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

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(54) **MINIATURE INLINE SENSING DEVICE FOR CONTINUOUS MEASUREMENT OF FLUID PROPERTIES**

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Solon, OH (US)

(57) **CLAIM**

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The ornamental design for a miniature inline sensing device for continuous measurement of fluid properties, as shown and described.

(73) Assignee: **The Mercury Iron and Steel Co.,**
Solon, OH (US)

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

DESCRIPTION

(21) Appl. No.: **29/653,799**

(22) Filed: **Jun. 19, 2018**

(51) **LOC (12) Cl.** **10-04**

(52) **U.S. Cl.**
USPC **D10/81**

(58) **Field of Classification Search**
USPC D10/81, 96
CPC ... G01F 1/00; G01F 1/007; G01F 1/07; G01F 1/74

See application file for complete search history.

FIG. 1 is a front top perspective view of the miniature inline sensing device for continuous measurement of fluid properties;

FIG. 2 is a front elevational view of the miniature inline sensing device for continuous measurement of fluid properties of FIG. 1;

FIG. 3 is a rear elevational view of the miniature inline sensing device for continuous measurement of fluid properties of FIG. 1;

FIG. 4 is a right side elevational view of the miniature inline sensing device for continuous measurement of fluid properties of FIG. 1;

FIG. 5 is a left side elevational view of the miniature inline sensing device for continuous measurement of fluid properties of FIG. 1;

FIG. 6 is a top plan view of the miniature inline sensing device for continuous measurement of fluid properties of FIG. 1;

FIG. 7 is a bottom plan view of the miniature inline sensing device for continuous measurement of fluid properties of FIG. 1; and,

FIG. 8 is a rear bottom perspective view of the miniature inline sensing device for continuous measurement of fluid properties of FIG. 1.

The broken-line disclosure of elements is understood to represent portions of the article in which the design is embodied, but which form no part of the claimed design.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D653,136 S *	1/2012	Rainer	.....	D10/96
D668,167 S *	10/2012	Rainer	.....	D10/96
D668,570 S *	10/2012	Rainer	.....	D10/96
D686,929 S *	7/2013	Rainer	.....	D10/96
D686,930 S	7/2013	Rainer et al.		
D687,730 S *	8/2013	Fukano	.....	D10/96
8,528,399 B2 *	9/2013	Rainer	.....	G01N 21/41 73/204.11

D696,972 S 1/2014 Rainer et al.

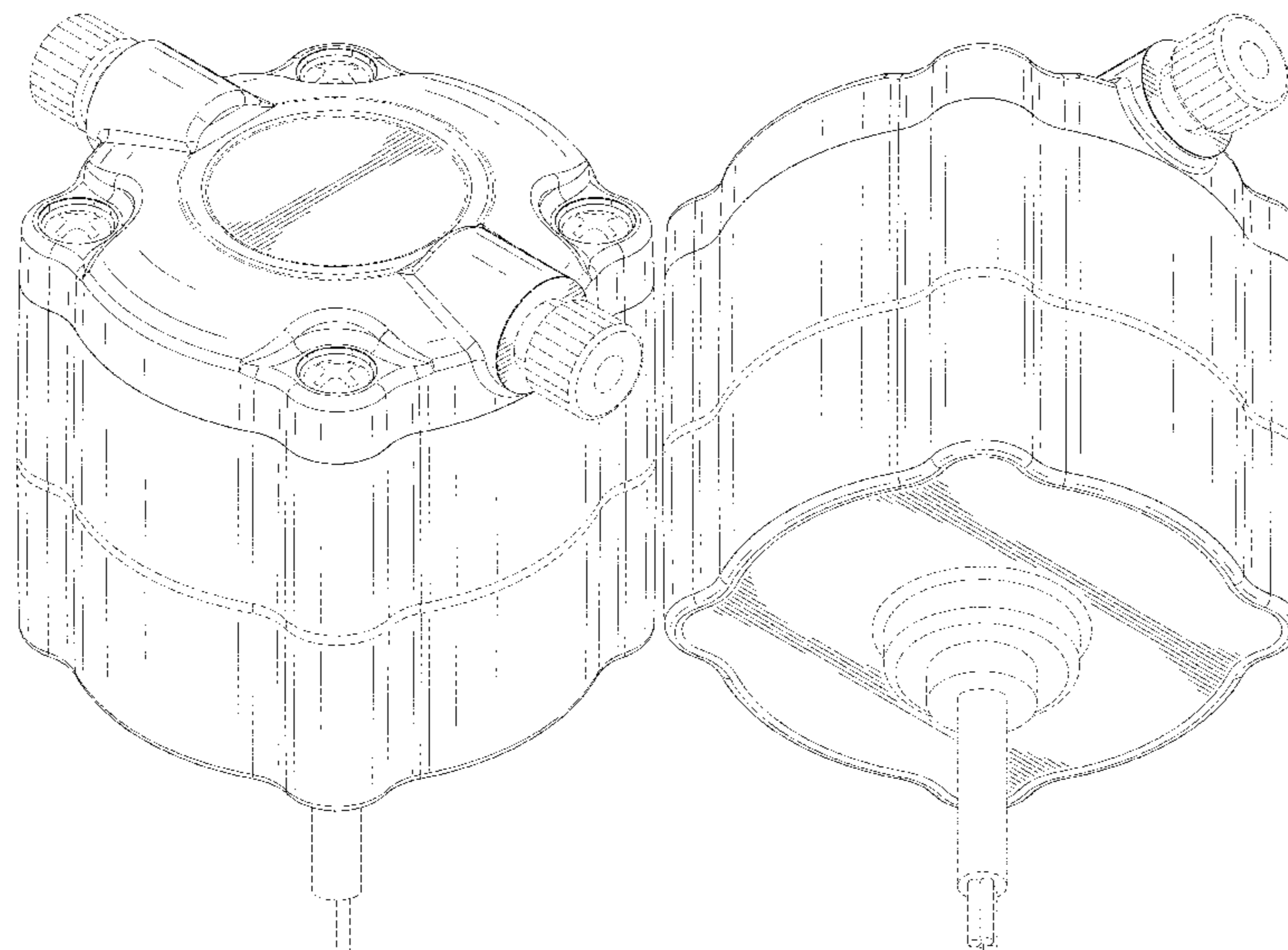
(Continued)

OTHER PUBLICATIONS

Rainer, Michael D.; Design U.S. Appl. No. 29/653,800, entitled Device with Integrated Sensor for Incorporation Into Fluid Measurement System, filed Jun. 19, 2018; in its entirety.

(Continued)

1 Claim, 7 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D704,082	S	5/2014	Rainer et al.	
D809,949	S *	2/2018	Tabata	D10/96
D828,195	S *	9/2018	Tschudin	D10/96
D828,196	S *	9/2018	Tschudin	D10/96
D828,197	S *	9/2018	Tschudin	D10/96
D831,518	S *	10/2018	Tschudin	D10/96
D834,435	S	11/2018	Raghukumar	
D863,087	S *	10/2019	Henrich	D10/96
D863,998	S *	10/2019	Rainer	D10/81
D863,999	S *	10/2019	Rainer	D10/81
2012/0118058	A1 *	5/2012	Rainer	G01N 21/41 73/204.11

OTHER PUBLICATIONS

Davis, Antoine; Notice of Allowance and Fee(s) Due, issued in Design U.S. Appl. No. 29/653,800; dated Jul. 10, 2019; 6 pages.

* cited by examiner

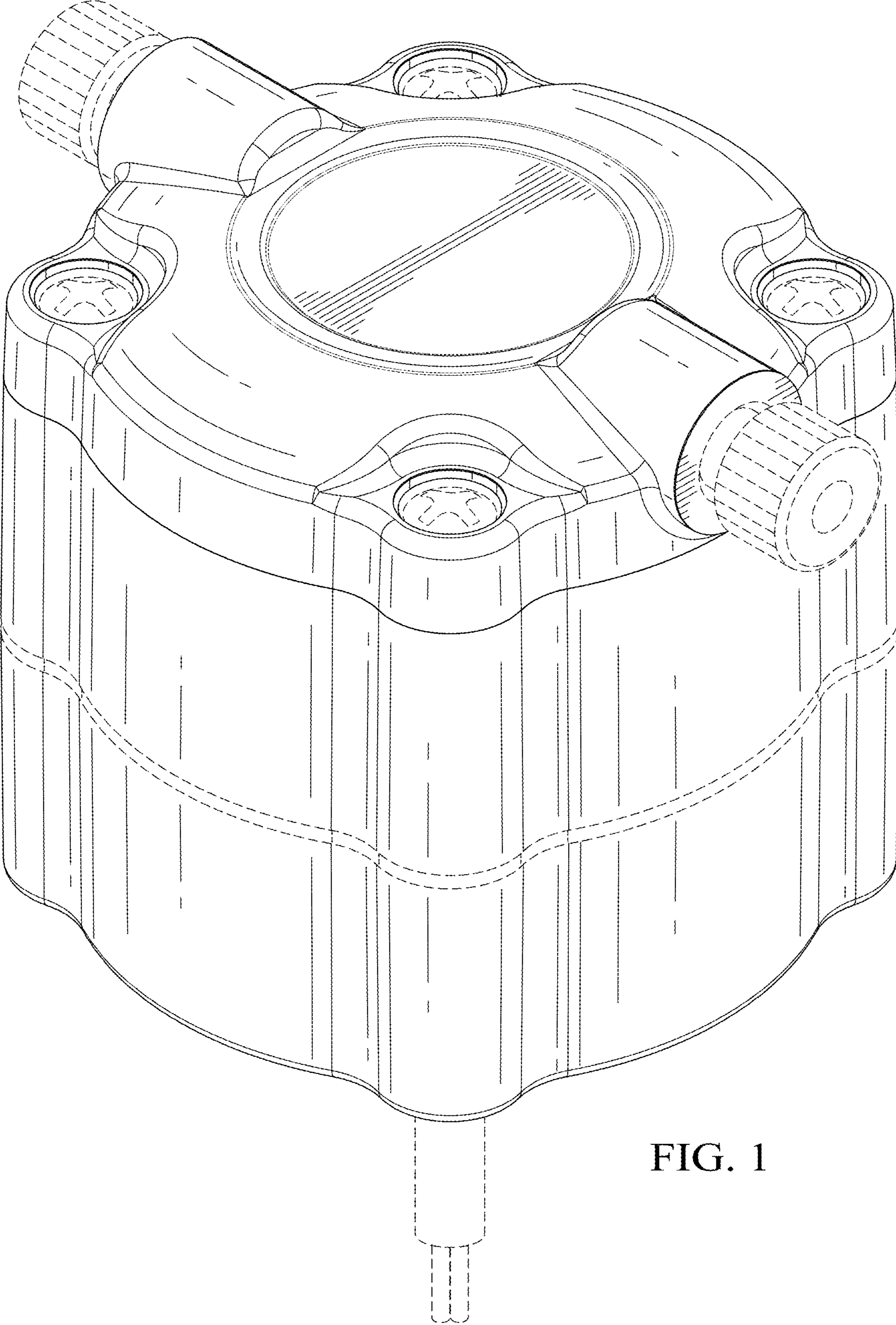


FIG. 1

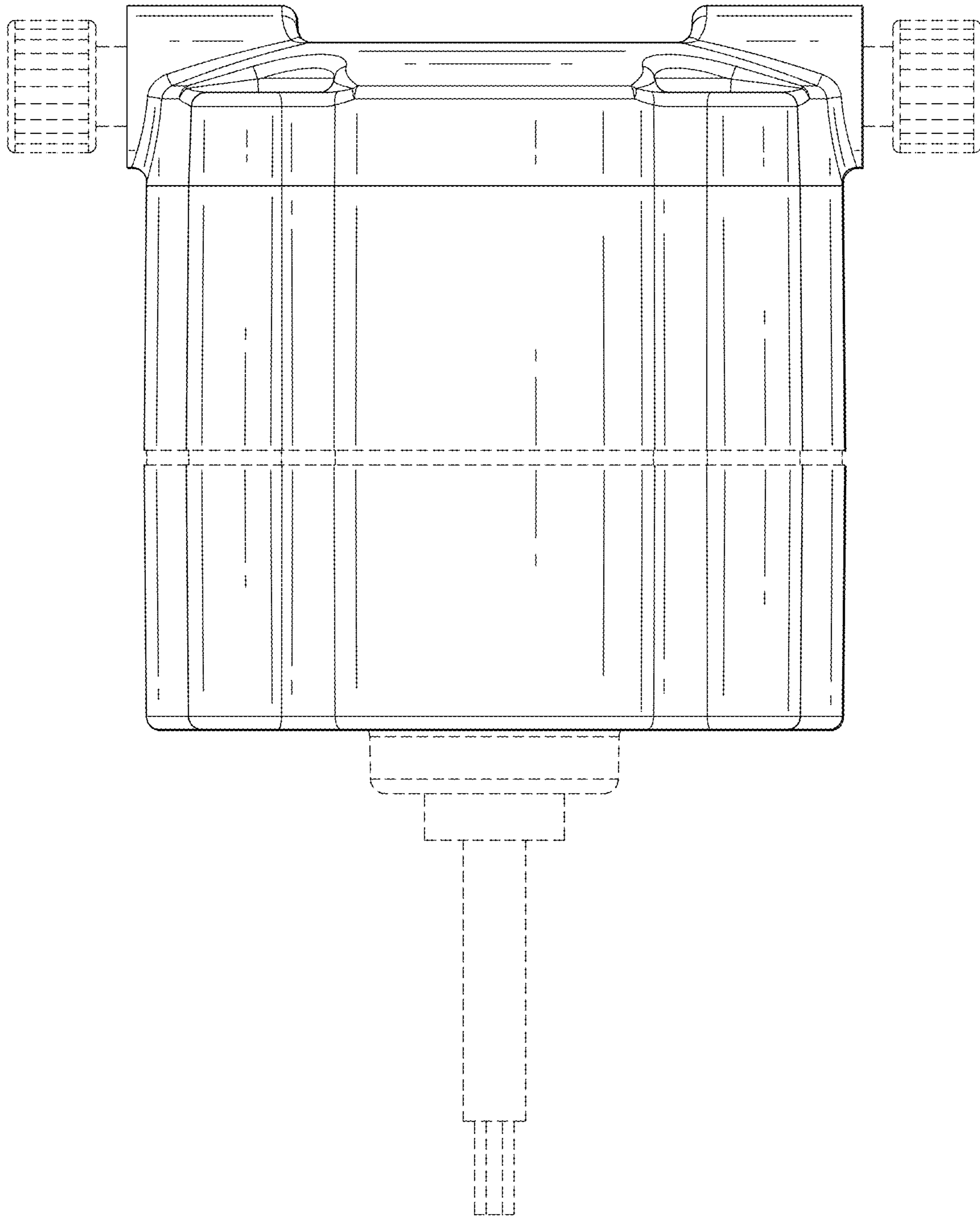


FIG. 2

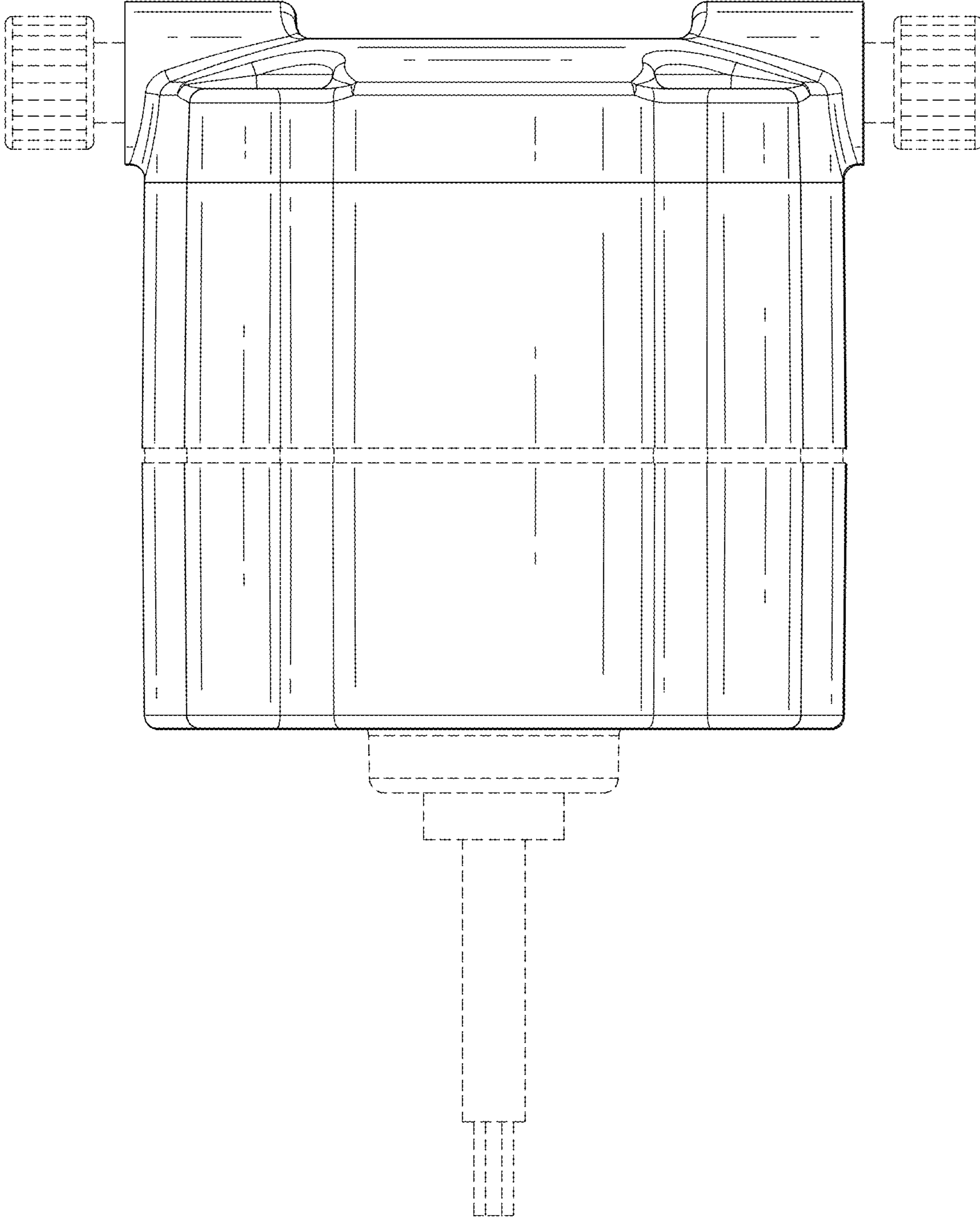


FIG. 3

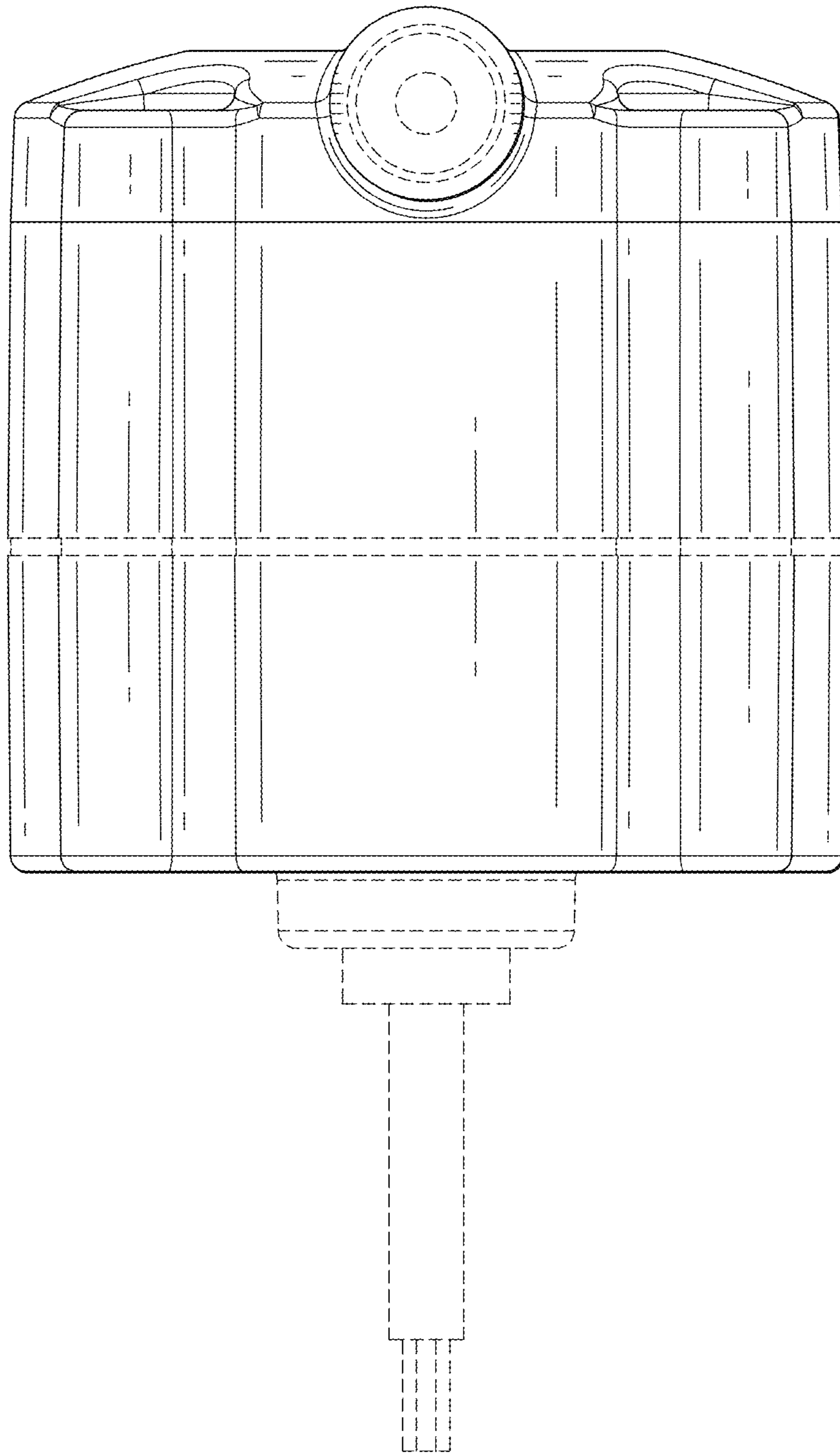


FIG. 4

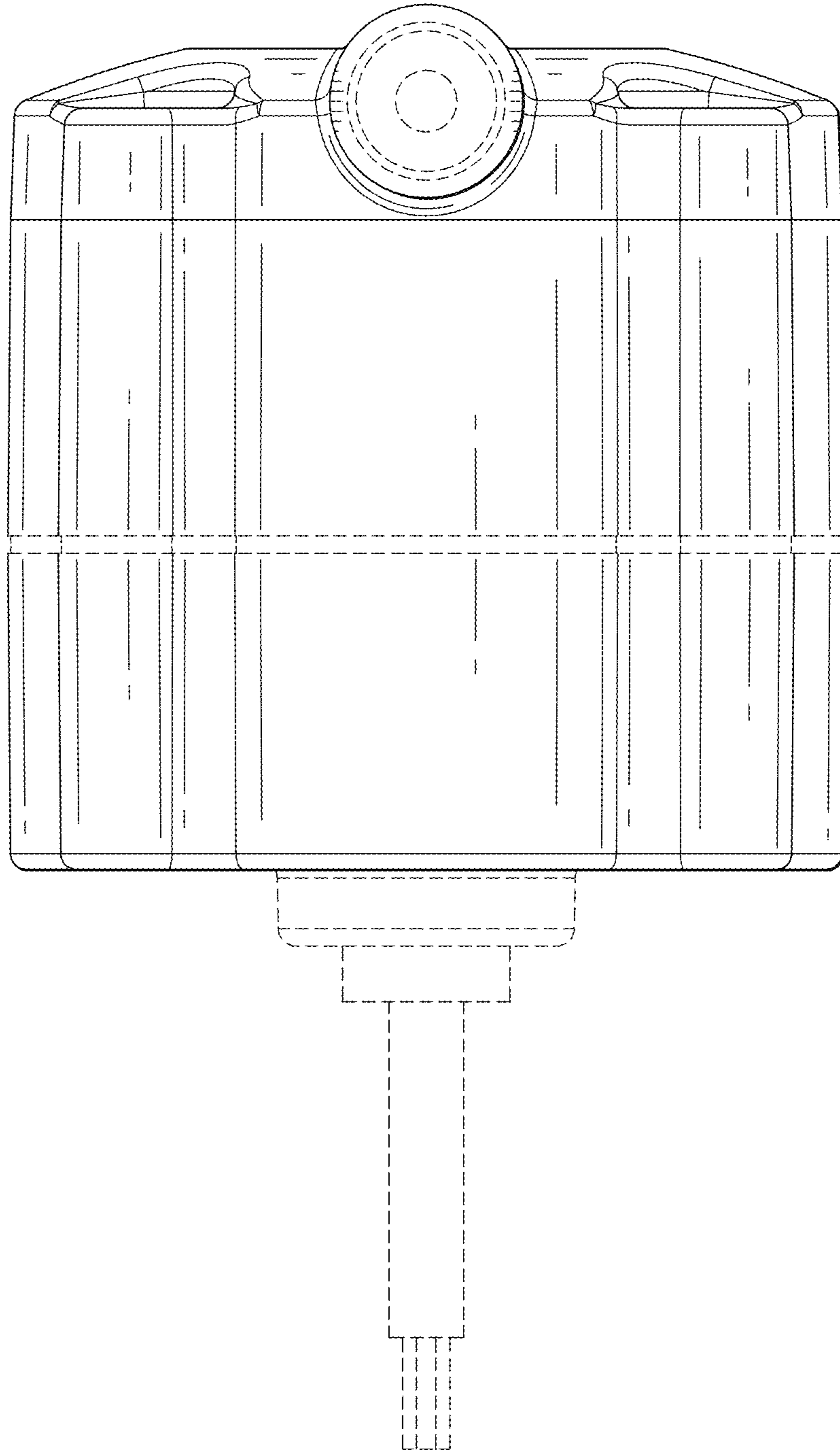


FIG. 5

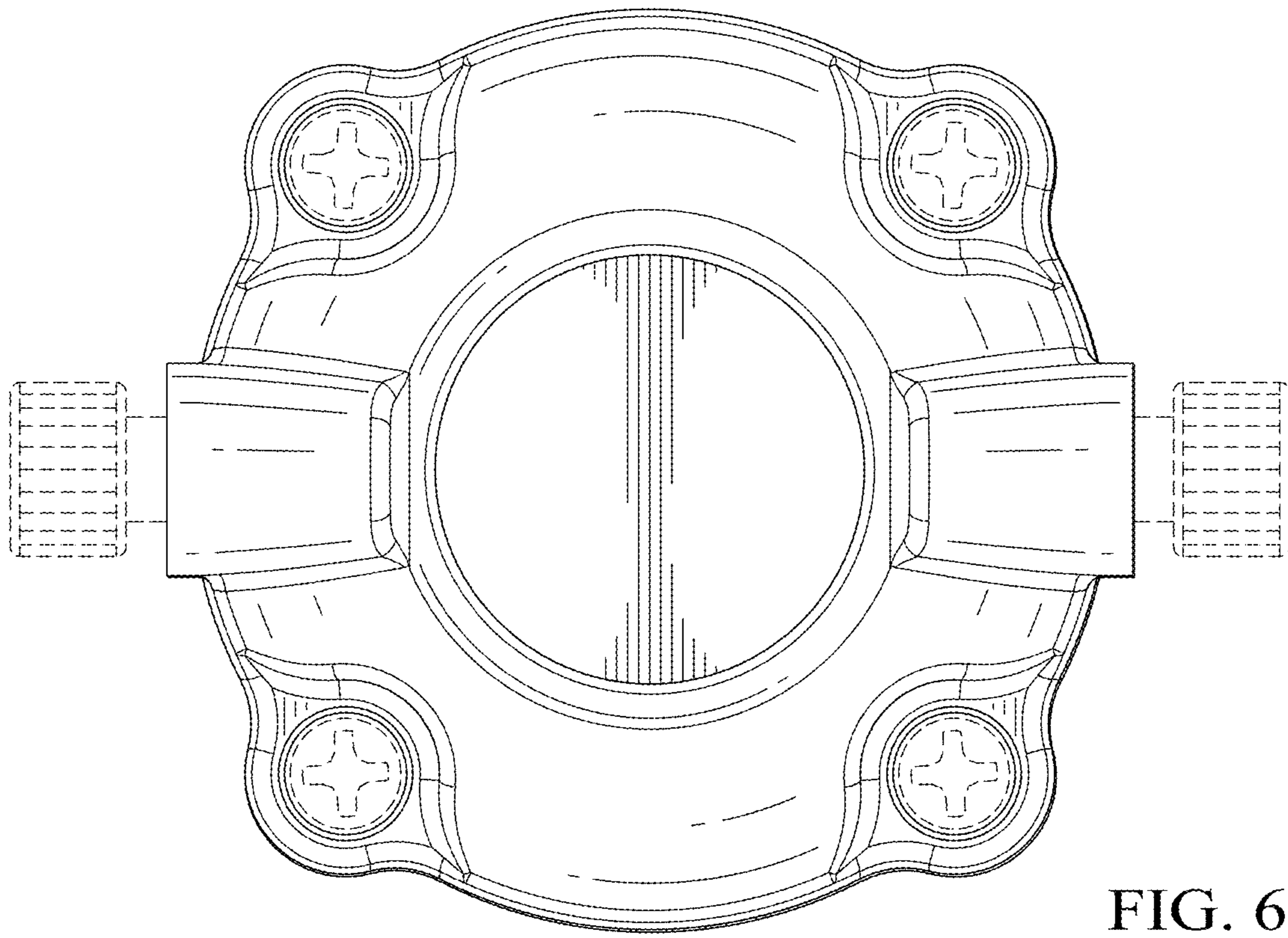


FIG. 6

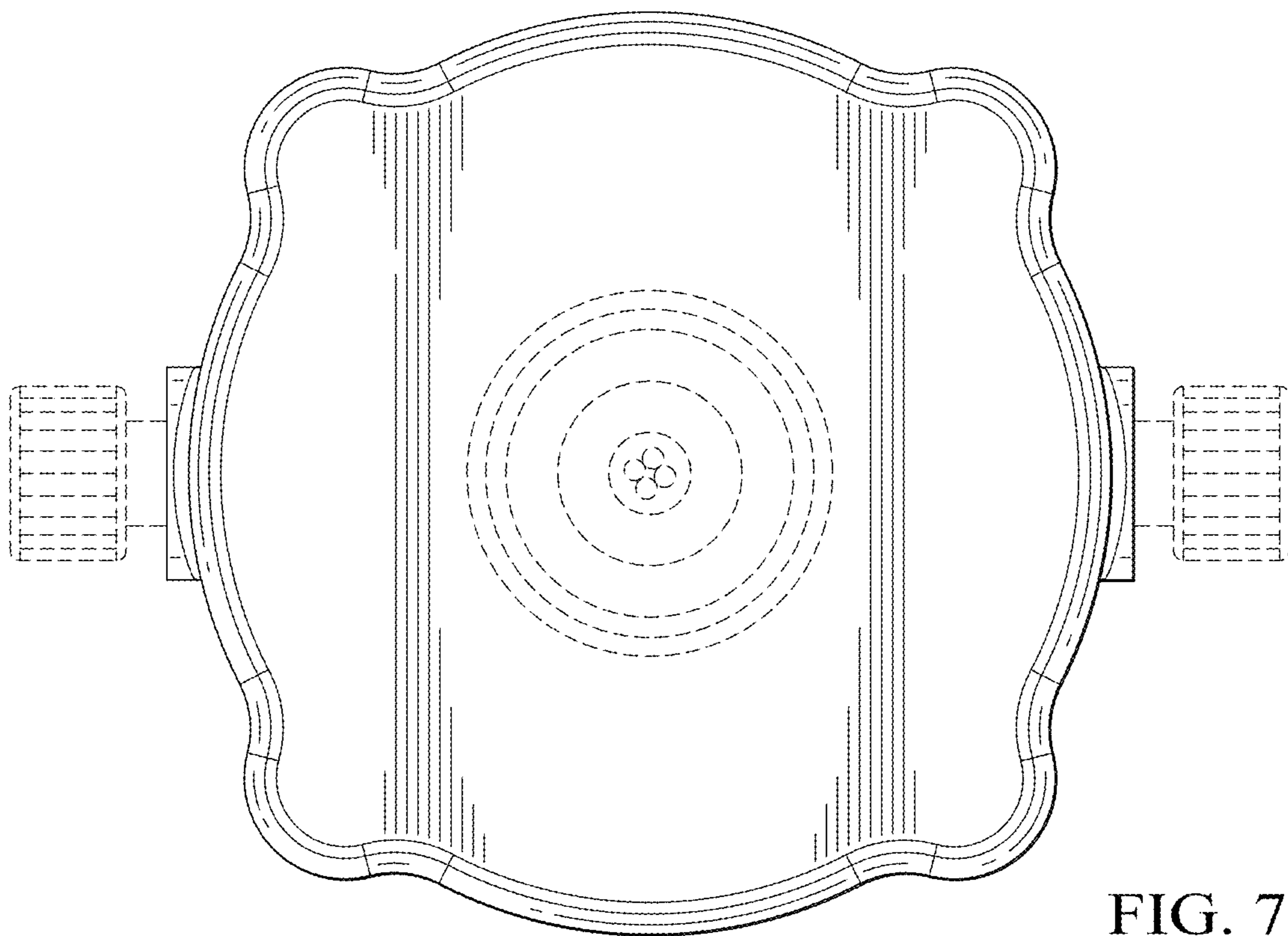


FIG. 7

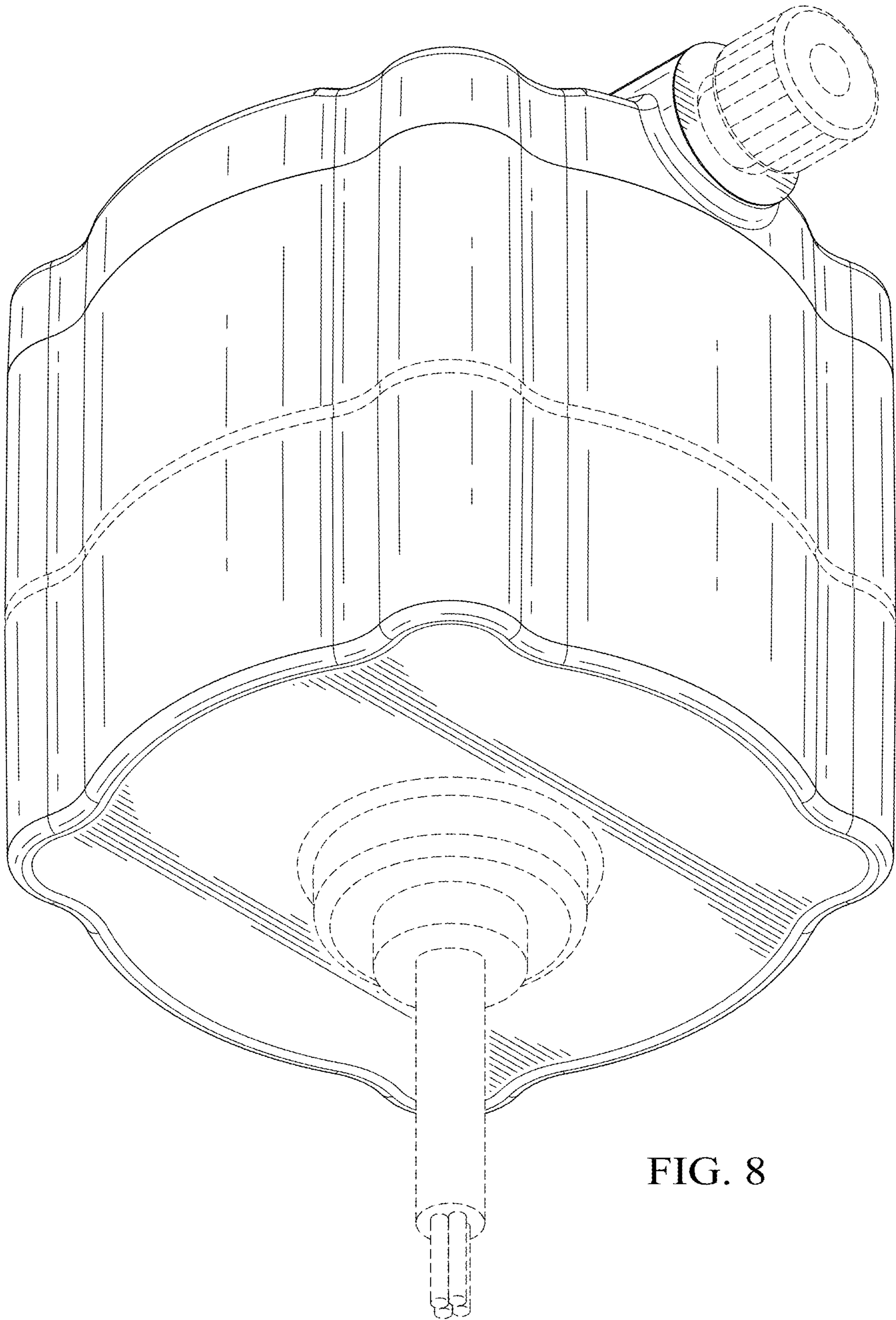


FIG. 8