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

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(54) **DIRECT DRIVE TORQUE MOTOR**

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

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(51) **LOC (9) Cl.** **15-09**

(52) **U.S. Cl.** **D15/148**

(58) **Field of Classification Search** D15/1-5,
D15/148, 199; 310/51, 67 R, 90; 384/619,
384/620

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,853,567 A * 8/1989 Muramatsu et al. 310/67 R
5,008,572 A * 4/1991 Marshall et al. 310/45
5,049,770 A * 9/1991 Gaeth et al. 310/89
5,382,853 A * 1/1995 von der Heide et al. ... 310/67 R
D355,244 S * 2/1995 Doragrip et al. D15/5
D410,659 S * 6/1999 Lannoch D15/148
D416,922 S * 11/1999 Lannoch D15/148
D437,334 S * 2/2001 Song D15/148
6,215,214 B1 * 4/2001 Fisher et al. 310/89
6,847,142 B2 * 1/2005 Ritterhoff 310/113

7,215,050 B2 * 5/2007 Anschicks et al. 310/71
7,273,357 B2 * 9/2007 Hattori et al. 417/313
7,285,889 B2 * 10/2007 Shkondin 310/148
D564,552 S * 3/2008 Chang et al. D15/148
7,342,331 B2 * 3/2008 Down et al. 310/51

* cited by examiner

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(57) **CLAIM**

The ornamental design for a direct drive torque motor, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a direct drive torque motor showing my new design;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a rear elevational view thereof;

FIG. 4 is a left side elevational view thereof;

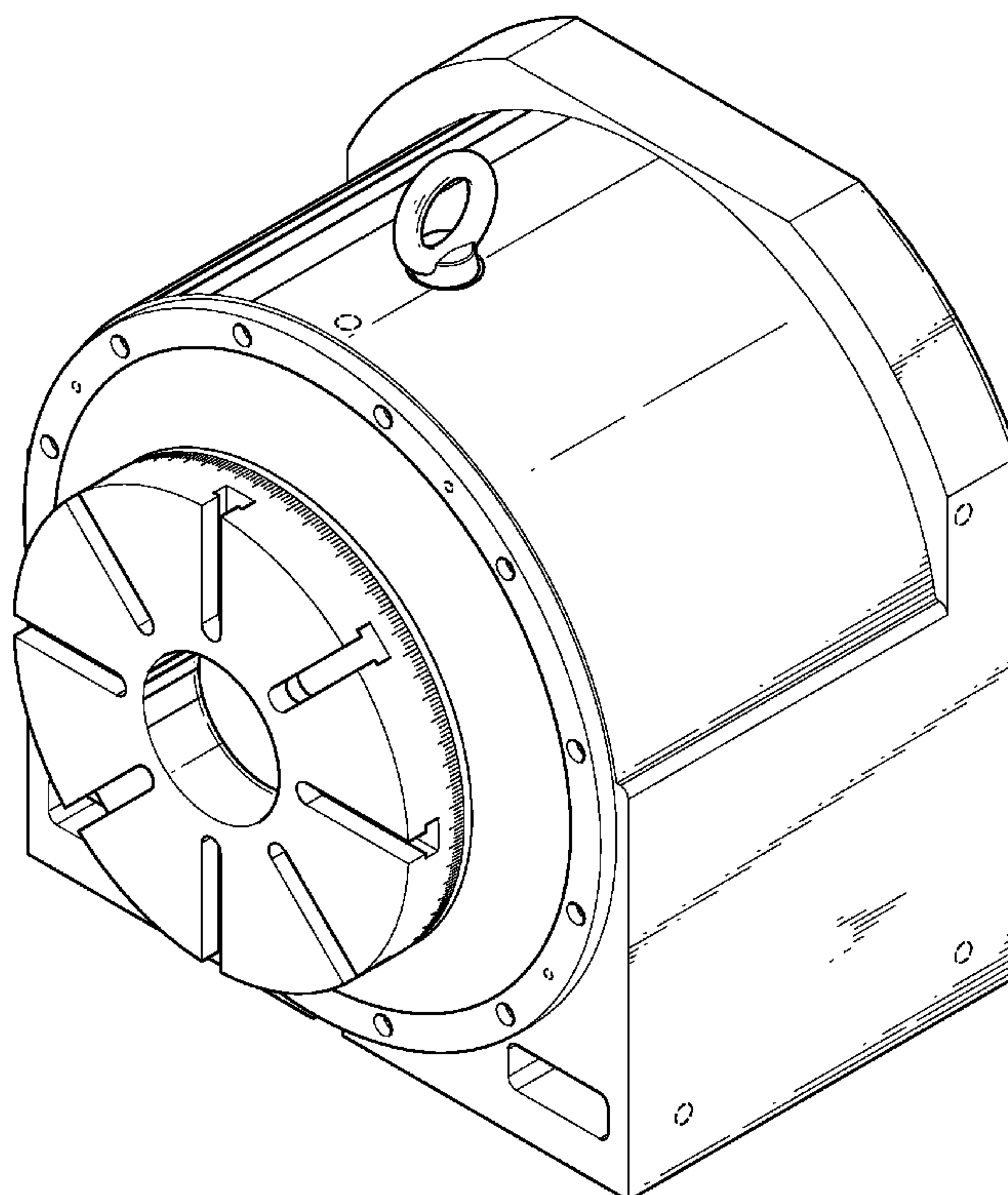
FIG. 5 is a right side elevational view thereof;

FIG. 6 is a top plan view thereof; and,

FIG. 7 is a bottom plan view to that shown.

The broken line showing of the direct-drive torque motor is included for the purpose of illustrating portions of the direct-drive torque motor and forms no part of the claimed design.

1 Claim, 7 Drawing Sheets



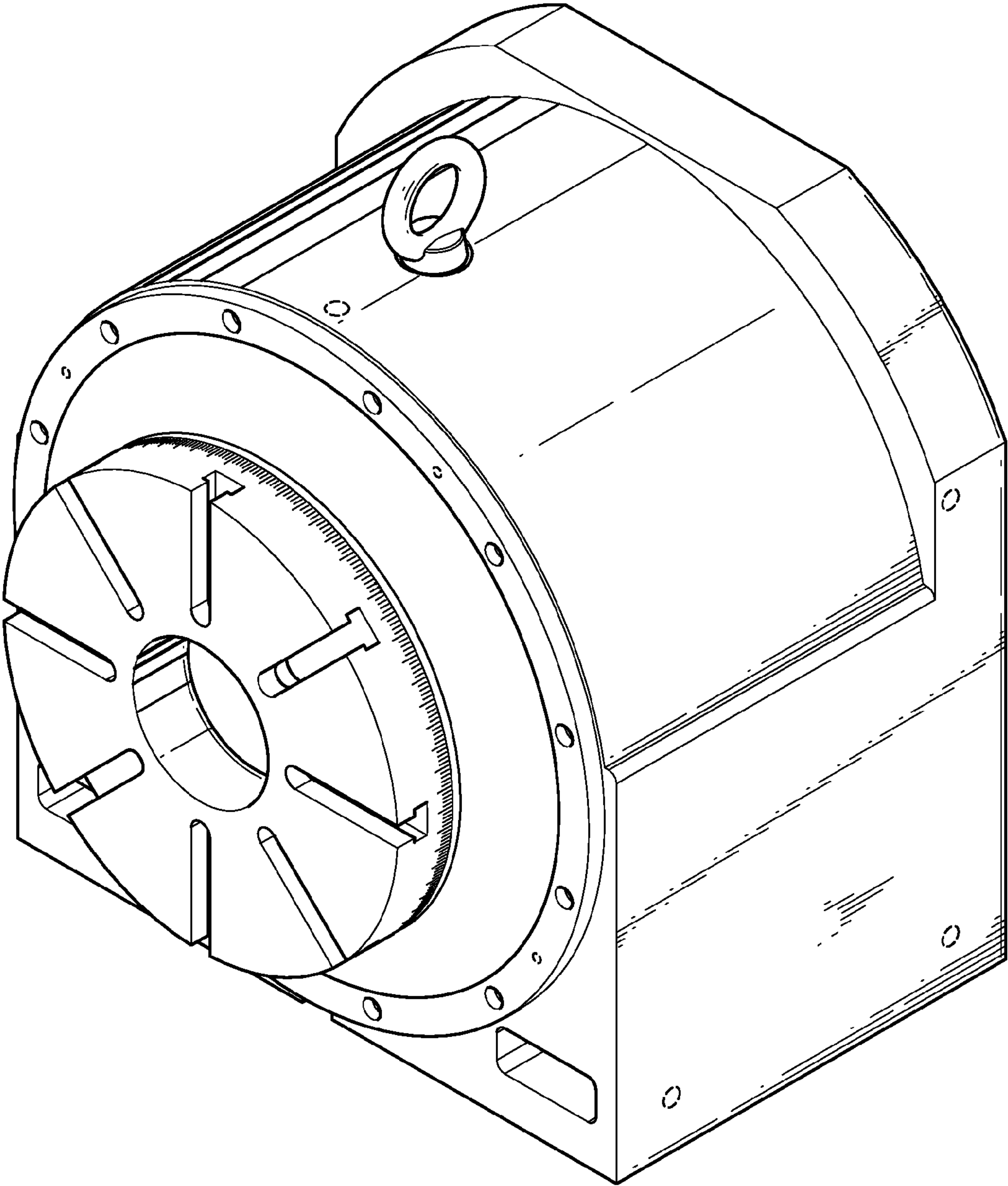


FIG. 1

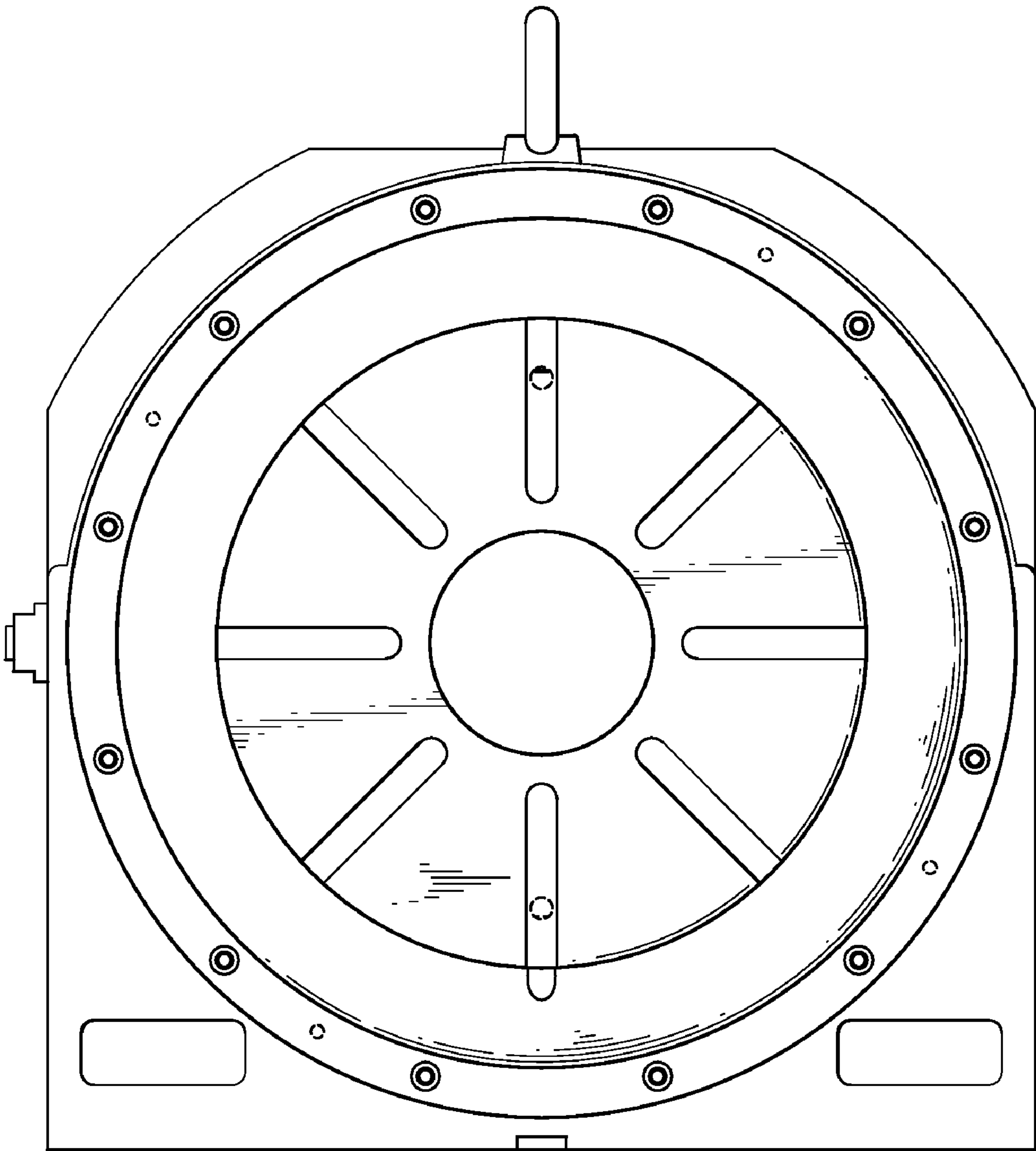


FIG. 2

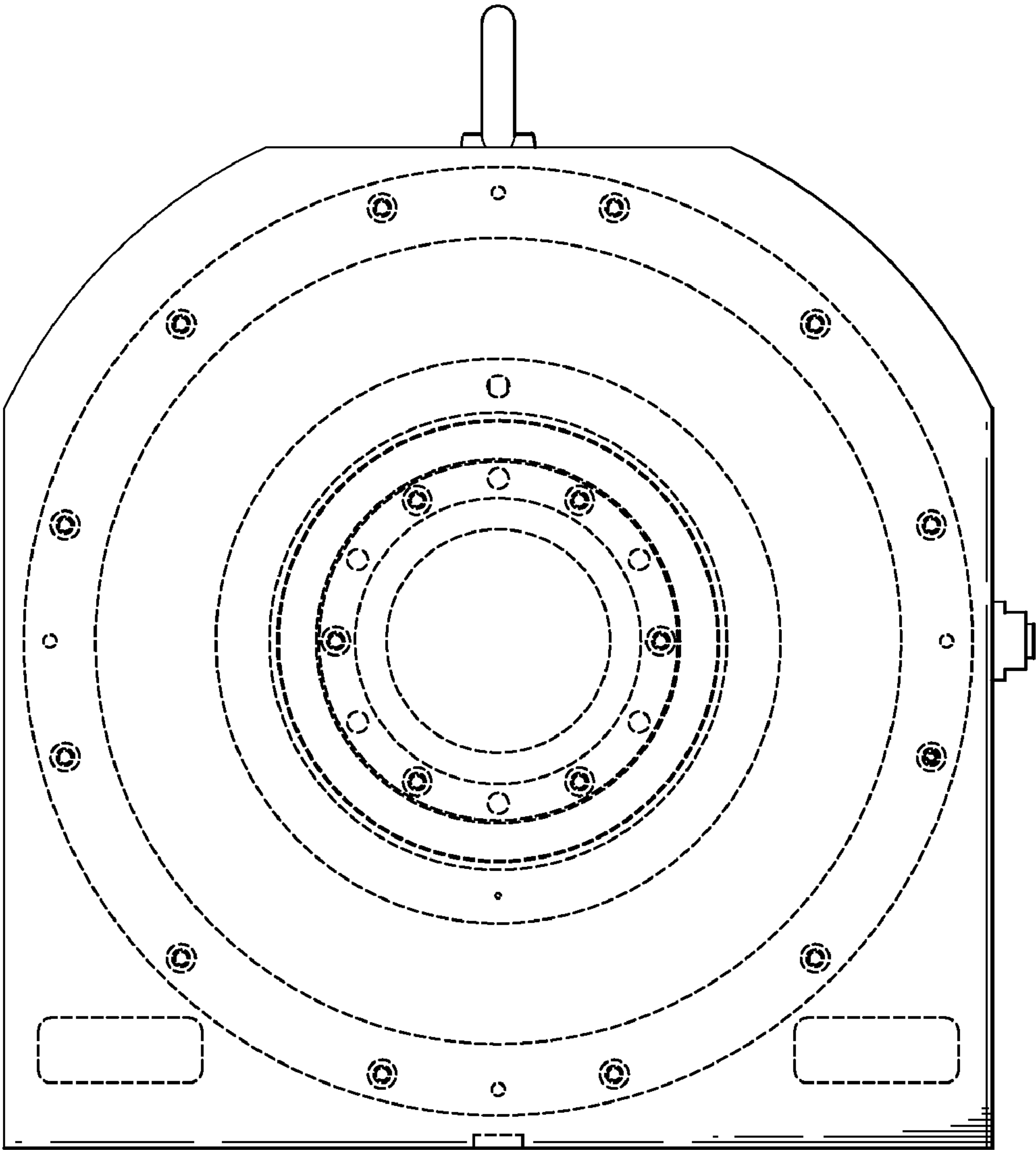


FIG. 3

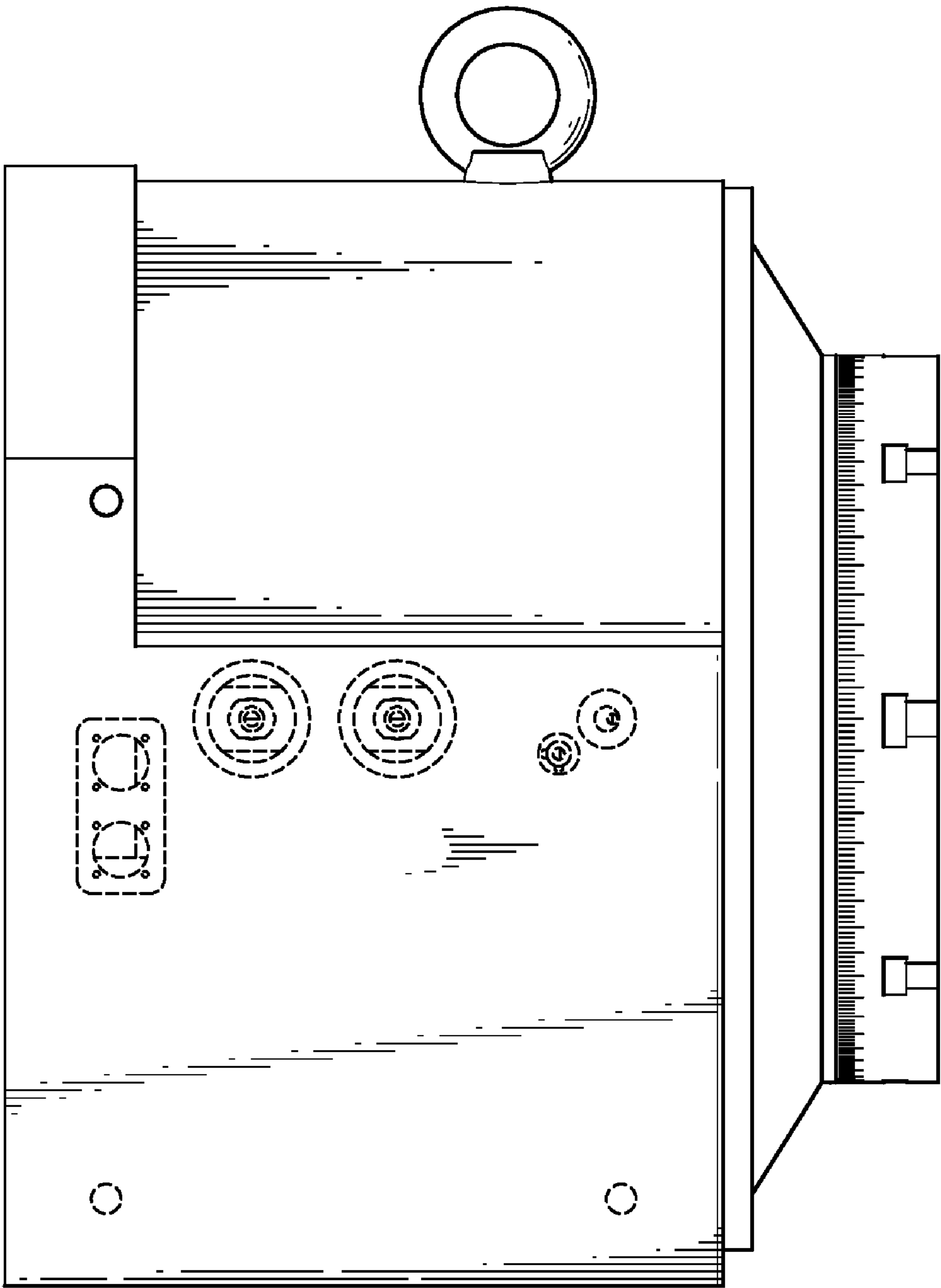


FIG. 4

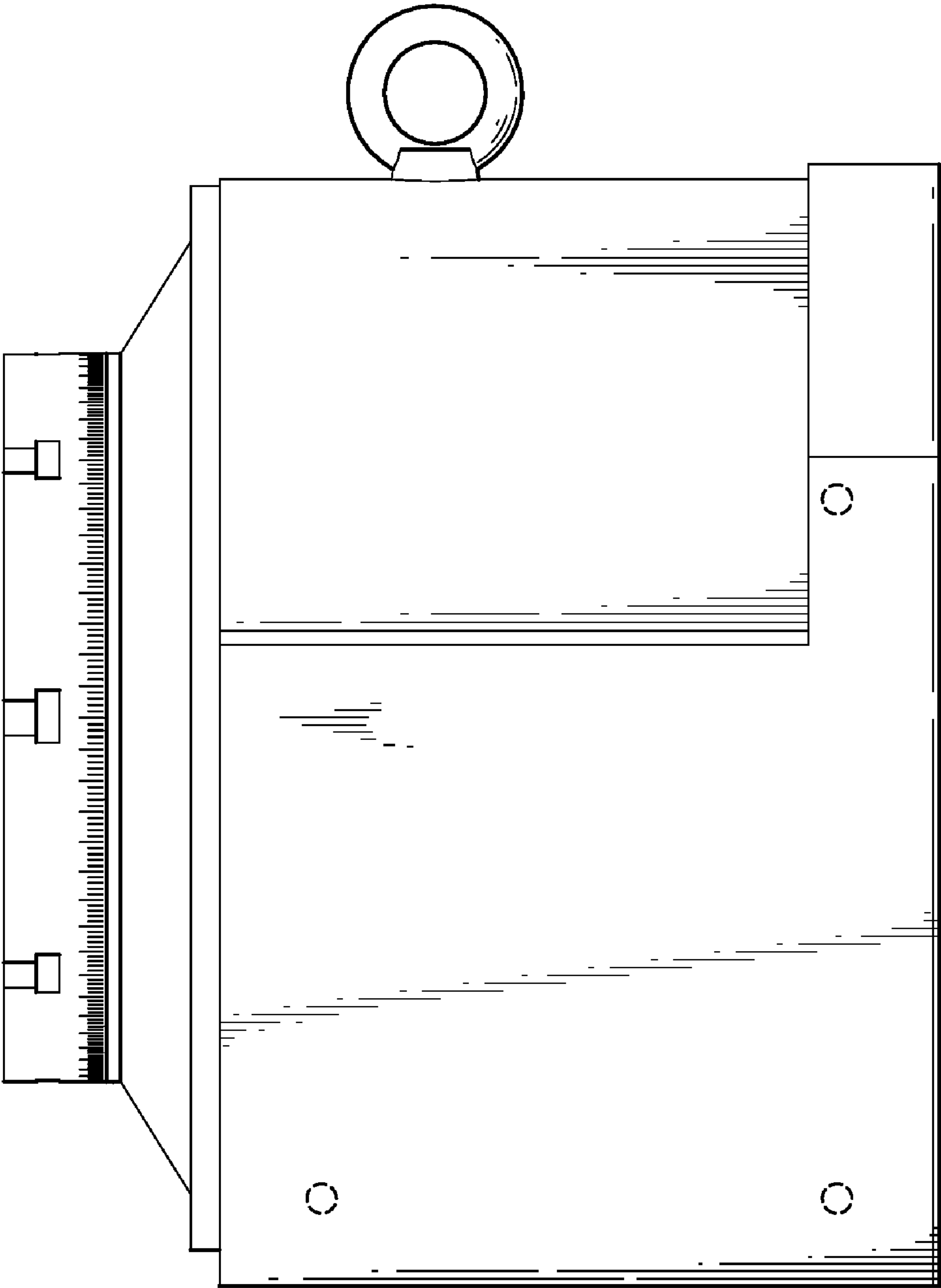


FIG. 5

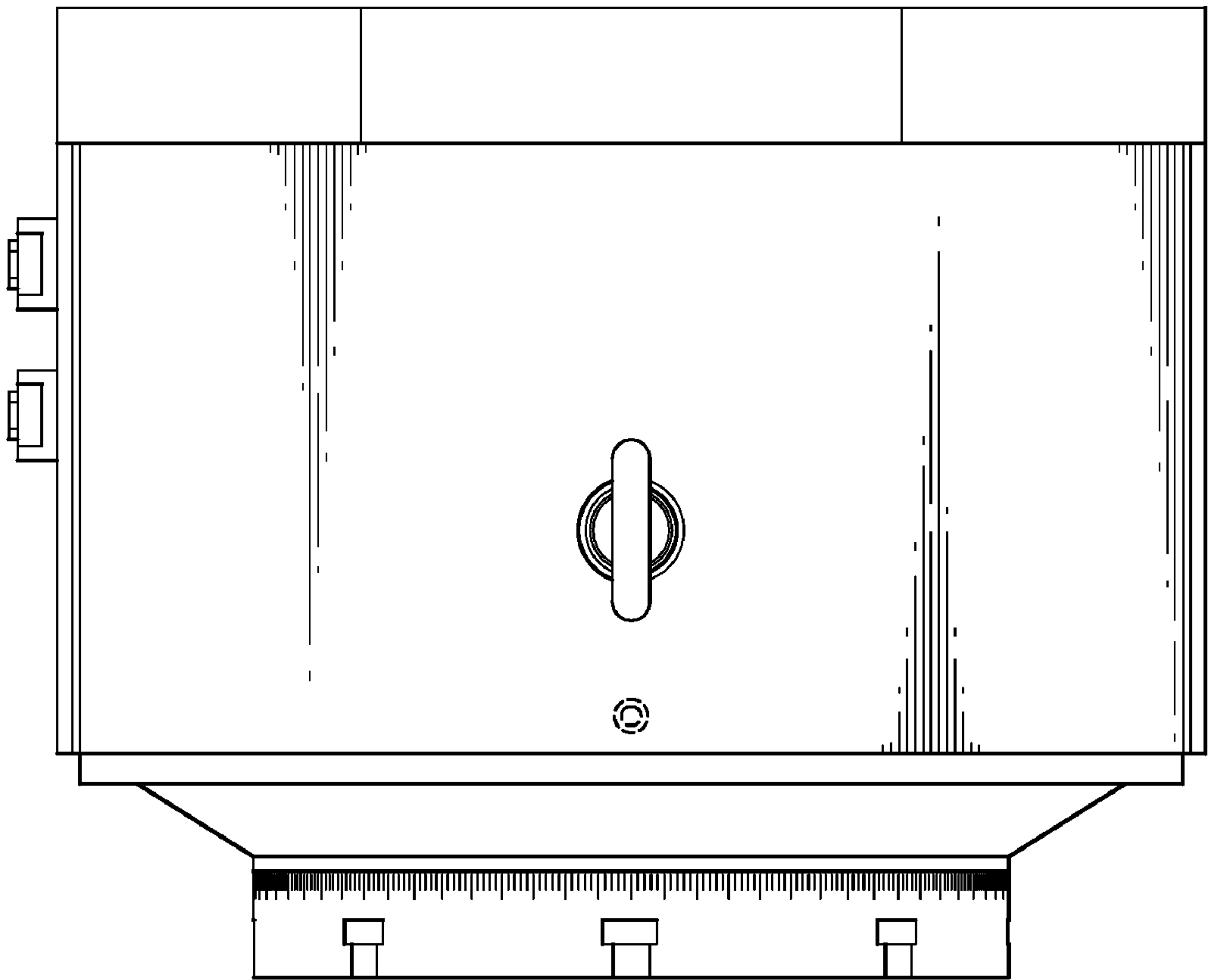


FIG. 6

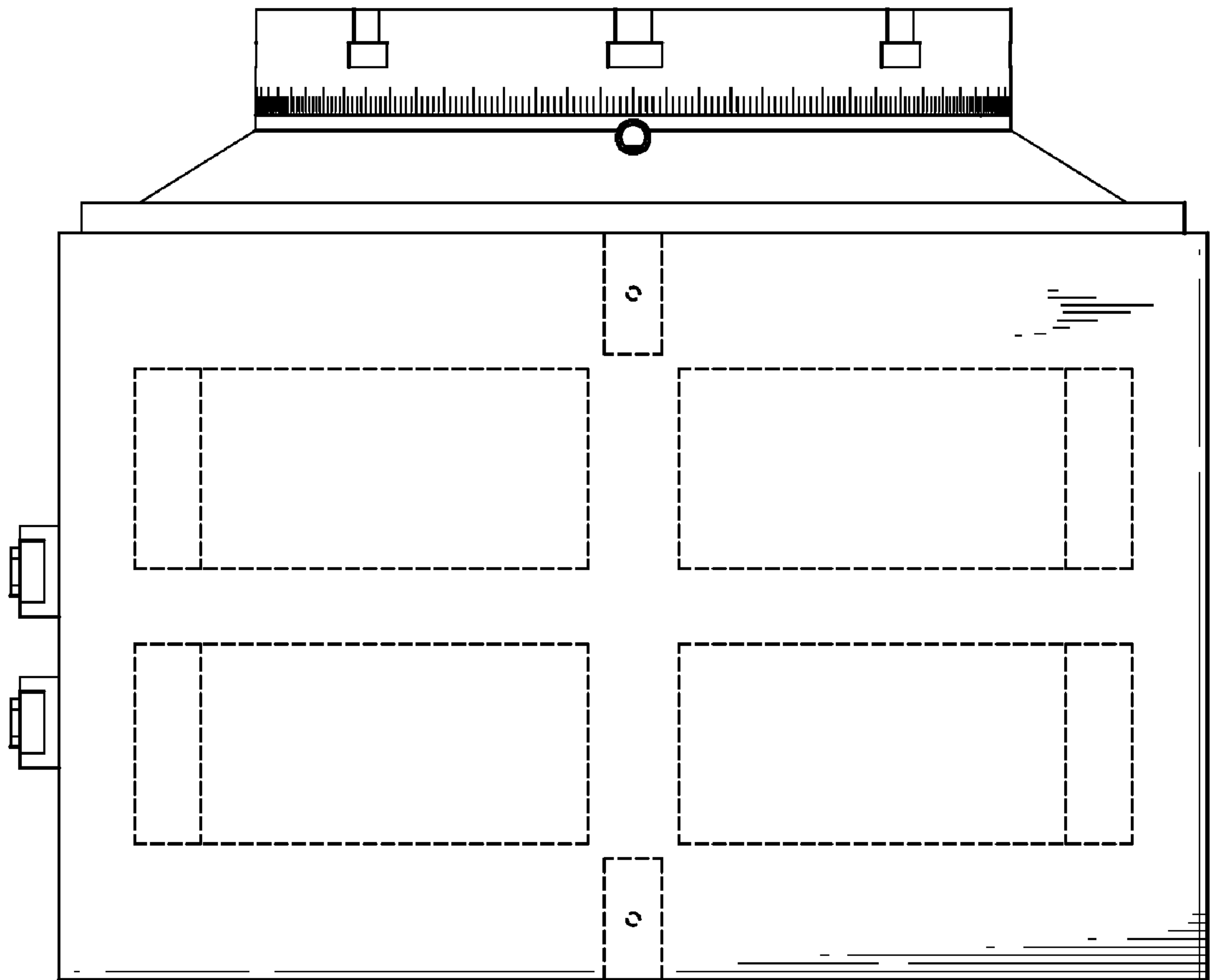


FIG. 7