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(12) **United States Design Patent**
Takahashi

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(54) **ACTUATOR**

(71) Applicant: **Foster Electric Company, Limited,**
Akishima (JP)

(72) Inventor: **Ryo Takahashi,** Akishima (JP)

(73) Assignee: **FOSTER ELECTRIC COMPANY,**
LIMITED, Tokyo (JP)

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(52) **U.S. Cl.**
USPC **D13/174; D14/222**

(58) **Field of Classification Search**
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D14/302, 308, 313, 345, 356, 361, 388,
D14/389, 432, 440; D24/165, 167, 168,
D24/185, 187; D3/203.1, 215; D13/125,
D13/133, 158, 166, 168, 169, 170, 171,
D13/173, 174, 175
CPC A61B 5/02405; A45C 2011/002; A45F
2200/0516; A61M 2205/8256; B60G
2202/00; B60G 2202/40; B60G 2202/41;
B60G 2202/412; B60G 2202/413; B60G
2202/42; B60G 2202/422; B60G
2202/424; B60G 2202/43; B60G
2202/442

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D258,953 S * 4/1981 Mac D13/166
D375,275 S * 11/1996 Suzuki D10/116.1

D405,451 S * 2/1999 Sone D14/222
D487,256 S * 3/2004 Ito D14/313
D518,837 S * 4/2006 Taguchi D15/143
D533,144 S * 12/2006 Asada D13/171
D546,274 S * 7/2007 Yonehara D13/101
D546,275 S * 7/2007 Yonehara D13/101
D559,204 S * 1/2008 Elkins D13/173

(Continued)

FOREIGN PATENT DOCUMENTS

CN 304245729 * 8/2017
CN 305828909 * 6/2020

(Continued)

OTHER PUBLICATIONS

Vibration Actuators, no announcement date given [online], retrieved
Apr. 21, 2021, retrieved from internet, https://www.foster-electric.com/products/pdf/Vibration_Actuators.pdf.*

(Continued)

Primary Examiner — Dana K Weiland
Assistant Examiner — Messina L Smith
(74) *Attorney, Agent, or Firm* — Thomas | Horstemeyer,
LLP

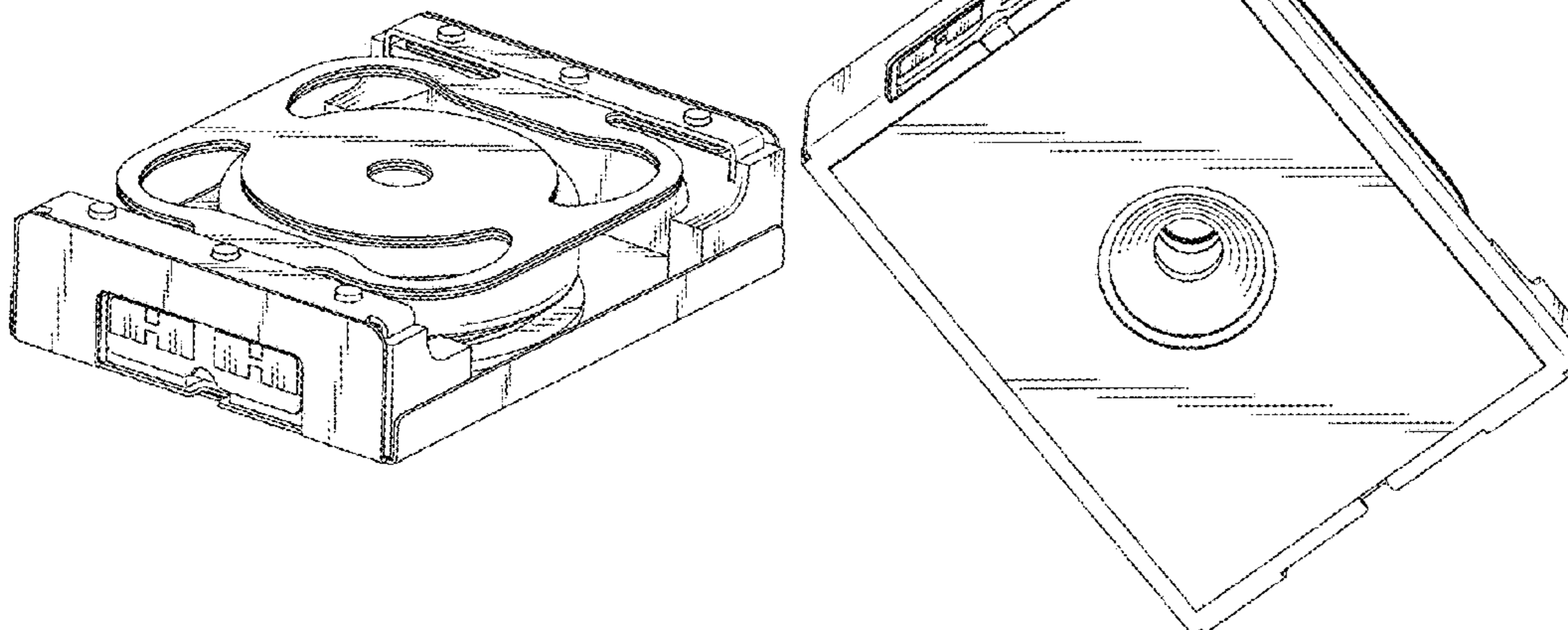
(57) **CLAIM**

The ornamental design for an actuator, as shown and
described.

DESCRIPTION

FIG. 1 is a front perspective view of an actuator, showing the
new design;
FIG. 2 is a rear perspective view thereof;
FIG. 3 is a front view thereof;
FIG. 4 is a rear view thereof;
FIG. 5 is a side view thereof;
FIG. 6 is a side view thereof, opposite that of FIG. 5;
FIG. 7 is another side view thereof; and,
FIG. 8 is a side view thereof, opposite that of FIG. 7.

1 Claim, 8 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D598,870 S * 8/2009 Asada D13/171
D613,254 S * 4/2010 Tsuduki D13/158
D614,150 S * 4/2010 Crites D13/174
D696,652 S * 12/2013 Ohashi D14/240
D702,192 S * 4/2014 Arioka D13/158
D749,226 S * 2/2016 Cooper D24/188
D751,555 S * 3/2016 Mori D14/432
D828,423 S * 9/2018 Jorgensen D15/148
D867,288 S * 11/2019 Claeys D13/110
2020/0107134 A1 * 4/2020 Mori H04R 9/06

FOREIGN PATENT DOCUMENTS

CN 306432812 * 4/2021
JP D1441902 * 4/2012
JP D1652480 * 1/2020
JP 2020099843 A * 7/2020
JP D1677724 * 1/2021
KR 301103708.0000 * 4/2021

OTHER PUBLICATIONS

MEMS MICROSPEAKERS, announced © 2021 [online], retrieved Apr. 21, 2021, retrieved from internet, <https://www.usound.com/product/ganymede/>.
Chinese Design Registration No. 304245729, registered Aug. 15, 2017, pp. 1-4.

* cited by examiner

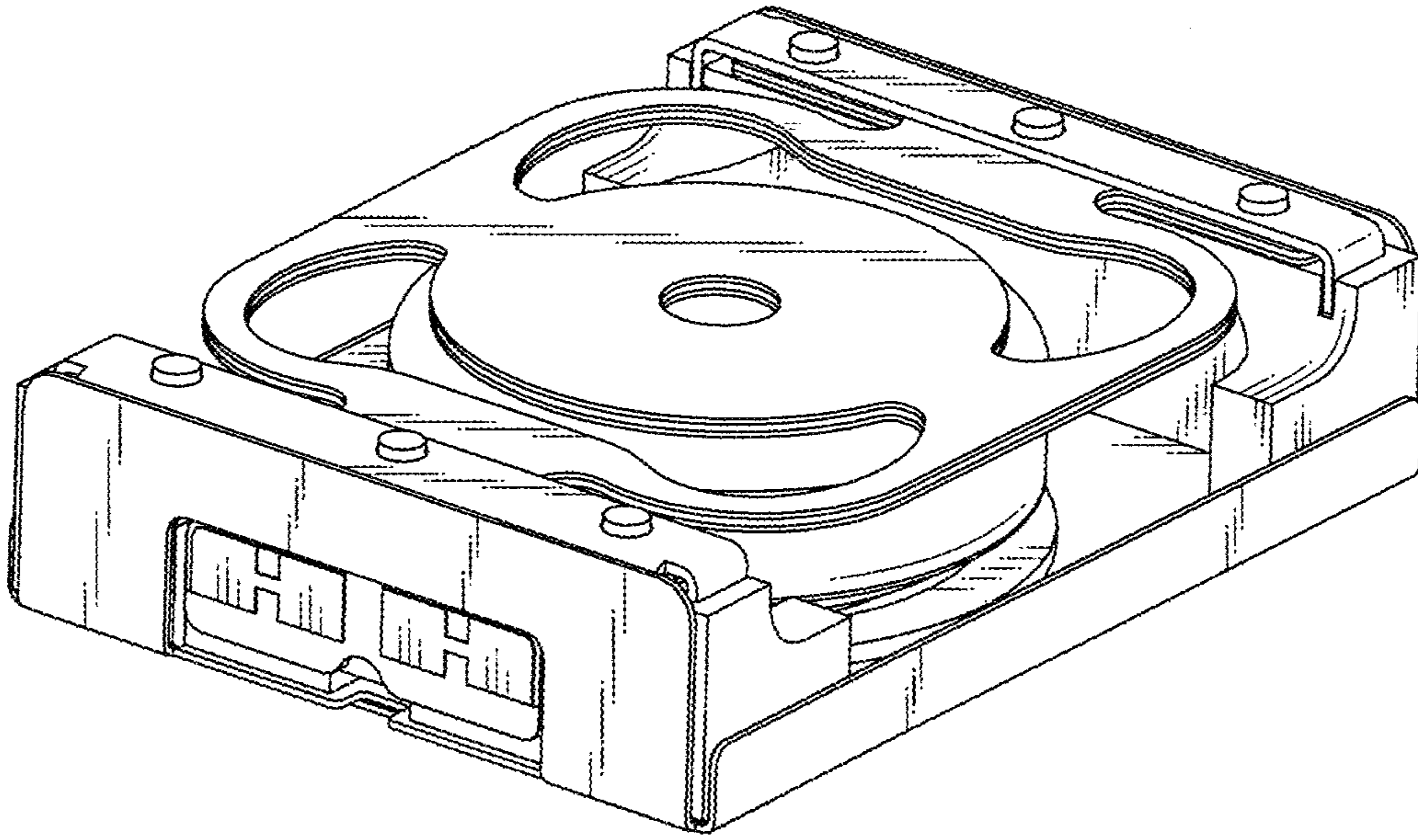


FIG. 1

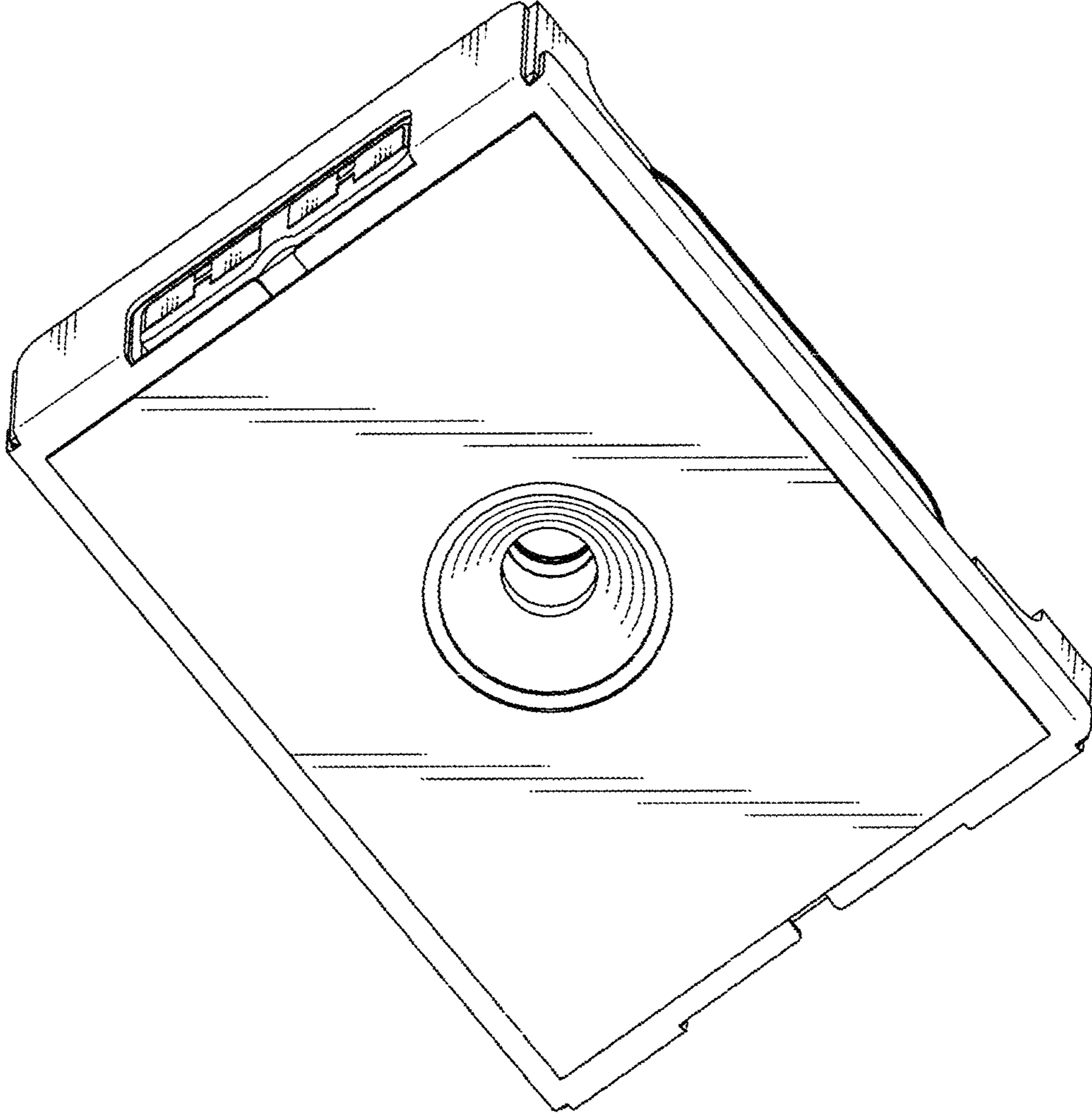


FIG. 2

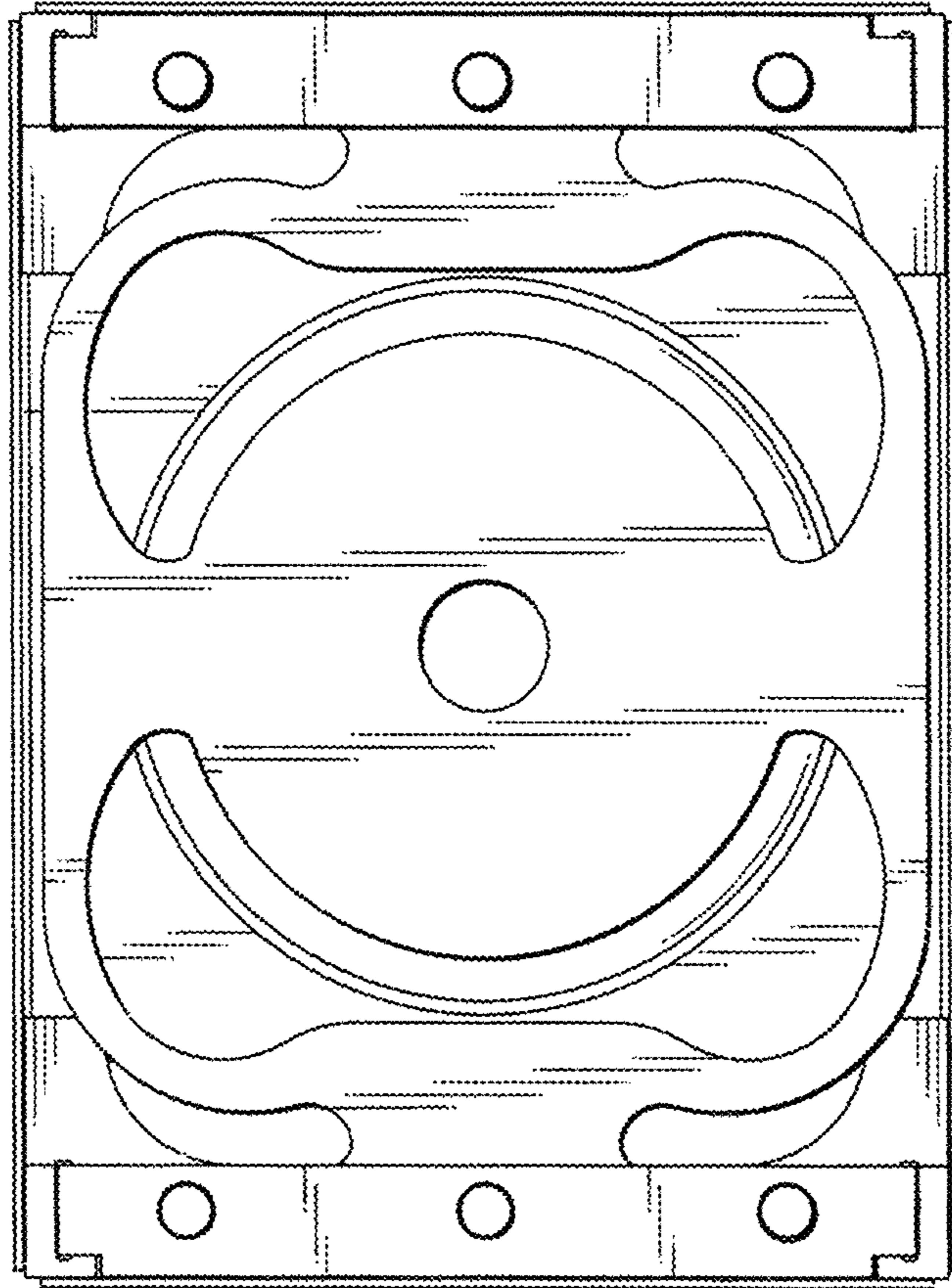


FIG. 3

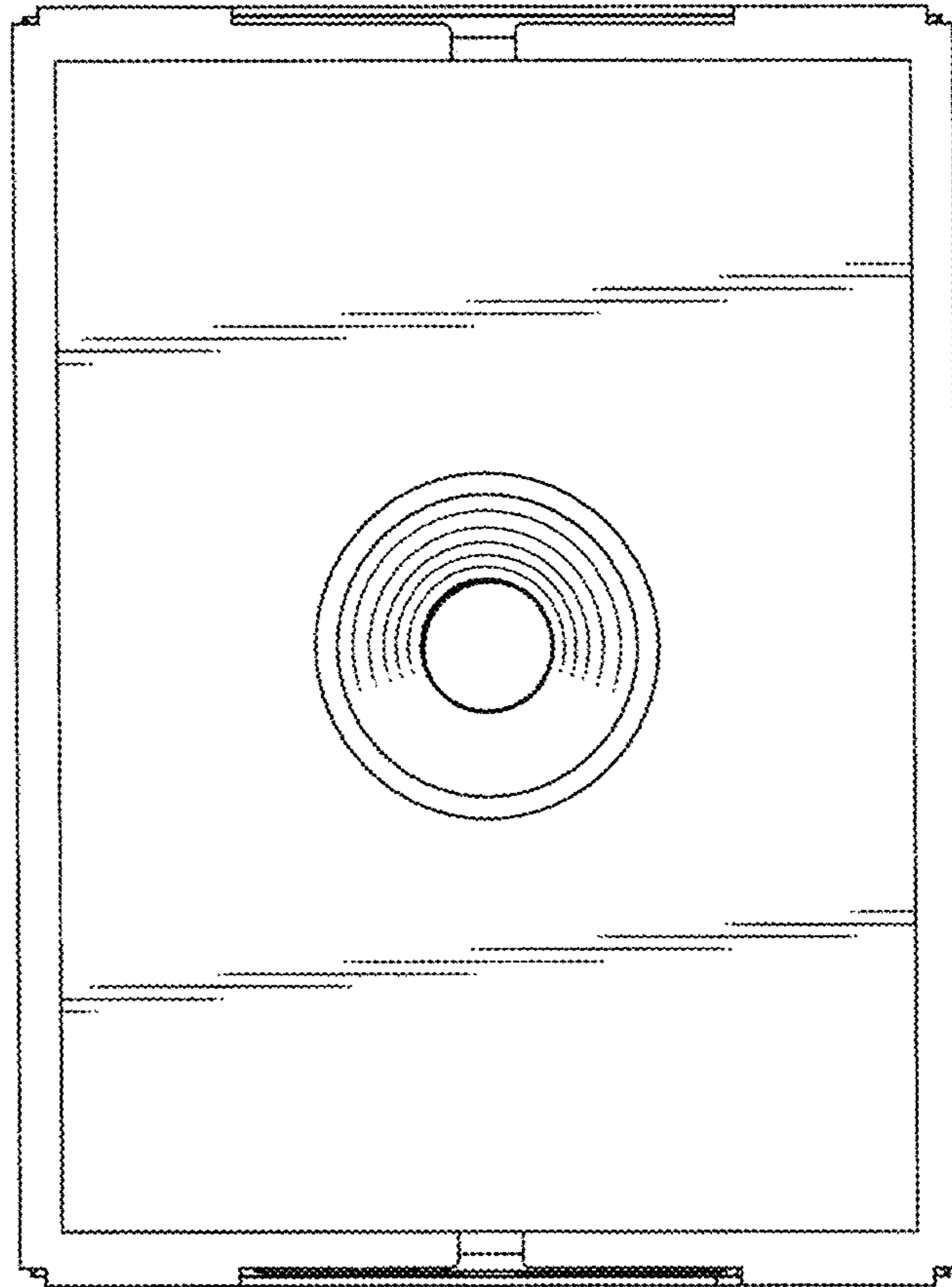


FIG. 4

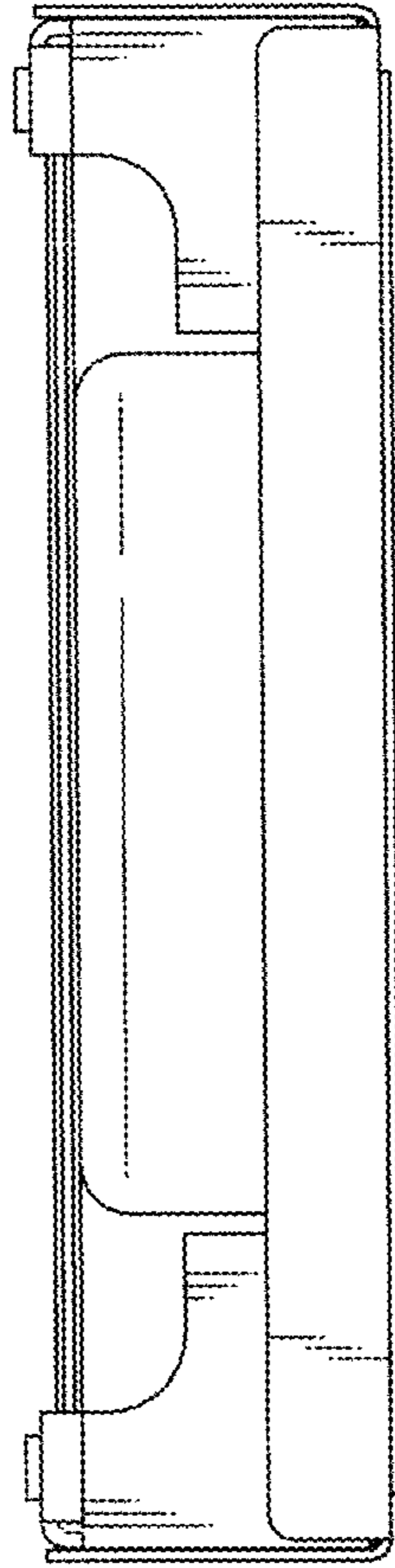


FIG. 5

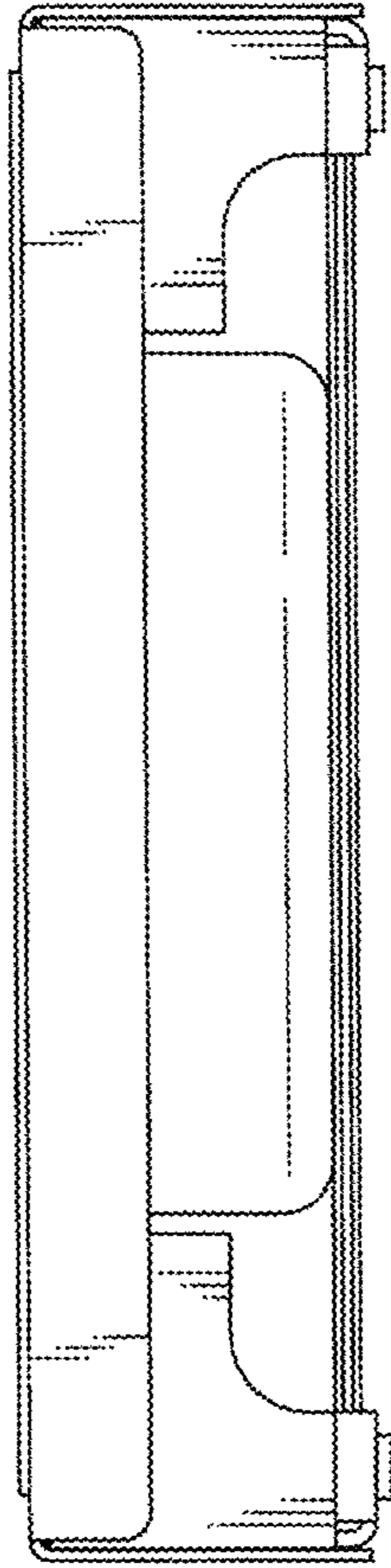


FIG. 6

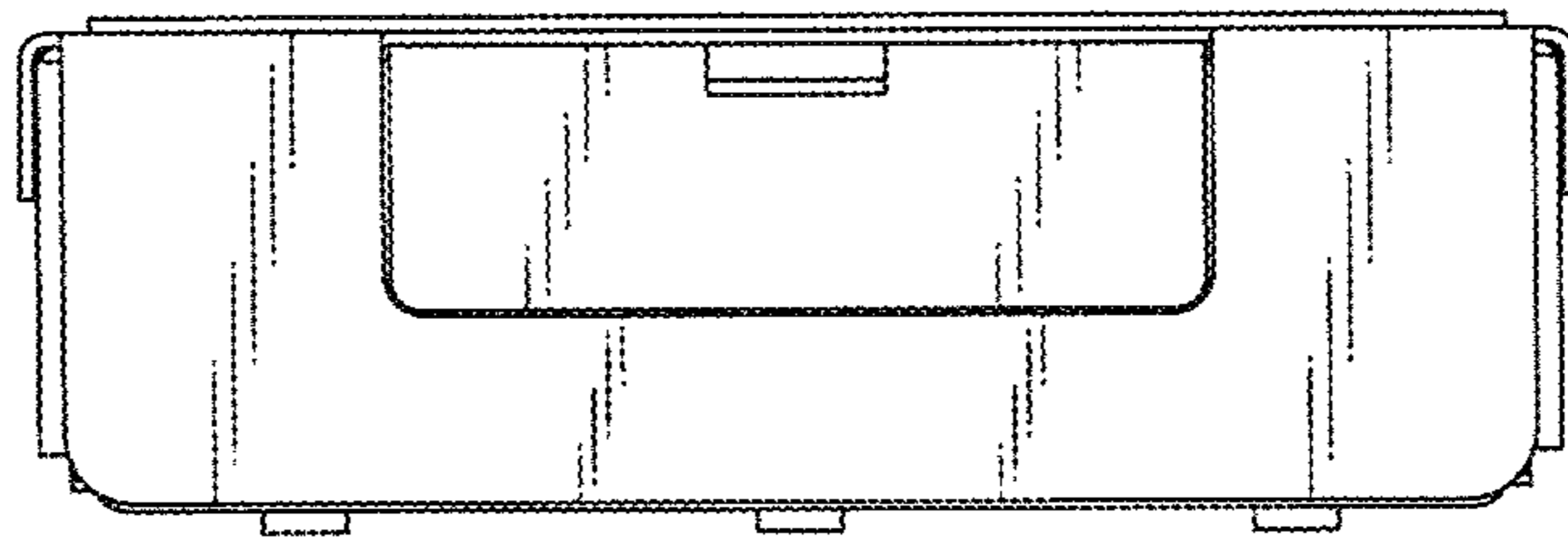


FIG. 7

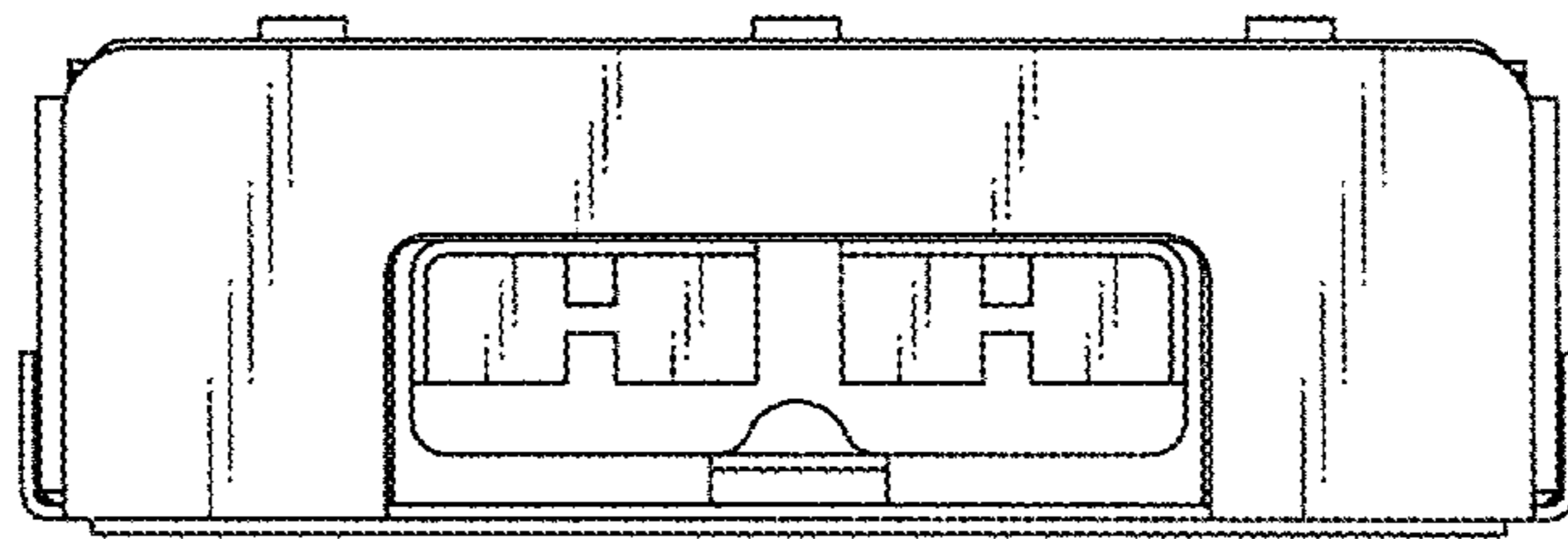


FIG. 8