

US005689253A

**United States Patent** [19]  
**Hargreaves et al.**

[11] **Patent Number:** **5,689,253**  
[45] **Date of Patent:** **\*Nov. 18, 1997**

[54] **ERGONOMIC KEYBOARD APPARATUS**

[75] Inventors: **William R. Hargreaves**, Bellevue;  
**Shirley A. Lunde**, Seattle, both of  
Wash.

[73] Assignee: **Kinesis Corporation**, Bothell, Wash.

[\*] Notice: The term of this patent shall not extend  
beyond the expiration date of Pat. No.  
5,673,040.

[21] Appl. No.: **46,584**

[22] Filed: **Apr. 9, 1993**

**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 683,980, Apr. 10, 1991,  
abandoned.

[30] **Foreign Application Priority Data**

Apr. 10, 1992 [WO] WIPO ..... PCT/US92/02957

[51] Int. Cl.<sup>6</sup> ..... **H03K 17/94**

[52] U.S. Cl. .... **341/22; 400/488; 400/489;**  
D14/115

[58] **Field of Search** ..... 341/22, 27, 29;  
400/486, 488, 489, 482, 483, 484; 434/227,  
231; D14/100, 114, 115; D18/1

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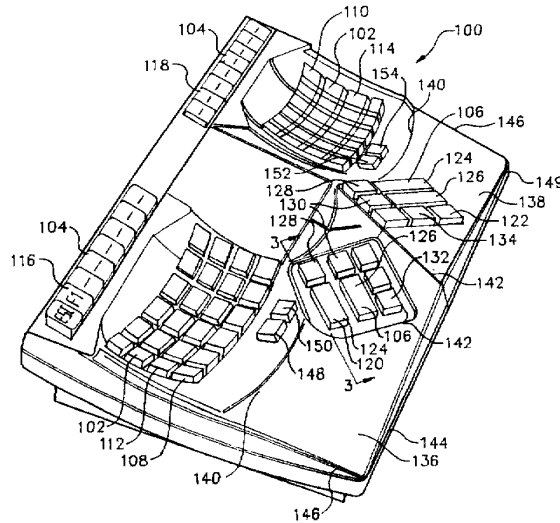
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*Primary Examiner*—John K. Peng  
*Assistant Examiner*—Andrew Hill  
*Attorney, Agent, or Firm*—Bogle & Gates, P.L.L.C.

[57] **ABSTRACT**

A keyboard for use with a standard personal computer includes an alphanumeric key array having a plurality of alphanumeric keys arranged in a generally orthogonal, concave array. A home row of keys defines a reference position for the fingers of the operator. A liner array of function keys is provided and positioned above the reference position and tilted toward the operator. A generally orthogonal array of auxiliary keys is also positioned above the reference position. The array of auxiliary keys is rotated with respect to the reference position to accommodate the natural angle of the thumb of the operator to the index finger. A palm rest is provided for receiving the palm of the operator while the operator is manipulating the plurality of alphanumeric keys. The palm rest is positioned above the reference position defined by the home row so that during operation of the alphanumeric keys, the fingers of the operator extend downward from the palm rest in a natural curved manner.

**8 Claims, 16 Drawing Sheets**



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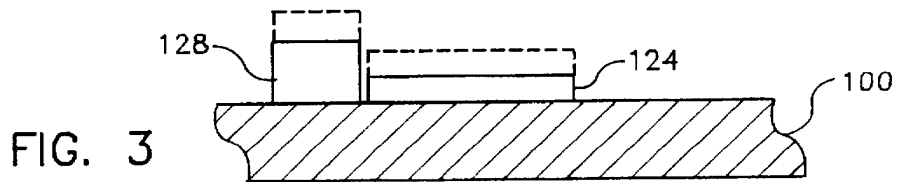
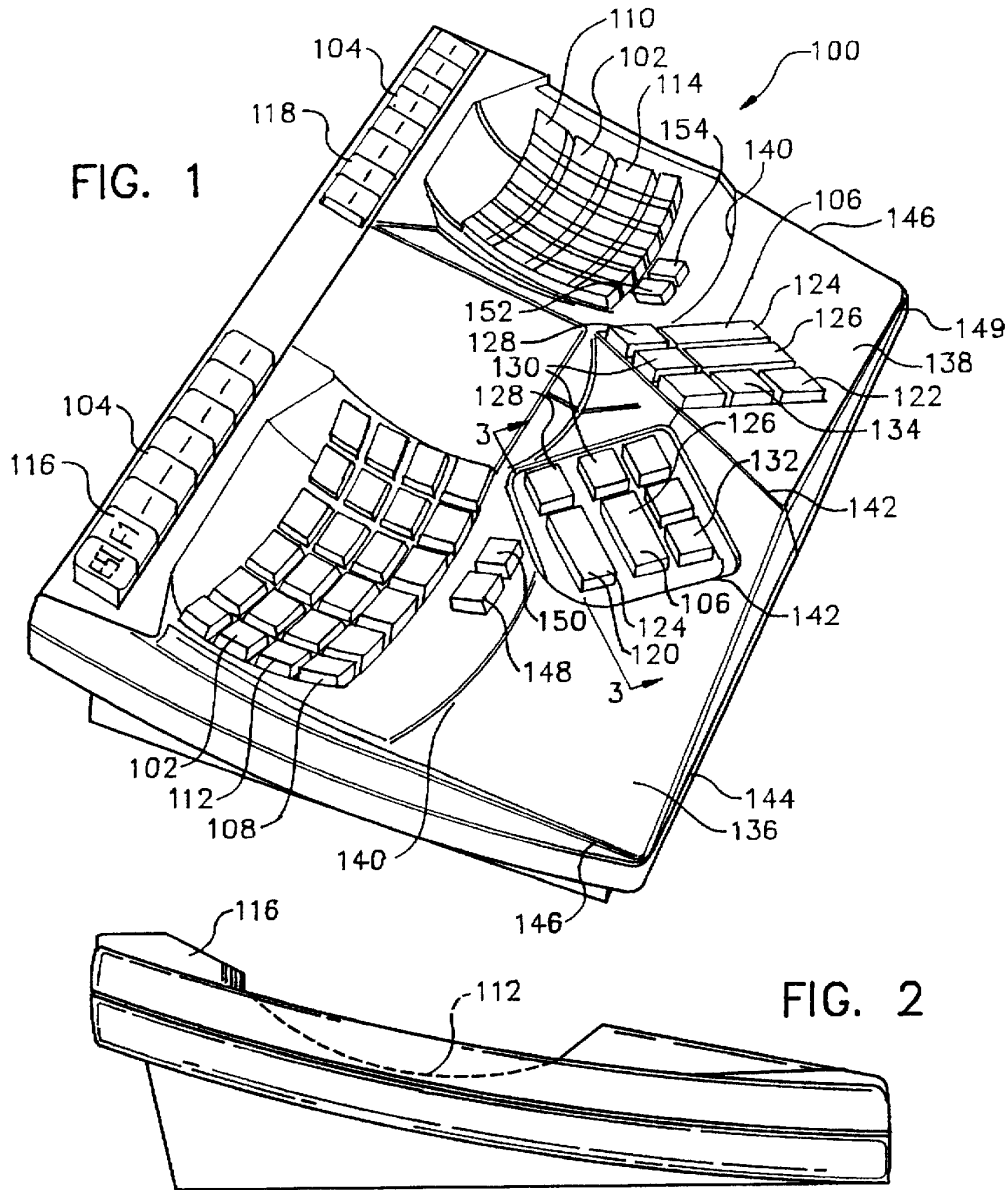
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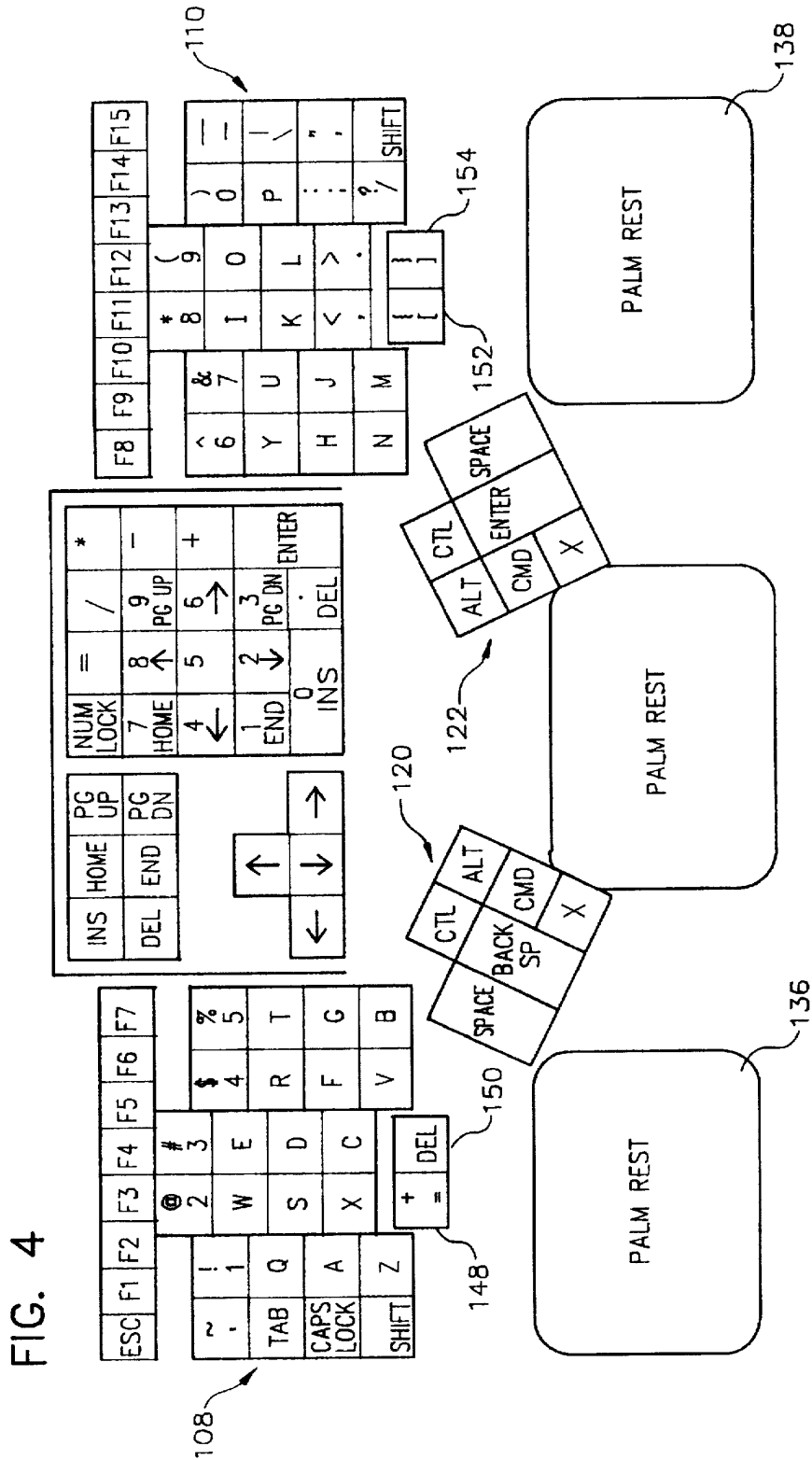
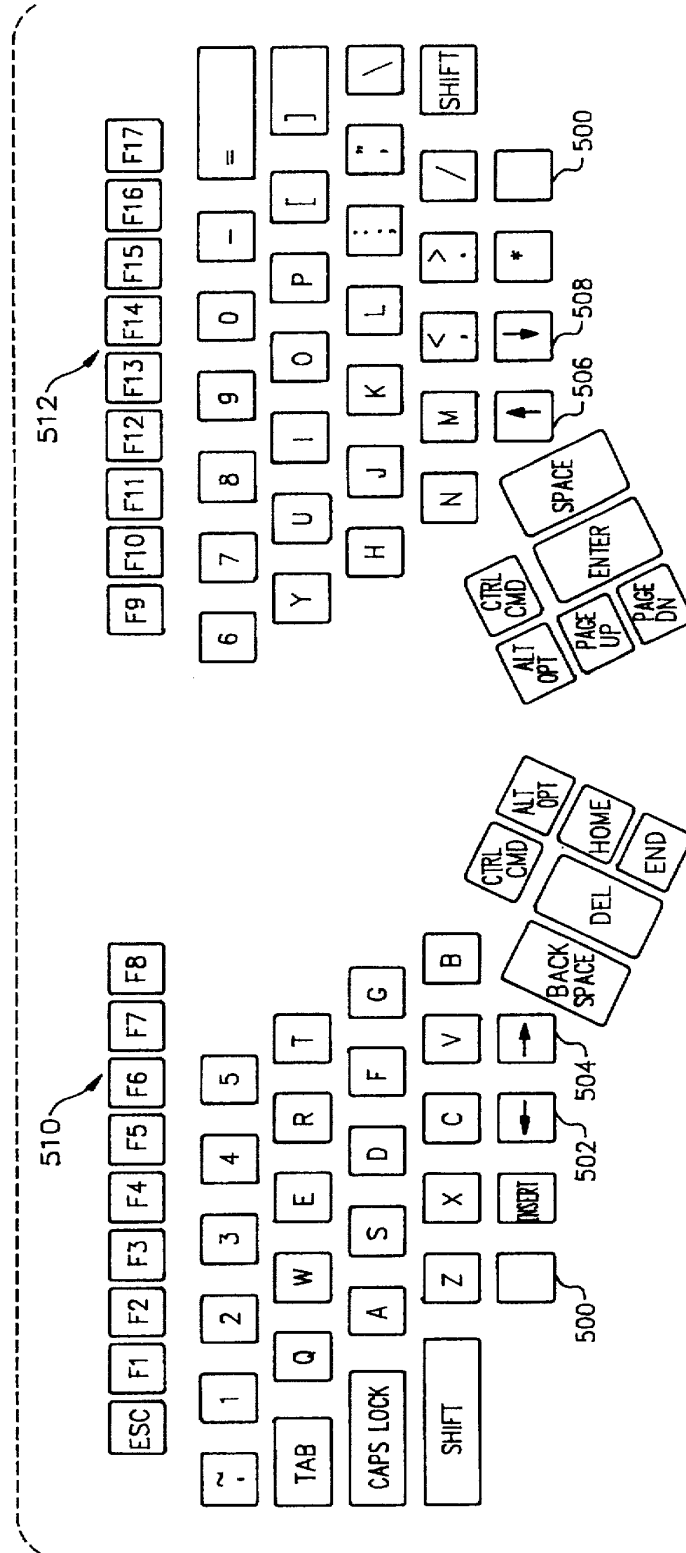


FIG. 5



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