



US006696985B2

(12) **United States Patent**
Houston

(10) **Patent No.:** **US 6,696,985 B2**
(45) **Date of Patent:** **Feb. 24, 2004**

(54) **REFORMABLE KEYBOARD WITH VARIABLE KEY DESIGN**
(75) **Inventor:** **John S. Houston**, Hopewell Junction, NY (US)
(73) **Assignee:** **International Business Machines Corporation**, Armonk, NY (US)
(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 379 days.

5,861,823 A 1/1999 Strauch et al. 341/22
5,872,561 A * 2/1999 Figie et al. 345/168
6,094,197 A 7/2000 Buxton et al. 345/358
6,102,594 A 8/2000 Strom 400/486

* cited by examiner

Primary Examiner—Michael Horabik
Assistant Examiner—Hung Dang
(74) *Attorney, Agent, or Firm*—Floyd Gonzalez

(21) **Appl. No.:** **09/841,626**

(22) **Filed:** **Apr. 24, 2001**

(65) **Prior Publication Data**

US 2002/0154037 A1 Oct. 24, 2002

(51) **Int. Cl.**⁷ **H03M 11/00**
(52) **U.S. Cl.** **341/21; 341/26**
(58) **Field of Search** 341/26; 361/21, 361/22, 34; 400/87, 127, 128, 483, 485

(56) **References Cited**

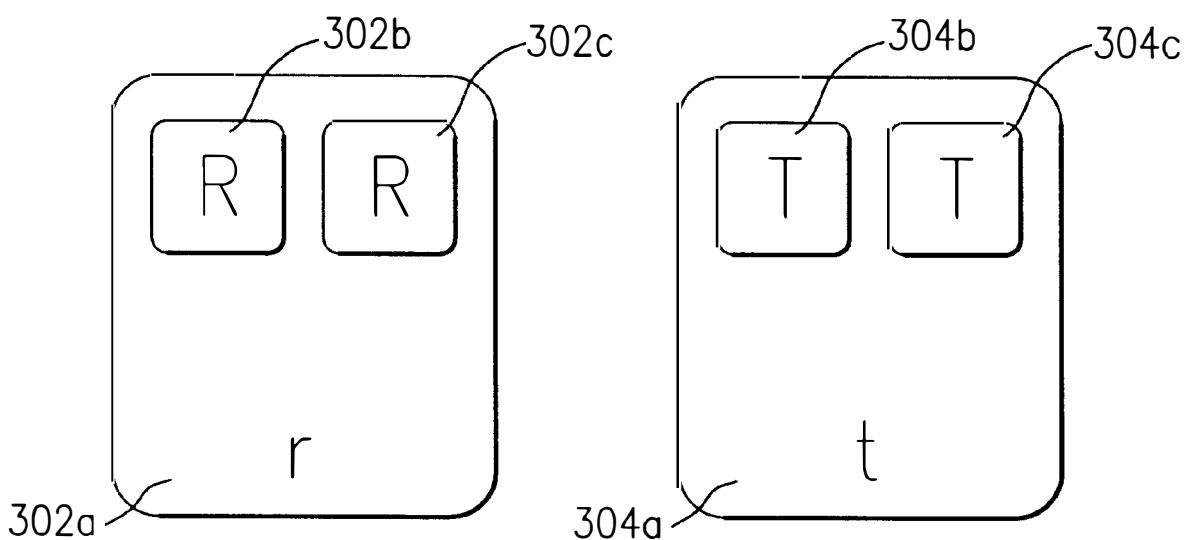
U.S. PATENT DOCUMENTS

4,121,048 A 10/1978 Dev Choudhury 178/17 C
4,198,539 A 4/1980 Pepper, Jr. 178/18
4,293,734 A 10/1981 Pepper, Jr. 178/18
5,661,505 A 8/1997 Livits 345/169
5,675,329 A 10/1997 Barker et al. 341/22
5,718,590 A 2/1998 Choate 434/227
5,790,103 A * 8/1998 Willner 345/168

(57) **ABSTRACT**

Key patterns configured to accommodate the handicaps of the disabled user are imprinted or embossed on a sheet of conformable material. A matrix of sensing circuits for a keyboard are placed under the sheet to detect when and where the sheet is depressed and provides an output to a keyboard controller indicating which portion of the keyboard has been contacted. The keyboard controller relates the position data to the keyboard pattern on the sheet and provides key signals to the computer interface connector of the keyboard that are indistinguishable by a computer system from the QWERTY outputs of a standard keyboard. This enables the disabled user to carry this keyboard from one computer system to another and simply exchange it for the standard keyboard for the computer. Since the keyboard can be configured to accommodate the users handicap, no changes need be made to the operating system or any software of the computer in order to allow the disabled user to use the computer. Furthermore, other users are not required to do anything special to start using the computer system once the standard keyboard is re-installed.

12 Claims, 5 Drawing Sheets



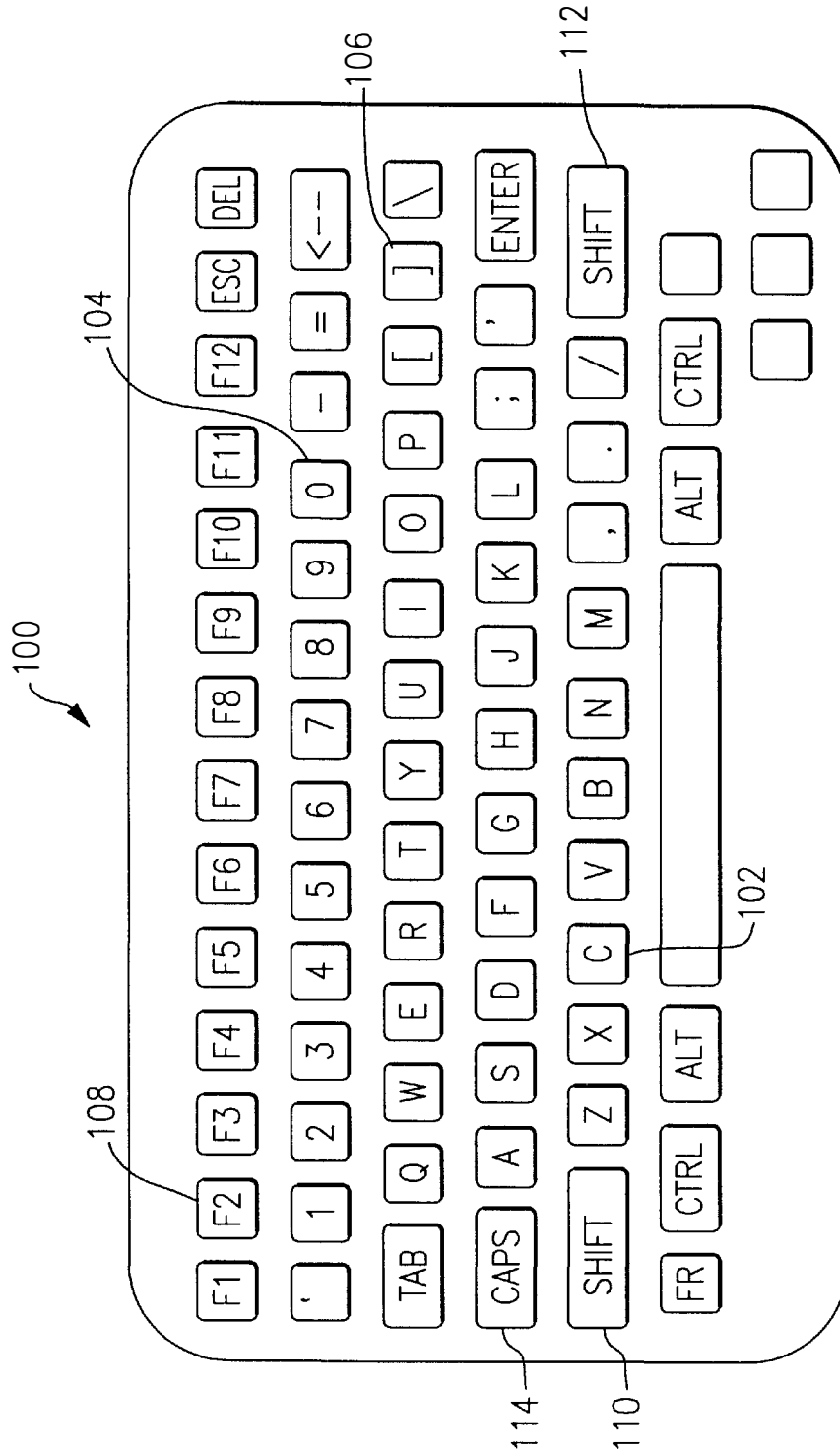


FIG. 1

Prior Art

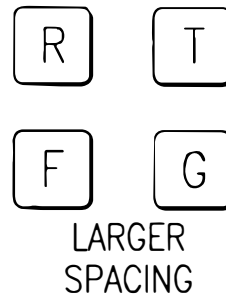
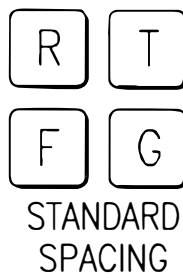
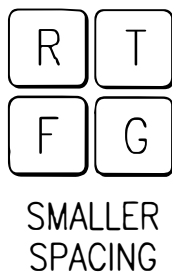
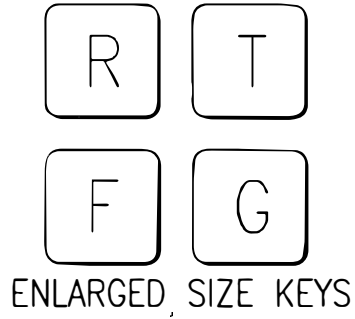
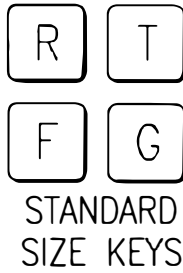
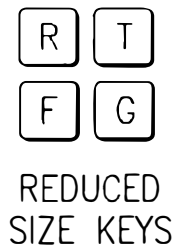


FIG.2

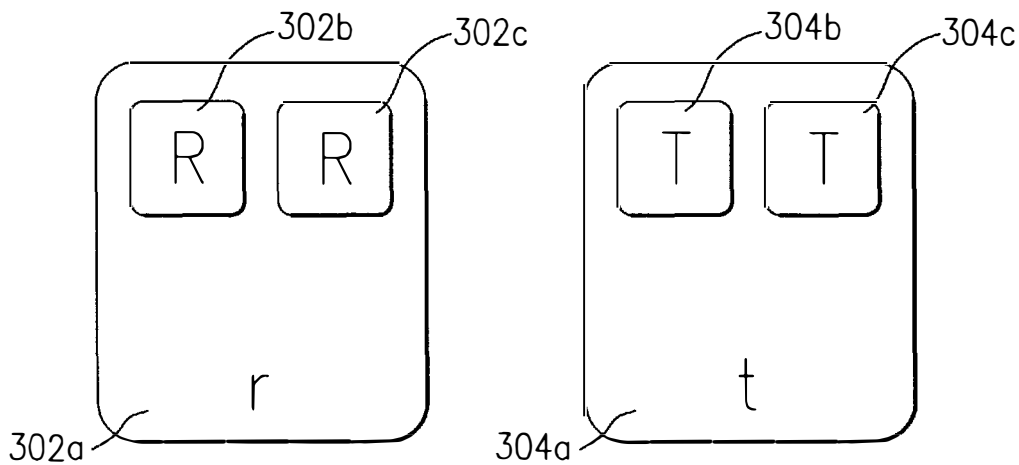


FIG.3

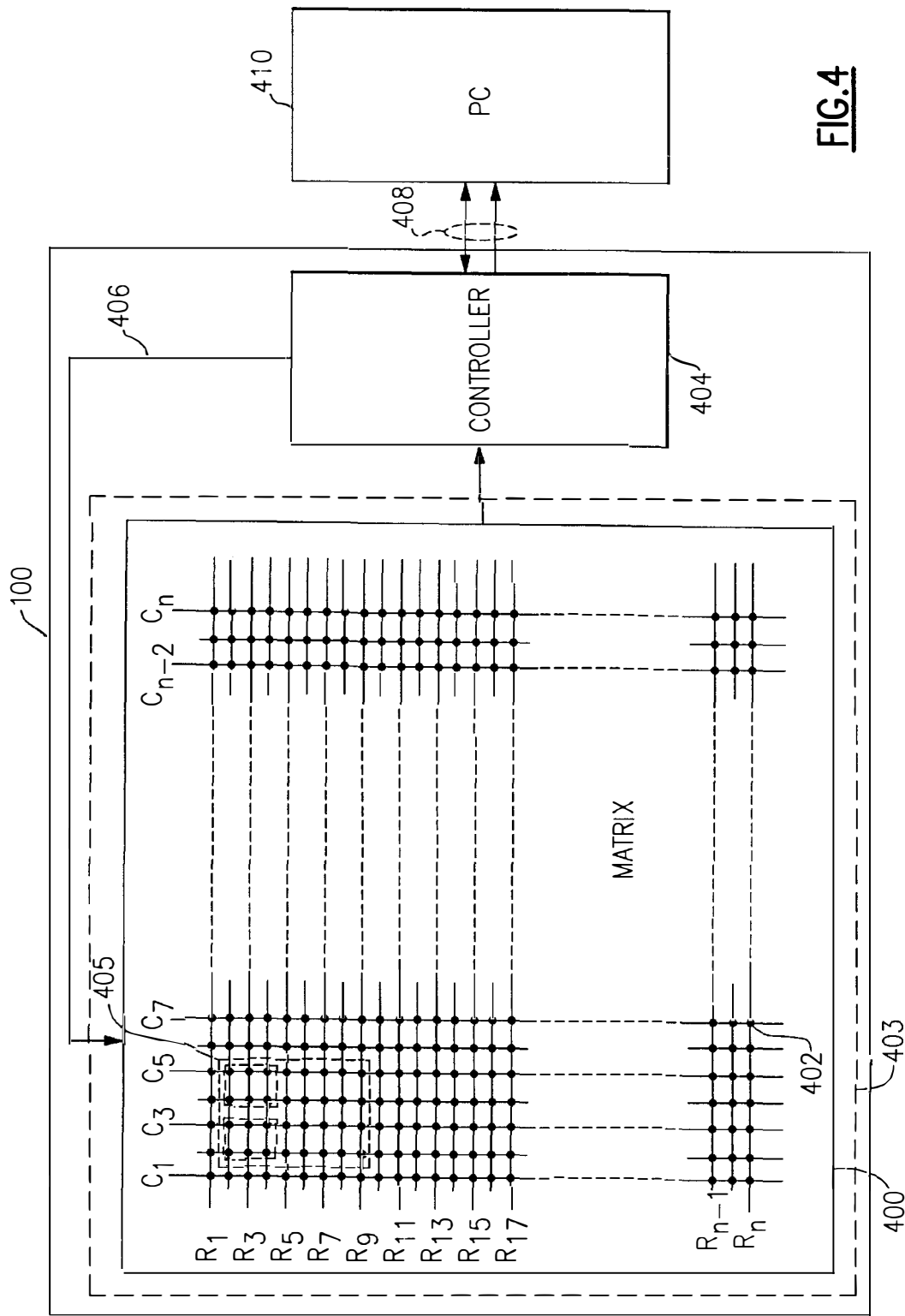


FIG. 4

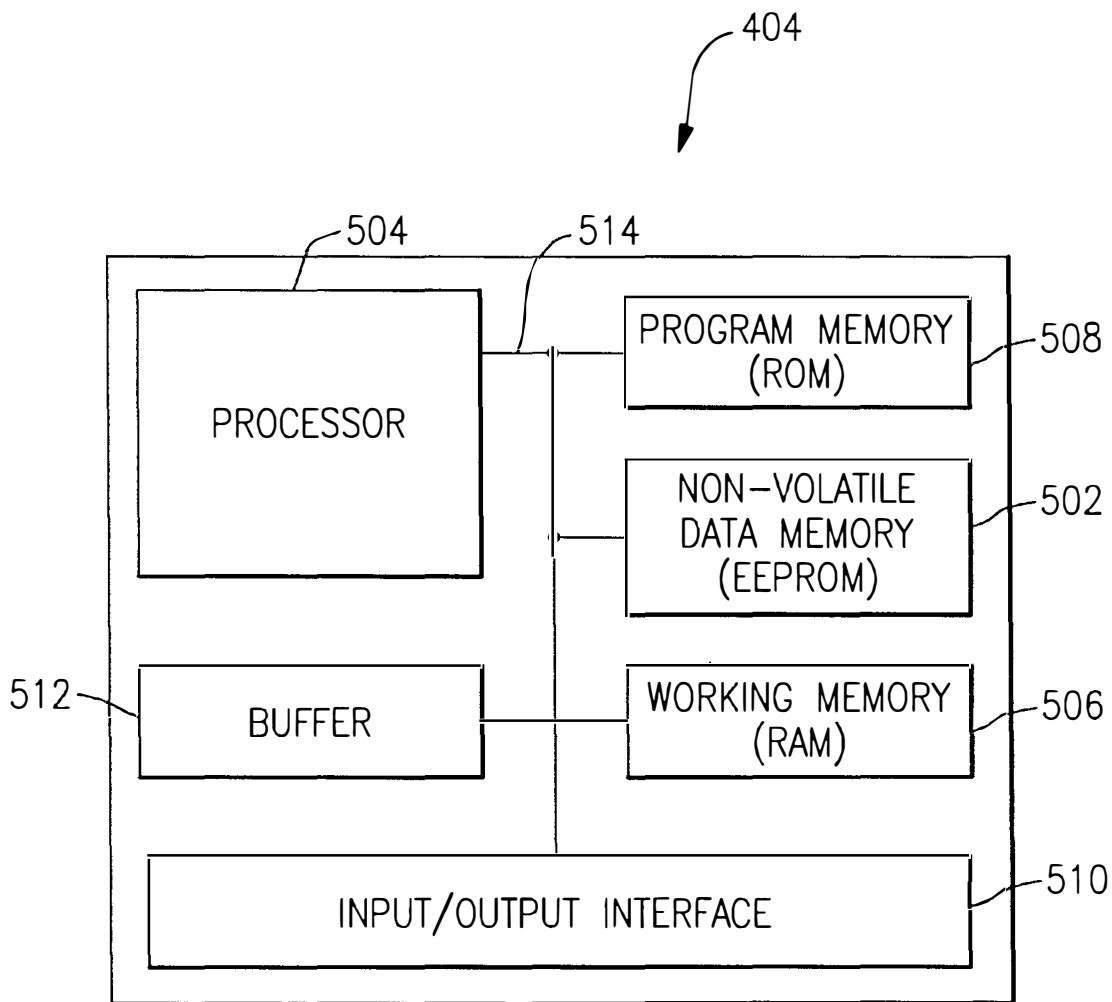


FIG.5

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.