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

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- (54) **ELECTRIC ROTARY GRIPPER**
- (71) Applicant: **SMC CORPORATION**, Tokyo (JP)
- (72) Inventors: **Hirofumi Watanabe**, Tsukuba (JP);
Shunya Kobayashi, Tsukubamirai (JP)
- (73) Assignee: **SMC CORPORATION**, Tokyo (JP)
- (**) Term: **15 Years**

- D668,832 S * 10/2012 Auf der Maur D34/35
- D674,983 S * 1/2013 Auf der Maur D34/35
- D781,122 S * 3/2017 Zimmerman D8/72
- D782,274 S * 3/2017 Herrick D8/330
- D811,188 S * 2/2018 Zimmerman D8/72
- D811,189 S * 2/2018 Zimmerman D8/72
- 9,912,130 B1 * 3/2018 Burns H05K 13/0491
- D819,101 S 5/2018 Ishikawa et al.
- 9,956,691 B1 * 5/2018 Pentzer B25J 15/024
- D821,472 S 6/2018 Ishikawa et al.

(Continued)

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- (51) **LOC (13) Cl.** **15-09**
- (52) **U.S. Cl.**
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- (58) **Field of Classification Search**
USPC D8/71-74; D15/138, 149, 199
CPC B25J 11/0045; B25J 13/086; B25J 15/08;
B25J 15/024; B25J 15/026; B25J 15/028;
B25J 15/0042; B25J 15/0475; B25J
15/02262; B65G 47/90; H05K 13/02;
Y10S 294/902; Y10S 294/907
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 4,607,873 A * 8/1986 Nusbaumer B25J 13/086
294/106
- 6,505,871 B2 * 1/2003 McCormick B25J 15/028
294/119.1
- 6,938,938 B2 * 9/2005 Risle B25J 15/0253
294/119.1
- D588,431 S * 3/2009 Fukano D8/72
- D590,686 S * 4/2009 Fukano D8/72
- D609,546 S * 2/2010 Fukano D8/72

FOREIGN PATENT DOCUMENTS

- DE 3014140 A1 * 10/1980 B21L 1/02
- DE 10218236 C1 * 8/2003 B23Q 7/046

(Continued)

Primary Examiner — Patricia A Palasik

(74) *Attorney, Agent, or Firm* — Birch, Stewart, Kolasch & Birch, LLP

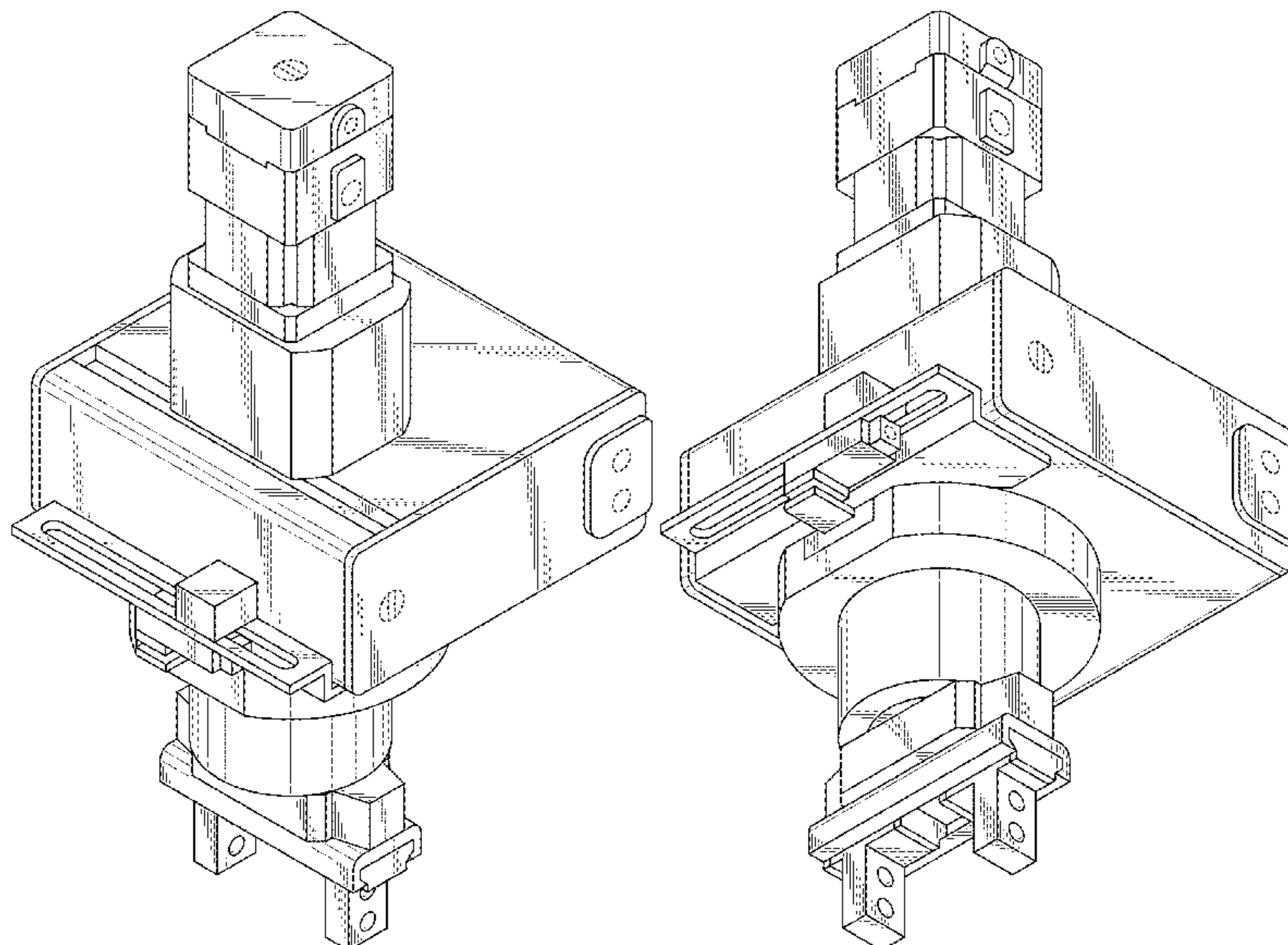
(57) **CLAIM**

The ornamental design for an electric rotary gripper, as shown and described.

DESCRIPTION

FIG. 1 is a front, top and right side perspective view of an electric rotary gripper showing our new design;
 FIG. 2 is a front, bottom and right side perspective view thereof;
 FIG. 3 is a rear, bottom and left side perspective view thereof;
 FIG. 4 is a front view thereof;
 FIG. 5 is a rear view thereof;
 FIG. 6 is a top plan view thereof;
 FIG. 7 is a bottom plan view thereof;
 FIG. 8 is a left side view thereof; and,
 FIG. 9 is a right side view thereof.
 The broken lines depict portions of the electric rotary gripper that form no part of the claimed design.

1 Claim, 9 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D827,677 S * 9/2018 Zimmerman D15/28
D846,012 S 4/2019 Ishikawa et al.
D846,611 S * 4/2019 Chi D15/144
D876,919 S * 3/2020 Sawada D8/72
D894,247 S * 8/2020 Ishibashi D15/199
D900,182 S * 10/2020 Haddadin D15/199
2001/0038175 A1 * 11/2001 Nagai B25B 5/122
269/237
2004/0070225 A1 * 4/2004 Meinicke G01N 35/0099
294/86.4
2004/0113343 A1 * 6/2004 McIntosh B25B 5/087
269/32
2018/0354130 A1 * 12/2018 Preisinger G05B 19/427

FOREIGN PATENT DOCUMENTS

DE 10349127 A1 * 5/2005 D05B 1/24
JP D1604719 S 5/2018
WO WO-9626813 A1 * 9/1996 B25J 15/0213

* cited by examiner

FIG. 1

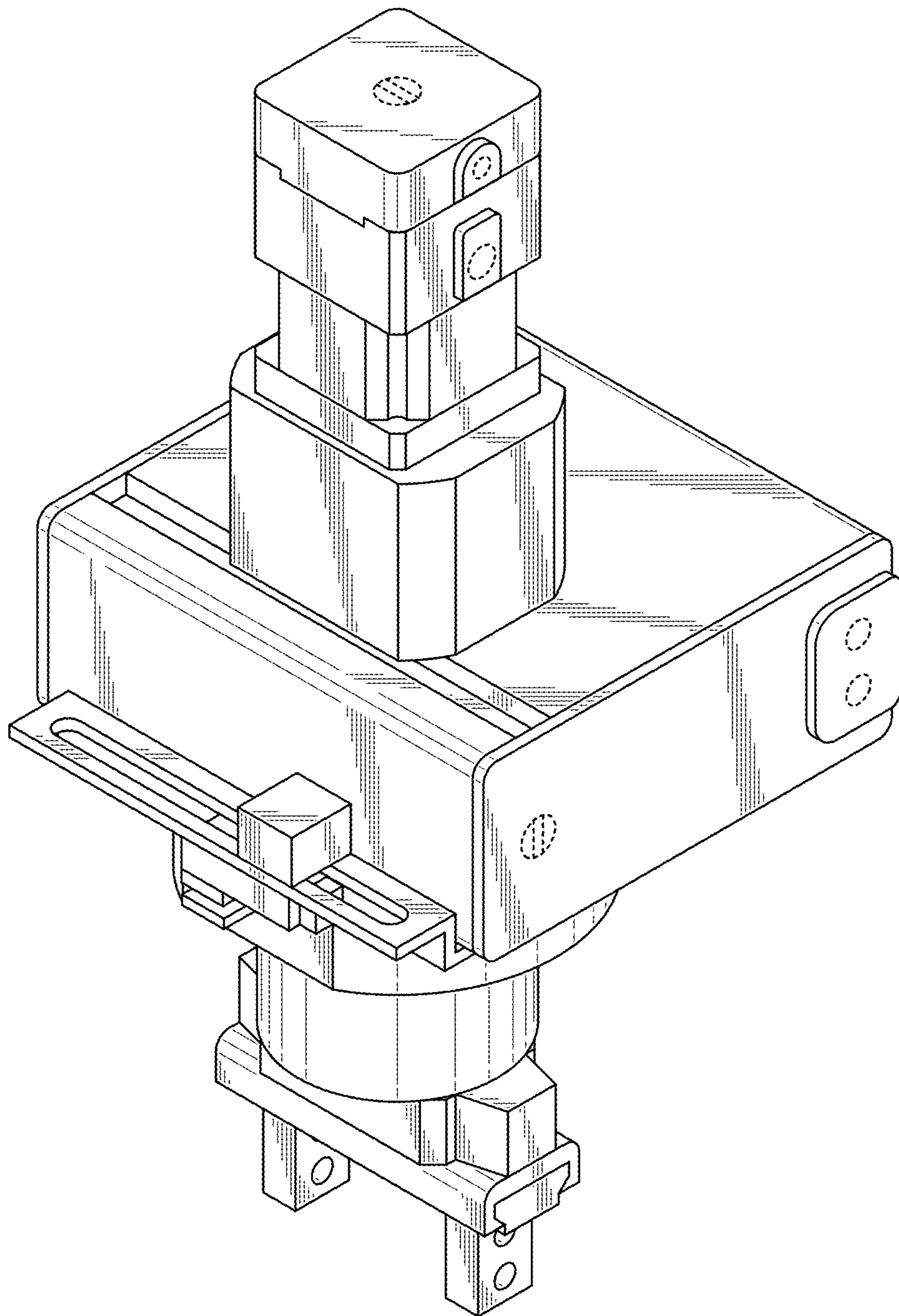


FIG. 2

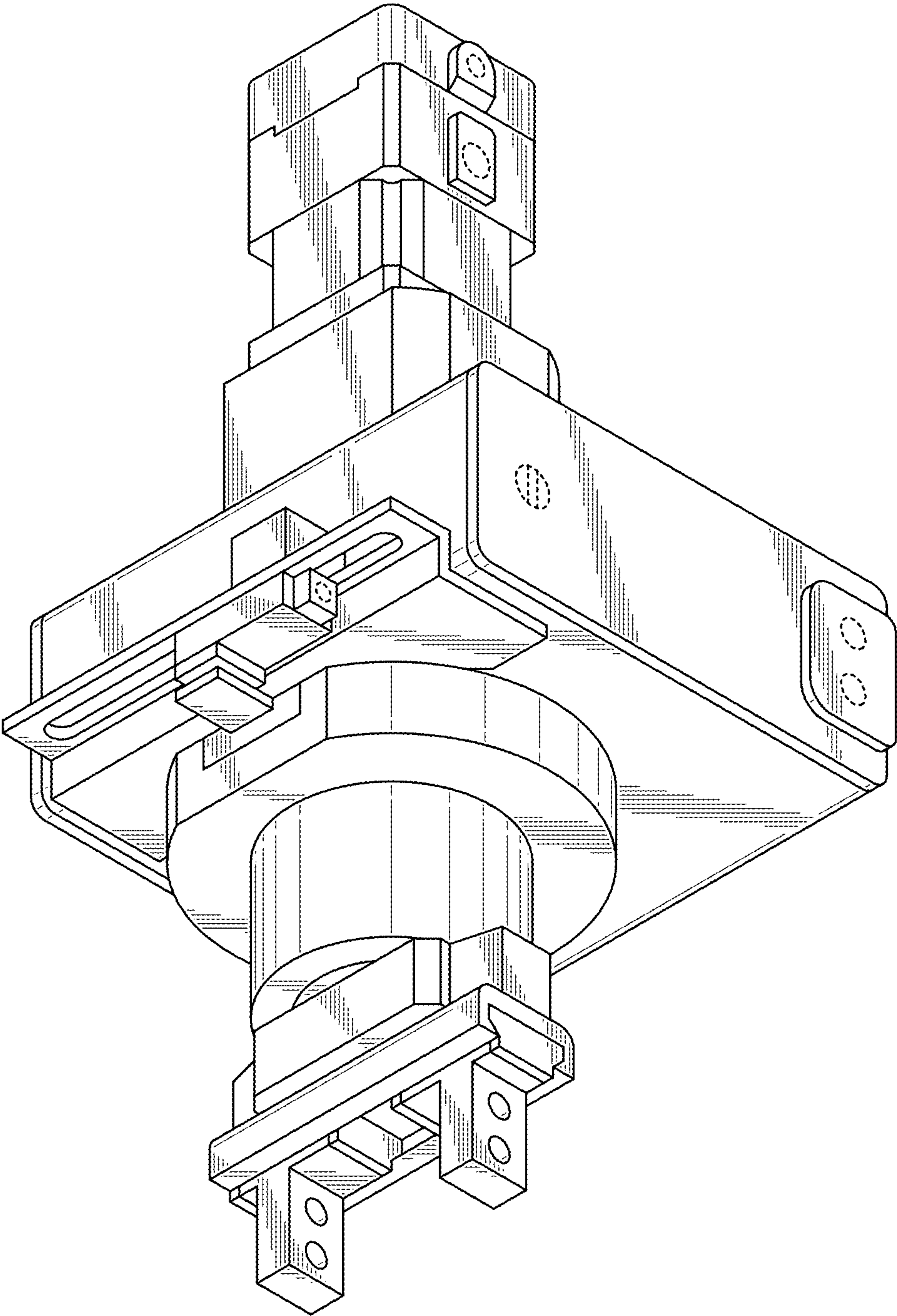


FIG. 3

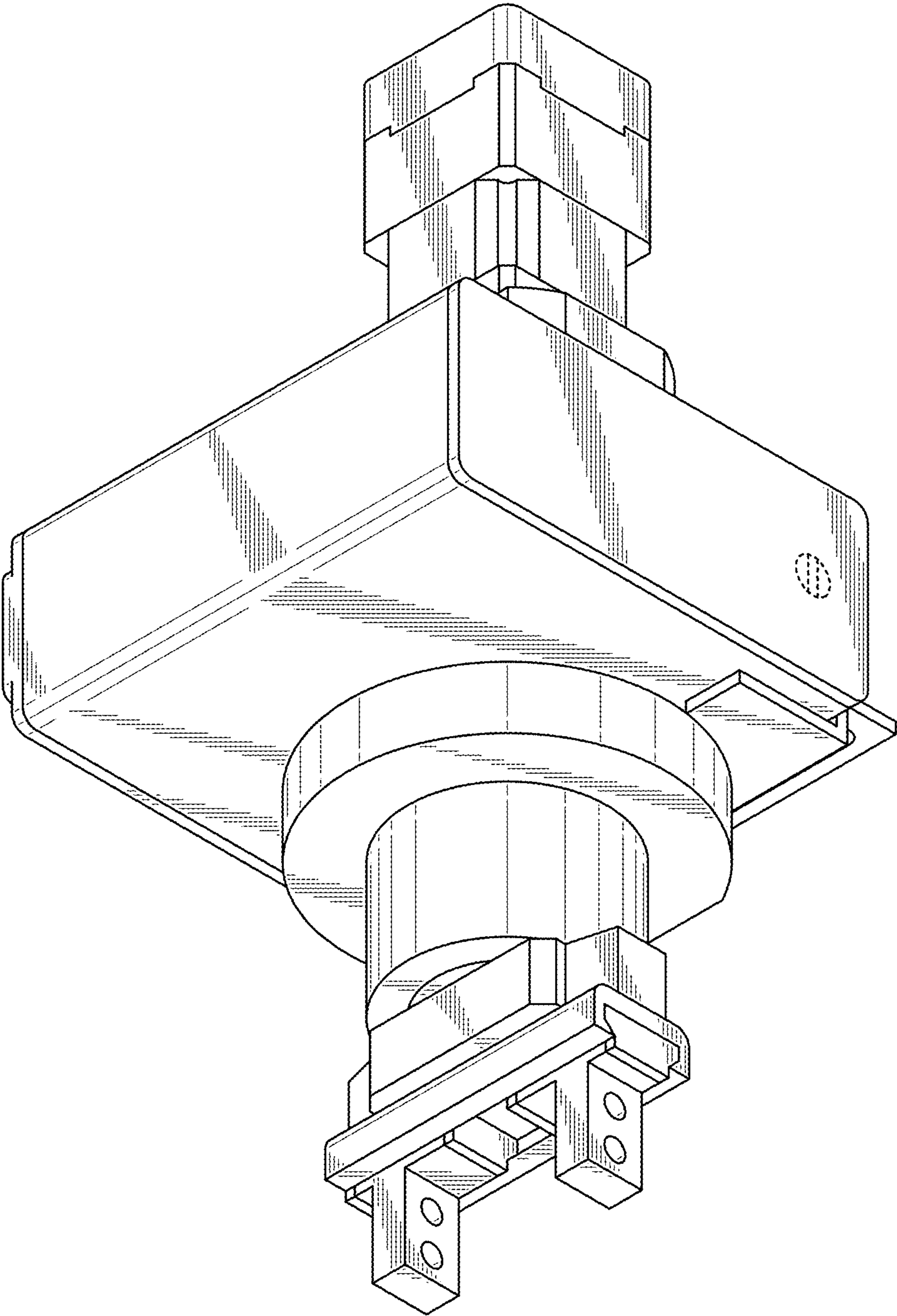


FIG. 4

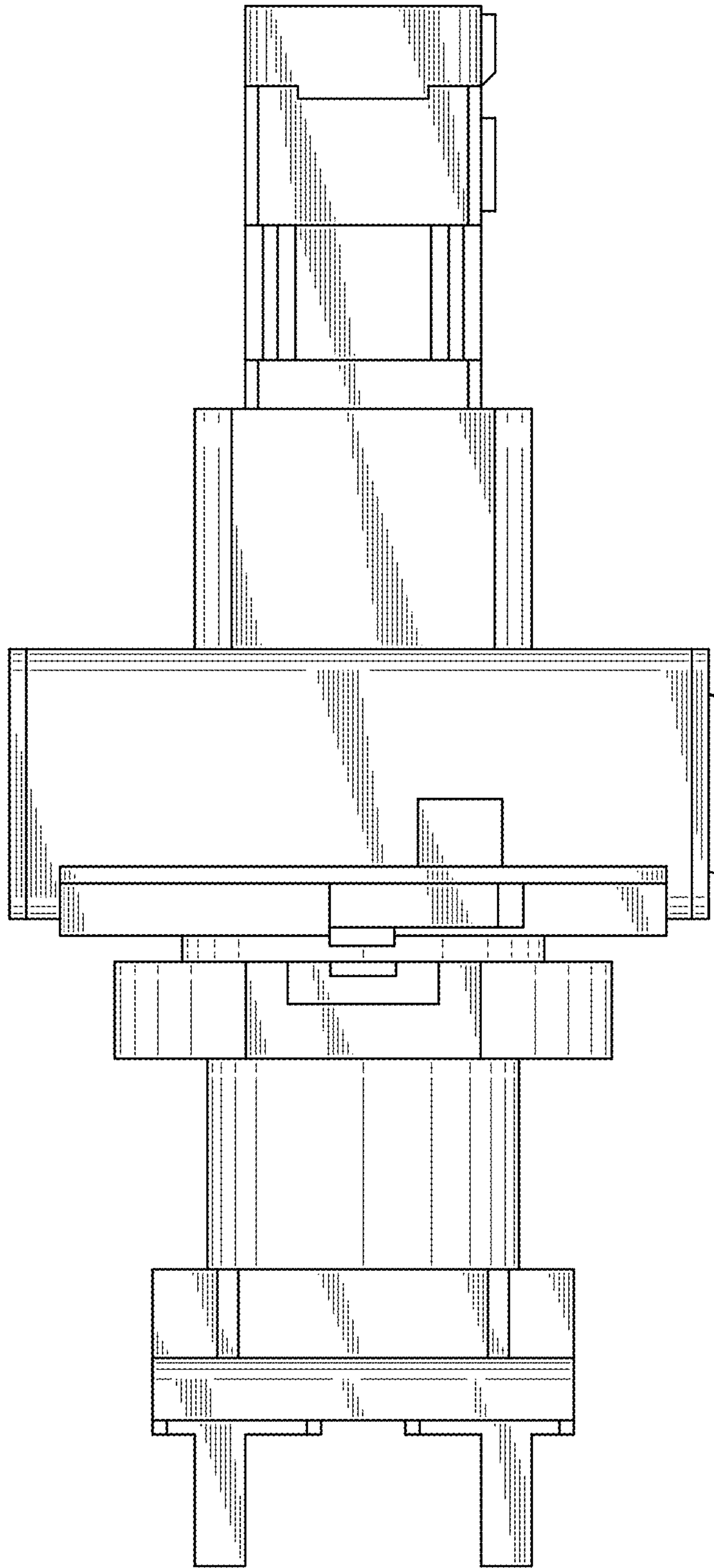


FIG. 5

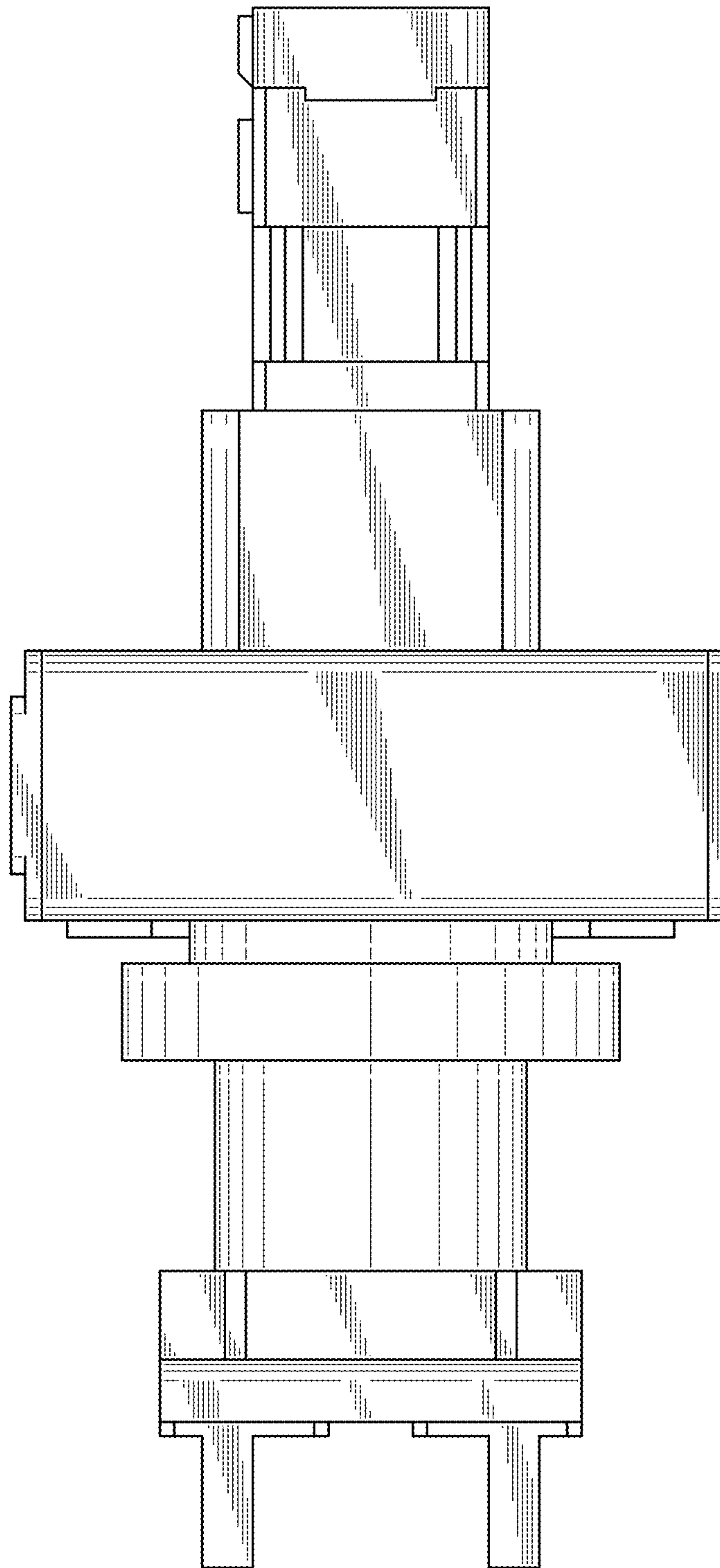


FIG. 6

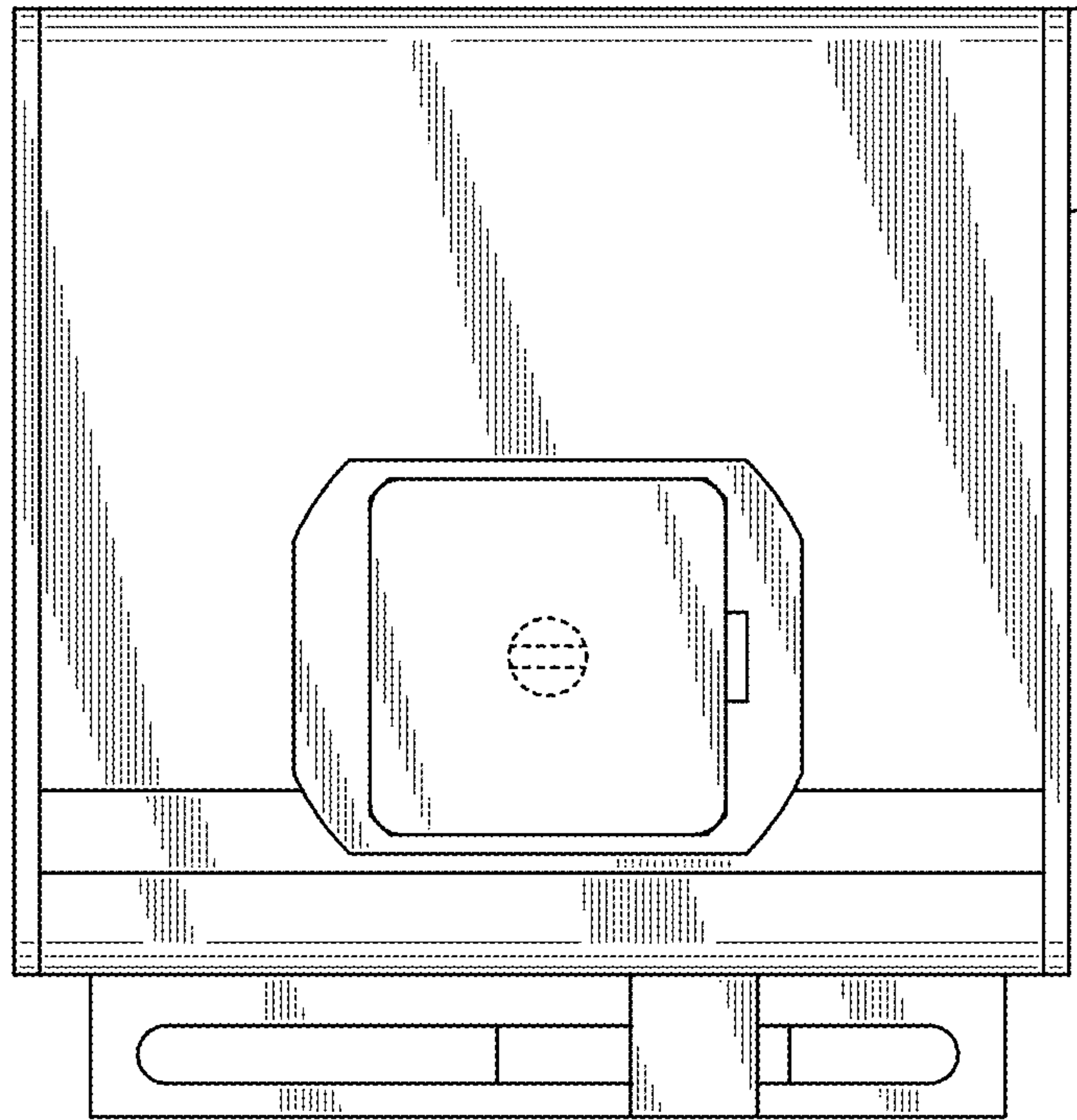


FIG. 7

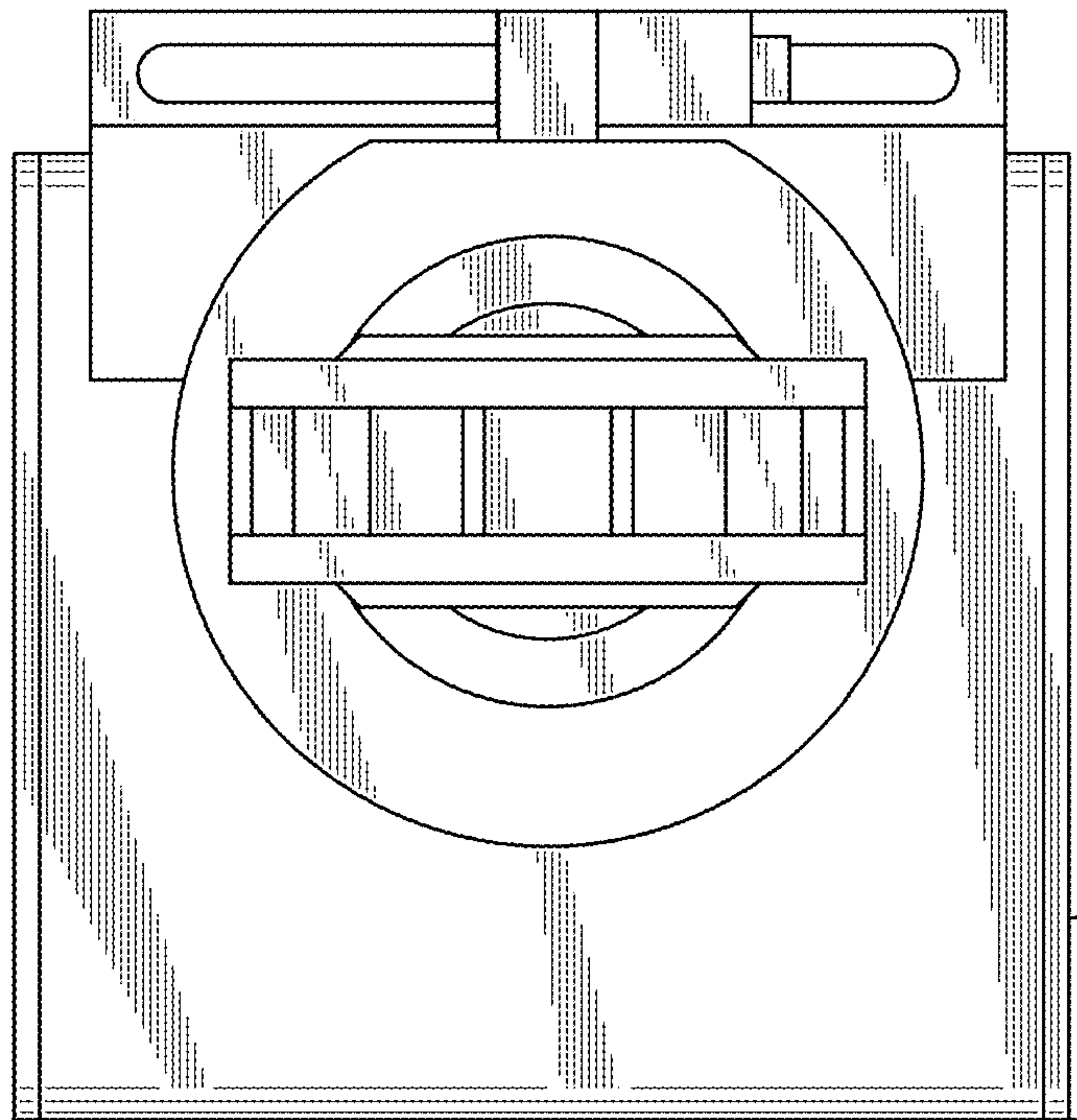


FIG. 8

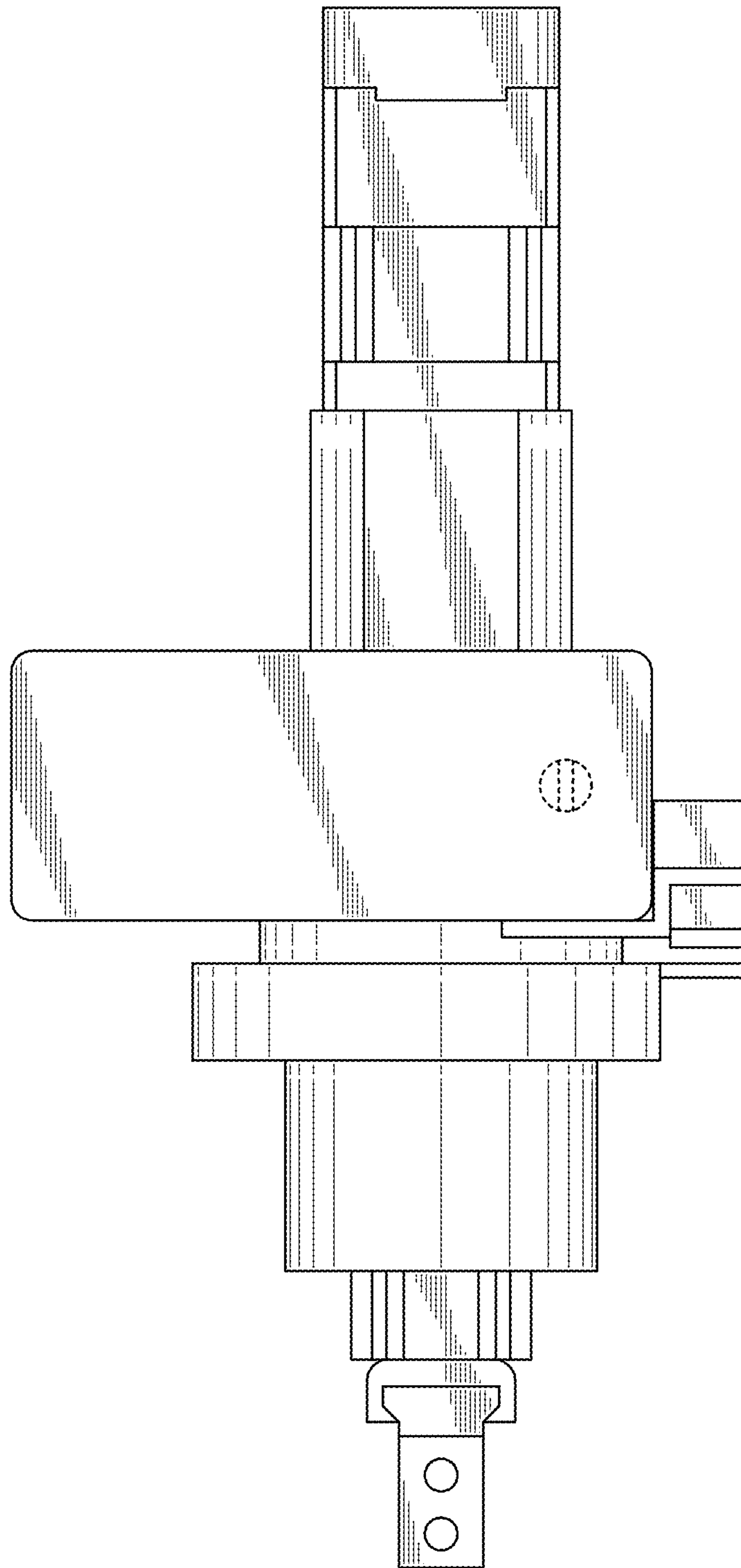


FIG. 9

