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(12) **United States Design Patent** (10) **Patent No.:** **US D540,335 S**  
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(54) **WAVE KEYPAD**

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(52) **U.S. Cl.** ..... **D14/455**

(58) **Field of Classification Search** ..... D14/137-8, D14/217-218, 247, 315, 320, 333, 338, 341, D14/346, 383, 387, 390-9, 426, 432, 454-6; D13/171, 174; D18/1, 7, 12.2; 178/17 A, 178/17 C; 379/368, 433.01, 433.06, 433.07; 341/22; 345/160, 168-9; 200/5 A; 382/187; 400/472, 485-490, 493; 235/145 R; 710/67; 348/14.02; 361/814; 455/90.3, 553.1, 556.1, 455/556.2, 575.1, 575.3, 575.4

See application file for complete search history.

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

1,468,566 A \* 9/1923 Hall ..... 400/483  
3,929,216 A 12/1975 Einbinder  
3,945,482 A 3/1976 Einbinder  
4,597,681 A 7/1986 Hodges  
5,120,938 A \* 6/1992 Rollason ..... 235/145 R  
5,178,477 A \* 1/1993 Gambaro ..... 400/489

(Continued)

**FOREIGN PATENT DOCUMENTS**

DE 4428937 A1 2/1996  
WO WO 87/06883 A1 11/1987  
WO WO 97/27529 A1 7/1999

**OTHER PUBLICATIONS**

“Belkin ErgoBoard™ Pro Keyboard with USB Ports” product brochure downloaded at [http://catalog.belkin.com/IW/Catproductpage.process?Product\\_Id=182772](http://catalog.belkin.com/IW/Catproductpage.process?Product_Id=182772) on Jul. 19, 2006.

Fagarasanu et al., “The training effect on typing on two alternative keyboards”, *International Journal of Industrial Ergonomics*, vol. 35, pp. 509-516 (2005).

Hedge et al., “Effects of keyboard tray geometry on upper body posture and comfort”, *Ergonomics*, vol. 42, pp. 1333-1349 (1999).

(Continued)

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(57) **CLAIM**

The ornamental design for a wave keypad, as shown and described.

**DESCRIPTION**

FIG. 1 is a first perspective view of a wave keypad showing our new design;

FIG. 2 is a second perspective view;

FIG. 3 is a top plan view thereof;

FIG. 4 is a bottom plan view thereof;

FIG. 5 is a front elevational view thereof;

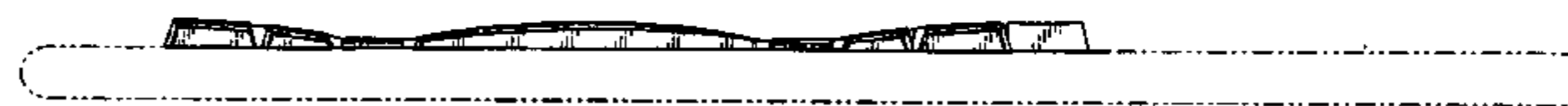
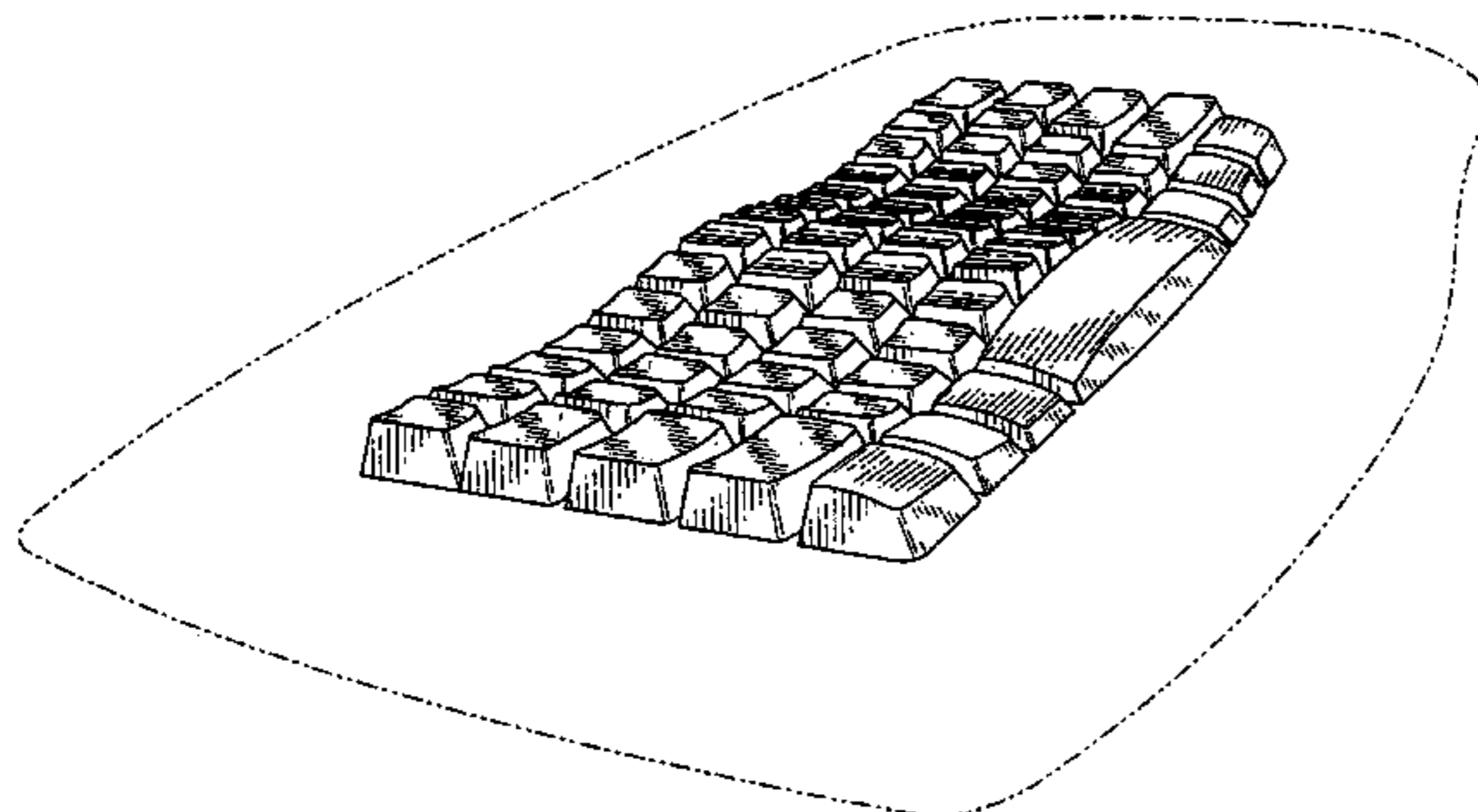
FIG. 6 is a rear elevational view thereof;

FIG. 7 is a left side elevational view thereof; and,

FIG. 8 the right side elevational view thereof.

The broken lines used in FIGS. 1-8 are included for the purpose of illustrating the article and forms no part of the claimed design.

**1 Claim, 5 Drawing Sheets**



U.S. PATENT DOCUMENTS

5,391,006 A \* 2/1995 Danziger ..... 400/488  
 5,397,189 A 3/1995 Minogue  
 D362,432 S 9/1995 Paull et al.  
 5,490,037 A 2/1996 Clancy  
 D370,669 S \* 6/1996 Hargreaves et al. .... D14/391  
 5,673,040 A 9/1997 Hargreaves et al.  
 5,689,253 A \* 11/1997 Hargreaves et al. .... 341/22  
 5,717,431 A 2/1998 Chia-Ying et al.  
 5,731,808 A 3/1998 Gaither  
 5,774,384 A 6/1998 Okaya et al.  
 5,899,616 A 5/1999 Caplan  
 D414,169 S \* 9/1999 Wu ..... D14/392  
 6,059,470 A \* 5/2000 Myint ..... 400/488  
 D428,889 S \* 8/2000 Chen ..... D14/393  
 D453,334 S \* 2/2002 Hobday ..... D14/393  
 D471,910 S 3/2003 Cheng  
 6,547,463 B1 \* 4/2003 Loo ..... 400/472  
 6,822,854 B2 \* 11/2004 Te Maarssen et al. .... 361/680  
 D502,180 S \* 2/2005 Gambaro ..... D14/391  
 D510,578 S 10/2005 Ohta

OTHER PUBLICATIONS

Lueder and Grant, "Alternative keyboard designs. An ergonomics review of the literature for the National Institute of Occupational Safety and Health Ergonomics Review", *Humanics*, p. 28 (1997).  
 "Microsoft Mouse and Keyboard Hardware—Natural Keyboard Elite" product brochure downloaded at <http://www.microsoft.com/hardware/mouseandkeyboard/ProductDetails.aspx?pid=022> on Jul. 19, 2005.  
 "Microsoft Mouse and Keyboard Hardware—Comfort Curve Keyboard 2000" product brochure downloaded at <http://www.microsoft.com/hardware/mouseandkeyboard/ProductDetails.aspx?pid=040> on Jul. 19, 2006.  
 Serina et al., "Wrist and forearm postures and motions during typing", *Ergonomics*, vol. 42, pp. 938–951 (1999).  
 Simoneau et al., "Effect of Computer Keyboard Slope on Wrist Position and Forearm Electromyography of Typists Without Musculoskeletal Disorders", *Physical Therapy*, vol. 83, No. 9 (2003).

\* cited by examiner

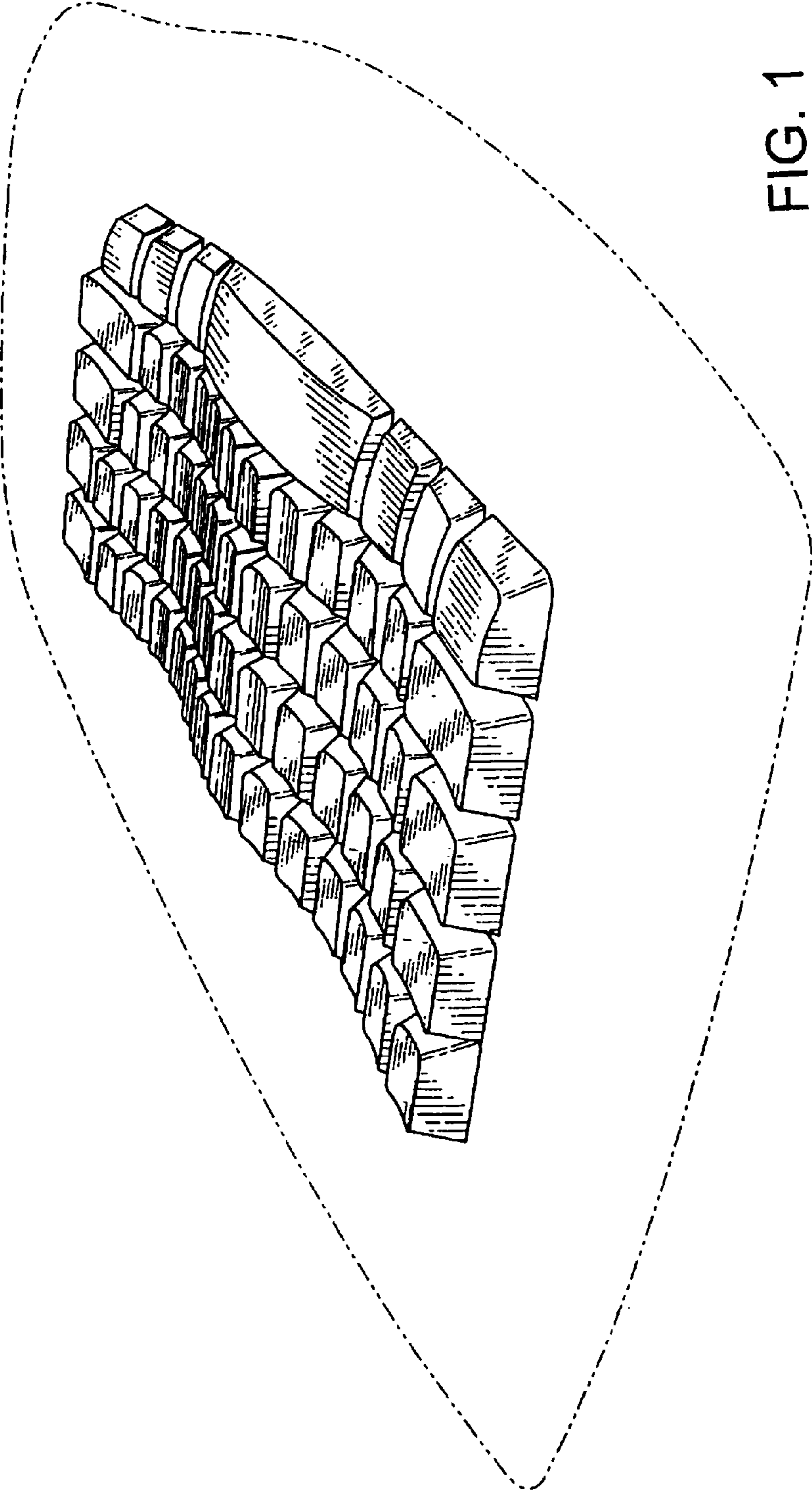


FIG. 1

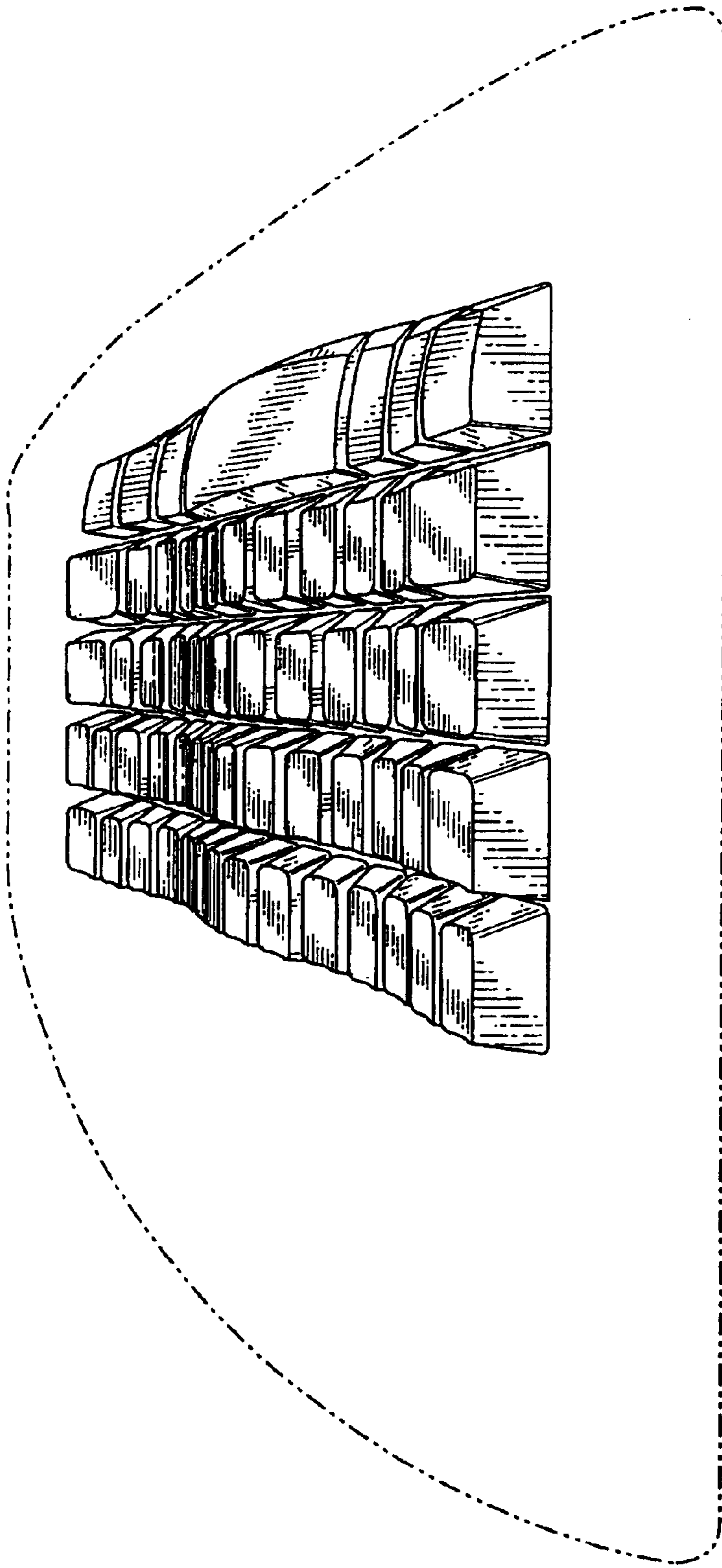


FIG. 2

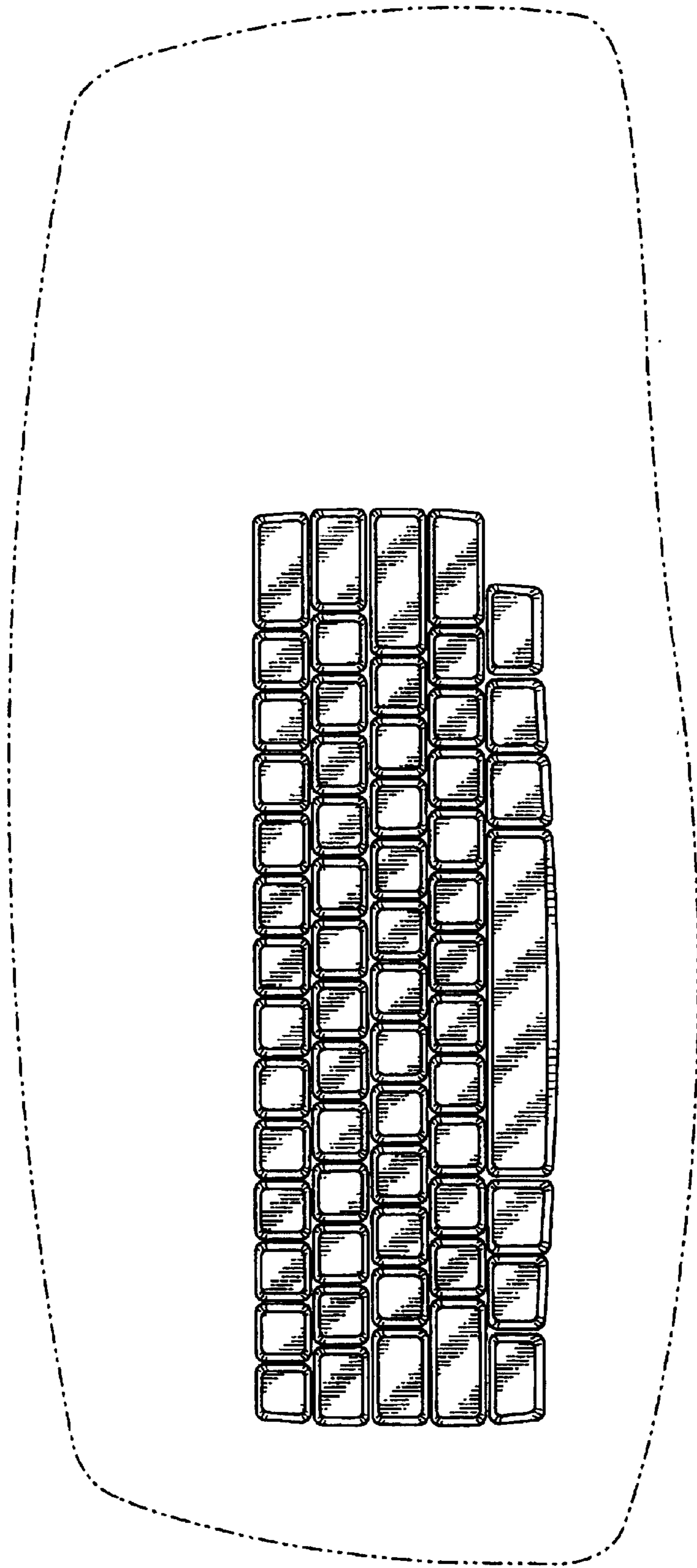


FIG. 3

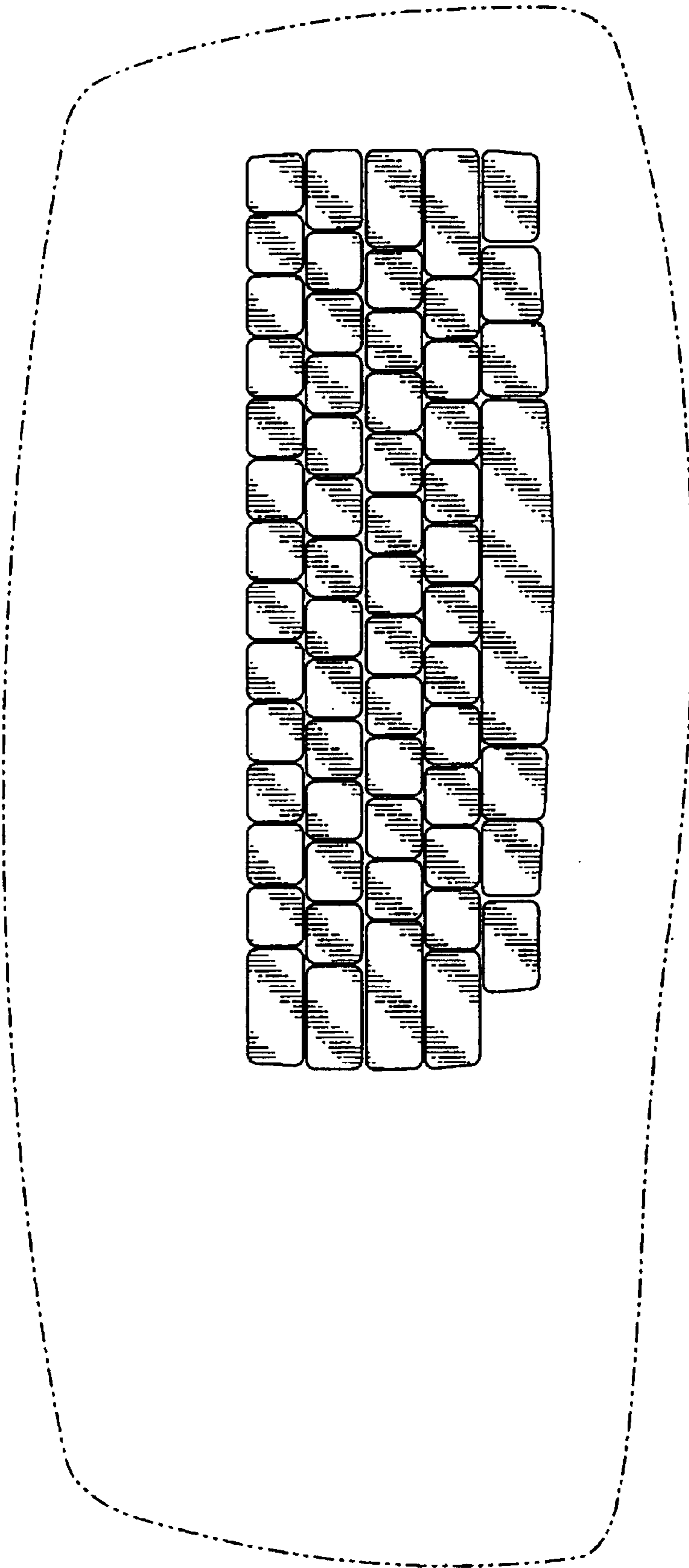


FIG. 4

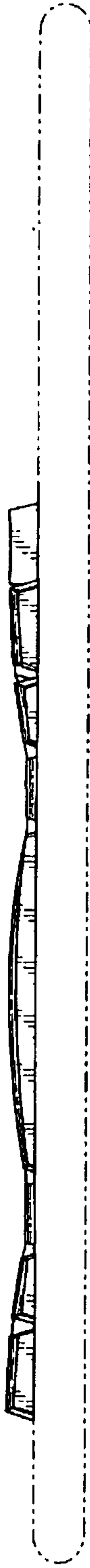


FIG. 5

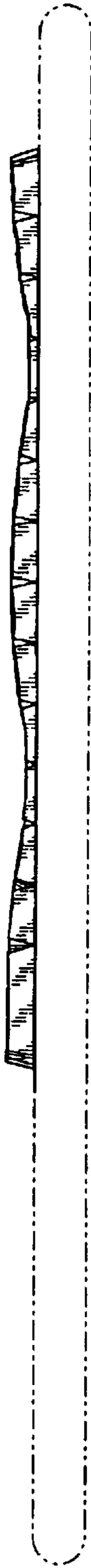


FIG. 6



FIG. 7

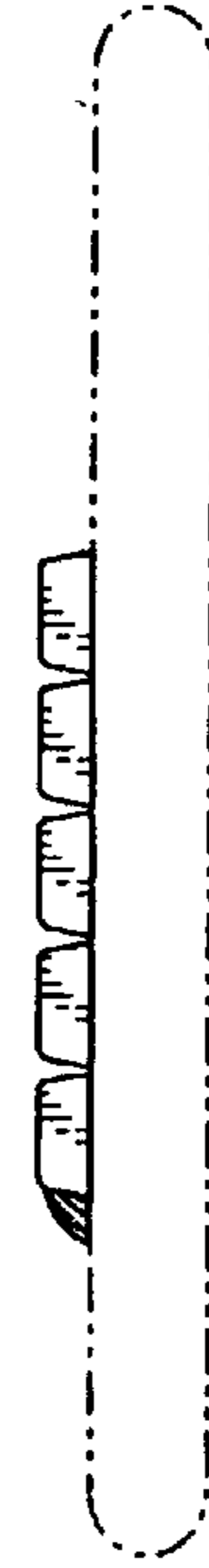


FIG. 8