



US006427078B1

(12) **United States Patent**  
**Wilka et al.**

(10) **Patent No.:** **US 6,427,078 B1**  
(45) **Date of Patent:** **Jul. 30, 2002**

(54) **DEVICE FOR PERSONAL COMMUNICATIONS, DATA COLLECTION AND DATA PROCESSING, AND A CIRCUIT CARD**

(75) Inventors: **Kari-Pekka Wilka, Salo; Reijo Paajanen, Tampere; Mikko Terho, Tampere; Jari Hamalainen, Tampere, all of (FI)**

(73) Assignee: **Nokia Mobile Phones Ltd., Salo (FI)**

(\* ) 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.: **08/807,322**

(22) Filed: **Feb. 27, 1997**

**Related U.S. Application Data**

(63) Continuation of application No. 08/444,224, filed on May 18, 1995.

**(30) Foreign Application Priority Data**

Jun. 12, 1995 (FI) ..... 942334

(51) **Int. Cl.<sup>7</sup>** ..... **H04B 1/38**

(52) **U.S. Cl.** ..... **455/550; 455/556; 455/557; 455/558; 348/14.02; 348/231; 348/552**

(58) **Field of Search** ..... 455/90, 403, 550, 455/556, 557, 558, 566, 575; 348/14, 231, 552, 14.01, 14.02, 14.13, 14.14; 395/800.14

**(56) References Cited**

**U.S. PATENT DOCUMENTS**

4,903,222 A 2/1990 Carter et al. .... 364/708  
5,189,632 A \* 2/1993 Paajanen et al. .... 364/705.05  
5,272,598 A 12/1993 Kobayashi et al. .... 361/686  
5,404,580 A \* 4/1995 Simpson et al. .... 455/89  
5,438,359 A \* 8/1995 Aoki ..... 348/207

**FOREIGN PATENT DOCUMENTS**

EP 0 526 802 A2 2/1993  
JP 63151283 A 6/1988  
JP 1160286 A 6/1989  
JP 4170881 A 6/1992  
JP 4295886 10/1992  
JP 6-70314 3/1994  
WO WO92/09169 5/1992 ..... H04N/5/30  
WO WO 94/14274 6/1994  
WO 9607269 A1 \* 3/1996

**OTHER PUBLICATIONS**

Reimer, John, "Memories in My Pocket", Byte, Feb. 1991, pp. 251, 252, 254-256, 258.  
Patent Abstracts of Japan, vol. 17, No. 107 (P-1496) (5736) Mar. 4, 1993, JP-A-4-295886.  
Patent Abstracts of Japan, vol. 18, No. 320 (E-1563) (6660) Jun. 17, 1994, JP-A-6-70314.  
Patent Abstract published in UK, "Lights Camera Multimedia", Network, pp. 56-58, 60, Nov. 1993, K. Young.

\* cited by examiner

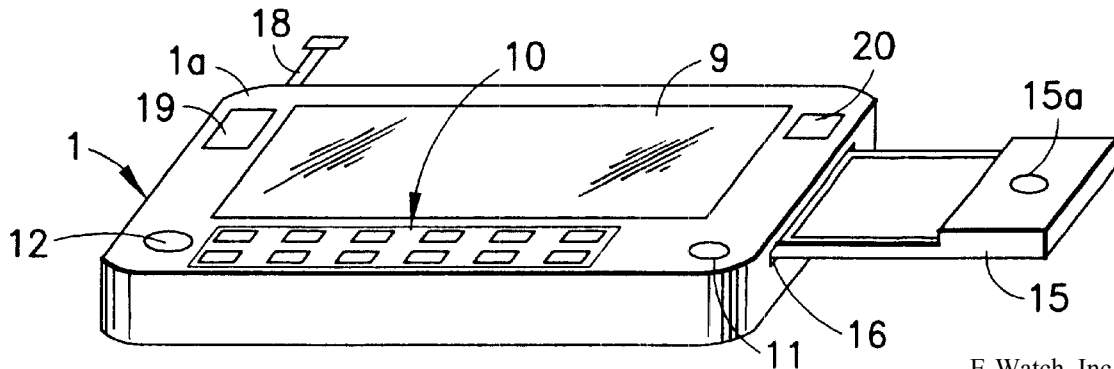
*Primary Examiner*—Nay Maung

(74) *Attorney, Agent, or Firm*—Perman & Green, LLP

**(57) ABSTRACT**

The object of the invention is a device for personal communication, data collection and data processing, which is a small-sized, portable and hand-held work station comprising a data processing unit (2); a display (9); a user interface (10, 11); a number of peripheral device interfaces (12, 17); at least one memory unit (13); a power source, preferably a battery (3); and an application software. According to the invention the device also comprises a camera unit (14). The camera unit (14) comprises a camera (14a), preferably a semiconductor camera, and optics (14b) connected thereto, which are placed in the housing (1) of the device. Alternatively, the camera unit (14) is fitted on a PCMCIA card (15) which can be connected to the PCMCIA card slot (16) of the device. An object of the invention is also a PCMCIA card (15) provided with a camera unit (14).

**76 Claims, 3 Drawing Sheets**



E-Watch, Inc.  
EXH. 2002

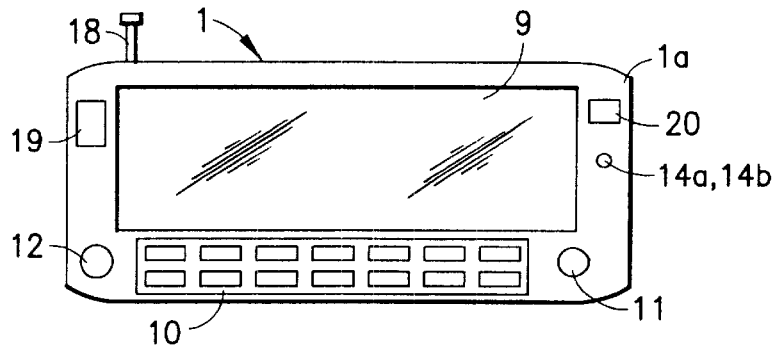


FIG. 1

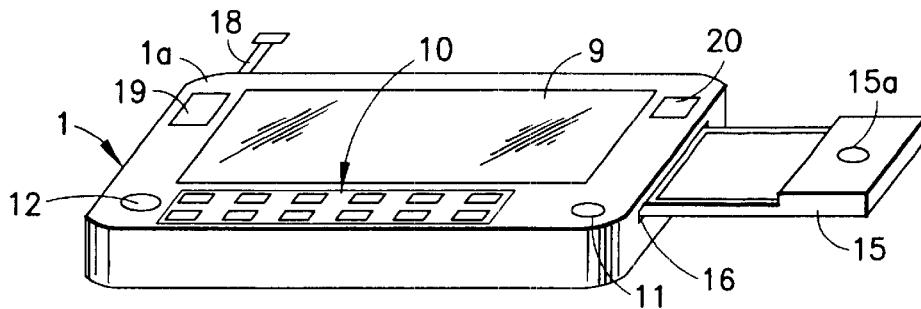


FIG. 2

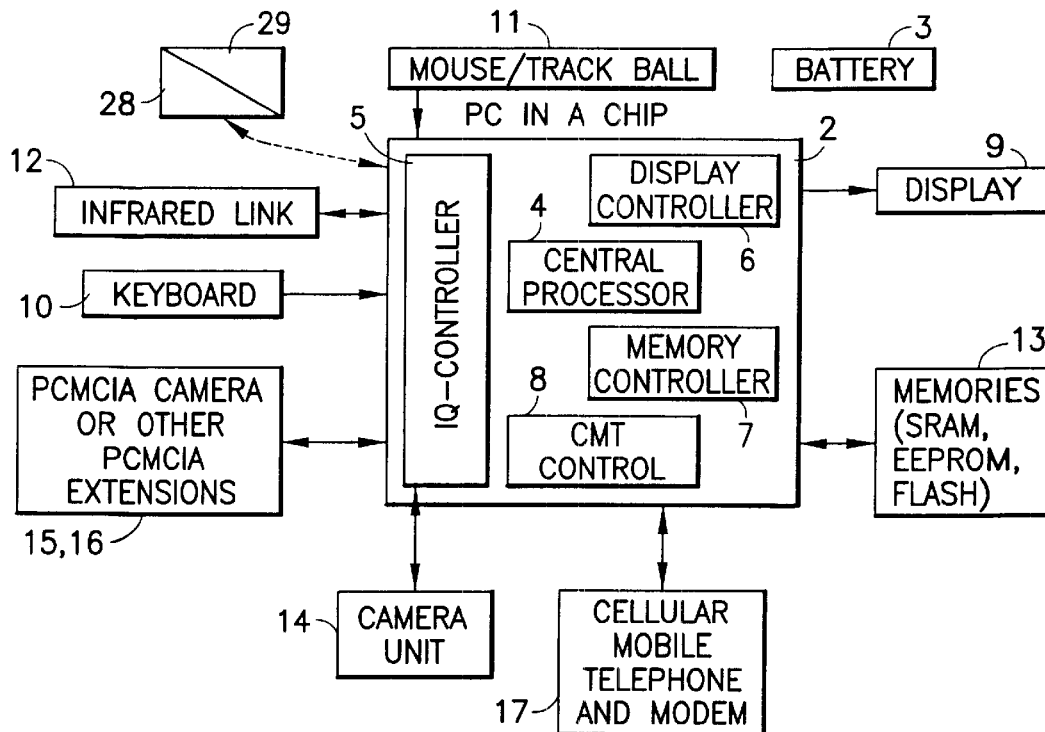


FIG. 3

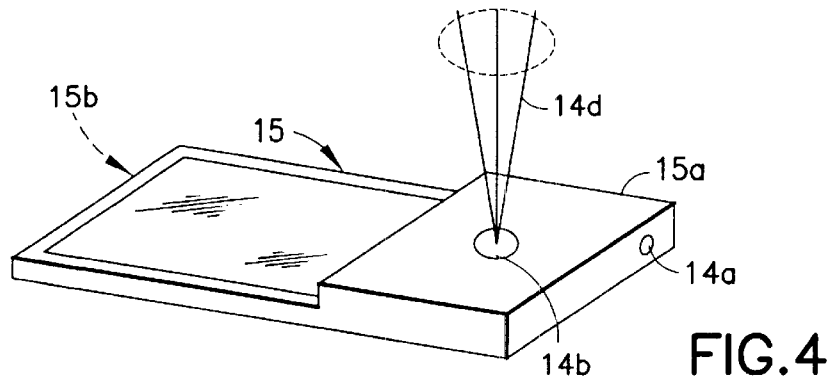


FIG. 4

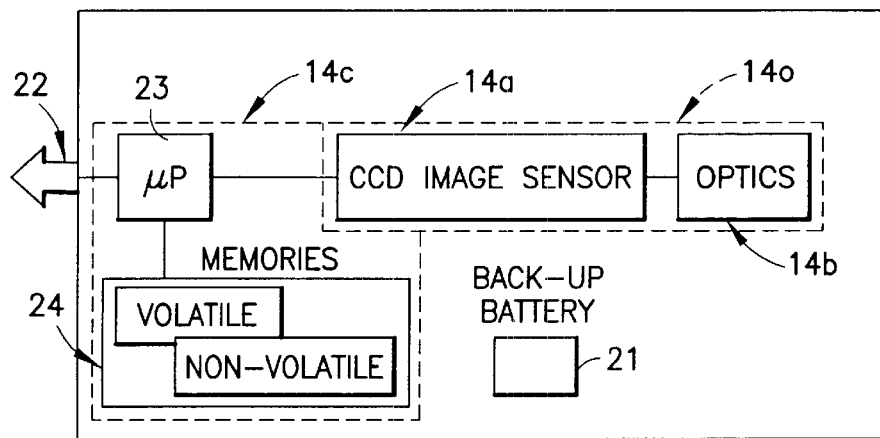


FIG. 5

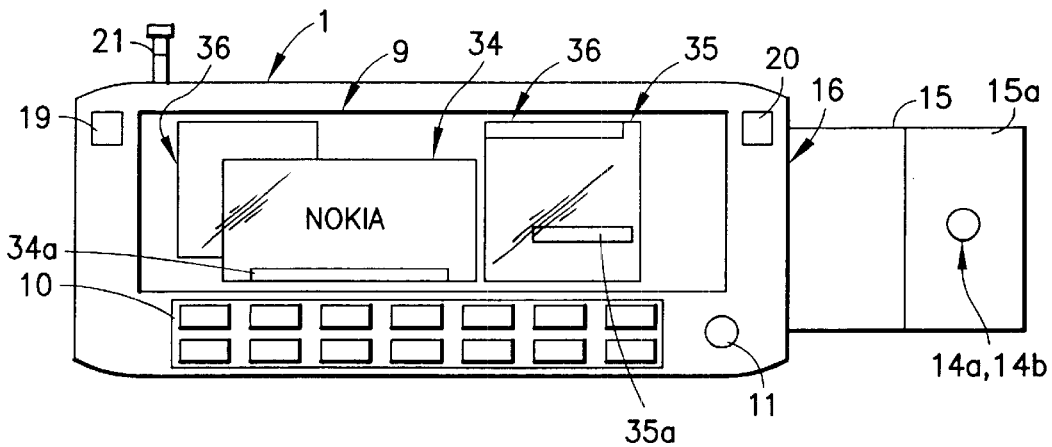
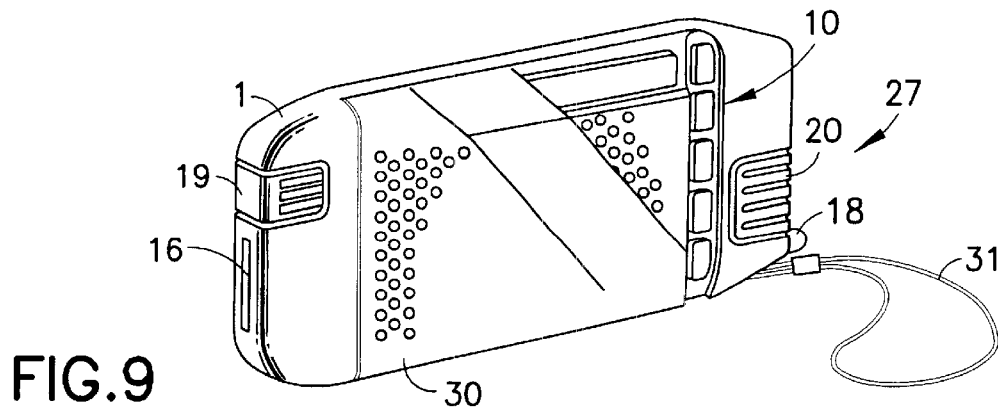
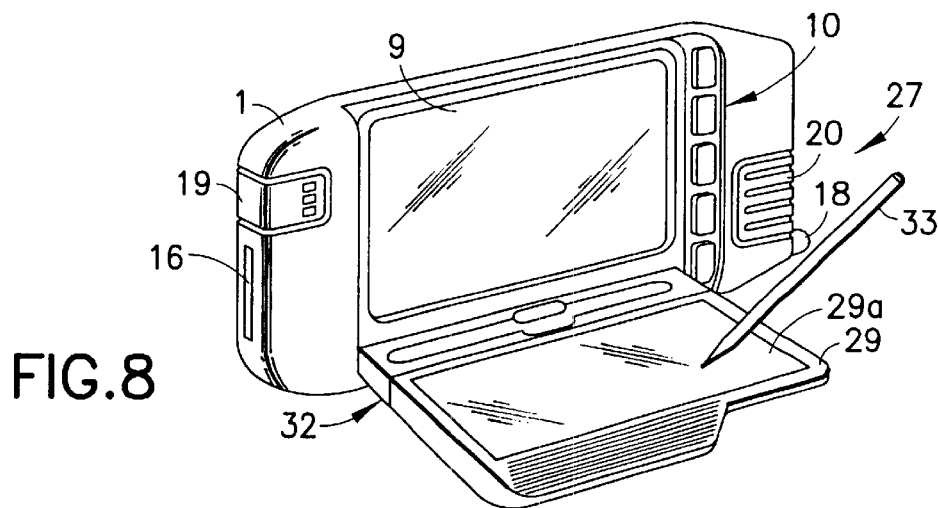
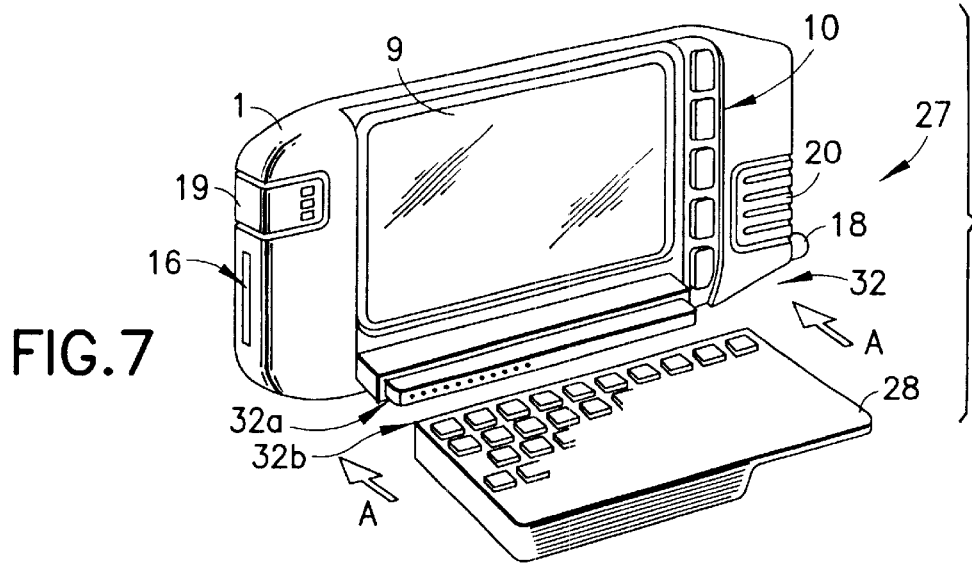


FIG. 6



1

**DEVICE FOR PERSONAL  
COMMUNICATIONS, DATA COLLECTION  
AND DATA PROCESSING, AND A CIRCUIT  
CARD**

This is a continuation of copending application Ser. No. 08/444,224 filed on May 18, 1995.

**BACKGROUND OF THE INVENTION**

The object of the invention is a device according to the introductory part of claim 1 for personal communication, data collection and data processing. The device consists of a small-sized housing comprising a data processing unit which contains a data processor with peripheral circuits and memory units, a display, a user interface, a number of peripheral device interfaces, a power source, preferably a battery, and application software.

Another object of the invention is a circuit card according to the introduction of claim 8 which can be fitted to the card slot arranged in connection with a device intended for personal communication, data collection and processing, in particular.

Personal communication devices and/or mobile organisers, such as notebook computers and the like, known from before, are small, light-weight, portable and hand-held or laptop workstations. A number of accessories and application programs which offer service functions can be installed in such personal devices, when necessary. A such notebook computer is disclosed in international patent application WO-93/14458.

The notebook computer can be equipped with an electronic scanner by means of which both text and figures can be read into the memory of the computer. This helps to eliminate the drawbacks of small keyboards, in particular. Data required in many connections, such as contact information included in business cards, can be read into the memory of the computer. However, electronic scanners comprise fine-mechanical parts which wear and may cause problems. Especially paper feeding arrangements fitted in small notebook computers are problematic.

The general purpose of this invention is to provide a new device for personal communication, data collection and processing which improves communication especially between a user and the device. A special purpose of the invention is to provide a device for personal communication, data collection and processing which makes it possible to collect data efficiently and to communicate with the environment. This is accomplished by the characteristic features of the invention, disclosed in appended claims 1-7.

Another purpose of the invention is to provide a new interface card which makes it possible to improve the data collection systems of small microcomputers, in particular. This is accomplished by the characteristic features of the invention, disclosed in claim 8.

An advantage of the invention is that one and the same device, personal communications, data collection and processing comprises an easy-to-use data collection device, efficient data processing equipment (programs) and data transmission equipment.

**BRIEF DESCRIPTION OF THE DRAWINGS**

The invention is described in the following in more detail with reference to the appended drawings in which:

FIG. 1 shows a device according to the invention for personal communication, data collection and processing, in

2

which the data collection device is implemented by means of an integrated camera unit;

FIG. 2 shows another device according to the invention for personal communication, data collection and processing, in which the data collection device is implemented by a camera unit arranged in a PCMCIA card;

FIG. 3 shows a device for personal communication, data collection and processing, in the form of a block diagram;

FIG. 4 shows a PCMCIA card, i.e., a PCMCIA camera card comprising a camera unit as an essential part thereof;

FIG. 5 shows a block diagram of the camera unit;

FIG. 6 shows a device according to the invention, whose display illustrates an example of an application related to the camera unit;

FIG. 7 shows a device according to the invention for personal communication, data collection and processing, comprising a replaceable keyboard;

FIG. 8 shows a device according to FIG. 7, comprising a digitizer pad instead of the keyboard; and

FIG. 9 shows the device of FIG. 7 when closed.

**DETAILED DESCRIPTION OF THE  
INVENTION**

FIGS. 1 and 2 show two application examples of the device according to the invention for personal communication, data collection and processing. A block diagram of such device is shown in general form in FIG. 3. The device according to the invention is called a notebook computer in the following.

A notebook computer is a small, portable work station. The external dimensions of its housing 1 are preferably in the order of 170 mm×85 mm×30 mm (length×width×height) and the weight 1000 g at the most, preferably 800 g or less. The device is preferably arranged to operate by one or more batteries 3 (FIG. 3) which are fitted replaceably inside housing 1.

The notebook computer comprises data processing unit 2 (FIG. 3) which is preferably arranged on one semiconductor chip. Data processing unit 2 comprises processor 4 which is preferably a low power RISC processor. Data processing unit 2 further comprises input/output controller 5, display controller 6, memory controller 7 and cellular mobile phone controller 8. In addition, data processing unit 2 comprises connection buses and cables between different controllers and the data processor which are not separately shown in the block diagram of FIG. 3.

The notebook computer further comprises display 9 which is arranged, in the application examples of FIGS. 1 and 2, fixedly in connection with housing 1 on large side 1a thereof which is essentially of a rectangular shape. Display 9 is provided, for example, by a liquid crystal display, The resolution of which is at least 640×200 pixels<sup>2</sup> and the dimensions in the order of 130 mm×70 mm. Display 9 is connected to display controller 6.

The notebook computer also comprises keyboard 10 and/or mouse/track ball 11 as a user interface. Keyboard 10 and track ball 11 in this application are arranged fixedly to the notebook computer in the vicinity of display 9. The notebook computer preferably comprises Infrared link 12 by means of which the connection with peripheral devices, such as a printer, another microcomputer or the like is provided. Keyboard 10, mouse/track ball 11 and infrared link 12 are connected to input/output controller 5, as shown in FIG. 3.

The notebook computer further comprises one or more memory units 13. The memory unit can be implemented by

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.