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(12) **United States Design Patent** (10) **Patent No.:** **US D798,920 S**
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(54) **CUTTING TOOL ASSEMBLY**

(71) Applicant: **US SYNTHETIC CORPORATION,**
Orem, UT (US)

(72) Inventor: **Gary Eugene Weaver,** Conroe, TX
(US)

(73) Assignee: **US SYNTHETIC CORPORATION,**
Orem, UT (US)

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USPC **D15/139**

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USPC D8/70, 71; D15/131, 138, 139, 140, 141
CPC B23D 61/06; B28D 1/122; B28D 1/186;
B28D 1/188; E01C 23/088; E01C 23/127;
E21C 35/183; E21C 35/197; E21C
2035/1813; E21C 2035/1816
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,665,893 A 1/1954 Ball
3,671,075 A 6/1972 Bland et al.
3,695,726 A * 10/1972 Krekeler E21C 35/197
299/106

3,751,114 A 8/1973 Davis
3,785,021 A 1/1974 Norgren et al.
D238,243 S * 12/1975 Polivka D8/14.1
4,006,936 A 2/1977 Crabiel
4,083,644 A 4/1978 Friedline et al.
4,193,638 A 3/1980 Heckenhauer
4,299,424 A * 11/1981 LeBegue E21C 35/183
299/103

4,335,921 A 6/1982 Swisher, Jr. et al.
4,340,325 A 7/1982 Gowanlock et al.
D270,059 S 8/1983 Wilkins
D271,497 S 11/1983 Green

4,484,644 A 11/1984 Cook et al.
4,580,930 A 4/1986 Zinner et al.
4,605,343 A 8/1986 Hibbs, Jr. et al.
4,655,508 A 4/1987 Tomlinson
4,678,237 A 7/1987 Collin et al.
4,679,858 A 7/1987 Tank
D296,107 S 6/1988 Andersson
4,784,023 A 11/1988 Dennis et al.
4,787,466 A 11/1988 Tomlinson et al.
4,836,178 A 6/1989 Tomlinson
4,850,649 A * 7/1989 Beach E21C 35/197
299/107

4,880,278 A 11/1989 Tomlinson
4,902,073 A 2/1990 Tomlinson et al.
D307,279 S 4/1990 Vincent
D311,747 S 10/1990 Mihic
5,007,685 A 4/1991 Beach et al.
5,060,739 A 10/1991 Griffin et al.
5,090,491 A 2/1992 Tibbitts et al.
5,318,351 A * 6/1994 Walker B28D 1/188
299/106

5,431,239 A 7/1995 Tibbitts et al.
5,605,382 A * 2/1997 Massa E21C 35/1933
299/107

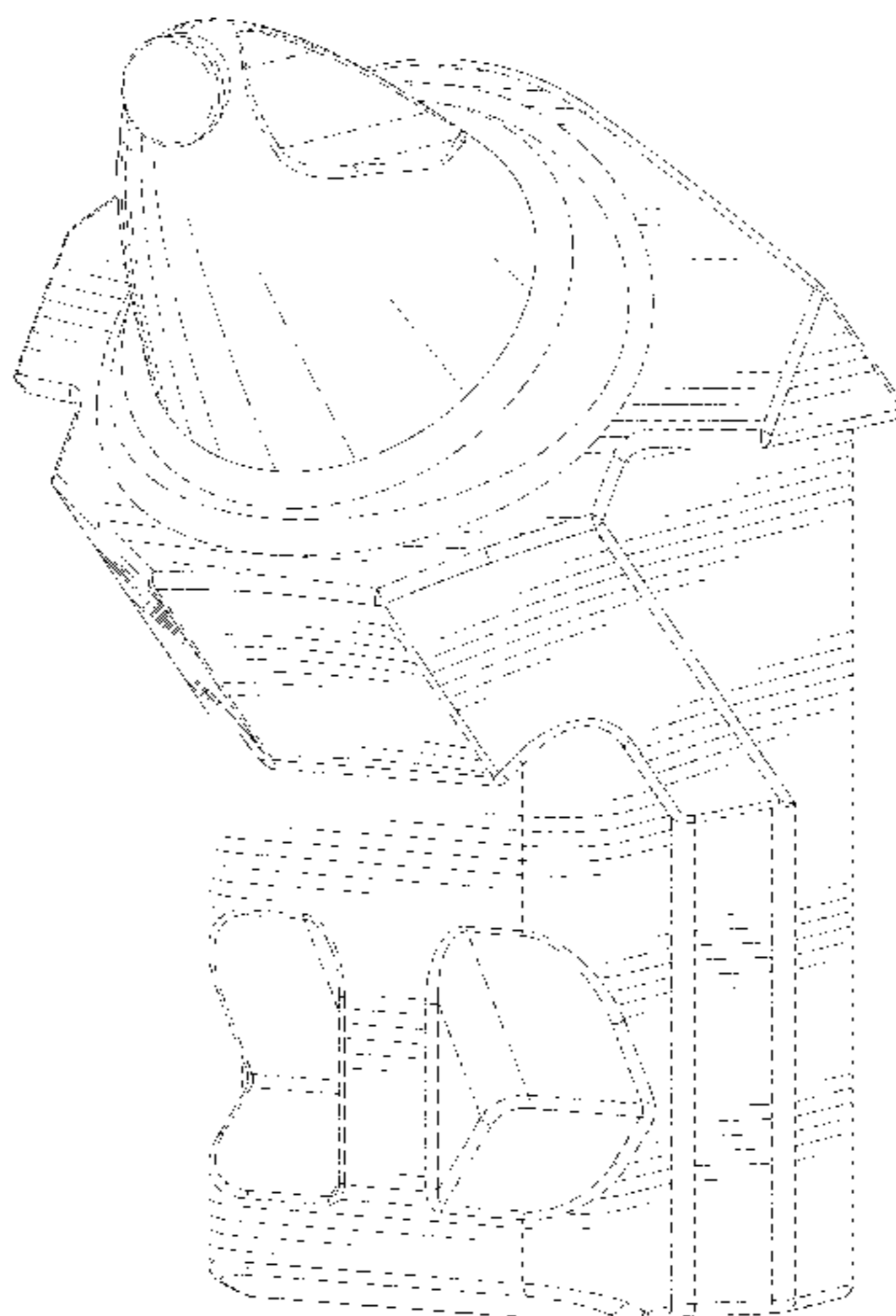
5,690,393 A * 11/1997 Massa E21C 35/197
299/107

5,881,830 A 3/1999 Cooley
6,089,123 A 7/2000 Chow et al.
6,213,931 B1 4/2001 Twardowski et al.
6,283,844 B1 9/2001 Tank
6,485,104 B1 * 11/2002 Keller E21C 35/187
175/424

6,779,850 B1 * 8/2004 Schibeci B28D 1/188
299/102

7,108,212 B2 9/2006 Latham
D558,802 S 1/2008 Nicholas
D616,003 S 5/2010 Ueda et al.
7,866,418 B2 1/2011 Bertagnolli et al.
7,998,573 B2 8/2011 Qian et al.
8,034,136 B2 10/2011 Sani
8,047,260 B2 11/2011 Uno et al.
8,079,785 B2 12/2011 Nicholas
8,236,074 B1 8/2012 Bertagnolli et al.
D666,640 S 9/2012 Cox et al.
8,672,415 B2 3/2014 Neilson et al.
8,727,044 B2 5/2014 Qian et al.
8,789,894 B2 7/2014 Claesson et al.
9,017,438 B1 4/2015 Miess et al.
9,027,675 B1 5/2015 Jones et al.
9,028,008 B1 * 5/2015 Bookhamer E21C 35/197
299/104

9,238,893 B2 1/2016 Latham et al.
9,272,392 B2 3/2016 Mukhopadhyay et al.



| | | | | |
|--------------|------|---------|---------------------|--------------------------|
| 9,272,814 | B2 | 3/2016 | Carver et al. | |
| 9,303,511 | B2 | 4/2016 | George et al. | |
| 9,382,794 | B2 | 7/2016 | Latham et al. | |
| 9,434,091 | B2 | 9/2016 | Burton et al. | |
| 9,593,577 | B2 * | 3/2017 | Lachmann | E21C 35/183 |
| 2002/0153175 | A1 * | 10/2002 | Ojanen | E21C 35/197 299/107 |
| 2005/0082898 | A1 * | 4/2005 | Keller | E21C 35/187 299/81.1 |
| 2006/0033379 | A1 * | 2/2006 | Frear | E21C 35/197 299/107 |
| 2006/0087169 | A1 | 4/2006 | Hesse et al. | |
| 2007/0090679 | A1 * | 4/2007 | Ojanen | E21C 35/183 299/106 |
| 2008/0030065 | A1 * | 2/2008 | Frear | E21C 35/197 299/104 |
| 2008/0035383 | A1 | 2/2008 | Hall et al. | |
| 2008/0036280 | A1 | 2/2008 | Hall et al. | |
| 2008/0202819 | A1 | 8/2008 | Fader | |
| 2008/0250724 | A1 | 10/2008 | Hall et al. | |
| 2008/0309146 | A1 | 12/2008 | Hall et al. | |
| 2009/0256413 | A1 | 10/2009 | Majagi | |
| 2010/0052406 | A1 * | 3/2010 | Beach | E21C 35/197 299/104 |
| 2010/0194176 | A1 | 8/2010 | Lucek et al. | |
| 2010/0244545 | A1 | 9/2010 | Hall et al. | |
| 2011/0132667 | A1 | 6/2011 | Lai Sang et al. | |
| 2011/0233987 | A1 * | 9/2011 | Maushart | E02F 9/2825 299/110 |
| 2012/0138370 | A1 | 6/2012 | Mukhopadhyay | |
| 2012/0175939 | A1 * | 7/2012 | O'Neill | B02C 13/2804 299/81.3 |
| 2013/0052481 | A1 | 2/2013 | Konyashin | |
| 2013/0092452 | A1 | 4/2013 | Mukhopadhyay et al. | |
| 2013/0322975 | A1 * | 12/2013 | Tan | B23P 11/00 409/80 |
| 2014/0110991 | A1 | 4/2014 | Sollami | |
| 2014/0175853 | A1 | 6/2014 | Warren | |
| 2014/0225418 | A1 | 8/2014 | Lachmann et al. | |
| 2014/0240634 | A1 | 8/2014 | Matsuzaki | |
| 2014/0339879 | A1 | 11/2014 | Burton et al. | |
| 2014/0339883 | A1 | 11/2014 | Burton et al. | |
| 2015/0176408 | A1 | 6/2015 | Latham | |
| 2015/0176409 | A1 | 6/2015 | Latham | |
| 2015/0240635 | A1 | 8/2015 | Lachmann et al. | |
| 2015/0314483 | A1 | 11/2015 | Miess et al. | |
| 2016/0102550 | A1 * | 4/2016 | Paros | E21C 35/197 299/113 |
| 2016/0273356 | A1 * | 9/2016 | Ojanen | E21C 35/197 |
| 2016/0332269 | A1 * | 11/2016 | Provins | E21C 25/10 |

FOREIGN PATENT DOCUMENTS

| | | |
|----|----------------|---------|
| AU | 2013101370 | 11/2013 |
| CN | 102108866 | 6/2011 |
| CN | 202073564 | 12/2011 |
| CN | 203081445 | 7/2013 |
| GB | 1481278 | 7/1977 |
| GB | 2170843 | 8/1986 |
| GB | 2177144 | 1/1987 |
| GB | 2193740 | 2/1988 |
| WO | WO 2010/083015 | 7/2010 |
| WO | WO 2012/130870 | 10/2012 |
| WO | 2016/071001 | 5/2016 |

OTHER PUBLICATIONS

Advisory Action received for U.S. Appl. No. 14/275,574 mailed Mar. 9, 2017.
 Final Office Action for U.S. Appl. No. 14/266,437 mailed Dec. 12, 2016.
 Final Office Action for U.S. Appl. No. 14/275,574 mailed Nov. 29, 2016.
 Supplemental Notice of Allowance for U.S. Appl. No. 14/273,360 mailed Aug. 10, 2016.
 U.S. Appl. No. 13/070,636, filed Mar. 24, 2011.

U.S. Appl. No. 13/765,027, filed Feb. 12, 2013.
 U.S. Appl. No. 13/795,027, filed Mar. 12, 2013.
 U.S. Appl. No. 14/273,360, filed Mar. 7, 2016.
 U.S. Appl. No. 61/824,022, filed May 16, 2013.
 U.S. Appl. No. 12/961,787, filed Dec. 7, 2010, Mukhopadhyay et al.
 U.S. Appl. No. 13/027,954, filed Feb. 15, 2011, Miess et al.
 U.S. Appl. No. 13/070,636, filed Mar. 24, 2011, Qian et al.
 U.S. Appl. No. 13/100,388, filed May 4, 2011, Jones et al.
 U.S. Appl. No. 13/275,372, filed Oct. 18, 2011, Mukhopadhyay et al.
 U.S. Appl. No. 13/648,913, filed Oct. 10, 2012, Mukhopadhyay et al.
 U.S. Appl. No. 13/765,027, filed Feb. 12, 2013, Carver, et al.
 U.S. Appl. No. 61/824,022, filed May 16, 2013, Burton et al.
 U.S. Appl. No. 61/824,007, filed May 16, 2013, Burton et al.
 U.S. Appl. No. 62/030,525, filed Jul. 29, 2014, Myers et al.
 U.S. Appl. No. 14/811,699, filed Jul. 28, 2015, Myers et al.
 U.S. Appl. No. 62/232,732, filed Sep. 25, 2015, Weaver et al.
 U.S. Appl. No. 29/540,597, filed Sep. 25, 2015, Weaver.
 International Search Report and Written Opinion from International Application No. PCT/US2014/037708 mailed Oct. 30, 2014.
 International Search Report and Written Opinion from International Application No. PCT/US2014/037381 mailed Oct. 30, 2014.
 International Search Report and Written Opinion from International Application No. PCT/US2015/027830 mailed Jul. 14, 2015.
 Roepke et al.; "Drag Bit Cutting Characteristics Using Sintered Diamond Inserts" Report of Investigations 8802; Bureau of Mines Report of Investigations/ 1983; (1983) 35 pages.
 U.S. Appl. No. 14/273,360, filed Jun. 12, 2015, Office Action.
 U.S. Appl. No. 14/273,360, filed Oct. 22, 2015, Office Action.
 U.S. Appl. No. 14/273,360, filed Mar. 7, 2016, Office Action.
 U.S. Appl. No. 14/273,360, filed May 18, 2016, Notice of Allowance.
 U.S. Appl. No. 14/273,360, filed Aug. 17, 2016, Issue Notification.
 U.S. Appl. No. 14/275,574, filed Apr. 6, 2016, Office Action.
 U.S. Appl. No. 14/266,437, filed Jun. 9, 2016, Office Action.
 Advisory Action received for U.S. Appl. No. 14/266,437 mailed Mar. 24, 2017.
 Non-Final Office for U.S. Appl. No. 29/555,279 mailed Mar. 24, 2017.
 Non-Final Office Action for U.S. Appl. No. 14/266,437 dated Apr. 21, 2017.
 Non-Final Office Action received for U.S. Appl. No. 14/275,574 dated Apr. 7, 2017.
 Notice of Allowance received for U.S. Appl. No. 29/555,269 dated Apr. 6, 2017.
 Notice of Allowance received for U.S. Appl. No. 29/555,281 dated Apr. 12, 2017.
 Supplemental Notice of Allowance for U.S. Appl. No. 29/555,269 dated Apr. 28, 2017.
 U.S. Appl. No. 29/540,597, dated May 8, 2017, Notice of Allowance.
 U.S. Appl. No. 29/540,597, dated Jun. 1, 2017, Notice of Allowance.
 U.S. Appl. No. 29/555,281, dated Jun. 12, 2017, Notice of Allowance.

* cited by examiner

Primary Examiner — Patricia Palasik
 (74) Attorney, Agent, or Firm — Dorsey & Whitney LLP

(57) CLAIM

The ornamental design for a cutting tool assembly, as shown and described.

DESCRIPTION

FIG. 1 is a front, left perspective view of a cutting tool assembly according to a first embodiment;

FIG. 2 is a back, right perspective view of the cutting tool assembly shown in FIG. 1;

FIG. 3 is a right side elevational view of the cutting tool assembly shown in FIG. 1; the left side elevational view being a mirror image;

FIG. 4 is a front elevational view of the cutting tool assembly shown in FIG. 1;

FIG. 5 is a back elevational view of the cutting tool assembly shown in FIG. 1;

FIG. 6 is a top plan view of the cutting tool assembly shown in FIG. 1;

FIG. 7 is a bottom plan view of the cutting tool assembly shown in FIG. 1;

FIG. 8 is a front, left perspective view of a cutting tool assembly according to a second embodiment;

FIG. 9 is a back, right perspective view of the cutting tool assembly shown in FIG. 8;

FIG. 10 is a right elevational side view of the cutting tool assembly shown in FIG. 8; the left side elevational view being a mirror image;

FIG. 11 is a front elevational view of the cutting tool assembly shown in FIG. 8;

FIG. 12 is a back elevational view of the cutting tool assembly shown in FIG. 8;

FIG. 13 is a top plan view of the cutting tool assembly shown in FIG. 8;

FIG. 14 is a bottom plan view of the cutting tool assembly shown in FIG. 8.

FIG. 15 is an enlarged portion of the top plan view of the cutting tool assembly shown in FIG. 13 taken from region 15 thereof.

FIG. 16 is a back, right perspective view of the cutting tool assembly shown in FIGS. 1-7 secured in a base body for illustrating an environment in which the cutting tool assembly shown in FIGS. 1-7 can be used;

FIG. 17 is a front, left, perspective view of the cutting tool assembly secured of FIG. 16 secured in the base body;

FIG. 18 is a perspective view of the cutting tool assembly shown in FIGS. 1-7 secured to a drum body for illustrating an environment in which the cutting tool assembly shown in FIGS. 1-7 can be used; and,

FIG. 19 is an enlarged portion of the cutting tool assembly and its environment shown in FIG. 18, taken from region 19 thereof.

The broken lines in the drawings depict unclaimed environmental subject matter. sp

1 Claim, 9 Drawing Sheets

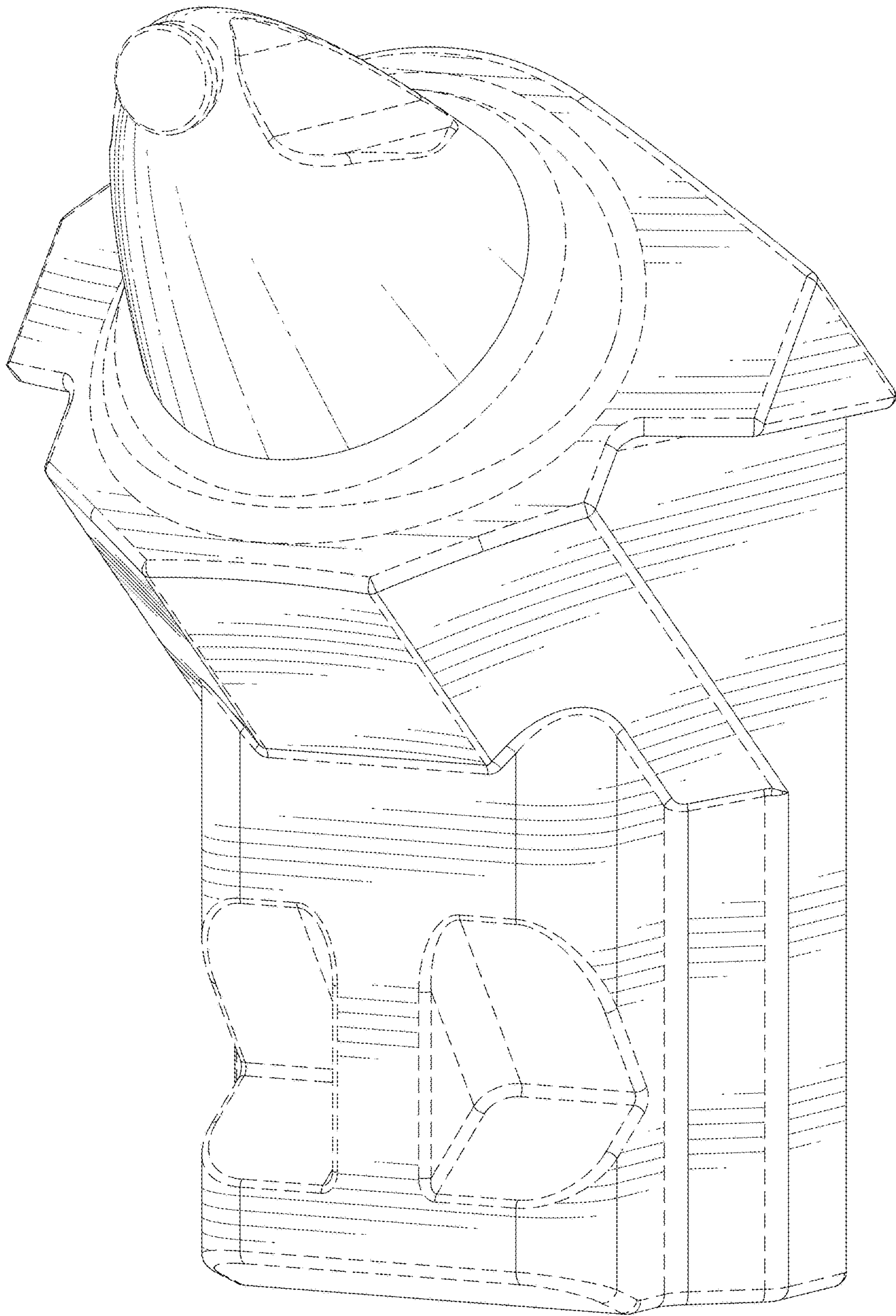


Fig. 1

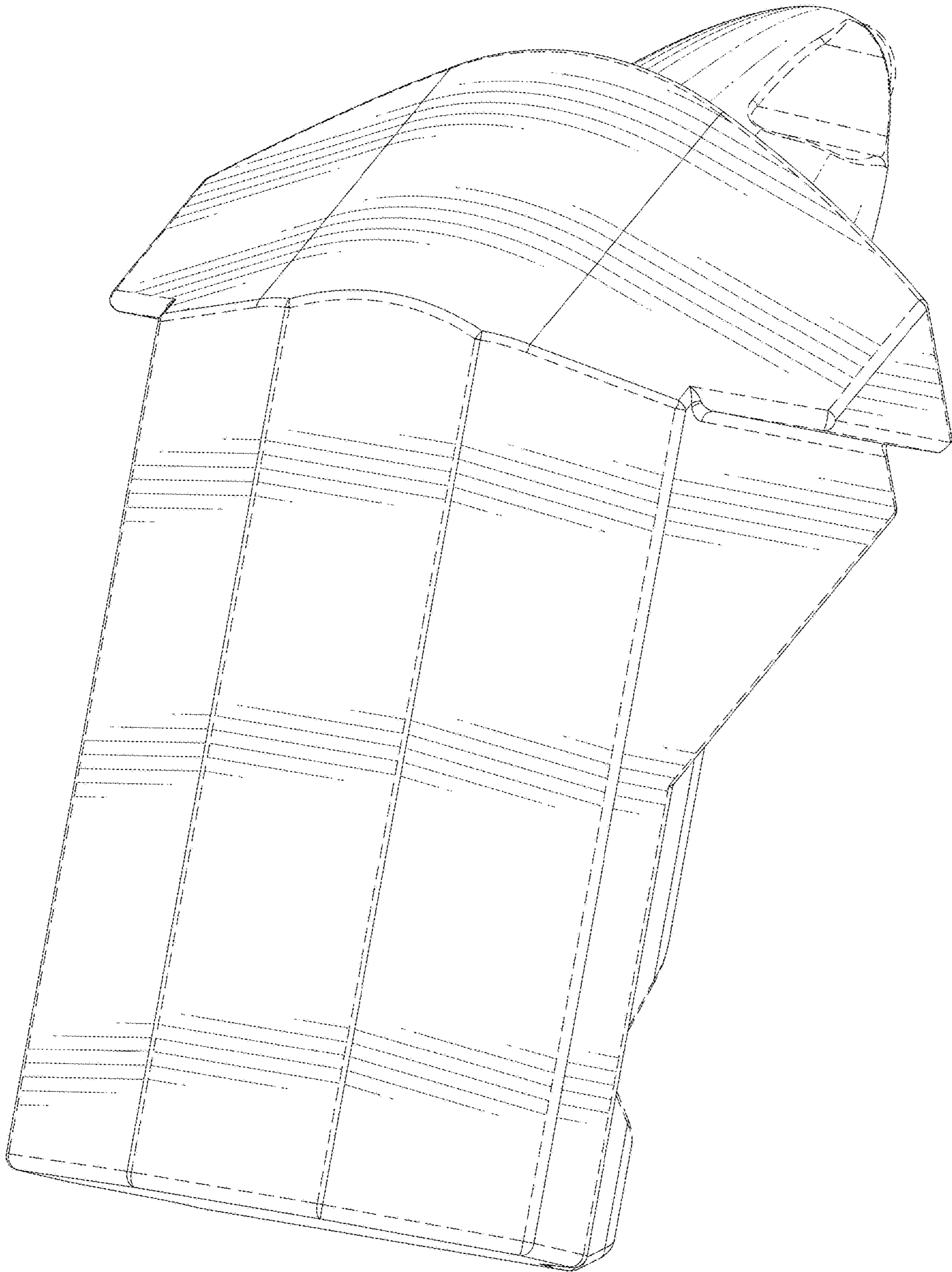


Fig. 2

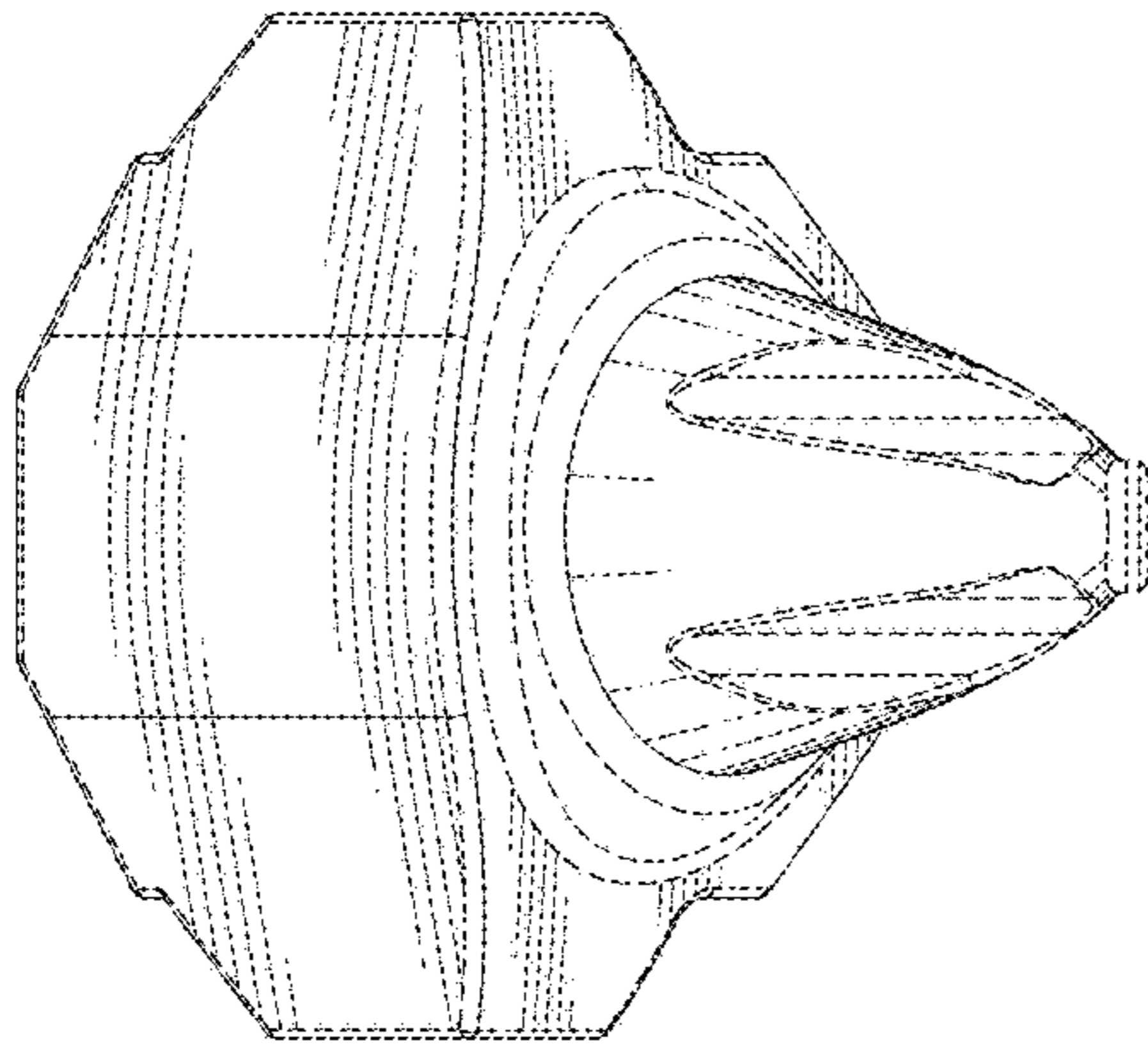


Fig. 6

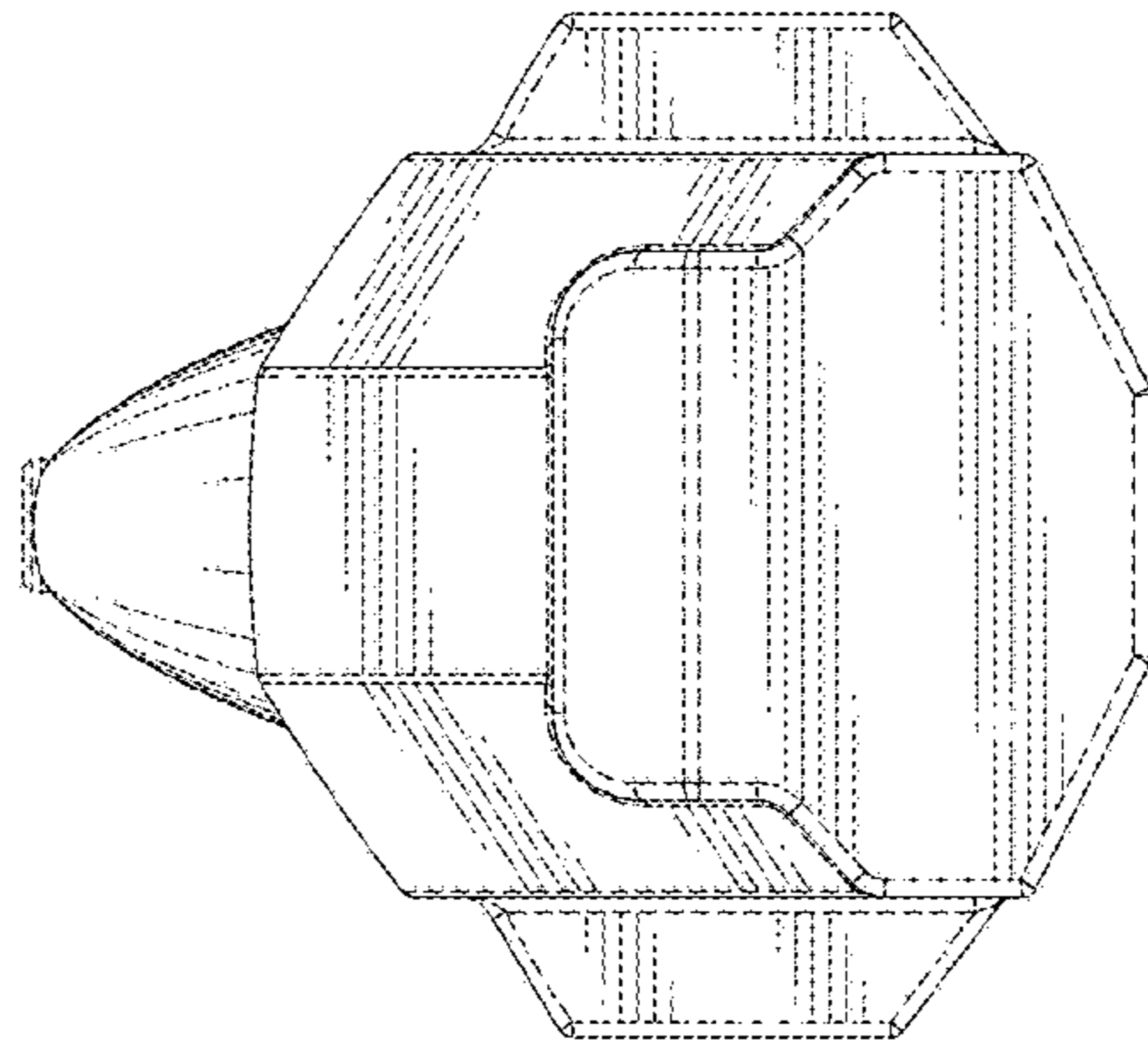


Fig. 7

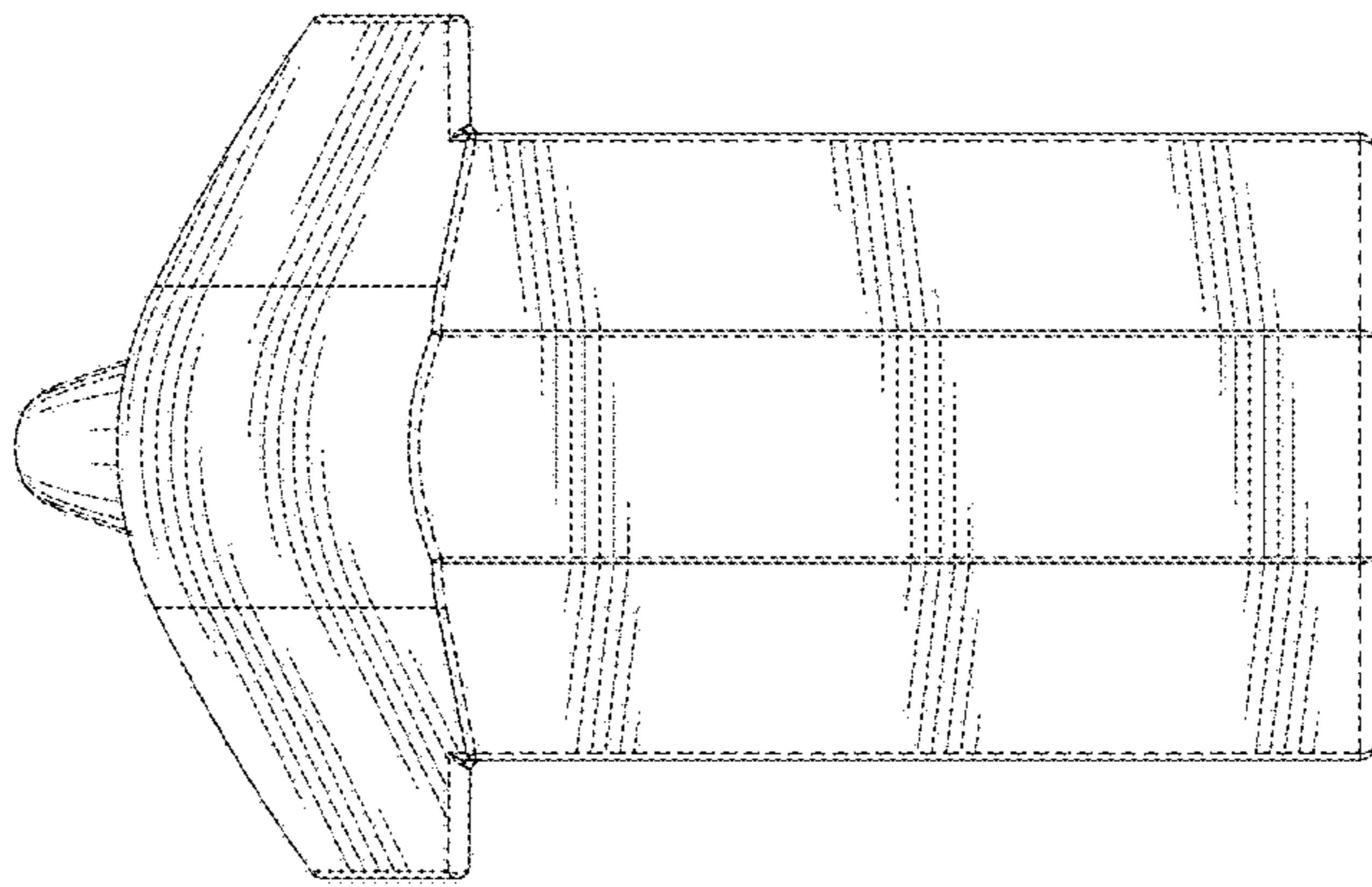


Fig. 5

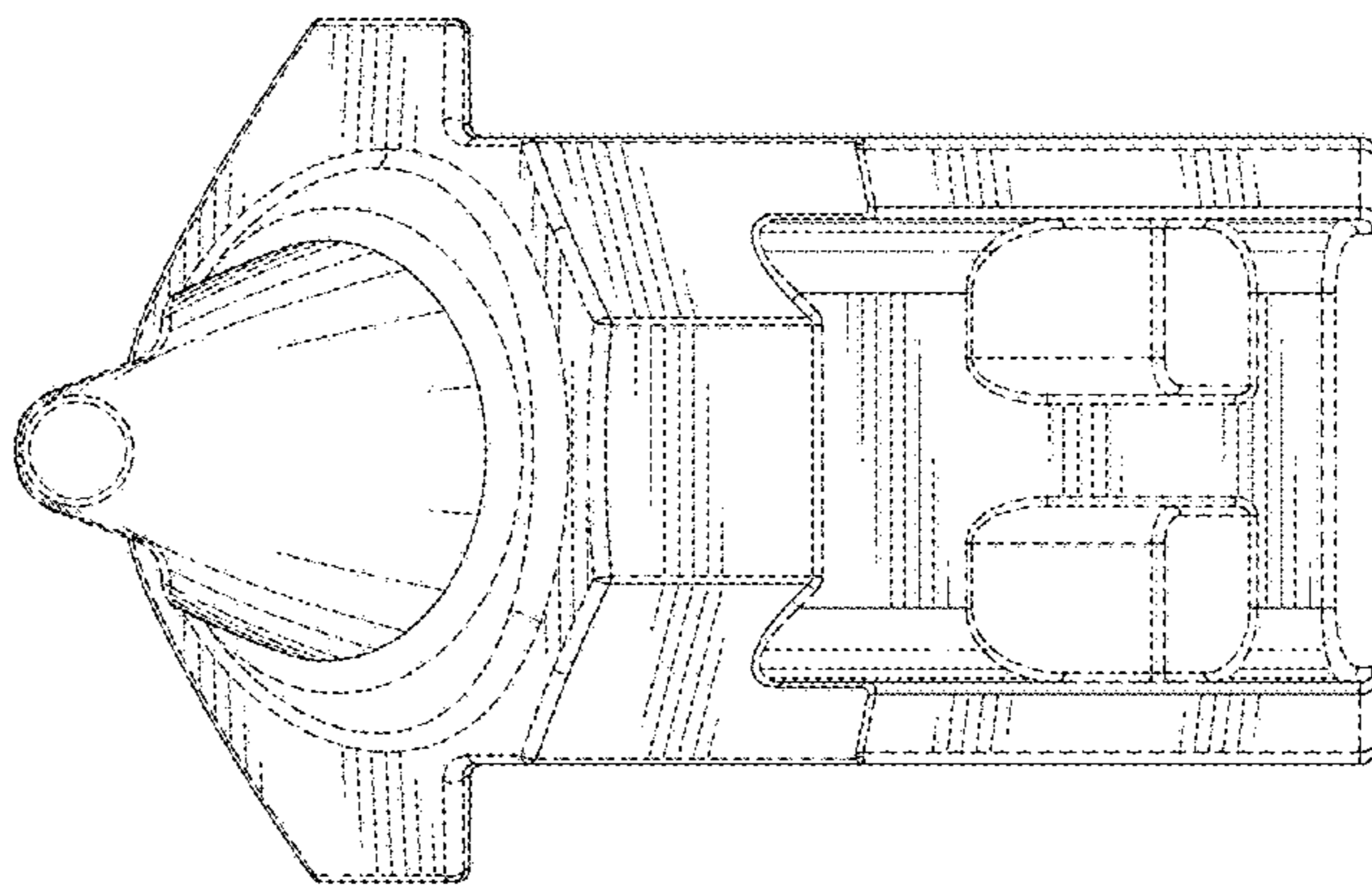


Fig. 4

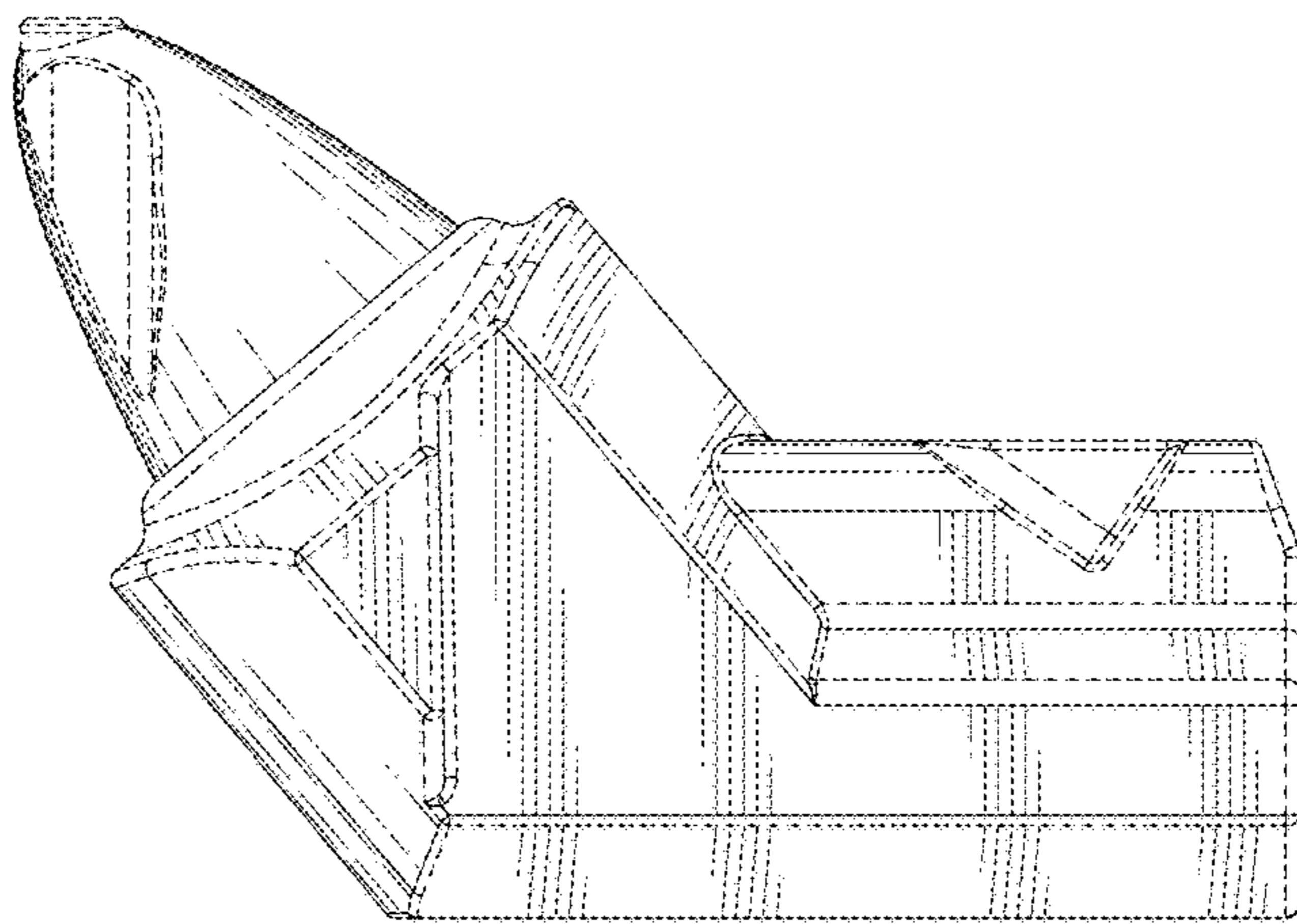


Fig. 3

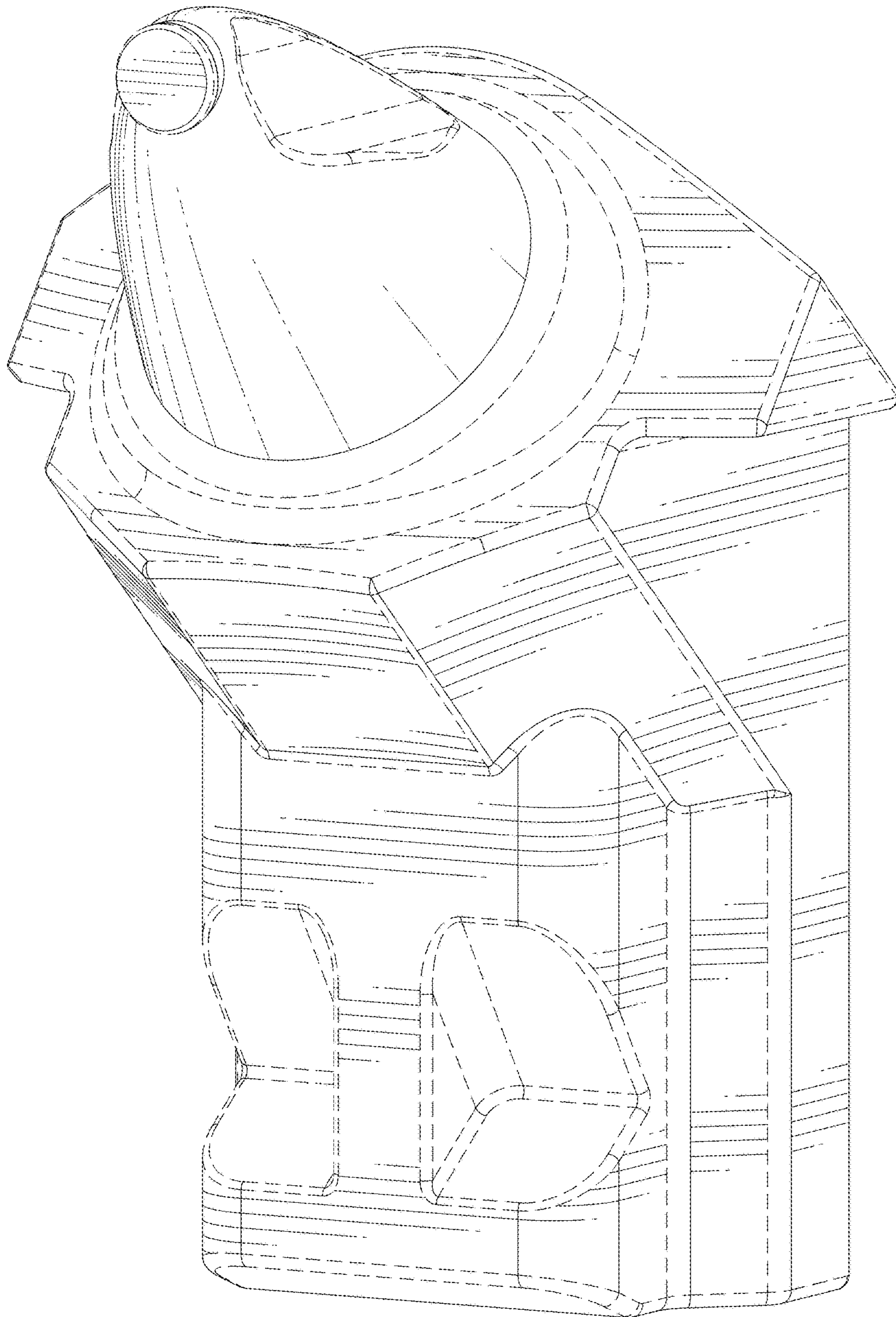


Fig. 8

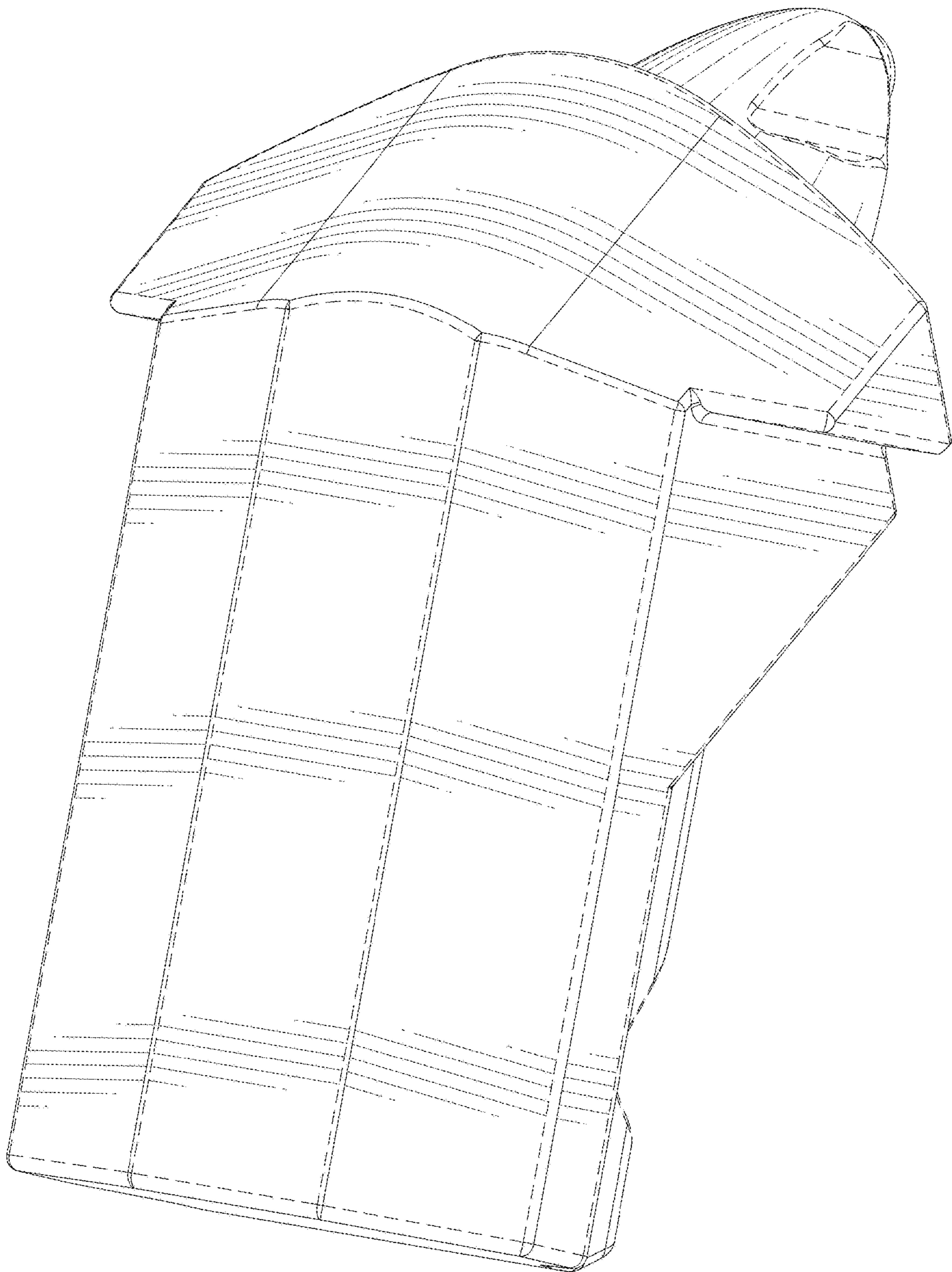
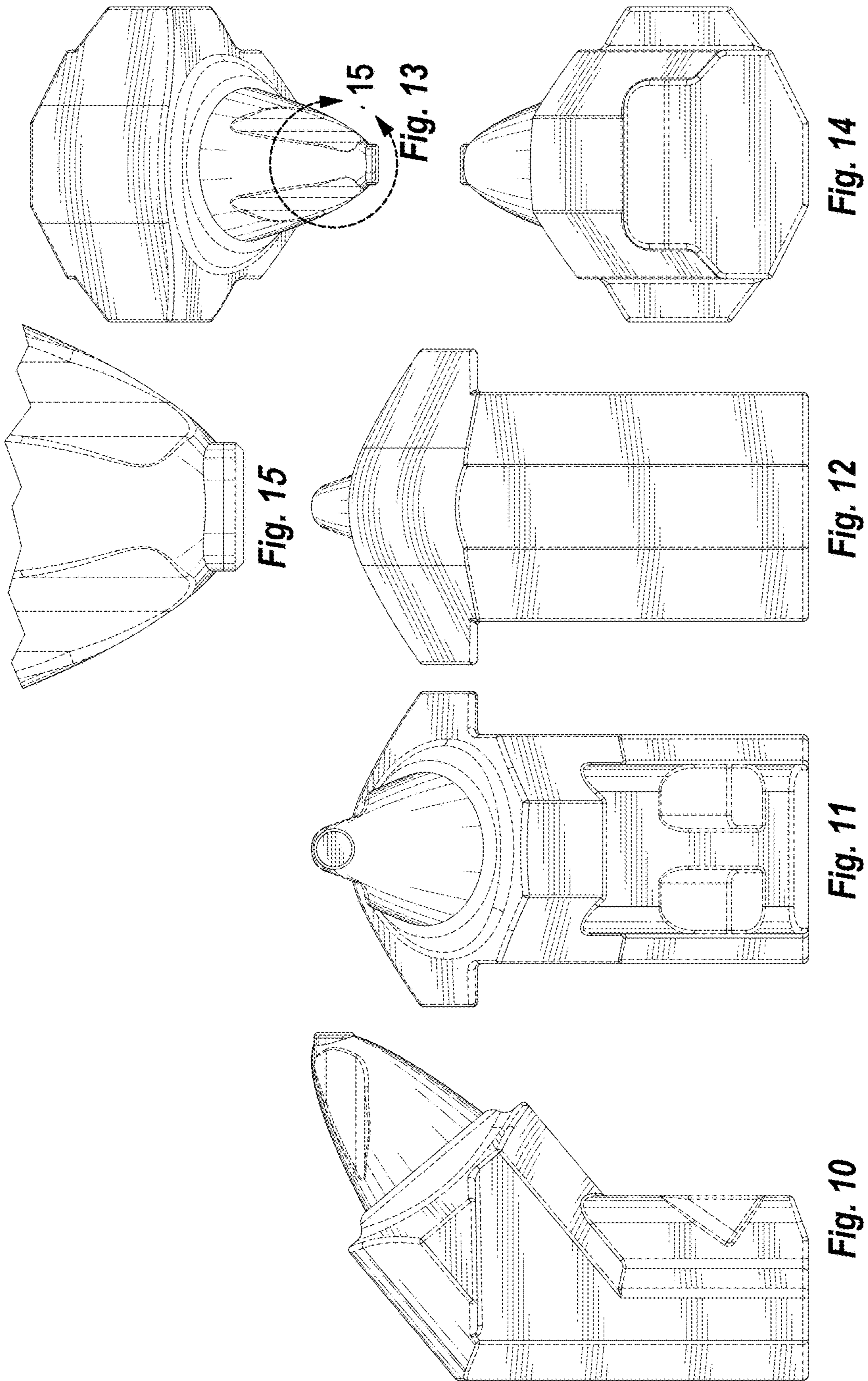


Fig. 9



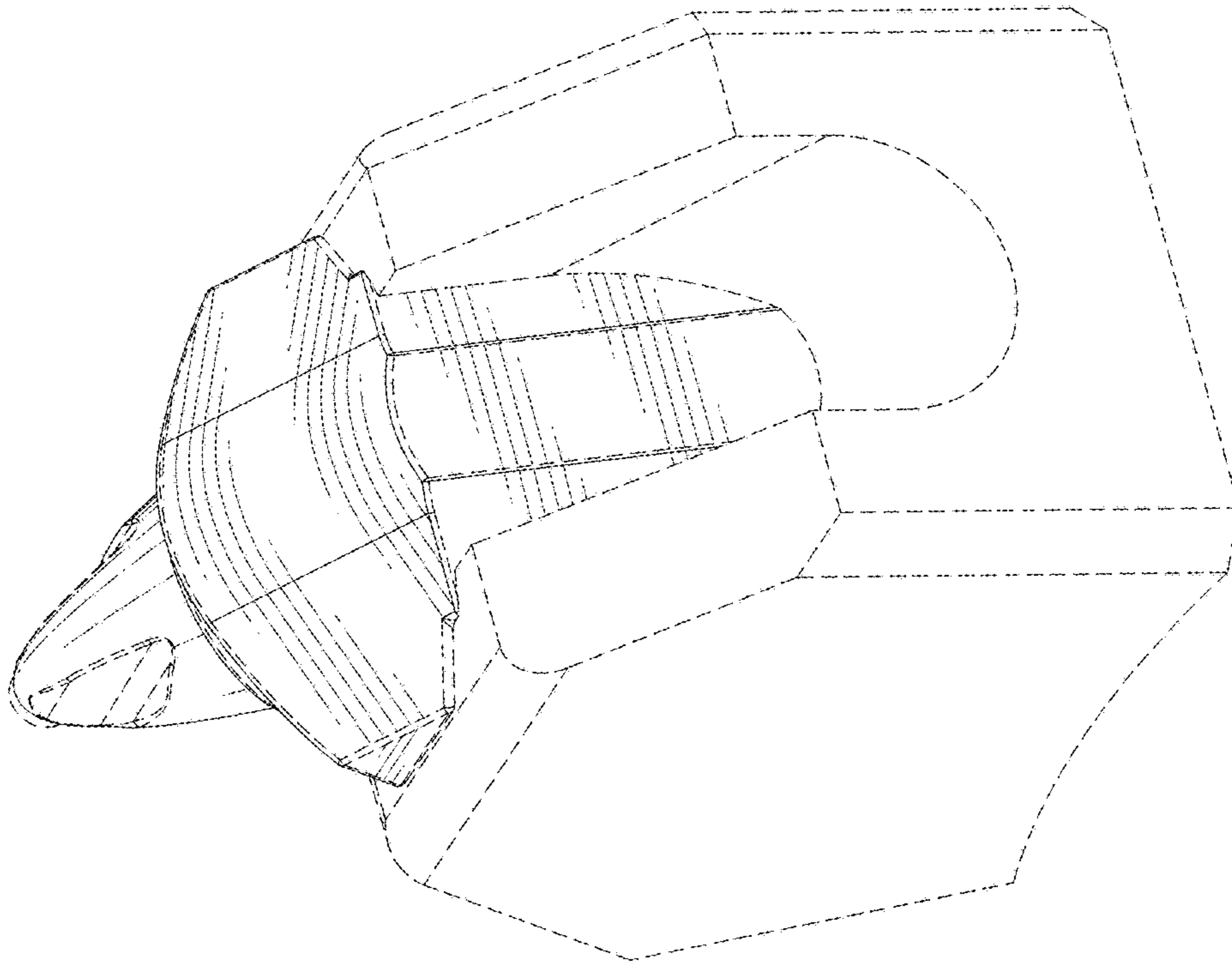


Fig. 16

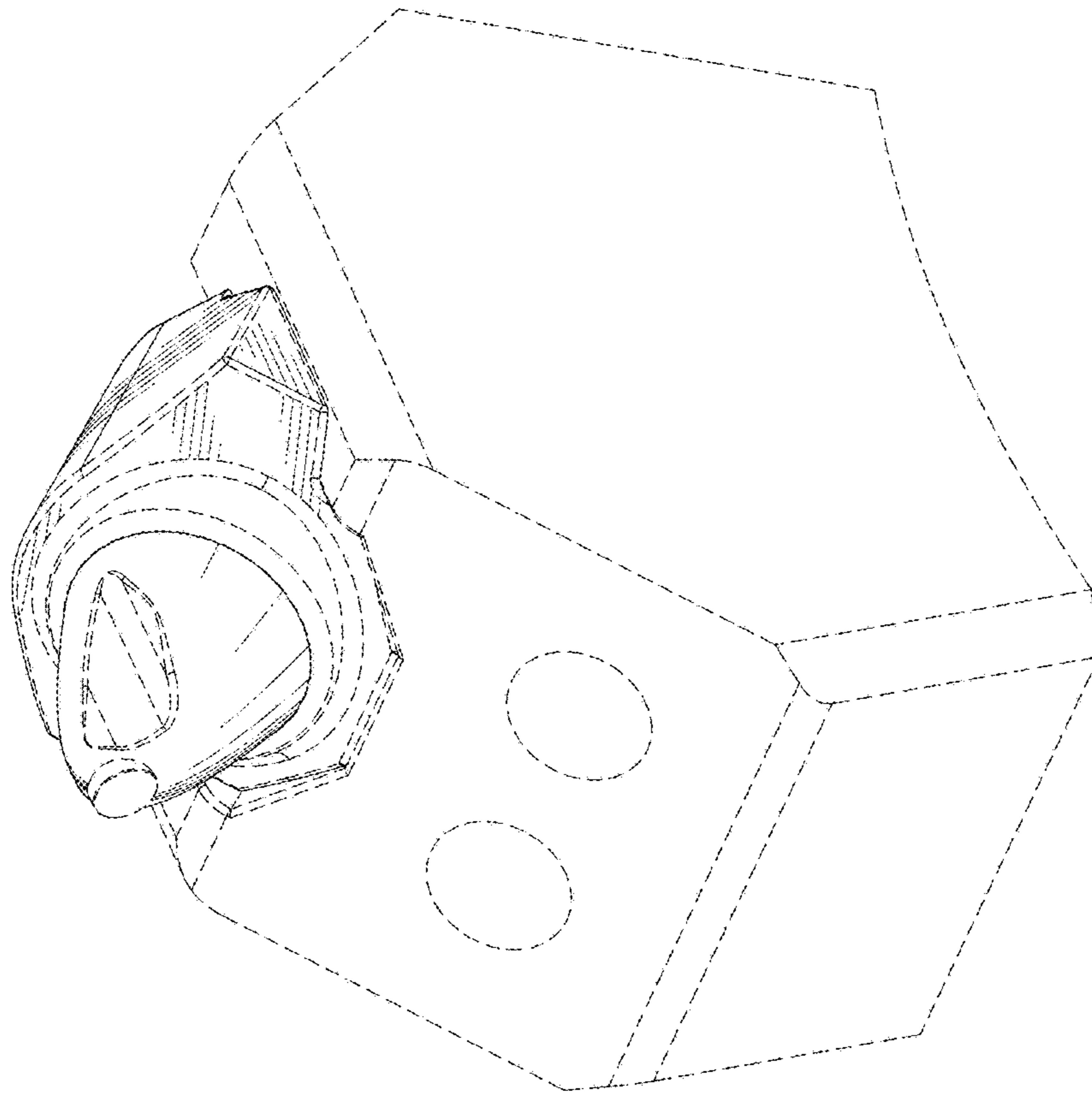


Fig. 17

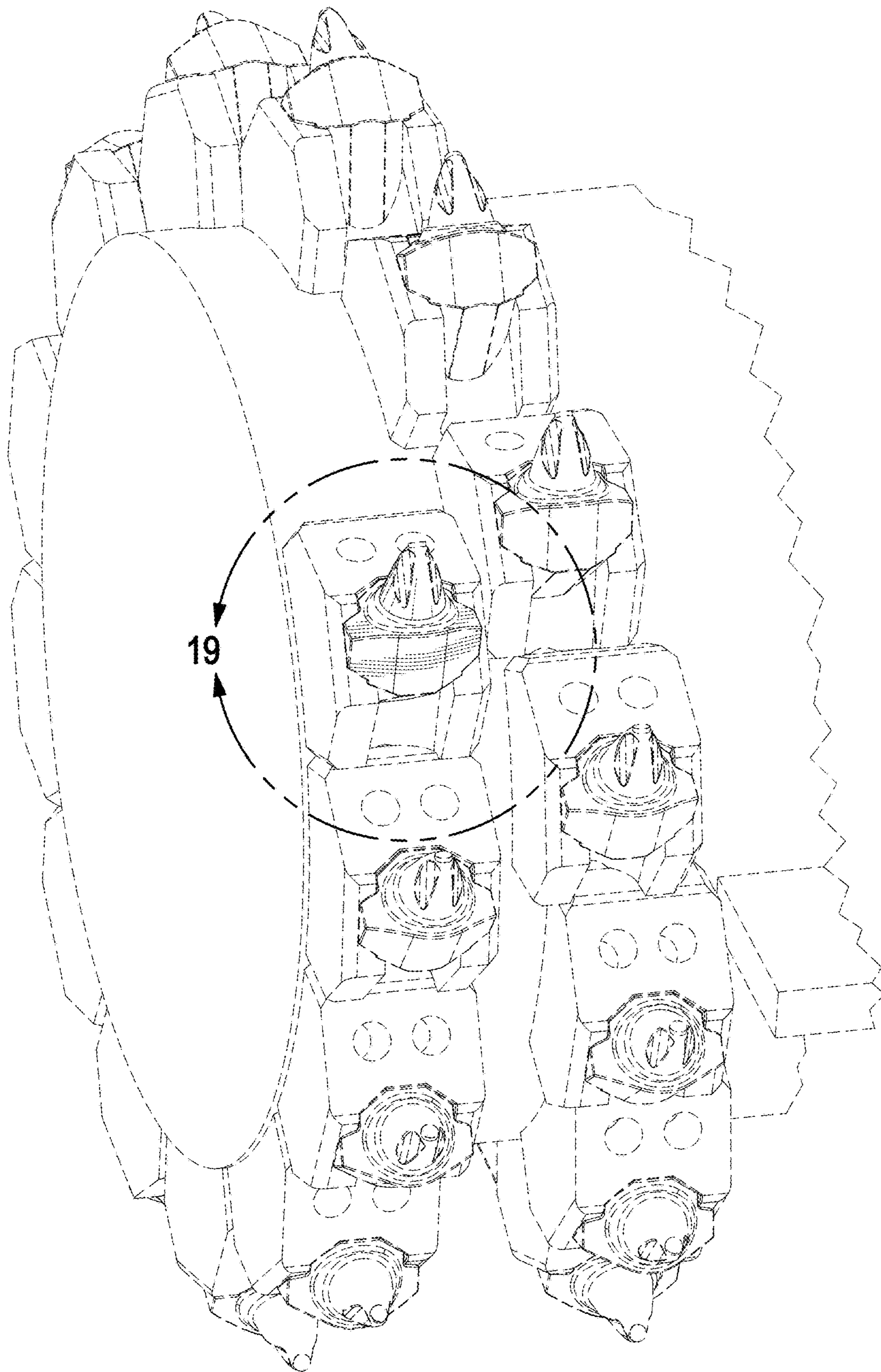


Fig. 18

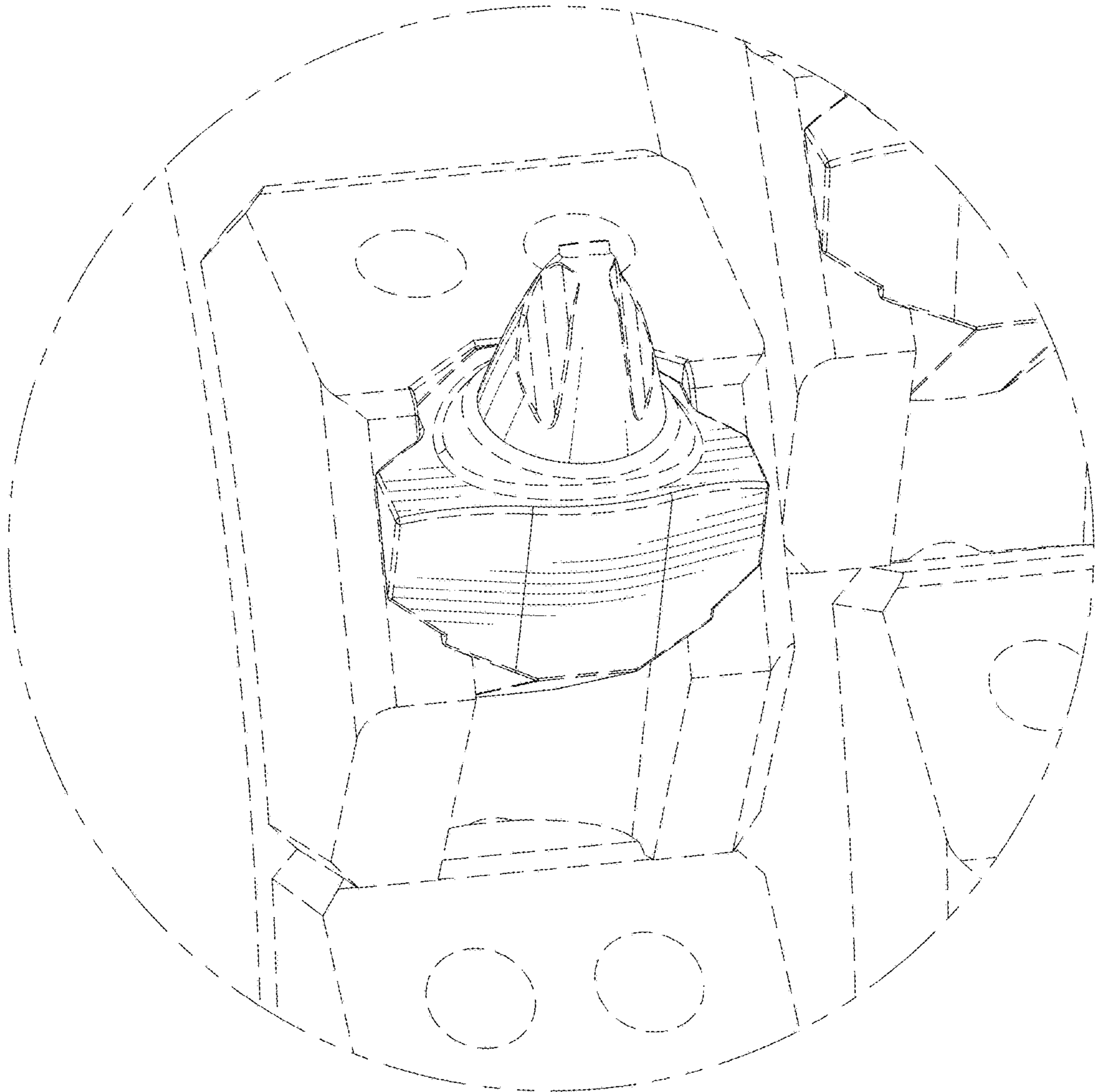


Fig. 19