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(12) **United States Design Patent** (10) **Patent No.:** **US D899,590 S**
Gulliver et al. (45) **Date of Patent:** **** Oct. 20, 2020**

(54) **CONNECTOR**

(56) **References Cited**

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U.S. PATENT DOCUMENTS

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3,513,844 A 5/1970 Smith
4,446,869 A 5/1984 Knodle
4,584,997 A 4/1986 Delong
(Continued)

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FOREIGN PATENT DOCUMENTS

CN 101262901 A 9/2008
CN 201775849 U 3/2011
(Continued)

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

OTHER PUBLICATIONS

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Related U.S. Application Data

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26, 2018, now Pat. No. Des. 861,162, which is a
continuation of application No. 29/534,250, filed on
Jul. 27, 2015, now Pat. No. Des. 834,712, which is a
division of application No. 29/433,930, filed on Oct.
5, 2012, now Pat. No. Des. 735,326, which is a
(Continued)

(57) **CLAIM**

The ornamental design for a connector, as shown and
described.

(51) **LOC (12) Cl.** **24-02**

(52) **U.S. Cl.**
USPC **D24/129**

(58) **Field of Classification Search**
USPC ... D24/110, 110.1, 110.4, 110.5, 110.6, 112,
D24/129, 164, 165; D23/262, 264
CPC A61M 16/0816; A61M 6/0875; A61M
16/0833; A61M 39/1011; A61M
2039/1044; A61M 2039/1027; A61B
5/082

DESCRIPTION

FIG. 1 is a front, top, and side perspective view of a
connector embodying our new design.
FIG. 2 is a top view thereof.
FIG. 3 is a bottom view thereof.
FIG. 4 is a left side view thereof, the right side view being
a mirror image of the left side view.
FIG. 5 is a front view thereof.
FIG. 6 is a cross-sectional view thereof taken along line 6-6
of FIG. 5; and,

See application file for complete search history.

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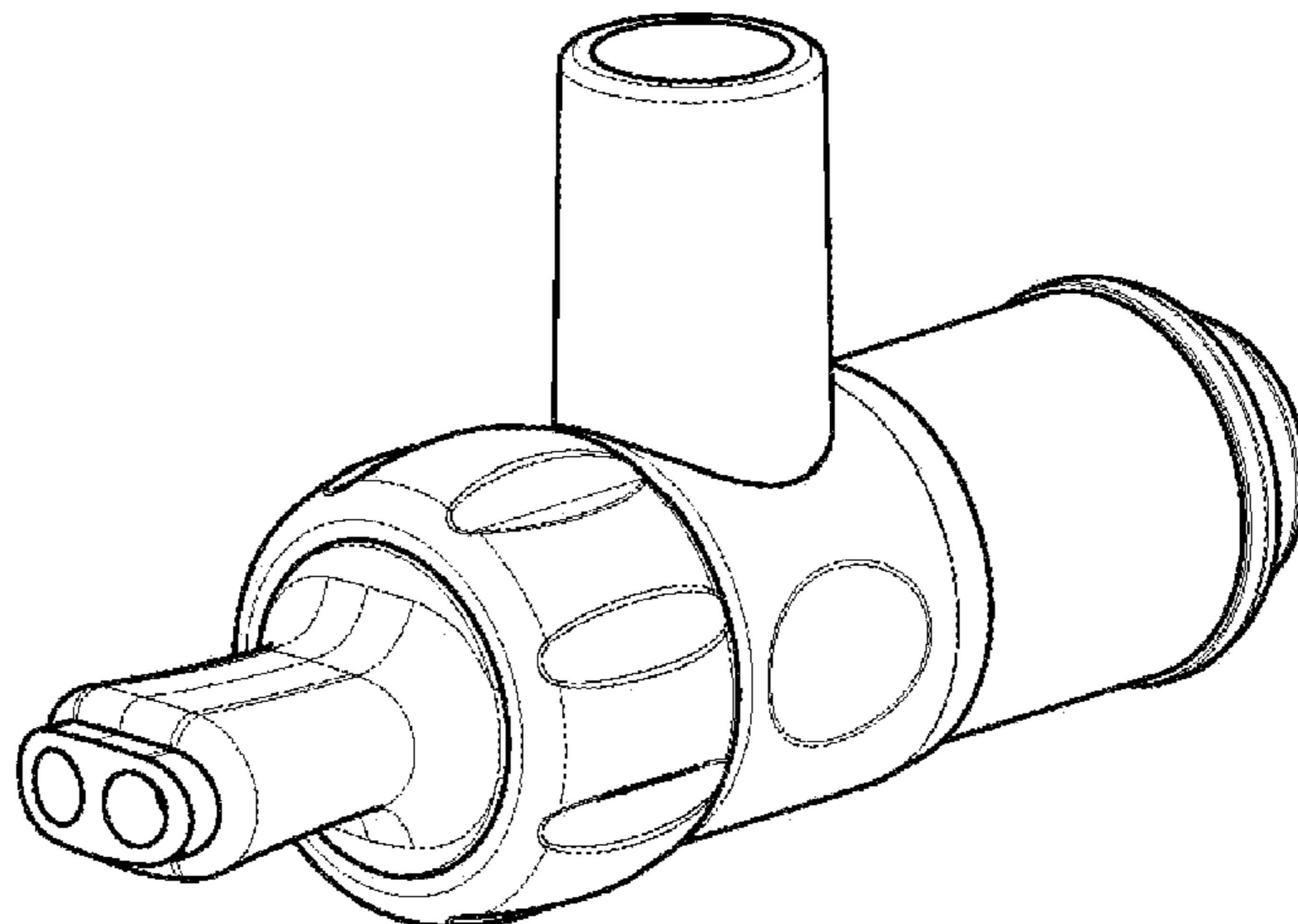


FIG. 7 is a cross-sectional view thereof taken along line 7-7 of FIG. 5.

The broken lines in the drawings illustrate portions of the connector that form no part of the claimed design.

1 Claim, 4 Drawing Sheets

Related U.S. Application Data

continuation of application No. 29/429,467, filed on Aug. 10, 2012, now Pat. No. Des. 747,471.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,589,684	A	5/1986	Nowacki et al.	
4,601,495	A	7/1986	Webb	
D300,271	S	3/1989	Rudolph et al.	
D300,272	S	3/1989	Rudolph et al.	
D314,234	S *	1/1991	Beaston	D23/262
5,040,527	A	8/1991	Larson et al.	
D328,033	S	7/1992	DiGuseppi	
5,158,569	A	10/1992	Strickland et al.	
D340,976	S *	11/1993	Garcia	D24/110
5,335,656	A	8/1994	Bowe et al.	
D357,307	S *	4/1995	Ramacier, Jr.	D23/262
D363,541	S	10/1995	Cottone, Sr. et al.	
5,529,284	A	6/1996	Berger et al.	
5,725,258	A *	3/1998	Kujawski	F16L 37/0985 285/308
D431,634	S	10/2000	Mantz	
D449,107	S *	10/2001	Madsen	D24/129
6,439,234	B1	8/2002	Curti et al.	
D468,015	S	12/2002	Horppu	
D472,316	S	3/2003	Douglas et al.	
D472,630	S	4/2003	Douglas et al.	
6,893,055	B2	5/2005	Thomas	
6,915,705	B1	7/2005	Truitt	
D543,620	S	5/2007	Chu et al.	
D551,340	S	9/2007	Wood et al.	
D612,481	S	3/2010	Reid et al.	
D627,059	S	11/2010	Wood et al.	
D637,713	S	5/2011	Nord et al.	
D645,547	S	9/2011	Lombardi et al.	
D654,573	S	2/2012	Lombardi et al.	
D661,785	S	6/2012	Johnson	
8,317,203	B2	11/2012	Hermle et al.	
D672,037	S	12/2012	Miller	
8,376,412	B2	2/2013	Johnson	
8,485,193	B2	7/2013	Worley	
8,534,278	B2	9/2013	Colman et al.	
D691,717	S	10/2013	McLean et al.	
D692,555	S	10/2013	Maksym et al.	
D695,890	S	12/2013	Bowden et al.	
D697,200	S	1/2014	Mahaffy	
D707,355	S *	6/2014	Bow	D24/129
D724,720	S	3/2015	O'Connor et al.	
D726,287	S	4/2015	Steele	
D727,492	S *	4/2015	Scampoli	D24/110
D735,326	S	7/2015	Gulliver	
D736,914	S	8/2015	Schultz	
D747,471	S	1/2016	Gulliver	
D768,285	S	10/2016	Reed	
D785,161	S	4/2017	Dravitzki et al.	
D791,939	S	7/2017	Turturro et al.	
D794,184	S	8/2017	Smith et al.	
9,808,612	B2	11/2017	Gulliver et al.	

9,879,807	B2	1/2018	Brugger et al.	
D816,216	S	4/2018	Gulliver et al.	
D827,126	S	8/2018	Nilsson et al.	
D834,712	S	11/2018	Gulliver et al.	
D861,162	S *	9/2019	Gulliver	D24/129
2004/0090066	A1	5/2004	Hoffman	
2004/0103686	A1	6/2004	Fehr et al.	
2005/0028822	A1	2/2005	Sleeper et al.	
2006/0107958	A1	5/2006	Sleeper	
2006/0107960	A1	5/2006	Smart	
2007/0043334	A1	2/2007	Guala	
2007/0088327	A1	4/2007	Guala	
2007/0175473	A1	8/2007	Lewis et al.	
2008/0093846	A1	4/2008	Sparks	
2008/0142019	A1	6/2008	Lewis et al.	
2008/0190436	A1	8/2008	Jaffe et al.	
2009/0101147	A1	4/2009	Landis et al.	
2009/0223523	A1	9/2009	Chang	
2009/0299158	A1	12/2009	Boatner et al.	
2010/0163051	A1	7/2010	Brewer et al.	
2010/0168600	A1	7/2010	Adriance et al.	
2010/0206310	A1	8/2010	Matsubara et al.	
2013/0037030	A1	2/2013	Matula	
2013/0104888	A1	5/2013	Landis et al.	
2014/0000626	A1	1/2014	O'Connor et al.	
2014/0014108	A1	1/2014	Dillard	
2014/0053846	A1	2/2014	Wood	
2014/0191501	A1	7/2014	Brugger et al.	
2014/0200475	A1	7/2014	Rubin	
2014/0338669	A1	11/2014	Zhao et al.	
2015/0021909	A1	1/2015	Gulliver et al.	
2015/0320962	A1	11/2015	Bafle et al.	
2016/0131292	A1	5/2016	Decker	
2016/0305574	A1 *	10/2016	Burdge	A61M 39/26
2017/0036007	A1	2/2017	Hallisey et al.	
2017/0065789	A1	3/2017	Reed	
2018/0078752	A1	3/2018	Gulliver et al.	
2018/0140819	A1	5/2018	Yang	
2018/0200148	A1	7/2018	Sanders	
2019/0022344	A1 *	1/2019	Lau	A61M 16/0875

FOREIGN PATENT DOCUMENTS

DE	37 09 122	A1	9/1988
DE	10 2007 063 556	A1	7/2009
EP	1 314 446		8/2002
EP	1408313	A2	4/2004
EP	1520599	A1	10/2004
EP	1479405		11/2004
EP	1933074	A2	6/2008
EP	3335756		6/2018
GB	2328260		2/1999
JP	2003-502116		1/2003
WO	WO 2003/082406		10/2003
WO	WO 2004/108218		12/2004
WO	WO 2005/079670		9/2005
WO	WO 2011/079226		6/2011
WO	WO 2013/022356		2/2013

OTHER PUBLICATIONS

PCT Application No. PCT/NZ2012/000142 International Preliminary Report on Patentability dated Feb. 20, 2014 in 6 pages.
 Examination Report; JP2014524961A; dated Nov. 8, 2017; 2 pages.
 Combined Search and Examination Report in co-pending Application No. GB 1800268.3, dated Jan. 25, 2018 in 6 pages.
 Combined Search and Examination Report in co-pending Application No. GB 1810896.9, dated Nov. 20, 2018 in 5 pages.

* cited by examiner

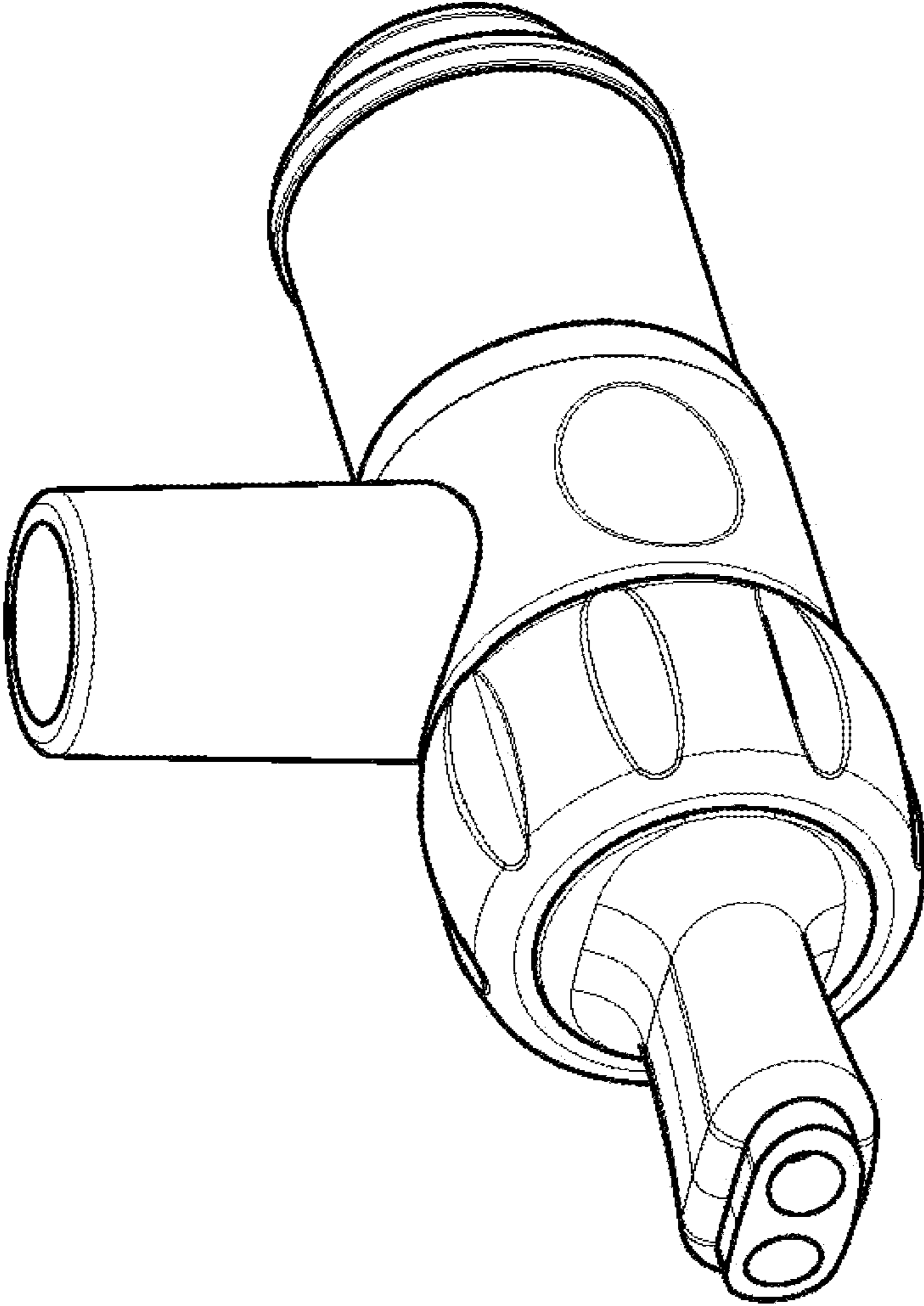


FIG. 1

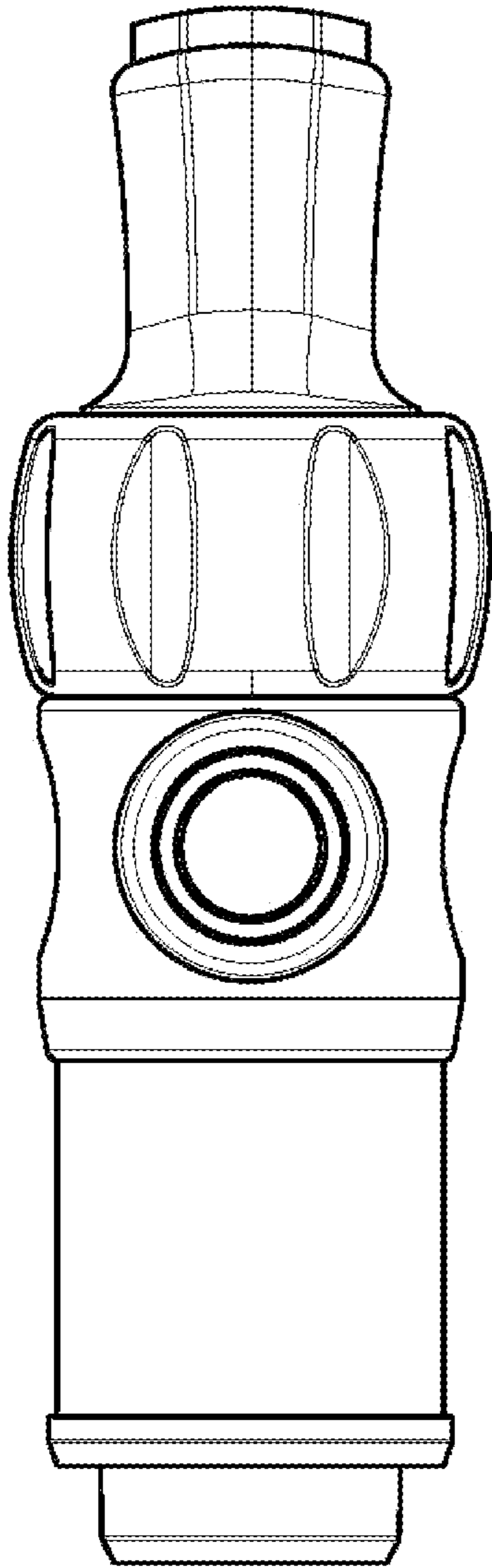


FIG. 2

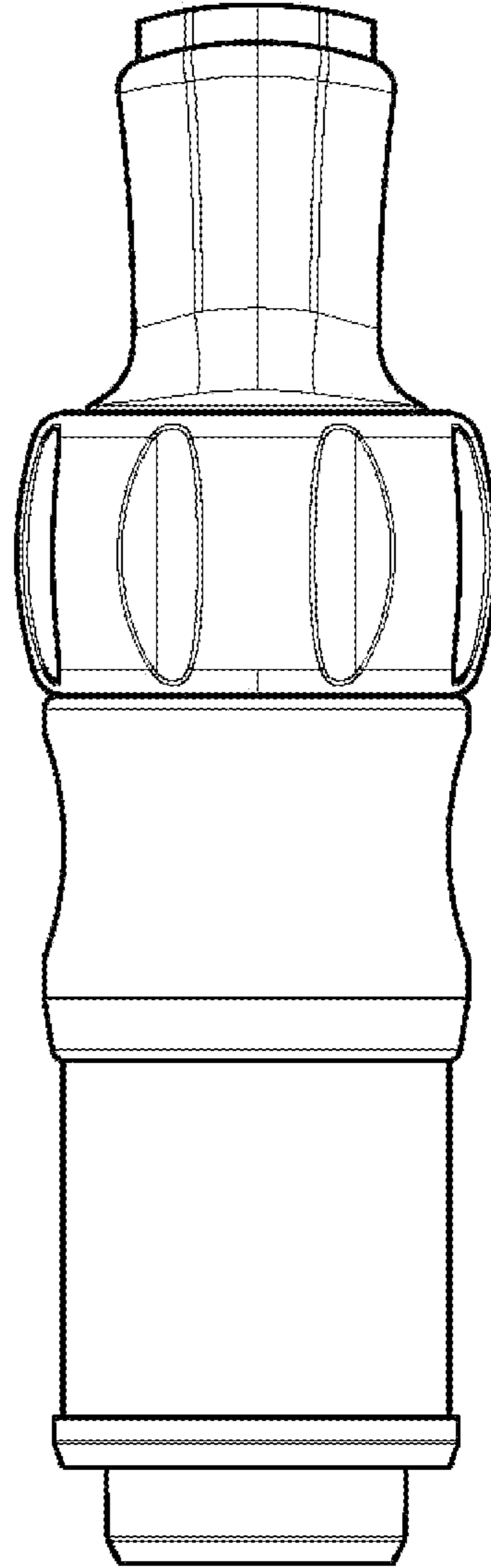


FIG. 3

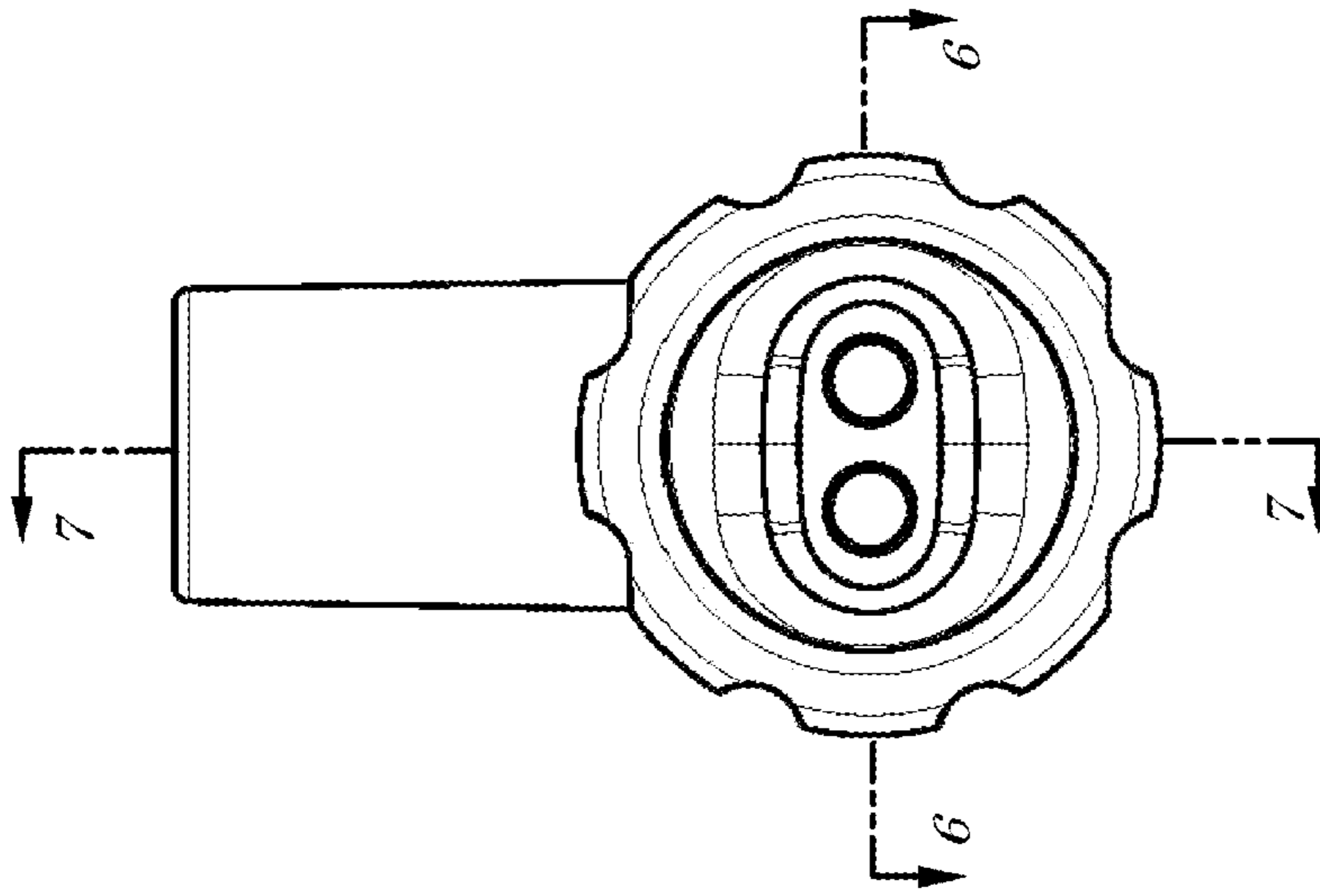


FIG. 5

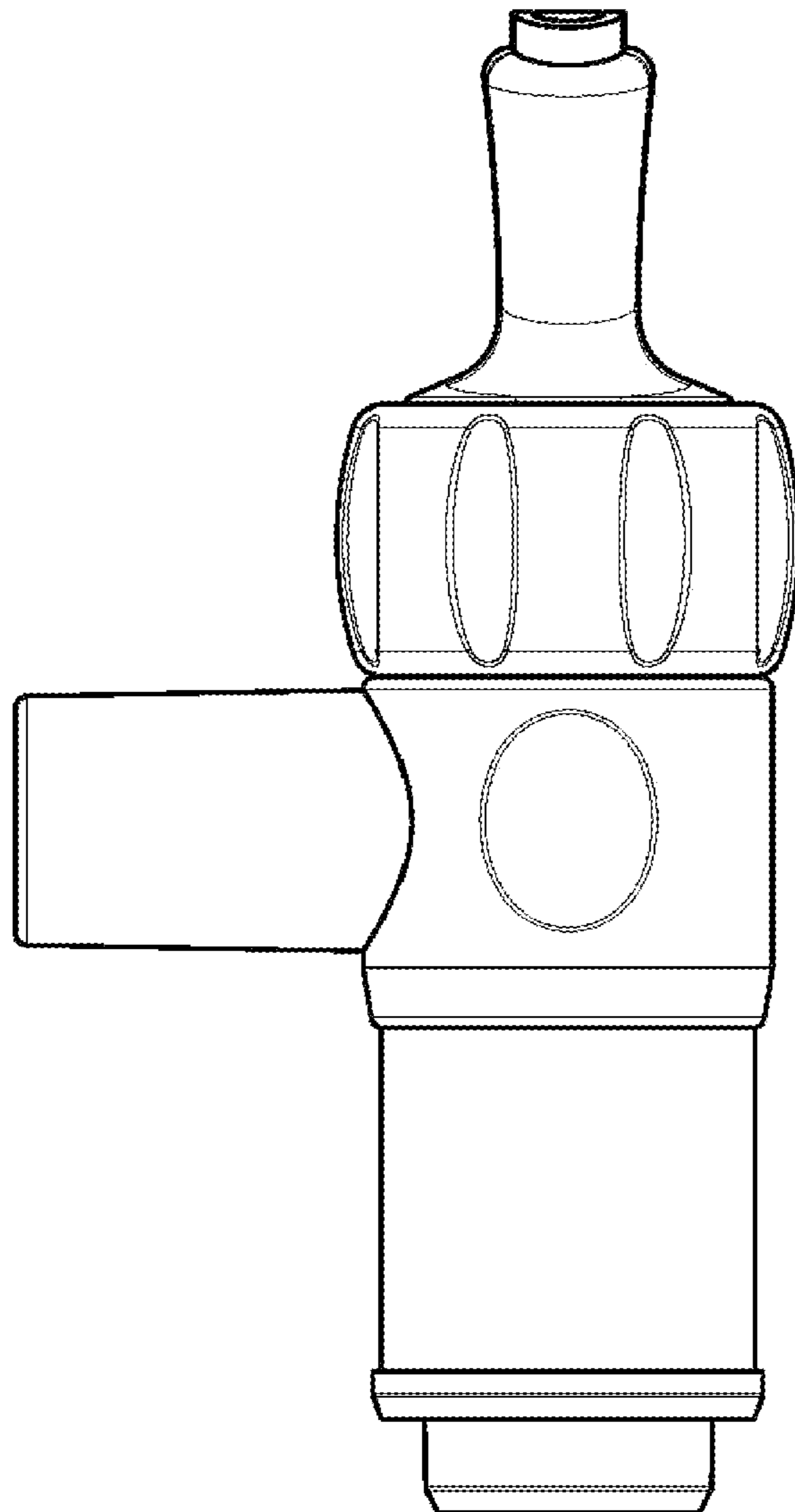


FIG. 4

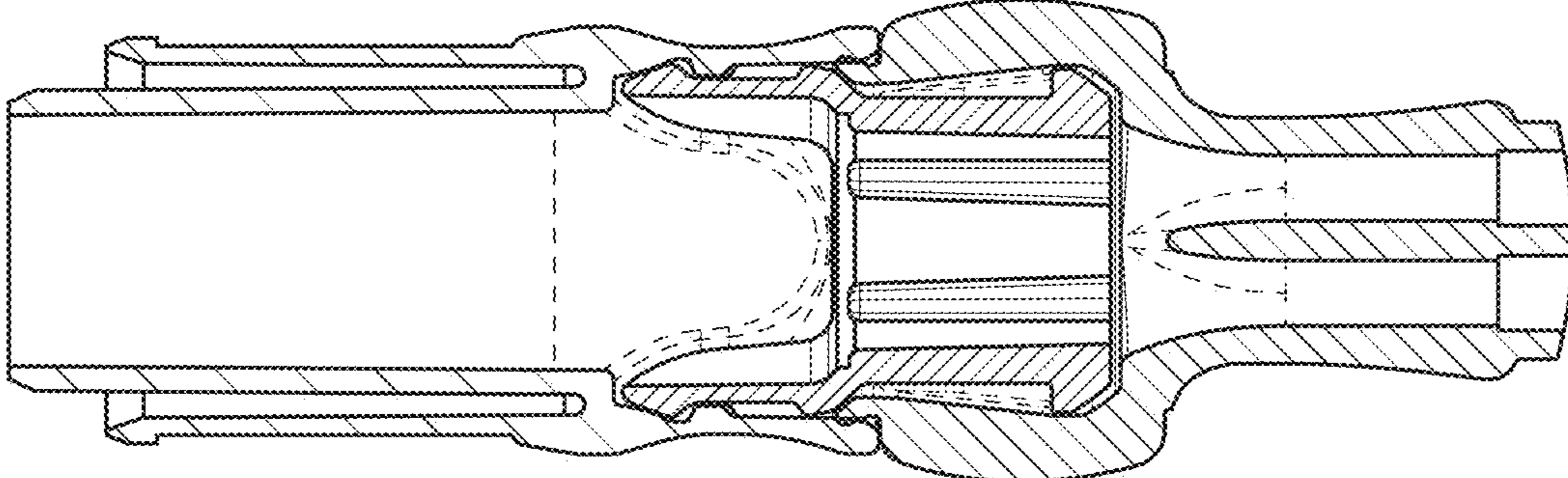


FIG. 6

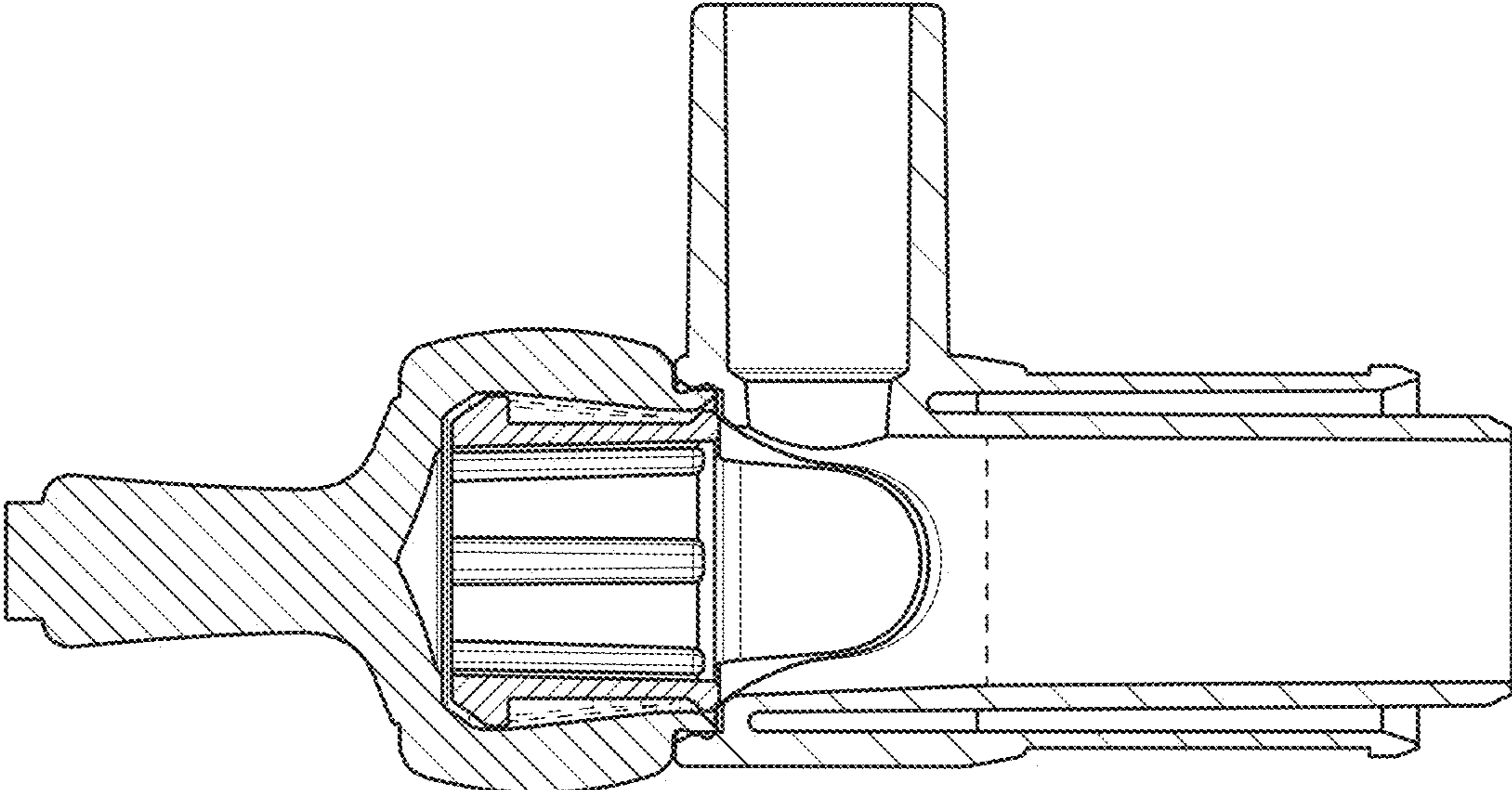


FIG. 7