



US00D772316S

(12) **United States Design Patent** (10) **Patent No.:** **US D772,316 S**
Johnson et al. (45) **Date of Patent:** **** Nov. 22, 2016**

(54) **KNIFE ASSEMBLY**

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(**) Term: **14 Years**

(21) Appl. No.: **29/522,647**

(22) Filed: **Apr. 1, 2015**

(51) **LOC (10) Cl.** **15-09**

(52) **U.S. Cl.**
USPC **D15/139**

(58) **Field of Classification Search**
USPC D15/122-143, 144-147; 53/512;
144/241, 174-176; D8/98, 70;
D25/119, 48.2, 121, 38.1, 41.1, 136
CPC B27L 11/005; B02C 2023/165; B02C
18/144; B02C 18/00; B02C 18/086; B02C
18/16; B02C 18/14; B27G 13/10; B27G
13/04; Y10T 407/192; Y10T 407/1938;
B29B 2017/044
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,126,931 A 3/1964 Blanshine et al.
3,163,918 A * 1/1965 Emmons B23B 27/08
407/113

(Continued)

FOREIGN PATENT DOCUMENTS

DE 4406675 9/1994
GB 1208458 10/1970

OTHER PUBLICATIONS

SSSDynamics, Inc., Sutton-steele radial knife granulators, retrieved from <http://www.sssdynamics.com/docs/size-reduction/sutton-granulators.pdf>, published at least as early as Oct. 2, 2014, 4 pages.

(Continued)

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(57) **CLAIM**

We claim the ornamental design for a knife assembly, as shown and described in FIGS. 1-21.

DESCRIPTION

FIG. 1 is a perspective view of a knife assembly embodying the present invention.

FIG. 2 is a top view of the knife assembly of FIG. 1.

FIG. 3 is a bottom view of the knife assembly of FIG. 1.

FIG. 4 is a front view of the knife assembly of FIG. 1.

FIG. 5 is a rear view of the knife assembly of FIG. 1.

FIG. 6 is a left side view of the knife assembly of FIG. 1.

FIG. 7 is a right side view of the knife assembly of FIG. 1.

FIG. 8 is a perspective view of another knife assembly embodying the present invention.

FIG. 9 is a top view of the knife assembly of FIG. 8.

FIG. 10 is a bottom view of the knife assembly of FIG. 8.

FIG. 11 is a front view of the knife assembly of FIG. 8.

FIG. 12 is a rear view of the knife assembly of FIG. 8.

FIG. 13 is a left side view of the knife assembly of FIG. 8.

FIG. 14 is a right side view of the knife assembly of FIG. 8.

FIG. 15 is a perspective view of another knife assembly embodying the present invention.

FIG. 16 is a top view of the knife assembly of FIG. 15.

FIG. 17 is a bottom view of the knife assembly of FIG. 15.

FIG. 18 is a front view of the knife assembly of FIG. 15.

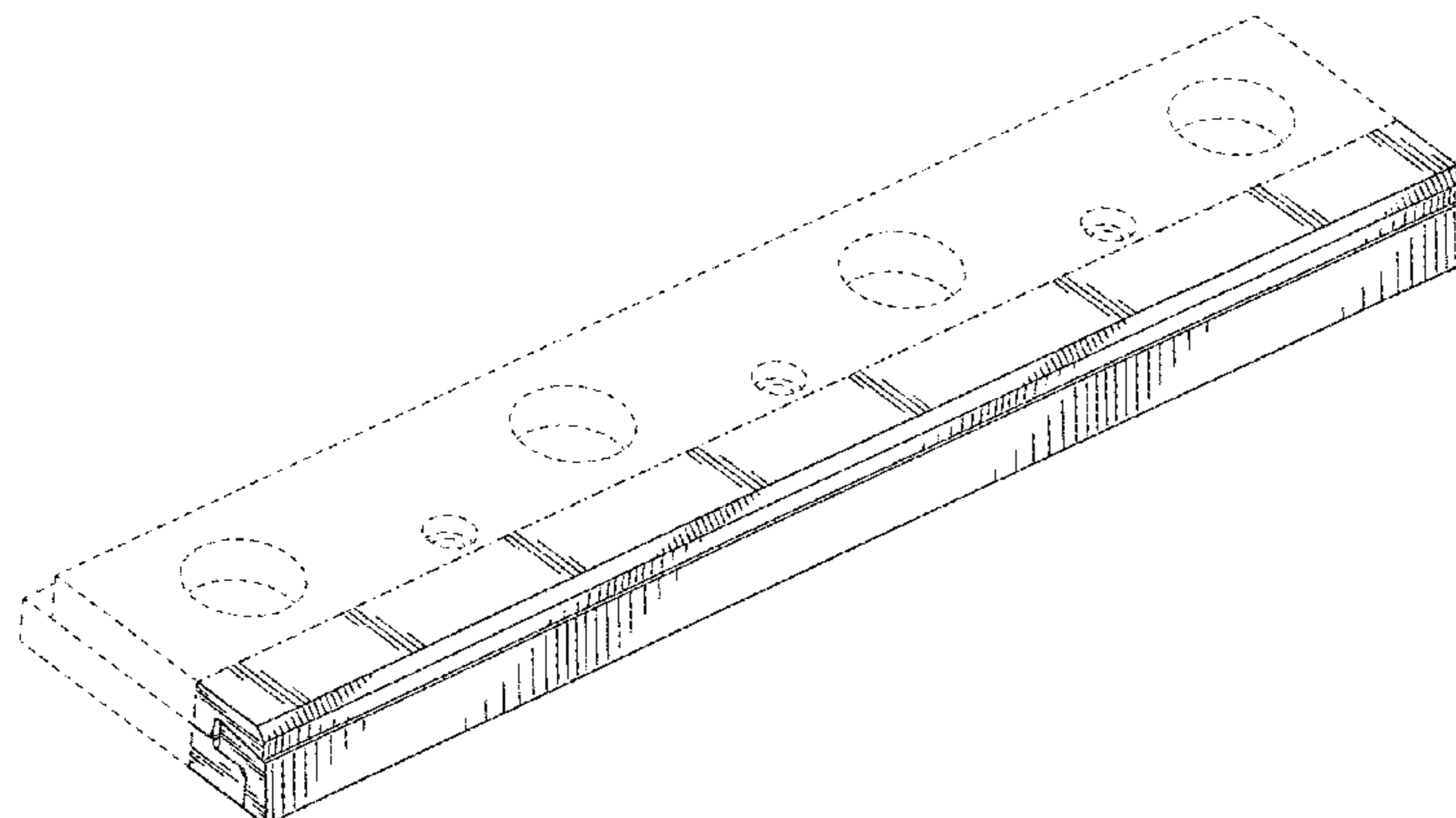
FIG. 19 is a rear view of the knife assembly of FIG. 15.

FIG. 20 is a left side view of the knife assembly of FIG. 15; and,

FIG. 21 is a right side view of the knife assembly of FIG. 15.

The portions of the knife assembly shown in broken lines illustrate environment and form no part of the claimed design. The dot-dash-dot lines visible in FIGS. 1-3, 6-10, 13-17, 20, and 21 define the boundary of the claimed design and form no part of the claimed design.

1 Claim, 9 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D222,691 S * 12/1971 Lindal D25/119
 3,790,093 A 2/1974 McIntyre
 3,957,211 A 5/1976 Nakamura et al.
 4,028,779 A 6/1977 Shah
 4,106,708 A 8/1978 Kropa
 4,206,882 A 6/1980 Barnes et al.
 4,231,495 A 11/1980 Lund
 4,669,516 A * 6/1987 Carpenter B27L 11/005
 144/176
 4,706,899 A 11/1987 Parker et al.
 4,969,605 A * 11/1990 Morin B02C 18/186
 241/192
 4,977,937 A * 12/1990 Hessenthaler B27L 11/005
 144/117.1
 5,195,685 A 3/1993 Dumaine
 5,474,239 A 12/1995 Williams, Jr. et al.
 D366,995 S * 2/1996 Davis D15/146
 D370,611 S * 6/1996 Frick D15/139
 D372,037 S * 7/1996 Lane, Jr. D15/146
 5,649,579 A * 7/1997 Kokko B27L 11/005
 144/162.1
 D391,378 S * 2/1998 Bannister D25/136
 5,743,472 A 4/1998 Williams, Jr. et al.
 5,775,608 A 7/1998 Dumaine et al.
 5,857,508 A * 1/1999 Jonkka B27L 11/005
 144/176
 5,979,522 A * 11/1999 Swartwood B27L 11/005
 144/162.1
 6,058,989 A * 5/2000 LaGrange B27L 11/005
 144/218
 D450,556 S * 11/2001 Biller D15/139
 6,481,650 B1 11/2002 Mori
 D480,483 S * 10/2003 Eichner D25/119
 6,662,837 B2 * 12/2003 Smith B27L 11/005
 144/162.1
 6,749,138 B2 6/2004 Hart et al.
 D506,663 S * 6/2005 Biller D8/98
 6,968,879 B2 * 11/2005 Schuh B27L 11/005
 144/174

7,069,969 B2 * 7/2006 Knappett B27G 13/10
 144/176
 7,140,408 B1 * 11/2006 Hinchliff B27L 11/005
 144/176
 7,159,626 B2 * 1/2007 Biller B27G 13/10
 144/176
 D547,465 S * 7/2007 Mann D25/164
 D560,822 S * 1/2008 Flechsig D25/121
 7,938,155 B2 * 5/2011 Maietta B27L 11/005
 144/162.1
 8,464,973 B2 6/2013 Karlsson et al.
 8,534,580 B2 9/2013 Rice et al.
 D696,319 S * 12/2013 Tempel D15/139
 D705,274 S 5/2014 Sirviö
 D725,294 S * 3/2015 Cooke D25/119
 2005/0205162 A1 * 9/2005 Stager B27G 13/10
 144/373
 2006/0208120 A1 * 9/2006 McGehee B27G 13/10
 241/294
 2007/0221766 A1 9/2007 Karlsson et al.
 2009/0000697 A1 * 1/2009 Hinchliff B27G 13/10
 144/230
 2009/0200411 A1 * 8/2009 Stager B27L 11/005
 241/296
 2009/0294016 A1 * 12/2009 Sayres B29C 47/003
 156/71
 2011/0089279 A1 4/2011 Karlsson et al.
 2011/0108318 A1 * 5/2011 Pawlak E04F 19/04
 174/504
 2013/0309345 A1 11/2013 Dahlheimer et al.
 2014/0027552 A1 * 1/2014 Hinchliff B27G 13/00
 241/300
 2015/0343667 A1 * 12/2015 Robertson B29B 11/02
 425/308

OTHER PUBLICATIONS

Wittmann, Optimal Material Recycling, retrieved from <http://pen-noneplastics.com/sites/default/files/witmann-granulators.pdf>, published at least as early as Oct. 2, 2014, 12 pages.

* cited by examiner

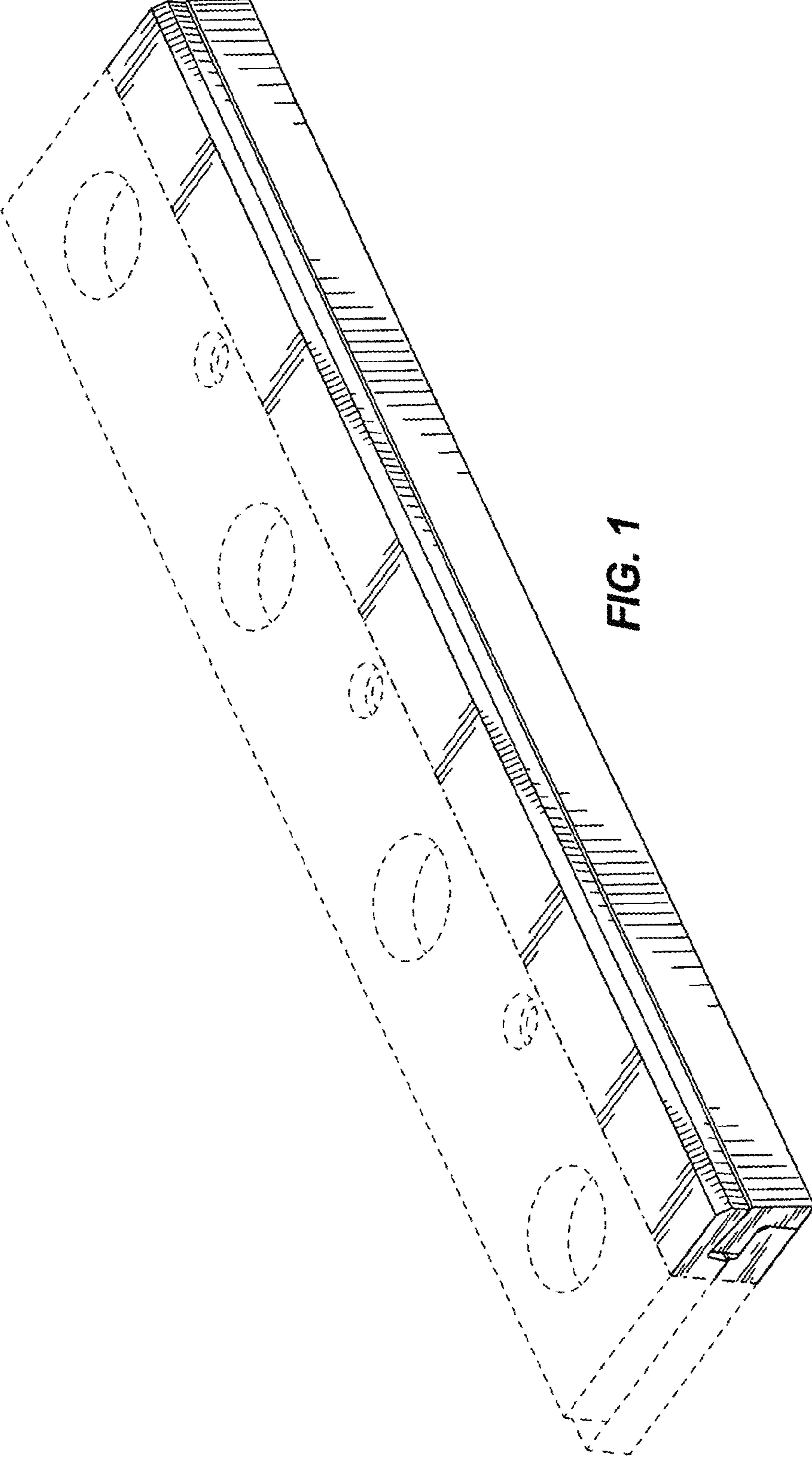


FIG. 1

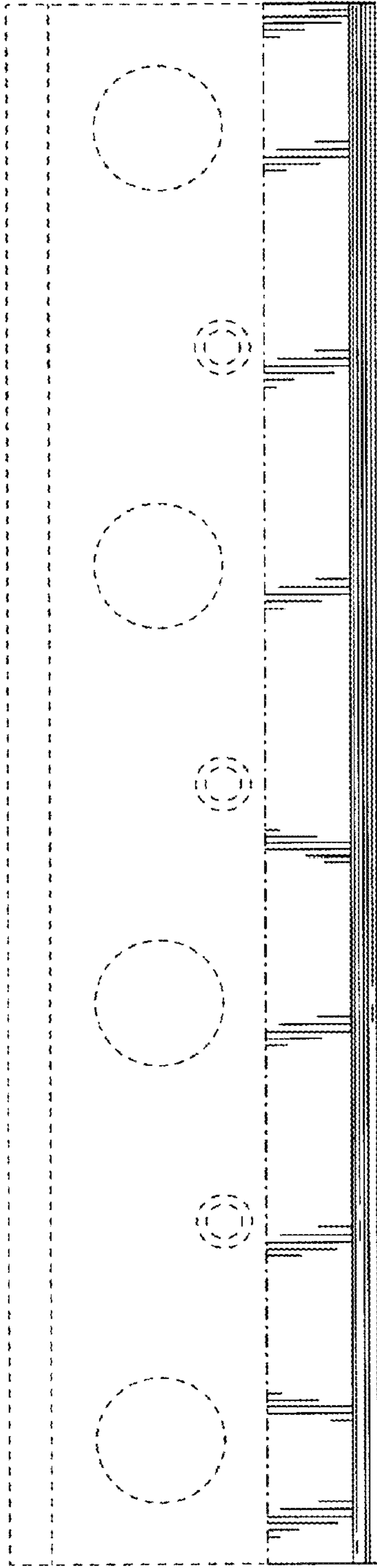


FIG. 2

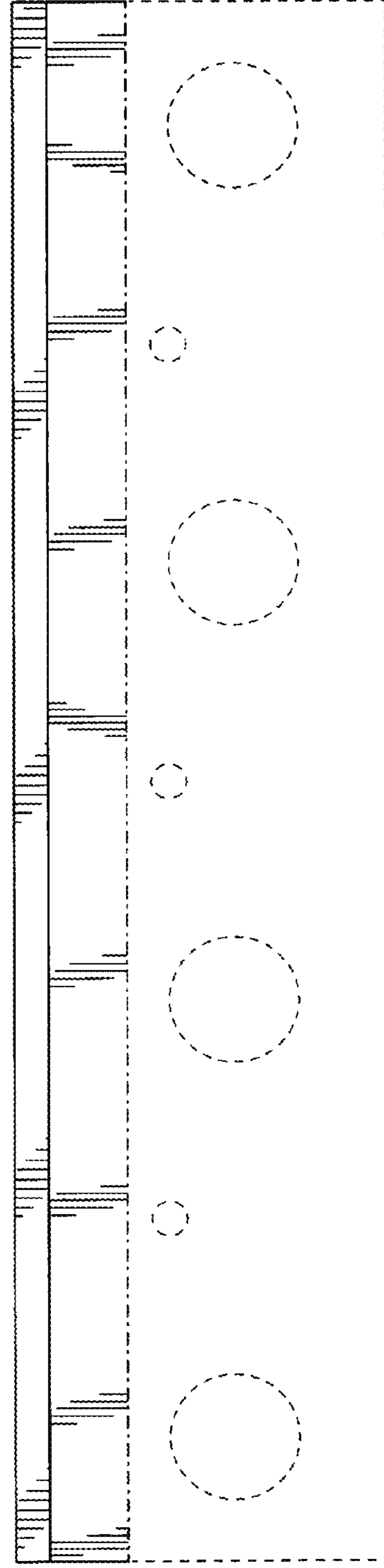


FIG. 3

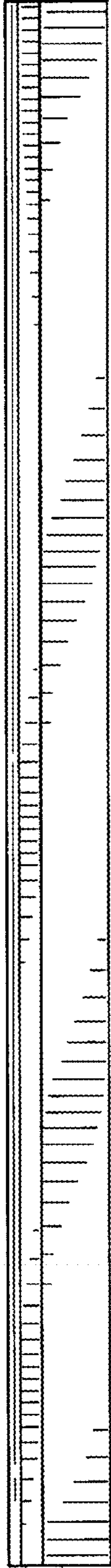


FIG. 4

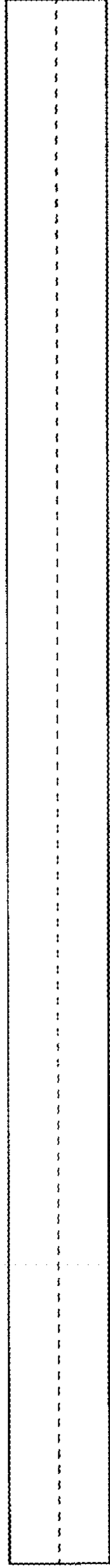


FIG. 5

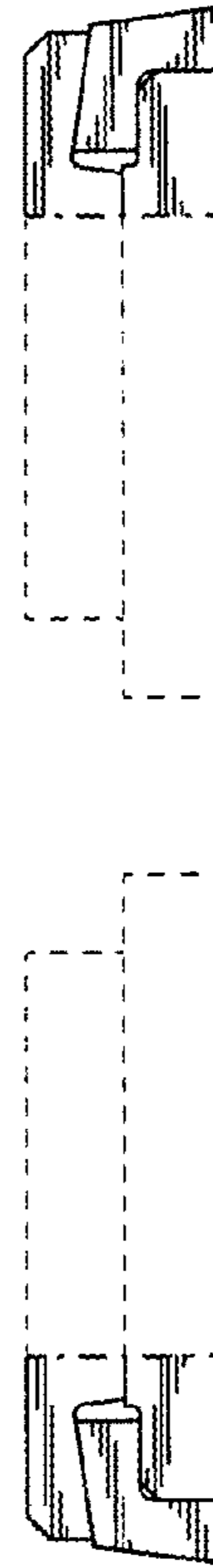


FIG. 6

FIG. 7

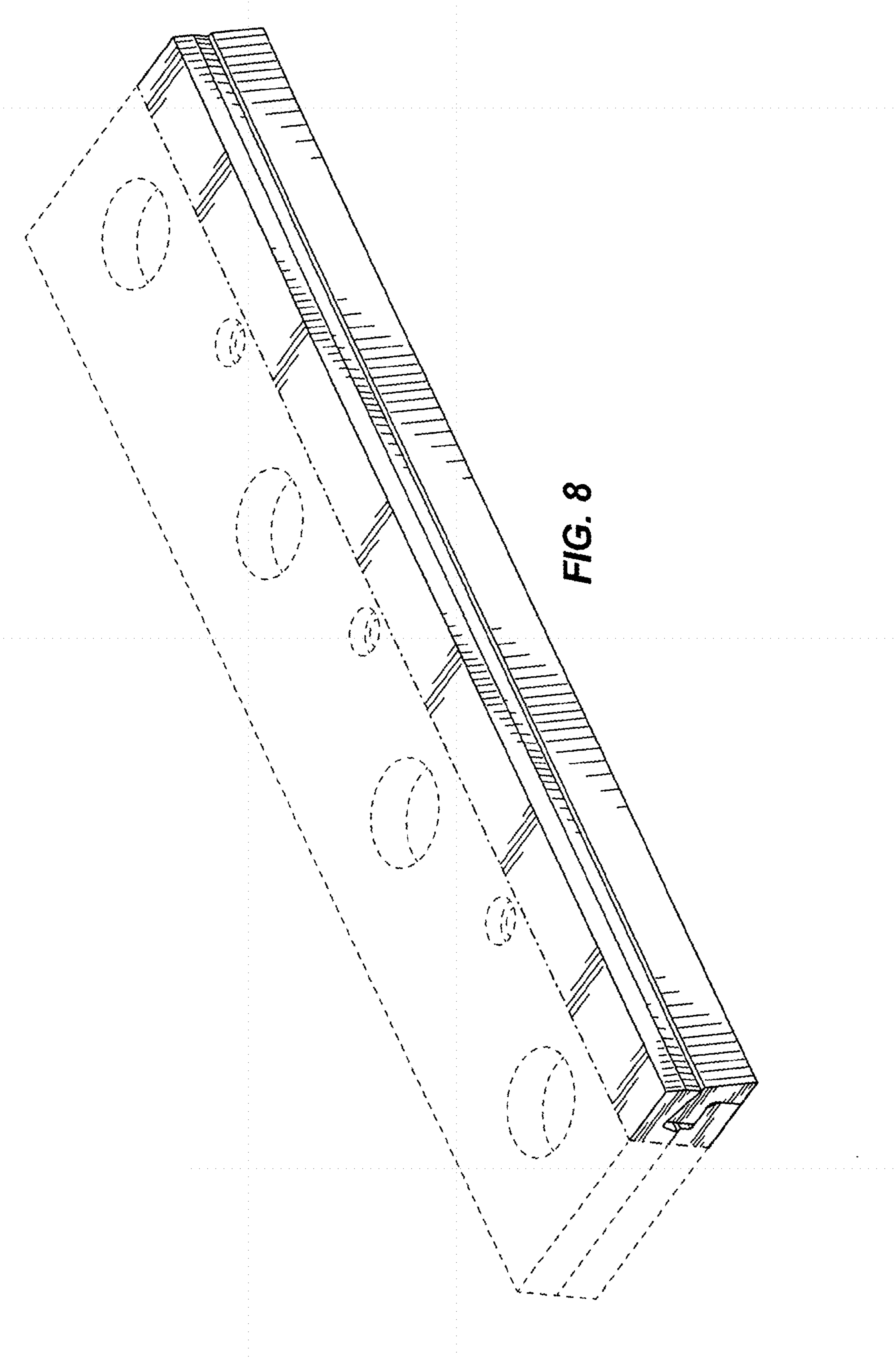


FIG. 8

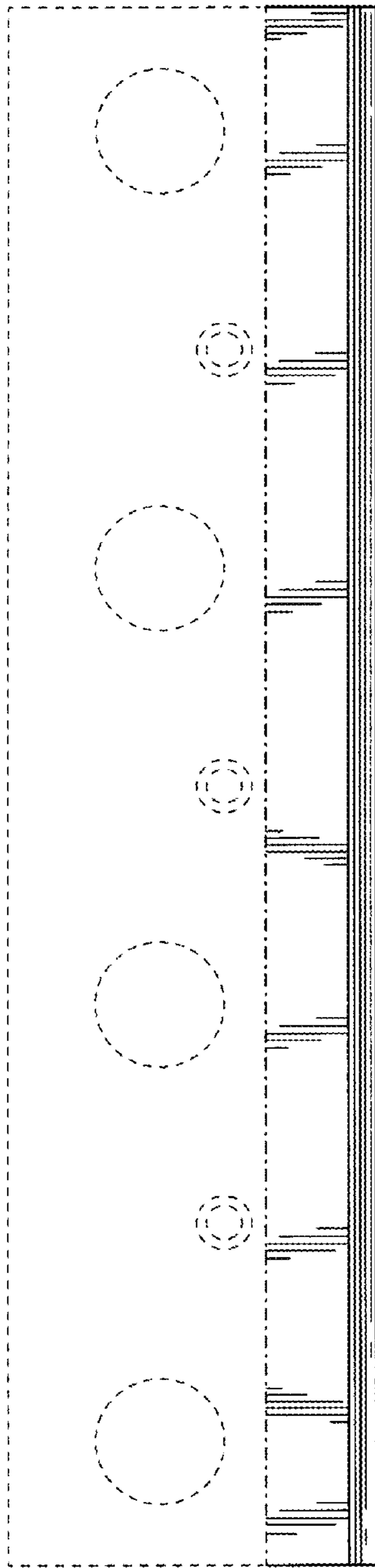


FIG. 9

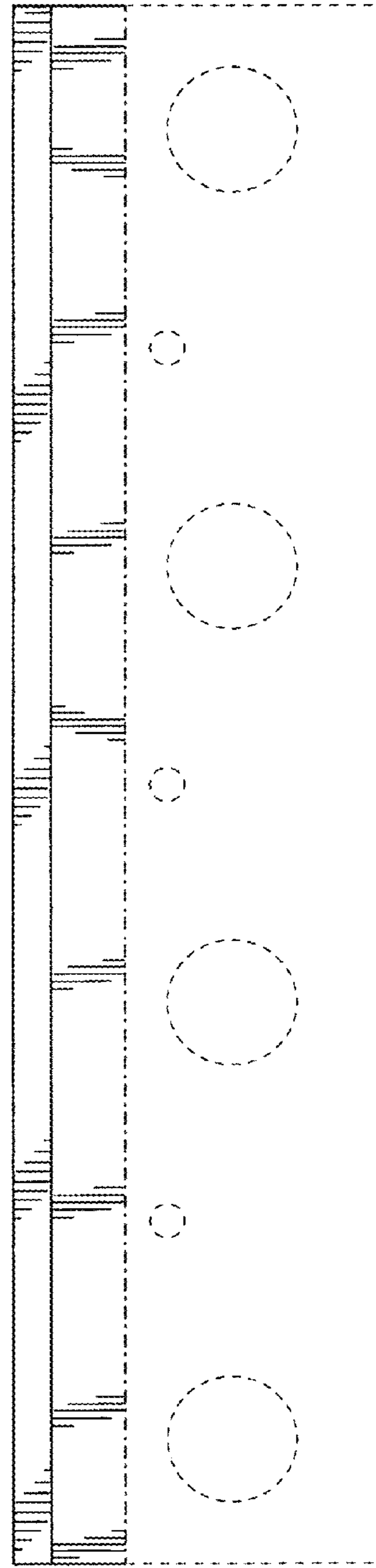


FIG. 10

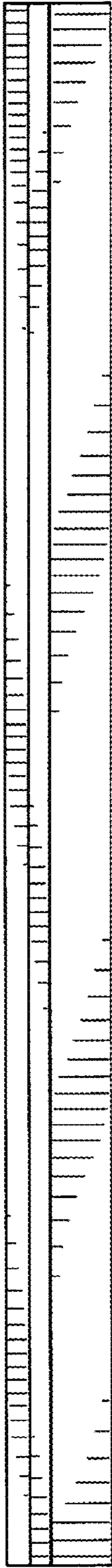


FIG. 11

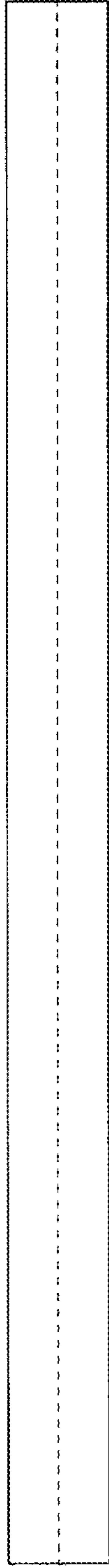


FIG. 12



FIG. 13

FIG. 14

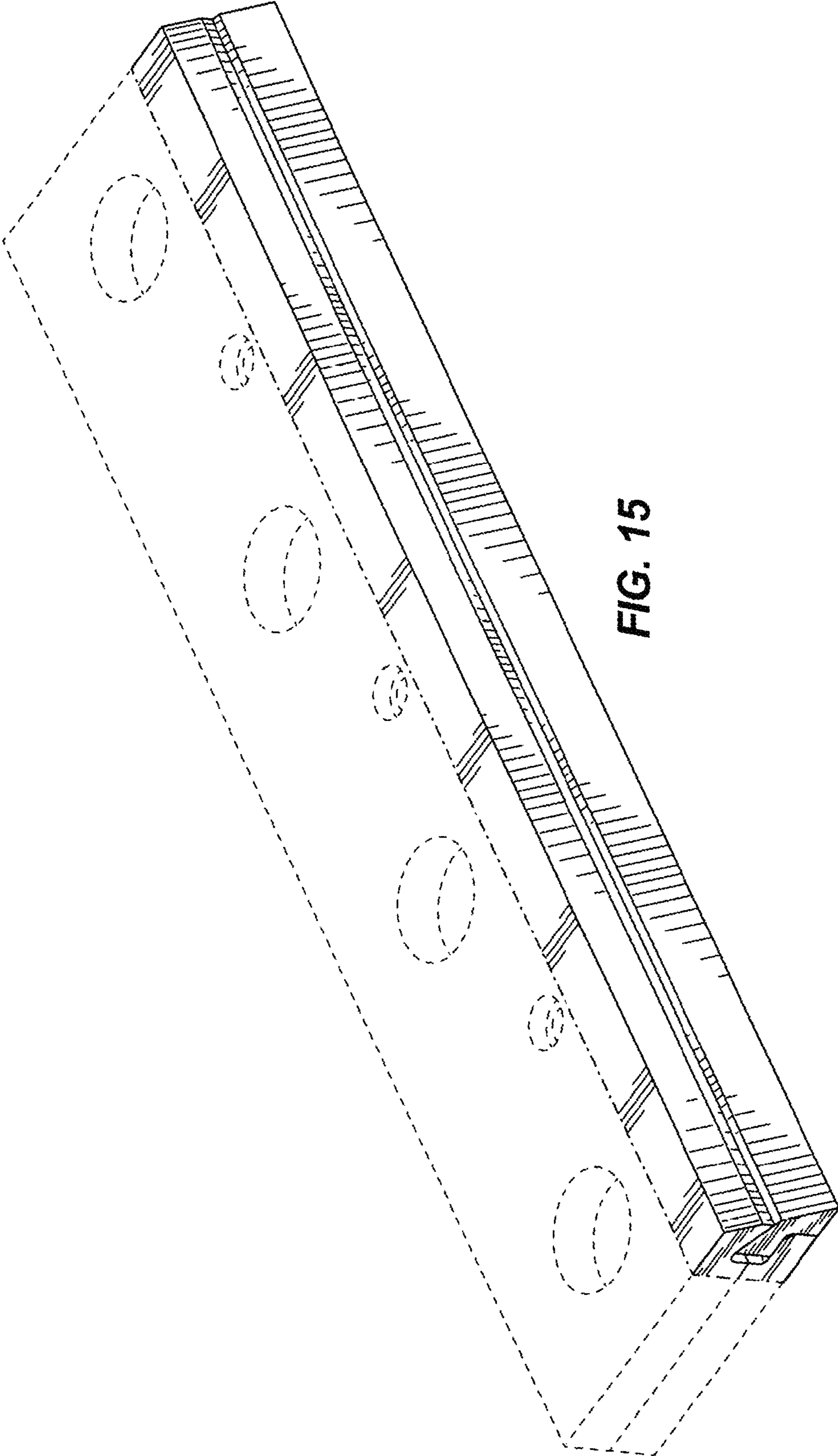


FIG. 15

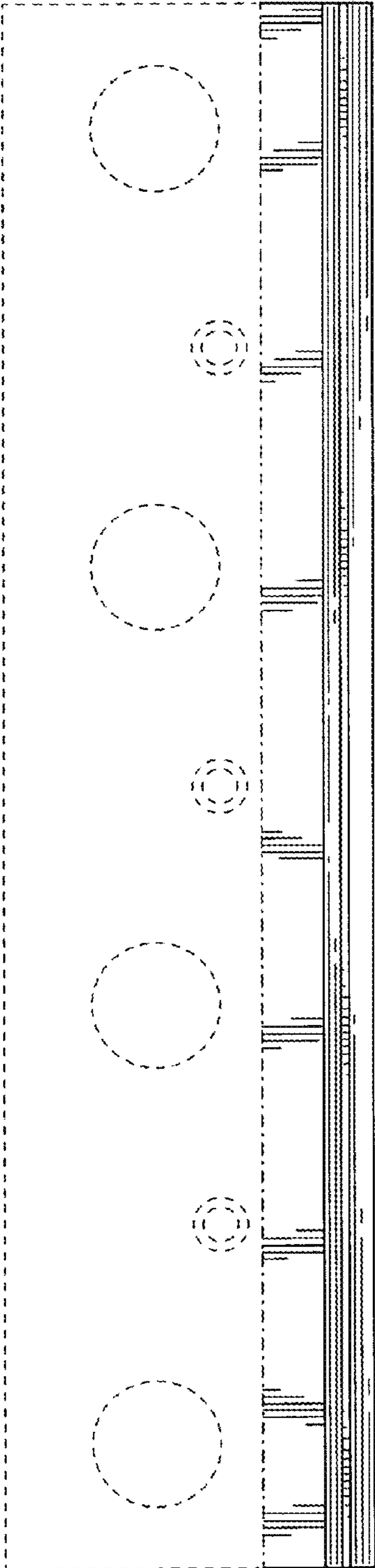


FIG. 16

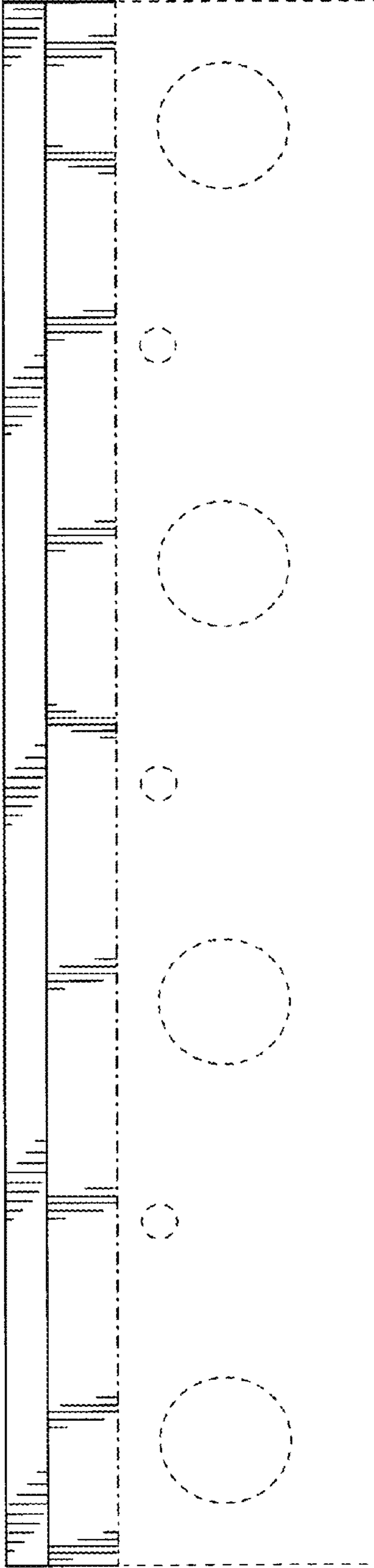


FIG. 17

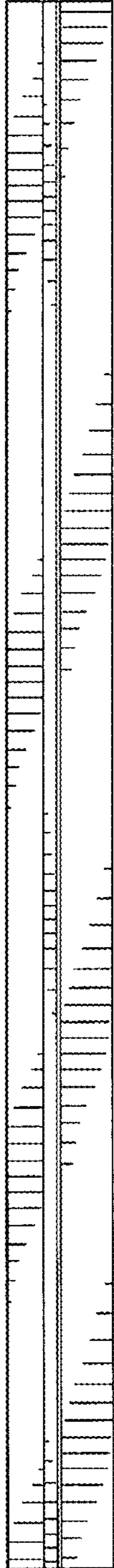


FIG. 18

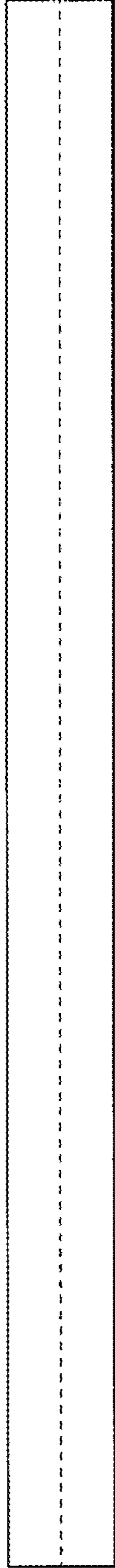


FIG. 19



FIG. 20

FIG. 21