



US00D775335S

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

(10) **Patent No.:** **US D775,335 S**
(45) **Date of Patent:** **** *Dec. 27, 2016**

(54) **MULTI-LEVEL SURGICAL GUIDE**

FOREIGN PATENT DOCUMENTS

(71) Applicant: **Mighty Oak Medical, Inc.**, Englewood, CO (US)

CN 201275138 7/2009
CN 201404283 2/2010

(Continued)

(72) Inventors: **George Frey**, Englewood, CO (US);
Geoff Lai, Lakewood, CO (US)

OTHER PUBLICATIONS

(*) Notice: This patent is subject to a terminal disclaimer.

U.S. Appl. No. 29/476,699, filed Dec. 16, 2013, Frey et al.
(Continued)

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

Primary Examiner — Wan Laymon
Assistant Examiner — Mark Booker

(21) Appl. No.: **29/538,633**

(74) *Attorney, Agent, or Firm* — Sheridan Ross P.C.

(22) Filed: **Sep. 4, 2015**

Related U.S. Application Data

(63) Continuation-in-part of application No. 29/496,231, filed on Jul. 10, 2014, now Pat. No. Des. 738,498, which is a continuation-in-part of application No. 29/476,705, filed on Dec. 16, 2013, now Pat. No. Des. 745,672, which is a continuation-in-part of application No. 29/432,668, filed on Sep. 18, 2012, now Pat. No. Des. 705,929, which is a continuation of application No. 29/409,734, filed on Dec. 28, 2011,
(Continued)

(57) **CLAIM**

The ornamental design for a multi-level surgical guide, as shown and described.

(51) **LOC (10) Cl.** **24-02**

(52) **U.S. Cl.**
USPC **D24/140**

(58) **Field of Classification Search**
USPC D24/140, 133, 155; 600/410; 606/86 R, 606/87-88, 89-91, 96-98, 99-101, 102, 606/103, 246, 248; 623/17.11, 17.16
CPC A61B 17/15; A61B 19/50; G09B 23/30
See application file for complete search history.

DESCRIPTION

FIG. 1 is a top perspective view of a multi-level surgical guide, showing our new design;
FIG. 2 is a bottom perspective view of a multi-level surgical guide, showing our new design;
FIG. 3 is a front elevation view of the multi-level surgical guide illustrated in FIG. 1;
FIG. 4 is a rear elevation view of the multi-level surgical guide illustrated in FIG. 1;
FIG. 5 is a right elevation view of the multi-level surgical guide illustrated in FIG. 1;
FIG. 6 is a left elevation view of the multi-level surgical guide illustrated in FIG. 1;
FIG. 7 is a top plan view of the multi-level surgical guide illustrated in FIG. 1; and,
FIG. 8 is a bottom plan view of the multi-level surgical guide illustrated in FIG. 1.

(56) **References Cited**

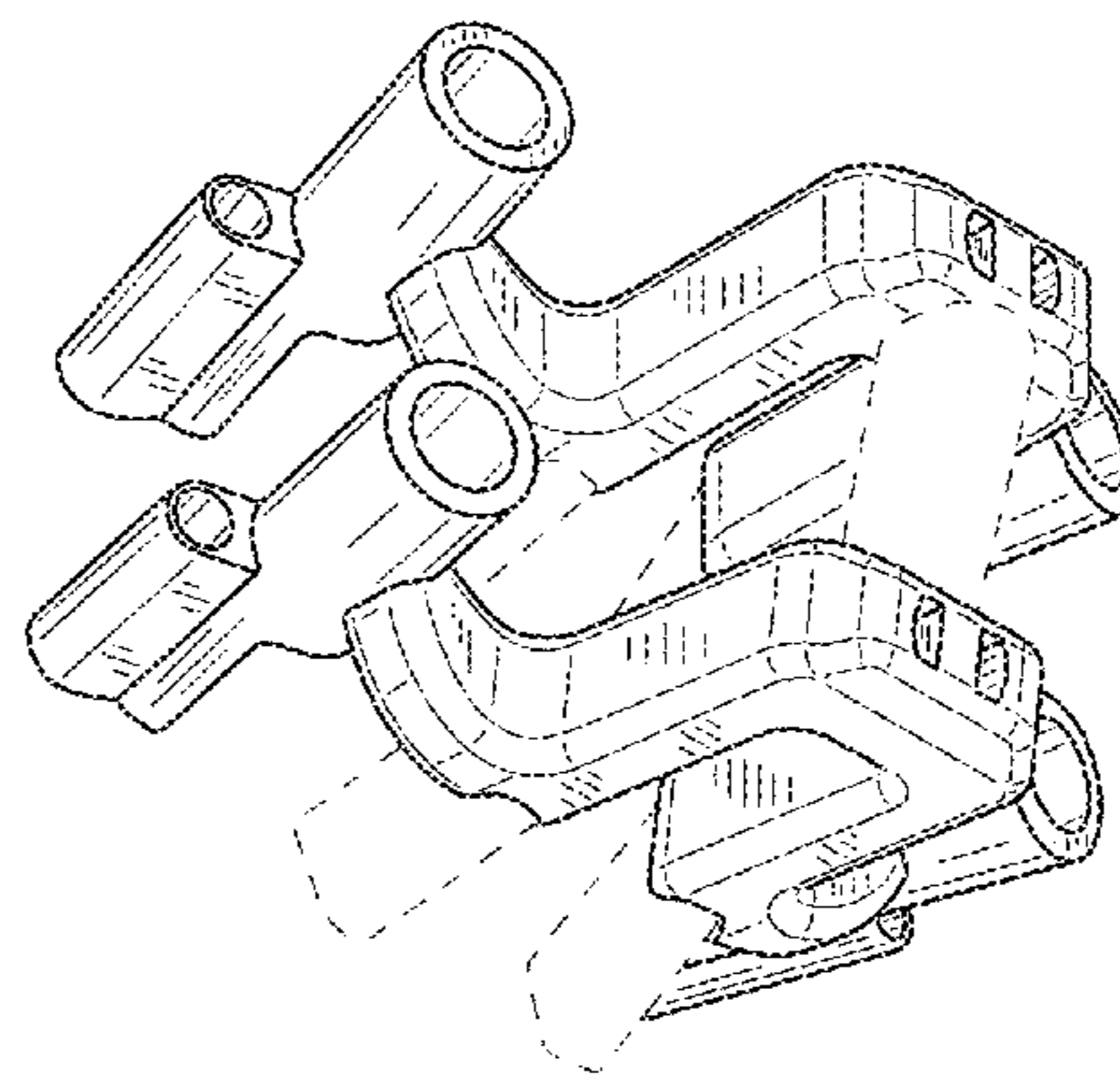
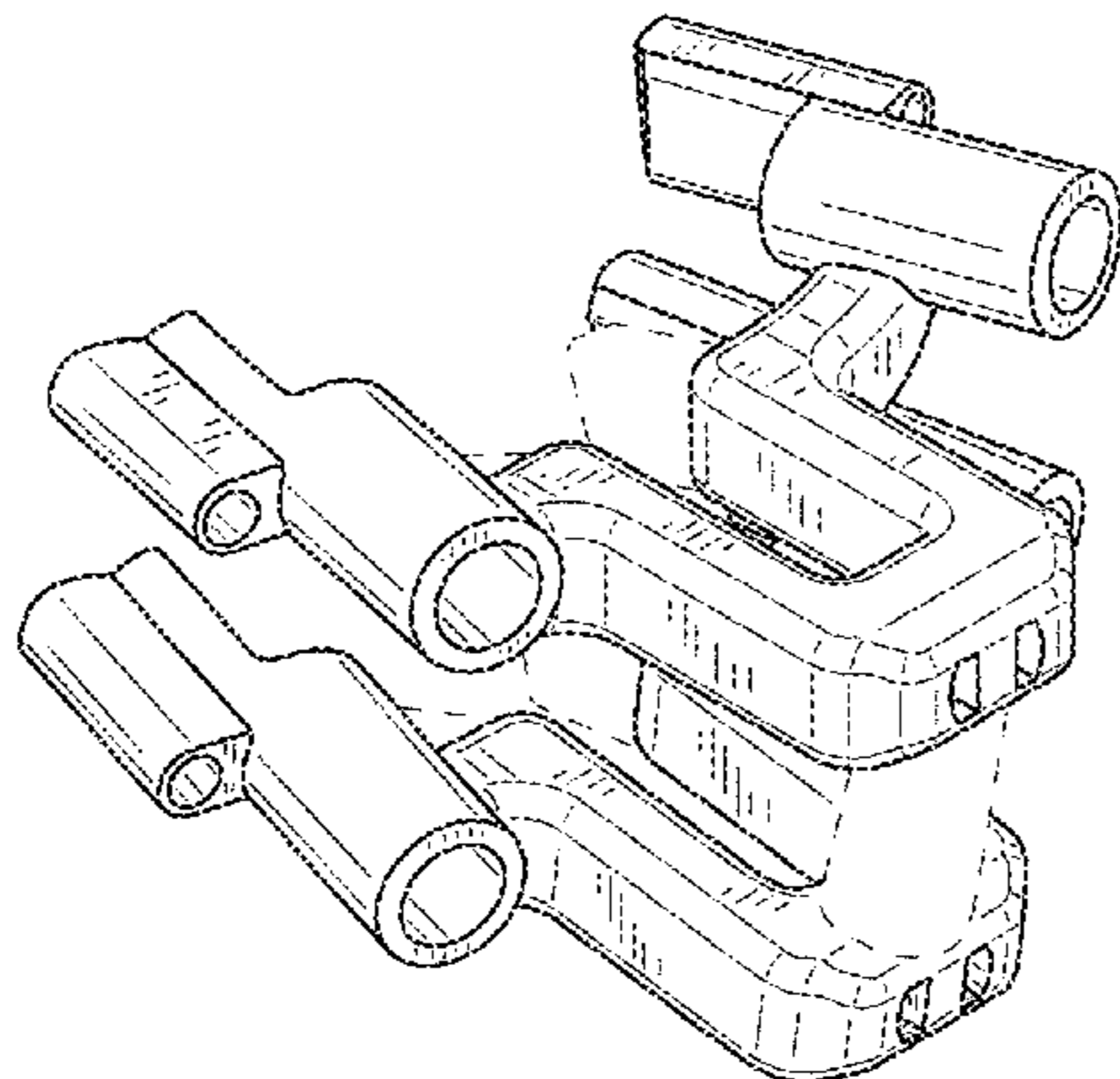
U.S. PATENT DOCUMENTS

3,151,392 A 10/1964 Chambers
5,201,734 A 4/1993 Cozad et al.

(Continued)

The broken lines showing in the figures are included for the purpose of illustrating portions of the multi-level surgical guide and form no part of the claimed design.

1 Claim, 4 Drawing Sheets



Related U.S. Application Data

now Pat. No. Des. 669,176, which is a continuation of application No. 13/172,683, filed on Jun. 29, 2011, now Pat. No. 8,758,357.

(56)

References Cited

U.S. PATENT DOCUMENTS

D359,557	S	6/1995	Hayes	
D403,066	S	12/1998	DeFonzo	
D412,032	S	7/1999	Mikula-Curtis et al.	
D420,132	S	2/2000	Bucholz et al.	
D428,989	S	8/2000	Segermark et al.	
6,711,432	B1	3/2004	Krause et al.	
6,755,839	B2	6/2004	Van Hoeck et al.	
D532,515	S	11/2006	Buttler et al.	
D533,664	S	12/2006	Buttler et al.	
7,235,076	B2	6/2007	Pacheco	
7,491,180	B2	2/2009	Pacheco	
7,623,902	B2	11/2009	Pacheco	
D606,195	S	12/2009	Eisen et al.	
7,658,610	B2	2/2010	Knopp	
D618,796	S	6/2010	Cantu et al.	
7,844,356	B2	11/2010	Matov et al.	
7,957,824	B2	6/2011	Boronvinskih et al.	
8,159,753	B2	4/2012	Ojeda et al.	
8,167,884	B2	5/2012	Pacheco	
8,206,396	B2	6/2012	Trabish	
8,214,014	B2	7/2012	Pacheco	
8,257,083	B2	9/2012	Berckmans et al.	
D669,176	S *	10/2012	Frey	D24/140
D669,984	S	10/2012	Cheney et al.	
8,277,461	B2	10/2012	Pacheco	
D672,038	S	12/2012	Frey	
8,419,740	B2	4/2013	Aram et al.	
D685,087	S	6/2013	Voic	
8,668,700	B2 *	3/2014	Catanzarite	A61B 17/155 606/87
D705,929	S	5/2014	Frey	
8,758,357	B2	6/2014	Frey	
8,870,889	B2	10/2014	Frey	
D718,862	S	12/2014	Matheny	
D718,863	S	12/2014	Matheny	
D718,864	S	12/2014	Matheny	
D726,914	S	4/2015	Matheny	
D738,498	S	9/2015	Frey et al.	
2004/0097925	A1	5/2004	Boehm et al.	
2005/0148843	A1	7/2005	Roose	
2006/0084986	A1	4/2006	Grinberg et al.	
2006/0095044	A1	5/2006	Grady, Jr. et al.	
2006/0149375	A1	7/2006	Yuan et al.	
2006/0241385	A1	10/2006	Dietz	
2007/0288030	A1	12/2007	Metzger et al.	
2008/0114370	A1	5/2008	Schoenefeld	
2008/0161815	A1	7/2008	Schoenefeld et al.	
2008/0183214	A1	7/2008	Copp et al.	
2008/0257363	A1	10/2008	Schoenefeld et al.	
2008/0275452	A1	11/2008	Lang et al.	
2008/0306552	A1 *	12/2008	Winslow	A61B 17/7035 606/301
2008/0312659	A1	12/2008	Metzger et al.	
2008/0319491	A1	12/2008	Schoenefeld	
2009/0087276	A1	4/2009	Rose	
2009/0088674	A1	4/2009	Caillouette et al.	
2009/0088761	A1	4/2009	Roose et al.	
2009/0088763	A1	4/2009	Aram et al.	
2009/0093816	A1	4/2009	Roose et al.	
2009/0099567	A1	4/2009	Zajac	
2009/0110498	A1	4/2009	Park	
2009/0138020	A1	5/2009	Park et al.	
2009/0187194	A1	7/2009	Hamada	
2009/0198277	A1	8/2009	Gordon et al.	
2009/0254093	A1	10/2009	White et al.	
2009/0270868	A1	10/2009	Park et al.	
2010/0016984	A1	1/2010	Trabish	
2010/0049195	A1	2/2010	Park et al.	
2010/0082035	A1	4/2010	Kefer	

2010/0087829	A1	4/2010	Metzger et al.	
2010/0100193	A1	4/2010	White	
2010/0152782	A1	6/2010	Stone et al.	
2010/0191244	A1	7/2010	White et al.	
2010/0217270	A1	8/2010	Polinski et al.	
2010/0217336	A1	8/2010	Crawford et al.	
2010/0305700	A1	12/2010	Ben-Arye et al.	
2010/0324692	A1	12/2010	Uthgenannt et al.	
2011/0015636	A1	1/2011	Katrana et al.	
2011/0015639	A1	1/2011	Metzger et al.	
2011/0046735	A1	2/2011	Metzger et al.	
2011/0054478	A1	3/2011	Vanasse et al.	
2011/0071533	A1	3/2011	Metzger et al.	
2011/0093023	A1	4/2011	Lee et al.	
2011/0093086	A1	4/2011	Witt et al.	
2011/0160736	A1	6/2011	Meridew et al.	
2011/0160867	A1	6/2011	Meridew et al.	
2011/0166578	A1	7/2011	Stone et al.	
2011/0184419	A1	7/2011	Meridew et al.	
2011/0184526	A1	7/2011	White et al.	
2011/0190899	A1	8/2011	Pierce et al.	
2011/0213376	A1	9/2011	Maxson et al.	
2011/0218545	A1	9/2011	Catanzarite et al.	
2011/0224674	A1	9/2011	White et al.	
2011/0288433	A1	11/2011	Kelleher et al.	
2012/0041445	A1	2/2012	Roose et al.	
2012/0130434	A1	5/2012	Stemniski et al.	
2012/0179259	A1	7/2012	McDonough et al.	
2012/0215315	A1	8/2012	Hochschuler et al.	
2013/0006251	A1	1/2013	Aram et al.	
2014/0350614	A1	11/2014	Frey et al.	
2015/0297249	A1 *	10/2015	Catanzarite	A61B 17/155 606/96

FOREIGN PATENT DOCUMENTS

CN	101390773	11/2010
CN	101953713	1/2011
EP	2168507	3/2010
JP	2008-514362	5/2008
JP	D1508406	10/2014
WO	WO 2006/039266	4/2006
WO	WO 2007/145937	12/2007
WO	WO 2008/027549	3/2008
WO	WO 2009/129063	10/2009
WO	WO 2010/033431	3/2010
WO	WO 2010/148103	12/2010
WO	WO 2011/041398	4/2011
WO	WO 2011/080260	7/2011
WO	WO 2011/106711	9/2011
WO	WO 2011/109260	9/2011

OTHER PUBLICATIONS

U.S. Appl. No. 29/476,705, filed Dec. 16, 2013, Frey et al.
 U.S. Appl. No. 29/476,709, filed Dec. 16, 2013, Frey et al.
 Brussel et al. "Medical Image-Based Design of an Individualized Surgical Guide for Pedicle Screw Insertion." 18th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, Amsterdam 1996, pp. 225-226.
 Lu et al. "A novel computer-assisted drill guide template for lumbar pedicle screw placement: a cadaveric and clinical study." The International Journal of Medical Robotics and Computer Assisted Surgery, Jun. 2009, vol. 5, No. 2, pp. 184-191. (Abstract Only).
 Lu et al. "A Novel Patient-Specific Navigational Template for Cervical Pedicle Screw Placement," Spine, Dec. 15, 2009, vol. 34, No. 26, pp. E959-E966 (Abstract Only).
 Owen et al. "Rapid prototype patient-specific drill template for cervical pedicle screw placement." Computer Aided Surgery, Sep. 2007, vol. 12, No. 5, pp. 303-308 (Abstract Only).
 Ryken et al. "Image-based drill templates for cervical pedicle screw placement Laboratory investigation," Journal of Neurosurgery, Jan. 2009, vol. 10, No. 1 (Abstract Only).
 Yin et al. "Computer aid designed digital targeting template of pedicle of vertebral arch for atlantoaxial nailing," IT in Medicine & Education, 2009. ITIME '09. Aug. 14-16, 2009, vol. 1 (Abstract Only).

(56)

References Cited

OTHER PUBLICATIONS

International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US11/42412 mailed Nov. 8, 2011, 8 pages.

International Preliminary Report on Patentability for International (PCT) Patent Application No. PCT/US11/42412 mailed Jan. 17, 2013, 7 pages.

Official Action for Australian Patent Application No. 2011276468 dated Apr. 10, 2013, 3 pages.

Official Action for China Patent Application No. 201180029692.7, mailed Oct. 8, 2014 12 pages.

Partial Search Report for European Patent Application No. 11804191.2, dated Jan. 20, 2015 6 pages.

International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US2013/036535, mailed Jun. 26, 2013 8 pages.

International Preliminary Report on Patentability for International (PCT) Patent Application No. PCT/US2013/036535, mailed Oct. 30, 2014 7 pages.

International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US2014/041379, mailed Oct. 28, 2014 7 pages.

Official Action for U.S. Appl. No. 13/172,683, mailed Sep. 10, 2013 7 pages.

Official Action for U.S. Appl. No. 13/172,683, mailed Feb. 24, 2014, 10 pages.

Notice of Allowance for U.S. Appl. No. 13/172,683 mailed Apr. 23, 2014, 7 pages.

Notice of Allowance for U.S. Appl. No. 29/409,734, mailed May 11, 2012 8 pages.

Notice of Allowance for U.S. Appl. No. 29/427,918, mailed Oct. 15, 2012 9 pages.

Notice of Allowance for U.S. Appl. No. 29/432,668 mailed Nov. 27, 2013, 11 pages.

Notice of Allowance for U.S. Appl. No. 29/496,231, mailed Jul. 23, 2015 10 pages.

Official Action for U.S. Appl. No. 13/841,069 mailed Jul. 8, 2014, 6 pages.

Official Action for U.S. Appl. No. 13/841,069, mailed Jul. 31, 2014 9 pages.

Notice of Allowance for U.S. Appl. No. 13/841,069, mailed Sep. 18, 2014 7 pages.

Official Action with English Translation for Japan Patent Application No. 2013-518663, mailed May 12, 2015 4 pages.

Notice of Allowance for U.S. Appl. No. 29/476,705, mailed Oct. 7, 2015 8 pages.

Notice of Allowance for U.S. Appl. No. 29/476,699, mailed Oct. 2, 2015 8 pages.

Official Action for U.S. Appl. No. 14/298,634, mailed Apr. 27, 2015 8 pages.

Official Action for U.S. Appl. No. 14/298,634, mailed Jul. 7, 2015 6 pages.

Notice of Allowance with English Translation for Japan Patent Application No. 2013-518663, mailed Dec. 8, 2015 4 pages.

International Search Report and Written Opinion for International (PCT) Patent Application No. PCT/US15/32356, mailed Oct. 28, 2015 10 pages.

* cited by examiner

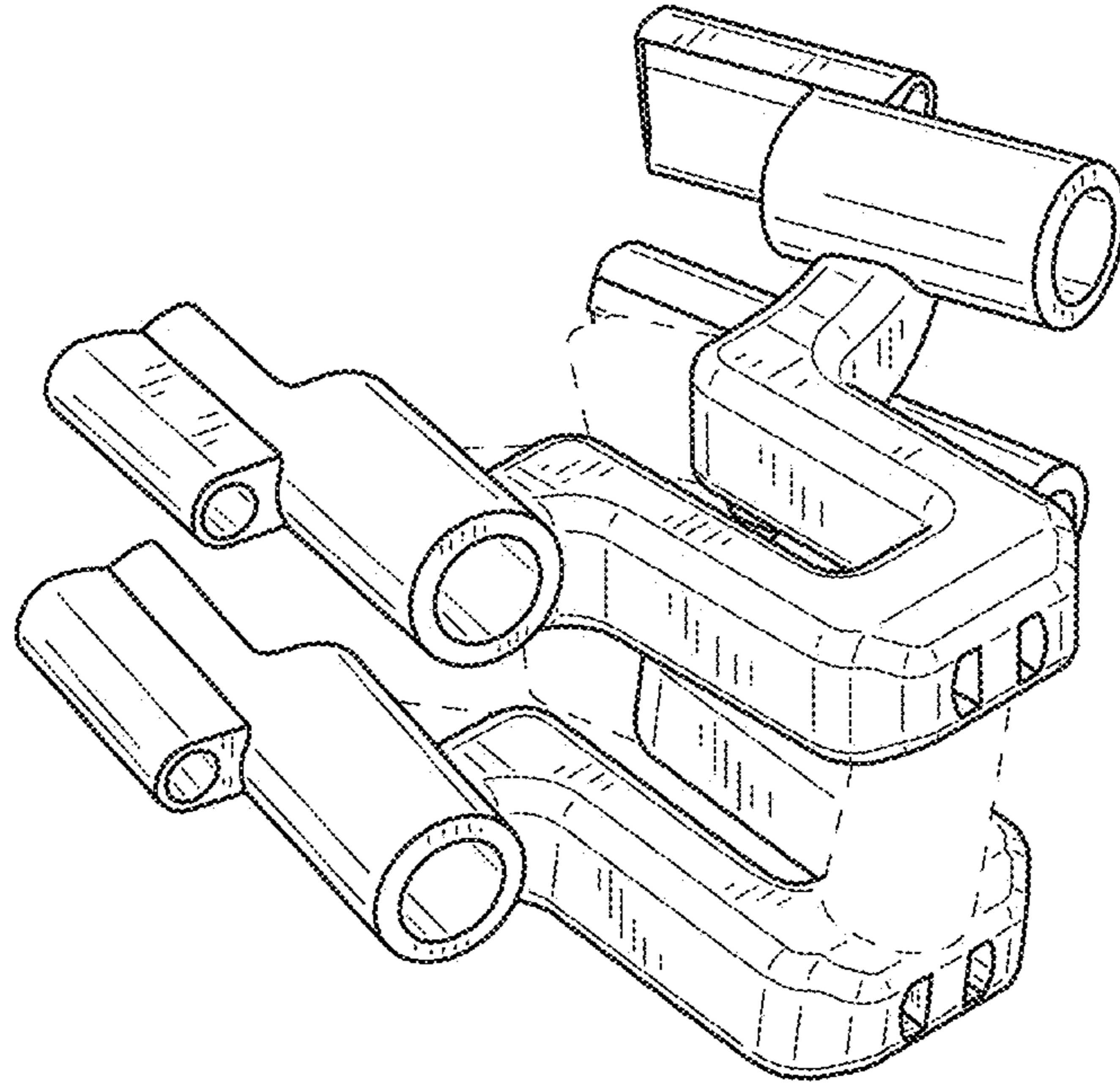


FIG.1

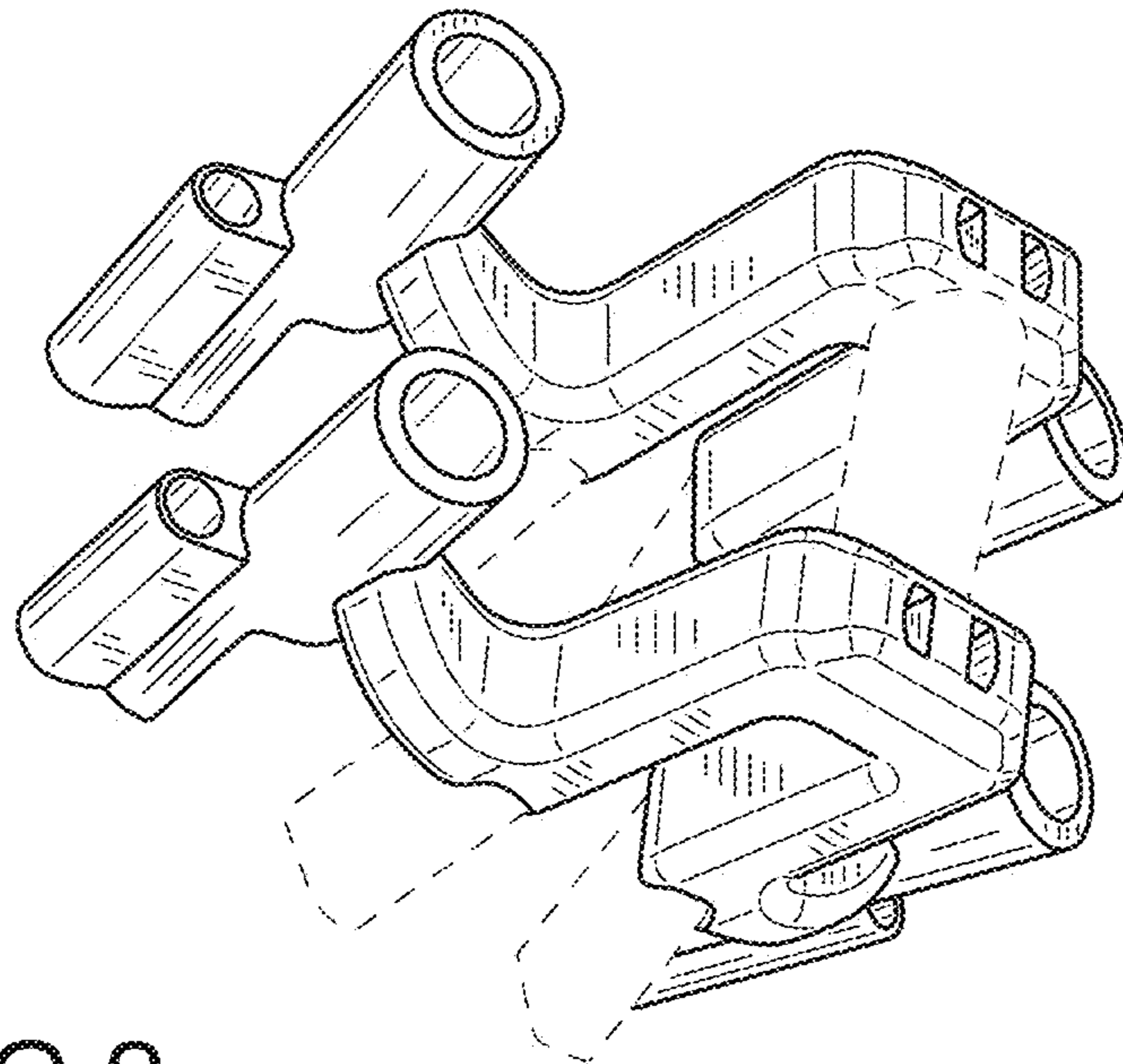


FIG.2

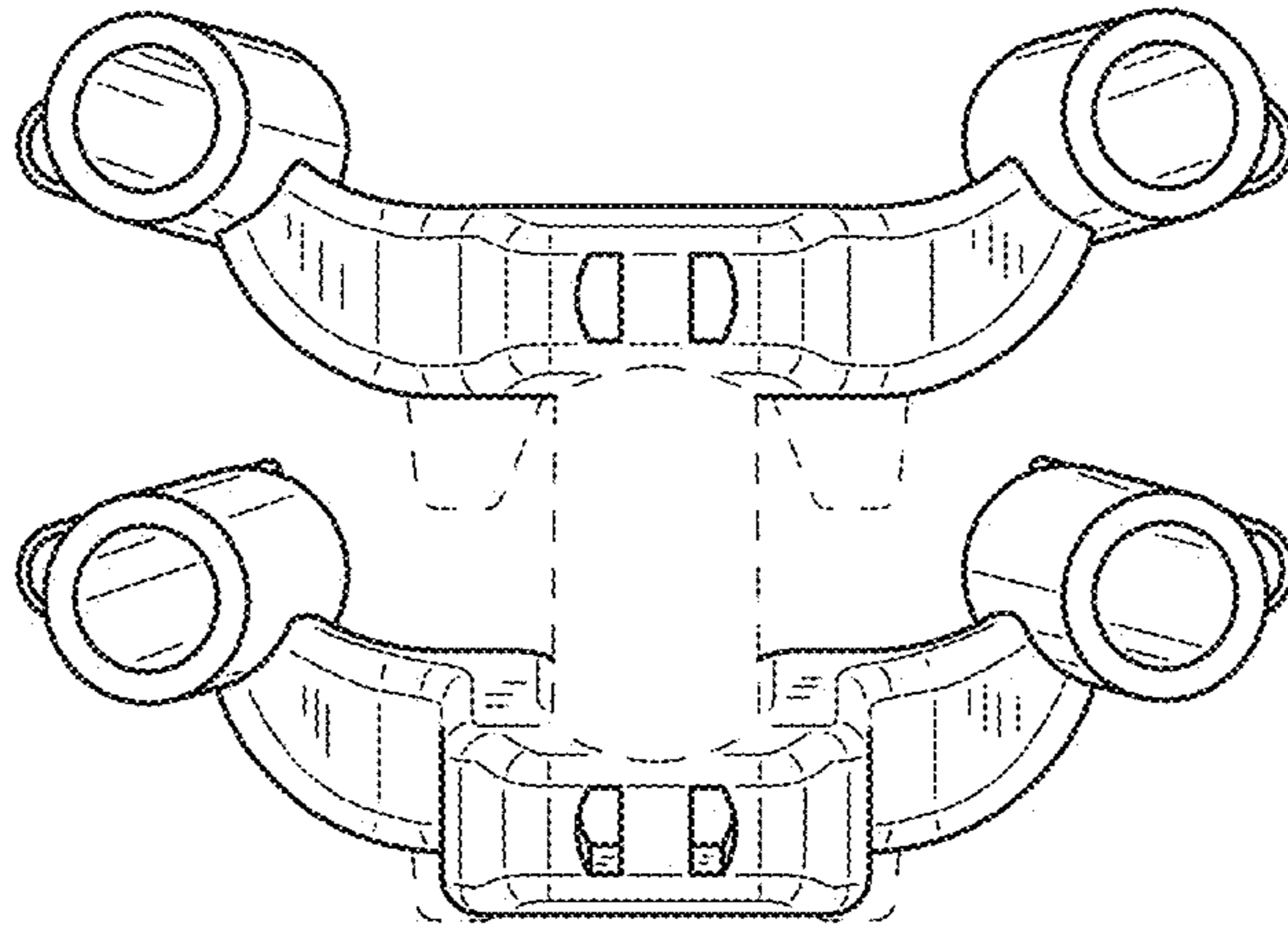


FIG.3

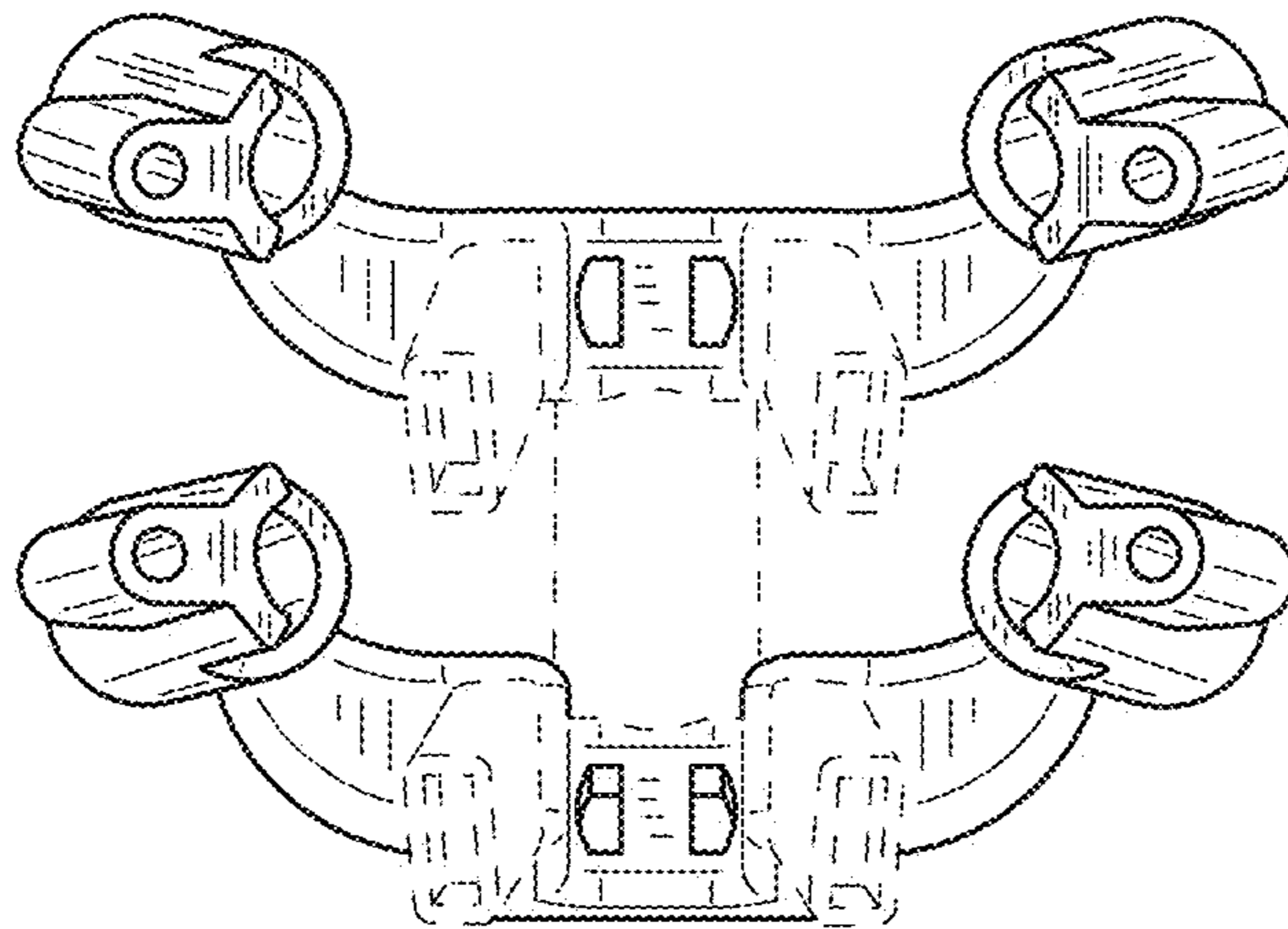


FIG.4

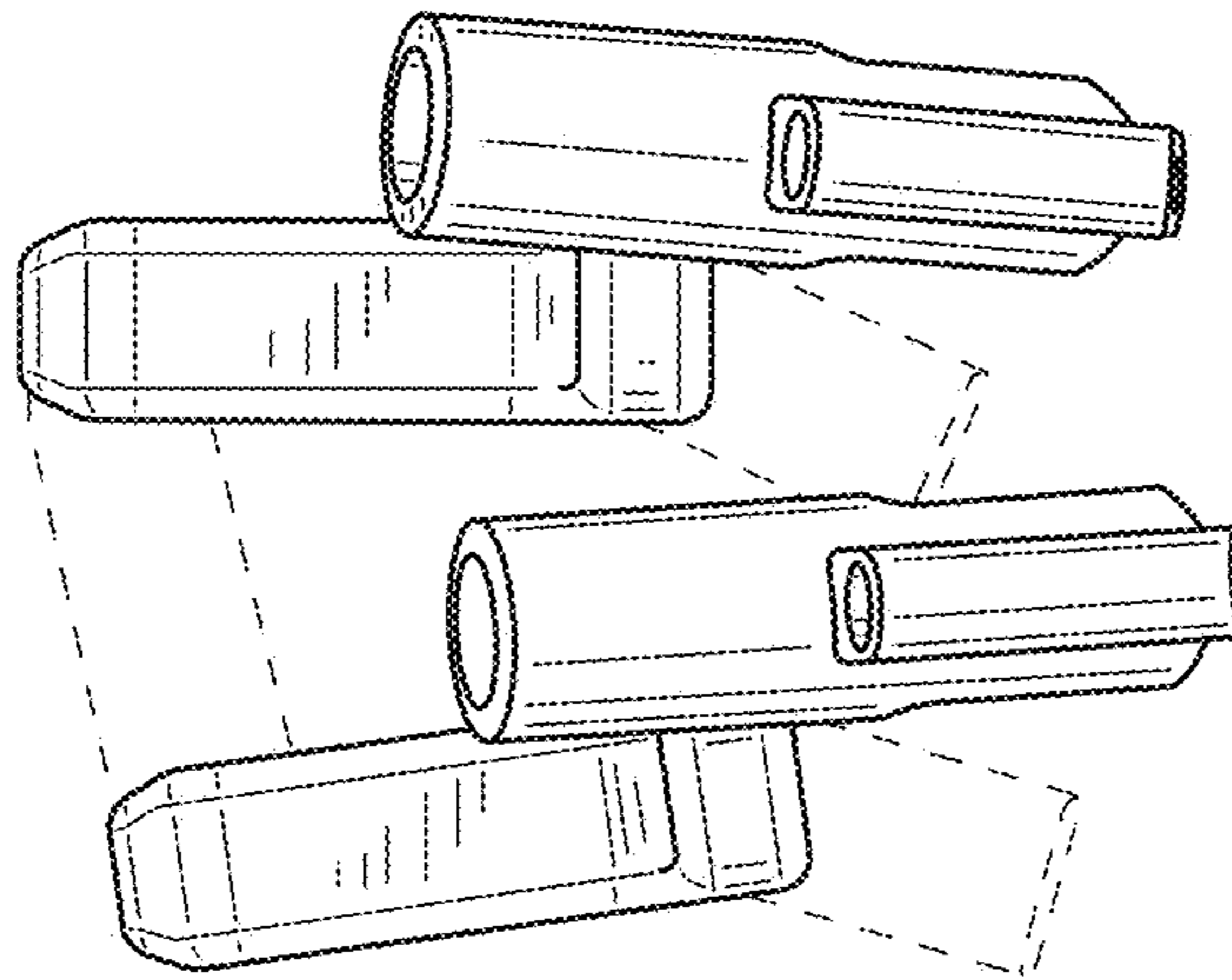


FIG.5

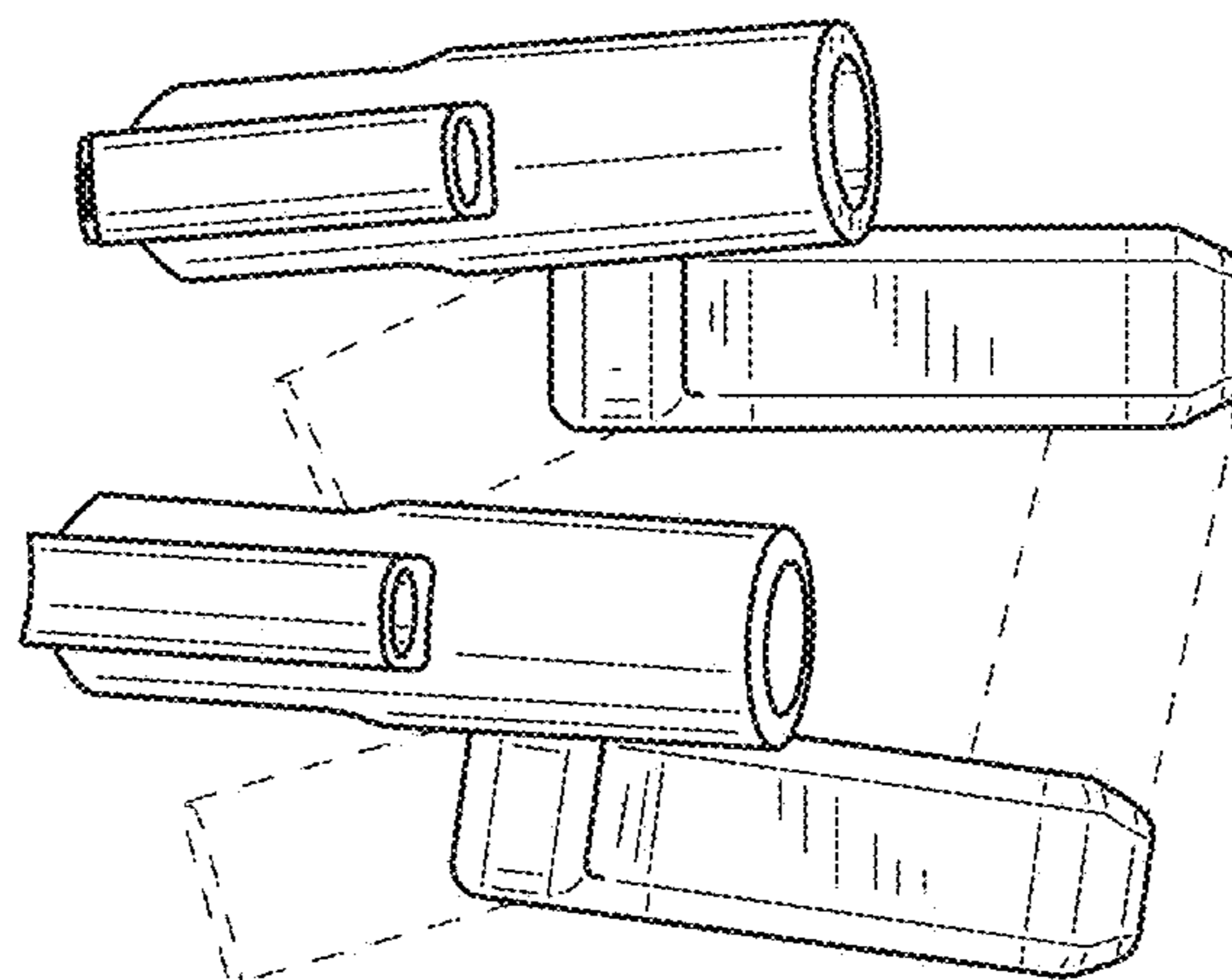


FIG.6

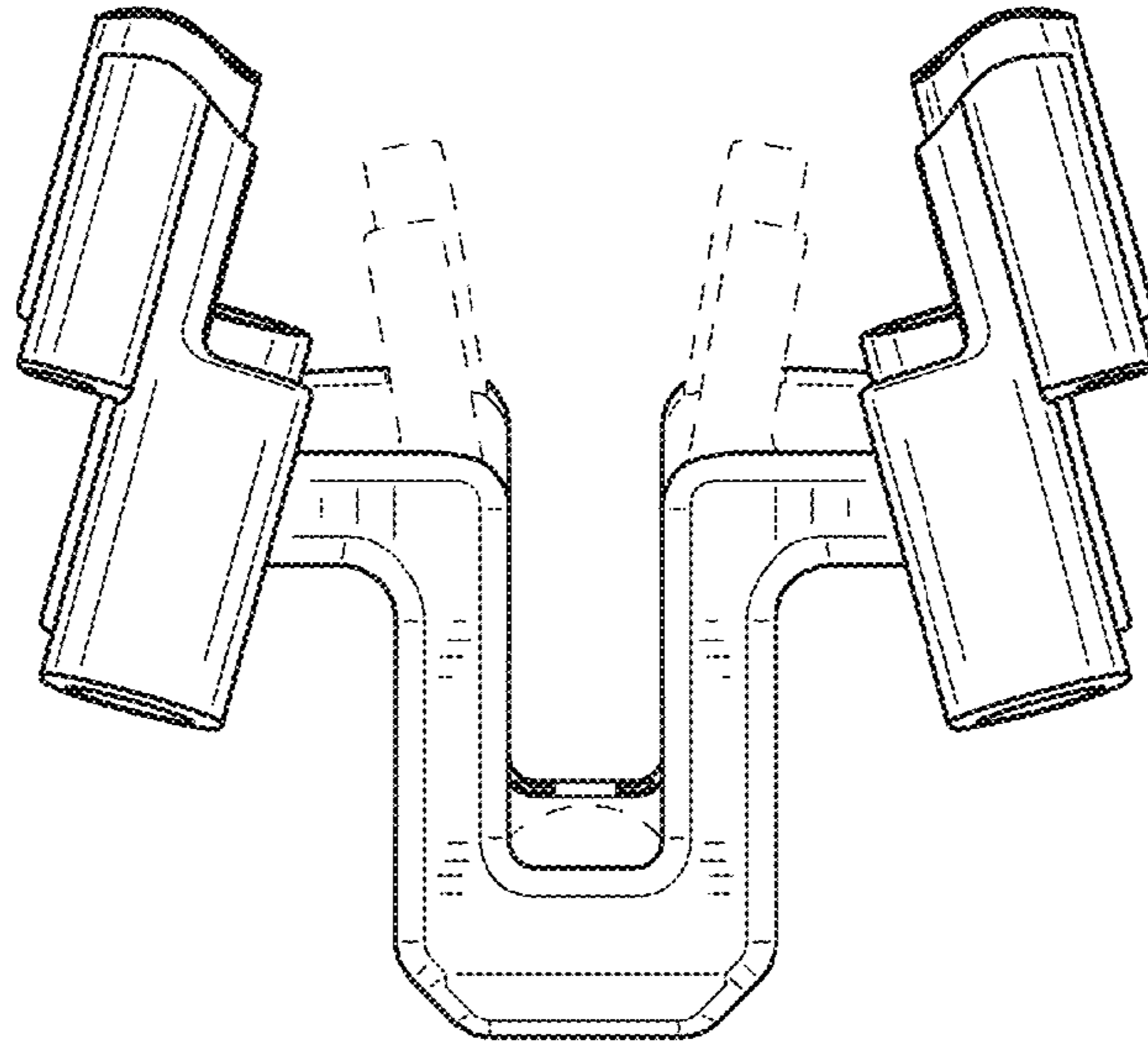


FIG. 7

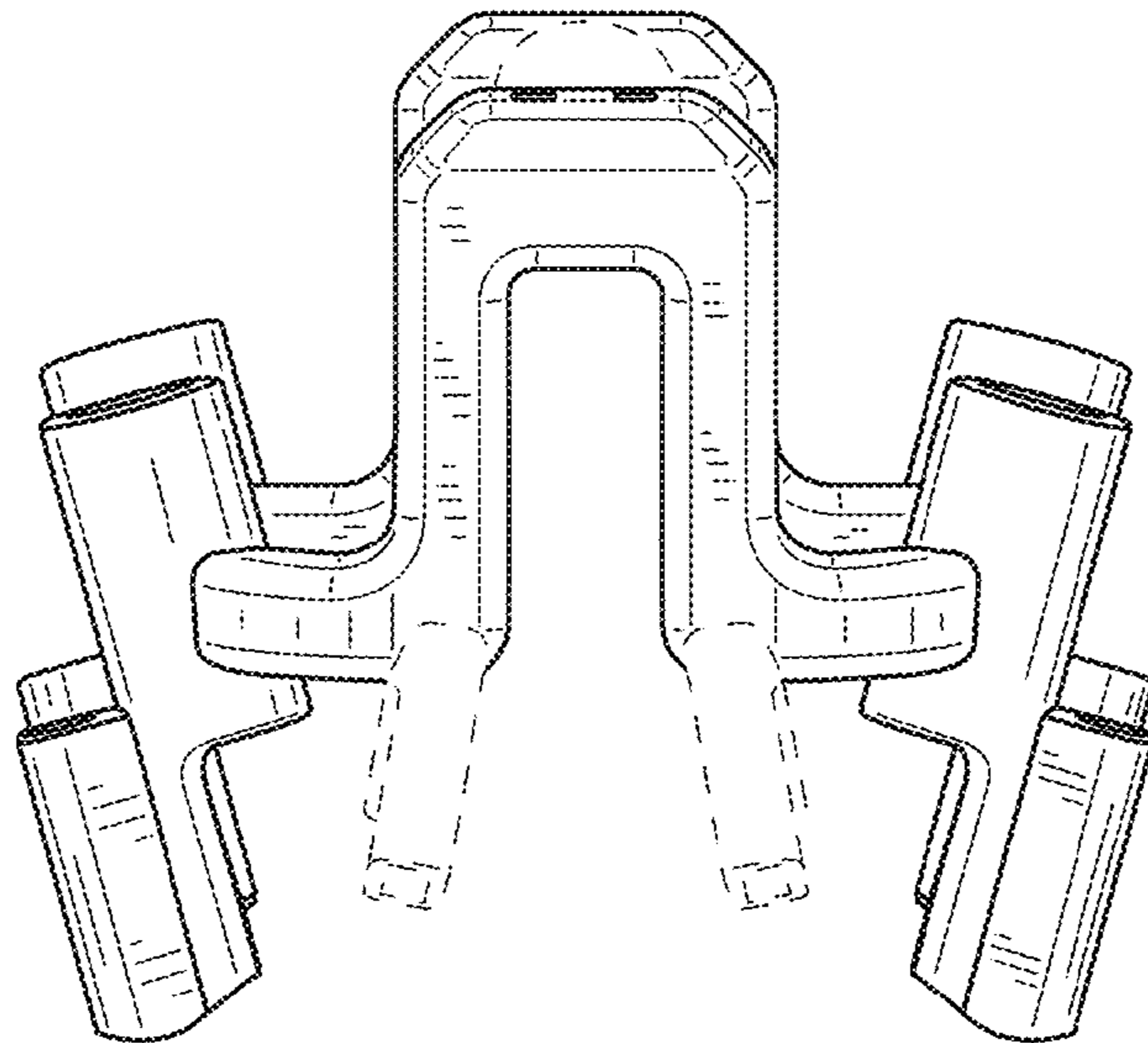


FIG. 8