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(12) **United States Design Patent**
Imai et al.

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(54) **SEMICONDUCTOR DEVICE**

(71) Applicant: **Panasonic Intellectual Property Management Co., Ltd.**, Osaka (JP)

(72) Inventors: **Toshikazu Imai**, Hyogo (JP); **Ryosuke Okawa**, Nara (JP); **Eiji Yasuda**, Osaka (JP); **Takeshi Imamura**, Kyoto (JP); **Kazuma Yoshida**, Kyoto (JP); **Shigetoshi Sota**, Kyoto (JP)

(73) Assignee: **Panasonic Intellectual Property Management Co., Ltd.**, Osaka (JP)

(**) Term: **15 Years**

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(30) **Foreign Application Priority Data**

Aug. 2, 2016 (CN) 2016 3 0362734

(51) **LOC (11) Cl.** **13-03**

(52) **U.S. Cl.**
USPC **D13/182**

(58) **Field of Classification Search**
USPC D13/182; 257/678, 684, 690, 691; 361/679.01, 713, 728, 736, 760, 761, 772, 361/775, 783, 820; 174/250, 253; 438/15, 25, 26, 51, 55, 63, 64, 106
CPC . H01L 21/00; H01L 2224/42; H01L 2224/43; H01L 2021/00; H01L 2021/02; H01L 2021/04; H01L 21/4814; H01L 21/4846; H01L 21/4871; H01L 21/67144; H01L 23/13; H01L 23/14; H01L 23/147; H01L 2924/171; H01L 2924/1711; H01L 2924/1715; H01L 2924/17151; H01L 2924/181; H01L 2924/1811; H01L 2924/1815; H01L 2924/19042; H01L 2924/1905; H01L 2224/08054; H01L 23/58; H05B 41/14; H02B 6/4201; G02B 6/4256; G02B 6/4257; G02B 6/4261;

G02B 6/4262; G02B 6/428; G02B 6/4281; H05K 1/14; H05K 1/141; H05K 1/142; H05K 1/144; H05K 1/18; H05K 1/181; H05K 1/182; H05K 1/026
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,949,158 A * 8/1990 Ueda H01L 23/49572
257/668
D318,461 S * 7/1991 Hasegawa D13/182
(Continued)

Primary Examiner — Elizabeth J Oswecki
(74) *Attorney, Agent, or Firm* — Panasonic IP Management; Kerry S. Culpepper

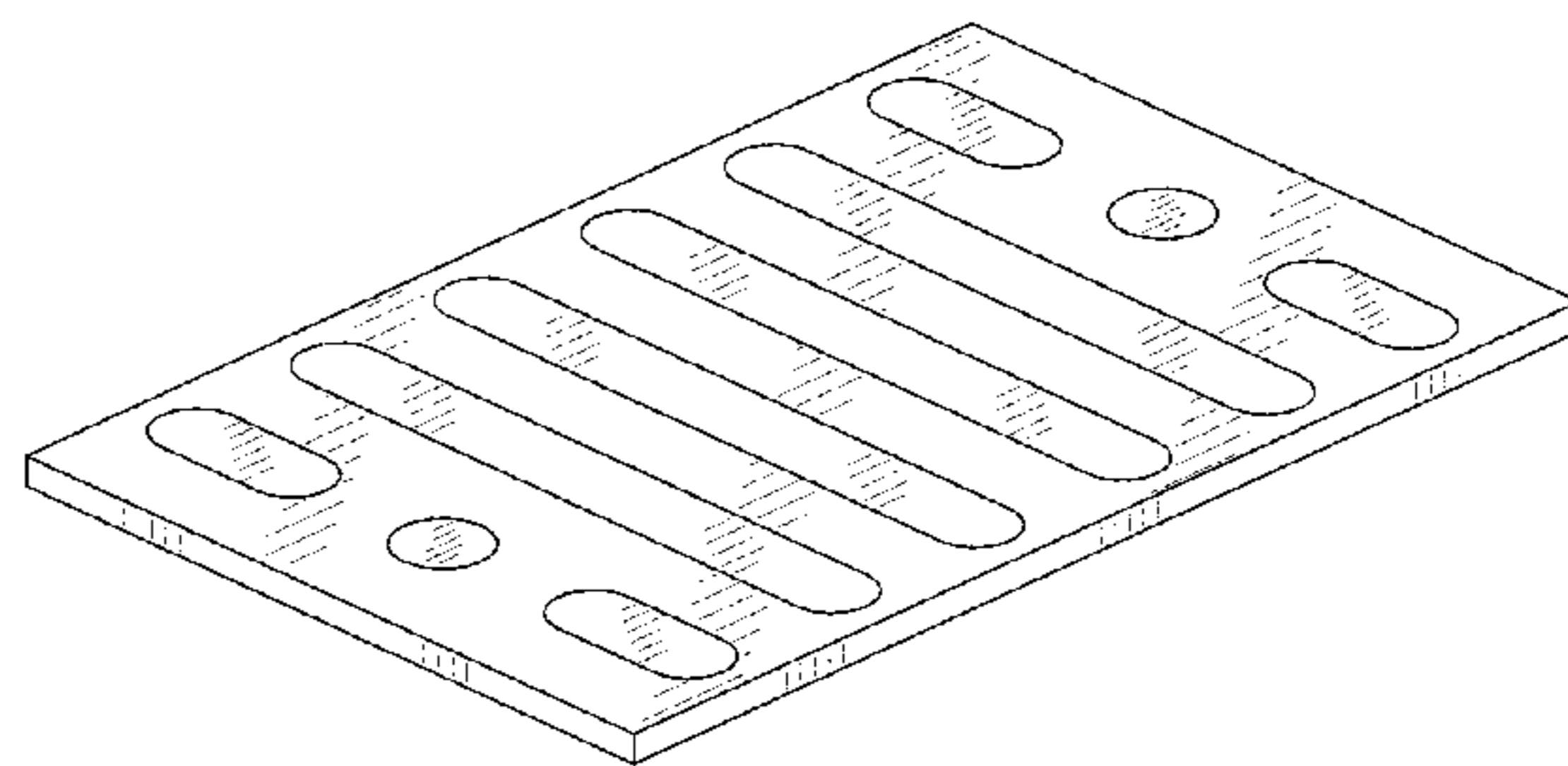
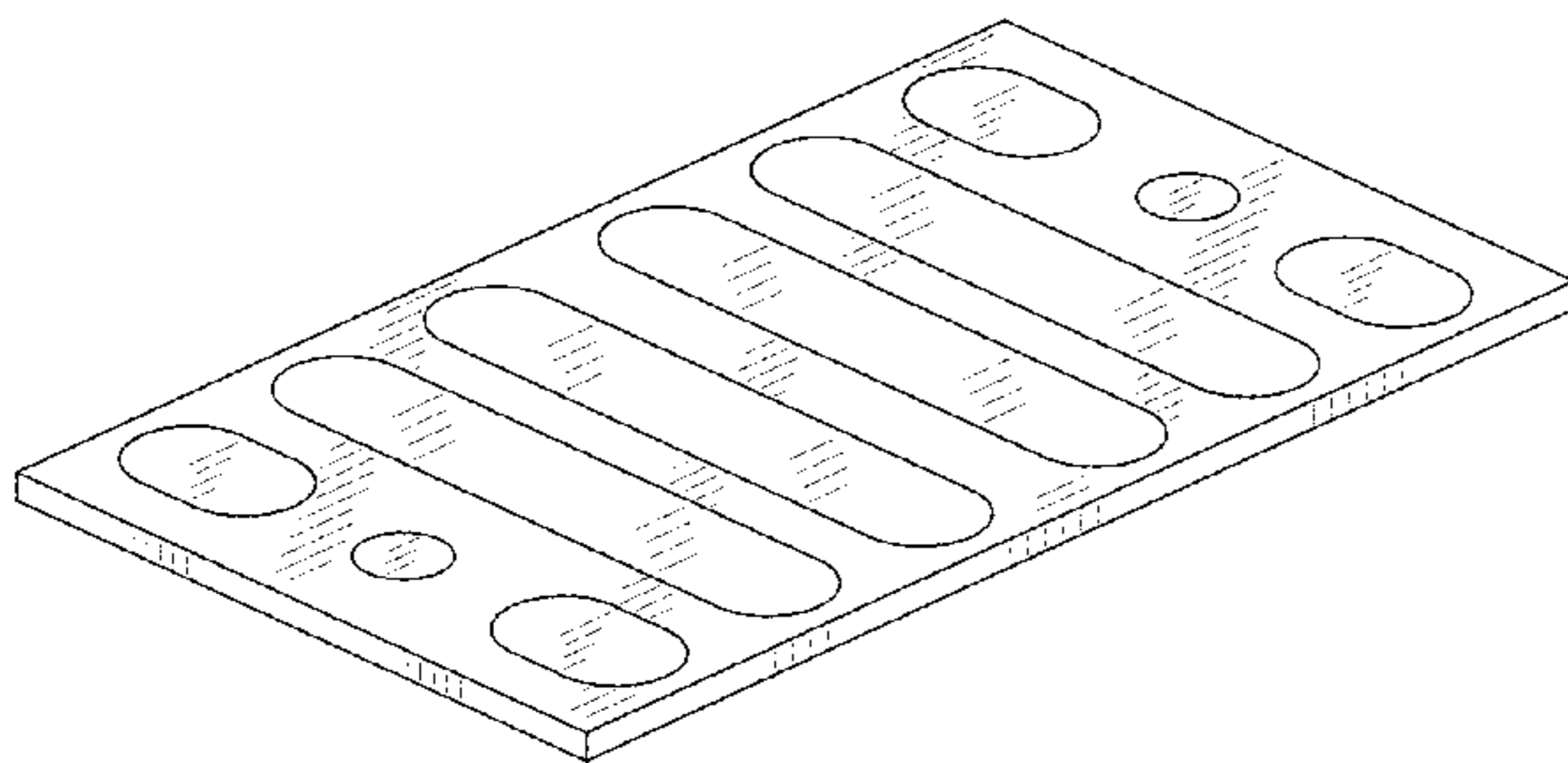
(57) **CLAIM**

The ornamental design for a semiconductor device, as shown and described.

DESCRIPTION

FIG. 1 is a front perspective view of a first embodiment of a semiconductor device showing our new design;
FIG. 2 is a front view thereof;
FIG. 3 is a rear view thereof;
FIG. 4 is a first side view thereof;
FIG. 5 is a second side view thereof;
FIG. 6 is a top view thereof;
FIG. 7 is a bottom view thereof;
FIG. 8 is a front perspective view of a second embodiment of a semiconductor device showing our new design;
FIG. 9 is a front view thereof;
FIG. 10 is a rear view thereof;
FIG. 11 is a first side view thereof;
FIG. 12 is a second side view thereof;
FIG. 13 is a top view thereof; and,
FIG. 14 is a bottom view thereof.

1 Claim, 14 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D319,045 S * 8/1991 Hasegawa D13/182
 D319,629 S * 9/1991 Hasegawa D13/182
 D319,814 S * 9/1991 Hasegawa D13/182
 5,757,082 A * 5/1998 Shibata H01L 24/05
 257/48
 5,994,772 A * 11/1999 Shin H01L 23/13
 257/686
 D427,159 S * 6/2000 Oba D13/182
 6,307,269 B1 * 10/2001 Akiyama H01L 23/3114
 257/701
 D456,367 S * 4/2002 Matteson D13/182
 D457,146 S * 5/2002 Yamamoto D13/182
 D466,093 S * 11/2002 Ebihara D13/182
 D471,167 S * 3/2003 Ebihara D13/182
 D487,430 S * 3/2004 Asaka D13/182
 6,753,482 B1 * 6/2004 Schoenfeld H01L 23/3128
 174/255

6,836,002 B2 * 12/2004 Chikawa H01L 23/3121
 257/666
 D504,874 S * 5/2005 Celaya D13/182
 D510,728 S * 10/2005 Celaya D13/182
 6,992,386 B2 * 1/2006 Hata H01L 23/49562
 257/276
 D540,272 S * 4/2007 Higashibata D13/182
 D598,380 S * 8/2009 Kuriki D13/133
 D648,290 S * 11/2011 Mori D13/182
 D691,101 S * 10/2013 Ishizawa D13/182
 D721,047 S * 1/2015 Vinciarelli D13/182
 D752,000 S * 3/2016 Vinciarelli D13/182
 D754,083 S * 4/2016 Vinciarelli D13/182
 D768,115 S * 10/2016 Kazanchian D13/182
 D775,093 S * 12/2016 Vinciarelli D13/182
 2006/0043544 A1 * 3/2006 Tsukamoto H01L 27/14618
 257/666
 2006/0097374 A1 * 5/2006 Egawa H01L 23/3128
 257/686

* cited by examiner

FIG. 1

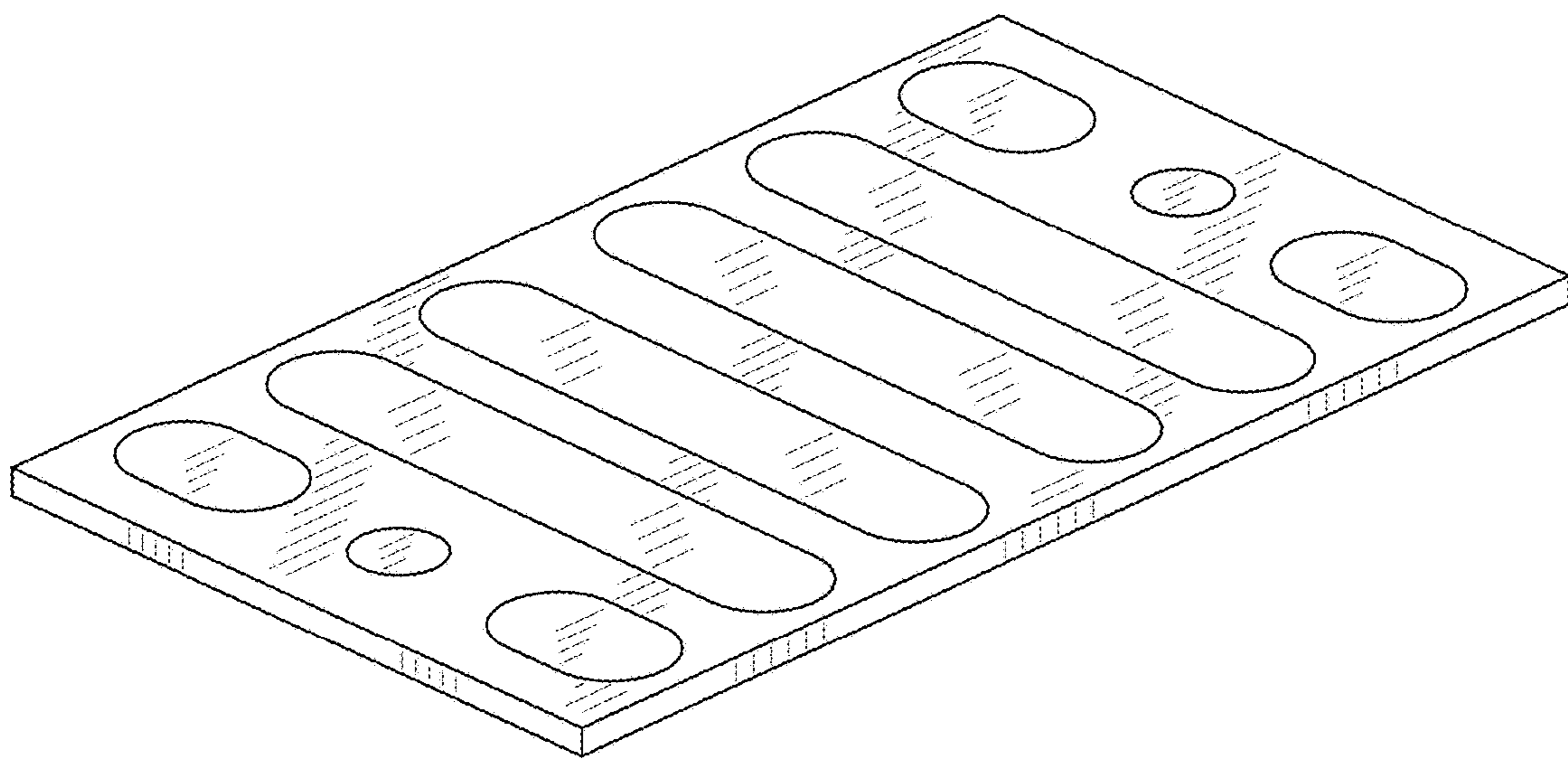


FIG. 2

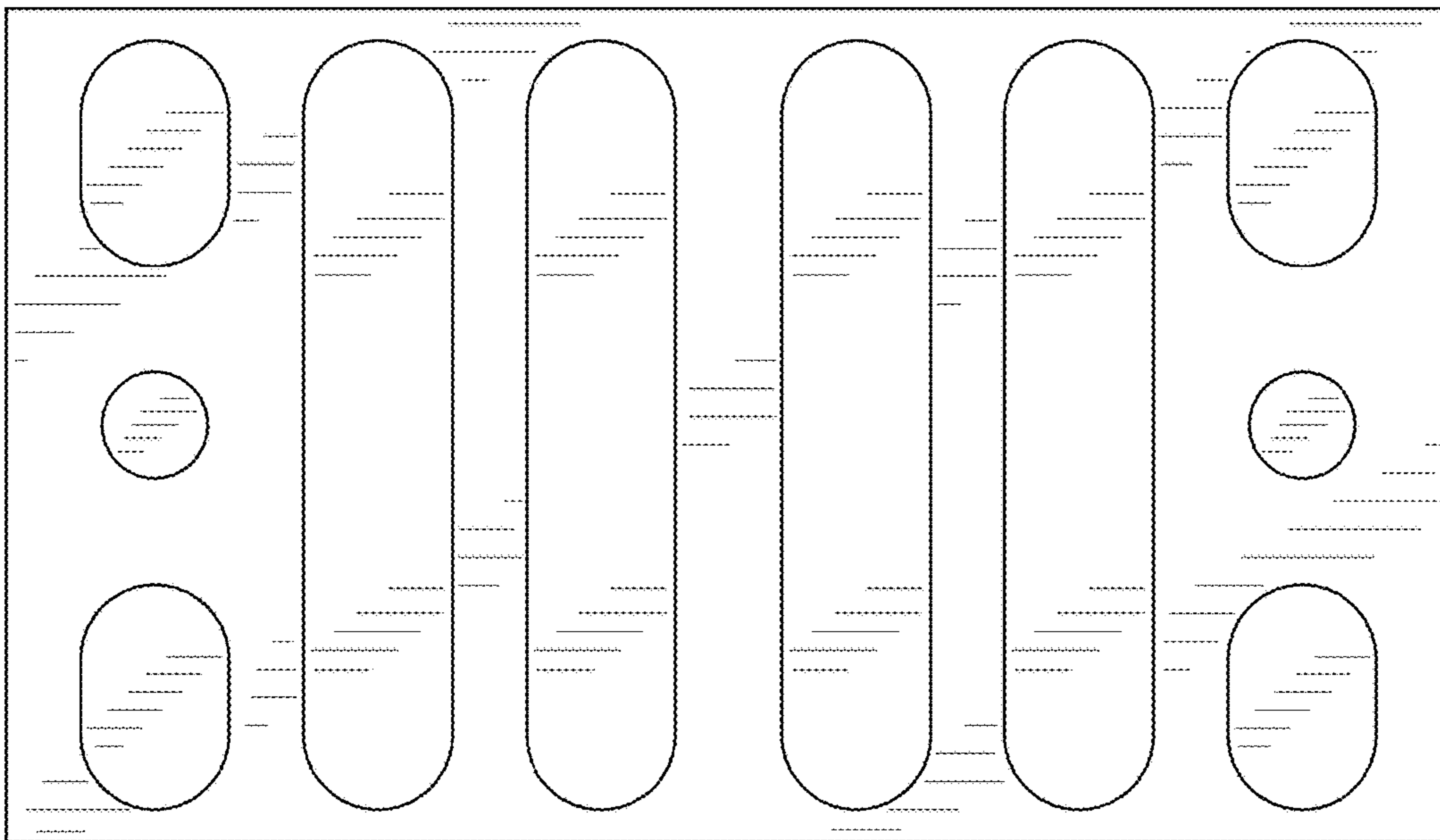


FIG. 3

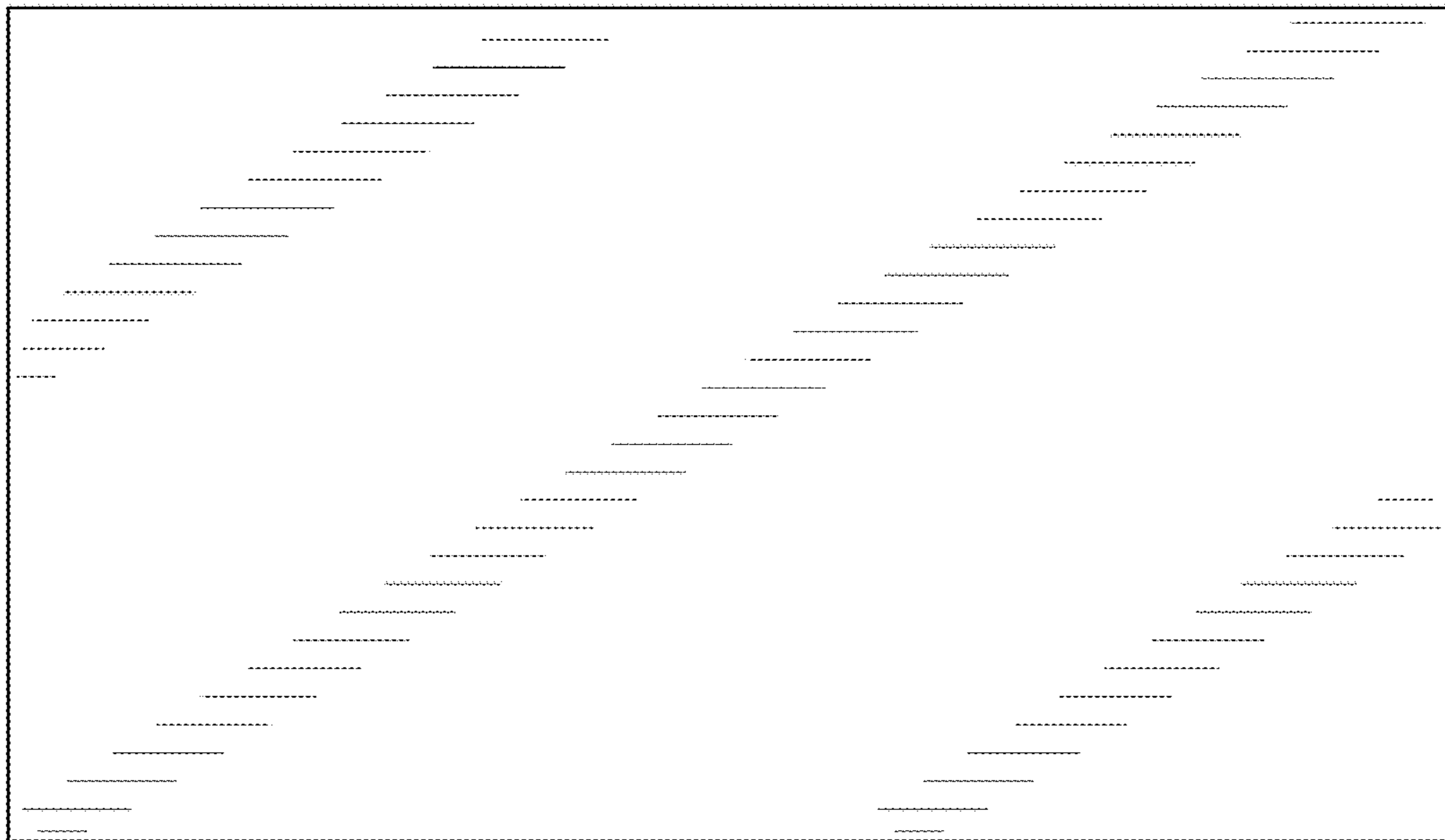


FIG. 4



FIG. 5

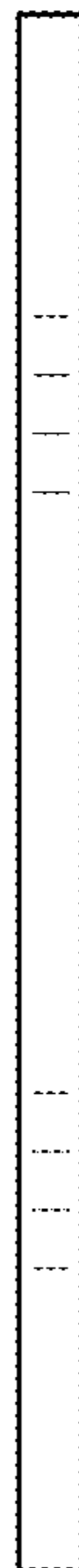


FIG. 6

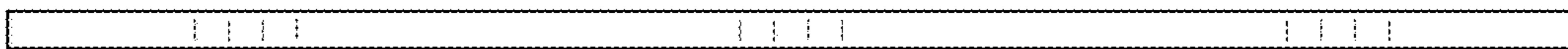


FIG. 7

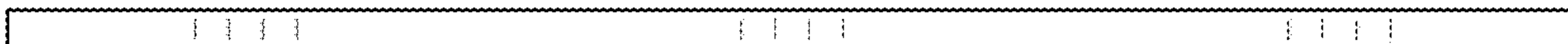


FIG. 8

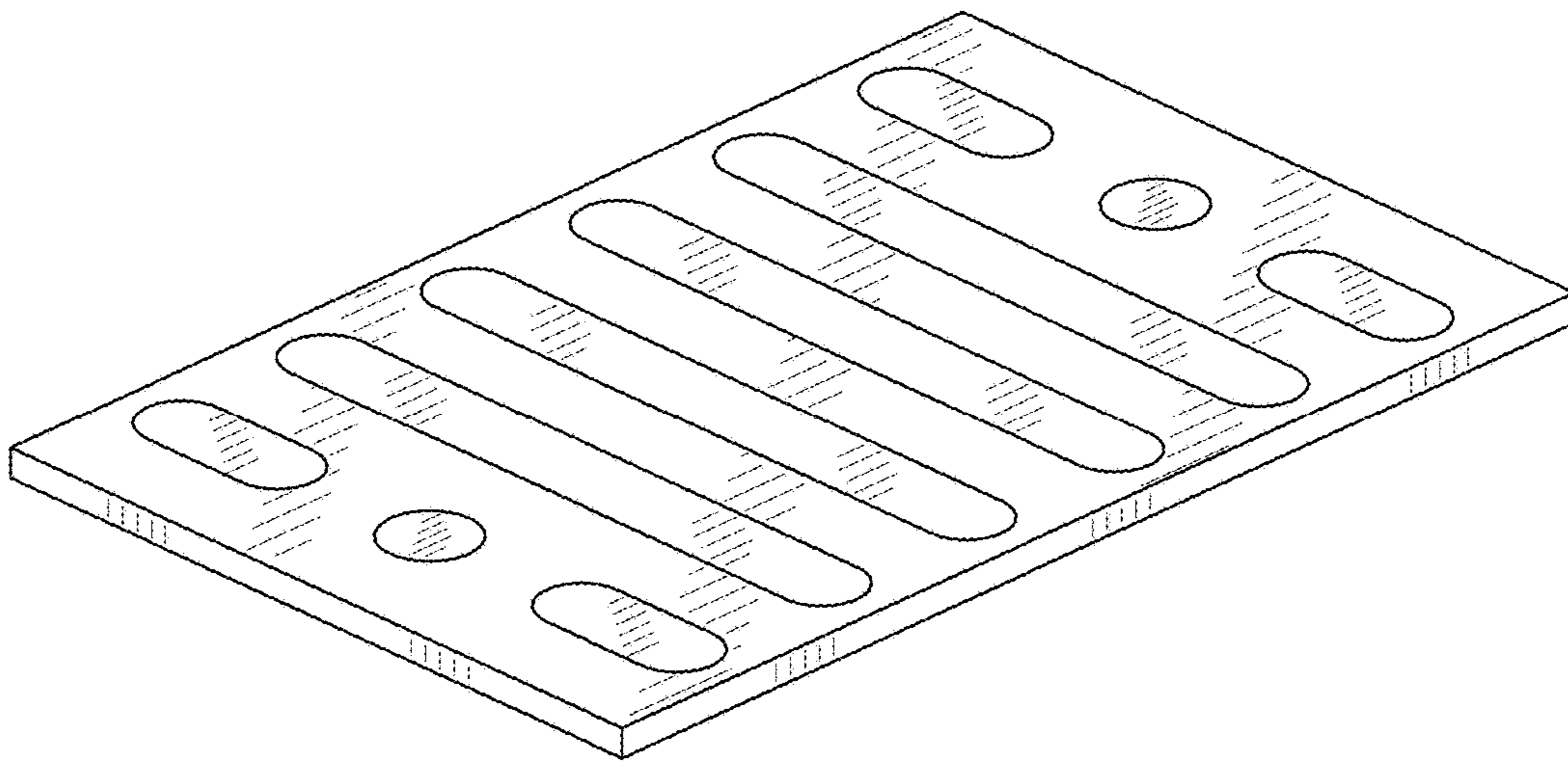


FIG. 9

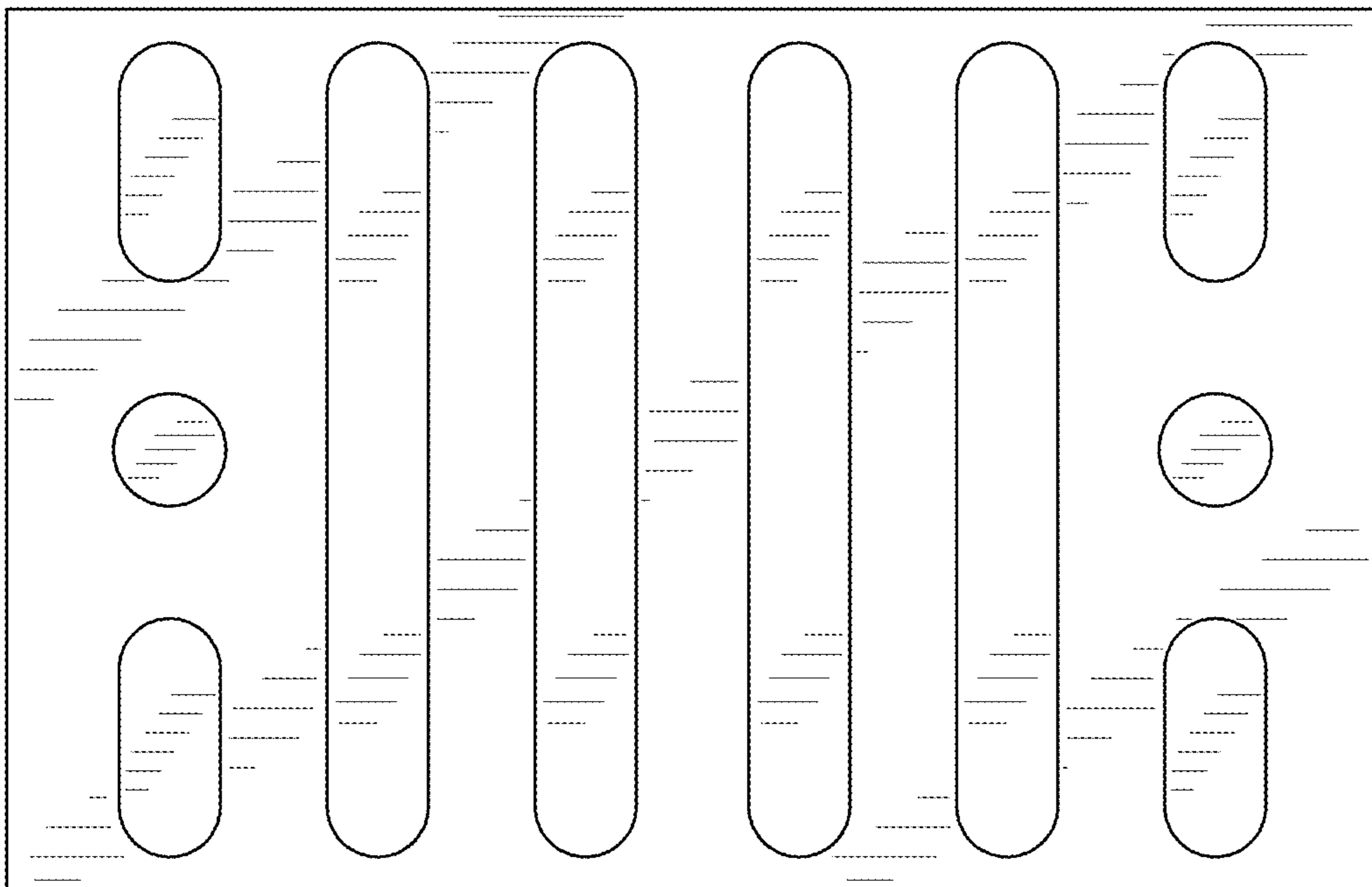


FIG. 10

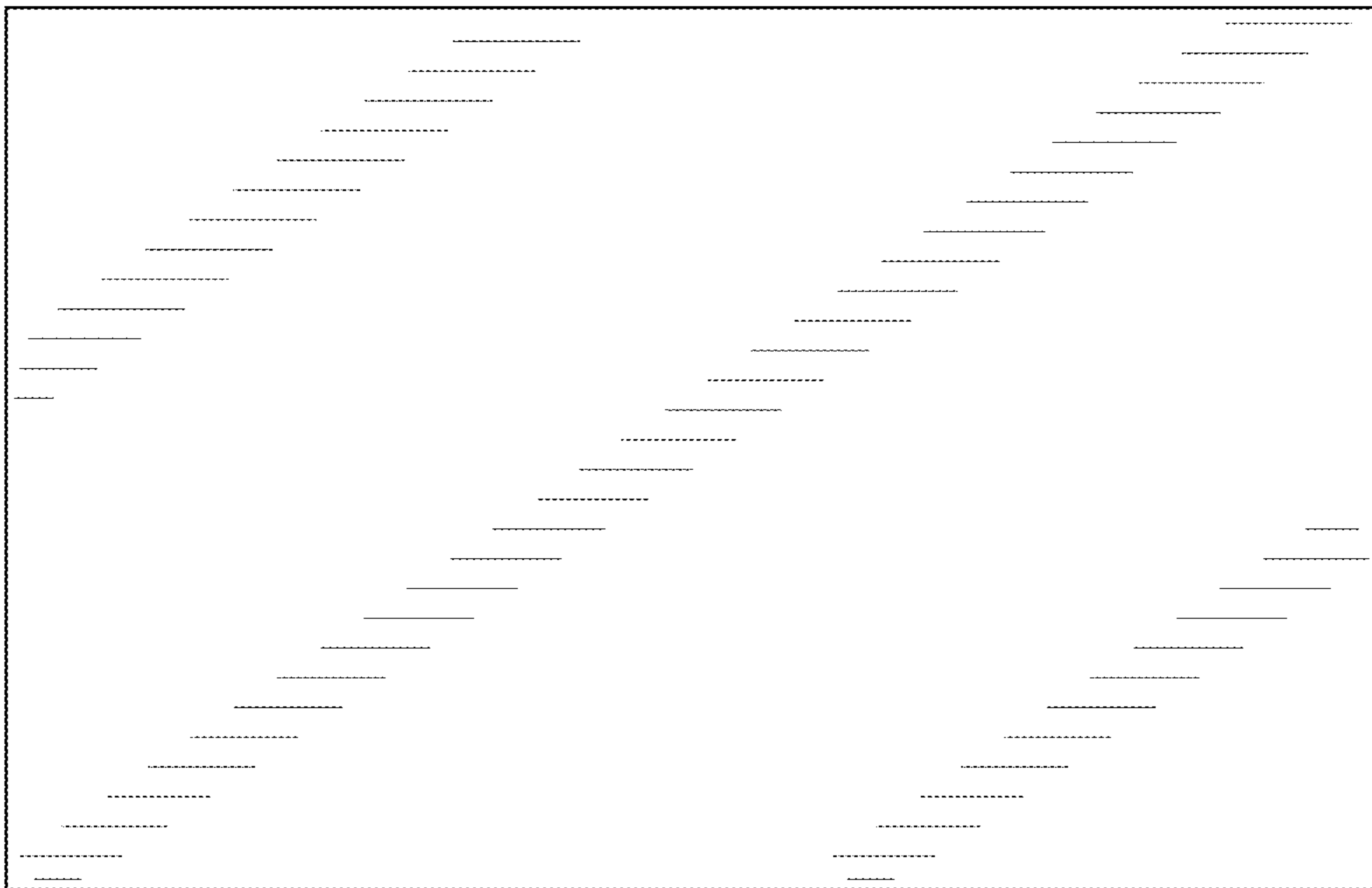


FIG. 11

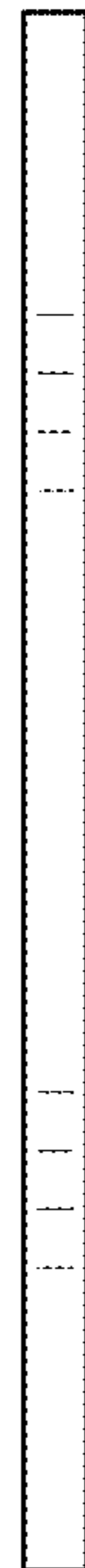


FIG. 12



FIG. 13

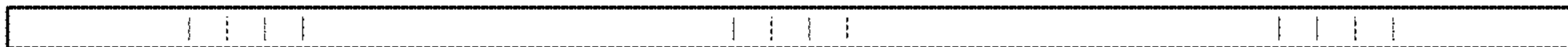


FIG. 14

