X39= | |
| +130= | |
| TOTAL ADDIT. FEE | |

| RATE | ADDITIONAL FEE |
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| X78= | |
| +260= | |
| TOTAL ADDIT. FEE | |

| RATE | ADDITIONAL FEE |
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| X\$ 9= | |
| X39= | |
| +130= | |
| TOTAL ADDIT. FEE | |

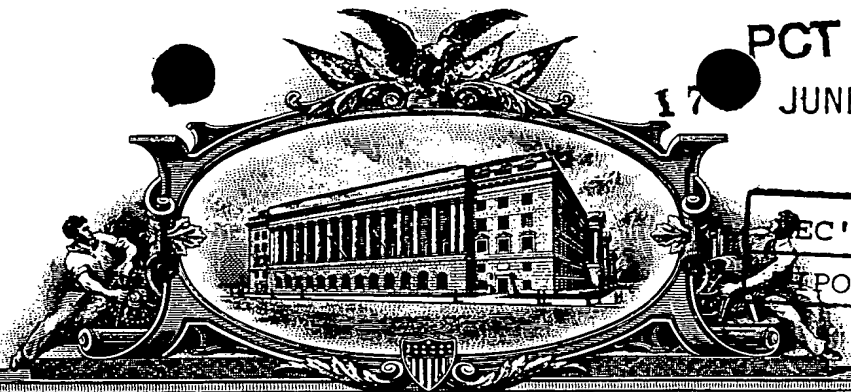
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| X\$18= | |
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| TOTAL ADDIT. FEE | |

**MULTIPLE DEPENDENT CLAIM
FEE CALCULATION SHEET
(FOR USE WITH FORM PTO-875)**

SERIAL NO. _____ FILING DATE _____
 APPLICANT(S) **09/423284**

CLAIMS

| | AS FILED | | AFTER 1st AMENDMENT | | AFTER 2nd AMENDMENT | | | * | | * | | * | |
|--------------|----------|------|------------------------|------|------------------------|------|--|------|------|------|------|------|------|
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| TOTAL IND. | | | | | | | | | | | | | |
| TOTAL DEP. | | | | | | | | | | | | | |
| TOTAL CLAIMS | | | | | | | | | | | | | |



REC'D 11 AUG 1998
TPO PCT

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

09/423284

**UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office**

May 22, 1998

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE UNDER 35 USC 111.

**APPLICATION NUMBER: 60/045,811
FILING DATE: May 7, 1997**

**PRIORITY
DOCUMENT**

SUBMITTED OR TRANSMITTED IN COMPLIANCE WITH RULE 17.1(a) OR (b)



**By Authority of the
COMMISSIONER OF PATENTS AND TRADEMARKS**

E. Bland
**E. BLAND
Certifying Officer**

64934 U.S. PTO
05/07/97

PTO/SB426,11
61591 U.S. PTO
60045811
05/07/97

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

Docket No. BLASC/1A Type a plus sign (+) +
inside box

INVENTOR(S)/APPLICANT(S)

| LAST NAME | FIRST NAME | MIDDLE INITIAL | RESIDENCE (City & Either State or foreign Country) |
|-----------|------------|----------------|--|
| BLAIR | Scott | -- | Toronto, Ontario, Canada |

TITLE OF THE INVENTION (280 characters max)

SUBWAY TV MEDIA SYSTEM

CORRESPONDENCE ADDRESS

Mr. Robert G. Hirons
c/o Ridout & Maybee
One Queen Street East
Suite 2400
Toronto, Ontario
Canada, M5C 3B1

ENCLOSED APPLICATION PARTS (check all that apply)

| | | |
|---|---------------------------|--|
| <input checked="" type="checkbox"/> Specification | <u>9</u> Number of Pages | <input type="checkbox"/> Small Entity Declaration |
| <input checked="" type="checkbox"/> Drawings | <u>7</u> Number of Sheets | <input checked="" type="checkbox"/> Other (Specify) (unsigned small entity decl.) |

64934 U.S. PTO 05/07/97

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT (check one)

- A cheque or money order is enclosed to cover the filing fees
- The Commissioner is hereby authorized to charge filing fees and credit Deposit Account Number 13-2400. (A duplicate copy of this paper is enclosed)
- Filing Fee amount \$75.00

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

- No
- Yes, the name of the U.S. Government agency and the Government contract number are:

Respectfully submitted,

SIGNATURE:

Robert G. Hirons

TYPED OR PRINTED NAME: Robert G. Hirons

REGISTRATION NUMBER: 24,666

DATE: May 6, 1997

Additional inventors are being named on separately number sheets attached hereto.

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

Burden Hour Statement: This form is estimated to take .2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C. 20231.

U.S.A. Provisional Patent Application

Inventor: SCOTT BLAIR
Applicant: SCOTT BLAIR
Title: SUBWAY TV MEDIA SYSTEM

60045311-050297

SUBWAY TV MEDIA SYSTEM

This invention relates to video display systems, and more specifically to video display systems mounted in and operating in mass transit subway cars.

It is commonplace to provide visual advertising displays such as posters in mass transit subway cars, where the displays are available for reading by subway passengers during travel. It is also known to equip subway cars with closed circuit television cameras, for surveillance of passenger behaviour and other safety checks. Images of such surveillance are either displayed at a central security facility, or recorded for subsequent viewing in the event of safety problems.

It is also commonplace to equip subway cars with audio public address systems for a myriad of uses, including transit service announcements, community service events, advertising, safety and emergency procedures, as well as inter-staff communications.

Proposals have been made previously to equip other transportation items, especially aircraft, with television or video systems, primarily for the entertainment of passengers on long journeys. Examples of such systems in the patent literature can be found in U.S. Patent 4,647,980 Steventon et al., U.S. Patent 4,630,821 Greenwald, U.S. Patent 4,352,124 Kline, U.S. Patent 5,123,728 Gradin et al., and U.S. Patent 3,457,006 Brown et al.

According to the present invention, from one aspect, there is provided a video system for displaying televised material to passengers in a mass transit subway car, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised

materials to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.

5 According to a second aspect of the present invention, there is provided a subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that
10 the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

15 The term "video signal source unit" as used herein embraces player units for playing pre-recorded video material, such as video tape players and video disk players, and television receivers for receiving broadcast television signals from a remote transmitter and supplying these to the video display monitors mounted in the subway cars. The
20 preferred system according to the invention utilizes receivers for receiving broadcast television signals from a remote transmitter as the video signal source unit. Such video signal source unit can be located either within the mass transits' premises or on a remote broadcasting site.
25 Alternatively, the invention utilizes a video tape or video disk player as the video signal source unit. The video signal source unit may be located in the same subway car as that in which the monitor or monitors are located, or in adjacent or remote cars of the same train, with the necessary operative
30 connection between the player and the monitor(s). An individual subway car can be equipped with its own video signal source unit, connected to a plurality of monitors mounted at different, appropriately chosen locations along the length of the subway car. Alternatively, one central video

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signal source unit can be located in one car of subway train, and connected to monitors in some or all of the cars of the train, to provide a central video signal source unit for the train.

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The video signal source unit and video display monitors used in the present invention can be of known, standard form, obtainable as off the shelf items from manufacturers and sales outlets. The connections between them, for display of televised material, are also standard and well within the skill of the art. For example, use can be made of the existing subway infrastructure by which audio announcements are currently transmitted. Alternatively, the connections may be by use of coaxial cables, fibre optics, cell phone systems or satellite transmission, or by other appropriate means. Coaxial cable connections are preferred.

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The video system according to the present invention provides a means for communicating a very wide range of information to viewers in an environment ideally suited to communicating short video messages to viewers, especially commercial messages or sponsored community service, or informational news bytes. Most subway rides are of short duration, e.g. 15 minutes or less. It is normally undesirable to play television programs of any significant length to subway passengers for fear of distracting them from their proper points of interchange and disembarkation on the subway system. However, the system according to the invention is ideally suited for displaying a series of short, 30 second - 1 minute messages, in sequence, such as a series of commercial messages. These can range from straightforward advertising as seen on commercial television, or the type of news feed with corporate sponsorship as seen by cable television viewers, with news services provided by specialized companies in this

business. If the information is delivered by video tape or video disk player, it can be repeated at intervals of, say, 5-10 minutes, based upon the average duration of individual subway rides. If the feed is delivered from an outside source, its delivery depends on the package of the server, and according to agreement between the purchaser and the mass transit management, and other interested parties as necessary.

Typically, the television images displayed by the monitors of the system according to the invention do not incorporate sound, though they may contain rolling script, similar to cable television news channels, or similar to closed-captioning for the hearing impaired. This avoids risk of interference with announcements being played to passengers through the normal audio address system carried by the subway train, and avoids adding to the general noise level experienced by passengers on the subway cars, a noise level which is commonly quite high even under normal running conditions. However, sound may be incorporated where appropriate, for example in safety or emergency situations, or to mark the beginning of a message to which the subway or transmission provider wishes to call attention.

The manner in which the video display monitors are disposed and mounted in the subway car depends to some extent on the design of the subway car itself. Such designs can vary between different subway systems. Normally from 6-12 such colour monitors are provided in each subway car, suitably of 12"-13" size, spaced along the length of the car, and disposed above the windows of the car, in a manner and at a location which does not interfere with the operation of any other essential element of the car (door operation, lights, heating, air conditioning etc.). A subway car is normally constructed so that it has a cavity wall, defined between its outer

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structural shell and its inner lining wall, the cavity providing for wiring and cables and other mechanical functions, and, at places, containing insulation. The video display monitors in the system of the invention are suitably mounted in the cavity wall.

In a preferred arrangement, the video display monitors have a strong metal frame construction, fixed to the frame of the subway car. The screens are preferably covered with a rigid transparent unit, e.g. of polycarbonate, shaped to coincide with the shape of the internal wall of the subway car at the location of mounting. For example, when the monitor is mounted at the junction of the wall and ceiling of the subway car, where there is commonly provided a concavely curved segment of internal wall, the transparent cover unit is suitably similarly concavely curved, so that it can be mounted as a continuum with the internal walls and blended to contours thereof, with the monitor mounted behind it. The screen is suitably angled downwardly, for best viewing by passengers seated opposite the screen. The entire structure of the monitor, including the cover unit if used, is suitably housed in a stainless steel or strong plastic casement, designed to appear integral with the subway car, without visible edges or protuberances, and matching the materials and colours of the subway car interior.

Specific preferred embodiments of the present invention are illustrated in the accompanying diagrammatic drawings in which:

Figure 1 shown in plan view (Fig. 1A) and in side elevation (Fig. 1B), an existing subway car as used on the Toronto Transit System with indications of appropriate

locations for mounting video monitors according to the invention;

5 Figure 2 is a sectional view of a subway car according to the invention with video monitors in place;

10 Figure 3 is a detailed, in section, of an existing subway car illustrating the location for receiving a video monitor according to the invention;

15 Figure 4 is a detail similar to Fig. 3, with the video monitor in place;

20 Figure 5 is a detail in perspective view, of a subway car equipped with a monitor according to one embodiment of the invention;

25 Figure 6 is a detail similar to Fig. 5 but of an alternative embodiment;

30 Figure 7 is a view similar to Figure 6, showing the general appearance when the monitor is operating.

A typical subway car 10, as illustrated in Figs. 1A and 1B, is equipped with sliding doors 12 and windows 14, spaced at convenient intervals along the length of the car. Passenger seats, in sets of 2's and 3's, are disposed beneath and alongside the windows 14, clear of the doors 12, some sets 16 being inward facing, other sets 18 being forward facing and other sets 20 being rearward facing.

Suitable locations for video monitors 22 in accordance with the invention are at the junction of wall and ceiling of subway car 10, above the windows 14 and clear of

the doors 12. They are thus disposed opposite to sets of inward facing seats 16, and angled downwardly for ease of viewing of passengers 24 seated in such inward facing seats 16, as shown in Fig. 2, with direct sight lines 26, but visible to passengers seated elsewhere, and standing in the car 10.

Fig. 3 shows a detail of the car 10, at the location where a monitor 22 is to be installed. The car wall has an outer shell 28 in which windows 14 are sealingly mounted, and structural pillars 30 mounted at intervals and secured to the vertical structural member 32. Centrally secured to the exterior skin and body structure of body 34 of the car is a main air duct 36 and a housing 38 carrying ceiling lights 40 running substantially the full length of the car 10. The space between the ceiling housing 38 and the top of the pillars 30 is normally occupied by back lit advertising panels 40. Removal of appropriate portions of these panels 40 provides space for location of video monitors 22, according to the preferred embodiment of the invention.

Thus as shown in Fig. 4, the video monitor 22 is enclosed and rigidly mounted in its own enclosure 42, of stainless steel, rigid plastic or the like. The enclosure in turn is secured to the top of structural pillar 30 and the side of housing 38, in a space between the ends of illuminated panels 40, and protruding rearwardly to a position adjacent the outer part of the exterior skin and body structure 34. The front wall of enclosure 42 is comprised of a clear transparent polycarbonate shield 44, through which the screen 46 the monitor 22 is clearly visible. The screen 46 is angled downwardly for best viewing by a passenger 24 seated opposite. The enclosure 42 with monitor 22 therein and connections

protruding outwardly therethrough is removable as a unit, for replacement or service.

5 Fig. 5 shows a front, perspective view of the arrangement shown in section in Fig. 4. The monitor 22 and its covering shield 44 are recessed behind the upper portion of the adjacent advertising panels 40, and the sides of the enclosure 42 protrude inwardly from the lower portion of panels 40. This provides ease of access to the enclosure 42
10 for its removal when necessary.

15 An alternative arrangement is shown in Fig. 6. Here the polycarbonate shield 44 is convexly curved, and is disposed further forward from the monitor screen 46. The shield 44 now blends with top forward facing part 48 of the advertising panels 40, the exterior skin and body structure 34, to provide a perhaps more aesthetically appealing arrangement. In Fig. 7, there is diagrammatically illustrated the arrangement of Fig. 6 in practical operation. Poster-type
20 illuminated advertisements are provided by advertising panels 40 flanking the video monitors 22, whilst the video monitor 22, disposed at intervals along the length of the car 10, show video information and/or advertising spots, at convenient, easily viewed locations and disposition to passengers riding
25 in the car 10.

30 It will be appreciated that the specific embodiments illustrated and described herein are by way of example only, and are not to be construed as limiting on the scope of the invention. The description pertains specifically to the type of subway car currently in use in the Toronto Transit System, and illustrates a means and location for mounting the video monitors in such a system. Details of construction, and hence details of appropriate mounting for video monitors may differ

Applicant or Patentee: BLAIR, Scott Attorney's
Serial or Patent No.: _____ Docket No.
Filed or Issued: _____ BLASC/1A
For: SUBWAY TV MEDIA SYSTEM

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY
STATUS (37 CFR 1.9(f) and 1.27(b)) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled SUBWAY TV MEDIA SYSTEM described in

- () the specification filed herewith
- () appl'n. serial no. _____, filed _____
- () patent no. _____, issued _____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- () no such person, concern, or organization
- () persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

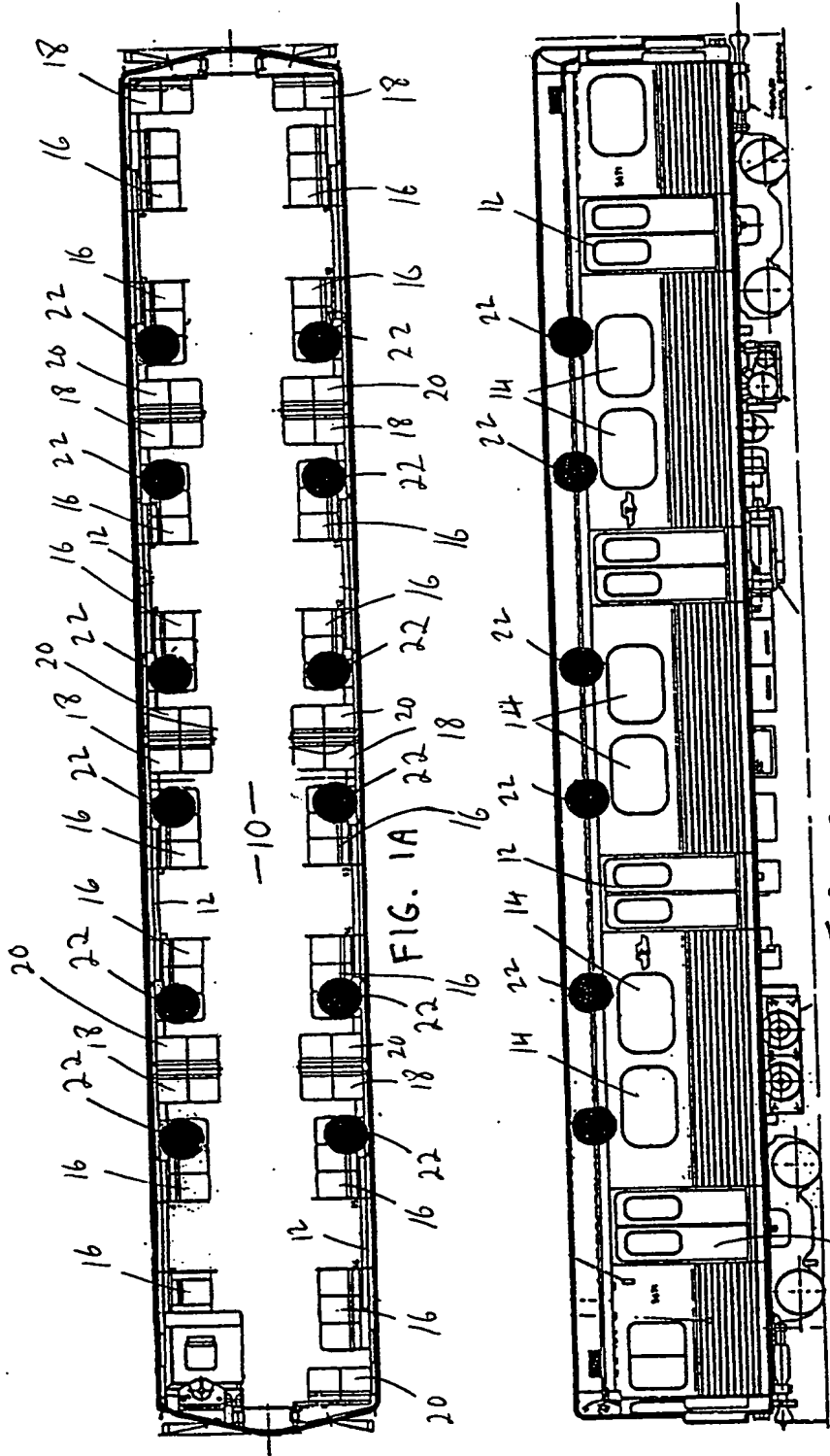
FULL NAME _____

ADDRESS _____

(X) INDIVIDUAL () SMALL BUSINESS CONCERN () NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b)).

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FIG. 1A

FIG. 1B

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

SCOTT BLAIR

NAME OF INVENTOR

NAME OF INVENTOR

Signature of Inventor

Signature of Inventor

Date

Date

66450" FRES400

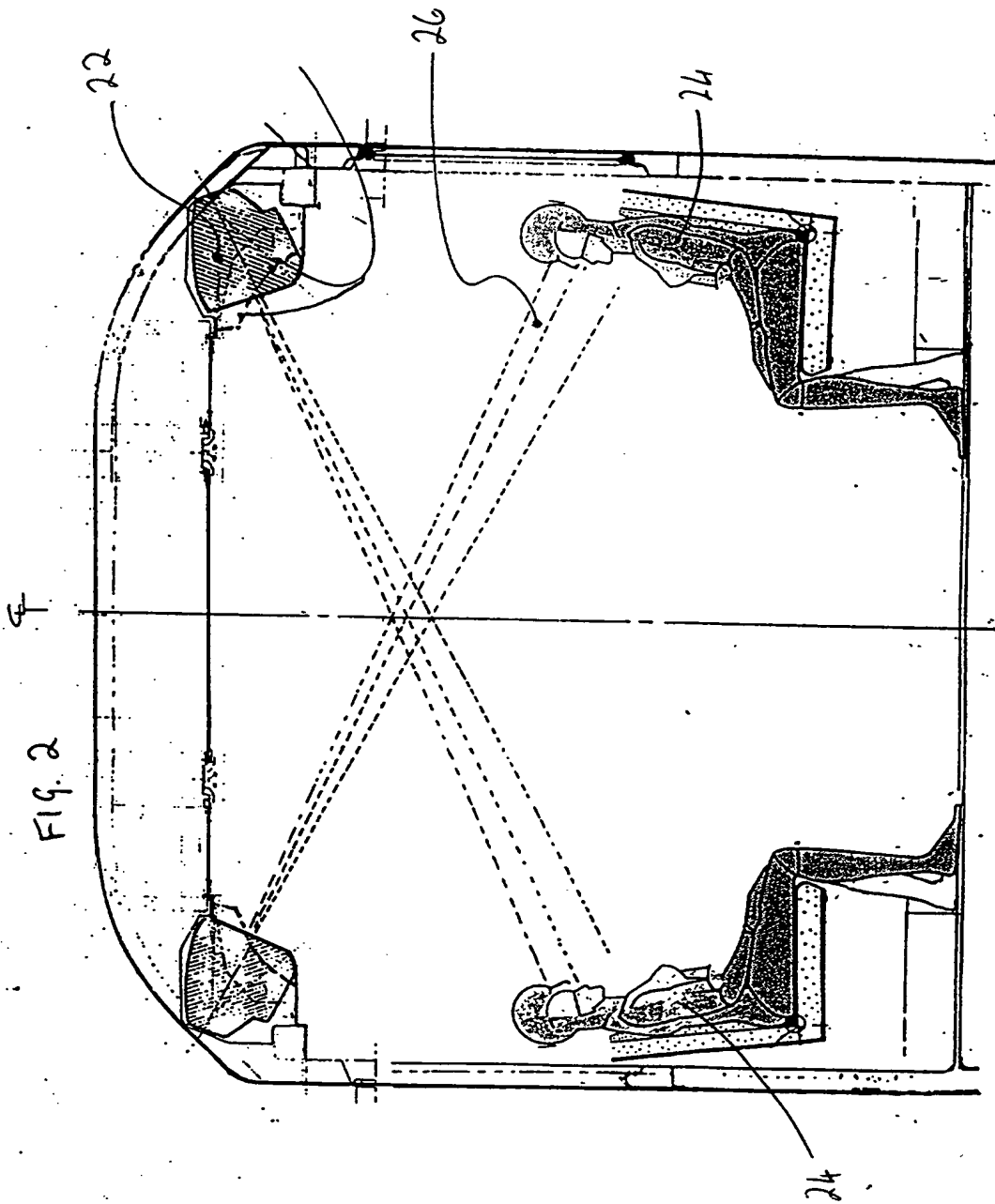


FIG. 2

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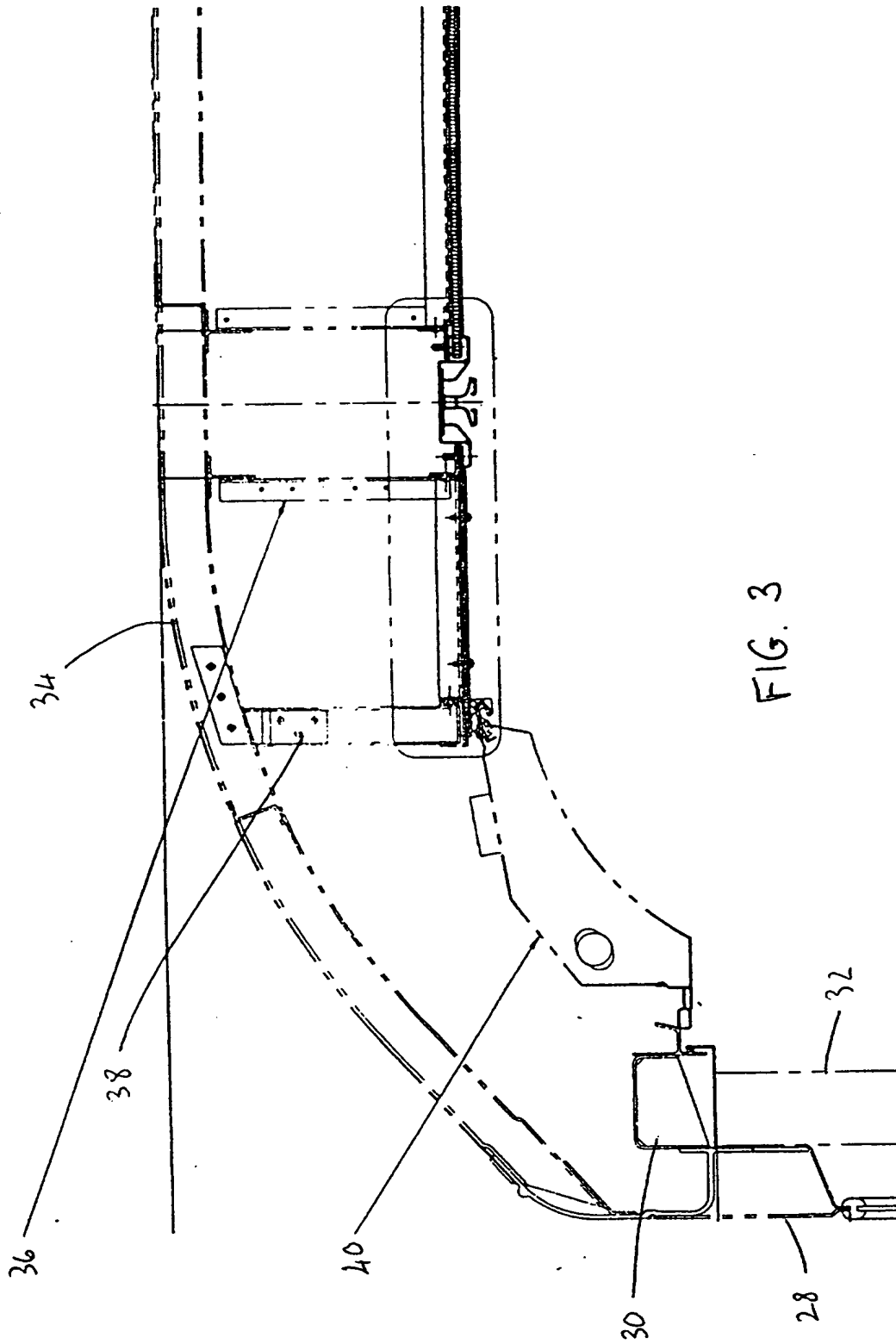


FIG. 3

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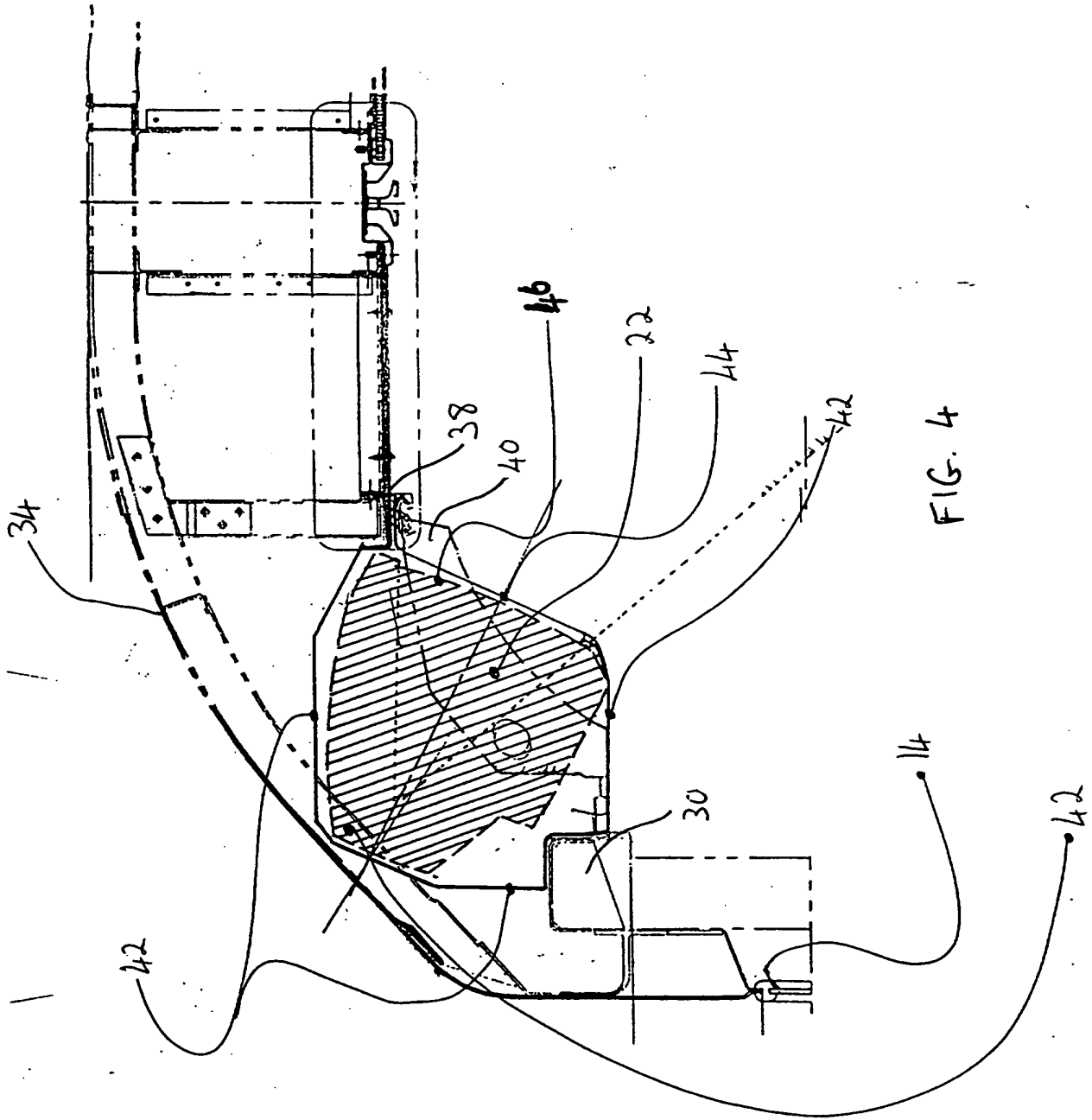


FIG. 4

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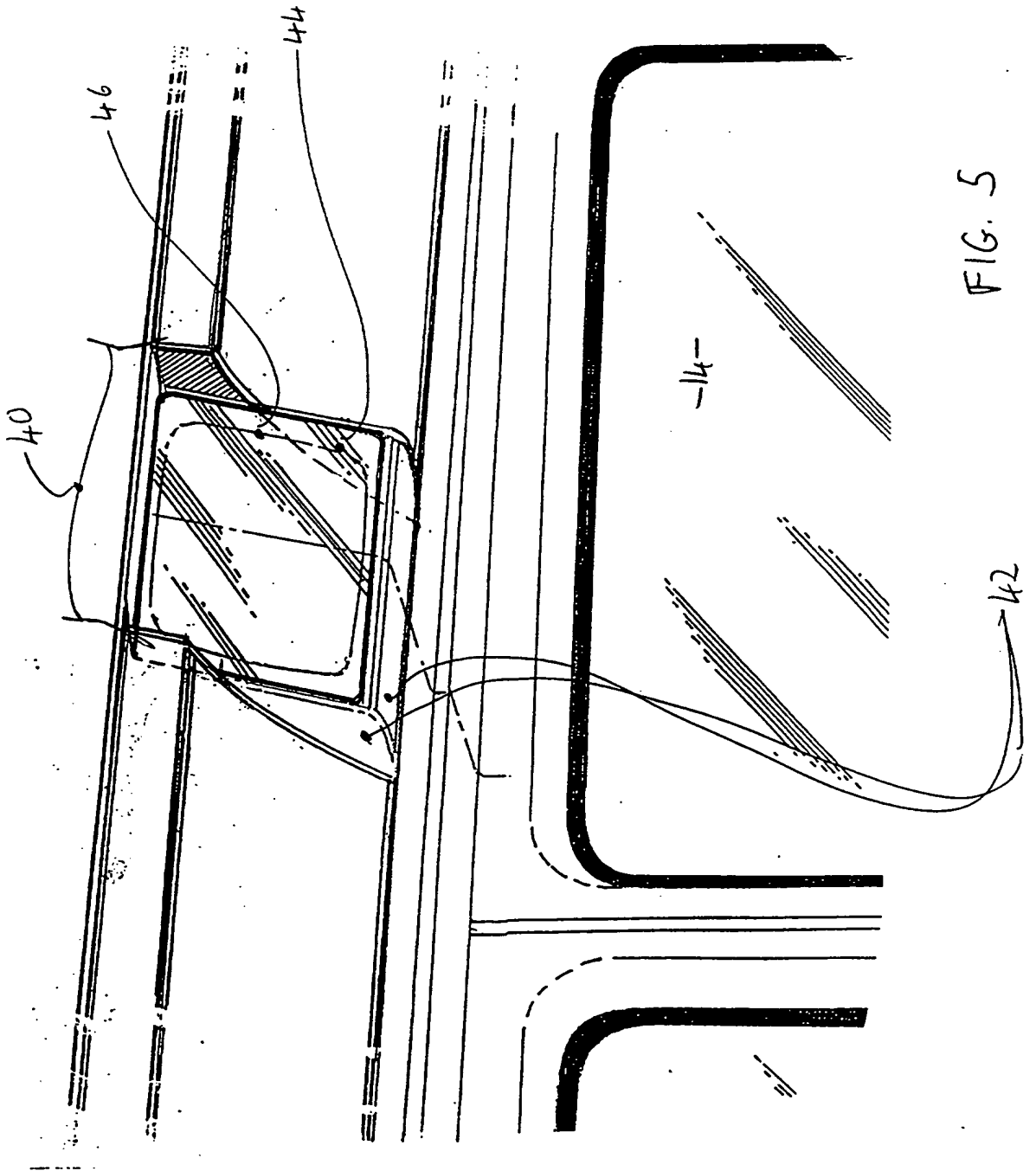


FIG. 5

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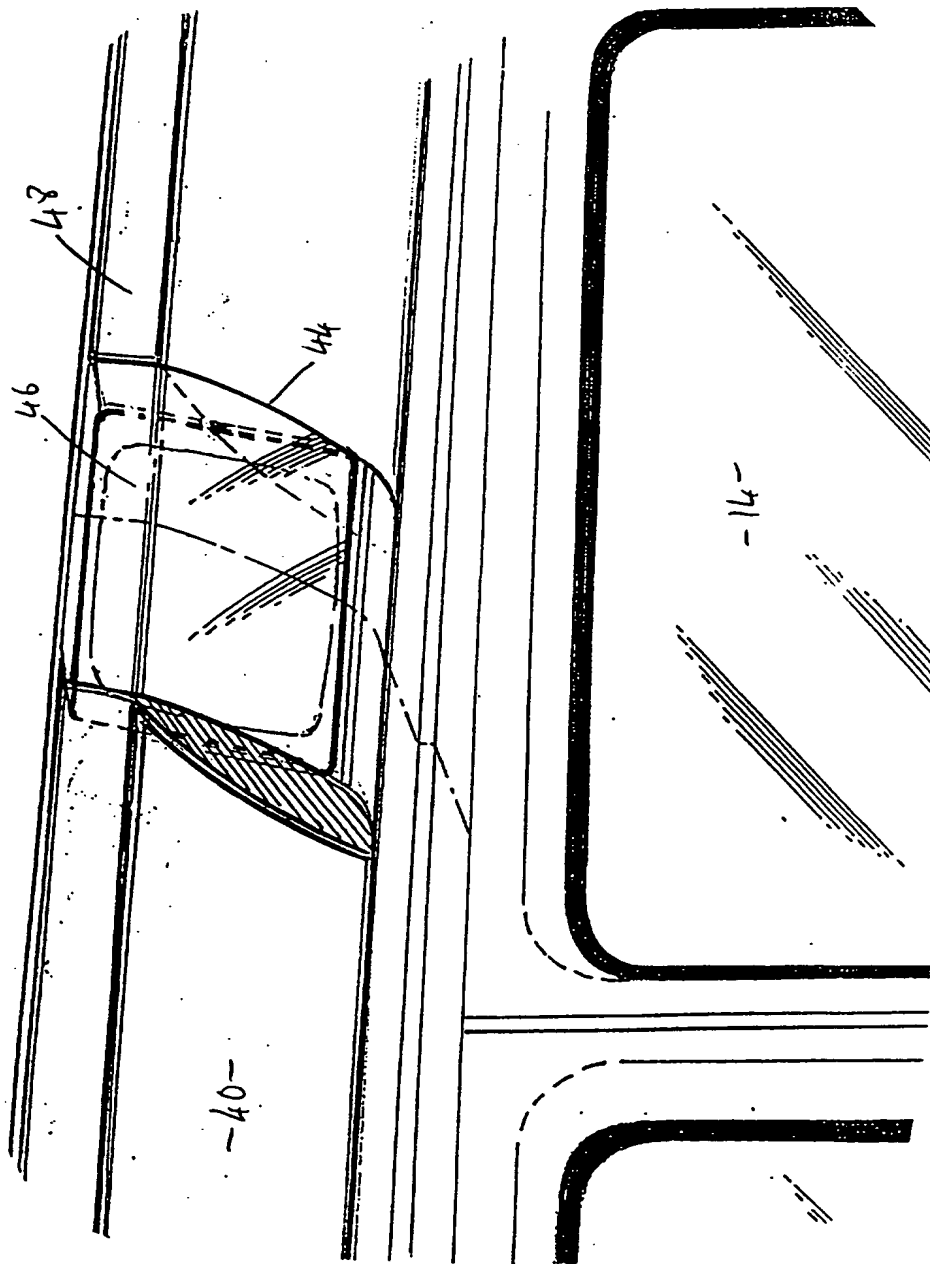
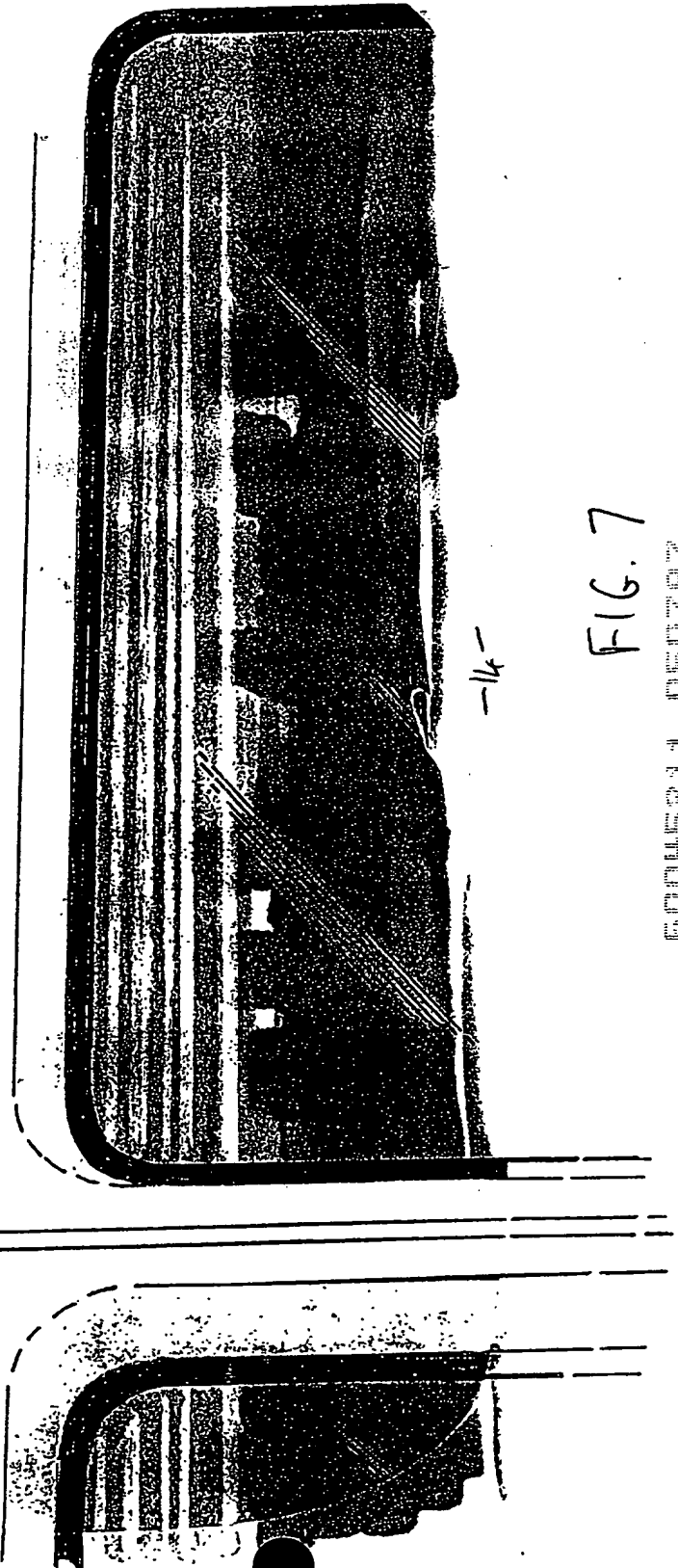


FIG. 6

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FIG. 7

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 09 AUG 1999
WIPO PCT

| | | |
|--|---|--|
| Applicant's or agent's file reference 29450-0002 | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/CA98/00439 | International filing date (day/month/year) 06/05/1998 | Priority date (day/month/year) 07/05/1997 |
| International Patent Classification (IPC) or national classification and IPC H04N7/18 | | |
| Applicant BLAIR, Scott | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

| | |
|---|---|
| Date of submission of the demand 07/12/1998 | Date of completion of this report 05.08.99 |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465 | Authorized officer Kauffmann, J Telephone No. (+49-89) 2399 8964  |

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/CA98/00439

I. Basis of the report

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

Description, pages:

1-13 as originally filed

Claims, No.:

1-16 as received on 25/05/1999 with letter of 25/05/1999

Drawings, sheets:

1/6-6/6 as originally filed

2. The amendments have resulted in the cancellation of:

- the description, pages:
 the claims, Nos.:
 the drawings, sheets:

3. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/CA98/00439

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | |
|-------------------------------|------------------|
| Novelty (N) | Yes: Claims 1-16 |
| | No: Claims |
| Inventive step (IS) | Yes: Claims |
| | No: Claims 1-16 |
| Industrial applicability (IA) | Yes: Claims 1-16 |
| | No: Claims |

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Concerning point V of the international preliminary examination report:

Prior art document FR,A,2652701 cited in the International Search Report discloses (see in particular page 1, lines 8 to 21, page 4, lines 154 to 157, and page 4, line 165 to page 5, line 169; claims 1 and 2) a video system for displaying televised material to passengers in a mass transit transport system such as a plane, train or bus, and comprising a plurality of video display monitors, at spaced intervals and which may comprise individual monitors combined with a common monitor (see page 2, lines 64 to 68), the video system being adapted for mounting inside a plane, train car or bus so as to display televised material to passengers riding therein, and comprising a video signal source, e.g. a satellite receiver, a video tape recorder or video disc system operatively connected to said at least one monitor.

The video system defined in claim 1 of the present application differs from the video system disclosed in FR,A,2652701 only in that it is installed in a subway system, and such that the monitors are placed along the upper portion of the sidewalls of the subway car at the location where the sidewalls adjoins the ceiling, the screens of the monitors being directed obliquely downwardly towards the car seats.

The subject-matter of claim 1 is thus new vis-à-vis the art known from FR,A,2652701, in the sense of Article 33(2) PCT.

However, these differences do not confer onto claim 1 any element of inventive significance vis-à-vis the art known from FR,A,2652701, since a subway car or carriage is essentially a train carriage, and a skilled person would readily realise that the teachings of FR,A,2652701 are equally applicable to any mass transport system. Thus a skilled person confronted with the problems addressed in the present application in connection with a subway system would immediately realise that the solution provided in FR,A,2652701 to the same problems in connection with other mass transportation systems such as trains is equally applicable to a subway system.

Furthermore, a skilled person confronted with the problem of having to locate the display monitors would evidently envisage any location, in the subway (or other train) car which provides optimum passenger coverage according to normal design considerations, such as available mounting space, location of the passengers seats, light conditions, etc... (see in that respect also FR,A,2652701).

In that respect, it is to be noted that claim 1 is silent as to any specific

conditions/features relating to the subway car in which the video system is to be installed.

Installing the display monitors along the upper portion of the sidewall at the location where the sidewall adjoins the ceiling is no more than a simple alternative to other mounting places, such as the middle of the ceiling, or on separating walls of the train carriage if present, or above the seats, or in the seat backs. A skilled person would obviously envisage to locate the display monitors in the manner claimed in claim 1 according to features defining the subway car, such as e.g. the arrangement of passenger seats.

It is to be noted that directing the display screen obliquely downwards in such a case is no more than a straightforward, common and obvious measure the adoption of which lies within the normal design competence of a skilled person. It is common in the field of displays to place the screen so as to optimize visibility thereof, in placing it so that any potential viewer can face it. Considering that the passengers in a subway car are generally located below the ceiling /sidewall line of the subway car, it seems obvious that directing the screens downwardly (towards the passengers line of sight) improves the visibility thereof.

In conclusion, in the absence of any specific features in claim 1 susceptible to define a specific adaption of the display monitors system to a specific subway car, the system defined in claim 1 does not reveal any feature representing an inventive contribution to the art known from FR,A,2652701 and the general knowledge and competence of a skilled person.

Claim 1 therefore lacks inventive step in the sense of Article 33(3) of the PCT.

Considering the teachings of EP,A,0577054 instead of those of FR,A,2652701 leads to the conclusion that the subject-matter of claim 1 is new but lacks inventive step vis-à-vis the art known from that document (see in particular column 1, lines 5 to 11 and 22 to 34; column 2, lines 20 to 28 and 37 to 43; column 3, line 51 to column 4, line 7 and column 10, lines 8 to 15 of EP,A,0577054).

Similar considerations lead to the same conclusions for independent claim 9 which defines a subway car. Actually, claim 9 is silent as to specific features defining a subway car, or as to features distinguishing a subway car from e.g. a train carriage. The only features mentioned in that claim relate to the video system installed in the

subway car for which protection is sought.

In that respect, it is also to be noted that, as is the case for claim 1, claim 9 is silent as to any specific adaption of the video system to a subway car.

None of the dependent claims presently on file seems to reveal a feature susceptible to confer onto the subject-matter of claim 1 or claim 9 inventive step vis-à-vis the art known from the prior art documents identified above or common knowledge of a skilled person. The features recited in the dependent claims relate to common and known implementations of video systems, or to simple measures a skilled person would envisage to take without having to exercise any activity of inventive significance. By way of example, reference is made to claims 2 and 7.

Providing a video source in the form of a video tape player, a video disk player or a computer based digital video recorder is common in the art of video distribution. Using displays in the form of LCD screens as indicated in claim 7 is also a common measure known in the art. These features are also known from EP,A,0577054 (see e.g. column 1, line 14 to column 2, line 48 and column 4, lines 28 to 31) or from FR,A,2652701 (see e.g. page 3, lines 87 to 94, claims 1 and 3).

Consequently, claims 2 to 8 and 10 to 16 do not meet the requirements of Article 33(3) of the PCT.

All claims meet the requisite of industrial applicability in the sense of Article 33(4) PCT, since video systems find wide use in many technical fields, such as e.g. television, advertisement, information techniques.

Concerning point VII of the international preliminary examination report::

Independent claims 1 and 9 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would seem to be appropriate, with those features known in combination from the prior art (preferably a document cited in the International Search Report) being placed in a preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in a characterising part (Rule 6.3(b)(ii) PCT). Also, the relevant background art disclosed in the documents identified in the International Search Report is not mentioned in the description, nor are these documents identified therein.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

| | | |
|--|---|--|
| Applicant's or agent's file reference 29450-0002 | FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below. | |
| International application No. PCT/CA 98/ 00439 | International filing date (day/month/year) 06/05/1998 | (Earliest) Priority Date (day/month/year) 07/05/1997 |

Applicant
BLAIR, Scott

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Certain claims were found unsearchable (see Box I).

2. Unity of invention is lacking (see Box II).

3. The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing

- filed with the international application.
- furnished by the applicant separately from the international application,
 - but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

Transcribed by this Authority

4. With regard to the **title**, the text is approved as submitted by the applicant
 the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- the text is approved as submitted by the applicant
- the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is:

Figure No. 2 as suggested by the applicant. None of the figures.

- because the applicant failed to suggest a figure.
- because this figure better characterizes the invention.

Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

The abstract is to amended as follows :

line 1 : after "cars" insert "(10")

line 2 : after "monitors" insert "(22")

line 3 : after "cars" insert "(10")

line 4 : after "unit" insert "(23")

line 7 : after "monitors" insert "(22")

INTERNATIONAL SEARCH REPORT

International Application No
PCT/CA 98/00439

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04N7/18

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|---|-----------------------|
| A | EP 0 577 054 A (HUGHES-AVICOM INTERNATIONAL) 5 January 1994 see the whole document | 1, 10 |
| A | FR 2 652 701 A (COMERZAN SORIN) 5 April 1991 see the whole document | 1, 10 |

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
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- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

12 August 1998

Date of mailing of the international search report

20/08/1998

Name and mailing address of the ISA

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Authorized officer

Verleye, J

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 98/00439

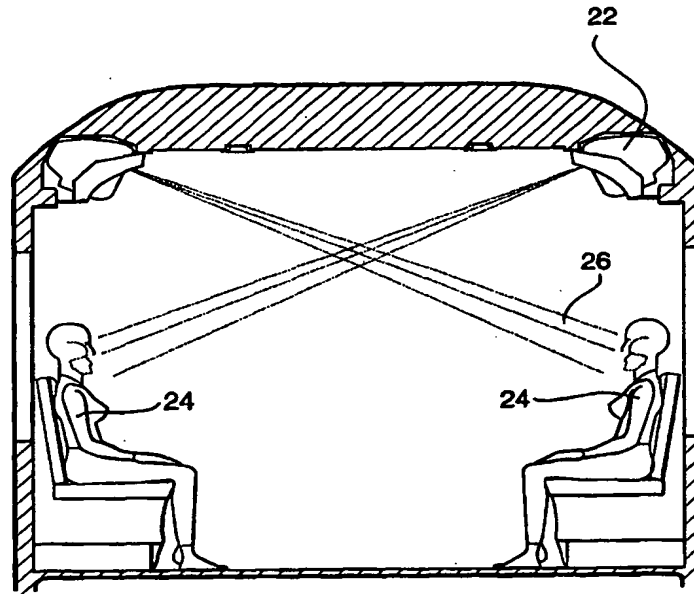
| Patent document cited in search report | A | Publication date | Patent family member(s) | Publication date |
|--|---|------------------|---|--|
| EP 577054 | A | 05-01-1994 | US 5311302 A DE 69317475 D JP 6282377 A | 10-05-1994 23-04-1998 07-10-1994 |
| | | | | |
| FR 2652701 | A | 05-04-1991 | NONE | |



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

| | | |
|--|------------------|--|
| <p>(51) International Patent Classification ⁶ : H04N 7/18</p> | <p>A1</p> | <p>(11) International Publication Number: WO 98/51081 (43) International Publication Date: 12 November 1998 (12.11.98)</p> |
| <p>(21) International Application Number: PCT/CA98/00439 (22) International Filing Date: 6 May 1998 (06.05.98) (30) Priority Data: 60/045,811 7 May 1997 (07.05.97) US (71)(72) Applicant and Inventor: BLAIR, Scott [CA/CA]; 32 Marlow Avenue, Toronto, Ontario M4J 3T9 (CA). (74) Agent: RIDOUT & MAYBEE; 18th floor, 150 Metcalfe Street, Ottawa, Ontario K2P 1P1 (CA).</p> | | <p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report.</i></p> |

(54) Title: SUBWAY TV MEDIA SYSTEM



(57) Abstract

A television system for subway cars (10) includes a plurality of TV monitors (22) mounted at intervals along the cars (10), at the junction of the sidewall and the ceiling, and a central video signal source unit (23) such as a video tape player, video disk player, computer-based digital video recorder or television receiver, connected to the video monitors (22). Programs of short duration, e.g. 5-15 minutes, matching the average length of a subway ride, and comprising advertising messages, news bytes and the like are played and displayed in the monitors repeatedly during the subway ride.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

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SUBWAY TV MEDIA SYSTEM

This invention relates to video display systems,
and more specifically to video display systems mounted in
5 and operating in mass transit subway cars.

It is commonplace to provide visual advertising
displays such as posters in mass transit subway cars, where
the displays are available for reading by subway passengers
10 during travel. It is also known to equip subway cars with
closed circuit television cameras, for surveillance of
passenger behaviour and other safety checks. Images of
such surveillance are either displayed at a central
security facility, or recorded for subsequent viewing in
15 the event of safety problems.

It is also commonplace to equip subway cars with
audio public address systems for a myriad of uses,
including transit service announcements, community service
20 events, advertising, safety and emergency procedures, as
well as inter-staff communications.

Proposals have been made previously to equip
other transportation items, especially aircraft, with
25 television or video systems, primarily for the
entertainment of passengers on long journeys. Examples of
such systems in the patent literature can be found in U.S.
Patent 4,647,980 Steventon et al., U.S. Patent 4,630,821
Greenwald, U.S. Patent 4,352,124 Kline, U.S. Patent
30 5,123,728 Gradin et al., and U.S. Patent 3,457,006 Brown et
al.

Entertainment of passengers on subway cars has
until now generally been ignored, since the average journey
35 taken by a passenger on a mass transit subway system is
usually short, lasting perhaps fifteen minutes.

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Nevertheless, subway transit riders offer an attractive audience for visual advertising messages, as evidenced by the proliferation of advertising signs which commonly adorn a subway car. In addition, mass transit systems such as subways are in need of extra sources of revenue, to keep passenger fare structures at an affordable level as operating costs rise, and to avoid decreased ridership as a result.

10 It is an object of the present invention to provide a public service message display system, entertainment system and advertising system for mass transit subway cars.

15 It is a further object to provide a novel source of extra revenue for a mass transit subway system.

 The present invention provides a television public service message display, entertainment and advertising system for subway cars, in which television monitors are provided at spaced intervals in subway cars, to display short duration televisual entertainment and advertising features to subway riders. The system is designed so that advertising spots on it can be sold by the transit system to potential advertisers and sponsors, for extra revenues for the transit system. It takes advantage of the fact that subway riders are, for the most part, occupying a subway car under relatively crowded conditions but for only a relatively brief duration. They are looking for something on which to focus their attention during their brief ride, whilst at the same time often finding it inconvenient to open newspapers, magazines or the like under crowded circumstances and becoming bored by static advertising or other displays around them. The present

- 3 -

invention provides properly positioned television monitors displaying moving images of news items, advertising material and the like, viewable by substantially all riders in the car, and filling their need for visual entertainment during the brief duration of their subway ride.

Thus, according to the present invention, from one aspect, there is provided a video system for displaying televised material to passengers in a mass transit subway car, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised materials to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.

According to a second aspect of the present invention, there is provided a subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

The term "video signal source unit" as used herein embraces player units for playing pre-recorded video material, such as computer-based digital video recorders (including CD-ROM players), video tape players and video disk players, and television receivers for receiving live or pre-recorded broadcast television signals from a remote transmitter and supplying these to the video display monitors mounted in the subway cars. One system according to the invention utilizes receivers including computer-

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based digital video recorders for receiving broadcast television signals from a remote transmitter as the video signal source unit. Such video signal source unit can be located either within the mass transits' premises or on a remote broadcasting site. Alternatively, the invention utilizes a video tape player, a video disk player, or a computer-based digital video recorder, as the video signal source unit. The video signal source unit may be located in the same subway car as that in which the monitor or monitors are located, or in adjacent or remote cars of the same train, with the necessary operative connection between the player and the monitor(s). An individual subway car can be equipped with its own video signal source unit, connected to a plurality of monitors mounted at different, appropriately chosen locations along the length of the subway car. Alternatively, one central video signal source unit can be located in one car of subway train, and connected to monitors in some or all of the cars of the train, to provide a central video signal source unit for the train.

Computer (PC) based digital video recorders basically transmit video signals from a hard drive or CD-ROM storage. They are however also capable of receiving transmitted input at intervals, e.g. news item updates, at, say, hourly intervals, to add to their stored transmittable video data. In this sense they also act as television receivers.

The video signal source unit and video display monitors used in the present invention can be of known, standard form, obtainable as off the shelf items from manufacturers and sales outlets. The connections between them, for display of televised material, are also standard

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and well within the skill of the art. For example, use can be made of the existing subway infrastructure by which audio announcements are currently transmitted. Alternatively, the connections may be by use of coaxial
5 cables, fibre optics, cell phone systems or satellite transmission, or by other appropriate means.

A preferred system according to the invention is a subway car or plurality of subway cars equipped with a
10 plurality of television monitors, especially LCD-based television monitors, and a video signal source comprising a video tape player, video disk player or computer-based digital video recorder, the video signal source and the monitors being interconnected by suitable electrical cable
15 systems which are self-contained within the subway car. In this way, new subway cars can be built with the video system or parts thereof installed, and usable on substantially any transit system, since the operation of the video system is independent of any previously installed
20 track, tunnel or control systems.

The video system according to the present invention provides a means for communicating a very wide range of information to viewers in an environment ideally
25 suited to communicating short video messages to viewers, especially commercial messages or sponsored community service, or informational news bytes. Most subway rides are of short duration, e.g. 15-30 minutes or less. It is normally undesirable to play television programs of any
30 significant length to subway passengers for fear of distracting them from their proper points of interchange and disembarkation on the subway system. However, the system according to the invention is ideally suited for displaying a series of short, 30 second - 1 minute

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messages, in sequence, such as a series of commercial messages. These can range from straightforward advertising as seen on commercial television, or the type of news feed with corporate sponsorship as seen by cable television viewers, with news services provided by specialized companies in this business. If the information is delivered by video tape player, video disk player or computer-based digital video recorder, it can be repeated at intervals of, say, 5-15 minutes, based upon the average duration of individual subway rides, i.e. the pre-recorded program is of total duration of about 5-15 minutes. If the feed is delivered from an outside source, its delivery depends on the package of the server, and according to agreement between the purchaser and the mass transit management, and other interested parties as necessary.

Typically, the television images displayed by the monitors of the system according to the invention do not incorporate sound, though they may contain rolling script, similar to cable television news channels, or similar to closed-captioning for the hearing impaired. This avoids risk of interference with announcements being played to passengers through the normal audio address system carried by the subway train, and avoids adding to the general noise level experienced by passengers on the subway cars, a noise level which is commonly quite high even under normal running conditions. However, sound may be incorporated where appropriate, for example in safety or emergency situations, or to mark the beginning of a message to which the subway or transmission provider wishes to call attention.

The manner in which the video display monitors are disposed and mounted in the subway car depends to some

extent on the design of the subway car itself. Such designs can vary between different subway systems. Normally from 6-12 such colour monitors are provided in each subway car, suitably of 12"-13" size, spaced along the length of the car, and disposed above the windows of the car, in a manner and at a location which does not interfere with the operation of any other essential element of the car (door operation, lights, heating, air conditioning etc.). A subway car is normally constructed so that it has a cavity wall, defined between its outer structural shell and its inner lining wall, the cavity providing for wiring and cables and other mechanical functions, and, at places, containing insulation. The video display monitors in the system of the invention are suitably mounted in the cavity wall.

In a preferred arrangement, the video display monitors have a strong metal frame construction, fixed to the frame of the subway car. The screens are preferably covered with a rigid transparent unit, e.g. of polycarbonate, shaped to coincide with the shape of the internal wall of the subway car at the location of mounting. For example, when the monitor is mounted at the junction of the wall and ceiling of the subway car, where there is commonly provided a concavely curved segment of internal wall, the transparent cover unit is suitably similarly concavely curved, so that it can be mounted as a continuum with the internal walls and blended to contours thereof, with the monitor mounted behind it. The screen is suitably angled downwardly, for best viewing by passengers seated opposite the screen. The entire structure of the monitor, including the cover unit if used, is suitably housed in a stainless steel or strong plastic casement, designed to appear integral with the subway car, without

visible edges or protuberances, and matching the materials and colours of the subway car interior.

5 The video monitors used in the system of the present invention can be of standard, cathode ray tube-based design. Such monitors have the advantage of economy, being mass-produced items manufactured on a very large scale. They are eminently suitable for use in most
10 embodiments according to the invention, and can be viewed clearly from a variety of angles. However, in circumstances where the subway car in operation encounters locations of large magnetic field, it is possible that the picture displayed on a CRT monitor will be distorted as the monitor moves through such location. Any such distortion effect
15 can be reduced by surrounding the monitor, to an extent practical and consistent with its provision of full visual display, with an appropriate shield such as a steel or other ferromagnetic casement. Where such a magnetic field problem turns out to be particularly acute, the CRT-type
20 monitor may be replaced by a monitor incorporating a colour liquid crystal display (LCD) screen, which is not sensitive to intermittent encountering of external magnetic fields.

25 Specific preferred embodiments of the present invention are illustrated in the accompanying diagrammatic drawings in which:

30 Figure 1 shows in plan view (Fig. 1A) and in side elevation (Fig. 1B), an existing subway car as used on the Toronto Transit System with indications of appropriate locations for mounting video monitors according to the invention;

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Figure 2 is a sectional view of a subway car according to the invention with video monitors in place;

5 Figure 3 is a detail, in section, of an existing subway car illustrating the location for receiving a video monitor according to the invention;

10 Figure 4 is a detail similar to Fig. 3, with the video monitor in place;

Figure 4A is a view, similar to Fig. 4, of an alternative embodiment;

15 Figure 5 is a detail in perspective view, of a subway car equipped with a monitor according to one embodiment of the invention;

20 Figure 6 is a detail similar to Fig. 5 but of a further alternative embodiment;

Figure 7 is a view similar to Figure 6, showing the general appearance when the monitor is operating.

25 A typical subway car 10, as illustrated in Figs. 1A and 1B, is equipped with sliding doors 12 and windows 14, spaced at convenient intervals along the length of the car. Passenger seats, in sets of 2's and 3's, are disposed beneath and alongside the windows 14, clear of the doors 12, some sets 16 being inward facing, other sets 18 being
30 forward facing and other sets 20 being rearward facing.

Suitable locations for video monitors 22 in accordance with the invention are at the junction of wall and ceiling of subway car 10, above the windows 14 and

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clear of the doors 12. They are thus disposed opposite to sets of inward facing seats 16, and angled downwardly for ease of viewing of passengers 24 seated in such inward facing seats 16, as shown in Fig. 2, with direct sight lines 26, but visible to passengers seated elsewhere, and standing in the car 10. A video player 23 is suitably located in the driver's cab 27 (Fig. 1A), and connected to all the monitors 22 by cables (not showing) disposed in the cavity walls of the car.

Fig. 3 shows a detail of the car 10, at the location where a monitor 22 is to be installed. The car wall has an outer shell 28 in which windows 14 are sealingly mounted, and structural pillars 30 mounted at intervals and secured to the vertical structural member 32. Centrally secured to the exterior skin and body structure of body 34 of the car is a main air duct 36 and a housing 38 carrying ceiling lights running substantially the full length of the car 10. The space between the ceiling housing 38 and the top of the pillars 30 is normally occupied by back lit advertising panels 40. Removal of appropriate portions of these panels 40 provides space for location of video monitors 22, according to the preferred embodiment of the invention.

Thus as shown in Fig. 4, the video monitor 22 is enclosed and rigidly mounted in its own enclosure 42, of stainless steel, rigid plastic or the like. The enclosure in turn is secured to the top of structural pillar 30 and the side of housing 38, in a space between the ends of illuminated panels 40, and protruding rearwardly to a position adjacent the outer part of the exterior skin and body structure 34. The front wall of enclosure 42 is comprised of a clear transparent polycarbonate shield 44,

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through which the screen 46 the monitor 22 is clearly visible. The screen 46 is angled downwardly for best viewing by a passenger 24 seated opposite. The enclosure 42 with monitor 22 therein and connections protruding outwardly therethrough is removable as a unit, for replacement or service.

An alternative embodiment is illustrated in Fig. 4A, a view similar to that of Fig. 4. In this alternative embodiment, CRT video monitor 22 is replaced with an LCD-based video monitor 22A which is of thin, rectangular cross-section, and occupies less space in the ceiling structure of the car. Accordingly, it can be moved towards the ceiling so that its viewing screen is substantially flush with or even behind the light panel 40. This use of an LCD-based monitor gives a better aesthetic appearance to the inside of the subway car as a whole, as well as improving the display performance by minimizing the interference effects, as previously discussed. An appropriately shaped enclosure 42A for the LCD-based monitor, with transport screen 44A, replaces enclosure 42 for the CRT video monitor, and is similarly mounted in place.

Fig. 5 shows a front, perspective view of the arrangement shown in section in Fig. 4. The monitor 22 and its covering shield 44 are recessed behind the upper portion of the adjacent advertising panels 40, and the sides of the enclosure 42 protrude inwardly from the lower portion of panels 40. This provides ease of access to the enclosure 42 for its removal when necessary.

An alternative arrangement is shown in Fig. 6. Here the polycarbonate shield 44 is convexly curved, and is

- 12 -

disposed further forward from the monitor screen 44. The shield 44 now blends with forward facing part 48 the exterior skin and body structure 34, to provide a perhaps more aesthetically appealing arrangement. In Fig. 7, there is diagrammatically illustrated the arrangement of Fig. 6 in practical operation. Poster-type illuminated advertisements are provided by advertising panels 40 flanking the video monitors 22, whilst the video monitor 22, disposed at intervals along the length of the car 10, show video information and/or advertising spots, at convenient, easily viewed locations and disposition to passengers riding in the car 10.

It will be appreciated that the specific embodiments illustrated and described herein are by way of example only, and are not to be construed as limiting on the scope of the invention. The description pertains specifically to the type of subway car currently in use in the Toronto Transit System, and illustrates a means and location for mounting the video monitors in such a system. Details of construction, and hence details of appropriate mounting for video monitors may differ from subway system to subway system according to the form of car in use. Such mounting details do not depart from the scope of the present invention. In all cases, it is contemplated that a plurality of monitors will be provided in each car, each rigidly mounted at a convenient location clear of the doors and windows, and at a disposition where it can be viewed by passengers riding the subway car, without difficulty. The provision of such video monitors mounted in their own enclosures as described herein, and faced with a transparent screen of, for example, polycarbonate, allows for considerable variation in the detail of mounting means and locations, to adapt them to different constructions of

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subway cars currently in use on different mass transit systems.

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CLAIMS:

1. A video system for displaying televised material to passengers in a mass transit subway system, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised material to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.

2. The video system of claim 1 comprising a plurality of video display monitors operatively connected to a single video signal source unit.

3. The video system of claim 2 wherein the video signal source unit comprises a video tape player, or video disk player or computer-based digital video recorder.

4. The video system of claim 3 wherein the video signal source system includes a pre-recorded video transmission program for feeding to display on the monitors of duration about 5-15 minutes.

5. The video system of claim 4 wherein the program is repeatable, and includes a series of commercial messages of 30 second - 1 minute duration.

6. The video system of any preceding claim wherein the video monitors are secured to the subway car at a location of junction between wall and ceiling of the car, with the screens of the monitors directed obliquely downwardly towards the car seats.

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7. The video system of any preceding claim which is sound free.

8. The video system of claim 1 or claim 2 wherein the video source unit is a television receiver for receiving broadcast television signals from a remote transmitter and supplying the signals to the video display monitors.

9. The video system of any preceding claim, in which the video display monitors include LCD screens.

10. A subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

11. The subway car of claim 10 including a plurality of said monitors, spaced along the length of the car on opposed sides thereof.

12. The subway car of claim 11 including longitudinal opposed sidewalls and a ceiling adjoining the sidewalls, and wherein each said monitor is mounted at the junction of the sidewall and ceiling, with the screens of the monitors directly obliquely downwardly towards the car seats.

13. The subway car of claim 12 wherein the video monitor screen is substantially flush with the adjacent wall surface structure of the car.

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14. The subway car of any of claims 10-13 wherein the video signal source unit comprises a video tape player, a video disk player or computer-based digital video recorder.

15. The subway car of any of claim 10-14 wherein the video monitors include LCD screens.

16. The subway car of any of claims 10-15 including a self-contained wiring-cabling system connecting the video monitors to the video signal source unit.

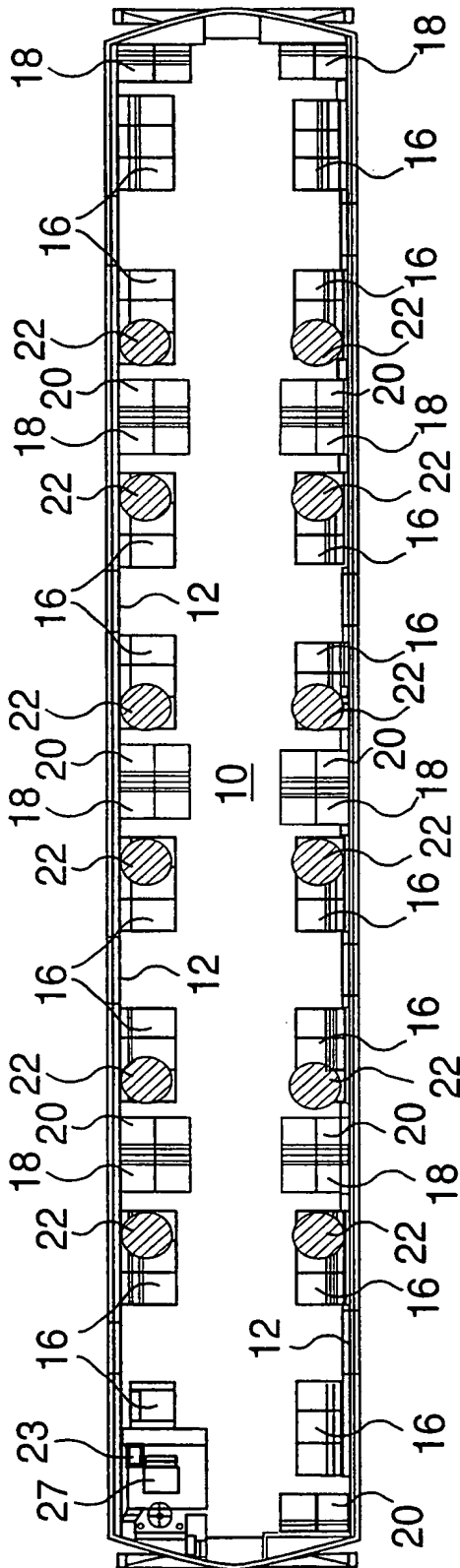


FIG. 1a

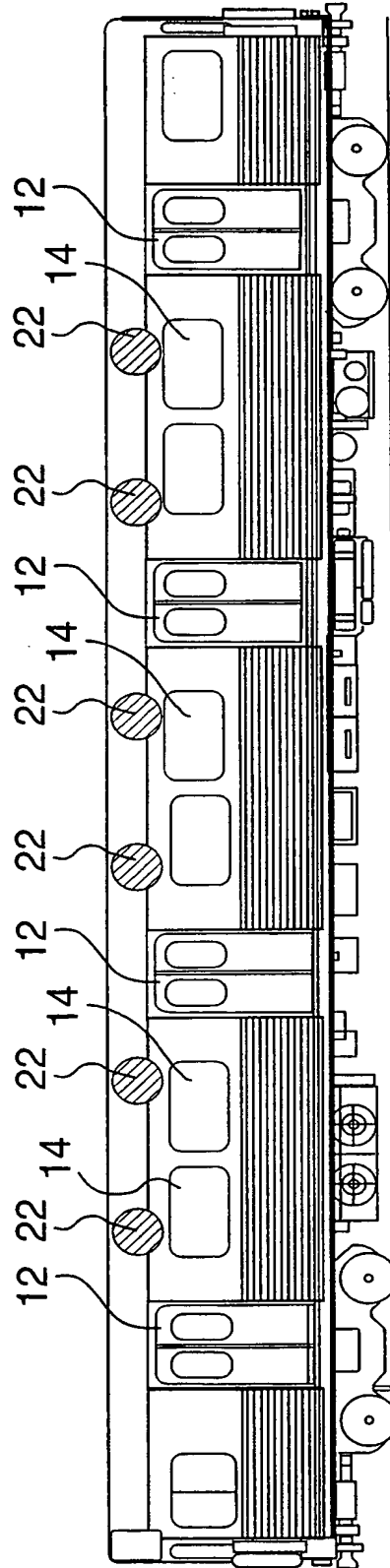


FIG. 1b

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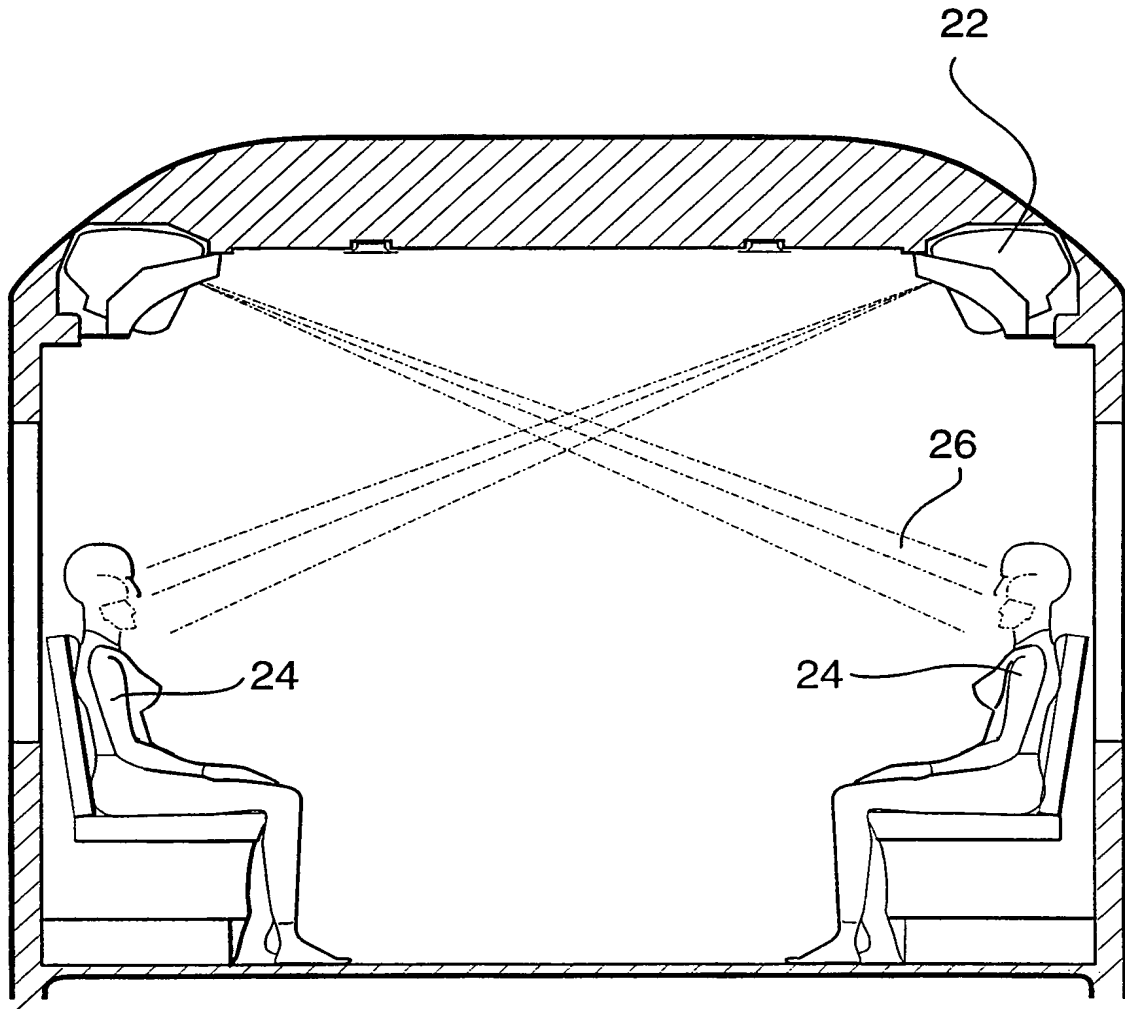


FIG.2

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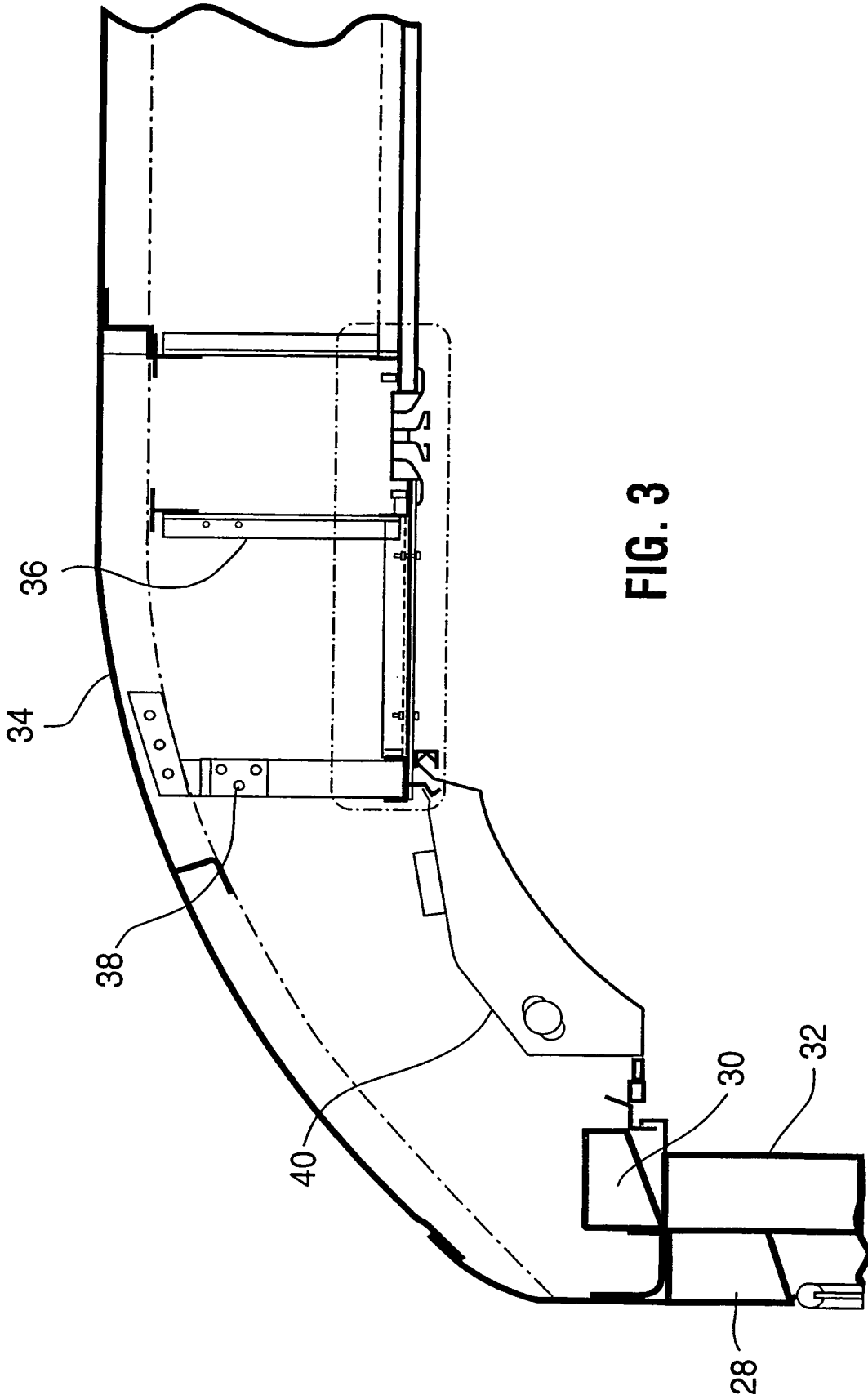


FIG. 3

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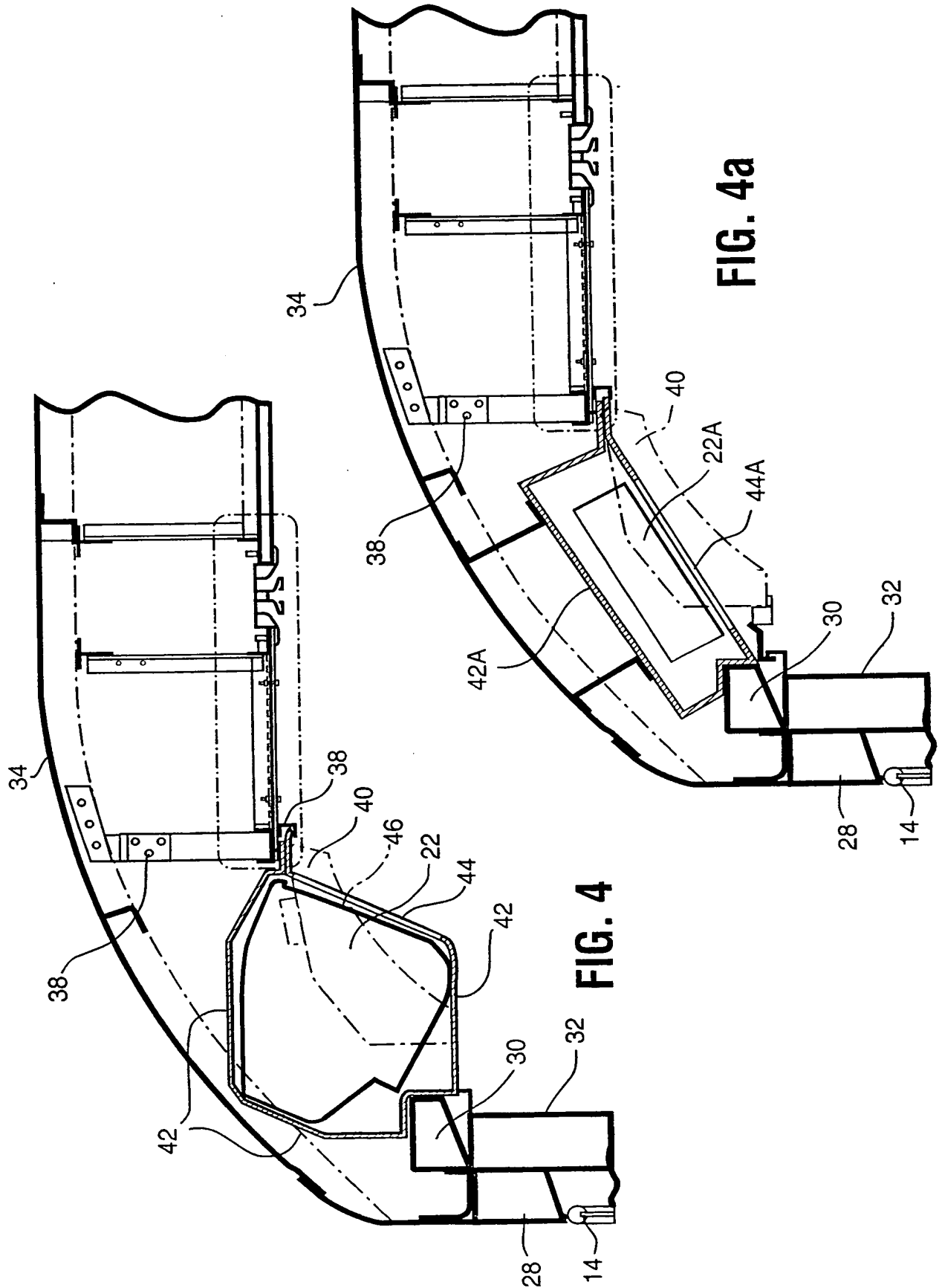


FIG. 4a

FIG. 4

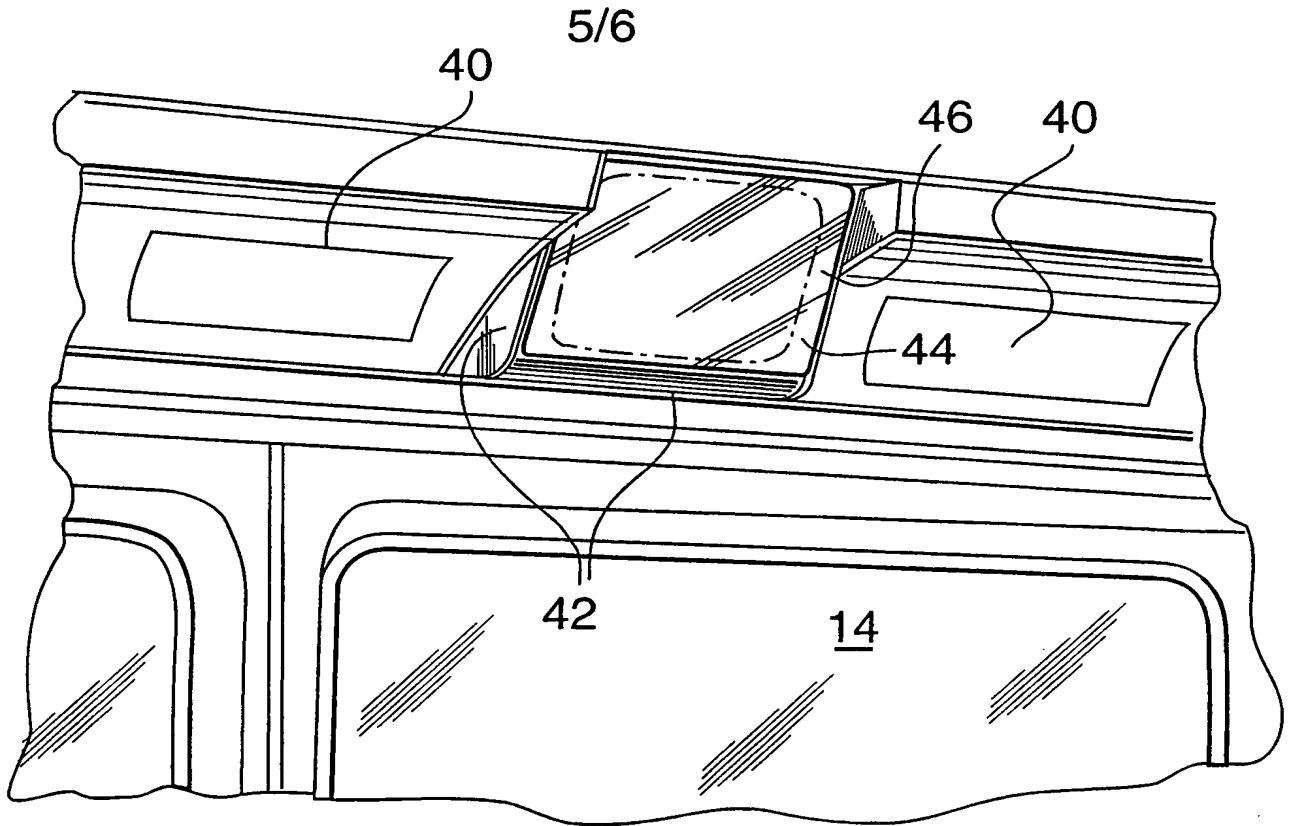


FIG. 5

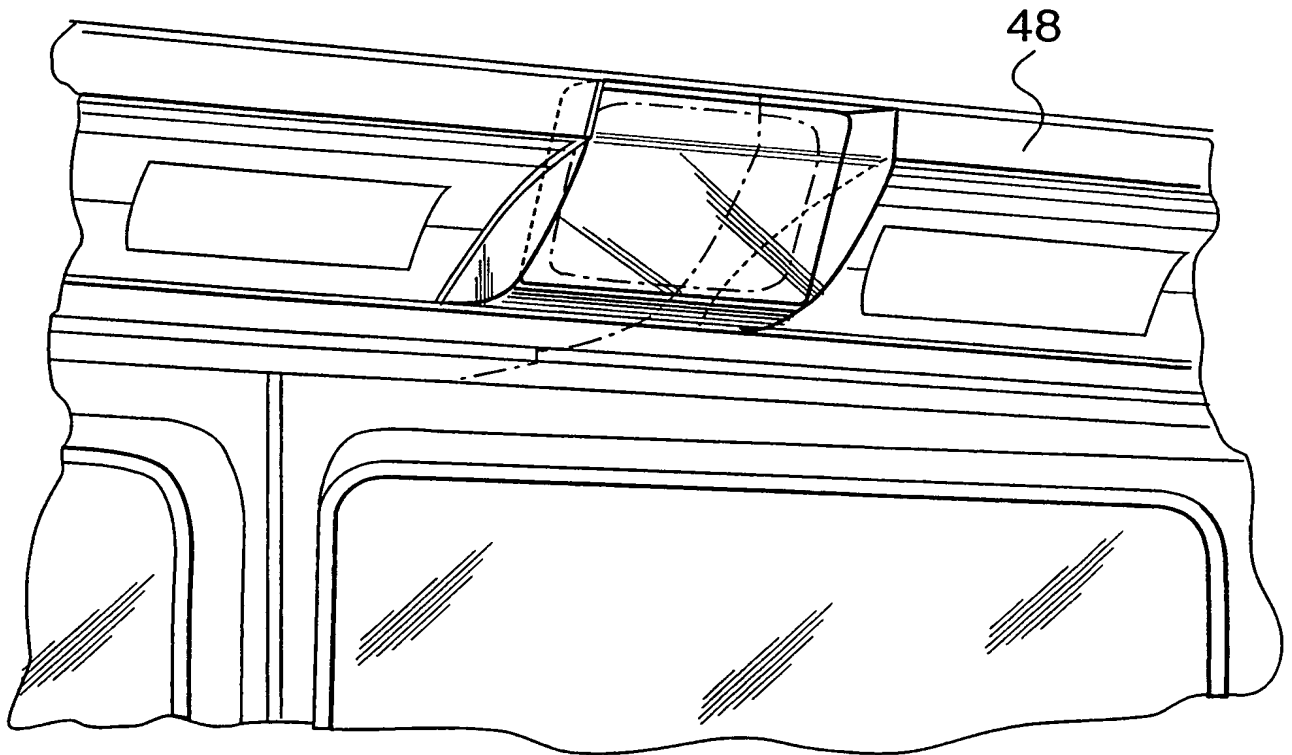


FIG. 6

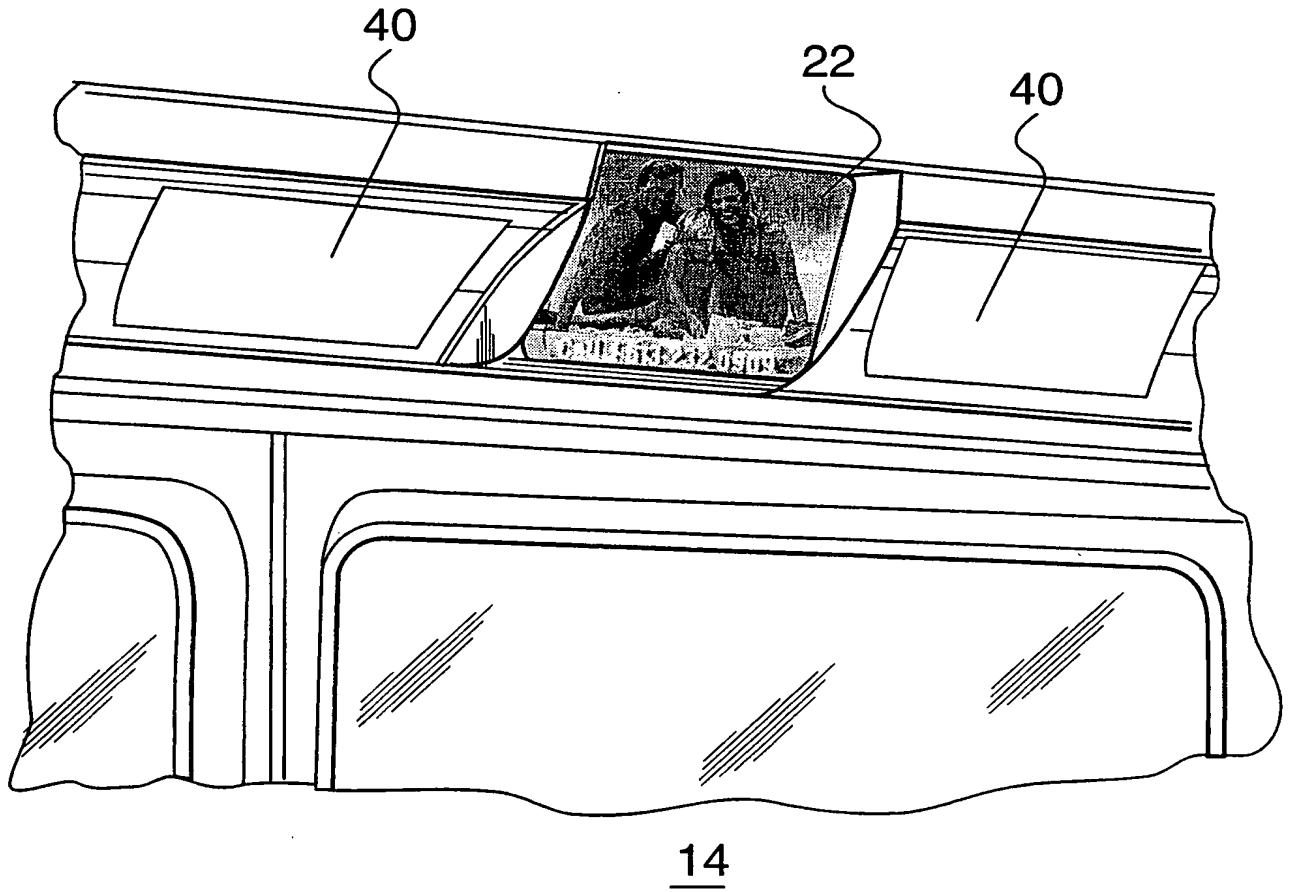


FIG. 7

INTERNATIONAL SEARCH REPORT

Int. Patent Application No
PCT/CA 98/00439

| | | | | |
|--|---|-----------------------|---|---|
| A. CLASSIFICATION OF SUBJECT MATTER IPC 6 H04N7/18 | | | | |
| According to International Patent Classification (IPC) or to both national classification and IPC | | | | |
| B. FIELDS SEARCHED | | | | |
| Minimum documentation searched (classification system followed by classification symbols) IPC 6 H04N | | | | |
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| Electronic data base consulted during the international search (name of data base and, where practical, search terms used) | | | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | | | |
| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. | | |
| A | EP 0 577 054 A (HUGHES-AVICOM INTERNATIONAL) 5 January 1994 see the whole document --- | 1, 10 | | |
| A | FR 2 652 701 A (COMERZAN SORIN) 5 April 1991 see the whole document ----- | 1, 10 | | |
| <input type="checkbox"/> Further documents are listed in the continuation of box C. | | | | |
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| Date of the actual completion of the international search <p style="text-align: center; font-weight: bold;">12 August 1998</p> | Date of mailing of the international search report <p style="text-align: center; font-weight: bold;">20/08/1998</p> | | | |
| Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 | Authorized officer <p style="text-align: center; font-weight: bold;">Verleye, J</p> | | | |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|--|---|------------------|-------------------------|------------------|
| EP 577054 | A | 05-01-1994 | US 5311302 A | 10-05-1994 |
| | | | DE 69317475 D | 23-04-1998 |
| | | | JP 6282377 A | 07-10-1994 |
| ----- | | | | |
| FR 2652701 | A | 05-04-1991 | NONE | |
| ----- | | | | |

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SUBSTITUTE CLAIMS

5 1. A video system for displaying televised material to passengers in a mass transit subway system, and comprising a plurality of video display monitors adapted for mounting inside a subway car at spaced intervals along the upper portion of the sidewalls of the subway car at the location where the car sidewall adjoins the ceiling, with the screens of the monitors directed obliquely downwardly towards the car seats, so as to display televised material to passengers riding therein, and a video signal source unit operatively connected to said monitors.

15 2. The video system of claim 1 wherein the video signal source unit comprises a video tape player, or video disk player or computer based digital video recorder.

20 3. The video system of claim 1 or claim 2 wherein the video source unit includes a pre-recorded video transmission program for feeding the display on the monitors of duration about 5-15 minutes.

25 4. The video system of any preceding claim wherein the program is repeatable, and includes a series of commercial messages of 30 second - 1 minute duration.

5. The video system of any preceding claim which is sound free.

30 6. The video system of any preceding claim wherein the video source unit is a television receiver for receiving broadcast television signals from a remote transmitter and supplying the signals to the video display monitors.

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7. The video system of any preceding claim in

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which the video display monitors include LCD screens.

5 8. The video system of any preceding claim wherein each said video display monitor is contained in a housing secured at said location to the subway car but removable as a unit with the video display monitor, the front of said housing comprising a transparent shield overlying the video display monitor screen.

10 9. A subway car for mass transportation, the car having longitudinal opposed sidewalls and a ceiling adjoining the sidewalls, and including a video display system comprising a plurality of video display monitors having video screens, the monitors being mounted in spaced-apart relationship along the subway car, at the upper portions of the sidewalls of the subway car at the location where the car sidewall adjoins the car ceiling, with the screens of the monitors directed obliquely downwardly towards the car seats, and a video signal source unit operatively connected to said monitors.

15 10. The subway car of claim 9 wherein the video monitor screens are substantially flush with the adjacent wall surface structure of the car.

20 11. The subway car of claim 9 or claim 10 wherein the video signal source unit comprises a video player, a video disk player or computer-based digital video recorder.

25 12. The subway car of any of claims 9-11 wherein the video monitors include LCD screens.

30 13. The subway car of any of claims 9-12

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-3-

including a self-contained wiring-cabling system connecting the video monitors to the video signal source unit.

5 14. The subway car of any of claims 9-13 wherein the sidewalls and the ceiling thereof are cavity walls having inner and outer shells, the video display monitors being mounted in the cavity formed between the inner and outer shells.

10 15. The subway car of claim 14 wherein the self-contained wiring-cabling system connecting the video monitors to the video signal source unit is disposed within the cavity walls.

15 16. The subway car of any of claims 9-15 wherein each said display monitor is contained within a respective housing, the housing being secured to the subway car but removable as a unit with the video display monitor, the front of said housing comprising a transparent shield
20 overlying the video display monitor screen.

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U.S. Appl. No.

097423284

International Appl. No.

C4498/00439

Application filed by: 20 months 30 months

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- PCT/IB/331
- PCT/IPEA/409 IPER (PCT/IPEA/416 on front)
- Annexes to 409
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- International Appl. on Double Sided Paper (COPIES MADE)
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- Search Report References
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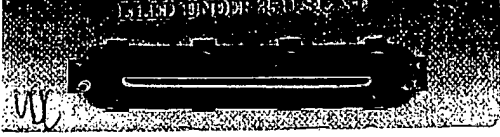
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- Description
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NOTES:

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|---|-------------|
| 35 U.S.C. 371 - Receipt of Request (PTO-1390) | 08 NOV 1999 |
| Date Acceptable Oath/ Declaration Received | 22 FEB 2000 |
| Date Complete 35 U.S.C. 371 | 22 FEB 2000 |
| 102(e) Date | 22 FEB 2000 |
| Date of Completion of DO/EO 906 - Notification of Missing 102(e) Requirements | |
| Date of Completion of DO/EO 907 - Notification of Acceptance for 102(e) Date | |
| Date of Completion of DO/EO 911 - Application Accepted Under 35 U.S.C. 111 | |
| Date of Completion of DO/EO 905 - Notification of Missing Requirements | 10-31-00 |
| Date of Completion of DO/EO 916 - Notification of Defective Response | |
| Date of Completion of DO/EO 903 - Notification of Acceptance | 3/13/00 |
| Date of Completion of DO/EO 909 - Notification of Abandonment | |

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| 348 | Class | ISSUE CLASSIFICATION |
| 61 | Subclass | |



PATENT NUMBER
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U.S. UTILITY PATENT APPLICATION

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| O.I.P.E. SCANNED <i>SW</i> O.A. <i>KG</i> | PATENT DATE MAR 02 2004 |
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PCT/CAS9/00439
INTERNATIONAL APPLICATION NO.

JEFFREY L COSTELLIA
SIXBEY FRIEDMAN LEEDOM & FERGUSON
8180 GREENSBORO DRIVE
SUITE 800
MCLEAN VA 22102

LA. FILING DATE 05/19/98 PRIORITY DATE 07/97

01/12/00

DATE MAILED:

NOTIFICATION OF MISSING REQUIREMENTS UNDER 35 U.S.C. 371 IN THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US)

1. The following items have been submitted by the applicant or the IB to the United States Patent and Trademark Office as

- a Designated Office (37 CFR 1.494),
- an Elected Office (37 CFR 1.495):

U.S. Basic National Fee.

Copy of the international application in:

- a non-English language.
- English.

Translation of the international application into English.

Oath or Declaration of inventor(s) for DO/EO/US.

Copy of Article 19 amendments.

Translation of Article 19 amendments into English.

The International Preliminary Examination Report in English and its Annexes, if any.

Translation of Annexes to the International Preliminary Examination Report into English.

Preliminary amendment(s) filed _____ and _____.

Information Disclosure Statement(s) filed _____ and _____.

Assignment document.

Power of Attorney and/or Change of Address.

Substitute specification filed _____.

Statement Claiming Small Entity Status.

Priority Document.

Copy of the International Search Report and copies of the references cited therein.

Other:

2. The following items **MUST** be furnished within the period set forth below in order to complete the requirements for acceptance under 35 U.S.C. 371:

a. Translation of the application into English. Note a processing fee will be required if submitted later than the appropriate 20 or 30 months from the priority date.

The current translation is defective for the reasons indicated on the attached Notice of Defective Translation.

b. Processing fee for providing the translation of the application and/or the Annexes later than the appropriate 20 or 30 months from the priority date (37 CFR 1.492(f)).

c. Oath or declaration of the inventors, in compliance with 37 CFR 1.497(a) and (b), identifying the application by the International application number and international filing date.

The current oath or declaration does not comply with 37 CFR 1.497(a) and (b) for the reasons indicated on the attached PCT/DO/EO/917.

d. Surcharge for providing the oath or declaration later than the appropriate 20 or 30 months from the priority date (37 CFR 1.492(e)).

3. Additional claim fees of \$ 200.00 as a large entity small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due (37 CFR 1.492(g)). See attached PTO-875.

ALL OF THE ITEMS SET FORTH IN 2(a)-2(d) AND 3 ABOVE MUST BE SUBMITTED WITHIN ONE MONTH FROM THE DATE OF THIS NOTICE OR BY 21 OR 31 MONTHS FROM THE PRIORITY DATE FOR THE APPLICATION, WHICHEVER IS LATER. FAILURE TO PROPERLY RESPOND WILL RESULT IN ABANDONMENT.

The time period set above may be extended by filing a petition and fee for extension of time under the provisions of 37 CFR 1.136(a).

4. Translation of the Annexes **MUST** be submitted no later than the time period set above or the annexes will be cancelled. Note processing fee will be required if submitted later than 30 months from the priority date.

5. The Article 19 amendments are cancelled since a translation was not provided by the appropriate 20 (37 CFR 1.494(d)) or 30 (37 CFR 1.495(d)) months from the priority date.

Applicant is reminded that any communication to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above. (37 CFR 1.5)

A copy of this notice MUST be returned with this response.

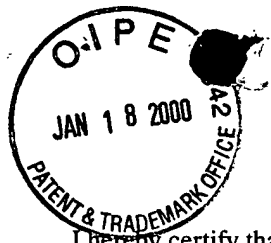
Enclosed: PCT/DO/EO/917 Notice of Defective Translation

PTO-875

FORM PCT/DO/EO/905 (December 1997)

Vonda Wallace
Tel: (703) 701-1111

305-3736

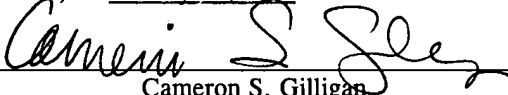


430 Rec'd PCT/PTO 18 JAN 2000
Docket: 0859-96

#3

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on January 10, 2000.


Cameron S. Gilligan

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT application of)
Scott BLAIR) Finance Division
Serial No. 09/423,284)
Filed: November 8, 1999)
For: SUBWAY TV MEDIA SYSTEM) Date: January 10, 2000

SUBMISSION OF SMALL ENTITY STATEMENT

and

REQUEST FOR REFUND


Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

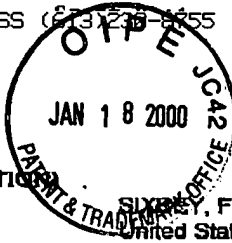
The above-identified application was filed on November 8, 1999, together with Check No. 69206 in the amount of \$840.00 for the basic national filing fee. Submitted herewith is a Verified Statement Claiming Small Entity Status - Independent Inventor for filing in this application.

It is requested that a refund in the amount of \$420.00 be credited to Deposit Account 19-2380(0859-96) for one-half of this filing fee.

Respectfully submitted,


Jeffrey L. Costellia
Registration No. 35,483

SIXBEY, FRIEDMAN, LEEDOM & FERGUSON, P.C.
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
(703) 790-9110



**VERIFIED STATEMENT (DECLARATION)
CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) AND 1.27(b))
INDEPENDENT INVENTOR**

SIXNEY, FRIEDMAN, LEEDOM & FERGUSON, P.C.
United States Patent Rights

ATTORNEY DOCKET NO. 0859-96

Applicant: Scott BLAIR
 Serial No: 09/423,284
 Filed: November 8, 1999
 For: SUBWAY TV MEDIA SYSTEM

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to Patent and Trademark Office with regard to the invention entitled:
SUBWAY TV MEDIA SYSTEM

described in

- the specification filed herewith
- application serial no. 09/423,284, filed November 8, 1999
- patent no. _____, issued _____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- no such person, concern, or organization
- persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME _____
 ADDRESS _____

- Individual Small Business Concern Nonprofit Organization

FULL NAME _____
 ADDRESS _____

- Individual Small Business Concern Nonprofit Organization

FORM-PTO-1390
(Rev. 5-93)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

**TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371**

0859-96

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.5)

09/423284INTERNATIONAL APPLICATION NO.
PCT/CA98/00439INTERNATIONAL FILING DATE
6 May, 1998 (06.05.98)PRIORITY DATE CLAIMED
7 May, 1997 (07.05.97)TITLE OF INVENTION
SUBWAY TV MEDIA SYSTEMAPPLICANT(S) FOR DO/EO/US
Scott BLAIR

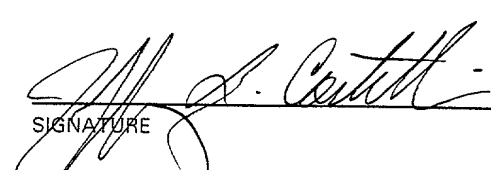
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

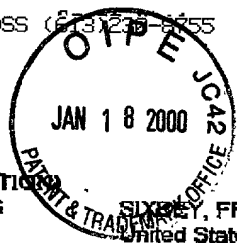
1. This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. This is an **express request** to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and the PCT Articles 22 and 39(1).
4. A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. transmitted herewith (required only if not transmitted by the International Bureau).
 - b. has been transmitted by the International Bureau.
 - c. is not required, as the application was filed in the United States Receiving Office (RO/US)
6. A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. have been transmitted by the International Bureau.
 - c. have not been made; however, the time limit for making such amendments has NOT expired.
 - d. have not been made and will not be made.
8. A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. A **FIRST** preliminary amendment.
 A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. A substitute specification.
15. A change of power of attorney and/or address letter.
16. Other items or information:

Six (6) sheets of drawings (Figs. 1a-7)

| | | | | | |
|---|--------------|---|--|-------------------------------------|--------------|
| U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.50) 09/423284 | | INTERNATIONAL APPLICATION NO. PCT/CA98/00439 | | ATTORNEY'S DOCKET NUMBER 0859-96 | |
| 17. <input checked="" type="checkbox"/> The following fees are submitted: | | | | CALCULATIONS | PTO USE ONLY |
| Basic National Fee (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO \$840.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$670.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)) \$760.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$970.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$ 96.00 | | | | | |
| ENTER APPROPRIATE BASIC FEE AMOUNT = | | | | \$ 840.00 | |
| Surcharge of \$130.00 for furnishing the oath or declaration later than months from the earliest claimed priority date (37 CFR 1.492(e)). <input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30 | | | | \$ -0- | |
| Claims | Number Filed | Number Extra | Rate | | |
| Total Claims | 18 -20 = | -0- | X \$18.00 | \$ -0- | |
| Independent Claims | 2 -3 = | -0- | X \$78.00 | \$ -0- | |
| Multiple dependent claim(s) (if applicable) | | | + \$260.00 | \$ -0- | |
| TOTAL OF ABOVE CALCULATIONS = | | | | \$ 840.00 | |
| Reduction for 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28). | | | | \$ | |
| SUBTOTAL = | | | | \$ 840.00 | |
| Processing fee of \$130.00 for furnishing the English translation later than months from the earliest claimed priority date (37 CFR 1.492(f)). <input type="checkbox"/> 20 <input type="checkbox"/> 30 | | | | \$ -0- | |
| TOTAL NATIONAL FEE = | | | | \$ 840.00 | |
| Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property + | | | | \$ -0- | |
| TOTAL FEES ENCLOSED = | | | | \$ 840.00 | |
| | | | | Amount to be: refunded | \$ |
| | | | | charged | \$ |
| a. <input checked="" type="checkbox"/> A check in the amount of <u>\$840.00</u> to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. <u>19-2380</u> in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>19-2380(0859-96)</u> . A duplicate copy of this sheet is enclosed. | | | | | |
| NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status. | | | | | |
| SEND ALL CORRESPONDENCE TO: | | | | | |
| Jeffrey L. Costellia SIXBEY, FRIEDMAN, LEEDOM & FERGUSON, P.C. 8180 Greensboro Drive Suite 800 McLean, Virginia 22102 | | |  SIGNATURE Jeffrey L. Costellia NAME 35,483 REGISTRATION NUMBER | | |



**VERIFIED STATEMENT (DECLARATION)
CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) AND 1.27(b))
INDEPENDENT INVENTOR**

SILVER, FRIEDMAN, LEEDOM & FERGUSON, P.C.
United States Patent Rights

ATTORNEY DOCKET NO. 0859-96

Applicant: Scott BLAIR
Serial No: 09/423,284
Filed: November 8, 1999
For: SUBWAY TV MEDIA SYSTEM

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to Patent and Trademark Office with regard to the invention entitled:
SUBWAY TV MEDIA SYSTEM

described in

- the specification filed herewith
- application serial no. 09/423,284, filed November 8, 1999
- patent no. _____, issued _____

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- no such person, concern, or organization
- persons, concerns or organizations listed below*

*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME _____
ADDRESS _____

- Individual
- Small Business Concern
- Nonprofit Organization

FULL NAME _____
ADDRESS _____

- Individual
- Small Business Concern
- Nonprofit Organization

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate (37 CFR 1.28(b)).

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

| | | |
|---------------------------------|---|----------------------------|
| FULL NAME Scott BLAIR | INVENTOR'S SIGNATURE  | DATE Jan 7, 2000 |
|---------------------------------|---|----------------------------|

002220 18022200

Claim 14, line 1, between "any" and "of" insert --one--.

Claim 15, line 1, delete "any of claims 1-14" and replace with --claim 10--.

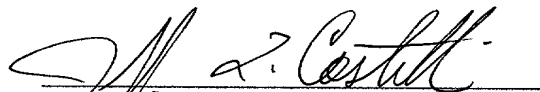
Claim 16, line 1, delete "any of claims 10-15" and replace with --claim 10.--

REMARKS

Examination on the merits is respectfully requested.

If a conference would expedite prosecution of the instant application, the Examiner is hereby invited to telephone the undersigned to arrange such a conference.

Respectfully submitted,



Jeffrey L. Costellia
Registration No. 35,483

SIXBEY, FRIEDMAN, LEEDOM & FERGUSON, P.C.
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
(703) 790-9110
(703) 883-0370 FAX

SUBWAY TV MEDIA SYSTEM

5 This invention relates to video display systems, and more specifically to video display systems mounted in and operating in mass transit subway cars.

10 It is commonplace to provide visual advertising displays such as posters in mass transit subway cars, where the displays are available for reading by subway passengers during travel. It is also known to equip subway cars with closed circuit television cameras, for surveillance of passenger behaviour and other safety checks. Images of such surveillance are either displayed at a central security facility, or recorded for subsequent viewing in
15 the event of safety problems.

20 It is also commonplace to equip subway cars with audio public address systems for a myriad of uses, including transit service announcements, community service events, advertising, safety and emergency procedures, as well as inter-staff communications.

25 Proposals have been made previously to equip other transportation items, especially aircraft, with television or video systems, primarily for the entertainment of passengers on long journeys. Examples of such systems in the patent literature can be found in U.S. Patent 4,647,980 Steventon et al., U.S. Patent 4,630,821 Greenwald, U.S. Patent 4,352,124 Kline, U.S. Patent
30 5,123,728 Gradin et al., and U.S. Patent 3,457,006 Brown et al.

35 Entertainment of passengers on subway cars has until now generally been ignored, since the average journey taken by a passenger on a mass transit subway system is usually short, lasting perhaps fifteen minutes.

Nevertheless, subway transit riders offer an attractive audience for visual advertising messages, as evidenced by the proliferation of advertising signs which commonly adorn a subway car. In addition, mass transit systems such as subways are in need of extra sources of revenue, to keep passenger fare structures at an affordable level as operating costs rise, and to avoid decreased ridership as a result.

10 It is an object of the present invention to provide a public service message display system, entertainment system and advertising system for mass transit subway cars.

15 It is a further object to provide a novel source of extra revenue for a mass transit subway system.

20 The present invention provides a television public service message display, entertainment and advertising system for subway cars, in which television monitors are provided at spaced intervals in subway cars, to display short duration televisual entertainment and advertising features to subway riders. The system is designed so that advertising spots on it can be sold by the transit system to potential advertisers and sponsors, for extra revenues for the transit system. It takes advantage of the fact that subway riders are, for the most part, occupying a subway car under relatively crowded conditions but for only a relatively brief duration. They are looking for something on which to focus their attention during their brief ride, whilst at the same time often finding it inconvenient to open newspapers, magazines or the like under crowded circumstances and becoming bored by static advertising or other displays around them. The present

invention provides properly positioned television monitors displaying moving images of news items, advertising material and the like, viewable by substantially all riders in the car, and filling their need for visual entertainment during the brief duration of their subway ride.

Thus, according to the present invention, from one aspect, there is provided a video system for displaying televised material to passengers in a mass transit subway car, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised materials to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.

According to a second aspect of the present invention, there is provided a subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

The term "video signal source unit" as used herein embraces player units for playing pre-recorded video material, such as computer-based digital video recorders (including CD-ROM players), video tape players and video disk players, and television receivers for receiving live or pre-recorded broadcast television signals from a remote transmitter and supplying these to the video display monitors mounted in the subway cars. One system according to the invention utilizes receivers including computer-

based digital video recorders for receiving broadcast television signals from a remote transmitter as the video signal source unit. Such video signal source unit can be located either within the mass transits' premises or on a remote broadcasting site. Alternatively, the invention utilizes a video tape player, a video disk player, or a computer-based digital video recorder, as the video signal source unit. The video signal source unit may be located in the same subway car as that in which the monitor or monitors are located, or in adjacent or remote cars of the same train, with the necessary operative connection between the player and the monitor(s). An individual subway car can be equipped with its own video signal source unit, connected to a plurality of monitors mounted at different, appropriately chosen locations along the length of the subway car. Alternatively, one central video signal source unit can be located in one car of subway train, and connected to monitors in some or all of the cars of the train, to provide a central video signal source unit for the train.

Computer (PC) based digital video recorders basically transmit video signals from a hard drive or CD-ROM storage. They are however also capable of receiving transmitted input at intervals, e.g. news item updates, at, say, hourly intervals, to add to their stored transmittable video data. In this sense they also act as television receivers.

The video signal source unit and video display monitors used in the present invention can be of known, standard form, obtainable as off the shelf items from manufacturers and sales outlets. The connections between them, for display of televised material, are also standard

and well within the skill of the art. For example, use can be made of the existing subway infrastructure by which audio announcements are currently transmitted. Alternatively, the connections may be by use of coaxial cables, fibre optics, cell phone systems or satellite transmission, or by other appropriate means.

A preferred system according to the invention is a subway car or plurality of subway cars equipped with a plurality of television monitors, especially LCD-based television monitors, and a video signal source comprising a video tape player, video disk player or computer-based digital video recorder, the video signal source and the monitors being interconnected by suitable electrical cable systems which are self-contained within the subway car. In this way, new subway cars can be built with the video system or parts thereof installed, and usable on substantially any transit system, since the operation of the video system is independent of any previously installed track, tunnel or control systems.

The video system according to the present invention provides a means for communicating a very wide range of information to viewers in an environment ideally suited to communicating short video messages to viewers, especially commercial messages or sponsored community service, or informational news bytes. Most subway rides are of short duration, e.g. 15-30 minutes or less. It is normally undesirable to play television programs of any significant length to subway passengers for fear of distracting them from their proper points of interchange and disembarkation on the subway system. However, the system according to the invention is ideally suited for displaying a series of short, 30 second - 1 minute

messages, in sequence, such as a series of commercial
messages. These can range from straightforward advertising
as seen on commercial television, or the type of news feed
with corporate sponsorship as seen by cable television
5 viewers, with news services provided by specialized
companies in this business. If the information is
delivered by video tape player, video disk player or
computer-based digital video recorder, it can be repeated
at intervals of, say, 5-15 minutes, based upon the average
10 duration of individual subway rides, i.e. the pre-recorded
program is of total duration of about 5-15 minutes. If the
feed is delivered from an outside source, its delivery
depends on the package of the server, and according to
agreement between the purchaser and the mass transit
15 management, and other interested parties as necessary.

Typically, the television images displayed by the
monitors of the system according to the invention do not
incorporate sound, though they may contain rolling script,
20 similar to cable television news channels, or similar to
closed-captioning for the hearing impaired. This avoids
risk of interference with announcements being played to
passengers through the normal audio address system carried
by the subway train, and avoids adding to the general noise
25 level experienced by passengers on the subway cars, a noise
level which is commonly quite high even under normal
running conditions. However, sound may be incorporated
where appropriate, for example in safety or emergency
situations, or to mark the beginning of a message to which
30 the subway or transmission provider wishes to call
attention.

The manner in which the video display monitors
are disposed and mounted in the subway car depends to some

extent on the design of the subway car itself. Such designs can vary between different subway systems. Normally from 6-12 such colour monitors are provided in each subway car, suitably of 12"-13" size, spaced along the length of the car, and disposed above the windows of the car, in a manner and at a location which does not interfere with the operation of any other essential element of the car (door operation, lights, heating, air conditioning etc.). A subway car is normally constructed so that it has a cavity wall, defined between its outer structural shell and its inner lining wall, the cavity providing for wiring and cables and other mechanical functions, and, at places, containing insulation. The video display monitors in the system of the invention are suitably mounted in the cavity wall.

In a preferred arrangement, the video display monitors have a strong metal frame construction, fixed to the frame of the subway car. The screens are preferably covered with a rigid transparent unit, e.g. of polycarbonate, shaped to coincide with the shape of the internal wall of the subway car at the location of mounting. For example, when the monitor is mounted at the junction of the wall and ceiling of the subway car, where there is commonly provided a concavely curved segment of internal wall, the transparent cover unit is suitably similarly concavely curved, so that it can be mounted as a continuum with the internal walls and blended to contours thereof, with the monitor mounted behind it. The screen is suitably angled downwardly, for best viewing by passengers seated opposite the screen. The entire structure of the monitor, including the cover unit if used, is suitably housed in a stainless steel or strong plastic casement, designed to appear integral with the subway car, without

visible edges or protuberances, and matching the materials and colours of the subway car interior.

5 The video monitors used in the system of the present invention can be of standard, cathode ray tube-based design. Such monitors have the advantage of economy, being mass-produced items manufactured on a very large scale. They are eminently suitable for use in most
10 embodiments according to the invention, and can be viewed clearly from a variety of angles. However, in circumstances where the subway car in operation encounters locations of large magnetic field, it is possible that the picture displayed on a CRT monitor will be distorted as the monitor moves through such location. Any such distortion effect
15 can be reduced by surrounding the monitor, to an extent practical and consistent with its provision of full visual display, with an appropriate shield such as a steel or other ferromagnetic casement. Where such a magnetic field problem turns out to be particularly acute, the CRT-type
20 monitor may be replaced by a monitor incorporating a colour liquid crystal display (LCD) screen, which is not sensitive to intermittent encountering of external magnetic fields.

25 Specific preferred embodiments of the present invention are illustrated in the accompanying diagrammatic drawings in which:

30 Figure 1 shows in plan view (Fig. 1A) and in side elevation (Fig. 1B), an existing subway car as used on the Toronto Transit System with indications of appropriate locations for mounting video monitors according to the invention;

Figure 2 is a sectional view of a subway car according to the invention with video monitors in place;

5 Figure 3 is a detail, in section, of an existing subway car illustrating the location for receiving a video monitor according to the invention;

10 Figure 4 is a detail similar to Fig. 3, with the video monitor in place;

15 Figure 4A is a view, similar to Fig. 4, of an alternative embodiment;

20 Figure 5 is a detail in perspective view, of a subway car equipped with a monitor according to one embodiment of the invention;

25 Figure 6 is a detail similar to Fig. 5 but of a further alternative embodiment;

30 Figure 7 is a view similar to Figure 6, showing the general appearance when the monitor is operating.

A typical subway car 10, as illustrated in Figs. 1A and 1B, is equipped with sliding doors 12 and windows 14, spaced at convenient intervals along the length of the car. Passenger seats, in sets of 2's and 3's, are disposed beneath and alongside the windows 14, clear of the doors 12, some sets 16 being inward facing, other sets 18 being forward facing and other sets 20 being rearward facing.

Suitable locations for video monitors 22 in accordance with the invention are at the junction of wall and ceiling of subway car 10, above the windows 14 and

clear of the doors 12. They are thus disposed opposite to sets of inward facing seats 16, and angled downwardly for ease of viewing of passengers 24 seated in such inward facing seats 16, as shown in Fig. 2, with direct sight lines 26, but visible to passengers seated elsewhere, and standing in the car 10. A video player 23 is suitably located in the driver's cab 27 (Fig. 1A), and connected to all the monitors 22 by cables (not showing) disposed in the cavity walls of the car.

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Fig. 3 shows a detail of the car 10, at the location where a monitor 22 is to be installed. The car wall has an outer shell 28 in which windows 14 are sealingly mounted, and structural pillars 30 mounted at intervals and secured to the vertical structural member 32. Centrally secured to the exterior skin and body structure of body 34 of the car is a main air duct 36 and a housing 38 carrying ceiling lights running substantially the full length of the car 10. The space between the ceiling housing 38 and the top of the pillars 30 is normally occupied by back lit advertising panels 40. Removal of appropriate portions of these panels 40 provides space for location of video monitors 22, according to the preferred embodiment of the invention.

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Thus as shown in Fig. 4, the video monitor 22 is enclosed and rigidly mounted in its own enclosure 42, of stainless steel, rigid plastic or the like. The enclosure in turn is secured to the top of structural pillar 30 and the side of housing 38, in a space between the ends of illuminated panels 40, and protruding rearwardly to a position adjacent the outer part of the exterior skin and body structure 34. The front wall of enclosure 42 is comprised of a clear transparent polycarbonate shield 44,

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through which the screen 46 the monitor 22 is clearly visible. The screen 46 is angled downwardly for best viewing by a passenger 24 seated opposite. The enclosure 42 with monitor 22 therein and connections protruding outwardly therethrough is removable as a unit, for replacement or service.

An alternative embodiment is illustrated in Fig. 4A, a view similar to that of Fig. 4. In this alternative embodiment, CRT video monitor 22 is replaced with an LCD-based video monitor 22A which is of thin, rectangular cross-section, and occupies less space in the ceiling structure of the car. Accordingly, it can be moved towards the ceiling so that its viewing screen is substantially flush with or even behind the light panel 40. This use of an LCD-based monitor gives a better aesthetic appearance to the inside of the subway car as a whole, as well as improving the display performance by minimizing the interference effects, as previously discussed. An appropriately shaped enclosure 42A for the LCD-based monitor, with transport screen 44A, replaces enclosure 42 for the CRT video monitor, and is similarly mounted in place.

Fig. 5 shows a front, perspective view of the arrangement shown in section in Fig. 4. The monitor 22 and its covering shield 44 are recessed behind the upper portion of the adjacent advertising panels 40, and the sides of the enclosure 42 protrude inwardly from the lower portion of panels 40. This provides ease of access to the enclosure 42 for its removal when necessary.

An alternative arrangement is shown in Fig. 6. Here the polycarbonate shield 44 is convexly curved, and is

disposed further forward from the monitor screen 44. The shield 44 now blends with forward facing part 48 the exterior skin and body structure 34, to provide a perhaps more aesthetically appealing arrangement. In Fig. 7, there is diagrammatically illustrated the arrangement of Fig. 6 in practical operation. Poster-type illuminated advertisements are provided by advertising panels 40 flanking the video monitors 22, whilst the video monitor 22, disposed at intervals along the length of the car 10, show video information and/or advertising spots, at convenient, easily viewed locations and disposition to passengers riding in the car 10.

It will be appreciated that the specific embodiments illustrated and described herein are by way of example only, and are not to be construed as limiting on the scope of the invention. The description pertains specifically to the type of subway car currently in use in the Toronto Transit System, and illustrates a means and location for mounting the video monitors in such a system. Details of construction, and hence details of appropriate mounting for video monitors may differ from subway system to subway system according to the form of car in use. Such mounting details do not depart from the scope of the present invention. In all cases, it is contemplated that a plurality of monitors will be provided in each car, each rigidly mounted at a convenient location clear of the doors and windows, and at a disposition where it can be viewed by passengers riding the subway car, without difficulty. The provision of such video monitors mounted in their own enclosures as described herein, and faced with a transparent screen of, for example, polycarbonate, allows for considerable variation in the detail of mounting means and locations, to adapt them to different constructions of

subway cars currently in use on different mass transit systems.

CLAIMS:

1. A video system for displaying televised material to passengers in a mass transit subway system, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised material to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.

2. The video system of claim 1 comprising a plurality of video display monitors operatively connected to a single video signal source unit.

3. The video system of claim 2 wherein the video signal source unit comprises a video tape player, or video disk player or computer-based digital video recorder.

4. The video system of claim 3 wherein the video signal source system includes a pre-recorded video transmission program for feeding to display on the monitors of duration about 5-15 minutes.

5. The video system of claim 4 wherein the program is repeatable, and includes a series of commercial messages of 30 second - 1 minute duration.

6. The video system of any preceding claim wherein the video monitors are secured to the subway car at a location of junction between wall and ceiling of the car, with the screens of the monitors directed obliquely downwardly towards the car seats.

7. The video system of any preceding claim which is sound free.

8. The video system of claim 1 or claim 2 wherein the video source unit is a television receiver for receiving broadcast television signals from a remote transmitter and supplying the signals to the video display monitors.

9. The video system of any preceding claim, in which the video display monitors include LCD screens.

10. A subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

11. The subway car of claim 10 including a plurality of said monitors, spaced along the length of the car on opposed sides thereof.

12. The subway car of claim 11 including longitudinal opposed sidewalls and a ceiling adjoining the sidewalls, and wherein each said monitor is mounted at the junction of the sidewall and ceiling, with the screens of the monitors directly obliquely downwardly towards the car seats.

13. The subway car of claim 12 wherein the video monitor screen is substantially flush with the adjacent wall surface structure of the car.

14. The subway car of any of claims 10-13 wherein the video signal source unit comprises a video tape player, a video disk player or computer-based digital video recorder.

15. The subway car of any of claim 10-14 wherein the video monitors include LCD screens.

16. The subway car of any of claims 10-15 including a self-contained wiring-cabling system connecting the video monitors to the video signal source unit.

ABSTRACT

A television system for subway cars (10) includes a plurality of TV monitors (22) mounted at intervals along the cars (10), at the junction of the sidewall and the ceiling, and a central video signal source unit (23) such as a video tape player, video disk player, computer-based digital video recorder or television receiver, connected to the video monitors (22). Programs of short duration, e.g. 5-15 minutes, matching the average length of a subway ride, and comprising advertising messages, news bytes and the like are played and displayed in the monitors repeatedly during the subway ride.

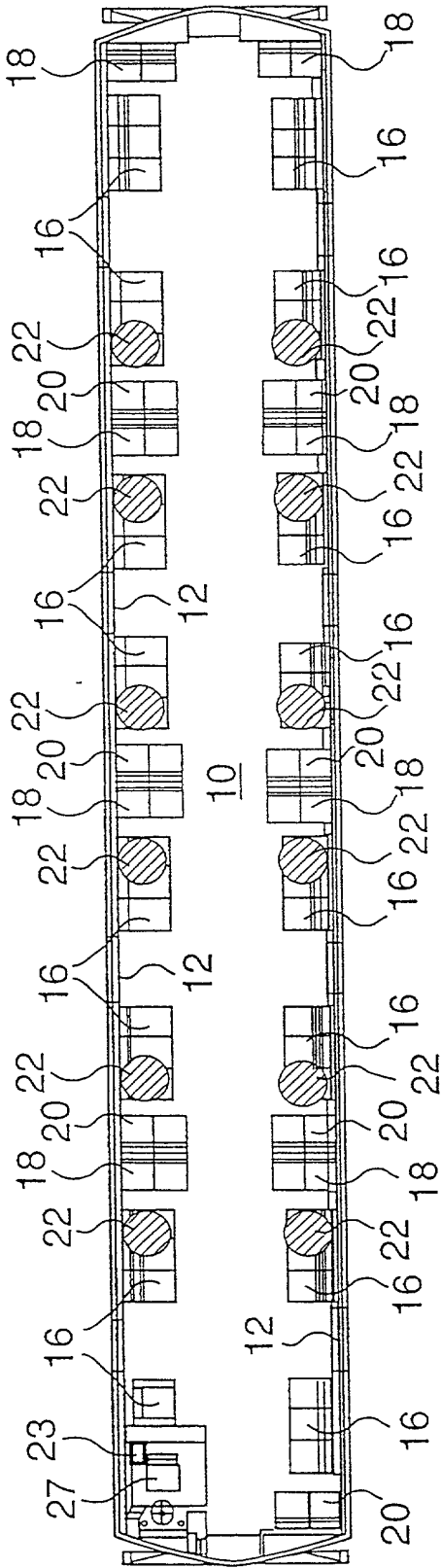


FIG. 1a

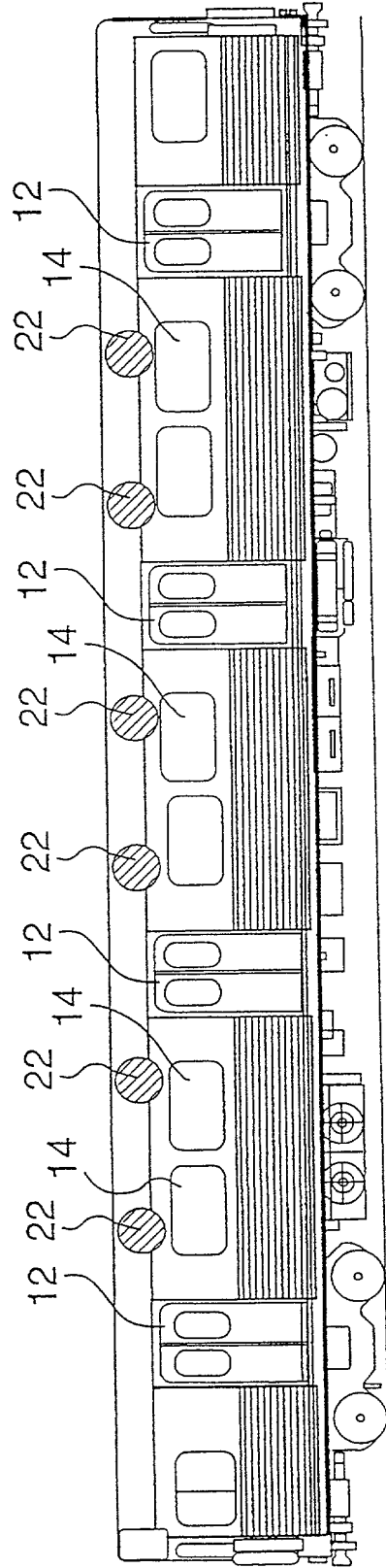


FIG. 1b

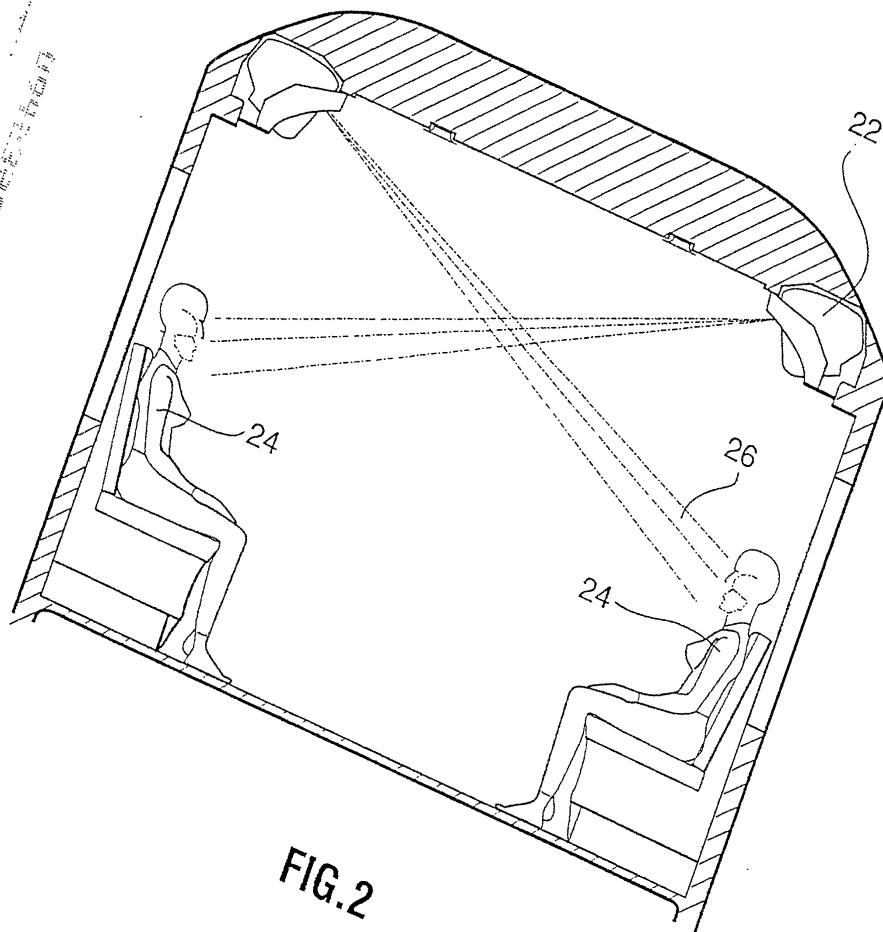


FIG. 2

3/6

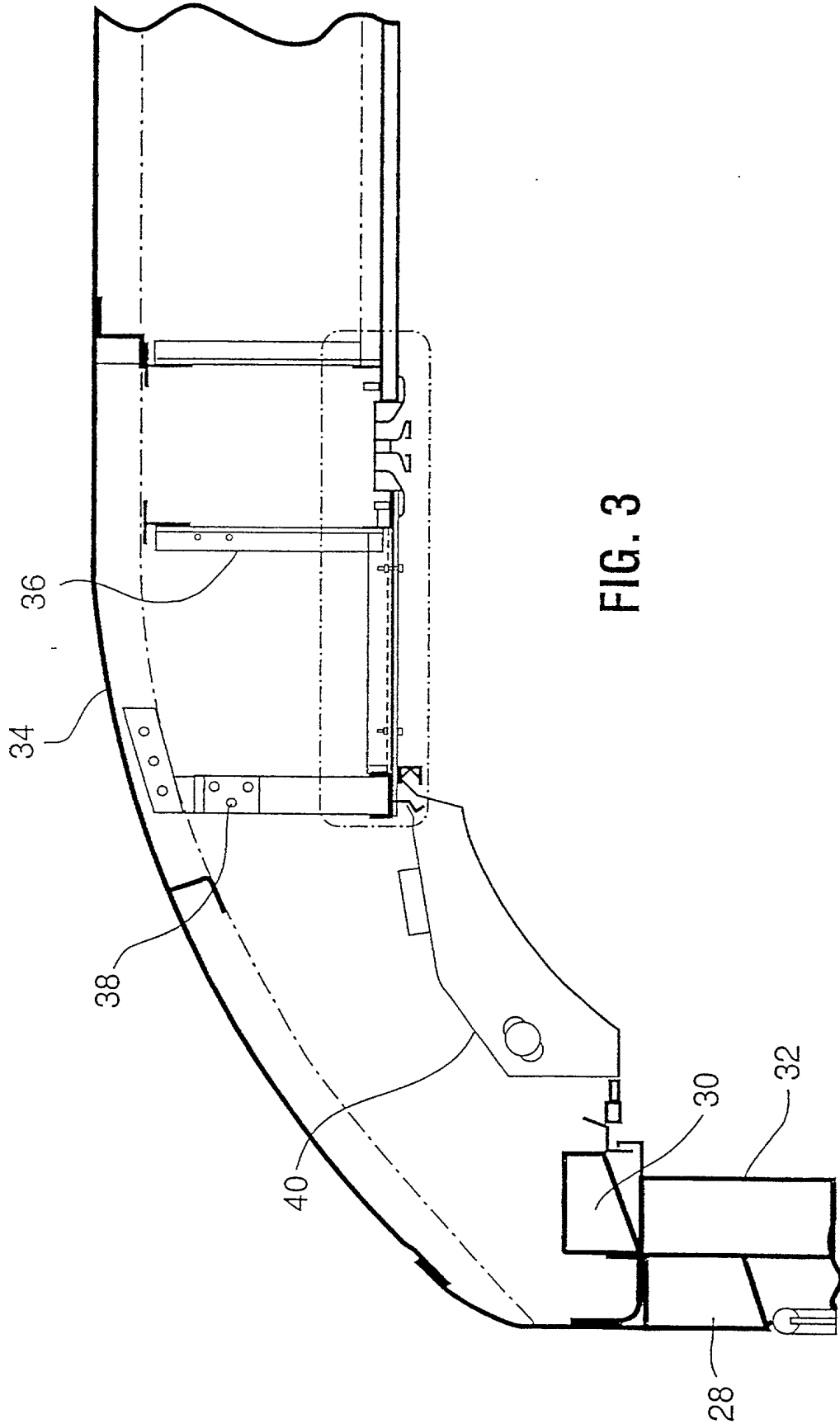


FIG. 3

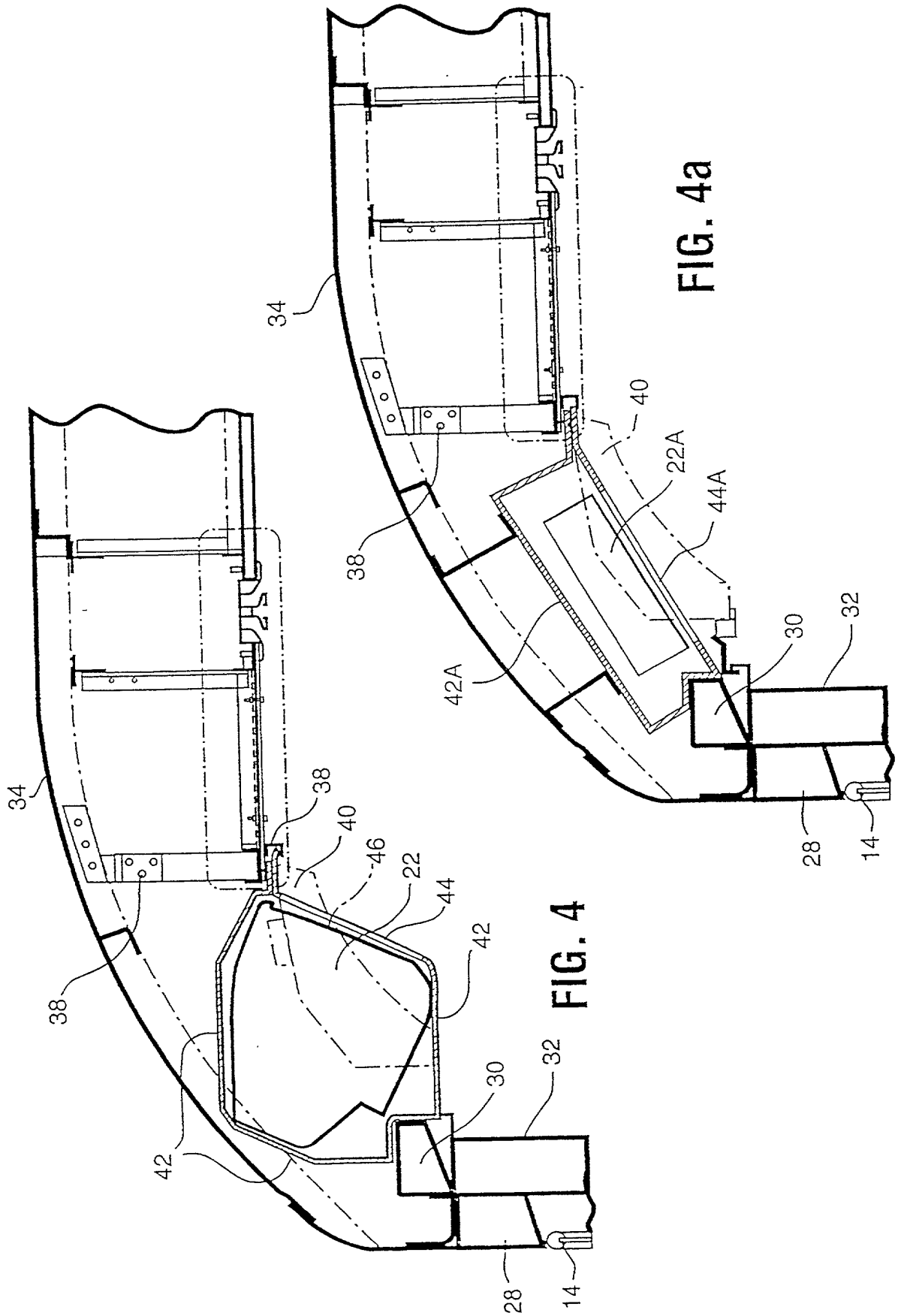


FIG. 4a

FIG. 4

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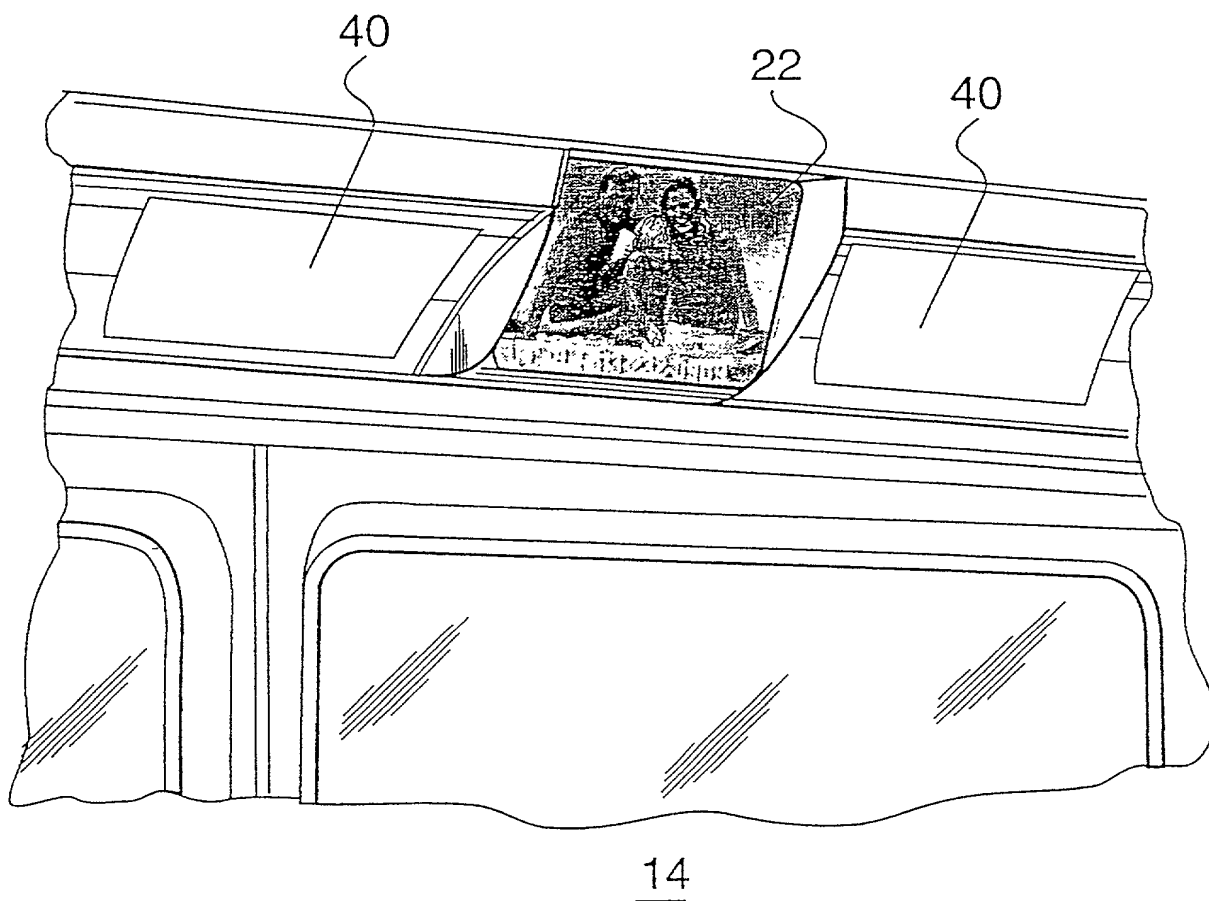
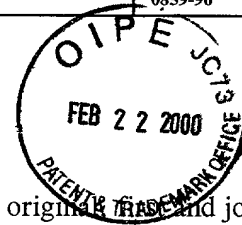


FIG. 7

As a below named inventor, I hereby declare that:

My residence post office address and citizenship are as stated below next to my name,



I believe I am the original, first and sole inventor (if only one name is listed below) or an original and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

SUBWAY TV MEDIA SYSTEM

the specification of which (check only one item below):

is attached hereto.

was filed as United States application

Serial No. 09/423,284
 Filed on November 8, 1999
 and was amended on _____ (if applicable).

was filed as PCT international application

Number PCT/CA98/00439
 Filed on May 6, 1998
 and was amended under PCT Article 19
 on _____ (if applicable).

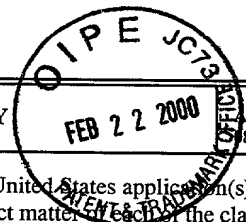
I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations. §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate or of any PCT international applications(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:

| COUNTRY | APPLICATION NUMBER | DATE OF FILING (day, month, year) | PRIORITY CLAIMED UNDER 35 USC 119 |
|---------------|--------------------|--------------------------------------|---|
| United States | 60/045,811 | May 7, 1997 | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| | | | <input type="checkbox"/> YES <input type="checkbox"/> NO |
| | | | <input type="checkbox"/> YES <input type="checkbox"/> NO |



COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY
(Includes Reference to PCT International Applications)

Attorney Docket No:
859-96

I hereby claim the benefit under Title 35, United States Code, §119(e) or §120, as applicable of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56 which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

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| U.S. APPLICATION # | U.S. FILING DATE | | PATENTED | PENDING | ABANDONED |
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| PCT APPLICATIONS DESIGNATING THE U.S. | | | | | |
|---------------------------------------|-----------------|---------------------------------------|--|--|--|
| PCT APPLICATION NO. | PCT FILING DATE | U.S. SERIAL NUMBERS ASSIGNED (if any) | | | |
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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(List name and registration number)*

- | | |
|--|---|
| Daniel W. Sixbey, (Reg. No. 20,932) | Stuart J. Friedman (Reg. No. 24,312) |
| Charles M. Leedom, Jr. (Reg. No. 26,477) | Gerald J. Ferguson, Jr. (Reg. No. 23,016) |
| David S. Safran (Reg. No. 27,997) | Thomas W. Cole (Reg. No. 28,290) |
| Donald R. Studebaker (Reg. No. 32,815) | Jeffrey L. Costellia (Reg. No. 35,483) |
| Tim L. Brackett (Reg. No. 36,092) | Eric J. Robinson (Reg. No. 38,285) |
| Robert M. Schulman (Reg. No. 31,196) | Thomas M. Blasey (Reg. No. 33,475) |
| Daniel S. Song (Reg. No. 43,143) | Marc S. Kaufman (Reg. No. 35,212) |

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SIXBEY, FRIEDMAN, LEEDOM & FERGUSON, P.C.
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McLean, Virginia 22102

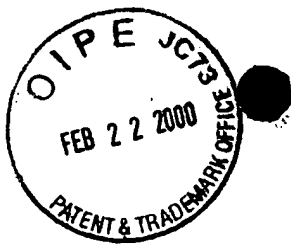
Direct Telephone Calls to:
(name and telephone number)

Jeffrey L. Costellia
(703) 790-9110

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

The undersigned hereby authorize any U.S. attorney or agent named herein to accept and follow instructions from Scott Blair as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorneys or agents named herein will be so notified by the undersigned.

| | | |
|--|--|--------------------------------|
| FULL NAME OF SOLE INVENTOR Scott BLAIR | INVENTOR'S SIGNATURE <i>Scott Blair</i> | DATE <i>Jan 7, 2000</i> |
| RESIDENCE (City, State & Country) Toronto Ontario, CANADA <i>CA</i> | | CITIZENSHIP Canadian |
| POST OFFICE ADDRESS (Complete Address including City, State & Country) 32 Marlow Avenue, Toronto, Ontario M4J 3T9 CANADA | | |



412 Rec'd T/PTO 2 2 FEB 2000 PCT#

- 1 -

Docket: 0859-96

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Box Missing Parts, Washington, D.C. 20231, on February 14, 2000.

Cameron S. Gilligan

Cameron S. Gilligan

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re PATENT Application of:)
 Scott BLAIR) Box MISSING PARTS
 Serial No. 09/423,284)
 Filed: November 8, 1999)
 For: SUBWAY TV MEDIA SYSTEM) Date: February 14, 2000

**RESPONSE TO NOTICE TO FILE MISSING PARTS
OF APPLICATION - FILING DATE GRANTED**

Assistant Commissioner for Patents
Box Missing Parts
Washington, D.C. 20231

Sir:

In response to the Notice to File Missing Parts of Application - Filing Date Granted dated January 12, 2000, submitted herewith are the following documents for filing in the above-referenced application:

1. Copy of Notice to File Missing Parts of Application - Filing Date Granted
2. Declaration & Power of Attorney

02/29/2000 PVOLPE 00000011 09423284

| | |
|-----------|-----------|
| 01 FC:967 | 36.00 OP |
| 02 FC:969 | 130.00 OP |
| 03 FC:254 | 65.00 OP |

3. Statutory Basic Filing Fee and Surcharge, calculated as follows:

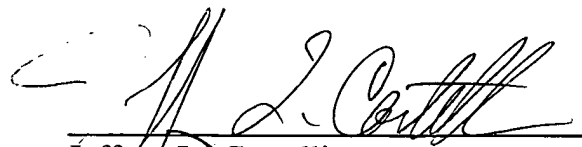
| For: | No. Filed | . | No. Extra | Rate Sml/Lg. Entity | Fee |
|---|-----------|-----|-----------|------------------------|-----------|
| Basic Fee | | | | \$380/760 | \$ |
| Total Claims | 24 | -20 | 2 | x \$9/18 | \$ 36.00 |
| Independent Claims | 2 | -3 | -0- | x \$39/78 | \$ -0- |
| First presentation of multiple dependent claims | | | | \$260/130 | \$ 130.00 |
| Surcharge | | | | \$130/65 | \$ 65.00 |
| TOTAL | | | | | \$ 231.00 |

4. A check in the amount of \$231.00 is attached to cover the basic filing fee and surcharge. *Please note that the Small Entity Declaration was filed January 10, 2000.*

All formal requirements now having been met, it is requested that the Official Filing Receipt be issued.

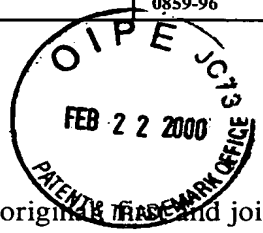
The Commissioner is hereby authorized to charge fees under 37 CFR 1.16 and 1.17 (except the Issue Fee) which may be required now or hereafter, or credit any overpayment, to Deposit Account No. 19-2380. A duplicate of this sheet is attached.

Respectfully submitted,



Jeffrey L. Costellia
Registration No. 35,483

NIXON PEABODY LLP
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
(703) 790-9110
(703) 883-0370 FAX



As a below named inventor, I hereby declare that:

My residence post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original inventor and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

SUBWAY TV MEDIA SYSTEM

the specification of which (check only one item below):

is attached hereto.

was filed as United States application

Serial No. 09/423,284
 Filed on November 8, 1999
 and was amended on _____ (if applicable).

was filed as PCT international application

Number PCT/CA98/00439
 Filed on May 6, 1998
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 on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

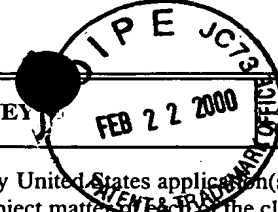
I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations. §1.56.

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|---------------|--------------------|--------------------------------------|---|
| United States | 60/045,811 | May 7, 1997 | <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO |
| | | | <input type="checkbox"/> YES <input type="checkbox"/> NO |
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COMBINED DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY
 (Includes Reference to PCT International Applications)



Attorney Docket No:
859-96

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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (List name and registration number)

Daniel W. Sixbey, (Reg. No. 20,932)
 Charles M. Leedom, Jr. (Reg. No. 26,477)
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 8180 Greensboro Drive, Suite 800
 McLean, Virginia 22102

Direct Telephone Calls to:
 (name and telephone number)

Jeffrey L. Costellia
 (703) 790-9110

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

The undersigned hereby authorize any U.S. attorney or agent named herein to accept and follow instructions from **Scott Blair** as to any action to be taken in the Patent and Trademark Office regarding this application without direct communication between the U.S. attorney or agent and the undersigned. In the event of a change in the persons from whom instructions may be taken, the U.S. attorneys or agents named herein will be so notified by the undersigned.

| | | |
|--|--|---------------------|
| FULL NAME OF SOLE INVENTOR Scott BLAIR | INVENTOR'S SIGNATURE <i>Scott Blair</i> | DATE Jan 7, 2000 |
| RESIDENCE (City, State & Country) Toronto Ontario, CANADA | CITIZENSHIP Canadian | |
| POST-OFFICE ADDRESS (Complete Address including City, State & Country) 32 Marlow Avenue, Toronto, Ontario M4J 3T9 CANADA | | |



Bib Data Sheet



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| SERIAL NUMBER 09/423,284 | FILING DATE 02/22/2000 RULE - | CLASS 348 | GROUP ART UNIT 2713 | ATTORNEY DOCKET NO. 0859-96 |
|------------------------------------|---|---------------------|-------------------------------|---------------------------------------|

APPLICANTS
SCOTT BLAIR, TORONTO ONTARIO, CANADA; *BU*

**** CONTINUING DATA *******
THIS APPLICATION IS A 371 OF PCT/CA98/00439 05/06/1998
WHICH CLAIMS BENEFIT OF 60/045,811 05/07/1997 *BU*

**** FOREIGN APPLICATIONS ******* *BU*

IF REQUIRED, FOREIGN FILING LICENSE GRANTED **
**** 04/12/2000**

| | | | | |
|---|----------------------------|---------------------|--------------------|-------------------------|
| Foreign Priority claimed <input type="checkbox"/> yes <input checked="" type="checkbox"/> no | STATE OR COUNTRY CANADA | SHEETS DRAWING 6 | TOTAL CLAIMS 16 | INDEPENDENT CLAIMS 2 |
| 35 USC 119 (a-d) conditions met <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance <i>BU</i> | | | | |
| Verified and Acknowledged Examiner's Signature _____ Initials _____ | | | | |

ADDRESS

SIXBEY FRIEDMAN LEEDOM & FERGUSON
8180 GREENSBORO DRIVE
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MCLEAN, VA 22102

TITLE

SUBWAY TV MEDIA SYSTEM

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5071

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| I.A. FILING DATE | PRIORITY DATE |
| 05/06/98 | 05/07/97 |

DATE MAILED: 03/17/00

NOTIFICATION OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C. 371 AND 37 CFR 1.494 OR 1.495

- The applicant is hereby advised that the United States Patent and Trademark Office in its capacity as a Designated Office (37 CFR 1.494), an Elected Office (37 CFR 1.495), has determined that the above identified international application has met the requirements of 35 U.S.C. 371, and is **ACCEPTED** for national patentability examination in the United States Patent and Trademark Office.
- The United States Application Number assigned to the application is shown above and the relevant dates are:

22 FEB 2000
35 U.S.C. 102(e) DATE

22 FEB 2000
DATE OF RECEIPT OF
35 U.S.C. 371 REQUIREMENTS

A Filing Receipt (PTO-103X) will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE "FILING DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371(C) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN ABOVE.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363). Once the Filing Receipt has been received, send all correspondence to the Group Art Unit designated thereon.

- A request for immediate examination under 35 U.S.C. 371(f) was received on 08 NOV 1999 and the application will be examined in turn.

- The following items have been received:

- U.S. Basic National Fee.
- Copy of the international application in:
 - a non-English language.
 - English.
- Translation of the international application into English.
- Oath or Declaration of inventors(s) for DO/EO/US.
- Copy of Article 19 amendments. Translation of Article 19 amendments into English. The Article 19 amendments have have not been entered.
- The International Preliminary Examination Report in English and its Annexes, if any.
- Copy of the Annexes to the International Preliminary Examination Report (IPER). Translation of Annexes to the IPER into English. The Annexes have have not been entered.
- Preliminary amendment(s) filed 08 NOV 1999 and _____
- Information Disclosure Statement(s) filed _____ and _____
- Assignment document.
- Power of Attorney and/or Change of Address.
- Substitute specification filed _____
- Statement Claiming Small Entity Status.
- Priority Document.
- Copy of the International Search Report and copies of the references cited therein.
- Other: _____

Applicant is reminded that any communication to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above. (37 CFR 1.5)

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[Handwritten signature]

FORM PCT/DO/EO/903 (December 1997)



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
Scott BLAIR) Art Unit: 2713
Serial No. 09/423,284)
Filed: February 22, 2000)
For: SUBWAY TV MEDIA SYSTEM)

RECEIVED
JUL 18 2000
GROUP 2700

INFORMATION DISCLOSURE STATEMENT

CERTIFICATE OF MAILING

Assistant Commissioner for Patents
Washington, D.C. 20231

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on July 19, 2000

Sir:

In accordance with the duty of disclosure under 37 C.F.R. § 1.56(a) and in conformance with the procedures of 37 C.F.R. §§ 1.97-98 and M.P.E.P. § 609, the attention of Patent and Trademark Office is hereby directed to the references listed on the attached Form PTO-1449. Copies of the listed references are provided herewith.

It is respectfully requested that the information above be expressly considered during the prosecution of this applicaiton, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

Since this IDS is being filed pursuant to 37 C.F.R. § 1.97(b), no certification or fee is required.

Respectfully submitted,

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DEMANDE DE BREVET D'INVENTION

A1

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apparentés :

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⑦4 Mandataire :

⑧4 Réseau international de télévision, câblé, dans les avions, visionnée en direct et enregistrée, sur postes individuels.

⑧7 La présente invention, concerne un nouveau procédé réalisant un réseau vidéo couleur, câblé, international, installé à bord: des avions, trains, cars, aéronefs, bateaux, contrôlé par ordinateur, diffusant simultanément 1 à 100 chaînes, gratuites, par fibre optique, le visionnage s'effectue sur poste de télévision individuel, muni de casque stéréo et sur écran géant. Une antenne collective capte les satellites, et des lecteurs: cassettes et disques vidéo diffusent des programmes enregistrés. Le réseau possède un circuit fermé: caméra intérieure et extérieure pour l'usage de la compagnie. Le confort des passagers est amélioré.

FR 2 652 701 - A1



Le procédé de la présente invention consiste en une manière d'opérer pour réaliser un nouveau produit de grande consommation, sur le plan mondial, en faisant fonctionner un ensemble de dispositifs.

5 Cette invention, concerne une pluralité de dispositifs liés entre eux de telle sorte qu'ils forment un seul concept inventif.

Ainsi, le procédé mis en place selon la présente invention crée des produits qui découlent directement de lui.

10 La présente invention, concerne un nouveau procédé réalisant un réseau vidéo câblé international, programmé et contrôlé par ordinateur, ayant plusieurs chaînes de télévision, diffusant des programmes, simultanément, en couleur système : SECAM, PAL, NTSC, installé à bord : des avions, trains, cars, aéroglisseurs, 15 bateaux, pour la communication d'informations en circuit fermé spécifiques à chaque compagnie, et le visionnage de programmes de détente : en direct diffusés par satellites et captés par une antenne collective, et des programmes pré-enregistrés : sur des cassettes et disques vidéo, dont le visionnage est assuré sur 20 des postes individuels et collectifs : à tube cathodiques ou à cristaux liquides, munis de casques stéréo.

Traditionnellement, notamment dans le domaine de l'aviation on diffuse sur le plan international, pendant les vols, des films par projection cinématographique, collective, dont les passagers 25 qui sont des consommateurs, n'ont aucune possibilité de choix.

En subissant cette diffusion, le libre arbitre n'existe pas.

Par conséquent, ce concept limite la liberté individuelle et le confort personnel de chaque passager.

30 Le procédé, selon l'invention, permet de remédier à cet inconvénient.

Il comporte, en effet, un poste de télévision couleur individuel, muni d'un casque stéréo, grâce auquel chaque passager peut choisir, à n'importe quel moment, une des chaînes commerciales, diffusée simultanément et gratuitement, dans le cadre du présent 35 réseau.

Etant une Première Mondiale, un très grand choix de programmes de détente et d'informations, en plusieurs langues, est proposé quotidiennement.

45 Ainsi réalisé, le présent procédé, selon l'invention, fait fonctionner le plus vaste réseau vidéo câblé, couleur, commercial, du monde, étant donné qu'il s'applique dans le cadre de toutes les compagnies de transport nationales et internationales, concrétisant un nouveau concept.

50 Ce procédé de visionnage, vidéo couleur, sur poste de télévision individuel, pour chaque passager, notamment dans les avions, constitue un dispositif de communication audio-visuel de grande consommation.

55 Différents types d'avions étant en service, actuellement, sur le plan international, chaque compagnie attribue un espace bien spécifique pour chaque fauteuil.

60 Par conséquent, l'installation de chaque poste de télévision individuel, pour améliorer le confort de chaque passager, sera réalisé tenant compte des facteurs suivants : a) espace entre les fauteuils, b) éclairage d'ambiance, c) éclairage individuel, d) inclinaison des fauteuils, e) angles de vision de chaque utilisateur, tout en respectant les normes internationales de sécurité, notamment l'alimentation en courants électriques : secteur, piles, accumulateurs.

65 Le câblage vidéo de chaque avion, ou moyen de transport, de ce vaste réseau international, dont le visionnage est réalisé sur un écran géant collectif et sur des postes individuels, constitue un nouveau dispositif, selon l'invention, formant un seul concept.

70 Les écrans de télévision couleur, installés dans chaque avion, ou moyen de transport, ont : a) pour le poste collectif, à cristaux liquides : une diagonale maximale de 3 mètres, et b) pour chaque poste individuel, une diagonale comprise entre 10 et 40 centimètres, maximum.

75 Selon les variantes, du présent procédé, chaque poste individuel est installé :

- sur un support fixé sur l'accoudoir de chaque fauteuil, étant orientable à 360°
- sur un support fixé sur l'accoudoir de chaque fauteuil, étant escamotable, télescopique et orientable à 360°
- 80 - sur un support fixé au plancher, entre les 2 fauteuils,

étant télescopique et orientable à 360°

- sur les dossiers des fauteuils, en face de chaque passager, étant fixé sur un support télescopique et orientable à 360°.

Le câblage, du présent procédé, est réalisé grâce à un dispositif utilisant des fibres optiques, qui diffusent simultanément plusieurs chaînes, couleur :

a) communication interne, en circuit fermé, spécifique à chaque compagnie de transport : informations diverses, notamment mesures de sécurité, fuseaux horaires, météo,

b) la diffusion directe d'émissions émises par les satellites, captées grâce à une antenne collective,

c) diffusion de programmes d'informations et de détente, pré-enregistrés : sur cassettes et disques vidéo, chaque chaîne ayant son ou ses propres lecteurs.

L'ensemble du présent procédé, de ce dispositif de réseau vidéo câblé, international, est programmé et suivi automatiquement, en permanence, autant dans l'ensemble, qu'individuellement pour chaque avion, ou moyen de transport, par un ordinateur général ainsi que des mini ordinateurs.

Par exemple, l'antenne collective qui capte les émissions diffusées par les satellites est programmée et suivie automatiquement, de même que le dispositif des lecteurs vidéo : cassettes et disques.

Cet important réseau mondial, vidéo câblé, diffuse simultanément plusieurs chaînes commerciales et à caractère thématique, en plusieurs langues.

Le nombre de chaînes diffusées, simultanément, dans chaque avion ou moyen de transport, est compris entre 1 à 100.

Le procédé de la présente invention concerne une pluralité de dispositifs liés entre eux formant un seul concept inventif.

Ainsi, pour augmenter encore plus le confort individuel de chaque passager, dans le cadre des compagnies de transport, notamment le choix des programmes d'informations et de détente, une autre variante, de ce réseau, du présent procédé, consiste à utiliser toujours des postes individuels de télévision couleur ayant un lecteur vidéo : cassette ou disque, incorporé.

Pendant la diffusion des programmes, proposés par les différentes chaînes commerciales, les passagers pourront visionner des films, spots, publicitaires de marques nationales et internationales.

Tenant compte du nombre de compagnies d'aviation, de vols quotidiens, ainsi que de l'ensemble de transports terrestres : trains, cars, et maritimes : aéroglisseurs, bateaux, les annonceurs publicitaires pourront ainsi bénéficier, grâce au présent dispositif, selon l'invention, du plus vaste réseau câblé de télévision du monde.

Ces publicités sont payantes.

L'ensemble des compagnies de transport, trouveront grâce au présent procédé un intérêt technico-financier évident pour leur rentabilisation commerciale et leur confort.

Par l'utilisation de ces dispositifs techniques, un nouveau progrès conceptuel est réalisé.

Afin d'améliorer la sécurité des passagers et des avions, une caméra de télévision couleur, télécommandée et orientable à 360°, fonctionnant en circuit fermé, sera installée. Une vue intérieure : générale et zoom, de chaque avion ou moyen de transport sera diffusée uniquement sur un moniteur, visionné par un membre de la compagnie.

Cette caméra est dissimulée, et fixée au plafond.

Toujours dans le cadre du présent réseau de télévision câblée, une autre caméra couleur sera installée à l'extérieur de l'avion, étant télécommandée et orientable à 360°, afin de permettre aux passagers d'admirer en direct sur leurs postes individuels ainsi que sur le poste collectif, écran géant, les paysages pendant le vol, ainsi que le décollage et l'atterrissage. Ainsi, même les passagers ne se trouvant pas assis auprès des hublots pourront profiter grâce au présent dispositif, d'une magnifique vue extérieure.

Grâce au présent procédé, utilisant des postes individuels de télévision, l'attention des enfants, voyageant dans les : avions trains, cars, aéroglisseurs, bateaux, pourra être captée d'une manière certaine, améliorant le confort des autres passagers.

Les personnes qui ont des problèmes lors des déplacements en avion, et bateau, notamment : inhibitions, malaises, provoqués par un état nerveux, pourront trouver grâce au présent procédé vidéo une distraction immédiate. La tendance actuelle étant d'interdire, de plus en plus, la fumée des cigarettes dans les lieux publics, les fumeurs se trouvent dans un état de stress, notamment pendant des voyages de longue durée.

Le présent procédé de réseau vidéo câblé installé dans

chaque : avion, train, car, aéroglisseur, bateau, dont le visionnage des émissions est effectué sur des postes individuels de télévision, apporte une nouveauté absolue sur le plan international, employant un ensemble de dispositifs techniques très performants.

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Indéniablement, une ère nouvelle s'ouvre, grâce à la présente invention dans le domaine de la communication audio-visuelle individuelle, dans les moyens de transport collectifs.

REVENDEICATIONS

1) Procédé en ce qu'il comporte un réseau vidéo câblé international programmé et contrôlé en permanence par ordinateur, diffusant simultanément 1 à 100 chaînes de télévision couleur, système : SECAM PAL, NTSC, installé à bord des avions, trains, cars, aéroglisseurs, bateaux, pour la communication d'informations spécifiques à chaque compagnie, sa sécurité et celle des voyageurs, et le visionnage de programmes de détente : en direct, captés des satellites grâce à une antenne, ainsi que des programmes pré-enregistrés sur des cassettes et vidéo disques, le visionnage étant assuré sur un poste individuel, pour chaque passager, muni d'un casque stéréo, et sur un écran géant collectif.

2) Dispositif selon la revendication 1 caractérisé en ce que le câblage vidéo, dans chaque avion ou moyen de transport, pour chaque fauteuil et pour l'écran collectif, est réalisé par des fibres optiques, diffusant : 1 à 100 chaînes, simultanément.

3) Dispositif selon la revendication 1, 2, caractérisé par le visionnage individuel sur poste de télévision, dont la diagonale de l'écran est comprise entre 10 et 40 centimètres, maximum, à tube cathodique ou à cristaux liquides, muni de casque stéréo.

4) Dispositif selon la revendication 1, 2, caractérisé par le visionnage, simultané, sur un poste de télévision couleur, à cristaux liquides, écran géant, collectif, dont la diagonale maximale est de 5 mètres, chaque passager utilisant un casque stéréo individuel.

5) Dispositif selon la revendication 1, 2, 3, caractérisé en ce que l'emplacement de chaque poste de télévision, individuel, est réalisé en fonction de chaque compagnie, selon les variantes :

- sur un support fixé sur l'accoudoir de chaque fauteuil, étant orientable à 360°

- sur un support fixé sur l'accoudoir de chaque fauteuil, étant escamotable, télescopique et orientable à 360°

- sur un support fixé au plancher, entre les 2 fauteuils, étant télescopique et orientable à 360°

- sur les dossiers des fauteuils, en face de chaque passager, étant fixé sur un support télescopique et orientable à 360°.

6) Dispositif selon la revendication 1, 2, 3, 4, caractérisé en ce que l'antenne collective qui capte les satellites, les émissions diffusées, est programmée et suivie automatiquement, en permanence, par ordinateur.

7) Dispositif selon la revendication 1, 5, en ce que le lecteur

de cassettes et disques vidéo est individuel, branché sur le poste de télévision de chaque passager, et selon une variante le lecteur est encastré dans ce poste, fonctionnant sur piles ou accumulateurs.

8) Dispositif selon la revendication 1,2, en ce qu'une caméra de télévision couleur, télécommandée, orientable à 360°, transmet des images en direct sur un moniteur, visionné uniquement par un membre de la compagnie, afin d'assurer en permanence la sécurité intérieure de chaque avion ou moyen de transport, ainsi que celle des voyageurs : vue générale et zoom.

9) Dispositif selon la revendication 1,2,3,4, en ce qu'une caméra de télévision couleur, télécommandée et orientable à 360° est placée sous le fuselage et selon une variante sur le fuselage de l'avion ou le toit des moyens de transport : trains, cars, aéroglisseurs, bateaux, transmettant des images en direct sur chaque écran de télévision, individuel pour chaque passager et sur l'écran collectif : paysages en vol, décollage, atterrissage, etc., tout en assurant la sécurité de chaque avion ou moyen de transport - respectant les lois en vigueur internationales.

10) Dispositif selon la revendication 1,2,3,4,5,6,7,8,9, en ce qu'un mini-ordinateur diffuse son programme et contrôle l'ensemble des dispositifs du réseau vidéo câblé, international, dans le cadre de chaque avion ou moyen de transport, étant relié aux autres mini-ordinateurs par le moyen de disquettes interchangeables, étant contrôlé par un ordinateur central qui les programme et les contrôle en permanence, dont la mémoire comprend l'ensemble des moyens de transport : aviation, terrestre, maritime.

Page 1

The process of the present invention consists of a means of operation in order to create a new product of mass consumption, on a worldwide basis, by putting to use a collection of devices.

This invention concerns a plurality of devices linked together in a manner so that they form a single inventive concept.

Accordingly, the process created according to the present invention creates products which flow directly from it.

The present invention concerns a new procedure which creates an international cable network, programmed and controlled by computer, having a plurality of television channels, broadcasting programs simultaneously, in color system: SECAM, PAL, NTSC, installed on board: airplanes, trains, buses, hovercrafts, ships; for communicating information in closed circuits for specific parties; and for watching leisure programs: broadcast live from satellites and collected by a collective antenna; and prerecorded programs: on cassettes or video disks, the viewing of which is assured on individual or collective terminals: through cathode ray tube terminals or liquid crystal terminals, and including stereo earphones.

Traditionally, particularly in field of aviation, movies are broadcast on a universal basis, during flights, by collective cinematographic projection, as a result of which the passengers, the consumers, have no possibility of choice.

With this type of broadcasting, the freedom of choice does not exist.

In consequence, this concept limits the individual freedom and personal comfort of each passenger.

The process, according to the invention, provides a remedy for this inconvenience.

It consists, in practice, of an individual color television, equipped with stereo earphones, which would allow each passenger to chose, at any time, one of these commercial channels, broadcasted simultaneously and without charge, within the scope of the presented network.

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Being a world premiere, a very large choice of leisure and informative programs, in many languages, is offered every day.

Thus understood, the present process in accordance with the invention, operates the biggest commercial color video cabled network in the world, since it applies to the network of every transportation company whether national or international, putting in concrete form a new concept.

This viewing process, color video, on individual television sets, for each passenger, specially in airplanes, constitutes an audiovisual communication apparatus of wide usage..

Since different types of airplanes are currently in service on an international plan, each company attributes a specific space for each seat.

Consequently, the installation of each individual television set, in order to improve the comfort of each passenger, will be done in accordance to the following factors: a) space between chairs, b) surrounding light, c) individual lighting, d) chair inclination, e) the view angle of each

user, at the same time respecting international safety standards, specially the electrical current feed: area, batteries, storage cells.

The video cabling of each airplane, or transportation vehicle, of this vast international network, on which viewing is made possible through a communal large screen and through individual sets, constitutes a new apparatus, according to the invention, forming one single concept.

The color television screens installed in each airplane or transportation vehicle, have: a) for the collective set, with liquid crystals: a diagonal of 3 meters maximum, and b) for each individual set, a diagonal of 10 to 40 centimeters maximum.

According to the variables of the present process, each individual set is installed:

- on a fixed support, placed on the arm of each chair, having a 360° orientation
- on a fixed support, placed on the arm of each chair, retractable, telescopic and having a 360° orientation
- on a floor fixed support, between 2 chairs, telescopic and having a 360° orientation

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- on the back of the chairs, facing each passenger, fixed to a telescopic support and having a 360° orientation

The cabling of the present process, is made possible by a fiber optic apparatus, which broadcasts simultaneously multiple color channels:

- a) internal communication, in closed circuit, specific to each transportation company: different messages, especially security measures, time zones, weather, etc.,
- b) the direct broadcasting of programs transmitted by satellites, received by a collective antenna,
- c) broadcasting of informative and leisure programs, prerecorded: on cassettes and video disks, each channel having its own players

The assembly of the present process, this apparatus for a universal video cable network, is programmed and tracked automatically, permanently, either as a whole or individually for each airplane or transportation vehicle, by a general computer and in addition by microcomputers.

For example, the collective antenna which collects the broadcasted programs from the satellites is programmed and tracked automatically, as are the video play devices: cassettes and disks.

This important world network, video cabled, broadcasts simultaneously multiple commercial and specialized channels, in many languages.

The number of broadcasted channels, simultaneously, in each airplane of transportation vehicle, is between 1 to 100.

The process of the present invention concerns a plurality of apparatus linked to one another forming one single inventive concept.

Accordingly, to add even more to the individual comfort of each passenger, within the framework of transportation companies, in particular the choice of information and leisure programs, another variation of this network, according to the present system, lies in the consistent use of individual color television sets which have a video player: cassette or disk, incorporated.

During the broadcasting of these programs, offered by the different commercial channels, passengers will be able to view films, sports, and commercials from national and international sources.

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Having regard to the number of aviation companies and the number of flights daily, and also the ground transportation industry: (trains, buses), and naval: hovercrafts, ships, presenters of commercials will accordingly benefit, with the present apparatus in accordance with the invention, from the widest cable television network in the world.

These television commercials are profitable.

Transportation companies will find, with the present process, an obvious technical and financial interest for their commercial rentability and their comfort.

By using these technical apparatuses, a new conceptual progress is realized.

To improve the safety of passengers and airplanes, a color television camera, remote controlled and having a 360° orientation, operating under closed circuit, will be installed. An interior view, general and zoomed, of each airplane or transportation vehicle will be broadcasted only on one monitor, viewed by a member of the company.

This camera is hidden, and fixed in the ceiling.

Always in the outline of the present cabled television network, another color camera will be installed inside the airplane, being remote controlled and having a 360° orientation, in order to allow the passengers to admire live on their individual sets, and also on the collective set, the big screen, the views during the flight, and also during takeoff and landing. Thus, even passengers who are not sitting at a window seat may benefit, thanks to the present apparatus, of the magnificent outside view.

With the present process, using individual television sets, the attention of children traveling in: airplanes, trains, buses, hovercrafts, ships, will be retained in a reliable way, improving the comfort of the other passengers.

People having problems during movements in airplanes or ships, especially inhibitions and uneasinesses provoked by a nervous state, will be able to find, with the present video process, an immediate distraction. The current tendency more and more to prohibit cigarette smoke in public places puts smokers in a state of stress, especially during trips of long duration.

The present video cabled network process, installed in each: airplane, train, bus, hovercraft, ship, where the viewing of the programs is done on individual television sets, brings an absolute novelty on the international basis.

Undeniably, a new era opens, with the present invention, in the individual audiovisual communication domain, in collective transportation.

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CLAIMS

1) Process which includes an international video cabled network programmed and controlled permanently by computer, broadcasting simultaneously 1 to 100 color television channels, system: SECAN, PAL, NTSC, installed on board airplanes, trains, buses, hovercrafts, ships, for the communication of specific information to each company, its security and that of its consumers, and the viewing of leisure programs: live, collected from satellites with an antenna, as well as prerecorded programs on cassettes and video disks, the viewing made on an individual set, for each passenger, equipped with earphones, and on a collective big screen.

2) Apparatus according to claim 1 characterized in that the video cabling, in each airplane or transportation vehicle, for each seat and the collective screen, is realized with fiber optics, broadcasting: 1 to 100 channels simultaneously.

3) Apparatus according to claims 1 and 2, characterized by individual viewing on a cathode tube or liquid crystal television set, which the diagonal of the screen being between 10 and 40 centimeters, maximum, equipped with earphones.

4) Apparatus according to claims 1 and 2 characterized by the simultaneous viewing, on a color, liquid crystal television set, big screen, collective, which the maximum diagonal is of 5 meters, each passenger using individual earphones.

5) Apparatus according to claims 1, 2 and 3, characterized in terms with the placement of each individual television set, which is done under function of each company, according to the variants:

- on a fixed support, placed on the arm of each chair, having a 360° orientation
- on a fixed support, placed on the arm of each chair, retractable, telescopic and having a 360° orientation
- on a floor fixed support, between 2 chairs, telescopic and having a 360° orientation
- on the back of the chairs, facing each passenger, fixed to a telescopic support and having a 360° orientation

6) Apparatus according to claims 1, 2, 3 and 4, characterized in terms of which the collective antenna which collects the broadcasted shows from satellites, is programmed and followed permanently by computer.

7) Apparatus according to claims 1 and 5 in terms of which the cassette and video disk player are individual, plugged to the television set of each passenger, and according to a variant the player is encased into this set, operating by batteries or storage cell.

8) Apparatus according to claims 1 and 2 in terms of which a color television camera, remote controlled, having a 360° orientation, transmits live images on a monitor, viewed only by a member of the company, in order to assure permanently the interior safety of each airplane of transportation vehicle, as well as that of the consumers: general and zoomed view.

9) Apparatus according to claims 1, 2, 3 and 4, in terms of which a color television camera, remote controlled and having a 360° orientation is placed under the fuselage and according to a variant on the fuselage of the airplane or the roof of the transportation vehicles: trains, buses, hover crafts, ships, transmitting live images on each television screen, individual for each passenger and on the collective screen: flight sceneries, takeoffs, landings, etc., all while assuring the safety of each airplane of transportation vehicle - respecting enforced international laws.

10) Apparatus according to claims 1, 2, 3, 4, 5, 6, 7, 8 and 9 in terms of which a miniature computer broadcasts its program and controls the whole apparatuses of the international video cabled network, in the outline of each airplane or transportation vehicle, being linked to the other

miniature computers by interchangeable diskettes, being controlled by a central computer which programs them and controls them permanently, which the memory includes the whole of transportation vehicles: aviation, terrestrial, naval.



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Entertainment and data management system for passenger vehicle including individual seat interactive video terminals.

An interactive video terminal (14) comprises a video display screen (22) and a transparent touch panel (24) overlying the screen (22) and having a plurality of pressure sensitive areas for generating discrete electrical selection signals respectively when touched. Further are provided computing means (30) for generating visual prompts corresponding to predetermined selectable operations of the terminal (14) for display on the screen (22) underlying predetermined pressure sensitive areas of the panel (24) respectively. Control means (28) are provided, which control means (28) are responsive to said selection signals from the panel (24) for controlling the terminal (14) to perform said operations corresponding thereto respectively.

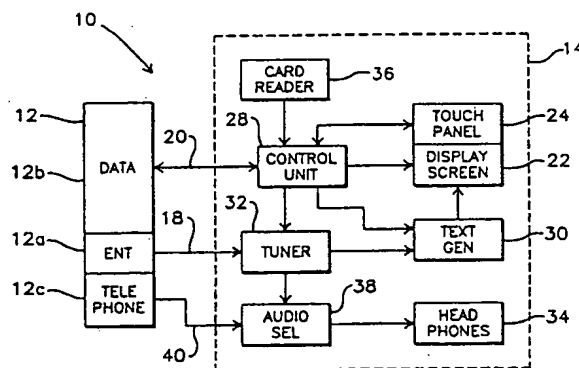


Fig.1

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requests verbally. Ordering of catalog items, payments by credit card and placing of telephone calls are entirely free of flight attendant participation.

These and other features and advantages of the present invention will be apparent to those skilled in the art from the following detailed description, taken together with the accompanying drawings, in which like reference numerals refer to like parts.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a simplified block diagram of a first embodiment of an interactive video entertainment and data management system of the present invention including individual interactive seat video terminals;

FIG. 2 is a front elevational view of a terminal of the system of FIG. 1;

FIG. 3 is a simplified side elevational view illustrating an exemplary layout of components in the terminal of FIG. 2;

FIG. 4 is a diagram illustrating the layout of a touch panel of the terminal of FIG. 2;

FIG. 5 is a more detailed block diagram of the system of FIG. 1;

FIG. 6 is a perspective view of a terminal of a second embodiment of an interactive video entertainment and data management system of the present invention; and

FIG. 7 is a block diagram of the system of FIG. 6.

DETAILED DESCRIPTION OF THE INVENTION

Referring to FIGs. 1 to 3 of the drawing, an interactive video entertainment and data management system for a passenger vehicle such as an aircraft is generally designated as 10, and includes a central terminal 12 and a plurality of remote video terminals 14. Although only one terminal 14 is illustrated, a plurality of terminals 14 are provided in the system 10, with one terminal 14 being mounted forward of each passenger seat. As shown in FIG. 2, the illustrated terminal 14 includes a housing 15 mounted in a seatback 16 so as to be comfortably viewable by a passenger in the seat immediately behind the seatback 16. For front row seats, the terminal 14 is mounted in a bulkhead forward of the seat.

The central terminal 12 includes an entertainment section 12a for generating a multiplexed video/audio signal including a plurality of movie channels. Although not specifically illustrated, the section 12a typically includes a plurality of VTRs for playing different movies respectively and a multiplexer for multiplexing the channels and feeding the resulting signal to the terminals 14 via a line

18. The central terminal 12 also includes a data section 12b for polling the terminals 14 for data, and receiving the data therefrom over a line 20. The central terminal 12 may further include a radiotelephone transceiver unit 12c for enabling passengers to place overseas telephone calls from the aircraft.

The details of the central terminal 12 and lines 18 and 20 per se are not the particular subject matter of the present invention. A central terminal and interconnecting lines suitable for practicing the invention are commercially available from Hughes-Avicom International (HAI) of Glendora, CA. Although not illustrated in detail, the data section 12b generally includes a mainframe class computer capable of multi-user, multi-tasking operation and downloading of data received from the terminals 14 to an external facility for processing. The data section 12b communicates with the terminals 14 using a local area network (LAN) such as the Ampro "Arcnet" system. In this case, the line 20 is constituted by a twisted conductor pair, and the individual seat terminals 14 are sequentially polled for data from the central terminal 12 using a "token ring" communications protocol.

Each remote terminal 14 includes a video display screen 22 such as a flat liquid crystal display (LCD) panel. A commercially available display screen 22 suitable for application in the present system 10 is the Sharp TFT-LCD module no. LQ4NC01. A transparent touch panel 24 is mounted closely adjacent to and overlying the screen 22 as illustrated in FIG. 3.

The touch panel 24 has a plurality of touch sensitive areas which produce discrete electrical selection signals when touched. A suitable touch panel 24 which is commercially available from Transparent Devices, Inc. of Westlake Village, CA has, as illustrated in FIG. 4, 16 touch sensitive areas arranged in rows R1 to R4 and columns C1 to C4. Each touch sensitive area is designated by a row and column coordinate.

As illustrated in FIG. 1, each terminal 14 includes an electronic control unit 28 which controls a text generator 30 to generate and display the visual prompts on the screen 22. It will be noted that the text generator 30 may be replaced within the scope of the invention by a character generator which generates visual prompts in the form of icons or the like, although not specifically illustrated. A commercially available text generator 30 suitable for use in the system 10 is the Fujitsu Display Controller LSI no. MB88324A.

The multiplexed video/audio movie channel signal is received over the line 18 by a tuner 32, which tunes to a selected channel, feeds the channel video signal to the screen 22 via the text generator 30 and feeds the channel audio signal to

An outgoing telephone call can be placed by touching column C3 or C4 in row R3. Lower level menus including prompts for the telephone number and payment method will be progressively displayed, in addition to prompts indicating the status of the call. The headphones 34 include a microphone as well as speakers to enable telephone communications. Each terminal 14 further includes an audio selector 38 which is controlled by the control unit 28 to connect the headphones 34 to the telephone unit 12c through a telephone cable 40 when the telephone function is selected.

The terminal 14 is illustrated in more detail in FIG. 5, and includes a digital processor 42 which is preferably embodied by the Dallas DS5000 Soft Microcontroller described above. The processor 42 communicates with the data section 12b of the central terminal 12 over the line 20 via an Arcnet LAN interface unit 44. The terminals 14 are operated as slave units and are sequentially polled from the central terminal 12 using the Arcnet token ring protocol.

Although not specifically illustrated, the menu system also enables selection of "BRIGHTNESS", "CONTRAST", "COLOR", "VOLUME" and "HEADSET BALANCE" prompts for adjustment of the corresponding display and sound attributes. When one of these prompts is displayed, touching an up or down arrow prompt displayed on the screen 22 causes the displayed attribute to be varied in the respective direction. The display tint can be adjusted in a similar manner.

Although not shown in detail, the touch panel 24 includes four enable lines and four read lines which are connected to the processor 42 through buffers 56 and 58 respectively. The processor 42 controls the tuner 32 via a serial I²C bus 60, and is interfaced to the bus 60 by an I²C interface 62 such as the Philips I²C-Bus Controller no. PCD8584. The processor 42 also controls the brightness, contrast, color and tint of the display on the screen 22 over the I²C bus 60 via digital-to-analog converters (DACs) 64, 66, 68 and 70 respectively. Eight of these DACs are commercially available in a single package as the Philips Octuple 6-bit DAC with I²C bus no. TDA8444. The card reader 36 is connected to the processor 42 by a buffer 71.

The terminal 14 further includes a synchronization separator 72 which is preferably embodied by the National Semiconductor Video Sync Separator no. LM1881. The tuner 32 has a synchronization signal output which is connected to the separator 72. Then a video signal is output from the tuner 32, the separator 72 generates and feeds vertical and horizontal synchronization (sync) pulses to the text generator 30 for superposition of text prompts on a movie, and feeds vertical sync pulses to the pro-

cessor 42.

The presence of vertical sync pulses indicates to the processor 42 that a video signal is present. In response, the processor 42 controls the text generator 30 to utilize the sync signals from the separator 72. When a video signal is not present, such as while text prompts are being displayed on the screen 22 for ordering food, drinks, etc., the processor 42 does not receive vertical sync pulses from the separator 72, and controls the text generator 30 to generate sync pulses internally for display of the text prompts.

The terminal 14 may provide additional functions such as displaying a video game which can be played using a remote module such as the Nintendo Super NES (not shown). A connector 74 is illustrated in FIG. 2 which enables the game module to be connected to the terminal 14 by a modular telephone cable or the like. The terminal 14 may also display movie previews, weather maps, flight status, connecting flight and other information generated by the central terminal 12.

The terminal 14 also preferably includes an auxiliary processor 73 as embodied by the Ampro CoreModule xt Processor Board. The processor 73 provides an intelligent interface between the interface unit 44 and the processor 42, and includes 256K bytes of non-volatile memory for the storage of system programs, credit card sales information and other data.

The processor 73 also enables video display of weather maps, airport diagrams and other computer-generated color graphics images. A color graphics adaptor (CGA) interface unit 74 as embodied by the Ampro MiniModule CGA Board converts data from the processor 73 into CGA composite video. A multiplexer 75 is controlled by the processor 42 to select either the video from the text generator 30 or the CGA video from the interface 74 for display on the screen 22.

Passenger aircraft often have first class sections which provide enhanced services above those of coach, business class, etc. In such an aircraft, the terminals 14 may be provided in the lower class sections, and terminals 80 illustrated in FIGs. 6 and 7 provided in the first class section. Each terminal 80 includes a fixed housing 82 which is detachably mounted in an armrest console 84 of a first-class passenger seat. A personal VTR player 86 is provided in the fixed housing 82 for playing of a movie recorded on a video cassette tape 88 from a library available on the aircraft. It will be understood that a player which reproduces entertainment recorded on other video storage media such as video discs, may be substituted for the VTR player within the scope of the invention.

A movable housing 90 is supported at the end of a pivotable swing arm 92, and is movable from a

2. The terminal of claim 1, characterized in that :
the computing means (30) comprises means (30) for generating said prompts in the form of a multi-level menu structure;
the control means (28, 94) comprises means (75) for controlling the terminal (14, 80) to perform said operations in response to a combination of a selected menu level and said selection signals respectively.
3. The terminal of claim 1 or claim 2, characterized by tuner means (32) for receiving a multiplexed video signal including a plurality of video channels and tuning to a selected channel for display on the screen (22), whereby
the computing means (30) comprises means (30) for generating predetermined prompts corresponding to said channels for display on the screen underlying predetermined pressure sensitive areas (R/C) of the panel (24) respectively; and
the control means (28, 94) comprises means (75) for controlling the terminal to terminate display of said prompts and display said selected channel from the tuner means (32) on the screen (22) in response to a selection signal generated by the panel (24) corresponding to said selected channel.
4. The terminal of any of claims 1 - 3, characterized by video player means (86) for generating video program signals corresponding to a program recorded on a video storage medium (88) for display on the screen (22), whereby
the computing means (30) further comprises means for generating predetermined prompts corresponding to selectable operations of the video player means (86) for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24) respectively; and
the control means (28, 94) controls the video player means (86) to perform said operations in response to said selection signals corresponding thereto respectively.
5. The terminal of claims 3 and 4, characterized in that:
the computing means (30) further comprises means for generating predetermined prompts corresponding to the tuner means (32) and the video player means (86) for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24) respectively; and
the control means (28, 94) comprises means (75, 114) for controlling the terminal (22) to display a selected channel from the tuner means (32) or the program signals from the video player means (86) in response to said selection signals corresponding thereto respectively.
6. The terminal of any of claims 1 - 5, characterized by communication means (44) for transmitting data signals external of the terminal (14, 80), whereby
the computing means (30) comprises:
prompt generating means (30) for generating predetermined prompts corresponding to selectable data signals for external transmission for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24); and
data generating means (42, 95) for generating said data signals; and
the control means (28, 94) comprises means (73) for controlling the communication means (44) to transmit said data signals in response to said selection signals corresponding thereto respectively.
7. The terminal of claim 6, characterized in that:
the prompt generating means (30) comprises means (30) for generating said prompts as corresponding to items which can be selectively requested; and
the data generating means (42, 95) comprises means for generating said data signals as corresponding to said requested items.
8. The terminal of claim 7, characterized by card reader means (36) for reading card data from a card inserted therein for payment for said requested items, whereby
the prompt generating means (30) comprises means for generating a prompt instructing insertion of the card into the card reader means (36); and
the communication means (44) comprises means for transmitting said card data together with said data signals corresponding to said requested items.
9. The terminal of any of claims 1 - 8, characterized by telephone transceiver means (38), whereby
the computing means (30) further comprises means for generating predetermined prompts corresponding to selectable operations of the telephone transceiver means (38) for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24); and
the control means (28, 94) comprises means for controlling the telephone transceiver

the first processor means (95) comprises means for receiving said card data read from the card reader means (36) in response to insertion of the card therein.

18. An interactive data management system (10) for a vehicle having a plurality of seats, comprising:

a plurality of remote video terminals (14, 80) mounted adjacent to respective seats, each video terminal (14, 80) including:

a video display screen (22);

a transparent touch panel (24) overlying the screen (22) and having a plurality of pressure sensitive areas (R/C) for generating discrete electrical selection signals respectively when touched;

communication means (44) for transmitting data signals external of the terminal (14, 80);

computing means (30) including prompt generating means for generating predetermined visual prompts corresponding to said data signals for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24) and data generating means (42, 95) for generating said data signals respectively; and

control means (28, 94) responsive to said selection signals from the panel (24) for controlling the communication means (44) to transmit said data signals corresponding thereto respectively; and

central terminal means (12) including:

communication means (12b) for receiving said data signals from the terminals; and

processing means for performing operations corresponding to said received data signals.

19. The system of claim 18, characterized in that:

each prompt generating means (30) comprises means for generating said prompts as corresponding to items which can be selectively requested; and

each data generating means (42, 95) comprises means for generating said data signals as corresponding to said requested items.

20. The system of claim 19, characterized in that:

each video terminal (14, 80) further comprising card reader means (36) for reading card data from a card inserted therein for payment for said requested items;

each prompt generating means (30) comprises means for generating a prompt instructing insertion of the card into the card reader means (36); and

each communication means (44) com-

prises means for transmitting said card data together with said data signals corresponding to said requested items respectively to the central terminal means (12).

21. The system of any of claims 18 - 20, characterized in that:

the central terminal means (12) further includes means (12a) for generating a multiplexed video signal including a plurality of video channels;

each video terminal (14, 80) includes tuner means (32) for receiving the multiplexed video signal and tuning to a selected channel for display on the screen (22);

each prompt generating means (30) comprises means for generating predetermined prompts corresponding to said channels for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24) respectively; and

the control means (28, 94) comprises means for controlling the terminal (14, 80) to terminate display of said prompts and display said selected channel from the tuner means (32) on the screen (22) in response to a selection signal generated by the panel (24) corresponding to said selected channel.

22. The system of any of claims 18 - 21, characterized in that:

each video terminal (14, 80) further comprises video player means (86) for generating video program signals corresponding to a program recorded on a video storage medium (88) for display on the screen (22), whereby

each computing means (30) further comprises means for generating predetermined prompts corresponding to selectable operations of the video player means (86) for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24) respectively; and

each control means (28, 94) controls the video player means (86) to perform said operations in response to said selection signals corresponding thereto respectively.

23. The system of claim 22, characterized in that:

each computing means (30) further comprises means for generating predetermined prompts corresponding to the tuner means (32) and the video player means (86) for display on the screen (22) underlying predetermined pressure sensitive areas (R/C) of the panel (24) respectively; and

each control means (28, 94) comprises means (114) for controlling the terminal to dis-

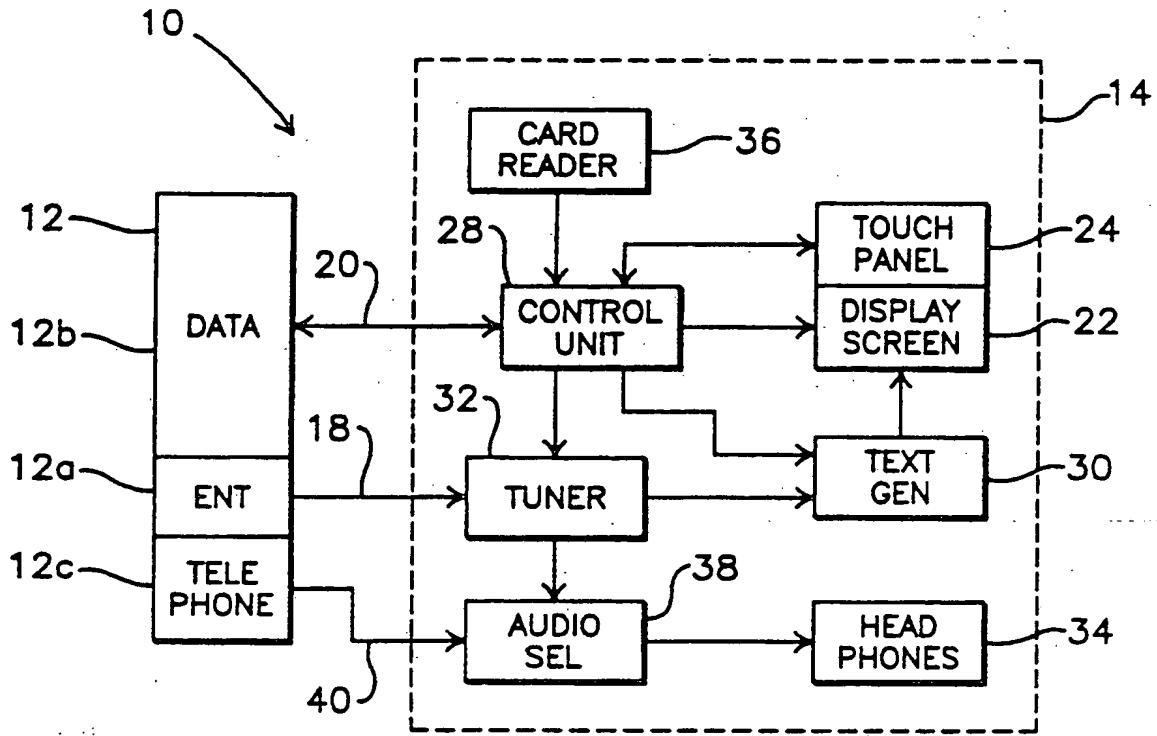


Fig.1

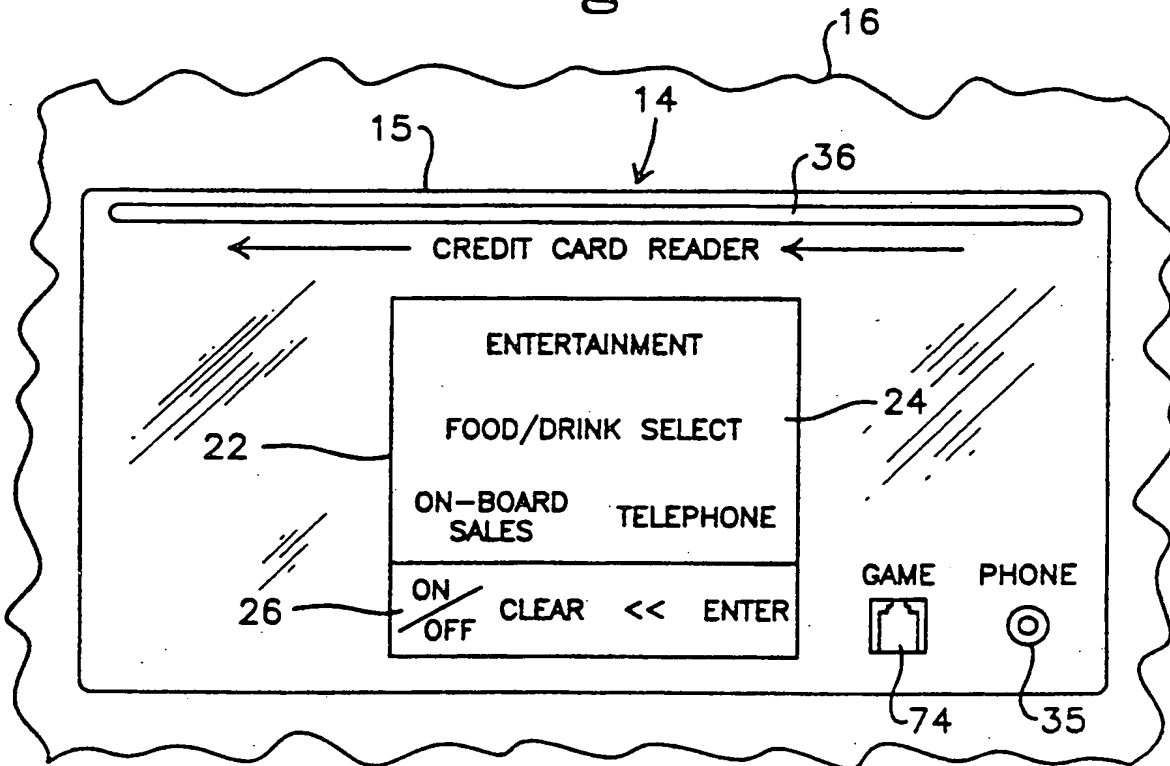


Fig.2

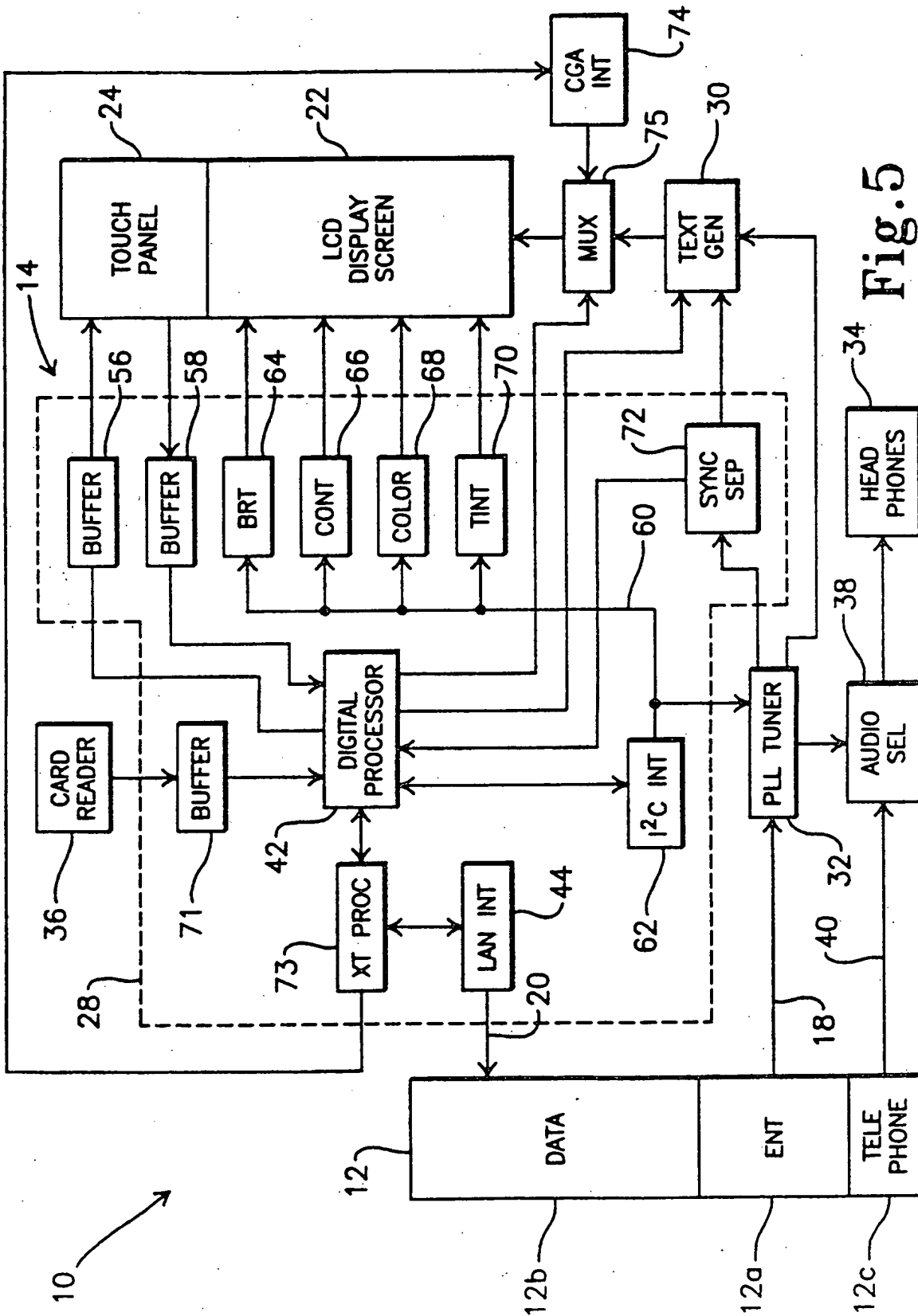


Fig.5

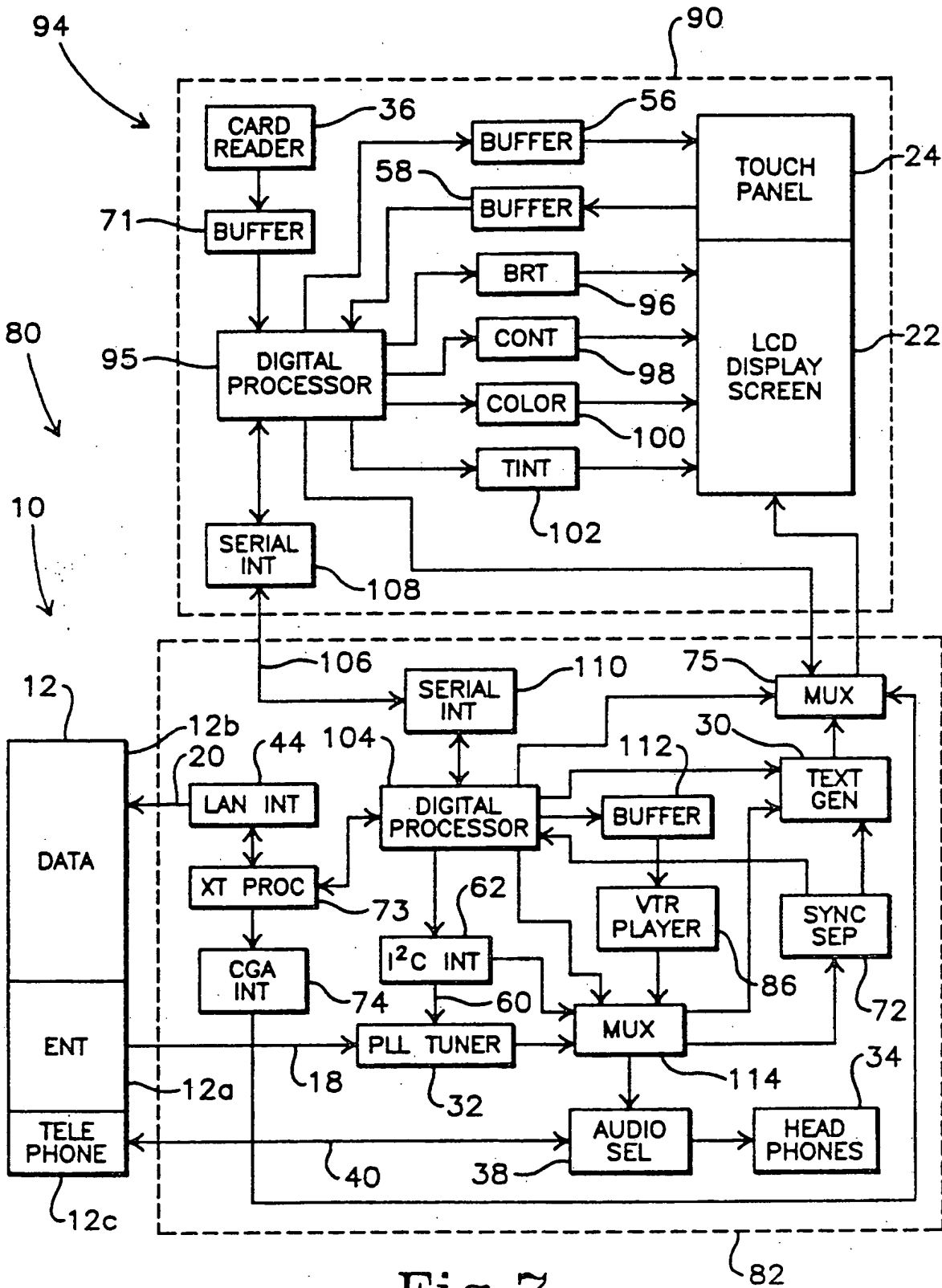


Fig. 7

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(19) (CA) **DEMANDE DE BREVET CANADIEN** (12)

(54) Système de transmission d'un système informatique embarqué

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(57) 6 Revendications

Avis: Cette demande représente ce qui a été déposé. Il est donc possible qu'elle contienne un mémoire descriptif incomplet.

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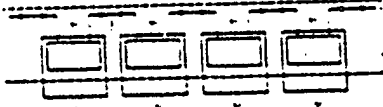
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(54) Title: TRANSMISSION SYSTEM FOR A VEHICLE DATA SYSTEM

(54) Titre: SYSTEME DE TRANSMISSION D'UN SYSTEME INFORMATIQUE EMBARQUE

(57) Abstract

The invention concerns the transmission system of a local area network (1) providing an exchange of digital data between equipment (2) forming part of a vehicle data processing system. The local area network (1) transmission system comprises an open transmission line made up of bidirectional point-to-point links (3) connecting equipment to neighbouring equipment, and means (4) for connecting the equipment to the transmission line. Each piece of equipment is connected to the transmission line by a signal transmission, reception and propagation sub-system (4) which transmits digital data simultaneously to its two neighbours. Said sub-system (4) selects the first signal received from one of the transmission line segments to which it is connected, shapes it for propagation to the opposite segment, and transmits it to the equipment. The invention applies to rail vehicles. The transmission line segments consist of a screened twisted pair. The point-to-point links are redundant. The transmission code is FMO (differential Manchester). Access to the transmission line is controlled by the protocol defined in ISO 8802 4 (token bus).



(57) Abrégé

L'invention concerne le système de transmission d'un réseau local (1) permettant l'échange d'informations numériques entre des équipements (2) répartis au sein d'un système informatique embarqué. Le système de transmission du réseau local (1) est composé d'une ligne de transmission ouverte formée de liaisons point-à-point bidirectionnelles (3) reliant les équipements à leurs voisins, et des moyens (4) de connexion des équipements à la ligne de transmission. Chaque équipement est connecté à la ligne de transmission par un sous-système (4) assurant l'émission, la réception et la propagation des signaux. Au sein de chaque équipement, ce sous-système (4) émet les informations numériques simultanément vers ses deux voisins. Le sous-système (4) sélectionne le premier signal reçu d'un des segments de la ligne de transmission auxquels il est raccordé, le façonne en forme pour le propager sur le segment opposé, et le transmet à l'équipement. L'invention est mise en œuvre à bord de véhicules ferroviaires. Les segments de la ligne de transmission sont constitués d'une paire torsadée blindée. Les liaisons point-à-point sont redondantes. Le code de transmission est le code FMO (Manchester différentiel). L'accès à la ligne de transmission est régi par le protocole défini par la norme ISO 8802 4 (bus à jeton).

UNIQUEMENT A TITRE D'INFORMATION

Ces lettres visent à identifier les États parties au PCT, sur les pages de couverture des brochures publiant des demandes internationales en vertu du PCT.

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Système de transmission d'un système informatique embarqué

L'invention concerne le système de transmission d'un système informatique embarqué, qui fut conçu pour réaliser un réseau local à bord de véhicules ferroviaires. L'objectif du réseau local était de substituer une ligne de transmission unique aux innombrables liaisons filaires qui reliaient autrefois les organes de contrôle et de commande au poste de conduite. Dans un réseau local, cette ligne de transmission est partagée par des équipements proches des organes de contrôle et de commande et permet d'acheminer les informations devant être échangées par ces équipements.

Un système de transmission utilisé au sein d'un réseau local embarqué à bord de véhicules ferroviaires est connu sous le nom déposé TORNAD, et décrit dans un article de D. DUHOT intitulé "TORNAD" Réseau Informatique Haute Disponibilité, publié dans la revue Alsthom, numéro 8, 1987.

L'environnement ferroviaire impose un certain nombre de contraintes, prises en compte lors de la conception d'un réseau local. La présence de fortes perturbations électromagnétiques a motivé le choix d'une ligne de transmission formée de paire torsadée blindée. L'immunité au bruit est assurée dans une certaine mesure par le choix d'un codage sans composante continue. Le besoin d'une isolation galvanique élevée (1500 V) entre l'électronique et le système de câblage est satisfait par l'utilisation de transformateurs d'isolement. Les distances importantes (jusqu'à 500 mètres) entre les équipements d'extrémité de certains véhicules ferroviaires imposent que les signaux soient remis en forme.

Le système de l'art antérieur prenait également en compte les contraintes de l'environnement ferroviaire, mais comportait un certain nombre d'inconvénients, liés à la topologie en anneau et à l'utilisation conjointe d'un protocole d'anneau à jeton. Les informations reçues devaient être interprétées avant d'être réémises, ce qui grevait significativement les performances (traversée d'un équipement en 25 microsecondes). Une rupture de la ligne de transmission conduisait de plus à modifier le protocole régissant les échanges entre les équipements ainsi que le passage du jeton.

Le système de transmission selon l'invention adopte une topologie en bus, dans laquelle les informations émises à l'initiative d'un équipement sont reçues par l'ensemble des autres équipements. Ce système de transmission est composé d'une ligne de transmission et de sous-systèmes, hébergés au sein de chaque équipement, qui connectent les équipements à cette ligne de transmission. La ligne de transmission est formée d'une chaîne ouverte de liaisons point-à-point bidirectionnelles. Ces sous-systèmes sont désignés dans ce qui suit par le terme « tête de ligne ». Les signaux sont remis en forme par des répéteurs intégrés au sein de la tête de ligne de chaque équipement. Le souci de ne pas propager le bruit le long de la ligne de transmission a conduit à associer la fonction de répéteur à la fonction de reconnaissance de signaux de préambule. La disponibilité du système de transmission est accrue par la redondance de la ligne de transmission. Enfin,

l'accès à la ligne de transmission en un temps borné est garanti à chaque équipement par l'utilisation du protocole de bus à jeton défini par la norme ISO 8802.4.

Lorsqu'une tête de ligne émet des signaux à l'initiative de l'équipement au sein duquel elle est hébergée, les signaux sont transmis simultanément sur chacun des segments de la ligne de transmission auxquels la tête de ligne est raccordée.

Chaque tête de ligne assure la propagation des signaux le long de la ligne de transmission, de telle sorte que les signaux puissent être reçus par tous les équipements. Chaque tête de ligne assure également la remise en forme des signaux, en les amplifiant et en les resynchronisant.

Une tête de ligne est à l'écoute des signaux sur chacun des segments de la ligne de transmission auxquels elle est raccordée. Dès qu'un signal est reçu d'un des segments, la tête de ligne s'interdit de recevoir du segment opposé, et propage sur ce segment le signal reçu. Si des signaux sont reçus simultanément de chacun des segments de la ligne de transmission, la tête de ligne choisit arbitrairement le signal reçu d'un des segments et ignore le signal reçu du segment opposé.

Le système de transmission selon l'invention combine donc des aspects d'une topologie en bus (ligne de transmission bidirectionnelle, réception d'informations identiques par tous les équipements) à des aspects d'une topologie en anneau (liaisons point-à-point, remise en forme des signaux par chaque équipement).

La redondance, optionnelle, de la ligne de transmission accroît la disponibilité du système de transmission.

L'invention a donc pour objet un système de transmission d'un signal entre des équipements d'un système informatique embarqué, les équipements étant connectés à une ligne de transmission, la ligne de transmission étant composée de liaisons point-à-point, caractérisé en ce que les liaisons point-à-point sont bidirectionnelles et forment une chaîne ouverte.

L'invention sera mieux comprise et d'autres avantages et caractéristiques particulières apparaîtront à la lecture de la description qui suit, donnée à titre d'exemple non limitatif, accompagnée des figures annexes, parmi lesquelles :

- la figure 1 représente une vue globale du système de transmission selon l'invention,
- les figures 2 et 3 représentent une ligne de transmission formée de liaisons point-à-point, avec ou sans redondance de la ligne de transmission,
- les figures 4 et 5 illustrent l'émission d'un signal par un équipement, avec ou sans redondance de la ligne de transmission,
- les figures 6, 7 et 8 illustrent la réception sélective d'un signal par un équipement, avec ou sans redondance de la ligne de transmission.

- la figure 9 représente le mécanisme d'auillage des signaux au sein de la tête de ligne.

Sur la figure 1 sont représentés des équipements 2 reliés par la ligne de transmission 3, à laquelle chacun des équipements est connecté par l'intermédiaire d'une tête de ligne 4 assurant l'émission, la réception et la propagation des signaux.

Sur la figure 2 sont représentés trois équipements S1, S2, S3, connectés à la ligne de transmission selon l'invention. Un signal émis par la tête de ligne de l'équipement S2 est acheminé le long de la ligne de transmission. Les têtes de lignes des équipements S1 et S3 reçoivent le signal d'un des segments de la ligne de transmission et le propagent après remise en forme sur le segment opposé.

Sur la figure 3 est représentée la redondance de la ligne de transmission. Les deux segments 11 et 12 relient la tête de ligne de l'équipement S2 à la tête de ligne de l'équipement S1, et les deux segments 21 et 22 relient la tête de ligne de l'équipement S2 à la tête de ligne de l'équipement S3. La réception et l'émission sur chacun des quatre segments 11, 12, 21, 22 peuvent être inhibées ou activées sous le contrôle de l'équipement S2.

La tête de ligne d'un équipement émet ses signaux sur chacun des segments de la ligne de transmission auxquels elle est raccordée. Ceci est représenté, pour un équipement S1, sur la figure 4 dans le cas d'une ligne de transmission sans redondance, et sur la figure 5 dans le cas d'une ligne de transmission avec redondance. Pendant la durée de l'émission des signaux, la tête de ligne s'interdit de recevoir des signaux de chacun des segments de la ligne de transmission auxquels elle est raccordée.

Un équipement est prêt à recevoir des signaux sur chacun des segments de la ligne de transmission auxquels il est raccordé. Ceci est représenté, pour un équipement S1, sur la figure 6 dans le cas d'une ligne de transmission sans redondance, et sur les figures 7 et 8 dans le cas d'une ligne de transmission avec redondance.

Dans le cas d'une ligne de transmission sans redondance, la tête de ligne de l'équipement S1 sélectionne le premier signal reçu de l'un des deux segments de la ligne de transmission (segment 31 de la figure 6) et transmet le signal à l'équipement. La tête de ligne s'interdit de recevoir du segment opposé 32 et propage sur ce segment le signal reçu après l'avoir remis en forme. Cette polarisation dans le sens défini par le premier signal reçu dure tant que ce signal est présent.

Dans le cas d'une ligne de transmission avec redondance, la tête de ligne de l'équipement S1 sélectionne le premier signal reçu de l'un des quatre segments de la ligne de transmission (segment 41 de la figure 7), et transmet le signal à l'équipement. La tête de ligne s'interdit de recevoir du segment opposé 42 et propage sur ce segment le signal reçu après l'avoir remis en forme. Cette polarisation dans le sens défini par le premier signal reçu dure tant que ce signal est présent. Pendant ce temps, un signal peut être reçu d'un des

segments 43 ou 44, par exemple le segment 44. Ce second signal n'est pas transmis à l'équipement. La tête de ligne s'interdit alors de recevoir du segment opposé 43 et propage sur ce segment le signal reçu du segment 44 après l'avoir remis en forme. Cette polarisation dans le sens défini par le second signal reçu dure tant que ce signal est présent.

5 Une autre politique peut être mise en œuvre par la tête de ligne après qu'elle a sélectionné le premier signal reçu d'un des quatre segments de la ligne de transmission (segment 41 de la figure 8). La tête de ligne transmet le signal reçu à l'équipement, s'interdit de recevoir des autres segments 42, 43 et 44, et propage le signal reçu sur les segments 42 et 44 après l'avoir remis en forme. Cette polarisation dans le sens défini par le premier signal reçu dure tant que ce signal est présent.

10 La figure 9 illustre les mécanismes d'aiguillage des signaux au sein de la tête de ligne du système de transmission selon l'invention, muni de la redondance de la ligne de transmission. La ligne de transmission y est représentée par deux paires torsadées (A et B). Les relais KA et KB permettent d'assurer la continuité électrique de la ligne de transmission lorsque l'équipement est hors-tension ou souhaite s'isoler en cas de dysfonctionnement. Lorsque l'équipement n'est pas isolé de la ligne de transmission, il est raccordé aux quatre segments A1, A2, B1 et B2. La réception des signaux s'effectue par le biais des récepteurs différentiels RA1, RA2, RB1 et RB2. L'émission des signaux s'effectue par le biais des émetteurs différentiels EA1, EA2, EB1 et EB2, qui sont activés par les lignes de contrôle ACTA1, ACTA2, ACTB1 et ACTB2 respectivement.

20 Sept aiguilleurs et quatre blocs fonctionnels sont représentés sur la figure 9. Le bloc CHOIX_A1/A2 (respectivement CHOIX_B1/B2) pilote l'aiguilleur SWA (respectivement SWB) selon l'origine (A1 ou A2, respectivement B1 ou B2) du signal reçu. Le bloc CHOIX_A/B pilote l'aiguilleur SWAB selon l'origine (A ou B) du signal reçu. Enfin, le bloc ÉMISSION pilote les aiguilleurs SWA1, SWA2, SWB1 et SWB2 de façon à émettre le signal provenant de l'équipement ou à propager le signal reçu de l'un des segments A1, A2, B1 ou B2.

25 L'équipement présente le signal à émettre sur sa sortie OUT, et le valide au moyen de la ligne de contrôle ACT. L'information ACT agit sur le bloc CHOIX_A/B, qui pilote l'aiguilleur SWAB de telle sorte qu'aucun signal ne soit transmis à l'équipement sur son entrée IN (SWAB est en position ZERO). L'information ACT agit également sur le bloc ÉMISSION, qui pilote les aiguilleurs SWA1, SWA2, SWB1 et SWB2 de façon à présenter le signal de sortie OUT à l'entrée des émetteurs EA1, EA2, EB1 et EB2. Ces émetteurs sont activés par les lignes de contrôle ACTA1, ACTA2, ACTB1 et ACTB2 en fonction des informations de contrôle INHOA1, INHOA2, INHOB1 et INHOB2 que l'équipement peut valider pour inhiber sélectivement l'émission sur les segments A1, A2, B1 et B2.

Lorsque l'équipement n'a pas de signal à émettre, la ligne de contrôle ACT n'est pas validée. En l'absence de réception de signal, l'aiguilleur SWAB reste en position ZÉRO, et l'équipement ne reçoit rien. Les lignes de contrôle ACTA1, ACTA2, ACTB1 et ACTB2 n'activent pas les émetteurs EA1, EA2, EB1 et EB2. La position des aiguilleurs SWA1, SWA2, SWB1 et SWB2 est indifférente.

Le bloc CHOIX_A1/A2 (respectivement CHOIX_B1/B2) reçoit les signaux provenant de la ligne de transmission, INA1 et INA2 (respectivement INB1 et INB2) présents en sortie des récepteurs RA1 et RA2 (respectivement RB1 et RB2), et les remet en forme en vue de leur transmission à l'équipement et de leur propagation. Les blocs CHOIX_A1/A2 et CHOIX_B1/B2 comportent des registres à décalage permettant de comparer, après échantillonnage, les signaux reçus à des motifs prédéfinis (début de trame, fin de trame). Ces blocs vérifient également que les signaux reçus satisfont les critères d'amplitude requis. L'équipement peut valider les informations de contrôle INHIA1, INHIA2, INHIB1 et INHIB2, pour inhiber sélectivement la réception sur les segments A1, A2, B1 et B2. Le bloc CHOIX_A1/A2 (respectivement CHOIX_B1/B2) agit en fonction de ces informations de contrôle pour piloter l'aiguilleur SWA (respectivement SWB) selon l'origine du premier signal reçu (INA1 ou INA2, respectivement INB1 ou INB2). Le premier signal reçu est remis en forme et présenté en sortie du bloc sur l'une des lignes INA1R ou INA2R (respectivement INB1R ou INB2R). En cas de réception simultanée de signaux par les entrées INA1 et INA2 (respectivement INB1 et INB2), un choix arbitraire est effectué. Le bloc CHOIX_A1/A2 (respectivement CHOIX_B1/B2) valide le signal sélectionné au moyen de la ligne de contrôle INAV1 (respectivement INBVAL), et indique son choix en validant une et une seule des lignes de contrôle INAV1VAL ou INAV2VAL (respectivement INB1VAL ou INB2VAL).

Le bloc CHOIX_A/B pilote l'aiguilleur SWAB en fonction des informations INAV1VAL et INBVAL, selon l'origine (A ou B) du premier signal reçu. En cas de réception simultanée de signaux sur A et B, un choix arbitraire est effectué. Le bloc CHOIX_A/B indique son choix au moyen de la ligne de contrôle A/B destinée au bloc ÉMISSION.

Le bloc ÉMISSION pilote les aiguilleurs SWA1, SWA2, SWB1 et SWB2 de manière à propager les signaux reçus en fonction d'une part de la politique définie par l'équipement au moyen de l'information de contrôle BRA (brassage), d'autre part des informations de contrôle INHOA1, INHOA2, INHOB1 et INHOB2 que l'équipement peut valider pour inhiber sélectivement l'émission sur les segments A1, A2, B1 et B2. Les entrées INAV1VAL et INAV2VAL d'une part, INB1VAL et INB2VAL d'autre part, indiquent la présence sur les lignes INA et/ou INB de signaux devant être propagés.

Si l'information de contrôle BRA n'est pas validée, la propagation des signaux est effectuée de la manière suivante : un signal reçu du segment A1 (respectivement B1) est propagé sur le segment A2 (respectivement B2), et un signal reçu du segment A2 (respec-

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5 tivement B2) est propagé sur le segment A1 (respectivement B1). Dans ce cas, les couples d'aiguilleurs SWA1/SWA2 et SWB1/SWB2 sont pilotés indépendamment l'un de l'autre. Le bloc ÉMISSION présente le signal INA (respectivement INB) à l'entrée des émetteurs EA1 et EA2 (respectivement EB1 et EB2). Ces émetteurs sont activés par les lignes de contrôle ACTA1 et ACTA2 (respectivement ACTB1 et ACTB2) en fonction des informations de contrôle INHOA1 et INHOA2 (respectivement INHOB1 et INHOB2), et des entrées de validation INA1VAL et INA2VAL (respectivement INB1VAL et INB2VAL). Cette politique de propagation des signaux est celle qui est représentée à la figure 7.

10 Si l'information de contrôle BRA est validée, la propagation des signaux est effectuée de la manière suivante : un signal reçu du segment A1 ou du segment B1 est propagé sur les segments A2 et B2, et un signal reçu du segment A2 ou du segment B2 est propagé sur les segments A1 et B1. Le conflit résultant de la réception simultanée de signaux des segments A1 ou A2 d'une part, B1 ou B2 d'autre part, est résolu en adoptant le choix effectué par le bloc CHOIX_A/B, tel qu'il est indiqué par l'information de contrôle A/B. Les aiguilleurs SWA1, SWA2, SWB1 et SWB2 sont alors pilotés de façon à présenter soit le signal INA soit le signal INB à l'entrée des émetteurs EA1, EA2, EB1 et EB2. Ces émetteurs sont activés par les lignes de contrôle ACTA1, ACTA2, ACTB1 et ACTB2 en fonction des informations de contrôle INHOA1, INHOA2, INHOB1 et INHOB2, et des entrées de validation INA1VAL, INA2VAL, INB1VAL, INB2VAL et A/B. Cette politique de propagation des signaux est celle qui est représentée à la figure 8.

20 La mise en œuvre de l'invention à bord de véhicules ferroviaires (liaisons point-à-point réalisées au moyen de paire torsadée blindée, code de transmission FM0, remise en forme des signaux par des répéteurs) présente de bonnes caractéristiques de performances et de qualité. La tête de ligne propage un signal d'un segment de la ligne de transmission au segment opposé en environ 3 microsecondes. Sur un segment de 500 mètres, le taux d'erreur bit est de 10^{-4} pour un niveau de bruit égal à 200 millivolts efficaces. Enfin, muni de la redondance de la ligne de transmission, le système selon l'invention tolère une coupure d'un segment sans aucune altération du fonctionnement du protocole de bus à jeton utilisé.

REVENDEICATIONS

- 1/ Système de transmission d'un signal entre des équipements d'un système informatique embarqué, les équipements étant connectés à une ligne de transmission composée de liaisons point-à-point, caractérisé en ce que les liaisons point-à-point sont bidirectionnelles et forment une chaîne ouverte.
- 2/ Système de transmission selon la revendication 1, caractérisé en ce que le signal est propagé d'une liaison à une liaison adjacente par le biais d'un répéteur associé à chaque équipement.
- 3/ Système de transmission selon l'une des revendications 1 ou 2, caractérisé en ce que les liaisons point-à-point sont réalisées au moyen de paire torsadée blindée.
- 4/ Système de transmission selon l'une quelconque des revendications 1 à 3, caractérisé en ce que les liaisons point-à-point sont redondantes.
- 5/ Système de transmission selon l'une quelconque des revendications 1 à 4, caractérisé en ce que l'accès à la ligne de transmission est régi par un protocole de bus à jeton.
- 6/ Système de transmission selon la revendication 5, caractérisé en ce que le protocole de bus à jeton est le protocole défini par la norme ISO 8802.4.

FIG. 1

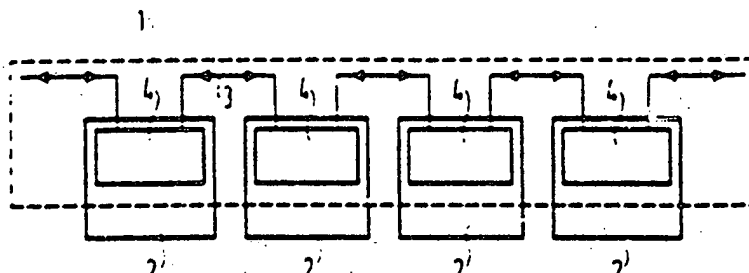


FIG. 2

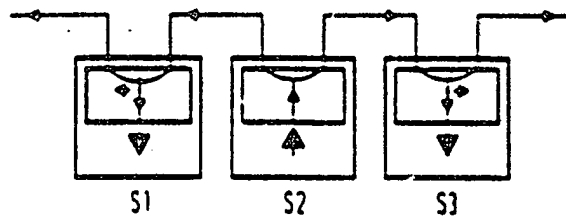


FIG. 3

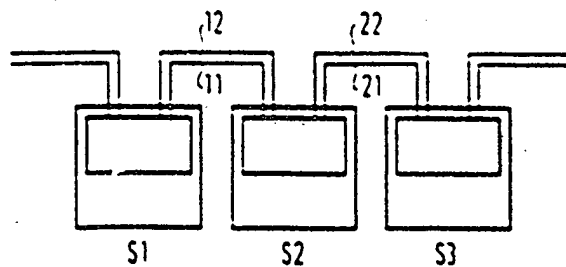


FIG. 4

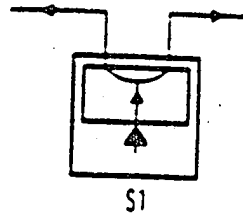


FIG. 5

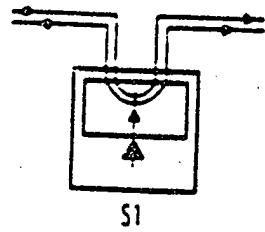


FIG. 6

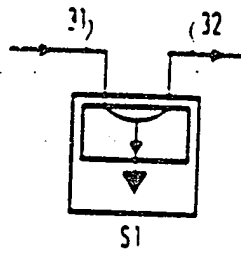


FIG. 7

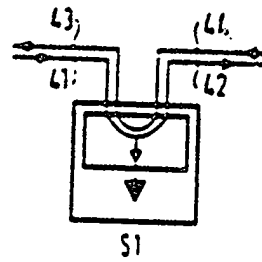
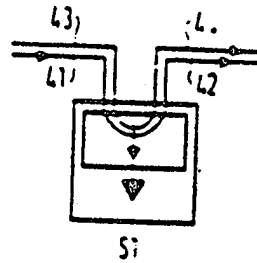


FIG. 8



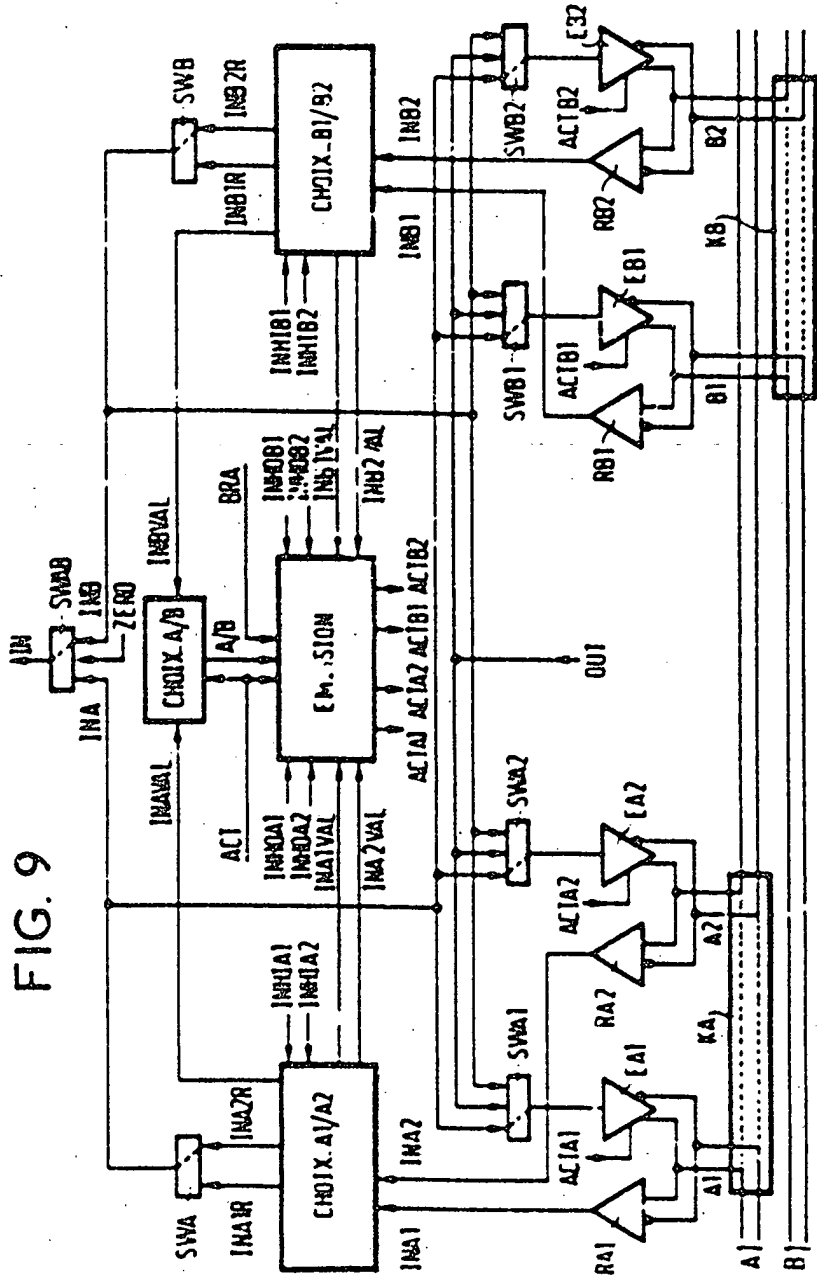


FIG. 9

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CANADIAN INTELLECTUAL
PROPERTY OFFICE

Ottawa Hull K1A 0G9

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(22) 1996/08/14
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(51) Int.Cl. ⁶ B60R 11/04; B60R 1/00

(19) (CA) APPLICATION FOR CANADIAN PATENT (12)

(54) Low Cost Night Vision Camera for Vehicles and Mounting
Thereof

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(30) (US) 08/514,550 1995/08/14

(57) 1 Claim

Notice: This application is as filed and may therefore contain an
incomplete specification.



Industrie Industry
Canada Canada

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Canada

ABSTRACT OF THE DISCLOSURE

An arrangement (10) for mounting a night vision enhancement system to a vehicle (1010). The invention is adapted for use with a night vision enhancement system having an infrared camera (14) and a display (587). In the preferred embodiment, the invention (10) includes a mounting mechanism (16) disposed at a front end of said vehicle (1010) for retaining the camera (14). Optionally, a door (42) is included for protecting the camera (14). The door (42) is actuated on command between open and closed positions by a solenoid (44) attached to the frame of the vehicle on one end and to a linkage (48, 49) on the other. The linkage (48, 49) allows the door (42) to pivot in response to the movement of the solenoid plunger (45). The camera (14) is retained in an upside down orientation by a bracket (16) which is attached to the frame of the vehicle.

2183277

**LOW COST NIGHT VISION CAMERA
FOR VEHICLES AND MOUNTING THEREOF**

5 **REFERENCE TO RELATED APPLICATION**

This is a continuation-in-part to U. S. Patent Application serial number 08/226,
728, entitled **LOW COST NIGHT VISION ENHANCEMENT SYSTEM FOR**
10 **VEHICLES**, filed April 12, 1994.

BACKGROUND OF THE INVENTION

15 **Field of the Invention:**

The present invention relates to imaging systems. More specifically, the present
invention relates to night vision systems.

20 **Description of the Related Art:**

Approximately 55% of all traffic fatalities occur at night, a figure which is
somewhat alarming when considered in light of the fact that only 28% of all driving occurs
25 at night. This is due at least in part to the fact that many drivers often travel at a speed at
which objects and changes in the contours of the road are approached within a time frame
which is insufficient to allow the driver to react given the range of vision afforded by the
illumination of the road with ordinary automotive headlights.

This is exacerbated by the fact that many drivers lose some visual acuity at night
and night vision is often temporarily impaired by glare from the headlights of oncoming
30 vehicles. An additional area of concern relates to personal security and safety from would-
be assailants lurking in obscure areas around a vehicle parking area.

Thus, for many reasons, there has been a need in the art for a night vision system
for vehicles.

35 The invention of the parent application discloses and claims a night vision system
for law enforcement vehicles which substantially addresses the above-identified need in the
art. In the exemplary embodiment, an infrared camera is mounted on the top of the

vehicle. While this is an advantageous location for law enforcement applications, for esthetic and other practical considerations, this arrangement is regarded as undesirable for consumer applications. Accordingly, a need remains for a system for mounting night vision cameras on civilian vehicles which is practical, esthetic and effective.

5 Burley (U. S. Patent 5,001, 558) shows a television camera mounted in the front of the vehicle. An infrared sensor is provided to enhance the image generated by the TV camera. The image is not suitable for night time driving.

Hence, a need remains in the art for improvements in the mounting and protection of infrared cameras in vehicles.

10

SUMMARY OF THE INVENTION

15 The need in the art is addressed by the present invention which provides an arrangement for mounting a night vision enhancement system to a vehicle. The invention is adapted for use with a night vision enhancement system having an infrared camera and a display. The invention includes a mounting mechanism for mounting the camera to the vehicle.

20 In the preferred embodiment, a door is disposed in the line of sight of the camera. The door is actuated on command between open and closed positions by a solenoid attached to the frame of the vehicle on one end and to a linkage on the other. The linkage is connected to the door and allows the door to pivot in response to the movement of the solenoid plunger.

25 The camera is retained by a bracket which is welded to the frame of the vehicle.

BRIEF DESCRIPTION OF THE DRAWINGS

30

Fig. 1 shows various locations at which a night vision camera can be mounted to a vehicle.

Fig. 2 is a side view of the camera assembly of the present invention mounted under the hood and behind the grille of a vehicle at location "A" of Fig. 1.

35

Fig. 3 is an elevated side view of the door assembly of Fig. 2.

Fig. 4 is an elevated front view of the door assembly of Fig. 2.

DESCRIPTION OF THE INVENTION

5 Illustrative embodiments and exemplary applications will now be described with reference to the accompanying drawings to disclose the advantageous teachings of the present invention.

While the present invention is described herein with reference to illustrative embodiments for particular applications, it should be understood that the invention is not limited thereto. Those having ordinary skill in the art and access to the teachings provided herein will recognize additional modifications, applications, and embodiments within the scope thereof and additional fields in which the present invention could be of significant utility.

10 Fig. 1 is a schematic diagram of the low cost night vision enhancement system of the present invention. Fig. 1 shows various locations at which a night vision camera can be mounted to a vehicle. In accordance with the teachings of the present invention, system 1000 includes a night vision camera assembly 10 mounted in the front of a vehicle 1010 (shown in phantom) behind the grille 12 thereof.

15 Fig. 2 is a side view of the camera assembly 10 mounted under the hood 1011 and behind the grille 12 of the vehicle 1010. The camera assembly 10 includes an infrared camera 14 which is secured to the vehicle by a bracket 16. While the camera 14 may be of any suitable design, in the preferred embodiment, the camera 14 is constructed in accordance with the teachings of U. S. Patent Application serial number 08/232,893, entitled Low Cost Night Vision Camera, filed _____, by Klepper et al.,
20 (Att. Docket No. PD 94073), the teachings of which are incorporated herein by reference.

Briefly, as disclosed in the above-noted reference, light enters the camera 14 through a window 18 and is focused onto thermal detectors by high speed optics. The housing 30 is secured to the vehicle 1010 by the bracket 16.

25 The bracket 16 secures and protects the camera 14 behind the grille 12 in an upside down orientation. The bracket 16 is constructed of metal or other suitable material. The bracket 16 has flat top, back and side sections 32, 34, 36 and 38 (not shown) respectively. The bracket 16 has front and bottom flanges 37 and 39. The sides 36 and 38 are triangular in shape so that the bracket 16 is in the shape of a box which is cut along the diagonal thereof and therefore open to receive the camera 14. The bottom section 31 of the camera housing 30 is secured to the top surface 32 of the bracket 16 with screws (not shown) so that the camera 14 is retained in an upside down orientation as illustrated in Fig.
30
35

2. The camera 14 is mounted to have an unobstructed field of view. The back surface 14 of the bracket 16 is attached to the frame or chassis 1013 of the vehicle 1010 in front of the radiator 1015.

A door assembly 40 is mounted in the grille 12 in front of the camera assembly 10. The door assembly 40 includes a pivotally mounted door 42, a solenoid 44 and a linkage 46 connecting same.

Fig. 3 is an elevated side view of the door assembly. Fig. 4 is an elevated front view of the door assembly. The door 42 is designed and connected for rotational motion about a pivot 47. The door 42 is opened and closed by the up and down motion of a solenoid plunger 45 within the solenoid 44. The solenoid 44 may be a latching solenoid of conventional design. The bottom of the solenoid 44 is attached to the frame or chassis of the vehicle. As best illustrated in Fig. 4, the solenoid plunger 45 is pivotally connected to the door 42 by an actuator link 48 and an actuator pin 49. The door 42 is attached to a door housing 43 by the door pivot 47. On a production car, the door housing would be integrated into the grille of the vehicle.

Fig. 3 shows the door 42 in an open position. The door 42 opens in response to a movement of the plunger 45 in a downward position. The door 42 closes in response to the movement of the plunger in the opposite direction.

The upside down orientation of the image provided by the camera 14 is corrected by the electronic signal processing circuitry of the system. Signals from the camera are inverted for right-side up display. The upside down orientation of the camera and reorientation of the image on display is effective to abate the undesirable curvature of the image due to the Columbus effect.

Returning to Fig. 1, the night vision camera 14 is connected to a display unit which, in the illustrative embodiment, may be implemented as a "Datavision" head up display (HUD) available from Hughes Aircraft Company. The Datavision HUD includes a projector display 587, a combiner 1030, and cables 1038 and 1039. The combiner 1030 is mounted on the windshield 1032 or projected directly on the windshield (shown in phantom) of the vehicle 1010 for displaying a real image from the projector 587. The cables are stowed in mounting brackets and the cables are shielded.

The video display is not limited to a Datavision HUD. Alternatively, an active matrix liquid crystal display (LCD) mounted on the dashboard of the vehicle can be used to display the real image from the camera. Active matrix LCDs are available from Ciba, Sharp and Toshiba to name a few.

Instead of displaying a real image, the video display can display a virtual image. The virtual image can be displayed by "Virtual Image Glasses" available from Virtual Vision in Redmond, Washington. The Virtual Image Glasses project a TV-like, wide

screen image in front of the bumper of the vehicle. An officer wears the glasses to view the scene ahead. Data is transmitted either through hard-wired connections or wireless (e.g., spread spectrum) transmission from the camera to the glasses. Instead of the glasses, a helmet-mounted visor can be used to project the TV-like, wide screen image in front of the bumper of the vehicle. One such helmet-mounted visor is disclosed in U.S. Patent No. 5,035,074, entitled _____, issued _____ to Chen, the teachings of which are incorporated herein by reference.

Alternatively, a virtual image can be displayed directly on the vehicle windshield by the virtual display disclosed and claimed in U. S. Patent Application serial number 07/971,799, entitled "Virtual Image Instrument Panel Display" and assigned to the assignee of the present invention. This system, which includes mirrors and an active matrix LCD as a source, can be installed at the vehicle manufacturer, or it can be installed as an after market add-on.

Thus, the present invention has been described herein with reference to a particular embodiment for a particular application. Those having ordinary skill in the art and access to the present teachings will recognize additional modifications applications and embodiments within the scope thereof. In addition, the camera can be architecturally styled into the car by a person skilled in the art.

It is therefore intended by the appended claims to cover any and all such applications, modifications and embodiments within the scope of the present invention.

Accordingly,

WHAT IS CLAIMED IS:

CLAIMS

1. A night vision enhancement system (10) for a vehicle (1010) characterized by:
an infrared camera (14) for providing output signals for use in displaying an
5 image;
a bracket (16) disposed at a front end of the vehicle (1010) for retaining the
camera (14) in an upside down orientation;
a door (42) for protecting the camera (14); and
a display (587).

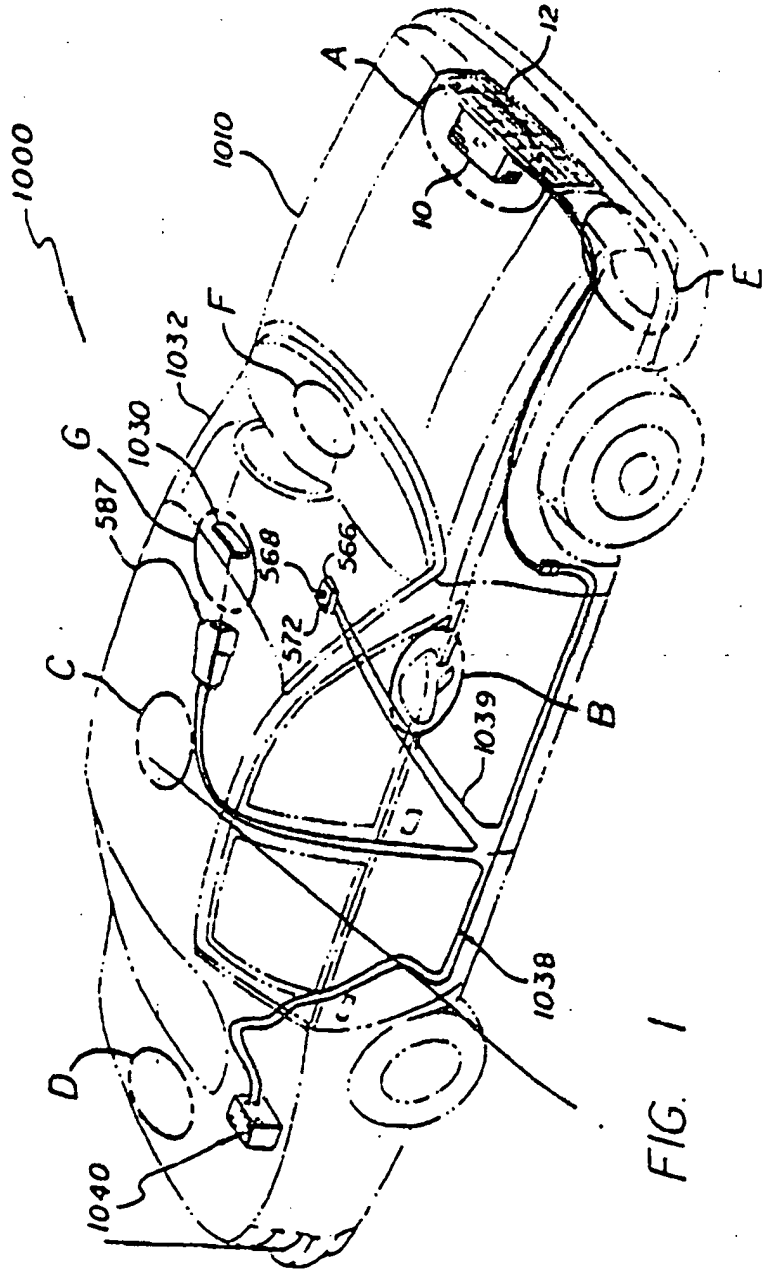


FIG. 1

Sim: H. Conrad

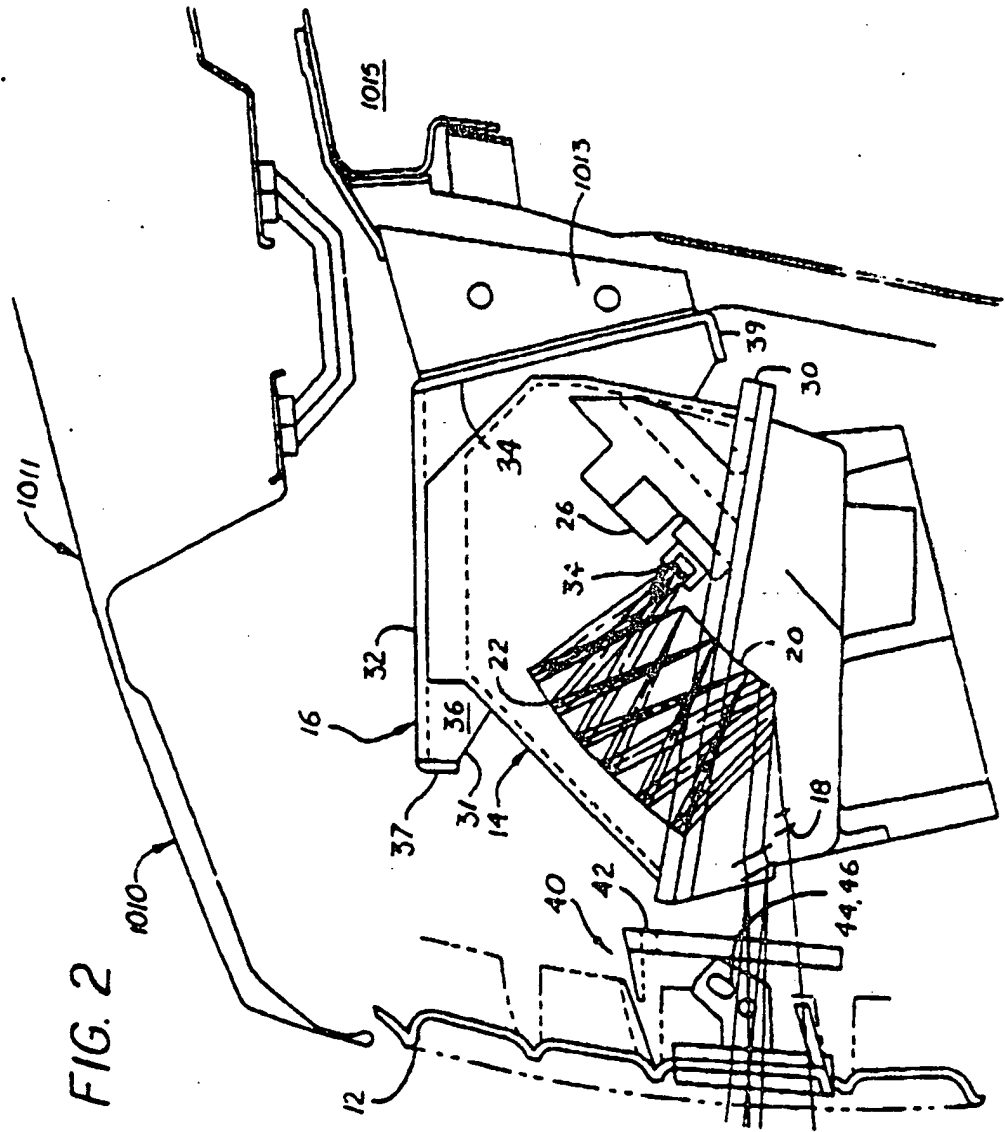


FIG. 2

Printed by H. Currier

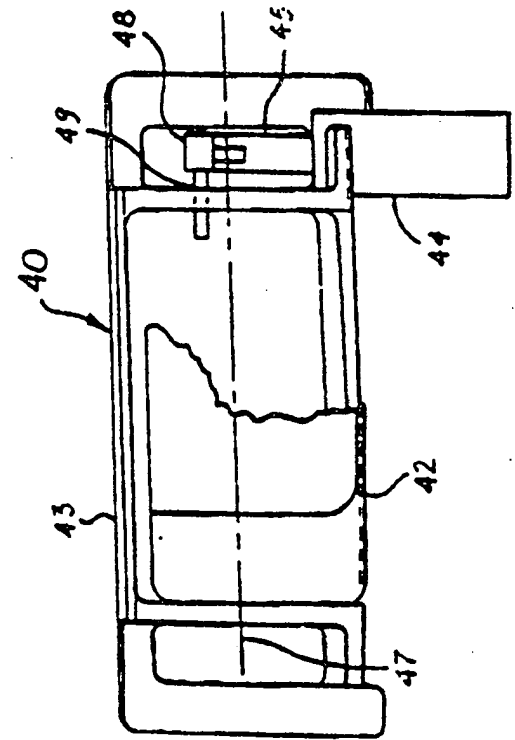
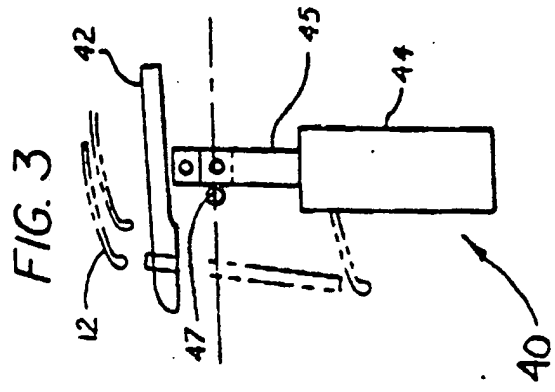


FIG. 4

Sim: J. L. ...



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UNITED STATES DEPARTMENT OF COMMERCE
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/423,284 | 02/22/2000 | SCOTT BLAIR | 0859-96 | 6562 |

7590 11/19/2002

SIXBEY FRIEDMAN LEEDOM & FERGUSON
8180 GREENSBORO DRIVE
SUITE 800
MCLEAN, VA 22102

EXAMINER

WONG, ALLEN C

ART UNIT PAPER NUMBER

2613

DATE MAILED: 11/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

DETAILED ACTION

Claim Objections

1. Claims 6, 7, 9 and 14-16 are objected to because of the following informalities: applicant states "any preceding claim" for claims 6, 7 and 9, for which claims 6, 7 and 9 must have a preceding claim number specified. Claims 14-16 are objected to under 37 CFR 1.75(c) as being in improper form because multiple dependent claims are formed, as specified in MPEP § 608.01(n). Please specify the claim number that dependent claims 6, 7, 9 and 14-16 specifically depend from. Appropriate correction is required.
2. Claim 13 is objected to because the term "substantially" is not definitive as it can describe varying degrees of "flush".

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Gerke (5,009,384).

Gerke discloses a video system for displaying televised material to passengers in a mass transit subway system (col.1, lines 6-12; note a subway car is a part of a train, Gerke's discloses the train and "other forms of public transit", thus the "other forms of public transit" meets the limitation of the mass transit subway system; col.2, lines 27-30 discloses displaying televised material to passengers "on a bus or the like", thus

Art Unit: 2613

meeting the limitation of the mass transit subway system), and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised material to passengers riding therein (col.1, lines 6-12, and fig.1, element 2), and a video signal source unit operatively connected to said at least one monitor (col.1, lines 53-56; note cable means carries the video signal source; see fig.1 and 2 and note element 40 is a secured mount to mount the monitor 2).

Note claim 10 has similar corresponding elements.

Claim Rejections - 35 USC § 103

5. Claims 2-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerke (5,009,384) in view of Steventon (4,647,980).

Regarding claims 2, 9, 11 and 15, Gerke does not disclose the multiple video display monitors. However, Steventon teaches plural displays (fig.2, element 26 is an LCD screen and that each seat has an individual module element 16 that has an LCD screen 26). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke and Stevenson for using multiple displays to satisfy and entertain passengers during long subway train rides. Both Gerke and Steventon pertain to video systems in vehicular transport modes.

Regarding claims 3-5, 7 and 14, Gerke does not disclose the display of prerecorded material that is played back on video tape player. However, Steventon discloses the display of prerecorded material that is played back on video tape player (col.5, lines 60-66). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke and Stevenson for using multiple displays to

Art Unit: 2613

satisfy and entertain passengers during long subway train rides. Both Gerke and Steventon pertain to video systems in vehicular transport modes.

Regarding claims 6 and 12, Gerke discloses the monitor is mounted (see fig.1 and 2).

Regarding claim 8, Gerke does not disclose a broadcast television receiver. However, Steventon discloses a broadcast television receiver (fig.9, element 58 is a television broadcast tuner). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke and Stevenson for using multiple displays to satisfy and entertain passengers during long subway train rides. Both Gerke and Steventon pertain to video systems in vehicular transport modes.

Regarding claim 16, Gerke discloses a cabling system (col.1, lines 53-56; note cable means). Gerke does not disclose multiple monitors. However, Steventon teaches plural displays (fig.2, element 26 is an LCD screen and that each seat has an individual module element 16 that has an LCD screen 26). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke and Stevenson for using multiple displays to satisfy and entertain passengers during long subway train rides. Both Gerke and Steventon pertain to video systems in vehicular transport modes.

Allowable Subject Matter

6. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Art Unit: 2613

7. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art references disclose this specific feature pertaining to the monitor screen being flush with the adjacent wall surface structure of the car.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Allen Wong
Examiner
Art Unit 2613

AW
November 5, 2002


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

| | | | |
|-----------------------------------|---------------------------------------|---|-------------|
| Notice of References Cited | Application/Control No. 09/423,284 | Applicant(s)/Patent Under Reexamination BLAIR, SCOTT | |
| | Examiner Allen Wong | Art Unit 2613 | Page 1 of 1 |

U.S. PATENT DOCUMENTS

| * | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | Classification |
|---|--|-----------------|--------------|----------------|
| A | US-5,009,384 | 04-1991 | Gerke et al. | 248/343 |
| B | US-5,666,291 | 09-1997 | Scott et al. | 709/250 |
| C | US-5,854,591 | 12-1998 | Atkinson | 725/76 |
| D | US- | | | |
| E | US- | | | |
| F | US- | | | |
| G | US- | | | |
| H | US- | | | |
| I | US- | | | |
| J | US- | | | |
| K | US- | | | |
| L | US- | | | |
| M | US- | | | |

FOREIGN PATENT DOCUMENTS

| * | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | Classification |
|---|--|-----------------|---------|------|----------------|
| N | | | | | |
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| P | | | | | |
| Q | | | | | |
| R | | | | | |
| S | | | | | |
| T | | | | | |

NON-PATENT DOCUMENTS

| * | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|
| U | |
| V | |
| W | |
| X | |

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



Form PTO-1449 (Rev.9-94)

#6

U.S. Department of Commerce Patent and Trademark Office

ATTY. DOCKET NO. 0859-96

SERIAL NO. 09/423,284

INFORMATION DISCLOSURE STATEMENT

(Use several sheets if necessary)

APPLICANT BLAIR, Scott

RECEIVED

FILING DATE November 8, 1999

GROUP Unknown JUL 18 2000 2613

U. S. PATENT DOCUMENTS

GROUP 2700

| *EXAMINER INITIAL | Document Number | DATE | NAME | CLASS | SUBCLASS | FILING DATE IF APPROPRIATE |
|-------------------|-----------------|-------|------------------|-------|----------|----------------------------|
| <i>AW</i> | 4,647,980 | 3/97 | Steventon et al. | 348 | 837 | |
| <i>AW</i> | 5,229,910 | 7/93 | Kasahara | 361 | 234 | |
| <i>AW</i> | 5,123,728 | 6/92 | Gradin et al. | 353 | 78 | |
| <i>AW</i> | 5,059,957 | 10/91 | Todoriki et al. | 345 | 7 | |
| <i>AW</i> | 4,630,821 | 12/86 | Greenwald | 463 | 1 | |
| <i>AW</i> | 4,073,368 | 2/78 | Mustapick | 186 | 53 | |
| <i>AW</i> | 4,352,124 | 9/82 | Kline | 348 | 61 | |
| <i>AW</i> | 5,463,827 | 11/95 | Williams | 40 | 449 | |
| <i>AW</i> | 3,457,006 | 7/69 | Brown et al. | 352 | 132 | |
| <i>AW</i> | 3,182,550 | 5/65 | Goldine | 353 | 13 | |
| <i>AW</i> | 1,894,684 | 1/33 | Hawk | 40 | 593 | |

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| | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUBCLASS | TRANSLATION | |
|-----------|-----------------------|-------|-------------------|-------|----------|-------------|----|
| | | | | | | YES | NO |
| <i>AW</i> | 0 577 054 | 1/94 | Europe | | | | |
| | 3,652,701A | | France | | | | X |
| <i>AW</i> | 2,183,277 | 2/97 | Canada | | | | |
| <i>AW</i> | 2,089,382 | 12/92 | Canada | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

OTHER INFORMATION (including author, title, date, pertinent pages, etc.)

Iwanic, John.. "Multi-modal Approach to Customer Information Systems", pages 1-18, APTA's 1996 Intermodal Operations Planning Workshop, August 1996

EXAMINER

[Signature]

DATE CONSIDERED

11/5/02

* Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered, include copy of this form with next communication to applicant.

#8
3-4-03

Docket No. 740859-96

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

2/24/03

| | | |
|------------------------------|---|--------------------------|
| In re Patent Application of: |) | |
| Scott BLAIR |) | Examiner: WONG, Allen C. |
| Serial No. 09/423,284 |) | Group Art Unit: 2613 |
| Filed: February 22, 2000 |) | |
| For: SUBWAY TV MEDIA SYSTEM |) | |

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, Washington, DC 20231, on February 19, 2003.

Deborah T. Tomme

Name: Deborah T. Tomme

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
Washington, DC 20231

Sir:

In accordance with the duty of disclosure as set forth in 37 C.F.R. §1.56, Applicants hereby submit the following information in conformance with 37 C.F.R. §§ 1.97 and 1.98. Pursuant to 37 C.F.R. § 1.98, a copy of each of the documents cited is enclosed.

U.S. Patent 5,606,154 to Doigan et al. and Canadian Patent No. 1,316,253 to Takawa et al. listed in the attached FORM PTO-1449 were cited by the Examiner in a corresponding Canadian patent application.

French Patent No. 2,652,701 to Comerzan Sorin, which was submitted in the IDS filed July 10, 2000, is being resubmitted with an English translation.

It is requested that the accompanying PTO-1449 be considered and made of record in the above-identified application. To assist the Examiner, the documents are listed on the attached form PTO-1449. It is respectfully requested that an Examiner initialed copy of this form be returned to the undersigned.

02/27/2003 SZEWDIE1 00000027 09423284

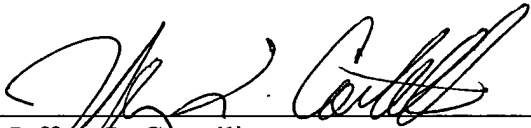
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180.00 DP

NVA255862.1

The Commissioner is hereby authorized to charge any fees connected with this filing which may be required now, or credit any overpayment to Deposit Account No. 19-2380(740819-423).

Respectfully submitted,

By: 

Jeffrey L. Costellia
Registration No. 35,483

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Consommation et
Affaires commerciales Canada

Consumer and
Corporate Affairs Canada

Bureau des brevets

Patent Office

Ottawa, Canada
K1A 0C9

(11) (C) 1,316,253

(21) 557,440

(22) 1988/01/27

(45) 1993/04/13

(52) 350-?0

(51) INTL.CL. ⁵ H04N-7/18

(19) (CA) CANADIAN PATENT (12)

(54) Service and Entertainment System

(72) Tagawa, Koichi, Japan
Hatsuzaki, Atsushi, Japan
Toyoshima, Masakatsu, Japan
Kondo, Yoshiyuki, Japan

(73) Sony Corporation, Japan

(30) (JP) Japan 019981/87 1987/01/30

(57) 22 Claims

Canada

OCA 3254 (10-87) et FICD-01403-3254

582P021

1316253

PATENT

SERVICE AND ENTERTAINMENT SYSTEM

5

BACKGROUND OF THE INVENTION

Field of the Invention

The invention relates generally to apparatus for transmitting a plurality of video and audio signals in parallel to each of a plurality of remote terminal units each of which may be located at or near a passenger seat of a passenger vehicle such as an aircraft, a train, a bus, or the like, or at or near a seat in a stadium or theater or the like. More particularly, this invention relates to a service and entertainment system for a passenger vehicle, a stadium, a theater, or the like having a plurality of seats.

Description of the Prior Art

It has been proposed, for example, in U.S. Patent No. 4,584,603, issued April 22, 1986 to Harrison, that video displays be mounted separately on passenger seats of a passenger vehicle, such as an aircraft. In the system of U.S. Patent 4,584,603, a video display is mounted on each of plurality of passenger seats and a plurality of video signals, video game software signals and flight information signals are transmitted in parallel to these video displays. The video display at each seat selects one of these signals and displays the selected signal.

In the system of U.S. 4,584,603, each signal supplied to the video displays is transmitted through a plurality of independent transmission lines (one transmission line for each respective video display). In order to transmit many signals to each display, many transmission lines are required for each display. Accordingly, the system wiring is very complicated and



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the arrangement of the overall system is also very complicated.

5 Another aircraft passenger television system, in which video programs can be selected by displays mounted on respective passenger seats, has been disclosed in U.S. Patent No. 4,647,980, issued March 3, 1987 to Steventon, et al. The aircraft passenger television system of U.S. 4,647,980, however, is incapable of two-way signal transmission between a 10 central unit and each of a plurality of remote units mounted on passenger seats, and is incapable of transmitting signals other than video programs from a central unit to a plurality of remote units. The system of U.S. 4,647,980 offers a menu of programs that is too 15 limited for the U.S. 4,647,980 system to be used as a broad-menu service and entertainment system for passengers.

SUMMARY OF THE INVENTION

20 The invention is an improved service and entertainment system for a passenger vehicle, having a simplified arrangement and offering passengers a broad menu of services and entertainments.

In one embodiment, the invention includes:
25 a head end apparatus comprising means for reproducing video signals, means for reproducing audio signals, means for storing television game software signals, digital encoder means for digitally encoding the audio signals and television game software signals, 30 means for modulating the video signals and the encoded audio signals and television game software signals in channels of different frequency bands, respectively, and means for multiplexing the modulated video signals, audio signals and television game software signals;

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a plurality of terminal units, each provided at a respective one of a plurality of passenger seats, each said terminal apparatus unit including tuner means for receiving and demodulating the multiplexed video signals, audio signals and television game software signals, decoder means for decoding the encoded audio signals and television game software signals, memory means for storing the television game software signals, means for processing the television game software signals, display means, and means for selecting one of the video signals, audio signals and television game software signals; and

cable means for transmitting the multiplexed video signals, audio signals, and television game software signals to the terminal units.

In another embodiment, the invention includes:

a head end apparatus comprising means for generating video and related audio signals, means for generating separate audio signals, memory means for storing television game software signals, digital encoder means for digitally encoding all of said audio signals and said television game software signals, means for modulating said video signals and the output signal of said digital encoder means, and multiplexer means connected to said modulator means for multiplexing the modulated video signals, audio signals, and television game software signals;

a plurality of terminal units each provided at respective one of said passenger seats, each said terminal unit comprising a first tuner means for receiving said video signals, a second tuner means for receiving the audio signals related to said video signals, said separate audio signals, and said television game software signals, a decoder means for decoding the output signal of said second tuner means,

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5 a selecting means for selecting said video and related audio signals, said separate audio signals, or said television game software signals, a display means, an audio output terminal, a volume control means, and a means for processing said television game software signals; and

means for transmitting multiplexed signals from the head end apparatus to the plurality of terminal units.

10 These and other features and advantages of the invention will become apparent from the following detailed description of the preferred embodiments that is to be taken in conjunction with the accompanying drawings, throughout which like references designate like elements and parts.

15

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a circuit block diagram showing the whole arrangement of an embodiment of a service and entertainment system according to the present invention;

20 Fig. 2 is an enlarged front view of a front panel of a selection and display apparatus used in the Fig. 1 embodiment;

25 Fig. 3 is a rear view of two units of the selection and display apparatus of the invention, each mounted on a different passenger seat; and

Fig. 4 is a perspective view of a preferred embodiment of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

30 Several embodiments of a service and entertainment system according to the present invention will now be described with reference to the attached drawings.

The "transmitting side" (also referred to as the "central control portion" or "central control unit") of

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invention will first be described with reference to Fig. 1.

In Fig. 1, reference numerals 1a to 1d designate video tape recorders provided in the transmitting side. The transmitting side may be located in an aircraft crew's room. Video tape recorder 1a is used for an override operation and may be loaded with a cassette tape explaining how to put on a life-jacket or the like. Each of video tape recorders 1b to 1d is loaded with a cassette tape of a video program such as a movie. Each of video tape recorders 1a to 1d is respectively provided with a terminal V for outputting a reproduced video signal and with terminals L, R and A for outputting reproduced audio signals. In an embodiment in which video tape recorders 1a to 1d store bi-lingual programs, terminals L and R are used for outputting left-channel and right-channel audio signals in a first language, respectively, and terminal A is used for outputting a monaural audio signal in a second language.

Television tuner 2 is provided with a terminal V for outputting a video signal and terminals L and R for outputting the left and right channels of an audio signal, respectively.

Still picture reproducing apparatus 3 is capable of reproducing still picture information recorded in a compact disk (CD) ROM, such as maps, an airport guiding drawing, or the like. The still picture reproducing apparatus 3 is provided with a terminal V for outputting a video signal representative of a still picture and a terminal A for outputting an audio signal associated with the still picture.

Audio reproducing apparatus 4a and audio reproducing apparatus 4b each include three sets of compact disk players (CD players) and tape recorders. The audio reproducing apparatus 4a, 4b are respectively

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provided with six pairs of terminals L and R for outputting left channel and right channel audio signals.

Controller 5 comprises a microphone 5a, a volume control 5b for adjusting the level of an audio signal received at the microphone 5a, an announce key 5c, an
5 override key 5d and pause keys 5e to 5g for setting the video tape recorders 1b to 1d into pause mode. Video signals from the respective terminals V of the video tape recorders 1a, 1b and audio signals from the
10 respective terminals L, R and A of these recorders are supplied to controller 5. Controller 5 is provided with a terminal V for outputting a video signal and terminals L, R and A for outputting audio signals. Usually, the terminals V, L, R and A of the controller 5 output the
15 video signal supplied from terminal V of the video tape recorder 1b and the audio signals supplied from terminals L, R and A of video tape recorder 1b. However, when the override key 5d is pressed to trigger the override operation, the terminals V, L, R and A of
20 the controller 5 output the video signal supplied from terminal V of video tape recorder 1a and audio signals supplied from terminals L, R and A of video tape recorder 1a. When the announce key 5c is pressed to initiate the announce operation, an audio signal from
25 microphone 5a is delivered to the output terminal A of controller 5.

CADA encoders 6 and 7 are of the type used in the conventional cable digital audio/data transmission system (CADA system) disclosed in U.S. Patent 4,684,981
30 issued August 4, 1987. The CADA encoders are capable of time-division-multiplexing a plurality of digital audio and data signals and transmitting the multiplexed signals over a vacant one channel band width (6 MHz) of a CATV, thus transmitting signals (e.g., music) with
35 high efficiency without damaging their quality. Each of

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CADA encoders 6 and 7 is provided with an A/D (analog-to-digital) converter and a shift register. The time-division-multiplexing operation is carried out by converting a plurality of audio signals into digital signals in the A/D converter, inputting the digital signals in parallel to the shift register at predetermined locations, and then outputting the digital signals from the shift register in series at a high speed. Not only digital audio signals but also control data and data comprising computer software can be multiplexed by the CADA encoders in this manner.

The audio signals delivered to the output terminals L, R and A of controller 5 are supplied to encoder 6. The audio signals delivered to the output terminals L, R and A of the video tape recorders 1c and 1d are also supplied to encoder 6. The audio signals delivered to the output terminals L and R of the tuner 2 and the output terminal A of the still picture reproducing apparatus 3 are also supplied to encoder 6. The audio signals delivered to the six pairs of output terminals L and R of audio reproducing apparatus 4a and the six pairs of output terminals L and R of audio reproducing apparatus 4b are supplied to encoders 6 and 7 through controller 5.

When one of the override key 5d, the announce key 5c, and the pause keys 5e to 5g of the controller 5 is pressed, the controller 5 generates control data SC₁ having contents corresponding to the pressed key. The control data SC₁ is supplied to the encoder 6.

Encoder 6 has output terminals A to E from each of which a pause control signal is outputted in response to the control data SC₁. The video tape recorders 1b to 1d and the audio reproducing apparatus 4a and 4b are respectively controlled by the pause signals delivered from the terminals A to E of the encoder 6. More

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specifically, when the override key 5d and the announce key 5c are pressed, the pause control signal is outputted from all of the terminals A to E, so that the video tape recorders 1b to 1d and the audio reproducing apparatus 4a and 4b all enter a pause mode. When the pause keys 5e to 5g are pressed, pause control signals are outputted from output terminals A to C, placing the video tape recorders 1b to 1d into a pause mode, respectively.

10 A master controller 8 is provided. Master controller 8 comprises a computer which controls the overall system, and is preferably located in the cabin of the aircraft. Master controller 8 is connected with a display 81 and a keyboard 82. Master controller 8 generates control data SC₂ (for controlling one or more terminal apparatus units located in the receiving side of the system) in response to a command from keyboard 82 and supplies control data SC₂ to encoder 6. The control data SC₂ may be, for example, data for controlling the luminance of a display in the terminal apparatus, data for polling the conditions of each passenger seat at which a terminal apparatus is located, or other data. The data can be monitored by the display 81 connected to the master controller 8.

25 Menu data is written in ROM 9a, and a different set of game data is written in each of ROMs 9b to 9h. Each data signal SD read out from the ROMs 9a to 9h (for example, for use with computer software) is supplied to a signal processing circuit 10 in which, for example, an error correcting code may be added thereto, and is supplied to encoder 7 thereafter.

30 Control data signals SC₁ and SC₂ are supplied also to the encoder 7 from the encoder 6.

35 A time-division-multiplexed signal SCA₁ emerges from output terminal 0 of encoder 6. Signal SCA₁

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includes the plurality of digitally converted audio signals generated in encoder 6, and the control data SC₁ and SC₂ supplied to encoder 6. The signal SCA₁ is supplied to a modulator 11f to be amplitude-modulated, preferably by a VSB (vestigial sideband) system.

A time-division-multiplexed signal SCA₂ emerges from an output terminal 0 of the encoder 7. Signal SCA₂ includes the plurality of digitally converted audio signals generated in encoder 7, and the control data (SC₁ and SC₂) and the signal SD supplied to encoder 7. The signal SCA₂ is supplied to modulator 11g to be amplitude-modulated, preferably by a VSB system.

The video signal delivered to the output terminal V of controller 5 is supplied to modulator 11a. The audio signal delivered to the terminal A of controller 5 is supplied both to modulator 11a and to encoder 6. In modulator 11a, an ordinary television signal is generated by frequency modulating the audio signal and frequency-multiplexing the frequency modulated audio signal with the video signal. This television signal is thereafter amplitude-modulated, preferably by a VSB system.

The video signals delivered to the respective output terminals V of the video tape recorders 1c, 1d, the tuner 2, and the still picture reproducing apparatus 3 are respectively supplied to modulators 11b to 11e to be amplitude-modulated, preferably by a VSB system.

The modulators 11a to 11g modulate the signals supplied thereto in frequency bands chosen so as to prevent cross modulation, such as in every other channel above the 60 channels of the television broadcasting band.

Output signals from the modulators 11a to 11g are supplied to an adder 12 in which they are frequency-multiplexed. The frequency-multiplexed signal

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5 S_{MF} from the adder 12 is supplied through a signal distributor 13 to one end of a leaky cable 21. Cable 21 serves as a bi-directional signal transmission means. The other end of leaky cable 21 terminates at terminal resistor 22. A coaxial cable whose periphery is spirally indented so as to leak a large amount of signals is suitable for use as cable 21.

The receiving side of the system of the invention will next be described.

10 Fig. 1 shows terminal apparatus unit 30, of the type that preferably will be mounted on the back of a plurality of passenger seats in an aircraft. Although only one terminal apparatus unit 30 is illustrated in Fig. 1, preferably there will be the same number of
15 units of apparatus 30 as there are passenger seats in the aircraft. The terminal apparatus 30 is provided with an antenna 31 which receives the frequency multiplexed signal S_{MF} leaking from the leaky cable 21. The frequency-multiplexed signal S_{MF} received at the
20 antenna 31 is supplied through a signal distributor 32 to a television tuner 33 and a CADA tuner 34. Tuner 33 is capable of selectively receiving channels in the output frequency bands of the modulators 11a to 11e, while the tuner 34 is capable of selectively receiving
25 channels in the output frequency bands of the modulators 11f and 11g. Tuners 33 and 34 are controlled in their channel selections by a selection and display apparatus 35.

30 Video and audio signals emerging from tuner 33 are supplied to the selection and display apparatus 35, and the time-division-multiplexed signal S_{CA1} or S_{CA2} emerging from tuner 34 is supplied to a CADA decoder 36. The CADA decoder 36 is constructed so as to effect substantially the inverse operations to those performed
35 in CADA encoders 6 and 7. More specifically, CADA

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decoder 36 decodes the time-division-multiplexed signal SCA1 or SCA2 or CADA data, produces a desired demultiplexed signal, and supplies the same to selection and display apparatus 35 or personal computer 37. An embodiment of decoder 36 is described in above-referenced U.S. Patent 4,684,981.

Fig. 2 is an example of a preferred arrangement of the panel of selection and display apparatus 35. The panel of selection and display apparatus 35 may be mounted on the back of a passenger seat, as shown in Fig. 3.

Fig. 2 shows a display 35a, which may comprise a flat cathode ray tube or an LCD (liquid crystal display) or the like, an audio output terminal 35b for connecting a pair of head phones 35c thereto, and a game terminal 35d for connecting a joy stick 35e or the like (refer to Fig. 1) for playing games.

Further, the selection and display apparatus 35 is provided with a television selecting key 35f, a music selecting key 35g, a channel display 35h, a channel-down key 35i and a channel-up key 35j.

The television channel can be sequentially changed by first pressing the television selecting key 35f and then pressing the channel-down key 35i or the channel-up key 35j. Thus, when the channel received by the television tuner 33 is changed sequentially, the display 35a sequentially displays images reproduced from the video signals derived from the video tape recorders 1b to 1d, the tuner 2 and the still picture reproducing apparatus 3, and corresponding audio signals from CADA decoder 36, are outputted to the audio output terminal 35b. When the audio signal is bi-lingual, two audio channels are assigned for one video display. A first language is outputted from the first channel; and a second language from the second channel.

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5 The music channel can be sequentially changed by first pressing the music selecting key 35g and then pressing the channel-down key 35i or the channel-up key 35j. In this manner, the audio signal outputted from the CADA decoder 36 is changed, and the audio signals outputted from the audio reproducing apparatus 4a and 4b are sequentially outputted to the audio signal output terminal 35b.

10 The selection and display apparatus 35 is also provided with a menu display key 35k, a cursor-down key 35l, a cursor-up key 35m and an enter key 35n. By pressing the menu key 35k, a video signal based on data from the menu ROM 9a is supplied to the selection and display apparatus 35 from the personal computer 37 and a menu is displayed on the display 35a.

15 By pressing the enter key 35n after selecting a game by moving the cursor on the display with the cursor-down key 35l and the cursor-up key 35m, a video signal and an audio signal based on data of the selected game from the game ROMs 9b to 9h are supplied from the personal computer 37 to the selection and display apparatus 35. Then, the game is displayed on the display 35a and the game sound signal is outputted to the audio output terminal 35b.

20 Selection and display apparatus 35 also includes an attendant call key 35p, a reading light key 35q and a volume control 35r.

25 Referring again to Fig. 1, in response to control data SC1 and SC2 derived from CADA decoder 36, the selection and display apparatus 35 is controlled by a central processing unit (not shown) located within CADA decoder 36. When control data SC1 indicates that the override mode has been selected (this selection is made by depressing the override key 5d of control apparatus 5 located at the transmission side), tuner 33 is tuned to

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receive the channel of the output frequency band associated with modulator 11a, so that a picture based on the video signal produced at output terminal V of video tape recorder 1a is displayed on the display apparatus 35a, while the related audio signal produced at output terminal A of video tape recorder 1a is fed to audio output terminal 35b. When control data SC1 indicates that the announce mode has been selected (this selection is made by actuating the announce key 5c of control apparatus 5 located at the transmission side), the tuner 33 is also tuned to receive the channel of the output frequency band associated with modulator 11a, while the audio signal from the microphone 5a is fed to audio output terminal 35b. In the announce mode, the video signal is muted and thus no picture is displayed on the display apparatus 35a. In both the announce mode and the override mode, the sound volume to all terminal units may be controlled so as to remain constant.

If CADA encoder 6 or 7 is disabled, the control data SC1 obtained is the same as the control data SC1 generated to initiate the override mode, so that in this case also, tuner 33 is forcibly placed in the same reception state as that in which it is placed in the override mode.

In the event that tuner 33 is placed in this reception state while a television game is being played, execution of the game by personal computer 37 is interrupted temporarily.

When the announce key 5c is pressed again to terminate the override operation or the announce operation, selection and display apparatus 35 is released from the override condition and is automatically returned to its condition as of initiation of the override or announce operation. At this point, personal computer 37 may resume execution of a

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television game. When the selection state (reception state) is overridden (forced into a controlled condition) channel indicator 35h displays a signal indicative of the forced condition. Alternatively, a special
5 indicator may be provided to perform this function.

On the basis of control data SC2, the brightness of display apparatus 35a is automatically controlled in accordance with the brightness of the cabin. When control data SC2 requests information regarding a
10 terminal unit, a CPU (not shown) within CADA decoder 36 generates the requested information, which may be indicative of the status of apparatus 35, or data detected by sensors (such as sensor 35) and indicative of whether the seat belts are fastened or not, or
15 indicative of the reclining states of passenger seats or the like. Such data is supplied to transmitter 38, in which it is modulated by a signal having a selected frequency outside the frequency bands of modulator 11a through 11g. Then the modulated data is supplied through
20 signal distributor 32 and antenna 31 to leaky cable 21. The signal transmitted by leaky cable 21 is supplied through the signal distributor 13 to the CADA encoder 6 located at the transmitting side, and is fed through CADA encoder 6 to master controller 8, in which it is
25 utilized.

If the attendant call key 35p of selection and display apparatus 35 is depressed, control data is generated from the CPU of CADA decoder 36. This data is supplied to and modulated by transmitter 38 and the
30 modulated data signal is then fed through the signal distributor 32 and the antenna 31 to leaky cable 21. The data signal from the leaky cable 21 is supplied through signal distributor 13 to CADA encoder 6 at the transmitting side. On the basis of this data, the CPU
35 (not shown) within CADA encoder 6 controls a switch box

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41 to light a corresponding attendant call lamp 41 (shown in Fig. 1). If the reading lamp key 35g of selection and display apparatus 35 is actuated, control data is generated from the CPU of the CADA decoder 36. Such data is supplied to the transmitter 38, in which it is modulated and then fed through the signal distributor 32 and antenna 31 to leaky cable 21. The data from the leaky cable 21 is supplied through signal distributor 13 to CADA encoder 6 at the transmitting side. On the basis of this data, the CPU within CADA encoder 6 controls switching box 40 to light a corresponding reading light 42.

Further, if a keyboard 43 is connected to game terminal 35d, as shown by a broken line in Fig. 1, the CPU within CADA decoder 36 produces control data. Such control data is supplied to transmitter 38, in which it is modulated and then fed through the signal distributor 32 and the antenna 31 to the leaky cable 21. The data from the leaky cable 21 is supplied through signal distributor 13 to CADA encoder 6 and is further fed from CADA encoder 6 to master controller 8. When supplied with this data, master controller 8 responds by supplying appropriate computer program data (which may be a word processing program, and will hereinafter be referred to as a word processor program, for specificity) to CADA encoders 6 and 7. This word processor program is then supplied as a frequency-multiplexed signal through the leaky cable 21 to terminal apparatus unit 30 and is then latched into personal computer 37. In this operating mode, if the user enters sentences or other information by operating keyboard 43, such sentences or other information are recorded in a random access memory (RAM) of personal computer 37. Display 35a displays the sentences or other information so that the user can correct them or

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otherwise process them while viewing them on display
35a. When the correction, or other processing
operation, is ended using keyboard 43, data representing
the sentences or other information (converted to ASCII
5 code) from the memory of personal computer 37 is
transmitted through CADA decoder 36 to the transmitter
38, in which the data is modulated and then fed through
the signal distributor 32 and the antenna 31 to the
leaky cable 21. The data from the leaky cable 21 is
10 supplied through the signal distributor 13 to the CADA
encoder 6 in which it is encoded. The encoded data from
the CADA encoder 6 is supplied to the master controller
8. The data may then be supplied to a disk drive 44 in
by which it is recorded, for example, in a floppy disk
15 (not shown). Alternatively, the data may be supplied to
a printer 45 where it is printed out, or the data may be
transmitted to a remote location via a communication
apparatus 46. The user can select any one of the disk
drive 44, the printer 45 and the communication apparatus
20 46 by entry of appropriate commands using keyboard 43.
Such selection commands are supplied to the master
controller 8 together with the other word processing
data (such as sentences) entered using keyboard 43. The
passenger may also utilize any word processor or other
25 program which was previously written in a ROM (not
shown) within personal computer 37. The passenger may
pick up any record generated in disk drive 44 or any
paper record generated by printer 45, for example, when
the passenger exits the aircraft.

30 According to the embodiment of the invention
described with reference to Figs. 1-3, video signals
from the video tape recorders 1a to 1d, the tuner 2 and
the still picture reproducing apparatus 3, and audio
signals from the video tape recorders 1a to 1d, the
35 tuner 2, the still picture reproducing apparatus 3 and

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the audio reproducing apparatus 4a and 4b, and so on, are frequency-multiplexed (in a time-division manner described in referenced U.S. Patent 4,684,981) and output as signals SCA1 and SCA2 of CADA encoders 6 and 7. These output signals SCA1 and SCA2 are respectively modulated by the modulators 11a to 11g and then added together to form the frequency-multiplexed signal S_{MF}. This frequency-multiplexed signal S_{MF} is supplied to the leaky cable 21 for transmission to the reception side. Upon reception at each terminal unit 30, the selection and display apparatus 35 may select a desired signal from the plurality of video and audio signals transmitted as the frequency-multiplexed signal S_{MF}.

Data generated by actuation of the reading lamp key 35q and the attendant call key 35p, data indicative of the selected status of selection and display apparatus 35 and other data derived from terminal apparatus unit 30, are modulated by transmitter 38 and then supplied through the signal distributor 32 and the antenna 31 to the leaky cable 21. The data from the leaky cable 21 is supplied through the signal distributor 13 to CADA encoder 6. On the basis of this data, the CPU within CADA encoder 6 controls the reading light 42 and the attendant call light 41, for example, to turn each on or off. Alternatively, this data is supplied to master controller 8 in which an audience rating or the like is calculated on the basis of the data supplied.

Fig. 4 shows the appearance of a preferred embodiment of the present invention which is installed in a aircraft. The parts in the Fig. 4 system corresponding to those of Fig. 1 are marked with the same reference numerals and will not be described again in detail. The disk drive 44, the printer 45 and the external communication apparatus 46 shown in Fig. 1 are not shown in Fig. 4 for simplicity. ROMs 9a to 9h and

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signal processing circuit 10 shown in Fig. 1 are all secured in box 100, while CADA encoders 6 and 7, modulators 11a to 11g, adder 12, and signal distributor 13 are all secured in box 200.

5 Since the plurality of video signals, audio signals, and television game software signals to be transmitted by the invention are frequency-multiplexed at the transmission side and supplied through leaky cable 21 to each terminal apparatus unit 30 on the
10 reception side, the overall arrangement of the invention is simple, and the signal transmission components are particularly simple, compact, and light-weight. This is particularly advantageous in an aircraft which desirably has a low weight.

15 According to the invention, a desired one of a plurality of different video programs, such as movies, digitally reproduced music, and television games can be enjoyed at every passenger seat. The invention is thus suitable for use as a service and entertainment system
20 for a passenger vehicle (such as an aircraft) having a plurality of passenger seats.

 Further, according to the present invention, since the audio signals are digitized for transmission as digital signals by CADA encoders 6 and 7, each user can
25 enjoy music having excellent tone quality, which quality is uniform among the terminal units 30 at the reception side.

 While the present invention is useful as an information transmitting apparatus or service and
30 entertainment system within the cabin of an aircraft as described above, the invention is not limited for use for this purpose, and instead can be implemented in other kinds of passenger vehicles (such as a train or a bus), or in a theater, stadium, or the like.

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5 While each selection and display apparatus 35 is shown mounted on the rear side of a passenger seat in Figs. 3 and 4, each selection and display apparatus 35 may alternatively be provided at other locations near the user, for example, at the arm portion of the user's seat, or a table portion contained in the user's seat. Alternatively, the selection portion of the terminal apparatus can be provided at the user's arm rest while the display portion is provided on the rear side of the seat ahead of the user.

10 According to the present invention, since a plurality of video signals and audio signals (and other signals) are frequency-multiplexed and then transmitted through single signal transmitting means, and since the data generated at the reception side is transmitted through the same single signal transmitting means to the transmission side, the system wiring is simple and the hardware for implementing the invention can be simplified. This enhance the suitability of the service and entertainment system of the invention for use as an information transmitting apparatus for a passenger vehicle, or as a service and information transmitting apparatus located within a theater, stadium or the like.

20 Although several preferred embodiments of the invention have been described, it will be apparent that many modifications and variations could be effected by one skilled in the art without departing from the spirit or scope of the invention, as claimed below.

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WE CLAIM AS OUR INVENTION:

1. A service and entertainment system, comprising:

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a head end apparatus comprising means for reproducing video signals, means for reproducing audio signals, encoder means for encoding said audio signals, means for modulating said video signals and said encoded audio signals in channels of different frequency bands, respectively, and means for multiplexing said modulated video signals and encoded audio signals, respectively; cable means for transmitting said multiplexed, modulated video signals and encoded audio signals; and

a plurality of terminal units each positioned away from the head end apparatus, each said terminal unit including a means for selecting at least one of said multiplexed, modulated video signals and encoded audio signals, a tuner coupled to the selecting means for receiving and demodulating said selected video signals and encoded audio signals, a decoder means for decoding said selected encoded audio signals, a display means for displaying the selected video signals, and an audio output terminal for receiving the selected decoded audio signals.

30

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2. A service and entertainment system according to claim 1, in which said audio signals are analog audio signals and said encoder means converts said analog audio signals to digital audio signals prior to encoding said audio signals therein, and said decoder means converts said digital audio signals to analog audio signals prior to decoding said audio signals therein.

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3. A service and entertainment system according to claim 1, wherein the head end apparatus also includes means for storing television game software signals, wherein the encoder means is capable of digitally encoding the television game software signals, the modulator means is capable of modulating the television game software signals, and the multiplexing means is capable of multiplexing the modulated television game software signals with the modulated video signals and the modulated audio signals, and wherein the tuner of each terminal unit is capable of receiving and demodulating the multiplexed television game software signals, the decoder means of each terminal unit is capable of decoding the digitally encoded television game software signals, and wherein each terminal unit includes means for storing, processing, and selecting the decoded television game software signals.

4. A service and entertainment system according to claim 3, in which each said terminal apparatus further comprises a game terminal to which a game controller may be connected.

5. A service and entertainment system according to claim 3, in which said selecting means comprises a channel indicator, a set of channel up and down keys for use in selecting any one of said video signals and said audio signals, and a game selecting key for selecting any one of said decoded television game software signals.

6. A service and entertainment system according to claim 5, in which each said terminal apparatus further comprises a volume control for controlling the

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volume of the selected decoded audio signals received at the audio output terminal.

5 7. A service and entertainment system according
to claim 6, further comprising an attendant call light
and a reading light provided for each said terminal
unit wherein said head end apparatus further comprises
control means for controlling each said attendant call
light, and wherein each said terminal unit comprises an
10 attendant call key, a reading light key, means for
generating a control signal by actuation of said
attendant call key and said reading light key, and
means for sending said control signal to said control
means in said head end apparatus through said cable
15 means.

8. A service and entertainment system according
to claim 7, in which each said terminal unit comprises a
panel including said display means, said game terminal,
20 said channel indicator, said channel up and down keys,
said game selecting key, said volume control, said
attendant call key and said reading light key.

9. A service and entertainment system according
25 to claim 8, in which at least one of said panels is
adapted to be mounted on the rear side of a passenger
seat in a passenger vehicle.

10. A service and entertainment system according
30 to claim 8, in which said display means is a flat
cathode ray tube.

11. A service and entertainment system according
35 to claim 8, in which said display means is a liquid
crystal display.

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- 5 12. A service and entertainment system according to claim 2, in which each said terminal unit further comprises antenna means for receiving said multiplexed video signals and audio signals, and a signal distributor connected between said antenna means and said tuner, and each said tuner includes a first tuner for receiving said video signals and a second tuner for receiving said audio signals.
- 10 13. A service and entertainment system according to claim 2, in which said video signal reproducing means includes a plurality of video cassette recorders and a means for reproducing still video pictures.
- 15 14. A service and entertainment system according to claim 13, in which said video signal reproducing means further includes a television tuner.
- 20 15. A service and entertainment system according to claim 13, in which each of said video cassette recorders and said still video picture reproducing means has a video output terminal and an audio output terminal, each said video output terminal being connected to said modulator means and each said audio output terminal being connected to said encoder means.
- 25 16. A service and entertainment system according to claim 1, in which each said terminal apparatus is mounted at a different passenger seat in a passenger vehicle.
- 30 17. A service and entertainment system for a passenger vehicle having a plurality of passenger seats, comprising:
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5 a head end apparatus comprising means for
generating video and related audio signals, means
for generating separate audio signals, encoder
means for encoding all of said audio signals, means
for modulating said video signals and the output
signal of said encoder means, and multiplexer means
connected to said modulating means for multiplexing
the modulated video signals, and the modulated
encoded audio signals;

10 a plurality of terminal units each provided at
respective one of said passenger seats, each said
terminal unit comprising selecting means for
selecting at least one of said video and related
audio signals and said separate audio signals,
15 first tuner means for receiving said selected video
signals, second tuner means for receiving said
selected related audio signals and said selected
separate audio signals, each of said first tuner
means and said second tuner means being coupled to
20 the selecting means, a decoder means for decoding
the output signal of said second tuner means, a
display means for displaying the selected video
signals, an audio output terminal for receiving the
selected audio signals, and a volume control for
25 controlling the amplitude of the selected audio
signals received at the audio output terminal; and
means for transmitting said modulated,
multiplexed signals from the head end apparatus to
each said terminal unit.

30 18. A service and entertainment system according
to claim 17, wherein the head end apparatus also
includes means for storing television game software
signals, wherein the encoder means is capable of
35 digitally encoding the television game software signals,

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the modulator means is capable of modulating the television game software signals, and the multiplexing means is capable of multiplexing the modulated television game software signals with the modulated video signals and the modulated encoded audio signals, and wherein the tuner of each terminal unit is capable of receiving and demodulating the multiplexed television game software signals, the decoder means of each terminal unit is capable of decoding the digitally encoded television game software signals, and wherein each terminal unit includes means for storing, processing, and selecting the decoded television game software signals.

15 19. A service and entertainment system according to claim 18, in which said transmitting means includes a leaky cable.

20 20. A service and entertainment system according to claim 18, in which each terminal unit comprises a panel including said selecting means, said display means, said audio output terminal and said volume control.

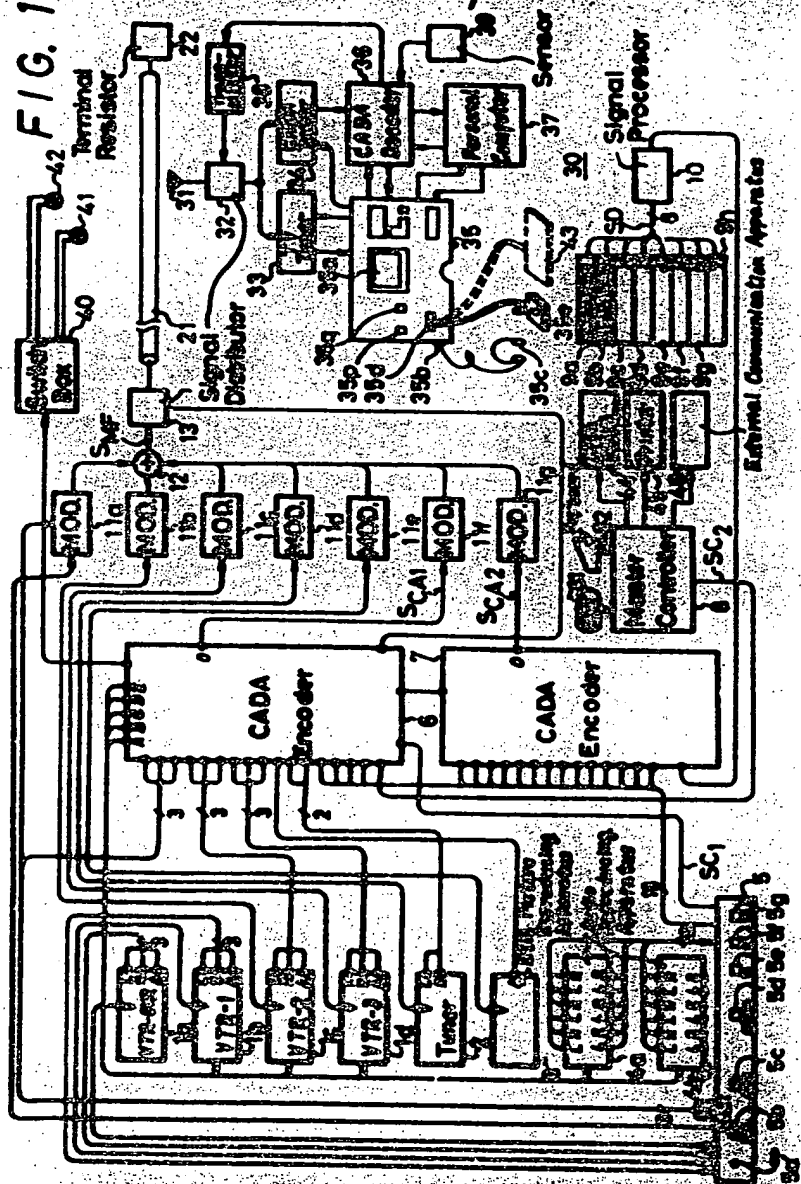
25 21. A service and entertainment system according to claim 20, in which at least one of said panels is mounted on the rear side of one of said passenger seats.

30 22. A service and entertainment system according to claim 21, in which said passenger vehicle is an aircraft.

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FIG. 1

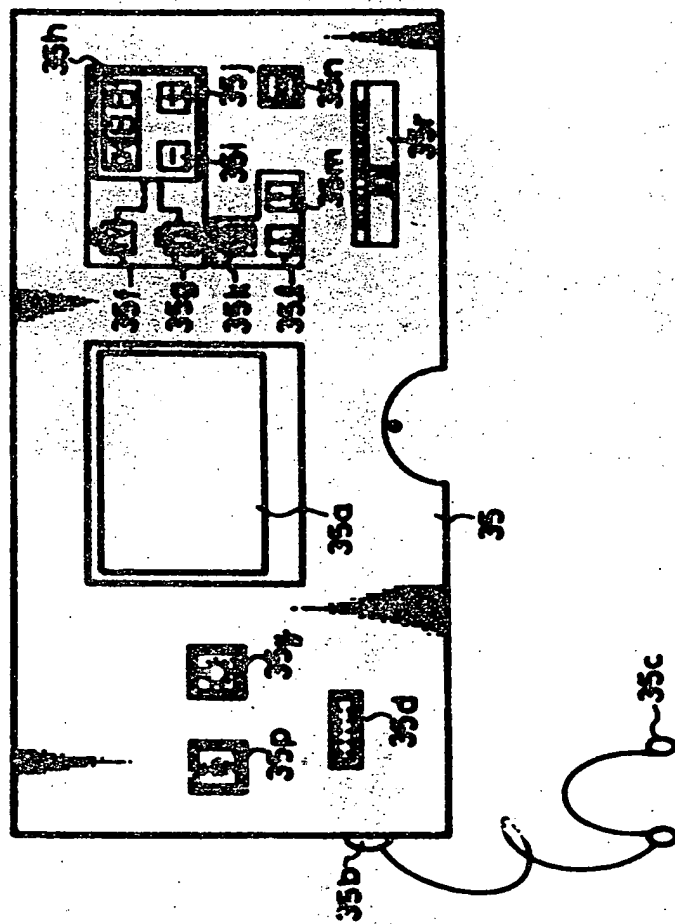


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FIG. 2

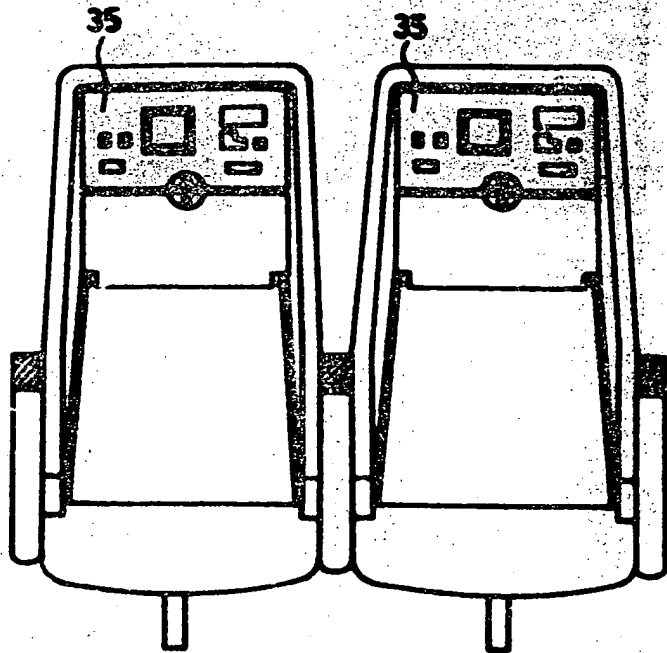


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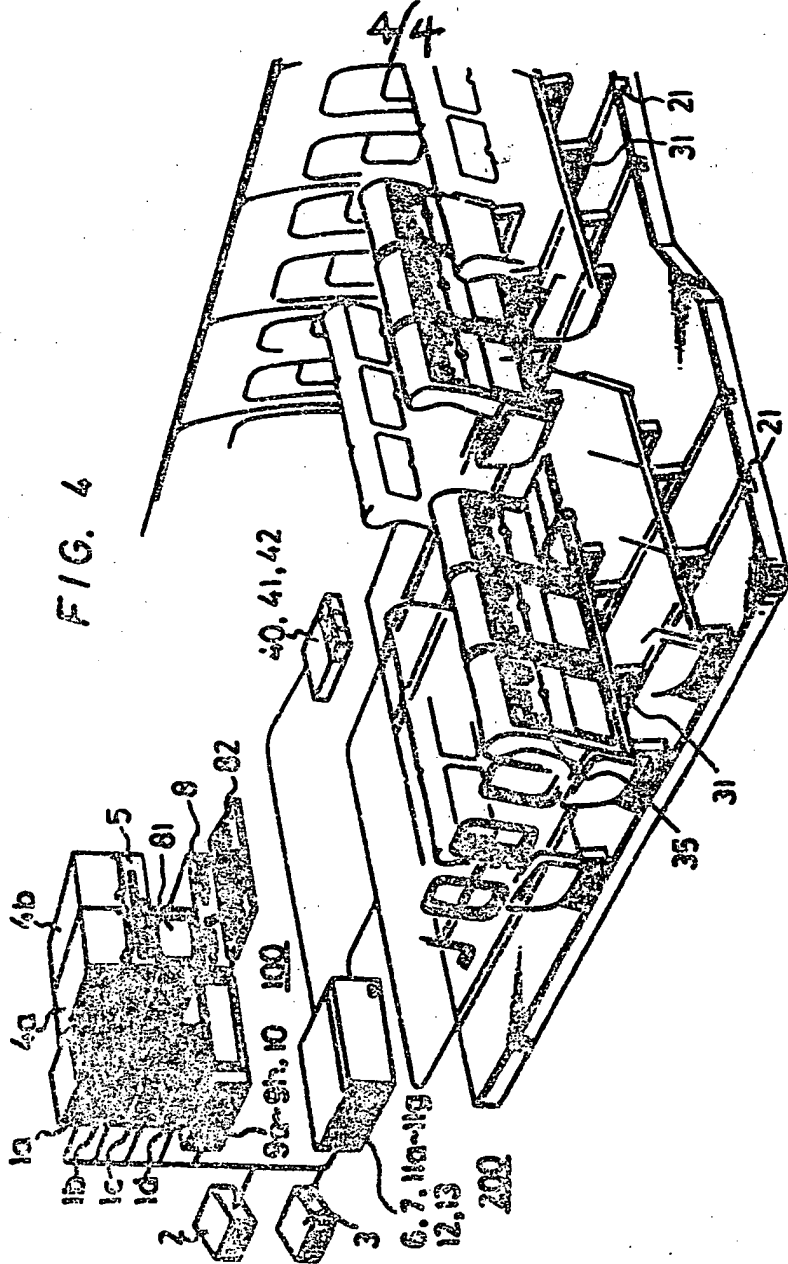
FIG. 3



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FIG. 4



Cooper & Mather

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73) Titulaire(s) :

74) Mandataire :

54) Réseau international de télévision, câblé, dans les avions, visionnée en direct et enregistrée, sur postes individuels.

57) La présente invention, concerne un nouveau procédé réalisant un réseau vidéo couleur, câblé, international, installé à bord: des avions, trains, cars, aéroglisseurs, bateaux, contrôlé par ordinateur, diffusant simultanément 1 à 100 chaînes, gratuites, par fibre optique, le visionnage s'effectue sur poste de télévision individuel, muni de casque stéréo et sur écran géant. Une antenne collective capte les satellites, et des lecteurs: cassettes et disques vidéo diffusent des programmes enregistrés. Le réseau possède un circuit fermé: caméra intérieure et extérieure pour l'usage de la compagnie. Le confort des passagers est amélioré.

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Le procédé de la présente invention consiste en une manière d'opérer pour réaliser un nouveau produit de grande consommation, sur le plan mondial, en faisant fonctionner un ensemble de dispositifs.

5 Cette invention, concerne une pluralité de dispositifs liés entre eux de telle sorte qu'ils forment un seul concept inventif.

Ainsi, le procédé mis en place selon la présente invention crée des produits qui découlent directement de lui.

10 La présente invention, concerne un nouveau procédé réalisant un réseau vidéo câblé international, programmé et contrôlé par ordinateur, ayant plusieurs chaînes de télévision, diffusant des programmes, simultanément, en couleur système : SECAM, PAL, NTSC, installé à bord : des avions, trains, cars, aéroglisseurs, 15 bateaux, pour la communication d'informations en circuit fermé spécifiques à chaque compagnie, et le visionnage de programmes de détente : en direct diffusés par satellites et captés par une antenne collective, et des programmes pré-enregistrés : sur des cassettes et disques vidéo, dont le visionnage est assuré sur 20 des postes individuels et collectifs : à tube cathodiques ou à cristaux liquides, munis de casques stéréo.

Traditionnellement, notamment dans le domaine de l'aviation on diffuse sur le plan international, pendant les vols, des films par projection cinématographique, collective, dont les passagers 25 qui sont des consommateurs, n'ont aucune possibilité de choix.

En subissant cette diffusion, le libre arbitre n'existe pas.

Par conséquent, ce concept limite la liberté individuelle et le confort personnel de chaque passager.

30 Le procédé, selon l'invention, permet de remédier à cet inconvénient.

Il comporte, en effet, un poste de télévision couleur individuel, muni d'un casque stéréo, grâce auquel chaque passager peut choisir, à n'importe quel moment, une des chaînes commerciales, diffusée simultanément et gratuitement, dans le cadre du présent 35 réseau.

Etant une Première Mondiale, un très grand choix de programmes de détente et d'informations, en plusieurs langues, est proposé quotidiennement.

45 Ainsi réalisé, le présent procédé, selon l'invention, fait fonctionner le plus vaste réseau vidéo câblé, couleur, commercial, du monde, étant donné qu'il s'applique dans le cadre de toutes les compagnies de transport nationales et internationales, concrétisant un nouveau concept.

50 Ce procédé de visionnage, vidéo couleur, sur poste de télévision individuel, pour chaque passager, notamment dans les avions, constitue un dispositif de communication audio-visuel de grande consommation.

55 Différents types d'avions étant en service, actuellement, sur le plan international, chaque compagnie attribue un espace bien spécifique pour chaque fauteuil.

60 Par conséquent, l'installation de chaque poste de télévision individuel, pour améliorer le confort de chaque passager, sera réalisé tenant compte des facteurs suivants : a) espace entre les fauteuils, b) éclairage d'ambiance, c) éclairage individuel, d) inclinaison des fauteuils, e) angles de vision de chaque utilisateur, tout en respectant les normes internationales de sécurité, notamment l'alimentation en courants électriques : secteur, piles, accumulateurs.

65 Le câblage vidéo de chaque avion, ou moyen de transport, de ce vaste réseau international, dont le visionnage est réalisé sur un écran géant collectif et sur des postes individuels, constitue un nouveau dispositif, selon l'invention, formant un seul concept.

70 Les écrans de télévision couleur, installés dans chaque avion, ou moyen de transport, ont : a) pour le poste collectif, à cristaux liquides : une diagonale maximale de 5 mètres, et b) pour chaque poste individuel, une diagonale comprise entre 10 et 40 centimètres, maximum.

75 Selon les variantes, du présent procédé, chaque poste individuel est installé :

- sur un support fixé sur l'accoudoir de chaque fauteuil, étant orientable à 360°

- sur un support fixé sur l'accoudoir de chaque fauteuil, étant escamotable, télescopique et orientable à 360°

80 - sur un support fixé au plancher, entre les 2 fauteuils,

étant télescopique et orientable à 360°

- sur les dossiers des fauteuils, en face de chaque passager, étant fixé sur un support télescopique et orientable à 360°.

85 Le câblage, du présent procédé, est réalisé grâce à un dispositif utilisant des fibres optiques, qui diffusent simultanément plusieurs chaînes, couleur :

a) communication interne, en circuit fermé, spécifique à chaque compagnie de transport : informations diverses, notamment mesures de sécurité, fuseaux horaires, météo,

90 b) la diffusion directe d'émissions émises par les satellites, captées grâce à une antenne collective,

c) diffusion de programmes d'informations et de détente, pré-enregistrés : sur cassettes et disques vidéo, chaque chaîne ayant son ou ses propres lecteurs.

95 L'ensemble du présent procédé, de ce dispositif de réseau vidéo câblé, international, est programmé et suivi automatiquement, en permanence, autant dans l'ensemble, qu'individuellement pour chaque avion, ou moyen de transport, par un ordinateur général ainsi que des mini ordinateurs.

100 Par exemple, l'antenne collective qui capte les émissions diffusées par les satellites est programmée et suivie automatiquement, de même que le dispositif des lecteurs vidéo : cassettes et disques.

110 Cet important réseau mondial, vidéo câblé, diffuse simultanément plusieurs chaînes commerciales et à caractère thématique, en plusieurs langues.

Le nombre de chaînes diffusées, simultanément, dans chaque avion ou moyen de transport, est compris entre 1 à 100.

115 Le procédé de la présente invention concerne une pluralité de dispositifs liés entre eux formant un seul concept inventif.

120 Ainsi, pour augmenter encore plus le confort individuel de chaque passager, dans le cadre des compagnies de transport, notamment le choix des programmes d'informations et de détente, une autre variante, de ce réseau, du présent procédé, consiste à utiliser toujours des postes individuels de télévision couleur ayant un lecteur vidéo : cassette ou disque, incorporé.

125 Pendant la diffusion des programmes, proposés par les différentes chaînes commerciales, les passagers pourront visionner des films, spots, publicitaires de marques nationales et internationales.

Tenant compte du nombre de compagnies d'aviation, de vols quotidiens, ainsi que de l'ensemble de transports terrestres : trains, cars, et maritimes : aéroglisseurs, bateaux, les annonceurs publicitaires pourront ainsi bénéficier, grâce au présent dispositif, selon l'invention, du plus vaste réseau câblé de télévision du monde.

Ces publicités sont payantes.

L'ensemble des compagnies de transport, trouveront grâce au présent procédé un intérêt technico-financier évident pour leur rentabilisation commerciale et leur confort.

Par l'utilisation de ces dispositifs techniques, un nouveau progrès conceptuel est réalisé.

Afin d'améliorer la sécurité des passagers et des avions, une caméra de télévision couleur, télécommandée et orientable à 360°, fonctionnant en circuit fermé, sera installée. Une vue intérieure : générale et zoom, de chaque avion ou moyen de transport sera diffusée uniquement sur un moniteur, visionné par un membre de la compagnie.

Cette caméra est dissimulée, et fixée au plafond.

Toujours dans le cadre du présent réseau de télévision câblée, une autre caméra couleur sera installée à l'extérieur de l'avion, étant télécommandée et orientable à 360°, afin de permettre aux passagers d'admirer en direct sur leurs postes individuels ainsi que sur le poste collectif, écran géant, les paysages pendant le vol, ainsi que le décollage et l'atterrissage. Ainsi, même les passagers ne se trouvant pas assis auprès des hublots pourront profiter grâce au présent dispositif, d'une magnifique vue extérieure.

Grâce au présent procédé, utilisant des postes individuels de télévision, l'attention des enfants, voyageant dans les : avions trains, cars, aéroglisseurs, bateaux, pourra être captée d'une manière certaine, améliorant le confort des autres passagers.

Les personnes qui ont des problèmes lors des déplacements en avion, et bateau, notamment : inhibitions, malaises, provoqués par un état nerveux, pourront trouver grâce au présent procédé vidéo une distraction immédiate. La tendance actuelle étant d'interdire, de plus en plus, la fumée des cigarettes dans les lieux publics, les fumeurs se trouvent dans un état de stress, notamment pendant des voyages de longue durée.

Le présent procédé de réseau vidéo câblé installé dans

chaque : avion, train, car, aéroglisseur, bateau, dont le visionnage des émissions est effectué sur des postes individuels de télévision, apporte une nouveauté absolue sur le plan international, employant un ensemble de dispositifs techniques très performants.

170 Indéniablement, une ère nouvelle s'ouvre, grâce à la présente invention dans le domaine de la communication audio-visuelle individuelle, dans les moyens de transport collectifs.

REVENDEICATIONS

1) Procédé en ce qu'il comporte un réseau vidéo câblé international programmé et contrôlé en permanence par ordinateur, diffusant simultanément 1 à 100 chaînes de télévision couleur, système : SECAM PAL, NTSC, installé à bord des avions, trains, cars, aéroglisseurs, bateaux, pour la communication d'informations spécifiques à chaque compagnie, sa sécurité et celle des voyageurs, et le visionnage de programmes de détente : en direct, captés des satellites grâce à une antenne, ainsi que des programmes pré-enregistrés sur des cassettes et vidéo disques, le visionnage étant assuré sur un poste individuel, pour chaque passager, muni d'un casque stéréo, et sur un écran géant collectif.

2) Dispositif selon la revendication 1 caractérisé en ce que le câblage vidéo, dans chaque avion ou moyen de transport, pour chaque fauteuil et pour l'écran collectif, est réalisé par des fibres optiques, diffusant : 1 à 100 chaînes, simultanément.

3) Dispositif selon la revendication 1, 2, caractérisé par le visionnage individuel sur poste de télévision, dont la diagonale de l'écran est comprise entre 10 et 40 centimètres, maximum, à tube cathodique ou à cristaux liquides, muni de casque stéréo.

4) Dispositif selon la revendication 1, 2, caractérisé par le visionnage, simultané, sur un poste de télévision couleur, à cristaux liquides, écran géant, collectif, dont la diagonale maximale est de 5 mètres, chaque passager utilisant un casque stéréo individuel.

5) Dispositif selon la revendication 1, 2, 3, caractérisé en ce que l'emplacement de chaque poste de télévision, individuel, est réalisé en fonction de chaque compagnie, selon les variantes :

- sur un support fixé sur l'accoudoir de chaque fauteuil, étant orientable à 360°

- sur un support fixé sur l'accoudoir de chaque fauteuil, étant escamotable, télescopique et orientable à 360°

- sur un support fixé au plancher, entre les 2 fauteuils, étant télescopique et orientable à 360°

- sur les dossiers des fauteuils, en face de chaque passager, étant fixé sur un support télescopique et orientable à 360°.

6) Dispositif selon la revendication 1, 2, 3, 4, caractérisé en ce que l'antenne collective qui capte les satellites, les émissions diffusées, est programmée et suivie automatiquement, en permanence, par ordinateur.

7) Dispositif selon la revendication 1, 3, en ce que le lecteur

de cassettes et disques vidéo est individuel, branché sur le poste de télévision de chaque passager, et selon une variante le lecteur est encastré dans ce poste, fonctionnant sur piles ou accumulateurs.

8) Dispositif selon la revendication 1, 2, en ce qu'une caméra de télévision couleur, télécommandée, orientable à 360°, transmet des images en direct sur un moniteur, visionné uniquement par un membre de la compagnie, afin d'assurer en permanence la sécurité intérieure de chaque avion ou moyen de transport, ainsi que celle des voyageurs : vue générale et zoom.

9) Dispositif selon la revendication 1, 2, 3, 4, en ce qu'une caméra de télévision couleur, télécommandée et orientable à 360° est placée sous le fuselage et selon une variante sur le fuselage de l'avion ou le toit des moyens de transport : trains, cars, aéroglisseurs, bateaux, transmettant des images en direct sur chaque écran de télévision, individuel pour chaque passager et sur l'écran collectif : paysages en vol, décollage, atterrissage, etc., tout en assurant la sécurité de chaque avion ou moyen de transport - respectant les lois en vigueur internationales.

10) Dispositif selon la revendication 1, 2, 3, 4, 5, 6, 7, 8, 9, en ce qu'un mini-ordinateur diffuse son programme et contrôle l'ensemble des dispositifs du réseau vidéo câblé, international, dans le cadre de chaque avion ou moyen de transport, étant relié aux autres mini-ordinateurs par le moyen de disquettes interchangeables, étant contrôlé par un ordinateur central qui les programme et les contrôle en permanence, dont la mémoire comprend l'ensemble des moyens de transport : aviation, terrestre, maritime.



#2613

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PTO/SB/21 (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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| | | | |
|--|----------------------|------------------------|-----------|
| TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i> | Application Number | 09/423,284 | |
| | Filing Date | February 22, 2000 | |
| | First Named Inventor | Scott BLAIR | |
| | Group Art Unit | 2613 | |
| | Examiner Name | Allen WONG | |
| Total Number of Pages in This Submission | | Attorney Docket Number | 740859-96 |

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| ENCLOSURES (check all that apply) | | |
|---|---|--|
| <input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Declaration and Power of Attorney <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ | <input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Application Data Sheet <input checked="" type="checkbox"/> Information Disclosure Statement, Form 1449 and three cited references: |
| Remarks | | <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees required or credit any overpayments to Deposit Account No. 19-2380 for the above identified docket number. |

| SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT | |
|--|--|
| Firm or Individual name | Jeffrey L. Costellia, Registration No. 35,483 Nixon Peabody LLP 8180 Greensboro Drive Suite 800 McLean, VA 22102 |
| Signature | |
| Date | February 19, 2003 |

| CERTIFICATE OF MAILING | | | |
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| | | | February 19, 2003 |
| Type or printed name | Deborah T. Tomme | | |
| Signature | | Date | February 19, 2003 |

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FILE TRANSMITTAL FOR FY 2003

Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$180)

| Complete if Known | |
|----------------------|-------------------|
| Application Number | 09/423,284 |
| Filing Date | February 22, 2000 |
| First Named Inventor | Scott BLAIR |
| Examiner Name | Allen WONG |
| Art Unit | 2613 |
| Attorney Docket No. | 740859-96 |

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METHOD OF PAYMENT (check all that apply)

Check Credit Card Money Order Other None

Deposit Account:
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Deposit Account Name: Nixon Peabody LLP

The Commissioner is authorized to: (check all that apply)

Charge fee(s) indicated below Credit any overpayments

Charge any additional fee(s) during the pendency of this application

Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

| Large Entity Fee Code | Large Entity Fee (\$) | Small Entity Fee Code | Small Entity Fee (\$) | Fee Description | Fee Paid |
|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|---------------|
| 1001 | 750 | 2001 | 375 | Utility filing fee | |
| 1002 | 330 | 2002 | 165 | Design filing fee | |
| 1003 | 520 | 2003 | 260 | Plant filing fee | |
| 1004 | 750 | 2004 | 375 | Reissue filing fee | |
| 1005 | 160 | 2005 | 80 | Provisional filing fee | |
| SUBTOTAL (1) | | | | | (\$ 0) |

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims -20** = X = 0

Independent Claims -3** = X = 0

Multiple Dependent X = 0

| Large Entity Fee Code | Large Entity Fee (\$) | Small Entity Fee Code | Small Entity Fee (\$) | Fee Description | Fee Paid |
|-----------------------|-----------------------|-----------------------|-----------------------|--|---------------|
| 1202 | 18 | 2202 | 9 | Claims in excess of 20 | |
| 1201 | 84 | 2201 | 42 | Independent claims in excess of 3 | |
| 1203 | 280 | 2203 | 140 | Multiple dependent claim, if not paid | |
| 1204 | 84 | 2204 | 42 | ** Reissue independent claims over original patent | |
| 1205 | 18 | 2205 | 9 | ** Reissue claims in excess of 20 and over original patent | |
| SUBTOTAL (2) | | | | | (\$ 0) |

**or number previously paid, if greater; For Reissues, see above

3. ADDITIONAL FEES

| Large Entity Fee Code | Large Entity Fee (\$) | Small Entity Fee Code | Small Entity Fee (\$) | Fee Description | Fee Paid |
|-----------------------------------|-----------------------|-----------------------|-----------------------|--|-----------------|
| 1051 | 130 | 2051 | 65 | Surcharge - late filing fee or oath | |
| 1052 | 50 | 2052 | 25 | Surcharge - late provisional filing fee or cover sheet | |
| 1053 | 130 | 1053 | 130 | Non-English specification | |
| 1812 | 2,520 | 1812 | 2,520 | For filing a request for <i>ex parte</i> reexamination | |
| 1804 | 920* | 1804 | 920* | Requesting publication of SIR prior to Examiner action | |
| 1805 | 1,840* | 1805 | 1,840* | Requesting publication of SIR after Examiner action | |
| 1251 | 110 | 2251 | 55 | Extension for reply within first month | |
| 1252 | 410 | 2252 | 205 | Extension for reply within second month | |
| 1253 | 930 | 2253 | 465 | Extension for reply within third month | |
| 1254 | 1,450 | 2254 | 725 | Extension for reply within fourth month | |
| 1255 | 1,970 | 2255 | 985 | Extension for reply within fifth month | |
| 1401 | 320 | 2401 | 160 | Notice of Appeal | |
| 1402 | 320 | 2402 | 160 | Filing a brief in support of an appeal | |
| 1403 | 280 | 2403 | 140 | Request for oral hearing | |
| 1451 | 1,510 | 1451 | 1,510 | Petition to institute a public use proceeding | |
| 1452 | 110 | 2452 | 55 | Petition to revive - unavoidable | |
| 1453 | 1,300 | 2453 | 650 | Petition to revive - unintentional | |
| 1501 | 1,300 | 2501 | 650 | Utility issue fee (or reissue) | |
| 1502 | 470 | 2502 | 235 | Design issue fee | |
| 1503 | 630 | 2503 | 315 | Plant issue fee | |
| 1460 | 130 | 1460 | 130 | Petitions to the Commissioner | |
| 1807 | 50 | 1807 | 50 | Processing fee under 37 CFR 1.17(q) | |
| 1806 | 180 | 1806 | 180 | Submission of Information Disclosure Stmt | 180.00 |
| 8021 | 40 | 8021 | 40 | Recording each patent assignment per property (times number of properties) | |
| 1809 | 750 | 2809 | 375 | Filing a submission after final rejection (37 CFR 1.129(a)) | |
| 1810 | 750 | 2810 | 375 | For each additional invention to be examined (37 CFR 1.129(b)) | |
| 1801 | 750 | 2801 | 375 | Request for Continued Examination (RCE) | |
| 1802 | 900 | 1802 | 900 | Request for expedited examination of a design application | |
| Other fee (specify) _____ | | | | | |
| *Reduced by Basic Filing Fee Paid | | | | | |
| SUBTOTAL (3) | | | | | (\$ 180) |

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Deborah T. Tomme
Name: Deborah T. Tomme

SUBMITTED BY

| | | | | | |
|-------------------|----------------------------|-----------------------------------|-------------------|--------------------------|--------------|
| Name (Print/Type) | Jeffrey L. Costella | Registration No. (Attorney/Agent) | 35,483 | Telephone | 703-770-9300 |
| Signature | <i>Jeffrey L. Costella</i> | Date | February 19, 2003 | Complete (if applicable) | |



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3-4-03
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Docket No. 740859-96

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| | | |
|------------------------------|---|--------------------------|
| In re Patent Application of: |) | Group Art Unit: 2613 |
| Scott BLAIR |) | Examiner: WONG, Allen C. |
| Serial No. 09/423,284 |) | |
| Filed: February 22, 2000 |) | |
| For: SUBWAY TV MEDIA SYSTEM |) | |

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Name: Deborah T. Tomme

AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In response to the Examiner's Office Action mailed November 19, 2002, please consider the following amendments and remarks in connection with the above-identified application.

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IN THE CLAIMS:

Please amend claims as follows:

1. \ (Cancelled) A video system for displaying televised material to passengers in a mass transit subway system, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised material to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.
2. \ (Cancelled) The video system of claim 1 comprising a plurality of video display monitors operatively connected to a single video signal source unit.
3. \ (Cancelled) The video system of claim 2 wherein the video signal source unit comprises a video tape player, or video disk player or computer-based digital video recorder.

a1 2 4 (Currently amended) The ~~video system~~ subway car of claim 3 ~~13~~ wherein the video signal source system includes a pre-recorded video transmission program for feeding to display on the monitors of duration about 5-15 minutes.

3 5 (Currently amended) The ~~video system~~ subway car of claim 4 ~~13~~ wherein the program is repeatable, and includes a series of commercial messages of 30 second- 1 minute duration.

6. \ (Cancelled) The video system of any one of the preceding claims wherein the video monitors are secured to the subway car at a location of junction between wall and ceiling of the car, with the screens of the monitors directed obliquely downwardly towards the

car seats.

a2 ~~4~~ (Currently amended) The ~~video system~~ subway car of claim ~~1~~ ~~13~~ which is sound free.

~~8.~~ (Cancelled) The video system of claim 1 or claim 2 wherein the video source unit is a television receiver for receiving broadcast television signals from a remote transmitter and supplying the signals to the video display monitors.

~~9.~~ (Cancelled) The video system of claim 1 which the video display monitors include LCD screens.

~~10.~~ (Cancelled) A subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

~~11.~~ (Cancelled) The subway car of claim 10 including a plurality of said monitors, spaced along the length of the car on opposed sides thereof. .

~~12.~~ (Cancelled) The subway car of claim 11 including longitudinal opposed sidewalls and a ceiling adjoining the sidewalls, and wherein each said monitor is mounted at the junction of the sidewall and ceiling, with the screens of the monitors directly obliquely downwardly towards the car seats.

a3 ~~13~~ (Currently amended) The ~~subway car~~ of claim ~~12~~ wherein the video

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a3
level

~~monitor screen is substantially flush with the adjacent wall surface structure of the car~~ A subway car for mass transportation including longitudinal opposed sidewalls, a ceiling adjoining the sidewalls, a video display system comprising a plurality of video display monitors each having a video screen, and a video signal source unit operatively connected to said monitors,

said monitors being spaced along the length of the car on opposed sides thereof, each of said monitor being mounted at the junction of the sidewall and ceiling, with the screen of the monitor substantially flushed with the adjacent wall surface structure of the car, and directed obliquely downwardly toward the car seats, so that each video screen is readily visible to passengers in the subway car.

~~13~~ ⁵ ~~14~~ (Currently amended) The subway car of ~~any one of claims 10-13~~ claim 13 wherein the video signal source unit comprises a video tape player, a video disk player or computer-based digital video recorder.

~~15~~ ⁶ (Currently amended) The subway car of claim ~~10-13~~ ¹ 13 wherein the video monitors include LCD screens.

~~16~~ ⁷ (Currently amended) The subway car of any of claim ~~10-13~~ ¹ 13 including a self-contained wiring-cabling system connecting the video monitors to the video signal source unit.

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REMARKS

The Examiner's Office Action of November 19, 2002 has been received and its contents reviewed. Applicant would like to thank the Examiner for the consideration given to the above-identified application and for indicating that claim 13 contains allowable subject matter.

Claims 1-16 were pending in the present application prior to the above amendment, of which claims 1 and 10 were independent. By the above amendment, claims 1-3, 6, and 8-12 have been canceled and claims 4, 5, 7, and 13-16 have been amended. Accordingly, claims 4, 5, 7, and 13-16 remain pending, of which claim 13 is independent, and are believed to be in condition for allowance for at least the reasons provided below and the amendments set forth above.

Referring now to the detailed Office Action, claims 6, 7, 9, and 14-16 stand objected to as containing informalities. Specifically, claims 6, 7, and 9 are objected to as containing no preceding claim number, and claims 14-16 are objected to as being improperly multiply dependent. Further, claim 13 stands objected to as containing the term "substantially" which can describe varying degree of "flush".

In response to the objection of claim 13, Applicant respectfully directs the Examiner to MPEP 2173.05(b), particularly, subsection D (page 2100-197, Eight Edition, August 2001). According to the MPEP, the usage of the word "substantially" does not automatically render the claim indefinite. When a term of degree is present, it should be determined whether a standard is disclosed or whether one of ordinary skill in the art would be apprised of the scope of the claim. Applicant respectfully submits that Figs. 4 and 4a, and the disclosure in the second paragraph of page 11, for example, sufficiently disclose the meaning of "flush" recited in claim 13 such that one of ordinary skill in the art would be apprised of the scope of the claim.

With respect to the objection of claims 6, 7, 9, and 14-16, Applicant submits that the above-presented claim cancellations and amendments have overcome the objections of these claims.

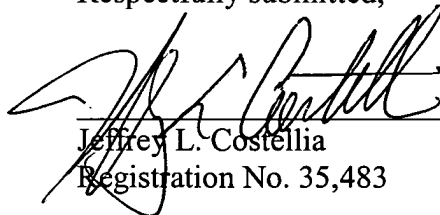
Claims 1 and 10 stand rejected under 35 U.S.C. §102(b) as anticipated by Gerke et al. (U.S. Patent No. 5,009,384 – hereafter Gerke). Further, claims 2-9 stand rejected under 35 U.S.C. §103(a) as unpatentable over Gerke in view of Steventon et al. (U.S. Patent No. 4,647,980 – hereafter Steventon).

As amended, claim 13 recites all the features of cancelled claims 10-12. Further, claims 4, 5, and 7 have been amended to change their dependency from claim 1 to claim 13 and to recite a subway car.

As amended, claim 13 contains allowable subject matter and has been rewritten to contain all the features of a base claim as well as all intervening claims. Consequently, claims 1-3, 6, 8-12 have been canceled and their rejections are rendered moot.

Having responded to all objection and rejections set forth in the outstanding Office Action, it is submitted that claim 13 and its dependent claims 4, 5, 7, and 14-16 are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicant's undersigned representative.

Respectfully submitted,



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Registration No. 35,483

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(703) 770-9300

JLC/LCD

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/423,284 | 02/22/2000 | SCOTT BLAIR | 0859-96 | 6562 |

7590 04/10/2003

SIXBEY FRIEDMAN LEEDOM & FERGUSON
8180 GREENSBORO DRIVE
SUITE 800
MCLEAN, VA 22102

EXAMINER

WONG, ALLEN C

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2613 | 10 |

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/423,284

Applicant(s)

BLAIR, SCOTT

Examiner

Allen Wong

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 24 February 2003.
- 2a) This action is **FINAL**.
- 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 4,5,7 and 13-16 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 4,5,7 and 13-16 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 - * See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) Interview Summary (PTO-413) Paper No(s). _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other:

DETAILED ACTION

Response to Arguments

The examiner would like to apologize to the applicant for withdrawing the previous objection to claim 13 made in the previous Office Action sent on 11/19/02, and reject the current set of claims as set forth by applicant's response sent on 2/24/03. It is the examiner's contention that there is sufficient art to reject these claims and the rejection will be shown as set forth below. This will be a non-final rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 4, 5, 7 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerke (5,009,384) and Steventon (4,647,980), in view of Williams (6,038,426).

Regarding claim 13, Gerke discloses a video system for displaying televised material to passengers in a mass transit subway system (col.1, lines 6-12; note a subway car is a part of a train, Gerke's discloses the train and "other forms of public transit", thus the "other forms of public transit" meets the limitation of the mass transit subway system; col.2, lines 27-30 discloses displaying televised material to passengers "on a bus or the like", thus meeting the limitation of the mass transit subway system), and comprising at least one video display monitor adapted for mounting inside a

Art Unit: 2613

subway car so as to display televised material to passengers riding therein (col.1, lines 6-12, and fig.1, element 2), and a video signal source unit operatively connected to said at least one monitor (col.1, lines 53-56; note cable means carries the video signal source; see fig.1 and 2 and note element 40 is a secured mount to mount the monitor 2, the monitor is mounted).

Gerke does not disclose the multiple video display monitors. However, Steventon teaches plural displays (fig.2, element 26 is an LCD screen and that each seat has an individual module element 16 that has an LCD screen 26). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke and Stevenson for using multiple displays to satisfy and entertain passengers during long subway train rides. Both Gerke and Steventon pertain to video systems in vehicular transport modes.

Gerke and Steventon do not disclose the video monitor screen is substantially flush with the adjacent wall surface structure of the car. However, Williams discloses a flange element 125 is rests flush against the mounting plate (col.1, ln.42-55; Williams discloses the positioning of the flange element is substantially flush with the mounting plate). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke, Steventon and Williams as a whole for placing the video monitor screen flush with the adjacent wall surface structure of the car, since Williams suggests that the flange element 125 rests flush with the monitor plate, so as to avoid taking room from passengers.

Regarding claims 4-5, 7 and 14, Gerke does not disclose the display of prerecorded material that is played back on video tape player. However, Steventon discloses the display of prerecorded material that is played back on video tape player (col.5, lines 60-66). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke and Stevenson for using multiple displays to satisfy and entertain passengers during long subway train rides. Both Gerke and Steventon pertain to video systems in vehicular transport modes.

Regarding claim 15, Gerke does not disclose the multiple video display monitors. However, Steventon teaches plural displays (fig.2, element 26 is an LCD screen and that each seat has an individual module element 16 that has an LCD screen 26). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke and Stevenson for using multiple displays to satisfy and entertain passengers during long subway train rides. Both Gerke and Steventon pertain to video systems in vehicular transport modes.

Regarding claim 16, Gerke discloses a cabling system (col.1, lines 53-56; note cable means). Gerke does not disclose multiple monitors. However, Steventon teaches plural displays (fig.2, element 26 is an LCD screen and that each seat has an individual module element 16 that has an LCD screen 26). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Gerke and Stevenson for using multiple displays to satisfy and entertain passengers during long subway train rides. Both Gerke and Steventon pertain to video systems in vehicular transport modes.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Allen Wong
Examiner
Art Unit 2613

AW
April 1, 2003


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of References Cited

Application/Control No.

09/423,284

Applicant(s)/Patent Under Reexamination
BLAIR, SCOTT

Examiner

Allen Wong

Art Unit

2613

Page 1 of 1

U.S. PATENT DOCUMENTS

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | Classification |
|---|---|--|-----------------|---------------|----------------|
| | A | US-6,038,426 | 03-2000 | Williams, Jr. | 725/77 |
| | B | US- | | | |
| | C | US- | | | |
| | D | US- | | | |
| | E | US- | | | |
| | F | US- | | | |
| | G | US- | | | |
| | H | US- | | | |
| | I | US- | | | |
| | J | US- | | | |
| | K | US- | | | |
| | L | US- | | | |
| | M | US- | | | |

FOREIGN PATENT DOCUMENTS

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | Classification |
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| | N | | | | | |
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| | R | | | | | |
| | S | | | | | |
| | T | | | | | |

NON-PATENT DOCUMENTS

| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|---|
| | U | |
| | V | |
| | W | |
| | X | |

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

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|--|--|----|--------------------------|-------------------|
| Substitute for form 1449A/PTO | | | Complete if Known | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i> | | | Application Number | 09/423,284 |
| | | | Filing Date | February 22, 2000 |
| | | | First Named Inventor | Scott BLAIR |
| | | | Art Unit | 2613 |
| | | | Examiner Name | Allen WONG |
| Sheet | | of | Attorney Docket Number | 740859-96 |

| U.S. PATENT DOCUMENTS | | | | | | |
|--------------------------------|-----------------------|--|--|-----------------------------|---|---|
| Examiner Initials ¹ | Cite No. ¹ | U.S. Patent Document | | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
| | | Number - Kind Code ² (if known) | | | | |
| <i>ju</i> | | US-5,606,154 | | 02-25-1997 | Doigan et al. | |
| | | US- | | | | |
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| FOREIGN PATENT DOCUMENTS | | | | | | | |
|--------------------------------|-----------------------|---|-----------------------------------|-----------------------------|---|---|----------------|
| Examiner Initials ¹ | Cite No. ¹ | Foreign Patent Document | | Publication Date MM-DD-YYYY | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
| | | Country Code ³ Number ⁴ | Kind Code ⁵ (if known) | | | | |
| <i>ju</i> | - | CA | 1,316,253 | 04-13-1993 | Tagawa et al. | | |
| <i>ju</i> | - | FR | 2,652,701 A1 | 04-05-1991 | Comerzan-Sorin | | |
| | | | | | | | |
| | | | | | | | |

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|---|----------------|
| Examiner Initials ¹ | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T ² |
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|--------------------|-------------------|-----------------|---------|
| Examiner Signature | <i>Allen Wong</i> | Date Considered | 3/27/03 |
|--------------------|-------------------|-----------------|---------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

NVA255877.2



#12
10-30-03
P.2

Docket No. 740859-96

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:)
Scott BLAIR)
Serial No. 09/423,284)
Filed: February 22, 2000)
For: SUBWAY TV MEDIA SYSTEM)

Group Art Unit: 2613

Examiner: WONG, Allen

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OCT 23 2003

Technology Center 2600

Certificate of Mailing - 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450 on the date below.

RESPONSE

Date 10/10/03

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In response to the Examiner's Office Action mailed April 10, 2003, please consider the following remarks in connection with the above-identified application.

REMARKS

The Examiner's Office Action of April 10, 2003 was received and its contents reviewed. Applicant would like to thank the Examiner for the consideration given to the above-identified application.

Claims 4, 5, 7 and 13-16 were pending in the present application prior to the above amendment, of which claim 13 is independent. Reconsideration and withdrawal of the currently pending rejections are requested for the reasons advanced in detail below.

Referring now to the detailed Office Action, claims 4, 5, 7 and 13-16 stand rejected under 35 U.S.C. §103(a) over Gerke et al. (U.S. Patent No. 5,009,384 – hereafter Gerke) and Steventon et al. (U.S. Patent No. 4,647,980), in view of Williams (6,038,426). Applicant respectfully traverses this rejection.

Claim 13 is directed to a subway car for mass transportation including a longitudinal opposed sidewalls, a ceiling adjoining the side walls, and a video display system comprising a plurality of video display monitors. The video display monitors each have a video screen and a video signal source unit operatively connected to the monitors. The monitors are also spaced along the car on opposed sides of the car where each monitor is mounted at junctions of the sidewall and the ceiling. The monitors are substantially flush with the adjacent wall structure and directed downwardly for visibility to passengers.

As recognized by the Examiner in the Office Action, Gerke and Steventon fail to disclose a video monitor screen that is substantially flush with the adjacent wall. Williams is relied upon for allegedly teaching a flange element 125 that rests flush against the mounting bracket. Williams fails to overcome the recognized deficiencies of Gerke and Steventon because Williams does not disclose a video monitor screen that is substantially flush to the adjacent wall as asserted by the Examiner, nor does it teach or suggest securing a monitor to the junction between the ceiling and an adjacent wall.

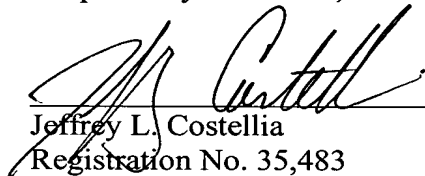
Williams is directed to a system that can be removed from a seat of an airplane, for instance, without detaching the entire communication cable. Specifically, the SEU of Williams stands for "seat electronics units" as provided in the title of the invention. This includes not only the monitor, but also the telephone handset, circuitry and other components of the entire system, and is mounted in the back of the seat. Moreover, the mounting bracket is not the junction of the ceiling and side wall of a transportation car. Rather, the mounting bracket is provided in each of the passenger seats, as demonstrated in the prior art version of Figure 1 and in Figure 2. Consequently, the monitors themselves are also mounted in the back of the seats as clearly provided in Figure 1 and described in the specification, instead of flush with an adjacent wall as suggested by the Examiner.

Therefore, there is really no relation between Williams and the present invention which is directed to a transportation car that includes a plurality of monitors mounted at the junction of the sidewall and the ceiling. This similarly applies to Steventon, since this reference relates to the mounting of monitors in the backs of seats in an airplane. As a result, the Examiner has failed to establish a prima facie case of obviousness since he has failed to show in the cited references, either alone or in combination, each and every feature of the

present invention. Consequently, claim 13, as well as claims 4, 5, 7 and 14-16, should be considered allowable over the cited art of record.

Having responded to all rejections set forth in the outstanding Office Action, it is submitted that claim 13 and its dependent claims 4, 5, 7, and 14-16 are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicant's undersigned representative.

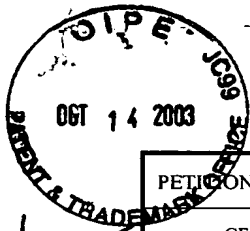
Respectfully submitted,



Jeffrey L. Costellia
Registration No. 35,483

NIXON PEABODY LLP
401 9th Street, N.W., Suite 900
Washington D.C. 20004-2128
(202) 585-8000

JLC/



#11
10-30-03
P2

01/10/10

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional)
740859-96

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

In re Application of Scott Blair

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to Mail Stop Fee Amendments, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on October 10, 2003.

Application Number: 09/423,284

Filed: 2/22/2000

For: SUBWAY TV MEDIA SYSTEM

Group Art Unit: 2613

Examiner: Allen WONG

Signature: Linda C. Haynes
Name: Linda C. Haynes

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OCT 23 2003

Technology Center 2600

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and appropriate entity fee are as follows (check time period desired):

- One month (37 CFR 1.17(a)(1)) - (\$55/\$110) \$ _____
- Two months (37 CFR 1.17(a)(2)) - (\$210/\$420) \$ _____
- Three months (37 CFR 1.17(a)(3)) - (\$475/\$950) \$ 475
- Four months (37 CFR 1.17(a)(4)) - (\$740/\$1480) \$ _____
- Five months (37 CFR 1.17(a)(5)) - (\$1005/\$2010) \$ _____

- Applicant claims small entity status.
- A check to cover the fee is enclosed.
- Payment by credit card. Form PTO-2038 is attached.
- The Commissioner has already been authorized to charge fees in this application to a Deposit Account.
- The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 19-2380.
I have enclosed a duplicate copy of this sheet.

- I am the applicant/inventor
- assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).
 - attorney or agent of record.
 - attorney or agent under 37 CFR 1.34(a).
Registration number if acting under 37 CFR 1.34(a) _____

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization of PTO-2038.

October 10, 2003
Date

[Signature]
Signature
Jeffrey L. Costellia, Reg. No. 35,483
Typed or printed name

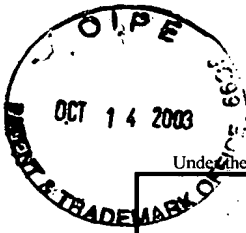
NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below.

Total of _____ forms are submitted.

SEND TO: Commissioner for Patents
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Alexandria, VA 22313-1450

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PTO/SB/24

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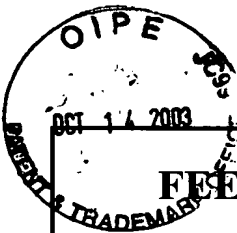
| | | |
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| TRANSMITTAL FORM <i>(to be used for all correspondence after initial filing)</i> | Application Number | 09/423,284 |
| | Filing Date | February 22, 2000 |
| | First Named Inventor | Scott BLAIR |
| | Group Art Unit | 2613 |
| | Examiner Name | Allen WONG |
| Total Number of Pages in This Submission | Attorney Docket Number | 740859-96 |

| ENCLOSURES (check all that apply) | | |
|---|---|---|
| <input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53 | <input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Declaration and Power of Attorney <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ | <input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input type="checkbox"/> Application Data Sheet <input type="checkbox"/> Information Disclosure Statement, Form 1449 and three cited references: |
| Remarks | | <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <p>RECEIVED</p> <p>OCT 23 2003</p> <p>Technology Center 2600</p> </div> |
| | | <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees required or credit any overpayments to Deposit Account No. 19-2380 for the above identified docket number. |

| SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT | |
|--|---|
| Firm or Individual name | Jeffrey L. Costellia, Registration No. 35,483 Nixon Peabody LLP 401 9 th Street, N.W., Suite 900 Washington D.C. 20004-2128 |
| Signature | |
| Date | October 10, 2003 |

| CERTIFICATE OF MAILING | | | |
|--|-----------------|------|----------|
| I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: | | | |
| | | | 10/10/03 |
| Type or printed name | Linda C. Haynes | | |
| Signature | | Date | 10/10/03 |

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FEE TRANSMITTAL FOR FY 2003

Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$475)

| | |
|----------------------|-------------------|
| Complete if Known | |
| Application Number | 09/423,284 |
| Filing Date | February 22, 2000 |
| First Named Inventor | Scott BLAIR |
| Examiner Name | Allen WONG |
| Art Unit | 2613 |
| Attorney Docket No. | 740859-96 |

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METHOD OF PAYMENT (check all that apply)

Check Credit Card Money Order Other None

Deposit Account:

Deposit Account Number: 19-2380

Deposit Account Name: Nixon Peabody LLP

The Commissioner is authorized to: (check all that apply)

- Charge fee(s) indicated below Credit any overpayments
- Charge any additional fee(s) during the pendency of this application
- Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

| Large Entity Fee Code | Large Entity Fee (\$) | Small Entity Fee Code | Small Entity Fee (\$) | Fee Description | Fee Paid |
|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|----------|
| 1001 | 750 | 2001 | 375 | Utility filing fee | |
| 1002 | 330 | 2002 | 165 | Design filing fee | |
| 1003 | 520 | 2003 | 260 | Plant filing fee | |
| 1004 | 750 | 2004 | 375 | Reissue filing fee | |
| 1005 | 160 | 2005 | 80 | Provisional filing fee | |

SUBTOTAL (1) (\$ 0)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

| Total Claims | Extra Claims | Fee from below | Fee Paid |
|--------------------|--------------|----------------|----------|
| 20** = | 0 X | 0 = | 0 |
| Independent Claims | -3** = | 0 X | 0 |
| Multiple Dependent | X | 0 = | 0 |

| Large Entity Fee Code | Large Entity Fee (\$) | Small Entity Fee Code | Small Entity Fee (\$) | Fee Description |
|-----------------------|-----------------------|-----------------------|-----------------------|--|
| 1202 | 18 | 2202 | 9 | Claims in excess of 20 |
| 1201 | 84 | 2201 | 42 | Independent claims in excess of 3 |
| 1203 | 280 | 2203 | 140 | Multiple dependent claim, if not paid |
| 1204 | 84 | 2204 | 42 | ** Reissue independent claims over original patent |
| 1205 | 18 | 2205 | 9 | ** Reissue claims in excess of 20 and over original patent |

SUBTOTAL (2) (\$ 0)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

| Large Entity Fee Code | Large Entity Fee (\$) | Small Entity Fee Code | Small Entity Fee (\$) | Fee Description |
|-----------------------|-----------------------|-----------------------|-----------------------|--|
| 1051 | 130 | 2051 | 65 | Surcharge - late filing fee or oath |
| 1052 | 50 | 2052 | 25 | Surcharge - late provisional filing fee or cover sheet |
| 1053 | 130 | 1053 | 130 | Non-English specification |
| 1812 | 2,520 | 1812 | 2,520 | For filing a request for ex parte reexamination |
| 1804 | 920* | 1804 | 920* | Requesting publication of SIR prior to Examiner action |
| 1805 | 1,840* | 1805 | 1,840* | Requesting publication of SIR after Examiner action |
| 1251 | 110 | 2251 | 55 | Extension for reply within first month |
| 1252 | 410 | 2252 | 205 | Extension for reply within second month |
| 1253 | 930 | 2253 | 465 | Extension for reply within third month |
| 1254 | 1,450 | 2254 | 725 | Extension for reply within fourth month |
| 1255 | 1,970 | 2255 | 985 | Extension for reply within fifth month |
| 1401 | 320 | 2401 | 160 | Notice of Appeal |
| 1402 | 320 | 2402 | 160 | Filing a brief in support of an appeal |
| 1403 | 280 | 2403 | 140 | Request for oral hearing |
| 1451 | 1,510 | 1451 | 1,510 | Petition to institute a public use proceeding |
| 1452 | 110 | 2452 | 55 | Petition to revive - unavoidable |
| 1453 | 1,300 | 2453 | 650 | Petition to revive - unintentional |
| 1501 | 1,300 | 2501 | 650 | Utility issue fee (or reissue) |
| 1502 | 470 | 2502 | 235 | Design issue fee |
| 1503 | 630 | 2503 | 315 | Plant issue fee |
| 1460 | 130 | 1460 | 130 | Petitions to the Commissioner |
| 1807 | 50 | 1807 | 50 | Processing fee under 37 CFR 1.17(q) |
| 1806 | 180 | 1806 | 180 | Submission of Information Disclosure Stmt |
| 8021 | 40 | 8021 | 40 | Recording each patent assignment per property (times number of properties) |
| 1809 | 750 | 2809 | 375 | Filing a submission after final rejection (37 CFR 1.129(a)) |
| 1810 | 750 | 2810 | 375 | For each additional invention to be examined (37 CFR 1.129(b)) |
| 1801 | 750 | 2801 | 375 | Request for Continued Examination (RCE) |
| 1802 | 900 | 1802 | 900 | Request for expedited examination of a design application |

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid SUBTOTAL (3) (\$475.00)

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I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to Commissioner for Patents, Washington, DC 20231, on

Frank C. Wagner

SUBMITTED BY

| | | | | | |
|-------------------|-----------------------------|-----------------------------------|------------------|-----------|--------------|
| Name (Print/Type) | Jeffrey L. Costellia | Registration No. (Attorney/Agent) | 35,483 | Telephone | 202-585-8000 |
| Signature | <i>Jeffrey L. Costellia</i> | Date | October 10, 2003 | | |



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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590 11/17/2003
SIXBEY FRIEDMAN LEEDOM & FERGUSON
8180 GREENSBORO DRIVE
SUITE 800
MCLEAN, VA 22102

EXAMINER: WONG, ALLEN C
ART UNIT: 2613 PAPER NUMBER: 13
DATE MAILED: 11/17/2003

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

TITLE OF INVENTION: SUBWAY TV MEDIA SYSTEM

Table with 6 columns: APPLN. TYPE, SMALL ENTITY, ISSUE FEE, PUBLICATION FEE, TOTAL FEE(S) DUE, DATE DUE

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

[] Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
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CURRENT CORRESPONDENCE ADDRESS (Note: Legibly mark-up with any corrections or use Block 1)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

7590 11/17/2003

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|-----------------------------|
| _____ (Depositor's name) |
| _____ (Signature) |
| _____ (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/423,284 | 02/22/2000 | SCOTT BLAIR | 0859-96 | 6562 |

TITLE OF INVENTION: SUBWAY TV MEDIA SYSTEM

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|-----------|-----------------|------------------|------------|
| nonprovisional | NO | \$1330 | \$0 | \$1330 | 02/17/2004 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---------------|----------|----------------|
| WONG, ALLEN C | 2613 | 348-061000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.563).
 Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
 2 _____
 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.
 (A) NAME OF ASSIGNEE _____ (B) RESIDENCE: (CITY and STATE OR COUNTRY) _____

Please check the appropriate assignee category or categories (will not be printed on the patent); individual corporation or other private group entity government

4a. The following fee(s) are enclosed:
 Issue Fee
 Publication Fee
 Advance Order - # of Copies _____

4b. Payment of Fee(s):
 A check in the amount of the fee(s) is enclosed.
 Payment by credit card. Form PTO-2038 is attached.
 The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

| | |
|--|--------------|
| (Authorized Signature) _____ | (Date) _____ |
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| This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450. | |
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/423,284 | 02/22/2000 | SCOTT BLAIR | 0859-96 | 6562 |

7590 11/17/2003
SIXBEY FRIEDMAN LEEDOM & FERGUSON
8180 GREENSBORO DRIVE
SUITE 800
MCLEAN, VA 22102

EXAMINER

WONG, ALLEN C

ART UNIT PAPER NUMBER

2613

DATE MAILED: 11/17/2003

13

Determination of Patent Term Extension under 35 U.S.C. 154 (b)
(application filed after June 7, 1995 but prior to May 29, 2000)

The Patent Term Extension is 0 day(s). Any patent to issue from the above-identified application will include an indication of the 0 day extension on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Extension is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.



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Table with columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO., EXAMINER, ART UNIT, PAPER NUMBER. Includes application details for SCOTT BLAIR and examiner WONG, ALLEN C.

DATE MAILED: 11/17/2003

Notice of Fee Increase on October 1, 2003

If a reply to a "Notice of Allowance and Fee(s) Due" is filed in the Office on or after October 1, 2003, then the amount due will be higher than that set forth in the "Notice of Allowance and Fee(s) Due" since there will be an increase in fees effective on October 1, 2003.

The current fee schedule is accessible from (http://www.uspto.gov/main/howtofees.htm).

If the fee paid is the amount shown on the "Notice of Allowance and Fee(s) Due" but not the correct amount in view of the fee increase, a "Notice of Pay Balance of Issue Fee" will be mailed to applicant.

Effective October 1, 2003, 37 CFR 1.18 is amended by revising paragraphs (a) through (c) to read as set forth below.

Section 1.18 Patent post allowance (including issue) fees.

- (a) Issue fee for issuing each original or reissue patent, except a design or plant patent: By a small entity (Sec. 1.27(a))..... \$665.00 By other than a small entity..... \$1,330.00
(b) Issue fee for issuing a design patent: By a small entity (Sec. 1.27(a))..... \$240.00 By other than a small entity..... \$480.00
(c) Issue fee for issuing a plant patent: By a small entity (Sec. 1.27(a))..... \$320.00 By other than a small entity..... \$640.00

Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

Notice of Allowability

| | | |
|--------------------------------------|-------------------------------------|--|
| Application No. 09/423,284 | Applicant(s) BLAIR, SCOTT | |
| Examiner Allen Wong | Art Unit 2613 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1. This communication is responsive to amendment filed on 10/14/03.
- 2. The allowed claim(s) is/are 4,5,7,13-16 renumbered as 1-7.
- 3. The drawings filed on 22 February 2000 are accepted by the Examiner.
- 4. Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some* c) None of the:
 - 1. Certified copies of the priority documents have been received.
 - 2. Certified copies of the priority documents have been received in Application No. _____.
 - 3. Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.
- 5. Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - (a) The translation of the foreign language provisional application has been received.
- 6. Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

- 7. A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
- 8. CORRECTED DRAWINGS must be submitted.
 - (a) including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) hereto or 2) to Paper No. _____.
 - (b) including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

- 9. DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- 1 Notice of References Cited (PTO-892)
- 3 Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 5 Information Disclosure Statements (PTO-1449), Paper No. _____.
- 7 Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 2 Notice of Informal Patent Application (PTO-152)
- 4 Interview Summary (PTO-413), Paper No. _____.
- 6 Examiner's Amendment/Comment
- 8 Examiner's Statement of Reasons for Allowance
- 9 Other



CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

DETAILED ACTION

Allowable Subject Matter

1. Claims 4, 5, 7 and 13-16 are allowed over the prior art.
2. The following is an examiner's statement of reasons for allowance: None of the references, neither Gerke, Steventon, nor Williams disclose the combination of limitations of claim 13 of the present invention: a subway car for mass transportation including longitudinal opposed sidewalls, a ceiling adjoining the sidewalls, a video display system comprising a plurality of video display monitors each having a video screen, and a video signal source unit operatively connected to said monitors, said monitors being spaced along the length of the car on opposed sides thereof, each of said monitor being mounted at the junction of the sidewall and ceiling, with the screen of the monitor substantially flushed with the adjacent wall surface structure of the car, and directed obliquely downwardly toward the car seats, so that each video screen is readily visible to passengers in the subway car.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-

Art Unit: 2613

5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Allen Wong
Examiner
Art Unit 2613

AW
11/13/03


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2613

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SUITE 900
WASHINGTON, D.C. 20004-2128



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| |
|--------------------|
| (Depositor's name) |
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/423,284 | 02/22/2000 | Scott Blair | 0859-96 | 6562 |

TITLE OF INVENTION SUBWAY TV MEDIA SYSTEM

| APPLN. TYPE. | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|-----------|-----------------|------------------|------------|
| nonprovisional | YES | \$665 | \$0 | \$665 | 02/17/2004 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|----------------|----------|----------------|
| WONG, ALLEN C. | 2613 | 348-061000 |

| | |
|--|--|
| <p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363)</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p> | <p>2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.</p> <p>1 <u>NIXON PEABODY LLP</u></p> <p>2 <u>Jeffrey L. Costellia</u></p> <p>3 _____</p> |
|--|--|

3. **ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT** (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY & STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) individual corporation or other private group entity government

| | |
|---|---|
| <p>4a. The following fee(s) are enclosed:</p> <p><input checked="" type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee</p> <p><input checked="" type="checkbox"/> Advance Order - # of Copies <u>15</u></p> | <p>4b. Payment of Fee(s):</p> <p><input type="checkbox"/> A check in the amount of the fee(s) is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input checked="" type="checkbox"/> The Commissioner is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number <u>19-2380 (740859-96)</u> (enclose an extra copy of this form).</p> |
|---|---|

Commissioner for Patents is requested to supply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature) Jeffrey L. Costellia (Date) 01/14/2004
Jeffrey L. Costellia - Reg. No. 35,483

NOTE: The issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

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01 FC:2501 665.00 DA
02 FC:8001 45.00 DA

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22204 7590 03/11/2003

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/423,284 | 02/22/2000 | Scott Blair | 0859-96 | 6562 |

TITLE OF INVENTION SUBWAY TV MEDIA SYSTEM

| APPLN. TYPE. | SMALL ENTITY | ISSUE FEE | PUBLICATION FEE | TOTAL FEE(S) DUE | DATE DUE |
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|----------------|----------|----------------|
| WONG, ALLEN C. | 2613 | 348-061000 |

| | | |
|---|--|---|
| <p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363)</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p> | <p>2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.</p> | <p>1 <u>NIXON PEABODY LLP</u></p> <p>2 <u>Jeffrey L. Costellia</u></p> <p>3 _____</p> |
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⑫ 公開特許公報(A)

昭63-125984

| ⑬ Int. Cl. ⁴ | 識別記号 | 庁内整理番号 | ⑭ 公開 昭和63年(1988)5月30日 |
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⑮ 発明の名称 交通機関における情報表示システム

⑯ 特 願 昭61-272668

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 ㉒ 復 代 理 人 弁 理 士 和 田 成 則

特 許 公 報

せ構成してなる特許請求の範囲第1項記載の情報表示システム。

1. 発明の名称 交通機関における情報表示システム

2. 特許請求の範囲

(1) ビデオディスプレイ装置により情報伝達表示部を形成し、該情報伝達表示部の指令装置は各駅に設置される制御部と、各制御部を統括する中央制御部に連結して情報表示システムを形成し、情報伝達表示部は駅内に設置されている乗車券自動販売機の一体的に組合せ構成してなることを特徴とする交通機関における情報表示システム。

(2) ビデオディスプレイ装置は、乗車券自動販売機の上部又は下部の何れかに一体的に組合せ構成してなる特許請求の範囲第1項記載の情報表示システム。

(3) ビデオディスプレイ装置は、乗車券自動販売機の左右部の何れか、又は、両方に一体的に組合

(4) ビデオディスプレイ装置により情報伝達表示部を形成し、該情報伝達表示部の指令装置は各駅に設置される制御部と、各制御部を統括する中央制御部に連結して情報表示システムを形成し、情報伝達表示部は電車車内の吊るし広告部に形成してなることを特徴とする交通機関における情報表示システム。

(5) ビデオディスプレイ装置による情報伝達表示部は、電車車内の両側壁面の広告部である特許請求の範囲第4項記載の情報表示システム。

(6) ビデオディスプレイ装置により情報伝達表示部を形成し、該情報伝達表示部の指令装置は各駅に設置される制御部と、各制御部を統括する中央制御部に連結して情報表示システムを形成し、情報伝達表示部はホームに設置されている売店の裏

壁面に取付け構成してなることを特徴とする交通機関における情報表示システム。

3. 発明の詳細な説明

産業上の利用分野

本発明は、駅及び駅相互間或いは走行中の車両内において各種情報を選択的に多機能に情報表示をすることができる情報システムの提供、及び、その遠行指令装置の提供に関するものである。

従来技術

従来より、鉄道、バス或いは空港等の各駅において情報の提供は、ポスターやアナウンスにより行われることが多かった。

然し乍ら、アナウンスによる情報の提供は同時に多数の人に伝達し得るが、一過性であると共に特にこれらの場所騒騒音が多く聞き取りにくく、聞き損じが種々ある等の欠点があった。

また、ポスターなど視覚に訴える表示は、表示内容を逐次変化させることができず、内容を変更する場合には一々ポスターを換えなければならず

に割り込み独自の放映機能を有するよう構成してもよい。

情報伝達表示部Jは、静的映像のみならず動的映像を表示すべく、ブラウン管或いは液晶画面等によるビデオディスプレイ装置により形成する。

この情報伝達表示部Jの制御システムの1例を第5図のブロック構成図により以下説明する。

中央制御部Hに連結された制御部Gは、データ通信機能を有する制御用計算機を有し、該制御用計算機は制御用通信路を介してその制御下に次の各装置を連結している。

- (1) 画像信号切替装置であるビデオスイッチャー
- (2) 画像メモリ
- (3) 制御装置を介して外部信号により任意の画像を選択再生可能なビデオディスク装置
- (4) 制御装置を介してビデオテープレコーダ
- (5) 駅内或いは車内に設置される各ビデオディスプレイ装置
- (6) 画像作成や編集の機能をはたすべく

(7) 指作車

、大変な労力を要する欠点があった。

近年、視覚的に情報を表示するものの中で動的画像を提供するためのものもあるが、単にテレビブラウン管等のディスプレイ装置を設置したものが多く、その提供情報内容も限定的なものであった。

今後市中における駅の果たす役割は、単に移動のための輸送拠点としてだけでなく、地域文化の中心的な拠点としての役割が高まってきている。

したがって、本発明は1駅のみに限定的に静的情報を表示するのではなく、駅の果たす役割が変貌する中でそれに相応しい情報提供システムの確立を目指すものである。

実施例

以下、本発明の詳細を図につき説明する。

本発明のトータルシステムは、第4図に示したように、端末機器である情報伝達表示部Jと、該情報伝達表示部J・・・を統括する制御部Gと、各制御部G・・・を統括する中央制御部Hとにより構成されている。

勿論制御部Gは、中央制御部Hよりの送信指令

(8) 固定ディスク

(9) フロッピーディスク

(10) プリンター

等の周辺装置

(11) 通信制御装置を介してデータ伝送路

また、ビデオスイッチャーが有する各チャンネルには、

(12) 制御用通信路を介して制御用計算機に連結している画像メモリをビデオ信号変換装置を介して

(13) 制御装置と制御用通信路を介して制御用計算機に連結するビデオディスク

(14) 制御装置と制御用通信路を介して制御用計算機に連結するビデオテープレコーダ

(15) 画像伝送路

(16) 駅内或いは車内に設置される各ビデオディスプレイ装置Jに連結し、データ伝送路と画像伝送路とにより中央制御部Hに連結している。

このように、各ビデオディスプレイ装置J・・・は、制御用計算機の出力するチャンネル選択信

号を、制御用計算機に接続された制御用通信路より受けとり、チャンネル切り換え機能を行うビデオスイッチャーである画像信号切換装置に接続されており、各々独立の表示部として機能するようになっている。

また、ビデオスイッチャーはチャンネル1～nを有しており、例えばチャンネル5～nにn-4台の各ビデオディスプレイ装置を接続する。

この場合、チャンネル1はビデオ信号変換装置を介して制御用計算機が読み書きできる画像メモリと接続され、さらに画像メモリは制御用通信路に連結され、制御用計算機の制御下に置かれている。

チャンネル2はビデオディスクと接続され、さらにビデオディスクは制御装置を介して制御用通信路に連結され、制御用計算機の制御下に置かれている。

チャンネル3はビデオテープレコードと接続され、さらにビデオテープレコードは制御装置を介して制御用通信路に連結されて、制御用計算機の

ディスプレイ装置・・・へ各々独立的に映像を送ることができる。

例えば、予め記憶されているビデオディスク中の映像を、制御用計算機内にプログラムされたスケジュールによって自動的に順次再生することが可能であるし、該計算機とその周辺装置を用いて画像作成や編集を行えるので、画像メモリ等の一次記憶装置とビデオ信号変換装置を介して、これらの情報を出力するように設定することもできる。

さらに、データ伝送路を通じて制御用計算機に割り込みをし、画像伝送路を通じて動画像や静止画像を送り、これらの情報をビデオディスプレイ装置に表示させたり、或いは、ビデオテープレコードや画像メモリ等に記憶させたり、その逆を行ったりすることが出来る。

これらの各機能はデータ伝送路と連結してあるので、中央制御部Hの制御用計算機と各駅の制御用計算機、又は、制御用計算機と他の駅の制御用計算機間において行えるものである。

制御下に置かれている。

チャンネル4は、直接画像伝送路に連結されている。

さらに制御用計算機は、ターミナル（制御用操作卓）、固定ディスク、フロッピィディスク等の手段により種々の情報を合理的に管理、操作すべくこれらの周辺装置と制御用通信路を介して接続されている。

また、他の制御部Gとの間（駅と駅間）、中央制御部Hとの間（中央制御部Hと駅間）の双方向データ通信路機能を有する通信制御装置を介してデータ伝送路に接続されている。

中央制御部Hの構成は、ビデオスイッチャーに連結される各ビデオディスプレイ装置・・・はなく、他の構成は前記制御部Gと同様である。

したがって、作動状態はビデオスイッチャーに制御用計算機から選択信号を与えることによって、ビデオスイッチャーに接続されている各装置（画像メモリ、ビデオディスク装置、ビデオテープレコード）及び画像伝送路より、各ビデオディス

本発明のシステム構成を決定する端末機器であるディスプレイ装置Jの設置については、図1に第1図に示したように、駅内に設置されている乗車券自動販売機に組合せ構成する場合である。

1は乗車券自動販売機であり、販売機1の正面部には乗車券自動販売機能を果たす操作部Aとして、100円玉等の硬貨の投入口2、千円札等の紙幣投入口3、カードの投入口4、料金別押しボタン5・・・、乗車券及び釣り銭の取り出し口6が設けられている。

そして、これら操作部Aは機器本体表面の下面部1bに形成されている。

一方機器本体表面の上面部1aは、段部により空間部7が形成されている。

この空間部7は、ビデオディスプレイ装置である情報伝送装置J（図示せず）を挿入して一体的に組合せ取り付けするものである。

但し、この部分の活用についてはこの種情報伝送装置Jにのみ限定されるものでなく、例えばパンフレットの配付のためのスペースとして用いて

もよいし、その値が一定の販売機等種々の機器類との組合せが可能である。

また、この空間部分4の形状や券売機との組合せ位置は図示した上部に限らず種々設計変更が可能である。

そして、販売機1の操作部Aと制御部Cを連動させる場合には、操作部A側には、各機能の動作がコード化された人力情報を読み電界の変化に変換して送出する出力部が設けられ、制御部C側にはこの出力部より出力される情報を読み取るホスト装置が設けられる。

この構成の場合には、各種機器との組合せが可能であるので、それぞれの機器の消耗度、或いは、機種グレードアップに伴ってその機器のみを変えればよい。

第2には、第2図に示したように電車車内の吊るし広告部8に形成する場合である。

天井より吊り下げられた広告部8を、広告部8の同種の固定枠の枠内に液晶画面等によるパネル形式により情報伝達表示部Jを形成する。

制御部からの指令により逐次情報伝達表示部に表示することができるから、例えば駅構内で事故などが発生した場合は、誘導や改札止め、事故発生状況の説明や振り替え輸送体制の図解等を克明に知らせることができる。

また、駅周辺における事故においても同様の体制をとることができるし、交通事情をも紹介することができる。

さらに、他の駅や走行中の車両に対しても相互に情報を伝達し得るので、乗客に適切な指示を与えると共に乗客側も混乱することなく各自にあった判断を下すことができる。

これらの場合において、各情報伝達表示部の全面を通して同一放映をし得ることは勿論であるが、その必要がない場合には、特定のブロック内の駅にのみ情報表示を行わしめることができる。

よって、乗客或いは通行人に対して各種指示を行う事を可能とし、また、駅近郊の紹介、種々の催事の宣伝広告等多機能の情報提供管理を行うものであり、年々重要性を増すターミナルとしての

商、この情報伝達表示部Jは車内の両側壁面9に形成してもよい。

この構成の場合には、従来のようにポスターを一つ々々張り換える必要がなく、而も、走行中の車両に対しても所望により瞬時に情報内容を変化させることができ、その情報内容も幅広く選択し得るものである。

第3には、ホームに設置されている売店10の裏壁面形成する場合である。

ホームに設置されている売店10の裏壁面は、現在ごみ置き等に使用されている未利用のスペースであり、この壁面にブラウン管やパネル形式の情報伝達表示部Jに構成するものである。

また、この場合には場所的にスペースを有するので操作部Jを設けるとか、タッチパネル形式の情報伝達表示部に構成することにより、対話形式の情報提供システムとしてもよい。

効果

本発明は上記の如く構成よりなるので、所望の動的或いは静的映像を表示部の交換なしに、制

駅をより一層中継地点とされるものであり、各種装置を組合せ構成することにより、多目的性、経済性、革新性を高めるものである。

4. 図面の簡単な説明

第1図乃至第3図は本発明の情報伝達表示部の1実施例図、第4図は本発明のシステムの統括図、第5図は制御部の構成を示したブロック図である。

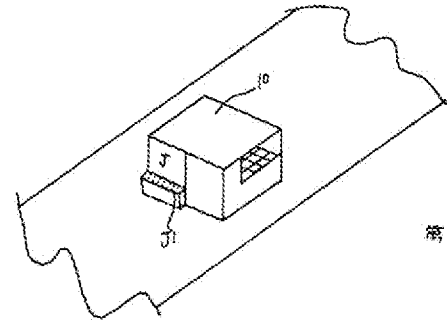
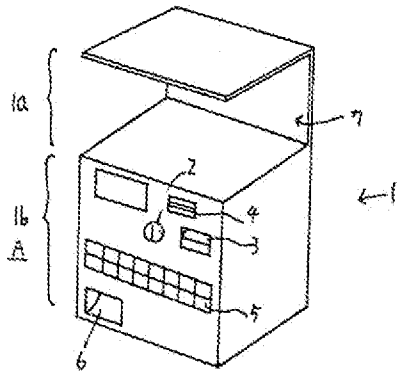
1・・・乗車券自動販売機の操作部 J・・・情報伝達表示部 C・・・制御部 H・・・中央制御部

特許出願人 柴崎 林二郎

特許出願人 牛久久 男

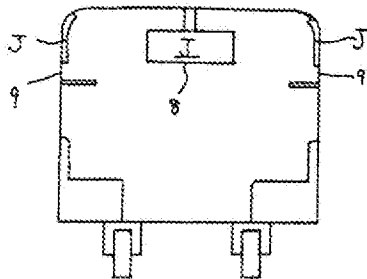
代理人 弁理士 大橋 裕 誠

第 1 図

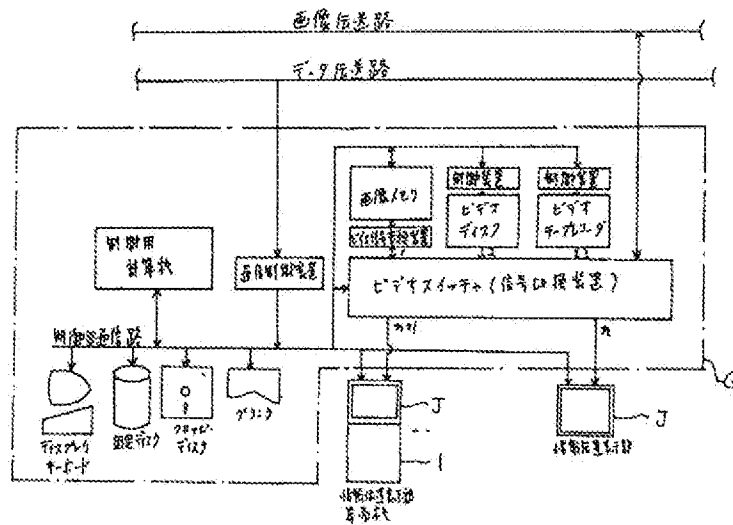
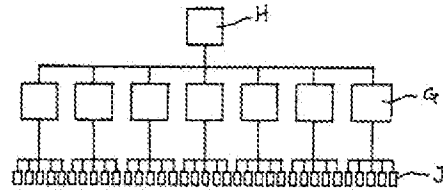


第 3 図

第 2 図



第 4 図



第 5 図

⑩ 日本国特許庁(JP)

⑪ 特許出願公開

⑫ 公開特許公報(A)

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明 細 書

1. 発明の名称

車内情報案内システム

2. 特許請求の範囲

(1) 列車内に設備され列車内の情報放送を行うための画像情報データの構築を行う情報処理装置(A)と、

作成した画像情報データを画像情報として各表示装置に分配する送出装置(B)と、

各車輻に設けられた表示装置(C)を有し、運行中の列車内で次停車駅及び/又は以遠の案内情報を表示放送することを特徴とする社内情報案内システム。

(2) 前記作成される画像情報データが、少なくとも次停車駅名と、到着予定時刻と、次停車駅で継続する自社系又は他社系の交通機関の路線別運行ダイヤの中の到着予定時刻に所定の乗り換え時間を加えた時刻後に発車する最初の列車やバス等に関する特急、急行各停、発車時刻、行先、乗車ホーム、等の案内情報を含んで構成されることを特徴

とする特許請求の範囲第(1)項記載の車内情報案内システム。

(3) 前記表示装置が列車通路脇の壁の上部や、乗客座席の窓上部などに設けられて成ることを特徴とする特許請求の範囲第(1)項又は第2項記載の車内情報案内システム。

3. 発明の詳細な説明

(概要)

列車内の情報案内は従来車掌巡回によるか社内放送設備により音声で行われていた。しかし音声は保存されないで眠っていたりして聴き逃した乗客や忘れた乗客に対して何回もくり返さねば情報の補充が出来ない。それで音声放送の欠点をカバーするため画像による放送を行う。又は併用しようとするもの。

(産業上の利用分野)

本発明は運用中の列車に乗っている乗客を対象とした画像放送による情報案内サービスシステム

に依り特に表示装置によって一定の時間内はいつでも見られる消えない情報サービスを提供するシステムに関する。

(従来技術の問題点)

従来のこうした情報アナウンスは車掌室に備えられた放送設備から有線で各車鈴に備えられたスピーカを介して乗客音声放送されていた。しかし音声は一過性で消えてしまうので、情報が必要な乗客が何らかの理由で聴きもらしたり忘れたりすると情報が必要な乗客がこれを補充出来ないと云う欠点があり、この欠点をカバーしようとして繰り返し放送すると他の乗客にとってはうるさいと云う問題があった。

(解決の手段)

本発明の意図する所は上記にかんがみ案内する情報内容を画像情報として各車輛に放送(表示)することにより情報を必要とする乗客が必要であればいつでも読取ることが出来る様に一定の時間

は保存された形態で乗客に提供することである。

上記意図を実現するためのハード側の構成は列車内の車掌室等の乗務員が管理する場所に、乗務員が管理し、操作して画像情報データの選出と編集を行う情報処理装置と、該装置で作成(選出と編集)した画像情報データを画像情報として各表示装置に分配放送する送出装置とを備え、各車輛側に夫々備えた表示装置を介して、次の停車駅でおりる乗客が必要とする案内情報を表示放送することにより解決しようとするものである。

なを少し補足するなら上記表示内容として作成される画像情報データは次停車駅で停車する以前に表示される様運用することと、次停車駅でおりる客が必要とする駅名、到着予定時刻(おくれる場合は修正されたものが望ましい)ホーム等と乗り換えのための接続に関する情報を接続可能なダイヤグラムから選んで見やすい場所に設置した表示装置に継続表示して、次々と停車前までには更新して提供することか運用上の要件となる。

(実施例)

第1図は本発明の原理図を兼ねる一実施例の説明図であり、

第2図と第3図と第4図は第1図の補足図を示し、第2図は情報処理装置内で行われる画像表示データを作成する作業を作業フロとして説明するもの、

第3図は入力編集を機能ブロック図で説明するもの、

第4図は表示装置の設置場所を説明するものである。

第1図中の路線で区切ったAの部分の中が情報処理装置、Bの部分の中が送出装置、Cの部分の中が各車輛側の表示装置を示し、情報処理装置Aは中央処理装置1(CPUと通称す)に接続するモニタ部を含む操作部2と、CPU1とともにデータ編集を行い、データ編集の作業場となる主記憶3(MSと通称す)と、少なくとも現在運行中の現列車の始発駅から終着駅までの間の各駅を発着する計画時刻と停車駅名と各駅と発着ホーム番号

を含む自列車の運行計画データと、上記自列車が停車する駅から発着する乗り継ぎ列車(当該路線の普通列車や急行列車や特急列車など当該路線外の別路線を運行され別方向に向う普通列車や急行列車、特急列車などさらには以遠に接続する列車や連絡船、さらには停車駅をターミナルとするバス等の交通機関の車も含んで良い総称として乗り継ぎ列車と称する)の夫々の駅から発着する時刻、行先、発着ホーム(ターミナル)情報を含む各停車駅で関連する乗り継ぎ列車の運行計画(列車ダイヤ)情報データと、上記現列車の各停車駅についてホーム間やホームターミナル間の乗り継ぎ移動に要すると思われる必要余裕時間情報を含む編集に必要な各情報を少なくとも含むソースデータを記憶しているデータファイル4、5をデータベース6で結んで形成されており、

操作部2から操作して発車後、停車前の時期に第3図で二重丸くで示す設定データの一つ、すなわち、次停車駅名(コード化されていて良い)を設定するとデータファイル4、5の中から設定停

率駅に係る駅名を表示するためのデータや、到着予定時刻を示すためのデータや、乗り継ぎ列車の発着時刻や発着ホームに関するデータや必要があれば乗り継ぎのための必要余裕時間に関するデータが次停車駅名設定部31に駅名を設定することを「キー」としファイル4、5からMS3内の各設定部に呼び出されて設定され操作員は現在の列車運行ダイヤと予定との間の差(運行のおくれ等による)があれば各設定部の到着時刻や必要余裕時間や表示項目を修正設定してから編集を行なう。

編集はまず、現運行列車の次停車駅到着時刻設定部32に設定された時刻に余裕時間設定部35に設定された各方面への乗り継ぎのための必要余裕時間を加えた時刻と、列車ダイヤ記憶部34に必要な分だけファイル5より取り込んで記憶された各方面へ発車する乗り継ぎ列車の発車時刻データ群との間の大小判定を一つの方面毎に比較部36で行い一つの方面について乗り継ぎ接続可能な列車を選び列車の選択部37に渡す。次いで列車選択部37は発車時刻の大小判定を行い、比較部

36で選んだ接続可能な列車の中で列車クラス毎に最も早い時刻の列車を選んでフォーマット編集部38の所定フォーマット位置に格納する作業を、必要な方面分だけ繰り返すことにより接続情報データの編集を行う。

そして次停車駅に関する停車駅名、到着時刻、着ホームと併せて、各方面に乗り継ぎ可能に接続するもよりの列車の発車時刻、ホーム、行き先、方面を示すデータと、列車名、急行普通の別、列車かバスか等の車種、等の従属するデータのファイル4より取り込んだものを併せてフォーマット編集したものを得て編集が完成する。

なお、これらの作業は必要あれば操作部2でモニタしつつ設定し、修正して、主にCPU1とMS3の間で実行される。

しかし、編集を終った画像情報データは該データを各列車の表示装置に表示する画像情報に変換し送出する送出装置Bに渡され、画像情報に変換されて画像として各表示装置21~2nから放送される。

そして各表示装置21~2nは第4図に示す様に各列車の通路に隣接する壁あるいは乗客座席の窓上部の平均的成人が歩く時目の高さ程度に配置することが好ましい。

なを本発明の変形として列車が遅れる場合があるので、到着予定時刻の変更は列車内で変更可能にしておけば、あらかじめ編集したデータをディスクカートリッジあるいはフロッピーディスク等の媒体で供給して、列車内での乗務員の作業大幅に軽減する事も、またもっと大がかりになるが、該編集を列車運行を管制する中央指令室で行って各列車にオンライン供給することも可能であり、乗客が受け取るサービスとしてはほぼ同じ効果を有するが乗務員が直接作業に係る時間が少くなると云うメリットを持つ。

(効果)

以上説明した様に本発明によれば列車内の情報案内を消えない形で必要な乗客が必要とする時点で情報密度の高い案内情報を提供することが出来

るので音声放送のみによる運用に較べて必要のない乗客にうるさがられずサービスの質が向上するのみならず運行中の列車の運行に合せて必要時には修正することが出来運用側から見ても、よりきめこまかいサービスを行うことが出来ると云う効果を有するものである。

4. 図面の簡単な説明

第1図は本発明の原理説明図を兼ねる一実施例の説明図でシステム構成を説明するもの。

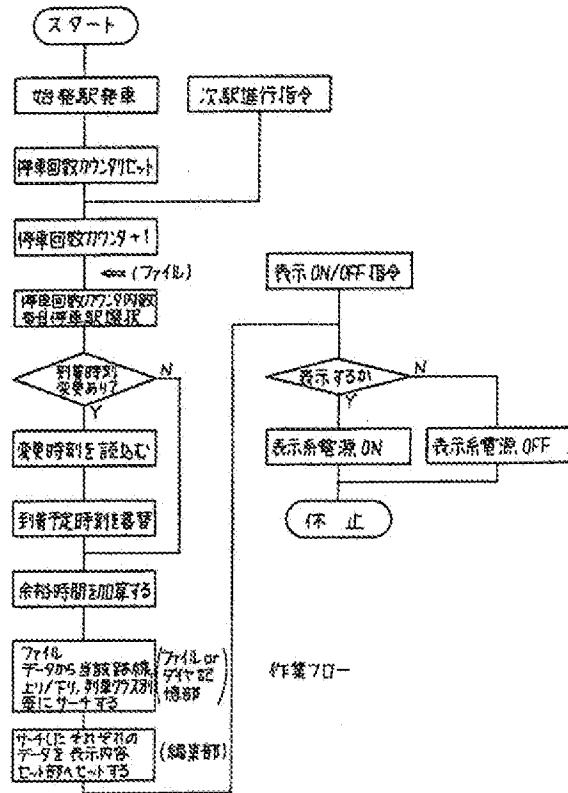
第2図、第3図、第4図は第1図の補足図で夫々一実施例の作業フローをフローとして説明するものと、機能ブロックとして説明するものと、表示場所を説明するものである。

図中Aは情報処理装置、Bは送出装置、Cは表示装置を示す。また、付番は細部を示し、1はCPU、2は操作部、3は主記憶(MS)、4、5はデータファイル、6はバスを示す。また、11は編集された表示データのセット部、12は画像データへの変換部、13は送信部、14は表示系制御部を示す。

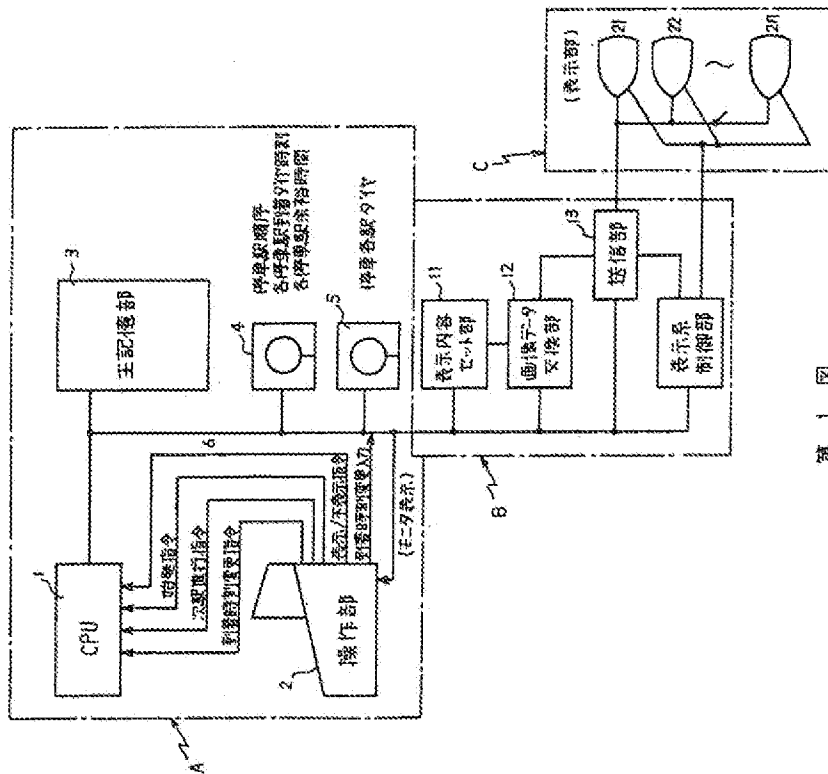
さらに 21, 22, ... 2n は各客車の表示部を示す。

また 31 は次停車駅名設定部、32 は着時刻設定部、33 は表示項目設定部、34 はダイヤの一部を一時記憶するダイヤ記憶部、35 は余裕時間設定部、36 は比較部、37 は選択部、38 はフォーマット編集部を示す。

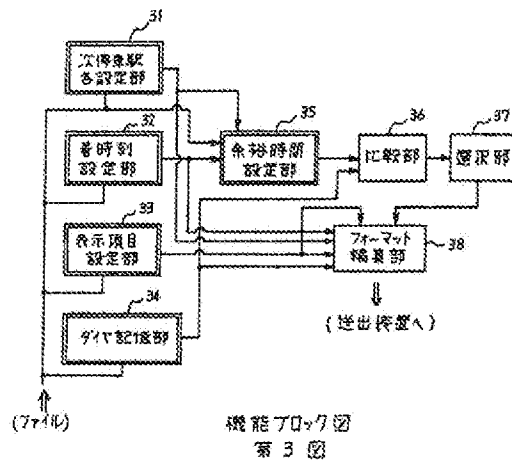
代理人 弁理士 松岡 宏四



第 2 図



第 1 図



⑤ 日本国特許庁(JP)

⑩ 特許出願公開

② 公開特許公報(A) 平4-160991

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⑧ 発明の名称 移動体用文字放送受信システム

⑨ 特 願 平2-288142

⑩ 出 願 平2(1990)10月25日

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明 細 書

関する。

発明の名称 移動体用文字放送受信システム

特許請求の範囲

移動体に搭載されたテレビジョン放送受信用チューナと、該チューナで受信したテレビジョン放送信号から文字放送データを抽出して復調する文字放送デコーダと、該文字放送デコーダで得た文字放送データを複数画面分記憶するメモリと、該メモリに記憶された文字放送データを表示させる表示手段とを設け、

上記文字放送デコーダで必要とする文字放送番組の少なくとも1画面分の文字放送データを復調したとき、この復調して得た画面の文字放送データを、上記メモリの対応したエリアに記憶させ、上記メモリの記憶データの更新を行うようにした移動体用文字放送受信システム。

発明の詳細な説明

(産業上の利用分野)

本発明は、電車等の移動体に搭載されるものに適用して好適な移動体用文字放送受信システムに

(発明の概要)

本発明は、電車等の移動体に搭載される移動体用文字放送受信システムにおいて、文字放送デコーダで必要とする文字放送番組の少なくとも1画面分の文字放送データを復調したとき、この復調して得た画面の文字放送データをメモリの対応したエリアに記憶させ、文字放送データを記憶するメモリの記憶データの更新を行うようにし、文字放送番組の全てのデータが受信されないときでも、文字放送番組の良好な表示ができるようにしたものである。

(従来の技術)

近年、電車等の移動体に、テレビジョン受像機を取付け、VTR等から再生した映像を受像させて乗客にサービスすることが行われている。この場合、電車の屋上にアンテナを取付け、このアンテナで地上の送信所からのテレビジョン放送信号

を受信し、受像させるようにしたものもある。

〔発明が解決しようとする課題〕

ところが、このようなテレビジョン放送信号を受信できるのは、比較的電波状態が良い場所を走行するときに限られていた。即ち、都心のようにビル等の障害物が多い地域を走行する移動体の場合には、送信所からの放送信号が不要輻射なく良好に受信できる箇所が少なく、通常のテレビジョン用アンテナを移動体に取付けただけでは受信状態が非常に悪く、実用に耐えない状態の映像になってしまうことが多かった。例えば、東京のほぼ中央部を走行する山の手線の電車の場合、送信所からの距離は非常に近く、本来ならば簡単な構造のアンテナでも良好に受信できる強電界地域であるが、ビル等の障害物が非常に多く、従来の技術でテレビジョン放送をゴーストなく受信するのは不可能に近かった。

また、テレビジョン放送信号の一部を利用して文字放送のための電波が送信されているが、この

の更新を行うようにしたものである。

〔作用〕

このようにしたことで、最初に必要とする文字放送番組の全ての画面のデータをメモリに記憶させておけば、移動体が走行中等にこの文字放送番組の一部の画面のデータだけが受信できたときでも、この受信できた部分のデータだけは最新のデータに更新され、順次文字放送番組のデータが最新のものに更新されていき、メモリには必要とする文字放送番組の全ての画面のデータが記憶されているので、常時該当する文字放送番組の全ての画面の表示が可能になる。

〔実施例〕

以下、本発明の一実施例を、第1図～第4図を参照して説明する。

本例においては、電車に搭載したテレビジョン受像機に文字放送を表示させる受信システムに適用したもので、まずこの受信システムの全体構成

文字放送の信号はデジタルデータ化されて送信されるため、ゴーストの発生を極度に嫌い、移動体での文字放送の受信は不可能であった。

本発明の目的は、電車等の移動体で文字放送の受信が良好にできるようにすることにある。

〔課題を解決するための手段〕

本発明は、例えば第1図に示すように、移動体(1)に搭載されたテレビジョン放送受信用チューナ(43)と、このチューナ(43)で受信したテレビジョン放送信号から文字放送データを抽出して復調する文字放送デコーダ(46)と、この文字放送デコーダ(46)で得た文字放送データを複数画面分記憶するメモリ(47)と、このメモリ(47)に記憶された文字放送データを表示させる表示手段(101)、(102)、(103)・・・(124)とを設け、文字放送デコーダ(46)で必要とする文字放送番組の少なくとも1画面分の文字放送データを復調したとき、この復調して得た画面の文字放送データを、メモリ(47)の対応したエリアに記憶させ、メモリ(47)の記憶データ

を説明する。

第1図及び第2図において、(1)は電車の車体を示し、この車体(1)の側面には片側6箇所の扉(出入口)(11)、(12)、(13)・・・(16)及び(17)、(18)、(19)・・・(22)が設けてあり、車内のそれぞれの扉(11)～(22)の左右の戸袋部の上部に、テレビジョン受像機(101)、(102)、(103)・・・(124)が設置してある。例えば第2図に示すように、扉(19)の左右の戸袋部の上部に、テレビジョン受像機(117)と(118)とが取付けてある。この場合、それぞれのテレビジョン受像機(101)、(102)、(103)・・・(124)は、液晶パネル等を使用した薄型のものとしてある。

そして、この各テレビジョン受像機(101)、(102)、(103)・・・(124)に文字放送を表示させるのであるが、この文字放送を受信するための4個のアンテナ(30a)、(30b)、(30c)、(30d)を、車体(1)の屋上(2)のベンチレータ(3)及び(4)の周囲に取付けてある。この場合、それぞれのアンテナ(30a)、(30b)、(30c)、(30d)は、第3図に示すように、一端部が近接し

た 2 本の導体棒 (31), (32) と、この導体棒 (31), (32) と所定間隔あけて配置された反射器 (33) とよりなるダイポールアンテナで構成され、2 本の導体棒 (31), (32) の間のギャップ部を、バルーン (マッチングトランス) を介して同軸ケーブル (35) (第 3 図参照) に接続し、この同軸ケーブル (35) を後述する床下ユニット (40) 内の切換器 (41) に接続する。2 本の導体棒 (31), (32) の長さは受信チャンネルの周波数に応じて選定してあり、反射器 (33) はこの 2 本の導体棒 (31), (32) を合わせた長さよりも長くしてある。

そして、4 個のアンテナ (30a), (30b), (30c), (30d) は、水平方向に 90° ずつ取付け角をずらしてあり、アンテナ (30a), (30b) はベンチレータ (3) の前後 (レールと平行する方向) に取付けてあり、アンテナ (30c), (30d) はベンチレータ (3) の隣のベンチレータ (4) の左右 (レールと直交する方向) に取付けてある。

ここで、ベンチレータへのアンテナの取付け状態を詳しく説明すると、この車体 (1) の屋根 (2) には

ないようにしてある。そして、このカバー (24) の上部に、アンテナ (30c) 及び (30d) を構成する連結部材 (34) の一端部を固定し、このそれぞれの連結部材 (34) のほぼ中央部に反射器 (33) を固定すると共に、他端部に導体棒 (31), (32) を固定する。ここで、2 本の導体棒 (31) と (32) とは、所定のギャップを設けて連結部材 (34) に固定する。また、連結部材 (34) は絶縁材とする。また本例においては、導体棒 (31), (32) と反射器 (33) とを、断面が L 字型のアンギュル材とし、取付けが容易にできるようにしてある。

ここで、各ベンチレータの上部と反射器 (33) の下端との間の高さ方向の間隔 H を、少なくとも 15mm とし、各ベンチレータと反射器 (33) との水平方向の幅 B を、少なくとも幅 20mm とし、さらに反射器 (33) の高さ B を、70mm 以上とする。この場合、ベンチレータとの高さ H、幅 B 及び反射器 (33) 自身の高さ B の値は、大きい方がアンテナの特性上好ましいが、実際には屋上 (2) に搭載できる機器の大きさが車両限界等の規格で決められており、あ

複数のベンチレータ (3), (4), (5) … が取付けてあり、このベンチレータ (3), (4), (5) … は走行時に外部の空気を車内に押し込む換気装置として機能するいわゆる押し込み型のベンチレータと称されるもので、各ベンチレータ (3), (4), (5) … は四隅の脚部 (3a), (4a), (5a) … がボルト (23) により屋上 (2) に固定してある。この場合、各ベンチレータ (3), (4), (5) … は、車体 (1) と絶縁した状態で取付けてある。

そして、ベンチレータ (3) の四隅の脚部 (3a) を固定しているボルト (23) を利用して、2 個のアンテナ (30a), (30b) を取付ける。また、ベンチレータ (3) の隣のベンチレータ (4) の四隅の脚部 (4a) を固定しているボルト (23) を利用して、2 個のアンテナ (30c), (30d) を取付ける。

第 3 図及び第 4 図にこのアンテナ (30c), (30d) のベンチレータ (4) への取付け状態を拡大して示すと、ベンチレータ (4) のまわりには、コの字型のカバー (24) がボルト (23) で取付けてある。この場合、カバー (24) がベンチレータ (4) の通気部 (4b) を塞が

まり大きなアンテナを取付けることは出来ず、上述した値或いはこの値より若干大きな値に制限される。

このようにして 4 個のアンテナ (30a), (30b), (30c), (30d) を取付けてあることで、それぞれのアンテナ (30a), (30b), (30c), (30d) は導体棒 (31), (32) が設置された方向の電波だけを受信し、反対側 (ベンチレータ側) から導体棒 (31), (32) に向かう電波は、反射器 (33) により遮蔽され、反射電波による定在波の発生を抑えることができる。従って、90° ずつ設置位置が異なる 4 個のアンテナ (30a), (30b), (30c), (30d) で、ほぼ 360° 全ての方向から来る電波を受信することができる。

そして、このように構成される 4 個のアンテナ (30a), (30b), (30c), (30d) を、車体 (1) の床下に吊り下げられた床下ユニット (40) 内の切換器 (41) に同軸ケーブル (35) で接続する。この床下ユニット (40) 内には、文字放送受信のための機器が収納され、切換器 (41) は後述する判別回路 (44) の制御で、何れかのアンテナから供給される受信信号を選択

的に出力する。そして、この切換器(41)が出力する受信信号を、ブースタ(42)を介して、ゴーストリダクションチューナ(43)に供給し、このゴーストリダクションチューナ(43)で予めセットされた所定のチャンネルのテレビジョン放送信号を受信する。この場合、ゴーストリダクションチューナ(43)は、垂直帰線期間内に挿入されたGCR信号等を用いて、受信放送信号のゴーストリダクションを行うもので、選局部、中間周波増幅/復調部と共に、ゴースト除去フィルタ、GCR信号抽出回路、比較回路、制御回路等を備えており、電波の乱反射等により歪みが生じたGCR信号と基準信号とを比較して、反射波信号を抑圧するようになされている。

ここで本例においては、このゴーストリダクションチューナ(43)で得た所定チャンネルのテレビジョン放送信号を判別回路(44)に供給し、この判別回路(44)で受信したテレビジョン放送信号に含まれる同期信号のレベルを判別し、切換器(41)でのアンテナ線の選択を、最も良好なレベルの同期

(47)に記憶させる。

ここで、このメモリ(47)の構成について説明すると、このメモリ(47)はデータ記憶部が複数のエリアに分割され、第5図に示すように各エリアが使用される。即ち、4つの文字放送番組A、B、C、Dを記憶できるようにしてあり、それぞれの番組毎に1ページから10ページまで10画面分記憶できるエリア $a1 \sim a10, b1 \sim b10, c1 \sim c10, d1 \sim d10$ を有する。この場合、各エリア $a1 \sim a10, b1 \sim b10, c1 \sim c10, d1 \sim d10$ は、搭載された車両(1)の運転開始時に一旦所定の文字放送番組のデータが記憶されると、各エリア毎に単独で記憶データの更新ができるようにしてあり、1つの文字放送番組の一部のページ(画面)のデータだけが受信できたときには、この受信できたページの記憶エリアのデータだけを置換えさせる。従って、各文字放送番組A、B、C、Dを構成する各ページの記憶データは、同時に受信したものではない場合がある。なお、それぞれの文字放送番組A、B、C、Dとして、10ページ以下のページ数で構成される場合に

信号が得られるものにして、いわゆるダイバースティアンテナを構成する。この場合、この判別回路(44)にはタイマ回路(45)が接続してあり、タイマ回路(45)による制御で、上述したレベル判別を所定間隔で行うようにしてある。

そして、ゴーストリダクションチューナ(43)で得たテレビジョン放送信号を、文字放送デコーダ(46)に供給し、この文字放送デコーダ(46)で放送信号の垂直帰線消去期間に多重された文字、図形等の文字放送信号を得る。この場合、1チャンネルのテレビジョン放送信号で複数の文字放送番組が送出されており、予めセットされた所定の文字放送番組の少なくとも1画面分のデータを得たとき、文字放送デコーダ(46)に接続されたメモリ(47)にこのデータを記憶させる。即ち、文字放送デコーダ(46)は、受信して得たそれぞれの文字放送画面が、完全なものであるか否かを判断する回路を有し、この回路で1画面でも完全な画面のデータが得られたと判断したときには、このデータが必要とする文字放送番組であるとき、メモリ

は、データが得られないページを空きエリアとしておく。

そして、このようにしてメモリ(47)に記憶された所定の文字放送番組のデータを文字放送デコーダ(46)に順次読み出して、データで示される文字、図形等を画像表示させる映像信号とし、この映像信号を同軸ケーブルにより床下ユニット(40)から出力させる。この場合、記憶された4つの文字放送番組A、B、C、Dの内、何れかの番組のデータが少なくとも1画面分置換えられたとき、この置換えられた番組を第1ページから最後のページまで順次読み出して表示させるようにする。

なお、床下ユニット(40)からの出力映像信号は、ベースバンドの映像信号(即ちRF変調されていない映像信号)とする。また本例においては、床下ユニット(40)内に電源回路(48)を備え、この電源回路(48)から直流低圧の電源を出力させる。

そして、この床下ユニット(40)から映像信号を出力させる同軸ケーブルを、車体(1)に取付けられた3分配器(61)に接続し、出力映像信号を供給す

る。また、電源回路(48)から出力される電源も、3分配器(61)に供給する。この3分配器(61)は、供給されるベースバンドの映像信号を3分配するようにしたものである。

そして、この3分配器(61)からの第1、第2、第3の分配出力の内、第1の分配出力を第1の2分配器(71)に供給し、第2の分配出力を車体(1)の第1エンド(一端)側の連結面に設けられた接続端子(62)に供給し、第3の分配出力を車体(1)の第2エンド(他端)側の連結面に設けられた接続端子(63)に供給する。また、3分配器(61)に供給される電源も、第1の2分配器(71)に供給する。

この第1の2分配器(71)は、供給されるベースバンドの映像信号を2分配するようにしたものである。

そして、第1の2分配器(71)で分配された第1の分配出力を後段に接続された第2の2分配器(72)に供給し、第2の分配出力を後段に接続された第13の2分配器(83)に供給する。この場合、3分配器(61)側から供給される電源を、第2及び第

方を車内に取付けられたテレビジョン受像機(113)に供給し、第2の分配出力を後段に接続された第14の2分配器(84)に供給する。

以下、同様にして後段に接続された2分配器(84)、(85)、(86)……(93)で、供給されるベースバンドの映像信号を2分配し、第1の分配出力を車内に取付けられた対応するテレビジョン受像機(114)、(115)、(116)……(124)に供給し、第2の分配出力を後段に接続された2分配器(85)、(86)、(87)……(93)に供給する。但し、最後に接続された第23の2分配器(93)の第2の分配出力は、テレビジョン受像機(124)に供給する。

この場合にも、各2分配器から接続されたテレビジョン受像機及び後段の2分配器に、前段の2分配器側から供給される電源を供給する。

なお、連結面に設けられた接続端子(62)及び(63)は、チューナ等を備えていない他の車両を前後に連結した場合に、この連結した車両(図示せず)の映像信号入力端子と接続するもので、前後の車両へも受信した文字放送等の映像信号を供給

13の2分配器(72)及び(83)に供給する。

この第2の2分配器(72)は、第1の2分配器(71)と同様に2分配を行うようにしたもので、第1の分配出力を車内に取付けられたテレビジョン受像機(102)に供給し、第2の分配出力を後段に接続された第3の2分配器(73)に供給する。

以下、同様にして後段に接続された2分配器(73)、(74)、(75)……(82)で、供給されるベースバンドの映像信号を2分配し、第1の分配出力を車内に取付けられた対応するテレビジョン受像機(103)、(104)、(105)……(111)に供給し、第2の分配出力を後段に接続された2分配器(74)、(75)、(76)……(82)に供給する。但し、最後に接続された第12の2分配器(82)の第2の分配出力は、テレビジョン受像機(112)に供給する。

この場合にも、各2分配器から接続されたテレビジョン受像機及び後段の2分配器に、前段の2分配器側から供給される電源を供給する。

また、第1の2分配器(71)の第2の分配出力側と接続された第13の2分配器(83)の第1の分配出

力できるようにしてある。この場合、前後の車両のテレビジョン受像機が必要とする電源は、それぞれの車両内の電源回路から供給する。

次に、このようにして接続されるテレビジョン受像機(101)、(102)、(103)……(124)に文字放送の画像を表示させる場合の動作について説明する。

まず、文字放送を受信して文字放送デコーダ(46)に接続されたメモリ(47)に、必要とする文字放送番組のデータを記憶させる作業を行う。この場合、テレビジョン放送信号の受信状態が良好であれば、僅かな時間でメモリ(47)への記憶作業が終了するが、実際には車両(1)が走行しているときにサービスを行うものであるため、一時的に受信状態が良好になって、文字放送デコーダ(46)が必要とする文字放送番組の少なくとも1画面分のデータが得られたとき、この得られた画面のデータをメモリ(47)に記憶させ、以前に記憶された同じページのデータを新しく受信したものに更新させる。

即ち、第6図のフローチャートに示すように、

文字放送デコーダ(46)で受信した文字放送番組の画面の組立てを行い、組立てられた画面が完全な画面になるか(即ち組立てられた画面に欠落部がないか)判断する。そして、組立てられた画面が完全であるときには、この画面のデータをメモリ(47)の対応するエリアに蓄込ませ、このエリアのデータを蓄換えさせる。そして、この蓄換えがあったときには、蓄換えられた文字放送番組を、1ページから順に表示させるように、メモリ(47)の記憶データを読出して文字放送デコーダ(46)で出力映像信号を作成させる。また、組立てられた画面が不完全な画面であると判断したときには、組立てた画面のデータを捨てて、このときの受信データは記憶させない。

この文字放送番組の受信を行うときには、車両(1)から見た送信所の方向は走行により変化するが、90°ずつ方向が異なる4個のアンテナ(30a)、(30b)、(30c)、(30d)の何れで良好な受信が可能か判断するダイバーシティアンテナが構成してあり、このそれぞれのアンテナ(30a)、(30b)、(30c)、(30d)を

番組のデータを読み出して文字放送を表示させる映像信号を作成し、この映像信号を各分配器(61)、(71)～(93)を介してテレビジョン受信機(101)～(124)に伝送し、この車内に設置されたテレビジョン受信機(101)～(124)に文字放送番組を表示させる。この場合、メモリ(47)に記憶された4種類の文字放送番組を、数分から数十分のサイクルで順次表示させる。但し、上述したように新しく文字放送番組のデータが受信できたときには、この受信できた番組を第1ページから表示させる。

なお、上述実施例においては、文字放送受信設備だけを設置したが、VTR等の映像再生機器を設け、文字放送番組と交互に再生映像を表示させるようにしても良い。また、新しく文字放送番組のデータが受信できたときに、この文字放送番組を表示させるようにしたが、データの受信状態とは無関係に所定時間毎に4種類の文字放送番組を順次表示させるだけでも良い。

また、上述実施例においては、電車に受信システムを設置したものとしたが、他の移動体(自動

切機(41)で順番にチューナ(43)側に接続して、ブーストリダクションチューナ(43)での受信状態を判断回路(44)で順次判断し、最も良好な放送信号が得られるアンテナに接続させる。

なお、一時的に受信状態が良好になって、文字放送デコーダ(46)で必要とする文字放送番組の画面が得られるのは、受信状態が非常に良い場合に限られるので、大部分が駅等に停車しているときである。即ち、例えば都心を各駅停車で走行する電車の場合、2～3分走行する毎に、数十秒～1分程度駅に停車し、この停車中に文字放送番組の受信が可能になる可能性が高く、比較的高い頻度で文字放送の受信ができる。この場合、1つの文字放送番組の1画面分が伝送されるのに要する時間は、通常1秒未満であることが多く長くても数秒であるので、上述した構成による文字放送番組受信は十分に可能である。

そして、このようにして文字放送デコーダ(46)に接続されたメモリ(47)に文字放送データの取り込みができると、所定間隔で表示させる文字放送

車、船舶等)にも適用できる。

さらにまた、本発明は上述実施例に限らず、その他種々の構成が取り得ることは勿論である。

〔発明の効果〕

本発明によると、移動体が走行中等にこの文字放送番組の一部の画面のデータだけが受信できたときでも、この受信できた部分のデータだけは最新のデータに更新され、順次文字放送番組のデータが最新のものに更新されていき、移動体での受信状態が走行中等で悪化することがあっても、比較的最新のデータによる文字放送番組の表示が常時可能になる。

図面の簡単な説明

第1図は本発明の一実施例を示す構成図、第2図は一実施例のシステムの車体への取付け状態を示す一部破断斜視図、第3図は一実施例の要部を示す斜視図、第4図は一実施例の要部を示す側面図、第5図は一実施例のメモリの使用状態を示す説明図、第6図は一実施例の説明に供するフロー

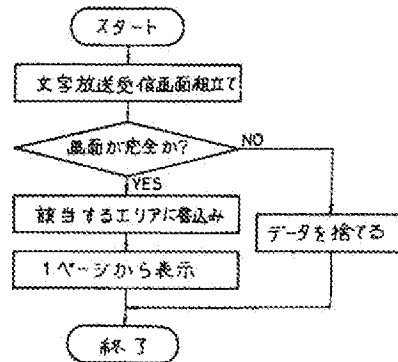
チャート図である。

(1)は車体、(3)、(4)・・・(8)はペンチレータ、(30a)、(30b)、(30c)、(30d)はアンテナ、(40)は床下ユニット、(41)は切換器、(43)はゴーストリグクションチューナ、(46)は文字放送デコーダ、(47)はメモリ、(48)は電源回路、(51)は3分配器、(62)、(63)は接続端子、(71)、(72)・・・(93)は2分配器、(101)、(102)・・・(124)はテレビジョン受像機である。

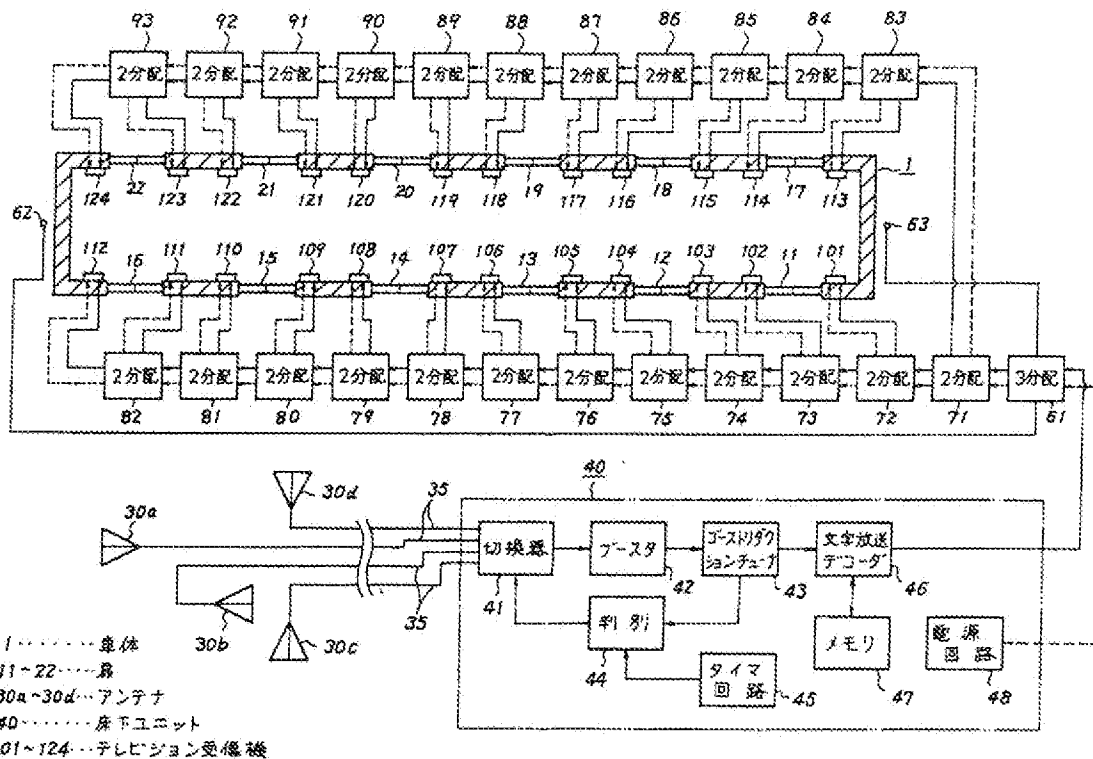
| | 番組A | 番組B | 番組C | 番組D |
|-------|-----|-----|-----|-----|
| 1ページ | a1 | b1 | c1 | d1 |
| 2ページ | a2 | b2 | c2 | d2 |
| 3ページ | a3 | b3 | c3 | d3 |
| ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 10ページ | a10 | b10 | c10 | d10 |

メモリのエリア別
第5図

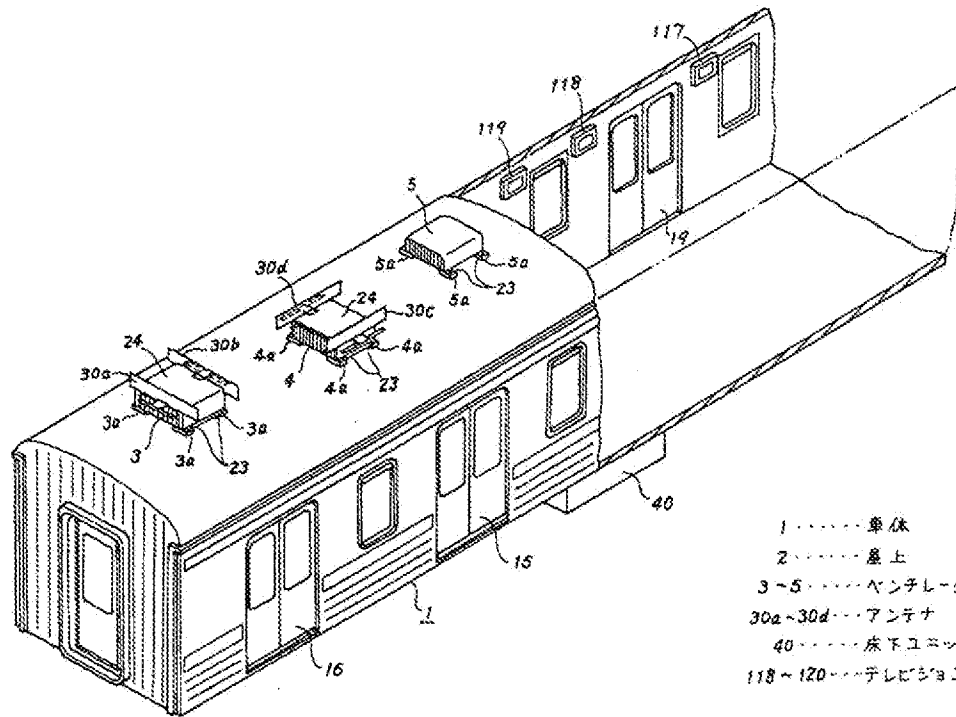
代理人 松 隈 秀 盛



文字放送受信時のフローチャート
第6図

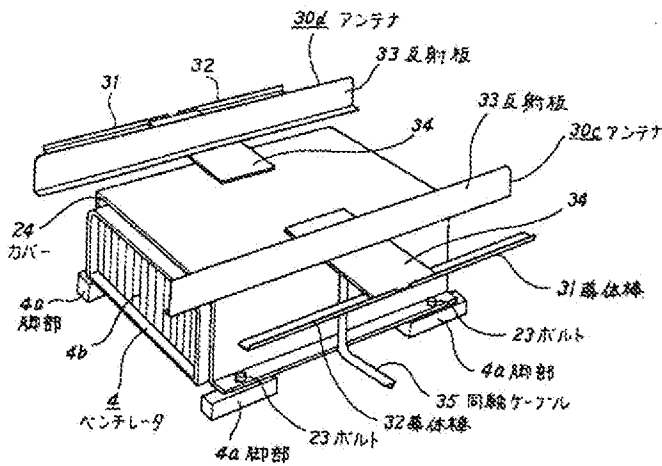


全体構成
第1図

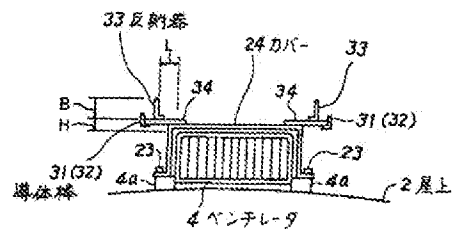


- 1.....車体
- 2.....屋上
- 3~5.....ベンチレータ
- 30a~30d.....アンテナ
- 40.....床下ユニット
- 118~120.....テレビジョン受信機

車体への取付状態
第2図



アンテナ付近の拡大図
第3図



アンテナの取付状態を示す図
第4図

第1頁の続き

| | | | | |
|------|----|----|-------------------|----------|
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⑩ 日本国特許庁(JP)

⑪ 特許出願公開

⑫ 公開特許公報(A)

平2-223985

⑬ Int. Cl.³

G 09 G 3/00
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識別記号

3 6 3

庁内整理番号

Z 6376-5C
6422-5C

⑭ 公開 平成2年(1990)9月6日

審査請求 未請求 請求項の数 1 (全8頁)

⑮ 発明の名称 輸送機器内の不特定多数の人々に対する不定形情報の提供システム

⑯ 特 題 平1-42966

⑰ 出 題 平1(1989)2月27日

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㉑ 代 理 人 弁理士 小川 勝男 外1名

最終頁に続く

明 細 書

〔従来の技術〕

1. 発明の名称

輸送機器内の不特定多数の人々に対する不定形情報の提供システム

従来、電車やバスなどの不特定多数の人々が利用する輸送手段では、通常、その機器内に広告や告知などの情報を印刷物として吊り下げたり、壁面に掲示したりしている。これらは普通、期間を定めて掲示しており、広告の場合は、一定期間での掲載契約により輸送手段提供者が収入を得ている。

2. 特許請求の範囲

1. 不特定多数の人々に対し、限られた空間を輸送手段として提供する輸送機器内に、表示内容が随時変化可能な不定形情報を提供する表示装置と、この表示装置に提供情報を輸送機器内から送出する手段と、輸送機器外からの送信情報を受信して輸送機器内の上記送出手段に供給する手段を備えたことを特徴とする輸送機器内の不特定多数の人々に対する不定形情報の提供システム。

尚、この種の関連公知例として1989年2月14日発行の電波新聞に掲載された『液晶ディスプレイ採用車内新映像サービスシステム』がある。

3. 発明の詳細な説明

〔産業上の利用分野〕

本発明は、航空機や電車、バスなどの限られた空間を輸送手段として使用する不特定多数の人々に対し、不定形情報を提供する表示装置を設けることにより、その輸送機器内での時間を有効利用する機会と多様な情報を提供するシステムに関する。

〔発明が解決しようとする問題点〕

上記従来技術は情報提供側から見ると、提供する情報が、印刷物の掲示という点から、前述したように一定期間掲示されており、掲示情報を変化させるには、その機器内に掲示している印刷物をその都度取替える必要がある。又、これらの掲示情報は通常、単位機器内に数箇所から数十箇所程度にわたり数多く掲示されているのが一般的であり、電車のように数十両連結して使用される場合

などは、その数は数百箇所にも及んでいる。従って図面的に提示を変更する場合など、管理が大変であると共に、情報提供場所の使用効率を上げられないという不具合がある。

一方、情報の受信から見ると、提供される情報は一定期間同じであるため、一度新しい情報を見失ってしまうと次から注意を払わなくなってしまう。新しい情報が提示してあっても、そこに数十分程度居ると提示情報をあらかた見失ってしまうため提示場所を占める割に情報量が少ないという不具合がある。発光ダイオードなどを使用した情報提供手段が実在するが、停車駅名や、輸送車両の種類など、情報が固定された定形情報提供に限られている。又、車内に映像や文字情報を提供している例があるが、車内に設置した情報提供に限られ、即時性のある情報提供はされていない。

本発明の目的は、前述した不具合点を解決したシステムを提供することにある。

〔問題点を解決するための手段〕

上記問題点は、不特定多数の人々に対し、限ら

れる空間を輸送手段として提供する航空機、電車やバスなどの輸送機器内に、表示内容が随時変化可能な不定形情報を提供する表示装置と、その表示装置に提供情報を輸送機器の内部及び外部から送出する装置を設置することで達成される。

〔作用〕
輸送機器内の乗降客が利用しない場所、例えば航空機ではコックピット、車内では客室、バスでは運転席などに設けた輸送機器内に不定形な被提供情報を設定し、送出する機能と輸送機器外部から送信される情報を受信して送出する機能を有した装置から、乗降客の利用する場所に複数設置した表示装置に、その送出装置から送出された被提供情報を表示することで達成できる。

〔実施例〕
本発明の実施例を以下の図により説明する。
第1図は本発明の全体システムを表している。1は輸送機器、2はその輸送機器に設けられたアンテナ、3は主に提供情報を送信するアンテナ、4は地域別情報送信及び輸送機器からの信号を受

信する装置、5は地域別情報の送信制御と輸送機器からの受信信号を管理する地域別情報制御装置、6は地域別情報制御装置と地域別情報送信装置間の情報信号伝送路である。

〔作用〕

輸送機器をバスに例を取り、第1図を説明する。地域別情報送受信装置4は各バスの停留所に設置してあり、地域別情報制御装置5から送出されてきた提供情報を蓄積し、アンテナ3により提供情報を輸送機器1に対し送信している。輸送機器1はアンテナ2で提供情報を受信し、車内に設けられた表示情報信号送出装置と情報信号表示装置で乗客に情報を提供する。輸送機器1は地域別情報送信装置4bに蓄積された情報を3b、2aのアンテナを通じて車内に情報を提供しており、輸送機器1bは地域別情報送信装置4aに蓄積された情報を3a、2bのアンテナを通じて車内に情報を提供している。地域別情報制御装置5は、地域別情報送信装置4に対しどの情報を送出するかを制御している。従って、地域別情報送信装置4aから4aまでの情報送出内容をそれぞれ異なるものと

〔実施例〕

したり、同一のものとしたりすることができる。

また、ある複数地域ごとに送出情報を変化させることもできる。

本システムは双方向性があり、輸送機器1が停留所に到着すると、前述の地域別送受信装置からの提供情報受信と共に、輸送機器1が停留所へ到着したことを告知する信号をアンテナ2によりアンテナ3へ送信する。その信号は、地域別情報送受信装置4で受信され伝送路6を通じ地域別情報制御装置5へ伝送され、輸送機器1の運転状態が把握できると共に、次の停留所へその状態を情報として送出し、待機している乗客へ告知できる。

本図では伝送路6は、強弱しやすいように有線を示してあるが、通信衛星等による無線伝送路も勿論使用できる。その場合は、地域別情報制御装置5と、地域別情報送受信装置4にパラボラアンテナなどの送受信アンテナを設置することにより実現できる。

第2図は輸送機器内に設ける表示情報信号送出装置と、情報信号表示装置を示している。7は

第2図は輸送機器内に設ける表示情報信号送出装置と、情報信号表示装置を示している。7は

表示情報信号送出装置で、主にビデオディスクやビデオテープ等に収納されている動画を再生する映像情報再生機能7b、主に文字や画像情報を磁気ディスクやメモリーカードのような記憶媒体から読み出したり、付属の入力キーによって情報を入力する、文字画像情報入力機能7a、入力された情報を表示可能のように制御する文字画像情報制御機能7d、映像情報再生機能7bで再生された動画情報と文字画像情報制御機能7dからの情報を合成したりそれぞれを選択したりする映像、文字画像情報合成機能7c、發送機器外からの地域別情報を主に受信し蓄える地域別情報受信機能7f、最終的に乗客への提供情報を情報表示装置へ送出する情報送出機能7g、これらの機能を操作する操作制御機能7aから構成されている。2、3はアンテナ、4は主に地域別情報を送信する地域別情報送信機能、8は表示情報表示装置7から送出された提供情報を表示する情報表示装置、9はその際の伝送路である。10は發送機器の走行状態、停止状態に関する走行情報を受す入力信号である。

通常、提供情報は、ビデオディスクやビデオテープ等に収納されている動画や文字画像情報を各々単独、あるいはそれぞれを合成して提供されているが、地域別情報がアンテナ3を介して地域別情報送信機能4から送信されてくると、アンテナ2で受信し、送信データを地域別情報入力機能7fにより蓄積し、文字画像情報制御機能7d、文字画像情報合成機能7c、情報送出機能7gを経て、情報信号表示装置8に表示する。この提供情報は、發送機器にあらかじめ備え付けた動画や文字画像情報だけでは補えない即時性のある情報を提供することができる。例えば、臨時ニュースを流したり、その地域で行われている限定情報を提供することができる。これらの情報は發送機器の移動経路に沿って地域別情報送信機能4を設置しておけば、その間隔単位で情報提供内容を変える事が可能となる。

第3図は發送機器に列車を想定してその様子を示している。区間1ではカルチャー情報11を、区間2ではイベント情報12、区間3では遊園地

情報13を情報信号表示装置8に提供している例である。この例では情報信号表示装置8全面にわたって情報提供しているが、前述した動画や文字画像情報と合成して提供したり、その一部分を使用して提供することも可能である。

第4図から第7図は發送機器内の情報信号表示装置8を車内に設置した例である。

(発明の効果)

本発明によれば、發送機器内の情報提供場所を有効にしようできると共に、従来のような印刷物を掲示する場合に比べ、管理の手間が省けるばかりでなく即時性と新鮮さを出せるため、乗客に対する情報提供力を強める効果がある。

4. 図面の簡単な説明

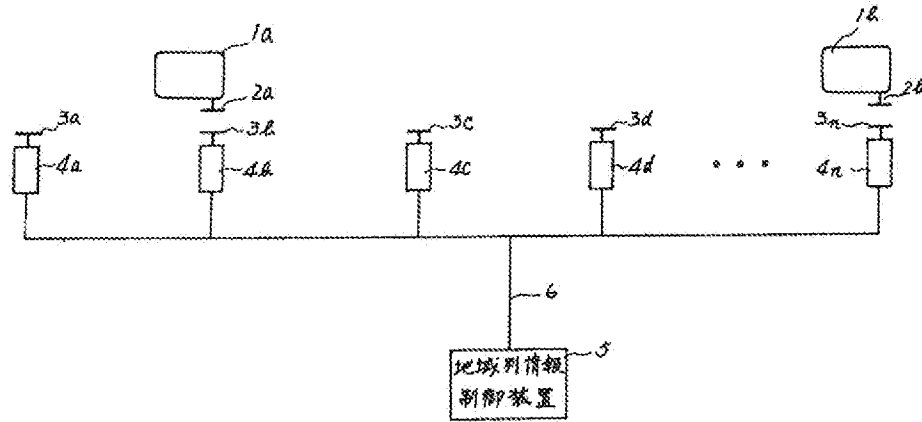
第1図は本発明の全体システム例を表す図、第2図は發送機器内の設置機器例の説明図、第3図は地域別情報提供例を示す図、第4図、第5図、第6図、第7図は發送機器内に設置した情報信号表示装置例を示した図である。

符号の説明

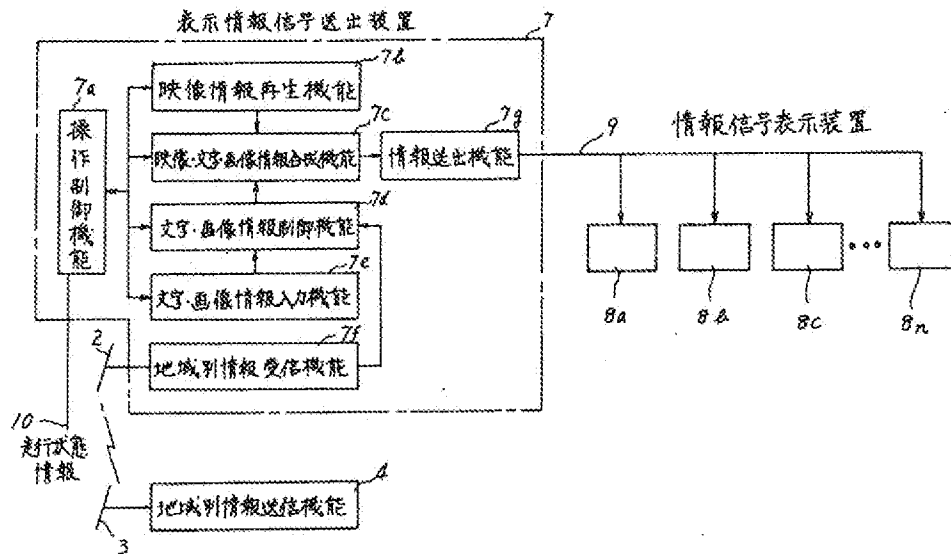
1…發送機器、2…發送機器に設置したアンテナ、3…地域別情報送信機能に設置したアンテナ、4…地域別情報送信機能、5…地域別情報制御装置、6…伝送路、7…表示情報信号送出装置、8…情報信号表示装置、9…伝送路、10…走行状態情報入力、11、12、13…地域別情報提供例、14…印刷物による情報提供例

代理人弁理士 小川勝男

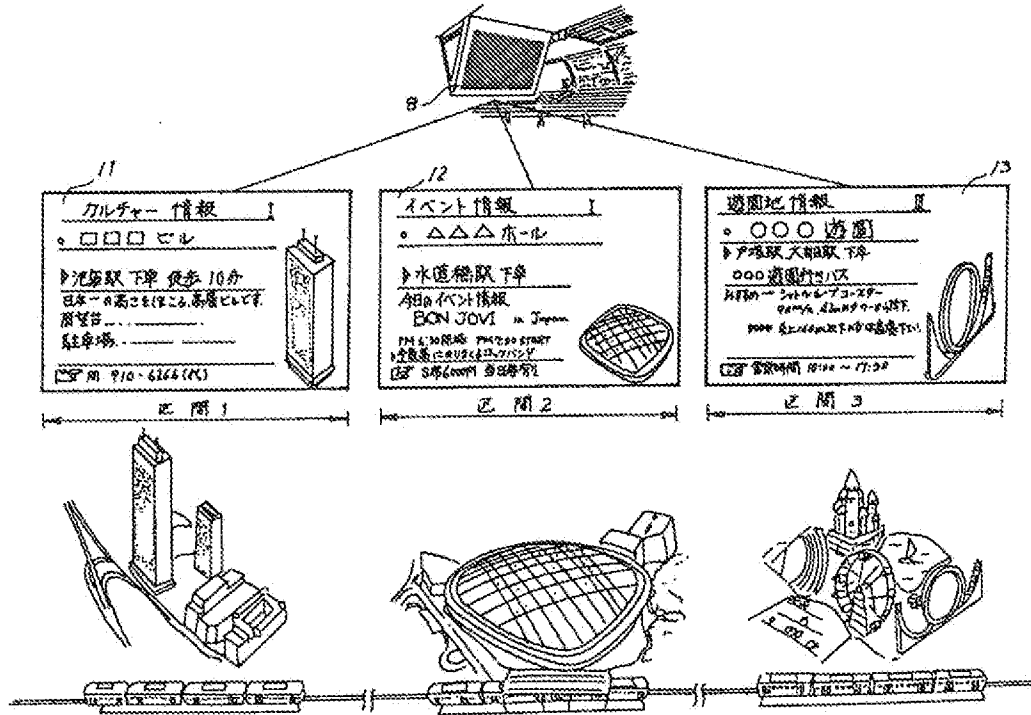
図面の浄書(内容に変更なし)
第1図



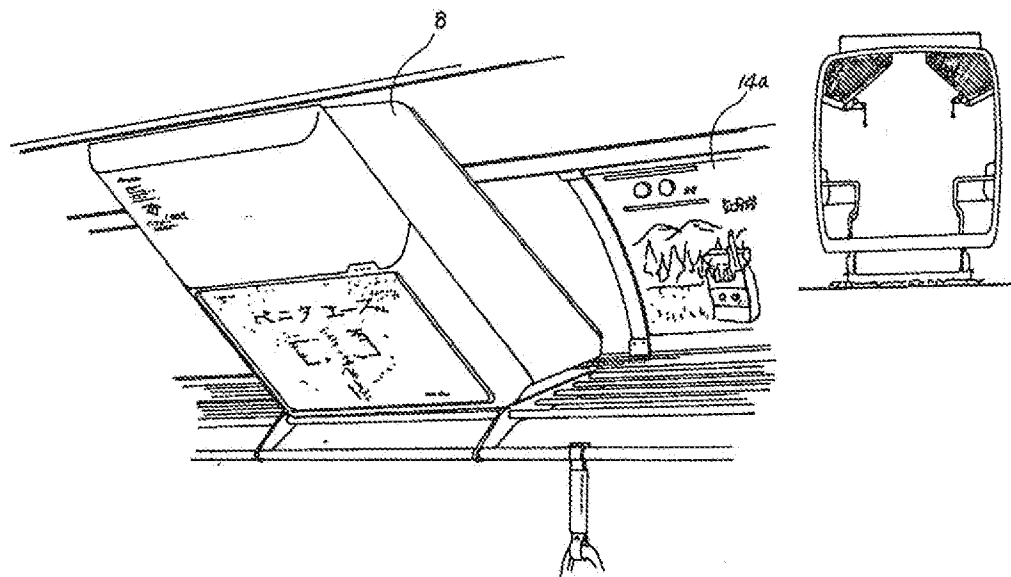
第2図



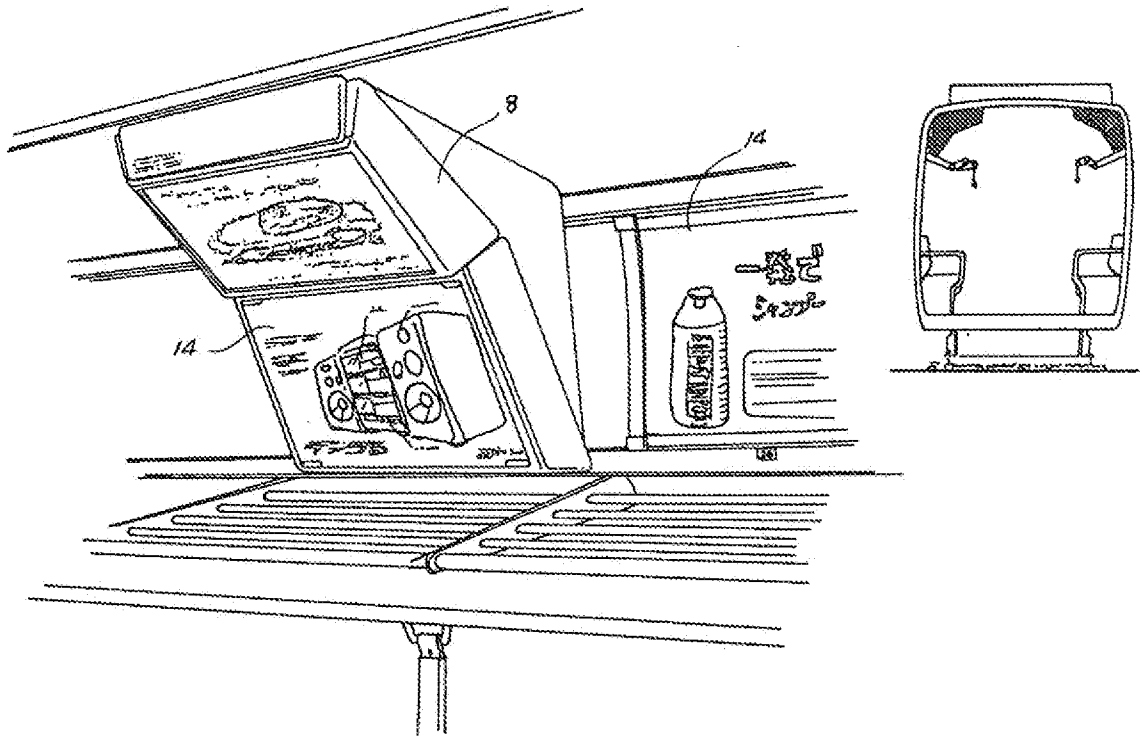
第3図



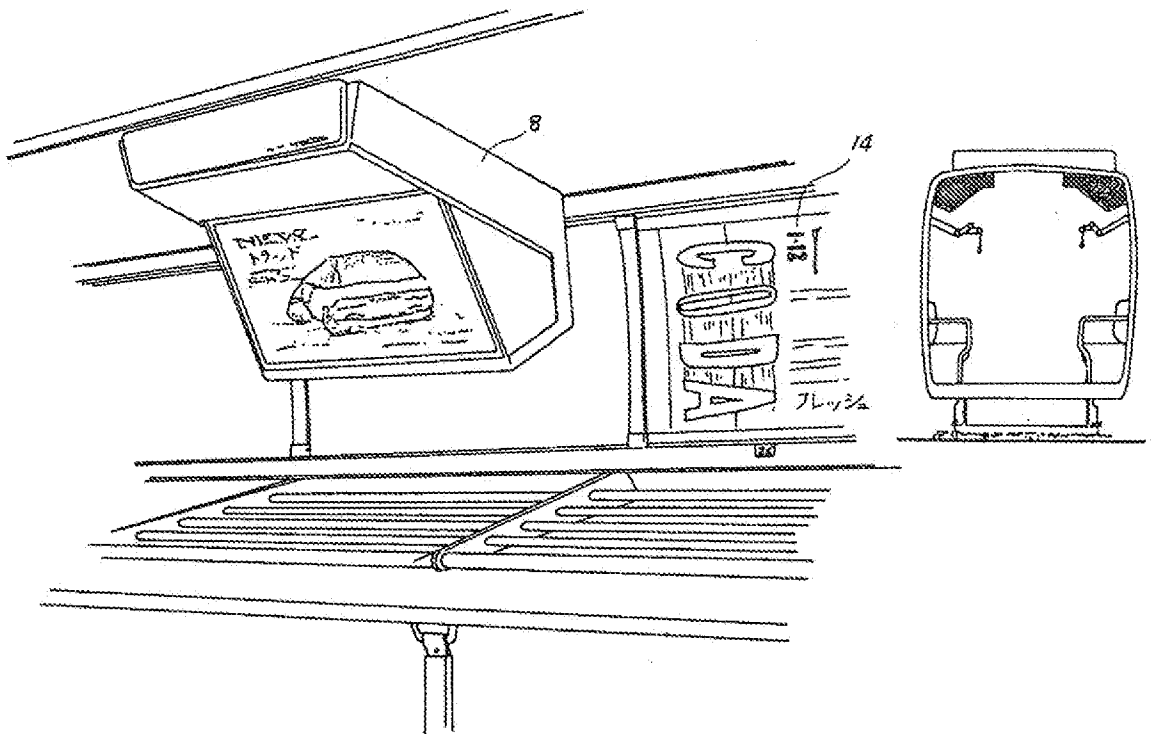
第4図



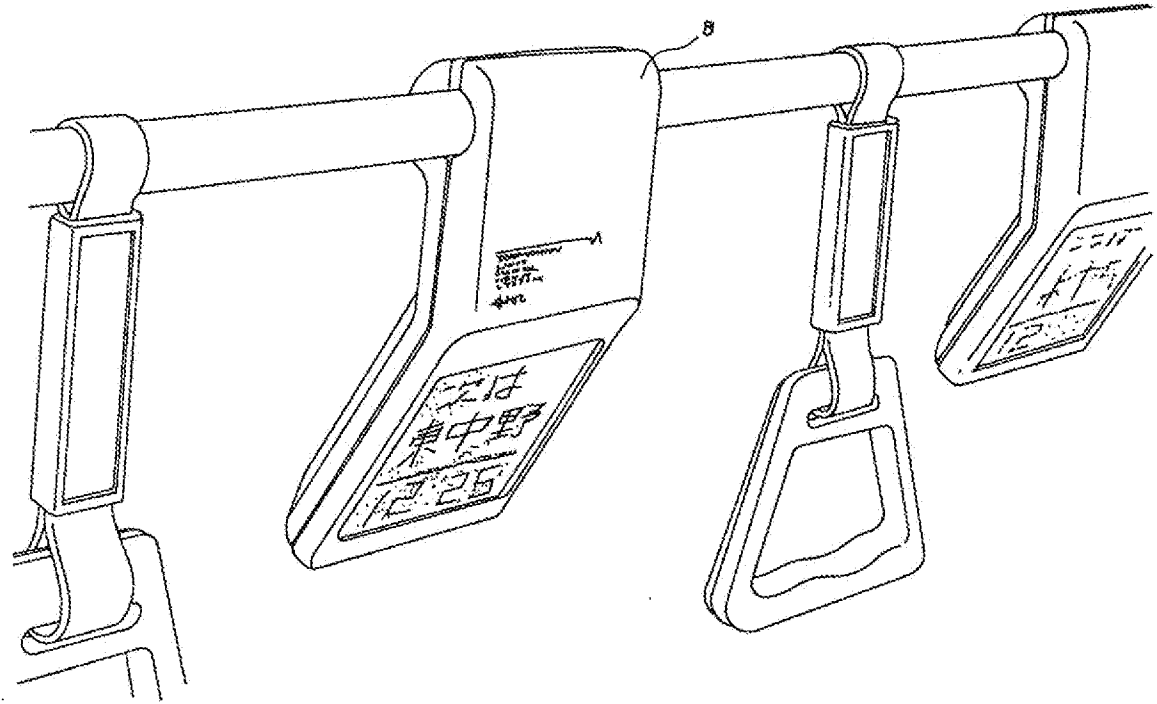
第5図



第6図



第7図



第1頁の続き

◎発明者 川 勝 祥 弘 東京都国分寺市東恋ヶ窪1丁目280番地 株式会社日立製作所デザイン研究所内

手続補正書 (方式)

平成 1 年 5 月 21 日

特許庁長官殿
事件の表示

昭和 56 年 特許第 42966 号

発明の名称
輸送機器内の不特定多数の人々に
対する不定形情報の提供システム

補正をする者

特許出願人

(510)株式会社 日立製作所

代理人

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株式会社日立製作所内 電話 東京 212-1111 (代) 小川勝男
(6650) 小川勝男

補正命令の日付 平成 1 年 5 月 30 日 (発送日)

補正の対象 図面の全図

補正の内容
願書に最初に添付した図面の全図の浄書・別紙のとおり
(内容に変更なし)



以上

式
審査
方

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re: REQUEST FOR REEXAMINATION OF U.S. PATENT NO. 6,700,602

Patentee : Scott Blair

Patent No. : 6,700,602 – Issued 03/2/2004

Appl. No. : 09/423,284

Filed : May 6, 1998

For : SUBWAY TV MEDIA SYSTEM

Examiner : Chris Kelley



27299

PATENT TRADEMARK OFFICE

CERTIFICATE OF ELECTRONIC (EPS-WEB) TRANSMISSION

I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with 37 C.F.R. § 1.8(a)(1)(C) from the Pacific Time Zone of the United States on the local date shown below.

August 16, 2011

(Date)

[Handwritten signature]

Peter J. Gutierrez III, Reg. No. 56,732

5

STATEMENT IN SUPPORT OF REQUEST FOR REEXAMINATION OF U.S. PATENT NO. 6,700,602

10

Mail Stop Ex Parte Reexam
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

15

Dear Sir:

This is a request for ex parte reexamination of U.S. Patent No. 6,700,602. It is being accompanied by form SB57, form SB42 citing four (4) references, copies of the four (4) references and translations where necessary, a copy of the subject patent in double column format and the required fee.

20

1. Identification of Requestor

Reexamination of U.S. Patent No. 6,700,602 (hereinafter“the ‘602 Patent’), is respectfully requested by Peter J. Gutierrez, (hereinafter“Requestor”).

The Requestor submits that the enclosed prior art, identified on the attached SB42 form,
5 is pertinent and applicable to the ‘602 Patent.

2. Identification of Claims for Which Reexamination is Requested

In accordance with 37 C.F.R. § 1.510, reexamination of Claim 1 of the ‘602 Patent is requested by the Patent Owner in view of the following references, hereinafter collectively
10 referred to as “the New References”, a copy of each of the following being attached to this Request.

- Japanese Publication of Unexamined Patent Application No. 61-272668 (hereinafter“D1”);
- Japanese Patent Application Publication No. H2-223985 (hereinafter“D2”);
- 15 • Japanese Published Unexamined Patent Application No. H04-160991 (hereinafter“D3”); and
- Japanese Patent Application No. S61-285490 (hereinafter“D4”).

Reexamination of Claim 1 is requested in view of the New References.
20

3. Statement of Each Substantial New Question of Patentability

A. A substantial new question of patentability as to Claim 1 is raised by the References

Claim 1 of the ‘602 Patent was granted in a Notice of Allowance on November 17, 2003.
25 In the Notice of Allowance, the Office indicated that none of Gerke, Steventon, nor Williams (considered by the Office during prosecution of the ‘602 Patent) disclose the combination of:

30 *“a subway car for mass transportation including longitudinal opposed sidewalls, a ceiling adjoining the sidewalls, a video display system comprising a*

5 *“a subway car for mass transportation including longitudinal opposed
sidewalls, a ceiling adjoining the sidewalls, a video display system comprising a
plurality of video display monitors each having a vide screen, and a video signal
source unit operatively connected to said monitors, said monitors being spaced
10 along the length of the car on opposed sides thereof, each of said monitor being
mounted at the junction of the sidewall and ceiling, with the screen of the monitor
substantially flushed with the adjacent wall surface structure of the car, and
directed obliquely downwardly toward the car seats, so that each video screen is
readily visible to passengers in the subway car.”*

10 Accordingly, the references of record do not teach or suggest such features, as recited in
Claim 1.

15 In Patent Owner’s Office Action response dated October 10, 2003, Patent Owner had
asserted that: *“Williams is directed to a system that can be removed from a seat of an airplane
.... This similarly applies to Steventon, since this reference relates to the mounting of monitors
in the back of seats in an airplane.”* However, the New References show various video monitor
systems that are used in applications, such as on train cars. These teachings provided by the
New References were not present during the prior examination of the ‘602 Patent, and as such,
these teachings are new.

20 In addition, in Patent Owner’s Office Action response dated October 10, 2003, Patent
Owner had argued in part that: *“Williams fails to overcome the recognized deficiencies of Gerke
and Steventon because Williams does not disclose ... securing a monitor to the junction between
the ceiling and an adjacent wall”*. However, as will be discussed more fully below, D2 appears
to teach *“information signal display devices”* mounted near the junction of the sidewall and
25 ceiling (see Figures 4 to 6 of D2). These teachings provided by the New References were not
present during the prior examination of the ‘602 Patent, and as such, these teachings are new.

30 The Patent Owner believes that a reasonable Examiner would consider such teachings
important in determining whether or not Claim 1 is patentable. For this reason, the combined
teachings of the New References and the references of record raise a substantial new question of
patentability with respect to at least independent Claim 1.

4. Detailed Explanation Under 37 C.F.R. § 1.510(b)

A. Claim 1 of U.S. Patent No. 6,700,602

The New References

| | |
|---|---|
| <p>1. A subway car for mass transportation including longitudinal opposed sidewalls, a ceiling adjoining the sidewalls,</p> | <p>D3 teaches a "car body" for "an electric train" that include longitudinally opposed sidewalls with a ceiling that adjoins the sidewalls. (page 738 and Fig. 2)</p> |
| <p>a video display system comprising a plurality of video display monitors each having a video screen, and</p> | <p>D1 teaches "information systems that can selectively display a variety of multifunctional information in stations, in between stations, or in train cars which are underway" (page 588). D1 also teaches multiple "Information communication display parts" (page 590 and FIG. 2).</p> |
| <p>a video signal source unit operatively connected to said monitors,</p> | <p>D1 teaches "A video switcher which is an image signal switching device; (2) An image memory; (3) A video disk device which facilitates selection and playback of the desired images by means of external signals via the controller; (4) A video tape recorder via the controller; (5) Videodisc players which are installed in stations or train cars." (page 588).</p> |
| <p>said monitors being spaced along the length of the car on opposed sides thereof,</p> | <p>D2 appears to teach information signal display devices disposed on opposing sides of the train (Figures 4 to 6). D3 appears to teach "television receivers" spaced along the length of the "car body" (Fig. 2) D4 teaches "the display devices 21 to 2n are arranged on the walls flanking the aisles of each train or above the windows of the passenger seats" (page 621).</p> |
| <p>each of said monitor being mounted at the junction of the sidewall and ceiling,</p> | <p>D2 appears to teach "information signal display devices" mounted near the junction of the sidewall and ceiling (Figures 4 to 6)</p> |
| <p>with the screen of the monitor substantially flushed with the adjacent wall surface structure of the car, and</p> | <p>None of the References teaches or suggests the monitor being substantially flushed with the adjacent wall surface structure of the car.</p> |
| <p>directed obliquely downwardly toward the car</p> | <p>D2 appears to teach "information signal</p> |

| | |
|--|---|
| seats, so that each video screen is readily visible to passengers in the subway car. | <i>display devices</i> " that are downwardly directed. (Figures 4 to 7) |
|--|---|

5. **Remarks**

Despite the substantial new question of patentability ostensibly introduced by the teachings of the New References, Patent Owner still believes Claim 1 is patentable over the New References (and the references of record) in that, *inter alia*, the New References fail to teach or suggest a "subway car...with the screen of the monitor substantially flushed with the adjacent wall surface structure of the car". As set forth in Patent Owner's Office Action response dated October 10, 2003, "*Gerke and Steventon fail to disclose a video monitor screen that is substantially flush with the adjacent wall.*"

Furthermore, Patent Owner had argued that Williams failed "to overcome the recognized deficiencies of Gerke and Steventon because Williams does not disclose a video monitor screen that is substantially flush to the adjacent wall as asserted by the Examiner". As noted above, the New References fail to address these deficiencies that were also present in the art of record, as discussed in Patent Owner's Office Action response dated October 10, 2003.

6. **Conclusion**

Thus, for the reasons set forth above, at least one substantial new question of patentability has been raised with respect to Claim 1 of the '602 Patent based on the New References, which were not of record during the prosecution of the '602 Patent. However, based on the reasons set forth above, it is believed that Claim 1 (and therefore its dependent claims) is/are patentable over both the New References and the art of record.

Accordingly, reexamination of Claim 1 of the '602 Patent, and the issuance of a certificate confirming patentability, is respectfully requested.

U.S. Patent No. : 6,700,602
Application No.: 09/423,284
Request for Reexamination


If the Office has any questions or comments which may be resolved over the telephone, they are invited to call the undersigned at (858) 675-1670.

Respectfully submitted,

GAZDZINSKI & ASSOCIATES, PC

5

10 Dated: August 16, 2011

By: 

Peter J. Gutierrez, III
Registration No. 56,732
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San Diego, CA 92127
Telephone No.: (858) 675-1670
Facsimile No.: (858) 675-1674

15

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(Also referred to as FORM PTO-1465)

REQUEST FOR EX PARTE REEXAMINATION TRANSMITTAL FORM

Address to:

Mail Stop *Ex Parte* Reexam
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Attorney Docket No.: BLAIR.001A

Date: August 16, 2011

1. This is a request for *ex parte* reexamination pursuant to 37 CFR 1.510 of patent number 6,700,602 issued March 2, 2004. The request is made by:
- patent owner. third party requester.
2. The name and address of the person requesting reexamination is:
- Scott Blair
- 1 Toronto Street, Suite 910
- Toronto, M5C 2V6
3. a. A check in the amount of \$_____ is enclosed to cover the reexamination fee, 37 CFR 1.20(c)(1);
- b. The Director is hereby authorized to charge the fee as set forth in 37 CFR 1.20(c)(1) to Deposit Account No. 501423; or
- c. Payment by credit card. Form PTO-2038 is attached.
4. Any refund should be made by check or credit to Deposit Account No. 501423 37 CFR 1.26(c). If payment is made by credit card, refund must be to credit card account.
5. A copy of the patent to be reexamined having a double column format on one side of a separate paper is enclosed. 37 CFR 1.510(b)(4)
6. CD-ROM or CD-R in duplicate, Computer Program (Appendix) or large table
- Landscape Table on CD
7. Nucleotide and/or Amino Acid Sequence Submission
If applicable, items a. – c. are required.
- a. Computer Readable Form (CRF)
- b. Specification Sequence Listing on:
- i. CD-ROM (2 copies) or CD-R (2 copies); or
- ii. paper
- c. Statements verifying identity of above copies
8. A copy of any disclaimer, certificate of correction or reexamination certificate issued in the patent is included.
9. Reexamination of claim(s) 1 is requested.
10. A copy of every patent or printed publication relied upon is submitted herewith including a listing thereof on Form PTO/SB/08, PTO-1449, or equivalent.
11. An English language translation of all necessary and pertinent non-English language patents and/or printed publications is included.

[Page 1 of 2]

This collection of information is required by 37 CFR 1.510. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

SEND TO: Mail Stop *Ex Parte* Reexam, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

12. The attached detailed request includes at least the following items:
- a. A statement identifying each substantial new question of patentability based on prior patents and printed publications. 37 CFR 1.510(b)(1)
 - b. An identification of every claim for which reexamination is requested, and a detailed explanation of the pertinency and manner of applying the cited art to every claim for which reexamination is requested. 37 CFR 1.510(b)(2).

13. A proposed amendment is included (only where the patent owner is the requester). 37 CFR 1.510(e)

14. a. It is certified that a copy of this request (if filed by other than the patent owner) has been served in its entirety on the patent owner as provided in 37 CFR 1.33(c).

The name and address of the party served and the date of service are:

Date of Service: _____; or

b. A duplicate copy is enclosed because service on patent owner was not possible. An explanation of the efforts made to serve patent owner **is attached**. See MPEP 2220.

15. Correspondence Address: Direct all communications about the reexamination to:

The address associated with Customer Number:

| |
|-------|
| 27299 |
|-------|

OR

Firm or Individual Name _____

Address

City

State

Zip

Country

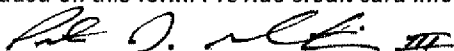
Telephone

Email

16. The patent is currently the subject of the following concurrent proceeding(s):

- a. Copending reissue Application No. _____
- b. Copending reexamination Control No. _____
- c. Copending Interference No. _____
- d. Copending litigation styled: _____

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Authorized Signature

Peter J. Gutierrez, III

Typed/Printed Name

August 16, 2011

Date

56,732

Registration No.

For Patent Owner Requester

For Third Party Requester



US006700602B1

(12) **United States Patent Blair**

(10) **Patent No.: US 6,700,602 B1**
(45) **Date of Patent: Mar. 2, 2004**

(54) **SUBWAY TV MEDIA SYSTEM**
(76) Inventor: **Scott Blair**, 32 Marlow Avenue,
Toronto, Ontario (CA), M4J 3T9
(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

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| 5,854,591 A * | 12/1998 | Atkinson | 725/76 |
| 6,038,426 A * | 3/2000 | Williams, Jr. | 725/77 |

(21) Appl. No.: **09/423,284**
(22) PCT Filed: **May 6, 1998**
(86) PCT No.: **PCT/CA98/00439**
§ 371 (c)(1),
(2), (4) Date: **Feb. 22, 2000**
(87) PCT Pub. No.: **WO98/51081**
PCT Pub. Date: **Nov. 12, 1998**

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| | | |
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* cited by examiner

Primary Examiner—Chris Kelley
Assistant Examiner—Allen Wong

(74) *Attorney, Agent, or Firm*—Nixon Peabody LLP;
Jeffrey L. Costellia

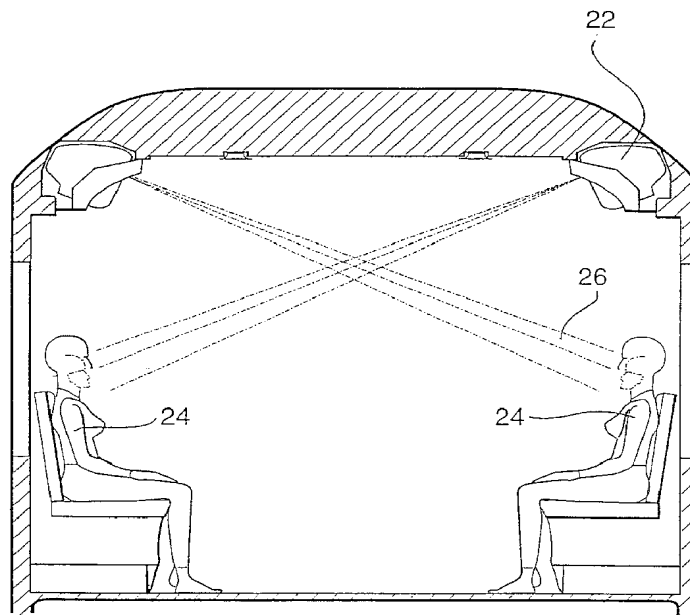
Related U.S. Application Data
(60) Provisional application No. 60/045,811, filed on May 7,
1997.
(51) **Int. Cl.**⁷ **H04N 7/18**; H04N 5/64
(52) **U.S. Cl.** **348/61**; 348/837
(58) **Field of Search** 348/61, 837; 709/250;
725/46; 726/77; 248/343

(57) **ABSTRACT**

A television system for subway cars (10) includes a plurality of TV monitors (22) mounted at intervals along the cars (10), at the junction of the sidewall and the ceiling, and a central video signal source unit (23) such as a video tape player, video disk player, computer-based digital video recorder or television receiver, connected to the video monitors (22). Programs of short duration, e.g. 5–15 minutes, matching the average length of a subway ride, and comprising advertising messages, news bytes and the like are played and displayed in the monitors repeatedly during the subway ride.

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7 Claims, 6 Drawing Sheets



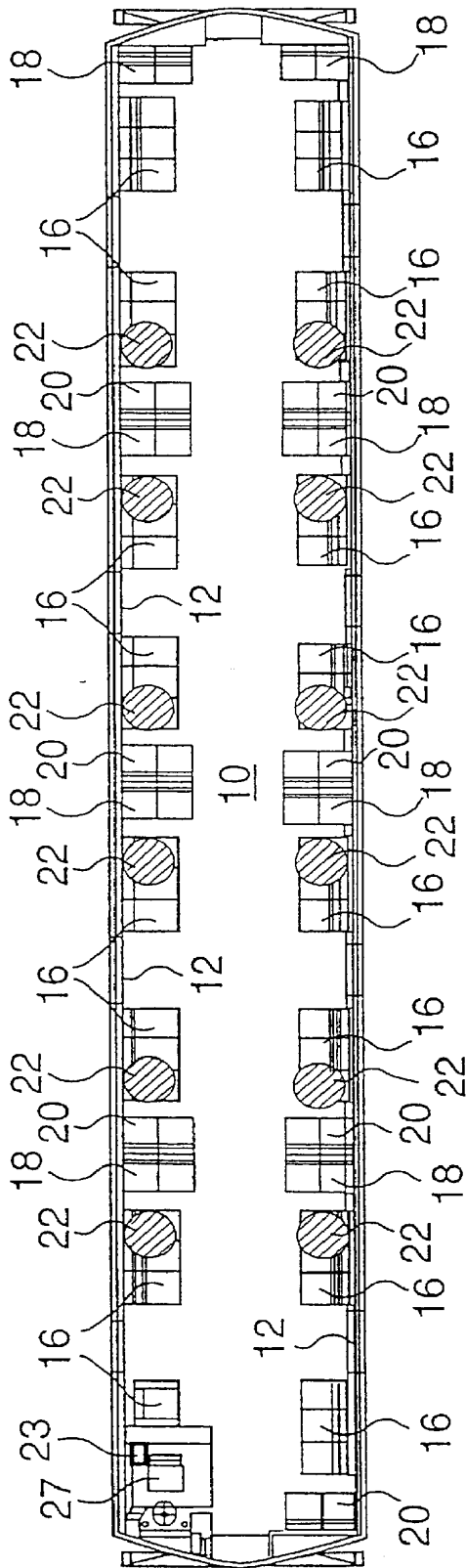


FIG. 1a

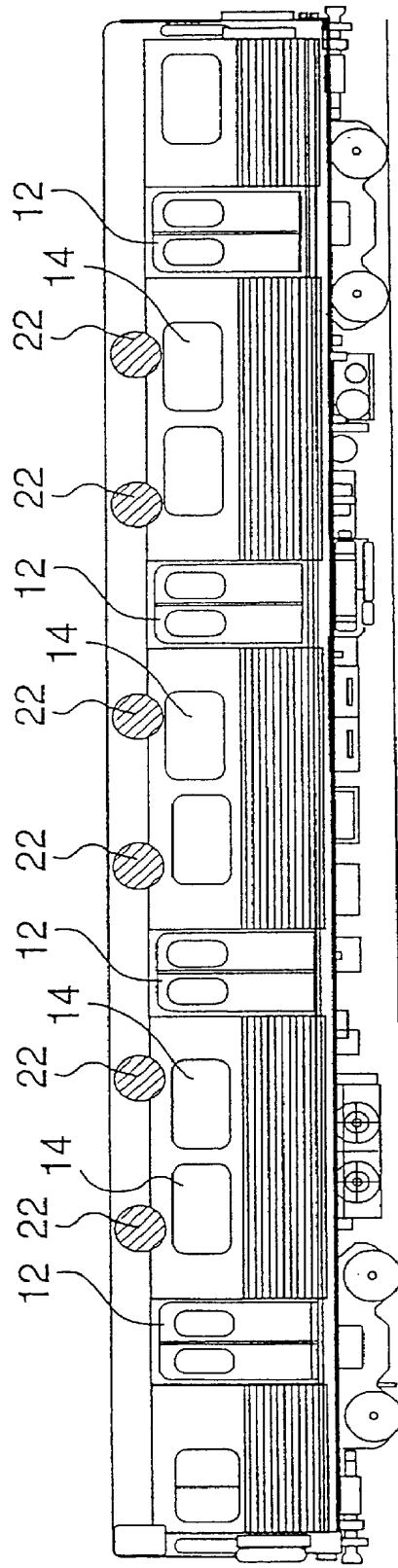


FIG. 1b

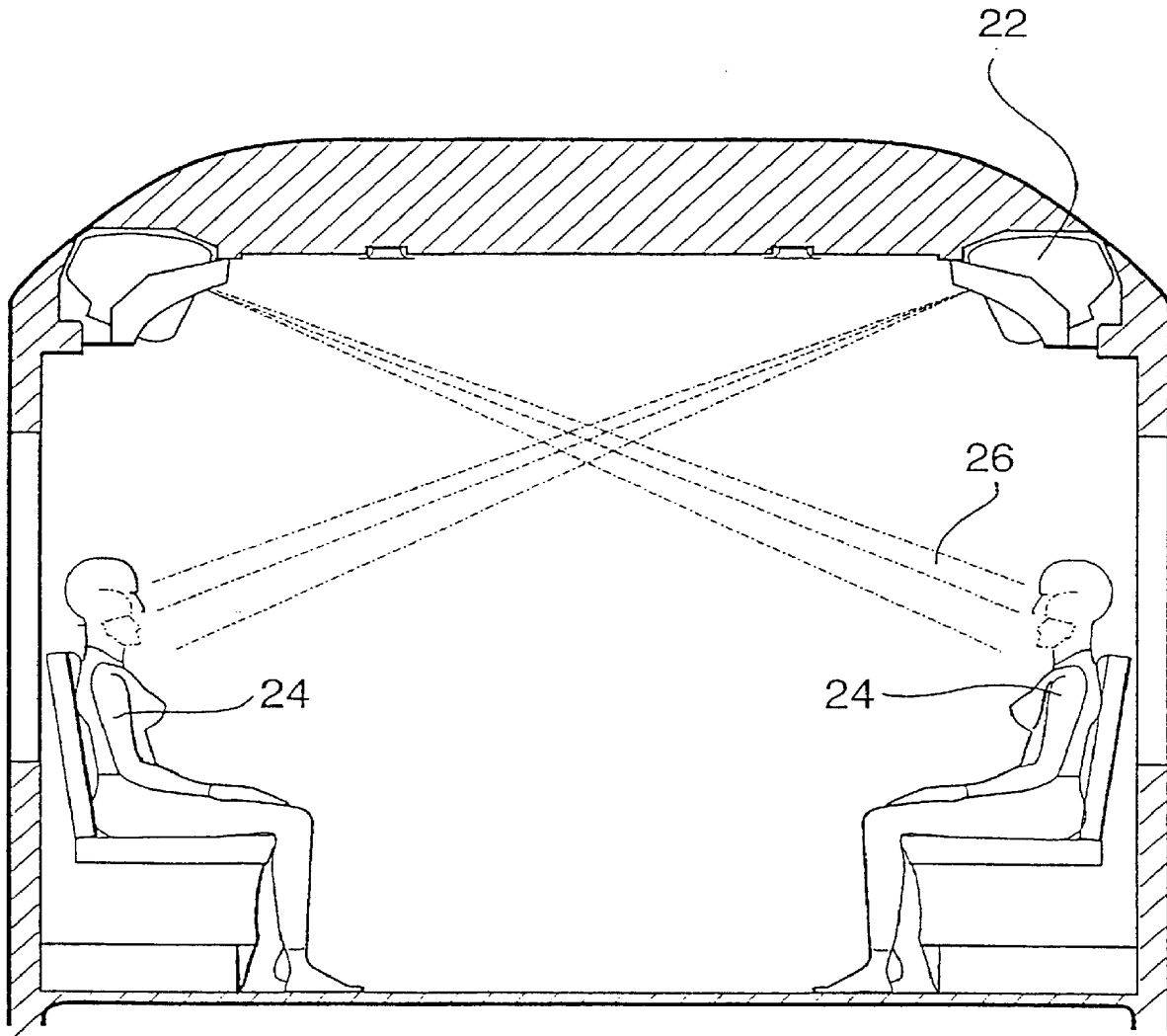
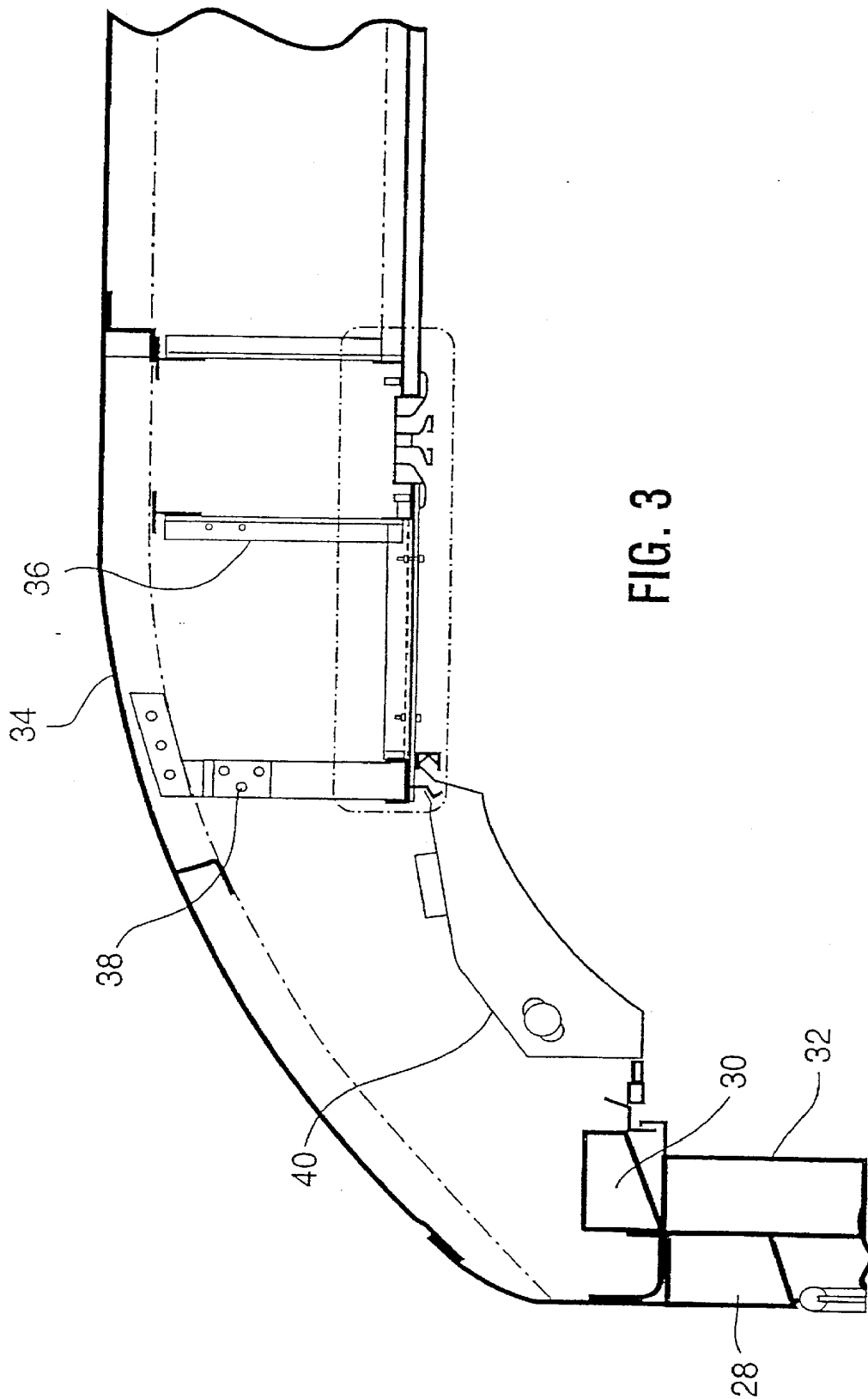


FIG. 2



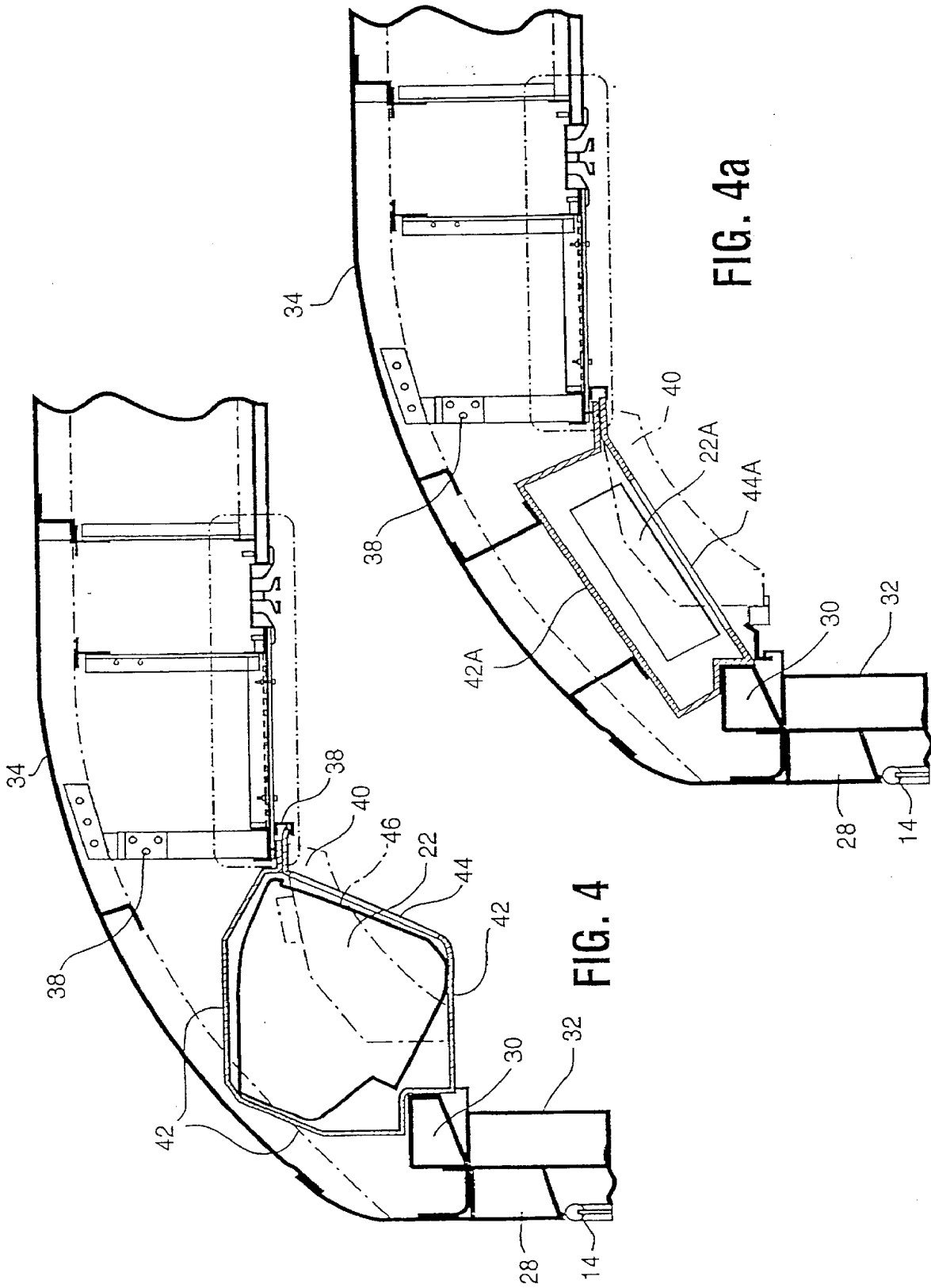


FIG. 4a

FIG. 4

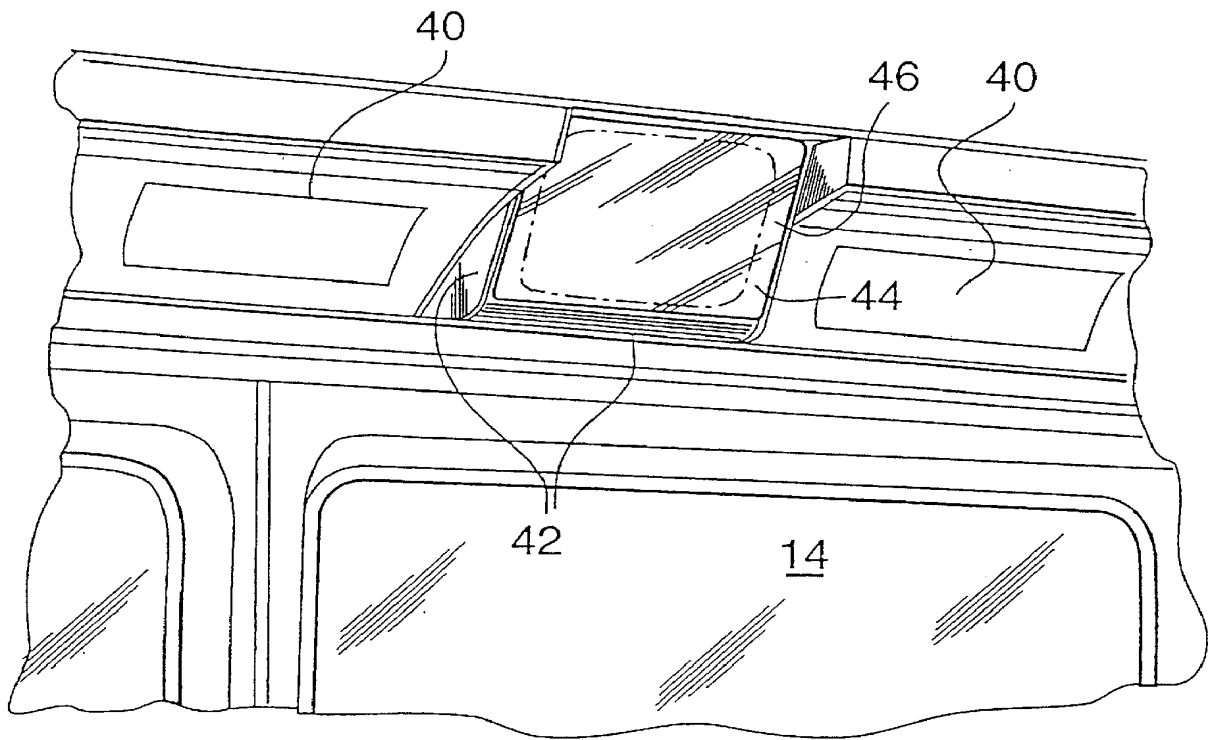


FIG. 5

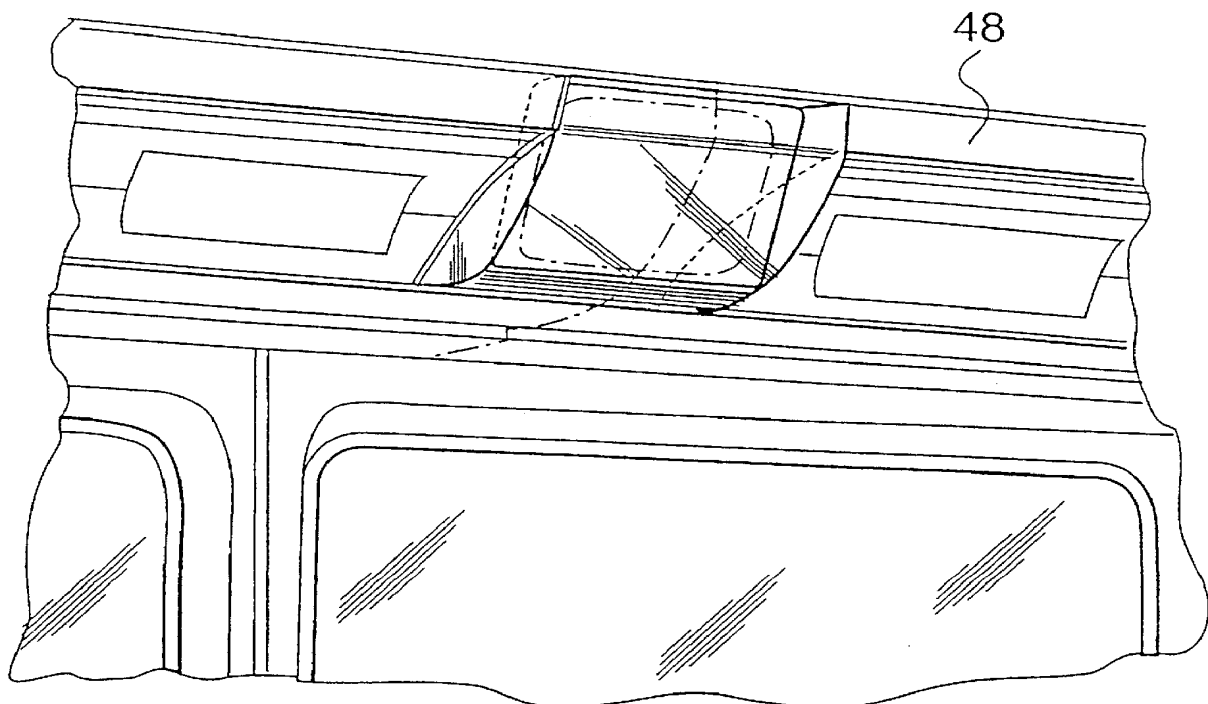


FIG. 6

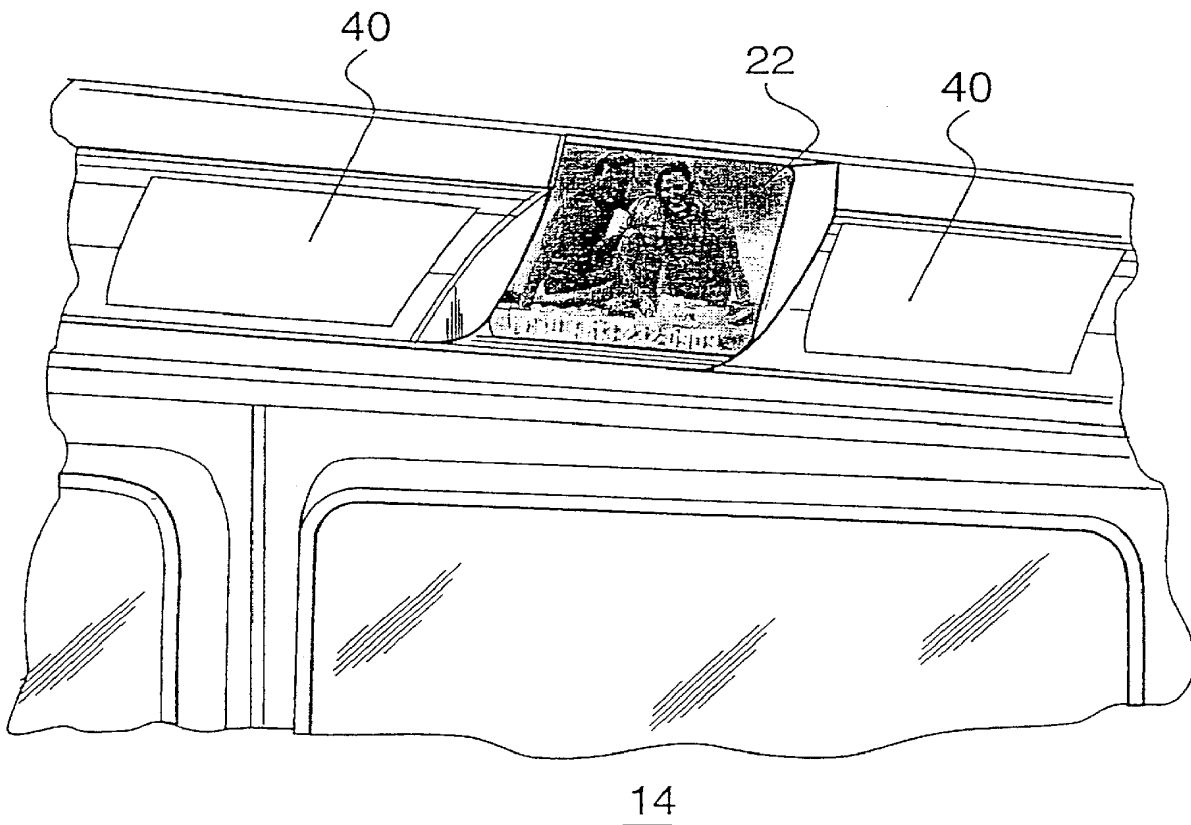


FIG. 7

SUBWAY TV MEDIA SYSTEM

This application claims benefit of provisional application Serial No. 60/045,811, filed May 7, 1997.

This invention relates to video display systems, and more specifically to video display systems mounted in and operating in mass transit subway cars.

It is commonplace to provide visual advertising displays such as posters in mass transit subway cars, where the displays are available for reading by subway passengers during travel. It is also known to equip subway cars with closed circuit television cameras, for surveillance of passenger behaviour and other safety checks. Images of such surveillance are either displayed at a central security facility, or recorded for subsequent viewing in the event of safety problems.

It is also commonplace to equip subway cars with audio public address systems for a myriad of uses, including transit service announcements, community service events, advertising, safety and emergency procedures, as well as inter-staff communications.

Proposals have been made previously to equip other transportation items, especially aircraft, with television or video systems, primarily for the entertainment of passengers on long journeys. Examples of such systems in the patent literature can be found in U.S. Pat. No. 4,647,980 Steventon et al., U.S. Pat. No. 4,630,821 Greenwald, U.S. Pat. No. 4,352,124 Kline, U.S. Pat. No. 5,123,728 Gradin et al., and U.S. Pat. No. 3,457,006 Brown et al.

Entertainment of passengers on subway cars has until now generally been ignored, since the average journey taken by a passenger on a mass transit subway system is usually short, lasting perhaps fifteen minutes. Nevertheless, subway transit riders offer an attractive audience for visual advertising messages, as evidenced by the proliferation of advertising signs which commonly adorn a subway car. In addition, mass transit systems such as subways are in need of extra sources of revenue, to keep passenger fare structures at an affordable level as operating costs rise, and to avoid decreased ridership as a result.

It is an object of the present invention to provide a public service message display system, entertainment system and advertising system for mass transit subway cars.

It is a further object to provide a novel source of extra revenue for a mass transit subway system.

The present invention provides a television public service message display, entertainment and advertising system for subway cars, in which television monitors are provided at spaced intervals in subway cars, to display short duration televisual entertainment and advertising features to subway riders. The system is designed so that advertising spots on it can be sold by the transit system to potential advertisers and sponsors, for extra revenues for the transit system. It takes advantage of the fact that subway riders are, for the most part, occupying a subway car under relatively crowded conditions but for only a relatively brief duration. They are looking for something on which to focus their attention during their brief ride, whilst at the same time often finding it inconvenient to open newspapers, magazines or the like under crowded circumstances and becoming bored by static advertising or other displays around them. The present invention provides properly positioned television monitors displaying moving images of news items, advertising material and the like, viewable by substantially all riders in the car, and filling their need for visual entertainment during the brief duration of their subway ride.

Thus, according to the present invention, from one aspect, there is provided a video system for displaying

televised material to passengers in a mass transit subway car, and comprising at least one video display monitor adapted for mounting inside a subway car so as to display televised materials to passengers riding therein, and a video signal source unit operatively connected to said at least one monitor.

According to a second aspect of the present invention, there is provided a subway car for mass transportation and comprising a video display system including at least one video display monitor having a video screen, the monitor being mounted in the subway car in a manner such that the video screen thereof is readily visible to passengers in the subway car, and a video signal source unit operatively connected to said at least one monitor.

The term "video signal source unit" as used herein embraces player units for playing pre-recorded video material, such as computer-based digital video recorders (including CD-ROM players), video tape players and video disk players, and television receivers for receiving live or pre-recorded broadcast television signals from a remote transmitter and supplying these to the video display monitors mounted in the subway cars. One system according to the invention utilizes receivers including computer-based digital video recorders for receiving broadcast television signals from a remote transmitter as the video signal source unit. Such video signal source unit can be located either within the mass transit premises or on a remote broadcasting site. Alternatively, the invention utilizes a video tape player, a video disk player, or a computer-based digital video recorder, as the video signal source unit. The video signal source unit may be located in the same subway car as that in which the monitor or monitors are located, or in adjacent or remote cars of the same train, with the necessary operative connection between the player and the monitor(s). An individual subway car can be equipped with its own video signal source unit, connected to a plurality of monitors mounted at different, appropriately chosen locations along the length of the subway car. Alternatively, one central video signal source unit can be located in one car of subway train, and connected to monitors in some or all of the cars of the train, to provide a central video signal source unit for the train.

Computer (PC) based digital video recorders basically transmit video signals from a hard drive or CD-ROM storage. They are however also capable of receiving transmitted input at intervals, e.g. news item updates, at, say, hourly intervals, to add to their stored transmittable video data. In this sense they also act as television receivers.

The video signal source unit and video display monitors used in the present invention can be of known, standard form, obtainable as off the shelf items from manufacturers and sales outlets. The connections between them, for display of televised material, are also standard and well within the skill of the art. For example, use can be made of the existing subway infrastructure by which audio announcements are currently transmitted. Alternatively, the connections may be by use of coaxial cables, fibre optics, cell phone systems or satellite transmission, or by other appropriate means.

A preferred system according to the invention is a subway car or plurality of subway cars equipped with a plurality of television monitors, especially LCD-based television monitors, and a video signal source comprising a video tape player, video disk player or computer-based digital video recorder, the video signal source and the monitors being interconnected by suitable electrical cable systems which are self-contained within the subway car. In this way, new subway cars can be built with the video system

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or parts thereof installed, and usable on substantially any transit system, since the operation of the video system is independent of any previously installed track, tunnel or control systems.

The video system according to the present invention provides a means for communicating a very wide range of information to viewers in an environment ideally suited to communicating short video messages to viewers, especially commercial messages or sponsored community service, or informational news bytes. Most subway rides are of short duration, e.g. 15–30 minutes or less. It is normally undesirable to play television programs of any significant length to subway passengers for fear of distracting them from their proper points of interchange and disembarkation on the subway system. However, the system according to the invention is ideally suited for displaying a series of short, 30 second–1 minute messages, in sequence, such as a series of commercial messages. These can range from straightforward advertising as seen on commercial television, or the type of news feed with corporate sponsorship as seen by cable television viewers, with news services provided by specialized companies in this business. If the information is delivered by video tape player, video disk player or computer-based digital video recorder, it can be repeated at intervals of, say, 5–15 minutes, based upon the average duration of individual subway rides, i.e. the pre-recorded program is of total duration of about 5–15 minutes. If the feed is delivered from an outside source, its delivery depends on the package of the server, and according to agreement between the purchaser and the mass transit management, and other interested parties as necessary.

Typically, the television images displayed by the monitors of the system according to the invention do not incorporate sound, though they may contain rolling script, similar to cable television news channels, or similar to closed-captioning for the hearing impaired. This avoids risk of interference with announcements being played to passengers through the normal audio address system carried by the subway train, and avoids adding to the general noise level experienced by passengers on the subway cars, a noise level which is commonly quite high even under normal running conditions. However, sound may be incorporated where appropriate, for example in safety or emergency situations, or to mark the beginning of a message to which the subway or transmission provider wishes to call attention.

The manner in which the video display monitors are disposed and mounted in the subway car depends to some extent on the design of the subway car itself. Such designs can vary between different subway systems. Normally from 6–12 such colour monitors are provided in each subway car, suitably of 12"–13" size, spaced along the length of the car, and disposed above the windows of the car, in a manner and at a location which does not interfere with the operation of any other essential element of the car (door operation, lights, heating, air conditioning etc.). A subway car is normally constructed so that it has a cavity wall, defined between its outer structural shell and its inner lining wall, the cavity providing for wiring and cables and other mechanical functions, and, at places, containing insulation. The video display monitors in the system of the invention are suitably mounted in the cavity wall.

In a preferred arrangement, the video display monitors have a strong metal frame construction, fixed to the frame of the subway car. The screens are preferably covered with a rigid transparent unit, e.g. of polycarbonate, shaped to coincide with the shape of the internal wall of the subway car at the location of mounting. For example, when the

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monitor is mounted at the junction of the wall and ceiling of the subway car, where there is commonly provided a concavely curved segment of internal wall, the transparent cover unit is suitably similarly concavely curved, so that it can be mounted as a continuum with the internal walls and blended to contours thereof, with the monitor mounted behind it. The screen is suitably angled downwardly, for best viewing by passengers seated opposite the screen. The entire structure of the monitor, including the cover unit if used, is suitably housed in a stainless steel or strong plastic casement, designed to appear integral with the subway car, without visible edges or protuberances, and matching the materials and colours of the subway car interior.

The video monitors used in the system of the present invention can be of standard, cathode ray tube-based design. Such monitors have the advantage of economy, being mass-produced items manufactured on a very large scale. They are eminently suitable for use in most embodiments according to the invention, and can be viewed clearly from a variety of angles. However, in circumstances where the subway car in operation encounters locations of large magnetic field, it is possible that the picture displayed on a CRT monitor will be distorted as the monitor moves through such location. Any such distortion effect can be reduced by surrounding the monitor, to an extent practical and consistent with its provision of full visual display, with an appropriate shield such as a steel or other ferromagnetic casement. Where such a magnetic field problem turns out to be particularly acute, the CRT-type monitor may be replaced by a monitor incorporating a colour liquid crystal display (LCD) screen, which is not sensitive to intermittent encountering of external magnetic fields.

Specific preferred embodiments of the present invention are illustrated in the accompanying diagrammatic drawings in which:

FIG. 1 shows in plan view (FIG. 1A) and in side elevation (FIG. 1B), an existing subway car as used on the Toronto Transit System with indications of appropriate locations for mounting video monitors according to the invention;

FIG. 2 is a sectional view of a subway car according to the invention with video monitors in place;

FIG. 3 is a detail, in section, of an existing subway car illustrating the location for receiving a video monitor according to the invention;

FIG. 4 is a detail similar to FIG. 3, with the video monitor in place;

FIG. 4A is a view, similar to FIG. 4, of an alternative embodiment;

FIG. 5 is a detail in perspective view, of a subway car equipped with a monitor according to one embodiment of the invention;

FIG. 6 is a detail similar to FIG. 5 but of a further alternative embodiment;

FIG. 7 is a view similar to FIG. 6, showing the general appearance when the monitor is operating.

A typical subway car 10, as illustrated in FIGS. 1A and 1B, is equipped with sliding doors 12 and windows 14, spaced at convenient intervals along the length of the car. Passenger seats, in sets of 2's and 3's, are disposed beneath and alongside the windows 14, clear of the doors 12, some sets 16 being inward facing, other sets 18 being forward facing and other sets 20 being rearward facing.

Suitable locations for video monitors 22 in accordance with the invention are at the junction of wall and ceiling of subway car 10, above the windows 14 and clear of the doors 12. They are thus disposed opposite to sets of inward facing

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seats 16, and angled downwardly for ease of viewing of passengers 24 seated in such inward facing seats 16, as shown in FIG. 2, with direct sight lines. 26, but visible to passengers seated elsewhere, and standing in the car 10. A video player 23 is suitably located in the driver's cab 27 (FIG. 1A), and connected to all the monitors 22 by cables (not showing) disposed in the cavity walls of the car.

FIG. 3 shows a detail of the car 10, at the location where a monitor 22 is to be installed. The car wall has an outer shell 28 in which windows 14 are sealingly mounted, and structural pillars 30 mounted at intervals and secured to the vertical structural member 32. Centrally secured to the exterior skin and body structure of body 34 of the car is a main air duct 36 and a housing 38 carrying ceiling lights running substantially the full length of the car 10. The space between the ceiling housing 38 and the top of the pillars 30 is normally occupied by back lit advertising panels 40. Removal of appropriate portions of these panels 40 provides space for location of video monitors 22, according to the preferred embodiment of the invention.

Thus as shown in FIG. 4, the video monitor 22 is enclosed and rigidly mounted in its own enclosure 42, of stainless steel, rigid plastic or the like. The enclosure in turn is secured to the top of structural pillar 30 and the side of housing 38, in a space between the ends of illuminated panels 40, and protruding rearwardly to a position adjacent the outer part of the exterior skin and body structure 34. The front wall of enclosure 42 is comprised of a clear transparent polycarbonate shield 44, through which the screen 46 the monitor 22 is clearly visible. The screen 46 is angled downwardly for best viewing by a passenger 24 seated opposite. The enclosure 42 with monitor 22 therein and connections protruding outwardly therethrough is removable as a unit, for replacement or service.

An alternative embodiment is illustrated in FIG. 4A, a view similar to that of FIG. 4. In this alternative embodiment, CRT video monitor 22 is replaced with an LCD-based video monitor 22A which is of thin, rectangular cross-section, and occupies less space in the ceiling structure of the car. Accordingly, it can be moved towards the ceiling so that its viewing screen is substantially flush with or even behind the light panel 40. This use of an LCD-based monitor gives a better aesthetic appearance to the inside of the subway car as a whole, as well as improving the display performance by minimizing the interference effects, as previously discussed. An appropriately shaped enclosure 42A for the LCD-based monitor, with transport screen 44A, replaces enclosure 42 for the CRT video monitor, and is similarly mounted in place.

FIG. 5 shows a front, perspective view of the arrangement shown in section in FIG. 4. The monitor 22 and its covering shield 44 are recessed behind the upper portion of the adjacent advertising panels 40, and the sides of the enclosure 42 protrude inwardly from the lower portion of panels 40. This provides ease of access to the enclosure 42 for its removal when necessary.

An alternative arrangement is shown in FIG. 6. Here the polycarbonate shield 44 is convexly curved, and is disposed further forward from the monitor screen 44. The shield 44 now blends with forward facing part 48 the exterior skin and body structure 34, to provide a perhaps more aesthetically appealing arrangement. In FIG. 7, there is diagrammatically

6

illustrated the arrangement of FIG. 6 in practical operation. Poster-type illuminated advertisements are provided by advertising panels 40 flanking the video monitors 22, whilst the video monitor 22, disposed at intervals along the length of the car 10, show video information and/or advertising spots, at convenient, easily viewed locations and disposition to passengers riding in the car 10.

It will be appreciated that the specific embodiments illustrated and described herein are by way of example only, and are not to be construed as limiting on the scope of the invention. The description pertains specifically to the type of subway car currently in use in the Toronto Transit System, and illustrates a means and location for mounting the video monitors in such a system. Details of construction, and hence details of appropriate mounting for video monitors may differ from subway system to subway system according to the form of car in use. Such mounting details do not depart from the scope of the present invention. In all cases, it is contemplated that a plurality of monitors will be provided in each car, each rigidly mounted at a convenient location clear of the doors and windows, and at a disposition where it can be viewed by passengers riding the subway car, without difficulty. The provision of such video monitors mounted in their own enclosures as described herein, and faced with a transparent screen of, for example, polycarbonate, allows for considerable variation in the detail of mounting means and locations, to adapt them to different constructions of subway cars currently in use on different mass transit systems.

What is claimed is:

1. A subway car for mass transportation including longitudinal opposed sidewalls, a ceiling adjoining the sidewalls, a video display system comprising a plurality of video display monitors each having a video screen, and a video signal source unit operatively connected to said monitors,

said monitors being spaced along the length of the car on opposed sides thereof, each of said monitor being mounted at the junction of the sidewall and ceiling, with the screen of the monitor substantially flushed with the adjacent wall surface structure of the car, and directed obliquely downwardly toward the car seats, so that each video screen is readily visible to passengers in the subway car.

2. The subway car of claim 1 wherein the video signal source system includes a pre-recorded video transmission program for feeding to display on the monitors of duration about 5-15 minutes.

3. The subway car of claim 1 wherein the program is repeatable, and includes a series of commercial messages of 30 second-1 minute duration.

4. The video system subway car of claim 1 which is sound free.

5. The subway car of claim 1 wherein the video signal source unit comprises a video tape player, a video disk player or computer-based digital video recorder.

6. The subway car of claim 1 wherein the video monitors include LCD screens.

7. The subway car of any of claim 1 including a self-contained wiring-cabling system connecting the video monitors to the video signal source unit.

* * * * *

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(54) Title of Invention: Transportation Information Display System

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SPECIFICATION

1. Title of Invention: Transportation Information Display System

2. Claims

(1) A transportation information display system consists of information communication display parts using video display devices; the information display part command devices are control parts which are installed in each station; an information display system which is linked to a central control part which provides overall control over the control parts; and the information communication display parts are integrated and combined into automated passenger ticket vending machines which are installed in stations.

(2) The video display device of the information display system of Claim 1 is integrated and combined into the top or bottom of an automated passenger ticket vending machine.

(3) The video display device of the information display system of Claim 1 is integrated and combined either into

the left or right or on both sides of an automated passenger ticket vending machine.

(4) A transportation information display system consists of information communication display parts using video display devices; the information display part command devices are control parts which are installed in each station; an information display system which is linked to a central control part which provides overall control over the control parts; and the information communication display parts are suspended within train cars to form advertising parts.

(5) The information communication display part using a video display device of the information display system of Claim 4 is an advertising part on both side walls of the interior of a train car.

(6) A transportation information display system consists of information communication display parts using video display devices; the information display part command devices are control parts which are installed in each station; an information display system which is linked to a central control part which provides overall control over the control parts; and the information communication display parts are

mounted on the rear walls of newspaper stands which are installed on platforms.

3. Detailed Description of the Invention

Industrial Field of Use

This invention pertains to the provision of information systems that can selectively display a variety of multifunctional information in stations, in between stations, or in train cars which are underway, and to the provision of instructional devices.

Prior Art

Conventionally, posters and announcements have frequently been used to provide information in railroad and bus stations, airports, and the like.

However, although announcements can provide information to a large number of individuals simultaneously, announcements have the shortcoming of being ephemeral and difficult to hear in noisy locations, then they are often misheard.

Moreover, although posters and the like have visual impact, their shortcoming is that they are extremely labor-intensive since their content cannot be changed in real-time and each and every poster needs to be replaced.

Naturally, the control parts G may be constituted so as to have their own broadcast functions to interrupt transmitted instructions from the central control part H.

The information communication display parts J are formed of a video display device such as a cathode ray tube or liquid crystal panel, or the like which displays not only static images, but dynamic images, as well.

The following is a description of an example of the control system of the information communication display part J made with reference to the block diagram in Fig. 5.

The control parts G which are linked to the central control part H have a control computer which has a data communications function and the control computer is linked under its control to the following devices via control communications pathways:

- (1) A video switcher which is an image signal switching device;
- (2) An image memory;
- (3) A video disk device which facilitates selection and playback of the desired images by means of external signals via the controller;
- (4) A video tape recorder via the controller;
- (5) Videodisc players which are installed in stations or train cars;
- (6) The following devices which have image production and editing functionality:
 - ① Operating console

In recent years, dynamic image visual information displays have been proposed, but most of these simply involve the installation of television cathode ray tubes or other such display devices, then the content of the information thus provided has been limited.

In the future, the roles of stations in urban areas will no longer be limited to transportation hubs, and they will increasingly serve as bases for local culture.

It is therefore an objective of the present invention to establish an information provision system which is appropriate for the changing roles of stations and which is not limited to the display of static information in single stations.

Embodiments

The following is a description of the details of this invention made with reference to the figures.

As illustrated in Fig. 4, the total system of the present invention is comprised of information communication display parts J which are the terminal devices, a control part G which provides overall control over the information communication display parts J..., And a central control part H which provides overall control over the control parts G....

- ② Hard disk
- ③ Floppy disk
- ④ Printer

and other peripheral devices;

- (7) Data transmission pathways via the communications controller.

Moreover, in the channels having video switchers are:

- (1) a video memory which is linked to a control computer via the control communication path which is linked via a video signal converter;
- (2) a videodisc which is linked to the control computer via the controller and the control communication pathways;
- (3) a videotape recorder which is linked to the control computer via the controller and the control communication pathways;
- (4) image transmission pathways; which are linked to
- (5) the video display devices J which are installed in stations or train cars, and linked to the central control part H by means of the data transmission pathways and image transmission pathways.

In this way, the video display devices J... receive the channel selection signal output from the control computers

by means of the control communication pathways which are connected to the control computer, [the video display devices J....] are connected to the image signal switching device which is the video switcher that performs the function of switching channels, and each [of the video display devices J....] functions as individual display parts thereby.

Moreover, the video switcher has channels 1 ~n and, for example, n -4 video display devices may be connected to channels 5 ~n.

In this case, channel 1 is connected to image memory that the control computer can read and write via the video signal converter and, furthermore, the image memory is connected to the control communication pathway and placed under the control of the control computer.

Channel 2 is connected to the videodisc and, further, the videodisc is linked via the controller to the control communication pathway, and is placed under the control of the control computer.

Channel 3 is connected to the video tape recorder and, further, the video tape recorder is linked via the controller to the control communication pathway, and is placed under the control of the control computer.

For example, images that have been stored ahead of time in the videodisc can automatically and sequentially be played back according to a schedule that has been programmed into the control computer, and images can be created and edited using the computer and peripheral devices thereby so that this information is outputted via the primary storage devices of the image memory, etc. and the video signal converter.

Moreover, it is possible to interrupt the control computer via the data transmission pathway, to transmit dynamic images and static images via the image transmission pathway, and to display this information on the video display device, to store it to the video tape recorder or to the image memory, etc., and vice versa.

Each of these functions can be performed between the control computer of the central control part H and the control computers of each of the stations as well as between the control computer and the control computers of other stations because these functions are linked to each of the data transmission pathways.

Channel 4 is linked directly to the image transmission pathway.

Moreover, the control computer logically manages a variety of information by means of terminals (control operating consoles), hard disks, floppy disks, and other means, and [the control computer] is connected via the control communication pathways to these peripheral devices which are to be operated.

Further, data transmission pathways are connected between the other control parts G (between stations) between central control parts H (between the central control part H and stations), via communication controllers having bidirectional data communication pathway functions.

Apart from not having video display devices connected to a video switcher, the constitution of the central control part H is approximately identical to the constitution of the aforementioned control part G.

Therefore, in an operational state, by providing selection signals from the control computer to the video switcher, the various devices (image memory, videodisc device, videotape recorder) which are connected to the video switcher can transmit independent images to each of the video display devices by means of the image transmission pathways.

The display devices J that are the terminal devices which determine the system configuration of this invention may be combined and integrated and combined into the automated passenger ticket vending machines that are installed in each station, as illustrated in Fig. 1.

1 it is an automated passenger ticket vending machine, and with the operating part A serving as the automated passenger ticket vending function on the front of the vending machine 1, the vending machine 1 is provided with a coin insertion slot 2 for ¥100 coins and the like, a bill insertion slot 3 for ¥1000 bills and the like, a card insertion slot 4, fare pushbuttons 5, and a ticket and change dispenser 6.

These operating parts A are formed in the lower part 1b of the front panel of the machine unit.

Meanwhile, a space 7 by means of a stepped part is formed in the upper part 1a of the front panel of the machine unit.

This space 7 is for the insertion and integrated installation of an information transmission device J (not shown) which is a video display device.

However, the use of this part need not be restricted to this type of information transmission device J and may, for example, be used as a space in which to place pamphlets,

and may otherwise be used to integrate a variety of devices, such as card selling machines.

Furthermore, the shape of the space area 4 and the location of integration with the ticket vending machine need not be limited to the upper part illustrated, and a variety of design changes are possible.

When the operation of the vending machine 1 operating console A and the control part G are linked, an output part is provided on the operating console A side in which the changes in the leakage electrical field of the input information that is coded by the operation of each function is converted and transmitted, and a host device which reads the information which is outputted by the output part is provided on the control part C side.

Since combinations of each type of device are possible in this configuration, it is acceptable to change only those devices which are worn or are to be upgraded.

In a second embodiment, a suspended advertising part 8 is formed in a train car as illustrated in Fig. 2.

An information transmission display part J is formed of an advertising part 8 which is suspended and hangs down from the ceiling in the form of a panel advertising part 8 consisting of a panel-type such as a liquid crystal panel, or the like, within a mounting frame.

modes of transport can be shown in graphic detail in the event of, for example, incidents within a station because the desired dynamic or static images can be displayed on a sequential information communication display part by commands from a control part without having to change the display part.

Moreover, the same system can be used in the event of incidents in the vicinity of a station and transportation information provided thereby.

Furthermore, the appropriate instructions can be given to passengers because information can be exchanged with other stations or with train cars which are underway and individual passengers can make the decisions that are right for them without confusion.

In this case, although it is obvious that the same broadcast can be made on all information communication display screens, when necessary, information can be displayed only in stations within a specific block.

Therefore, this invention performs a wide variety of information provision and management functions in which a wide range of instructions can be provided to passengers or passersby, as well as station area information, advertisements about special events, and the like. It is therefore a

This information transmission display part J may also be formed on the sidewall 9 of the train car.

In this constitution, it is unnecessary to replace each and every poster as in the prior art. The content of the information can be instantly changed as desired even when the train car is in motion, and a wide range of information content can be selected.

In a third embodiment, [the invention] is formed on the rear wall of a newspaper stand 10 which is installed on a platform.

The rear wall of the newspaper stand 10 which is installed on a platform is an unused area which is currently used for the placement of a trash can for the like. A cathode ray tube or panel-type information transmission display part J is configured on this wall surface.

Furthermore, an interactive type information providing system is also possible by providing an operating console J1 or a touch panel-type information transmission display part because, given the location, there is adequate space.

Effect of the Invention

Given the present invention as constituted above, [passengers] can be guided or turnstiles closed, detailed explanations of the accident situation provided, or alternative

multipurpose, economical, and up-to-date system which supports the increasing centrality and importance of stations as terminals by constituting a combination of a variety of devices therein.

4. Brief Description of the Drawings

Figs. 1-3 show in embodiment of the information communication display part of the present invention. Fig. 4 is an integration drawing of the system of the present invention. Fig. 5 is a block diagram illustrating the configuration of the control part.

- A Passenger ticket automated vending machine operating part
- J Information communication display part
- C Control part
- H Central control part

Patent applicant: Rinjiro MINESAKI
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 Representative: Masanori WADA, patent attorney

Fig. 1

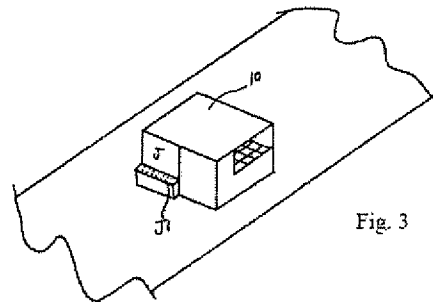
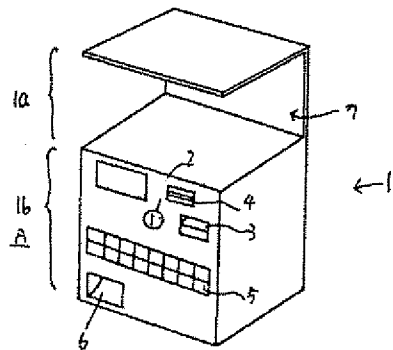


Fig. 3

Fig. 2

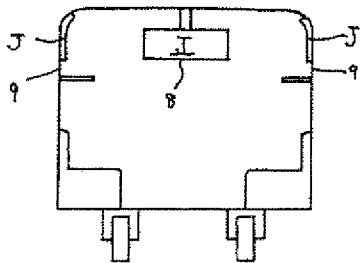


Fig. 4

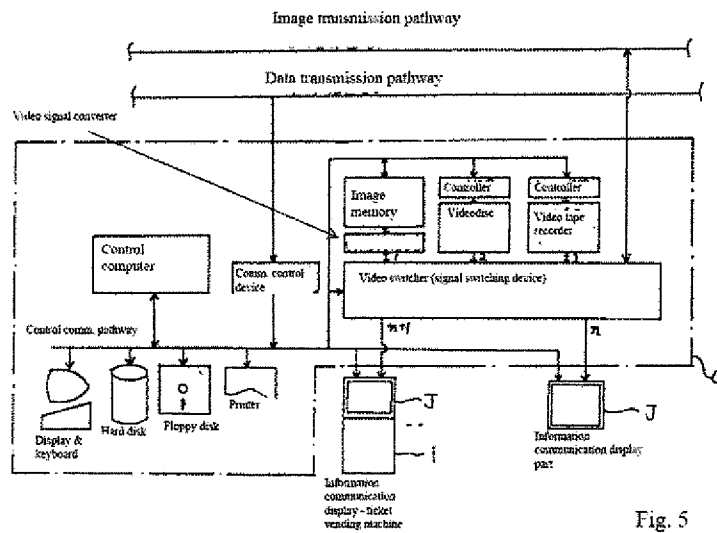
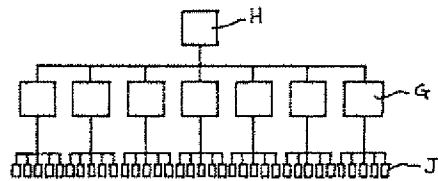


Fig. 5

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(54) Title of the Invention System Providing Nonstandard Information to a Large Indefinite Number of People in a Transportation Vehicle

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Continued on last page

Specifications

1. Title of the Invention
System Providing Nonstandard Information to a Large Indefinite Number of People in a Transportation Vehicle

2. Patent Claims

(1) A system providing nonstandard information to a large indefinite number of people in a transportation vehicle comprising a display device for providing nonstandard information capable of changing the display content at any time in the limited space of a transportation vehicle provided as the transportation means to a large indefinite number of people; a means for transmitting the provided information from inside the transportation vehicle to the display device; and a means for receiving the information transmitted from outside of the transportation vehicle and providing the information to said transmission means in the transportation vehicle.

3. Detailed Description of the Invention (Field of Industrial Application)

The present invention relates to a system which takes the opportunity to effectively use the time on a transportation vehicle to provide various information to a large indefinite number of people who are using a limited space such as an airplane, train, and bus as a transportation means by

installing display devices for providing nonstandard information.

(Prior Art)

Conventionally, in a transportation device used by a large indefinite number of people, such as a train or a bus, usually, information such as advertisements and notifications in the vehicle hang down as printed material or are posted on the walls. These are normally displayed for a limited time period. In the case of advertisements, the provider of the transportation means obtains income from advertising contracts over a prescribed period.

A related known example is the "New Video Service System in Vehicles with Liquid Crystal Displays" reported on radio and in newspapers on February 14, 1989.

(Problems to Be Solved by the Invention)

When the prior art described above is viewed from the perspective of providing information, the provided information is displayed for a constant time period as described above because printed material is posted. When the posted information is changed, the printed material posted in the vehicle must be replaced each time. Usually, this posted information is displayed at a large number of places from several locations to several tens of locations in a single vehicle, but when used in several tens of connected cars as in a train, that

number reaches several hundred locations. Consequently, when the posts are changed periodically, the problems are the difficult management and no improvement in the utilization rate of the locations providing information.

In addition, when viewed from perspective of receiving information, because the information provided is the same for a constant time period, new information is viewed once and ignored thereafter. Even if new information is posted, because the posted information is viewed for the most part when in its presence for approximately several tens of minutes, the problem is that the amount of information is low considering the occupation at the posted location. Information provision means using light-emitting diodes exist, but are limited to providing standard information with fixed information such as the name of the station stop, the type of train, etc. There are examples of video and text information provided in the vehicles, but these are limited to providing the information set up in the vehicles, and information is not provided promptly.

An objective of the present invention is to provide a system which solves the problems described above.

(Means for Solving the Problems)

The problems described above are overcome by installing display devices for providing nonstandard information having

provided information; 4, a device for receiving transmissions of region-specific information and signals from the transportation vehicle; 5, a region-specific information controller which controls the transmission of region-specific information and manages the signals received from the transportation vehicle; and 6, an information signal transmission path between the region-specific information controller and the region-specific transmitter.

An example where the transportation vehicle is a bus is explained with reference to Figure 1. The region-specific information transmitter/receiver 4 is installed at each bus stop, collects the provided information transmitted from the region-specific information controller 5, and transmits the information provided through antenna 3 to the transportation vehicle 1. The transportation vehicle 1 receives the information provided through antenna 2, and provides the information to customers through the display information signal transmitter and the information signal display devices installed in the bus. A transportation vehicle 1a provides information stored in region-specific information transmitter 4b through antennas 3b, 2a to the interior of the bus. A transportation vehicle 1b provides information stored in region-specific information transmitter 4n through antennas 3n, 2b to the interior of the bus. The region-specific information controller 5 controls which information is sent to the region-specific information transmitter 4. Consequently, the transmitted information content from region-specific information

displayed content which can be changed at any time and devices for transmitting the information provided on the display devices from inside and outside of a transportation vehicle in a transportation vehicle, such as an airplane, a train, or a bus as the transportation means which has limited space to a large unspecified number of people.

(Operation)

The target provided information is transmitted from a transmitter, which has a function for setting and transmitting the nonstandard provided information placed in a location not used by the passengers in the transportation vehicle, for example, the cockpit in an airplane, the conductor's cab in a train, or the driver's seat on a bus; and a function for receiving and transmitting the information received from outside of the transportation vehicle, and can be displayed on a plurality of display devices set up at locations used by the passengers.

(Embodiments)

Embodiments of the present invention are described with reference to the following figures.

Figure 1 shows the entire system of the present invention. Reference number 1 is a transportation vehicle; 2, an antenna installed in the transportation vehicle; 3, an antenna primarily for transmitting the

transmitters 4a to 4n may differ from each other or be identical. In addition, the transmitted information can be changed for some plurality of regions.

This system is bidirectional. When the transportation vehicle 1 arrives at a stop, the provided information is received from the region-specific information transmitter/receiver described above, and signal notifying the arrival of transportation vehicle 1 at the stop is transmitted to antenna 3 from antenna 2. That signal is received by the region-specific information transmitter/receiver 4, passed through the transmission path 6, and transmitted to the region-specific information controller 5, and the navigation status of the transportation vehicle 1 can be determined. In addition, this status can be transmitted as information to the next stop to notify waiting customers.

In this drawing, the transmission paths 6 are indicated by wires to simplify the representation. Naturally, wireless transmission paths based on communication satellites can be used. In this case, the antennas for transmission and reception such as parabolic antennas can be installed in the region-specific information controller 5 and the region-specific information transmitter/receiver 4.

Figure 2 shows a display information signal transmitter and an information signal display device installed in the transportation vehicle. Reference number 7

is a display information signal transmitter and comprises a video information playback function 7b which primarily plays back video stored on a video disk or a videotape; a text and image information input function 7e which primarily reads out text and image information from a storage medium such as a magnetic disk or a memory card and inputs information depending on the associated input key; a text and image information control function 7d for controlling the enabling of the input information display; a video, text, and image information synthesis function 7c which synthesizes the video information played back by the video information playback function 7b and information from the text and image information control function 7d and selects either one; a region-specific information reception function 7f which primarily receives and stores the region-specific information from outside of the transportation vehicle; an information transmission function 7g which finally transmits the information provided to the customers through the information display devices; and an operation control function 7a for operating these functions. Reference numbers 2 and 3 are antennas; 4, a region-specific information transmission function primarily for transmitting region-specific information; 8, an information display device for displaying the provided information transmitted from the display information display device 7; and 9, transmission paths between these devices. Reference number 10 is

Normally, the provided information provides any one of the video, text, and image information stored on a video disk or a videotape or their combinations. However, when the region-specific information is transmitted through antenna 3 from the region-specific information transmission function 4, the information is received by antenna 2 and the transmitted data are stored by the region-specific information input function 7f, passed through the text and image information control function 7d, text and image information synthesis function 7c, and information transmission function 7g, and displayed on the information signal display device 8. The provided information not only supplements the video and text and image information provided beforehand to the transportation vehicle, but can provide urgent information. For example, a news crawl and information restricted to the region can be provided. This information can change the content of the provided information in units while the transportation vehicle follows its route if the region-specific information transmission function 4 is installed.

Figure 3 shows the form assuming the transportation vehicle is a train. In the example, cultural information 11 in segment 1, event information 12 in segment 2, and theme park information 13 in segment 3 are provided to the information signal display

device 8. In this example, information is provided over the entire surface of the information signal display device 8. The video or text and image information described above are synthesized and provided. A portion of that information can be used and provided.

Figures 4 to 7 show an example of the information signal display device 8 in the transportation vehicle installed in the train. (Effects of the Invention)

According to the present invention, the locations providing information in a transportation vehicle can be put to good use, and compared to when conventional printed material are posted, not only is the management time reduced, an effect is that the power of information provided to the customers is strengthened because promptness and newness are brought out.

4. Brief Description of the Drawings

Figure 1 shows an example of the entire system of the present invention. Figure 2 is a drawing for explaining an example of the device functions in the transportation vehicle. Figure 3 shows an example of the provision of region-specific information. Figures 4, 5, 6, and 7 show examples of the information signal display device installed in the transportation vehicle.

Descriptions of the Reference Numbers

- 1 transportation vehicle
- 2 antenna installed in the transportation vehicle
- 3 antenna installed in a region-specific information transmission function
- 4 region-specific information transmission function
- 5 region-specific information controller
- 6 transmission path
- 7 display information signal transmitter
- 8 information signal display device
- 9 transmission path
- 10 traveling status information input
- 11, 12, 13 examples of region-specific information provision
- 14 example of information provided on printed material

Agent: Katsuo Ogawa, Patent Attorney

Clean copies of the drawings (no changes to the content)

Figure 1

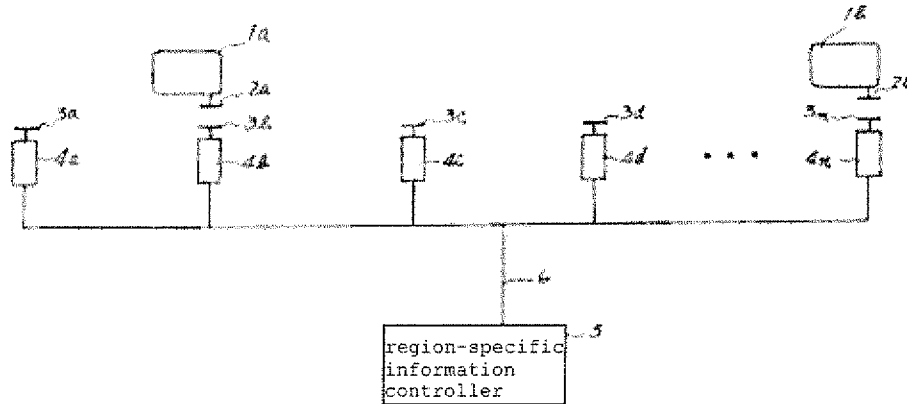


Figure 2

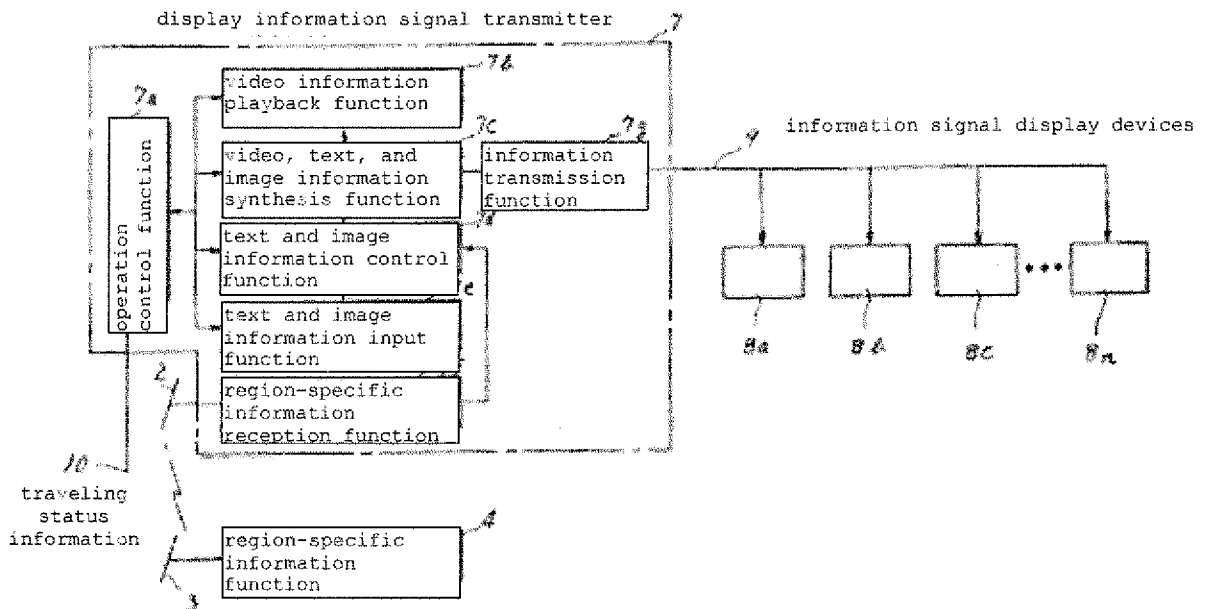


Figure 3

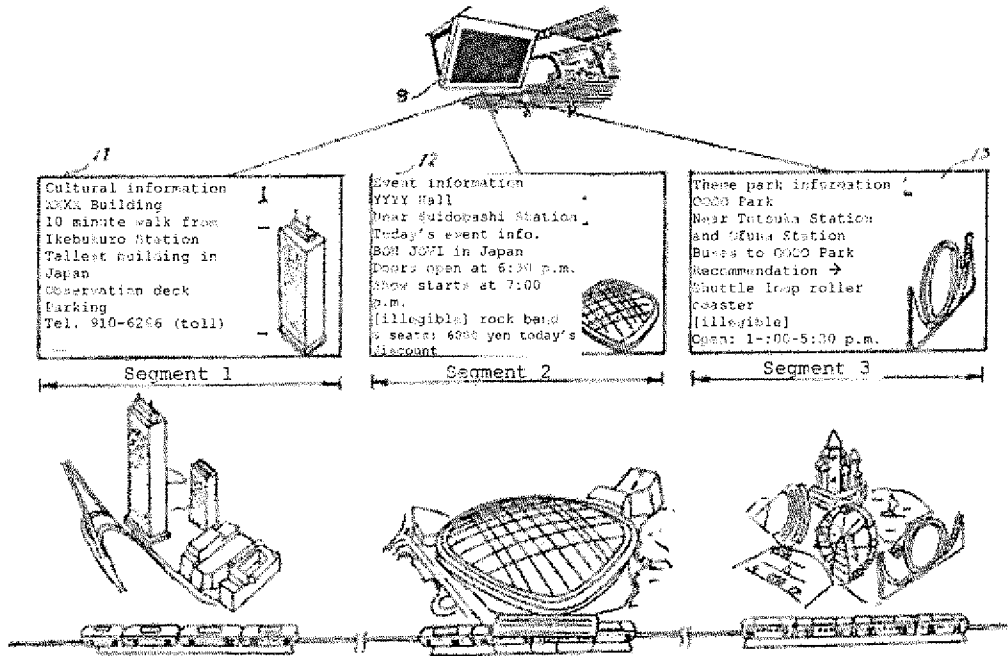


Figure 4

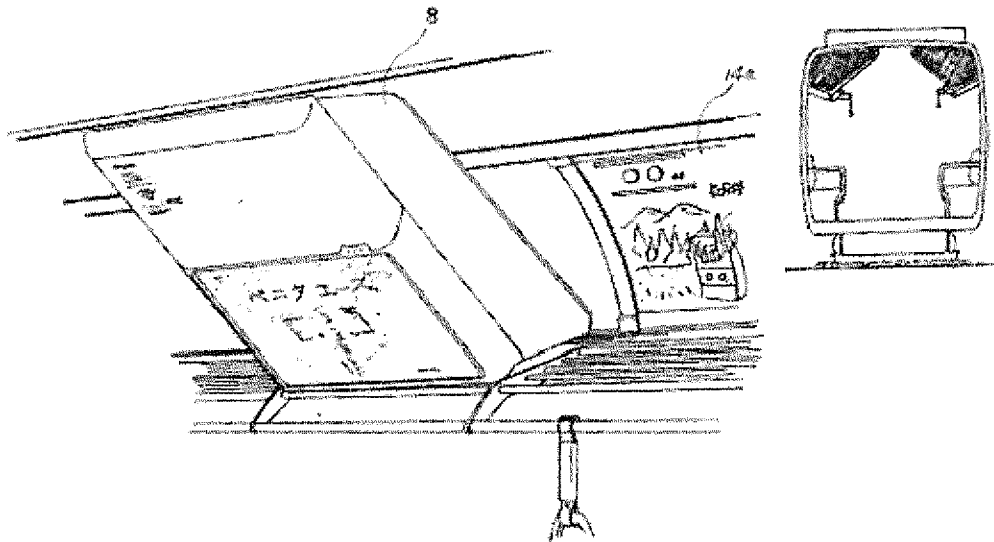


Figure 5

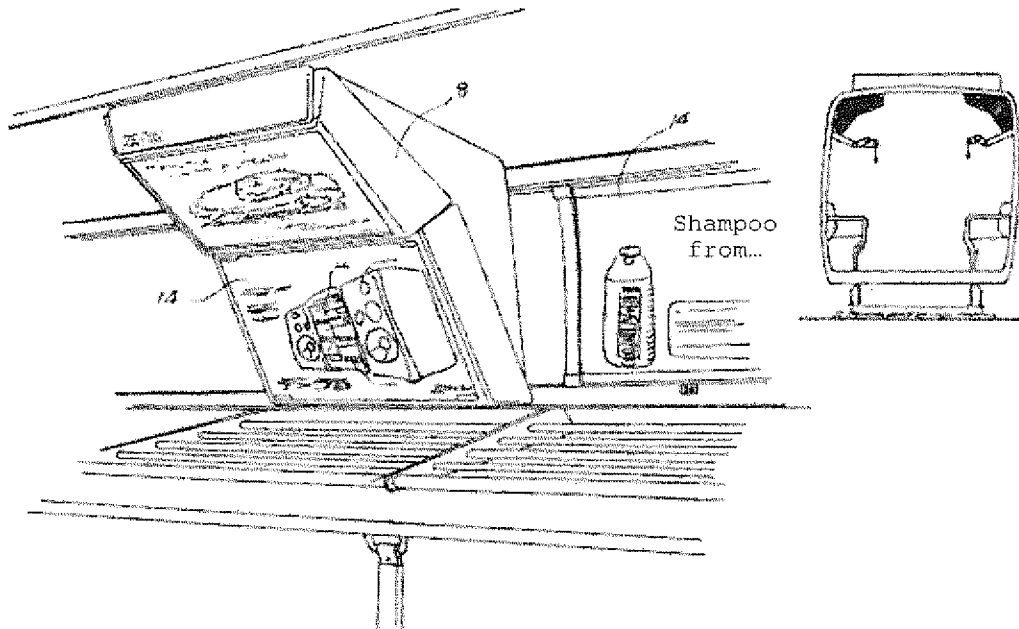


Figure 6

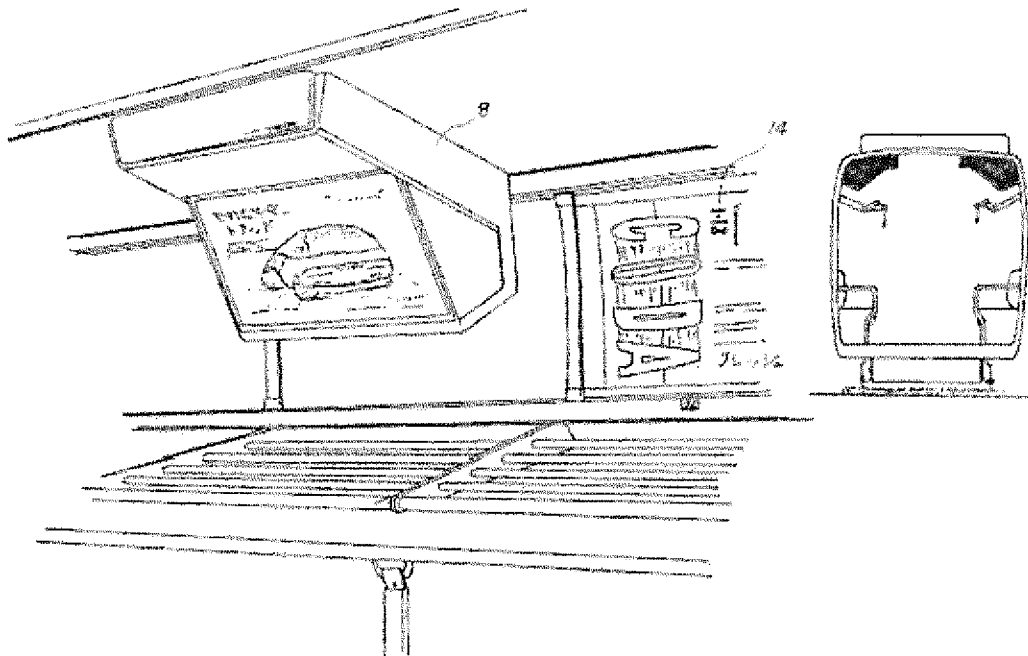
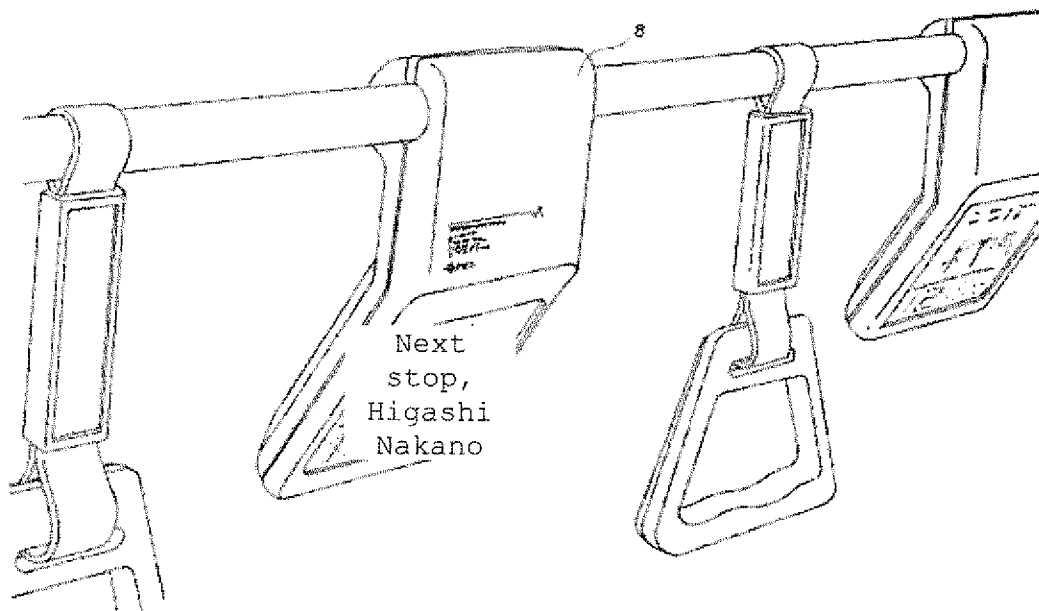


Figure 7



Continued from page 1

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Japanese Unexamined Patent Application Publication No. H2-223985 (8)

Procedural Amendment (Formality)

June 21, 1989

To: Commissioner of the Japan Patent Office

Case Indication

1989 Patent Application No. 42966

Title of the Invention: System Providing Nonstandard Information to a Large
Indefinite Number of People in a Transportation
Vehicle

Amending Party

Relationship to the Case: Patent applicant

Name: Hitachi Ltd. (510)

Applicant:

Address Hitachi Ltd.
1-5-1, Marunouchi, Chiyoda-ku, Tokyo

Name Katsuo Ogawa, Patent Attorney (6850) [stamp:]
[illegible]

Date of Amendment Order: May 30, 1989 (dispatch date)

Object of Amendment

All of the drawings

Amended Content

Clean copies on separate papers of all of the drawings
initially appended to the application
(Content not changed)

[stamp:] JPO, 6/21/1989, Second Application Dept.

End

Formal examination

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Continued on final page

Specification

Title of the Invention: Teletext Broadcast Receiving System for Mobile Body

Claim

A teletext broadcast receiving system for a mobile body comprising a tuner for receiving television broadcasts installed in a mobile body, a teletext broadcast decoder that extracts and demodulates teletext data from a television broadcast signal received by said tuner, a memory that stores a plurality of screen portions of the teletext data obtained by said teletext broadcast decoder and a display means that displays the teletext broadcast data stored in said memory

such that, when at least one screen portion of teletext broadcast data for a teletext broadcast channel that has been deemed necessary has been demodulated by said teletext broadcast decoder, this screen of teletext broadcast data obtained by demodulation is stored in the corresponding area of said memory and the stored data of said memory is updated.

Detailed Description of the Invention

[Field of Application in Industry]

The present invention relates to a teletext broadcast receiving system for a mobile body preferably used in installations in mobile bodies such as electric trains.

[Summary of the Invention]

The present invention is a teletext broadcast receiving system for a mobile body that is installed in a mobile body such as an electric train wherein, when at least one screen portion of teletext broadcast data for a teletext broadcast program that has been deemed necessary is demodulated by a teletext broadcast decoder, this screen of teletext broadcast data that has been obtained by demodulation is stored in a corresponding area of a memory, the stored data of the memory storing teletext broadcast data is updated, and even when all of the data for the teletext broadcast program has not been received, the teletext broadcast program may be displayed favorably.

[Prior Art]

In recent years, television receivers have been installed in mobile bodies such as electric trains, images reproduced by VTRs and the like received and services provided to passengers. In such cases, an antenna is attached to the roof of the electric train, television broadcast signals received from ground-based transmitting stations by this antenna and images received.

[Problems to be Solved by the Invention]

However, the ability to receive these television broadcast signals has been limited to times when locations with comparatively good radio wave states are traveled through. In other words, with mobile bodies traveling through areas with many obstacles such as the buildings in cities, there are few locations where good reception is possible without unnecessary interference for the broadcast signals from the transmitting stations. The state of reception is very poor when a normal television antenna is just installed on a mobile body, and the images are often such that they are not good enough for practical use. For example, in the case of the Yamanote electric train line that runs roughly through the center of Tokyo, the distance from the transmitting stations is very short, and under normal circumstances it is area with a strong electric field capable of good reception even with a simply structured antenna. However, there are very many obstacles such as buildings, and it is close to impossible to receive television signals with conventional technology without ghosting.

In addition, radio waves for teletext broadcasts are transmitted using some television broadcast signals, but since these signals for teletext broadcasts are converted into digital data for transmission, it is

impossible to receive the teletext broadcasts in moving bodies which are particularly sensitive to occurrences of ghosting.

It is an object of the present invention to make good reception of teletext broadcasts possible in moving bodies such as electric trains.

[Means to Solve the Problems]

As is shown, for example, in Fig. 1, the present invention comprises a tuner for receiving television broadcasts (43) installed in a mobile body (1), a teletext broadcast decoder (46) the demodulates teletext broadcast data extracted from a television broadcast signal received by this tuner (43), a memory (47) that stores a plurality of screen portions of the teletext broadcast data obtained by this teletext broadcast decoder (46) and display means (101), (102), (103) ... (124) that display that teletext broadcast data stored in this memory (47). When at least one screen portion of teletext broadcast data for a teletext broadcast program that is deemed to be necessary has been decoded by the teletext broadcast decoder (46), this teletext broadcast data that has been obtained by decoding is stored in a corresponding area of the memory (47), and the stored data in the memory (47) is updated.

[Work or Operation of the Invention]

Therefore, if the data for all screens for the teletext broadcast program initially deemed necessary is stored in the memory, the data for the teletext broadcast program may be updated sequentially even if only part of the data for a screen of the teletext broadcast program can be received while the mobile body is traveling or the like by updating only the data for this part that could be received to the latest data. All of the screen data for the teletext broadcast program deemed necessary is stored in the memory; therefore, display of all screens of the corresponding teletext broadcast program is possible at any given time.

[Embodiment]

In the following, an embodiment of the present invention will be described with reference to Fig. 1 through Fig. 4.

In this example, a television receiver is used in a receiving system that displays teletext broadcasts; therefore, the overall constitution of this receiving system will be described first.

In Fig. 1 and Fig. 2, (1) indicates a car body for an electric train, and doors (entrances and exits) (11), (12), (13) ... (16) and (17), (18), (19) ... (22) are provided in six locations on each side in the side surface of this car body (1). Television receivers (101), (102), (103) ... (124) are installed above the left and right door pocket parts for each of the doors (11) through (22) inside the car. As is shown in Fig. 2, for example, television receivers (117) and (118) are attached to the upper part of the door pocket part on the left and right of the door (19). In this instance, each of the television receivers (101), (102), (103) ... (124) is made low profile using liquid crystal panels or the like.

Furthermore, these various television receivers (101), (102), (103) ... (124) are for displaying teletext broadcasts, but to receive these teletext broadcasts, four antennas (30a), (30b), (30c), (30d) are attached to the periphery of ventilators (3) and (4) on the rooftop (2) of the car body (1). In this instance, each of the antennas (30a), (30b), (30c), (30d) has a dipole antenna

constitution comprising two conductive rods (31), (32) one of the ends of each being in proximity to each other and a reflector (33) disposed at a prescribed gap from these conductive rods (31), (32). The gap part between the two conductive rods (31), (32) is connected to a coaxial cable (35) (see Fig. 3) through a balloon (matching transformer), and this coaxial cable (35) is connected to a switching unit (41) inside an under-floor unit (40). The length of the two conductive rods (31), (32) is selected according to the frequency of the channel received, and the reflector (33) is longer than the length of the two conductive rods (31), (32) together.

Furthermore, the angles of attachment of the four antennas (30a), (30b), (30c), (30d) are offset 90° each in the horizontal direction. Antennas (30a), (30b) are attached to the front and back (direction parallel to the rails) of the ventilator (3), and antennas (30c), (30d) are attached to the left and right (direction perpendicular to the rails) of the ventilator (4) which is adjacent to the ventilator (3).

Describing the state of attachment of the antennas to the ventilators in detail here, this car body

Furthermore, one end of linking members (34) forming the antennas (30c) and (30d) is secured to the top part of this cover (24), and along with each of these linking members (34) securing a reflector (33) substantially in the middle part, the conductive rods (31), (32) are secured to the other end. Here, the two conductive rods (31) and (32) are provided with a prescribed gap and secured to the linking member (34). In addition, insulating material is used for the linking members (34). In addition, in this example, an angle material with an L-shaped cross-section is used for the conductive rods (31), (32) and reflectors (33) and is such that they may easily attached.

Here, a space H in the direction of height between the upper part of each ventilator and the lower edge of the reflector (33) is set to at least 15 mm, and width L in the horizontal direction between each ventilator and the reflector (33) is set to at least a width of 20 mm. Furthermore, the reflector height B is set to 70 mm or greater. In this instance, larger values for the height H and width L of the ventilator and the height B of the reflector (33) itself are preferable in terms of the antenna characteristics, but the size of equipment that can actually be installed on the rooftop (2) is determined by standards such as rolling stock gauge.

(1) has a plurality of ventilators (3), (4), (5) ... on the roof (2). These ventilators (3), (4), (5) ... are so-called forced ventilators that function as ventilation devices forcing air into the car from the outside while it is traveling, and legs (3a), (4a), (5a) at the four corners of each of the ventilators (3), (4), (5) ... are secured to the rooftop (2) by bolts (23). In this instance, each of the ventilators (3), (4), (5) ... is attached to the car body (1) in an insulated state.

Furthermore, two antennas (30a), (30b) are attached using the bolts (23) that secure the legs (3a) at the four corners of the ventilator (3). In addition, two antennas (30c), (30d) are attached using the bolts (23) that secure the legs (4a) at the four corners of the ventilator (4) which is adjacent to the ventilator (3).

Showing an enlargement of the state of attachment of these antennas (30c), (30d) to the ventilator (4) in Fig. 3 and Fig. 4, a U-shaped cover (24) is attached around the ventilator (4) by the bolts (23). In this instance, the cover (24) is such that it does not block the air passage part (4b) of the ventilator (4).

Very large antennas cannot be attached, and values somewhat larger than the values above are the limit for these values.

With the attachment of the four antennas (30a), (30b), (30c), (30d), each of the antennas (30a), (30b), (30c), (30d) only receives the radio waves oriented toward the conductive rods (31), (32). The radio waves oriented toward the conductive rods (31), (32) from the opposite side (ventilator side) are shielded by the reflector (33), and the generation of standing waves by reflected radio waves can be controlled. Therefore, radio waves that come from all directions in substantially 360° may be received by the four antennas (30a), (30b), (30c), (30d) that are installed in positions that differ by 90° each.

Furthermore, the four antennas (30a), (30b), (30c), (30d) constituted in this manner are connected to the switching unit (41) inside the under-floor unit (40) that is hung beneath the floor of the car body (1) by the coaxial cables (35). The equipment for receiving teletext broadcasts is housed in this under-floor unit (40), and the switching unit (41) selectively outputs receive signals supplied by any of the antennas under the control of a discriminator circuit (44) which will be discussed hereinafter. Furthermore, this switching unit

(41) supplies the received signal that is output to a ghost reduction tuner (43) via a booster (42), and this ghost reduction tuner (43) receives a television broadcast signal for a prescribed channel that is set in advance. In this instance, the ghost reduction tuner (43) uses a GCR signal that has been inserted into the vertical blanking interval, and ghost reduction is carried out on the received broadcast signal; therefore, a ghost suppression filter, GCR signal extraction circuit, comparator circuit, control circuit and the like are provided in both the channel tuning section and intermediate frequency amplifier/demodulator section. A GCR signal in which distortion due to diffuse reflection of radio waves and the like and a reference signal are compared, and reflected wave signals are suppressed.

Here, in this example, the prescribed channel television broadcast signal obtained by this ghost reduction tuner (43) is supplied to the discriminator circuit (44), and the level of the synchronizing signal included in the television broadcast signal received by this discriminator circuit (44) is determined. The selection of the antenna line by the switching unit (41) is set to the synchronous signal with the best level, and a so-called diversity antenna is formed.

Describing the constitution of this memory (47) here, the data storage part of this memory (47) is divided into a plurality of areas, and the areas are used as shown in Fig. 5. In other words, it is such that four teletext broadcast channels A, B, C, D may be stored, and there are areas a1 through a10, b1 through b10, c1 through c10 and d1 through d10 that can store 10 screen portions from page 1 to page 10 for each program. In this instance, areas a1 through a10, b1 through b10, c1 through c10 and d1 through d10 are such that the stored data for each area may be updated independently if they have data for a prescribed teletext broadcast program stored in them for the time being when operation of the car body (1) is started. When only the data for part of a page (screen) of one teletext broadcast program can be received, only the storage area for this page that could be received is rewritten. Therefore, there are instances where the stored data for each page making up the various teletext broadcast programs A, B, C, D is not stored at the same time. Moreover, when each of the teletext broadcast programs A, B, C, D is made up of 10 or less pages, the area for the page for which data could not be obtained is left empty.

In this instance, a timer circuit (45) is connected to this discriminator circuit (44), and the level determination described above is carried out in a prescribed interval with control by the timer circuit (45).

Furthermore, the television broadcast signal obtained by the ghost reduction tuner (43) is supplied to the teletext broadcast decoder (46), and a teletext broadcast signal of text, graphics and the like multiplied by the vertical blanking time for the broadcast signal is obtained by this teletext broadcast decoder (46). In this instance, a plurality of teletext broadcast programs are sent by a single channel television broadcast signal, and when at least one screen portion of data for a prescribed teletext broadcast channel set in advance has been obtained, this data is recorded in the memory (47) connected to the teletext broadcast decoder (46). In other words, the teletext broadcast decoder (46) has a circuit that determines whether or not each teletext broadcast screen that is received and obtained is complete. When it is determined that data for a complete screen for even one screen has been obtained by this circuit, and when this data is a teletext broadcast channel that is deemed necessary, it is stored in the memory (47).

Furthermore, the data for the prescribed teletext broadcast program stored in the memory (47) in this manner is sequentially read out to the teletext broadcast decoder (46) and formed into a video signal that displays the text, graphics and the like as images. This video signal is output from the under-floor unit (40) via a coaxial cable. When, in this instance, at least one screen portion of any program of the four stored teletext broadcast programs A, B, C, D is rewritten, this rewritten program is read sequentially from the first page to the final page and is displayed.

Moreover, the output video signal from the under-floor unit (40) is a baseband video signal (in other words a video signal that is not RF modulated). In this example, in addition, a power supply circuit (48) is provided in the under-floor unit (40), and a low voltage direct current power supply is output from this power supply circuit (48).

Furthermore, the coaxial cable that outputs the video signal from the under-floor unit (40) is connected to a three-way distribution unit (61) in the car body (1) to provide the output video signal. In addition, the power supply output from the power supply circuit (48)

is also supplied to the three-way distribution unit (61). This three-way distribution unit (61) is such that the baseband video signal is divided in three.

Furthermore, of the first, second and third distribution outputs from this three-way distribution unit (61), the first distribution output is supplied to a first two-way distribution unit (71), the second distribution output supplied to a connection terminal (62) provided on a connection surface on a first end (one end) side of the car body (1) and the third distribution output supplied to a connection terminal (63) provided on a connection surface on a second end (other end) side of the car body (1). In addition, the power supply supplied to the three-way distribution unit (61) is also supplied to the first two-way distribution unit (71).

This first two-way distribution unit (71) is such that it divides the baseband video signal that is supplied in two.

Furthermore, the first distribution output distributed by the first two-way distribution unit (71) is supplied to a second two-way distribution unit (72) connected to a subsequent stage, and the second distribution output is supplied to a 13th two-way distribution unit (83) that is connected to a subsequent stage. In this instance, the power supply supplied from the three-way distribution unit (61) side is supplied to

(113) attached inside the car, and the second distribution output is supplied to a 14th two-way distribution unit (84) in the subsequent stage.

Hereafter, the baseband video signal supplied by two-way distribution units (84), (85), (86) ... (93) connected to subsequent stages is divided in two in the same manner, and the first distribution output is supplied to the corresponding television receivers (114), (115), (116) ... (124) attached inside the car. The second distribution output is supplied to two-way distribution units (85), (86), (87) ... (93) connected to the subsequent stage. However, the second distribution output of the 23rd two-way distribution unit (93) connected at the end is supplied to a television receiver (124).

In this instance, the power supply supplied from the two-way distribution unit in the previous stage is supplied to television receivers connected to the various two-way distribution units and the two-way distribution unit in the subsequent stage.

Moreover, when the connection terminals (62) and (63) provided on the connection surface are linked before and after to another car that is not provided with a tuner and the like, it is connected to a video signal input terminal in this linked car (not shown in the drawings). The video signals for the teletext broadcasts and the like may be supplied to preceding and following

the second and 13th two-way distribution units (72) and (83).

This second two-way distribution unit (72) divides in two in the same manner as the first two-way distribution unit (71), and the first distribution output is supplied to a television receiver (102) attached inside the car. The second distribution output is connected to a third two-way distribution unit (73).

Hereafter, the baseband video signal supplied by two-way distribution units (73), (74), (75) ... (82) connected to subsequent stages is divided in two in the same manner, and the first distribution output is supplied to the corresponding television receivers (103), (104), (105) ... (111) attached inside the car. The second distribution output is supplied to the two-way distribution units (74), (75), (76) ... (82) connected to the subsequent stage. However, the second distribution output of the 12th two-way distribution unit (82) connected at the end is supplied to a television receiver (112).

In this instance, the power supply supplied from the two-way distribution unit in the previous stage is supplied to television receivers connected to the various two-way distribution units and the two-way distribution unit in the subsequent stage.

In addition, the first distribution output of the 13th two-way distribution unit (83) connected to the second distribution output side of the first two-way distribution unit (71) is supplied to a television receiver

cars. In this instance, the power supply necessary for the television receivers in the preceding and following cars is supplied by a power supply circuit in each of the cars.

Next, the operation when teletext broadcast images are displayed on the television receivers (101), (102), (103) ... (124) connected in this manner will be described.

First, the teletext broadcast is received, and the data for the teletext broadcast program deemed necessary is stored in the memory (47) connected to the teletext broadcast decoder (46). If, in this instance, the state of reception for the television broadcast signal is good, the operation of storing to the memory (47) is completed in a short time, but service is actually provided when the car (1) is traveling. Therefore, when the reception state is temporarily good and when at least one screen portion of data for a teletext broadcast programs deemed necessary can be obtained by the teletext broadcast decoder (46), this data for the screen that is obtained is stored in the memory (47), and the data for the same page that was stored previously is updated newly to that received.

In other words, as is shown in the flow chart in Fig. 6, the screen for the teletext broadcast program

received by the teletext broadcast decoder (46) is assembled, and a determination is made as to whether the screen that is assembled is a complete screen (in other words, whether the screen that is assembled has parts missing). Furthermore, when the screen that is assembled is complete, the data for this screen is written to the corresponding area of the memory (47), and the data in this area is rewritten. Furthermore, when this rewriting occurs, the stored data in the memory (47) for the teletext broadcast program that is rewritten is read so that is displayed sequentially starting with the first page, and they output video signal is created by the teletext broadcast decoder (46). In addition, when the assembled screen is determined to be an incomplete screen, the assembled screen data is discarded, and at this time the received data is not stored.

When a teletext broadcast program is received, the direction of the transmitting station as seen from the car (1) varies because of the travel, but the constitution is a diversity antenna that determines whether it is possible to have good reception from any of the four antennas (30a), (30b), (30c), (30d) in directions differing by 90°. Connection to the tuner (43) side is made with each of these antennas (30a), (30b), (30c), (30d) in order by the

teletext broadcast program displayed at prescribed intervals is read and the video signal that displays the teletext broadcast is created. This video signal is transmitted to the television receivers (101) through (124) via the various distribution units (61), (71) through (93), and the teletext broadcast program is displayed on the television receivers (101) through (124) disposed in this car. In this instance, the four teletext broadcast programs stored in the memory (47) are displayed sequentially in a cycle of several minutes to several tens of minutes. However, when new teletext broadcast program data can be received as described above, this program that can be received is displayed starting with the first page.

Moreover, in the embodiment described above, only teletext broadcast receiving equipment was installed, but VTR and other image reproduction equipment may be provided, and reproduced images may be displayed instead of the teletext broadcast program. In addition, this was such that when data for a teletext broadcast program can be received, this teletext broadcast program was displayed, but the four teletext broadcast programs may be displayed sequentially in each prescribed time period regardless of the state of the reception of data.

In addition, in the embodiment described above, the receiving system was installed in an

switching unit (41), and the state of reception is sequentially determined by a determination circuit (44) in the ghost reduction tuner (43). The connection is made to the antenna obtaining the best broadcast signal.

Moreover, since having a temporarily good state of reception and obtaining a screen for a teletext broadcast program deemed to be necessary by the teletext broadcast decoder (46) is limited to extremely good states of reception, most are when the train is stopped at stations and the like. In other words, for example, in the case of an electric train traveling as a local train in the city center, the train is stopped several tens of seconds to one minute at a station every 2 to 3 minutes of travel. The possibility of reception of a teletext broadcast program during this train stoppage being possible is high, and reception of teletext broadcasts is possible with the comparatively high frequency. In this instance, the time necessary for a one screen portion of the one teletext broadcast program to be transmitted is often normally under one second and at the longest several seconds; therefore, it is sufficiently possible to receive a teletext broadcast program using the constitution described above.

Furthermore, if teletext data can be imported into the memory (47) connected to the teletext broadcast decoder (46) in this manner, the data for the

electric train, but it may be used in another mobile body (automobile, ship or the like).

Furthermore, the present invention is also not limited to the embodiment described above and various other constitutions naturally possible.

[Effects of the Invention]

According to the present invention, even when only the data for some screens for this teletext broadcast program can be received during the traveling or the like of a mobile body, just the part of this data that could be received is updated to the most recent data, and the data for the teletext broadcast program is updated sequentially to the most recent data. Teletext broadcast programs using comparatively the most recent data may always be displayed even if the state of reception in the mobile body deteriorates because of travel or the like.

Brief Description of the Drawings

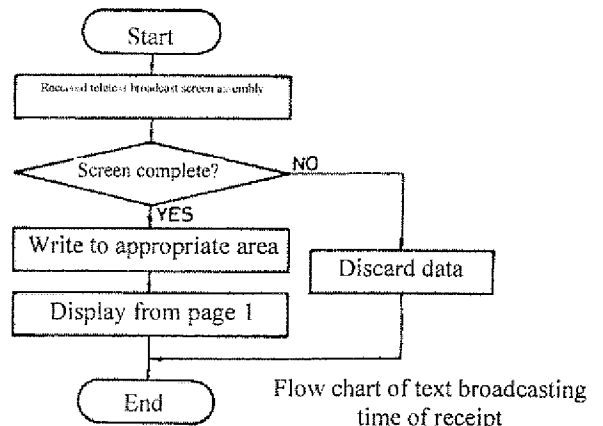
Fig. 1 is a block diagram showing an embodiment of the present invention. Fig. 2 is a partial cutaway perspective view showing the state of the system of an embodiment installed in a car body. Fig. 3 is a perspective view showing the important parts of an embodiment. Fig. 4 is a side view showing the important parts of an embodiment. Fig. 5 is an explanatory diagram showing the state of use of the memory of an embodiment. Fig. 6 is a flow chart to

accompany a description of an embodiment. (1) is a car body. (3), (4) ... (8) a ventilator, (30a), (30b), (30c), (30d) antennas, (40) under-floor unit. (41) switching unit, (43) ghost reduction tuner, (46) teletext broadcast decoder, (47) memory, (48) power supply circuit, (61) three-way distribution unit. (62), (63) connection terminals, (71), (72) ... (93) two-way distribution units and (101), (102) ... (124) television receivers.

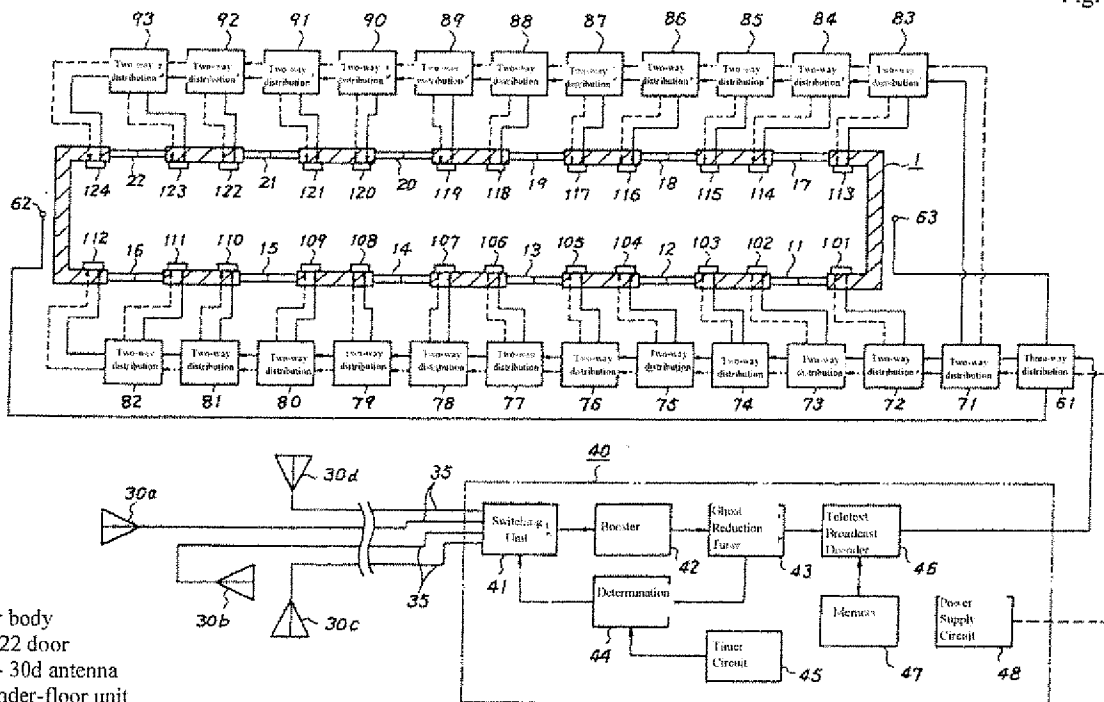
| | Program A | Program B | Program C | Program D |
|---------|-----------|-----------|-----------|-----------|
| Page 1 | a1 | b1 | c1 | d1 |
| Page 2 | a2 | b2 | c2 | d2 |
| Page 3 | a3 | b3 | c3 | d3 |
| | | | | |
| Page 10 | a10 | b10 | c10 | d10 |

Example of memory areas
Fig. 5

Agent: Hidemori Matsue



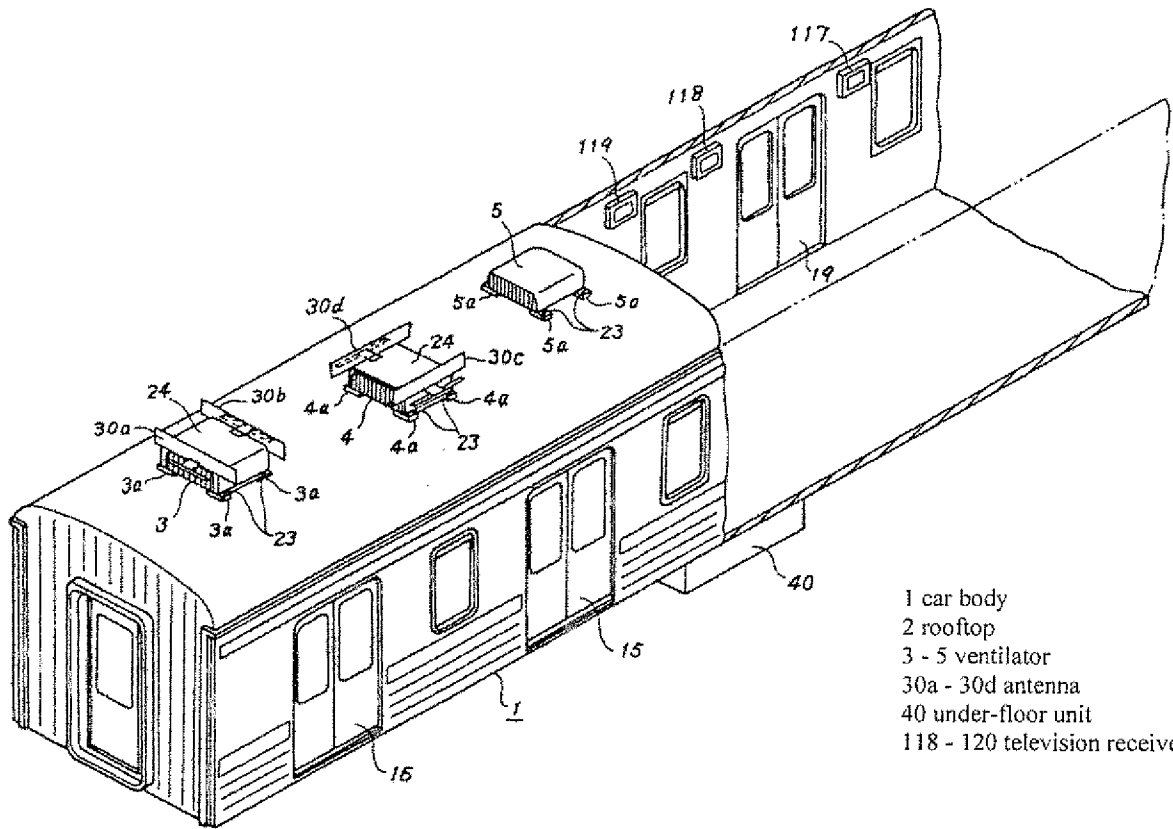
Flow chart of text broadcasting time of receipt
Fig. 6



1 car body
11 - 22 door
30a - 30d antenna
40 under-floor unit
101 - 124 television receiver

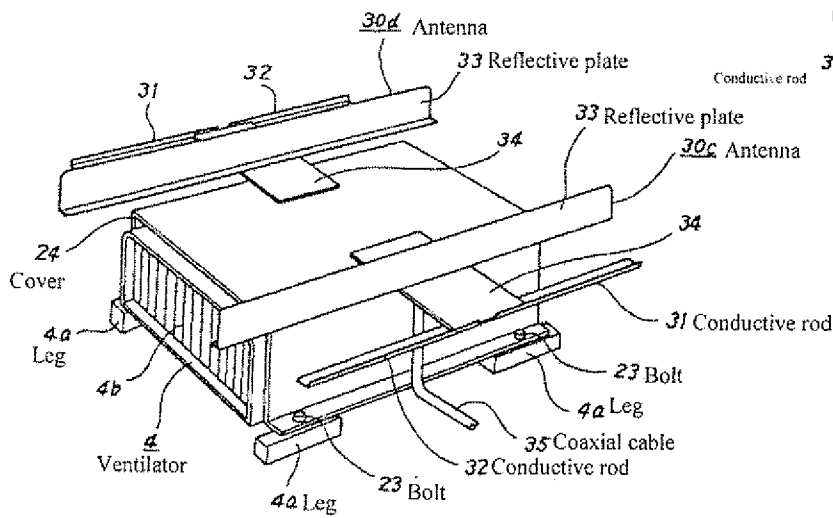
Overall constitution

Fig. 1

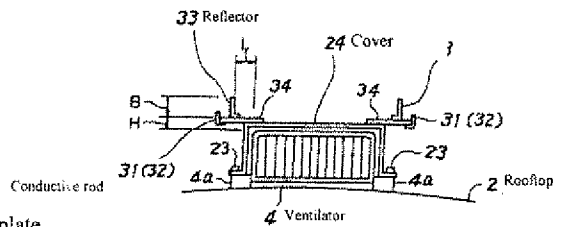


- 1 car body
- 2 rooftop
- 3 - 5 ventilator
- 30a - 30d antenna
- 40 under-floor unit
- 118 - 120 television receiver

State of attachment to car body
Fig. 2



Enlargement of area around antenna
Fig. 3



Drawing showing state of attachment of antenna
Fig. 4

Continued from first page

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| G 09 G 3/00 | | 7817-3D |
| B 61 K 13/00 | | 6731-5C |
| G 09 F 9/00 | | |

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(54) Title of the Invention: In-Vehicle Information Guide System
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(22) Filing Date June 13, 1985

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Specifications

1. Title of the Invention

In-Vehicle Information Guide System

2. Patent Claims

(1) An in-company [sic] information guide system for broadcasting the displays of guide information about the next and/or later station stops in a traveling train comprising an information processor (A) which is provided in the train and compiles image information data as the information for broadcast on the train;

a transmitter (B) for distributing the created image information data as image information to each display device; and

a display device (C) installed in each car.

(2) The in-vehicle information guide system described in claim 1, wherein the image information data created as described above includes guide information about at least the name of the next station stop; expected arrival time; special express trains, express trains, departure times, destinations, and boarding platforms related to the first train or bus departing after the time of the specified transfer time added to the expected arrival time in the schedules for each route related to the transportation

facilities of the current train company or other companies having connections at the next station stop.

(3) The in-vehicle information guide system described in claim 1 or 2, wherein said display device is installed in the upper part of a wall on the side of the aisle in the train, or above the window at each passenger seat.

3. Detailed Description of the Invention

Overview

In the past, the information guide in a train was by voice using in-company [sic] broadcast facilities based on the conductor rounds. However, since the voice is not preserved, the information cannot be provided no matter how many times it is repeated to passengers who were asleep or missed the announcement or passengers who forgot. Therefore, broadcasts using images are conducted to fix the deficiency of voice broadcasts. Alternately, both are used together.

Field of Industrial Application

The present invention relates to an information guide service system based on image broadcasts to passengers

riding on a traveling train, more particularly, to a system providing information services which do not disappear and can be viewed at any time within a prescribed time on a display device.

Problems of the Prior Art

Conventional information announcements were voice broadcasts to the passengers through speakers provided in each car bell [sic] by wire from a broadcast facility provided in the conductor's cab. However, since voice is fleeting and disappears, the weakness is that this information cannot be provided to passengers who need information and forgot or missed the information for whatever reason. The problem was the repetition of the broadcast to fix this weakness annoyed the other passengers.

Solution Means

The intent of the present invention is to provide information content in a visual guide as described above as image information broadcast (displayed) in each car and to preserve the information for a prescribed time to

enable reading by passengers needing information at any time.

The structure of the hardware for realizing the above intent provides an information processor which a crew member manages, operates, and selects and compiles image information data, and a transmitter which distributes and broadcasts the image information data created (selected and compiled) on the processor to each display device as the image information at locations which can be managed by the crew member in the conductor cab on the train; and provides a solution by displaying and broadcasting the guide information needed by the passengers disembarking at the next station stop on the display devices provided on each side of the car.

If some information will be provided, the following operating conditions apply. The image information data created as the display content described above is displayed before stopping at the next station. The data is information related to transfers for connections, such as the station name, expected arrival time (desirably, updated if late), platform number which are required by passengers disembarking at the next station. The information is continuously displayed on the display devices installed at locations where the information can be selected from a diagram and is easily seen. In addition, the information is successively updated and provided until the next stop.

Embodiments

Figure 1 is a drawing for explaining one embodiment and also serves as a drawing of the principle of the present invention.

Figures 2, 3, and 4 are supplemental drawings of Figure 1. Figure 2 shows the operation for creating the image display data conducted on the information processor as an operation flow.

Figure 3 describes the input and compilation in a function block diagram.

Figure 4 shows the installation locations of the display devices.

The interior of part A delineated by the dot-dash lines in Figure 1 shows the information processor. The interior of part B shows the transmitter. The interior of part C shows the display device on each side of the car. Data buses 6 connect an information processor A which has an operating unit 2 including a monitor unit connected to a central processing unit 1 (referred to as a CPU); a main storage 3 (referred to as MS) which becomes the working area for data compilation where the data are compiled with CPU 1; and data files 4, 5 storing trip planning data of the train containing at least the planned departure time, names of the station stops, each station, departure platform number

between each station from the starting station of the boarded train to the final station during the current trip, trip planning (train schedule) data of related connecting trains at each station stop including information about the departure time from each station, destination, and departure platform (terminal) of connecting trains departing from the stations where the boarded train stops (the term connecting trains includes ordinary trains, express trains, and special express trains which have a given route; ordinary trains, express trains, and special express trains which are traveling on different routes and headed in different directions; as well as trains, boats, and vehicles of transportation facilities such as buses having terminals at the station stop which connect at later stops), and source data containing at least various information needed for compilation which includes the required extra time information believed to be required to move between platforms and between platform terminals to make connections for each station stop of the boarded train.

After the operating unit 2 is operated and the train departs, Figure 3 shows one example of the set-up data indicated by the double line frames. Specifically, data for displaying the station name related to the station stop settings from the data files 4, 5 when the name of the next station stop (may be encoded) is set;

data for displaying the expected arrival time; data related to the departure times and platforms of connecting trains; and if needed, data related to the required extra time for connecting are retrieved and set for each setting in the MS 3 from the files 4, 5 by using the setting of the station name in the setting unit 31 of the name of the next station stop as the key. If there is a difference between the current train schedule and his expectations (running late), the operator compiles by revising and setting the arrival time, required extra time, and display item in each setting unit.

First, in the compilation, a comparator 36 compares the time of the required extra time for connecting in each direction set in the extra time setting unit 35 added to the arrival time setting unit 32 at the next station stop of the boarded train to the departure time data group of the connecting trains departing in each direction from the train schedule memory unit 34 which reads in only the needed part stored in file 5; selects the trains available for connection in each direction; and passes the trains to the train selection unit 37. Next, in order to compile the connection information data, the train selection unit 37 repeatedly compares the departure times, selects the train at the closest time for each train class of the trains available for connection which were selected by the

Next, preferably, the display devices 21 to 2n are arranged on the walls flanking the aisles of each train or above the windows of the passenger seats at approximately the eye level of an average adult walking by.

In a variation of the present invention, when a train is late, if the change in the expected arrival time can be changed on the train, data compiled beforehand and supplied on a medium such as a disk cartridge or a floppy disk greatly lessens the operations performed by the crew member on the train. In addition, although the scale will become large, the compilation is conducted at a central command center which manages the train movements and can be provided on-line to each train. Nearly the same effect is obtained as a service received by the passengers, but the time the crew member needs to directly perform the operations becomes smaller, which is an advantage.

Effects

The present invention as described above has the following effects. Guide information having a depth of information can be provided at the time required by a passenger needing an information guide on the train in a form which does not

comparator 36, and stores the information in the specified format location of the format and compilation unit 38 only for the needed directions.

Then, the name of the station stop, arrival time, and arrival platform related to the next station stop combined with data indicating the departure time, platform, destination, direction of the available connecting train in each direction and the data read from file 4 of associated data such as the train name, express or ordinary type, vehicle type such as train or bus are combined, formatted, and compiled to complete the compilation.

These operations, if needed, set and revise each monitor on the operating unit 2, and are executed primarily between the CPU 1 and the MS 3.

However, the image information data which have been compiled are transferred to the transmitter B which converts the data into image information for display on the display devices in each car and transmits the information. After conversion, the image information is broadcast from each of the display devices 21 to 2n as images.

the speed of the traveling train, and a more comprehensive service is available from the perspective of the operations.

4. Brief Description of the Drawings

Figure 1 is drawing for explaining an embodiment which also illustrates the principle of the present invention and describes the system structure.

Figures 2, 3, and 4 are supplementary drawings of Figure 1 which explain the operation flow of the embodiment as a flow, explain the function blocks, and show the display locations, respectively.

In the drawing, A indicates the information processor; B, the transmitter; and C, the display device. The assigned numbers indicate the detailed parts. Reference number 1 indicates the CPU; 2, the operating unit; 3, the main storage (MS); 4, 5, the data files; and 6, the paths. In addition, 11 indicates the setting unit of the compiled display data; 12, the image data conversion unit; 13, the transmitter; and 14, the display system controller.

disappear. Not only is there an improvement in the quality of the service which does not annoy passengers who do not need information compared to the operation based only on voice broadcasts, but an ability to revise as needed to match

Furthermore, 21, 22, ..., 2n indicate the display devices in each car.

In addition, 31 indicates the setting unit of the name of the next station stop; 32, the arrival time setting unit; 33, the display item setting unit; 34, the schedule storage unit for temporarily storing a part of the schedule; 35, extra time setting unit; 36, the comparator; 37, the selector; and 38, the format and compilation unit.

Agent: Koshiro Matsuoka, Patent Attorney
 [stamp:] Koshiro Matsuoka, Patent Attorney

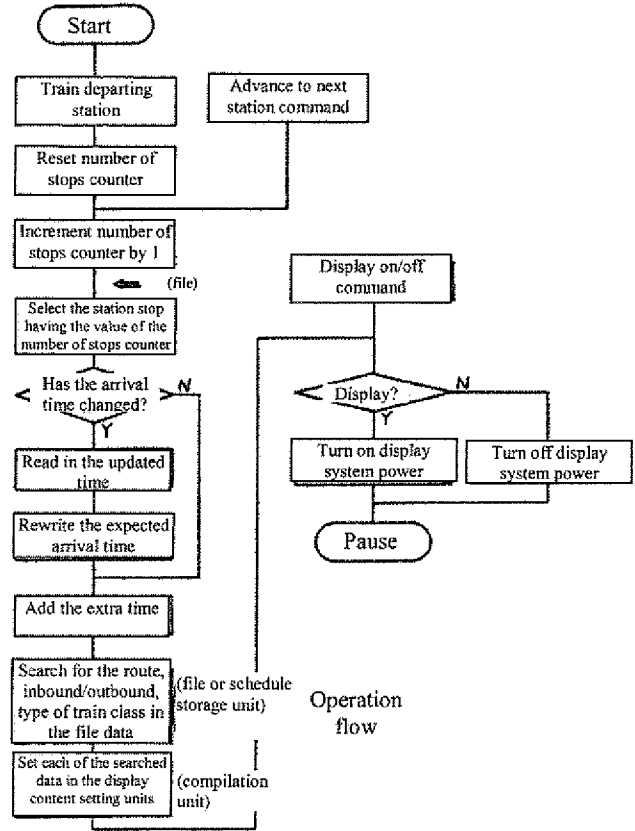


Figure 2

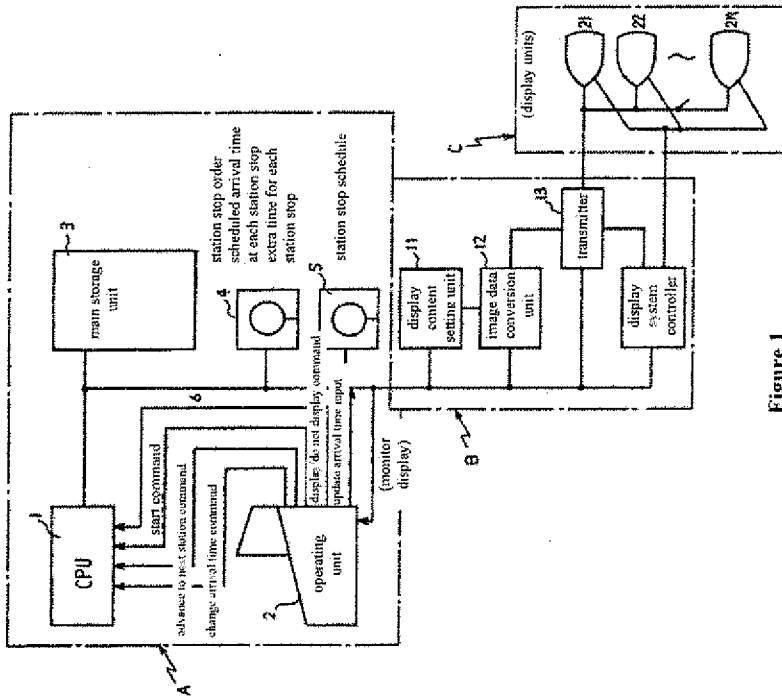
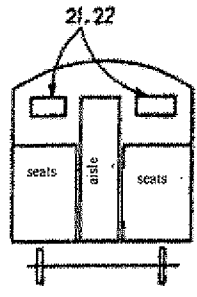
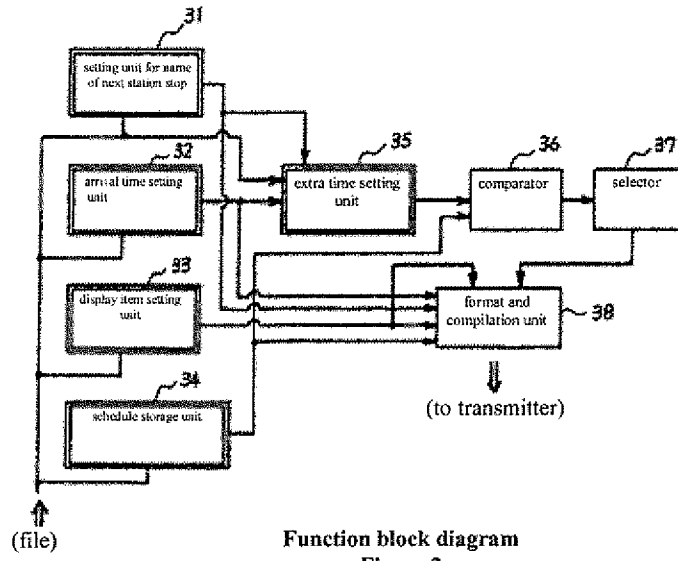


Figure 1



Electronic Acknowledgement Receipt

| | |
|---|--|
| EFS ID: | 10751415 |
| Application Number: | 09423284 |
| International Application Number: | |
| Confirmation Number: | 6562 |
| Title of Invention: | SUBWAY TV MEDIA SYSTEM |
| First Named Inventor/Applicant Name: | SCOTT BLAIR |
| Correspondence Address: | SIXBEY FRIEDMAN LEEDOM & FERGUSON - 8180 GREENSBORO DRIVE SUITE 800 MCLEAN VA 22102 US - - |
| Filer: | Robert F. Gazdzinski/Rebecca Beach |
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| 8 | Foreign Reference | D3.pdf | 474060 | no | 9 |
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| 9 | Foreign Reference | D4.pdf | 214074 | no | 5 |
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Alexandria, Virginia 22313

Patent No. 6700602

Paper No. _____

NOTICE OF *EX PARTE* REEXAMINATION

Notice is hereby given that a request for *ex parte* reexamination of U.S. Patent No. 6700602 was filed on 8-16-11 under 35 U.S.C. 302 and 37 CFR 1.510(a).

The reexamination proceeding has been assigned Control No. 90/ 011861.

This Notice incorporates by reference into the patent file, all papers entered into the reexamination file.

Note: This Notice should be entered into the patent file and given a paper number.



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Bib Data Sheet

CONFIRMATION NO. 6562

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| SERIAL NUMBER 09/423,284 | FILING OR 371(c) DATE 02/22/2000 RULE | CLASS 348 | GROUP ART UNIT 2613 | ATTORNEY DOCKET NO. 0859-96 |
|------------------------------------|---|---------------------|-------------------------------|---------------------------------------|

APPLICANTS
 SCOTT BLAIR, TORONTO ONTARIO, CANADA;

**** CONTINUING DATA *******
 This application is a 371 of PCT/CA98/00439 05/06/1998
 which claims benefit of 60/045,811 05/07/1997

**** FOREIGN APPLICATIONS *******

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 ** 04/12/2000

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|---|-----------------------------------|----------------------------|---------------------------|--------------------------------|
| Foreign Priority claimed <input type="checkbox"/> yes <input type="checkbox"/> no | STATE OR COUNTRY CANADA | SHEETS DRAWING 6 | TOTAL CLAIMS 16 | INDEPENDENT CLAIMS 2 |
| 35 USC 119 (a-d) conditions met <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> Met after Allowance | | | | |
| Verified and Acknowledged | Examiner's Signature | Initials | | |

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TITLE
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|--------------------|-----------------------|-----------------------|------------------------|
| 09/423,284 | 02/22/2000 | SCOTT BLAIR | 0859-96 |

CONFIRMATION NO. 6562

POWER OF ATTORNEY NOTICE

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Date Mailed: 08/23/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/19/2011.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/rbell/

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|--------------------|-----------------------|-----------------------|------------------------|
| 09/423,284 | 02/22/2000 | SCOTT BLAIR | 0859-96 |

CONFIRMATION NO. 6562

POA ACCEPTANCE LETTER

27299
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16644 WEST BERNARDO DRIVE
SUITE 201
SAN DIEGO, CA 92127



Date Mailed: 08/23/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/19/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

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