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United States Patent [19]

Mathers et al.

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[45] **Date of Patent: *Jan. 4, 2000**

[54] **SECURITY SYSTEM FOR HARD DISK DRIVE**

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[73] Assignee: **Calluna Technology Limited**, Edinburgh, United Kingdom

[*] Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

[21] Appl. No.: **08/640,919**

[22] PCT Filed: **Nov. 14, 1994**

[86] PCT No.: **PCT/GB94/02508**

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§ 102(e) Date: **Jul. 10, 1996**

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PCT Pub. Date: **May 26, 1995**

[30] **Foreign Application Priority Data**

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[51] **Int. Cl.**[7] **G06F 11/00**; H04L 9/00

[52] **U.S. Cl.** **713/202**; 711/164

[58] **Field of Search** 395/186, 187.01, 395/188.01; 380/4, 25, 3; 713/1, 2, 100; 710/200; 707/9; 705/18; 711/164

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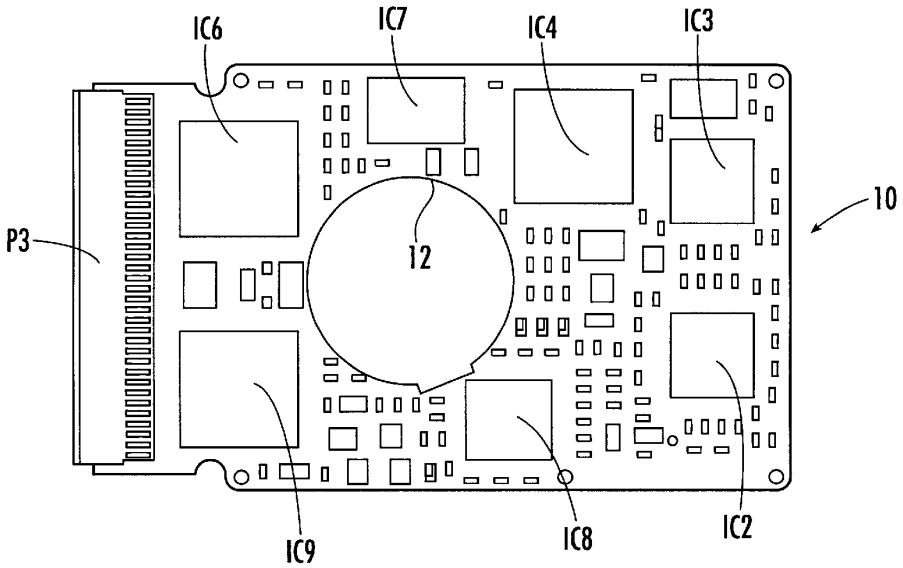
Attorney, Agent, or Firm—Alston & Bird LLP

[57] **ABSTRACT**

A portable hard disk drive has an electrically erasable programmable read-only-memory (EEPROM) for storing a first password for allowing a user access to the disk and a random access memory (RAM) for temporarily storing a password entered by a user. A microprocessor is arranged to compare the user-entered passed with the password stored in the EEPROM and to generate a signal to allow a user access to the disk if a valid match is found and to prohibit access if there is no match.

16 Claims, 4 Drawing Sheets



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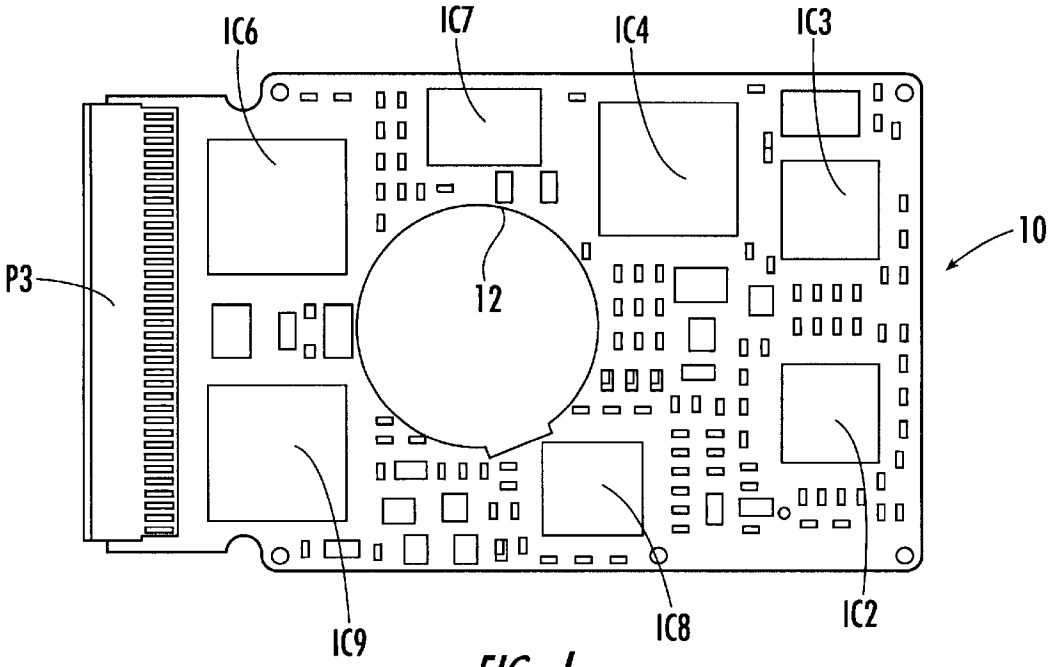

FIG. 1.

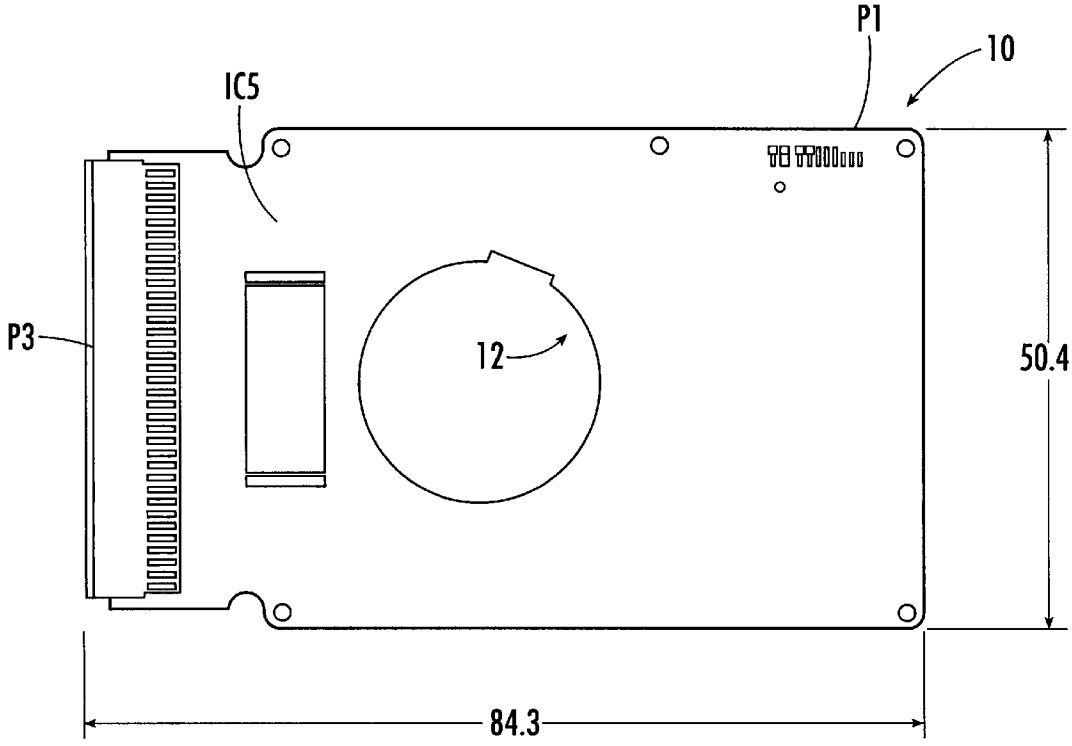

FIG. 2.

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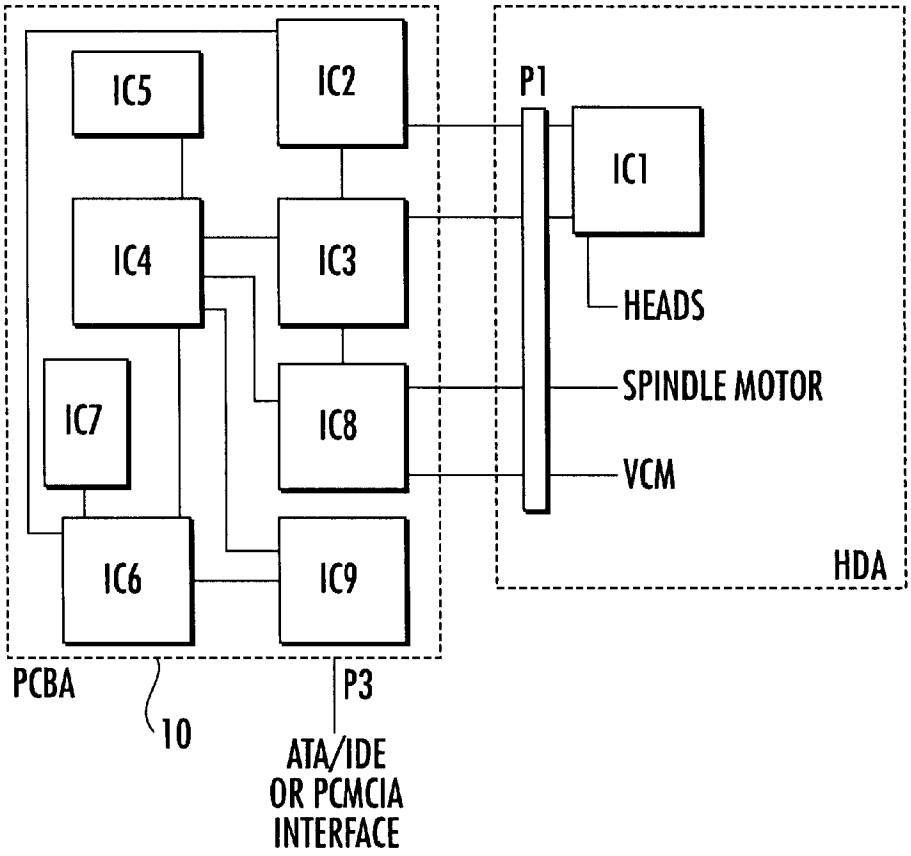

BLOCK NO	FUNCTION
IC1	PRE-AMPLIFIER
IC2	DATA CHANNEL
IC3	MIXED SIGNAL ASIC
IC4	MICRO-PROCESSOR
IC5	FLASH EEPROM
IC6	INTERFACE
IC7	RAM
IC8	MOTOR/VCM DRIVER/CONTROLLER
IC9	INTERFACE (PCMCIA)
P1	ELASTOMERIC CONNECTOR
P3	68 WAY CONNECTOR

FIG. 3.

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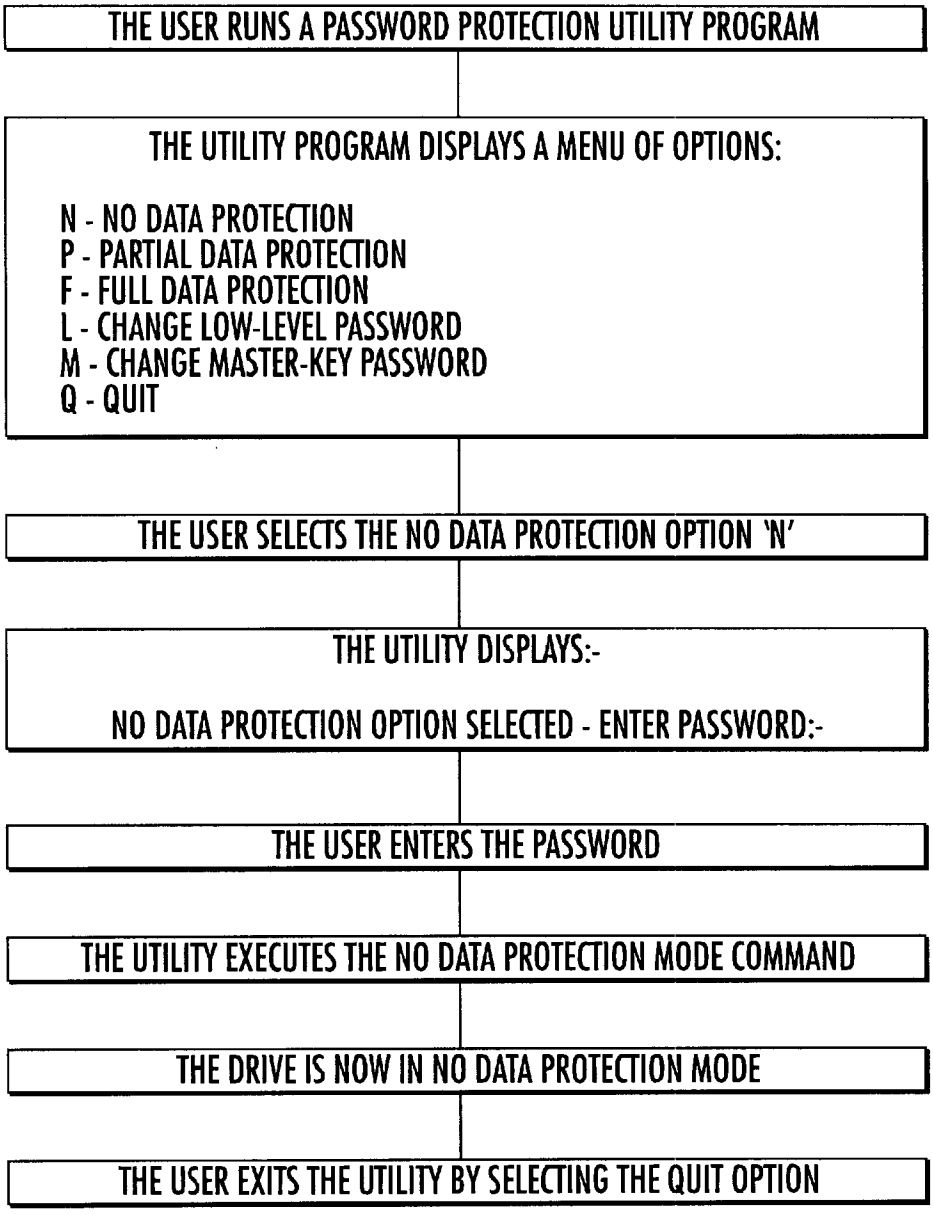
PASSWORD PROTECTION EXAMPLE

THE USER REQUIRES TO SET THE HARD DISK INTO NO DATA PROTECTION MODE



TTHE OTHER COMMANDS ARE EXECUTED IN A SIMILAR FASHION EXCEPT THAT CHANGING THE PASSWORDS OPTIONS WOULD PROMPT THE USER FOR BOTH THE OLD AND THE NEW PASSWORDS.

FIG. 4.

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PASSWORD PROTECTION HARD DRIVE COMMAND HANDLING SEQUENCE

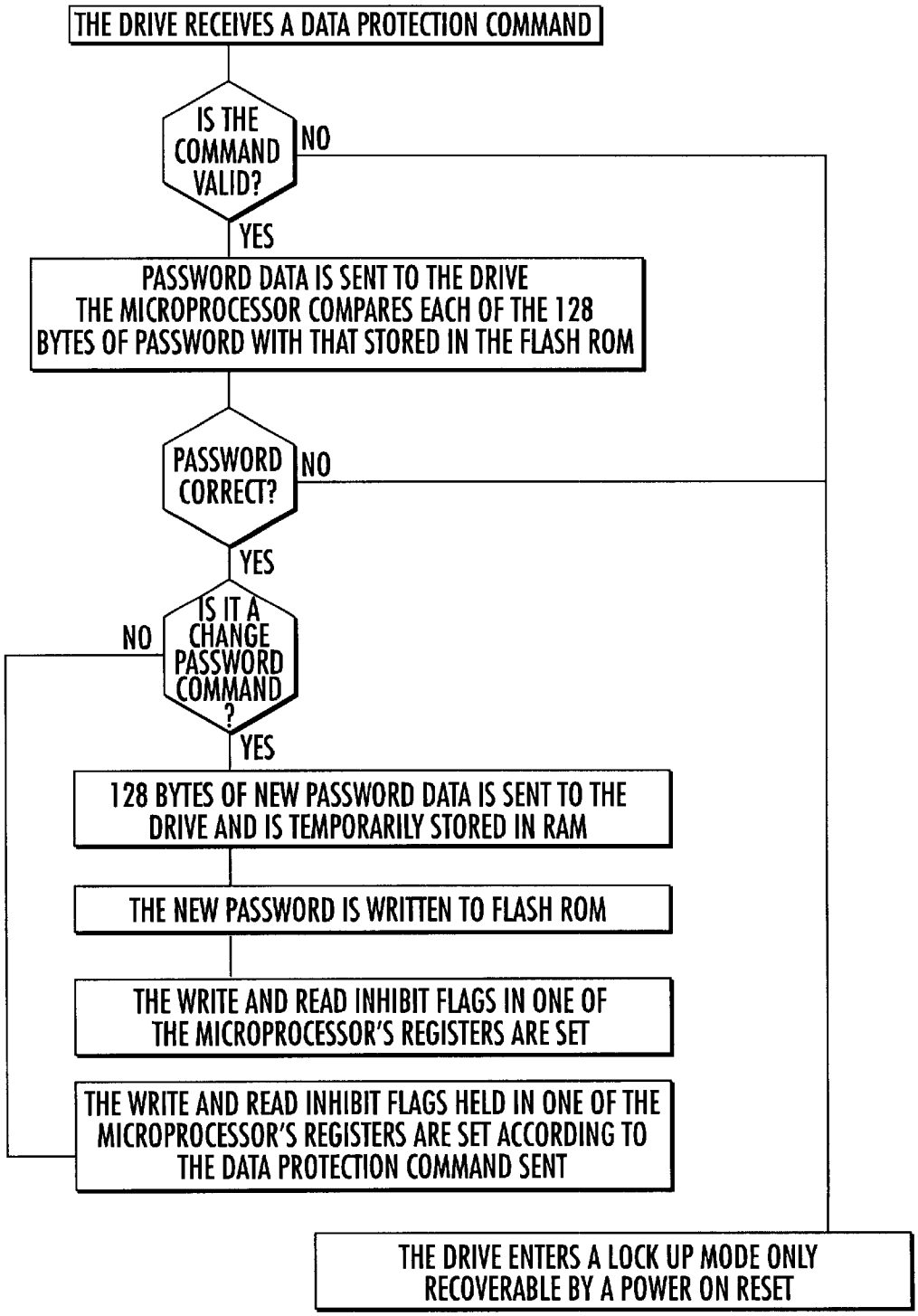

FIG. 5.

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