

United States Patent [19]

Hastings et al.

[11] **Patent Number:** **5,822,196**

[45] **Date of Patent:** **Oct. 13, 1998**

[54] **SECURING A CARD IN AN ELECTRONIC DEVICE**

5,581,712 12/1996 Herrmann 395/283
 5,625,238 4/1997 Ady et al. 307/147
 5,629,836 5/1997 Wright 361/755

[75] Inventors: **Robert J. Hastings**, Humble; **Paily T. Varghese**; **Joseph R. Allen**, both of Tomball, all of Tex.

FOREIGN PATENT DOCUMENTS

0 241 905 A2 10/1987 European Pat. Off. .
 0 254 456 A2 1/1988 European Pat. Off. .
 2850440 11/1977 Germany .
 3409021 3/1984 Germany .
 WO 93/15459 8/1993 WIPO .

[73] Assignee: **Compaq Computer Corporation**, Houston, Tex.

OTHER PUBLICATIONS

[21] Appl. No.: **658,385**

[22] Filed: **Jun. 5, 1996**

[51] **Int. Cl.⁶** **H05K 7/14**

[52] **U.S. Cl.** **361/801**; 361/683; 361/754; 361/798

[58] **Field of Search** 361/724-727, 361/684, 726, 801, 796, 798, 752, 802, 754, 683, 686, 748, 759; 439/61, 62, 152, 153, 157; 200/50.26, 51.09, 335

Hot Plug Receptacle Actuated Mechanical Latch; pp. 363-364; IBM Technical Disclosure Bulletin, vol. 34, No. 6; Nov. 1991.

CompactPCI™ Specification; Revision 1.0; pp. 14, 36, and 50; PCI Industrial Computers; Nov. 1, 1995.

Don Anderson; *Card Bus System Architecture, PC System Architecture Series, Second Edition*; pp. 17-29, 39-58, 227-236, 321-361; Minshare, Inc., Richardson, TX.; ©1996.

Don Anderson; *PCMCIA System Architecture, PC System Architecture Series, Second Edition*; pp. 21-83, 113-141, 145-162, 229-309, 321-332; Mindshare, Inc., Richardson, TX., ©1995.

Maintenance & Service Guide, Compaq Deskpro XL Series of Personal Computers, Compaq Corporation, Houston, Texas (Dec. 15, 1995).

Primary Examiner—Michael W. Phillips

Assistant Examiner—Jayprakash N. Gandhi

Attorney, Agent, or Firm—Fish & Richardson P.C.

[56] **References Cited**

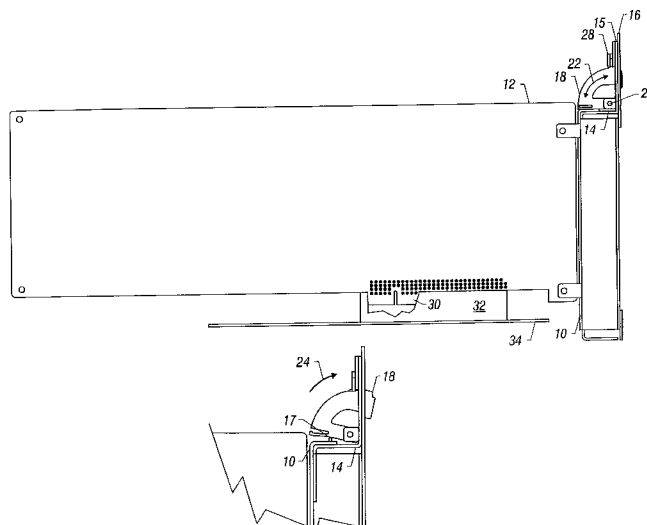
U.S. PATENT DOCUMENTS

3,767,974	10/1973	Donovan, Jr. et al.	361/798
3,853,379	12/1974	Goodman et al.	439/261
4,596,907	6/1986	LaGreco et al.	200/50 A
4,628,413	12/1986	Speraw	361/798
4,835,737	5/1989	Herrig et al.	364/900
4,875,867	10/1989	Hoo	361/798 X
4,999,787	3/1991	McNally et al.	364/514
5,003,431	3/1991	Imsdahl	361/798
5,010,426	4/1991	Krenz	361/726 X
5,191,970	3/1993	Brockway et al.	200/335
5,247,619	9/1993	Mutoh et al.	395/325
5,310,998	5/1994	Okuno	235/380
5,317,482	5/1994	Bujtas	361/798
5,317,483	5/1994	Swindler	361/801
5,428,507	6/1995	Chatel et al.	361/798
5,454,080	9/1995	Fasig et al.	395/283
5,473,499	12/1995	Weir	361/58
5,504,656	4/1996	Joist	361/754
5,513,329	4/1996	Pecone	395/281
5,530,302	6/1996	Hamre et al.	307/147
5,555,510	9/1996	Verseput et al.	364/514

[57] **ABSTRACT**

An add-in circuit card is secured in an electronic device. A clamp is movably coupled to the electronic device and is configured to releasably engage the card upon movement of the clamp from a card engagement position to a card disengagement position. A switch may control electrical power to the card, the switch operated by the clamp such that movement of the clamp between the engagement and disengagement positions closes and opens the switch.

25 Claims, 8 Drawing Sheets



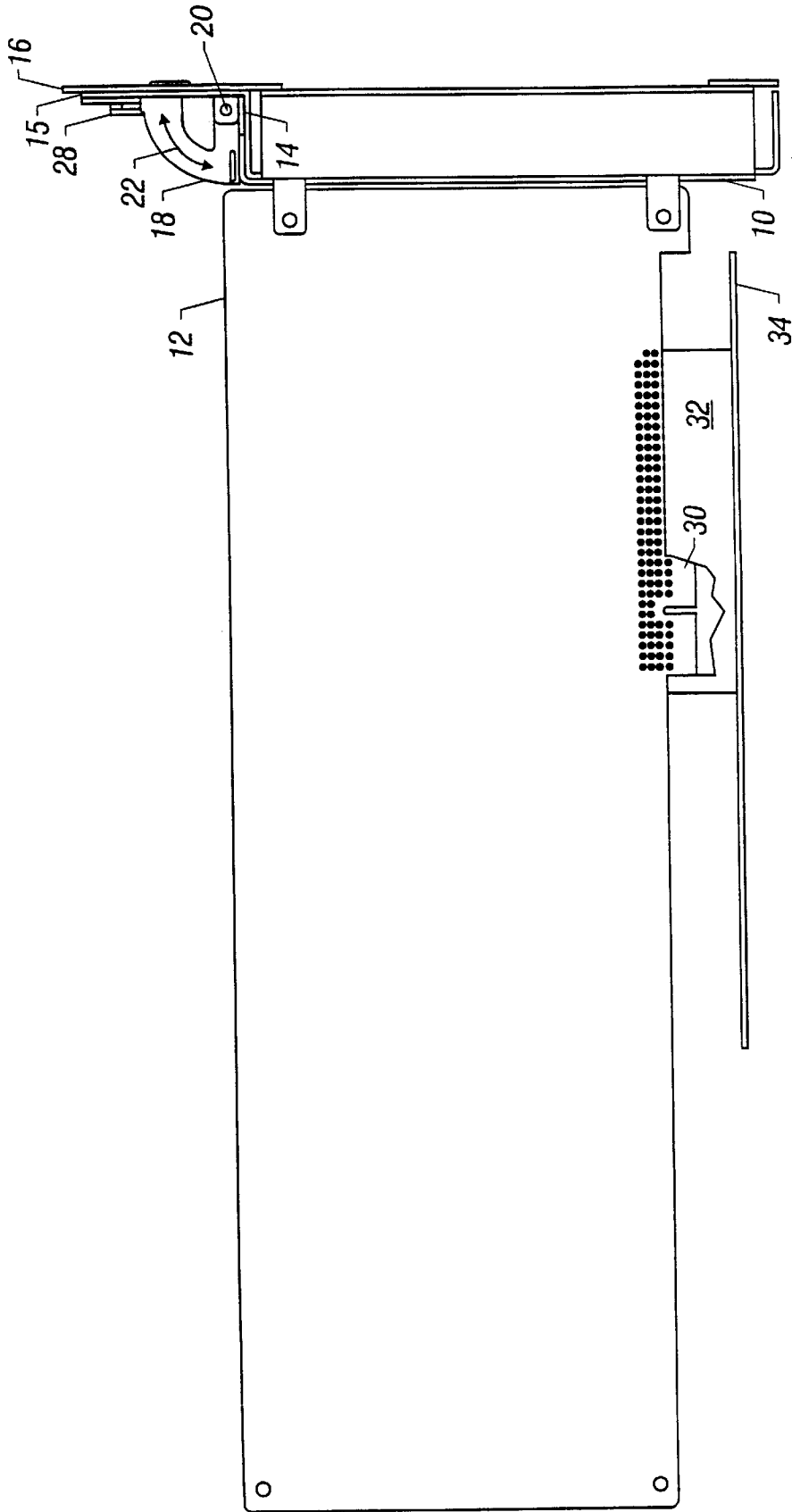


Figure 1

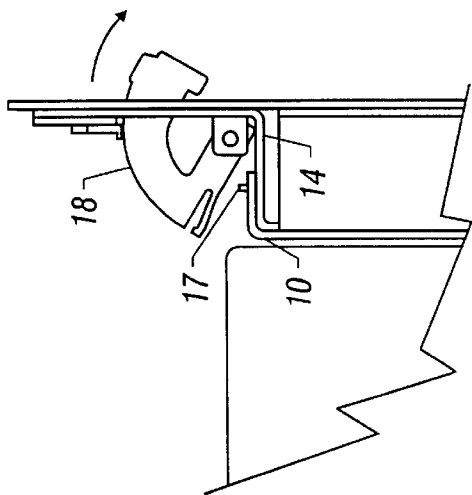


Figure 2C

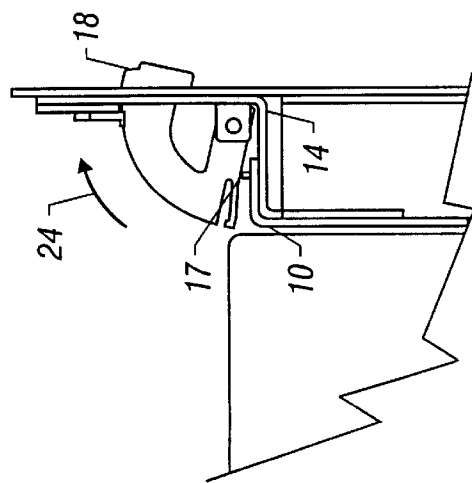


Figure 2B

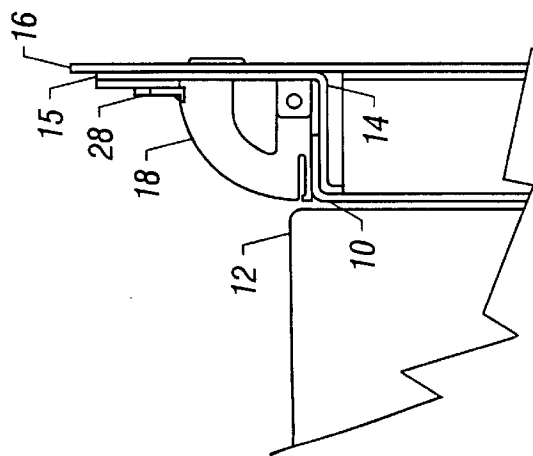


Figure 2A

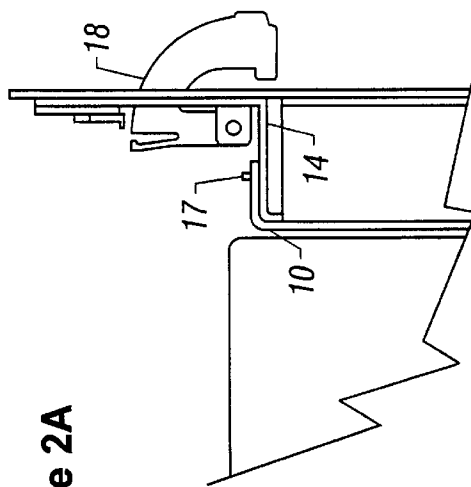


Figure 2D

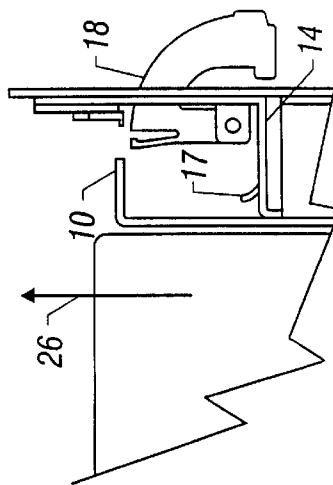


Figure 2E

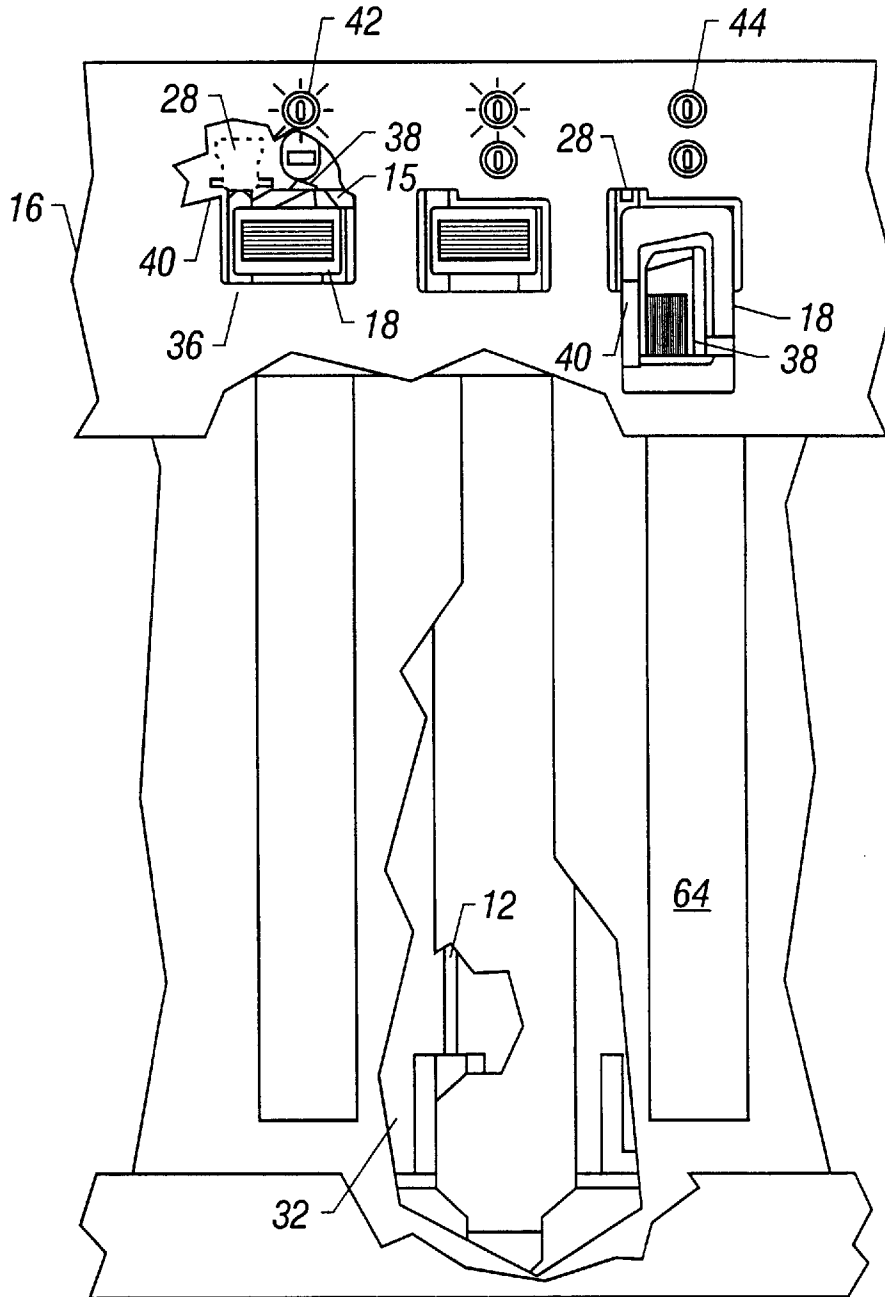


Figure 3

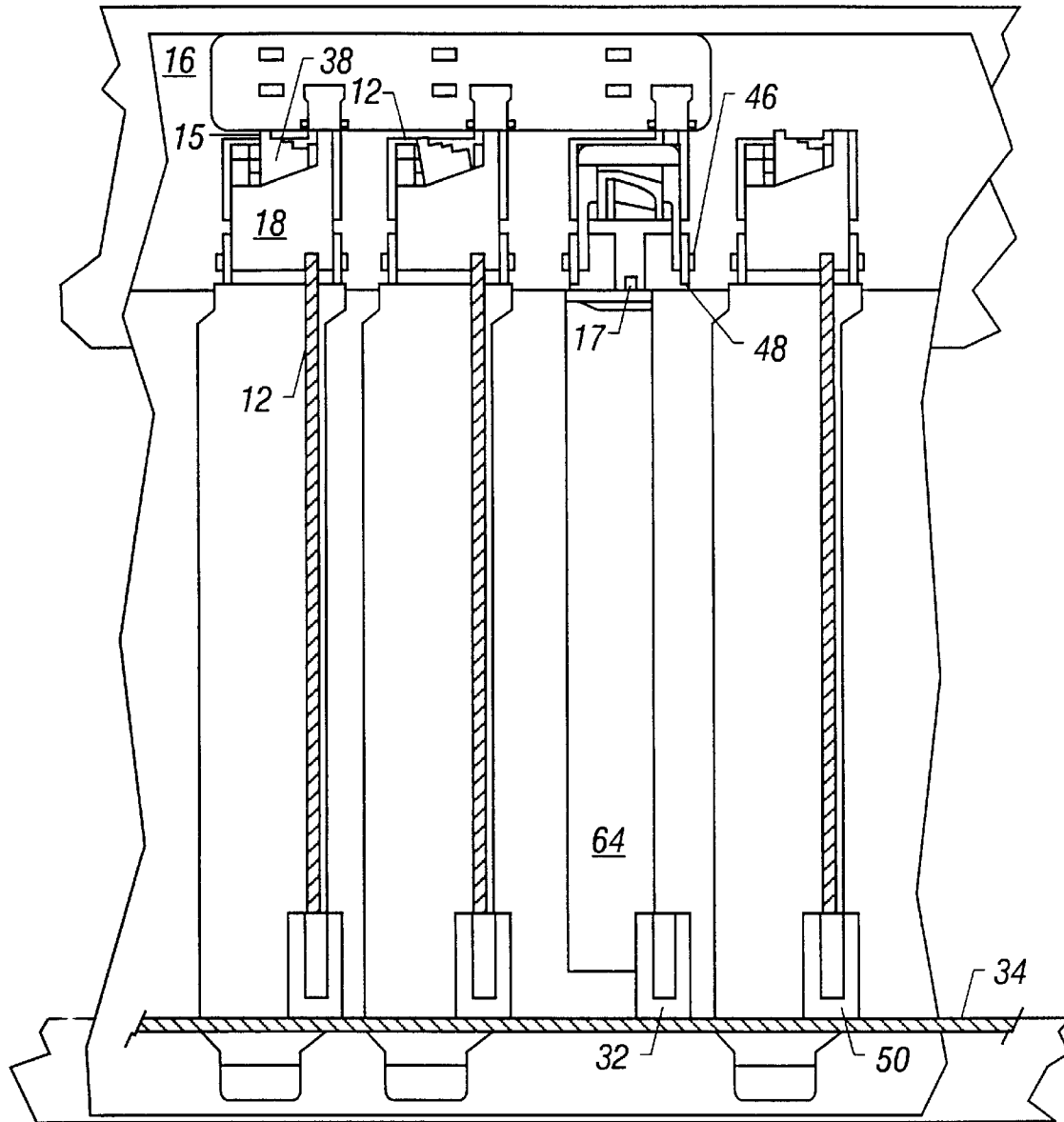


Figure 4

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.