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

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(54) **OPTICAL SCANNER**

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

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(30) **Foreign Application Priority Data**

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May 17, 2017 (EM) 004006542

(51) **LOC (12) Cl.** **14-02**

(52) **U.S. Cl.**
USPC **D14/420**

(58) **Field of Classification Search**

USPC D14/420, 426-430, 453, 346, 341, 347, D14/412; D13/107, 184; 358/473, 511, 358/474, 475, 505; 235/462.43, 462.45, 235/462.47, 462.48, 462.44, 462.46, 487, 235/472.01, 472.02; 16/110.1, 430, 431; 439/133, 135, 217; 709/219, 201; 710/73; 320/114, 115, 123; 361/679; 382/313, 321; 455/575.1, 561, 572; D10/66, 69, 70, 75, 46; D16/225, 234, D16/208, 219; 356/5.04, 5.01, 5.02, 5.06, 356/5.11, 4.01, 139.1, 601-623, 5.09; 359/346, 348; 372/34, 36, 83, 35, 87, 64,

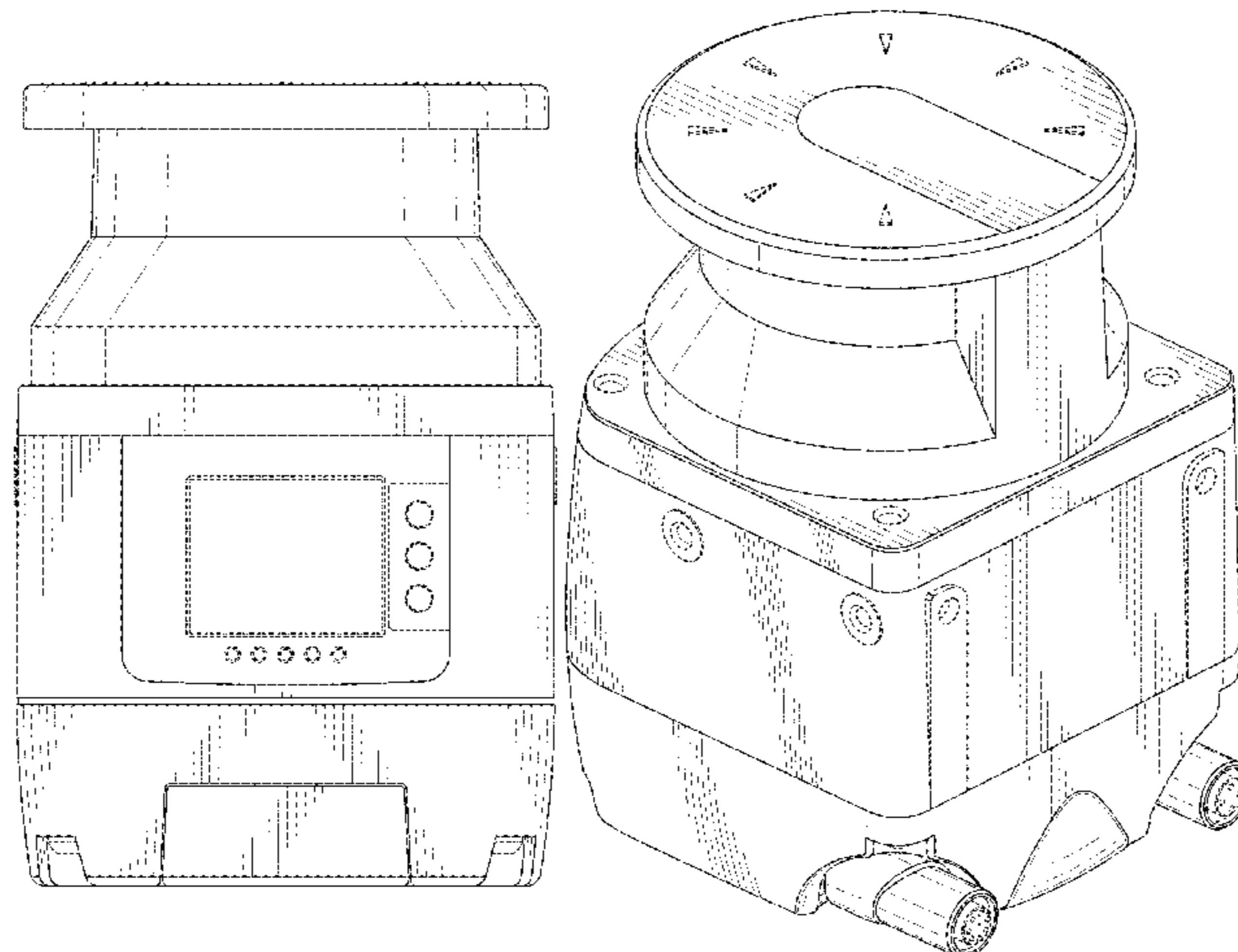
372/57, 62, 55, 68, 108, 95, 97; 348/143, 348/169; 250/328, 330, 334; 89/41.06; 701/28; 702/188; 703/6
CPC H01S 3/0315; H01S 3/0975; H01S 3/041; H01S 3/038; H01S 3/2232; H01S 3/0305; H01S 3/08081; H01S 3/08095; H01S 3/2383; G01B 11/00; G01B 11/04; G01B 11/24; G01B 11/026; G01B 11/002; G01B 11/2518; G02B 26/10; G02B 26/101; G01C 15/00; G01C 15/002; G01C 15/006; G01C 15/008; G01S 17/02; G01S 17/023; G01S 17/42; G01S 17/89; G01S 17/08; G01S 17/10; G01S 7/4817; G01S 7/497; G01S 7/487; G01S 7/481; G01S 7/4813; G01S 7/4812; G05B 9/00; G05B 9/02; H01R 29/00; G01N 27/9006; G01N 27/9013; G01J 1/0488; G01J 1/0414; G01V 8/18; G01V 8/22; G01V 8/26

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,542,986 A * 9/1985 Berdanier G01S 7/4811
250/334
4,626,053 A * 12/1986 Fayfield H01R 29/00
439/222
4,806,761 A * 2/1989 Carson H01L 27/14649
250/332
4,902,128 A * 2/1990 Siebecker F41G 3/065
250/332
4,983,837 A * 1/1991 Cooper H04N 3/09
250/334
5,204,489 A * 4/1993 Pellarin F41G 3/065
359/403
5,212,533 A * 5/1993 Shibuya G01C 1/02
356/5.15
5,479,016 A * 12/1995 Curry G01J 5/02
250/332
5,530,246 A * 6/1996 Hawkins G02B 23/04
250/330
5,877,688 A * 3/1999 Morinaka G01S 7/4813
340/584
6,034,803 A * 3/2000 Sullivan G01S 7/4811
356/141.1
D439,532 S * 3/2001 Off D10/81



The broken lines and unshaded portions contained within broken lines depict unclaimed features of the optical scanner that form no part of the design claim but are shown for illustrative purposes.

1 Claim, 14 Drawing Sheets

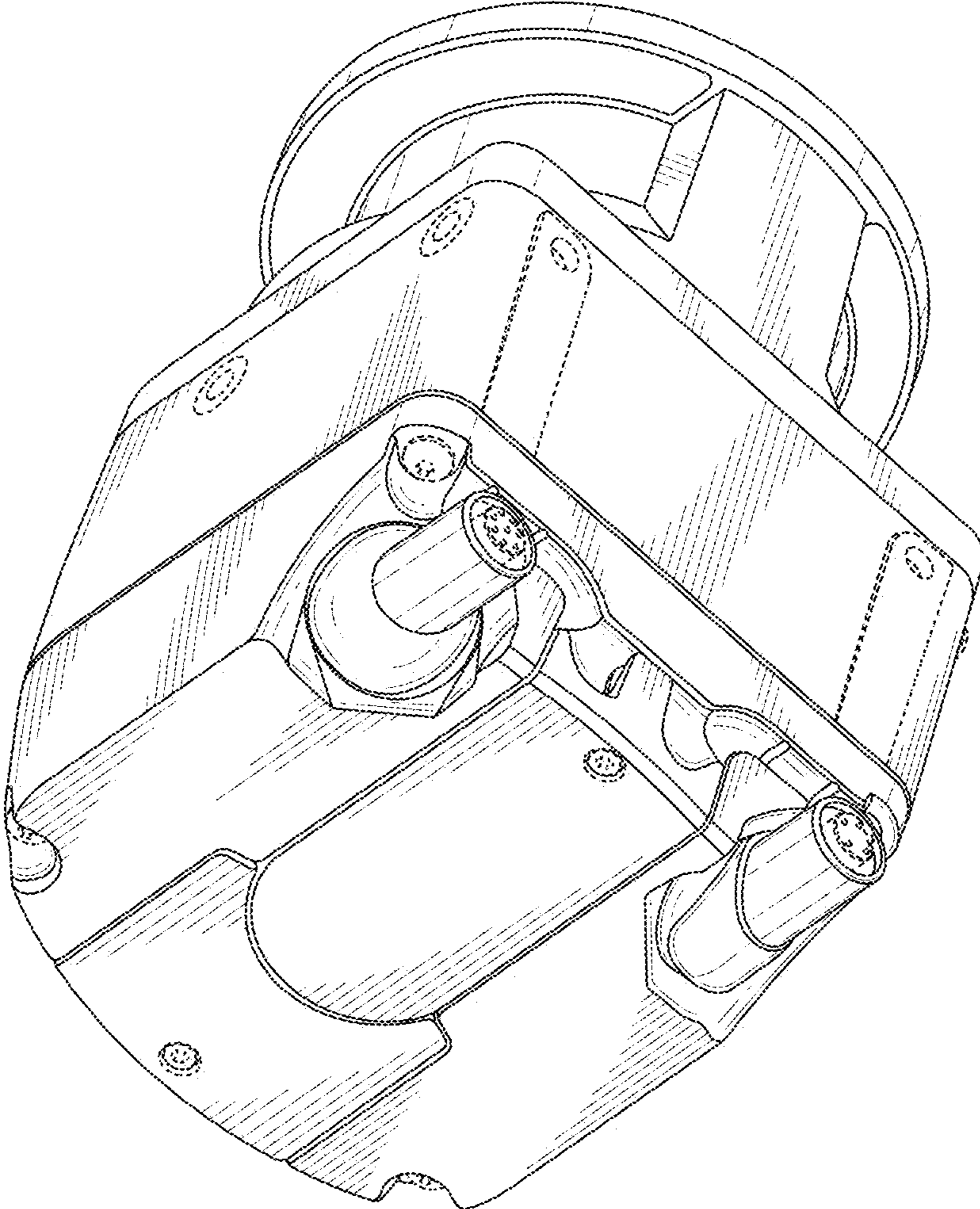


FIG. 1

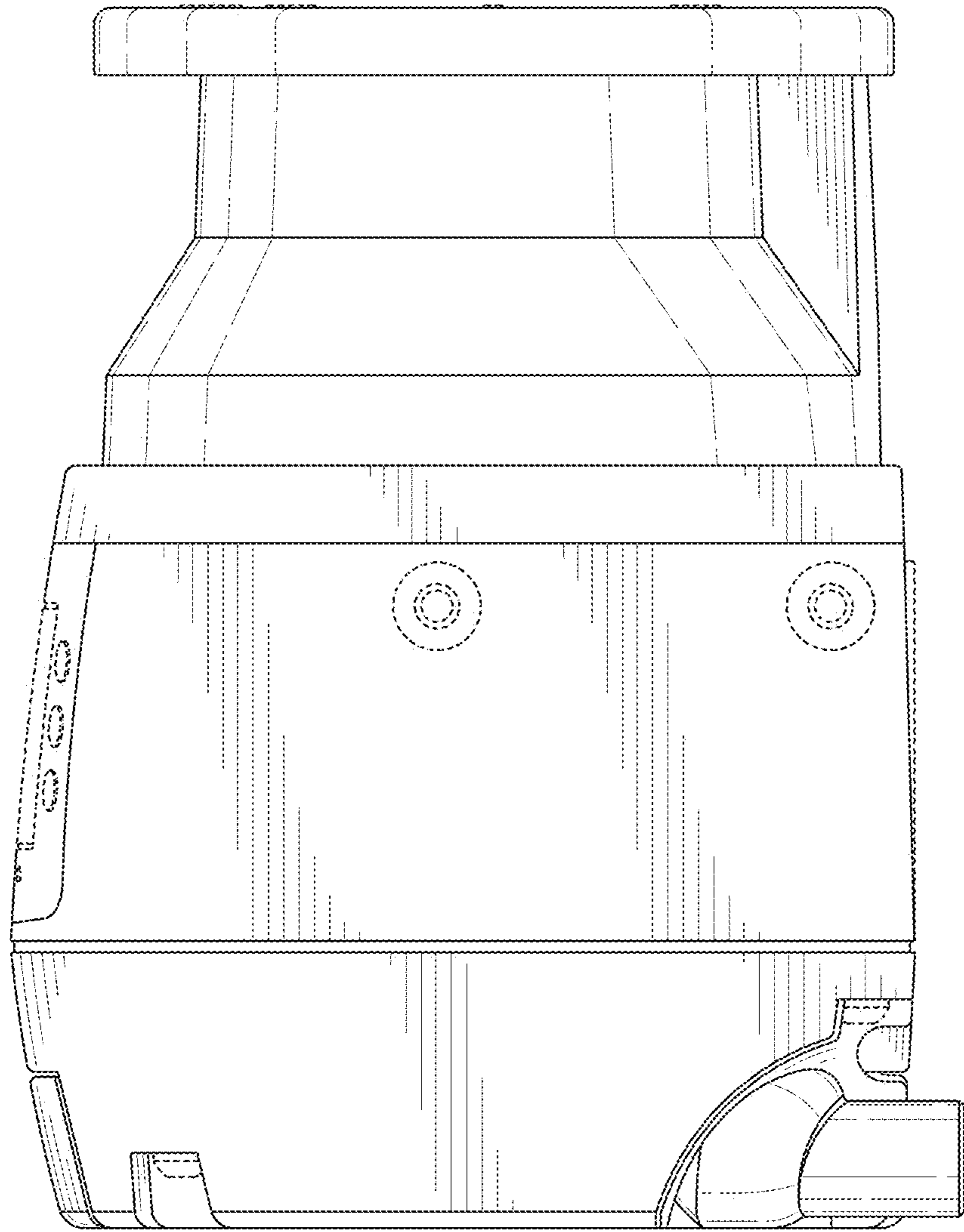


FIG. 2

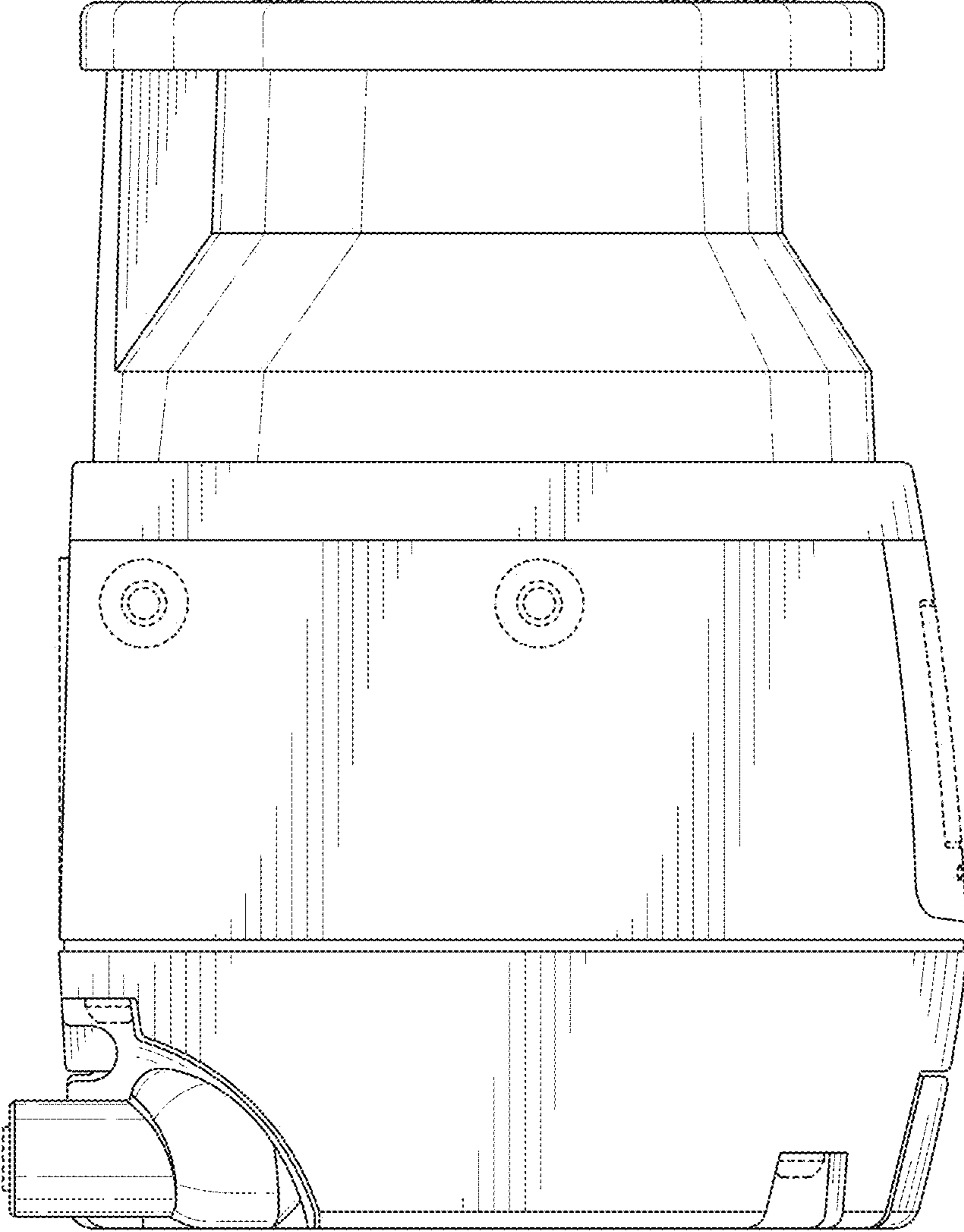


FIG. 3

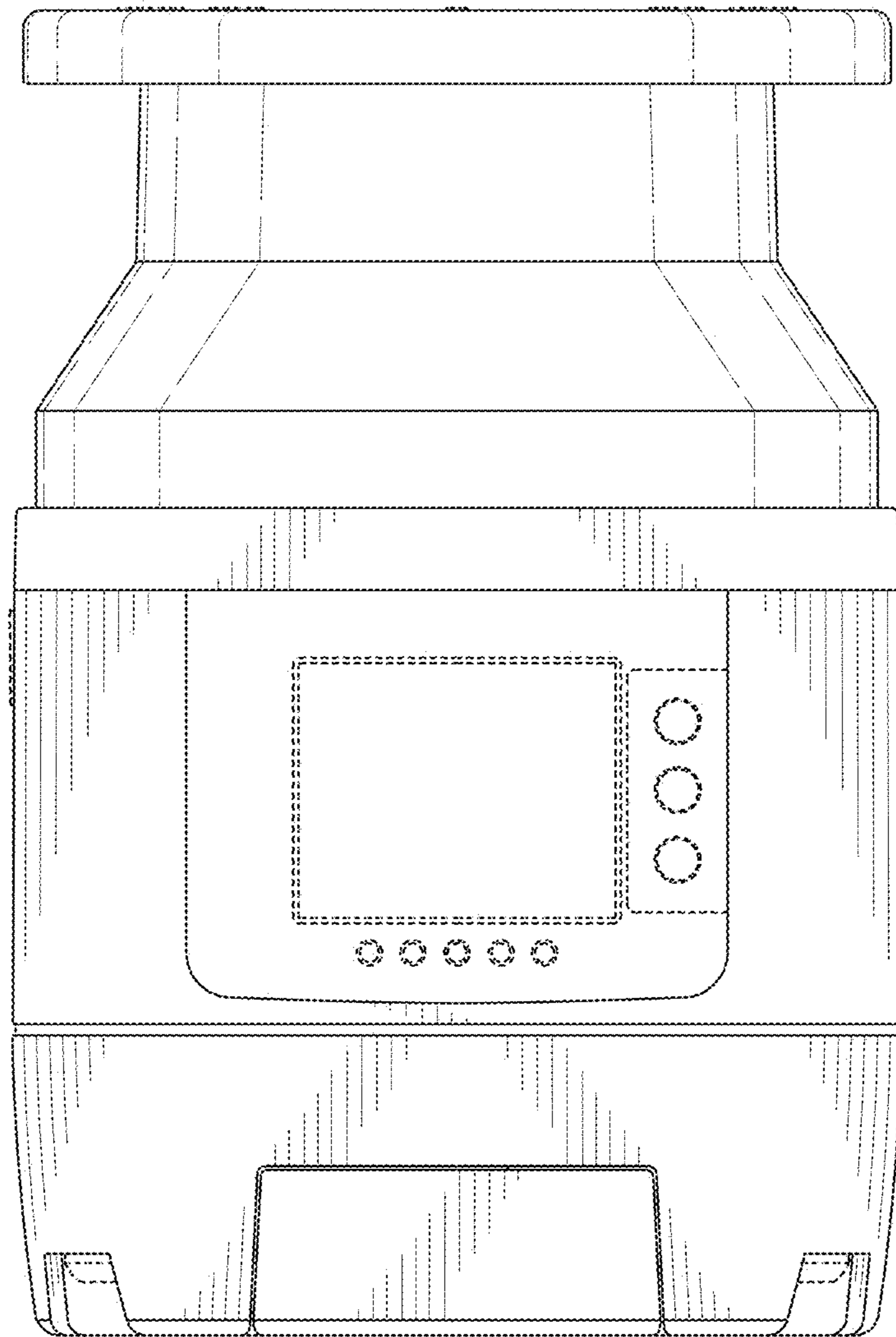


FIG. 4

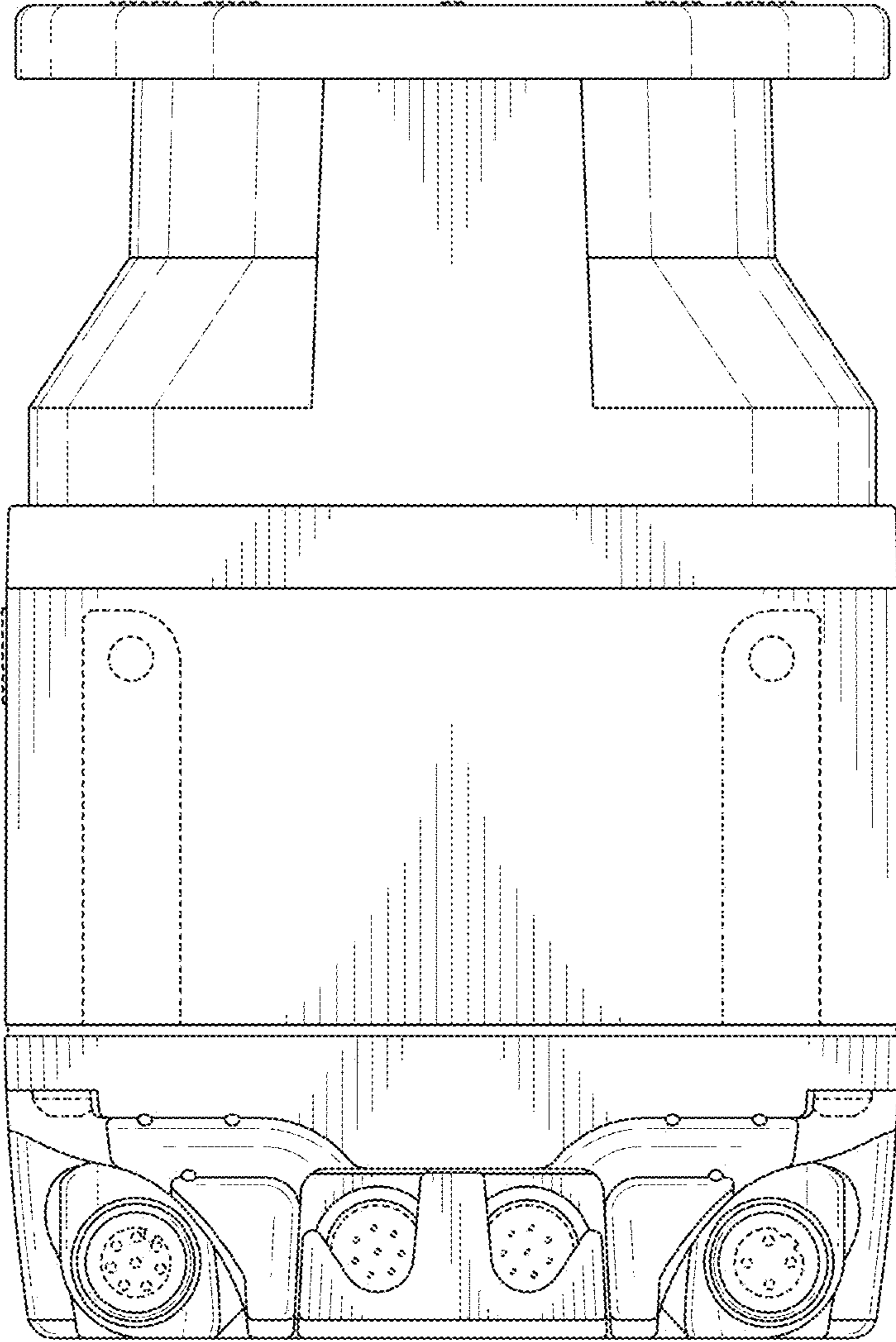


FIG. 5

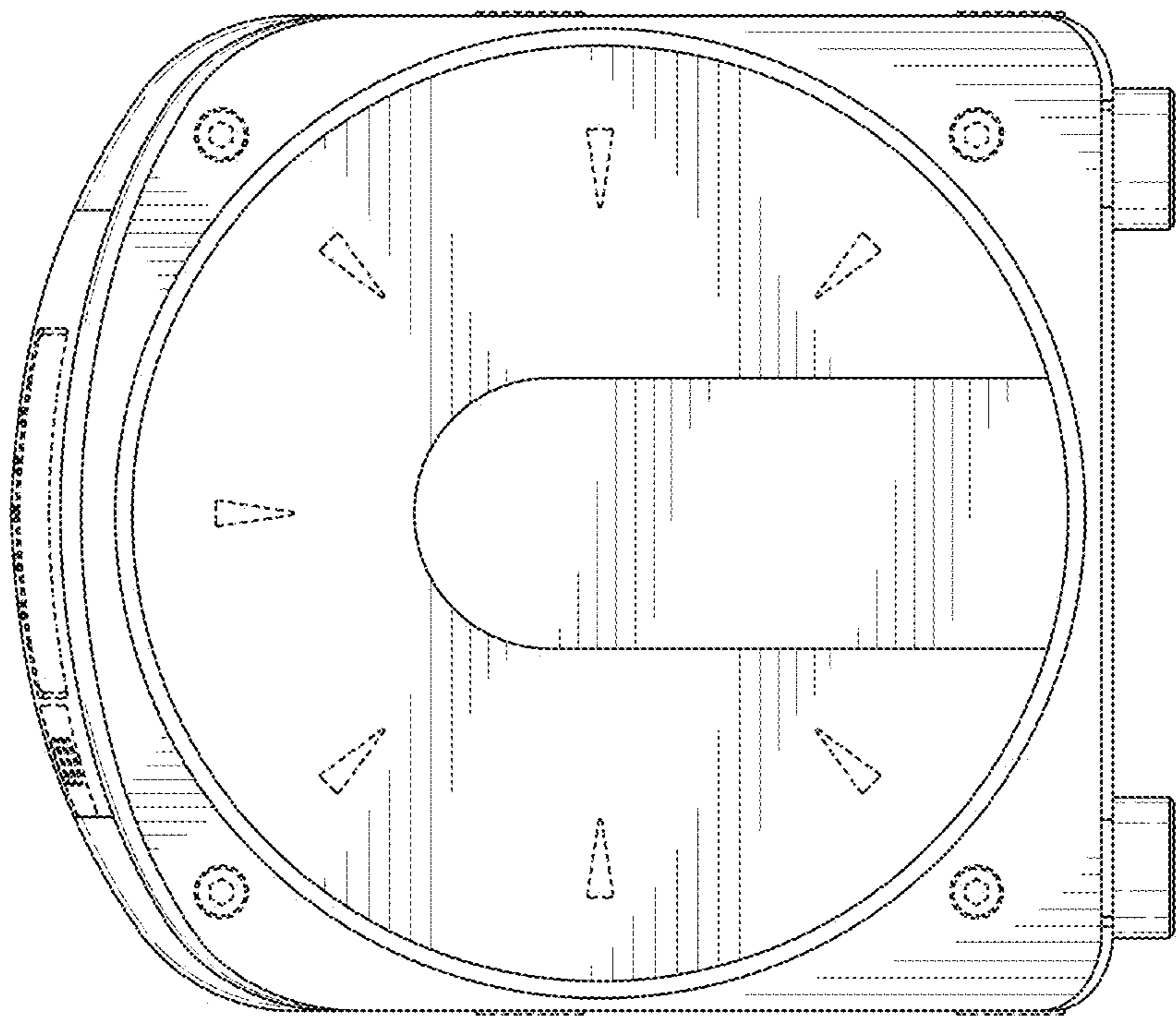


FIG. 6

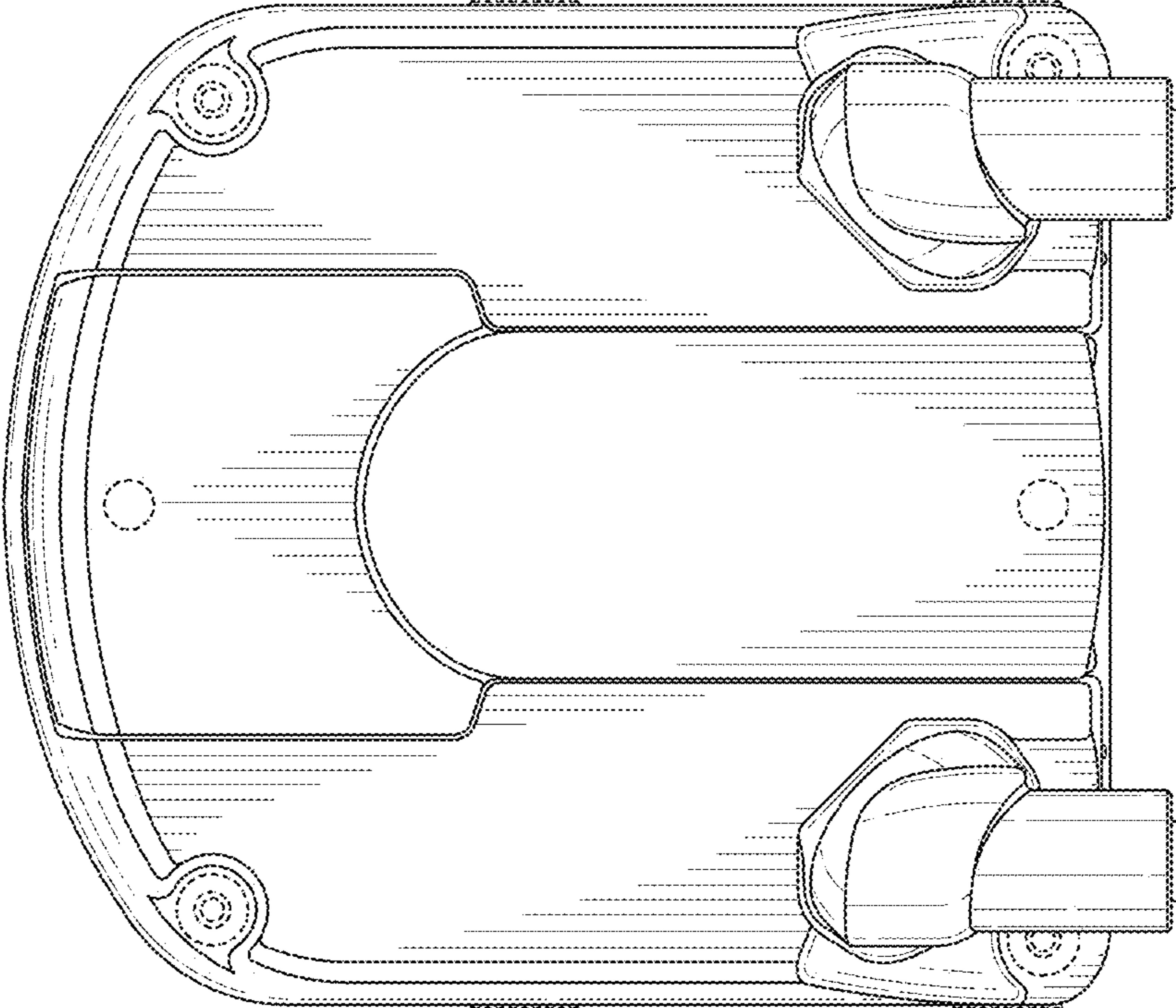


FIG. 7

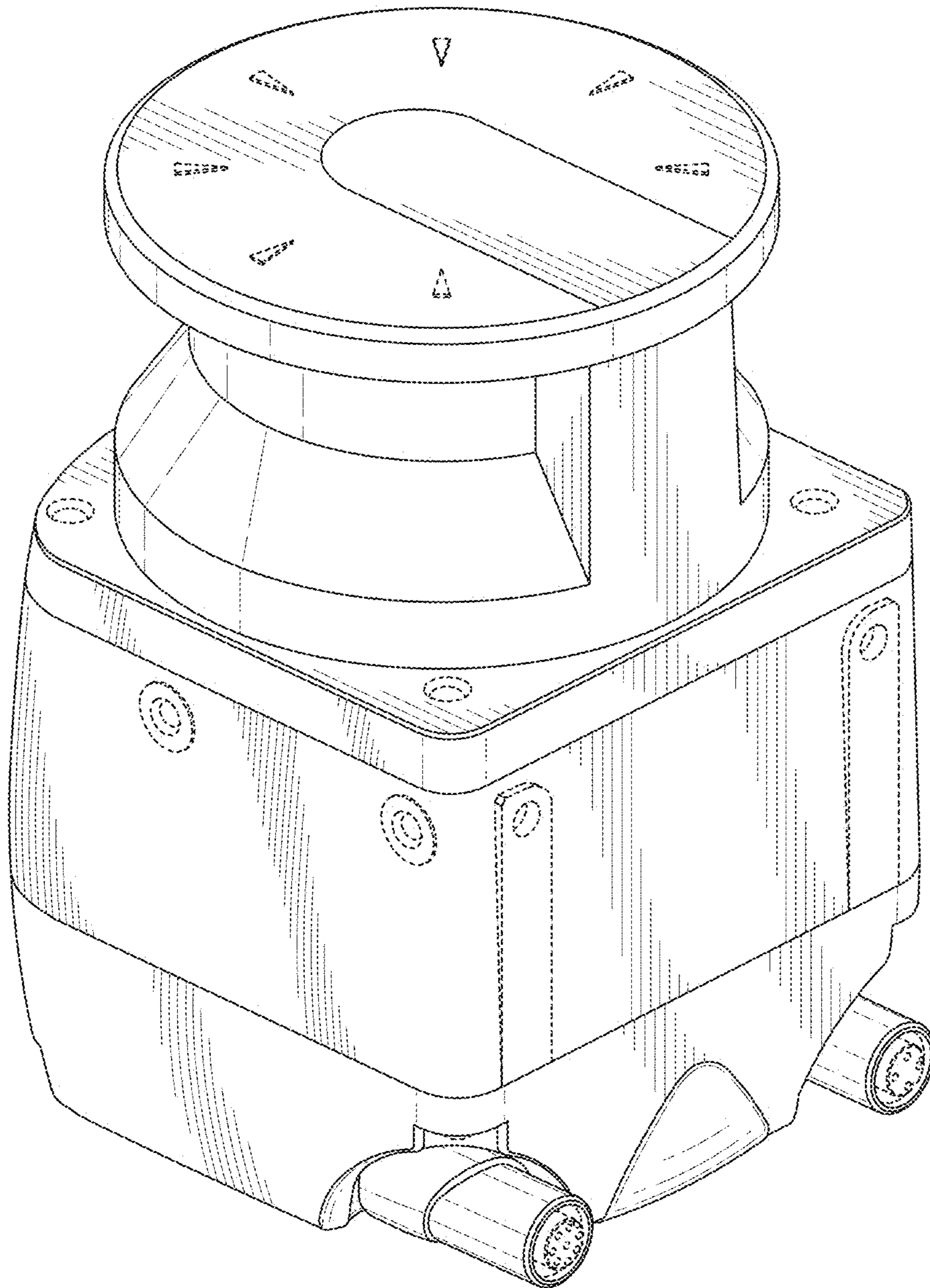


FIG. 8

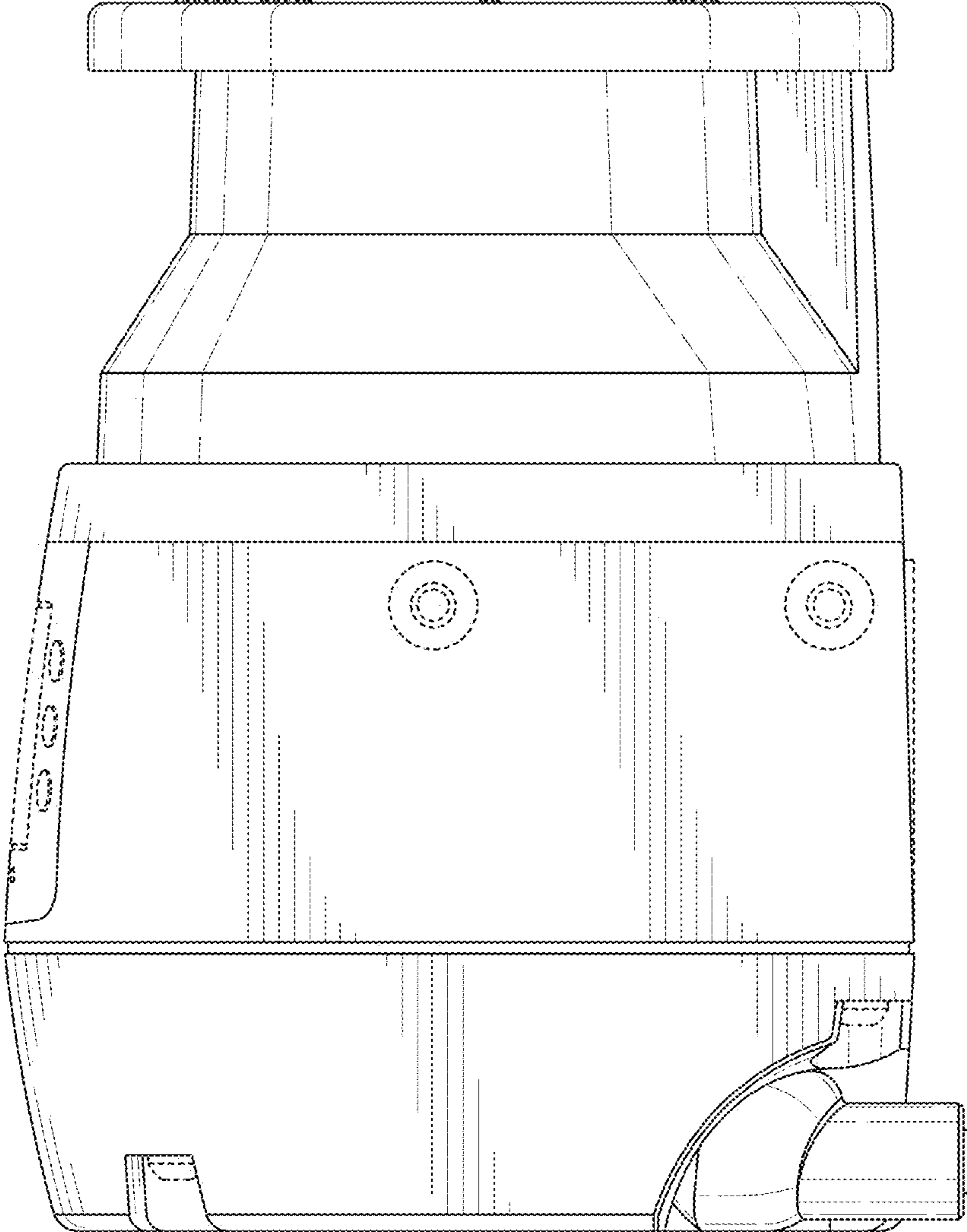


FIG. 9

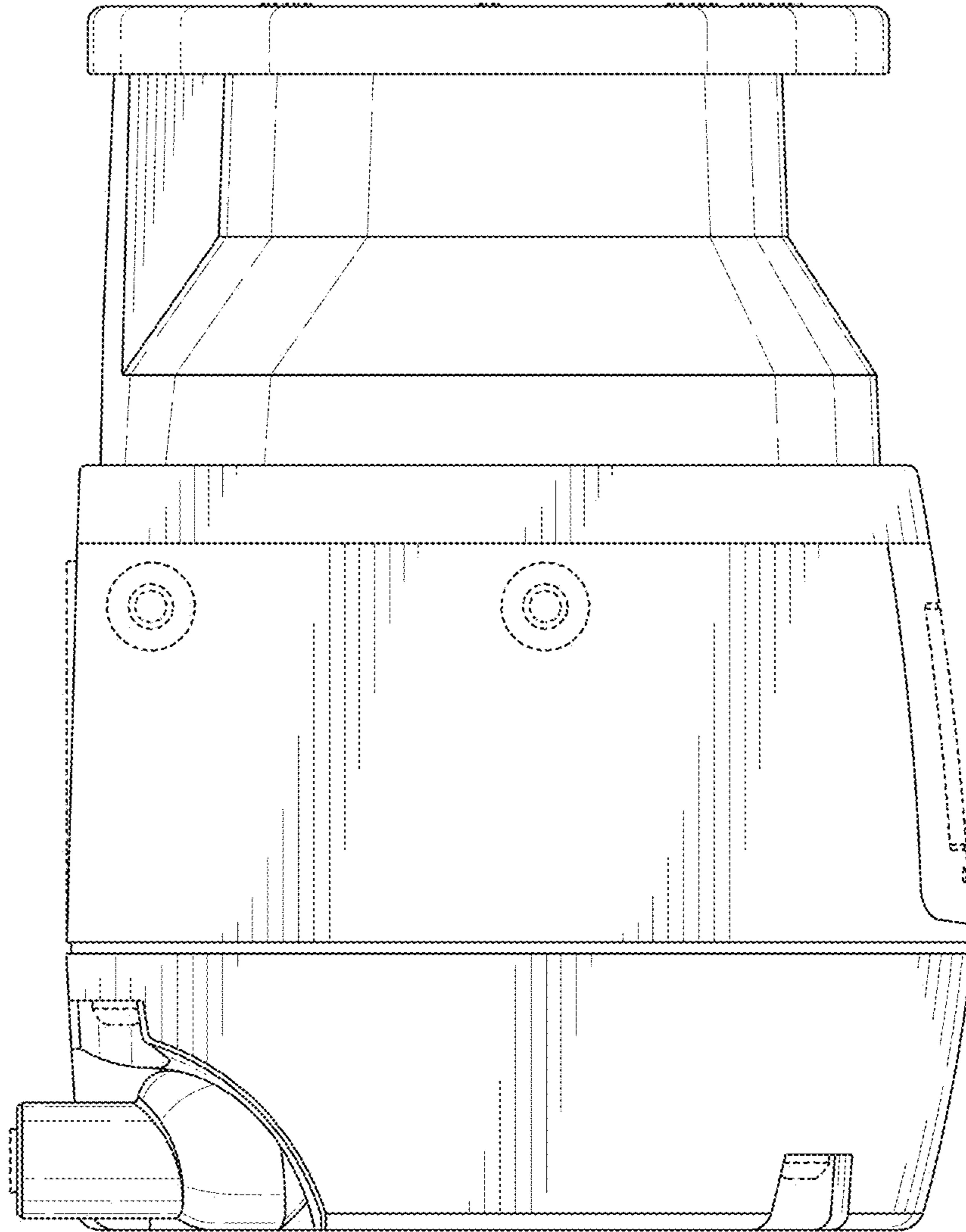


FIG. 10

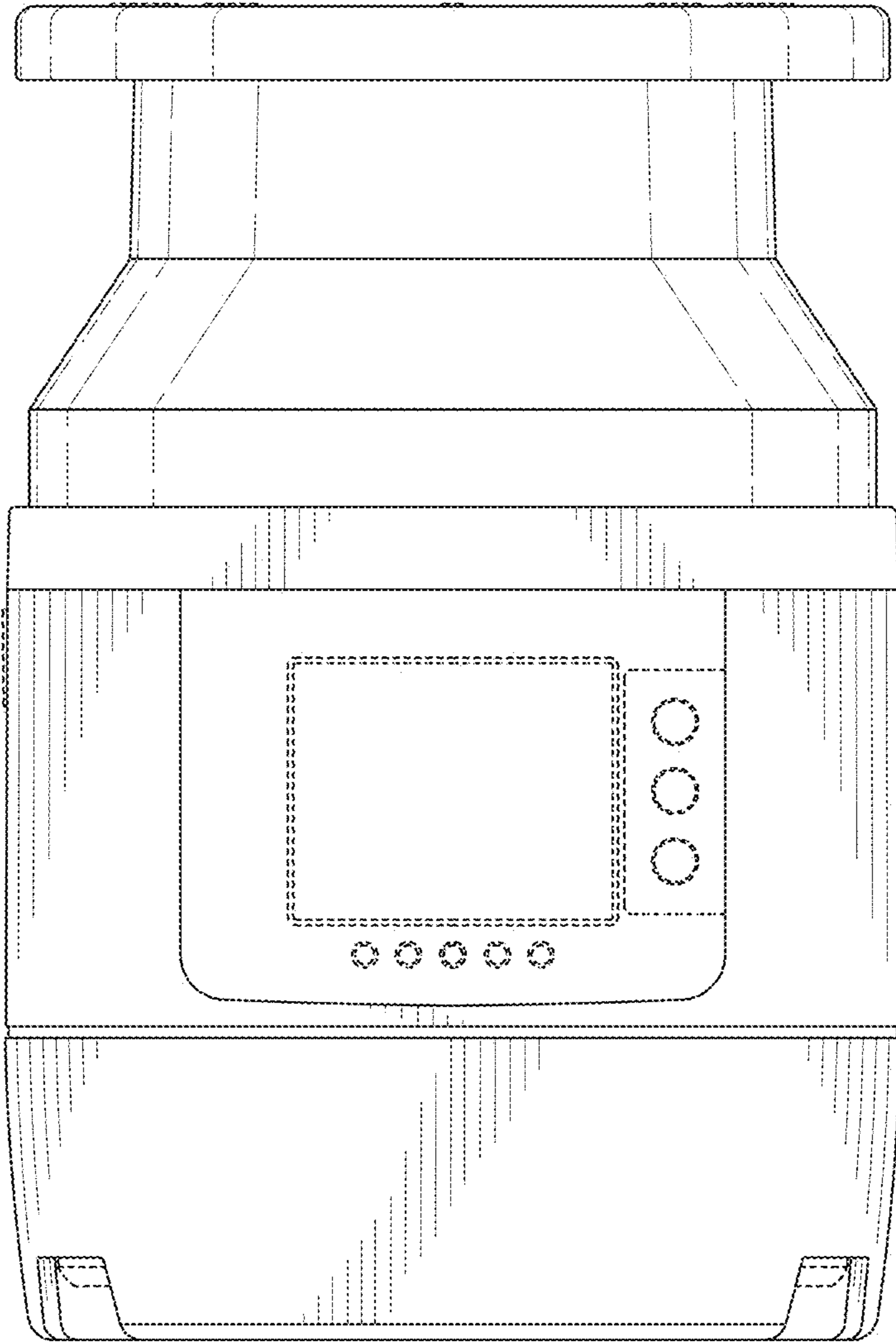


FIG. 11

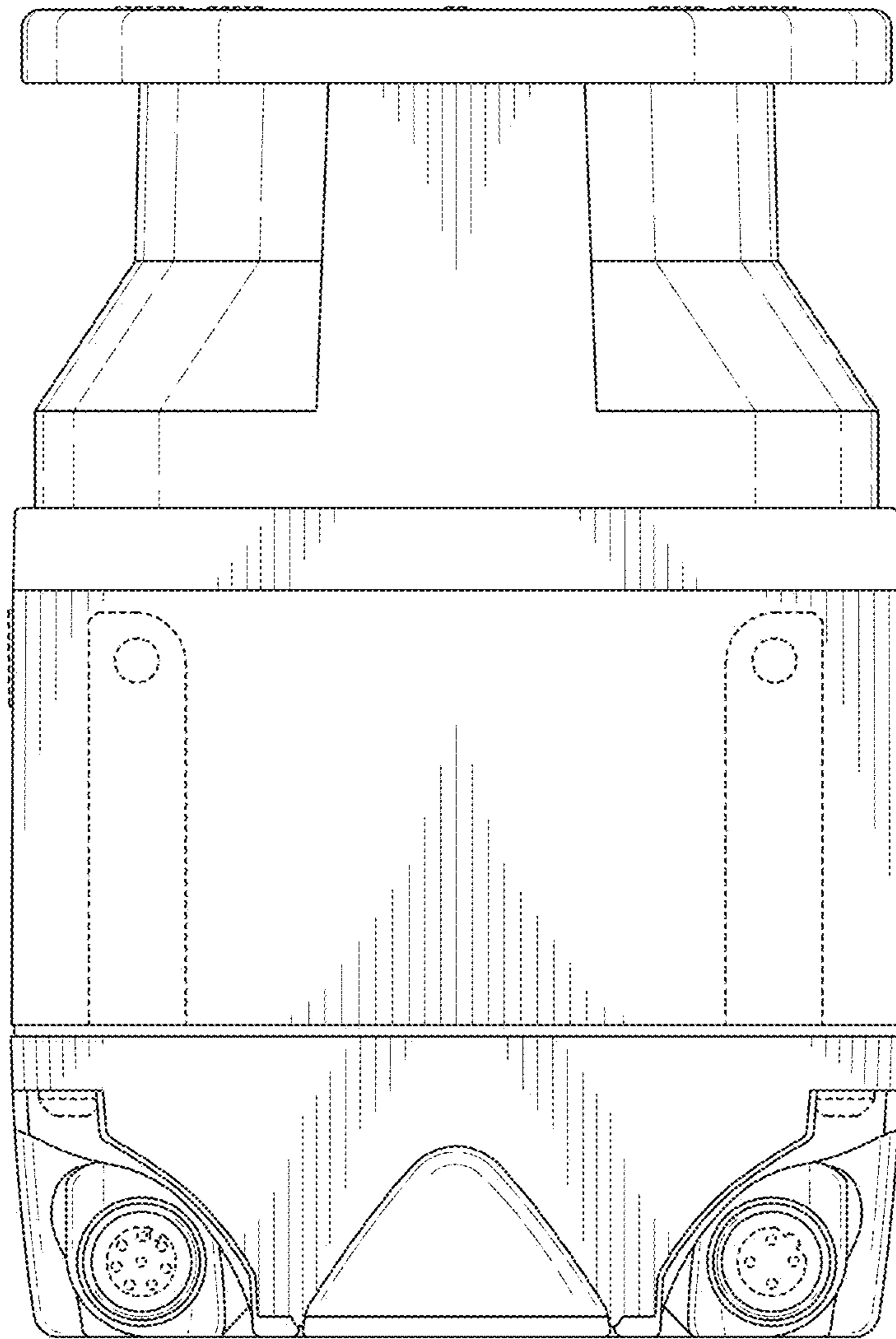


FIG. 12

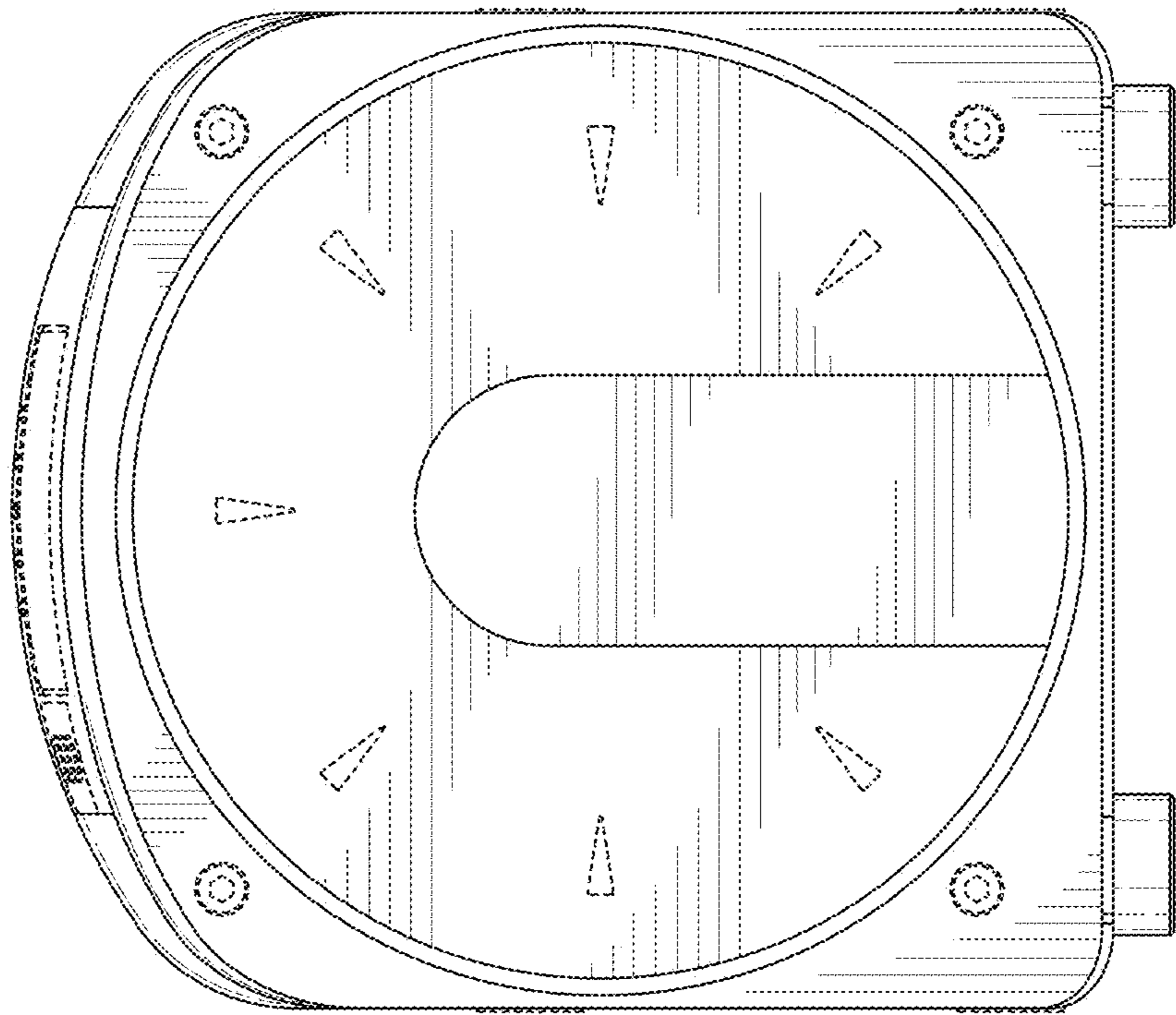


FIG. 13

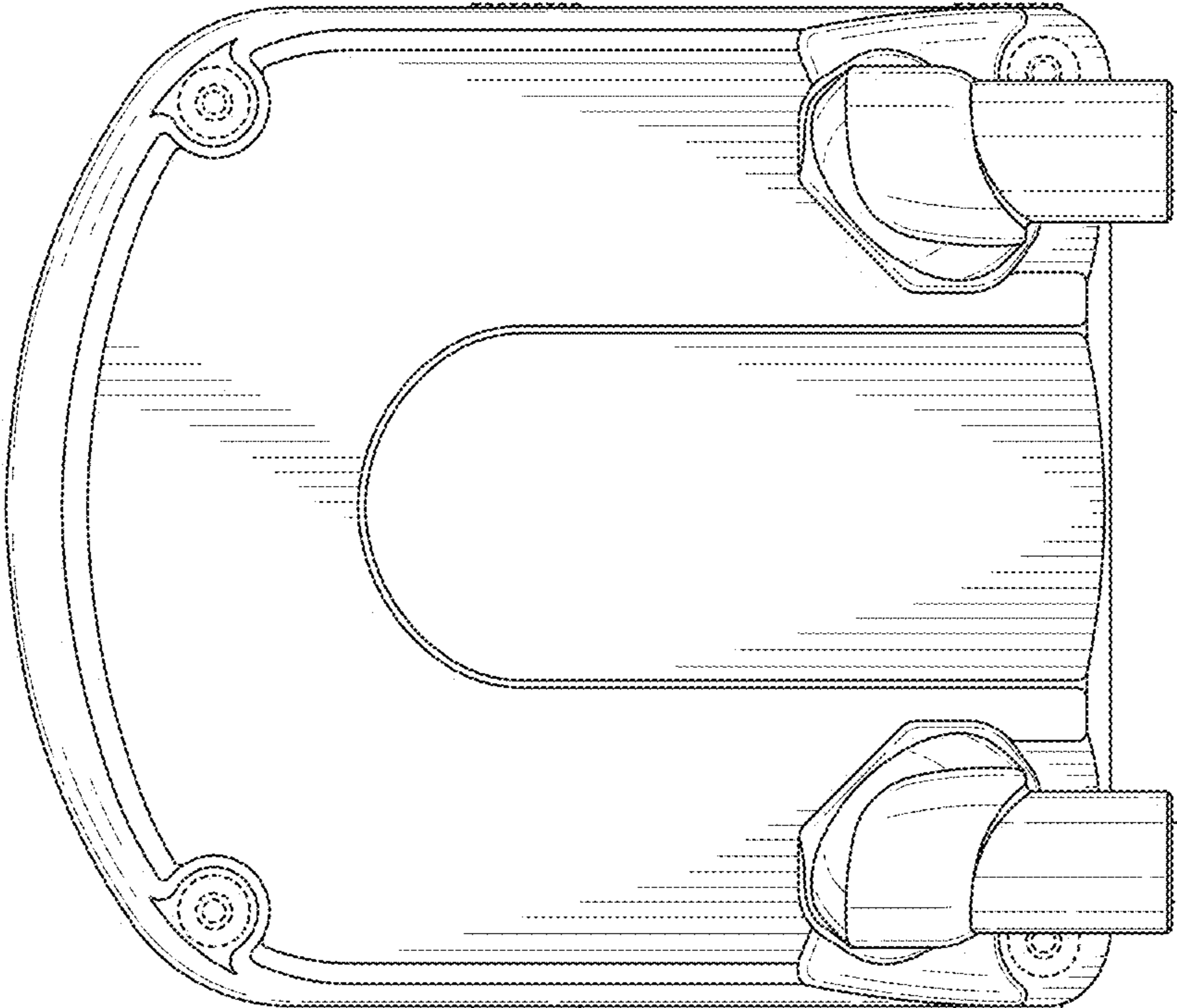


FIG. 14