FILE HISTORY

US 6,407,779

PATENT:	6,407,779
INVENTORS:	Herz, William S.
TITLE:	Method and apparatus for an intuitive universal remote control system
APPLICATION NO:	US1999277887A
FILED:	29 MAR 1999
ISSUED:	18 JUN 2002
COMPILED:	05 FEB 2014

JC542 U S PTO 09/277887 03/29/99

ISSUE CLASSIFICATION	
Class	Subclass
348	734

PATENT NUMBER

6407779

6407779

U S UTILITY PATENT APPLICATION

OIPE	PATENT DATE
JG SCANNED Omul QA [illegible]	JUN 18 2002

SECTOR	CLASS	SUBCLASS	ART UNIT	EXAMINER
			2614	Nalnael

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PREPARED AND APPROVED FOR ISSUE

ISSUING CLASSIFICATION

ORIGINAL		CROSS REFERENCE(S)						
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					
348	734	348	906					
INTERNATIONAL CLASSIFICATION		341	176	175				
H04N	5/44	340	825.69	825.72				
H04L	17/02							
G08C	19/00							

☐ Continued on Issue Slip Inside File Jacket

☐ TERMINAL DISCLAIMER	DRAWINGS			CLAIMS ALLOWED	
	Sheets Drwg	Figs Drwg	Print Fig	Total Claims	Print Claim for O G
	16	22	2	23	1

☐ a) The term of this patent subsequent to ____________ (date) has been disclaimed

Carlos Nalnael 1/10/02
(Assistant Examiner) (Date)

NOTICE OF ALLOWANCE MAILED

1 14 02

☐ b) The term of this patent shall not extend beyond the expiration date of U S Patent No ____________

JOHN W. MILLER
PATENT EXAMINER

John W Miller 1/17/02
(Primary Examiner) (Date)

ISSUE FEE

Amount Due	Date Paid
$1280.00	4-9-02

☐ c) The terminal ____months of this patent have been disclaimed

(Legal Instruments Examiner) (Date)

ISSUE BATCH NUMBER

WARNING

The information disclosed herein may be restricted Unauthorized disclosure may be prohibited by the United States Code Title 35 Sections 122 181 and 368 Possession outside the U S Patent & Trademark Office is restricted to authorized employees and contractors only

Form PTO 436A
(Rev 6/98)

(LABEL AREA)

Formal Drawings (___shts) set____

6,407,779

METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM

Transaction History

Date	Transaction Description
04-02-1999	Initial Exam Team nn
04-15-1999	IFW Scan & PACR Auto Security Review
04-19-1999	Notice Mailed--Application Incomplete--Filing Date Assigned
05-17-1999	Information Disclosure Statement (IDS) Filed
05-17-1999	Information Disclosure Statement (IDS) Filed
05-20-1999	Application Is Now Complete
05-21-1999	Application Dispatched from OIPE
08-17-1999	Case Docketed to Examiner in GAU
04-24-2000	Non-Final Rejection
04-27-2000	Mail Non-Final Rejection
05-02-2000	Workflow - Drawings Finished
05-02-2000	Workflow - Drawings Matched with File at Contractor
05-02-2000	Incoming Letter Pertaining to the Drawings
08-14-2000	Response after Non-Final Action
08-14-2000	Information Disclosure Statement (IDS) Filed
08-14-2000	Information Disclosure Statement (IDS) Filed
08-14-2000	Request for Extension of Time - Granted
08-25-2000	Date Forwarded to Examiner
10-06-2000	Case Docketed to Examiner in GAU
11-06-2000	Non-Final Rejection
11-08-2000	Mail Non-Final Rejection
02-12-2001	Response after Non-Final Action
02-15-2001	Date Forwarded to Examiner
04-23-2001	Non-Final Rejection
04-25-2001	Correspondence Address Change
04-25-2001	Mail Non-Final Rejection
07-19-2001	Response after Non-Final Action
07-19-2001	Information Disclosure Statement (IDS) Filed
07-19-2001	Information Disclosure Statement (IDS) Filed
08-21-2001	Date Forwarded to Examiner
10-30-2001	Final Rejection
10-31-2001	Mail Final Rejection (PTOL - 326)
12-27-2001	Response after Final Action
01-02-2002	Correspondence Address Change
01-09-2002	Date Forwarded to Examiner
01-14-2002	Mail Notice of Allowance
01-14-2002	Notice of Allowance Data Verification Completed
01-15-2002	Dispatch to Publications
01-16-2002	Dispatch to Publications
01-16-2002	Dispatch to Publications
01-18-2002	Workflow - File Sent to Contractor
01-18-2002	Receipt into Pubs
02-08-2002	Receipt into Pubs
04-09-2002	Issue Fee Payment Verified
04-09-2002	Workflow -Received 85b - Unmatched
04-09-2002	Issue Fee Payment Received
04-22-2002	Application Is Considered Ready for Issue
04-23-2002	Receipt into Pubs
04-30-2002	Receipt into Pubs
05-14-2002	Receipt into Pubs
05-17-2002	Receipt into Pubs
05-31-2002	Issue Notification Mailed

06-18-2002	Recordation of Patent Grant Mailed
06-18-2002	Patent Issue Date Used in PTA Calculation
07-28-2009	Change in Power of Attorney (May Include Associate POA)
07-28-2009	Correspondence Address Change

PATENT APPLICATION

09277887

JC542 U S PTO
09/277887
03/29/99

APR 1 39937

INITIALS _____

CONTENTS

		Date received (Incl C of M) or Date Mailed			Date received (Incl C of M) or Date Mailed
1	Application #22 papers		42		
2	[illegible]		43		
3	[illegible]	5/4/99	44		
4	I.L.B. + R.E.R.C.	5/17/99	45		
1/24/00 5	Rej. (3)	4-26-00	46		
6	Formal Drwgs	5/2/00	47		
7	Ext. of Time (1)	8-14-00	48		
8	Suppl Prior Art	8-14-00	49		
9	Amdt A	8-14-00	50		
10	Rej. (2)	11.08.00	51		
11	Amdt B	2-12-01 / cm 2/6/01	52		
12	Rej (3)	4/25/01	53		
13	Change of Address	4-25-01	54		
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ISSUE SLIP STAPLE AREA (fo [illegible])

POSITION	INITIALS	ID NO	DATE
FEE DETERMINATION	[illegible]	10581	4/7
OIPE CLASSIFIER	[illegible]	51	4-13-55
FORMALITY REVIEW		716 - -	4 15 55

INDEX OF CLAIMS

✔		Rejected	N	Non elected
=		Allowed	I	Interference
—	(Through numeral)	Canceled	A	Appeal
—		Restricted	O	Objected

NEW

Claim Final	Claim Original	Date				
		4/19/00	10/31/02	4/18/03	10/26/04	1/10/05
1	(1)	✓	✓	✓	=	=
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15	43		O	=	=	=
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20	49		O			
21	50	✓	O	✓	✓	✓

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		4/19/00	10/31/02	4/18/03	9/26/04	1/10/05
22	51	✓	✓	✓	=	=
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If more than 150 claims or 10 actions staple additional sheet here

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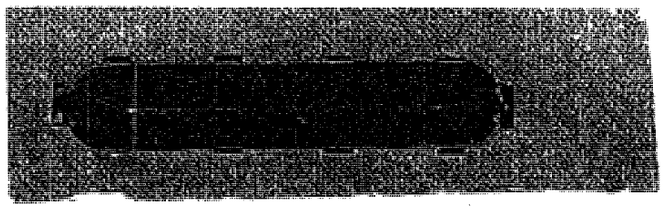

SEARCHED

Class	Sub	Date	Exmr
348	*734	4/18/00	PMN
	906	"	"
345	179	4/18/00	"
	173	"	
	158	"	
	*169	"	
341	176	4/18/00	"
	175	"	
340	*825 69	4/19/00	PMN
	825 72	"	
	825 49	"	
	825 25		
	825 56	"	
	825 17	"	
	825 22	"	
	825 24	"	
updated Search		10/27/00	PMN
"	"	4/18/01	"
"	"	10-26-01	PMN

INTERFERENCE SEARCHED

Class	Sub	Date	Exmr
348	734, 906	1/10/02	PMN

SEARCH NOTES
(INCLUDING SEARCH STRATEGY)

	Date	Exmr
Chris Grant	4/18/00	PMN
Victor Kostak	"	PMN
Amare Mengistu 345	"	"
Donnie Crossland 340	"	"
Edwin Holloway 340	"	"
Mo Lee	4/18/01	PMN

Universal Remote Control Exhibit: 1002 Page 000007

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Search Results -

Terms	Documents
l4 and program$3 guide	13

Database US Patents Full-Text Database

l4 and program$3 guide

Refine Search

Search History

DB Name	Query	Hit Count	Set Name
USPT	l4 and program$3 guide	13	L5
USPT	l2 and (voice or speech recognition)	92	L4
USPT	voice or speech recognition	44191	L3
USPT	348/734 and remote control$3	844	L2
USPT	remote control$3 near voice recognition	3	L1

Universal Remote Control Exhibit: 1002 Page 000008

US006407779B1

(12) **United States Patent**
Herz

(10) **Patent No.: US 6,407,779 B1**
(45) **Date of Patent: Jun. 18, 2002**

(54) **METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM**

(75) Inventor: **William S. Herz**, Hayward, CA (US)

(73) Assignee: **Zilog, Inc.**, San Jose, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/277,887**

(22) Filed: **Mar. 29, 1999**

(51) **Int. Cl.**[7] **H04N 5/44**; H04L 17/02; G08G 19/00

(52) **U.S. Cl.** **348/734**; 348/906; 341/176; 341/175; 340/825.69; 340/825.72

(58) **Field of Search** 348/734, 906; 345/179, 173, 158, 169; 341/176, 175; 340/825.69, 825.72, 825.49, 825.25, 825.56, 825.17, 825.22, 825.24

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PCT—International Search Report—dated Oct. 23, 2000.
Written Opinion—International appln. No. PCT/US00/04407.

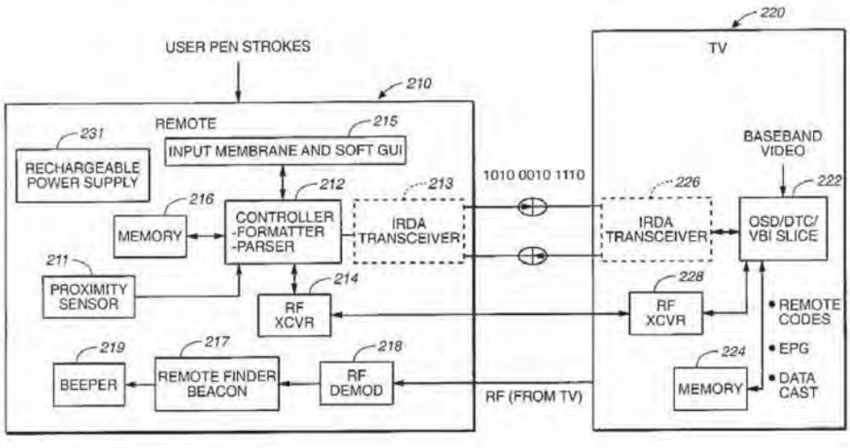
* cited by examiner

Primary Examiner—John W. Miller
Assistant Examiner—Paulos Natnael
(74) *Attorney, Agent, or Firm*—Skjerven Morrill MacPherson LLP

(57) **ABSTRACT**

The present invention discloses a novel universal remote control system. Specifically, the remote control system according to the present invention provides the following features: bidirectional communications between the remote control and at least one of the audio/video devices; dual communication mode; automatic communication mode selection; loading and processing electronic program guide in the remote control; soft graphical user interface in the remote control; expanding the television set functions by the remote control; calibration handshake between the remote control and the audio/video device; updating the remote control; lost beacon signal in the remote control; handwriting recognition mechanism, and voice recognition mechanism in the remote control.

23 Claims, 16 Drawing Sheets



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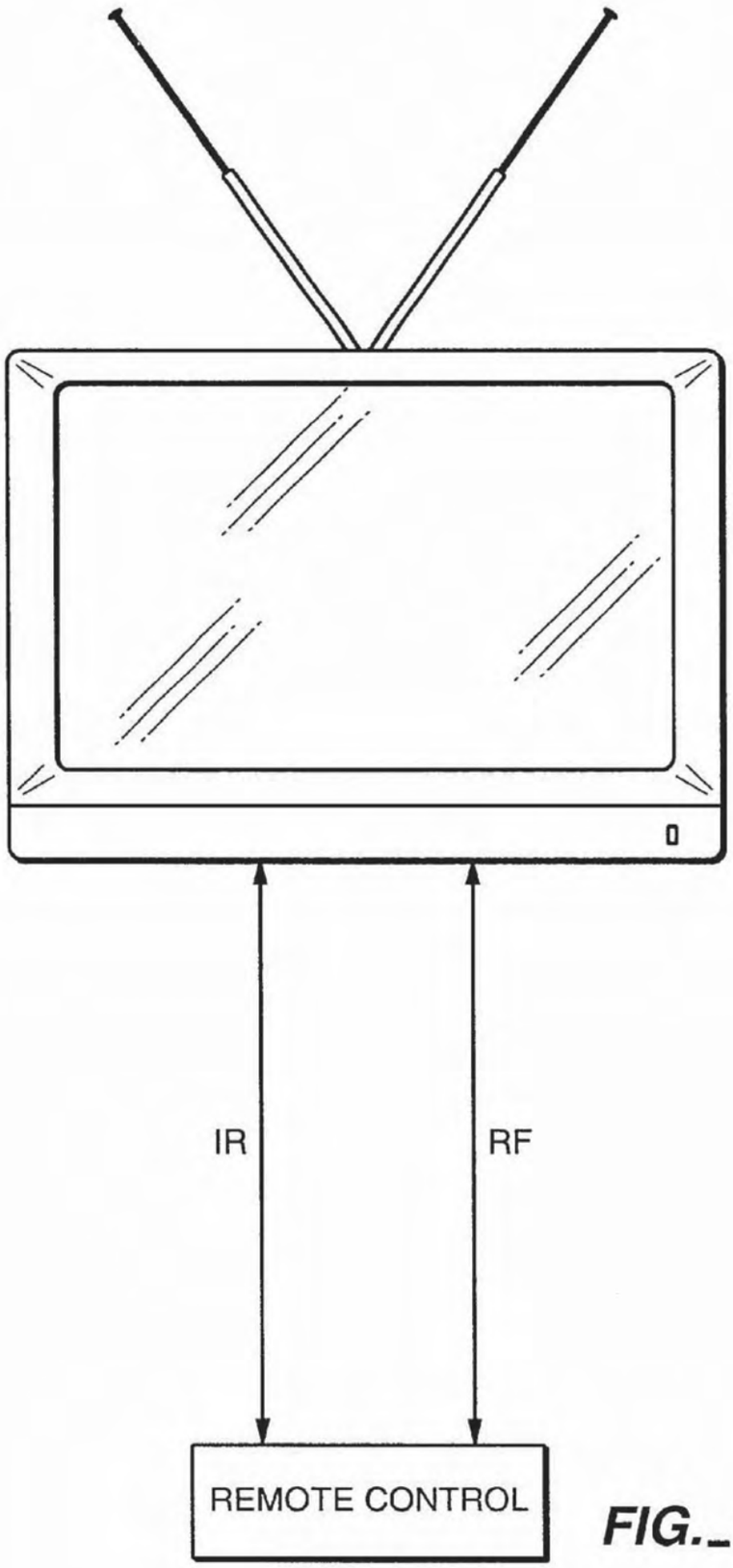

FIG._1

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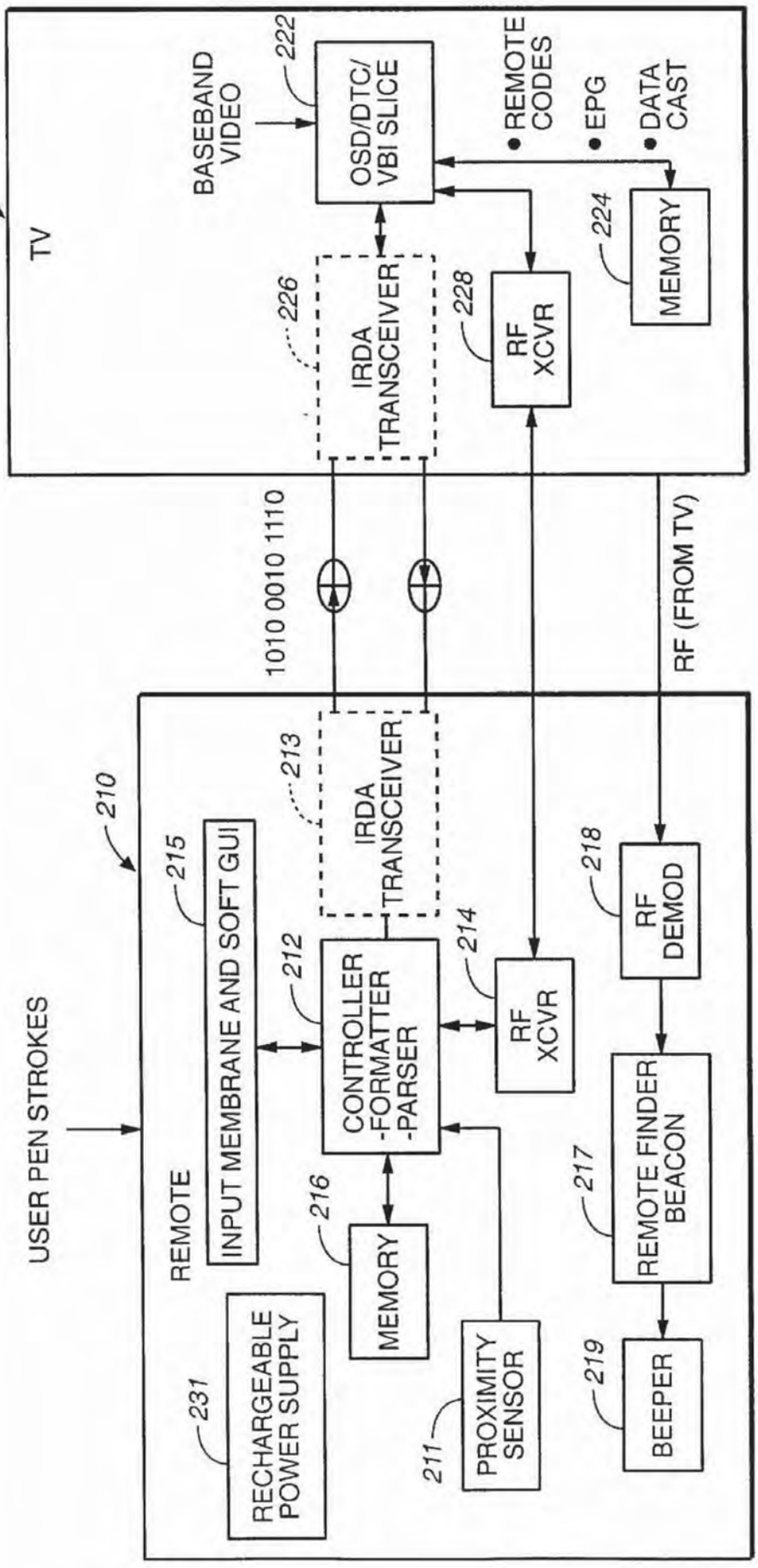
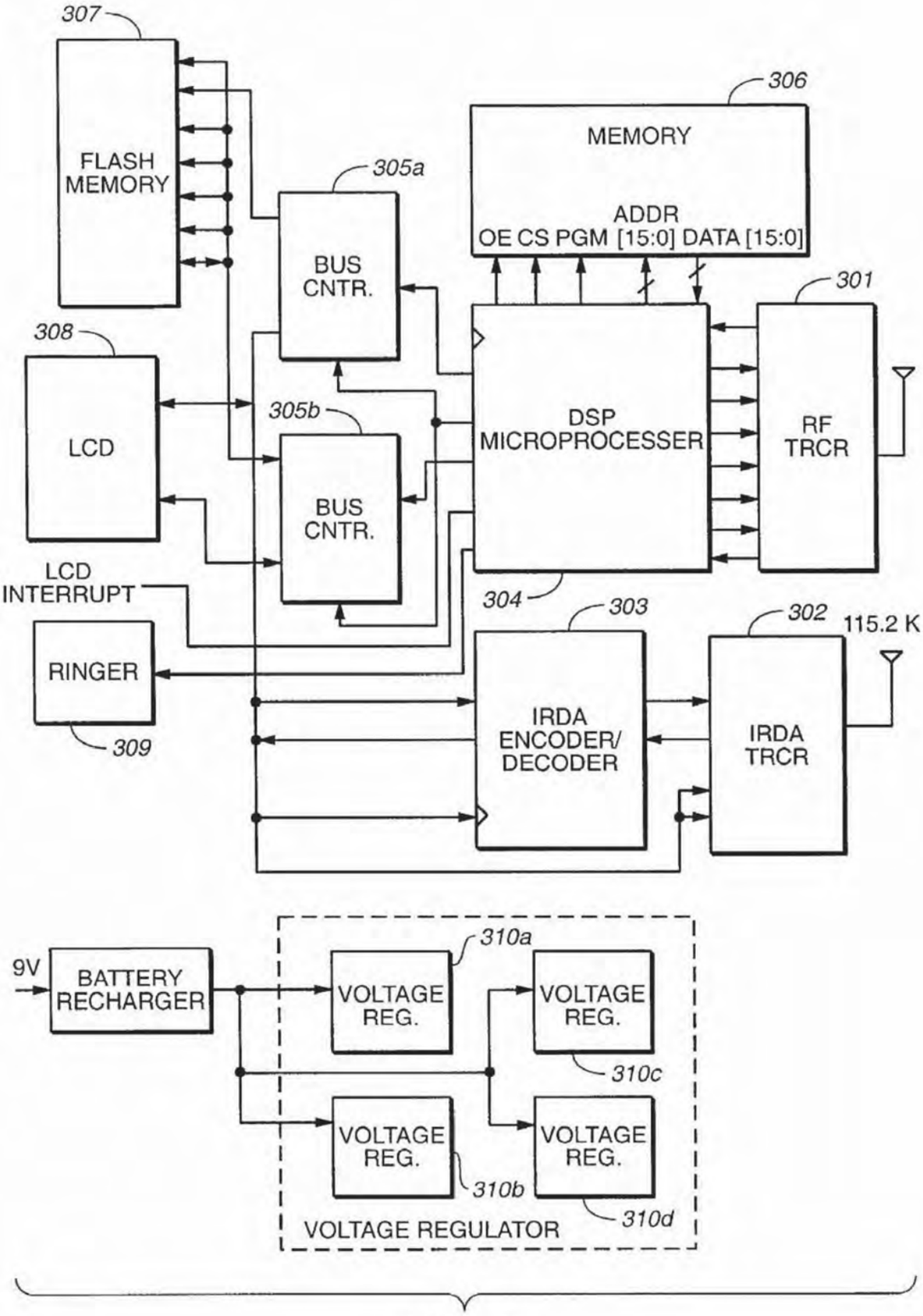


FIG._2

Universal Remote Control Exhibit: 1002 Page 000011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301
308
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305b
BUS CNTR.
DSP MICROPROCESSER
RF TRCR
LCD INTERRUPT
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115.2 K
RINGER
309
IRDA ENCODER/ DECODER
IRDA TRCR
9V
BATTERY RECHARGER
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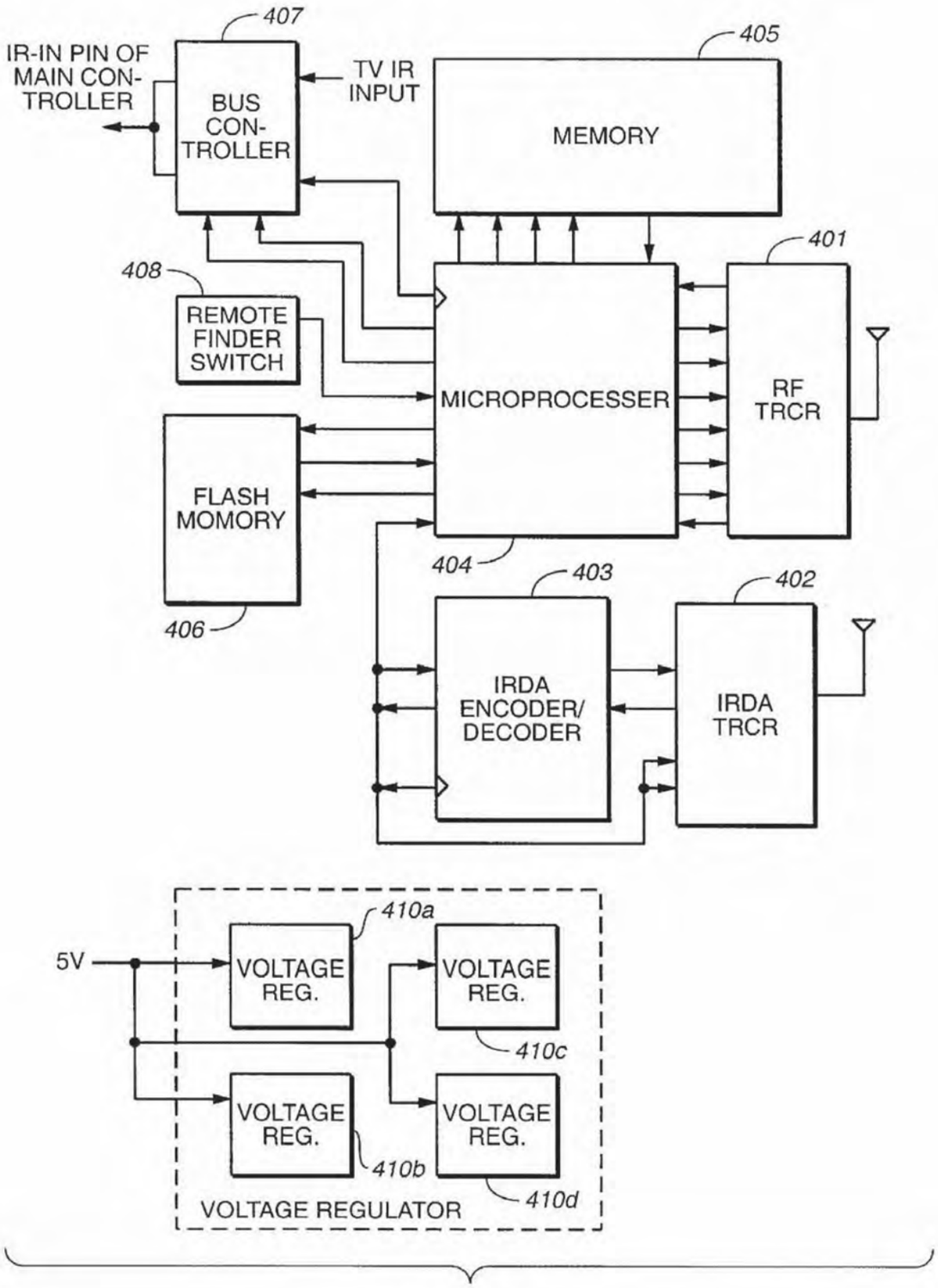
VOLTAGE REG.
VOLTAGE REG.
310c
VOLTAGE REG.
VOLTAGE REG.
310b
310d
VOLTAGE REGULATOR

FIG._3



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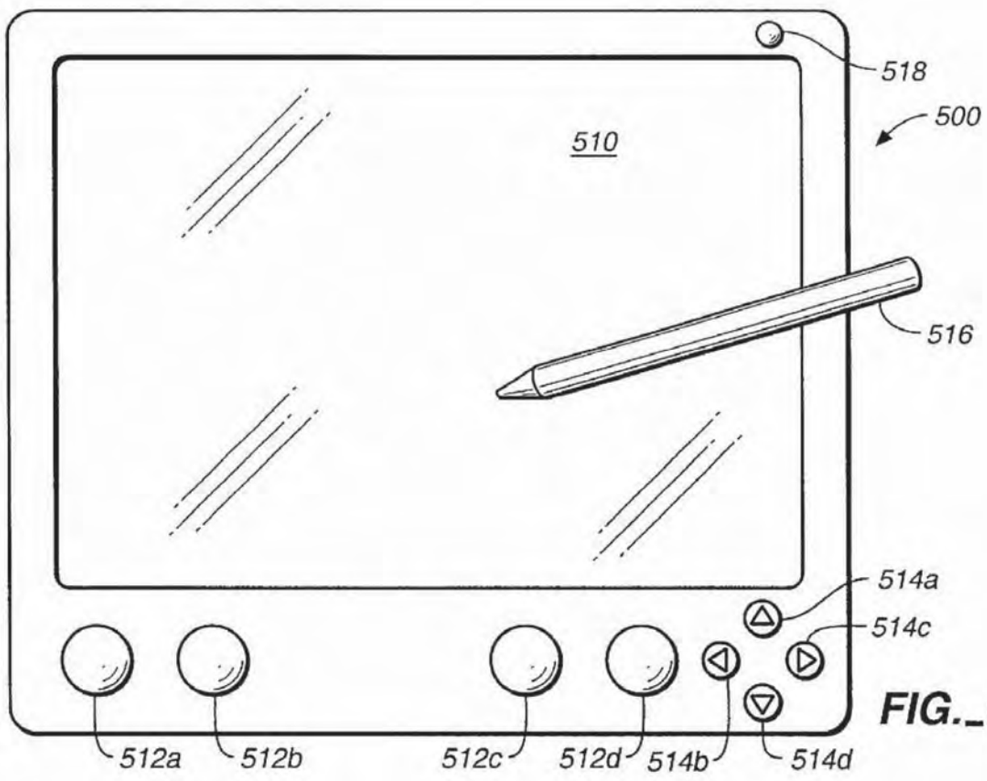
Universal Remote Control Exhibit: 1002 Page 000013



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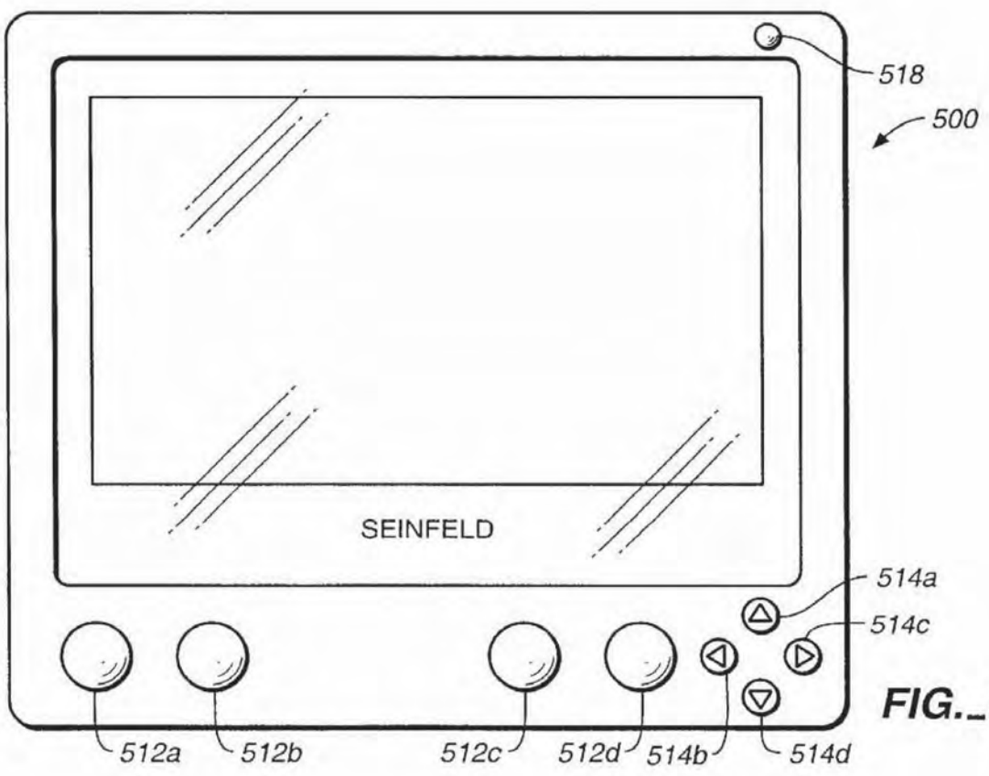

FIG._8A

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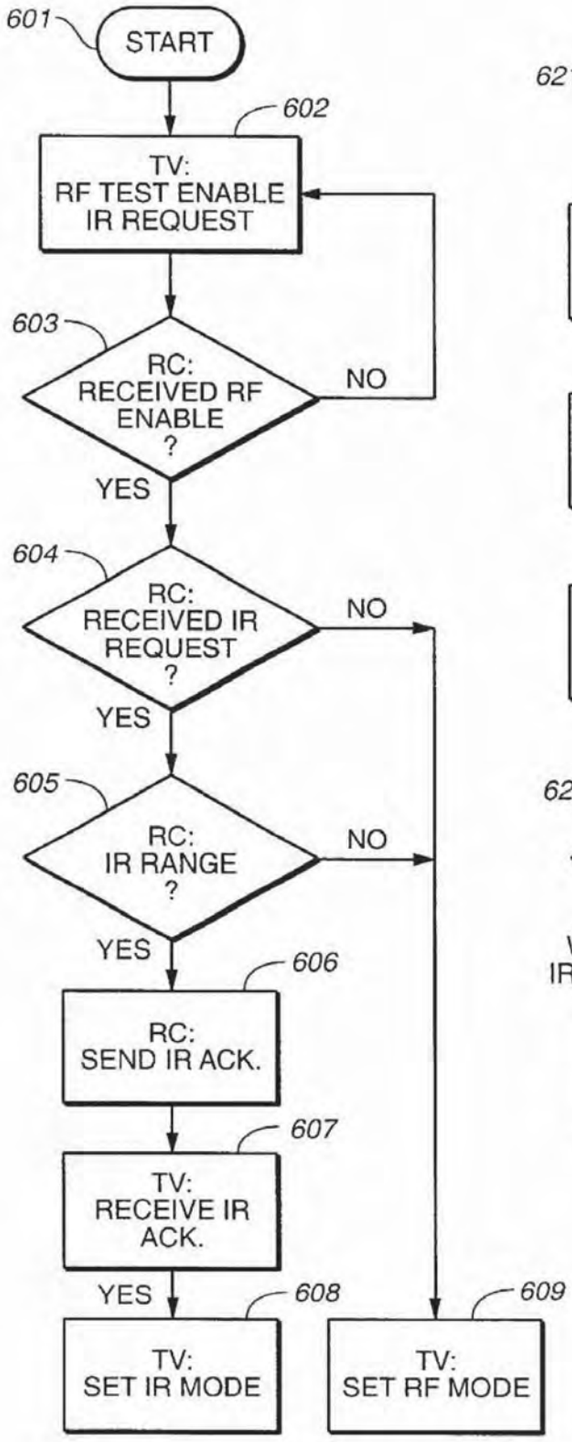

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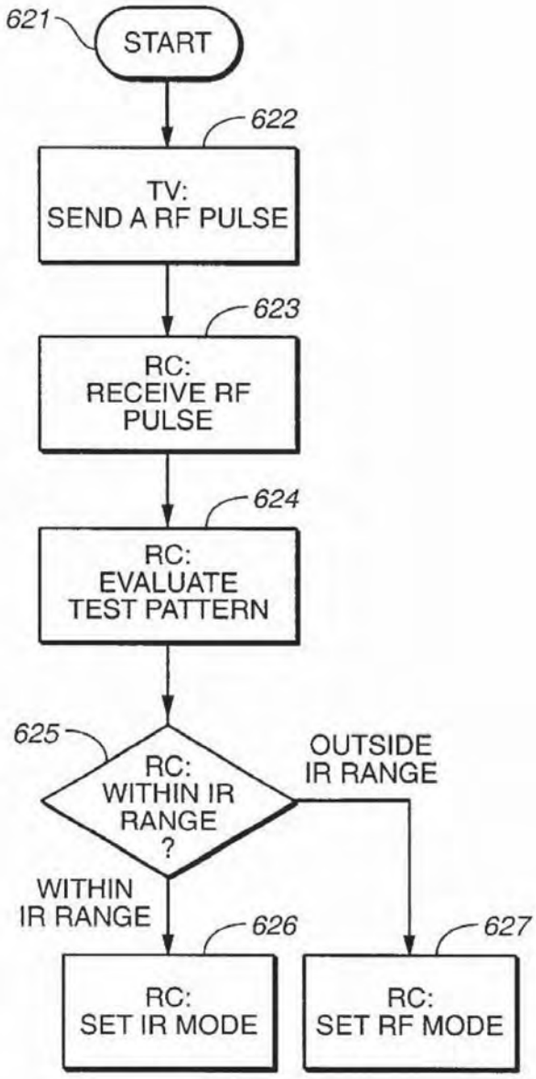

FIG._6B

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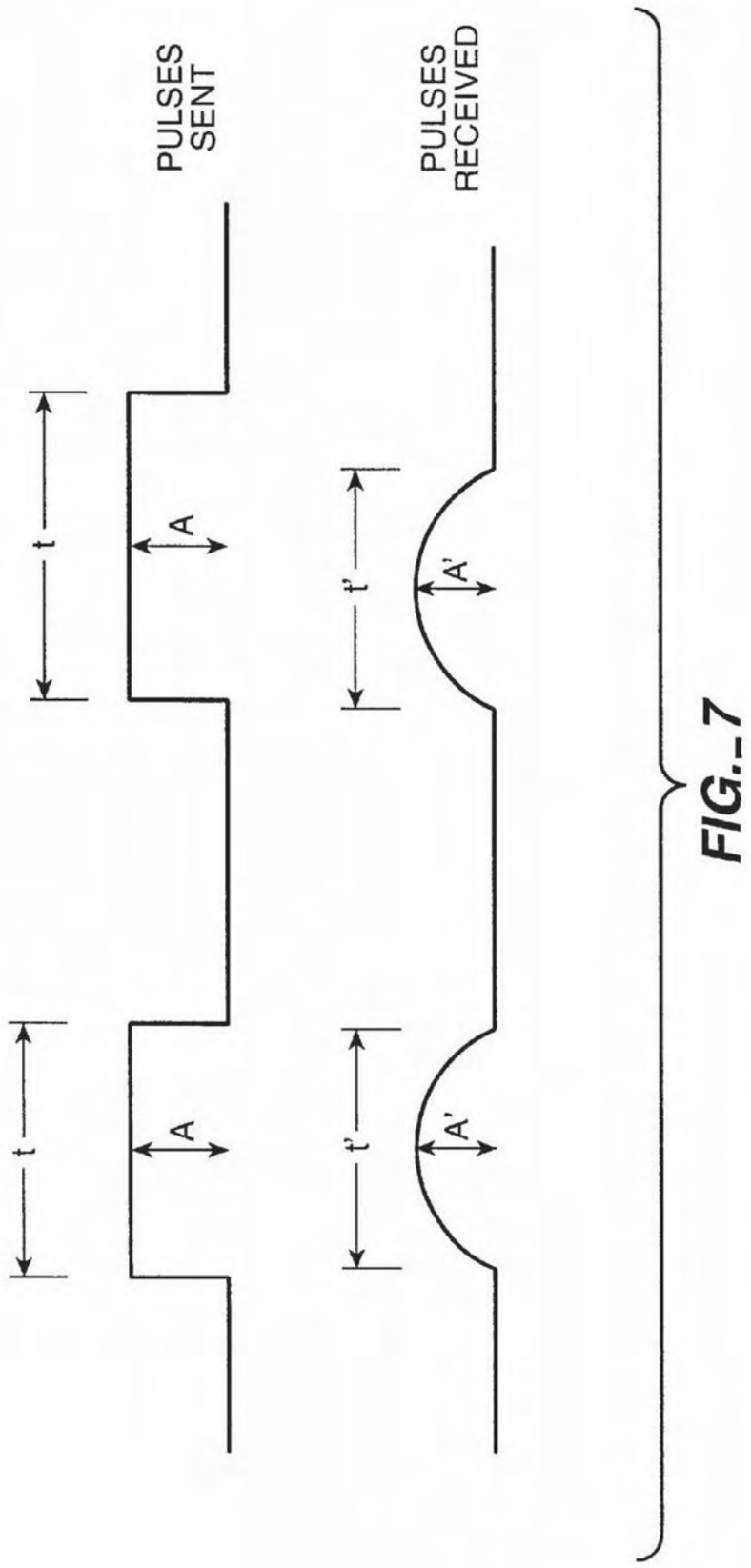

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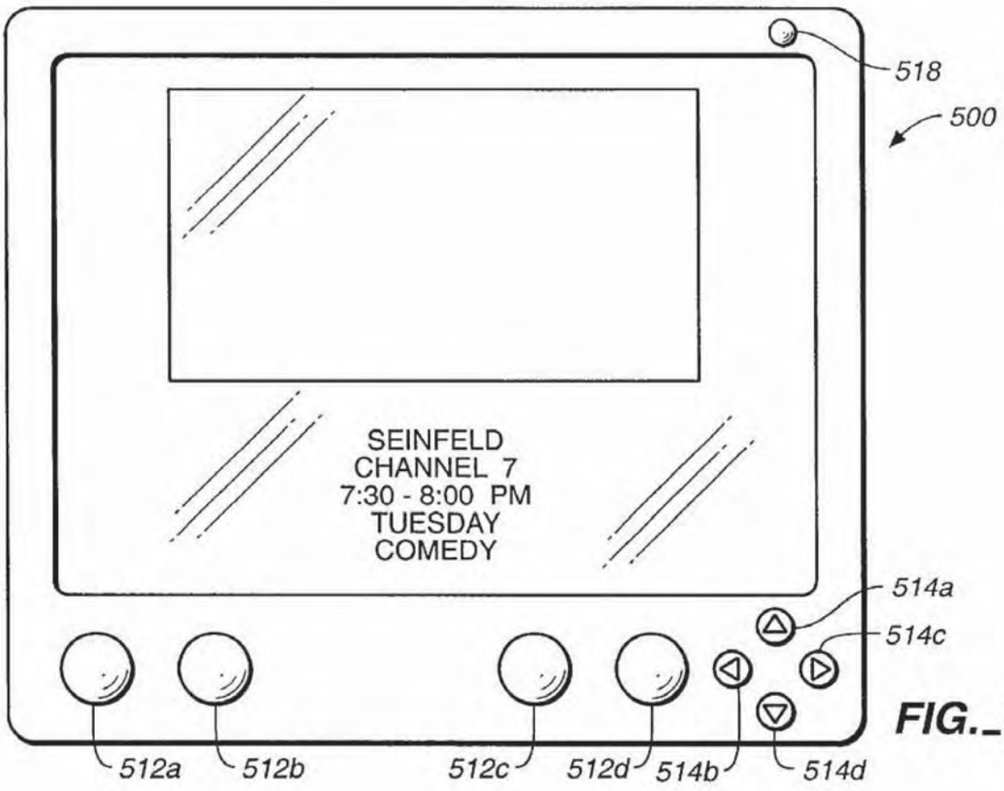

FIG._8B

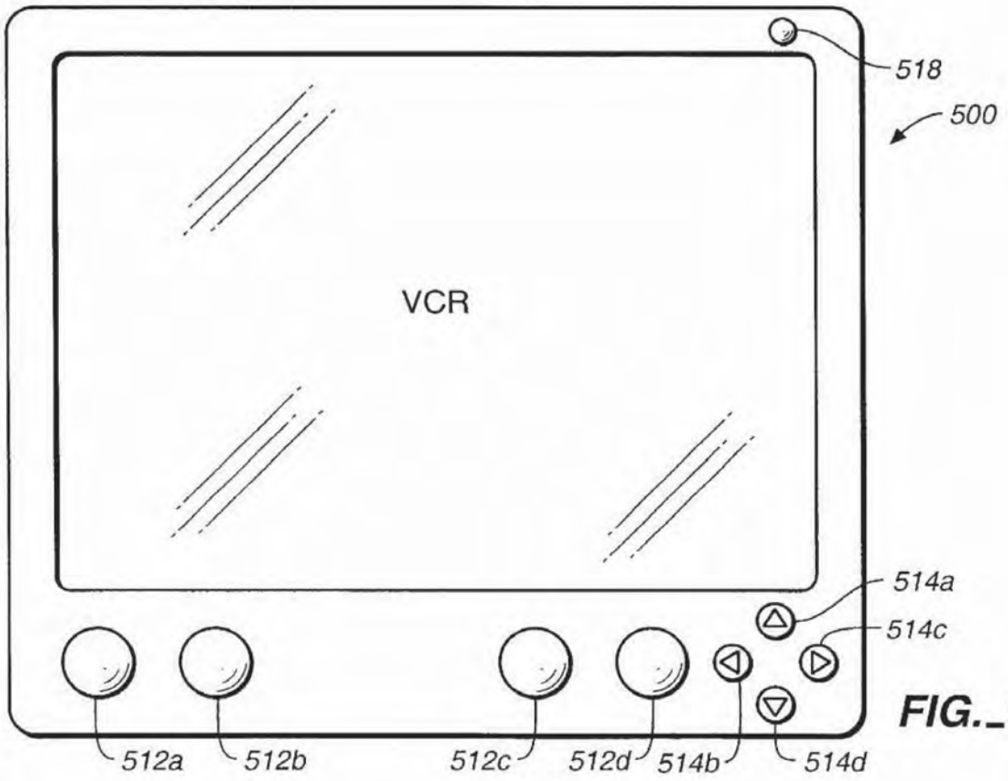

FIG._9A

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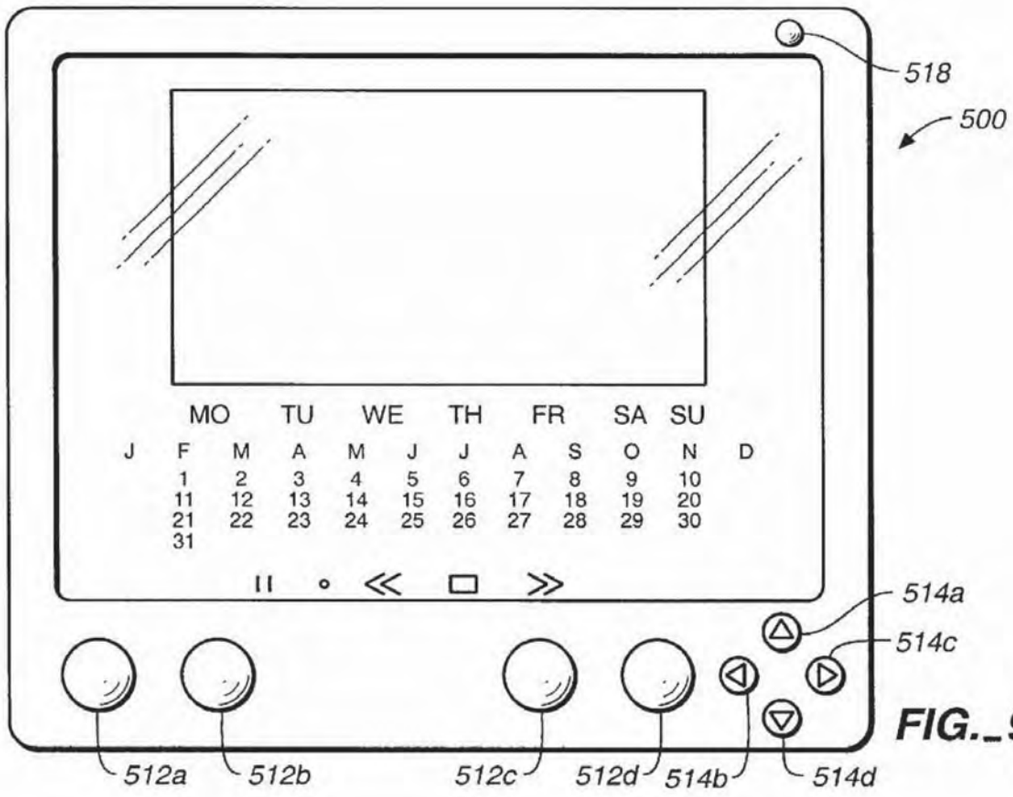

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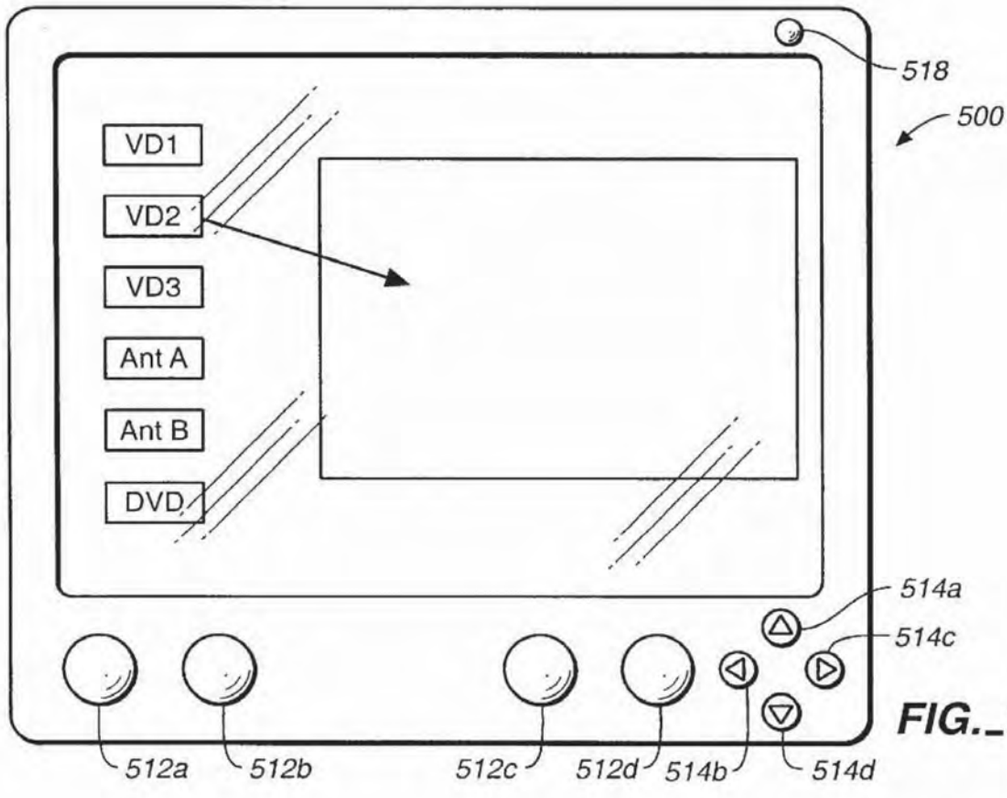

FIG._11A

Universal Remote Control Exhibit: 1002 Page 000018

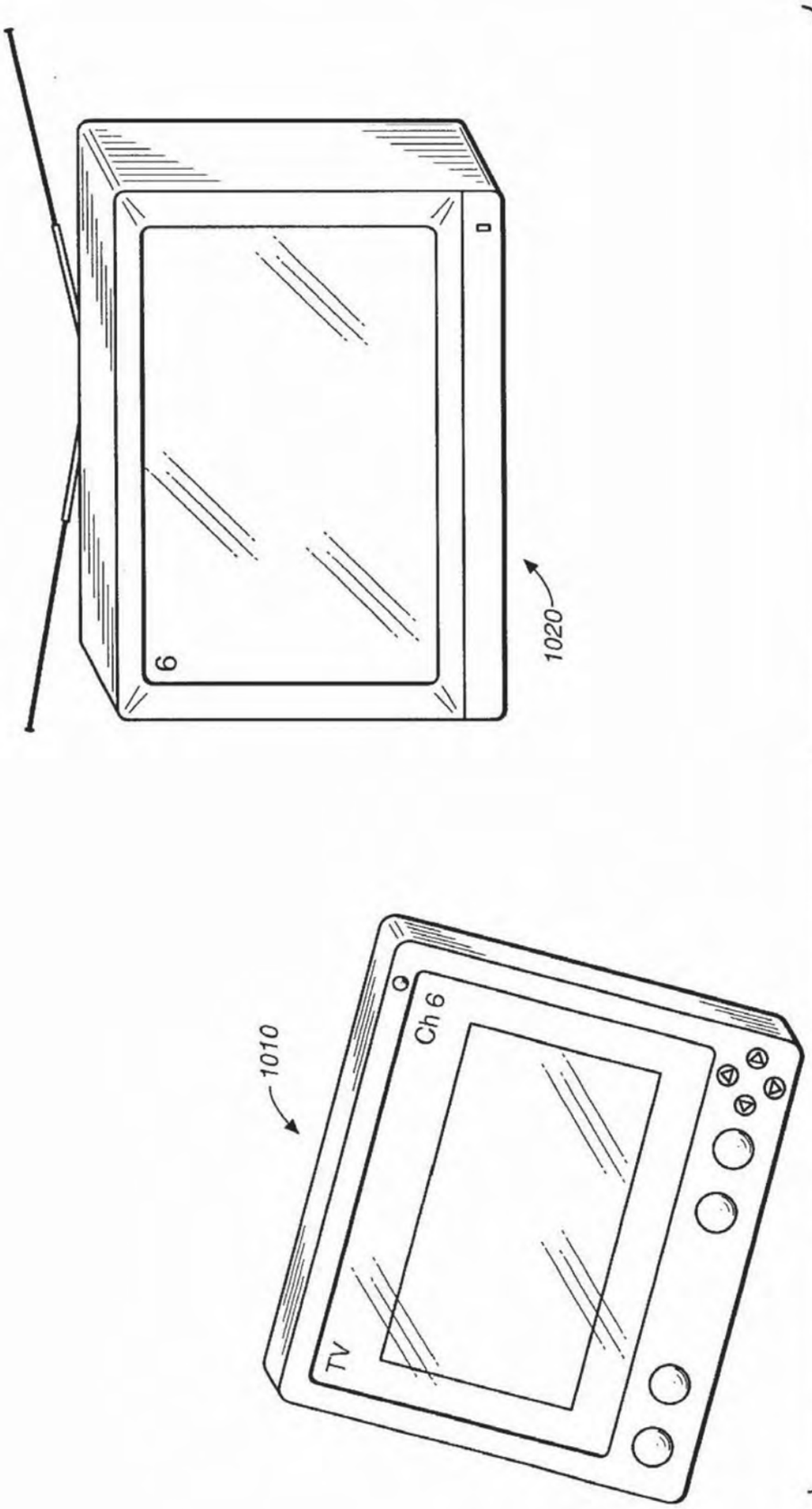

FIG._10A

Universal Remote Control Exhibit: 1002 Page 000019

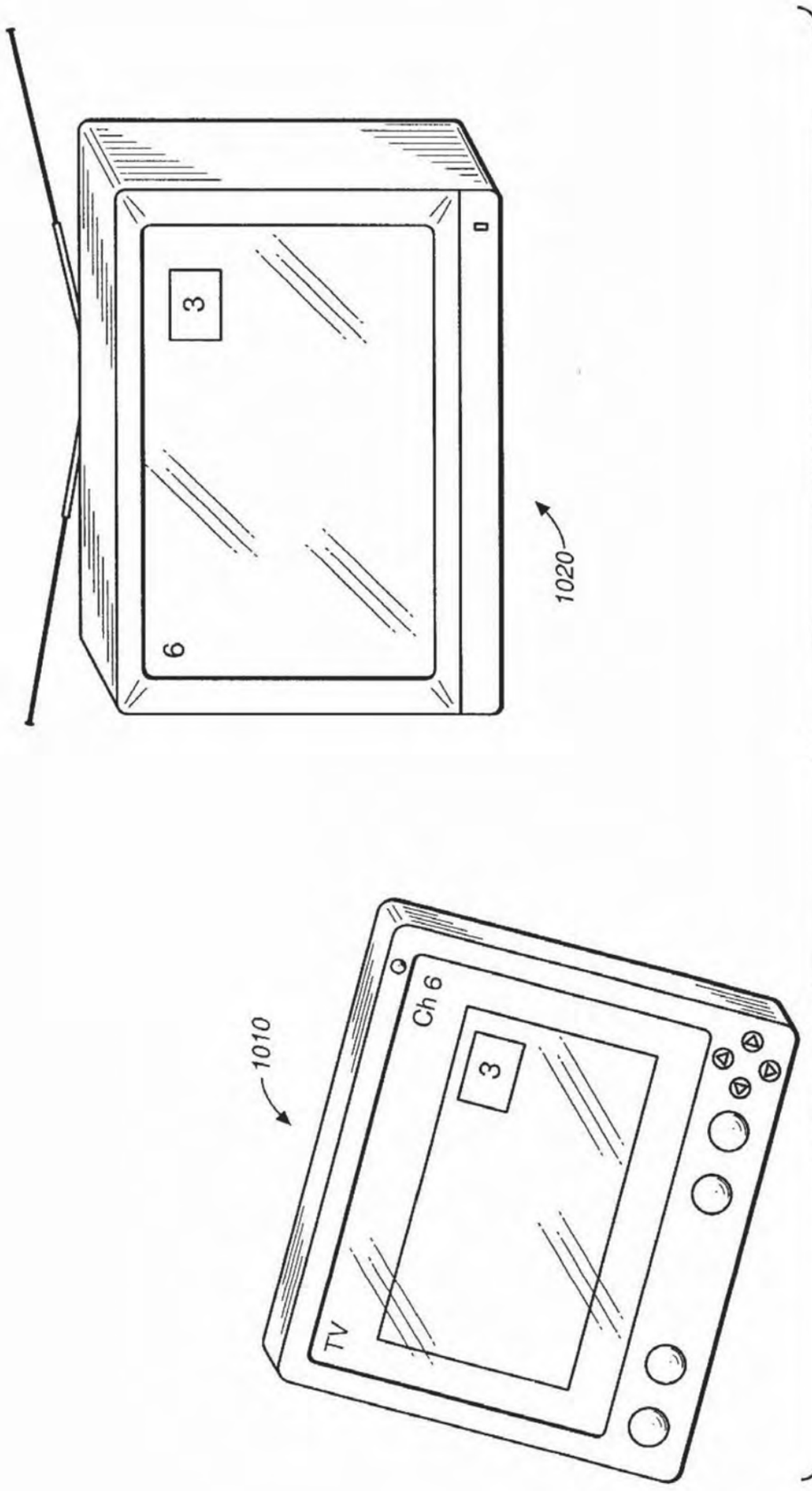

FIG._10B

Universal Remote Control Exhibit: 1002 Page 000020

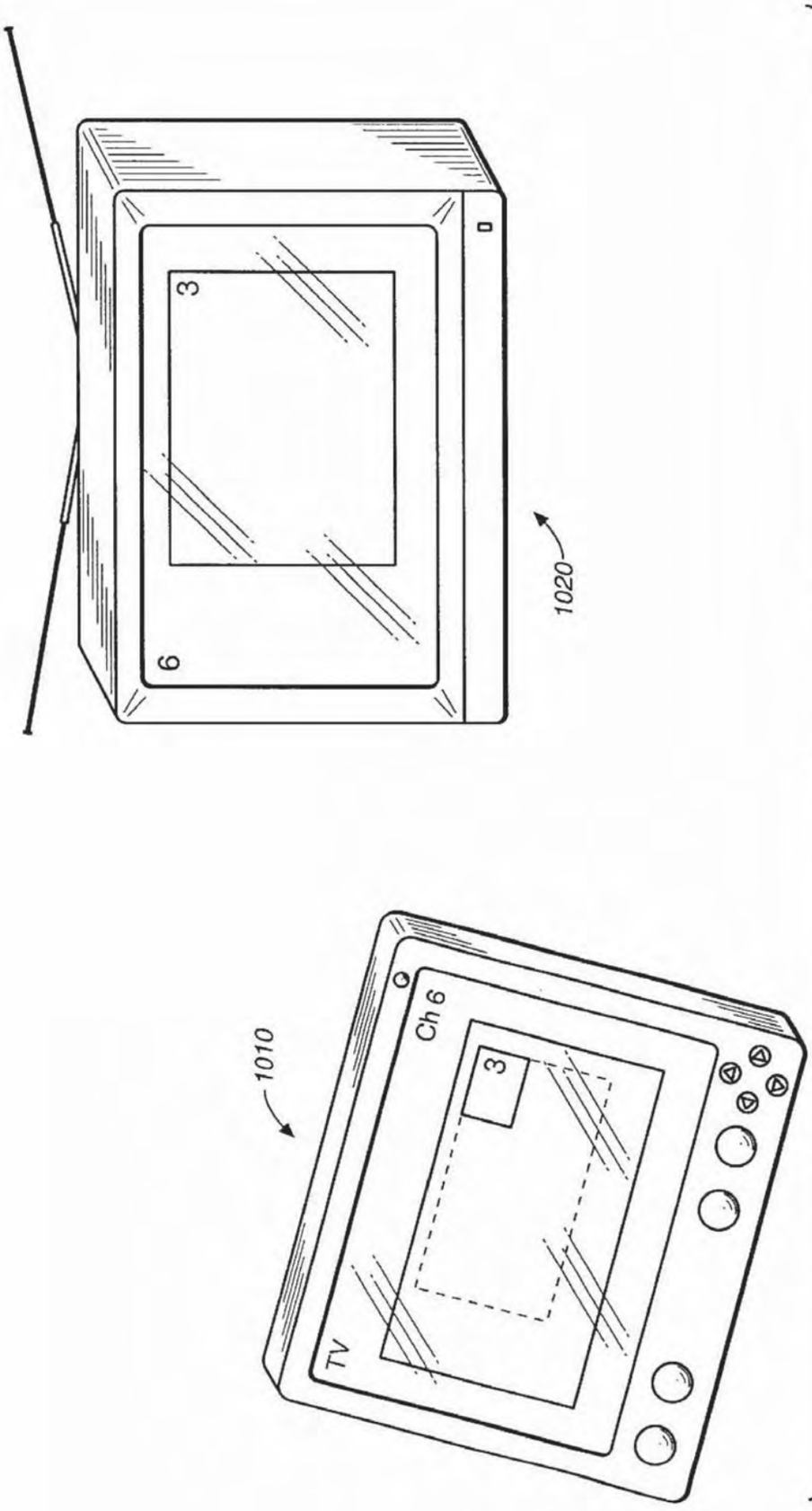

FIG._10C

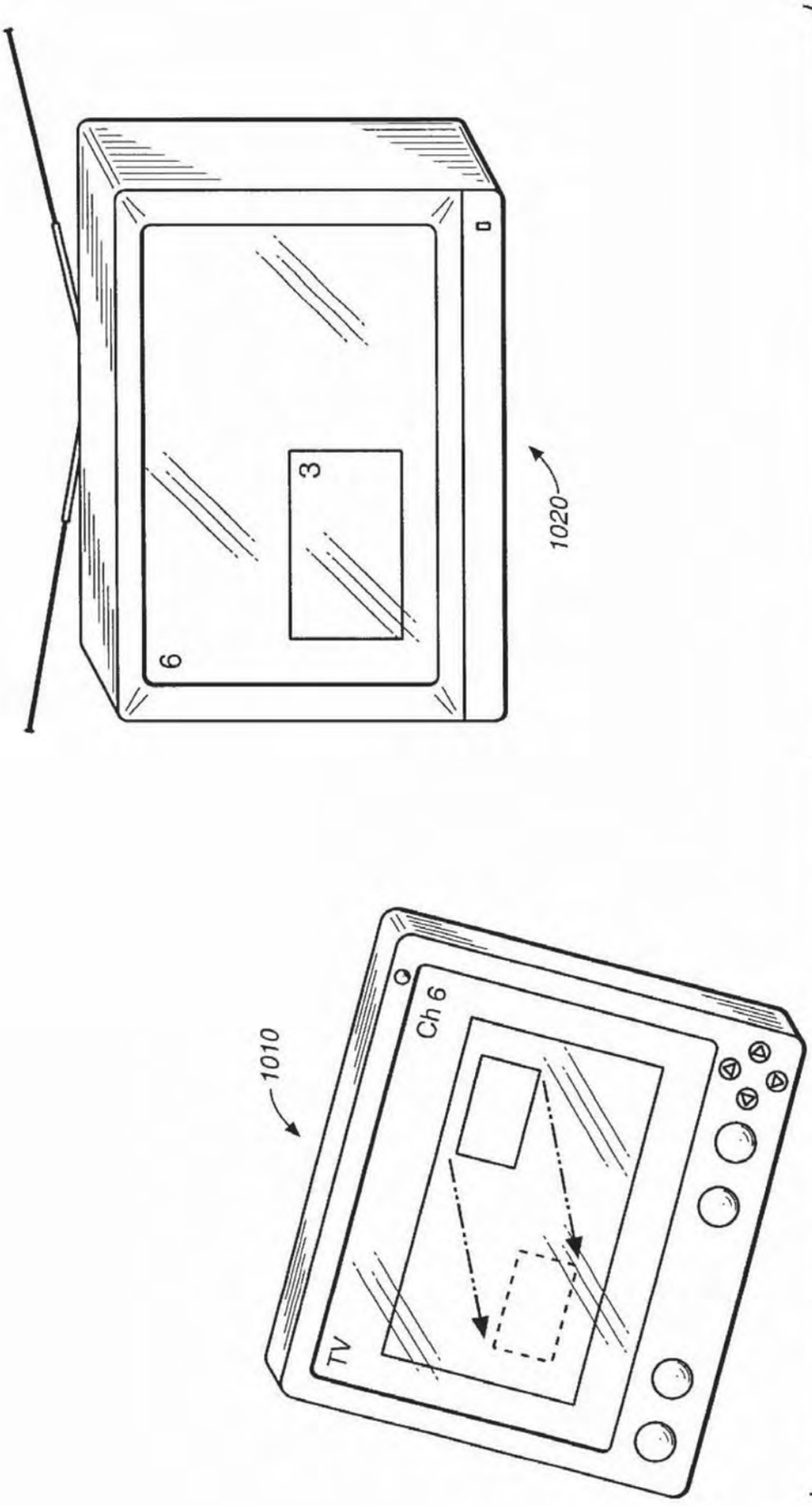

FIG._10D

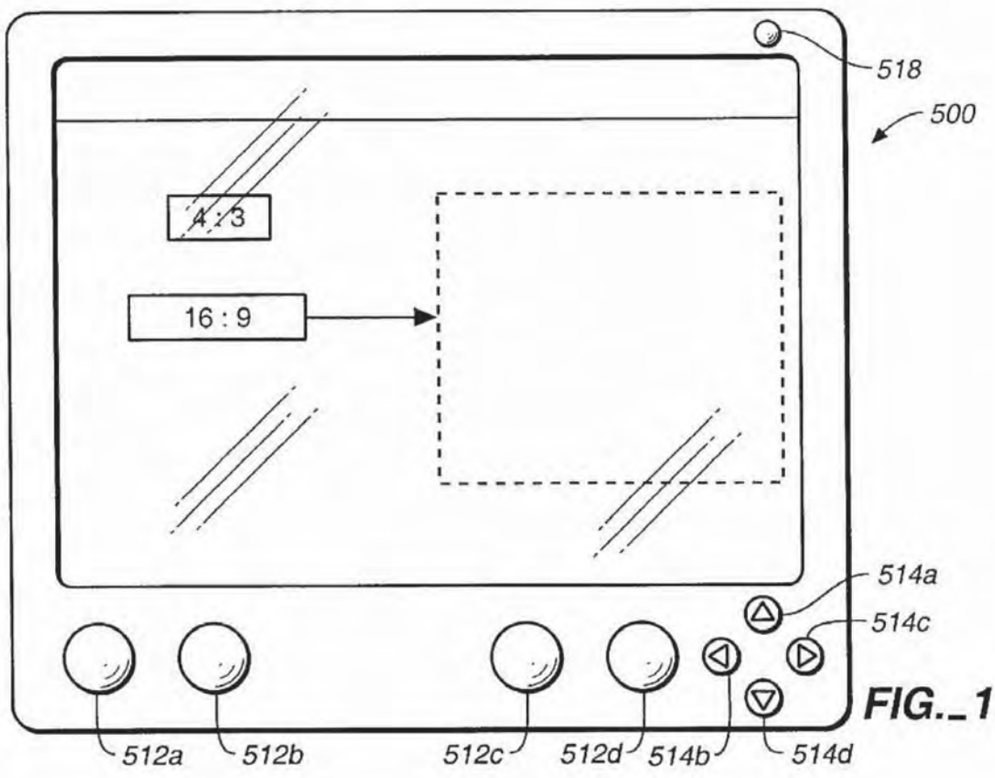

FIG._11B

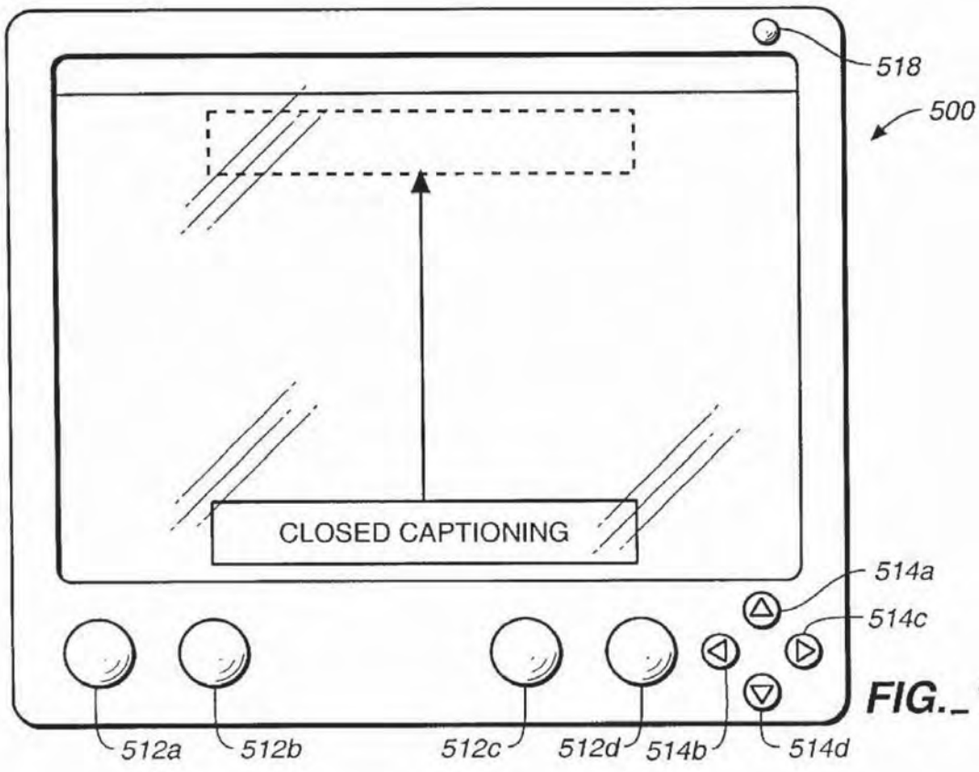

FIG._11C

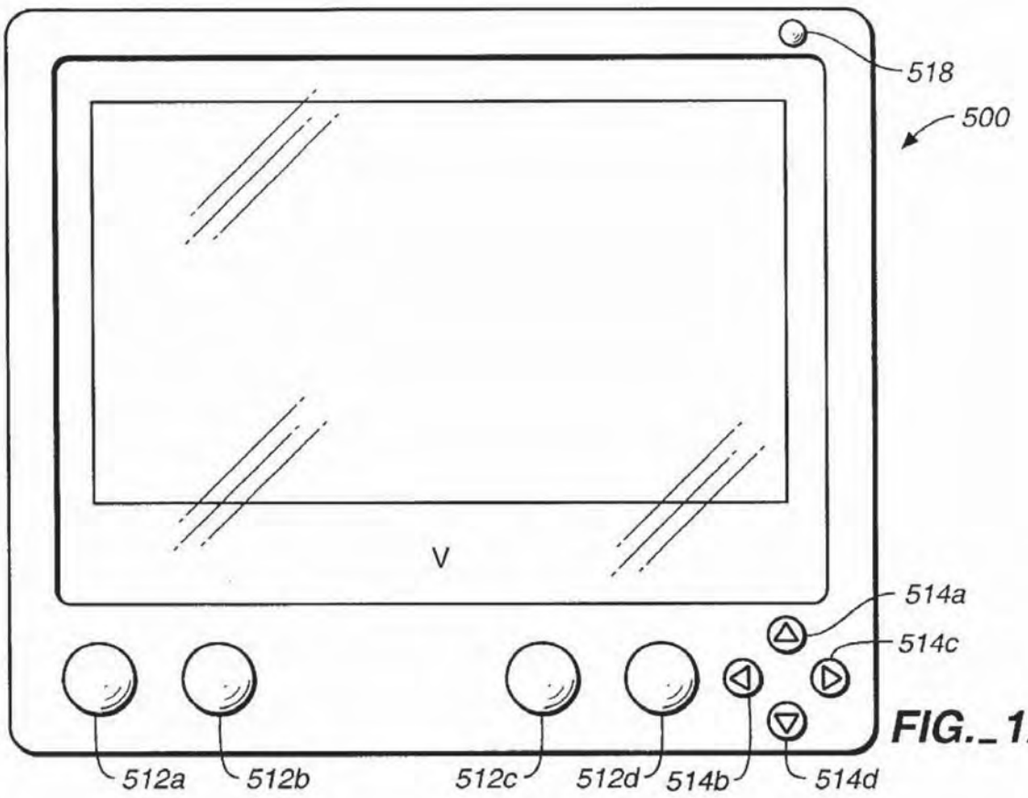

FIG._12A

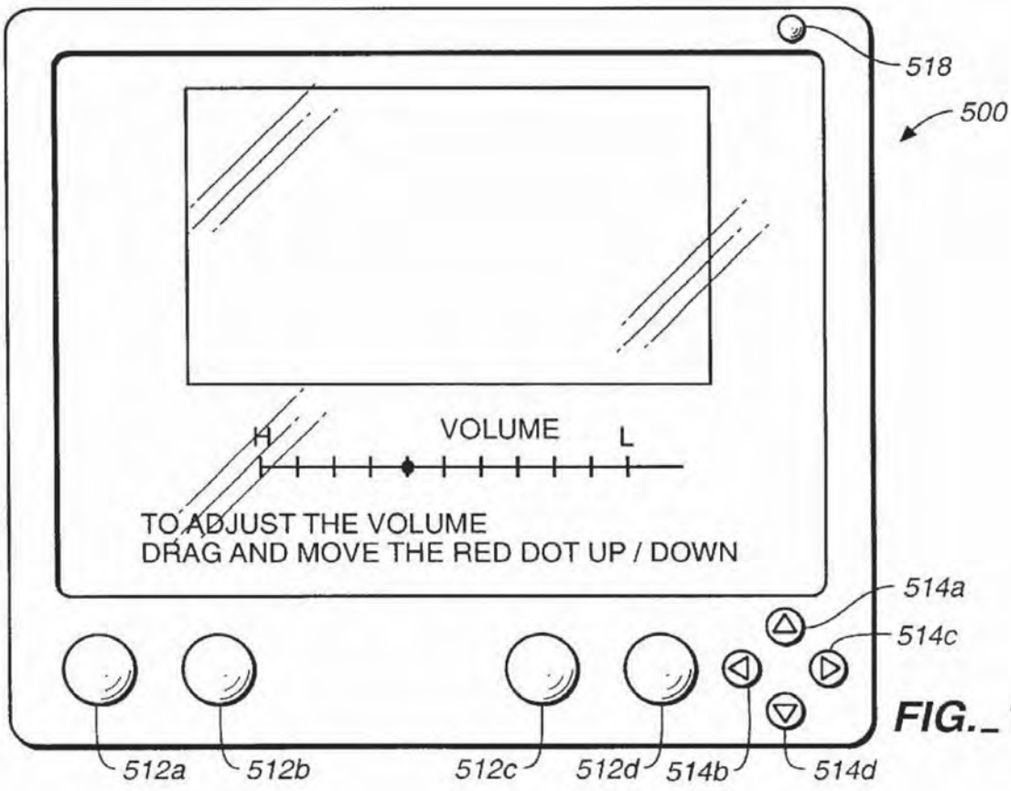

FIG._12B

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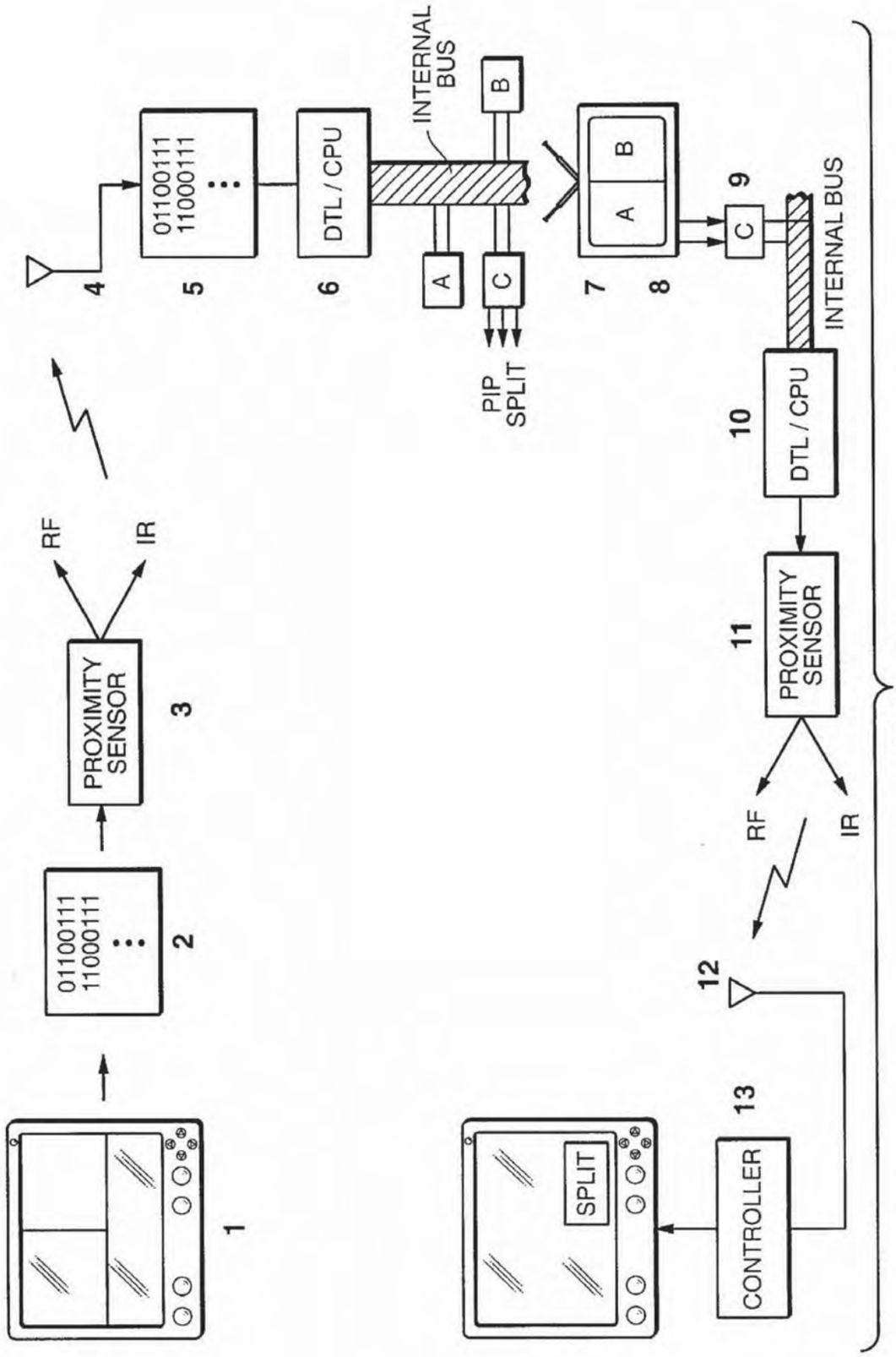
01100111
11000111
2
PROXIMITY SENSOR
3
RF
IR
1
SPLIT
CONTROLLER
13
12
RF
IR
11
PROXIMITY SENSOR
10
DTL / CPU
INTERNAL BUS
9
C
A
B
7
8
PIP SPLIT
A
C
INTERNAL BUS
B
6
DTL / CPU
5
01100111
11000111
4

FIG._13

METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM

BACKGROUND OF THE INVENTION

The present invention relates to a remote control system for remotely controlling various electronic devices such as television and audio visual ("AV") systems using a single remote control.

In recent years, various electronic devices such as stereo systems, television receivers, cassette tape decks, video tape decks, compact disc players, laser vision disc players, and the like are equipped with remote control systems.

In a conventional system, a remote control system having a transmitter is usually positioned remotely from a controlled device. The transmitter, when operated, transmits a remote control signal, such as an infrared remote control signal, which is received by a receiver in the controlled device. The received remote control signal is decoded to control the device as intended by the remote control signal.

In a universal remote control system, one single remote control is capable of controlling more than one AV device. In one type of the universal remote control, the remote control comprises a remote memory storing all the coding signals for different brands of the AV devices. Then the user programs the remote control by entering a set of preassigned codes to call up the appropriate coding of each device. In another type of the universal remote control, the user activates a learning mode of the remote control and lines up the universal remote control with the selected device. Then the remote control sequentially tests each control signal until the correct one is found. When the correct control signal is found, the device will signal the user to stop further testing and the corresponding control protocol is then stored.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a novel universal remote control system.

It is another object of the present invention to provide a remote control system having a bidirectional communication channel between the remote control and the audio video device(s) controlled by the remote control.

It is another object of the present invention to provide a remote control system having a dual communication mode for communication between the remote control and the audio video device(s) controlled by the remote control. Specifically, the remote control system accommodates both infrared communication and radio frequency communication.

It is another object of the present invention to provide a remote control system that is capable of automatically switching between a plurality of communication modes.

It is another object of the present invention to provide a remote control system that is capable of storing and updating TV programming guide information in a remote control memory.

It is another object of the present invention to provide a novel user interface for the remote control in the remote control system.

It is another object of the present invention to provide a soft graphical user interface ("GUI") to the remote control of the remote control system.

It is another object of the present invention to provide a remote control system that allows expansion of the television functions that it controls.

It is another object of the present invention to provide a novel calibration handshake method for communications between the remote control and at least one audio/video device.

It is another object of the present invention to provide a remote control that is capable of automatically updating the remote control memory with universal remote protocols associated with new home entertainment devices.

It is another object of the present invention to provide a lost beacon feature for the remote control, wherein the user can activate a beacon signal when the remote is misplaced.

It is another object of the present invention to provide a handwriting recognition input or voice recognition feature as the user interface for the remote control.

Additional objects, features and advantages of various aspects of the present invention will become apparent from the following description of its preferred embodiments, which description should be taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** shows a preferred embodiment of a conceptual diagram of a universal remote control system according to the present invention.

FIG. **2** shows a block diagram of a remote control system of a preferred embodiment according to the present invention.

FIG. **3** shows a preferred embodiment of a remote control block of the remote control system of FIG. **2**.

FIG. **4** shows a preferred embodiment of a television block or the remote control system of FIG. **2**.

FIG. **5** shows a preferred embodiment of a remote control according to the present invention.

FIGS. **6***a* and **6***b* are flow charts of two preferred methods of communication mode selection according to the present invention.

FIG. **7** shows a sequence of square pulses used for mode selection as shown in the flow chart of FIG. **6***b*.

FIGS. **8***a,b* illustrate how EPG programming data can be used in a remote control of a preferred embodiment according to the present invention.

FIGS. **9***a,b* illustrate the soft GUI displayed on a remote control of a preferred embodiment according to the present invention.

FIGS. **10***a,b,c,d* illustrate the ability to expand the TV functions according to the present invention.

FIGS. **11***a,b* and *c* illustrate the calibration handshake ability according to the present invention.

DETAILED DESCRIPTION OF THE DRAWINGS

FIG. **1** shows a preferred embodiment of a conceptual diagram of a universal remote control system according to the present invention. In the preferred embodiment as shown, the universal remote control system comprises a remote control **110** and a television set **120**. In another embodiment not shown, the television set can be substituted with a set top box connected to a television set. In addition, as in the universal remote control systems available on the market, the remote control of the present invention can also be used for controlling other AV devices such as videocassette recorder ("VCR"), stereo system, and digital versatile disc ("DVD") components, etc. By encoding the signals sent out by the remote control, the remote control is able to establish communication channel between the remote con-

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trol and the television set or other AV devices. In the preferred embodiment of the present invention, the communication channel established between the remote control and any of the devices connected is a bi-directional communication channel so that data and information can be transmitted to and from the remote control to each of the components in the remote control system.

FIG. **2** shows a block diagram of a remote control system of a preferred embodiment according to the present invention. As shown in the figure, the system as shown only comprises a remote control block **210** and a television set block **220**. It should be noted also, as stated in the previous paragraphs, the present invention can be applied to other audio/video devices.

The television set block **220** of the preferred embodiment comprises a video signal receiver **222** for receiving and processing radio frequency or baseband video data; a memory **224** for storing any information needed for the television set and the remote control; an infrared communicator **226** for providing a infrared communication with the remote control; and a radio frequency communicator **228** for providing a radio frequency communication with the remote control. In the preferred embodiment as shown, the selection between these two communication modes (i.e. infrared and radio frequency) is performed and determined by a proximity sensor **211** and a microcontroller **212** located in the remote control block **210** as shown.

As shown in FIG. **2**, the remote control block **210** comprises an infrared communicator **213** for communicating with the television set; a radio frequency communicator **214** for communicating with the television set; a microcontroller **212** for controlling the basic functions of the remote control; a user interface mechanism **215** for inputting and displaying data; a remote control memory **216** for storing information (e.g. programming guide information); a proximity sensor **211** connected to the microcontroller **212** for facilitating the microcontroller **212** to select a communication mode between the remote control **210** and the television set **220**; a remote finder beacon mechanism comprising a radio frequency demodulator **218** connected to a remote finder beacon **217** and a beeper **219** for receiving beacon signal from the television set **220** for locating the remote control **210**; a voice recognition mechanism (not shown) for processing voice commands issued by the user; and a power supply **231** for providing rechargeable and non-interruptible power to the remote control.

In the preferred embodiment as shown, the microcontroller **212** of the remote control controls all major functions, such as: (1) handling user commands received by the user interface **215**, and generates control signals and transmits the control signals to the television set **220**, or any other AV devices by one of the two transceivers; (2) processing electronic program guide ("EPG") data received from the television set and storing the EPG data in the remote control memory **216**; (3) parsing, retrieving, and displaying the processed EPG data from the memory **216** as requested by the user through the use of the user interface **215**; (4) updating the stored EPG data and communication protocol(s) received from the television set **220**, or any other audio/video devices; (5) selecting the optimal communication mode between the infrared communication mode and the radio frequency communication mode in response to the proximity sensor **211**; and (6) analyzing and responding to user commands received from the user interface **215** and performing the appropriate functions, etc.

FIG. **3** is a block diagram showing additional details of the remote control portion of the remote control system according to the present invention. The remote control portion as shown comprises a radio frequency transceiver **301**, a IRDA transceiver **302** and IRDA encoder/decoder **303** pair supporting IRDA standard, a DSP microcontroller **304** for controlling different components within the remote control block, a pair of bus controllers **305***a*,**305***b* for controlling data transfer within the remote control block, a remote control memory **306** for storing the remote control system program and a handwriting recognition program, a nonvolatile flash memory **307** for storing the EPG data or universal remote control protocol(s) downloaded from the television set or a set-top box, a touch screen LCD device **308** for data and/or command entry, a ringer **309** for producing a beacon or activating a flashing LED when a remote control finding signal is received. In addition, the remote control also comprises four voltage regulators **310***a*,**310***b*, **310***c*,**310***d*. Two of the voltage regulators are used to supply currents to the IRDA encoder/decoder **303** and the IRDA receiver **302**, and the remaining two voltage regulators are used to supply currents to all other components on the remote control. In the preferred embodiment as shown, the remote control is powered by a rechargeable battery. It should be noted that the IRDA standard is used for the infrared communication in this preferred embodiment of the present invention. The IRDA standard is a cordless data connection standard using infrared light. It is a low-cost transceiver signaling technology for two way data exchange. It provides high-speed digital exchange through the typical PC UART/serial port at 9600-115200 bits/s, and in some units compatible high speed extensions up to 1 Mb/s and 4 Mb/s speeds.

FIG. **4** is a block diagram showing additional details of the television portion of the remote control according to the present invention. As shown in the figure, the television portion comprises a radio frequency transceiver **401**, a IRDA transceiver **402** and IRDA encoder/decoder **403** pair supporting IRDA standard, a microcontroller **404** for controlling various components within the television portion, a remote control memory **405** for storing a remote control system program, a flash memory **406** for storing the EPG data downloaded from the cable company, satellite, prerecorded cassettes, or DVD, etc., a bus controller **407** for controlling data transfer within the television portion, and a remote finder switch **408** for the user to activate the remote finding feature. Similarly, as in the remote control portion, the television portion also comprises four voltage regulators **410***a*,**410***b*,**410***c*,**410***d* for providing currents to different components of the television portion.

FIG. **5** shows a preferred embodiment of a remote control **500** according to the present invention. The remote control as shown comprises a display screen **510** for interfacing with the user; a plurality of buttons **512***a,b,c,d* & **514***a,b,c,d* for issuing commands and/or entering data into the remote control **500**; a stylus **516** for writing onto the screen **510** and a LED light **518** for indicating the communication mode currently running between the remote control and the device connected. As shown in the figure, the plurality of buttons comprises a group of four buttons **514***a,b,c,d* for moving any pointing device used in the display screen **510**. In addition, the display screen **510** of the preferred embodiment is connected to a handwriting recognition mechanism (not shown) so that the user can issue commands and/or enter data to the remote control **500** by writing onto the screen **510**. It should be noted that, even with the disclosure of this embodiment, many aspects of the present invention can still be implemented in a universal remote control that does not provide the display **510** as used by this embodiment. In other

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words, other kinds of user interface such as keyboard and push buttons can also be employed in the present invention. In addition, the remote control according to the present invention is backward compatible with the current remote control system such that all the current remote control functionality can be emulated by the present invention.

In another preferred embodiment according to the present invention, the touch screen display is also provided with pressure sensing ability for sensing different handwriting stroke pressures exerted on the screen. For example, instead of clicking a new command button on the emulated screen, a hard pressed period can be programmed in the remote control for the beginning of a new command.

In another preferred embodiment, instead of using a display screen in the remote control to interface with the user, a touch pad can be used along with an on-screen display ("OSD") of the television to perform similar functions. Specifically, the user can enter the commands/data on the touch pad of the remote control and the corresponding graphical user interface can be shown on the OSD of the television. In other words, the command/data inputting functions of the display screen of the remote control is replaced by the touch pad whereas the graphical user interface functions of the display screen is replaced by the OSD of the television. By replacing the display screen with the touch pad, the cost of the remote control can be tremendously reduced. In the following discussions, it should be noted that each and every feature using the display screen of the remote control can be replaced by using a touch pad along with the OSD of the television.

The followings discuss different aspects of the remote control of the present invention.

1. Bidirectional Communications

The first aspect of the present invention relates to the means of communication between the remote control and the television set/set top box (and any other audio/video devices). As discussed above, the communication between the remote control and the television is preferably performed bidirectionally so that commands and data can be transferred freely between the remote control and the television set. Thus, in addition to commands and data being sent from the remote control to the television set, commands and data can be sent back from the television set to the remote control. In the preferred embodiment, the communication is performed by transceivers located in the remote control and the television set. Particularly, each transceiver comprises both a transmitter and a receiver for sending and receiving data. This bi-directional communication feature of the present invention provides extreme flexibility in the remote control design because the remote control not only can control the television set, the television set can also provide data and control signals back to the remote control in response to changes in status and/or protocols.

In one example of the present invention, the television set can forward the EPG programming data received from satellite delivery or terrestrial broadcast to the remote control. The television set first receives the EPG data, and then forwards the data to the remote control via the bidirectional communication feature as discussed. By having the EPG programming data stored in the remote control memory, the remote control is able to parse and retrieve the EPG programming data when a user command is entered. Then the remote control can interpret the TV programming data and process the command entered, and simplify the control of the corresponding AV component(s) accordingly. Detailed examples on the uses of the TV programming data are illustrated in the following sections. Particularly, section (4) (i.e. EPG Programming Data section) discloses methods of downloading the electronic programming guide (i.e. EPG programming data) to the remote control, and then subsequent using the EPG programming data stored in the remote control to handle any commands entered. In addition, using the bidirectional communication channel, the television set can also inform and update the remote control of its status and/or any new control protocols. These features will be discussed in detail in the following sections.

2. Infrared/Radio Frequency Communication

According to another aspect of the present invention, there is provided a dual communication mode for the remote control system. Specifically, the television/set top box (or any other audio/video devices) and the universal remote control of the present invention each comprises an infrared transceiver and a radio frequency transceiver so that the communication between the two devices can be performed in either the infrared or radio frequency band. Furthermore, each of these transceivers can be a bi-directional transmitting device as discussed in the previous paragraphs.

Particularly, in response to the environment and distance between the remote control and the television set, the present remote control system automatically selects an optimal communication means (i.e. infrared communication, or radio frequency communication). It is known that each of the infrared communication and the radio frequency communication modes has its own advantages and shortcomings. Therefore, the present invention is designed to alleviate the disadvantages of each means, by automatically selecting the most efficient communication method between the remote control and the television set.

Specifically, in the preferred embodiment of the present invention, when the remote control is in close proximity of the television set, the infrared communication mode is selected in order to conserve power in the remote control. It should be pointed out that, by communicating using infrared signals (especially by complying with the IRDA standard), the remote control system of the present invention is able to conform to other IRDA devices such as computer peripherals, digital cameras, laptop computers, personal communication systems (PCS), and wireless modems and printers, etc. However, in some situations, infrared communication cannot be established due to the distance between the two devices, and/or some obstacles blocking the infrared transmission. In those cases, radio frequency transmission is then selected for communicating between the remote control and the television set (or other connected devices). It should be also noted that, in the preferred embodiment, the default communication mode of the remote control system is the infrared mode to conserve electrical energy of the remote control. Only if the infrared communication cannot be established between the remote control and the target device, the system will be shifted to the radio frequency communication mode.

Therefore, in the preferred embodiment as shown in FIG. **2**, each of the remote control and the television set comprises an infrared transceiver and a radio frequency transceiver so that the remote control can communicate with the television in either the infrared mode or radio frequency mode. By having two different transceivers in the remote control and the television set, the remote control system can switch between these two communication modes according to need.

In one preferred embodiment of the present invention, a select button is provided in the remote control for the user to force and lock a specific communication method. This can be done by simply deactivating the proximity sensor. By deactivating the proximity sensor and forcing a communi-

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cation mode on the remote control system, the user can select a preferred and/or fixed method of communication between the remote control and the television set.

3. Automatic Mode Selection

Another aspect of the present invention is a method to automatically select an optimal communication mode for communication between the remote control and the television set (or any other audio/video devices). Under this aspect of the present invention, the selection between the two communication modes (i.e. infrared mode and radio frequency mode) is transparent to the user and is performed automatically in the remote control system without requiring any attention from the user.

FIG. **6***a* is a flow chart showing one of the preferred methods of determining and selecting an optimal communication mode performed by the remote control system according to the present invention. At a first step (Step **601**), both of the television and remote control are initialized to operate in both the radio frequency and IR mode. Then, in Step **602**, the television set sends out both (1) a test enable signal; and (2) an IR request to the remote control. According to this embodiment, the test enable signal is sent by the television set using the radio frequency transceiver to inform the remote control of the incoming IR request. In the preferred embodiment, the test enable signal contains a sequence of pulses transmitted to the remote control for synchronization. In addition, the IR request is sent by the television set using the IR transceiver. In the preferred embodiment, the IR request is a predetermined sequence of data bits. When the remote control receives the test enable signal from the television (Step **603**), it proceeds to the next step, Step **604**. If the remote control does not receive the test enable signal, the remote control is out of the radio frequency range of the television set so that the television set will repeat the initialization process again. In the next step (Step **604**), the remote control examines whether the IR request signal is received. If the remote control does not receive the IR request signal, the remote control will not transmit any response to the television set. On the other hand, after the remote control receives the IR request sequence of data bits, the remote control compares the received IR request sequence of data bits with a reference of the sequence of data bits stored in the remote control (Step **605**). If the two sequences of data bits match, the remote control then sends an infrared acknowledgment back to the remote control (Step **606**). On the other hand, if the two sequences of data bits do not match, the remote control will not send an acknowledgment sent to the television.

Finally, when the television receives the IR acknowledgment signal from the remote control (Step **607**), the television will set the communication mode to the IR mode (Step **608**). On the other hand, if the television does not receive any IR acknowledgment after a predetermined period of time, the television will determine that the infrared channel cannot be established and will select the radio frequency mode for communication between the television and the remote control (Step **609**).

FIG. **6***b* is a flow chart showing another preferred method of selecting the mode for communications between the remote control and the television set. First, both the television set and the remote control are initialized to operate in the radio frequency mode (Step **621**). In this preferred method, the television set only sends a sequence of square pulses using the radio frequency transceiver to the remote control for the initialization process (Step **622**). As shown in FIG. **7**, each of the square pulses has a predetermined amplitude A and time duration t. When the remote control receives the sequence of square pulses from the television set, the remote control compares an amplitude A' and time duration t' of individual square pulse received with a set of pre-stored values (i.e. A & t). By comparing the amplitude A' and time duration t' of the pulses received from the television set with the pre-stored values (i.e. A & t), the remote control can calculate the distance between the remote control and the television set (Step **624**). After the distance between the remote control and the television set is calculated, the remote control can determine whether it is within the transmission range of the infrared transceiver (e.g. >3 meters) in Step **625**. If the remote control is within the infrared range of the television set, the remote control will select the infrared communication mode (Step **626**). Otherwise, the remote control will select the radio frequency communication mode for communication between the remote control and the television (Step **627**).

It should be pointed out that the above-discussed mode selection sequence can and should be repeated regularly. For example, one of the above-mentioned mode selection methods can be performed after each keystroke entry, but prior to the actual data or command transmission between the two devices, in order to ensure the most appropriate communication mode is adopted for the communication between the remote control and the television.

4. EPG Programming Data

Another aspect of the present invention is a method of providing television programming guide information (e.g. the EPG data) to the remote control so that the remote control (1) can provide the programming guide information to the user using the user interface; and/or (2) can process user commands/data and then parse and retrieve the EPG programming data stored in the remote control for any relevant information so that appropriate controlling signals can be produced to activate the television sets and/or other AV devices accordingly. As discussed in the previous paragraphs, each of the television set and the remote control comprises at least one transceiver (e.g. infrared transceiver or radio frequency transceiver) for exchanging information between the remote control and the television set.

Particularly, according to this aspect of the present invention, the television set is first provided with the EPG information from the television signal received from either the cable company or baseband RF transmission. After the television set receives this information, the television set transmits this information to the remote control through a communication channel established between the television set and the remote control (e.g. infrared communication or radio frequency communication). After receiving this information from the television set, the remote control organizes and stores this information in the remote control memory for later use.

For example, this EPG information may contain daily or weekly TV programming schedule and channel assignments. Preferably, each of the program entries comprises the (1) TV channel number; (2) show time; (3) show name; and (4) synopsis of each program. Depending on the size of the remote control memory, the remote control can store this information of all the scheduled TV programming for one day, or even one week or more. By having all the EPG programming information stored in the remote control memory, the remote control can accommodate different modes of data entry, such as accepting command input using channel number, program name, or keywords. Since all related information of each television program is stored in the remote control memory, the channel number and the program name can then be retrieved by the controller of the

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remote control by parsing the EPG data stored in the remote control memory.

For example, when requested by the user, the remote control can display any portion of the TV programming schedule for the night, or the week on its user interface. In this case, all or a portion of the program names, show times, and synopsis etc. can be shown for any specified time period on the user interface of the remote control. Furthermore, another feature is to allow the user to find out which channel a specific program will be showing, and at what time.

For example, FIG. **8***a* shows a remote control having a TV program named "Seinfeld" handwritten on its screen by a user. By employing handwriting recognition software installed in the remote control, the handwritten word "Seinfeld" can be recognized and the corresponding commands/data can be extracted. In the present example as shown, the remote control first captures the handwritten program name "Seinfeld" and then translates it into a machine-readable format (e.g. ASCII data). Then, the remote control parses the EPG programming information stored in the remote control memory and retrieves the corresponding programming guide information so that the programming listing for the program "Seinfeld" can be accessed and processed. After the corresponding information is obtained and processed, all or a portion of the programming guide information of the TV program "Seinfeld" can be listed on the user interface (e.g. touch screen).

FIG. **8***b* shows the remote control of the preferred embodiment displaying the programming guide information for the TV program "Seinfeld." Depending on the user interface design, all or a portion of the programming guide information stored in the remote control memory can be displayed on the screen. In the example as shown in FIG. **8***b*, under the TV program name "Seinfeld," the corresponding channel number and show time are displayed on the same screen. In one preferred embodiment of the present invention, the user can then be prompted by the remote control to determine whether the corresponding TV program should be activated and shown on the television at the future show time. On the other hand, if the TV program Seinfeld is currently being shown on one of the TV channels, the remote control can send the appropriate control signals to the television set and switch the television set to the corresponding channel. Furthermore, if selected by the user, the VCR connected to the remote control system can also be programmed so that the selected TV program will be recorded by the VCR at the future show time.

5. Soft Graphical User Interface (Soft GUI)

Another aspect of the present invention is a novel user interface provided by the universal remote control. This aspect of the present invention is illustrated by FIGS. **9***a*,**9***b*. According to the present invention, soft graphical user interface ("Soft GUI") can provide maximum flexibility for the user to interface with the remote control. The soft GUI can also provide a user-friendly interface for the user to acquire control of different functional components accessible by the remote control. For the remote control system as shown in FIG. **2**, the remote control can communicate and operate with all consumer electronic equipment having an IRDA interface. For example, the list can include stereo systems, VCR, DVD, computer peripherals, printers, and PCS, etc.

Under this aspect of the present invention, the soft GUI can display user familiar patterns on the screen of the remote control. Particularly, the user familiar patterns displayed on the user interface of the remote control emulate the control interface of any components connected to the remote control so that the user can issue commands by pressing the corresponding emulated buttons displayed on the screen. When any of the emulated buttons is pressed by the user, the remote control translates the user command to the corresponding control function. Then the remote control sends the corresponding control signals to the specified audio/video device(s).

For instance, FIG. **9***a* shows a remote control of the present invention having the word "VCR" handwritten on its display screen. In response to this written command, a handwriting recognition mechanism in the user interface analyzes and converts the handwriting "VCR" to machine-readable ASCII data. After that, the user interface calls up the VCR controlling subroutine store in the remote control memory and displays the VCR control buttons (e.g. Play, Forward, Backward, Record, and Pause, etc.) on the remote control display screen as shown in FIG. **9***b*. According to this aspect of the present invention, the user is then allowed to pick any of the VCR functions by pressing the corresponding button. For example, in the present example, the user can use a stylus to choose the "Play" function by pointing to the corresponding button on the display screen. Then the remote control converts the user input command to the corresponding control signals for activating the Play function of the VCR.

In another example, the user can use the remote control to program the VCR by selecting the date, time, and channel parameters displayed on the screen. In the remote control as shown in FIG. **9***b*, the buttons appeared on the display screen include day, month, and time, etc. of all the necessary parameters of a VCR programming command. The user can then program the VCR by simply pressing the corresponding buttons on the soft GUI screen of the remote control. Furthermore, the remote control can be designed so that when a television program is selected by the user, the remote control can provide the user with the television guide programming information of the selected television program along with this soft GUI screen so that the VCR can be programmed for the selected television program.

Another aspect under the soft GUI of the present invention provides a personalized remote control option for different users. Under this aspect of the present invention, the remote control can be programmed according to the preferences defined by different users. User-specific settings such as preferred channels, volume level on the television set and/or stereo set, etc. can be programmed and stored in the remote control memory. When this feature is activated, the remote control retrieves and executes these user-dependent settings according to the preference of the individual user. Furthermore, these individual settings can also be password protected.

For example, when a user activates his/her preferred settings stored in the remote control, the remote control can display a list of all preferred channels, and/or the past five television channels visited by the user so that the user can chose accordingly. Furthermore, other settings such as volume level control, balance control, and/or picture-in-picture controls can be similarly stored and recalled as user predefined settings by the user.

6. Expanding TV Functions

Another aspect of the present invention is the ability to expand the functions of the television set. Under this aspect of the present invention, the user can redefine the parameters of the television set using the user interface of the remote control. Specifically, instead of transmitting specific predefined commands (e.g. "Open PIP window for Channel 4") from the remote control to the television set, the remote

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control according to this aspect of the present invention provides a set of extensive control signals to the television set, or other AV devices. For example, the set of extensive control signals might include channel number, command of opening a PIP window, size of the PIP window, location of the PIP window, etc. Using these controlling signals, the television set can reformat the television screen accordingly. Thus, depending on the software program implemented in the remote control system, the remote control is able to expand the functionalities of the television set by adjusting the set of control parameters.

FIGS. **10***a,b,c,d* show a remote control system having a remote control and a television set **1020** coupled to the remote control **1010** according to this aspect of the present invention.

Referring to FIG. **10***a*, the remote control **1010** shows the channel number 6 on its display screen while the television set has the television programming set on channel 6. As shown in the figure, the display screen of the remote control has an emulated television screen where the user can issue commands onto the screen.

Referring to FIG. **10***b*, the user has issued a PIP command on channel 3 to the remote control by drawing a window and then writing a "3" onto the emulated television screen on the remote control **1010**. The command is recognized by a handwriting recognition program stored in the remote control **1010**. Then the remote control **1010** processes the PIP command and transmits a PIP command on channel 3 to the television set. It should be noted that the PIP command issued by the remote control to the television not only includes the conventional PIP instruction of opening a PIP window for showing channel 3. The command also includes the position and size of the PIP by analyzing the size and the position of the PIP window drawn on the emulated television screen of the remote control. Thus, the remote control sends the following parameters to the television set: instruction to create a PIP window, channel number of the PIP window, size of the PIP window, location of the PIP window, and accompanying audio(s) etc. Then the television set opens the PIP window on the television screen according to these parameters. This aspect of the invention provides the user full control of the PIP window screen by using the remote control.

FIG. **10***c* shows another feature of the present invention. Under this aspect of the present invention, the user is able to adjust the size of the PIP screen by simply resizing the PIP window on the simulated television screen as shown in the remote control using standard window management techniques. As shown in the figure, the corresponding PIP window on the television set **1020** is resized accordingly when the user adjusts the size of the PIP window on the simulated television screen on the remote control **1010** or, in another embodiment, on the on-screen display on the television set **1020**.

FIG. **10***d* shows yet another feature of this aspect of the present invention. Under this aspect of the present invention, the user is able to move the location of the PIP window screen on the television screen by simply dragging the emulated PIP window on the remote control **1010**, or on the on-screen display on the television set **1020**. As shown in the figure, the PIP window on the television screen is positioned by the user to a new location when the emulated PIP window on the remote control **1010** is dragged to a different location. In response to the command to reposition the PIP window screen, the remote control issues the corresponding repositioning control signals to the television set by transmitting the new location and/or size of the PIP window as entered by the user. It should be noted that the same window management technique can be used with the remote control under this aspect of the invention.

It should be noted that, in the preferred embodiment according to the present invention, the above-mentioned window resizing and repositioning steps can be performed on the display screen using standard window management techniques. For example, the methods of resizing and repositioning Microsoft (™) windows can be similarly implemented in the remote control of the present invention.

Furthermore, the user can also create more than one PIP in the television screen by drawing another window on the emulated television screen on the remote control **1010**. The remote control **1010** can then inform the television set **1020** to open another PIP screen according to the user command.

To better accommodate this feature, the television set needs to be able to accept the control signals provided by the remote control and change the screen characteristics accordingly. For example, the television set should be able to accept the controlling parameters such as the location and the size of the PIP window. Using these controlling parameters, the television can basically expand the television functions by, for example, performing the specific PIP window functions, etc. The television set is therefore, preferably, a digital signal processing television so that the video data of the TV screen can be digitally processed and rearranged. However, implementation of this invention is not limited to a digital television set because an analog television set having a digital signal processing ability is also able to implement this feature.

FIGS. **11***a*,**11***b*,**11***c* show another aspect of the expanding TV functions feature according to the present invention.

Referring to FIG. **11***a*, the remote control as shown displays an emulated television screen and six input control buttons. In this embodiment, each of the six input control buttons represents a television signal input source for the television set. According to this aspect of the present invention, the user is allowed to connect any of the six input control buttons to the emulated television screen displayed on the remote control so that the corresponding television input signal will be provided to the television set accordingly.

For example, as shown in the figure, the user can connect the video 2 input (i.e. VD2) to the television set by drawing a line from the button "VD2" to the emulated television screen displayed on the remote control. By drawing the connection from the button "VD2" to the emulated television screen, the remote control generates and sends a corresponding set of control signals to the television set to connect the VD2 input to the television set.

Referring to FIG. **11***b*, the remote control as shown displays an emulated television screen and two buttons representing two different aspect ratios. According to this aspect of the present invention, the user can change the aspect ratio of the television screen by drawing a line from one of the two buttons to the emulated television screen on the remote control. In the example as shown in the figure, the aspect ratio of the television screen can be changed to 16:9 by drawing a line from the "16:9" button to the emulated screen displayed on the remote control. The aspect ratio can also be changed by tapping the corresponding button on the emulated screen of the remote control. Furthermore, the aspect ratio of the television screen can be changed by the user by simply dragging the comer of the emulated screen on the remote control to a new aspect ratio. This method is similar to the window commands currently used with any window computer systems. Then, the remote control will

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generate and send the corresponding control signals to the television to execute this command.

Referring to FIG. **11***c*, the emulated television screen has an area for displaying closed captioning. According to this aspect of the present invention, the user can change the size, position, and/or characteristics of the closed captioning by simply dragging the closed captioning bar on the emulated television screen to other location. Then, the remote control will generate and send the corresponding control signals for changing the location of the closed captioning to the television set to execute this command.

It should be noted that the above-mentioned examples as shown in FIGS. **10***a,b,c,* and **11***a,b,c* demonstrate different methods of using a remote control to expand the controllability of the television set. According to this aspect of the present invention, the remote control can be programmed to perform different controlling functions not originally designed for the television set. By loading custom designed software into the remote control and the television, the functionabilities of the television set can be expanded, correspondingly.

8. Calibration Handshake

Another aspect of the present invention is to allow the user interface of the remote control to provide the current status information of the television set/set top box (and other AV devices connected to the remote control). In the conventional remote control system, the remote control is usually a dumb control having only a unidirectional communication means which cannot receive any status information from the devices connected to the remote control. For example, the remote control does not have the information of the volume level when the user is adjusting the volume level of the television set. This information (in this case, the volume level) can at most be provided on-screen by the television set because the conventional remote control does not carry any status information of the devices coupled. In other words, the devices connected are decoupled with the remote control.

According to this aspect of the invention, the audio/video device(s) coupled to the remote control regularly updates/provides its status information to the remote control using the bi-directional communication channel established between the remote control and the device(s). After the remote control receives and stores this status information, this information will be displayed on the user interface of the remote control when requested by the user. Then the user can control any portion of this status information by issuing corresponding commands to the user interface (e.g. graphically or intuitively) of the remote control. After processing these commands, the remote control will then transmit the corresponding control signal(s) to the specific audio/video device accordingly.

Under this aspect of the invention, the remote control stores and updates all, or selected portions, of the status parameters of the TV or any other audio/video devices connected to the remote control. These parameters might include, but are not limited to, the volume control of the TV and the stereo equipment, the brightness and sharpness of the TV, the program name of the TV program currently being shown on the TV, the balance control of the stereo system, and the time remaining on the DVD player, etc. This aspect of the present invention is illustrated by FIGS. **12***a,b* as follows.

FIG. **12***a* shows a remote control having handwriting characters "V TV" written onto its screen. The handwriting recognition mechanism of the user interface first recognizes and processes the handwriting command "V TV" and displays a volume control screen on the remote control. FIG. **12***b* shows the remote control having a volume control bar displayed on the screen. It should be pointed out that during power-on initiation of the television, the remote control is provided with the current control parameters or status of the television set. Thus, the remote control can provide the current volume control information of the television set when requested by the user. In the example as shown in FIG. **11***b*, the dot on the volume control bar indicates the current volume level of the television set. By simply dragging the dot to other position on the volume control bar, the remote control will execute the volume adjusting command by sending out a volume control signal to the television set.

The detailed operation of the calibration handshake can be illustrated as follows: After the user has given a "V TV" command on the remote control, the remote control sends a signal through its transceiver to the television set requesting current television status information. After receiving the request from the remote control, the television set provides all the volume control information to the remote control. The remote control then displays the current volume control information on its screen so that the user can control it using a stylus by dragging the dot representing the current volume level. The remote control then translates the user's command and sends the appropriate control signals to the television for adjusting the volume accordingly.

In another embodiment of the present invention, the parameters of all or a portion of the status information are stored in the remote control before any request from the remote control is made. In this embodiment, each of the connected components regularly transmits these parameters to the remote control to be stored in the remote control memory. Thus the remote control can provide the current status information instantly when requested.

It should be noted that this kind of calibration handshake can be applied to any of the functional parameters of the television set, or any other AV devices connected to the remote control, such as hue, brightness, channels, etc.

9. Passive Updating

Another aspect of the present invention is the ability to passively update the communication protocols and/or status parameters stored in the remote control. For example, the updating can be performed on the remote control for the EPG data stored, or the communication protocols used between the remote control and the television set/set top box and any other AV devices. In the preferred embodiment of the present invention, the television set of the remote control system is capable of passively and automatically updating any protocols and status parameters stored in the remote control. Depending on the implementations, the updating can be performed regularly (e.g. daily, or weekly), or when new protocol and data are received by the television set/set top box and the AV devices. In the preferred embodiment according to the present invention, for example, the remote control system can be programmed by the user on how often the updating procedure is performed. Before transmitting the updated information to the remote control, the television set or any of the connected AV devices first checks whether the remote control is within the communication range. For example, in the preferred embodiment, if the data communication between the remote control and the television set can be performed by the infrared transceivers only, the data updating of the remote control can only be performed when the remote control and the television set are within the infrared transmission range. On the other hand, if the data communication between the remote control and the television set is performed only by the radio frequency

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transceivers, the data transfer for updating the remote control is performed when the remote control and the television set are within the radio frequency transmission range. After the updated data is received by the remote control from the television set, the remote control updates its EPG or control protocols accordingly.

For example, the cable company can update the EPG programming information weekly by sending the information through its cable lines to the television set every week. Specifically, this information can be embedded in the vertical blanking interval ("VBI") portion or MPEG sub-picture data portion of the television signal. Furthermore, individual AV device manufacturers can also update the protocols of the AV devices by providing, for example, video cassettes embedded with updated protocols to the user. After the television set receives the information, the television set automatically sends the information to the remote control for updating the EPG programming data stored in the remote control memory so that the most updated TV programming schedules is stored in the remote control. Similarly, new communication protocol(s) for communicating with different A/V component(s) can also be sent by the television set to the remote control for updating the corresponding protocol(s) currently stored in the remote control.

In other instances, new functionalities can also be added to the television set by sending the corresponding control protocols of the new functions to the remote control. The detailed operation of adding new functionalities to the remote control is similar to the protocol updating as discussed above.

Similarly, any other AV device can send its own set of the communication protocol to the remote control for passively updating or initializing the remote control. The advantage of this feature is to eliminate manual updating and/or programming of the remote control.

10. Lost Beacon

Another aspect of the remote control system of the present invention is to incorporate a remote lost beacon in the remote control system. It is a common problem for the user to misplace the remote control somewhere in his or her house. Therefore, a remote lost beacon or a flashing LED feature is incorporated in the remote control system according to this aspect of the present invention. In the preferred embodiment, the same radio frequency transceiver in the television set can be used to provide a remote beacon signal to the remote control. When the user wants to locate the remote control, the user can simply press a button on the television set. Then the television set will send a remote control locator signal to the remote control. After receiving the remote control locator signal, a beeper in the remote control is activated and produces a sound to indicate the location of the remote control. In another embodiment, a flashing LED, instead of a beacon sound, can be used for indicating the location of the remote control.

11. Voice Recognition

Another aspect of the remote control of the present invention is to incorporate a voice recognition control option to the remote control. Instead of using the conventional push-button control, or the handwriting recognition technique as discussed in the previous paragraphs, a voice recognition mechanism can be implemented in the remote control for receiving voice information and/or commands from the user. There are currently various recognition mechanisms in the market, thus any one of the currently available voice recognition mechanisms can be implemented in the remote control according to the present invention. The voice recognition process is very similar to the handwriting recognition scheme as discussed, only with the substitution of the handwriting recognition mechanism with a voice recognition mechanism. The subsequent parsing of the EPG data is similarly implemented.

It should noted that all or portion of the above-mentioned features can be implemented in a remote control system according to the present invention. FIG. **13** is provided to show the operations of a remote control system using some of these features according to the present invention.

Step 1: A command is input to the remote control by an user. For illustration purpose, assuming the command issued is a "split-screen" command.

Step 2: The handwritten split-screen command is recognized and translated by a handwriting recognition mechanism of the remote control to a machine readable command (e.g. ASCII data as shown).

Step 3: A communication channel is selected by a proximity sensor so that the corresponding communication signals are sent through one of the two channels to the television set.

Step 4: The communication signals are received by the television set using one of the two transceivers (i.e. infrared transceiver and radio frequency transceiver).

Step 5: The received signals are then translated again to machine readable data for the television set to process.

Step 6: A central processing unit ("CPU), or a digital television controller ("DTC") of the television set processes the commands and transmits the commands to the corresponding operating subsystem through an internal bus. Each of the subsystems A,B,C represents a different functional component of the television. For example, subsystem C is for controlling various screen orientations (e.g. aspect ratio or PIP, etc.) of the television set.

Step 7: The module C receives the split-screen command from the CPU through an internal bus and executes the command accordingly.

Step 8: A split screen is then displayed on the television set according to the command issued to the remote control.

Step 9: After the command is executed (i.e. a split screen is displayed as requested), an acknowledgment signal is generated by the subsystem C and provided to the internal bus.

Step 10: The acknowledgment signal is received by the CPU, or DTC connected to the internal bus.

Step 11: After a preferred communication channel is selected by the proximity sensor, the acknowledgment signal is transmitted to the remote control

Step 12: The acknowledgment signal is received by one of the two transceivers of the remote control.

Step 13: The received signal is translated and processed by a controller of the remote control to generate a set of control signals to the display screen of the remote control.

Step 14: A representation such as a acknowledgment icon is displayed on the remote control to signal the "split screen command has been executed by the television set.

It is to be understood that while the invention has been described above in conjunction with preferred specific embodiments, the description and examples are intended to illustrate and not limit the scope of the invention, which is defined by the scope of the appended claims.

What is claimed is:

1. For controlling at least one audio/video device that is connectable to a source of programming including programming guide data, which reproduces received programming in audio and/or video form and which includes a wireless transceiver, a remote control, comprising:

a remote wireless transceiver for receiving the programming guide data from the transceiver of said at least one

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audio/video device and for transmitting commands to the transceiver of said at least one audio/video device to control the device's reproduction of audio and/or video programming;

a remote control memory coupled to said remote transceiver for storing the programming guide data received by the remote transceiver; and

a user interface coupled to the remote control memory including a touch screen display device that displays at least a portion of the programming guide data stored in the remote control memory as selected by touching the display device, said user interface further including a handwriting recognition interface responsive to handwriting on the touch screen display to select the portion of the stored programming guide data that is displayed.

2. The remote control according to claim **1**, wherein said user interface includes a voice recognition interface responsive to a voice input to select the portion of the stored programming guide data that is displayed.

3. The remote control according to claim **1**, wherein said at least one audio/video device provides the programming guide data to the remote control whenever the television programming guide data is received by the audio/video device.

4. The remote control according to claim **1** is a programmable remote control.

5. A remote control system, comprising:

a television comprising a first transceiver, a data capturer for capturing television programming guide data from an input, and a display screen;

a remote control comprising a second transceiver for receiving the television programming guide data from the television, a remote control memory coupled to the second transceiver for storing said television programming guide data provided by the television, and a controller for retrieving at least a portion of the television programming guide data stored in the remote control memory, said second transceiver providing said at least a portion of the television programming guide data to the television through the first transceiver,

wherein said at least a portion of the television programming guide data is displayed by said display screen of the television from the remote control memory, and

a user interface comprising a touch screen display for displaying said at least a portion of the television programming guide data, said user interface further including a handwriting recognition interface responsive to handwriting on the touch screen display to select the portion of the stored programming guide data that is displayed.

6. A method for a remote control to communicate with at least one of a plurality of audio/video devices, wherein the remote control has a user interface, and each of the audio/video device performs a set of functions, comprising:

storing, in a memory of the remote control, data for a display of a set of control buttons of each of the plurality of different audio/video devices,

selecting at least one of the plurality of audio/video devices using the interface of the remote control;

displaying a set of control buttons on said user interface of said remote control from the data stored in the memory of the remote control, each of the control buttons corresponding to at least one of the functions performed by the selected audio/video device,

said user interface comprising a pressure sensitive touch screen display for displaying the set of control buttons, wherein each of the buttons can be actuated by touch, and a handwriting recognition interface, wherein handwriting occurs on the touch screen to select at least one of the audio/video devices;

activating one of the functions of the selected audio/video device by actuating the corresponding button on said user interface of said remote control, the activating comprising:

pushing the corresponding button on the user interface of said remote control;

generating a set of control signals for the selected audio/video device of the activated function; and

transmitting the set of control signals to the selected audio/video device to activate the corresponding function.

7. A method for a remote control to communicate with an audio/video device, said remote control comprising a user interface, and said audio/video device comprising a plurality of controlling components, wherein each of the controlling components is set at a controlling level, comprising:

selecting one of the controlling components of the audio/video device;

transmitting the corresponding controlling level of the selected controlling component from the audio/video device to the remote control;

displaying the selected controlling level on the user interface;

adjusting the selected controlling level using the user interface; and

transmitting the adjusted controlling level from the remote control to the audio/video device to adjust the corresponding component of the audio/video device.

8. The method according to claim **7**, wherein said remote control comprises a user interface comprising a touch screen display.

9. The method according to claim **7**, wherein said remote control comprises a user interface comprising a handwriting recognition mechanism.

10. The method according to claim **7**, wherein said remote control comprises a user interface comprising a voice recognition mechanism.

11. A method for a remote control to communicate with an audio/video device, said remote control comprising a user interface, and said audio/video device comprising a plurality of controlling components, wherein each of the controlling components is set at a controlling level, comprising:

selecting one of the controlling components of the audio/video device;

transmitting the corresponding controlling level of the selected controlling component from the audio/video device to the remote control;

storing the selected controlling level in a memory of the remote control;

displaying the selected controlling level on the user interface;

adjusting the selected controlling level using the user interface; and

transmitting the adjusted controlling level to the audio/video device to adjust the corresponding component of the audio/video device.

12. The method according to claim **11**, wherein said remote control comprises a user interface comprising a touch screen display.

13. The method according to claim **11**, wherein said remote control comprises a user interface comprising a handwriting recognition mechanism.

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14. The method according to claim 11, wherein said remote control comprises a user interface comprising a voice recognition mechanism.

15. A method, method for a remote control to adjust the display properties of a screen of a television, said remote control including a user interface, comprising:

issuing a display control command on the user interface of the remote control for adjusting the display properties of the television screen, said display control command being a picture-in-picture command;

analyzing the display control command by the remote control;

translating the display control command to a set of controlling parameters, wherein said controlling parameters are fully controllable by the remote control, and wherein said set of controlling parameters comprise size and location of a picture-in-picture window screen in the television screen;

transmitting the controlling parameters from the remote control to the television; and

displaying the television screen with its display properties adjusted according to the controlling parameters;

wherein said user interface of the remote control comprises a display screen, and wherein said display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen.

16. A method for a remote control to create a picture-in-picture window screen in a television screen of a television, said remote control comprising a user interface, comprising:

issuing a picture-in-picture command on the user interface of the remote control;

analyzing the picture-in-picture command by the remote control;

translating the picture-in-picture command to a set of controlling parameters, wherein said controlling parameters comprise size and location of the picture-in-picture window screen, and said size and location of the picture-in-picture window screen are fully controllable by the remote control;

transmitting the controlling parameters from the remote control to the television;

creating the picture-in-picture window screen on the television screen according to the controlling parameters; and

wherein said user interface of the remote control comprises a display screen, and wherein said display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen.

17. The method according to claim 16 further comprising:

adjusting the size of the emulated picture-in-picture window on the user interface of the remote control;

analyzing the adjustment of the emulated picture-in-picture window in the remote control;

translating the adjustment to a second set of controlling parameters, wherein said second set of controlling parameters comprises an adjusted size of the picture-in-picture window screen;

transmitting said second set of controlling parameters from the remote control to the television; and

adjusting the picture-in-picture window screen on the television screen according to the second set of controlling parameters.

18. The method according to claim 17 further comprising:

adjusting the position of the emulated picture-in-picture window on the user interface of the remote control;

analyzing the adjustment of the emulated picture-in-picture window in the remote control;

translating the adjustment to a second set of controlling parameters, wherein said second set of controlling parameters comprises an adjusted size of the picture-in-picture window screen;

transmitting said second set of controlling parameters from the remote control to the television; and

adjusting the picture-in-picture window screen on the television screen according to the second set of controlling parameters.

19. The method according to claim 16 further comprising:

adjusting the channel of the emulated picture-in-picture window on the user interface of the remote control;

analyzing the adjustment of the emulated picture-in-picture window in the remote control;

translating the adjustment to a second set of controlling parameters, wherein said second set of controlling parameters comprises an adjusted size of the picture-in-picture window screen;

transmitting said second set of controlling parameters from the remote control to the television; and

adjusting the picture-in-picture window screen on the television screen according to the second set of controlling parameters.

20. The method according to claim 16, wherein said emulated picture-in-picture window display a video capture of the picture-in-picture window screen on the television screen.

21. The method according to claim 16, wherein multiple picture-in-picture window screens can be created on the television screen.

22. The method according to claim 16, wherein said user interface of the remote control comprises a handwriting recognition mechanism.

23. The method according to claim 16, wherein said user interface of the remote control comprises a voice recognition mechanism.

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In re Patent Application of)
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WILLIAM S HERZ)
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For METHOD AND APPARATUS FOR)
AN INTUITIVE UNIVERSAL)
REMOTE CONTROL SYSTEM)
)
San Francisco, California

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Assistant Commissioner of Patents
Washington, D C 20231

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PATENT APPLICATION TRANSMITTAL

Sir

Transmitted herewith for filing is the patent application of inventor WILLIAM S HERZ, for "METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM " Enclosed are

1 Forty pages of the specification, including fifty-two claims and an abstract

2 Twenty-two sheets of drawings

The filing fee is calculated to be $1,582 00, a check for which is enclosed The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No 13-1030 A duplicate copy of this sheet is enclosed

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION FOR PATENT

METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM

INVENTOR William S Herz

BACKGROUND OF THE INVENTION

The present invention relates to a remote control system for remotely controlling various electronic devices such as television and audio visual ("AV") systems using a single remote control

In recent years, various electronic devices such as stereo systems, television receivers, cassette tape decks, video tape decks, compact disc players, laser vision disc players, and the like are equipped with remote control systems

In a conventional system, a remote control system having a transmitter is usually positioned remotely from a controlled device The transmitter, when operated transmits a remote control signal such as an infrared remote control signal, which is received by a receiver in the controlled device The received remote control signal is decoded to control the device as intended by the remote control signal

In a universal remote control system, one single remote control is capable of controlling more than one AV device In one type of the universal remote control, the remote control comprises a remote memory storing all the coding signals for different brands of the AV devices Then the user programs the remote control by entering a set of preassigned codes to call up the appropriate coding of each device In another type of the universal remote control, the user activates a learning mode of the remote control and lines up the universal remote control with the selected device Then the remote control sequentially tests each control signal until the correct one is found When the correct control signal is found, the device will

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signal the user to stop further testing and the corresponding control protocol is then stored

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a novel universal remote control system

It is another object of the present invention to provide a remote control system having a bidirectional communication channel between the remote control and the audio video device(s) controlled by the remote control

It is another object of the present invention to provide a remote control system having a dual communication mode for communication between the remote control and the audio video device(s) controlled by the remote control Specifically, the remote control system accommodates both infrared communication and radio frequency communication

It is another object of the present invention to provide a remote control system that is capable of automatically switching between a plurality of communication modes

It is another object of the present invention to provide a remote control system that is capable of storing and updating TV programming guide information in a remote control memory

It is another object of the present invention to provide a novel user interface for the remote control in the remote control system

It is another object of the present invention to provide a soft graphical user interface ("GUI') to the remote control of the remote control system

It is another object of the present invention to provide a remote control system that allows expansion of the television functions that it controls

It is another object of the present invention to provide a novel calibration handshake method for communications between the remote control and at least one audio/video device

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It is another object of the present invention to provide a remote control that is capable of automatically updating the remote control memory with universal remote protocols associated with new home entertainment devices

It is another object of the present invention to provide a lost beacon feature for the remote control wherein the user can activate a beacon signal when the remote is misplaced

It is another object of the present invention to provide a handwriting recognition input or voice recognition feature as the user interface for the remote control

Additional objects, features and advantages of various aspects of the present invention will become apparent from the following description of its preferred embodiments, which description should be taken in conjunction with the accompanying drawings

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 shows a preferred embodiment of a conceptual diagram of a universal remote control system according to the present invention

Figure 2 shows a block diagram of a remote control system of a preferred embodiment according to the present invention

Figure 3 shows a preferred embodiment of a remote control block of the remote control system of Figure 2

Figure 4 shows a preferred embodiment of a television block or the remote control system of Figure 2

Figure 5 shows a preferred embodiment of a remote control according to the present invention

Figures 6a and 6b are flow charts of two preferred methods of communication mode selection according to the present invention

Figure 7 shows a sequence of square pulses used for mode selection as shown in the flow chart of Figure 6b

Figures 8a,b illustrate how EPG programming data can be used in a remote control of a preferred embodiment according to the present invention

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Figures 9a,b illustrate the soft GUI displayed on a remote control of a preferred embodiment according to the present invention

Figures 10a,b c d illustrate the ability to expand the TV functions according to the present invention

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Figures 11a,b and c illustrate the calibration handshake ability according to the present invention

DETAILED DESCRIPTION OF THE DRAWINGS

Figure 1 shows a preferred embodiment of a conceptual diagram of a universal remote control system according to the present invention In the preferred embodiment as shown the universal remote control system comprises a remote control 110 and a television set 120 In another embodiment not shown the television set can be substituted with a set top box connected to a television set In addition, as in the universal remote control systems available on the market, the remote control of the present invention can also be used for controlling other AV devices such as videocassette recorder ("VCR") stereo system and digital versatile disc ("DVD") components, etc By encoding the signals sent out by the remote control, the remote control is able to establish communication channel between the remote control and the television set or other AV devices In the preferred embodiment of the present invention, the communication channel established between the remote control and any of the devices connected is a bidirectional communication channel so that data and information can be transmitted to and from the remote control to each of the components in the remote control system

Figure 2 shows a block diagram of a remote control system of a preferred embodiment according to the present invention As shown in the figure the system as shown only comprises a remote control block 210 and a television set block 220 It should be noted also, as stated in the previous paragraphs, the present invention can be applied to other audio/video devices

The television set block 220 of the preferred embodiment comprises a video signal receiver 222 for receiving and processing radio frequency or baseband video data, a memory 224 for storing any information needed for the television set

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and the remote control, an infrared communicator 226 for providing a infrared communication with the remote control, and a radio frequency communicator 228 for providing a radio frequency communication with the remote control In the preferred embodiment as shown, the selection between these two communication modes (i e infrared and radio frequency) is performed and determined by a proximity sensor 211 and a microcontroller 212 located in the remote control block 210 as shown

As shown in Figure 2, the remote control block 210 comprises an infrared communicator 213 for communicating with the television set a radio frequency communicator 214 for communicating with the television set a microcontroller 212 for controlling the basic functions of the remote control a user interface mechanism 215 for inputting and displaying data, a remote control memory 216 for storing information (e g programming guide information), a proximity sensor 211 connected to the microcontroller 212 for facilitating the microcontroller 212 to select a communication mode between the remote control 210 and the television set 220, a remote finder beacon mechanism comprising a radio frequency demodulator 218 connected to a remote finder beacon 217 and a beeper 219 for receiving beacon signal from the television set 220 for locating the remote control 210, a voice recognition mechanism (not shown) for processing voice commands issued by the user, and a power supply 231 for providing rechargeable and non-interruptible power to the remote control

In the preferred embodiment as shown, the microcontroller 212 of the remote control controls all major functions, such as (1) handling user commands received by the user interface 215 and generates control signals and transmits the control signals to the television set 220 or any other AV devices by one of the two transceivers, (2) processing electronic program guide ('EPG') data received from the television set and storing the EPG data in the remote control memory 216, (3) parsing, retrieving, and displaying the processed EPG data from the memory 216 as requested by the user through the use of the user interface 215 (4) updating the stored EPG data and communication protocol(s) received from the television set

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220 or any other audio/video devices, (5) selecting the optimal communication mode between the infrared communication mode and the radio frequency communication mode in response to the proximity sensor 211, and (6) analyzing and responding to user commands received from the user interface 215 and performing the appropriate functions, etc

Figure 3 is a block diagram showing additional details of the remote control portion of the remote control system according to the present invention The remote control portion as shown comprises a radio frequency transceiver 301 a IRDA transceiver 302 and IRDA encoder/decoder 303 pair supporting IRDA standard, a DSP microcontroller 304 for controlling different components within the remote control block, a pair of bus controllers 305a,305b for controlling data transfer within the remote control block, a remote control memory 306 for storing the remote control system program and a handwriting recognition program, a non-volatile flash memory 307 for storing the EPG data or universal remote control protocol(s) downloaded from the television set or a set-top box, a touch screen LCD device 308 for data and/or command entry a ringer 309 for producing a beacon or activating a flashing LED when a remote control finding signal is received In addition the remote control also comprises four voltage regulators 310a,310b,310c,310d Two of the voltage regulators are used to supply currents to the IRDA encoder/decoder 303 and the IRDA receiver 302 and the remaining two voltage regulators are used to supply currents to all other components on the remote control In the preferred embodiment as shown, the remote control is powered by a rechargeable battery It should be noted that the IRDA standard is used for the infrared communication in this preferred embodiment of the present invention The IRDA standard is a cordless data connection standard using infrared light It is a low-cost transceiver signaling technology for two way data exchange It provides high-speed digital exchange through the typical PC UART/serial port at 9600-115200 bits/s, and in some units compatible high speed extensions up to 1Mb/s and 4Mb/s speeds

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Figure 4 is a block diagram showing additional details of the television portion of the remote control according to the present invention As shown in the figure, the television portion comprises a radio frequency transceiver 401, a IRDA transceiver 402 and IRDA encoder/decoder 403 pair supporting IRDA standard, a microcontroller 404 for controlling various components within the television portion, a remote control memory 405 for storing a remote control system program, a flash memory 406 for storing the EPG data downloaded from the cable company, satellite, pre-recorded cassettes, or DVD, etc , a bus controller 407 for controlling data transfer within the television portion, and a remote finder switch 408 for the user to activate the remote finding feature Similarly, as in the remote control portion, the television portion also comprises four voltage regulators 410a,410b,410c,410d for providing currents to different components of the television portion

Figure 5 shows a preferred embodiment of a remote control 500 according to the present invention The remote control as shown comprises a display screen 510 for interfacing with the user, a plurality of buttons 512a b c d & 514a,b,c d for issuing commands and/or entering data into the remote control 500 a stylus 516 for writing onto the screen 510 and a LED light 518 for indicating the communication mode currently running between the remote control and the device connected As shown in the figure, the plurality of buttons comprises a group of four buttons 514a,b,c d for moving any pointing device used in the display screen 510 In addition, the display screen 510 of the preferred embodiment is connected to a handwriting recognition mechanism (not shown) so that the user can issue commands and/or enter data to the remote control 500 by writing onto the screen 510 It should be noted that, even with the disclosure of this embodiment, many aspects of the present invention can still be implemented in a universal remote control that does not provide the display 510 as used by this embodiment In other words, other kinds of user interface such as keyboard and push buttons can also be employed in the present invention In addition, the remote control according to the present invention is backward compatible with the current remote control system

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such that all the current remote control functionality can be emulated by the present invention

In another preferred embodiment according to the present invention, the touch screen display is also provided with pressure sensing ability for sensing different handwriting stroke pressures exerted on the screen For example, instead of clicking a new command button on the emulated screen, a hard pressed period can be programmed in the remote control for the beginning of a new command

In another preferred embodiment, instead of using a display screen in the remote control to interface with the user, a touch pad can be used along with an on-screen display ('OSD") of the television to perform similar functions Specifically, the user can enter the commands/data on the touch pad of the remote control and the corresponding graphical user interface can be shown on the OSD of the television In other words, the command/data inputting functions of the display screen of the remote control is replaced by the touch pad whereas the graphical user interface functions of the display screen is replaced by the OSD of the television By replacing the display screen with the touch pad, the cost of the remote control can be tremendously reduced In the following discussions, it should be noted that each and every feature using the display screen of the remote control can be replaced by using a touch pad along with the OSD of the television

The followings discuss different aspects of the remote control of the present invention

1 Bidirectional Communications

The first aspect of the present invention relates to the means of communication between the remote control and the television set/set top box (and any other audio/video devices) As discussed above the communication between the remote control and the television is preferably performed bidirectionally so that commands and data can be transferred freely between the remote control and the television set Thus in addition to commands and data being sent from the remote control to the television set, commands and data can be sent back from the television

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set to the remote control In the preferred embodiment, the communication is performed by transceivers located in the remote control and the television set Particularly, each transceiver comprises both a transmitter and a receiver for sending and receiving data This bi-directional communication feature of the present invention provides extreme flexibility in the remote control design because the remote control not only can control the television set, the television set can also provide data and control signals back to the remote control in response to changes in status and/or protocols

In one example of the present invention, the television set can forward the EPG programming data received from satellite delivery or terrestrial broadcast to the remote control The television set first receives the EPG data, and then forwards the data to the remote control via the bidirectional communication feature as discussed By having the EPG programming data stored in the remote control memory, the remote control is able to parse and retrieve the EPG programming data when a user command is entered Then the remote control can interpret the TV programming data and process the command entered, and simplify the control of the corresponding AV component(s) accordingly Detailed examples on the uses of the TV programming data are illustrated in the following sections Particularly, section (4) (i e EPG Programming Data section) discloses methods of downloading the electronic programming guide (i e EPG programming data) to the remote control and then subsequent using the EPG programming data stored in the remote control to handle any commands entered In addition using the bi-directional communication channel, the television set can also inform and update the remote control of its status and/or any new control protocols These features will be discussed in detail in the following sections

2 Infrared/Radio Frequency Communication

According to another aspect of the present invention, there is provided a dual communication mode for the remote control system Specifically, the television/set top box (or any other audio/video devices) and the universal

remote control of the present invention each comprises an infrared transceiver and a radio frequency transceiver so that the communication between the two devices can be performed in either the infrared or radio frequency band Furthermore, each of these transceivers can be a bi-directional transmitting device as discussed in the previous paragraphs

Particularly, in response to the environment and distance between the remote control and the television set the present remote control system automatically selects an optimal communication means (i e infrared communication, or radio frequency communication) It is known that each of the infrared communication and the radio frequency communication modes has its own advantages and shortcomings Therefore the present invention is designed to alleviate the disadvantages of each means by automatically selecting the most efficient communication method between the remote control and the television set

Specifically, in the preferred embodiment of the present invention when the remote control is in close proximity of the television set the infrared communication mode is selected in order to conserve power in the remote control It should be pointed out that, by communicating using infrared signals (especially by complying with the IRDA standard), the remote control system of the present invention is able to conform to other IRDA devices such as computer peripherals, digital cameras, laptop computers, personal communication systems (PCS), and wireless modems and printers, etc However, in some situations, infrared communication cannot be established due to the distance between the two devices, and/or some obstacles blocking the infrared transmission In those cases, radio frequency transmission is then selected for communicating between the remote control and the television set (or other connected devices) It should be also noted that, in the preferred embodiment, the default communication mode of the remote control system is the infrared mode to conserve electrical energy of the remote control Only if the infrared communication cannot be established between the remote control and the target device the system will be shifted to the radio frequency communication mode

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Therefore, in the preferred embodiment as shown in Figure 2 each of the remote control and the television set comprises an infrared transceiver and a radio frequency transceiver so that the remote control can communicate with the television in either the infrared mode or radio frequency mode By having two different transceivers in the remote control and the television set, the remote control system can switch between these two communication modes according to need

In one preferred embodiment of the present invention, a select button is provided in the remote control for the user to force and lock a specific communication method This can be done by simply deactivating the proximity sensor By deactivating the proximity sensor and forcing a communication mode on the remote control system, the user can select a preferred and/or fixed method of communication between the remote control and the television set

3 Automatic Mode Selection

Another aspect of the present invention is a method to automatically select an optimal communication mode for communication between the remote control and the television set (or any other audio/video devices) Under this aspect of the present invention, the selection between the two communication modes (i e infrared mode and radio frequency mode) is transparent to the user and is performed automatically in the remote control system without requiring any attention from the user

Figure 6a is a flow chart showing one of the preferred methods of determining and selecting an optimal communication mode performed by the remote control system according to the present invention At a first step (Step 601), both of the television and remote control are initialized to operate in both the radio frequency and IR mode Then, in Step 602, the television set sends out both (1) a test enable signal, and (2) an IR request to the remote control According to this embodiment the test enable signal is sent by the television set using the radio frequency transceiver to inform the remote control of the incoming IR request In the preferred embodiment, the test enable signal contains a sequence of pulses

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transmitted to the remote control for synchronization In addition the IR request is sent by the television set using the IR transceiver In the preferred embodiment, the IR request is a predetermined sequence of data bits When the remote control receives the test enable signal from the television (Step 603), it proceeds to the next step, Step 604 If the remote control does not receive the test enable signal, the remote control is out of the radio frequency range of the television set so that the television set will repeat the initialization process again In the next step (Step 604), the remote control examines whether the IR request signal is received If the remote control does not receive the IR request signal, the remote control will not transmit any response to the television set On the other hand after the remote control receives the IR request sequence of data bits, the remote control compares the received IR request sequence of data bits with a reference of the sequence of data bits stored in the remote control (Step 605) If the two sequences of data bits match, the remote control then sends an infrared acknowledgment back to the remote control (Step 606) On the other hand, if the two sequences of data bits do not match, the remote control will not send an acknowledgment sent to the television

Finally, when the television receives the IR acknowledgment signal from the remote control (Step 607) the television will set the communication mode to the IR mode (Step 608) On the other hand if the television does not receive any IR acknowledgment after a predetermined period of time the television will determine that the infrared channel cannot be established and will select the radio frequency mode for communication between the television and the remote control (Step 609)

Figure 6b is a flow chart showing another preferred method of selecting the mode for communications between the remote control and the television set First, both the television set and the remote control are initialized to operate in the radio frequency mode (Step 621) In this preferred method, the television set only sends a sequence of square pulses using the radio frequency transceiver to the remote control for the initialization process (Step 622) As shown in Figure 7, each of the square pulses has a predetermined amplitude A and time

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duration t When the remote control receives the sequence of square pulses from the television set, the remote control compares an amplitude A' and time duration t of individual square pulse received with a set of pre-stored values (i e A & t) By comparing the amplitude A' and time duration t' of the pulses received from the television set with the pre-stored values (i e A & t), the remote control can calculate the distance between the remote control and the television set (Step 624) After the distance between the remote control and the television set is calculated the remote control can determine whether it is within the transmission range of the infrared transceiver (e g >3 meters) in Step 625 If the remote control is within the infrared range of the television set, the remote control will select the infrared communication mode (Step 626) Otherwise, the remote control will select the radio frequency communication mode for communication between the remote control and the television (Step 627)

It should be pointed out that the above-discussed mode selection sequence can and should be repeated regularly For example, one of the above-mentioned mode selection methods can be performed after each keystroke entry, but prior to the actual data or command transmission between the two devices, in order to ensure the most appropriate communication mode is adopted for the communication between the remote control and the television

4 EPG Programming Data

Another aspect of the present invention is a method of providing television programming guide information (e g the EPG data) to the remote control so that the remote control (1) can provide the programming guide information to the user using the user interface, and/or (2) can process user commands/data and then parse and retrieve the EPG programming data stored in the remote control for any relevant information so that appropriate controlling signals can be produced to activate the television sets and/or other AV devices accordingly As discussed in the previous paragraphs, each of the television set and the remote control comprises at

least one transceiver (e g infrared transceiver or radio frequency transceiver) for exchanging information between the remote control and the television set

Particularly, according to this aspect of the present invention, the television set is first provided with the EPG information from the television signal received from either the cable company or baseband RF transmission After the television set receives this information the television set transmits this information to the remote control through a communication channel established between the television set and the remote control (e g infrared communication or radio frequency communication) After receiving this information from the television set the remote control organizes and stores this information in the remote control memory for later use

For example, this EPG information may contain daily or weekly TV programming schedule and channel assignments Preferably, each of the program entries comprises the (1) TV channel number (2) show time (3) show name, and (4) synopsis of each program Depending on the size of the remote control memory, the remote control can store this information of all the scheduled TV programming for one day, or even one week or more By having all the EPG programming information stored in the remote control memory the remote control can accommodate different modes of data entry such as accepting command input using channel number, program name, or keywords Since all related information of each television program is stored in the remote control memory the channel number and the program name can then be retrieved by the controller of the remote control by parsing the EPG data stored in the remote control memory

For example, when requested by the user the remote control can display any portion of the TV programming schedule for the night, or the week on its user interface In this case, all or a portion of the program names, show times, and synopsis etc can be shown for any specified time period on the user interface of the remote control Furthermore, another feature is to allow the user to find out which channel a specific program will be showing and at what time

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For example, Figure 8a shows a remote control having a TV program named "Seinfeld" handwritten on its screen by a user By employing handwriting recognition software installed in the remote control, the handwritten word "Seinfeld" can be recognized and the corresponding commands/data can be extracted In the present example as shown, the remote control first captures the handwritten program name "Seinfeld" and then translates it into a machine-readable format (e g ASCII data) Then, the remote control parses the EPG programming information stored in the remote control memory and retrieves the corresponding programming guide information so that the programming listing for the program "Seinfeld" can be accessed and processed After the corresponding information is obtained and processed, all or a portion of the programming guide information of the TV program "Seinfeld" can be listed on the user interface (e g touch screen)

Figure 8b shows the remote control of the preferred embodiment displaying the programming guide information for the TV program 'Seinfeld ' Depending on the user interface design all or a portion of the programming guide information stored in the remote control memory can be displayed on the screen In the example as shown in Figure 8b, under the TV program name Seinfeld, the corresponding channel number and show time are displayed on the same screen In one preferred embodiment of the present invention, the user can then be prompted by the remote control to determine whether the corresponding TV program should be activated and shown on the television at the future show time On the other hand, if the TV program Seinfeld is currently being shown on one of the TV channels, the remote control can send the appropriate control signals to the television set and switch the television set to the corresponding channel Furthermore, if selected by the user the VCR connected to the remote control system can also be programmed so that the selected TV program will be recorded by the VCR at the future show time

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Soft Graphical User Interface (Soft GUI)

Another aspect of the present invention is a novel user interface provided by the universal remote control This aspect of the present invention is illustrated by Figures 9a,9b According to the present invention soft graphical user interface (Soft GUI) can provide maximum flexibility for the user to interface with the remote control The soft GUI can also provide a user-friendly interface for the user to acquire control of different functional components accessible by the remote control For the remote control system as shown in Figure 2 the remote control can communicate and operate with all consumer electronic equipment having an IRDA interface For example, the list can include stereo systems, VCR, DVD, computer peripherals printers, and PCS etc

Under this aspect of the present invention, the soft GUI can display user familiar patterns on the screen of the remote control Particularly, the user familiar patterns displayed on the user interface of the remote control emulate the control interface of any components connected to the remote control so that the user can issue commands by pressing the corresponding emulated buttons displayed on the screen When any of the emulated buttons is pressed by the user, the remote control translates the user command to the corresponding control function Then the remote control sends the corresponding control signals to the specified audio/video device(s)

For instance, Figure 9a shows a remote control of the present invention having the word "VCR' handwritten on its display screen In response to this written command, a handwriting recognition mechanism in the user interface analyzes and converts the handwriting VCR to machine-readable ASCII data After that the user interface calls up the VCR controlling subroutine store in the remote control memory and displays the VCR control buttons (e g Play, Forward, Backward, Record, and Pause, etc) on the remote control display screen as shown in Figure 9b According to this aspect of the present invention, the user is then allowed to pick any of the VCR functions by pressing the corresponding button For example, in the present example, the user can use a stylus to choose the "Play"

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function by pointing to the corresponding button on the display screen Then the remote control converts the user input command to the corresponding control signals for activating the Play function of the VCR

In another example, the user can use the remote control to program the VCR by selecting the date, time, and channel parameters displayed on the screen In the remote control as shown in Figure 9b the buttons appeared on the display screen include day, month and time, etc of all the necessary parameters of a VCR programming command The user can then program the VCR by simply pressing the corresponding buttons on the soft GUI screen of the remote control Furthermore, the remote control can be designed so that when a television program is selected by the user the remote control can provide the user with the television guide programming information of the selected television program along with this soft GUI screen so that the VCR can be programmed for the selected television program

Another aspect under the soft GUI of the present invention provides a personalized remote control option for different users Under this aspect of the present invention, the remote control can be programmed according to the preferences defined by different users User-specific settings such as preferred channels, volume level on the television set and/or stereo set etc can be programmed and stored in the remote control memory When this feature is activated, the remote control retrieves and executes these user-dependent settings according to the preference of the individual user Furthermore, these individual settings can also be password protected

For example, when a user activates his/her preferred settings stored in the remote control, the remote control can display a list of all preferred channels, and/or the past five television channels visited by the user so that the user can chose accordingly Furthermore, other settings such as volume level control, balance control, and/or picture-in-picture controls can be similarly stored and recalled as user predefined settings by the user

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6 Expanding TV Functions

Another aspect of the present invention is the ability to expand the functions of the television set Under this aspect of the present invention, the user can redefine the parameters of the television set using the user interface of the remote control Specifically, instead of transmitting specific pre-defined commands (e g "Open PIP window for Channel 4") from the remote control to the television set, the remote control according to this aspect of the present invention provides a set of extensive control signals to the television set, or other AV devices For example, the set of extensive control signals might include channel number, command of opening a PIP window, size of the PIP window location of the PIP window, etc Using these controlling sig.ials the television set can reformat the television screen accordingly Thus, depending on the software program implemented in the remote control system, the remote control is able to expand the functionalities of the television set by adjusting the set of control parameters

Figures 10a,b,c,d show a remote control system having a remote control and a television set 1020 coupled to the remote control 1010 according to this aspect of the present invention

Referring to Figure 10a the remote control 1010 shows the channel number 6 on its display screen while the television set has the television programming set on channel 6 As shown in the figure, the display screen of the remote control has an emulated television screen where the user can issue commands onto the screen

Referring to Figure 10b, the user has issued a PIP command on channel 3 to the remote control by drawing a window and then writing a 3" onto the emulated television screen on the remote control 1010 The command is recognized by a handwriting recognition program stored in the remote control 1010 Then the remote control 1010 processes the PIP command and transmits a PIP command on channel 3 to the television set It should be noted that the PIP command issued by the remote control to the television not only includes the conventional PIP instruction of opening a PIP window for showing channel 3 The

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command also includes the position and size of the PIP by analyzing the size and the position of the PIP window drawn on the emulated television screen of the remote control Thus, the remote control sends the following parameters to the television set instruction to create a PIP window, channel number of the PIP window, size of the PIP window, location of the PIP window, and accompanying audio(s) etc Then the television set opens the PIP window on the television screen according to these parameters This aspect of the invention provides the user full control of the PIP window screen by using the remote control

Figure 10c shows another feature of the present invention Under this aspect of the present invention, the user is able to adjust the size of the PIP screen by simply resizing the PIP window on the simulated television screen as shown in the remote control using standard window management techniques As shown in the figure, the corresponding PIP window on the television set 1020 is resized accordingly when the user adjusts the size of the PIP window on the simulated television screen on the remote control 1010 or, in another embodiment, on the on-screen display on the television set 1020

Figure 10d shows yet another feature of this aspect of the present invention Under this aspect of the present invention the user is able to move the location of the PIP window screen on the television screen by simply dragging the emulated PIP window on the remote control 1010 or on the on-screen display on the television set 1020 As shown in the figure the PIP window on the television screen is positioned by the user to a new location when the emulated PIP window on the remote control 1010 is dragged to a different location In response to the command to reposition the PIP window screen, the remote control issues the corresponding repositioning control signals to the television set by transmitting the new location and/or size of the PIP window as entered by the user It should be noted that the same window management technique can be used with the remote control under this aspect of the invention

It should be noted that, in the preferred embodiment according to the present invention, the above-mentioned window resizing and repositioning steps can

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be performed on the display screen using standard window management techniques For example, the methods of resizing and repositioning Microsoft (TM) windows can be similarly implemented in the remote control of the present invention

Furthermore, the user can also create more than one PIP in the television screen by drawing another window on the emulated television screen on the remote control 1010 The remote control 1010 can then inform the television set 1020 to open another PIP screen according to the user command

To better accommodate this feature, the television set needs to be able to accept the control signals provided by the remote control and change the screen characteristics accordingly For example, the television set should be able to accept the controlling parameters such as the location and the size of the PIP window Using these controlling parameters, the television can basically expand the television functions by for example performing the specific PIP window functions, etc The television set is therefore, preferably, a digital signal processing television so that the video data of the TV screen can be digitally processed and rearranged However, implementation of this invention is not limited to a digital television set because an analog television set having a digital signal processing ability is also able to implement this feature

Figures 11a,11b 11c show another aspect of the expanding TV functions feature according to the present invention

Referring to Figure 11a, the remote control as shown displays an emulated television screen and six input control buttons In this embodiment, each of the six input control buttons represents a television signal input source for the television set According to this aspect of the present invention, the user is allowed to connect any of the six input control buttons to the emulated television screen displayed on the remote control so that the corresponding television input signal will be provided to the television set accordingly

For example, as shown in the figure the user can connect the video 2 input (i e VD2) to the television set by drawing a line from the button VD2" to the emulated television screen displayed on the remote control By drawing the

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connection from the button "VD2" to the emulated television screen, the remote control generates and sends a corresponding set of control signals to the television set to connect the VD2 input to the television set

Referring to Figure 11b, the remote control as shown displays an emulated television screen and two buttons representing two different aspect ratios According to this aspect of the present invention, the user can change the aspect ratio of the television screen by drawing a line from one of the two buttons to the emulated television screen on the remote control In the example as shown in the figure, the aspect ratio of the television screen can be changed to 16 9 by drawing a line from the '16 9" button to the emulated screen displayed on the remote control The aspect ratio can also be changed by tapping the corresponding button on the emulated screen of the remote control Furthermore, the aspect ratio of the television screen can be changed by the user by simply dragging the corner of the emulated screen on the remote control to a new aspect ratio This method is similar to the window commands currently used with any window computer systems Then, the remote control will generate and send the corresponding control signals to the television to execute this command

Referring to Figure 11c, the emulated television screen has an area for displaying closed captioning According to this aspect of the present invention, the user can change the size position and/or characteristics of the closed captioning by simply dragging the closed captioning bar on the emulated television screen to other location Then, the remote control will generate and send the corresponding control signals for changing the location of the closed captioning to the television set to execute this command

It should be noted that the above-mentioned examples as shown in Figures 10a,b c, and 11a b c demonstrate different methods of using a remote control to expand the controllability of the television set According to this aspect of the present invention, the remote control can be programmed to perform different controlling functions not originally designed for the television set By loading

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custom designed software into the remote control and the television the functionabilities of the television set can be expanded, correspondingly

8 Calibration Handshake

Another aspect of the present invention is to allow the user interface of the remote control to provide the current status information of the television set/set top box (and other AV devices connected to the remote control) In the conventional remote control system the remote control is usually a dumb control having only a unidirectional communication means which cannot receive any status information from the devices connected to the remote control For example, the remote control does not have the information of the volume level when the user is adjusting the volume level of the television set This information (in this case, the volume level) can at most be provided on-screen by the television set because the conventional remote control does not carry any status information of the devices coupled In other words, the devices connected are decoupled with the remote control

According to this aspect of the invention, the audio/video device(s) coupled to the remote control regularly updates/provides its status information to the remote control using the bidirectional communication channel established between the remote control and the device(s) After the remote control receives and stores this status information, this information will be displayed on the user interface of the remote control when requested by the user Then the user can control any portion of this status information by issuing corresponding commands to the user interface (e g graphically or intuitively) of the remote control After processing these commands, the remote control will then transmit the corresponding control signal(s) to the specific audio/video device accordingly

Under this aspect of the invention, the remote control stores and updates all, or selected portions, of the status parameters of the TV or any other audio/video devices connected to the remote control These parameters might include, but are not limited to, the volume control of the TV and the stereo

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equipment, the brightness and sharpness of the TV, the program name of the TV program currently being shown on the TV, the balance control of the stereo system, and the time remaining on the DVD player, etc This aspect of the present invention is illustrated by Figures 12a,b as follows

Figure 12a shows a remote control having handwriting characters "V TV ' written onto its screen The handwriting recognition mechanism of the user interface first recognizes and processes the handwriting command V TV" and displays a volume control screen on the remote control Figure 12b shows the remote control having a volume control bar displayed on the screen It should be pointed out that during power-on initiation of the television the remote control is provided with the current control parameters or status of the television set Thus the remote control can provide the current volume control information of the television set when requested by the user In the example as shown in Figure 11b, the dot on the volume control bar indicates the current volume level of the television set By simply dragging the dot to other position on the volume control bar the remote control will execute the volume adjusting command by sending out a volume control signal to the television set

The detailed operation of the calibration handshake can be illustrated as follows After the user has given a V TV' command on the remote control the remote control sends a signal through its transceiver to the television set requesting current television status information After receiving the request from the remote control, the television set provides all the volume control information to the remote control The remote control then displays the current volume control information on its screen so that the user can control it using a stylus by dragging the dot representing the current volume level The remote control then translates the user's command and sends the appropriate control signals to the television for adjusting the volume accordingly

In another embodiment of the present invention the parameters of all or a portion of the status information are stored in the remote control before any request from the remote control is made In this embodiment, each of the connected

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components regularly transmits these parameters to the remote control to be stored in the remote control memory Thus the remote control can provide the current status information instantly when requested

It should be noted that this kind of calibration handshake can be applied to any of the functional parameters of the television set, or any other AV devices connected to the remote control, such as hue, brightness, channels etc

9 Passive Updating

Another aspect of the present invention is the ability to passively update the communication protocols and/or status parameters stored in the remote control For example, the updating can be performed on the remote control for the EPG data stored, or the communication protocols used between the remote control and the television set/set top box and any other AV devices In the preferred embodiment of the present invention the television set of the remote control system is capable of passively and automatically updating any protocols and status parameters stored in the remote control Depending on the implementations, the updating can be performed regularly (e g daily or weekly) or when new protocol and data are received by the television set/set top box and the AV devices In the preferred embodiment according to the present invention for example, the remote control system can be programmed by the user on how often the updating procedure is performed Before transmitting the updated information to the remote control, the television set or any of the connected AV devices first checks whether the remote control is within the communication range For example in the preferred embodiment, if the data communication between the remote control and the television set can be performed by the infrared transceivers only, the data updating of the remote control can only be performed when the remote control and the television set are within the infrared transmission range On the other hand if the data communication between the remote control and the television set is performed only by the radio frequency transceivers, the data transfer for updating the remote control is performed when the remote control and the television set are within the

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radio frequency transmission range After the updated data is received by the remote control from the television set, the remote control updates its EPG or control protocols accordingly

For example, the cable company can update the EPG programming information weekly by sending the information through its cable lines to the television set every week Specifically, this information can be embedded in the vertical blanking interval ("VBI") portion or MPEG sub-picture data portion of the television signal Furthermore individual AV device manufacturers can also update the protocols of the AV devices by providing, for example video cassettes embedded with updated protocols to the user After the television set receives the information, the television set automatically sends the information to the remote control for updating the EPG programming data stored in the remote control memory so that the most updated TV programming schedules is stored in the remote control Similarly new communication protocol(s) for communicating with different A/V component(s) can also be sent by the television set to the remote control for updating the corresponding protocol(s) currently stored in the remote control

In other instances new functionalities can also be added to the television set by sending the corresponding control protocols of the new functions to the remote control The detailed operation of adding new functionalities to the remote control is similar to the protocol updating as discussed above

Similarly, any other AV device can send its own set of the communication protocol to the remote control for passively updating or initializing the remote control The advantage of this feature is to eliminate manual updating and/or programming of the remote control

10 Lost Beacon

Another aspect of the remote control system of the present invention is to incorporate a remote lost beacon in the remote control system It is a common problem for the user to misplace the remote control somewhere in his or her house Therefore, a remote lost beacon or a flashing LED feature is incorporated in the

remote control system according to this aspect of the present invention In the preferred embodiment, the same radio frequency transceiver in the television set can be used to provide a remote beacon signal to the remote control When the user wants to locate the remote control, the user can simply press a button on the television set Then the television set will send a remote control locator signal to the remote control After receiving the remote control locator signal, a beeper in the remote control is activated and produces a sound to indicate the location of the remote control In another embodiment, a flashing LED, instead of a beacon sound, can be used for indicating the location of the remote control

11 Voice Recognition

Another aspect of the remote control of the present invention is to incorporate a voice recognition control option to the remote control Instead of using the conventional push-button control, or the handwriting recognition technique as discussed in the previous paragraphs, a voice recognition mechanism can be implemented in the remote control for receiving voice information and/or commands from the user There are currently various recognition mechanisms in the market, thus any one of the currently available voice recognition mechanisms can be implemented in the remote control according to the present invention The voice recognition process is very similar to the handwriting recognition scheme as discussed, only with the substitution of the handwriting recognition mechanism with a voice recognition mechanism The subsequent parsing of the EPG data is similarly implemented

It should noted that all or portion of the above mentioned features can be implemented in a remote control system according to the present invention Figure 13 is provided to show the operations of a remote control system using some of these features according to the present invention

Step 1 A command is input to the remote control by an user For illustration purpose assuming the command issued is a split-screen command

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Step 2 The handwritten split-screen command is recognized and translated by a handwriting recognition mechanism of the remote control to a machine readable command (e g ASCII data as shown)

Step 3 A communication channel is selected by a proximity sensor so that the corresponding communication signals are sent through one of the two channels to the television set

Step 4 The communication signals are received by the television set using one of the two transceivers (i e infrared transceiver and radio frequency transceiver)

Step 5 The received signals are then translated again to machine readable data for the television set to process

Step 6 A central processing unit (' CPU), or a digital television controller ("DTC") of the television set processes the commands and transmits the commands to the corresponding operating subsystem through an internal bus Each of the subsystems A,B,C represents a different functional component of the television For example, subsystem C is for controlling various screen orientations (e g aspect ratio or PIP, etc) of the television set

Step 7 The module C receives the split-screen command from the CPU through an internal bus and executes the command accordingly

Step 8 A split screen is then displayed on the television set according to the command issued to the remote control

Step 9 After the command is executed (i e a split screen is displayed as requested) an acknowledgment signal is generated by the subsystem C and provided to the internal bus

Step 10 The acknowledgment signal is received by the CPU, or DTC connected to the internal bus

Step 11 After a preferred communication channel is selected by the proximity sensor the acknowledgment signal is transmitted to the remote control

Step 12 The acknowledgment signal is received by one of the two transceivers of the remote control

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Step 13 The received signal is translated and processed by a controller of the remote control to generate a set of control signals to the display screen of the remote control

Step 14 A representation such as a acknowledgment icon is displayed on the remote control to signal the "split screen command has been executed by the television set

It is to be understood that while the invention has been described above in conjunction with preferred specific embodiments, the description and examples are intended to illustrate and not limit the scope of the invention, which is defined by the scope of the appended claims

What is claimed is

Sub A' 1 A remote control for controlling at least one audio/video device comprising

a receiver for receiving programming guide data from said at least one audio/video device

a remote control memory coupled to said receiver for storing the television programming guide data received by the receiver and

a user interface coupled to the remote control memory for displaying at least a portion of the television programming guide data when requested

2 The remote control according to claim 1, wherein said at least one audio/video device comprises a television set, and wherein said television programming guide data stored in the remote control memory is provided by the television set

3 The remote control according to claim 1, said user interface comprising

a touch screen display for displaying the at least a portion of the television programming guide data

4 The remote control according to claim 1, wherein said television programming guide data is electronic programming guide

Sub A 2 5 The remote control according to claim 1, said user interface comprising

a handwriting recognition interface for processing handwriting input

6 The remote control according to claim 1, said user interface comprising

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30

a voice recognition interface for processing voice input

7 The remote control according to claim 1 wherein the television programing data is provided to the remote control by a television

8 The remote control according to claim 7, wherein the television provides the television programming guide data to the remote control whenever the television programming guide data is received by the television

9 The remote control according to claim 1 is a programmable remote control

10 A remote control system comprising

a television comprising a first transmitter, and a data capturer for capturing television programming guide data from an input and

a remote control comprising a receiver for receiving the television programming guide data from the television, a remote control memory coupled to the receiver for storing said television programming guide data provided by the television, and a user interface for displaying at least a portion of the television programming guide data stored in the remote control memory

11 The remote control system according to claim 10 said user interface of the remote control comprising a touch screen display for displaying that at least a portion of the television programming guide data

12 The remote control system according to claim 10, wherein said television programming guide data is electronic programming guide

13 The remote control system according to claim 10, said user interface of the remote control comprising

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a handwriting recognition interface for processing handwriting input

14 The remote control system according to claim 10 said user interface comprising

a voice recognition interface for processing voice input

15 The remote control according to claim 10, wherein the television provides the television programming guide data to the remote control whenever the television programming guide data is received by the television

16 A remote control system comprising

a television comprising a first transceiver a data capturer for capturing television programming guide data from an input, and a display screen, and

a remote control comprising a transceiver for receiving the television programming guide data from the television, a remote control memory coupled to the receiver for storing said television programming guide data provided by the television and a controller for retrieving at least a portion of the television programming guide data stored in the remote control memory said transceiver providing said at least a portion of the television programming guide data to the television,

wherein said at least a portion of the television programming guide data is displayed by said display screen of the television

17 The remote control system according to claim 16 said remote control further comprising a user interface, said user interface comprising a touch screen display for displaying said at least a portion of the television programming guide data

18 The remote control system according to claim 17, wherein said touch screen display is a LCD touch screen

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19 The remote control system according to claim 16, wherein said television programming guide data is electronic programming guide

Sub A5 20 The remote control system according to claim 17, said user interface of the remote control further comprising

a handwriting recognition interface for processing handwriting input

21 The remote control system according to claim 17 said user interface further comprising

a voice recognition interface for processing voice input

22 The remote control according to claim 16 wherein the television provides the television programming guide data to the remote control whenever the television programming guide data is received by the television

Sub A6 23 A method for a remote control to communicate with at least one of a plurality of audio/video devices, wherein the remote control has a user interface, and each of the audio/video device performs a set of functions, comprising

selecting at least one of the audio/video devices using the interface of the remote control,

displaying a set of control buttons on said user interface of said remote control, each of the control buttons corresponding to at least one of the functions performed by the selected audio/video device and

activating one of the functions of the selected audio/video device by actuating the corresponding button on said user interface of said remote control

24 The method for communicating according to claim 23, said user interface comprising

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a touch screen display for displaying the set of control buttons wherein each of the buttons can be actuated by touch

25 The method for communicating according to claim 24, wherein said activating step comprises

pushing the corresponding button on the user interface of said remote control,

generating a set of control signals for the selected audio/video device of the activated function and

transmitting the set of control signals to the selected audio/video device to activate the corresponding function

26 The method for communicating according to claim 25, wherein said pushing step comprises

touching said user interface of said remote control

27 The method for communicating according to claim 25, wherein said pushing step comprises

activating a keystroke in said user interface of said remote control

28 The method for communicating according to claim 27, wherein said user interface is a pressure sensitive touch screen

29 The method for communicating according to claim 23, wherein said remote control is a universal remote control capable of adapting to different audio/video devices

Sub A7

30 The method for communicating according to claim 23, wherein said user interface of the remote control comprises

a handwriting recognition interface for processing handwriting input

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31 The method for communicating according to claim 23, wherein said user interface comprises

a voice recognition interface for processing voice input

32 The method for communicating according to claim 23, wherein said at least one audio/video device is a television, a set top box, a VCR, a DVD, a compact disc player, a stereo system, or home entertainment components

33 A method for a remote control to communicate with an audio/video device, said remote control comprising a user interface and said audio/video device comprising a plurality of controlling components, wherein each of the controlling components is set at a controlling level, comprising

selecting one of the controlling components of the audio/video device

transmitting the corresponding controlling level of the selected controlling component from the audio/video device to the remote control,

displaying the selected controlling level on the user interface

adjusting the selected controlling level using the user interface, and

transmitting the adjusted controlling level from the remote control to the audio/video device to adjust the corresponding component of the audio/video device

34 The method according to claim 33 wherein said remote control comprises a user interface comprising a touch screen display

35 The method according to claim 33 wherein said remote control comprises a user interface comprising a handwriting recognition mechanism

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10 ~~36~~ The method according to claim ~~33~~ 7, wherein said remote control comprises a user interface comprising a voice recognition mechanism

11 ~~37~~ A method for a remote control to communicate with an audio/video device, said remote control comprising a user interface and said audio/video device comprising a plurality of controlling components, wherein each of the controlling components is set at a controlling level comprising

selecting one of the controlling components of the audio/video device

transmitting the corresponding controlling level of the selected controlling component from the audio/video device to the remote control

storing the selected controlling level in a memory of the remote control,

displaying the selected controlling level on the user interface,

adjusting the selected controlling level using the user interface, and

transmitting the adjusted controlling level to the audio/video device to adjust the corresponding component of the audio/video device

12 ~~38~~ 11 The method according to claim ~~37~~, wherein said remote control comprises a user interface comprising a touch screen display

13 ~~39~~ 11 The method according to claim ~~37~~ wherein said remote control comprises a user interface comprising a handwriting recognition mechanism

14 ~~40~~ 11 The method according to claim ~~37~~, wherein said remote control comprises a user interface comprising a voice recognition mechanism

Sub A8 ~~41~~ A method for a remote control to adjust the display property of a television screen of a television, said remote control comprising a user interface comprising

issuing a display control command on the user interface of the remote control for adjusting the display properties of the television screen

analyzing the display control command by the remote control,

translating the display control command to a set of controlling parameters wherein said controlling parameters are fully controllable by the remote control,

transmitting the controlling parameters from the remote control to the television, and

displaying the television screen on the television

42 The method according to claim 41, wherein said display control command is a picture-in-picture command, and wherein said set of controlling parameters comprise size and location of a picture-in-picture window screen in the television screen

43 The method according to claim 42, wherein said user interface of the remote control comprises a display screen and wherein said display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen

44 A method for a remote control to create a picture-in-picture window screen in a television screen of a television, said remote control comprising a user interface, comprising

issuing a picture-in-picture command on the user interface of the remote control,

analyzing the picture-in-picture command by the remote control,

translating the picture-in-picture command to a set of controlling parameters, wherein said controlling parameters comprise size and location of the picture-in-picture window screen, and said size and location of the picture-in-picture window screen are fully controllable by the remote control,

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transmitting the controlling parameters from the remote control to the television, and

creating the picture-in-picture window screen on the television screen according to the controlling parameters

45 The method according to claim 44, wherein said user interface of the remote control comprises a display screen and wherein said display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen

46 The method according to claim 45 further comprising

adjusting the size of the emulated picture-in-picture window on the user interface of the remote control,

analyzing the adjustment of the emulated picture-in-picture window in the remote control,

translating the adjustment to a second set of controlling parameters, wherein said second set of controlling parameters comprises an adjusted size of the picture-in-picture window screen,

transmitting said second set of controlling parameters from the remote control to the television, and

adjusting the picture-in-picture window screen on the television screen according to the second set of controlling parameters

47 The method according to claim 46 further comprising

adjusting the position of the emulated picture-in-picture window on the user interface of the remote control,

analyzing the adjustment of the emulated picture-in-picture window in the remote control,

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translating the adjustment to a second set of controlling parameters, wherein said second set of controlling parameters comprises an adjusted size of the picture-in-picture window screen

transmitting said second set of controlling parameters from the remote control to the television, and

adjusting the picture-in-picture window screen on the television screen according to the second set of controlling parameters

9 16
48 The method according to claim 48 further comprising

adjusting the channel of the emulated picture-in-picture window on the user interface of the remote control,

analyzing the adjustment of the emulated picture-in-picture window in the remote control,

translating the adjustment to a second set of controlling parameters, wherein said second set of controlling parameters comprises an adjusted size of the picture-in-picture window screen,

transmitting said second set of controlling parameters from the remote control to the television, and

adjusting the picture-in-picture window screen on the television screen according to the second set of controlling parameters

20 16
49 The method according to claim 45, wherein said emulated picture-in-picture window display a video capture of the picture-in-picture window screen on the television screen

21 16
50 The method according to claim 45, wherein multiple picture-in-picture window screens can be created on the television screen

51 The method according to claim 44, wherein said user interface of the remote control comprises a handwriting recognition mechanism

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52 The method according to claim 44, wherein said user interface of the remote control comprises a voice recognition mechanism

ABSTRACT

The present invention discloses a novel universal remote control system Specifically, the remote control system according to the present invention provides the following features bidirectional communications between the remote control and at least one of the audio/video devices, dual communication mode, automatic communication mode selection, loading and processing electronic program guide in the remote control, soft graphical user interface in the remote control, expanding the television set functions by the remote control calibration handshake between the remote control and the audio/video device passive updating the remote control, lost beacon signal in the remote control, handwriting recognition mechanism, and voice recognition mechanism in the remote control

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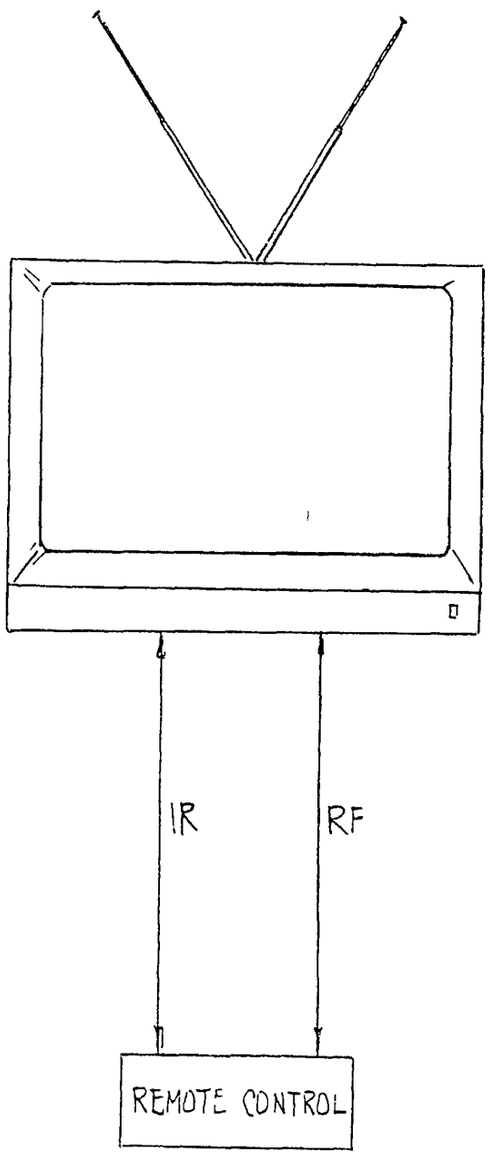

Fig 1

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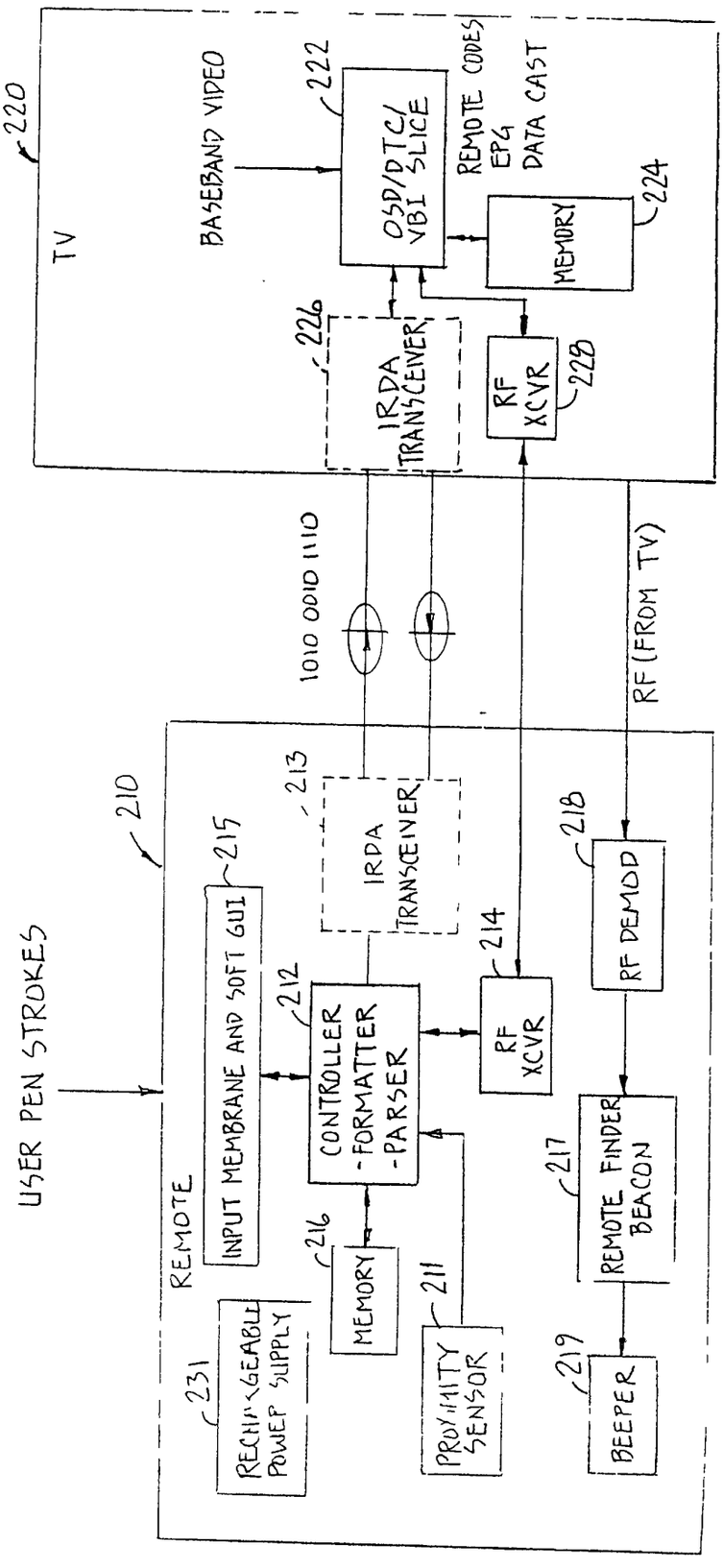

FIG 2.

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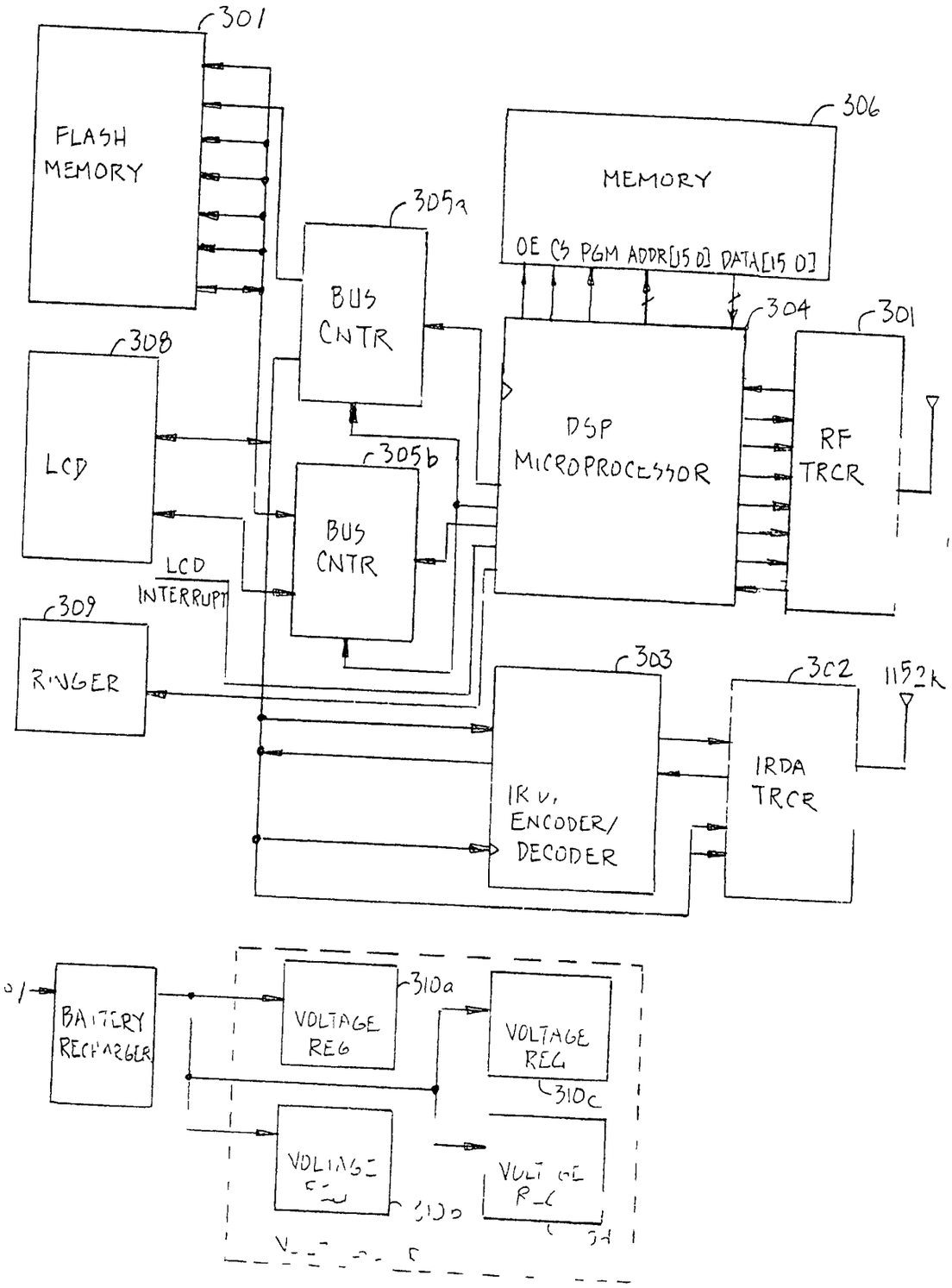
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MEMORY
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LCD INTERRUPT
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303
302
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FIG 3.

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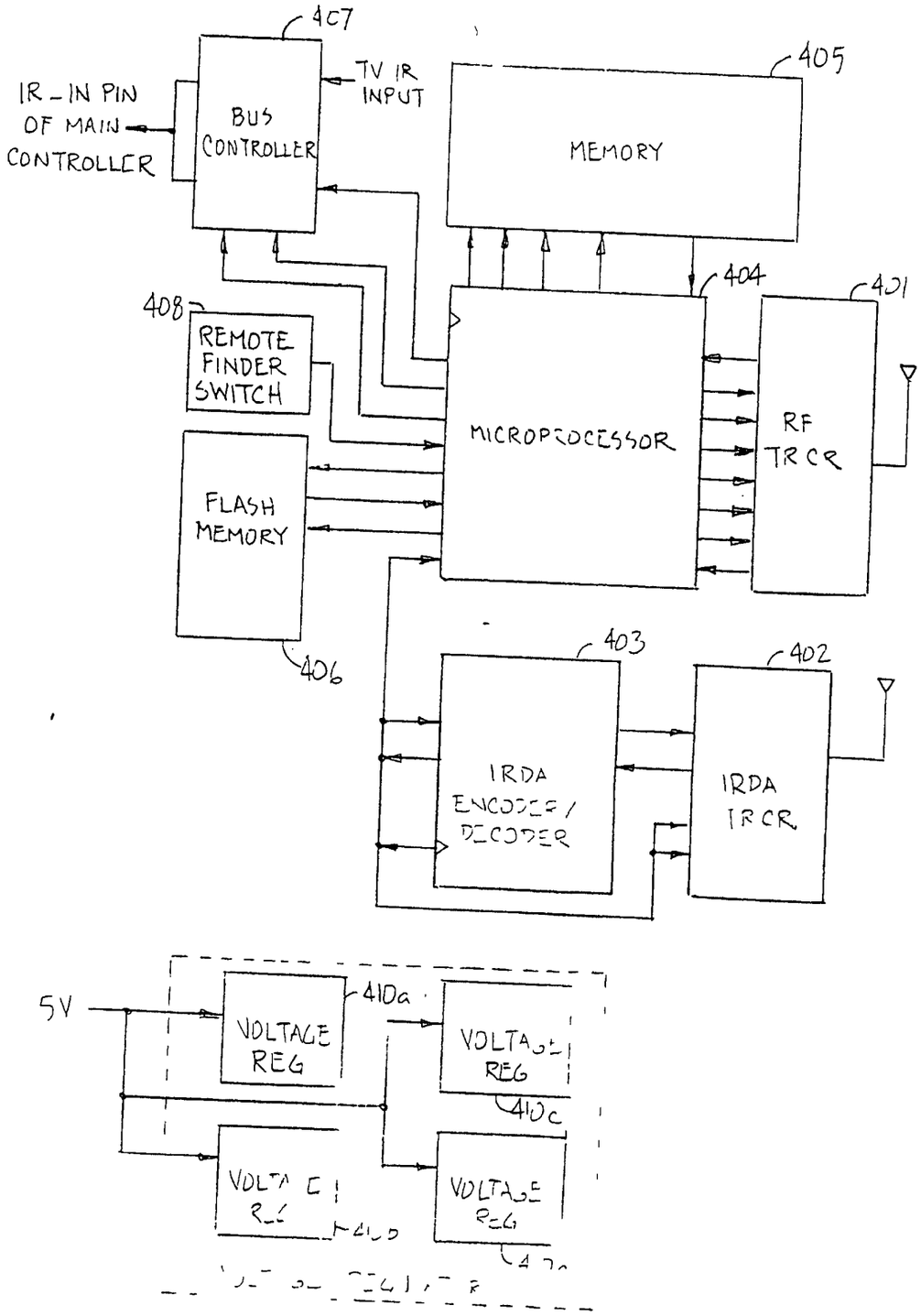

FIG 4

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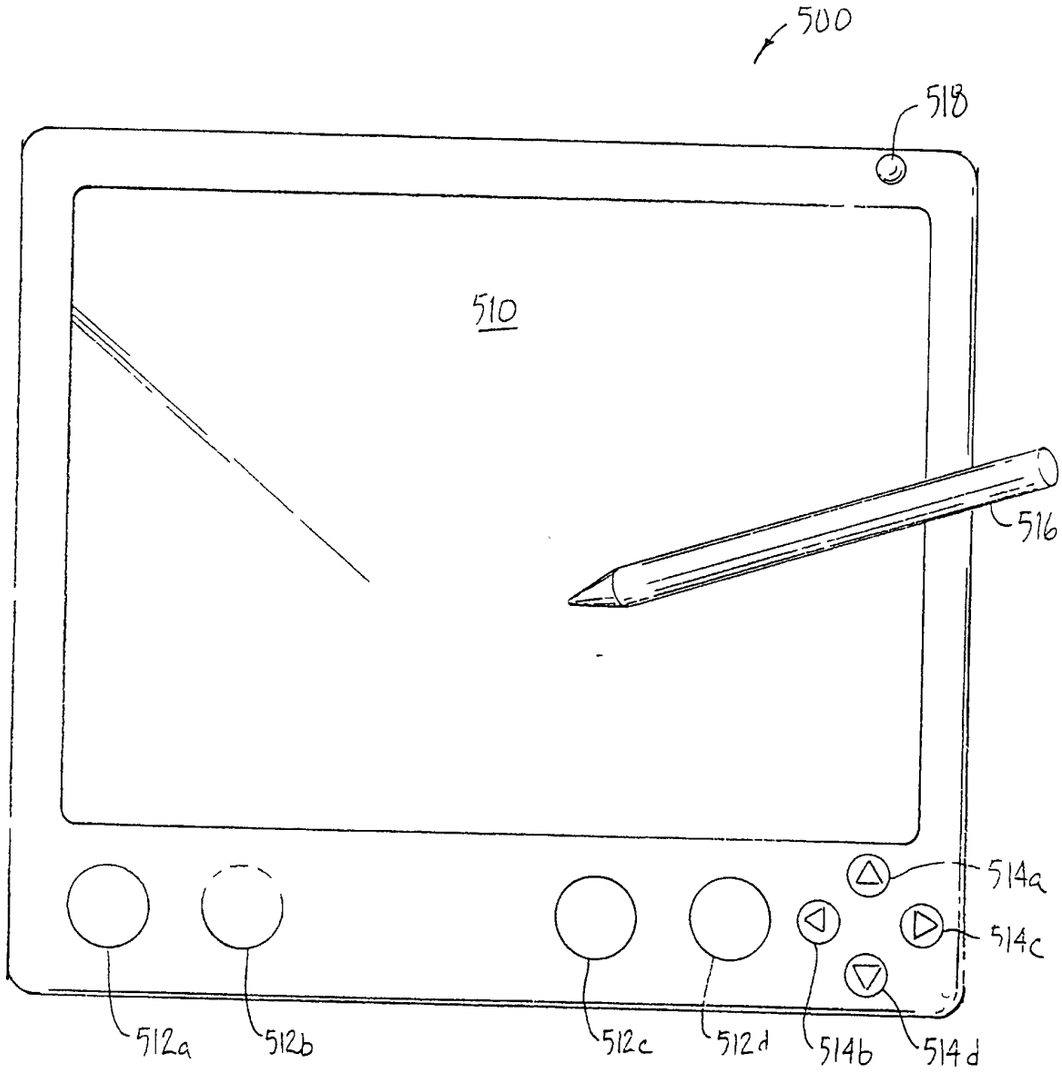
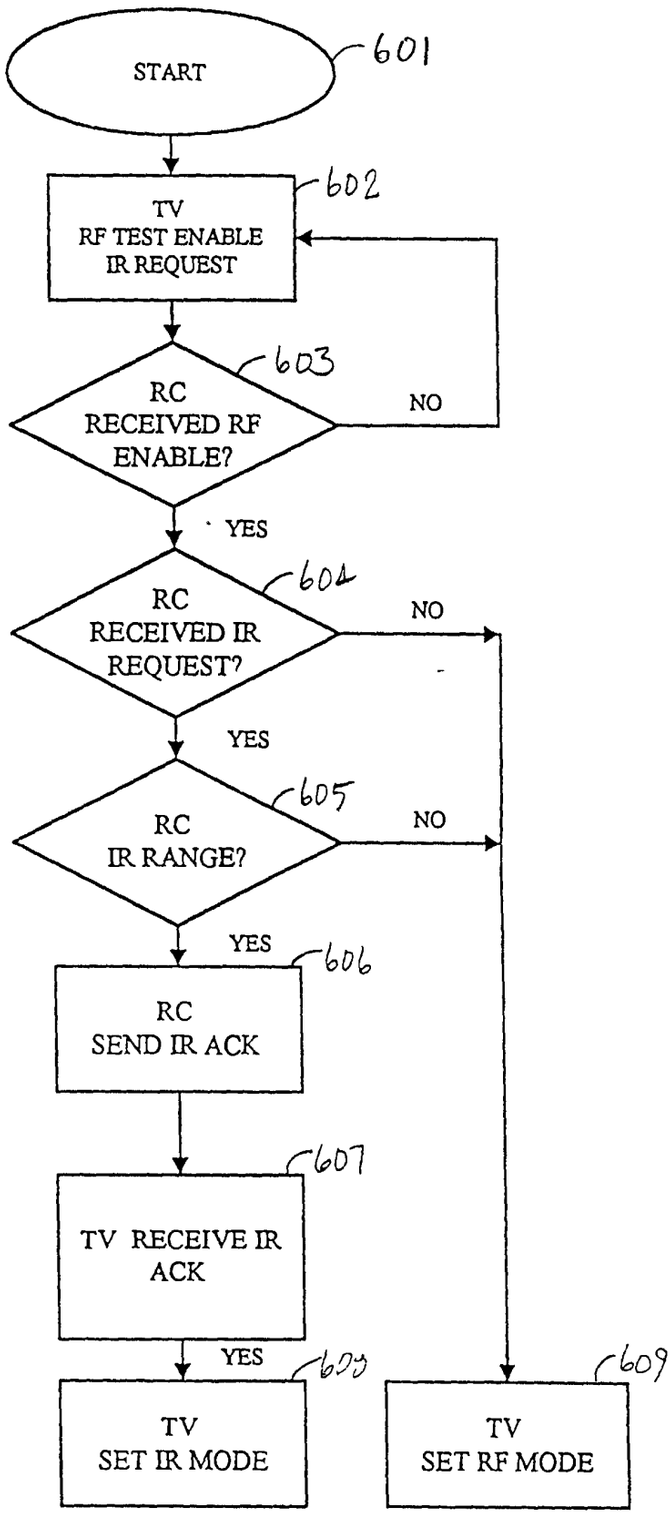


FIG 5


START
601
TV
RF TEST ENABLE
IR REQUEST
602
RC
RECEIVED RF
ENABLE?
603
NO
YES
RC
RECEIVED IR
REQUEST?
604
NO
YES
RC
IR RANGE?
605
NO
YES
RC
SEND IR ACK
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SET RF MODE
609

FIG 6A

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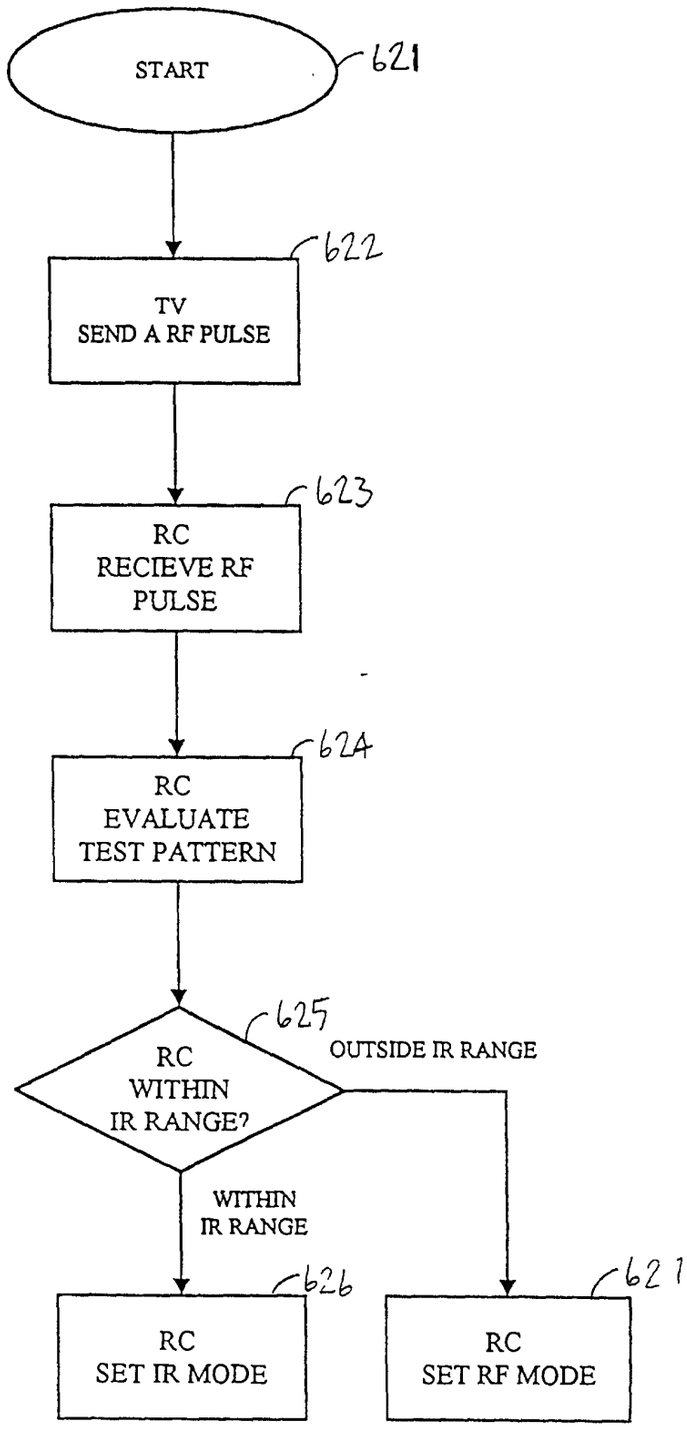

FIG 6B

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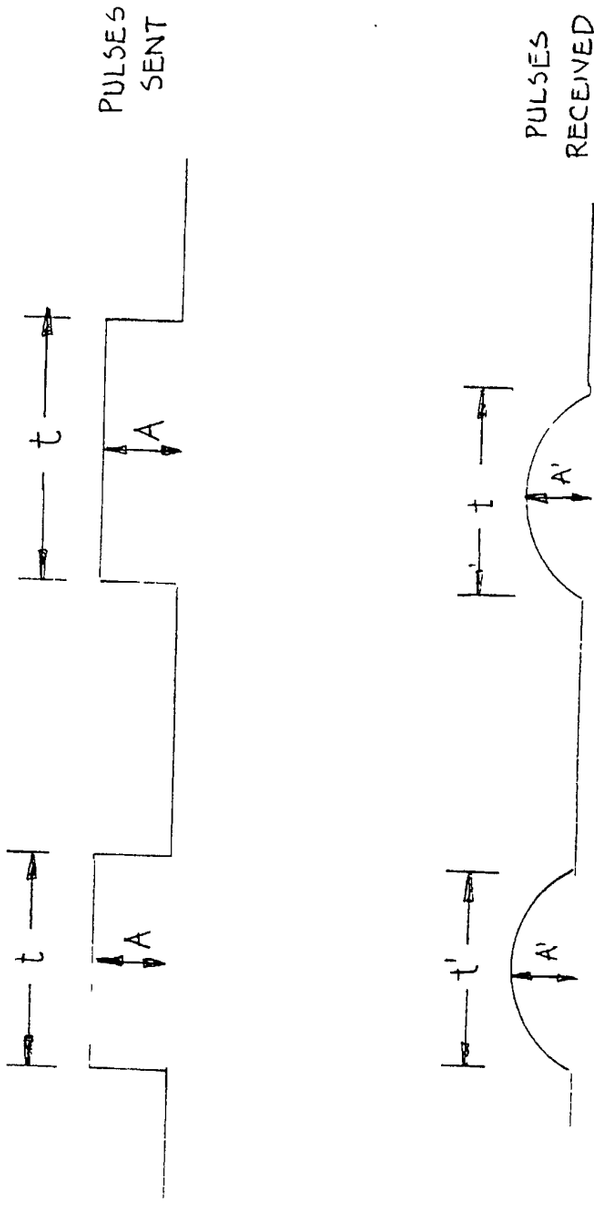

FIG 7

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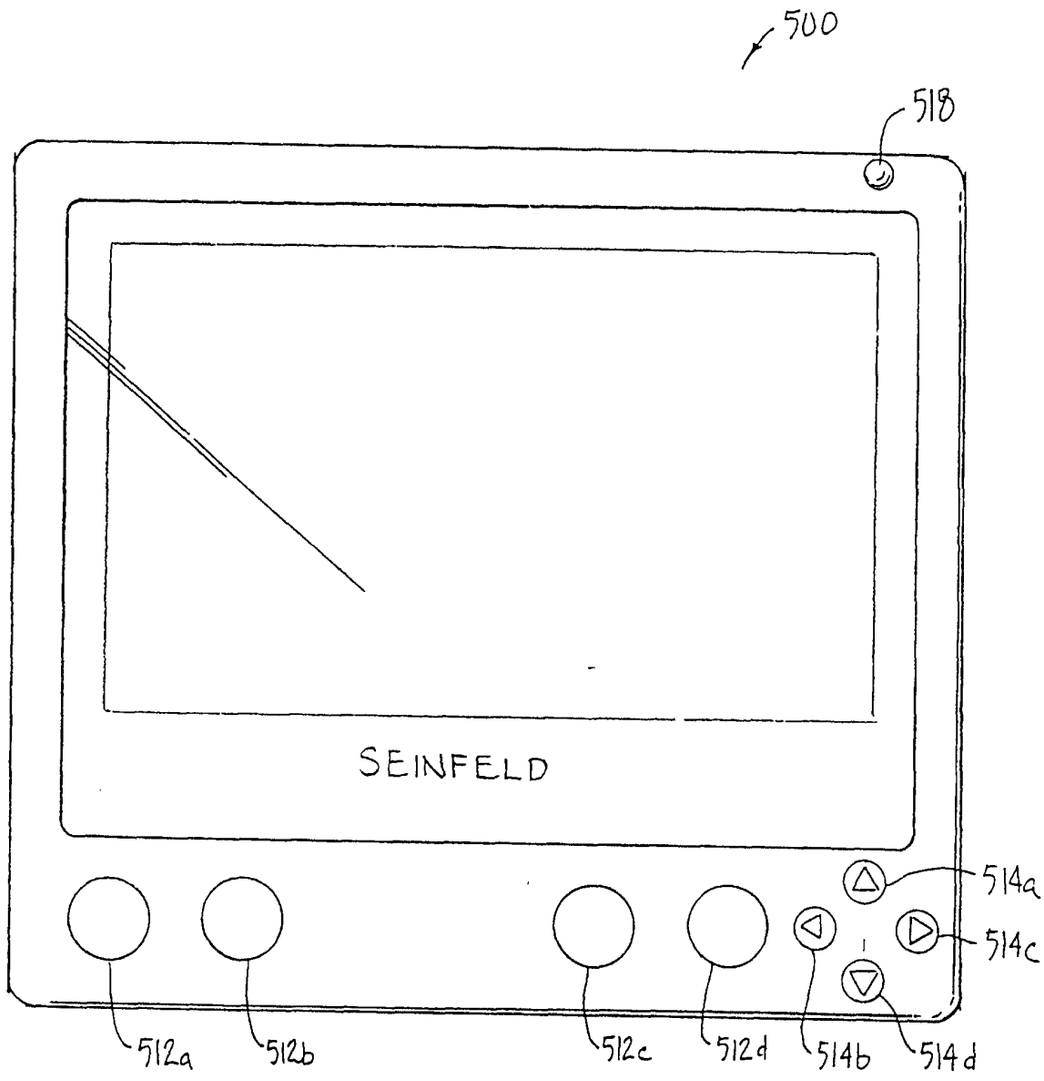

FIG 8A

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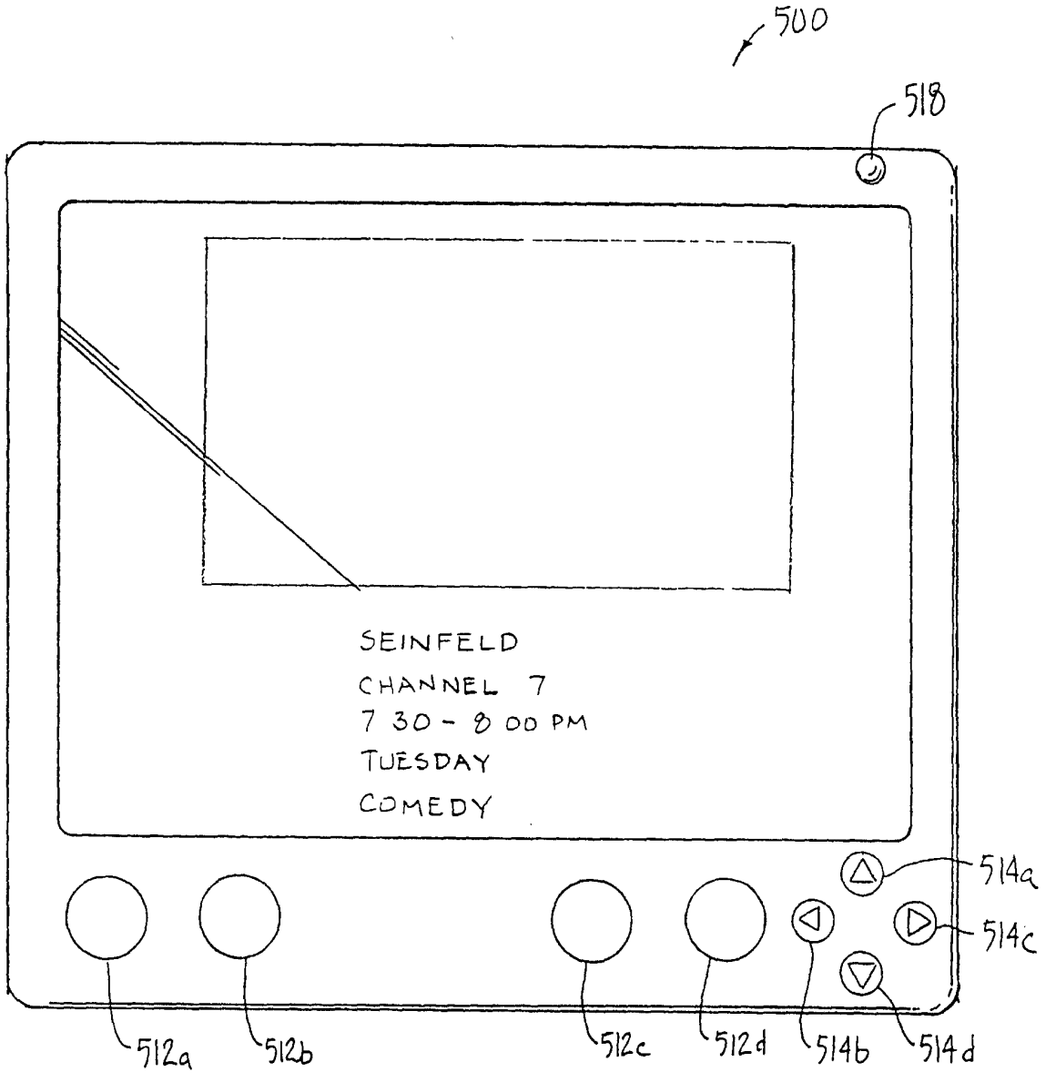

FIG 8B.

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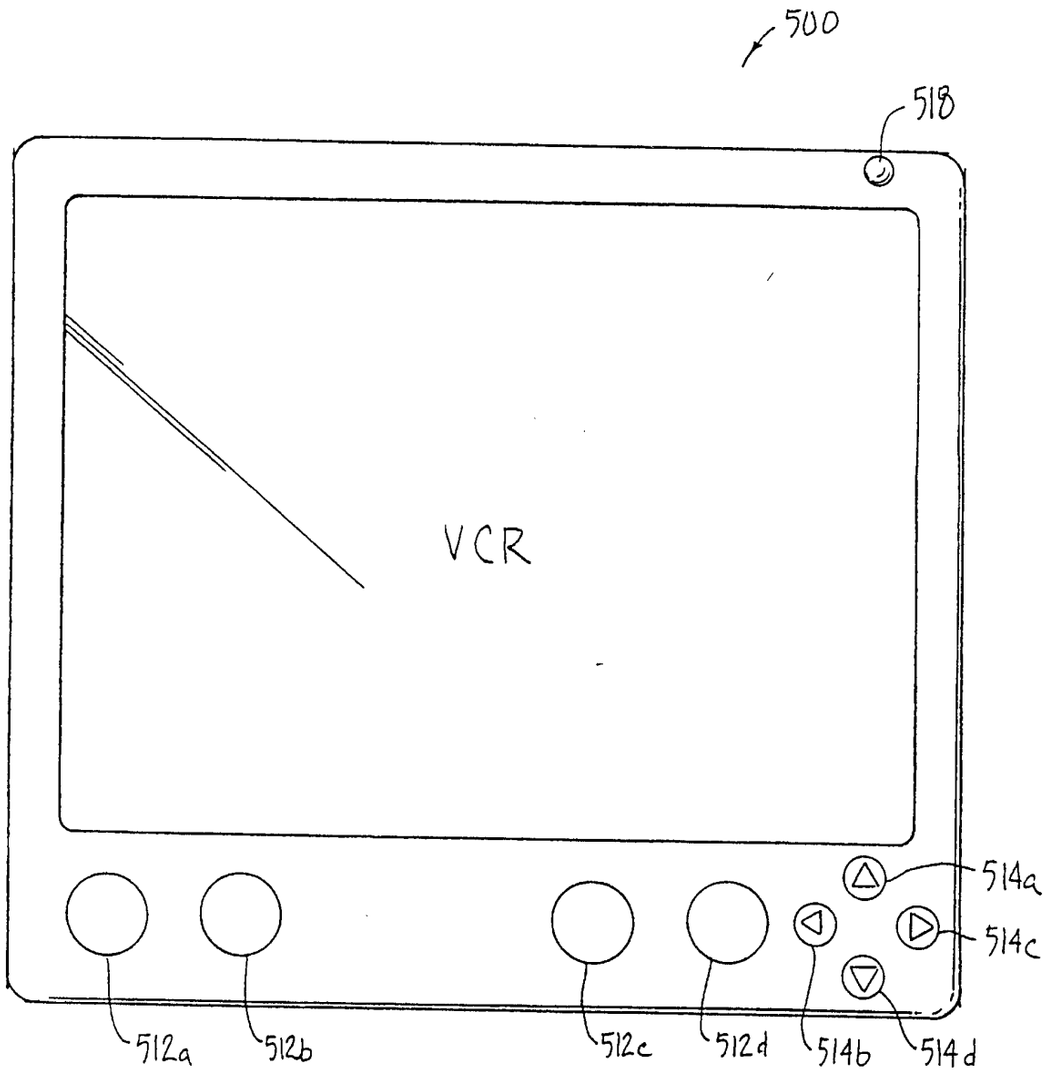

FIG 9A.

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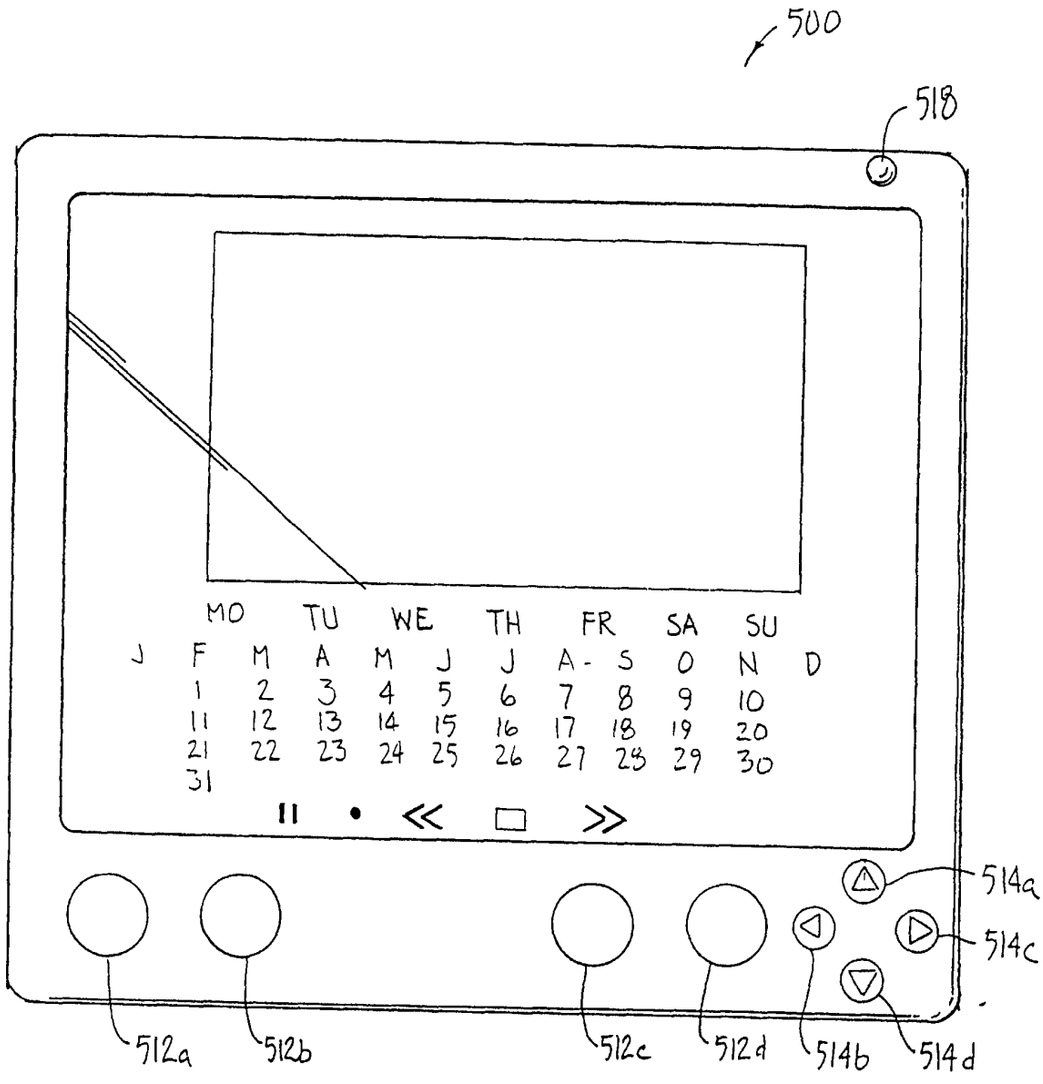

FIG 9B

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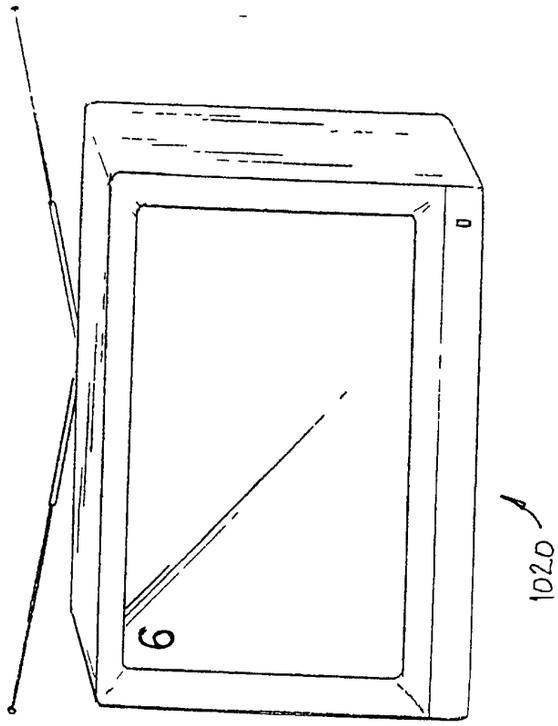
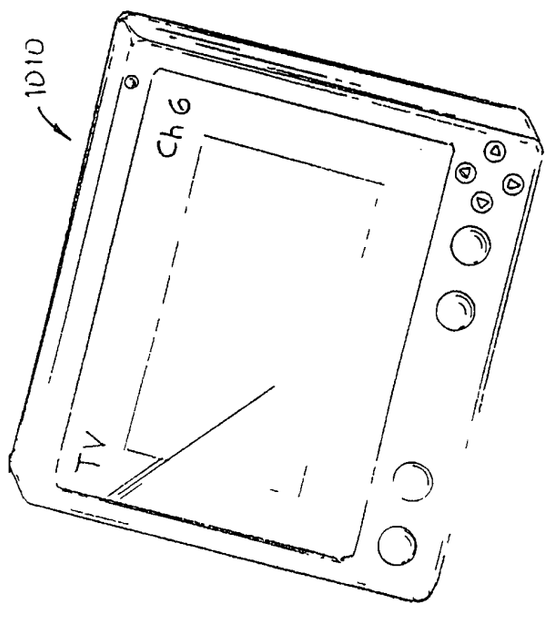


FIG 10A



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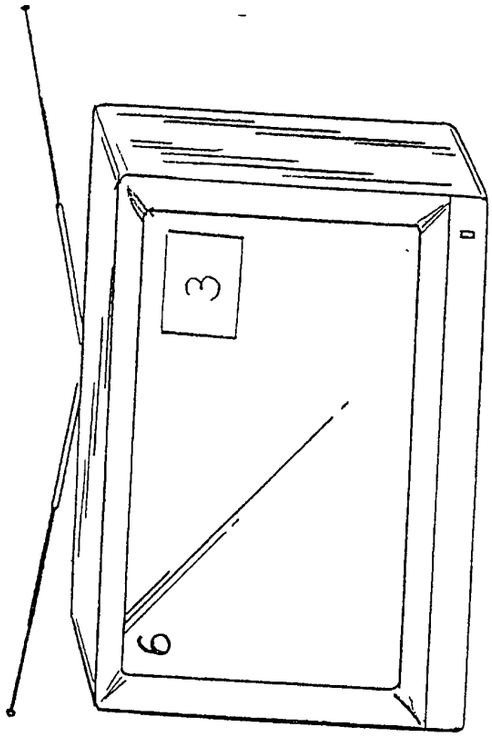
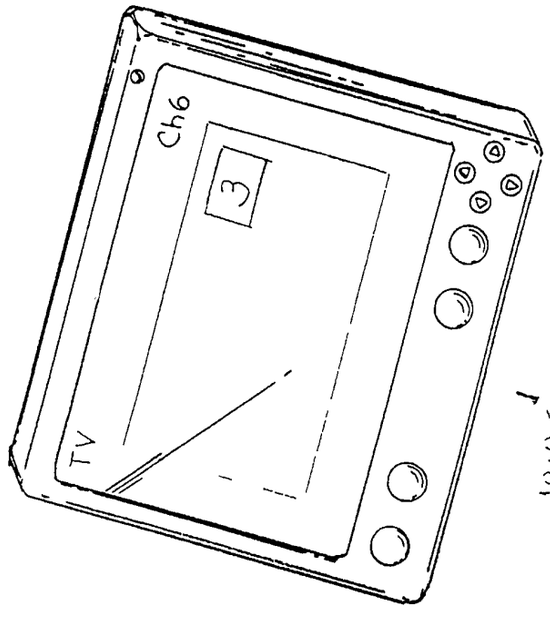


1020

FIG 10B



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Universal Remote Control Exhibit: 1002 Page 000093

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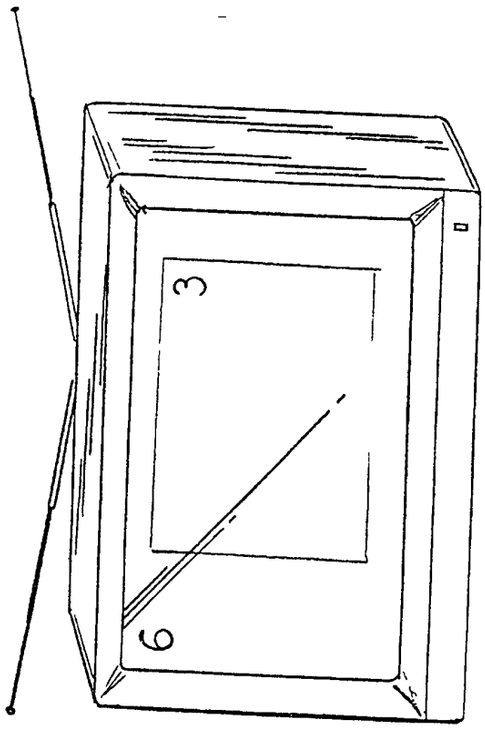
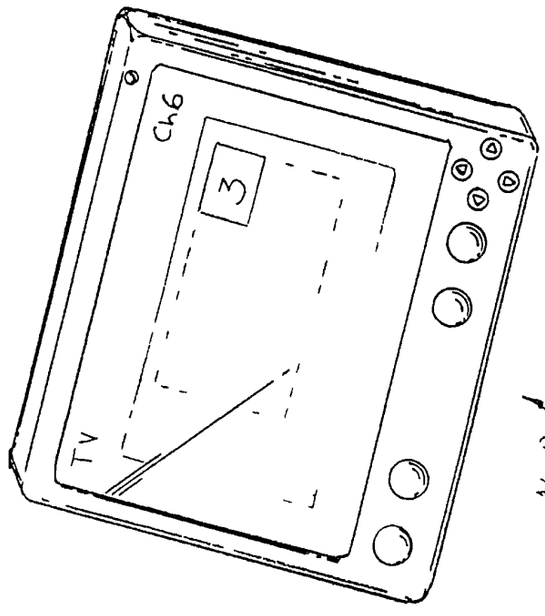


FIG 10C



Universal Remote Control Exhibit: 1002 Page 000094

PRINT OF DRAWINGS
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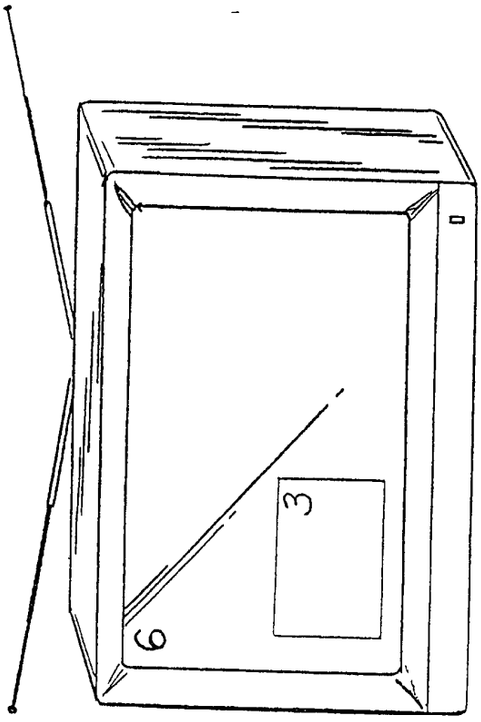
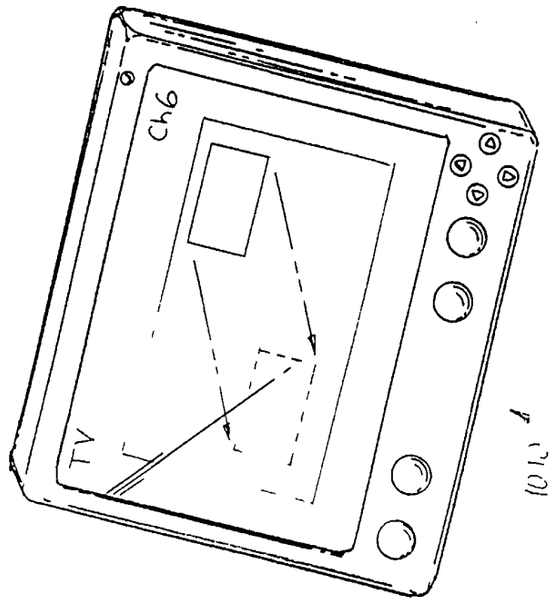


1020

FIG 10D



1010

Universal Remote Control Exhibit: 1002 Page 000095

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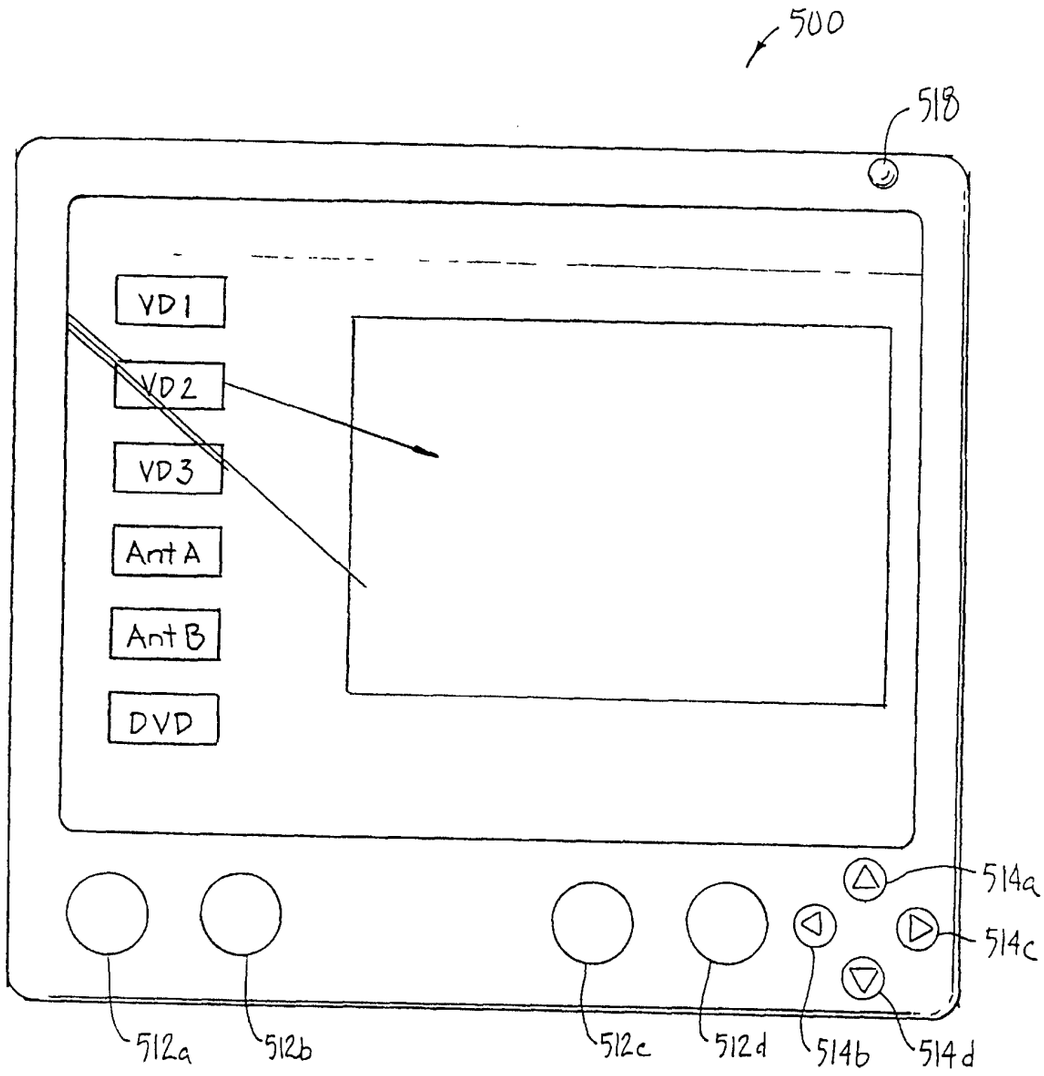

FIG 11A

PRINT OF DRAWINGS
AS ORIGINALLY FILE

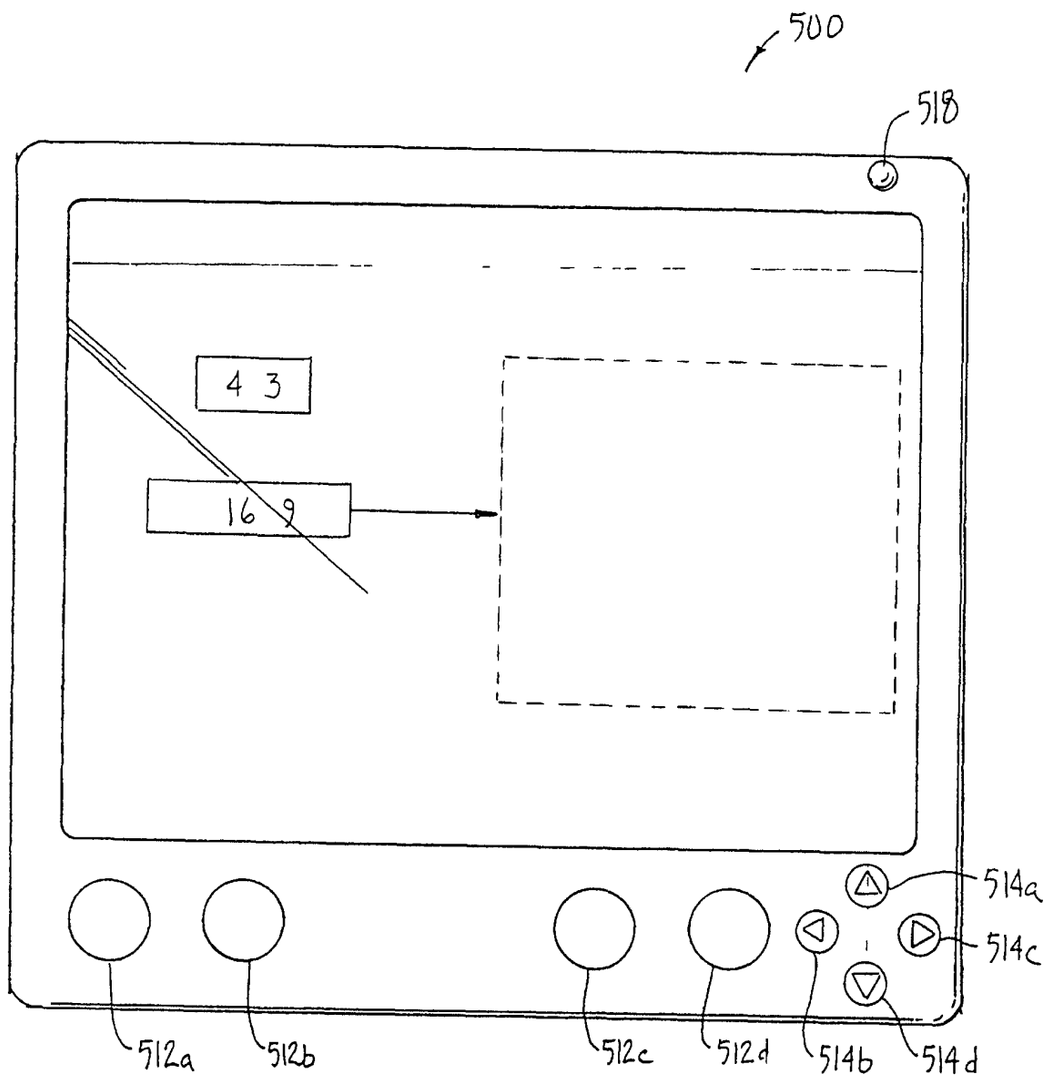

FIG 11B.

PRINT OF DRAWINGS
AS ORIGINALLY FILE

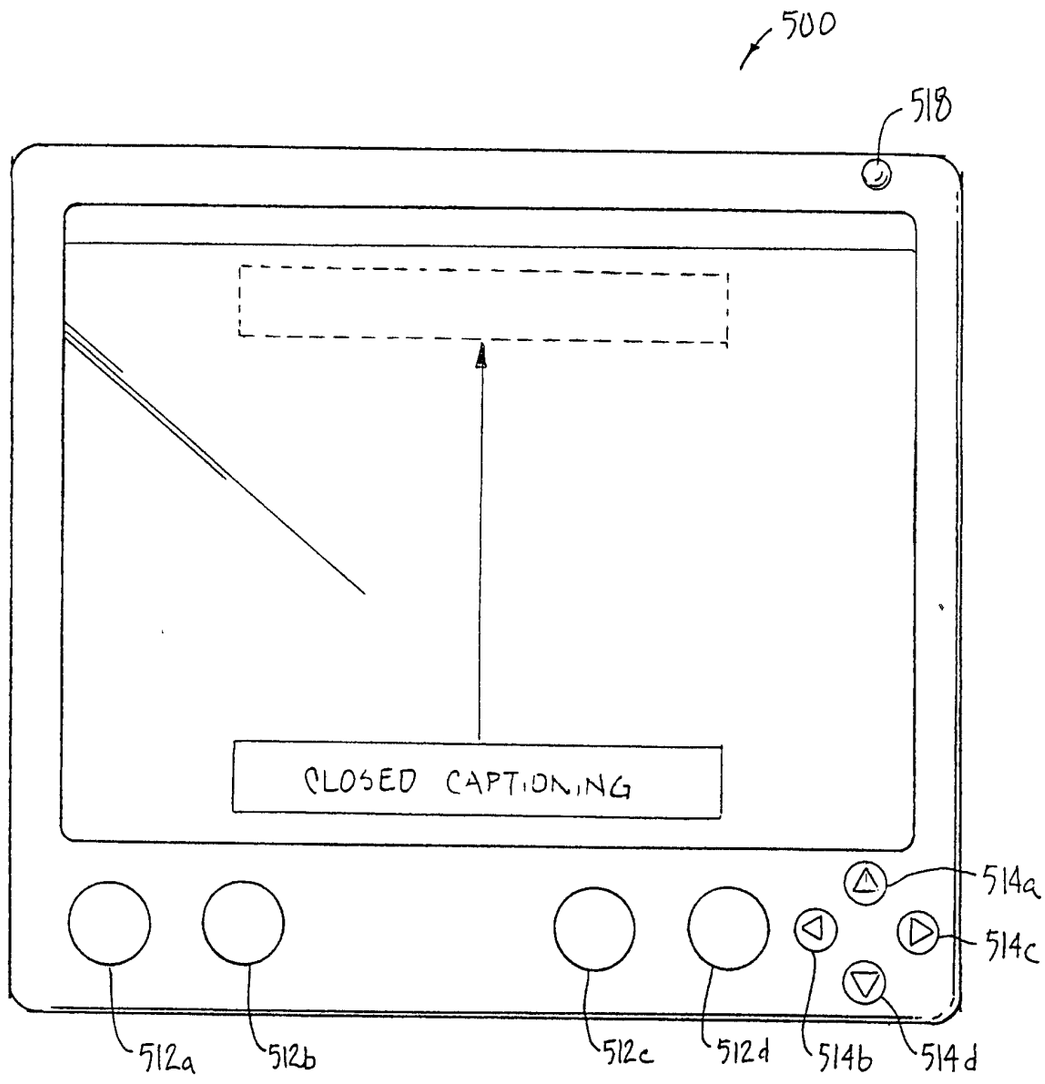

FIG. 11C

PRINT OF DRAWINGS
AS ORIGINALLY FILE

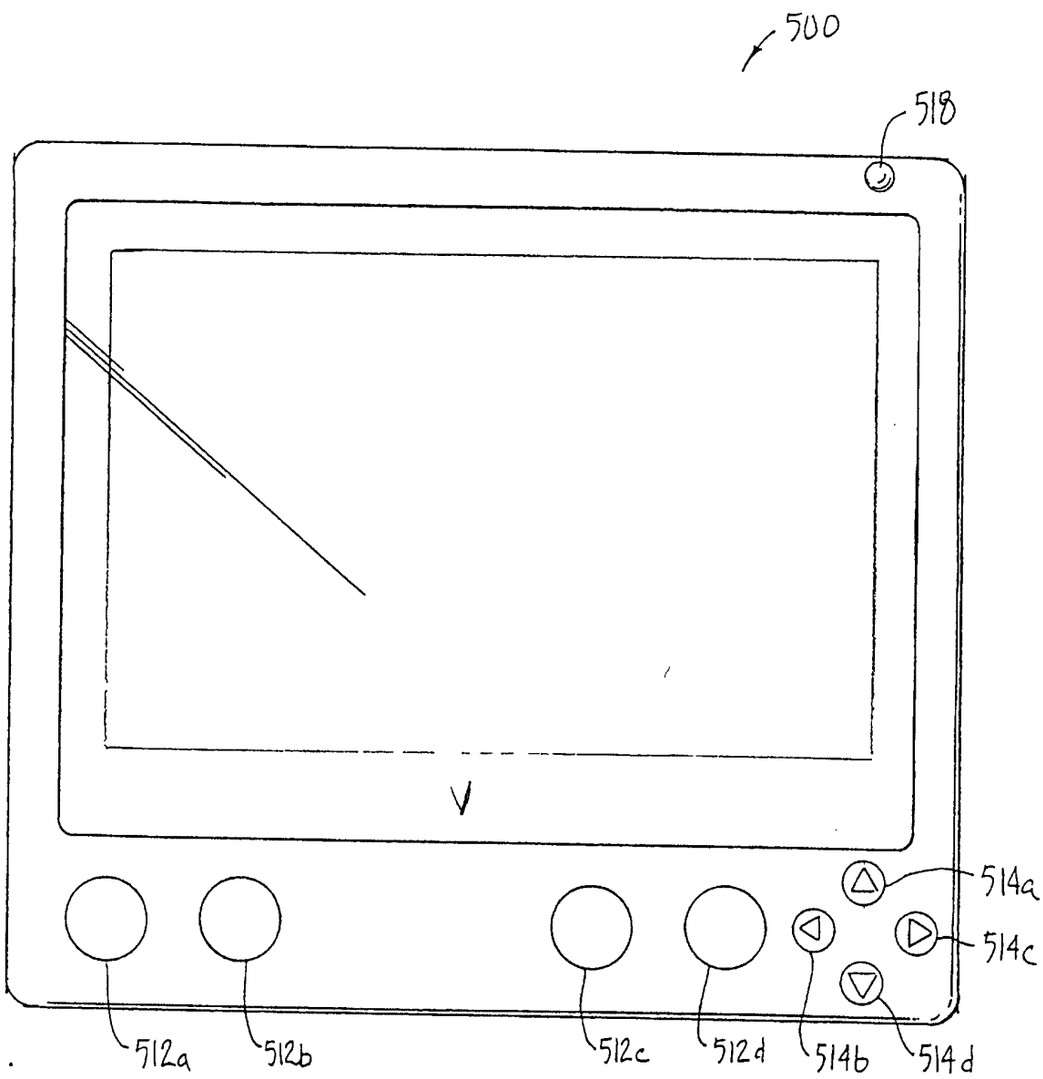

FIG 12A

Universal Remote Control Exhibit: 1002 Page 000099

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AS ORIGINALLY FILE.

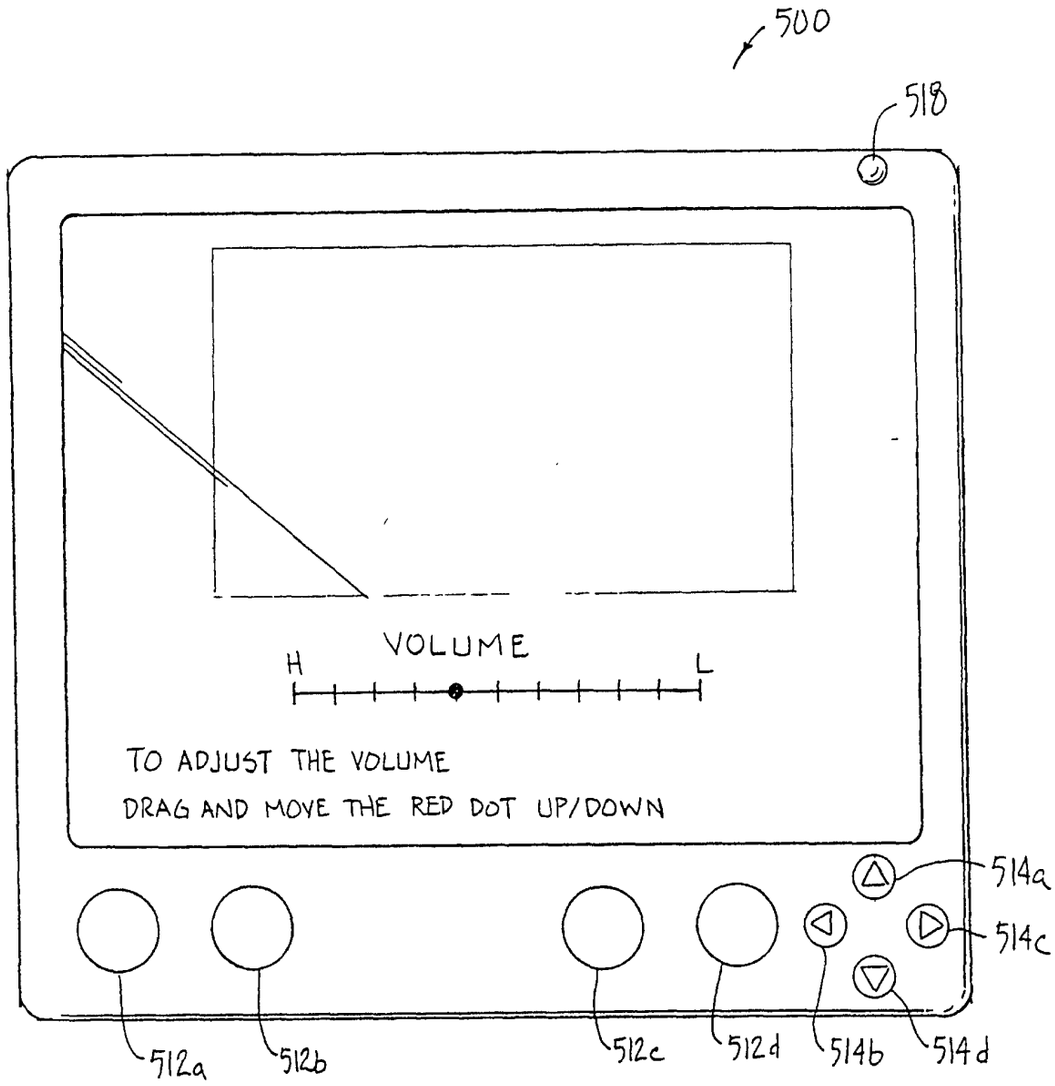


FIG 12B

PRINT OF DRAWINGS
AS ORIGINALLY FILE

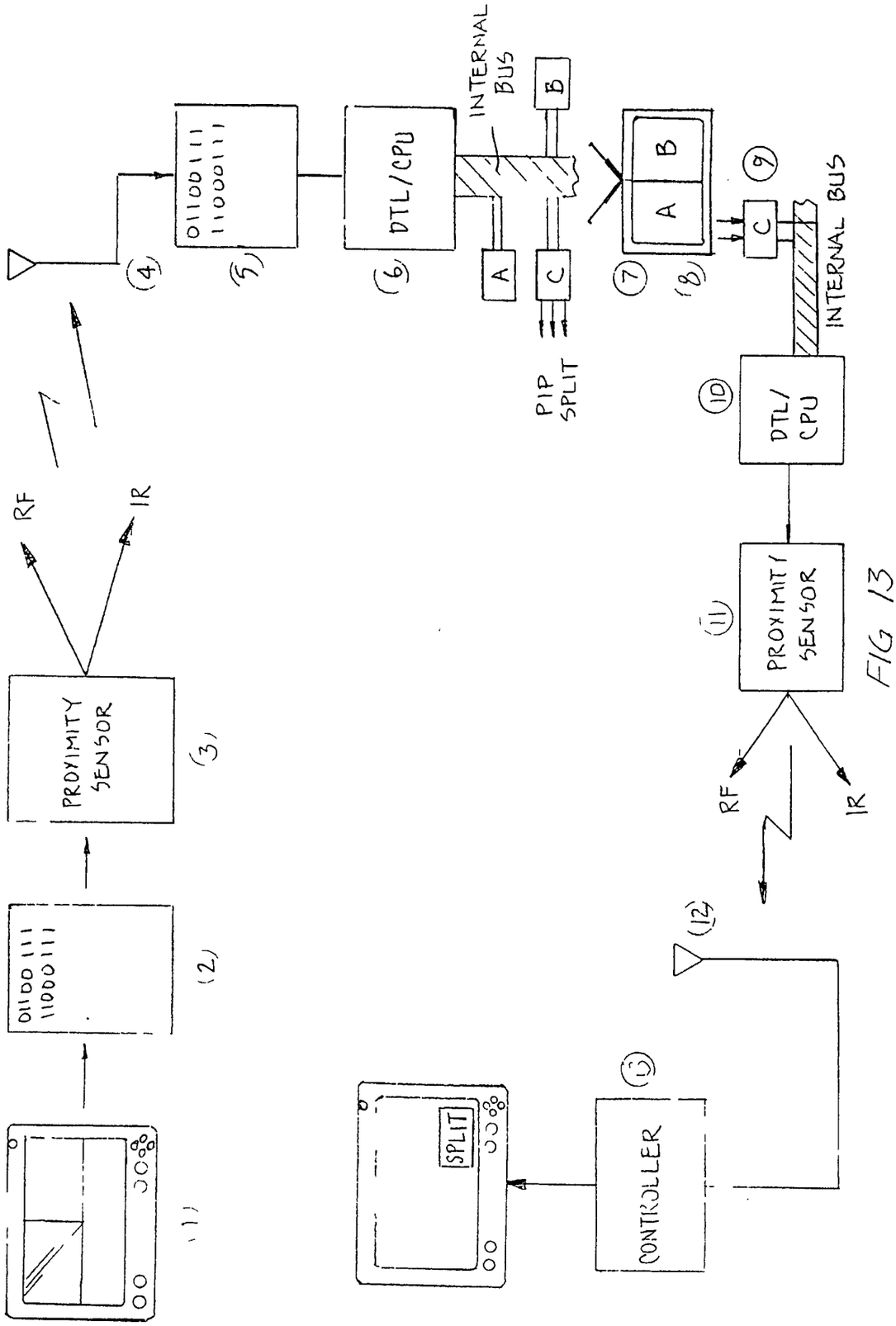


FIG 13

Universal Remote Control Exhibit: 1002 Page 000101

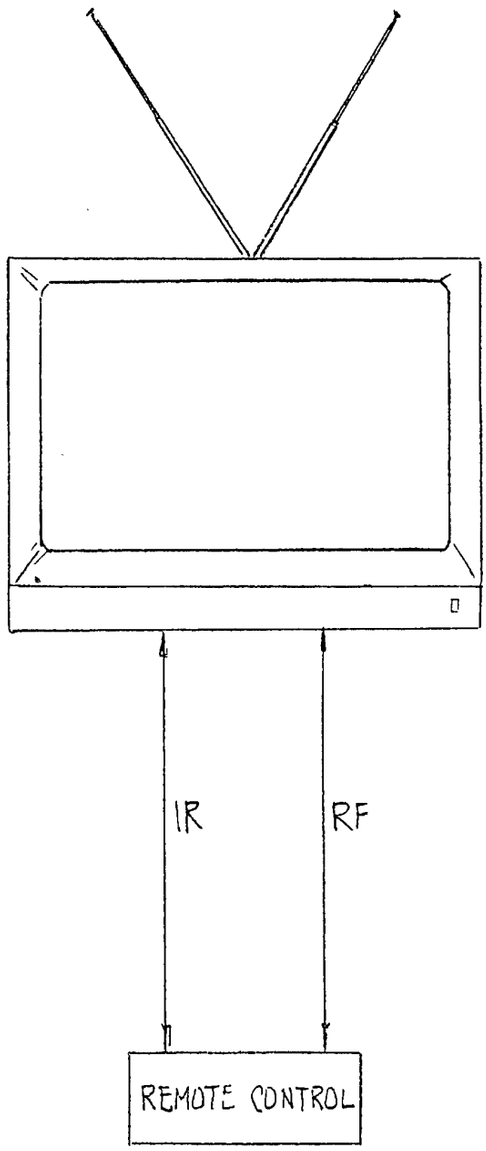


FIG 1

Universal Remote Control Exhibit: 1002 Page 000102

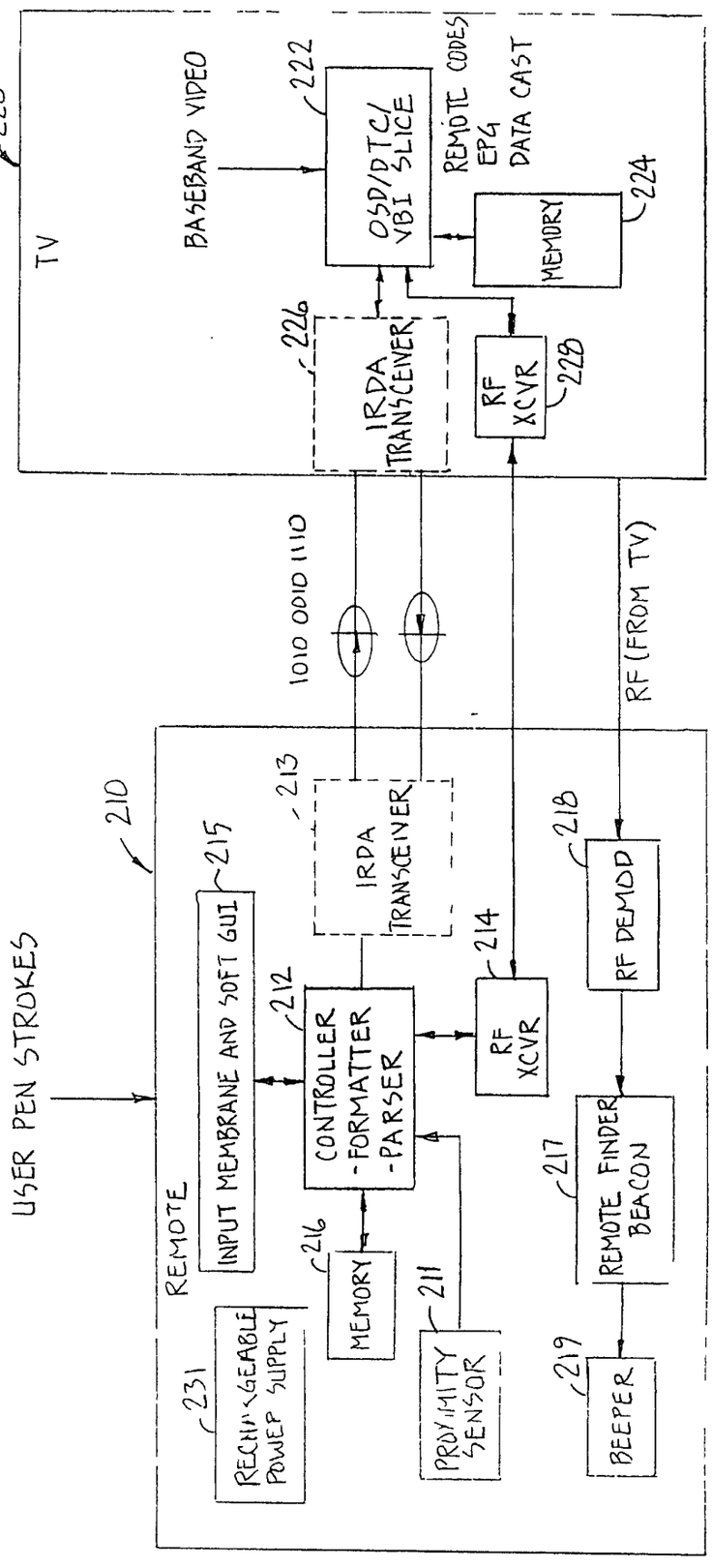


FIG 2.

Universal Remote Control Exhibit: 1002 Page 000103

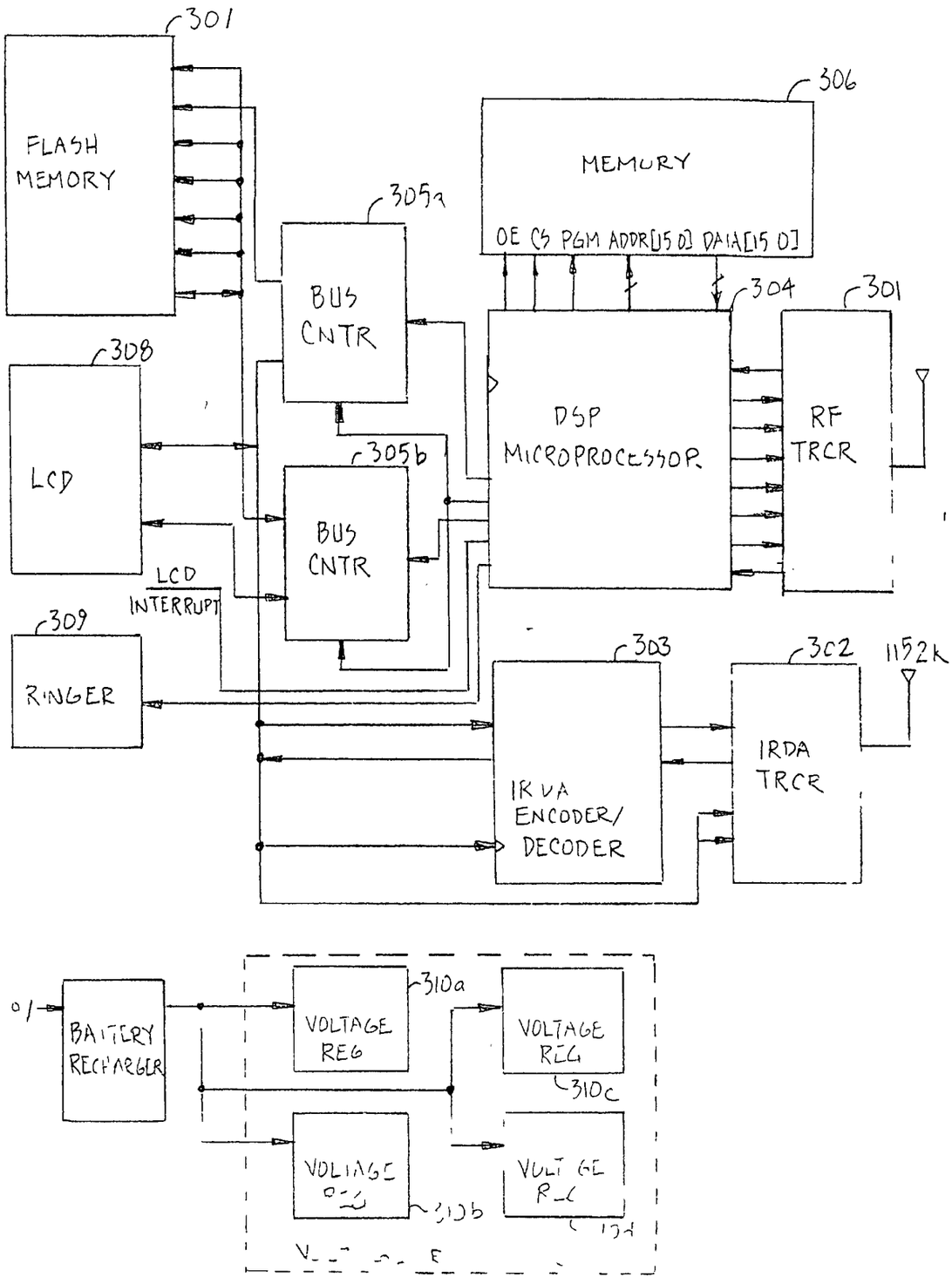


FIG 3.

Universal Remote Control Exhibit: 1002 Page 000104

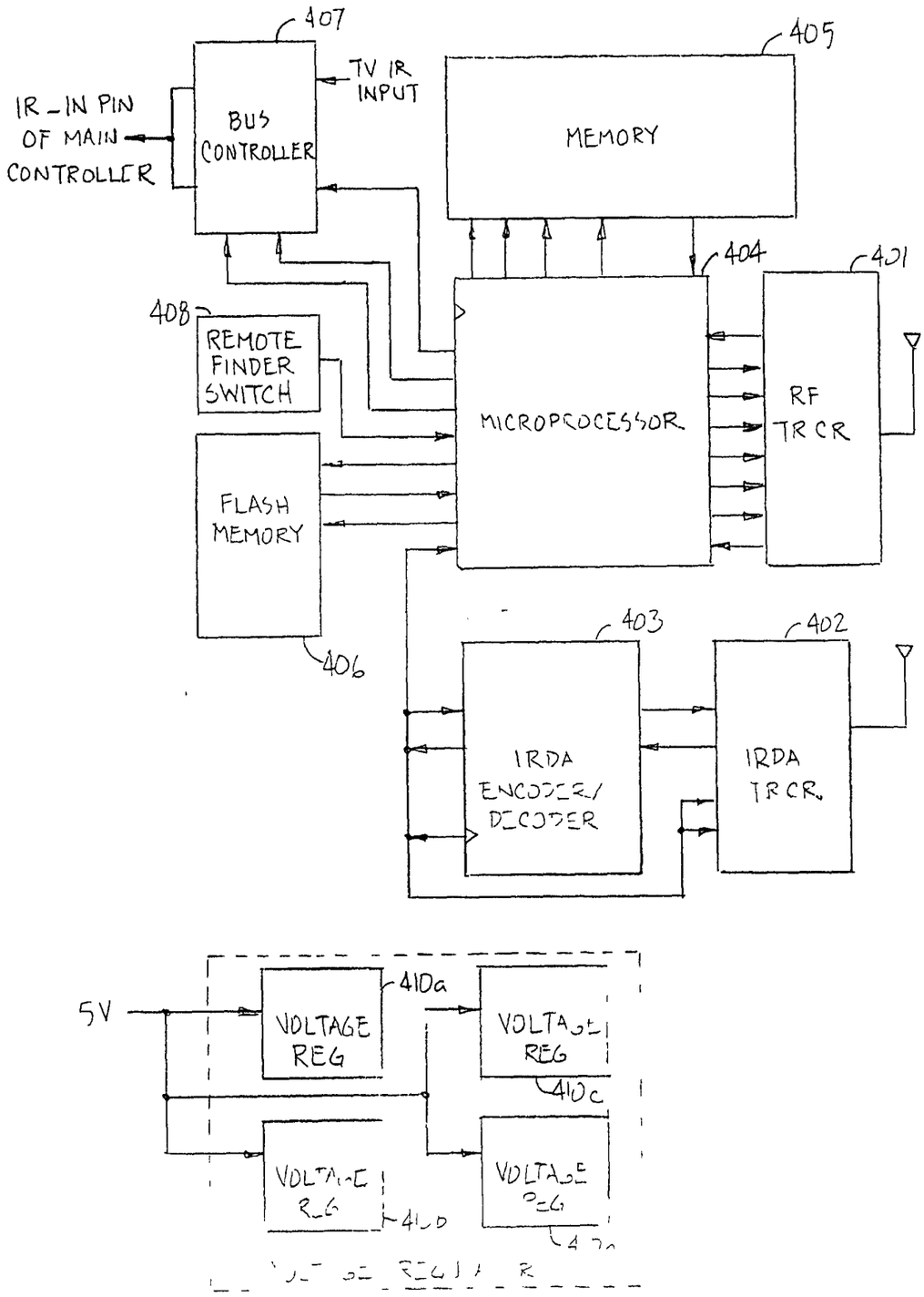


FIG 4

Universal Remote Control Exhibit: 1002 Page 000105

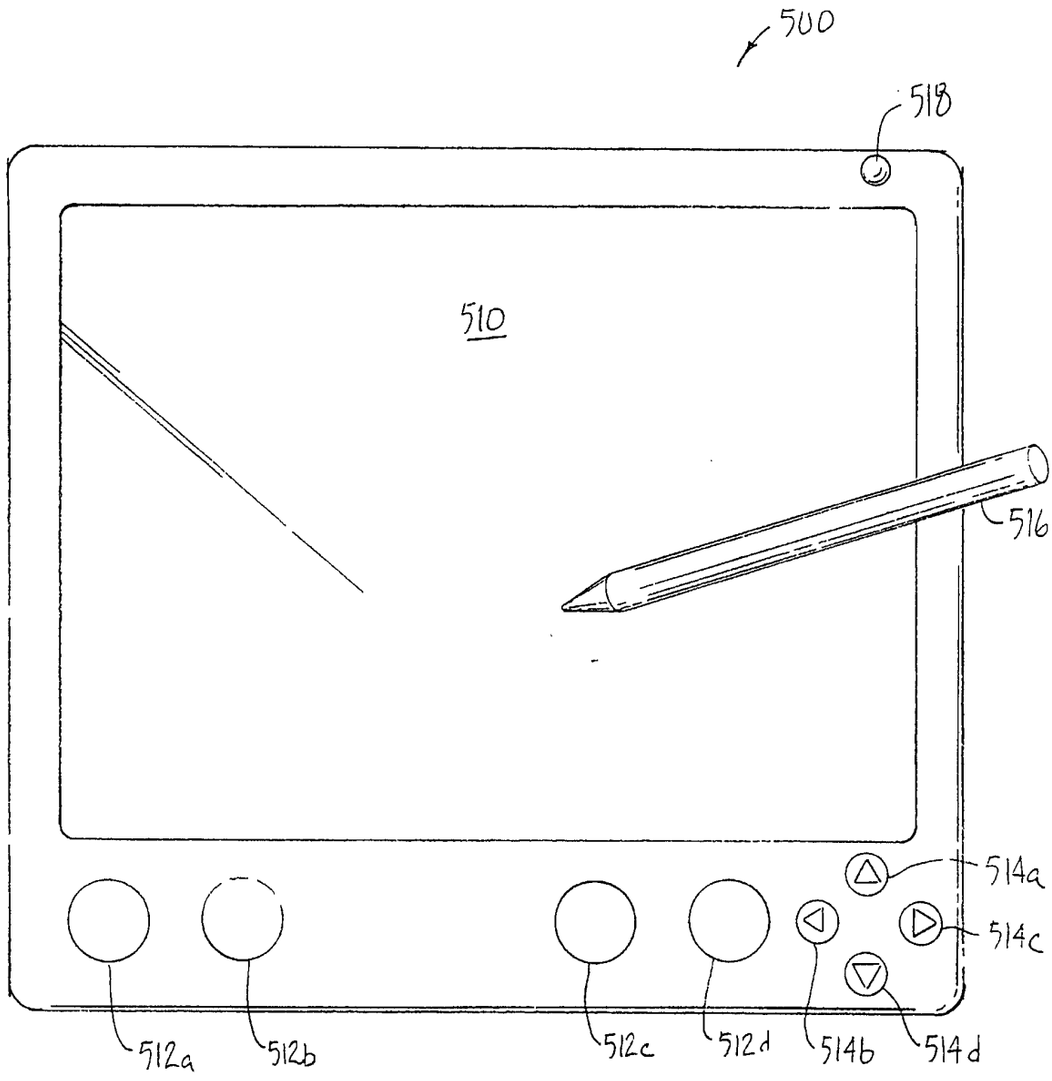


FIG 5

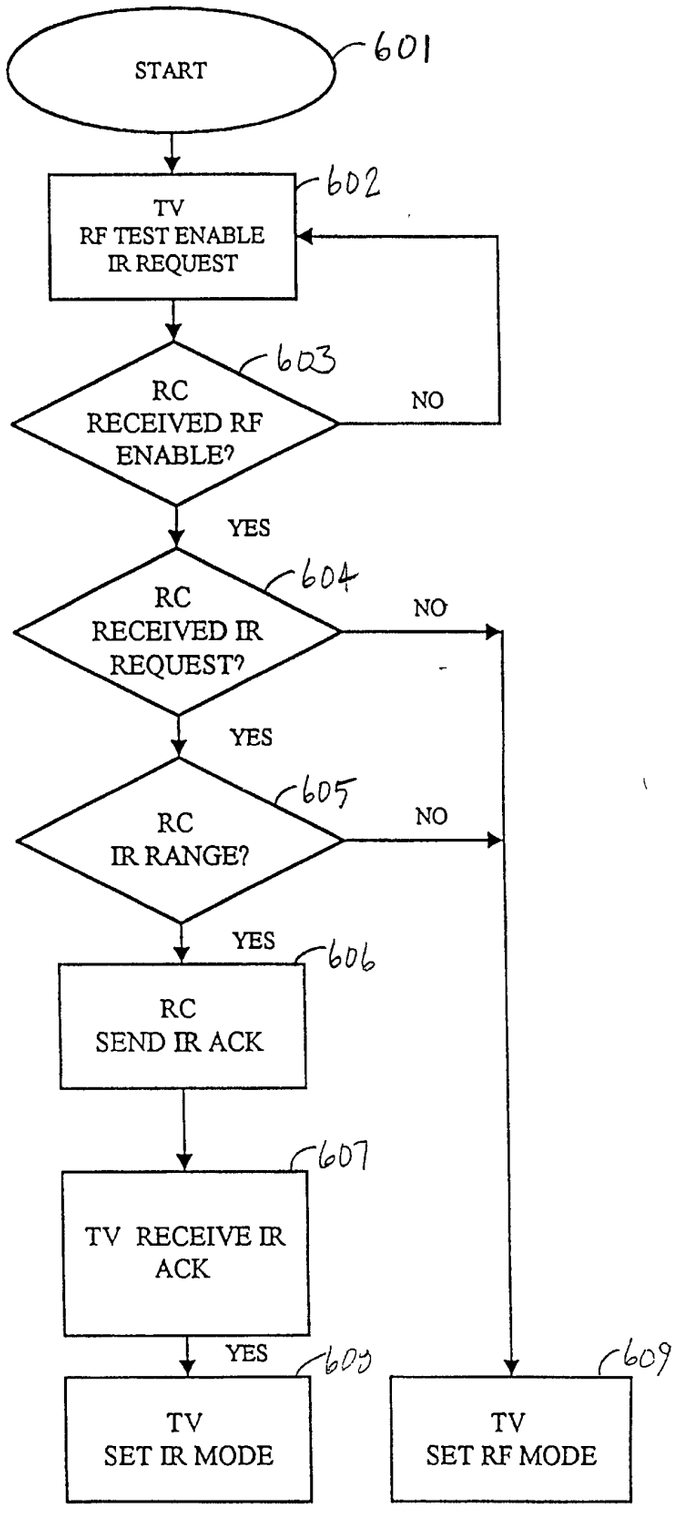


FIG 6A

Universal Remote Control Exhibit: 1002 Page 000107

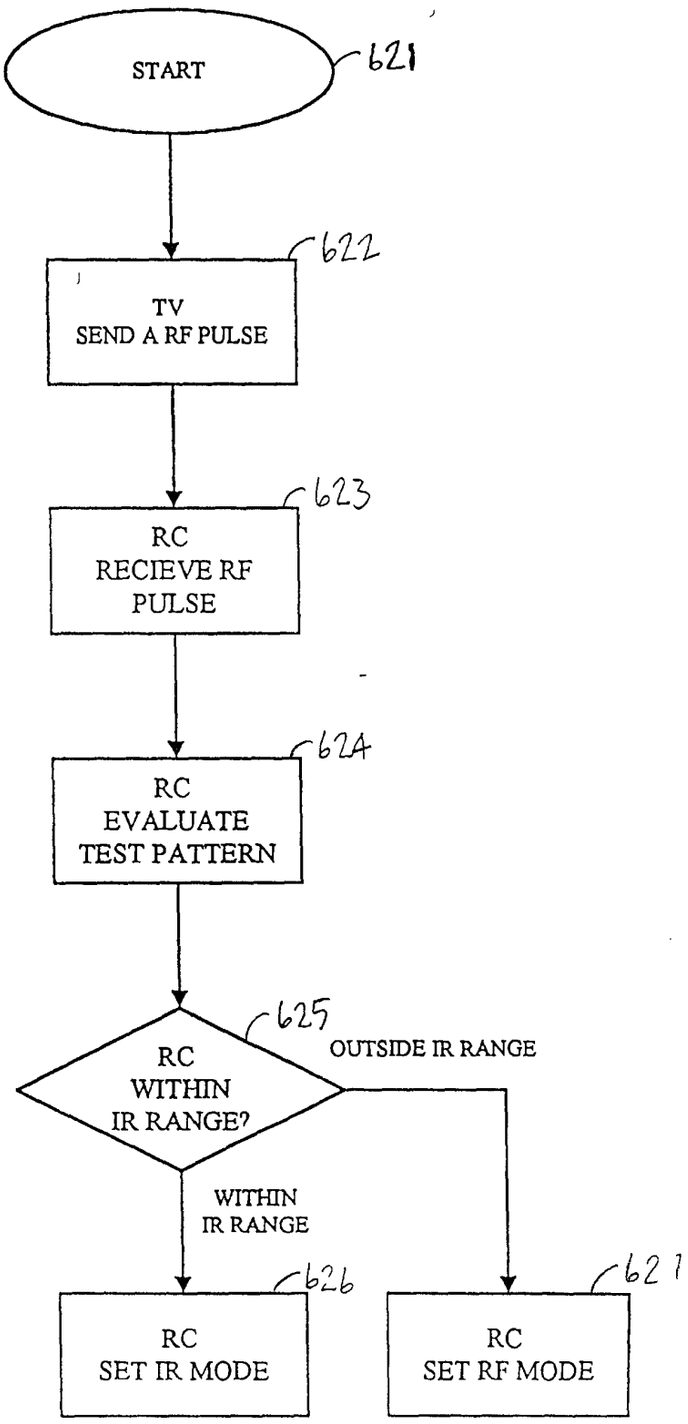


FIG 6B

Universal Remote Control Exhibit: 1002 Page 000108

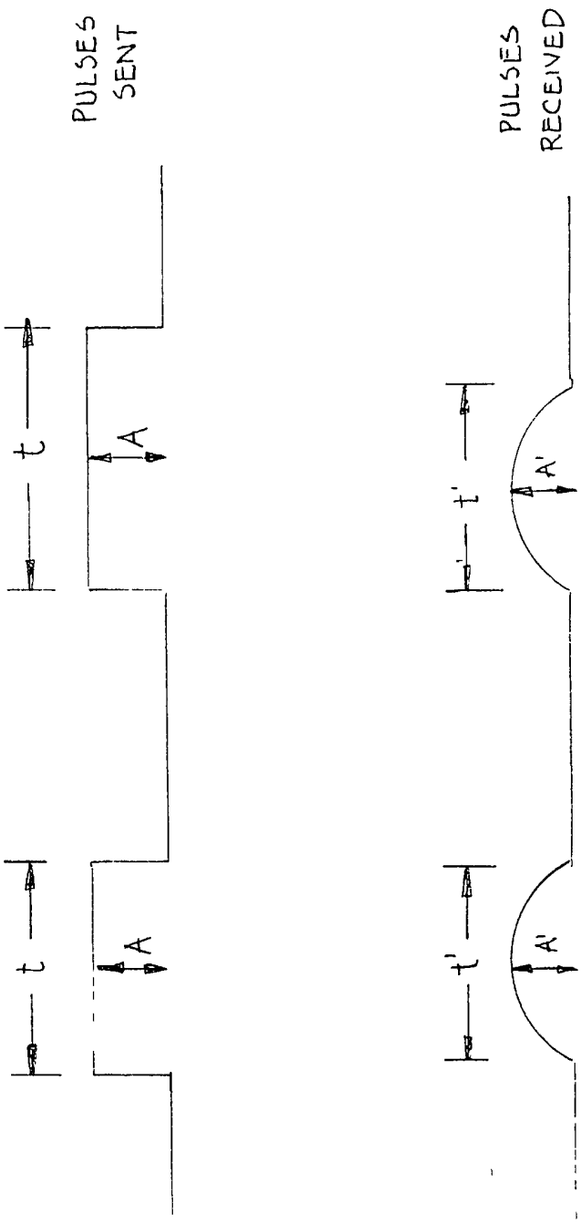


FIG 7

Universal Remote Control Exhibit: 1002 Page 000109

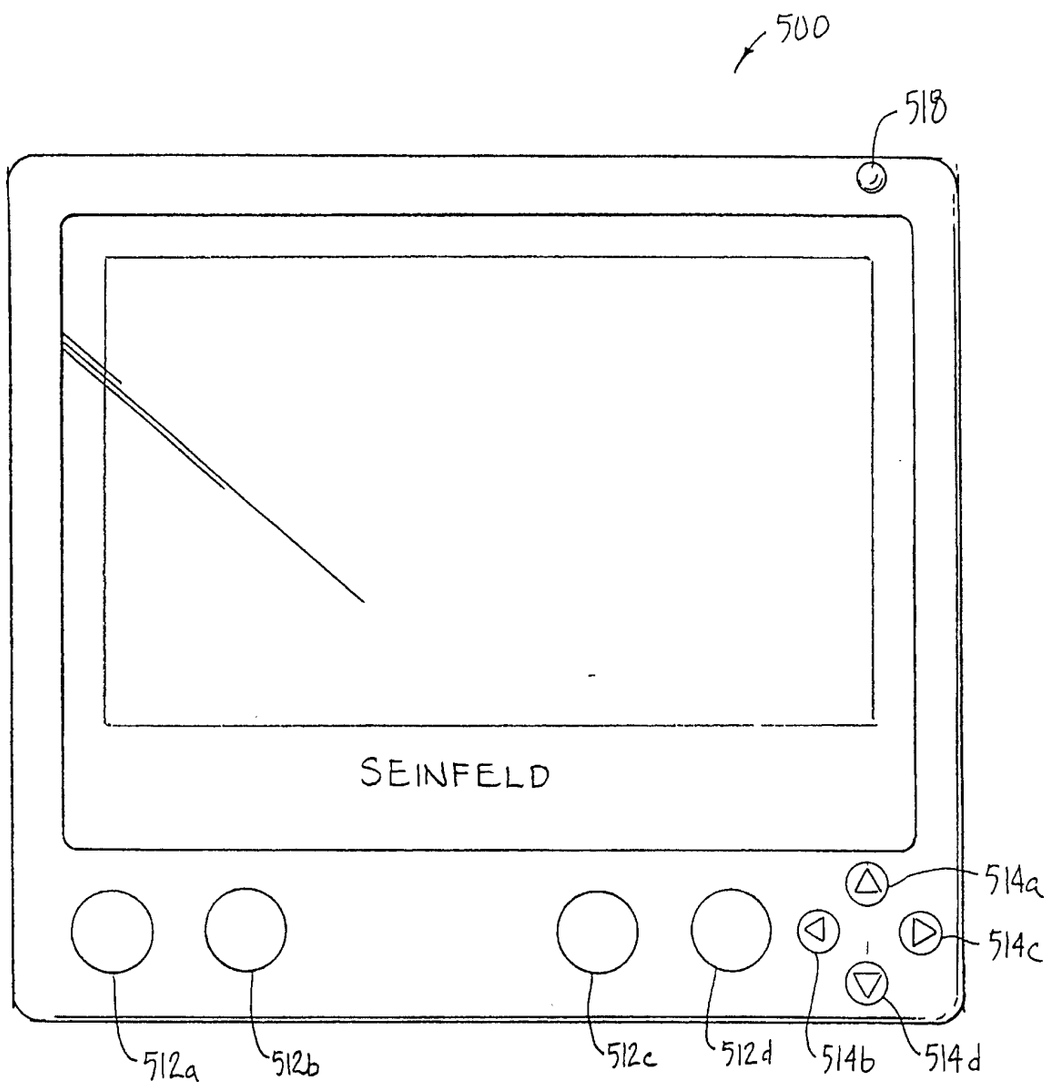


FIG 8A

Universal Remote Control Exhibit: 1002 Page 000110

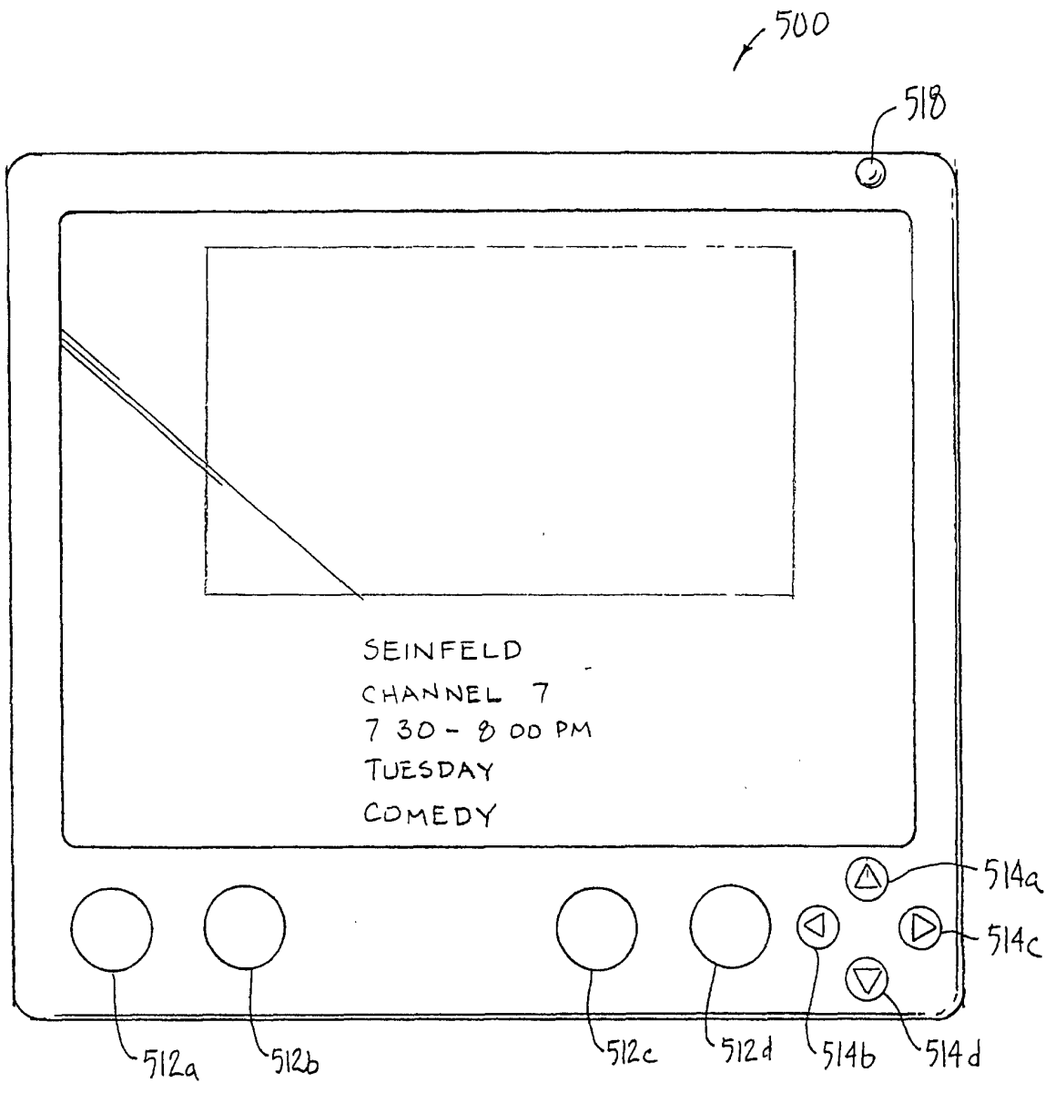


FIG 8B.

Universal Remote Control Exhibit: 1002 Page 000111

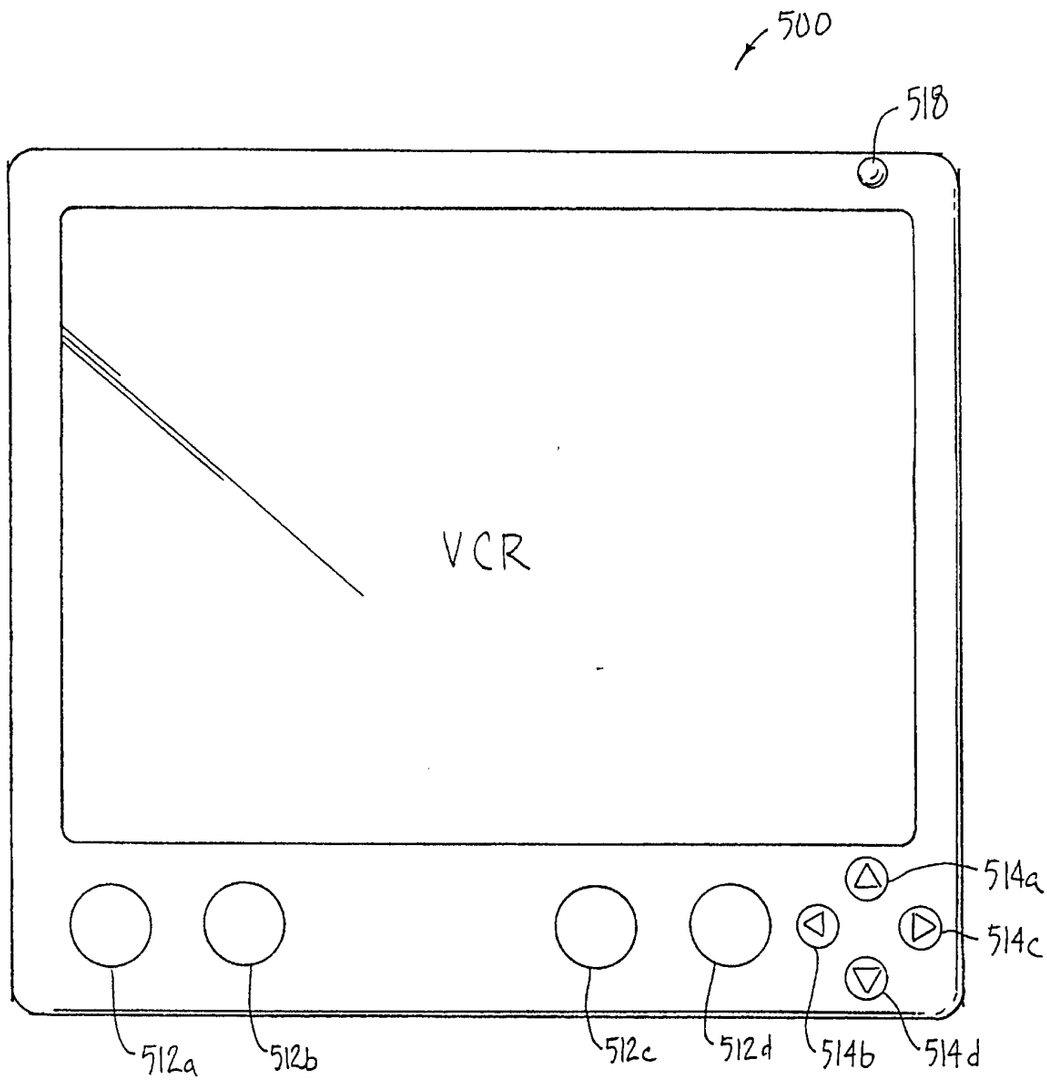


FIG 9A

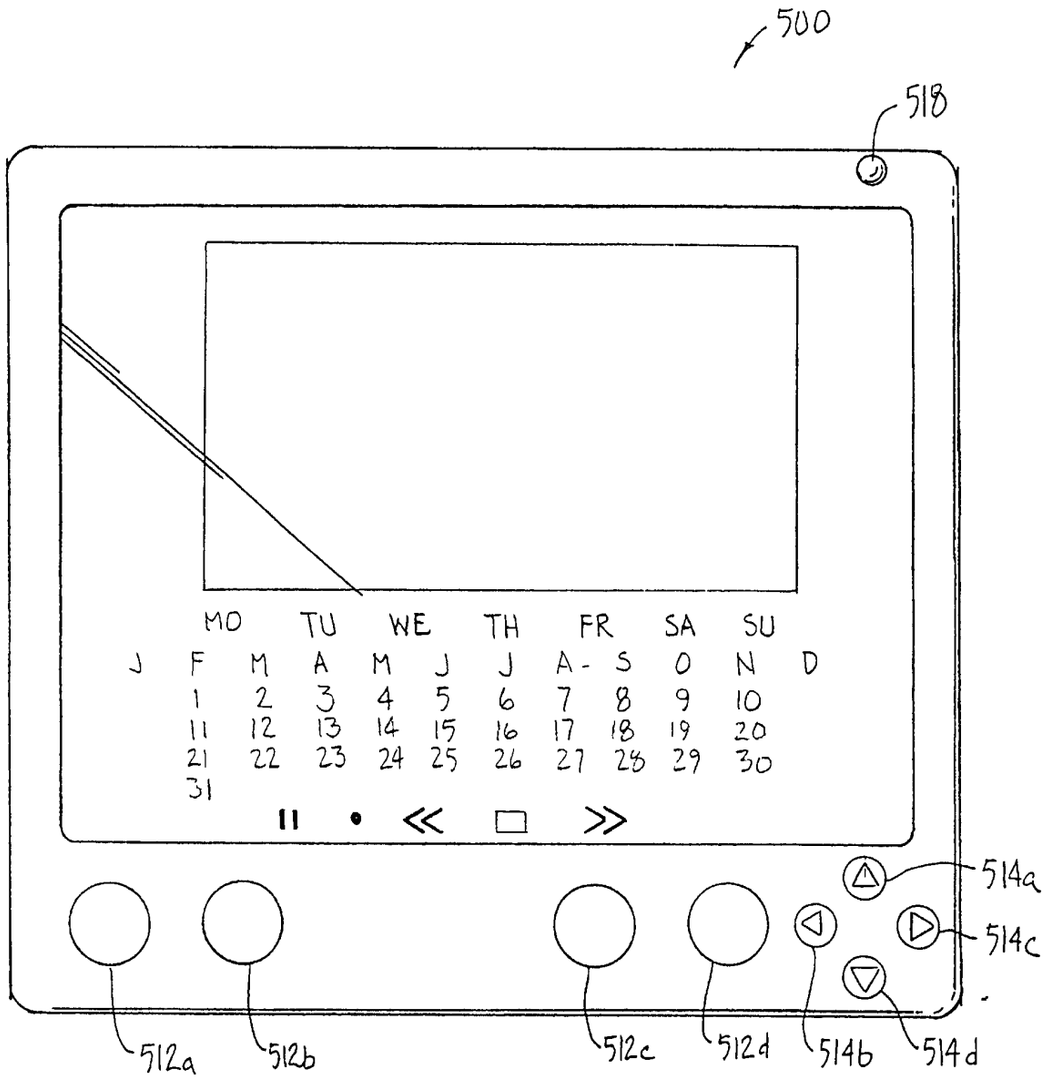


FIG 9B

Universal Remote Control Exhibit: 1002 Page 000113

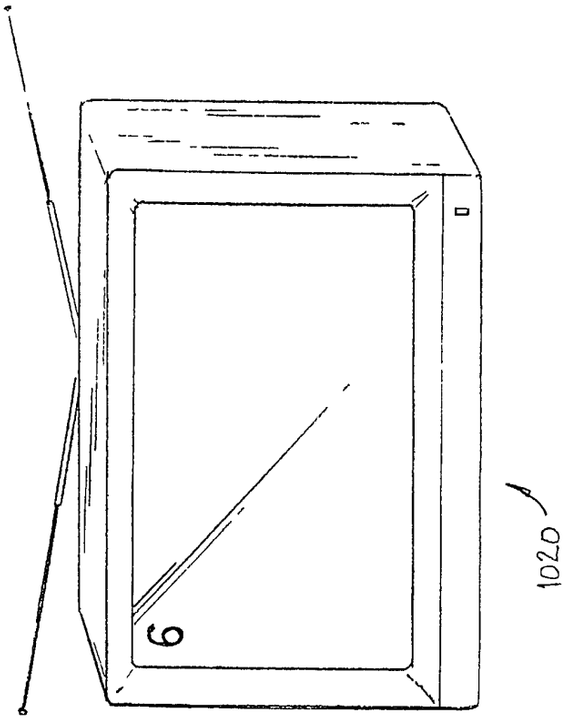
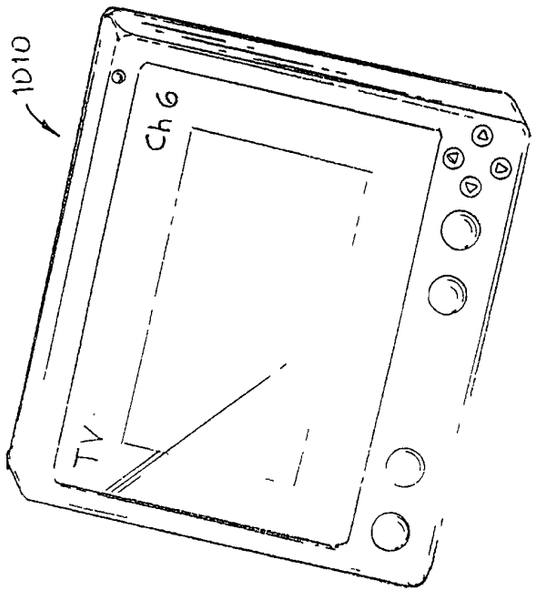


FIG 10A



Universal Remote Control Exhibit: 1002 Page 000114

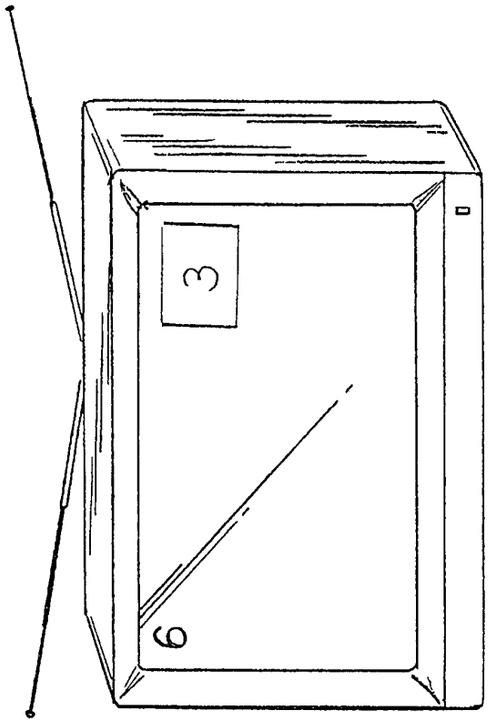
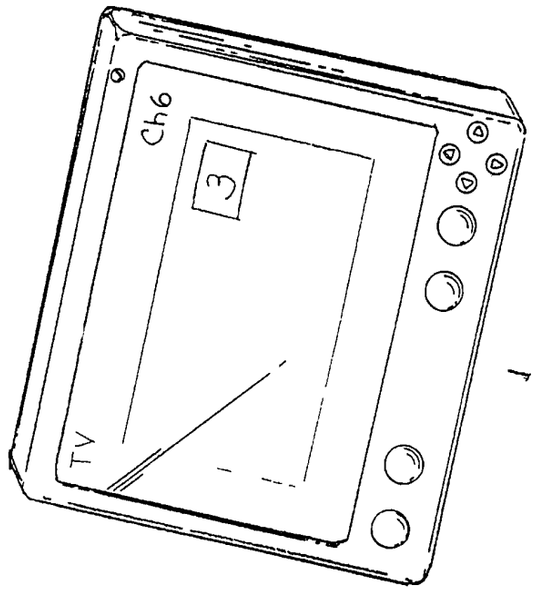


FIG 10B



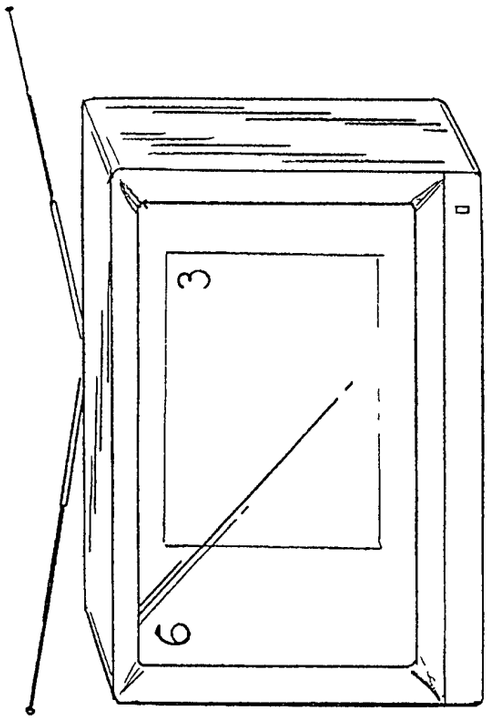
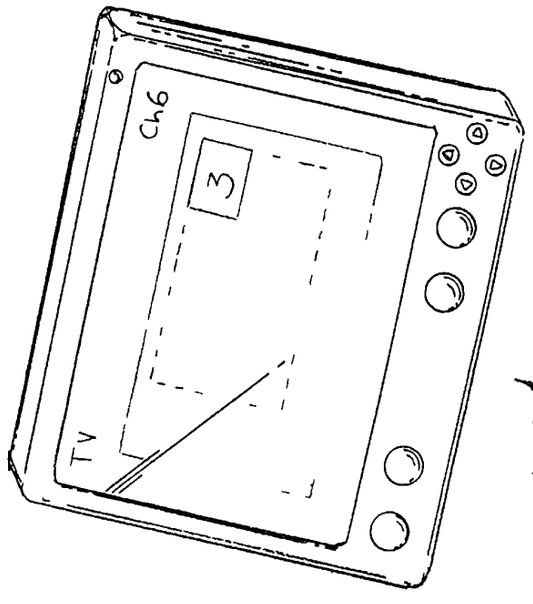


FIG 10C



Universal Remote Control Exhibit: 1002 Page 000116

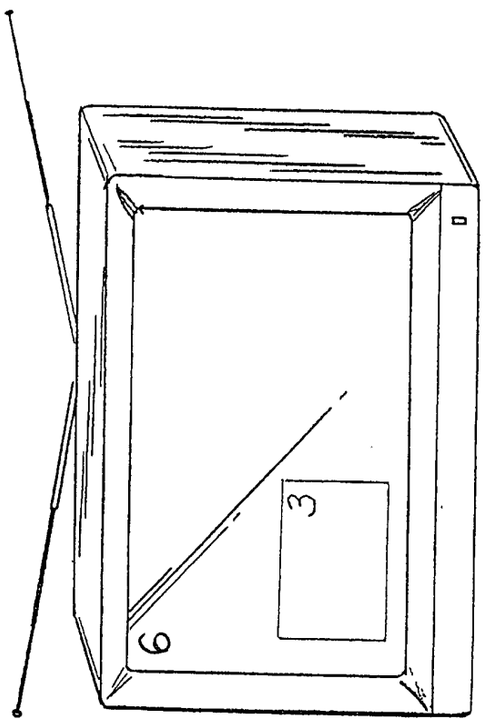
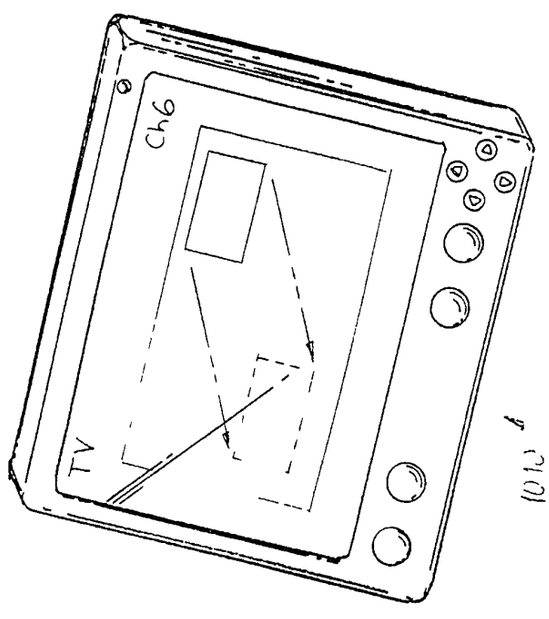


FIG 10D



Universal Remote Control Exhibit: 1002 Page 000117

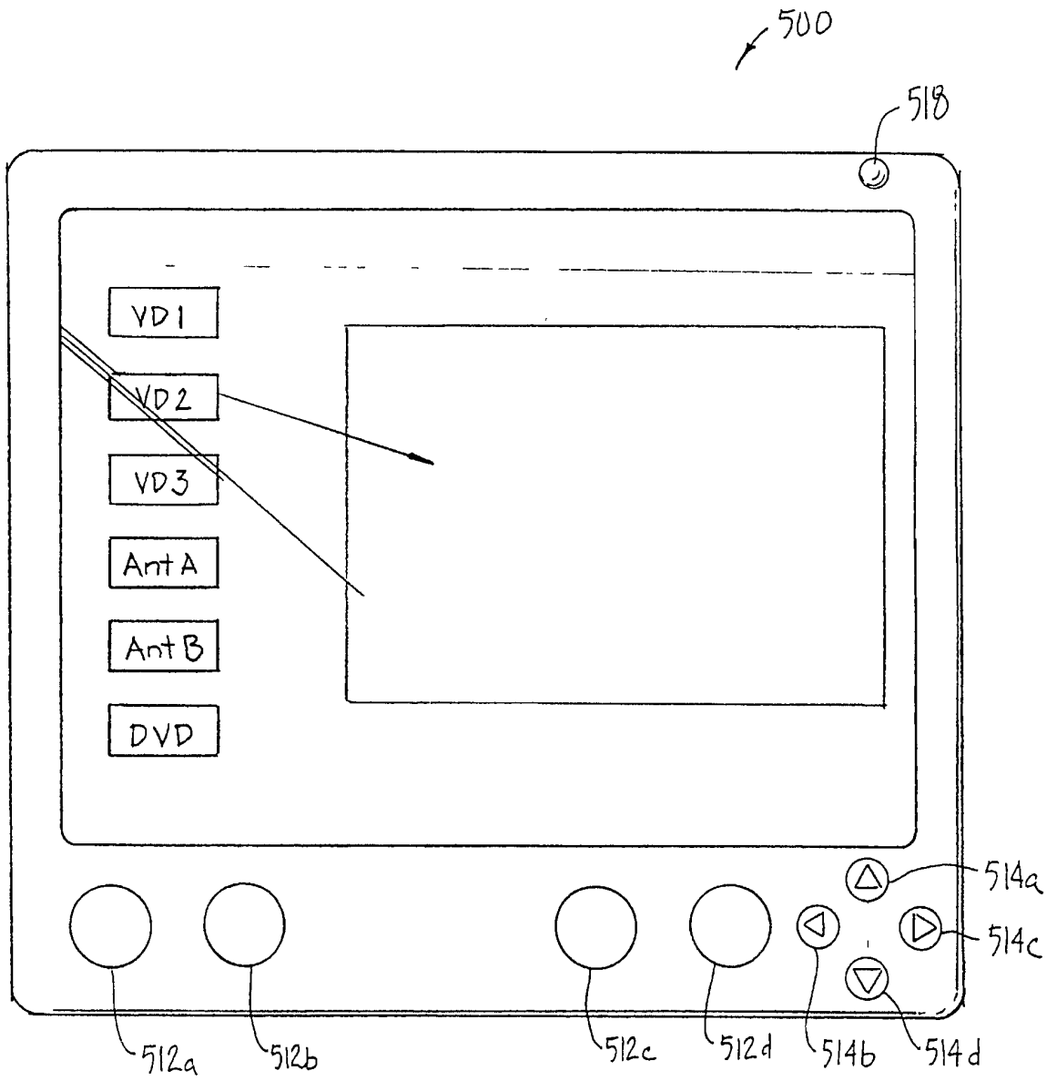

500
518
VD1
VD2
VD3
Ant A
Ant B
DVD
514a
514c
512a
512b
512c
512d
514b
514d

FIG 11A

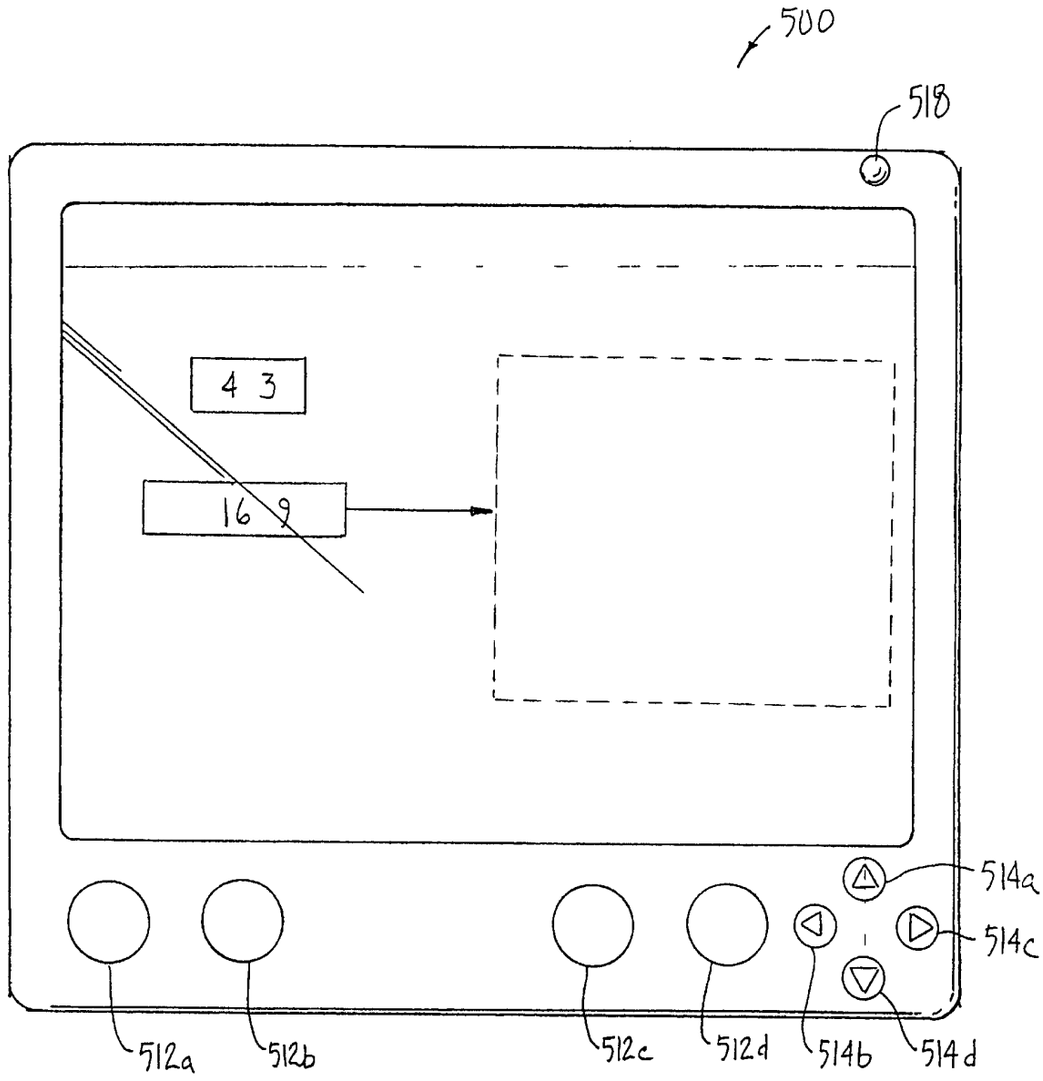


FIG 11B.

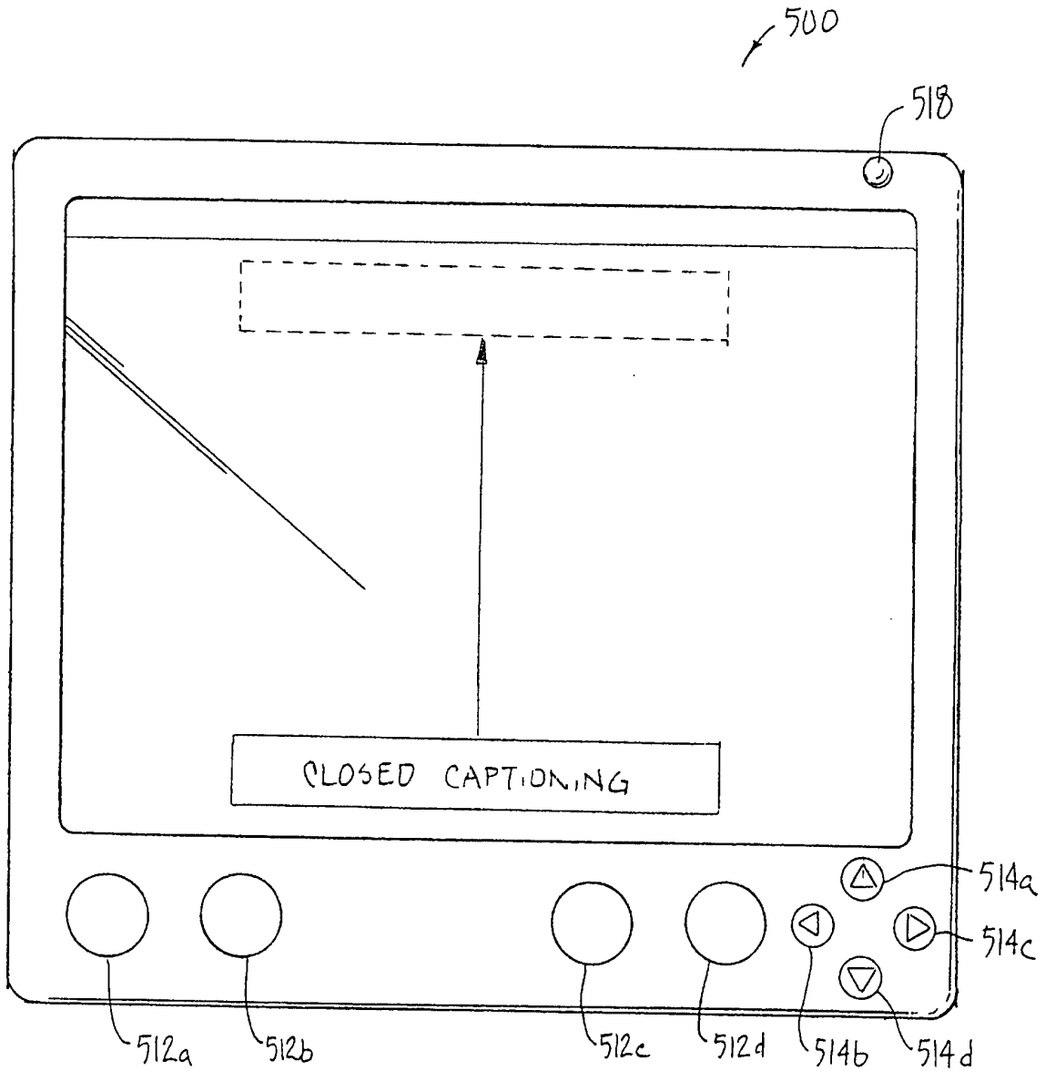


FIG. 11C

Universal Remote Control Exhibit: 1002 Page 000120

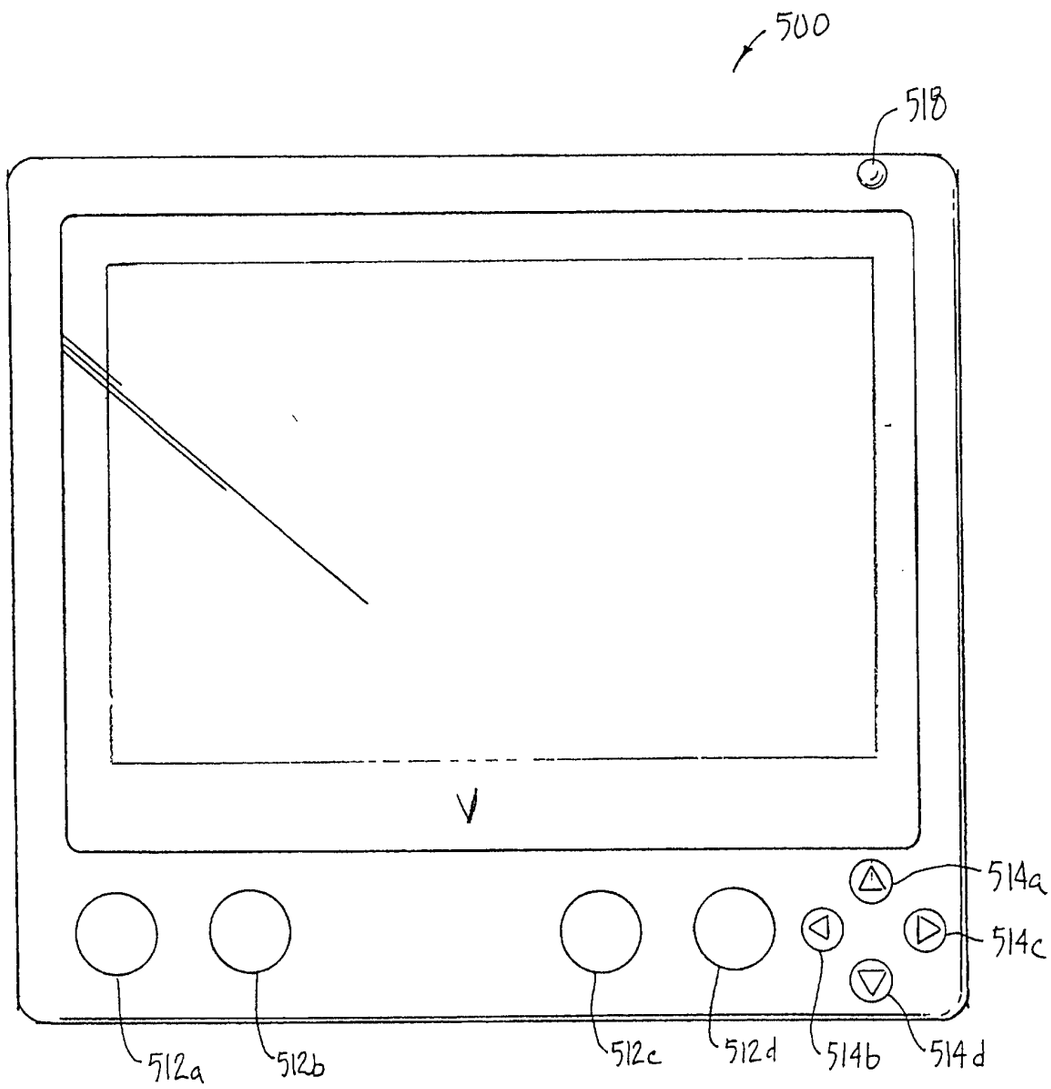


FIG 12A

Universal Remote Control Exhibit: 1002 Page 000121

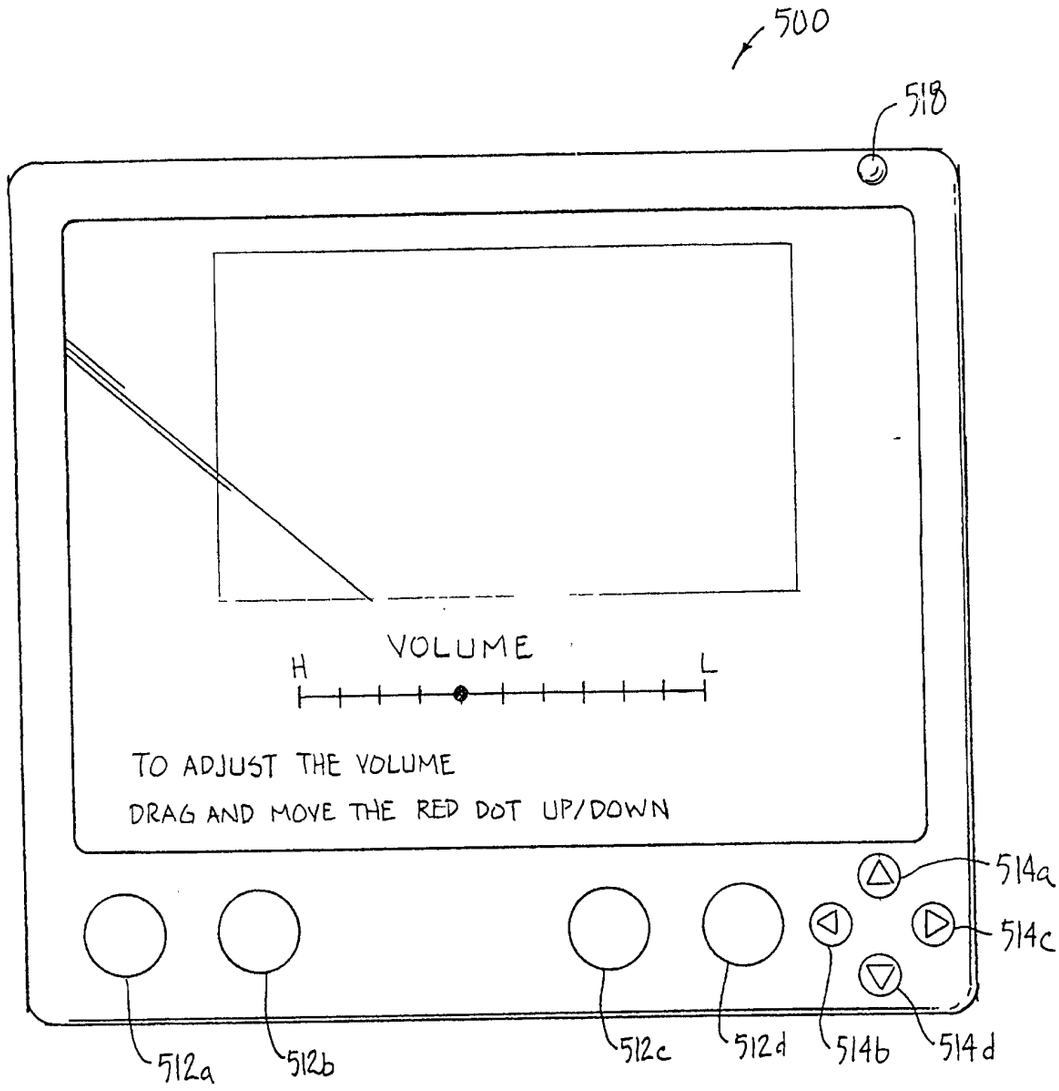

500
518
VOLUME
H
L
TO ADJUST THE VOLUME
DRAG AND MOVE THE RED DOT UP/DOWN
514a
514c
512a
512b
512c
512d
514b
514d

FIG 12B

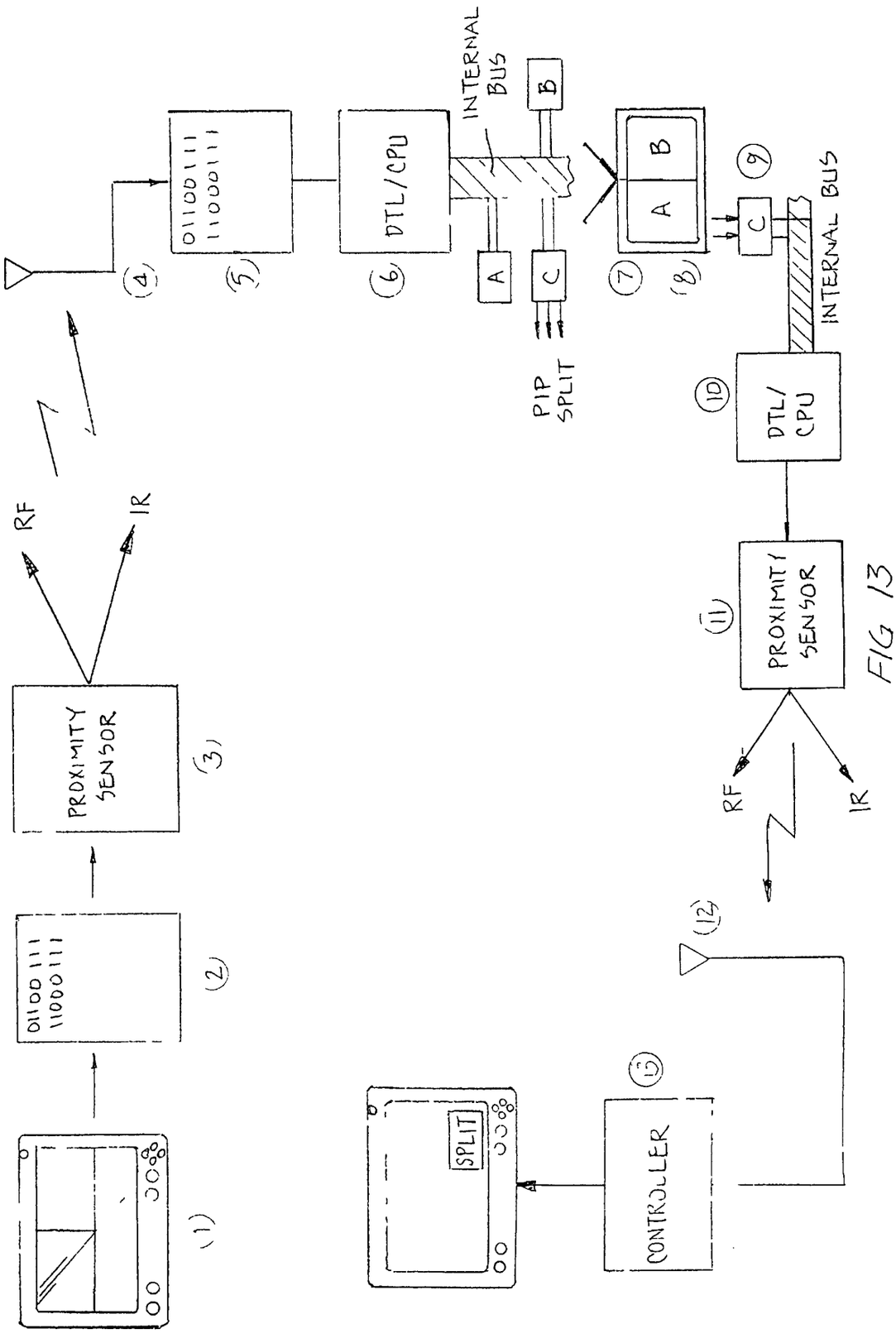


FIG 13

Universal Remote Control Exhibit: 1002 Page 000123

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Transaction History Date 1999-04-19.
Date information retrieved from USPTO Patent Application Information Retrieval (PAIR) system records at www.uspto.gov

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address COMMISSIONER OF PATENTS AND TRADEMARKS
Washington D C 20231

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO /TITLE

DATE MAILED

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

An Application Number and Filing Date have been assigned to this application The items indicated below however are missing Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay any fees required below to avoid abandonment Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1 136(a) **If any of items 1 or 3 through 5 are indicated as missing the SURCHARGE set forth in 37 CFR 1 16(e) of ☐ $65 00 for a small entity in compliance with 37 CFR 1 27, or ☒ $130 00 for a non small entity must also be timely submitted in reply to this NOTICE to avoid abandonment**

If all required items on this form are filed within the period set above, the total amount owed by applicant as a ☐ small entity (statement filed) ☒ non small entity is $ 130 00

☐ 1 The statutory basic filing fee is
- ☐ missing
- ☐ insufficient

Applicant must submit $_____ to complete the basic filing fee and/or file a small entity statement claiming such status (37 CFR 1 27)

☐ 2 The following additional claims fees are due

$_____for_____total claims over 20

$_____for_____independent claims over 3

$_____for multiple dependent claim surcharge

Applicant must either submit the additional claim fees or cancel additional claims for which fees are due

☒ 3 The oath or declaration
- ☑ is missing or unsigned
- ☐ does not cover the newly submitted items

An oath or declaration in compliance with 37 CFR 1 63 including residence information and identifying the application by the above Application Number and Filing Date is required

☐ 4 The signature(s) to the oath or declaration is/are by a person other than inventor or person qualified under 37 CFR 1 42 1 43 or 1 47
A properly signed oath or declaration in compliance with 37 CFR 1 63 identifying the application by the above Application Number and Filing Date is required

☐ 5 The signature of the following joint inventor(s) is missing from the oath or declaration

_____

An oath or declaration in compliance with 37 CFR 1 63 listing the names of all inventors and signed by the omitted inventor(s) identifying this application by the above Application Number and Filing Date is required

☐ 6 **A $50 00 processing fee is required since your check was returned without payment (37 CFR 1 21(m))**

☐ 7 Your filing receipt was mailed in error because your check was returned without payment

☐ 8 The application was filed in a language other than English
Applicant must file a verified English translation of the application the $130 00 set forth in 37 CFR 1 17(k) unless previously submitted and a statement that the translation is accurate (37 CFR 1 52(d))

☐ 9 OTHER _____

Direct the reply and any questions about this notice to Attention Box Missing Parts

A copy of this notice MUST be returned with the reply

Customer Service Center
Initial Patent Examination Division (703) 308 1202

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PART 3 OFFICE COPY

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Date information retrieved from USPTO Patent Application Information Retrieval (PAIR) system records at www.uspto.gov

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT & TRADEMARK OFFICE MAY 14 1999 O I P E JC64

In re Patent Application of)
)
WILLIAM S HERZ)
)
Serial No 09/277,887)
)
Filed March 29, 1999)
)
For METHOD AND APPARATUS FOR)
AN INTUITIVE UNIVERSAL)
REMOTE CONTROL SYSTEM)
_____)

Attention
Application Branch

San Francisco California

Assistant Commissioner of Patents
Washington D C 20231

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner of Patents Washington D C 20231 on May 11 1999

Brenda J Dolly
Signature May 11, 1999
Date

TRANSMITTAL OF MISSING PARTS

Sir

Transmitted herewith are the missing parts of the above-identified application

1 A Patent Application Declaration

2 A Power of Attorney by Zilog, Inc

3 An Assignment by Inventors to Zilog, Inc , Form PTO-1595 and a check in the amount of $40 00 to cover its recordal fee

4 A Certificate Under 37 C F R Section 3 73(b) Establishing Right of Assignee to Take Action

5 A copy of the Notice to File Missing Parts of Application, and a check in the amount of $130 00 to cover the filing fee

Universal Remote Control Exhibit: 1002 Page 000125

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Account No 13-1030 A duplicate copy of this sheet is enclosed

Dated May 11, 1999

Respectfully submitted,

Gerald P Parsons, Reg No 24,486
MAJESTIC PARSONS, SIEBERT & HSUE P C
Four Embarcadero Center Suite 1100
San Francisco, California 94111-4106
Telephone (415) 248-5500
Facsimile (415) 362-5418

Atty Docket ZILG 189US0

Universal Remote Control Exhibit: 1002 Page 000126

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

OIPE JC67 MAY 14 1999 PATENT & TRADEMARK OFFICE

In re Patent Application of

WILLIAM S HERZ

Serial No 09/277,887

Filed March 29, 1999

For METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM

Attention
Application Branch

COPY

San Francisco California

Assistant Commissioner of Patents
Washington D C 20231

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner of Patents Washington D C 20231 on May 11 1999

Brenda J Dolly

Signature May 11, 1999 Date

TRANSMITTAL OF MISSING PARTS

Sir

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COPY

Universal Remote Control Exhibit: 1002 Page 000127

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Account No 13-1030 A duplicate copy of this sheet is enclosed

Dated May 10, 1999

Respectfully submitted,

Gerald P Parsons, Reg No 24,486
MAJESTIC PARSONS, SIEBERT & HSUE P C
Four Embarcadero Center Suite 1100
San Francisco, California 94111-4106
Telephone (415) 248-5500
Facsimile (415) 362-5418

Atty Docket ZILG 189US0

COPY

Universal Remote Control Exhibit: 1002 Page 000128

PATENT APPLICATION DECLARATION

(Attorney's Docket No ZILG 189US0)

I, WILLIAM S HERZ, declare as follows

1 My residence, post office address and country of citizenship given below are true and correct

2 I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought in the patent application entitled "METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM," Serial No 09/277,887, filed March 29, 1999, and I have reviewed and understand the contents of the specification including its claims

3 I acknowledge my duty to disclose to the Office all information known to me to be material to patentability of this application, in accordance with 37 C F R Section 1 56, which is defined on the attached page

I further 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 issuing thereon

Date 5-4-99 William S Herz

William S Herz

Residence and Post Office Address 25439 Old Fairview Avenue
Hayward, California 94542
(Citizenship U S A)

Universal Remote Control Exhibit: 1002 Page 000129

Section 1 56 Duty to Disclose Information Material to Patentability

(a) A patent by its very nature is affected with a public interest The public interest is best served and the most effective patent examination occurs when at the time an application is being examined the Office is aware of and evaluates the teachings of all information material to patentability Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration or the application becomes abandoned Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application There is no duty to submit information which is not material to the patentability of any existing claim The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1 97(b) (d) and 1 98 However no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct The Office encourages applicants to carefully examine

(1) prior art cited in search reports of a foreign patent office in a counterpart application and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines to make sure that any material information contained therein is disclosed to the Office

(b) Under this section information is material to patentability when it is not cumulative to information already of record or being made of record in the application and

(1) It establishes by itself or in combination with other information a prima facie case of unpatentability of a claim or

(2) It refutes or is inconsistent with a position the applicant takes in

(i) Opposing an argument of unpatentability relied on by the Office or
(ii) Asserting an argument of patentability

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence burden of proof standard giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are

(1) Each inventor named in the application

(2) Each attorney or agent who prepares or prosecutes the application and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor with the assignee or with anyone to whom there is an obligation to assign the application

(d) Individuals other than the attorney agent or inventor may comply with this section by disclosing information to the attorney agent or inventor

Universal Remote Control Exhibit: 1002 Page 000130

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

WILLIAM S HERZ

Serial No 09/277,887

Filed March 29 1999

For METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM

OIPE JC67
MAY 14 1999
PATENT & TRADEMARK OFFICE

San Francisco California

Assistant Commissioner of Patents
Washington, D C 20231

POWER OF ATTORNEY BY ASSIGNEE

Sir

The undersigned, having received the full right, title and interest in and to the above-identified patent application by way of a written assignment from Applicant hereby appoints the practitioners of Majestic, Parsons, Siebert & Hsue P C who are associated with the Customer Number provided below to prosecute this patent application, to transact all business in the U S Patent and Trademark Office connected therewith, to receive the original Letters Patent, and to substitute or associate other attorneys on its behalf I further direct that all correspondence be addressed to that Customer Number

Customer No

020227

PATENT AND TRADEMARK OFFICE

Assignee Zilog, Inc

Dated 5/6/99

By

Richard R Pickard

Title Senior Vice President, General Counsel & Secretary

(Atty Docket ZILG 189US0)

ASSIGNMENT

WHEREAS, WILLIAM S HERZ, a resident of Hayward, California, hereinafter referred to as "Assignor," has invented certain new and useful improvements as described and set forth in an application for Letters Patent of the United States entitled "METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM," filed with the U S Patent Office on March 29, 1999, under Serial No 09/277,887

WHEREAS, Zilog, Inc , a Corporation of the State of Delaware, having a place of business at 910 East Hamilton Avenue, Campbell, California 95008, hereinafter referred to as "Assignee," desires to acquire the entire right, title and interest in and to said application, said invention, said improvements, and all Letters Patent which may be granted thereon in the United States or any foreign country,

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged by Assignor,

1 Assignor hereby sells assigns, transfers and conveys to Assignee the entire worldwide right, title and interest in and to said application, said invention and said improvements, and in and to any and all Letters Patent on said invention and improvements that may be granted by the United States or any foreign country, including any divisions, substitutions continuations in whole or in part, conversions, reissues, additions or extensions thereof, said interest to be held and enjoyed by Assignee as fully and exclusively as it would have been held and enjoyed by said Assignor had this Assignment and transfer not been made

2 Assignor hereby warrants, covenants and represents that he has not heretofore granted any license, right or privilege with respect to said application, invention or improvements, or in any other way encumbered the same, and that he has the full right to make this Assignment

3 Assignor further agrees that at the request and expense of Assignee, but without charge to said Assignee, he will promptly execute all papers necessary or desirable to perfect ownership of said invention, improvements applications or said Letters Patent, in said Assignee, and will execute all oaths and other papers within the truth that are necessary or desirable for prosecuting said application for use in interference proceedings involving said invention or improvements, for refiling said applications, for filing of said divisional, substitution, continuation or continuation-in-part applications covering said invention or improvements which

COPY

Universal Remote Control Exhibit: 1002 Page 000132

are deemed necessary or desirable by Assignee, for reissuance or reexamination of said Letters Patent, or for the filing in foreign countries of applications for Letters Patent covering said invention or improvements

4 The terms, covenants and provisions of this Assignment shall inure to the benefit of Assignee, its successors, assigns and other legal representatives, and shall be binding upon Assignor, his heirs, legal representatives and assigns

IN TESTIMONY WHEREOF, I have executed and delivered to Assignee this instrument this 4TH day of MAY, 1999

William S Herz

William S Herz

STATE OF CALIFORNIA)
) ss
COUNTY OF SANTA CLARA)

On MAY 4, 1999, before me THERESA E HEDGER, personally appeared WILLIAM S. HERZ, ~~personally known to me/~~proved to me on the basis of satisfactory evidence to be the person whose name is subscribed to the within instrument and acknowledged to me that ~~he/she~~ executed the same in ~~his/her~~ authorized capacity, and that by ~~his/her~~ signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument

WITNESS my hand and official seal

(SEAL)

THERESA E HEDGER
COMM # 1200875
NOTARY PUBLIC CALIFORNIA
SANTA CLARA COUNTY
COMM EXP JAN 30 2003

Theresa E Hedger

Notary Public

COPY

Universal Remote Control Exhibit: 1002 Page 000133

CERTIFICATE UNDER 37 C F R §3 73(b)

Applicants **WILLIAM S HERZ**

Serial No 09/277 887

Filed March 29 1999

For **METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOVE CONTROL SYSTEM**

Zilog Inc a corporation certifies that it is the assignee of the entire right title and interest in the patent application identified above by virtue of either

[X] A An assignment from the inventor(s) of the patent application identified above A copy of the assignment is attached

OR

[ ] B A chain of title from the inventor(s) of the patent application identified above to the current assignee as shown below

1 From _____ To _____
The document was recorded in the Patent and Trademark Office at Reel _____ Frame _____ or for which a copy thereof is attached

2 From _____ To _____
The document was recorded in the Patent and Trademark Office at Reel _____ Frame _____ or for which a copy thereof is attached

3 From _____ To _____
The document was recorded in the Patent and Trademark Office at Reel _____ Frame _____ or for which a copy thereof is attached

[ ] Additional documents in the chain of title are listed on a supplemental sheet

[ ] Copies of assignment or other documents in the chain of title are attached

The undersigned (whose title is supplied below) is empowered to act on behalf of the assignee

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 are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both under Section 1001 Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon

Dated 5/6/99

Signature _____
Name Richard R Pickard
Title Senior Vice President General Counsel & Secretary

ZILG 189US0

Universal Remote Control Exhibit: 1002 Page 000134

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MAY 14 1999 — OIPE — PATENT & TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address COMMISSIONER OF PATENTS AND TRADEMARKS
Washington D C 20231

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO /TITLE

DATE MAILED

NOTICE TO FILE MISSING PARTS OF APPLICATION
Filing Date Granted

An Application Number and Filing Date have been assigned to this application The items indicated below however are missing Applicant is given TWO MONTHS FROM THE DATE OF THIS NOTICE within which to file all required items and pay any fees required below to avoid abandonment Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1 136(a) **If any of items 1 or 3 through 5 are indicated as missing the SURCHARGE set forth in 37 CFR 1 16(e) of ☐ $65 00 for a small entity in compliance with 37 CFR 1 27 or ☒ $130 00 for a non small entity must also be timely submitted in reply to this NOTICE to avoid abandonment**

If all required items on this form are filed within the period set above, the total amount owed by applicant as a ☐ small entity (statement filed) ☒ non small entity is $ 130 00

☐ 1 The statutory basic filing fee is
- ☐ missing
- ☐ insufficient

Applicant must submit $________ to complete the basic filing fee and/or file a small entity statement claiming such status (37 CFR 1 27)

☐ 2 The following additional claims fees are due

$______ for ______ total claims over 20

$______ for ______ independent claims over 3

$______ for multiple dependent claim surcharge

Applicant must either submit the additional claim fees or cancel additional claims for which fees are due

☒ 3 The oath or declaration
- ☒ is missing or unsigned
- ☐ does not cover the newly submitted items

An oath or declaration in compliance with 37 CFR 1 63 including residence information and identifying the application by the above Application Number and Filing Date is required

☐ 4 The signature(s) to the oath or declaration is/are by a person other than inventor or person qualified under 37 CFR 1 42 1 43 or 1 47

A properly signed oath or declaration in compliance with 37 CFR 1 63 identifying the application by the above Application Number and Filing Date is required

☐ 5 The signature of the following joint inventor(s) is missing from the oath or declaration

____

An oath or declaration in compliance with 37 CFR 1 63 listing the names of all inventors and signed by the omitted inventor(s) identifying this application by the above Application Number and Filing Date is required

☐ 6 **A $50 00 processing fee is required since your check was returned without payment (37 CFR 1 21(m))**

☐ 7 Your filing receipt was mailed in error because your check was returned without payment

☐ 8 The application was filed in a language other than English

Applicant must file a verified English translation of the application the $130 00 set forth in 37 CFR 1 17(k) unless previously submitted and a statement that the translation is accurate (37 CFR 1 52(d))

☐ 9 OTHER ________________

Direct the reply and any questions about this notice to Attention Box Missing Parts

A copy of this notice MUST be returned with the reply

Customer Service Center
Initial Patent Examination Division (703) 308 1202

05/18/1999 SARAYA 00000025 09270200 01 FC 105 130 00 OP

FORM PTO 1533 (REV 9/98) U S GPO 1998-446-824

PART 2 - COPY TO BE RETURNED WITH RESPONSE

Transaction History Date 1999-05-17
Date information retrieved from USPTO Patent Application Information Retrieval (PAIR) system records at www.uspto.gov

C-P 2712 8/9

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of WILLIAM S HERZ Serial No 09/277 887 Filed March 29, 1999 For METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM	Group Art Unit 2712 MAY San Francisco, California

Assistant Commissioner of Patents
Washington, D C 20231

INFORMATION DISCLOSURE STATEMENT

Sir

The following Form 1449 and copies of documents listed thereon are being filed herewith as an Information Disclosure Statement Consideration of each of these documents by the Patent Examiner, and the making of each of them of record in the file of this application are respectfully requested

Respectfully submitted

Dated May 13 1999

Gerald P Parsons Reg No 24 486
MAJESTIC PARSONS, SIEBERT & HSUE P C
Four Embarcadero Center Suite 1100
San Francisco California 94111 4106
Telephone (415) 248-5500
Facsimile (415) 362-5418

Atty Docket ZILG 189US0

#4

FORM PT01449 (REV 8-83)	U S DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO ZILG 189US0	SERIAL NO 09/277 887
INFORMATION DISCLOSURE STATEMENT *(Use several sheets if necessary)*		APPLICANT William S Herz	
		FILED March 29 1999	GROUP 2712

U S PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
PMN	A1	4866522	9/12/1989	Beckley			
PMN	A2	4872195	10/03/1989	Leonard			
PMN	A3	5199080	3/30/1993	Kimura et al			
PMN	A4	5267323	11/30/1993	Kimura			
PMN	A5	5287224	2/15/1994	Tsuchiya et al			
PMN	A6	5371901	12/06/1994	Reed et al			
PMN	A7	5455560	10/03/1995	Owen			
PMN	A8	5506717	4/09/1996	Kho			
PMN	A9	5523794	6/04/1996	Mankovitz et al			
PMN	A10	5545857	8/13/1996	Lee et al			
PMN	A11	5598143	1/28/1997	Wentz			
PMN	A12	5619274	4/08/1997	Roop et al			
PMN	A13	5699124	12/16/1997	Nuber et al			
PMN	A14	5802467	9/01/1998	Salazar et al			

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANS (YES/NO)

OTHER DOCUMENTS *(Including Author Title Date Pertinent pages Etc)*

EXAMINER	[signature]	DATE CONSIDERED	4/19/00

* EXAMINER Initial if citation 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

Transaction History Date 2000-04-27.
Date information retrieved from USPTO Patent Application Information Retrieval (PAIR) system records at www.uspto.gov

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UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address COMMISSIONER OF PATENTS AND TRADEMARKS
Washington D C 20231

BCL

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO

EXAMINER	
ART UNIT	PAPER NUMBER
	5

DATE MAILED

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

Commissioner of Patents and Trademarks

Universal Remote Control Exhibit: 1002 Page 000138

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address COMMISSIONER OF PATENTS AND TRADEMARKS
Washington D C 20231

BCL

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO

EXAMINER	
ART UNIT	PAPER NUMBER
	5

DATE MAILED

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

Commissioner of Patents and Trademarks

PTO 90C (Rev 2/95) U S G P O 1999 460 693 1 File Copy

Universal Remote Control Exhibit: 1002 Page 000139

Office Action Summary

Application No	Applicant(s)
09/277 887	William S Herz
Examiner	**Group Art Unit**
Paulos Natnael	2714

☐ Responsive to communication(s) filed on _____

☐ This action is **FINAL**

☐ 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

A shortened statutory period for response to this action is set to expire *3* month(s) or thirty days whichever is longer from the mailing date of this communication Failure to respond within the period for response will cause the application to become abandoned (35 U S C § 133) Extensions of time may be obtained under the provisions of 37 CFR 1 136(a)

Disposition of Claims

☒ Claim(s) *1 52* is/are pending in the application

Of the above claim(s) _____ is/are withdrawn from consideration

☒ Claim(s) *33 40* is/are allowed

☒ Claim(s) *1 32 and 41 52* is/are rejected

☐ Claim(s) _____ is/are objected to

☐ Claims _____ are subject to restriction or election requirement

Application Papers

☒ See the attached Notice of Draftsperson s Patent Drawing Review PTO 948

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The proposed drawing correction filed on _____ is ☐approved ☐disapproved

☐ The specification is objected to by the Examiner

☐ The oath or declaration is objected to by the Examiner

Priority under 35 U S C § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U S C § 119(a) (d)

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received

☐ received in Application No (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17 2(a))

*Certified copies not received _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U S C § 119(e)

Attachment(s)

☒ Notice of References Cited PTO 892

☒ Information Disclosure Statement(s) PTO 1449 Paper No(s) *4*

☐ Interview Summary PTO 413

☒ Notice of Draftsperson s Patent Drawing Review PTO 948

☐ Notice of Informal Patent Application PTO 152

SEE OFFICE ACTION ON THE FOLLOWING PAGES

Universal Remote Control Exhibit: 1002 Page 000140

DETAILED ACTION

Claim Rejections - 35 USC § 112

1 The following is a quotation of the second paragraph of 35 U S C 112

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention

2 Claims **41-52** are rejected under 35 U S C 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention

In claim **41**, the claimed limitation "displaying the television screen on the television" is not clear, rendering the claim indefinite

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
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent or on an international application by another who has fulfilled the requirements of paragraphs (1) (2) and (4) of section 371© of this title before the invention thereof by the applicant for patent

4 Claims **1-32** are rejected under 35 U S C 102(e) as being anticipated by Croy et al , U S Pat No 6,040,829

Considering claim **1**, Croy et al discloses the following claimed subject matter, note,

a) the claimed receiver for receiving programming guide data from said at least one audio/video device is met by item 210, fig 2,

b) the claimed remote control memory is met by item 222, fig 2,

c) the claimed user interface coupled to the remote control memory is met by items 230 and 240, fig 2,

Considering claim **2**, the claimed wherein said at least one audio/video device comprises a television set, and wherein said television programming guide data stored in the remote control memory is provided by the television set is met by the disclosure in col 3, lines 5-16 and figs 12-53

Considering claim **3**, the claimed touch screen display is met by item 240, fig 3A-C (see also disclosure in col 7, lines 30-39)

Considering claim **4**, the claimed wherein the television programming guide is electronic programming guide is met by figs 12-53

Considering claim **5**, the claimed handwriting recognition interface for processing handwriting input is met by "stylus" (see disclosure in col 7, lines 30-39)

Considering claim **6**, the claimed voice recognition interface for processing voice input is met "voice input"(see disclosure in col 7, lines 30-39)

Considering claim **7**, the claimed wherein the television programming data is provided to the remote control by a television is met by disclosure on col 8, lines 25-53)

Considering claim **8**, see claim 7 rejection above

Considering claim **9**, the claimed remote control is a programmable remote control is met by disclosure in col 9, lines 8-15

Considering claim **10**, Croy et al discloses the following claimed subject matter, note,

a) the claimed a television comprising a first transmitter, and a data capturer for capturing programming guide data from an input is met by items 120,122, 138, 140, fig 1,

b) the claimed remote control is met by item 200 and specifically by items 210, 222, 230 and 240 in fig 2,

Considering claim **11**, see claim 3 rejection above

Considering claim **12**, see claim 4 rejection above

Considering claim **13**, see claim 5 rejection above

Considering claim **14**, see claim 6 rejection above

Considering claim **15**, see claim 7 and 8 rejection above

Considering claim **16**, Croy et al discloses the following claimed subject matter, note,

a) the claimed a television comprising a first transceiver, and a data capturer for capturing programming guide data from an input is met by items 120,122, 138, 140, fig 1, (see also col 4, lines 33-37, and col 7, lines 17-24)

b) the claimed remote control is met by item 200 and specifically by items 210, **220, 222**, 230 and 240 in fig 2,

Universal Remote Control Exhibit: 1002 Page 000143

c) the claimed wherein said at least a portion of the television programming guide data is displayed by said display screen of the television is met by disclosure

Considering claim **17**, see claim 3 rejection above

Considering claim **18**, the claimed LCD is met by item 246, fig 2 (See col 5, lines 24-26)

Considering claim **19,** see claim 4 rejection above

Considering claim **20,** see claim 5 rejection above

Considering claim **21,** see claim 6 rejection above

Considering claim **22,** see claim 15 rejection above

Claim **23** is a method of claim **1, thus,** claim 23 is rejected for the same reasons as claim **1**

Considering claim 24, see claim 3 rejection above

Considering claim **25**, Croy et al discloses the following claimed subject matter, note,

a) the claimed method of pushing the corresponding button on the user interface of said remote control is met by item 240, fig 2, and disclosure in col 7, lines 30-39

b) the claimed method of generating a set of control signals for the selected audio/video device of the activated function is met by item 240, fig 2 (See also col 5, lines 28-30)

c) the claimed method of transmitting the set of control signals to the selected audio/video device to activate the corresponding function is met by item 210, fig 2,

Considering claim **26**, see claim 3 rejection above

Considering claim **27**, see claim 4 rejection above

Considering claim **28**, see claim 3 rejection above

Considering claim **29**, the claimed remote control is met by item 200, fig 2,

Considering claim **30**, see claim 5 rejection above

Considering claim **31**, see claim 6 rejection above

Considering claim **32**, the claimed where said at least one audio/video device is a television is met by item 140 and 142 fig 1

Allowable Subject Matter

5 Claims **33-40** are allowable over the prior art

Conclusion

6 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

A) Goldstein, U S Pat No 5,410,326 discloses a **programmable remote control** device for interacting with a **plurality of remotely controlled devices**, where the device is connected over a bidirectional link and a **touch screen display** is employed

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Paulos Natnael** whose telephone number is **(703) 305-0019** The examiner can normally be reached on **Monday through Thursday** from **8 00 a M** to **5 00 p m** The examiner can also be reached on alternate **Fridays**

Universal Remote Control Exhibit: 1002 Page 000145

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John Peng**, can be reached on **(703)305-4702**

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is **(703)305-3900**

Any response to this action should be mailed to

Commissioner of Patents and Trademarks

Washington, D C 20231

or faxed to

(703) 308-6306, (for formal communications intended for entry)

or

(703) 308-6296 (for informal or draft communications, please label "PROPOSED" OR "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, V A Sixth Floor (Receptionist)

Paulos M Natnael

April 19, 2000

JOHN K PENG
SUPERVISORY PATENT EXAMINER
GROUP 2700

Notice of References Cited

Application No	Applicant(s)		
09/277 887	William S Herz		
Examiner		Group Art Unit	Page 1 of 1
Paulos Natnael		2714	

U S PATENT DOCUMENTS

		DOCUMENT NO	DATE	NAME	CLASS	SUBCLASS
	A	6 040 829	3/2000	Croy et al	345	327
	B	5 410 326	4/1995	Goldstein	348	134
	C	5 956 025	9/1999	Goulden et al	345	327
	D	5 545 857	8/1996	Lee et al	178	18
	E	5 500 691	3/1996	Martin et al	348	734
	F	5 898 398	4/1999	Kumar	341	176
	G	5 952 936	9/1999	Enomoto	340	825 69
	H	5 898 919	4/1999	Yuen	455	420
	I	5 455 570	10/1995	Cook et al	340	825 22
	J	5 282 028	1/1994	Johnson	358	86
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO	DATE	COUNTRY	NAME	CLASS	SUBCLASS
	N						
	O						
	P						
	Q						
	R						
	S						
	T						

NON PATENT DOCUMENTS

		DOCUMENT (Including Author Title Source and Pertinent Pages)	DATE
	U		
	V		
	W		
	X		

Universal Remote Control Exhibit: 1002 Page 000147

Form PTO 948 (Rev 8 98) U S DEPARTMENT OF COMMERCE Patent and Trademark Office Application No 09/277,88E

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

The drawing( ) filed (insert date) 3/29/99 ate

A ☐ app o/ed by the Draftsperson under 37 CFR 1 84 or 1 152

B ☒ objected o by the Draftsperson under 37 CFR 1 84 or 1 152 for the reasons indicat d below The Examiner will requ r submission of new correc ed drawings when necessary Cor ected drawing must be sumitted according to the instruction on the back of this ot ce

1 DRAWINGS 37 CFR 1 84(a) Acceptable categories of drawings
Black ink Color
___ Color drawings are not acceptabl until petiton is granted
Fig(s) _____
___ Pencil and non black ink not permitted Fig(s) _____

2 PHOTOGRAPHS 37 CFR 1 84 (b)
___ f full tone et is required Fig( ) _____
___ Photographs not properly mounted (mus use brv to board or photographic double weight pape) Fig( ) _____
___ Poor quality (half tone) Fig(s) _____

3 TYPE OF PAPER 37 CFR 1 84( )
___ Paper not flexible trong white and durable
Fig( ) _____
___ E asure alterations overwritings interlineations folds copy machine marks not accepted Fig(s) _____
___ Mylar velum pape is not acceptable (too thin)
Fig( ) _____

4 SIZE OF PAPER 37 CFP 1 84(f) Acceptable s z s
___ 21 0 cm by 29 7 cm (DIN size A4)
___ 21 6 cm by 27 9 cm (8 1/2 x 11 inches)
___ All dr w ng sheets not the same siz
Sh e(s) _____
___ Drav ings sheets not an acceptable size Fig(s) _____

5 MARGINS 37 CFR 1 84(g) A ceptable margins

Top 2 5 cm Left 2 5cm Right 1 5 cm Bottom 1 0 cm
SIZE A4 Size
Top 2 5 cm Left 2 5 cm Right 1 5 cm Bottom 1 0 cm
SIZE 8 1/2 x 11
Margins not acceptable Fig(s) _____
___ _____ Top (T) _____ Left (L)
_____ Right (R) _____ Bottom (B)

6 VIEWS 37 CFR 1 84(h)
REMINDER Specification may require rev sion to correspond to drawing changes
Partial views 37 CFR 1 84(h)(2)
___ Brackets needed to show figure as one nitity
Fig(s) _____
___ Views not labeled sepa ately or properiv
Fig(s) _____
___ Enlarged view not labeled separetely or properly
Fig(s) _____

7 SECTIONAL VIEWS 37 CFR 1 84 (h)(3)
___ Hatching not indicated for sectional portions of an object
Fig(s) _____
___ Sectional designation should be noted with Arabic or Roman numbers Fig(s) _____

8 ARRANGEMENT OF VIEWS 37 CFR 1 84(i)
___ Words do not appear on a horizontal left o right fashion wher page s either upright or turned so that the op becomes the right sid cept for graph Fig(s) _____

9 SCALE 37 CFR 1 84(k)
___ Scale not l g enough to now rechna rew thout crowding wh n drawing is educ d n s ze to t vo th ds n eproduction
Fig(s) _____

10 CHARACTER OF LINES NUMBERS & LETTERS 37 CFR 1 84(l)
☒ Lines numbers & letters not uniformly t ick and well defined clean durable and black (poor lin quali n)
Fig(s) 1-13

11 SHADING 37 CFR 1 84(m)
___ Solid black ar as p le Fig(s) _____
___ Solid black had n not permitted Fig(s) _____
___ Shade lines pale rough and blur ed Fig(s) _____

12 NUMBERS LETTERS & REFERENCE CHARACTERS 37 CFR 1 84(p)
___ Numbers and reference characters not plain and legible
Fig(s) _____
___ Figure legends are poor Fig(s) _____
___ Numbers and reference characters not o i n ed in the same direction as the view 37 CFR 1 84(p)(1)
Fig(s) _____
___ English alphabet not us d 37 CFR 1 84(p)(2)
Figs _____
___ Numbers lette s and reference charac er must be at least 32 cm (1/8 inch) in height 37 CFR 1 84(p)(3)
Fig(s) _____

13 LEAD LINES 37 CFR 1 84(q)
___ Lead lines c oss each other Fig( ) _____
___ Lead lines missing Fig(s) _____

14 NUMBERING OF SHEETS OF DRAWINGS 37 CFR 1 84(t)
___ Sheets not numbered consecutively and n Arabic numerals beginning with number 1 Sheet(s) _____

15 NUMBERING OF VIEWS 37 CFR 1 84(u)
___ Views not numbered consecutively and in Arabic numeral beginning with number 1 Fig(s) _____

16 CORRECTIONS 37 CFR 1 84(w)
___ Corrections not made from prior PTO 948 dated _____

17 DESIGN DRAWINGS 37 CFR 1 152
___ Surface shading shown not appropriate Fig(s) _____
___ Solid black shading not used for color contrast
Fig(s) _____

COMMENTS

REVIEWER A D DATE 6/14/99 TELEPHONE NO _____

ATTACHMENT TO PAPER NO 5

Universal Remote Control Exhibit: 1002 Page 000148

#6 Formal Drawings 5/11/00 KPW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
WILLIAM S HERZ)
Serial No 09/277,887)
Filed March 29, 1999)
For METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM)

Group Art Unit 2712

San Francisco, California

OIPE JC79 MAY 02 2000 PATENT & TRADEMARK OFFICE

RECEIVED MAY -4 2000 TC 2700 MAIL ROOM

Assistant Commissioner for Patents
Washington, D C 20231

TRANSMITTAL OF FORMAL DRAWINGS

Sir

Please substitute the attached formal drawings, comprising sixteen (16) sheets, for the informal drawings presently of record

Respectfully submitted,

Dated Apr. 28, 2000

Gerald P Parsons, Reg No 24,486
MAJESTIC, PARSONS, SIEBERT & HSUE P C
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San Francisco, California 94111-4106
Telephone (415) 248-5500
Facsimile (415) 362-5418

Atty Docket ZILG 189US0

Universal Remote Control Exhibit: 1002 Page 000149

BEST COPY

CLASS 348 SUBCLASS 734

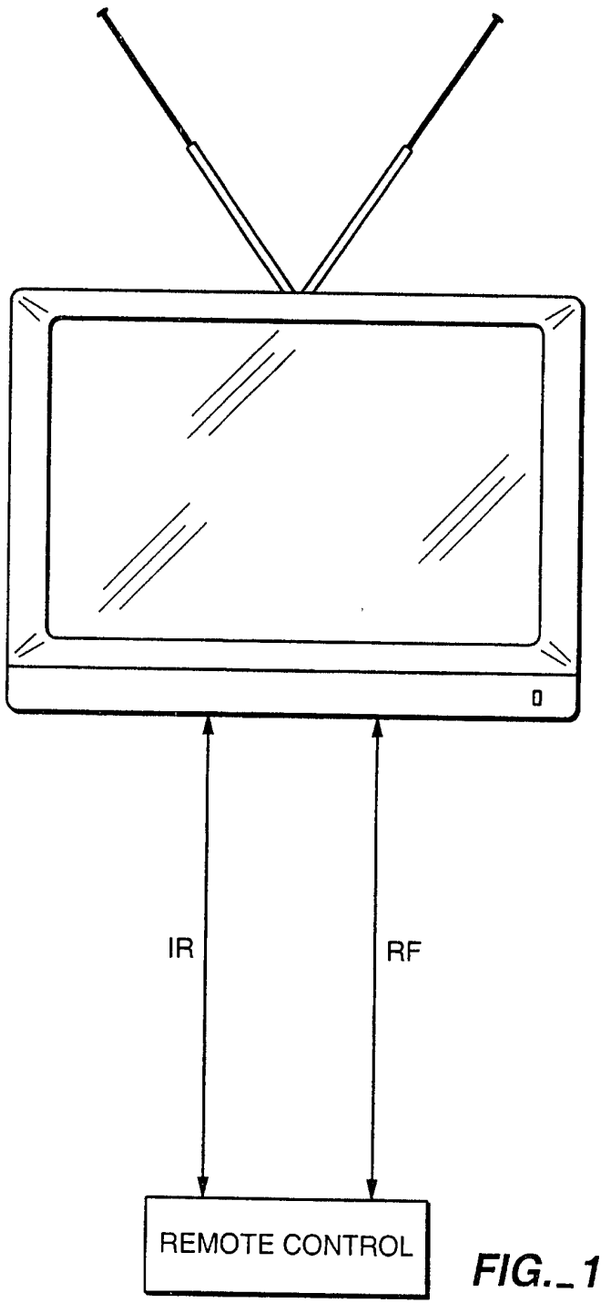


FIG._1

APPROVED
BY CLASS SUBCLASS
DRAFTSMAN 348 734

FIG._2

Universal Remote Control Exhibit: 1002 Page 000151

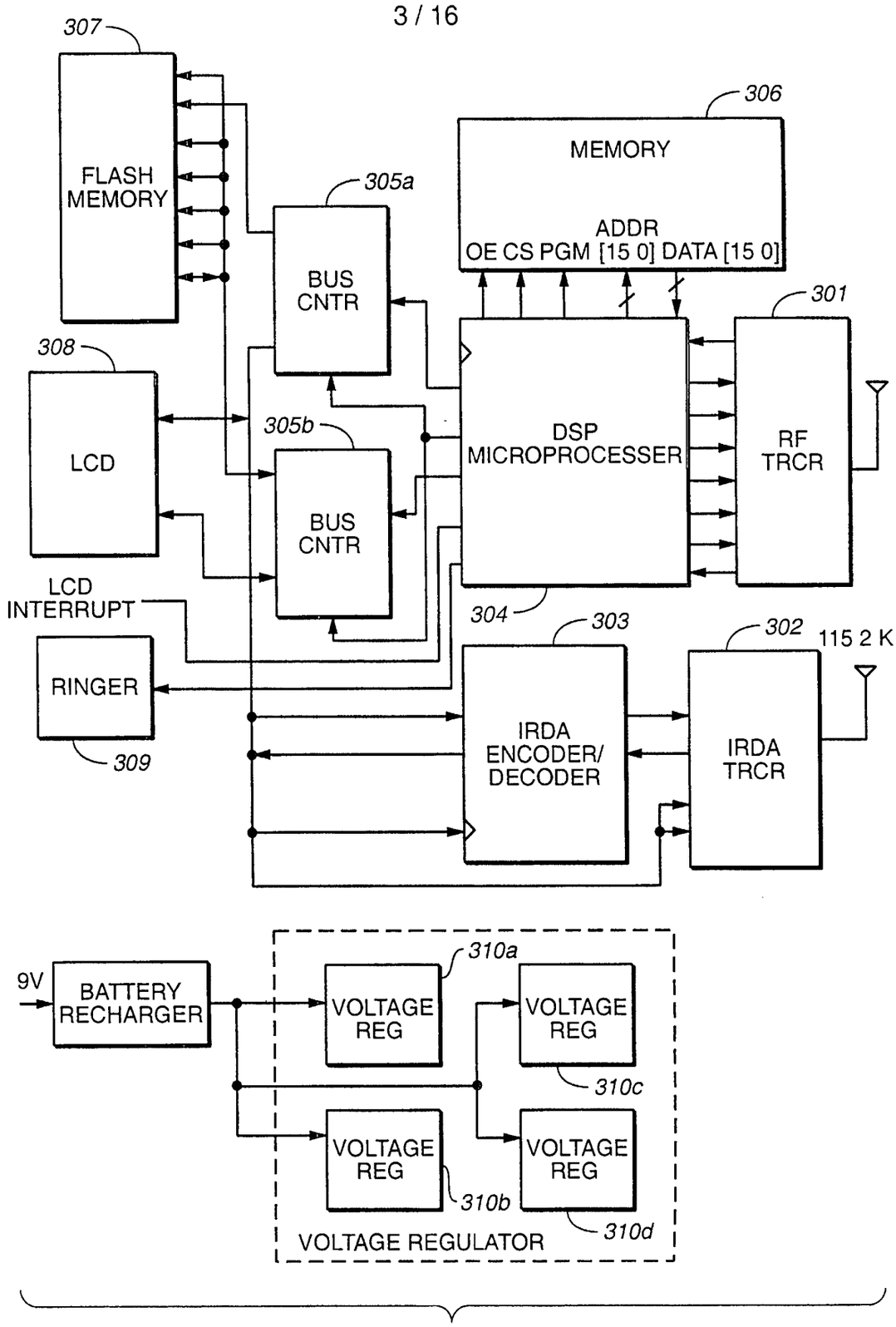

307
FLASH MEMORY
306
MEMORY
ADDR
OE CS PGM [15 0] DATA [15 0]
305a
BUS CNTR
301
308
LCD
305b
BUS CNTR
DSP MICROPROCESSER
RF TRCR
LCD INTERRUPT
304
303
302
115 2 K
RINGER
309
IRDA ENCODER/ DECODER
IRDA TRCR
9V
BATTERY RECHARGER
310a
VOLTAGE REG
VOLTAGE REG
310c
VOLTAGE REG
VOLTAGE REG
310b
310d
VOLTAGE REGULATOR

FIG._3

CLASSIFICATION

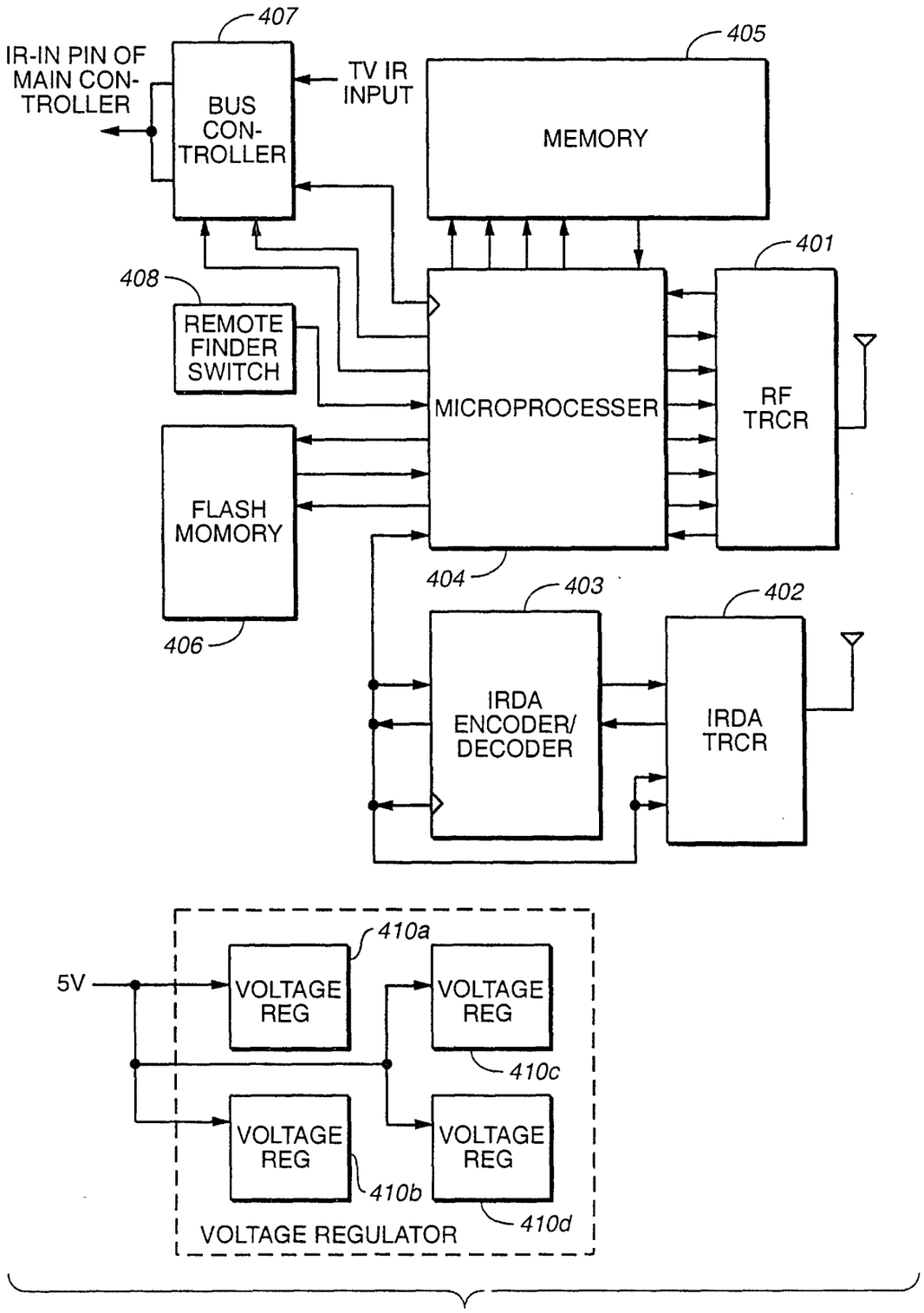


FIG._4

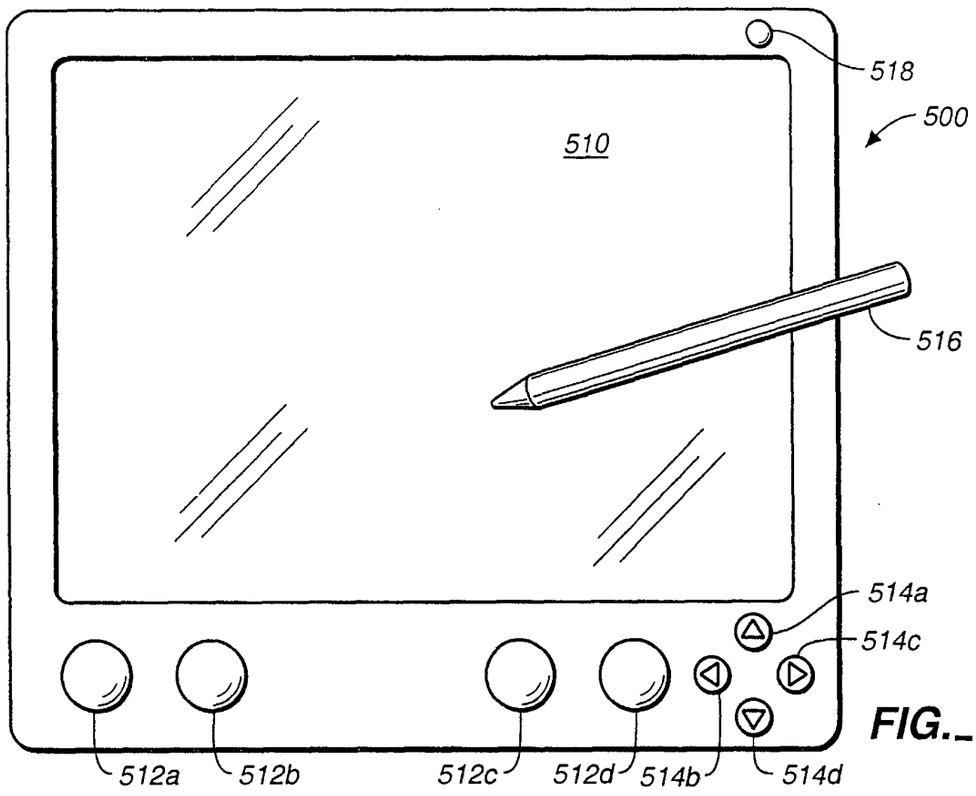

518
500
510
516
514a
514c
512a
512b
512c
512d
514b
514d

FIG._5

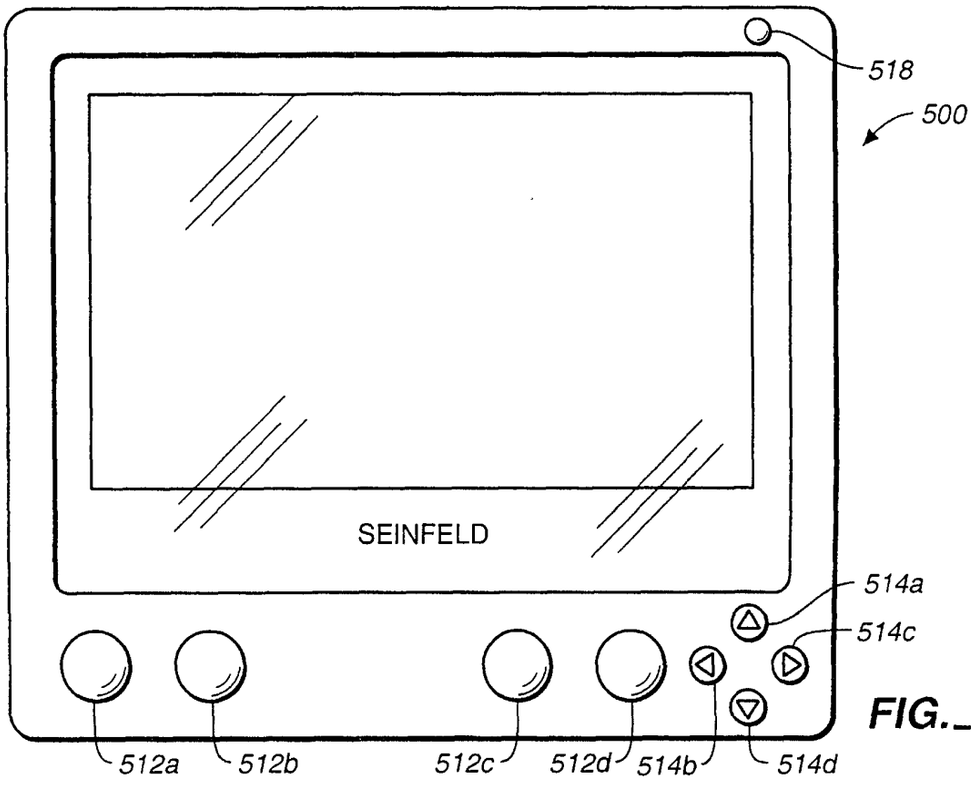

518
500
SEINFELD
514a
514c
512a
512b
512c
512d
514b
514d

FIG._8A

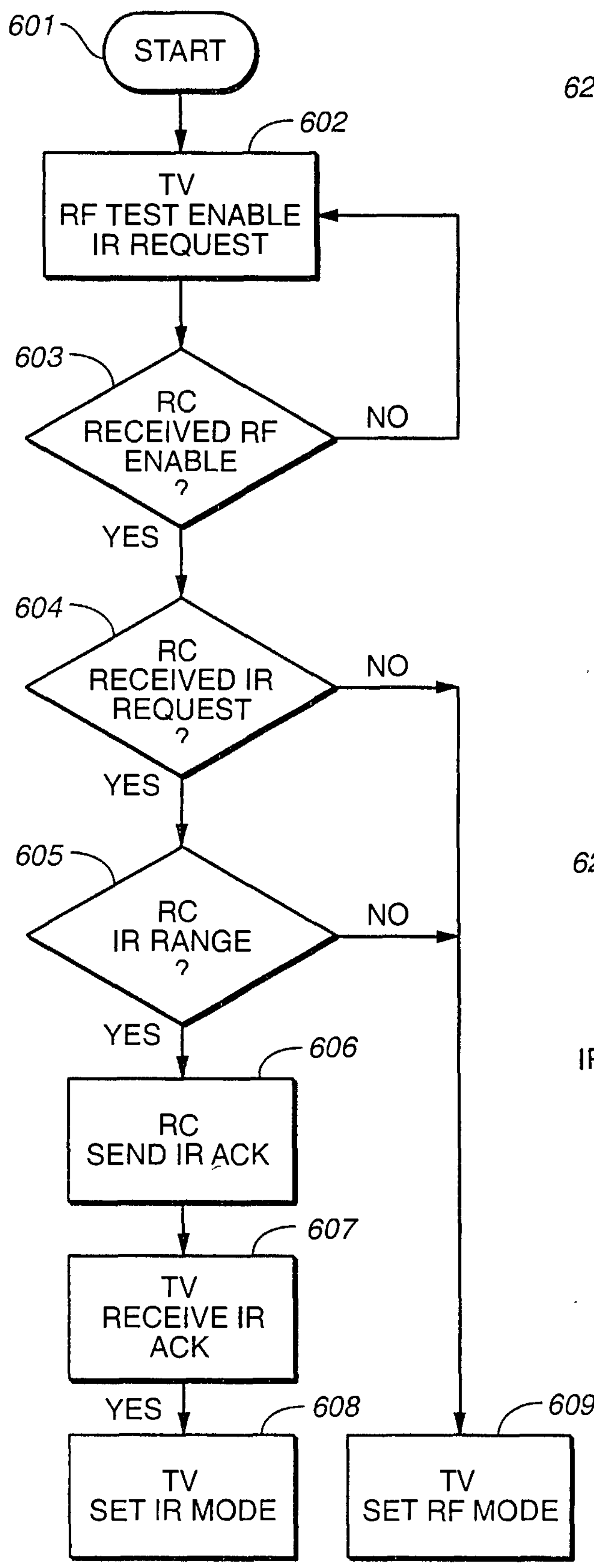

601
START
602
TV
RF TEST ENABLE
IR REQUEST
603
RC
RECEIVED RF
ENABLE
?
NO
YES
604
RC
RECEIVED IR
REQUEST
?
NO
YES
605
RC
IR RANGE
?
NO
YES
606
RC
SEND IR ACK
607
TV
RECEIVE IR
ACK
YES
608
TV
SET IR MODE
609
TV
SET RF MODE

FIG._6A

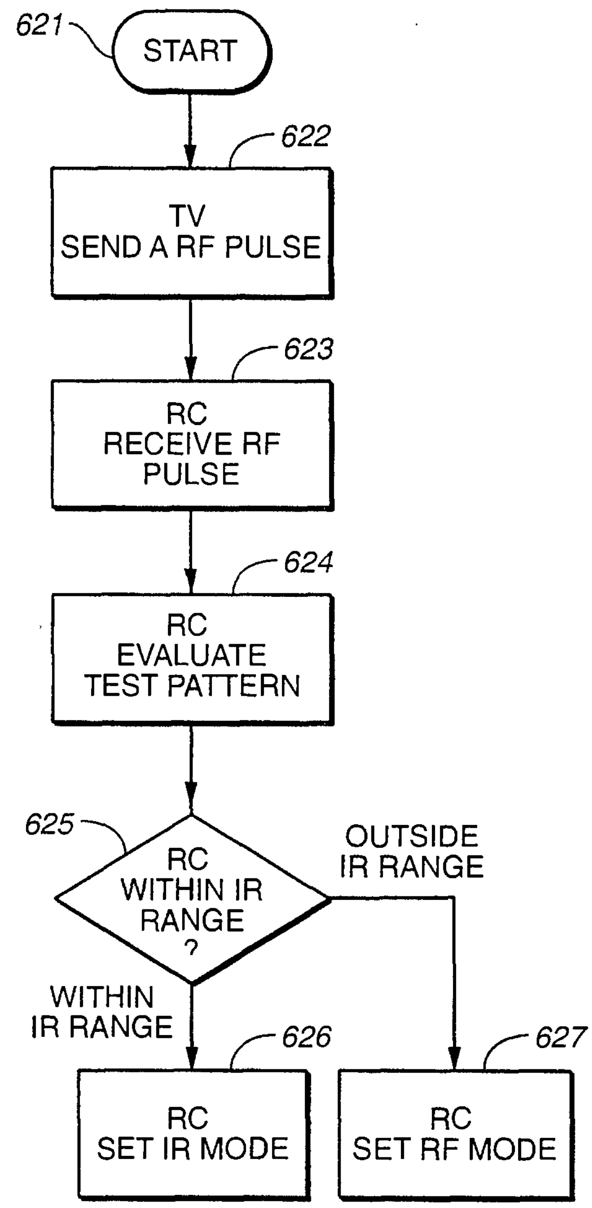

621
START
622
TV
SEND A RF PULSE
623
RC
RECEIVE RF
PULSE
624
RC
EVALUATE
TEST PATTERN
625
RC
WITHIN IR
RANGE
?
OUTSIDE
IR RANGE
WITHIN
IR RANGE
626
RC
SET IR MODE
627
RC
SET RF MODE

FIG._6B

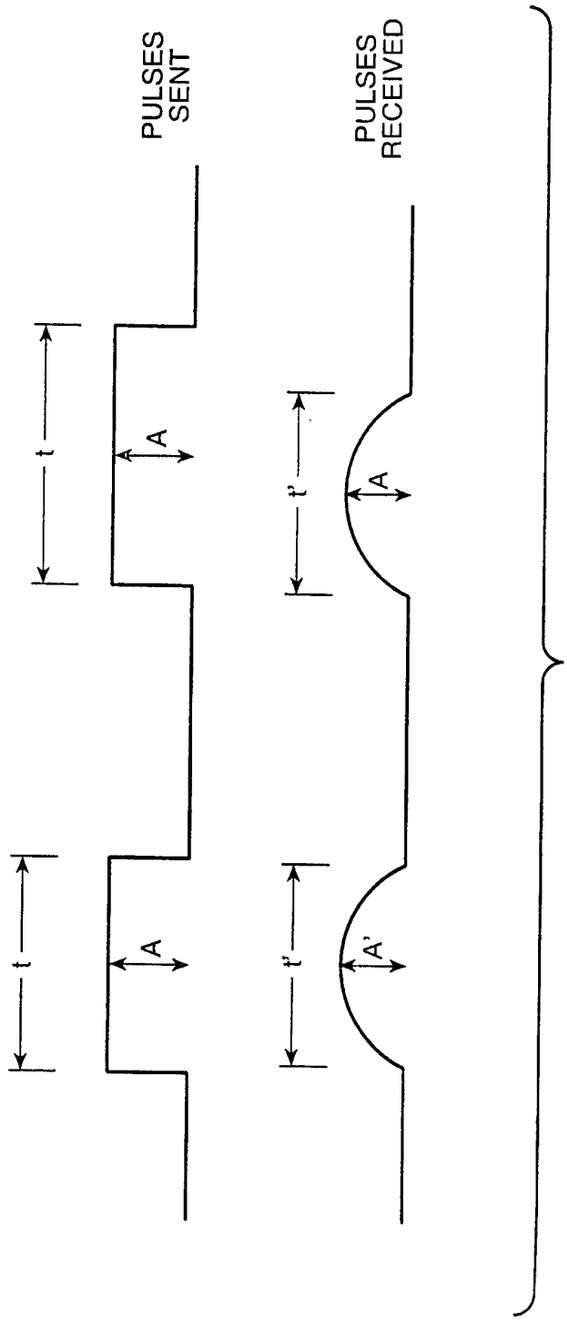


FIG._7

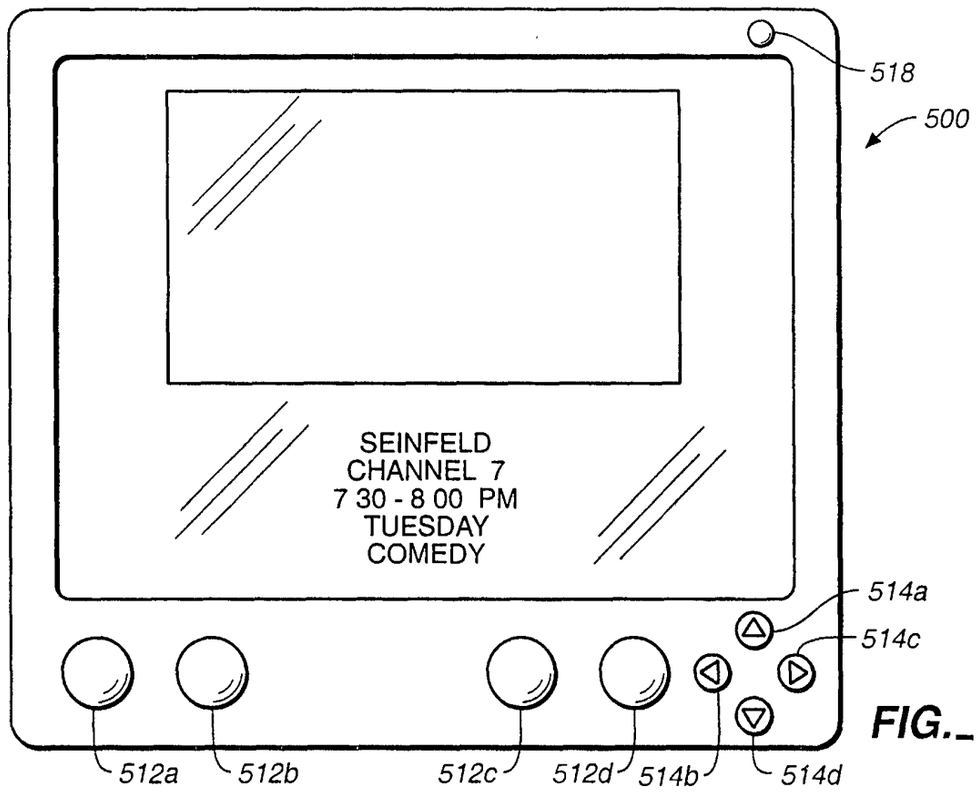

518
500
SEINFELD
CHANNEL 7
7 30 - 8 00 PM
TUESDAY
COMEDY
514a
514c
512a
512b
512c
512d
514b
514d

FIG._8B

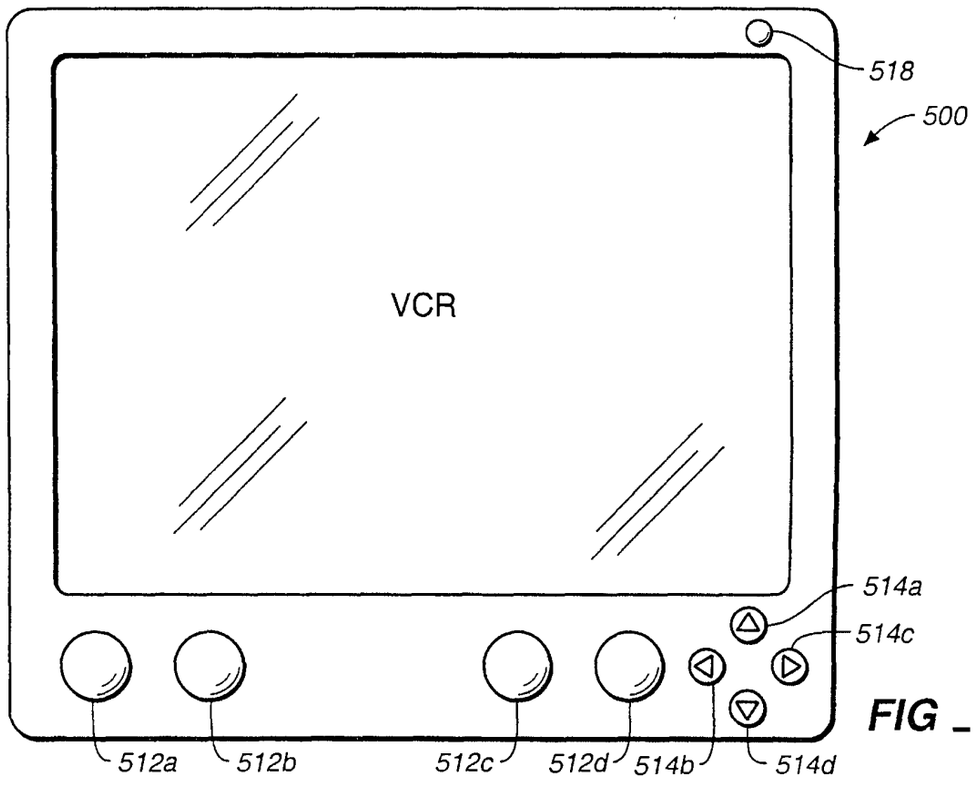

518
500
VCR
514a
514c
512a
512b
512c
512d
514b
514d

FIG _9A

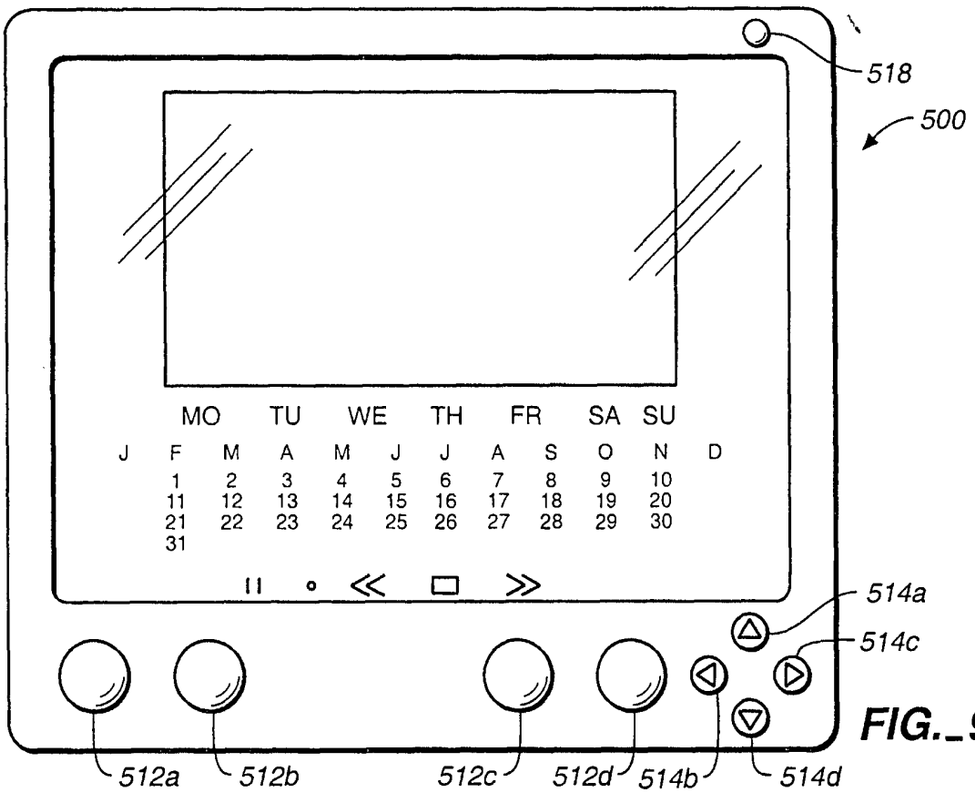


FIG._9B

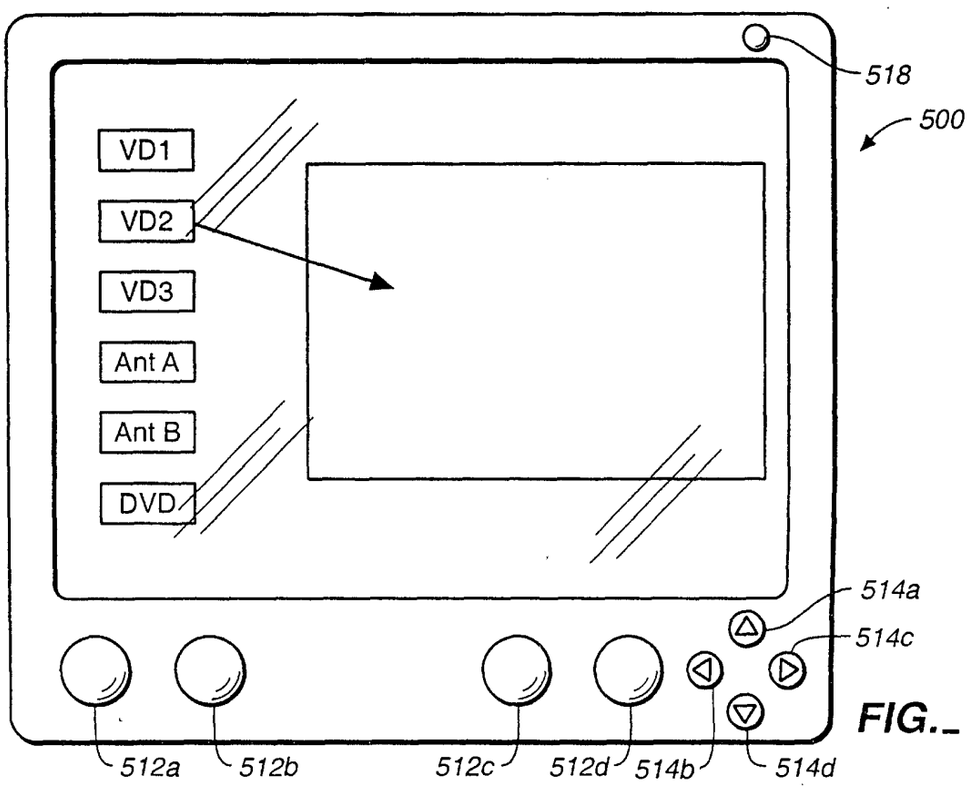


FIG._11A

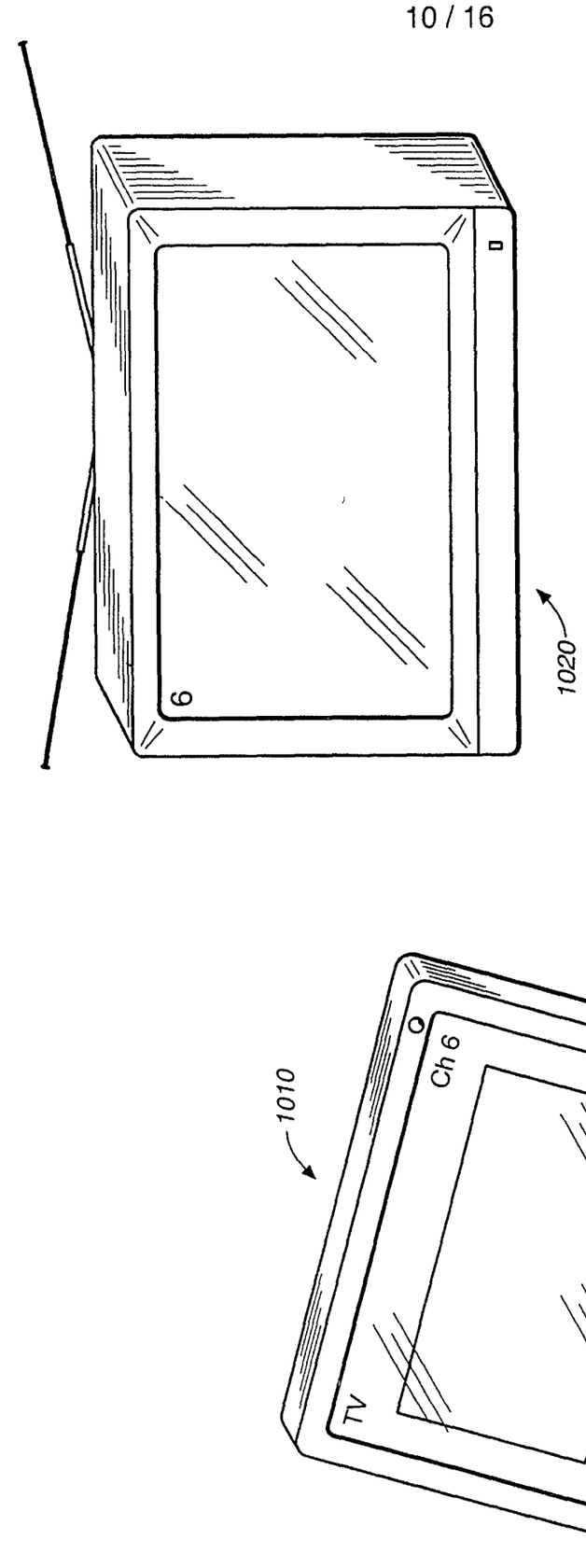


FIG._10A

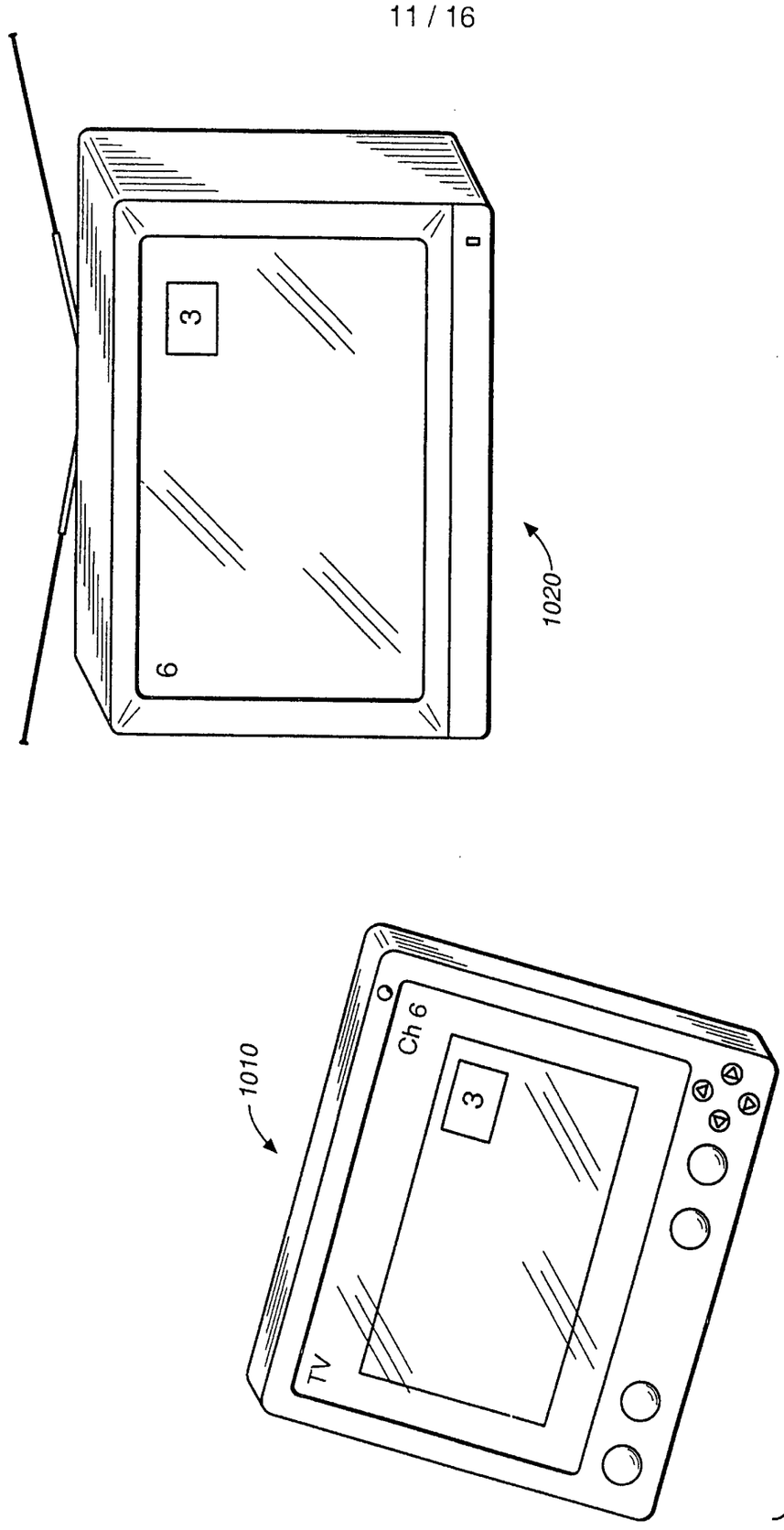
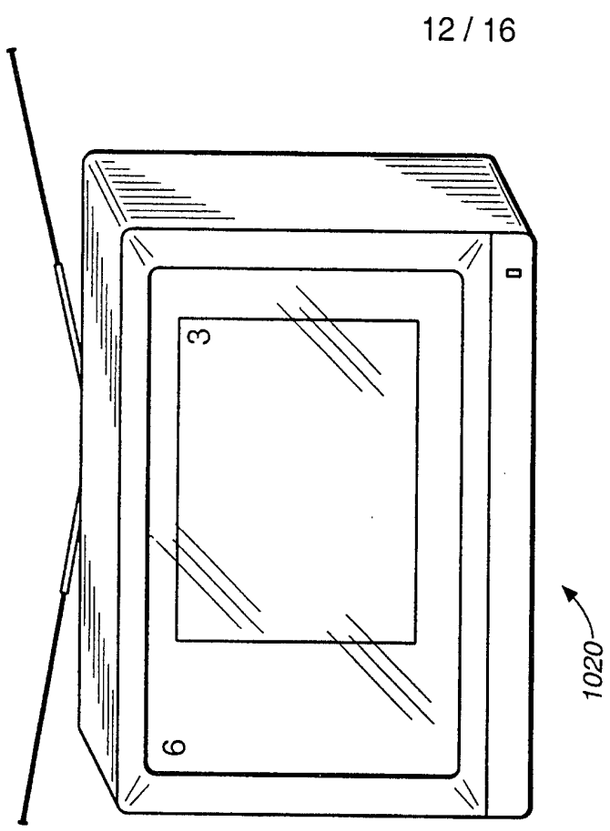


FIG._10B

Universal Remote Control Exhibit: 1002 Page 000160



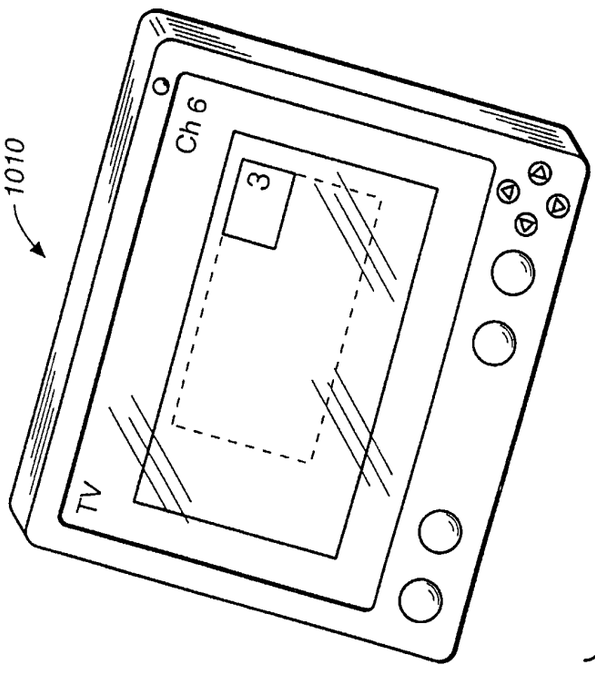


FIG._10C

FIG._10D

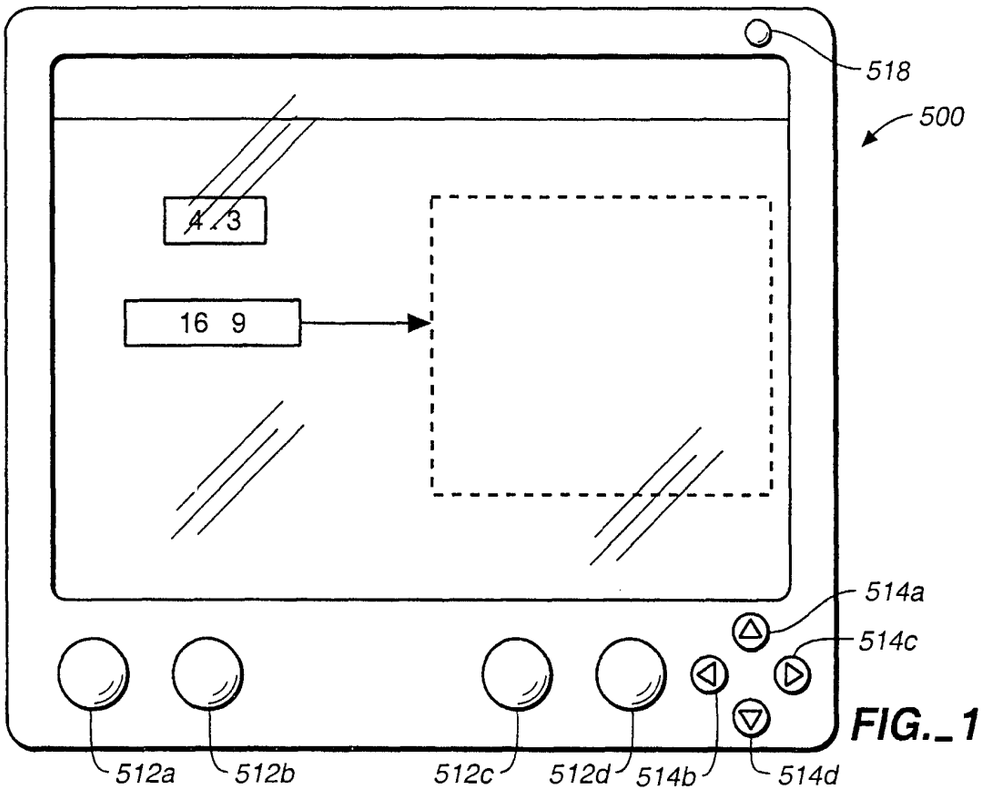


FIG._11B

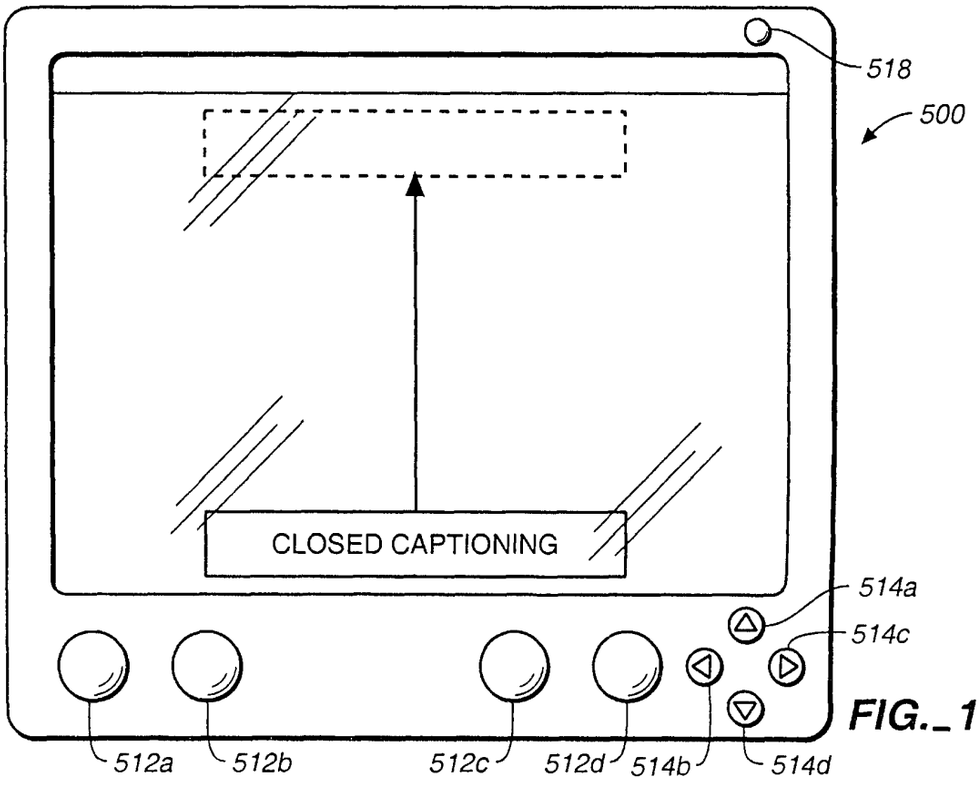


FIG._11C

[illegible]

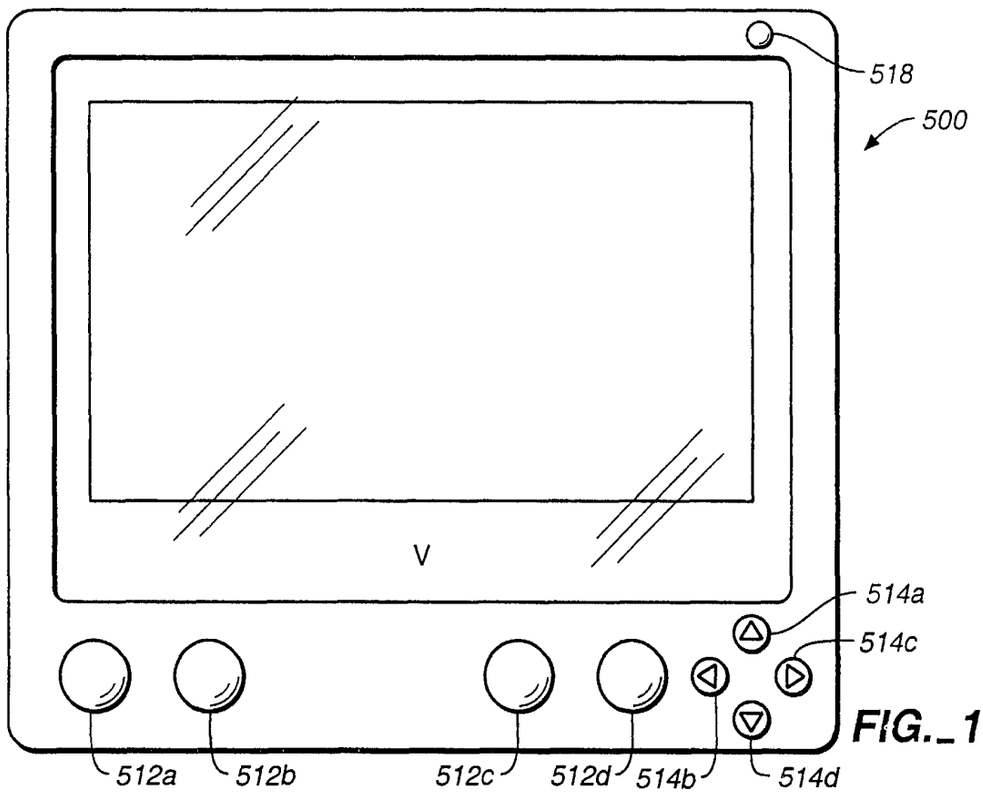


FIG._12A

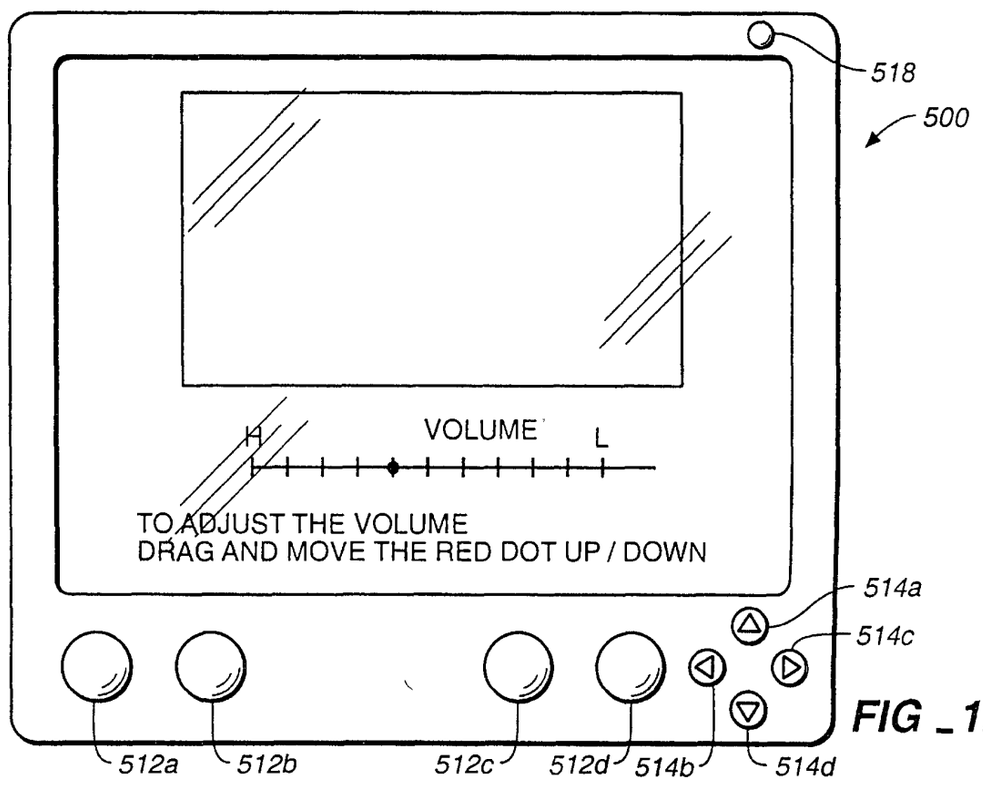


FIG _12B

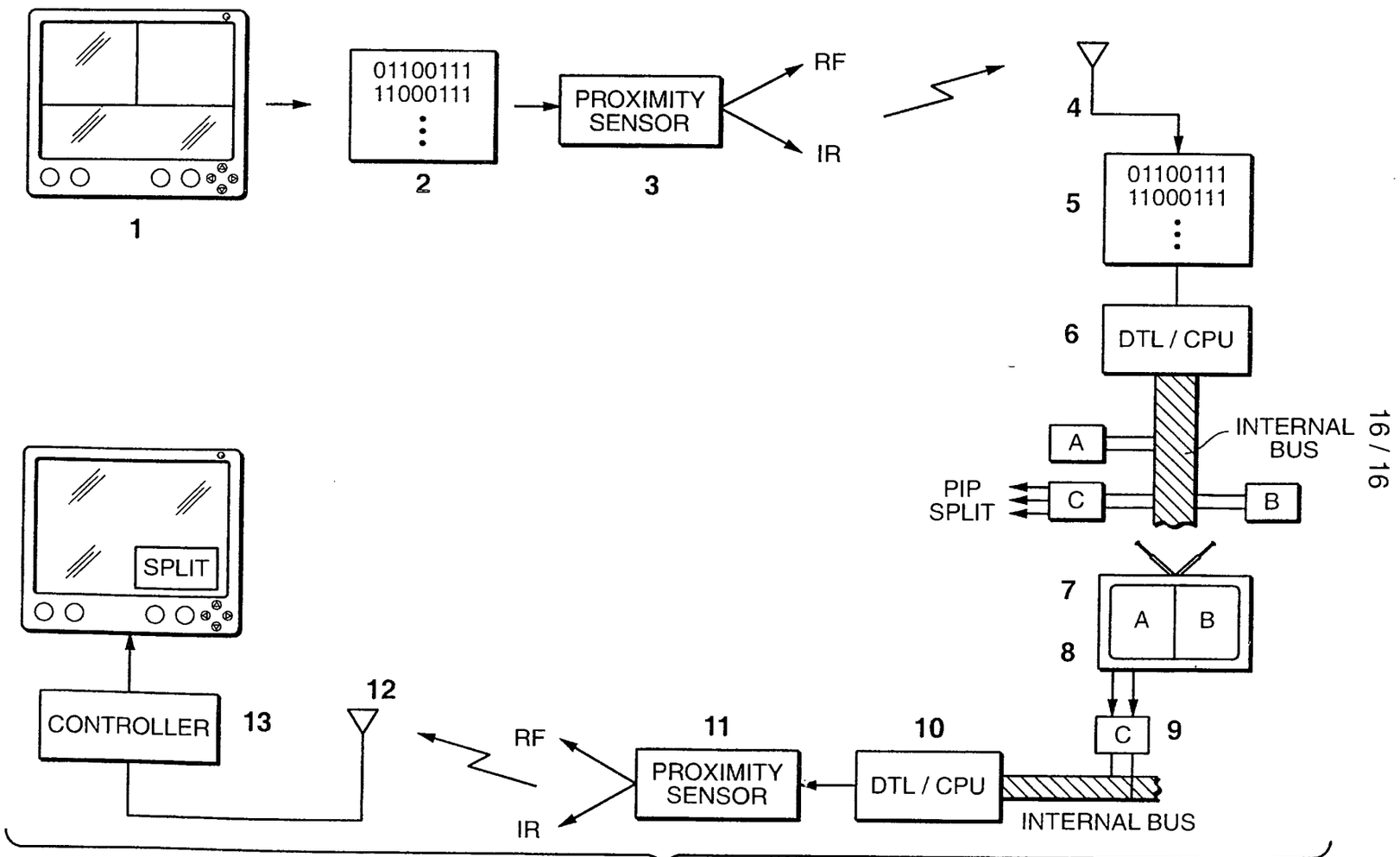


FIG._13

16 / 16

Universal Remote Control Exhibit: 1002 Page 000165

GAU 2714

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
WILLIAM S HERZ)
Serial No 09/277,887)
Filed March 29, 1999)
For METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOVE CONTROL SYSTEM)

OIPE JC100 AUG 18 2000 PATENT & TRADEMARK OFFICE

Group Art Unit 2714

Examiner P Natnael

RECEIVED AUG 24 2000 TC 2100 MAIL ROOM

San Francisco, California

Assistant Commissioner for Patents
Washington, D C 20231

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Brenda J Dolly
Signature Date

AMENDMENT TRANSMITTAL

Sir

Transmitted herewith is an Amendment in the captioned application of which no additional claim fees are required

A one-month extension of time in which to respond to the outstanding Office Action is hereby requested and a check in the amount of $110 00 is enclosed to cover the fee

A Supplemental Information Disclosure Statement and form PTO 1449, along with copies of the cited references are enclosed

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No 13-1030 A duplicate copy of this sheet is enclosed

Respectfully submitted,

Dated Aug 15, 2000

Gerald P Parsons, Reg No 24,486
MAJESTIC, PARSONS SIEBERT & HSUE P C
Four Embarcadero Center, Suite 1100
San Francisco, California 94111-4106
Telephone (415) 248-5500
Facsimile (415) 362-5418

Atty Docket ZILG 189US0

Universal Remote Control Exhibit: 1002 Page 000166

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
)
WILLIAM S HERZ)
)
Serial No 09/277,887)
)
Filed March 29, 1999)
)
For METHOD AND APPARATUS FOR)
AN INTUITIVE UNIVERSAL)
REMOVE CONTROL SYSTEM)

OIPE JC100 AUG 18 2000 PATENT & TRADEMARK OFFICE

Group Art Unit 2714

Examiner P Natnael

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San Francisco, California

Assistant Commissioner for Patents
Washington, D C 20231

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Brenda J Dolly
Signature Aug. 15, 2000 Date

AMENDMENT TRANSMITTAL

Sir

Transmitted herewith is an Amendment in the captioned application of which no additional claim fees are required

A one-month extension of time in which to respond to the outstanding Office Action is hereby requested and a check in the amount of $110 00 is enclosed to cover the fee

A Supplemental Information Disclosure Statement and form PTO 1449, along with copies of the cited references are enclosed

The Commissioner is hereby authorized to charge any additional fees which may be required or credit any overpayment, to Deposit Account No 13-1030 A duplicate copy of this sheet is enclosed

Respectfully submitted,

Dated Aug 15, 2000

Gerald P Parsons, Reg No 24,486
MAJESTIC, PARSONS, SIEBERT & HSUE P C
Four Embarcadero Center, Suite 1100
San Francisco, California 94111-4106
Telephone (415) 248-5500
Facsimile (415) 362-5418

Atty Docket ZILG 189US0

COPY

9/A
J. Douglas
8/25/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

OIPE JC100 AUG 18 2000 PATENT & TRADEMARK OFFICE

In re Patent Application of)
)
WILLIAM S HERZ)
)
Serial No 09/277,887)
)
Filed March 29, 1999)
)
For METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOVE CONTROL SYSTEM)
)

Group Art Unit 2714

Examiner P Natnael

RECEIVED AUG 24 2000 TC 2100 MAIL ROOM

San Francisco, California

Assistant Commissioner for Patents
Washington, D C 20231

CERTIFICATE OF MAILING

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Brenda J Dolly

Signature Date

AMENDMENT

Sir

In response to the Office Action dated April 27, 2000 please amend the above-identified patent application, as follows

IN THE CLAIMS

Cancel claims 2-4 7 10-15 and 29, without prejudice, and amend the following claims as indicated

Sub C' 1 (Amended) [A remote control for] For controlling at least one audio/video device that is connectable to a source of programming including programming guide data, which reproduces received programming in audio and/or video form and which includes a wireless transceiver a remote control, comprising

A1

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A1 cancel.

a remote wireless transceiver [receiver] for receiving the programming guide data from the transceiver of said at least one audio/video device and for transmitting commands to the transceiver of said at least one audio/video device to control the device's reproduction of audio and/or video programming,

C1 cancel.

a remote control memory coupled to said [receiver] remote transceiver for storing the [television] programming guide data received by the [receiver] remote transceiver, and

a user interface coupled to the remote control memory [for displaying] including a touch screen display device that displays at least a portion of the [television] programming guide data [when requested] stored in the remote control memory as selected by touching the display device

---

A2

5 (Amended) The remote control according to claim 1, wherein said user interface [comprising] includes a handwriting recognition interface [for processing] responsive to handwriting [input] on the touch screen display to select the portion of the stored programming guide data that is displayed

2, 6 (Amended) The remote control according to claim 1, wherein said user interface [comprising] includes a voice recognition interface [for processing] responsive to a voice input to select the portion of the stored programming guide data that is displayed

---

A3

3, 8 (Amended) The remote control according to claim [7] 1 wherein said at least one audio/video device [the television] provides the [television] programming guide data to the remote control whenever the television programming guide data is received by the audio/video device [television]

A4

16 (Amended) A remote control system comprising

a television comprising a first transceiver, a data capturer for capturing television programming guide data from an input, and a display screen and

a remote control comprising a second transceiver for receiving the television programming guide data from the television a remote control memory coupled to the [receiver]

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second transceiver for storing said television programming guide data provided by the television, and a controller for retrieving at least a portion of the television programming guide data stored in the remote control memory, said second transceiver providing said at least a portion of the television programming guide data to the television through the first transceiver,

wherein said at least a portion of the television programming guide data is displayed by said display screen of the television from the remote control memory

---

20 (Amended) The remote control system according to claim 17 wherein said user interface of the remote control further [comprising] includes a handwriting recognition interface [for processing] responsive to handwriting [input] on the touch screen display to select the portion of the stored programming guide data that is displayed

21 (Amended) The remote control system according to claim 17 wherein said user interface further [comprising] includes a voice recognition interface [for processing] responsive to a voice input to select the portion of the stored programming guide data that is displayed

---

23 (Amended) A method for a remote control to communicate with at least one of a plurality of audio/video devices, wherein the remote control has a user interface, and each of the audio/video device performs a set of functions, comprising

storing, in a memory of the remote control, data for a display of a set of control buttons of each of the plurality of different audio/video devices,

selecting at least one of the plurality of audio/video devices using the interface of the remote control,

displaying a set of control buttons on said user interface of said remote control from the data stored in the memory of the remote control, each of the control buttons corresponding to at least one of the functions performed by the selected audio/video device and

activating one of the functions of the selected audio/video device by actuating the corresponding button on said user interface of said remote control

---

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Sub C3

30 (Amended) The method for communicating according to claim [23] 28, wherein said user interface of the remote control [comprises] includes a handwriting recognition interface [for processing] and handwriting [input] occurs on the touch screen to select at least one of the audio/video devices

A7

31 (Amended) The method for communicating according to claim 23, wherein said user interface [comprises] includes a voice recognition interface [for processing] and a voice [input] is inputted to select at least one of the audio/video devices or at least one of the functions

32 (Amended) The method for communicating according to claim 23, wherein said at least one audio/video device is selected from a group including a television, a set top box, a VCR, a DVD a compact disc player, a stereo system [or] and a home entertainment components

A8

41 (Amended) A method for a remote control to adjust the display [property] properties of a [television[screen of a television said remote control [comprising] including a user interface, comprising

issuing a display control command on the user interface of the remote control for adjusting the display properties of the television screen,

analyzing the display control command by the remote control

translating the display control command to a set of controlling parameters, wherein said controlling parameters are fully controllable by the remote control,

transmitting the controlling parameters from the remote control to the television, and

displaying the television screen [on the television] with its display properties adjusted according to the controlling parameters

REMARKS

The allowance of claims 33-40 is noted with appreciation

In response to the rejection under 35 U S C §112 second paragraph, of claim 41 for its last paragraph "displaying the television screen on the television,' this paragraph has been

Universal Remote Control Exhibit: 1002 Page 000171

amended to eliminate the language that is the subject of the rejection The basis for the rejection of claim 41 and its dependent claims 42 and 43 is thus believed to be overcome

The rejection of independent claim 46 and its dependent claims 47-52 on the same ground is believed to have been made in error, however The language quoted in the Office Action as being objectionable does not appear in any of claims 46-52 It is assumed, therefore, that the original claims 46-52 are allowable

Reconsideration of the rejection of claims 1-32 under U S C 102(e) over U S patent no 6,040,829 ("Croy") is respectfully requested in light of the amendments being made to this group of claims and these Remarks

Claim 1 has been amended to make clear that it is the audio or video device itself that receives the programming guide data and transmits it to the remote control device The Croy patent on the other hand, performs these functions with a ' base station" 100 that is separate from and in addition to the television set 140 The Croy base station does not reproduce the video programming as specified in the preamble to claim 1 Claim 1 has also been amended to include a touch screen through which programming guide data stored in the remote memory is accessed and displayed

Claims 5, 6, 8 and 9, since they are dependent upon claim 1 are also believed to be patentable for the same reasons as claim 1 In addition claim 5 has been amended to make clear that a handwriting recognition interface within the remote allows portions of the programming guide data stored in the remote memory to be accessed and displayed in response to handwriting on the screen The portion of the Croy patent that was cited in the Office Action for handwriting recognition (col 7, lines 30-39) only mentions that the display screen contains " active display areas (stylus or finger touch selection) ' (lines 35 & 36) which is suggestive of soft keys displayed in active display areas" of the screen This passage does not suggest the ability to recognize handwriting on the screen, and use that recognition to select the portion of the stored programming guide data to be displayed

Similarly claim 6 recites a voice recognition interface ' which allows a voice input to select a portion of the stored programming guide data to be displayed The portion of the Croy patent alleged in the Office Action to anticipate claim 6 (col 7 lines 30-39) on the other hand, merely suggests the possibility of a voice input (line 36) without suggesting its use It is not

Universal Remote Control Exhibit: 1002 Page 000172

specified in Croy that the voice input would be recognized for the purpose of selecting programming guide data to be displayed, as recited in claim 6

Independent claim 16 recites a remote controller that stores program data in its memory that is received from the television set and transmits such data from its memory back to the television set for display on the television screen No disclosure has been noted in the Croy patent to suggest such a system nor does the Office Action allege that such disclosure exists in the cited Croy patent Claim 16 is thus submitted to be novel and patentable

Claims 17-22, which are dependent upon claim 16, are thus believed to be patentable for the same reasons as claim 16 In addition dependent claim 20 recites a handwriting recognition interface that is patentable for the additional reasons given above for claim 5 Further, dependent claim 21 recites a voice recognition interface that is patentable for the additional reasons given above for claim 6

Independent claim 23 is characterized in the Office Action as a method counterpart of claim 1, and on that basis alone is rejected as anticipated by the Croy patent However claim 23 is quite different from claim 1, particularly as amended herein No disclosure is noted in the Croy patent of a remote that can display the functional keys of a selected one of multiple audio/video devices, wherein the displayed keys are then used to control the selected audio/video device Claim 23 is thus novel and patentable

Claims 24-28 and 30-32, all dependent upon claim 23, are also submitted to be patentable for the same reasons as claim 23 from which they depend In addition claims 30 and 31 recite the use of handwriting and voice recognition respectively These features are novel and patentable over the Croy patent for the reasons expressed above for claims 5 and 6 In addition the handwriting and voice recognition functions are stated in claims 30 and 31 to perform specific operations not contemplated by the Croy patent for use of those functions

A Supplemental Information Disclosure Statement is being filed herewith to make the references cited in a corresponding International application of record in the file of the present application

Universal Remote Control Exhibit: 1002 Page 000173

The present application is now believed to be in condition for allowance, and an early indication thereof is solicited

Dated Aug 15, 2000

Respectfully submitted,

Gerald P Parsons

Gerald P Parsons, Reg No 24,486
MAJESTIC, PARSONS, SIEBERT & HSUE P C
Four Embarcadero Center Suite 1100
San Francisco, California 94111-4106
Telephone (415) 248-5500
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Atty Docket ZILG 189US0

Universal Remote Control Exhibit: 1002 Page 000174

#7
J. Douglas
8/25/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

OIPE
JC100
AUG 18 2000
PATENT & TRADEMARK OFFICE

RECEIVED
AUG 24 2000
TC 2100 MAIL ROOM

In re Patent Application of

WILLIAM S HERZ

Serial No 09/277,887

Filed March 29, 1999

For METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOVE CONTROL SYSTEM

Group Art Unit 2714

Examiner P Natnael

San Francisco, California

Assistant Commissioner for Patents
Washington, D C 20231

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner for Patents Washington D C 20231 on August 15 2000

Brenda J Dolly

Signature Date

PETITION FOR EXTENSION OF TIME

Sir

It is hereby petitioned that a one-month extension of time be granted in order to respond to the Office Action dated April 27, 2000 This petition extends the deadline for response until August 27, 2000 A check in the amount of $110 00 is attached to cover the extension fee

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No 13-1030 A duplicate copy of this sheet is enclosed

Respectfully submitted

Dated Aug 15, 2000

Gerald P Parsons Reg No 24,486
MAJESTIC, PARSONS, SIEBERT & HSUE P C
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San Francisco California 94111-4106
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Atty Docket ZILG 189US0

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of)
)
WILLIAM S HERZ)
)
Serial No 09/277,887)
)
Filed March 29, 1999)
)
For METHOD AND APPARATUS FOR)
AN INTUITIVE UNIVERSAL)
REMOVE CONTROL SYSTEM)
_____)

Group Art Unit 2714

Examiner P Natnael

OIPE JC100 AUG 18 2000 PATENT & TRADEMARK OFFICE

COPY

RECEIVED AUG 24 2000 2700 MAIL ROOM

San Francisco, California

Assistant Commissioner for Patents
Washington, D C 20231

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner for Patents Washington, D C 20231 on August 15 2000

Brenda J Dolly

Brenda J. Dolly Aug 15, 2000

Signature Date

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Gerald P Parsons

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Atty Docket ZILG 189US0

COPY

#8
J. Douglas
8/25/00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

WILLIAM S HERZ

Serial No 09/277,887

Filed March 29, 1999

For METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOVE CONTROL SYSTEM

Group Art Unit 2714

Examiner P Natnael

San Francisco, California

Assistant Commissioner for Patents
Washington, D C 20231

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner for Patents Washington D C 20231 on August 15 2000

Brenda J Dolly

Signature Date

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir

The following Form 1449 and copies of documents listed thereon are being filed herewith as a Supplemental Information Disclosure Statement Consideration of these documents, and the making of them of record in the file of this application, are respectfully requested

Each item of information contained in this disclosure statement was cited in a communication from a foreign patent office (copy enclosed) in a counterpart foreign application not more than three months prior to the filing of this statement

Respectfully submitted,

Dated Aug 15, 2000

Gerald P Parsons Reg No 24 486
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Atty Docket ZILG 189US0

Universal Remote Control Exhibit: 1002 Page 000177

Sheet 1 o

FORM PT01449 (REV 8 83)	U S DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTY DOCKET NO ZILG 189US0	SERIAL NO 09/277,887
INFORMATION DISCLOSURE STATEMENT		APPLICANT William S Herz	
(Use several sheets if necessary)		FILED March 29 1999	GROUP 2714

OIPE JC100 AUG 1 8 2000 PATENT & TRADEMARK OFFICE

RECEIVED AUG 24 2000

U S PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER								DATE	NAME	CLASS	SUB CLASS	FILIN(DATE
Pmn	A15	6	0	0	2	4	5	0		12/14/1999	Darbee et al	—	—	

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER								DATE	COUNTRY	CLASS	SUB CLASS	TRANS (YES/NC
Pmn	B1	WO	9	8	4	3	1	5	8	10/1/1998	W I P O	—	—	

OTHER DOCUMENTS *(Including Author Title Date Pertinent pages Etc)*

EXAMINER	DATE CONSIDERED
Paul Natali	10/26/00

* EXAMINER Initial if citation 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

BEST COPY

Transaction History Date 2000-11-08
Date information retrieved from USPTO Patent Application Information Retrieval (PAIR) system records at www.uspto.gov

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address COMMISSIONER OF PATENTS AND TRADEMARKS
Washington D C 20231

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO

EXAMINER	
ART UNIT	PAPER NUMBER
	10

DATE MAILED

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

Commissioner of Patents and Trademarks

Universal Remote Control Exhibit: 1002 Page 000179

Office Action Summary	Application No	Applicant(s)
	09/277 887	William S Herz
	Examiner	Group Art Unit
	Paulos Natnael	2614

☒ Responsive to communication(s) filed on *Aug 18 2000*

☐ This action is **FINAL**

☐ 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

A shortened statutory period for response to this action is set to expire *3* month(s) or thirty days whichever is longer from the mailing date of this communication Failure to respond within the period for response will cause the application to become abandoned (35 U S C § 133) Extensions of time may be obtained under the provisions of 37 CFR 1 136(a)

Disposition of Claims

☒ Claim(s) *1 5 6 8 9 16 28 and 30 52* is/are pending in the application

Of the above claim(s) _____ is/are withdrawn from consideration

☒ Claim(s) *16 28 and 30 40* is/are allowed

☒ Claim(s) *1 5 6 8 9 41 42 44 51 and 52* is/are rejected

☒ Claim(s) *43 and 45 50* is/are objected to

☐ Claims _____ are subject to restriction or election requirement

Application Papers

☒ See the attached Notice of Draftsperson s Patent Drawing Review PTO 948

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The proposed drawing correction filed on _____ is ☐approved ☐disapproved

☐ The specification is objected to by the Examiner

☐ The oath or declaration is objected to by the Examiner

Priority under 35 U S C § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U S C § 119(a) (d)

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received

☐ received in Application No (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17 2(a))

*Certified copies not received _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U S C § 119(e)

Attachment(s)

☒ Notice of References Cited PTO 892

☒ Information Disclosure Statement(s) PTO 1449 Paper No(s) *8*

☐ Interview Summary PTO 413

☒ Notice of Draftsperson s Patent Drawing Review PTO 948

☐ Notice of Informal Patent Application PTO 152

SEE OFFICE ACTION ON THE FOLLOWING PAGES

Universal Remote Control Exhibit: 1002 Page 000180

DETAILED ACTION

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 negatived by the manner in which the invention was made

2 Claims **1,5,6,8,9** are rejected under 35 U S C 103(a) as being unpatentable over Croy et al , U S Patent No 6,040,829

Considering claim **1,** Croy et al discloses the following claimed subject matter, note,

a) the claimed remote wireless transceiver for receiving the programming guide data from the transceiver of said at least one audio/video device and for transmitting commands to the transceiver of said at least one audio/video device to control the device's reproduction of audio and/or video programming is met by item 210, fig 2, (col 4, lines 10-18)

b) the claimed remote control memory coupled to said remote transceiver for storing the programming guide data received by the remote transceiver is met by item 222, fig 2,

c) the claimed user interface coupled to the remote control memory displays at least a portion of the programming guide data stored in the remote control memory as selected by touching the display device is met by item 240, fig 2, (see also col 7, lines 30-36)

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Except for,

d) the claimed including a touch screen display device,

Regarding d), Croy doesn't specifically disclose a touch screen display device, However, Croy disclose that "Menus or selection lists are displayed for the user on display 240 Selection can be performed by using (sole or in combination) dedicated keys, so-called softkeys and function keys 310 and 311 (functions controlled by contents displayed in the display, positioned on any side of the display 240) active display areas (stylus or **finger touch** selection) and/or voice input " (Col 7, lines 28-36) Besides, the "touch screen" technology is well known in the art (See for example U S Patent No 5,956,025 to Goulden et al) Therefore, it would have been obvious to the skilled in the art at the time the invention was made to readily recognize the teachings of the prior art and Croy et al and modify the system of Croy if necessary to show the touch screen, because Croy et al clearly suggests a touch screen display device although Croy didn't use the term screen for obvious reasons and because the "**touch screen**" technology is well known in the art

Considering claim **5**, the claimed wherein said used interface includes a handwriting recognition interface responsive to handwriting input

Regarding claim 5, Croy doesn't specifically disclose whether the interface includes a handwriting recognition interface responsive handwriting input However, Croy discloses that "Selection can be performed by using (sole or in combination) dedicated keys, so-called softkeys

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and function keys 310 and 311 (functions controlled by contents displayed in the display, positioned on any side of the display 240) active display areas (**stylus** or **finger touch** selection) and/or **voice input** " (Col 7, lines 28-36) "stylus" (see disclosure in col 7, lines 30-39) A stylus is "an instrument for writing, marking, or incising" (Merriam Webster's Collegiate Dictionary, tenth edition) Therefore, it would have been obvious to the skilled in the art at the time the invention was made to readily recognize and modify the reference of Croy et al if necessary, to specifically show the handwriting recognition interface, because Croy et al clearly suggests that anyone using the inventive system of Croy et al would be able to utilize a **stylus** to write on the display screen

Considering claim **6**, the claimed wherein said user interface includes voice recognition interface responsive to a voice input to select the portion of the stored programming guide data that is displayed

Regrading claim 6, Croy et al doesn't specifically disclose the system comprising a voice recognition mechanism However, Croy et al discloses that "active display areas (**stylus** or **finger touch** selection) and/or **voice input** " (Col 7, lines 28-36) But voice input system as clearly suggested by Croy would not work without some kind of a voice recognition mechanism, which Croy clearly regarded as well known in the art Otherwise Croy would have included in the system Therefore, it would have been obvious to the skilled in the art at the time the invention was made to readily recognize the teachings of Croy and modify the system of Cherrick to clearly

show the voice recognition mechanism in order for the Croy disclosure to work, because a voice recognition mechanism is well known in the art

Considering claim **8**, the claimed wherein said at least one audio/video device provides the programming guide data is provided to the remote control whenever the television programming guide data is received by the audio/video device is met by disclosure on col 8, lines 25-53)

Claim **9** is rejected for the reasons of record

3 Claims **41 and 42** are rejected under 35 U S C 103(a) as being unpatentable over **Brusky** et al , U S Patent No **5,903,259** in view of **Enomoto**, U S Patent No **5,952,936**

Considering claim **41(as amended)**, Brusky et al discloses the following claimed subject matter, note,

a) the claimed method of issuing a display control command on the user interface of the remote control for adjusting the display properties of the television screen is met by Function key, Table A (See col 6, lines 19-47)

c) the claimed method of translating the display control command to a set of controlling parameters, wherein said controlling parameters are fully controllable by the remote control is met by item F1, Main menu

Universal Remote Control Exhibit: 1002 Page 000184

d) the claimed method of transmitting the controlling parameters from the remote control to the television is the disclosure on col 6, lines 19-21 (See also col 7, lines 16-35)

e) the claimed displaying the television screen with its display properties adjusted according to the controlling parameters is met by the disclosure on col 6, lines 29-34

Except for,

b) the claimed method of analyzing the display control command by the remote control

Regarding b) Brusky et al doesn't specifically disclose a method of analyzing the display control command by the remote control However, it is well known in the art that the remote control would include a logic circuit or a microprocessor that would analyze the command pressed or input by the user Then, the microprocessor or controller would make certain decision based on the analysis For Example, Enomoto, U S Patent No 5,952,936, discloses a detailed circuit arrangement of a remote controller including a micro controller 10, Fig 15 (See also Figs 16 & 17 and cols 8 and 9) Therefore, it would have been obvious to the skilled in the art at the time the invention was made to readily recognize the teachings of Enomoto and modify the system Brusky, because Enomoto discloses the operation of analyzing the display control command by the remote control as is well known in the art

Considering claim **42**, the claimed wherein said display control command is a picture-in-picture command, and wherein said set of controlling parameters comprise size and location of a picture-in-picture window screen in the television system is met by the disclosure on col 6, lines 29-34

4 Claims **44, 51 and 52** are rejected under 35 U S C 103(a) as being unpatentable over **Cherrick** et al , U S Patent No 6,052,155 in view of **Croy** et al , 6,040,829

Considering claim **44,** Cherrick et al discloses the following claimed subject matter, note,

a) the claimed issuing a picture-in-picture command on the user interface of the remote control is met by step 30, Fig 1,

b) the claimed analyzing the picture-in-picture command by the remote control is met by item 32, Fig 1,

c) the claimed translating the picture-in-picture command to a set of controlling parameters, wherein said controlling parameters comprise size and location of the picture-in-picture window screen, and said size and location of the picture-in-picture screen are fully controllable by the remote control is met item 34, fig 1, (see also col 2, lines 30-33)

e) the claimed creating the picture-in-picture window screen on the television screen according to the controlling parameters is met by step 34, Fig 1, (see col 2, lines 52-55)

Except for,

d) the claimed transmitting the controlling parameters from the remote control to the television,

Regarding d), Cherrick discloses that the unit 22 "includes a keyboard 23 for controlling various functions of the television receiver and operation of the PIP circuitry " (Col 2, lines 33-35) Cherrick et al doesn't specifically disclose a method of transmitting the controlling parameters from the remote control to the television But, it would be obvious to the skilled in

Universal Remote Control Exhibit: 1002 Page 000186

the art, even though not illustrated in detail in the system of Cherrick, that the controller 22 would have a transmitter such as an IR or an RF transmitter to transmit the controlling parameters to the television, otherwise the system would not work properly

Therefore, it would have been obvious to the skilled in the art at the time the invention was made to readily recognize the teachings of Cherrick even though not illustrated in detail in the system of Cherrick, that the controller 22 would have a transmitter to transmit the controlling parameters to the television, because transmitting parameters or commands from a remote controller to a television or other electronic device is well known in the art

Considering claim **51**, the claimed method wherein said user interface of the remote control comprises a handwriting recognition mechanism,

Regarding claim 51, Cherrick doesn't specifically disclose the remote control comprising a handwriting recognition mechanism However, the handwriting recognition mechanism such as a stylus on a screen of the remote control is well known in the art For example, Croy et al discloses that "active display areas (**stylus** or **finger touch** selection) and/or **voice input** " (Col 7, lines 28-36) "stylus" (see disclosure in col 7, lines 30-39) A stylus is "an instrument for writing, marking, or incising" (From Merriam Webster's Collegiate Dictionary, tenth edition) Therefore, it would have been obvious to the skilled in the art at the time the invention was made to readily recognize the teaching of Croy and modify the system of Cherrick to include a

Universal Remote Control Exhibit: 1002 Page 000187

handwriting recognition interface, because a handwriting recognition mechanism is well known in the art

Considering claim **52**, the claimed wherein said user interface of the remote control comprises a voice recognition mechanism,

Regarding claim 52, Cherrick doesn't specifically disclose the remote control comprising a voice recognition mechanism However, voice recognition mechanism in remote controls is well known in the art For example, Croy et al discloses that "active display areas (**stylus** or **finger touch** selection) and/or **voice input** " (Col 7, lines 28-36) "stylus Therefore, it would have been obvious to the skilled in the art at the time the invention was made to readily recognize the teaching of Croy and modify the system of Cherrick to include a voice recognition mechanism,, because a voice recognition mechanism is well known in the art

Response to Arguments

Applicant's Arguments

a) The Croy base station does not reproduce the video programming as specified in the preamble of claim 1

B) The portion of the Croy patent that the display screen contains ""active display areas (**stylus** or **finger touch** selection) which is suggestive of soft keys displayed in "active display areas of the screen This passage does not suggest the ability to recognize handwriting on the screen, and use that recognition to select the portion of the stored programming guide data to be displayed

Universal Remote Control Exhibit: 1002 Page 000188

C) The portion of the Croy patent alleged in the Office Action to anticipate claim 6 (col 7, lines 30-39), on the other hand, merely suggests the possibility of a voice input (line 36) without suggesting its use

Examiner's Response

a) In the base station "the tuner 120 separates out the various channels received from cable provider 110 The raw video signals can be passed through to television 140 or videocassette record (VCR) 142 as a standard video input VBI decoder 122, coupled to tuner 120, receivers a data stream in the vertical blanking interval (VBI) the data encoded in VBI can be extracted and provided to a microcontroller 130 " (See col 3, lines 31-39) The base station is therefore capable of reproducing the video programming as Croy clearly discloses Argument is considered not persuasive

b) Croy clearly discloses a stylus could be used if necessary A stylus is (as mentioned above) "an instrument for writing, marking, or incising" (Merriam Webster's Collegiate Dictionary, tenth edition) See Claims 1 and 5 rejection above Argument is not persuasive

C) It is obvious why Croy didn't include a detail teaching of what a voice input is or how it is implemented It is because voice recognition devices are well known in the art that Croy simply suggests that a voice input could also be used without going into details A voice input in any a device such as a remote controller would not work without a corresponding voice recognition circuitry in the remote controller (see also claim rejection above) Argument is not persuasive

Allowable Subject Matter

5 Claims **16-28, 30-40** are allowed

6 Claims **43,45-50** are 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

Conclusion

7 Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Paulos Natnael** whose telephone number is **(703)305-0019** The examiner can normally be reached on **Monday through Thursday** from **7 00 a m** to **4 00 p m (Est)** The examiner can also be reached on alternate **Fridays**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John Peng**, can be reached on **(703)305-4702**

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is **(703)305-3900**

Any response to this action should be mailed to

Commissioner of Patents and Trademarks

Washington, D C 20231

or faxed to

(703) 308-6306, (for formal communications intended for entry)

or

(703) 308-6296 (for informal or draft communications, please label "PROPOSED" OR "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, V A Sixth Floor (Receptionist)

Paulos M Natnael PMN

October 29, 2000

JOHN PENG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of Referenc s Cited

Application No	App ıt(s)
09/277 887	William S Herz

Examiner	Group Art Unit	
Paulos Natnael	2614	Page 1 of 1

U S PATENT DOCUMENTS

		DOCUMENT NO	DATE	NAME	CLASS	SUBCLASS
	A	5 903 259	5/1999	Brusky et al	345	168
	B	6 052 155	4/2000	Cherrick et al	348	565
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO	DATE	COUNTRY	NAME	CLASS	SUBCLASS
	N						
	O						
	P						
	Q						
	R						
	S						
	T						

NON PATENT DOCUMENTS

		DOCUMENT (Including Author Title Source and Pertinent Pages)	DATE
	U		
	V		
	W		
	X		

Universal Remote Control Exhibit: 1002 Page 000192

Form PTO 948 (Rev 8 98) U S DEPARTMENT OF COMMERCE Patent and Trademark Office Application No 09/277887

NOTICE OF DRAFTSPERSON'S PATENT DRAWINC REVIEW

Th drawing(s) filed insert date) 5/2/00 are

A. [X] approved by the Draftsperson under 37 CFR 1 84 or 1 152

B [ ] objected to by the Draftsperson under 37 CFR 1 84 or 1 152 for the reasons indicated below The Examiner will require submission of new corrected drawings when necessary Corrected drawing must be submitted according to the instructions on the back of this notice

1 DRAWINGS 37 CFR 1 84(a) Acceptable categories of drawing
Black ink Color
__ Color drawings are not acceptable until petition is granted Fig(s) ____
__ Pencil and non black ink not permitted Fig(s) ____

PHOTOGRAPHS 37 CFR 84 (b)
__ Full tone set is required Fig(s) ____
__ Photographs not properly mounted (must use brystol board or photographic double weight paper) Fig ____
__ Poor quality (half tone) Fig(s) ____

TYPE OF PAPER 37 CFR 1 84( )
__ Paper not flexible strong white and durable Fig( ) ____
__ Erasures alterations overwritings interlineations folds copy machine marks not accepted Fig(s) ____
__ Mylar velum paper is not acceptable (too thin) Fig(s) ____

4 SIZE OF PAPER 37 CFR 1 84( ) Acceptable size
__ 21 0 cm by 29 7 cm (DIN size A4)
__ 21 6 cm by 27 9 cm (8 1/2 x 11 inches)
__ All drawing sheets not the same size Sheet(s) ____
__ Drawings sheet not an acceptable size Fig( ) ____

MARGINS 37 CFR 1 84(g) Acceptable margins

Top 2 5 cm Left 2 5cm Right 1 5cm Bottom 1 0 cm
SIZE A4 Size
Top 2 5 cm Left 2 5 cm Right 1 5 cm Bottom 1 0 cm
SIZE 8 1/2 x 11
Margins not acceptable Fig(s) ____
__ Top (T) ____ Left (L)
____ Right (R) ____ Bottom (B)

6 VIEWS 37 CFR 1 84(h)
REMINDER Specification may require revision to correspond to drawing changes
Partial views 37 CFR 1 84(h)(2)
__ Brackets needed to show figure as one entity Fig(s) ____
__ Views not labeled separately or properly Fig(s) ____
__ Enlarged view not labeled separetely or properly Fig(s) ____

7 SECTIONAL VIEWS 37 CFR 1 84 (h)(3)
__ Hatching not indicated for sectional portion of an object Fig(s) ____
__ Sectional designation should be noted with Arabic or Roman numbers Fig(s) ____

8 ARRANGEMENT OF VIEWS 37 CFR 1 84(i)
__ Words do not appear on a horizontal left to right fashion when page is either upright or turned so that the top becomes the right side except for graphs Fig(s) ____

9 SCALE 37 CFR 84(k)
__ Scale not large enough to show mechanism without crowding when drawing is reduced in size to two-thirds in reproduction F g(s) ____

10 CHARACTER OF LINES NUMBERS & LETTERS 37 CFR 1 84(l)
__ Lines number & letters not uniformly thick and well defined clean durable and black (poor line quality) Fig( ) ____

11 SHADING 37 CFR 1 84(m)
__ Solid black areas pale Fig(s) ____
__ Solid black shading not permitted Fig( ) ____
__ Shade lines pale rough and blurred Fig(s) ____

12 NUMBERS LETTERS & REFERENCE CHARACTERS 37 CFR 1 84(p)
__ Numbers and reference characters not plain and legible Fig(s) ____
__ Figure legends are poor Fig ____
__ Numbers and reference characters not oriented in the same direction as the view 37 CFR 1 84(p)(1) Fig( ) ____
__ English alphabet not used 37 CFR 1 84(p)(2) Figs ____
__ Numbers letters and reference characters must be at least 32 cm (1/8 inch) in height 37 CFR 1 84(p)(3) Fig(s) ____

13 LEAD LINES 37 CFR 1 84(q)
__ Lead lines cross each other Fig( ) ____
__ Lead lines missing Fig(s) ____

14 NUMBERING OF SHEETS OF DRAWINGS 37 CFR 1 84(t)
__ Sheets not numbered consecutively and in Arabic numerals beginning with number 1 Sheet(s) ____

15 NUMBERING OF VIEWS 37 CFR 1 84(u)
__ Views not numbered consecutively and in Arabic numerals beginning with number 1 Fig(s) ____

16 CORRECTIONS 37 CFR 1 84(w)
__ Corrections not made from prior PTO 948 dated ____

17 DESIGN DRAWINGS 37 CFR 1 152
__ Surface shading shown not appropriate Fig(s) ____
__ Solid black shading not used for color contrast Fig(s) ____

COMMENTS

REVIEWER AD DATE 10/30/00 TELEPHONE NO ____

ATTACHMENT TO PAPER NO 10

G 70 2600
#11

SKJERVEN
MORRILL
MACPHERSON LLP

Docket No 11599 M 10880 US

February 5 2001

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FEB 14 2001
TC 2600 MAIL ROOM

Box Amendments
Commissioner For Patents
Washington, D C 20231

Re	Applicant	William S Herz	
	Assignee	Zilog, Inc	
	Title	Method and Apparatus for an Intuitive Universal Remote Control System	
	Serial No	09/277,887	
	Examiner	P Nathael	Filed March 29 1999
	Docket No	11599 M-10880 US	Group Art Unit 2614

TRANSMITTAL OF AMENDMENT

Dear Sir

Transmitted herewith are the following documents in the above-identified application

(1) Return Receipt Postcard,
(2) This Transmittal Letter, and
(3) Amendment

☒ No additional fee is required

Please send all future correspondence to the following address

Gerald P Parsons, Esq
Skjerven Morrill MacPherson LLP
Three Embarcadero Center, Suite 2800
San Francisco, CA 94111

☒ Also please charge any additional fees required and credit any overpayment to our Deposit Account No 19-2386, should the examiner deem it necessary

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Brenda J Dolly — Feb 6, 2001 (Date)

Respectfully submitted,

Gerald P Parsons — 6 Feb 2001 (Date)
Attorney for Applicant
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Universal Remote Control Exhibit: 1002 Page 000194

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OIPE JC158
FEB 12 2001
PATENT & TRADEMARK OFFICE

Docket No 11599 M 10880 US

February 5, 2001

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Re	Applicant	William S Herz	
	Assignee	Zilog, Inc	
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Attorney for Applicant
Reg No 24,486

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J. Douglas
2/13/01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	William S Herz		
Assignee	Zilog, Inc		
Title	Method and Apparatus for an Intuitive Universal Remote Control System		
Serial No	09/277,887	Filing Date	March 29, 1999
Examiner	P Nathael	Group Art Unit	2614
Docket No	11599 M-10880 US	[Formerly	ZILG 189US0]

San Francisco, California
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AMENDMENT

Dear Sir

In response to the Office Action dated November 8, 2001 please amend the above-referenced patent application by canceling claims 41 42 and 44, without prejudice, and amending the following claims as indicated

15 43 (Amended) [The] A method [according to claim 42], method for a remote control to adjust the display properties of a screen of a television, said remote control including a user interface, comprising

issuing a display control command on the user interface of the remote control for adjusting the display properties of the television screen, said display control command being a picture-in-picture command,

analyzing the display control command by the remote control,

translating the display control command to a set of controlling parameters, wherein said controlling parameters are fully controllable by the remote control, and wherein said set of controlling parameters comprise size and location of a picture-in-picture window screen in the television screen,

transmitting the controlling parameters from the remote control to the television, and

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displaying the television screen with its display properties adjusted according to the controlling parameters,

wherein said user interface of the remote control comprises a display screen and wherein said display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen

B1 Cont'd

14 45 (Amended) [The] A method [according to claim 44] for a remote control to create a picture-in-picture window screen in a television screen of a television, said remote control comprising a user interface, comprising

issuing a picture-in-picture command on the user interface of the remote control,

B2

analyzing the picture-in-picture command by the remote control,

translating the picture-in-picture command to a set of controlling parameters, wherein said controlling parameters comprise size and location of the picture-in-picture window screen, and said size and location of the picture-in-picture window screen are fully controllable by the remote control,

transmitting the controlling parameters from the remote control to the television,

creating the picture-in-picture window screen on the television screen according to the controlling parameters, and

wherein said user interface of the remote control comprises a display screen, and wherein said display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen 16

B3

22 51 (Amended) The method according to claim [44]45 wherein said user interface of the remote control comprises a handwriting recognition mechanism

23 52 (Amended) The method according to claim [44]45 16 wherein said user interface of the remote control comprises a voice recognition mechanism

REMARKS

The allowance of claims 16-28 and 30-40 is acknowledged with appreciation Dependent claims 43 and 45, indicated to be allowable have been re-written in independent form so should now be allowed Claims 46-50 dependent upon rewritten claim 45, are therefore, also allowable Rejected claims 41, 42 and 44 have been canceled without prejudice Rejected claims 51 and 52 have been amended to depend from allowable claim 45 so are now allowable

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Reconsideration of the prior art rejections of the remaining claims 1 5 6, 8 and 9 is respectfully requested in light of the following discussion

The rejection of dependent claim 5 is first discussed A 'handwriting recognition interface" is claimed to allow selecting by handwriting on a "touch screen display" the 'portion of the stored programming guide data ' that is desired to be displayed The part of the Croy et al patent no 6 040,829 that is alleged by the Office Action to disclose this feature suggests the use of "active display areas (stylus or finger touch selection) ' to make a selection [Croy et al , col 7, lns 35-36] It is respectfully submitted that this in no way suggests the claimed use of a handwriting recognition interface

"Active display areas' are in the nature of buttons that are operated by pushing against the active display areas The detection of operation of such a button can in no way be characterized as handwriting recognition The Office Action then quotes a dictionary definition of the term "stylus" that includes an "instrument for writing' and contends that this shows Croy et al's use of the term to disclose handwriting recognition But this dictionary definition also includes 'marking ' It is something like this later definition which fits the Croy et al use of the term A stylus' is disclosed by Croy et al to operate the active display areas' by the touch of a stylus This is not handwriting Nothing more than the use of a stylus to touch a button on the display is being described Thus Croy et al did not disclose the claimed ' handwriting recognition interface" recited in claim 5 Withdrawal of this rejection is solicited

Dependent claim 6, which recites "a voice recognition interface to select the portion of the programming guide that is displayed is now discussed The Office Action acknowledges that Croy et al did not describe use of a voice recognition interface but alleges that this absence is evidence of its obvious, it was so obvious that Croy et al did not need to describe it This analysis is respectfully submitted to be in error The test being applied in the Office Action would make any invention obvious over a reference whenever the difference between the claim and the reference was not disclosed This runs opposite to the requirement that a rejection on prior art must make a *prima facie* case of obviousness This has not been done here A claim element missing from the prior art cannot be considered obvious because it is not disclosed Some evidence that one ordinarily skilled in the art would have found it obvious to add a voice recognition interface to the device disclosed by Croy et al and this requires some disclosure or suggestion in the prior art A *prima facie* case cannot be made by

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the absence of a claimed element from the cited prior art Withdrawal of this rejection is also solicited

But more fundamental is the rejection of the parent claim 1 as obvious over the single Croy et al reference which does not discuss use of a "touch screen' It does not appear that the rejection is based upon the Goulden et al patent no 5,956,025 that is indirectly referenced in the body of the text of the reasons for the rejection But even if it is intended that the rejection be based upon a combination of these two references, it is submitted that Goulden et al would not have suggested to one ordinarily skilled in the art that Croy et al should be modified to include the claimed "touch screen display device" for the purpose of displaying "at least a portion of the programming guide data" Goulden et al do not use their display for such a purpose No motivation has been suggested in the Office Action as to why one of ordinary skill would have made this change Claim 1 and each of its dependent claims are submitted to be allowable for this additional reason

All the claims in this application are believed to be allowable, so an early indication of the allowance of this application is solicited

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Brenda J Dolly 2/6/01
Brenda J Dolly Date

Respectfully submitted,

6 Feb 2001
Gerald P Parsons Date
Attorney for Applicant(s)
Reg No 24,486

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CHANGE OF ADDRESS/POWER OF ATTORNEY

FILE LOCATION 26X1 SERIAL NUMBER 09277887 PATENT NUMBER

THE CORRESPONDENCE ADDRESS HAS BEEN CHANGED TO CUSTOMER # 28345

THE PRACTITIONERS OF RECORD HAVE BEEN CHANGED TO CUSTOMER # 28345

ON 03/21/01 THE ADDRESS OF RECORD FOR CUSTOMER NUMBER 28345 IS

H SHANNON TYSON, JR
ZILOG, INC
4201 BEE CAVES RD
SUITE C-100
AUSTIN TX 78746

AND THE PRACTITIONERS OF RECORD FOR CUSTOMER NUMBER 28345 ARE

24486 42193 46030

PTO INSTRUCTIONS PLEASE TAKE THE FOLLOWING ACTION WHEN THE CORRESPONDENCE ADDRESS HAS BEEN CHANGED TO CUSTOMER NUMBER RECORD, ON THE NEXT AVAILABLE CONTENTS LINE OF THE FILE JACKET, 'ADDRESS CHANGE TO CUSTOMER NUMBER' LINE THROUGH THE OLD ADDRESS ON THE FILE JACKET LABEL AND ENTER ONLY THE 'CUSTOMER NUMBER' AS THE NEW ADDRESS FILE THIS LETTER IN THE FILE JACKET WHEN ABOVE CHANGES ARE ONLY TO FEE ADDRESS AND/OR PRACTITIONERS OF RECORD, FILE LETTER IN THE FILE JACKET
THIS FILE IS ASSIGNED TO GAU 2614

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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED

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

Commissioner of Patents and Trademarks

Universal Remote Control Exhibit: 1002 Page 000201

Office Action Summary

Application No	Applicant(s)
09/277 887	William S Herz
Examiner	**Art Unit**
Paulos Natnael	2614

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) [X] Responsive to communication(s) filed on *Feb 12 2001*

2a) [ ] This action is **FINAL** 2b) [X] 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) [X] Claim(s) *1 5 6 8 9 16 28 30 40 43 and 45 52* is/are pending in the application

4a) Of the above claim(s) _____ is/are withdrawn from consideration

5) [X] Claim(s) *33 40 43 and 45 52* is/are allowed

6) [X] Claim(s) *1 6 8 9 16 19 21 28 31 and 32* is/are rejected

7) [X] Claim(s) *5 20 and 30* is/are objected to

8) [ ] Claims _____ 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 objected to by the Examiner

11) [ ] The proposed drawing correction filed on _____ is a) [ ] approved b) [ ] disapproved

12) [ ] The oath or declaration is objected to by the Examiner

Priority under 35 U S C § 119

13) [ ] Acknowledgement is made of a claim for foreign priority under 35 U S C § 119(a) (d)

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) [ ] Acknowledgement is made of a claim for domestic priority under 35 U S C § 119(e)

Attachment(s)

15) [X] Notice of References Cited (PTO 892)
16) [ ] Notice of Draftsperson s Patent Drawing Review (PTO 948)
17) [ ] Information Disclosure Statement(s) (PTO 1449) Paper No(s) _____
18) [ ] Interview Summary (PTO 413) Paper No(s) _____
19) [ ] Notice of Informal Patent Application (PTO 152)
20) [ ] Other

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1 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

2 Claims **23-28, 31, and 32** are rejected under 35 U S C 102(b) as being anticipated by Goldstein U S Patent No 5,410,326

Considering claim **23** Goldstein discloses the following claimed subject matter, note

a) the claimed storing, in a memory of the remote control, data for a display of a set of control buttons of each of the plurality of different audio/video devices is met by RAM 90 (FIG 10) and further by the disclosure that ' remote control device 5 includes a microprocessor system which is capable of generating a plurality of icons 11-22 for display on the touch-sensitive screen (Col 7, lines 20-22) And "Further, the various icons associated with services subscribed to by the user are also received over that serial data stream and stored in the RAM 90 (Col 12 lines 44-47)

b) the claimed selecting at least one of the plurality of audio/video devices using the interface of the remote control is met by the disclosure on col 7, lines 10-15

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c) the claimed method of displaying a set of control buttons on said user interface of said remote control from the data stored in the memory of the remote control, each of the control buttons corresponding to at least one of the functions performed by the selected audio/video device is met by icons 11,12 etc (Fig 1), wherein "the user can select a number of commands for execution by the microprocessor remote control device 5 by touching the icon representing the device under control " (Col 7, lines 22-27)

d) the claimed method activating one of the function of the selected audio/video device by actuating the corresponding button on said user interface of said remote control is met by the disclosure that "By selecting a particular displayed icon, a command can be decoded and sent via an infrared link to one or more appliances " (See Abstract)

Considering claim **24,** the claimed touch screen display is met by the screen 10, FIG 1

Considering claim **25**, see rejection of claim 23

Considering claim **26,** see rejection of claim 23

Considering claim **27** see rejection of claim 23

Considering claim **28** see rejection of claim 24

Considering claim **32**, the claimed wherein said at least one audio/video device is selected from a group including a television a set top box, a VCR, a DVD , a compact disc player a stereo system or home entertainment components is met by FIG 1

Claim Rejections - 35 USC § 103

3 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 negatived by the manner in which the invention was made

4 Claims **31** is rejected under 35 U S C 103(a) as being unpatentable over Goldstein, U S Patent No 5,410 326 in view of Croy et al U S Patent No 6,040,829

Considering claim **31**, Goldstein discloses all claimed subject matter except for,

a) the claimed voice recognition interface and a voice is inputted to select at least one of the audio/video devices or at least one of the functions,

Goldstein does not disclose voice recognition interface however voice recognition is well known in the art Croy et al for example teaches that "active display areas (stylus or finger touch selection) and/or **voice input** ' (Col 7, lines 28-36) could be used as methods of selection Therefore, it would have been obvious to the skilled in the art to provide a voice recognition

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mechanism as taught by Croy et al to modify the system of Goldstein in order to provide the capability of voice input to select at least one of the audio/video devices or at least one of the functions

5 Claims **1,6,8,9** are **again** rejected under 35 U S C 103(a) as being unpatentable over Croy et al , U S Patent No 6 040,829

Considering claim **1,** Croy et al discloses the following claimed subject matter, note

a) the claimed remote wireless transceiver for receiving the programming guide data from the transceiver of said at least one audio/video device and for transmitting commands to the transceiver of said at least one audio/video device to control the device's reproduction of audio and/or video programming is met by base station interface 210, fig 2 (col 4 lines 10-18)

b) the claimed remote control memory to said remote transceiver for storing the programming guide data received by the remote transceiver is met by memory 222, fig 2

c) the claimed user interface coupled to the remote control memory displays at least a portion of the programming guide data stored in the remote control memory as selected by touching the display device is met by display 240, fig 2, (see also col 7, lines 30-36)

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Except for,

d) the claimed including a touch screen display device,

Regarding d), Croy discloses that "Menus or selection lists are displayed for the user on display 240 Selection can be performed by using (sole or in combination) dedicated keys, so-called softkeys and function keys 310 and 311 (functions controlled by contents displayed in the display, positioned on any side of the display 240) active display areas (stylus or **finger touch** selection) and/or voice input ' (Col 7, lines 28-36) It would have been obvious to the skilled in the art to recognize that Croy et al clearly suggests the use of touch screen display, which is well known in the art Therefore, it would have been obvious to the skilled in the art to recognize the teachings of the prior art and of that of Croy et al , because Croy et al clearly suggests a touch screen display device although Croy et al does not use the term "touch screen" instead using 'finger touch"

Considering claim **6**, the claimed wherein said user interface includes voice recognition interface responsive to a voice input to select the portion of the stored programming guide data that is displayed

Regrading claim 6, Croy et al doesn't specifically disclose the system comprising a voice recognition mechanism However, Croy et al discloses that "active display areas (**stylus** or **finger touch** selection) and/or **voice input**" (Col 7, lines 28-36) could be used as methods of selection It would be obvious to one with ordinary skill in the art that any voice input system, as

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clearly suggested by Croy, would not work without some kind of a voice recognition mechanism, which Croy, by not illustrating further, clearly regarded as well known in the art Otherwise Croy would have included the mechanism in the system Therefore, it would have been obvious to the skilled in the art at the time the invention was made to readily recognize the teachings of Croy in that voice input could be clearly used by providing a voice recognition mechanism in order for the teachings of Croy (as disclose above) to work

Considering claim **8** the claimed wherein said at least one audio/video device provides the programming guide data is provided to the remote control whenever the television programming guide data is received by the audio/video device is met by disclosure that " But most of the information and data to be processed and displayed will be loaded into the PN 200 from an external source " (on col 8, lines 25-53)

Considering claim **9**, the claimed remote control is a programmable remote control is met by disclosure that "Though primarily intended for EPG use, the PN 200 can be beneficial in a lot of applications as standard user-interface Examples are given as follows (6) calendar, reminder, personal data base" (col 9, lines 8-34)

6 Claims **16-19** are rejected under 35 U S C 103(a) as being unpatentable over Darbee et al U S Patent No 6,130,726

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Considering claim **16**, Darbee et al discloses the following claimed subject matter, note

b) the claimed remote control comprising a second transceiver for receiving the television programming guide data from the television, a remote control memory couple to the second transceiver for storing said television programming guide data provided by the television and a controller for retrieving at least a portion of the television programming guide data stored in the remote control memory, said second transceiver providing said at least a portion of the television programming guide data to the television through the first transceiver is met by remote control 26 (Fig 2) which comprises transceivers 34/35 and 48 and memories 36 and 42 (See Abstract and Col 8, lines 47-53)

Except for,

a) the claimed television comprising a first transceiver, a data capturer for capturing television programming guide data from an input and display screen

c) the claimed wherein said at least a portion of the television programming guide data is displayed by said display screen of the television from the remote control memory

Regarding a), Darbee does not specifically disclose a television comprising a first transceiver, a data capturer for capturing television programming guide data from an input and display screen However, Examiner takes Official Notice here in that such a television is well known in the art and therefore would have been obvious to the skilled in the art

Regarding c), Darbee discloses that the system is capable of transmitting EPG and other data to/from television and other electronics devices (Col 8, lines 47-53), therefore, it would have been obvious to the skilled in the art in that the system of Darbee would also be capable of displaying a portion of the television programming guide data on the television display screen from memory of the remote control

Considering claim **17**, the claimed touch screen display for displaying said at least a portion of the television programming,

Darbee discloses and LCD display Darbee does not specifically disclose a touch screen display However touch screen display devices are well known in the art, and it would have been obvious to the skilled in the art to modify the system of Darbee

Considering claim **18**, see rejection of claim 17

Considering claim **19**, the claimed wherein said television programming guide is electronic programming guide is met by Figs 5-34

7 Claims **21-22 are** rejected under 35 U S C 103(a) as being unpatentable over Darbee et al , U S Patent No 6,130,726 in view of Croy et al U S Patent No 6,040,829

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Considering claim **21**, Darbee discloses all claimed subject matter except for,

a) the claimed voice recognition interface responsive to a voice input to select the portion of the stored programming guide data that is displayed

Darbee does not disclose voice recognition interface however voice recognition is well known in the art Croy et al for example teaches that "active display areas (stylus or finger touch selection) and/or **voice input**" (Col 7, lines 28-36) could be used as methods of selection Therefore, it would have been obvious to the skilled in the art to provide a voice recognition mechanism as taught by Croy et al to modify the system of Darbee in order to provide the capability of voice input to select the portion of the stored programming guide data

Considering claim **22**, the claimed wehrein the television provides the television programming guide data to the remote contorl whenever the television programming guide data is received by the television is met by the disclosure that "advertising or other content" is "broadcast by the host system to a group of remote control units" (Col 10, lines 41-43 see also col 8 lines 47-54)

Response to Arguments

8 Applicant's arguments filed Feb 12, 2001 have been fully considered The rejection of dependent claim 5 has been overcome, Applicant's argument is persuasive

Applicant's Arguments

a) Croy et al reference does not discuss use of a "touch screen" It does not appear that the rejection is based upon the Goulden et al patent that is indirectly referenced in the body of the text of the reasons for the rejection No motivation has been suggested in the Office Action as to why one of ordinary skill would have made this change

b) The Office Action acknowledges that Croy et al did not describe use of a voice recognition interface but alleges that this absence is evidence of its obvious, it was so obvious that Croy et al did not need to describe it This analysis is respectfully submitted to be in error The test being applied in the Office Action would make any invention obvious over a reference whenever the difference between the claim and the reference was not disclosed

Examiner's Response

a) Croy discloses that "Using a conventional liquid crystal display (LCD) device, microcomputer 220 can formulate information displays and command selection menus for display in display device 240" (col 5, lines 25-28) Furthermore, Croy teaches that "Menus or selection lists are displayed for the user on display 240 Selection can be performed by using (sole or in combination) dedicated keys, so-called softkeys and function keys 310 and 311 (functions controlled by contents displayed in the display, positioned on any side of the display 240) active display areas (stylus or **finger touch** selection) and/or voice input (Col 7, lines 28-36)

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In the above quoted text, Croy clearly suggests that, among other user selection methods a touch screen display could be used Granted, Croy does not use the term touch screen instead Croy uses the term "finger touch' However, given the context of the discussion which is the method of "selection lists displayed for the user on display 240", it would have been obvious to the skilled in the art to recognize Croy et al is discussing touch screen display, which is well known in the art Argument is thus considered unpersuasive and the rejection of claim 1 stands

The Goulden reference was given as an example that the "touch screen" technology is indeed well-known in the art

B) Again, Croy discloses that "Menus or selection lists are displayed for the user on display 240 Selection can be performed by using (sole or in combination) dedicated keys so-called softkeys and function keys 310 and 311 (functions controlled by contents displayed in the display, positioned on any side of the display 240) active display areas (stylus or finger touch selection) and/or **voice input** ' (Col 7, lines 28-36)

Although Croy et al doesn't specifically disclose "a voice recognition interface", Croy et al discloses that "**voice input**" could be used That was the motivation the Office Action (OA) used to say, "But voice input system as clearly suggested by Croy would not work without some kind of a voice recognition mechanism which Croy clearly regarded as well known in the art Otherwise Croy would have included in the system " Croy et al disclosed the voice input selection method as one method of selection that could be used to select items from a list on the

display And to use such voice input, a voice recognition mechanism must exist This, the OA suggested, would have been obvious to the skilled in the art The OA gave Cherrick as an example of possible combination to modify the system of Croy

Allowable Subject Matter

9 Claims **33-40,43, and 45-52** are allowed

10 Claims **5, 20, 30**, are 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

11 The following is a statement of reasons for the indication of allowable subject matter The prior fails to disclose, a remote control system comprising a handwriting recognition interface responsive to handwriting on the touch screen display, as in claims **5, 20 and 30**

A method for a remote control to communicate with audio/video devices, wherein each audio/video devices comprising a controlling components, wherein each of the controlling components is set at a controlling level, comprising transmitting the controlling level of the selected controlling component from the audio/video device to the remote control, displaying the selected controlling level, and adjusting the selected controlling level using the user interface and transmitting the controlling level of the selected controlling level from the remote to the audio/video device to adjust the corresponding component, as in claims **33** and **37**

Universal Remote Control Exhibit: 1002 Page 000214

A method for a remote control to adjust the display properties of a screen of a television, said remote control including a user interface, comprising a display screen, wherein the display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen, as in claims **43** and **45**

Conclusion

12 Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action Accordingly, **THIS ACTION IS MADE FINAL** See MPEP § 706 07(a) Applicant is reminded of the extension of time policy as set forth in 37 CFR 1 136(a)

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1 136(a) will be calculated from the mailing date of the advisory action In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Paulos Natnael** whose telephone number is **(703) 305-0019** The examiner can normally be reached on **Monday through Thursday** from 8 00 a

Universal Remote Control Exhibit: 1002 Page 000215

M to 5 00 p m The examiner can also be reached on alternate Fridays

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reinhard Eisenzopf, can be reached on (703)305-4711

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)305-3900

Any response to this action should be mailed to

Commissioner of Patents and Trademarks

Washington, D C 20231

or faxed to

(703) 308-6306, (for formal communications intended for entry)

or

(703) 308-6296 (for informal or draft communications, please label "PROPOSED" OR "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, V A Sixth Floor (Receptionist)

Paulos M Natnael

April 18, 2001

4-23-01

REINHARD J EISENZOPF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of References Cited	Applicant/Patent: William S Herz	Application/Control No: 09/277 887	
	Examiner: Paulos Natnael	Art Unit: 2614	Page 1 of 1

U S PATENT DOCUMENTS

		Document Number Country Code Number Kind Code	Date MM YYYY[1]	Name	Classification[2]	
	A	6 130 726	10/2000	Darbee et al	348	734
	B	4 959 810	9/1990	Darbee et al	364	900
	C	6 211 856 B1	4/2001	Choi et al	345	130
	D	5 646 608	7/1997	Shintani	340	825 52
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

		Document Number Country Code Number Kind Code	Date MM YYYY[1]	Country	Name	Classification[2]	
	N						
	O						
	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) [1] Dates in MM YYYY format are publication dat s [2] Classificatio may b U S or fo e gn

Universal Remote Control Exhibit: 1002 Page 000217

7-20-01

$2614

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F 415 434 0646
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Newport Beach CA
San Jose CA

skjerven morrill macpherson LLP

#14

OIPE JC144
JUL 19 2001
PATENT & TRADEMARK OFFICE

Docket No 11599 M-10880 US

July 18, 2001

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JUL 27 2001
Technology Center 2600

Box Amendments
Commissioner For Patents
Washington, D C 20231

Re	Applicant(s)	William S Herz	
	Assignee	Zilog, Inc	
	Title	Method and Apparatus for an Intuitive Universal Remote Control	
	Serial No	09/277,887	
	Examiner	P Natnael	Filed March 29, 1999
	Docket No	11599 M-10880 US	Group Art Unit 2614

Dear Sir

Transmitted herewith are the following documents in the above-identified application

(1) Return Receipt Postcard,
(2) This Transmittal Letter (in duplicate),
(3) Amendment,
(4) Second Supplemental Information Disclosure Statement, PTO 1449, with copies of three cited references

Please charge the Information Disclosure Statement fee of $180 00 to our Deposit Account No 19-2386 The Commissioner is authorized to charge any additional fees required and credit any overpayment to our Deposit Account No 19-2386

EXPRESS MAIL LABEL NO

EL707911487US

Respectfully submitted,

Gerald P Parsons
Reg No 24,486

July 18, 2001
Date

Universal Remote Control Exhibit: 1002 Page 000218

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Docket No 11599 M 10880 US

July 18, 2001

Box Amendments
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Washington, D C 20231

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Re	Applicant(s)	William S Herz	
	Assignee	Zilog, Inc	
	Title	Method and Apparatus for an Intuitive Universal Remote Control	
	Serial No	09/277,887	
	Examiner	P Natnael	Filed March 29, 1999
	Docket No	11599 M-10880 US	Group Art Unit 2614

Dear Sir

Transmitted herewith are the following documents in the above-identified application

(1) Return Receipt Postcard,
(2) This Transmittal Letter (in duplicate),
(3) Amendment,
(4) Second Supplemental Information Disclosure Statement PTO 1449 with copies of three cited references

Please charge the Information Disclosure Statement fee of $180 00 to our Deposit Account No 19-2386 The Commissioner is authorized to charge any additional fees required and credit any overpayment to our Deposit Account No 19 2386

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Respectfully submitted,

Gerald P Parsons
Reg No 24,486

July 18, 2001
Date

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780574 v1

15/C
J. Douglas
8/22/01

OIPE
JUL 1 9 2001
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	William S Herz		
Assignee	Zilog, Inc		
Title	Method and Apparatus for an Intuitive Universal Remote Control		
Serial No	09/277 887	Filing Date	March 29 1999
Examiner	P Natnael	Group Art Unit	2614
Docket No	11599 M-10880 US	[Formerly	ZILG 189US0]

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San Francisco, California
July 18, 2001

BOX AMEMDMENTS
COMMISSIONER FOR PATENTS
Washington, D C 20231

AMENDMENT

Dear Sir

In response to the Office Action dated April 25, 2001, please amend the above identified patent application, as follows

IN THE CLAIMS

Cancel claims 5, 23-28, 31 and 32, without prejudice

Amend claims 1, 20 and 30 to read as follows

1 (Twice Amended) For controlling at least one audio/video device that is connectable to a source of programming including programming guide data, which reproduces received programming in audio and/or video form and which includes a wireless transceiver, a remote control, comprising

a remote wireless transceiver for receiving the programming guide data from the transceiver of said at least one audio/video device and for transmitting commands to the transceiver of said at least one audio/video device to control the device's reproduction of audio and/or video programming,

a remote control memory coupled to said remote transceiver for storing the programming guide data received by the remote transceiver, and

a user interface coupled to the remote control memory including a touch screen display device that displays at least a portion of the programming guide data stored in the

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Universal Remote Control Exhibit: 1002 Page 000220

C1 cancl

remote control memory as selected by touching the display device, said user interface further including a handwriting recognition interface responsive to handwriting on the touch screen display to select the portion of the stored programming guide data that is displayed

5 20 (Twice Amended) A remote control system, comprising

C2

a television comprising a first transceiver, a data capturer for capturing television programming guide data from an input, and a display screen,

a remote control comprising a second transceiver for receiving the television programming guide data from the television, a remote control memory coupled to the second transceiver for storing said television programming guide data provided by the television, and a controller for retrieving at least a portion of the television programming guide data stored in the remote control memory, said second transceiver providing said at least a portion of the television programming guide data to the television through the first transceiver,

wherein said at least a portion of the television programming guide data is displayed by said display screen of the television from the remote control memory, and

a user interface comprising a touch screen display for displaying said at least a portion of the television programming guide data, said user interface further including a handwriting recognition interface responsive to handwriting on the touch screen display to select the portion of the stored programming guide data that is displayed

6 30 (Twice Amended) A method for a remote control to communicate with at least one of a plurality of audio/video devices, wherein the remote control has a user interface, and each of the audio/video device performs a set of functions, comprising

C3 cont'd

storing, in a memory of the remote control, data for a display of a set of control buttons of each of the plurality of different audio/video devices,

selecting at least one of the plurality of audio/video devices using the interface of the remote control,

displaying a set of control buttons on said user interface of said remote control from the data stored in the memory of the remote control, each of the control buttons corresponding to at least one of the functions performed by the selected audio/video device

said user interface comprising a pressure sensitive touch screen display for displaying the set of control buttons, wherein each of the buttons can be actuated by touch and a handwriting recognition interface, wherein handwriting occurs on the touch screen to select at least one of the audio/video devices,

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Universal Remote Control Exhibit: 1002 Page 000221

activating one of the functions of the selected audio/video device by actuating the corresponding button on said user interface of said remote control, the activating comprising

C3 cancel.

pushing the corresponding button on the user interface of said remote control,

generating a set of control signals for the selected audio/video device of the activated function, and

transmitting the set of control signals to the selected audio/video device to activate the corresponding function

REMARKS

The Office Action is not Final

The Office Action is contradictory in having box 2b "This action is non-final on page 1 checked, but then stating in paragraph 12 on page 14 that it is Final During a telephone conversation with Examiner Natnael on about May 22, 2001, it was confirmed that the Office Action is non-final Indeed, it could not have been made Final since previously allowed claims 16-19 and 21-28 have now been rejected, claims 16-19, 21 and 22 over a new reference cited for the first time by the recent Office Action, namely Darbee *et al* U S patent no 6,130,726

Allowable Claims

The allowance of claims 33-40, 43 and 45-52 is noted with appreciation Dependent claims 5 20 and 30, indicated to be allowable, are being re-written in independent form

For claim 5, its limitations are being added to its parent claim 1 and then claim 5 is being cancelled, for convenience, in order to retain claims 6, 8 and 9 that depend from the now allowable claim 1 This narrowing of claim 1 is being done without prejudice against later pursuing protection of subject matter of the scope of claim 1 that existed before this Amendment

When rewriting claim 30 in independent form, the limitation of intermediate claim 27 was omitted because it seems unclear in the context of claim 30 It is not believed that this limitation is important to patentability, in any event

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Claims 16-19, 21 and 22

These claims stand rejected under 35 U S 103(a) over newly cited U S patent no 6 130,726 (hereinafter "Darbee"), which is the only reference applied to claims 16-19 Claims 21 and 22 stand rejected over a combination of Darbee and U S patent no 6,040,829 (hereinafter "Croy')

With respect to claim 16, the Office Action (page 8) admits that Darbee, the only reference applied, does not disclose the limitations of the first and third paragraphs of the three paragraph claim This deficiency is sought to be remedied by the taking of Official Notice that the portions of the claims missing from Darbee would have been obvious to include with the Darbee system An objection to such an extensive use of Official Notice is hereby made

The Official Notice expressed by the first paragraph of page 9 of the Office Action, it is respectfully submitted, makes a particularly large leap It is there alleged that it would have been obvious to use the transmitting capability of Darbee s remote to display programming guide data from the remote's memory on the television screen, without any supporting evidence of this "fact" having been cited There is not even an allegation that Darbee's remote transmits anything from its memory for display on the television screen Indeed, Darbee's emphasis is on transmitting information the other way, from the television to the remote, in order to display information on the remote Particularly for this reason, no *prima facie* case of obviousness of claim 16 has been made Withdrawal of this rejection of claim 16, and thus also of its dependent claims 17 19, is respectfully solicited

Withdrawal of the rejection of dependent claims 21 and 22 is similarly believed to be in order Although these claims are rejected as obvious over a combination of the teachings of Croy with those of Darbee there is no allegation that Croy provides evidence of the facts of which Official Notice has been taken Croy is cited only for the voice recognition feature of the claims Therefore, claims 21 and 22 are patentable for the same reasons as given above for their parent claim 16

Claims 23-28, 31 and 32

These claims are being cancelled, without prejudice against further pursuing them in a continuation application

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Universal Remote Control Exhibit: 1002 Page 000223

Supplemental Information Disclosure Statement

Being filed herewith is a Supplemental Information Disclosure Statement that cites a reference from a corresponding PCT application The Search Report and Written Opinion from the PCT application are also included Review and consideration of these documents are respectfully requested

Conclusion

All of the remaining claims in this application are submitted to be patentable over the cited references An early indication of the allowance of the present application is solicited

EXPRESS MAIL LABEL NO

EL707911487US

Respectfully submitted,

Gerald P Parsons
Reg No 24,486

July 18, 2001
Date

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Universal Remote Control Exhibit: 1002 Page 000224

DETAILS OF AMENDMENTS BEING MADE TO THE CLAIMS

1 (Twice Amended) For controlling at least one audio/video device that is connectable to a source of programming including programming guide data, which reproduces received programming in audio and/or video form and which includes a wireless transceiver a remote control, comprising

a remote wireless transceiver for receiving the programming guide data from the transceiver of said at least one audio/video device and for transmitting commands to the transceiver of said at least one audio/video device to control the device's reproduction of audio and/or video programming,

a remote control memory coupled to said remote transceiver for storing the programming guide data received by the remote transceiver, and

a user interface coupled to the remote control memory including a touch screen display device that displays at least a portion of the programming guide data stored in the remote control memory as selected by touching the display device, said user interface further including a handwriting recognition interface responsive to handwriting on the touch screen display to select the portion of the stored programming guide data that is displayed

20 (Twice Amended) [The] A remote control system [according to claim 17, wherein], comprising

a television comprising a first transceiver, a data capturer for capturing television programming guide data from an input, and a display screen,

a remote control comprising a second transceiver for receiving the television programming guide data from the television, a remote control memory coupled to the second transceiver for storing said television programming guide data provided by the television, and a controller for retrieving at least a portion of the television programming guide data stored in the remote control memory, said second transceiver providing said at least a portion of the television programming guide data to the television through the first transceiver,

wherein said at least a portion of the television programming guide data is displayed by said display screen of the television from the remote control memory, and

a user interface comprising a touch screen display for displaying said at least a portion of the television programming guide data, said user interface [of the remote control] further including [includes] a handwriting recognition interface responsive to handwriting on

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Universal Remote Control Exhibit: 1002 Page 000225

the touch screen display to select the portion of the stored programming guide data that is displayed

30 (Twice Amended) A [The] method for [communicating according to claim 28,] a remote control to communicate with at least one of a plurality of audio/video devices, wherein the remote control has a user interface, and each of the audio/video device performs a set of functions, comprising

storing, in a memory of the remote control, data for a display of a set of control buttons of each of the plurality of different audio/video devices,

selecting at least one of the plurality of audio/video devices using the interface of the remote control,

displaying a set of control buttons on said user interface of said remote control from the data stored in the memory of the remote control, each of the control buttons corresponding to at least one of the functions performed by the selected audio/video device,

said user interface comprising a pressure sensitive touch screen display for displaying the set of control buttons, wherein each of the buttons can be actuated by touch, and [wherein said user interface of the remote control includes] a handwriting recognition interface, [and] wherein handwriting occurs on the touch screen to select at least one of the audio/video devices,

activating one of the functions of the selected audio/video device by actuating the corresponding button on said user interface of said remote control, the activating comprising

pushing the corresponding button on the user interface of said remote control,

generating a set of control signals for the selected audio/video device of the activated function, and

transmitting the set of control signals to the selected audio/video device to activate the corresponding function

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Universal Remote Control Exhibit: 1002 Page 000226

#14
J. Douglas
8/20/01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

OIPE JC14
JUL 19 2001
PATENT & TRADEMARK OFFICE

Applicant(s)	William S Herz		
Assignee	Zilog, Inc		
Title	Method and Apparatus for an Intuitive Universal Remote Control		
Serial No	09/277,887	Filing Date	March 29, 1999
Examiner	P Natnael	Group Art Unit	2614
Docket No	11599 M-10880 US	[Formerly	ZILG 189US0]

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July 18, 2001

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COMMISSIONER FOR PATENTS
Washington, D C 20231

SECOND SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Dear Sir

A copy of an English abstract of a Japanese published patent application identified on the attached form 1449 is being filed herewith In addition, a Search Report and Written Opinion from corresponding PCT application no PCT/US00/04407 are being filed herewith, in which this Japanese reference and other references previously made of record in the present U S application are discussed

The Petition fee of $180 00 is proffered hereby Please charge such Petition fee (plus any other fees which may be required) to Deposit Account No 19-2386 This paper is being submitted in duplicate

EXPRESS MAIL LABEL NO

EL707911487US

Respectfully submitted,

Gerald P Parsons
Reg No 24,486

July 18, 2001
Date

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07/24/2001 BNGUYEN1 00000079 192386 09277887
01 FC 126 180 00 CH

Universal Remote Control Exhibit: 1002 Page 000227

#14

Sheet 1 of 1

U S Department of Commerce Patent and Trademark Office	Atty Docket No	Serial No
	11599 M 10880 US	09/277 887
INFORMATION DISCLOSURE STATEMENT BY APPLICANT	Applicant(s)	
(Use several sheets if necessary)	William S Herz	
	Filing Date	Group
	March 29 1999	2614

OIPE
JUL 19 2001
PATENT & TRADEMARK OFFICE
JC #4

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U S Patent Documents

*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

Foreign Patent Documents

							Translation	
		Document	Date	Country	Class	Subclass	Yes	No
PMW	AL	05037873	2/12/1993	European Patent Office			Abstract	
	AM							
	AN							
	AO							
	AP							

OTHER ART (Including Author Title Date Pertinent Pages Etc)

PMW	AQ	PCT International Search Report dated October 23 2000
PMW	AR	Written Opinion International appln No PCT/US00/04407
	AS	

Examiner [signature] Date Considered 10-26-01

*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 your communication to applicant

v 1

Universal Remote Control Exhibit: 1002 Page 000228

EUROPEAN PATENT OFFICE

Patent Abstracts of Japan

PUBLICATION NUMBER 05037873
PUBLICATION DATE 12 02 93

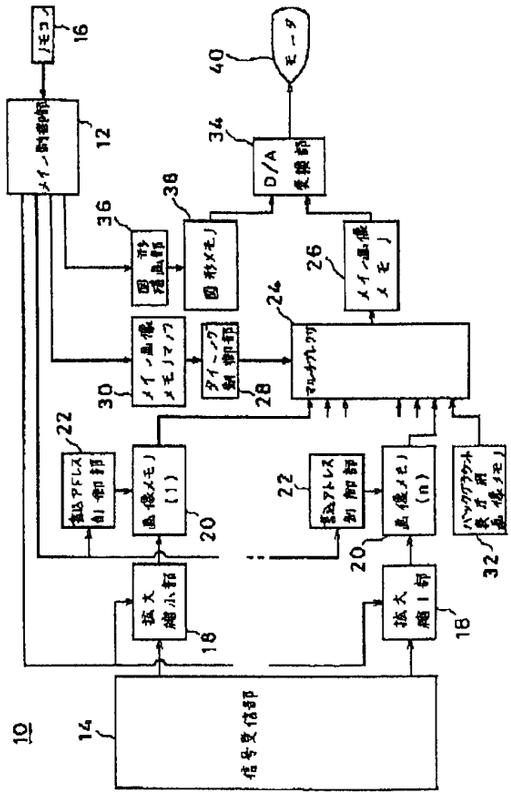
APPLICATION DATE 31 07 91
APPLICATION NUMBER 03192139

APPLICANT SANYO ELECTRIC CO LTD

INVENTOR MATSUMOTO KIMIO

INT CL H04N 5/45 H04N 5/265

TI LE PICTURE DIVISION DISPLAY SYSTEM



ABSTRACT PURPOSE To revise the size and position of plural display areas displayed on a screen

CONSTITUTION A viewer uses a remote controller 16 to command the size and position of a desired display area to a main control section 12 The main control section 12 revises the information of the size and position of each display area according to the command Then the size of a video data written in a picture memory 20 provided to each channel is revised by a command of the main control section 12 to rewrite the main picture memory map 30 according to the size and position of the revised display area A video data written each picture memory 20 is written while being divided into plural areas of the main picture memory 26 according to the content of the main picture memory map 30 and its content is displayed on a monitor 40

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Universal Remote Control Exhibit: 1002 Page 000229

' . ' ¯NT COOPERATION TREATY ZILG 189WO0

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To

MAJESTIC, PARSONS, SIEBERT &
HSUE P C
Attn PARSONS, Gerald P
Four Embarcadero Center
Suite 1100
San Francisco, CA 94111-4106
UNITED STATES OF AMERICA

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44 1)

Date of mailing (*day/month/year*) 23/10/2000	
Applicant s or agent s file reference ZILG 189W00	**FOR FURTHER ACTION** See paragraphs 1 and 4 below
International application No PCT/US 00/ 04407	International filing date (*day/month/year*) 22/02/2000
Applicant ZILOG, INC	

1 [X] The applicant is hereby notified that the International Search Report has been established and is transmitted herewith

Filing of amendments and statement under Article 19
The applicant is entitled if he so wishes to amend the claims of the International Application (see Rule 46)

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report however for more details see the notes on the accompanying sheet

Where? Directly to the International Bureau of WIPO
34 chemin des Colombettes
1211 Geneva 20 Switzerland
Fascimile No (41 22) 740 14 35

For more detailed instructions, see the notes on the accompanying sheet

DOCKETED
Action Amend Cl 12/23/00
Date ... 1/23/01
(ZILG 189US0)
6PP/6PP

2 [ ] The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith

3 [ ] **With regard to the protest** against payment of (an) additional fee(s) under Rule 40 2 the applicant is notified that

[ ] the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant s request to forward the texts of both the protest and the decision thereon to the designated Offices

[ ] no decision has been made yet on the protest the applicant will be notified as soon as a decision is made

4 **Further action(s)** The applicant is reminded of the following

Shortly after **18 months** from the priority date the international application will be published by the International Bureau If the applicant wishes to avoid or postpone publication a notice of withdrawal of the international application or of the priority claim must reach the International Bureau as provided in Rules 90*bis* 1 and 90*bis* 3 respectively before the completion of the technical preparations for international publication

Within **19 months** from the priority date a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later)

Within **20 months** from the priority date the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II

Name and mailing address of the International Searching Authority	Authorized officer
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	Odette Durand-Fleith

Form PCT/ISA/220 (July 1998)

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19 The Notes are based on the requirements of the Patent Cooperation Treaty the Regulations and the Administrative Instructions under that Treaty In case of discrepancy between these Notes and those requirements the latter are applicable For more detailed information see also the PCT Applicant s Guide a publication of WIPO

In these Notes Article Rule and Section refer to the provisions of the PCT the PCT Regulations and the PCT Administrative Instructions respectively

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has after having received the international search report one opportunity to amend the claims of the international application It should however be emphasized that since all parts of the international application (claims description and drawings) may be amended during the international preliminary examination procedure there is usually no need to file amendments of the claims under Article 19 except where e g the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication Furthermore it should be emphasized that provisional protection is available in some States only

What parts of the international application may be amended?

Under Article 19 only the claims may be amended

During the international phase the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority The description and drawings may only be amended under Article 34 before the International Examining Authority

Upon entry into the national phase all parts of the international application may be amended under Article 28 or where applicable Article 41

When? Within 2 months from the date of transmittal of the international search report or 16 months from the priority date whichever time limit expires later It should be noted however that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46 1)

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46 2)

Where a demand for international preliminary examination has been/is filed see below

How? Either by cancelling one or more entire claims by adding one or more new claims or by amending the text of one or more of the claims as filed

A replacement sheet must be submitted for each sheet of the claims which on account of an amendment or amendments differs from the sheet originally filed

All the claims appearing on a replacement sheet must be numbered in Arabic numerals Where a claim is cancelled no renumbering of the other claims is required In all cases where claims are renumbered they must be renumbered consecutively (Administrative Instructions Section 205(b))

The amendments must be made in the language in which the international application is to be published

What documents must/may accompany the amendments?

Letter (Section 205(b))

The amendments must be submitted with a letter

The letter will not be published with the international application and the amended claims It should not be confused with the Statement under Article 19(1) (see below under Statement under Article 19(1))

The letter must be in English or French, at the choice of the applicant However, if the language of the international application is English, the letter must be in English if the language of the international application is French the letter must be in French

Universal Remote Control Exhibit: 1002 Page 000231

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended It must in particular indicate in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped) whether

(i) the claim is unchanged

(ii) the claim is cancelled

(iii) the claim is new

(iv) the claim replaces one or more claims as filed

(v) the claim is the result of the division of a claim as filed

The following examples illustrate the manner in which amendments must be explained in the accompanying letter

1 [Where originally there were 48 claims and after amendment of some claims there are 51]
Claims 1 to 29 31 32 34 35 37 to 48 replaced by amended claims bearing the same numbers
claims 30 33 and 36 unchanged new claims 49 to 51 added

2 [Where originally there were 15 claims and after amendment of all claims there are 11]
Claims 1 to 15 replaced by amended claims 1 to 11

3 [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]
Claims 1 to 6 and 14 unchanged claims 7 to 13 cancelled new claims 15 16 and 17 added or
Claims 7 to 13 cancelled new claims 15 16 and 17 added all other claims unchanged

4 [Where various kinds of amendments are made]
Claims 1 10 unchanged claims 11 to 13 18 and 19 cancelled claims 14 15 and 16 replaced by amended claim 14 claim 17 subdivided into amended claims 15 16 and 17 new claims 20 and 21 added

Statement under article 19(1) (Rule 46 4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1))

The statement will be published with the international application and the amended claims

It must be in the language in which the international application is to be published

It must be brief not exceeding 500 words if in English or if translated into English

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended It must be filed on a separate sheet and must be identified as such by a heading preferably by using the words Statement under Article 19(1)

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report Reference to citations relevant to a given claim contained in the international search report may be made only in connection with an amendment of that claim

Consequence if a demand for international preliminary examination has already been filed

If at the time of filing any amendments and any accompanying statement under Article 19 a demand for international preliminary examination has already been submitted the applicant must preferably at the time of filing the amendments (and any statement) with the International Bureau also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and where required a translation of such amendments for the procedure before that Authority (see Rules 55 3(a) and 62 2 first sentence) For further information see the Notes to the demand form (PCT/IPEA/401)

Consequence with regard to translation of the international application for entry into the national phase

The applicant s attention is drawn to the fact that upon entry into the national phase a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices instead of or in addition to the translation of the claims as filed

For further details on the requirements of each designated/elected Office see Volume II of the PCT Applicant s Guide

Universal Remote Control Exhibit: 1002 Page 000232

T NT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant s or agent s file reference	FOR FURTHER ACTION	see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as where applicable item 5 below
ZILG 189WO0		
International application No	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/US 00/ 04407	22/02/2000	29/03/1999
Applicant		
ZILOG, INC		

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 5 sheets

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

1 **Basis of the report**

a With regard to the **language,** the international search was carried out on the basis of the international application in the language in which it was filed unless otherwise indicated under this item

[ ] the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23 1(b))

b With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application the international search was carried out on the basis of the sequence listing

[ ] contained in the international application in written form

[ ] filed together with the international application in computer readable form

[ ] furnished subsequently to this Authority in written form

[ ] furnished subsequently to this Authority in computer readble form

[ ] the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished

[ ] the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2 [ ] **Certain claims were found unsearchable** (See Box I)

3 [X] **Unity of invention is lacking** (see Box II)

4 With regard to the **title,**

[X] 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,**

[X] 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

[ ] as suggested by the applicant

[ ] because the applicant failed to suggest a figure

[ ] because this figure better characterizes the invention

[X] None of the figures

Form PCT/ISA/210 (first sheet) (July 1998)

Universal Remote Control Exhibit: 1002 Page 000233

International application No
PCT/US 00/04407

INTERNATIONAL SEARCH REPORT

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons

1 ☐ Claims Nos
because they relate to subject matter not required to be searched by this Authority namely

2 ☐ Claims Nos
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out specifically

3 ☐ Claims Nos
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6 4(a)

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application as follows

see additional sheet

1 [X] As all required additional search fees were timely paid by the applicant this International Search Report covers all searchable claims

2 ☐ As all searchable claims could be searched without effort justifying an additional fee this Authority did not invite payment of any additional fee

3 ☐ As only some of the required additional search fees were timely paid by the applicant this International Search Report covers only those claims for which fees were paid specifically claims Nos

4 ☐ No required additional search fees were timely paid by the applicant Consequently this International Search Report is restricted to the invention first mentioned in the claims it is covered by claims Nos

Remark on Protest

☐ The additional search fees were accompanied by the applicant s protest

[X] No protest accompanied the payment of additional search fees

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows

1 Claims 1-22

remote control unit with a screen for displaying electronic program guide received from audio-video device

2 Claims 23-52

remote control unit with a screen for displaying parameters or buttons related to display or control functions and/or characteristics of audio-video device

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 00/04407

A CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N5/445 H04N5/45

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 7 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)
EPO-Internal, PAJ

C DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication where appropriate of the relevant passages	Relevant to claim No
X	WO 98 43158 A (EVOLVE PRODUCTS INC ,DARBEE PAUL (US), DONNELL FRANK O (US), THOMS) 1 October 1998 (1998-10-01) page 3, line 13 - line 16, figures 1,2,6,7	1-4, 7-12, 15-19, 22-24, 29,32
A	page 3, line 32 - line 34 page 4, line 17 - line 23 page 5, line 8 -page 6, line 3 page 6, line 14 - line 16 page 6, line 21 - line 24 page 6, line 32 -page 7, line 5 page 7, line 9 - line 19 page 7, line 32 -page 8, line 9	33,41

-/--

[X] Further documents are listed in the continuation of box C

[X] 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

E earlier document but published on or after the international filing date

L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

O document referring to an oral disclosure use exhibition or other means

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	Date of mailing of the international search report
4 September 2000	23 10 2000

Name and mailing address of the ISA	Authorized officer
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	Yvonnet, J

Universal Remote Control Exhibit: 1002 Page 000236

INTERN/ ONAL SEARCH REPORT

International Application No
PCT/US 00/04407

C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication where appropriate of the relevant passages	Relevant to claim No
X	US 5 410 326 A (GOLDSTEIN STEVEN W) 25 April 1995 (1995-04-25)	23-29, 32-34, 37,38
A	column 7, line 4 - line 50 column 9, line 56 - line 66 column 11, line 8 - line 10 column 12, line 13 - line 53 column 17, line 23 - line 25, figures 1,2C,10	41
A	PATENT ABSTRACTS OF JAPAN vol 017, no 331 (E-1386), 23 June 1993 (1993-06-23) & JP 05 037873 A (SANYO ELECTRIC CO LTD), 12 February 1993 (1993-02-12) abstract	44

Universal Remote Control Exhibit: 1002 Page 000237

INTERN ONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/US 00/04407

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9843158 A	01-10-1998	US 6002450 A	14-12-1999
		AU 6582298 A	20-10-1998
		CN 1251182 T	19-04-2000
		EP 0970418 A	12-01-2000
US 5410326 A	25-04-1995	NONE	
JP 05037873 A	12-02-1993	NONE	

I Basis of the opinion

1 This opinion 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 opinion as originally filed*)

Description, pages

1 28 as originally filed

Claims, No

1 52 as originally filed

Drawings, sheets

1/16 16/16 as originally filed

2 With regard to the **language** all the elements marked above were available or furnished to this Authority in the language in which the international application was filed unless otherwise indicated under this item

These elements were available or furnished to this Authority in the following language which is

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23 1(b))
- ☐ the language of publication of the international application (under Rule 48 3(b))
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55 2 and/or 55 3)

3 With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application the international preliminary examination was carried out on the basis of the sequence listing

- ☐ contained in the international application in written form
- ☐ filed together with the international application in computer readable form
- ☐ furnished subsequently to this Authority in written form
- ☐ furnished subsequently to this Authority in computer readable form
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4 The amendments have resulted in the cancellation of

- ☐ the description pages
- ☐ the claims Nos

Universal Remote Control Exhibit: 1002 Page 000239

☐ the drawings sheets

5 ☐ 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))

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report)

6 Additional observations if necessary

IV Lack of unity of invention

1 In response to the invitation (Form PCT/IPEA/405) to restrict or pay additional fees the applicant has

☐ restricted the claims

☐ paid additional fees

☐ paid additional fees under protest

☒ neither restricted nor paid additional fees

2 ☐ This Authority found that the requirement of unity of invention is not complied with for the following reasons and chose according to Rule 68 1 not to invite the applicant to restrict or pay additional fees

3 Consequently the following parts of the international application were the subject of international preliminary examination in establishing this opinion

☐ all parts

☒ the parts relating to claims Nos 1 22

V Reasoned statement under Rule 66 2(a)(ii) with regard to novelty, inventive step or industrialapplicability, citations and explanations supporting such statement

1 Statement

Novelty (N)	Claims	1 4 7 9 12
Inventive step (IS)	Claims	5 6 8 13 15
Industrial applicability (IA)	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

Universal Remote Control Exhibit: 1002 Page 000240

see separate sheet

VIII Certain observations on the international application

The following observations on the clarity of the claims description and drawings or on the question whether the claims are fully supported by the description are made
see separate sheet

Universal Remote Control Exhibit: 1002 Page 000241

IV Lack of unity of invention

1 The claims of the application appear to relate to at least four different inventions, as follows

a) a remote control for receiving programming guide data and presenting at least part of the data on a display, as defined in claims 1-22,

b) a method whereby a remote control can first select one of a plurality of audio/video devices, whereupon the remote control displays a plurality of control buttons corresponding to respective functions which can be performed by the selected audio/video device, and the user can then activate one particular function by actuating the respective control button, as defined in claims 23-32,

c) a method whereby a remote control receives from an audio/video device the controlling level of a controlling component of that device, the controlling level is displayed by the remote control, a user of the remote control can then adjust the value of the controlling level and the adjusted level is then transmitted to the audio/video device, as defined in claims 33-40, and

d) a method whereby a user of a remote control provides an input corresponding to a display control command, e g a command to display PIP, the remote control analyses the input and translates it to a set of controlling parameters which are then transmitted to a television set so that the latter provides the display desired by the user, as defined in claims 41-52

2 The applicants did not respond to the invitation to restrict or pay additional fees and so the international preliminary examination is being carried out on the basis of the first invention claimed, namely that of claims 1-22

V Reasoned statement under Rule 66 2(a)(ii) PCT

1 Attention is drawn to

D1 = WO98/43158

Universal Remote Control Exhibit: 1002 Page 000242

which discloses a remote control for controlling a TV set (see paragraph bridging pages 6 and 7), the remote control having a receiver for receiving electronic program guide data from the TV set (again see paragraph bridging pages 6 and 7, and also page 7 at lines 15 19), the remote control having a memory for storing the program guide material (see page 7 at lines 9 11), the remote control having a display for display of the program guide material (page 7 at lines 18,19), the display being a touch-screen display (page 8 at line 7), and the remote control being programmable (see page 4 at lines 14 and 20,21, and page 6 at line 28) It follows that the subject matter of claims 1-4, 7 and 9-12 is not new

2 The subject matter of claims 5, 6, 13 and 14 is simply a case of applying trendy new ideas to a known remote control and so must be considered to lack inventive step

2 1 The feature introduced by claims 6 and 14 is in any event known from

D2 = US 5,410,326

(see column 30 at lines 54-57) and so the subject matter of claims 6 and 14 must be considered obvious on the basis of a combination of D1 and D2

3 So far as the feature introduced by claims 8 and 15 is concerned there really are only two possibilities - either the programming guide data is transmitted to the remote control as it is received by the TV set, or it is stored in the TV set for transfer to the remote control at a later time The subject matter of claims 8 and 15 must therefore be considered obvious to the person skilled in the art

VII Certain defects in the international application

1 The independent claims should be drafted in two part form with respect to the disclosure of D1 {Rule 6 3(b)}

2 The description should cite D1 and indicate the background art disclosed therein {Rule 5 1(a)(ii)}

3 The Summary of the Invention on pages 2 and 3 should be revised to ensure compliance with Rule 5 1(a)(iii)

Universal Remote Control Exhibit: 1002 Page 000243

VIII Certain observations on the international application

Independent claim 16 covers the case where the programming guide data is displayed not on a display of the remote control but on the display screen of the television This is the arrangement disclosed at the top of page 8, where it is clear that the television display is used instead of the remote control display, not in addition to it Dependent claims 17, 18, 20 and 21 seek protection for a system where the programming guide data is displayed both on the television screen and on a display of the remote control These claims are thus not supported by the description {Article 6}

Universal Remote Control Exhibit: 1002 Page 000244

Transaction History Date 2001-10-31
Date information retrieved from USPTO Patent Application Information Retrieval (PAIR) system records at www.uspto.gov

BEST COPY

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address COMMISSIONER OF PATENTS AND TRADEMARKS
Washington D C 20231

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO

EXAMINER	
ART UNIT	PAPER NUMBER

DATE MAILED

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

Commissioner of Patents and Trademarks

PTO 90C (Rev 11/00)

1 File Copy

Universal Remote Control Exhibit: 1002 Page 000245

Office Action Summary	Application No	Applicant(s)	
	09/277 887	HERZ WILLIAM S	
	Examiner	Art Unit	
	Paulos M Natnael	2614	

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 *16 July 2001*

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) *1,6,8,9,16-22,30,33-40,43 and 45-52* is/are pending in the application

4a) Of the above claim(s) _____ is/are withdrawn from consideration

5)☐ Claim(s) *1,6,8,9,20,30,33 40,43 and 45 52* is/are allowed

6)☐ Claim(s) *16 19,21-22* 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 Draftsperson s Patent Drawing Review (PTO 948)
3) ☐ Information Disclosure Statement(s) (PTO 1449) Paper No(s) _____
4) ☐ Interview Summary (PTO 413) Paper No(s) _____
5) ☐ Notice of Informal Patent Application (PTO 152)
6) ☐ Other

Universal Remote Control Exhibit: 1002 Page 000246

DETAILED ACTION

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 negatived by the manner in which the invention was made

2 Claims **16-19** are **again** rejected under 35 U S C 103(a) as being unpatentable over Darbee et al , U S Patent No 6,130,726

Considering claim **16**, Darbee et al discloses the following claimed subject matter, note, b) the claimed remote control comprising a second transceiver for receiving the television programming guide data from the television, a remote control memory couple to the second transceiver for storing said television programming guide data provided by the television, and a controller for retrieving at least a portion of the television programming guide data stored in the remote control memory, said second transceiver providing said at least a portion of the television programming guide data to the television through the first transceiver is met by remote control 26 (Fig 2), which comprises transceivers 34/35 and 48 and memories 36 and 42 (See Abstract and Col 8, lines 47-53)

Except for,

Universal Remote Control Exhibit: 1002 Page 000247

a) the claimed television comprising a first transceiver, a data capturer for capturing television programming guide data from an input, and display screen,

c) the claimed wherein said at least a portion of the television programming guide data is displayed by said display screen of the television from the remote control memory

Regarding a), Darbee does not specifically disclose a television comprising a first transceiver, a data capturer for capturing television programming guide data from an input, and display screen However, Examiner takes Official Notice here in that such a television is well known in the art and therefore would have been obvious to the skilled in the art

Regarding c), Darbee discloses that the system is capable of transmitting EPG and other data to/from television and other electronics devices (Col 8, lines 47-53), therefore, it would have been obvious to the skilled in the art in that the system of Darbee would also be capable of displaying a portion of the television programming guide data on the television display screen from memory of the remote control

Considering claim **17**, the claimed touch screen display for displaying said at least a portion of the television programming,

Darbee discloses and LCD display Darbee does not specifically disclose a touch screen display However, touch screen display devices are well known in the art, and it would have been obvious to the skilled in the art to modify the system of Darbee

Considering claim **18**, see rejection of claim 17

Considering claim **19**, the claimed wherein said television programming guide is electronic programming guide is met by Figs 5-34

3 Claims **21-22 are** rejected under 35 U S C 103(a) as being unpatentable over Darbee et al , U S Patent No 6,130,726 in view of Croy et al U S Patent No 6,040,829

Considering claim **21**, Darbee discloses all claimed subject matter except for,

a) the claimed voice recognition interface responsive to a voice input to select the portion of the stored programming guide data that is displayed

Darbee does not disclose voice recognition interface however voice recognition is well known in the art Croy et al for example teaches that "active display areas (stylus or finger touch selection) and/or **voice input**" (Col 7, lines 28-36) could be used as methods of selection Therefore, it would have been obvious to the skilled in the art to provide a voice recognition mechanism as taught by Croy et al to modify the system of Darbee in order to provide the capability of voice input to select the portion of the stored programming guide data

Considering claim **22**, the claimed wherein the television provides the television programming guide data to the remote control whenever the television programming guide data is received by the television is met by the disclosure that "advertising or other content" is "broadcast by the host system to a group of remote control units" (Col 10, lines 41-43, see also col 8, lines 47-54)

Response to Arguments

4 Applicant's arguments filed July 19, 2001 have been fully considered The rejections of claims **1,20,30** have been overcome by the amendment

Applicant's Arguments

The Official Notice expressed by the first paragraph of page 9 of the Office Action, it is respectfully submitted, makes a particularly large leap It is there alleged that it would have been obvious to use the transmitting capability of Darbee's remote to the display programming guide data from the remote's memory on the television screen, without any supporting evidence of this "fact" having been cited There is not even allegation that Darbee's remote transmits anything from its memory for display on the television screen Indeed, Darbee's emphasis is on transmitting information the other way, from the television to the remote, in order to display information on the remote Particularly for this reason, no prima facie case of obviousness of claim 16 has been made

Universal Remote Control Exhibit: 1002 Page 000250

Examiner Response

It is well-known that a remote control controls the operation of an appliance such as a TV, VCR etc In that regard Darbee discloses that "the present invention is directed to a remote control unit having the ability to control a selection of both television and Internet content for depiction on an associated monitor or other display " (col 2, lines 56-59) "Such a remote control also preferably includes **a processing unit and programming for selecting subsets of stored content data, to be depicted on the display** (Col 2, lines 63 65) Darbee does not go into details to explain the capability of the remote control having a processing unit and programming for selecting subsets of stored content data, to be depicted on the display because "Darbee's emphasis is on transmitting information the other way, from the television to the remote, in order to display information on the remote" However, it is obvious that the Darbee "remote control also preferably includes a processing unit and programming for selecting subsets of stored content data, to be depicted on the display" If the remote control of Darbee is capable of processing, programming and selecting data stored in the memory of the remote control to send it to the display, it would be obvious that the remote control is capable to send the same to a television display using its transceivers, either the IR or the RF wireless link As noted above, remote control controls the operation of an appliance such as a TV, VCR etc , and as admitted by Applicant transmitting information the other way, i e , from the television to the remote is disclosed by Darbee

Allport, U S Pat No **6,097,441**, discloses a system for dual-display interaction with integrated television and Internet content, including a hand-held and portable remote control Specifically, Allport discloses that the display 15 of the remote control "must be capable of displaying full motion video, such as the images produced by broadcast TV signals " (Col 6, lines 18-20) And the "**function of one of the buttons on the remote control 10 in this application may be to swap the images shown on the displays** " (Col 7, lines 5-7) This clearly means the images including "downloaded information such as TV schedules" that are stored in flash ROM (col 15, lines 36-40) displayed on the display 15 of the remote control 10 could be transmitted to the TV and displayed on the TV screen

Therefore, the conclusion that was "expressed by the first paragraph of page 9 of the Office Action" is well within the boundaries of the principle of Official Notice as used for instances well known in the art

Allowable Subject Matter

5 Claims **1, 6, 8, 9, 20, 30, 33-40, 43, and 45-52** are allowed

6 The following is a statement of reasons for the indication of allowable subject matter The prior fails to disclose, a remote control system comprising a handwriting recognition interface responsive to handwriting on the touch screen display, as in claims **1, 20, and 30**

Universal Remote Control Exhibit: 1002 Page 000252

A method for a remote control to communicate with audio/video devices, wherein each audio/video devices comprising a controlling components, wherein each of the controlling components is set at a controlling level, comprising transmitting the controlling level of the selected controlling component from the audio/video device to the remote control, displaying the selected controlling level, and adjusting the selected controlling level using the user interface, and transmitting the controlling level of the selected controlling level from the remote to the audio/video device to adjust the corresponding component, as in claims **33** and **37**

A method for a remote control to adjust the display properties of a screen of a television, said remote control including a user interface, comprising a display screen, wherein the display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen, as in claims **43** and **45**

Conclusion

7 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

Allport, U S Pat No 6,104,334 discloses portable Internet-enabled controller and information browser for consumer devices

8 **THIS ACTION IS MADE FINAL** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1 136(a)

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1 136(a) will be calculated from the mailing date of the advisory action In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Paulos Natnael** whose telephone number is **(703) 305-0019** The examiner can normally be reached on **Monday through Thursday** from **8 00 a M** to **5 00 p m** The examiner can also be reached on alternate **Fridays**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Reinhard Eisenzopf**, can be reached on **(703)305-4711**

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is **(703)305-3900**

Any response to this action should be mailed to

Commissioner of Patents and Trademarks

Washington, D C 20231

or faxed to

(703) 872-9314, (for formal communications intended for entry)

or

(703)872-9314 (for informal or draft communications, please label "PROPOSED" OR "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, V A Sixth Floor (Receptionist)

Paulos M Natnael

October 26, 2001

REINHARD J EISENZOPF 10-30-01
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Notice of References Cited	Application/Control No 09/277 887	Applicant(s)/Patent Under Reexamination HERZ WILLIAM S	
	Examiner Paulos M Natnael	Art Unit 2614	Page 1 of 1

U S PATENT DOCUMENTS

*		Document Number Country Code Number Kind Code	Date MM YYYY	Name	Classification	
	A	US 6097441	08 2000	Allport	348	552
	B	US 6104334	08 2000	Allport	341	175
	C	US				
	D	US				
	E	US				
	F	US				
	G	US				
	H	US				
	I	US				
	J	US				
	K	US-				
	L	US				
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FOREIGN PATENT DOCUMENTS

*		Document Number Country Code Number Kind Code	Date MM YYYY	Country	Name	Classification	
	N						
	O						
	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

Universal Remote Control Exhibit: 1002 Page 000256

01-02-02 [illegible]

GP/2614

Three Embarcadero Ctr
28th Floor
San Francisco
California 94111
T 415 217-6000
F 415-434-0646
Austin TX
San Jose CA
Newport Beach CA

skjerven morrill
macpherson LLP

#17 Rec'd 1-8-02

OIPE
DEC 27 2001
JC55
PATENT & TRADEMARK OFFICE

Docket No M-10880 US

December 27, 2001

RECEIVED
JAN 04 2002
TC 1700

Box Amendments
Commissioner For Patents
Washington, D C 20231

Re	Applicant(s)	William S Herz	
	Assignee	Zilog, Inc	
	Title	Method and Apparatus for an Intuitive Universal Remote Control	
	Serial No	09/277,887	
	Examiner	P Natnael	Filed March 29, 1999
	Docket No	**M-10880 US**	Group Art Unit 2614

RECEIVED
JAN 07 2002
Technology Center 2600

Dear Sir

Transmitted herewith are the following documents in the above-identified application

(1) Return Receipt Postcard,
(2) This Transmittal Letter (in duplicate), and
(3) Responsive Amendment

No additional fee is required However, the Commissioner is hereby authorized to charge any additional fees required and/or credit any overpayment to our Deposit Account No 19-2386

EXPRESS MAIL LABEL NO

EL751262849US

Respectfully submitted,

Gerald P Parsons
Reg No 24,486

Dec 27, 2001
Date

832273 v1

Universal Remote Control Exhibit: 1002 Page 000257

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28th Floor
San Francisco
California 94111
T 415 217-6000
F 415-434-0646
Austin TX
San Jose CA
Newport Beach CA
skjerven morrill
macpherson

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DEC 27 2001
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Docket No M 10880 US

December 27, 2001

Box Amendments
Commissioner For Patents
Washington, D C 20231

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JAN 07 2002
Technology Center 2600

Re	Applicant(s)	William S Herz	
	Assignee	Zilog, Inc	
	Title	Method and Apparatus for an Intuitive Universal Remote Control	
	Serial No	09/277,887	
	Examiner	P Natnael	Filed March 29, 1999
	Docket No	**M-10880 US**	Group Art Unit 2614

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EL751262849US

Respectfully submitted,

Gerald P Parsons
Reg No 24,486

Dec 27, 2001
Date

COPY

832273 v1

Universal Remote Control Exhibit: 1002 Page 000258

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s)	William S Herz		
Assignee	Zilog, Inc		
Title	Method and Apparatus for an Intuitive Universal Remote Control		
Serial No	09/277,887	Filing Date	March 29 1999
Examiner	P Nathnael	Group Art Unit	2614
Docket No	M-10880 US		

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DEC 2 7 2001
PATENT & TRADEMARK OFFICE

San Francisco, California
December 27, 2001

BOX AMENDMENTS
COMMISSIONER FOR PATENTS
Washington, D C 20231

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JAN 0 7 2002
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Date
PMN
1/10/02

RESPONSIVE AMENDMENT

Dear Sir

In response to the Office Action dated October 31, 2001, cancel the rejected claims 16 19, 21 and 22, without prejudice to pursuing them in a continuation application Since all the remaining claims have been allowed, a formal Notice of Allowance is solicited

EXPRESS MAIL LABEL NO

EL751262849US

Respectfully submitted,

Gerald P Parsons
Reg No 24,486

Dec 27, 2001
Date

LAW OFFICES OF
SKJERVEN MORRILL
MACPHERSON

2 METRO DRIVE
SUITE 700
SAN JOSE CA 95110
(408) 453 9200
FAX (408) 453 7979

Universal Remote Control Exhibit: 1002 Page 000259

Transaction History Date 2002-01-14
Date information retrieved from USPTO Patent Application Information Retrieval (PAIR) system records at www.uspto.gov

Notice of Allowability	Application No	Applicant(s)	
	09/277 887	HERZ WILLIAM S	
	Examiner	Art Unit	
	Paulos M Natnael	2614	

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 Dec 27,2001*

2 ☒ The allowed claim(s) is/are *1,6,8,9,20,30,33-40,43 and 45-52, renumbered as 1 23*

3 ☐ The drawings filed on _____ 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 top margin (not the back) of each sheet The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson

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)
2☐ Notice of Informal Patent Application (PTO 152)
3☐ Notice of Draftperson s Patent Drawing Review (PTO 948)
4☐ Interview Summary (PTO-413) Paper No ____
5☐ Information Disclosure Statements (PTO 1449) Paper No ____
6☐ Examiner s Amendment/Comment
7☐ Examiner s Comment Regarding Requirement for Deposit of Biological Material
8☒ Examiner s Statement of Reasons for Allowance
9☐ Other

Universal Remote Control Exhibit: 1002 Page 000260

DETAILED ACTION

Allowable Subject Matter

1 Claims **1, 6, 8, 9, 20, 30, 33-40, 43, and 45-52** are allowed

2 The following is a statement of reasons for the indication of allowable subject matter The prior fails to disclose a remote control system comprising a handwriting recognition interface responsive to handwriting on the touch screen display, as in claims **1, 20, and 30**

A method for a remote control to communicate with audio/video devices, wherein each audio/video devices comprising a controlling components, wherein each of the controlling components is set at a controlling level, comprising transmitting the controlling level of the selected controlling component from the audio/video device to the remote control, displaying the selected controlling level, and adjusting the selected controlling level using the user interface, and transmitting the controlling level of the selected controlling level from the remote to the audio/video device to adjust the corresponding component, as in claims **33** and **37**

A method for a remote control to adjust the display properties of a screen of a television, said remote control including a user interface, comprising a display screen, wherein the display screen comprises an emulated picture-in-picture window corresponding to the picture-in-picture window screen, as in claims **43** and **45**

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Paulos Natnael** whose telephone number is **(703) 305-0019** The examiner can normally be reached on **Monday through Thursday** from **8 00 a M** to **5 00 p m** The examiner can also be reached on alternate **Fridays**

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John Miller**, can be reached on **(703)305-4795**

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is **(703)305-3900**

Any response to this action should be mailed to

Commissioner of Patents and Trademarks

Washington, D C 20231

or faxed to

(703) 872-9314, (for formal communications intended for entry)

or

Universal Remote Control Exhibit: 1002 Page 000262

(703)872-9314 (for informal or draft communications, please label "PROPOSED" OR "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, V A Sixth Floor (Receptionist)

Paulos M Natnael

January 10, 2002

JOHN W. MILLER
PATENT EXAMINER

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address COMMISSIONER OF PATENTS AND TRADEMARKS
Washington D C 20231
www uspto gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

28345 7590 01/14/2002

GERALD P PARSONS
SKJERVEN MORRILL MACPHERSON LLP
THREE EMBARCADERO CENTER
SUITE 2800
SAN FRANCISCO CA 94111

EXAMINER	
NATNAEL PAULOS M	
ART UNIT	CLASS SUBCLASS
2614	348 734000

DATE MAILED 01/14/2002

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/277 887	03/29/1999	WILLIAM S HERZ	ZILG 189USO	4215

TITLE OF INVENTION METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM

TOTAL CLAIMS	APPLN TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
23	nonprovisional	NO	$1280	$0	$1280	04/15/2002

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 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

B If the status is the same pay the TOTAL FEE(S) DUE shown above

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 Box 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

PTOL 85 (REV 07 01) Approved for use through 01/31/2004

Universal Remote Control Exhibit: 1002 Page 000264

PART B FEE(S) TRANSMITTAL

Complete and mail this form, together with applicable fee(s), to

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Washington, D C 20231

MAILING INSTRUCTIONS This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required) Blocks 1 through 4 should be completed where appropriate All further correspondence including the Patent advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1 by (a) specifying a new correspondence address and/or (b) indicating a separate FEE ADDRESS for maintenance fee notifications

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28345 7590 01/14/2002

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SKJERVEN MORRILL MACPHERSON LLP
THREE EMBARCADERO CENTER
SUITE 2800
SAN FRANCISCO CA 94111

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Certificate of Mailing

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above on the date indicated below

(Depos t m)
(S gnature)
(D te)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/277 887	03/29/1999	WILLIAM S HERZ	ZILG 189USO	4215

TITLE OF INVENTION METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM

TOTAL CLAIMS	APPLN TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
23	nonprovisional	NO	$1280	$0	$1280	04/15/2002

EXAMINER	ART UNIT	CLASS SUBCLASS
NATNAEL PAULOS M	2614	348 734000

1 Change of correspondence address or indication of Fee Address (37 CFR 1 363) Use of PTO form(s) and Customer Number are recommended but not required

❑ 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) attached

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 Commissioner is hereby authorized by charge the required fee(s) or credit any overpayment to Deposit Account Number _____(enclose an extra copy of this form)

The COMMISSIONER OF PATENTS AND TRADEMARKS 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)

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

Burden Hour Statement This form is estimated to take 0 2 hours to complete Time will vary depending on the needs of the individual case Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, United States Patent and Trademark Office Washington D C 20231 DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS SEND FEES AND THIS FORM TO Box Issue Fee Assistant Commissioner for Patents Washington D C 20231

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Universal Remote Control Exhibit: 1002 Page 000265

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W hington D C 20231
www pto g

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/277 887	03/29/1999	WILLIAM S HERZ	ZILG 189USO	4215

28345 7590 01/14/2002

GERALD P PARSONS
SKJERVEN MORRILL MACPHERSON LLP
THREE EMBARCADERO CENTER
SUITE 2800
SAN FRANCISCO CA 94111
UNITED STATES

EXAMINER	
NATNAEL PAULOS M	
ART UNIT	PAPER NUMBER
2614	

DATE MAILED 01/14/2002

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 days 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)

PTOL 85 (REV 07 01) Approved for use through 01/31/2004

Universal Remote Control Exhibit: 1002 Page 000266

Transaction History Date 2002-04-09
Date information retrieved from USPTO Patent Application Information Retrieval (PAIR) system records at www.uspto.gov

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CURRENT CORRESPONDENCE ADDRESS (Note Legibly mark up with any corrections or use Block 1)

28345 7590 01/14/2002

GERALD P PARSONS
SKJERVEN MORRILL MACPHERSON LLP
THREE EMBARCADERO CENTER
SUITE 2800
SAN FRANCISCO, CA 94111

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Certificate of Mailing

~~I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above, on the date indicated below.~~ EXPRESS MAIL NO EV019955861US

Brenda Dolly (Depositor's name)
Brenda Dolly (Signature)
April 9, 2002 (Date)

APPLICATION NO	FILING DATE		FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/277 887	03/29/1999		WILLIAM S HERZ	ZILG 189USO	4215

TITLE OF INVENTION METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM

TOTAL CLAIMS	APPLN TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
23	nonprovisional	NO	$1280	$0	$1280	04/15/2002

EXAMINER	ART UNIT	CLASS-SUBCLASS
NATNAEL, PAULOS M	2614	348 734000

1 Change of correspondence address or indication of Fee Address (37 CFR 1 363) Use of PTO form(s) and Customer Number are recommended, but not required

☐ 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) attached.

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 Skjerven Morrill MacPherson LLP
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: Zilog, Inc

(B) RESIDENCE (CITY and STATE OR COUNTRY): San Jose, California

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.

XX ☐ Issue Fee
☐ Publication Fee
XX ☐ Advance Order # of Copies 10

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
XX ☐ The Commissioner is hereby authorized by charge the required fee(s) or credit any overpayment, to Deposit Account Number 19-2386 (enclose an extra copy of this form)

The COMMISSIONER OF PATENTS AND TRADEMARKS 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) Gerald P Parsons (Date) April 9, 2002

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

Burden Hour Statement: This form is estimated to take 0.2 hours to complete Time will vary depending on the needs of the individual case Any comments on the amount of time required to complete this form should be sent to the Chief Information Officer, United States Patent and Trademark Office Washington, D C 20231 DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS SEND FEES AND THIS FORM TO Box Issue Fee, Assistant Commissioner for Patents, Washington, D C 20231

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02 FC 561 30 00 CH

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PTOL-85 (REV 07-01) Approved for use through 01/31/2004 OMB 0651-0033 U S Patent and Trademark Office U S DEPARTMENT OF COMMERCE

File History Content Report

The following content is missing from the original file history record obtained from the United States Patent and Trademark Office. No additional information is available.

Document Date - 2002-06-18

Document Title - USPTO Grant

This page is not part of the official USPTO record. It has been determined that content identified on this document is missing from the original file history record.

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313 1450
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Patent #6407779

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY DOCKET NO /TITLE
09/277 887	03/29/1999	WILLIAM S HERZ	ZILG 189USO

CONFIRMATION NO 4215

POWER OF ATTORNEY NOTICE

28345
GERALD P PARSONS
SKJERVEN MORRILL LLP
THREE EMBARCADERO CENTER
SUITE 2800
SAN FRANCISCO CA 94111

Date Mailed 07/28/2009

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 07/23/2009

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)

/jtfitzhugh sr/

Office of Data Management Application Assistance Unit (571) 272 4000 or (571) 272 4200 or 1 888 786 0101

Universal Remote Control Exhibit: 1002 Page 000269

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Alexandria VA 22313 1450
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Universal Remote Control Exhibit: 1002 Page 000270

PATENT APPLICATION FEE DETERMINATION RECORD
Effective November 10, 1998

Application or Docket Number: 09/714,257

CLAIMS AS FILED - PART I

	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA
FOR		
BASIC FEE		
TOTAL CLAIMS	52 minus 20=	* 32
INDEPENDENT CLAIMS	8 minus 3 =	* 5
MULTIPLE DEPENDENT CLAIM PRESENT		

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
	380 00	OR		760 00
X$ 9=		OR	X$18=	576
X39=		OR	X78=	390
+130=		OR	+260=	
TOTAL		OR	TOTAL	1726

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

CLAIMS AS AMENDED - PART II

AMENDMENT A

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 52	Minus	** 52	=
Independent	* 8	Minus	*** 8	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT FEE		OR	TOTAL ADDIT FEE	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 52	Minus	** 52	=
Independent	* 8	Minus	*** 8	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT FEE		OR	TOTAL ADDIT FEE	

AMENDMENT C

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	* 41	Minus	** 52	=
Independent	* 7	Minus	*** 8	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X39=		OR	X78=	
+130=		OR	+260=	
TOTAL ADDIT FEE		OR	TOTAL ADDIT FEE	

* 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

FORM PTO-875
(Rev 11/98)

Patent and Trademark Office U S DEPARTMENT OF COMMERCE
☆U S GPO 1998 454 473/90301

Universal Remote Control Exhibit: 1002 Page 000271

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MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET

(FOR USE WITH FORM PTO 875)

SERIAL NO: 09/277,887

FILING DATE:

APPLICANT(S):

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT			*		*		*	
	IND	DEP	IND	DEP	IND	DEP		IND	DEP	IND	DEP	IND	DEP
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2							52						
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50							100						
TOTAL IND							TOTAL IND	8					
TOTAL DEP							TOTAL DEP	44					
TOTAL CLAIMS							TOTAL CLAIMS	52					

PTO 1360 (3 78)

MAY BE USED FOR ADDITIONAL CLAIMS OR AMENDMENTS

US DEPARTMENT of COMMERCE
Patent and Trademark Office

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Table of Contents

Family 1/1

3 record(s) per family, collapsed by 2 record(s)

Record 1/2 WO2000059212A3 METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM | PROCEDE ET APPAREIL POUR SYSTEME DE TELECOMMANDE UNIVERSELLE INTUITIVE

Publication Number: WO2000059212A3 20010215
WO2000059212A2 20001005

Title: METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM | PROCEDE ET APPAREIL POUR SYSTEME DE TELECOMMANDE UNIVERSELLE INTUITIVE

Title - DWPI: Universal remote control system for electronic devices e.g. TV, displays at least portion of electronic programming guide data from any one of audio/video device stored in memory, when required

Priority Number: US1999277887A

Priority Date: 1999-03-29

Application Number: WO2000US4407A

Application Date: 2000-02-22

Publication Date: 2001-02-15

IPC Class Table:

IPC	Section	Class	Subclass	Class Group	Subgroup
H04N0005445	H	H04	H04N	H04N0005	H04N0005445
H04N000545	H	H04	H04N	H04N0005	H04N000545
H04N000544	H	H04	H04N	H04N0005	H04N000544

IPC Class Table - DWPI:

IPC - DWPI	Section - DWPI	Class - DWPI	Subclass - DWPI	Class Group - DWPI	Subgroup - DWPI
H04N0005445	H	H04	H04N	H04N0005	H04N0005445
H04N000545	H	H04	H04N	H04N0005	H04N000545
H04N000544	H	H04	H04N	H04N0005	H04N000544

Assignee/Applicant: ZILOG INC.,US

JP F Terms:

JP FI Codes:

Assignee - Original: ZILOG INC.

Any CPC Table:

Type	Invention	Additional	Version	Office
Current	H04N 5/44513	G08C 2201/20	20130101	EP
Current	H04N 5/44543	G08C 2201/31	20130101	EP
Current	H04N 5/44582	G08C 2201/50	20130101	EP
Current	H04N 5/45	G08C 2201/63	20130101	EP
Current	H04N 21/4104	G08C 2201/92	20130101	EP
Current	H04N 21/482	H04N 7/012	20130101	EP
Current	H04N 21/485	H04N 2005/4423	20130101	EP
Current	H04N 21/488	H04N 2005/4435	20130101	EP

ECLA: H04N0021485 | H04N0005445F | H04N0005445M | H04N0005445R | H04N000545 | H04N002141P | H04N0021482 | H04N0021488 | T04N000544R2M | T04N000701G3 | S08C0201200 | S08C0201310 | S08C0201500 | S08C0201630 | S08C0201920 | T04N000544R4

Abstract:

The present invention discloses a novel universal remote control system. Specifically, the remote control system according to the present invention provides the following features: bidirectional communications between the remote control and at least one of the audio/video devices; dual communication mode; automatic communication mode selection; loading and processing electronic program guide in the remote control; soft graphical user interface in the remote control; expanding the television set functions by the remote control; calibration handshake between the remote control and the audio/video device; passive updating the remote control; lost beacon signal in the remote control; handwriting recognition mechanism, and voice recognition mechanism in the remote control.

La présente invention concerne un nouveau système de télécommande universelle. Spécifiquement le système de télécommande de la présente invention présente les caractéristiques suivantes: communications bidirectionnelles entre la télécommande et au moins un des dispositifs audio/vidéo, double mode de communication, sélection automatique du mode de communication, chargement et traitement du guide de programme électronique dans la télécommande, interface utilisateur graphique logicielle dans la télécommande, extension des fonctions du poste de télévision par la télécommande, transfert d'étalonnage entre la télécommande et le dispositif audio/vidéo, mise en jour passive de la télécommande, signal de

balise perdu dans la télécommande, mécanisme de reconnaissance d'écriture manuscrite et mécanisme de reconnaissance vocale dans la télécommande.

Language of Publication: EN

INPADOC Legal Status Table:

Gazette Date	Code	INPADOC Legal Status Impact
2003-03-12	122	-
Description: EP: PCT APP. NOT ENT. EUROP. PHASE		
2001-02-15	AL	+
Description: DESIGNATED COUNTRIES FOR REGIONAL PATENTS WO 0059212 A3 AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE		
2001-02-15	AK	+
Description: DESIGNATED STATES WO 0059212 A3 CN; JP; KR		
2000-11-29	121	-
Description: EP: THE EPO HAS BEEN INFORMED BY WIPO THAT EP WAS DESIGNATED IN THIS APPLICATION		
2000-11-23	DFPE	-
Description: REQUEST FOR PRELIMINARY EXAMINATION FILED PRIOR TO EXPIRATION OF 19TH MONTH FROM PRIORITY DATE (PCT APPLICATION FILED BEFORE 20040101)		
2000-10-05	AL	+
Description: DESIGNATED COUNTRIES FOR REGIONAL PATENTS WO 0059212 A2 AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL; PT; SE		
2000-10-05	AK	+
Description: DESIGNATED STATES WO 0059212 A2 CN; JP; KR		

Post-Issuance (US):

Reassignment (US) Table:

Maintenance Status (US):

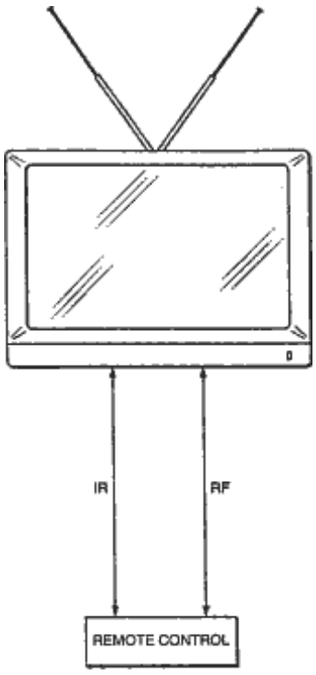
Litigation (US):

Opposition (EP):

License (EP):

EPO Procedural Status:

Front Page Drawing:



Universal Remote Control Exhibit: 1002 Page 000277

Record 2/2 US6407779B1 Method and apparatus for an intuitive universal remote control system

Publication Number: US6407779B1 20020618

Title: Method and apparatus for an intuitive universal remote control system
Title - DWPI: Universal remote control system for electronic devices e.g. TV, displays at least portion of electronic programming guide data from any one of audio/video device stored in memory, when required
Priority Number: US1999277887A
Priority Date: 1999-03-29
Application Number: US1999277887A
Application Date: 1999-03-29
Publication Date: 2002-06-18
IPC Class Table:

IPC	Section	Class	Subclass	Class Group	Subgroup
H04N0005445	H	H04	H04N	H04N0005	H04N0005445
H04N000545	H	H04	H04N	H04N0005	H04N000545
H04N000544	H	H04	H04N	H04N0005	H04N000544

IPC Class Table - DWPI:

IPC - DWPI	Section - DWPI	Class - DWPI	Subclass - DWPI	Class Group - DWPI	Subgroup - DWPI
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H04N000545	H	H04	H04N	H04N0005	H04N000545
H04N000544	H	H04	H04N	H04N0005	H04N000544

Assignee/Applicant: Zilog Inc.,San Jose,CA
JP F Terms:
JP FI Codes:
Assignee - Original: Zilog Inc.
Any CPC Table:

Type	Invention	Additional	Version	Office
Current	H04N 5/44513	G08C 2201/20	20130101	EP
Current	H04N 5/44543	G08C 2201/31	20130101	EP
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Current	H04N 5/45	G08C 2201/63	20130101	EP
Current	H04N 21/4104	G08C 2201/92	20130101	EP
Current	H04N 21/482	H04N 7/012	20130101	EP
Current	H04N 21/485	H04N 2005/4423	20130101	EP
Current	H04N 21/488	H04N 2005/4435	20130101	EP

ECLA: H04N0021485 | H04N0005445F | H04N0005445M | H04N0005445R | H04N000545 | H04N002141P | H04N0021482 | H04N0021488 | T04N000544R2M | T04N000701G3 | S08C0201200 | S08C0201310 | S08C0201500 | S08C0201630 | S08C0201920 | T04N000544R4

Abstract:
The present invention discloses a novel universal remote control system. Specifically, the remote control system according to the present invention provides the following features: bidirectional communications between the remote control and at least one of the audio/video devices; dual communication mode; automatic communication mode selection; loading and processing electronic program guide in the remote control; soft graphical user interface in the remote control; expanding the television set functions by the remote control; calibration handshake between the remote control and the audio/video device; updating the remote control; lost beacon signal in the remote control; handwriting recognition mechanism, and voice recognition mechanism in the remote control.

Language of Publication: EN

INPADOC Legal Status Table:

Gazette Date	Code	INPADOC Legal Status Impact
2013-12-18	FPAY	+
Description: FEE PAYMENT		
2009-12-18	FPAY	+
Description: FEE PAYMENT		
2009-03-04	AS	-
Description: ASSIGNMENT UEI CAYMAN INC.,CALIFORNIA ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ZILOG, INC.; ZILOG INTERNATIONAL, LTD.; REEL/FRAME:022343/0395 2009-02-18		
2005-11-23	FPAY	+
Description: FEE PAYMENT		
1999-05-14	AS	-
Description: ASSIGNMENT ZILOQ, INC., CALIFORNIA ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:HERZ, WILLIAM S.; REEL/FRAME:009977/0047 1999-05-04		

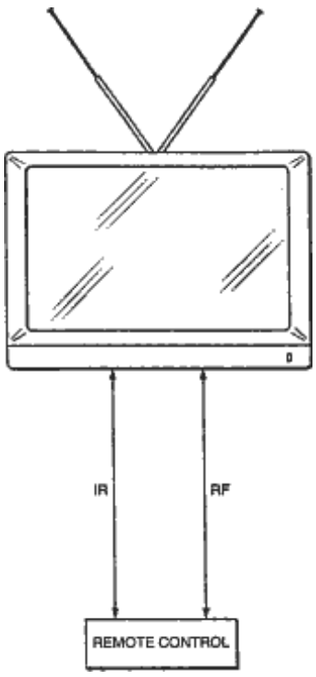
Post-Issuance (US):

Reassignment (US) Table:

Assignee	Assignor	Date Signed	Reel/Frame	Date
UEI CAYMAN INC.,CYPRESS,CA,US	ZILOG, INC.	2009-02-18	022343/0395	2009-03-04
	ZILOG INTERNATIONAL,	2009-02-18		

	LTD.			
Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).				
Corresponent: ROSA BUGARIN - JONES DAY 555 SOUTH FLOWER STREET FIFTIETH FLOOR LOS ANGELES, CA 90071				
ZILOQ INC.,CAMPBELL,CA,US	HERZ, WILLIAM S.	1999-05-04	009977/0047	1999-05-14
Conveyance: ASSIGNMENT OF ASSIGNORS INTEREST (SEE DOCUMENT FOR DETAILS).				
Corresponent: MAJESTIC, PARSONS, SIEBERT & HSUE GERALD P. PARSONS FOUR EMBARCADERO CENTER, SUITE 1100 SAN FRANCISCO, CA 94111				

Maintenance Status (US):
Litigation (US): 2013-06-28 2013 Universal Electronics Inc. Universal Remote Control Inc C.D. California 8:13cv00984
Opposition (EP):
License (EP):
EPO Procedural Status:
Front Page Drawing:



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USPTO Maintenance Report					
Patent Bibliographic Data			02/05/2014 10:17 PM		
Patent Number:	6407779		Application Number:	09277887	
Issue Date:	06/18/2002		Filing Date:	03/29/1999	
Title:	METHOD AND APPARATUS FOR AN INTUITIVE UNIVERSAL REMOTE CONTROL SYSTEM				
Status:	4th, 8th and 12th year fees paid			Entity:	LARGE
Window Opens:	N/A	Surcharge Date:	N/A	Expiration:	N/A
Fee Amt Due:	Window not open	Surchg Amt Due:	Window not open	Total Amt Due:	Window not open
Fee Code:					
Surcharge Fee Code:					
Most recent events (up to 7):	12/18/2013 12/18/2009 09/15/2009 11/23/2005	Payment of Maintenance Fee, 12th Year, Large Entity. Payment of Maintenance Fee, 8th Year, Large Entity. Payor Number Assigned. Payment of Maintenance Fee, 4th Year, Large Entity. --- End of Maintenance History ---			
Address for fee purposes:	Dennemeyer & Co., LLC 120 South LaSalle Street Suite 1405 Chicago IL 60603				