



US00D361555S

# United States Patent [19]

Erickson et al.

[11] Patent Number: **Des. 361,555**

[45] Date of Patent: **\*\* Aug. 22, 1995**

## [54] COMBINED PROGRAMMER AND MONITOR FOR AN IMPLANTABLE TISSUE GROWTH STIMULATOR

[75] Inventors: **John H. Erickson**, Plano; **John C. Tepper**, Carrollton; **Mark A. Bettin**, Plano; **Robert W. Lee**, Carrollton; **Glenn Jacobs**, Flower Mound, all of Tex.

[73] Assignee: **AMEI Technologies Inc.**, Wilmington, Del.

[\*\*] Term: **14 Years**

[21] Appl. No.: **4,938**

[22] Filed: **Feb. 17, 1993**

[52] U.S. Cl. .... **D14/114; D24/155**

[58] Field of Search ..... **D14/114, 218, 191; 607/30-32, 50-52, 59-60; 128/903; 364/413.27; D24/138, 186, 200**

### [56] References Cited

#### U.S. PATENT DOCUMENTS

D. 320,659	10/1991	Johansson et al. ....	D24/155
D. 350,962	9/1994	Reardon et al. ....	D14/218
D. 353,889	12/1994	Erickson et al. ....	D24/155
2,067,589	1/1937	Antrim .....	47/48.5
2,298,232	10/1942	Remund .....	47/48.5
3,055,372	9/1962	Browner .....	128/421
3,702,755	11/1972	Palmer .....	47/48.5 X
3,745,995	7/1973	Kraus .....	128/82.1
3,783,880	1/1974	Kraus .....	128/82.1
3,842,841	10/1974	Brighton et al. ....	128/419
3,874,372	4/1975	LeBon .....	128/24 A
3,881,873	5/1975	Klowden .....	47/48.5 X
3,890,953	6/1975	Kraus et al. ....	128/1.5
3,892,552	7/1975	Gay, Jr. ....	47/48.5 X
3,914,900	10/1975	Bigelow et al. ....	47/48.5 X
3,915,151	10/1975	Kraus .....	128/1.5
3,918,440	11/1975	Kraus .....	128/82.1
3,946,762	3/1976	Green .....	47/48.5
4,026,304	5/1977	Levy .....	128/419
4,105,017	8/1978	Ryaby et al. ....	128/1.5
4,216,548	8/1980	Kraus .....	31/1.91
4,232,679	11/1980	Schulman .....	128/419
4,237,895	12/1980	Johnson .....	128/419 PG
4,313,438	2/1982	Greatbatch .....	128/207.21
4,314,554	2/1982	Greatbatch .....	128/207.21

4,333,469	6/1982	Jeffcoat et al. ....	128/419
4,344,250	8/1982	Fahlstrom .....	47/48.5 X
4,414,979	11/1982	Hirshorn et al. ....	128/419

(List continued on next page.)

### FOREIGN PATENT DOCUMENTS

0305791	3/1989	European Pat. Off. .	
0561068	9/1993	European Pat. Off. .	
1466730	6/1987	U.S.S.R. .	
8302901	9/1983	WIPO .....	607/52

### OTHER PUBLICATIONS

Brokaw, A. Paul "A Simple Three-Terminal IC Band-gap Reference", Feb. 1974, pp. 388-393.

Dohrmann, George J. and Rubin, Jonathan M., "Intra-

(List continued on next page.)

*Primary Examiner*—Melanie H. Tung  
*Attorney, Agent, or Firm*—Baker & Botts

### [57] CLAIM

The ornamental design for a combined programmer and monitor for an implantable tissue growth stimulator, as shown and described.

### DESCRIPTION

FIG. 1 is a perspective view of the combined programmer and monitor for an implantable tissue growth stimulator of the present invention;

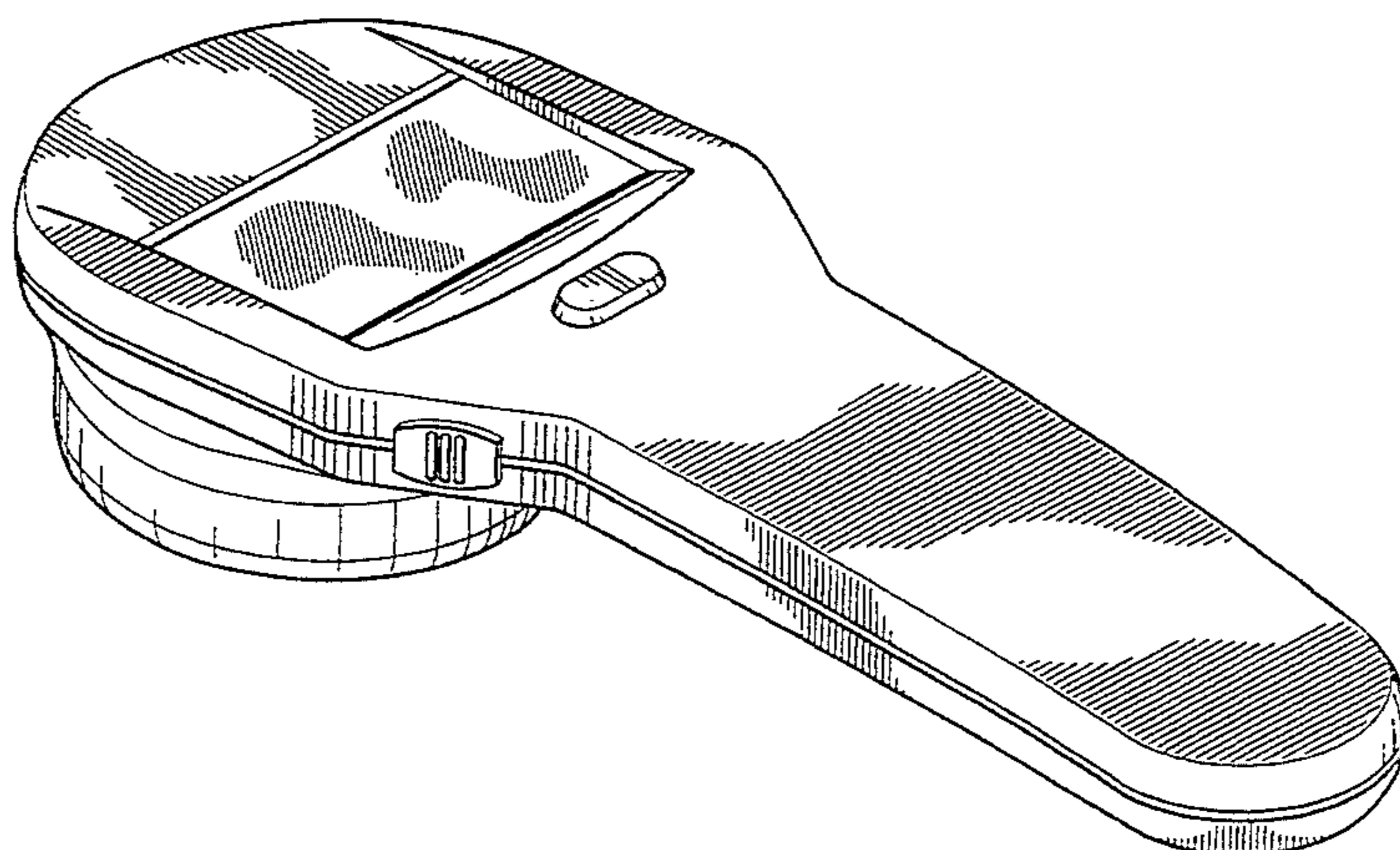
FIG. 2 is a top view of the combined programmer and monitor for an implantable tissue growth stimulator of FIG. 1;

FIG. 3 is a right side view of the combined programmer and monitor for an implantable tissue growth stimulator of FIG. 1, the left side view being a mirror image thereof;

FIG. 4 is a bottom view of the combined programmer and monitor for an implantable tissue growth stimulator of FIG. 1;

FIG. 5 is a first end view of the combined programmer and monitor for an implantable tissue growth stimulator of FIG. 1; and,

FIG. 6 is a second end view of the combined programmer and monitor for an implantable tissue growth stimulator of FIG. 1.



## U.S. PATENT DOCUMENTS

4,432,361	2/1984	Christensen et al.	128/419	4,793,325	12/1988	Cadossi et al.	600/14
4,459,988	7/1984	Dugot	128/419	4,889,111	12/1989	Ben-Dov	128/419
4,461,300	7/1984	Christensen	128/419 F	4,905,671	3/1990	Senge et al.	128/419
4,467,808	8/1984	Brighton et al.	128/419 F	4,944,299	7/1990	Silvian	128/419 PT
4,506,673	3/1985	Bonnell	128/419	4,974,114	11/1990	Kammerer	361/159
4,506,674	3/1985	Brighton et al.	128/419	4,993,413	2/1991	McLeod et al.	128/419
4,514,865	5/1985	Harris	24/155 X	5,000,178	3/1991	Griffith	128/419
4,519,394	5/1985	Black et al.	128/419 F	5,014,699	5/1991	Pollack et al.	128/419
4,530,360	7/1985	Duarte	128/419	5,030,236	7/1991	Dean	623/16
4,535,775	8/1985	Brighton et al.	128/419 F	5,038,780	8/1991	Boetzkes	128/419
4,549,546	10/1985	Kelly et al.	128/419 F	5,056,518	10/1991	Pethica et al.	128/419
4,549,547	10/1985	Brighton et al.	128/419	5,058,582	10/1991	Thaler	128/419 F
4,550,370	10/1985	Baker	364/413	5,088,488	2/1992	Markowitz et al.	128/419 PG
4,556,051	12/1985	Maurer	128/15	5,103,806	4/1992	McLeod et al.	128/419
4,561,426	12/1985	Stewart	128/419	5,154,172	10/1992	Terry, Jr. et al.	128/419 R
4,561,443	12/1985	Hogrefe et al.	128/419 PG	5,191,880	3/1993	McLeod et al.	128/24 AA
4,592,360	6/1986	Lesnick	607/60	5,285,781	2/1994	Brodard	607/59
4,598,713	7/1986	Hansjurgens et al.	128/421				
4,600,010	7/1986	Dugot	128/419				
4,602,638	7/1986	Adams	128/419				
4,611,597	9/1986	Kraus	128/419				
4,613,937	9/1986	Batty, Jr.	364/413				
4,619,264	10/1986	Singh	128/419 F				
4,651,468	3/1987	Martinez et al.	47/48.5 X				
4,654,574	3/1987	Thaler	320/14				
4,665,896	5/1987	LaForge et al.	129/1 D				
4,665,920	5/1987	Campbell	128/422				
4,679,560	7/1987	Galbraith	128/419 R				
4,683,896	8/1987	Herbst et al.	128/785				
4,699,143	10/1987	Dufresne et al.	607/59 X				
4,759,368	7/1988	Spanton et al.	D24/200 X				
4,781,591	11/1988	Allen	433/174				
4,785,244	11/1988	Jin et al.	324/260				

## OTHER PUBLICATIONS

operative Ultrasound Imaging of the Spinal Cord: Syringomyelia, Cysts, and Tumors—A Preliminary Report”, *Surgical Neurologist*, vol. 18, No. 6, Dec. 1982. pp. 395–399, Little, Brown, & Co., Boston, Massachusetts.

Saba, Joseph M., “Echo-Encephalography”, *Medial Electronics*, Sep.–Oct. 1970, pp. 96–103.

Osteostim® 2000 Implantable Growth Stimulator—Implant Tester, advertisement.

“The Alternate Treatment of Fracture Nonunion—Electrical Stimulation to Induce Osteogenesis” brochure, *Zimmer USA*, Sep., 1979, pp. 1–16.

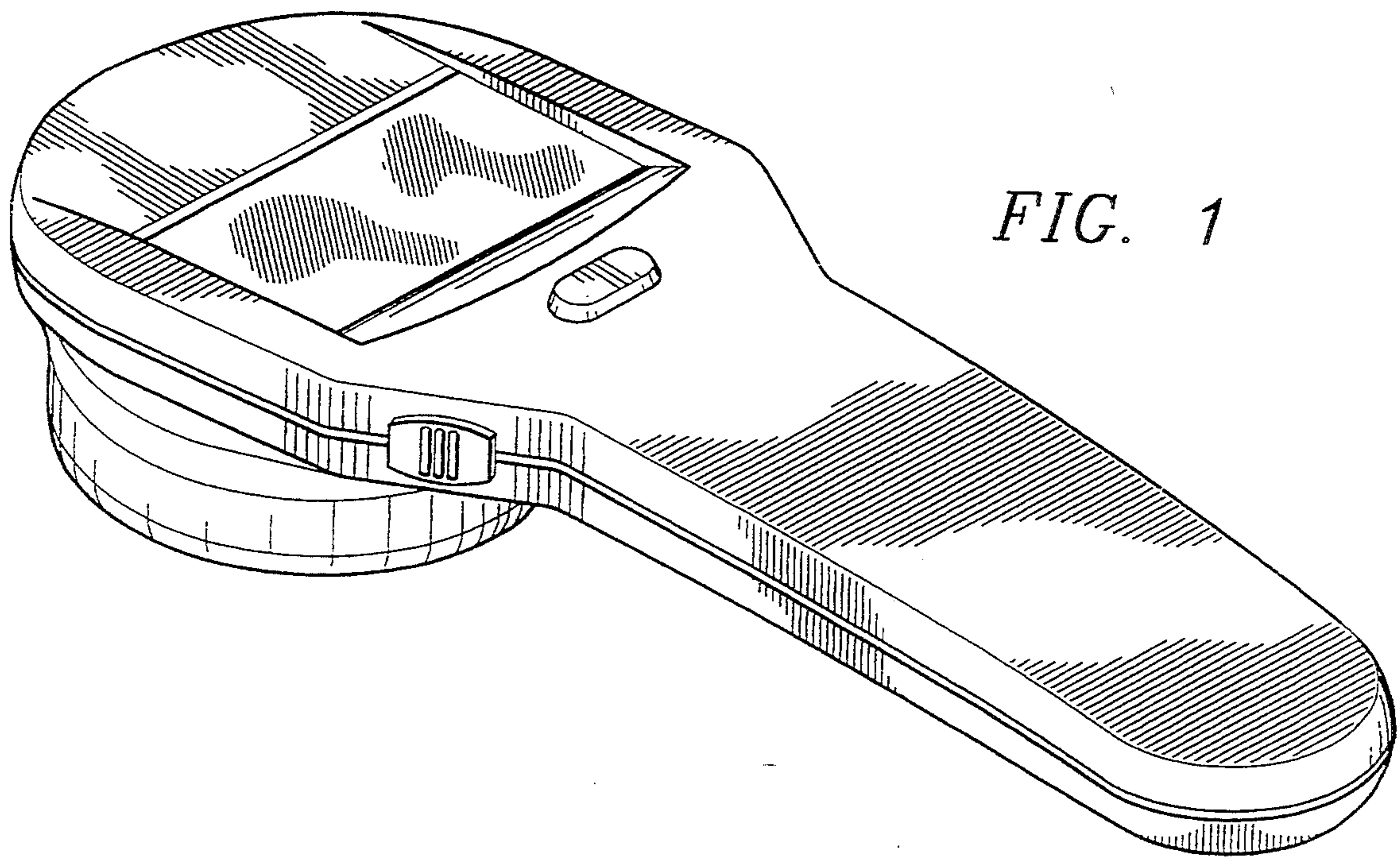


FIG. 1

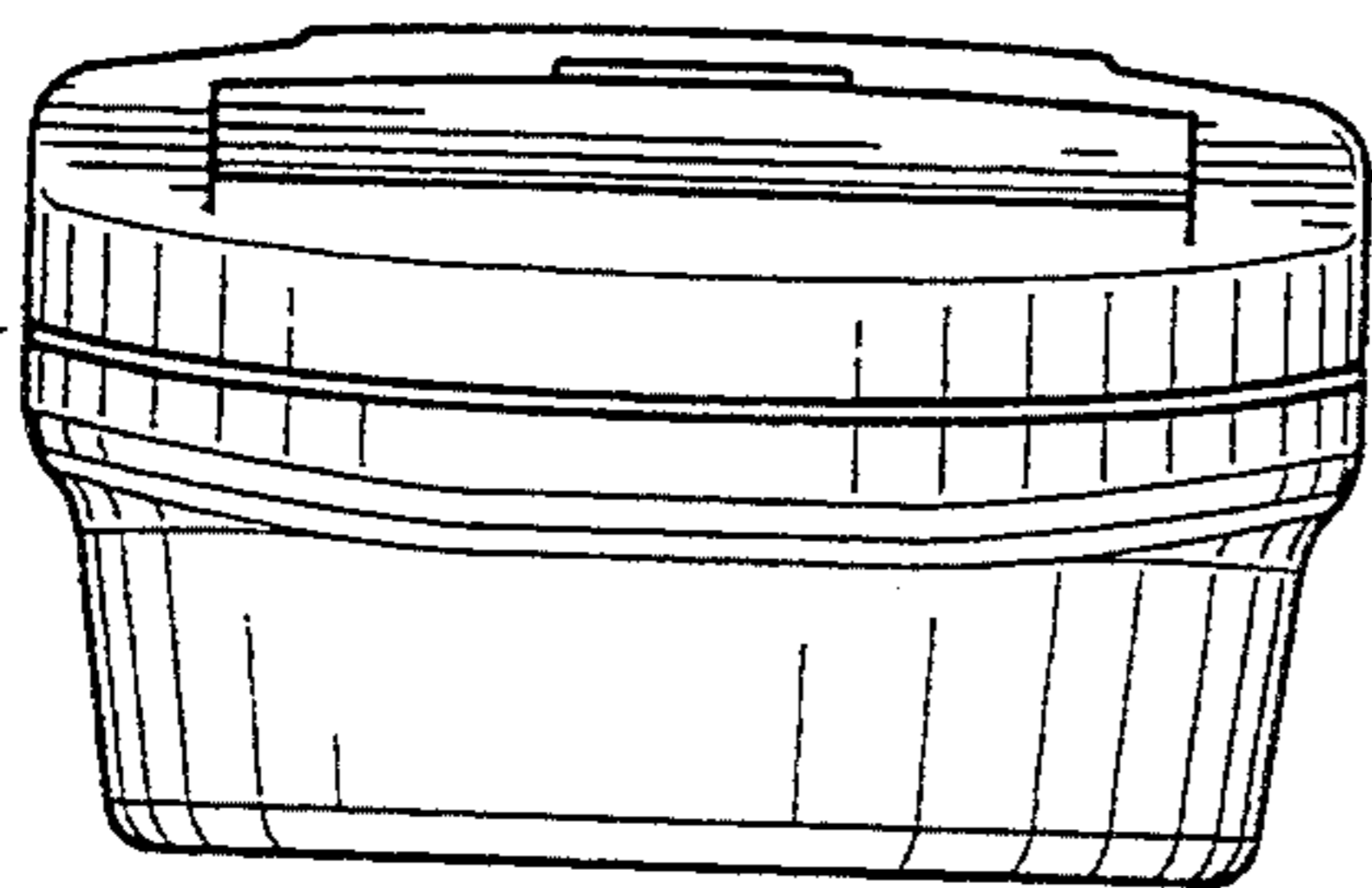


FIG. 5

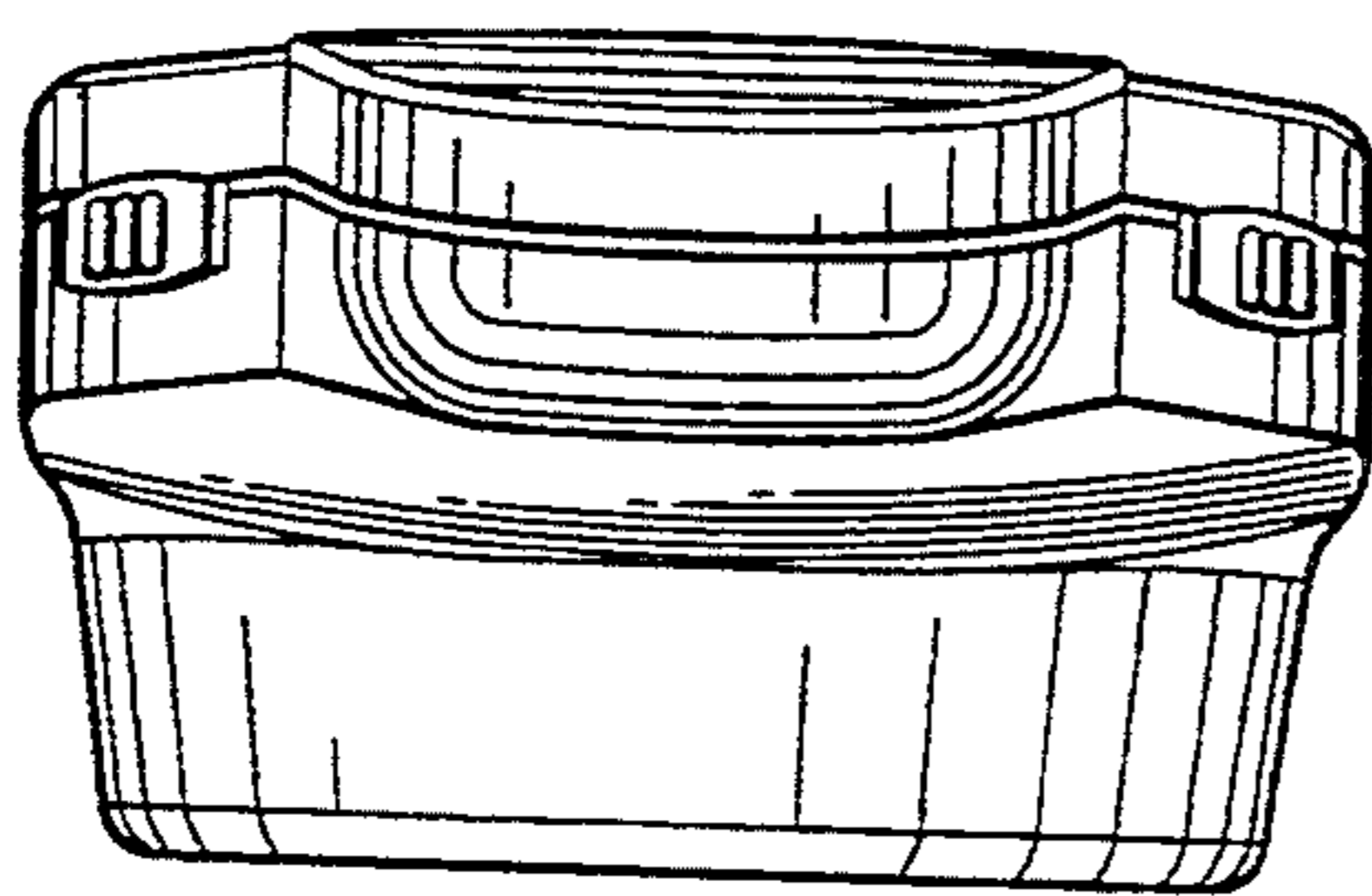


FIG. 6

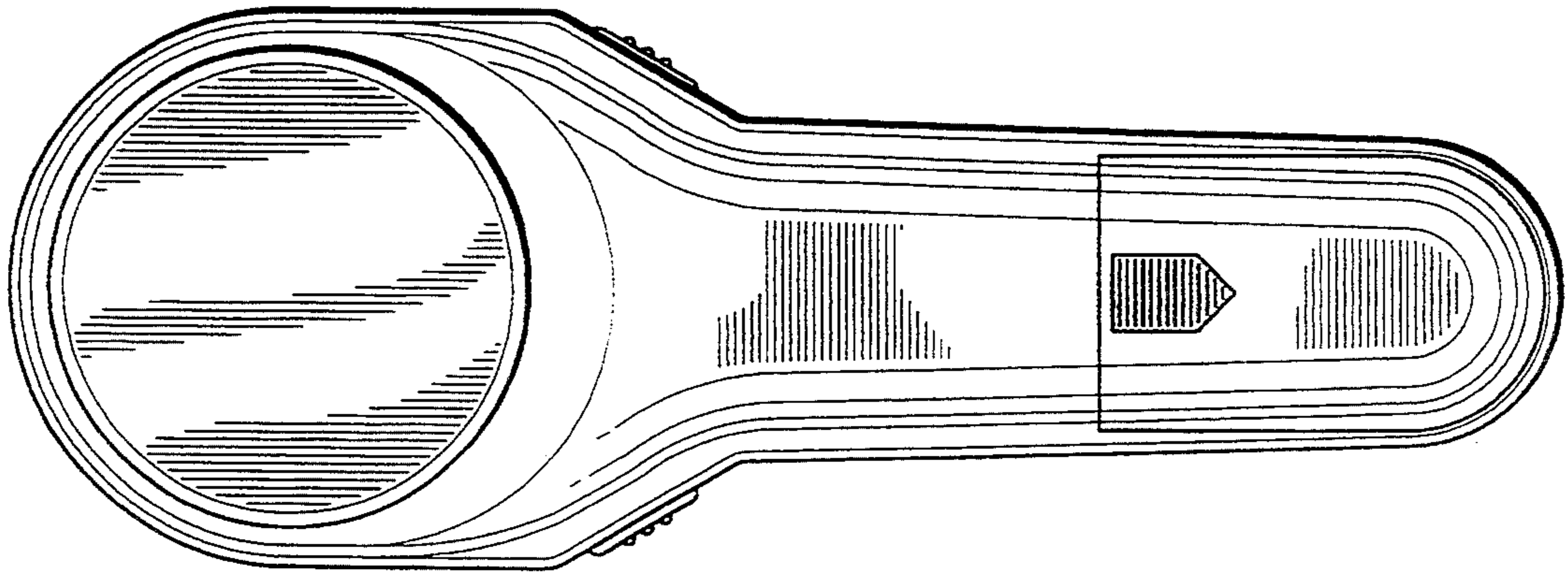


FIG. 4

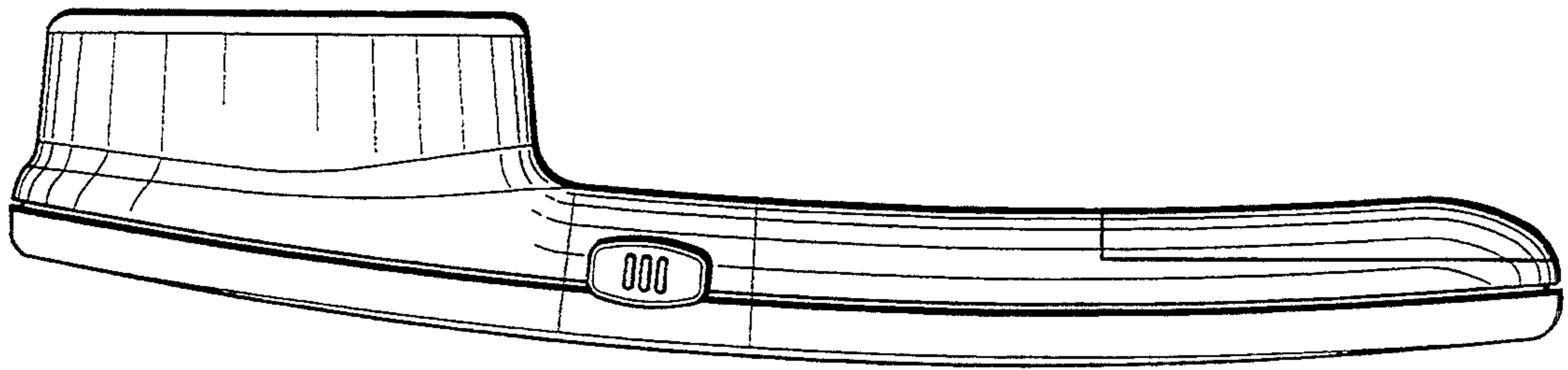


FIG. 3

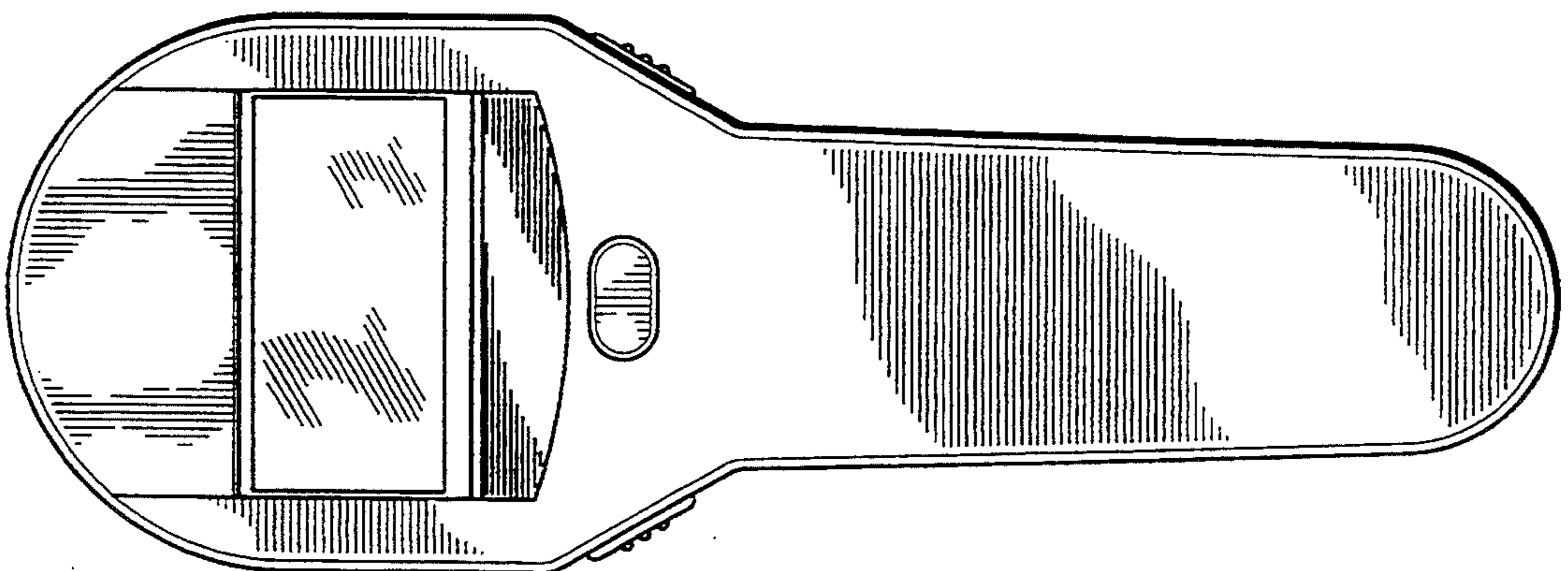


FIG. 2