



US006012145A

United States Patent [19]
Mathers et al.

[11] **Patent Number:** **6,012,145**
[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).

5,282,247	1/1994	McLean et al.	380/4
5,375,243	12/1994	Parzych et al.	395/725
5,533,125	7/1996	Bensimon et al.	380/4
5,535,409	7/1996	Larvoire et al.	395/800
5,551,033	8/1996	Foster et al.	395/650

FOREIGN PATENT DOCUMENTS

0 428 528 B1	5/1991	European Pat. Off. .
0 432 333	6/1991	European Pat. Off. .
90 00771	1/1990	WIPO .
94/11969	5/1994	WIPO .

OTHER PUBLICATIONS

- [21] Appl. No.: **08/640,919**
- [22] PCT Filed: **Nov. 14, 1994**
- [86] PCT No.: **PCT/GB94/02508**
§ 371 Date: **Jul. 10, 1996**
§ 102(e) Date: **Jul. 10, 1996**
- [87] PCT Pub. No.: **WO95/14265**
PCT Pub. Date: **May 26, 1995**
- [30] **Foreign Application Priority Data**
Nov. 13, 1993 [GB] United Kingdom 9323453
- [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

Electronics International—vol. 55, No. 3, Feb. 1982, New York, US, pp. 121–125.

Maxtor Corporation—product literature—copyright 1993—“PCMCIA Hard Disk Drive Security”.

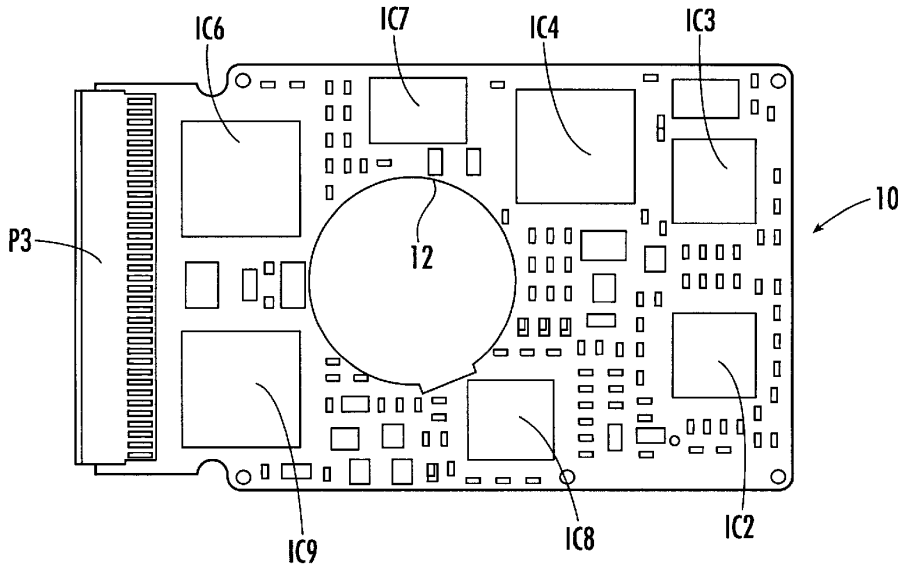
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Assistant Examiner—Scott T. Baderman
Attorney, Agent, or Firm—Alston & Bird LLP

[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 password 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.

- [56] **References Cited**
U.S. PATENT DOCUMENTS
4,864,542 9/1989 Oshima et al. 365/189.01

16 Claims, 4 Drawing Sheets



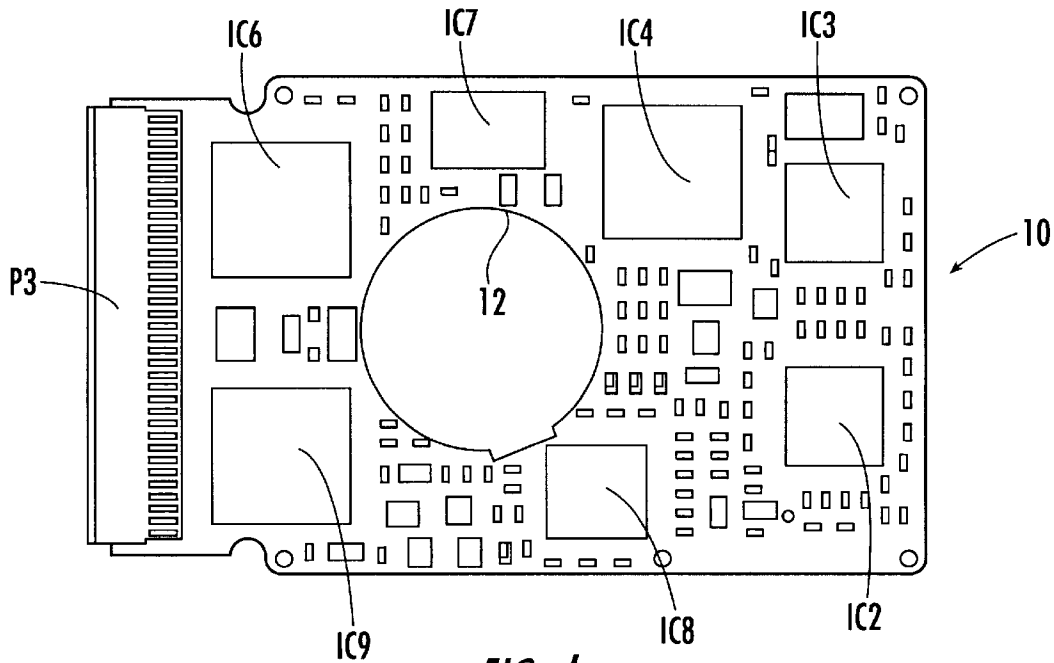


FIG. 1.

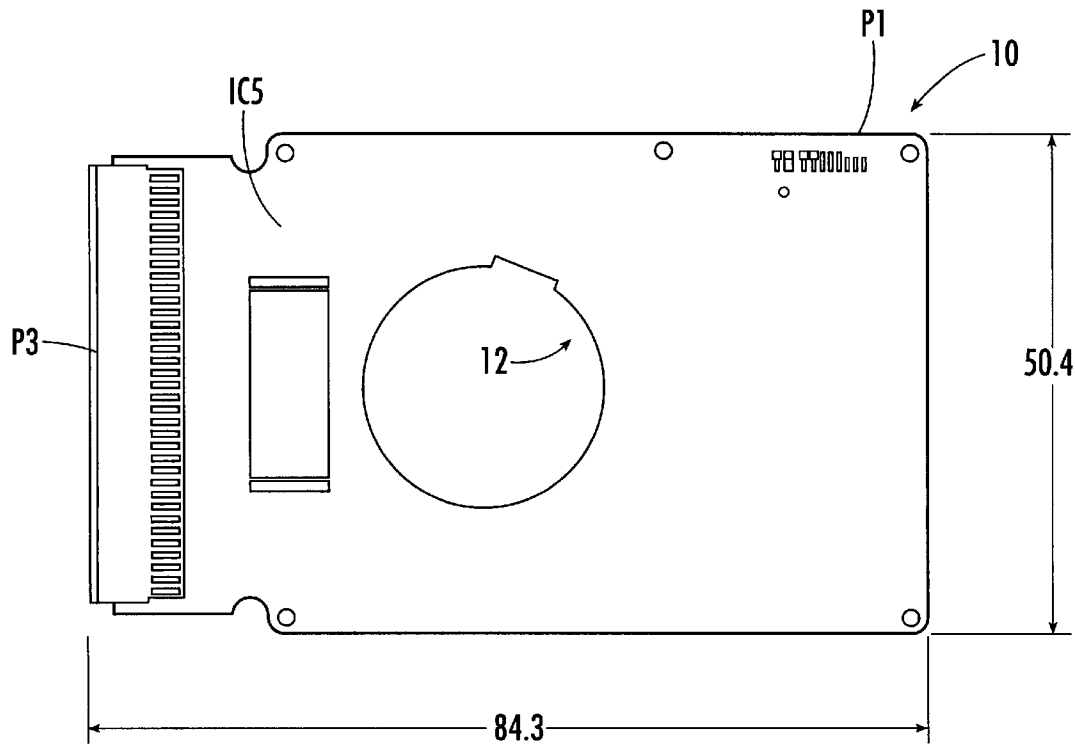
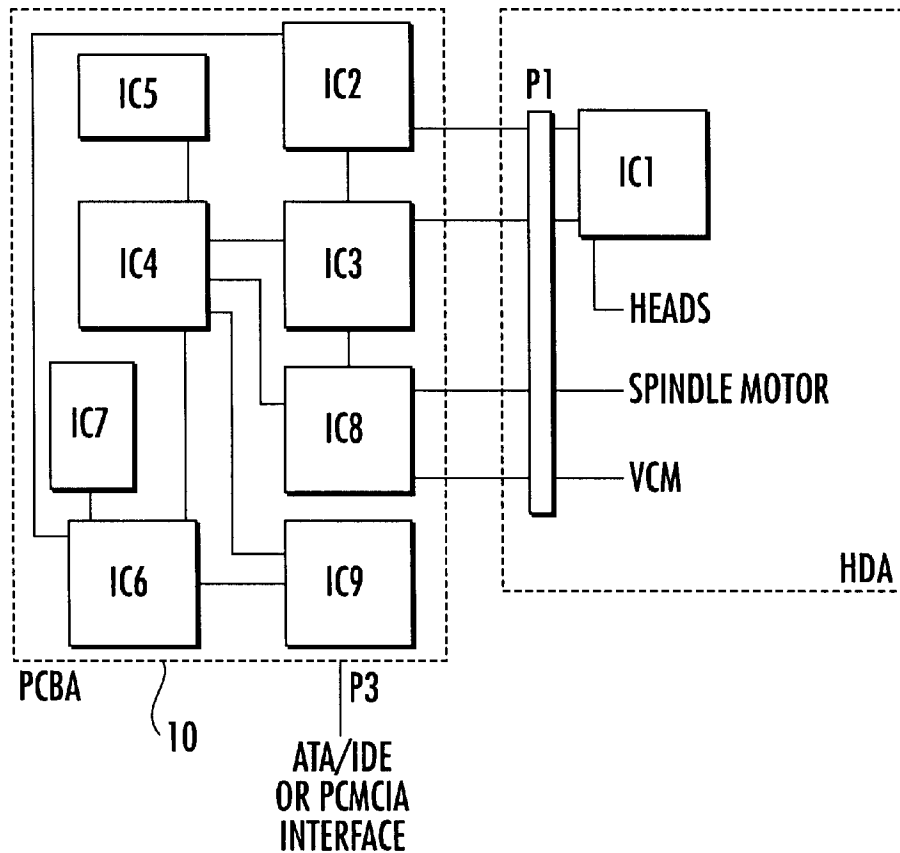


FIG. 2.

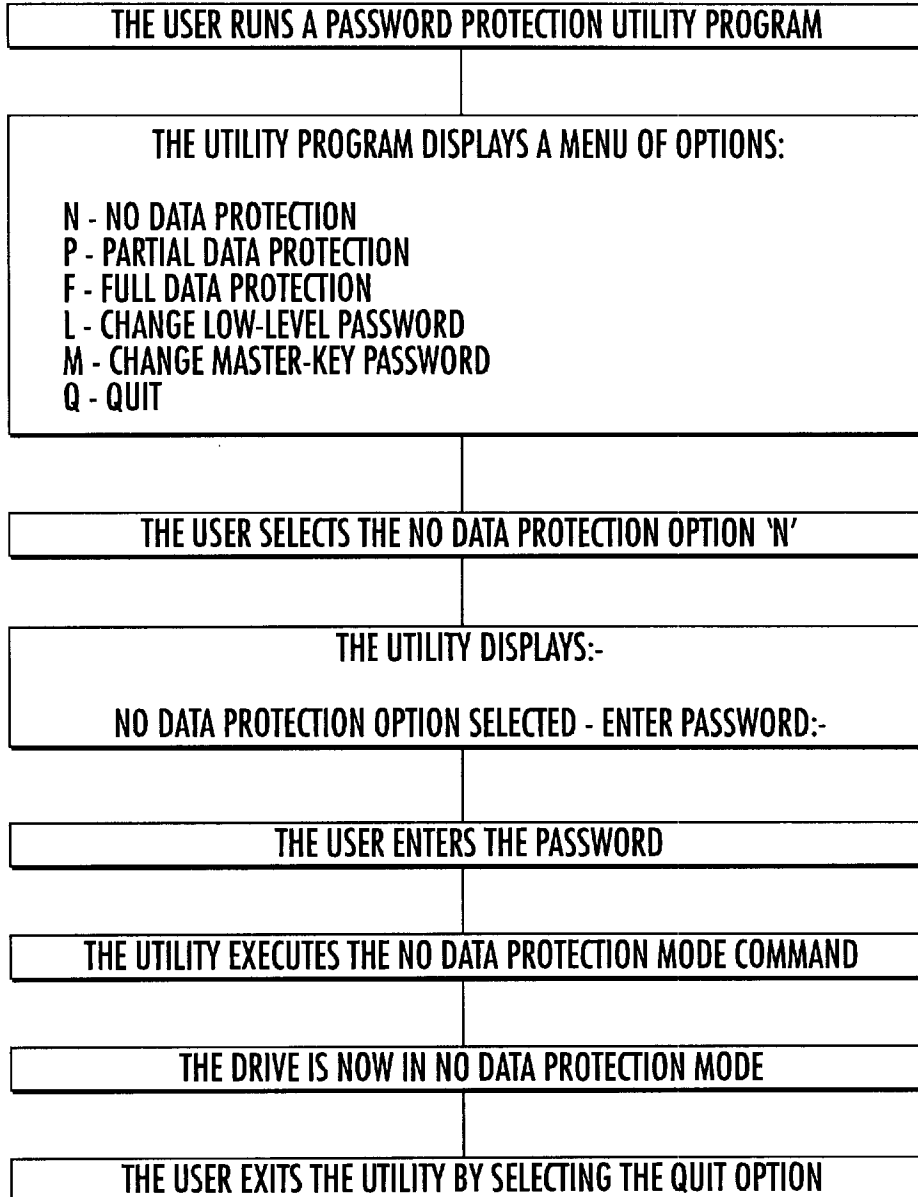


BLOCK NO	FUNCTION
IC1	PRE-AMPLIFIER
IC2	DATA CHANNEL
IC3	MIXED SIGNAL ASIC
IC4	MICRO-PROCESSOR
IC5	FLASH EEPROM
IC6	INTERFACE
IC7	RAM
IC8	MOTOR/VCM DRIVER/CONTROLLER
IC9	INTERFACE (PCMCIA)
P1	ELASTOMERIC CONNECTOR
P3	68 WAY CONNECTOR

FIG. 3.

PASSWORD PROTECTION EXAMPLE

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



THE 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.

PASSWORD PROTECTION HARD DRIVE COMMAND HANDLING SEQUENCE

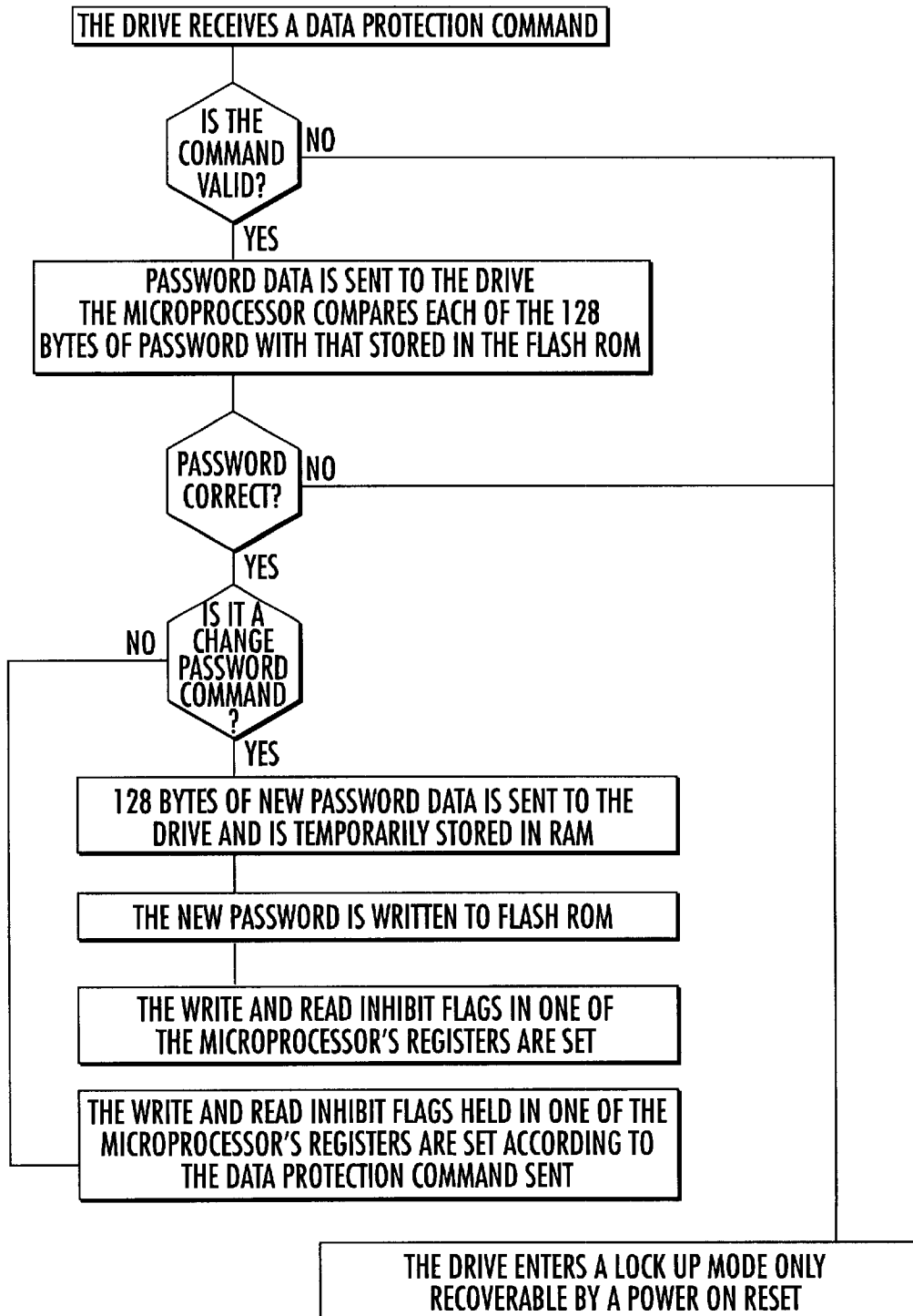


FIG. 5.

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