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(54) HANDHELD DRUG DELIVERY DEVICE

FOREIGN PATENT DOCUMENTS

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CA 3127415 A1 9/2020
CA 196658 S 12/2022
(Continued)

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OTHER PUBLICATIONS

Autopen Trainer, Auto Injector Trainer, Arasca Medical, [post date May 24, 2024], [Site seen: Aug. 21, 2024], Seen at URL:https://eshop.arascamedical.com/product/atropen-trainer-auto-injector-trainer/ (Year: 2024).*

(Continued)

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(**) Term: 15 Years

(57) CLAIM

The ornamental design for a handheld drug delivery device as shown and described.

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DESCRIPTION

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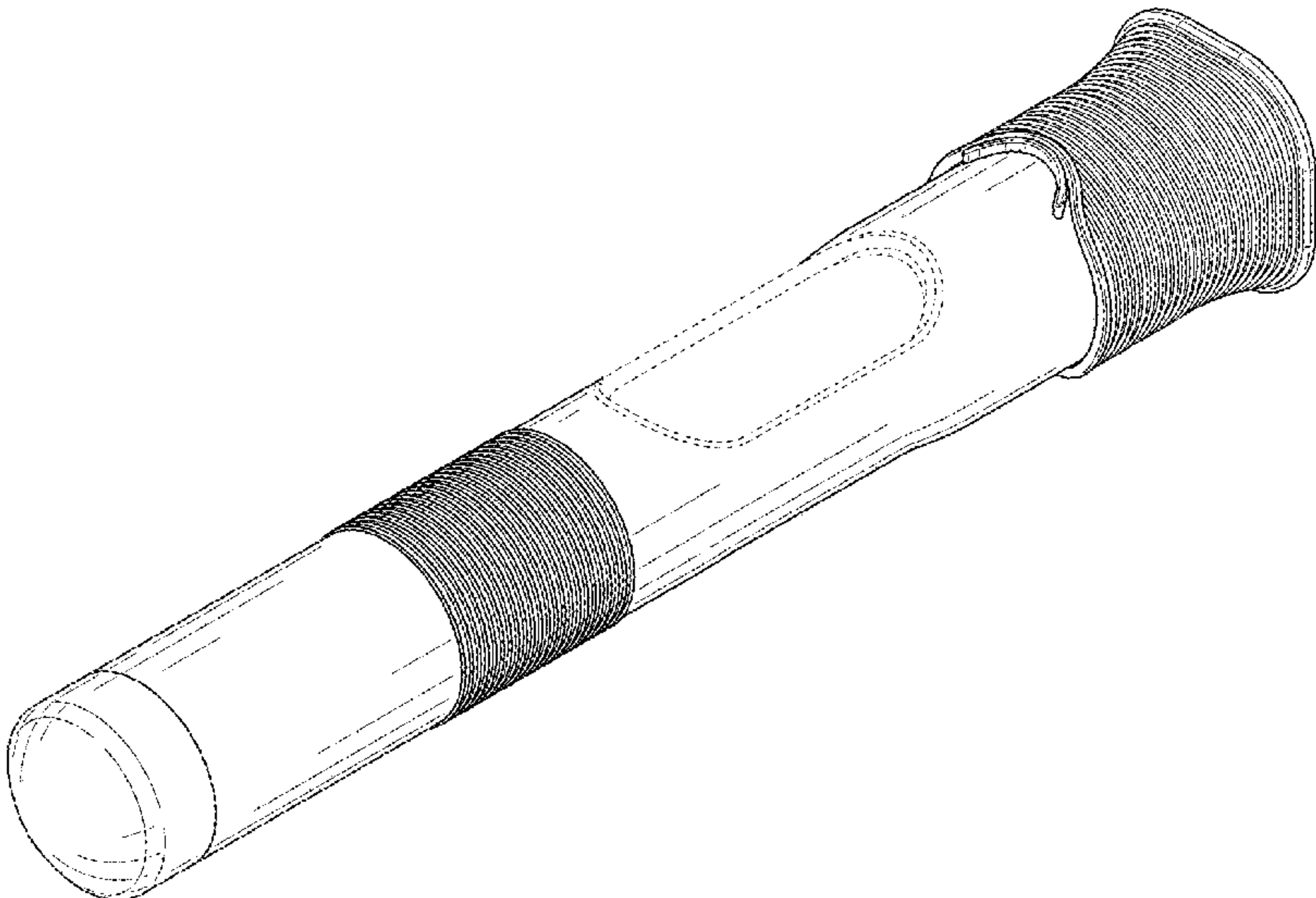
(56) References Cited

U.S. PATENT DOCUMENTS

758,567 A 4/1904 Siebelist.
3,316,909 A 5/1967 Cowley
(Continued)

FIG. 1 is a perspective view showing a new design for a handheld drug delivery device;
FIG. 2 is a front view of the handheld drug delivery device of FIG. 1;
FIG. 3 is a rear view of the handheld drug delivery device of FIG. 1;
FIG. 4 is a right-side view of the handheld drug delivery device of FIG. 1;
FIG. 5 is a left-side view of the handheld drug delivery device of FIG. 1;
FIG. 6 is a top view of the handheld drug delivery device of FIG. 1;
FIG. 7 is a bottom view of the handheld drug delivery device of FIG. 1; and,
FIG. 8 is a perspective view of the handheld drug delivery device of FIG. 1 with its cap removed.
The broken lines in the drawings illustrate portions of the handheld drug delivery device and form no part of the claimed design.

1 Claim, 5 Drawing Sheets



(58) **Field of Classification Search**

CPC A61M 5/3156; A61M 5/31591; A61M
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D216,547	S	2/1970	Joseph et al.	D722,256	S	2/2015	Kita
D321,472	S	11/1991	Evans et al.	8,945,065	B2	2/2015	Torris et al.
5,098,400	A	3/1992	Crouse et al.	8,945,067	B2	2/2015	McLoughlin et al.
5,562,637	A	10/1996	Utterberg	8,992,484	B2	3/2015	Radmer et al.
5,569,192	A	10/1996	van der Wal	D726,902	S	4/2015	McLoughlin et al.
5,964,731	A	10/1999	Kovelman	D728,782	S	5/2015	Dubuc et al.
D443,641	S	6/2001	Mader	9,022,982	B2	5/2015	Karlsson et al.
6,447,480	B1	9/2002	Brunel	9,033,932	B2	5/2015	Holmqvist
6,454,746	B1	9/2002	Bydlon et al.	D732,161	S	6/2015	Ohashi
6,575,939	B1	6/2003	Brunel	D732,661	S	6/2015	Dubuc et al.
6,585,702	B1	7/2003	Brunel	D733,869	S	7/2015	Ratjen
D497,806	S	11/2004	Nichols et al.	9,072,833	B2	7/2015	Jennings et al.
D509,296	S	9/2005	Minshull et al.	9,078,973	B2	7/2015	Harms et al.
D545,895	S	7/2007	Okutani	D735,848	S	8/2015	Dubuc et al.
7,247,153	B2	7/2007	Guala	9,114,212	B2	8/2015	Enggaard et al.
7,370,759	B2	5/2008	Hommann	D737,639	S	9/2015	Masalin et al.
7,397,730	B2	7/2008	Skyggebjerg et al.	D739,011	S	9/2015	Morrison et al.
7,597,685	B2	10/2009	Olson	D739,932	S	9/2015	Ratjen et al.
D605,006	S	12/2009	Shiao	9,174,000	B2	11/2015	Bode
D612,486	S	3/2010	Van der Stappen	9,233,212	B2	1/2016	Holmqvist
D616,089	S	5/2010	Van der Stappen	9,238,111	B2	1/2016	Marshall et al.
D619,244	S	7/2010	Van der Stappen	9,242,050	B2	1/2016	Abry
D620,106	S	7/2010	Van der Stappen	9,272,094	B2	3/2016	Boyd et al.
D621,929	S	8/2010	Van der Stappen	9,295,784	B2	3/2016	Eggert et al.
D622,374	S	8/2010	Julian et al.	9,302,053	B2	4/2016	Holmqvist
7,771,397	B1	8/2010	Olson	D755,956	S	5/2016	McLoughlin et al.
D623,738	S	9/2010	Van der Stappen	D757,255	S	5/2016	Wohlfahrt et al.
7,794,432	B2	9/2010	Young et al.	9,333,305	B2	5/2016	McLoughlin et al.
7,806,861	B2	10/2010	Witowski	9,339,610	B2	5/2016	Julian et al.
D626,994	S	11/2010	Gerules	D758,566	S	6/2016	Chen
D627,061	S	11/2010	Van der Stappen	D758,567	S	6/2016	Wohlfahrt et al.
D628,690	S	12/2010	Galbraith	D758,568	S	6/2016	Wohlfahrt et al.
D629,509	S	12/2010	Julian et al.	D758,569	S	6/2016	Wohlfahrt et al.
D640,786	S	6/2011	Sato et al.	D758,570	S	6/2016	Wohlfahrt et al.
7,988,675	B2	8/2011	Gillespie, III et al.	D758,571	S	6/2016	Geert-Jensen et al.
8,062,255	B2	11/2011	Brunnberg et al.	D759,813	S	6/2016	Newman et al.
D660,958	S	5/2012	McLoughlin et al.	D759,814	S	6/2016	Newman et al.
8,298,194	B2	10/2012	Møller	D765,239	S	8/2016	Hauck et al.
D671,638	S	11/2012	Young et al.	D765,240	S	8/2016	Hauck et al.
8,313,470	B2	11/2012	Abry	9,421,336	B2	8/2016	Ekman et al.
8,357,125	B2	1/2013	Grunhut et al.	D766,425	S	9/2016	Hauck et al.
8,361,025	B2	1/2013	Lawlis et al.	D767,119	S	9/2016	Hauck et al.
8,372,035	B2	2/2013	Matusch	D770,610	S	11/2016	Saussaye et al.
D678,514	S	3/2013	Foley et al.	D773,648	S	12/2016	Wohlfahrt et al.
D683,016	S	5/2013	Mirza et al.	D773,650	S	12/2016	Fourt et al.
8,529,518	B2	9/2013	Larsen et al.	D774,639	S	12/2016	Saussaye et al.
8,568,359	B2	10/2013	Carrel et al.	D774,641	S	12/2016	Miggels et al.
8,568,364	B2	10/2013	Plumptre	D775,279	S	12/2016	Shen
D692,998	S	11/2013	Broberg et al.	D780,909	S	3/2017	Burkett et al.
D696,397	S	12/2013	Guarraia et al.	9,586,007	B2	3/2017	Roervig et al.
D696,770	S	12/2013	Schneider et al.	D783,816	S	4/2017	Wohlfahrt et al.
D696,772	S	12/2013	Schneider et al.	9,623,199	B2	4/2017	Richter et al.
D696,773	S	12/2013	Schneider et al.	9,656,027	B2	5/2017	Quinn
D696,774	S	12/2013	Guarraia et al.	D788,909	S	6/2017	Ratjen
D696,775	S	12/2013	Guarraia et al.	D789,519	S	6/2017	Ratjen et al.
8,608,709	B2	12/2013	Moeller et al.	D790,686	S	6/2017	Cox et al.
D697,205	S	1/2014	Schneider et al.	D793,547	S	8/2017	Burkett et al.
8,647,299	B2	2/2014	Stamp	D794,178	S	8/2017	Daniel et al.
8,696,618	B2	4/2014	Kramer et al.	D794,777	S	8/2017	Daniel et al.
8,740,871	B2	6/2014	Lawlis et al.	D794,778	S	8/2017	Daniel et al.
D708,317	S	7/2014	Schneider et al.	D799,026	S	10/2017	Jones et al.
8,814,828	B2	8/2014	Llewellyn-Hyde et al.	D802,748	S	11/2017	Mills et al.
8,817,258	B2	8/2014	Whalley et al.	D802,751	S	11/2017	Ratjen et al.
D714,932	S	10/2014	Hall et al.	D809,137	S	1/2018	Ratjen
D715,422	S	10/2014	Hall et al.	D810,280	S	2/2018	Tharp et al.
D717,428	S	11/2014	Sendatzki et al.	D810,282	S	2/2018	Ratjen
8,882,722	B2	11/2014	Bode et al.	9,895,493	B2	2/2018	Burnell et al.
D721,802	S	1/2015	Ohashi	D812,746	S	3/2018	Umemura
D722,158	S	2/2015	Magome et al.	D813,379	S	3/2018	Mills et al.
				D814,022	S	3/2018	Boyaval et al.
				RE46,789	E	4/2018	Olson
				D815,732	S	4/2018	Mills et al.
				D816,212	S	4/2018	Daniel et al.
				D819,198	S	5/2018	Boyaval et al.
				D819,200	S	5/2018	Stonecipher et al.
				D819,804	S	6/2018	Knight et al.
				9,987,436	B2	6/2018	Giambattista et al.
				D822,198	S	7/2018	Stonecipher et al.
				D822,199	S	7/2018	Clawson et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

D823,459 S	7/2018	Bendek et al.	2009/0054849 A1	2/2009	Burnell et al.
D827,127 S	8/2018	Donnelly	2009/0234297 A1	9/2009	Jennings
D827,128 S	8/2018	Boyaval et al.	2010/0152659 A1	6/2010	Streit et al.
D830,539 S	10/2018	Boyaval et al.	2011/0098656 A1	4/2011	Burnell et al.
D831,822 S	10/2018	Guillermo et al.	2012/0089098 A1	4/2012	Boyd et al.
10,159,795 B2	12/2018	Cave	2012/0123347 A1	5/2012	Boyd et al.
10,265,476 B2	4/2019	Laiosa et al.	2012/0123350 A1	5/2012	Giambattista et al.
D851,754 S	6/2019	Boyaval et al.	2012/0197208 A1	8/2012	Bruggemann et al.
10,335,553 B2	7/2019	Bendek	2012/0232474 A1	9/2012	Nielsen et al.
D857,192 S	8/2019	Burkett et al.	2013/0035645 A1	2/2013	Bicknell et al.
D861,859 S	10/2019	Rapp et al.	2013/0060231 A1	3/2013	Adlon et al.
D864,378 S	10/2019	Tafazoli et al.	2013/0150802 A1	6/2013	Cloughton
D866,751 S	11/2019	Rogge et al.	2013/0211330 A1	8/2013	Pedersen et al.
D866,752 S	11/2019	Rogge et al.	2013/0211340 A1	8/2013	Helmer
D866,757 S	11/2019	Diluzio et al.	2013/0274671 A1	10/2013	Jennings et al.
D867,588 S	11/2019	Rogge et al.	2013/0281933 A1	10/2013	Cowe et al.
D868,245 S	11/2019	Holmqvist et al.	2013/0310746 A1	11/2013	Wozencroft
D868,961 S	12/2019	Stewart et al.	2013/0331796 A1	12/2013	Wozencroft
D870,270 S	12/2019	Burkett et al.	2014/0012205 A1	1/2014	Jugl et al.
10,512,725 B1	12/2019	Bauss et al.	2014/0094743 A1	4/2014	Bengtsson
D878,560 S	3/2020	Boyaval et al.	2014/0101912 A1	4/2014	Abry
D878,563 S	3/2020	Clawson et al.	2014/0207073 A1	7/2014	Shang et al.
D878,564 S	3/2020	Clawson et al.	2014/0213985 A1	7/2014	Teucher et al.
D878,566 S	3/2020	Jansen	2014/0221916 A1	8/2014	Kramer et al.
D882,071 S	4/2020	Stonecipher et al.	2014/0221936 A1	8/2014	Edhouse et al.
RE48,006 E	5/2020	Fourt et al.	2014/0228769 A1	8/2014	Karlsson et al.
D883,475 S	5/2020	Boyaval et al.	2014/0243750 A1	8/2014	Larsen et al.
D884,161 S	5/2020	Stewart et al.	2014/0243753 A1	8/2014	Boström
D886,281 S	6/2020	Boyaval et al.	2014/0323976 A1	10/2014	Jugl et al.
D886,282 S	6/2020	Stonecipher et al.	2014/0330216 A1	11/2014	Weaver et al.
D892,311 S	8/2020	Nicholas et al.	2014/0336588 A1	11/2014	McLoughlin et al.
D892,312 S	8/2020	Nicholas et al.	2014/0343503 A1	11/2014	Holmqvist
D893,710 S	8/2020	Neby	2014/0343507 A1	11/2014	Karlsson et al.
10,780,256 B2	9/2020	Cordoba et al.	2014/0364812 A1	12/2014	Lumme et al.
D898,189 S	10/2020	Boyaval et al.	2014/0371684 A1	12/2014	Holmqvist
D898,900 S	10/2020	Atterbury et al.	2015/0051553 A1	2/2015	Björk et al.
D908,868 S	1/2021	Rogge et al.	2015/0174325 A1	6/2015	Young et al.
10,881,813 B2	1/2021	Sll et al.	2015/0190577 A1	7/2015	Shaanan et al.
D917,064 S	4/2021	Ribeiro et al.	2015/0202368 A1	7/2015	Carrel et al.
D922,566 S	6/2021	Ono	2015/0290396 A1	10/2015	Nagar et al.
D922,567 S	6/2021	Boyaval et al.	2015/0335829 A1	11/2015	Giambattista et al.
11,107,369 B2	8/2021	Chang et al.	2015/0367081 A1	12/2015	Rosenthal
D931,443 S	9/2021	Bainton et al.	2016/0082198 A1	3/2016	Holmqvist
D936,824 S	11/2021	Donnelly	2016/0106929 A1	4/2016	Fournier et al.
D956,212 S	6/2022	Petersen et al.	2016/0144132 A1	5/2016	Scanlon
D958,329 S	7/2022	Bourelle et al.	2016/0151586 A1	6/2016	Kemp
D962,423 S	8/2022	Melander et al.	2016/0193413 A1	7/2016	Gabrielsson
D965,140 S	9/2022	Petersen et al.	2016/0199589 A1	7/2016	Plumptre
D973,866 S	12/2022	Bourelle et al.	2016/0220763 A1	8/2016	Teucher et al.
D974,547 S *	1/2023	O'Malley D24/113	2016/0250421 A1	9/2016	Fincham et al.
D985,116 S	5/2023	Davis et al.	2016/0263325 A1	9/2016	Huthmacher et al.
D985,117 S	5/2023	Davis et al.	2016/0303327 A1	10/2016	Moren
D985,118 S	5/2023	Davis et al.	2017/0128668 A1	5/2017	Miller et al.
D985,119 S	5/2023	Melander et al.	2017/0182242 A1	6/2017	Galitz et al.
D990,668 S	6/2023	Bourelle et al.	2018/0043101 A1	2/2018	Weaver et al.
D992,109 S	7/2023	O'Malley et al.	2018/0104413 A1	4/2018	McLoughlin et al.
D1,001,272 S	10/2023	Boyaval et al.	2019/0247589 A1	8/2019	Holmqvist et al.
D1,004,078 S *	11/2023	Finkelstein D24/113	2019/0266921 A1	8/2019	Chang
D1,005,479 S *	11/2023	Olsson D24/114	2019/0298924 A1	10/2019	Gibson et al.
D1,010,107 S *	1/2024	Melander D24/113	2019/0328485 A1	10/2019	Bauss et al.
D1,010,811 S *	1/2024	Finkelstein D24/113	2020/0179612 A1	6/2020	Wei
D1,030,040 S	6/2024	Kaare et al.	2020/0258425 A1	8/2020	Foley et al.
D1,030,041 S	6/2024	Kaare et al.	2020/0289753 A1	9/2020	André et al.
D1,034,964 S	7/2024	Jiang et al.	2021/0093789 A1	4/2021	Plambech et al.
D1,038,380 S	8/2024	Diluzio et al.	2021/0093792 A1	4/2021	Finkelstein et al.
D1,038,393 S	8/2024	Olsson et al.	2021/0093796 A1	4/2021	Finkelstein et al.
D1,042,804 S	9/2024	Schrul et al.	2021/0093797 A1	4/2021	Finkelstein et al.
D1,042,805 S	9/2024	Edwald et al.	2021/0093799 A1	4/2021	Perot et al.
D1,043,967 S	9/2024	Rogge et al.	2021/0121633 A1	4/2021	Finkelstein et al.
12,102,808 B2	10/2024	Plambech et al.	2021/0213210 A1	7/2021	Jensen
2004/0068283 A1	4/2004	Fukuzawa et al.	2022/0281146 A1 *	9/2022	Finkelstein A61M 5/31511
2005/0148933 A1	7/2005	Raven et al.	2022/0288315 A1 *	9/2022	Sanchez A61M 5/31535
2006/0100655 A1	5/2006	Leong et al.	2022/0288324 A1	9/2022	Davis et al.
2008/0269682 A1	10/2008	Kavazov et al.	2022/0288326 A1 *	9/2022	Eilertsen A61M 5/2033
2008/0269692 A1	10/2008	James et al.	2022/0387719 A1	12/2022	Wang et al.
			2022/0401650 A1 *	12/2022	Poder A61M 5/31501
			2023/0414879 A1	12/2023	Dasbach et al.
			2024/0198012 A1	6/2024	Antonelli et al.
			2024/0207519 A1	6/2024	Dasbach et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2024/0207530 A1 6/2024 Dasbach et al.
2024/0252761 A1 8/2024 Dasbach et al.
2024/0285863 A1 8/2024 Besson et al.
2024/0285864 A1 8/2024 Besson et al.
2024/0285868 A1 8/2024 Petit et al.
2024/0293622 A1 9/2024 Fiard et al.

FOREIGN PATENT DOCUMENTS

CN 302858428 S 6/2014
CN 304223460 S 7/2017
CN 307028644 * 12/2021
CN 307287422 S 4/2022
CN 308310392 S 11/2023
CN 308397248 S 12/2023
EM 003372911-0002 9/2016
EM 008038723-0005 7/2020
EP 0896827 A1 2/1999
EP 1053037 A1 11/2000
EP 1755706 A1 2/2007
EP 2253348 A1 11/2010
EP 2255842 A1 12/2010
EP 2298390 A1 3/2011
EP 2361648 A1 8/2011
EP 2555820 A2 2/2013
EP 2729203 A1 5/2014
EP 2788048 A1 10/2014
EP 2878321 A1 6/2015
EP 2902063 A1 8/2015
EP 3038682 A1 7/2016
EP 3184138 A1 6/2017
GB 9003372911-0001 9/2016
GB 9008041362-0012 7/2020
GB 6133321 4/2021
GB 6133347 4/2021
GB 6133354 4/2021
GB 6133358 4/2021
GB 6133343 6/2021
HK 2117909 6/2021
HK 2118642-0003 * 11/2021
IL 67773 A 2/1985
JP 1607619 S 6/2018
JP 1634556 S 6/2019
JP 2020-534959 A 12/2020
JP 1691711 S 8/2021
JP 1723471 S 8/2022
JP 1761048 S 1/2024
KR 30-0963-1120004 7/2018
RU 100256 U1 12/2010
RU 100299 U1 12/2010
RU 00108719 * 5/2018
TW D179360 11/2016
TW D179362 11/2016
TW 196665-0001 * 3/2019
WO 99/39759 A1 8/1999
WO 02/87670 A1 11/2002
WO 2005/115508 A1 12/2005
WO 2010/142812 A1 12/2010
WO 2011/126439 A1 10/2011
WO 2012/003516 A2 1/2012
WO 2012/065965 A1 5/2012
WO 2013/006119 A1 1/2013
WO 2013/085454 A1 6/2013
WO 2013/139894 A1 9/2013
WO 2014/096957 A2 6/2014
WO 2014/118105 A1 8/2014
WO 2015/001819 A1 1/2015
WO 2015/028488 A1 3/2015
WO 2015/085068 A1 6/2015
WO 2015/110533 A2 7/2015
WO 2016/055334 A1 4/2016
WO 2016/062807 A1 4/2016
WO 2016/102299 A1 6/2016
WO 2016/198387 A1 12/2016

WO 2018/111796 A1 6/2018
WO 2018/202458 A1 11/2018
WO 2021/030066 A1 2/2021

OTHER PUBLICATIONS

Auto-injector devices, Owen Mumford, [Post date: Mar. 25, 2022], [Site seen: Aug. 21, 2024], Seen at URL: <https://www.owenmumford.com/en/drug-delivery/auto-injectors> (Year: 2022).*

Damian Garde, “The GLP-1 panic is alive and well,” Readout Newsletter, [Post date: Feb. 7, 2024], [Site seen: Aug. 21, 2024], Seen at URL: <https://www.statnews.com/2024/02/07/biotech-news-novartis-eli-lilly-amgen-gilead-bridge-bio-kyowa-kirin-scion-life-science/> (Year: 2024).*

Auto Injectors, Pen Injectors and Inhaler Systems, SHL, <https://www.pharmaceutical-technology.com/> [Post date: unknown], [Site seen: Aug. 21, 2024], Seen at URL: <https://www.pharmaceutical-technology.com/contractors/drug-delivery/shl-group/> (Year: 2024).*

Gvoke Hypopen, Xeris, [fiercepharma.com](https://www.fiercepharma.com), [Post date: Aug. 14, 2020], [Site seen Apr. 6, 2023], Seen at URL: <https://www.fiercepharma.com/drug-delivery/xeris-gvoke-hypopen-soars-spite-covid-19> (Year: 2020).

Ypsomate, Ypsomed, [issuu.com](https://www.issuu.com), [Postdate: Oct. 10, 2022], [Site seen Apr. 6, 2023], Seen at URL: https://issuu.com/guyfurness/docs/pfs_-_ondd_-_oct_2022_-_issue_138_-_hires (Year: 2022).

“Innovating in the viscosity design space with a new 2.25 mL autoinjector platform”, BD InteviaTM, downloaded from the Internet at: <https://www.cphi-online.com/innovating-in-the-viscosity-design-space-with-a-news112108.html> (Year: 2021).

Aimovig(R) video demonstration, Amgen, downloaded from the Internet at: <https://www.amgeninjectiondemos.com/Aimovig> (Year: 2022).

Amneal Pharmaceuticals, Epinephrine Auto-Injector, downloaded from the Internet at: <https://www.safcodental.com/catalog/pharmaceuticals-and-otc/pain-relievers-and-antibiotics/epinephrine-auto-injector> (Year: 2023).

BD VystraTM Disposable Pen, downloaded from the Internet at: <https://drugdeliversystems.bd.com/products/self-injection-systems/vystra-disposable-pen> (Year: 2019).

Industrial Design DM/092744, Millennium Pharmaceuticals, Inc., Registration date Sep. 6, 2016.

International Application No. PCT/US22/19414, International Search Report and Written Opinion, mailed Jul. 1, 2022.

International Application No. PCT/US22/19418, International Search Report and Written Opinion, mailed Jul. 13, 2022.

Internet publication <https://www.youtube.com/watch?v=VbGb5lt9n80>, dated Sep. 30, 2014.

Israeli Application No. 60912, Office Action, dated Mar. 4, 2018.

McGowan, 30 Years in the Making—An inside perspective on the emergence of autoinjectors, available on ON drug Delivery Magazine, Issue 101 (Oct. 2019), pp. 20-23 (2019).

McGowan, 30 Years in the Making—An Inside Perspective on the Emergency of Autoinjectors, ONdrugDelivery Magazine, Issue 101, pp. 20-23 (Oct. 2019).

Owen Mumford Pharmaceutical Services, Auto-injectors for intramuscular and subcutaneous administration, [Post date unknown] downloaded from the Internet at: <https://www.owenmumford.com/en/drug-delivery/auto-injectors> (Year: 2023).

Parental Drug Association, Trends in the Self-injection Device Market & Next Generation Platform Technologies, downloaded from the Internet at: <https://pda-asiapacific.glueup.com/resources/protected/organization/1176/event/26285/93bd1ce6-33aa-48c1-b0b7-9833dd5155bc.pdf> (Year: 2018).

PiccoJect self injector, Haselmeier, downloaded from the Internet at: <https://globaldesignnews.com/this-compact-user-focused-auto-injector-platform-innovates-with-improved-features-that-address-key-challenges-making%E2%80%A6> (Year: 2023).

Roy et al., Autoinjector—A smart device for emergency cum personal therapy, Saudi Pharmaceutical Journal, 29(10):1205-1215 (2021).

(56)

References Cited

OTHER PUBLICATIONS

SHL Group, Auto Injectors & Pen Injectors: A user-centric design approach, downloaded from the Internet at: <<https://www.ondrugdelivery.com/wp-content/uploads/2017/05/SHL-HR.pdf>> (2015). SHL, Auto Injectors, Pen Injectors and Inhaler Systems, Pharmaceutical Technology, [postdate: unknown], downloaded from the Internet at: <https://www.pharmaceutical-technology.com/contractors/drug_delivery/shl-group/> (Year: 2022).

Taiwan Patent Application No. 1066305338, Office Action and Search Report, dated Mar. 26, 2018.

U.S. Appl. No. 12/597,230, Notice of Allowance, mailed Jan. 11, 2023.

U.S. Appl. No. 16/832,987, Non-Final Office Action, mailed Sep. 29, 2022.

U.S. Appl. No. 29/644,412, Notice of Allowance, mailed Jan. 8, 2020.

U.S. Appl. No. 29/645,820, Notice of Allowance, mailed Mar. 5, 2020.

U.S. Appl. No. 29/654,799, Notice of Allowance, mailed Apr. 1, 2020.

U.S. Appl. No. 29/654,799, Notice of Allowance, mailed Jan. 2, 2020.

U.S. Appl. No. 29/661,300, Notice of Allowance, mailed Jan. 8, 2020.

U.S. Appl. No. 29/723,028, Notice of Allowance, mailed Jun. 1, 2020.

U.S. Appl. No. 29/726,050, Ex Parte Quayle Action, mailed Jan. 7, 2022.

U.S. Appl. No. 29/726,050, Notice of Allowance, mailed Mar. 23, 2022.

U.S. Appl. No. 29/757,411, Notice of Allowance, mailed Sep. 16, 2022.

U.S. Appl. No. 29/757,416, Notice of Allowance, mailed Sep. 16, 2022.

U.S. Appl. No. 29/773,601, Non-Final Office Action, mailed Sep. 14, 2022.

U.S. Appl. No. 29/773,604, Non-Final Office Action, mailed Sep. 27, 2022.

U.S. Appl. No. 29/773,604, Notice of Allowance, mailed Feb. 6, 2023.

U.S. Appl. No. 29/776,495, Non-Final Office Action, mailed Sep. 27, 2022.

U.S. Appl. No. 29/776,495, Notice of Allowance, mailed Jan. 20, 2023.

Autoinjector Training Devices, Noble, [Postdate: May 16, 2021], [Site seen: Jul. 11, 2024], Seen at URL: <https://www.gonoble.com/autoinjector-training-devices/> (Year: 2021).

Injectable Drug-Delivery Safer, Simpler, Smarter devices, Drug Development & Delivery, [Post date: Sep. 1, 2014], [Site seen: Jul. 11, 2024], Seen at URL: <https://drug-dev.com/special-feature-injectable-drug-delivery-safer-simpler-smarter-devices/> (Year: 2014). Non-Final Rejection Mailed on Jul. 16, 2024 for U.S. Appl. No. 29/872,710, 4 page(s).

“Designing an intuitive drug delivery device range to empower patients in self-injection,” Sanofi, [wearefluid.com](https://www.wearefluid.com/projects/auto-injector), downloaded from the Internet at: <https://www.wearefluid.com/projects/auto-injector> (2023).

E3D’s autoinjectors, E3D, OnDrug Delivery.com, downloaded from the Internet at: <https://www.ondrugdelivery.com/evolution-of-an-on-body-bolus-injector-from-drug-specific-device-to-platform-technology/> (2019).

Special Feature—Injection Devices: Wearables, Connectivity & Patient-Centric Designs Empower Self-Administration, downloaded from the Internet at: <https://drug-dev.com/special-feature-injection-devices-wearables-connectivity-patient-centric-designs-empower-self-administration/> (Sep. 2019).

YpsoMate 5.5, ypsomed, [Post date Nov. 29, 2022], [Site seen: Sep. 30, 2024], Seen at URL: <https://yds.ypsomed.com/en/products/autoinjectors/ypsomate-5-5.html> (Year: 2022).

YpsoMate™ 5.5, Ypsomed, OnDrugDelivery.com, [Post date: Oct. 11, 2022], [Site seen: Oct. 1, 2024], Seen at URL: <https://www.ondrugdelivery.com/the-new-ypsomate-5-5-taking-handheld-self-injection-beyond-volumes-of-2-ml/> (Year: 2022).

* cited by examiner

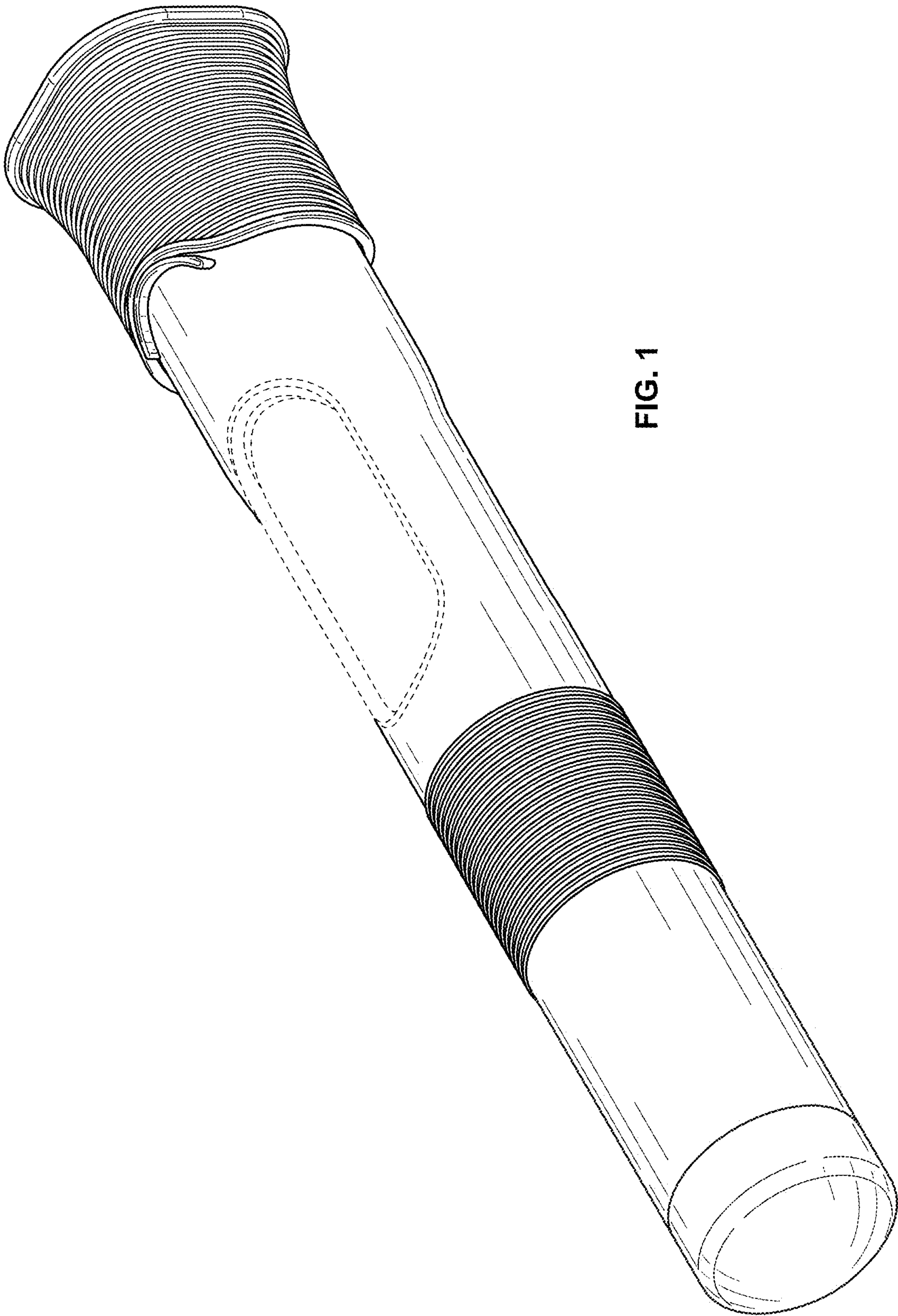


FIG. 1

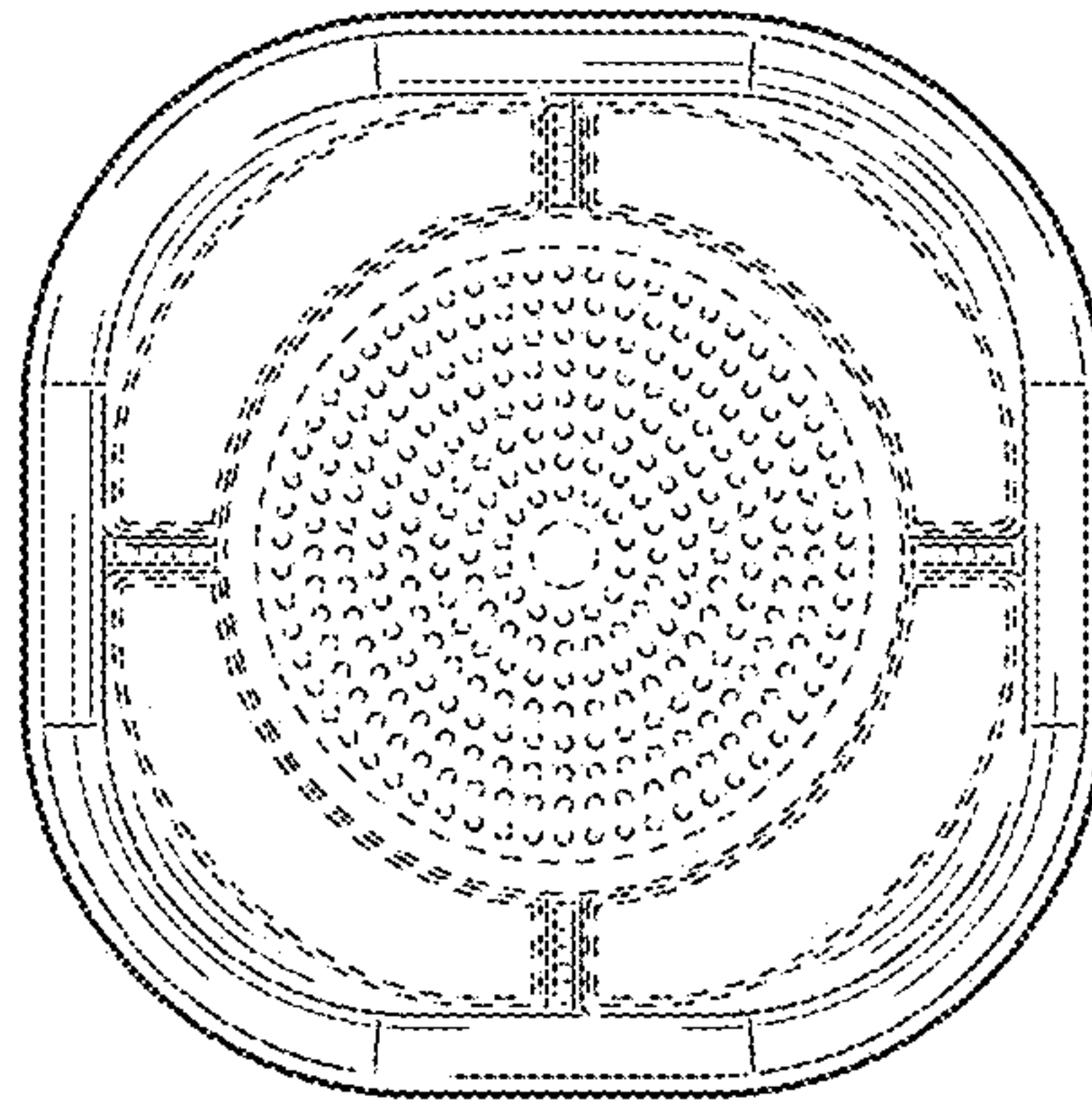


FIG. 2

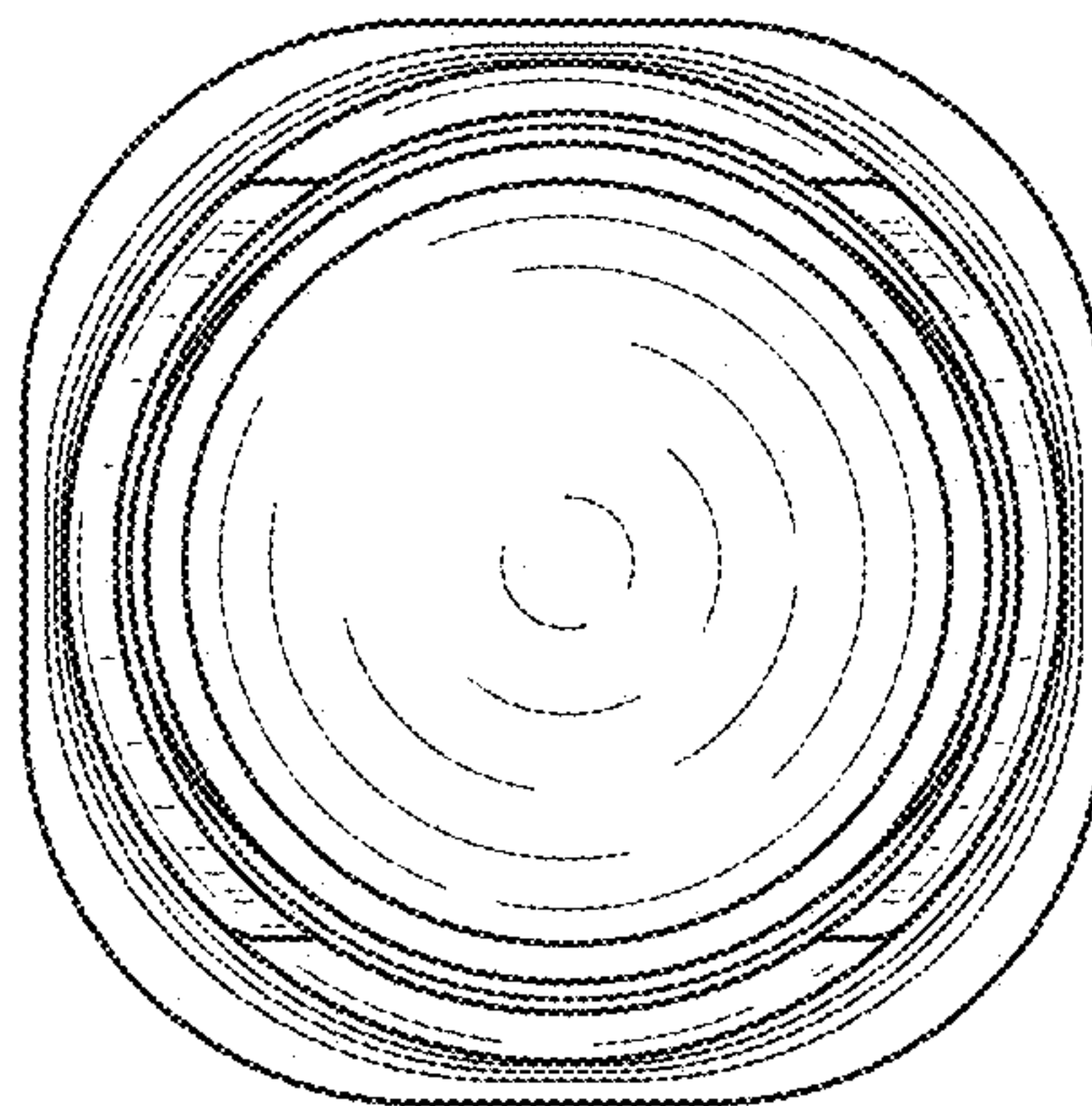


FIG. 3

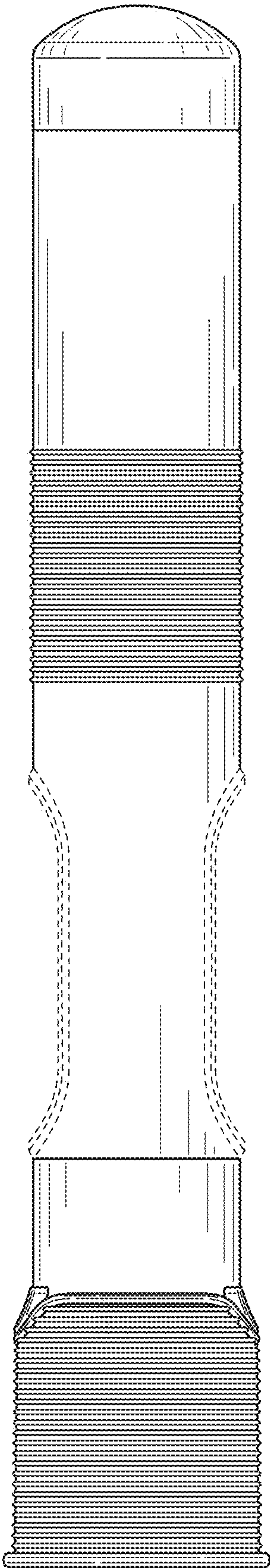


FIG. 4

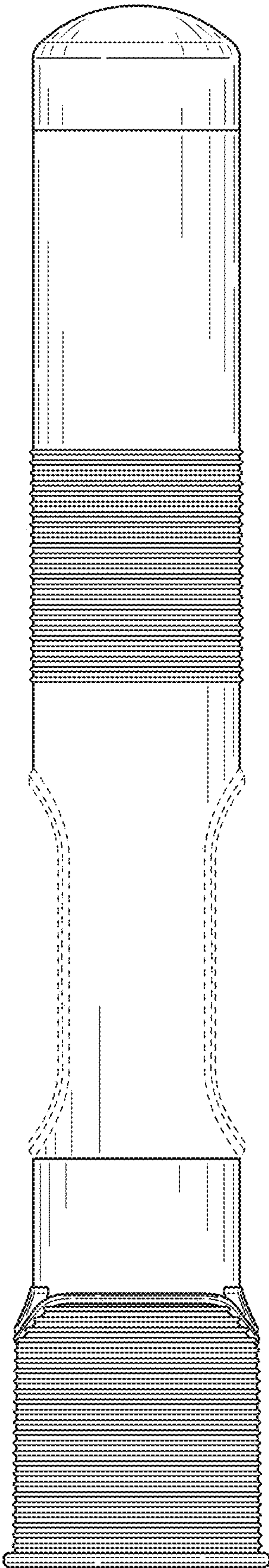


FIG. 5

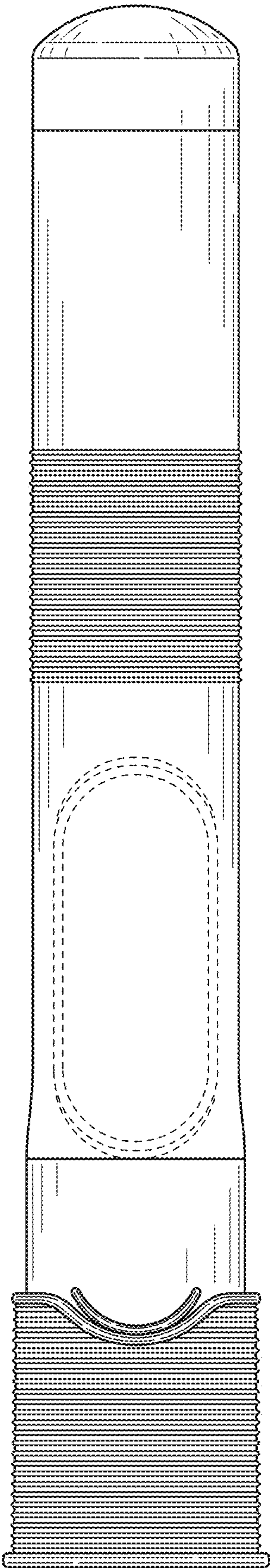


FIG. 6

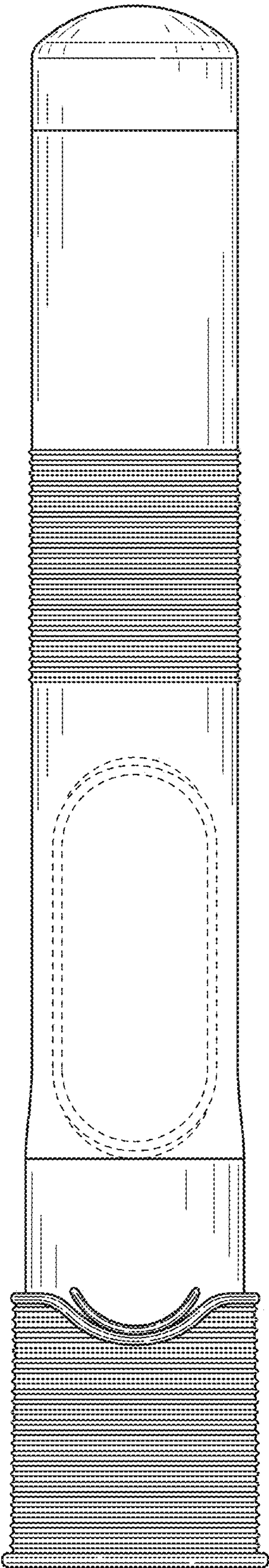


FIG. 7

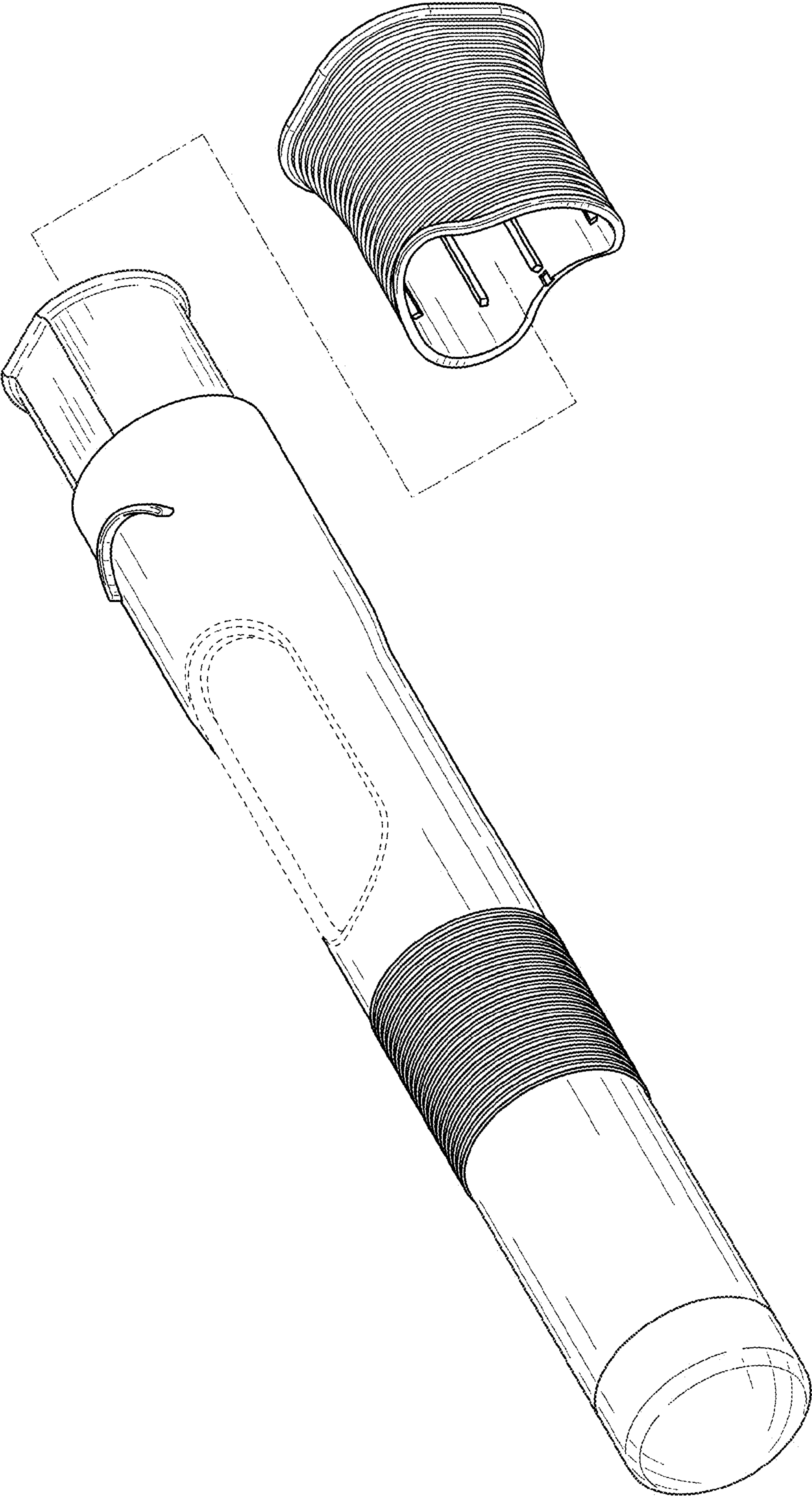


FIG. 8