



US00D887988S

(12) **United States Design Patent** (10) **Patent No.:** **US D887,988 S**
Sakaizawa et al. (45) **Date of Patent:** **** Jun. 23, 2020**

(54) **ELECTRICAL CONNECTOR**
 (71) Applicant: **HIROSE ELECTRIC CO., LTD.**,
Tokyo (JP)
 (72) Inventors: **Tadashi Sakaizawa**, Tokyo (JP);
Kenichi Naganuma, Tokyo (JP)
 (73) Assignee: **HIROSE ELECTRIC CO., LTD.**,
Tokyo (JP)
 (**) Term: **15 Years**
 (21) Appl. No.: **29/674,259**
 (22) Filed: **Dec. 20, 2018**

Related U.S. Application Data

(62) Division of application No. 29/566,624, filed on Jun. 1, 2016, now Pat. No. Des. 852,142.

Foreign Application Priority Data

Dec. 3, 2015 (JP) 2015-027049
 Dec. 3, 2015 (JP) 2015-027050
 Dec. 3, 2015 (JP) 2015-027051
 (51) **LOC (12) Cl.** **13-03**
 (52) **U.S. Cl.**
USPC **D13/147**
 (58) **Field of Classification Search**
USPC D13/101, 103, 110, 112, 117, 118, 120,
D13/123, 129-133, 145-147, 149, 151,
D13/153-155, 173, 183, 199
CPC H01R 12/00; H01R 12/70; H01R 12/707;
H01R 12/72; H01R 13/62; H01R 13/66;
H01R 13/627; H01R 13/639; H01R
13/648; H01R 13/658; H01R 24/00;
H01R 24/06; H01R 25/00; H01R
13/6581; H01R 13/6582

See application file for complete search history.

(56) **References Cited**
 U.S. PATENT DOCUMENTS
 D378,209 S * 2/1997 Morikawa D13/133
 D410,434 S 6/1999 Wu
 (Continued)

FOREIGN PATENT DOCUMENTS
 JP 2017-152307 8/2017

OTHER PUBLICATIONS
 U.S. Office Action dated Feb. 8, 2019, U.S. Appl. No. 29/661,457,
15 pages.

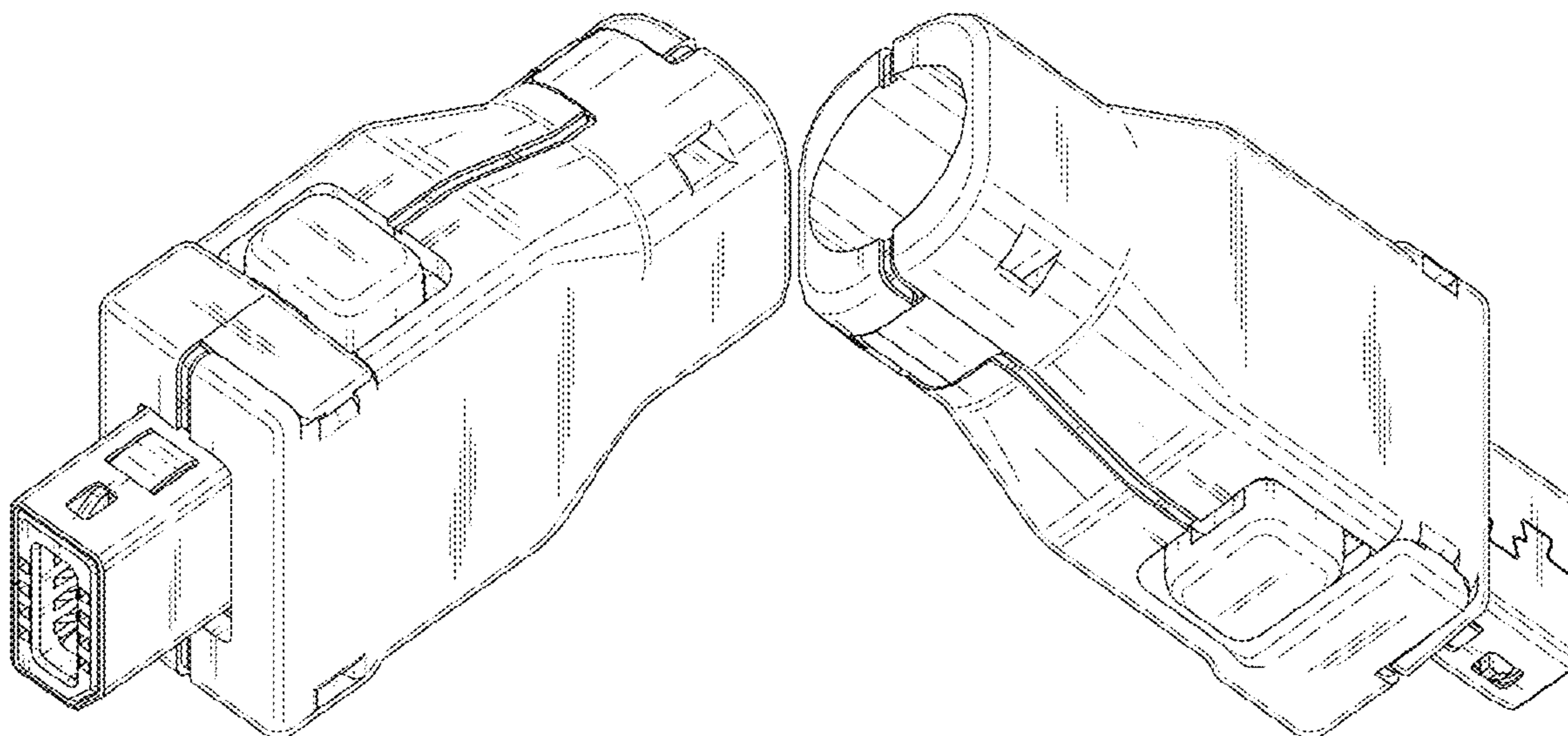
Primary Examiner — Angela J Lee
Assistant Examiner — Shawn T Gingrich
 (74) *Attorney, Agent, or Firm* — Rankin, Hill & Clark
LLP

(57) **CLAIM**
 The ornamental design for an electrical connector, as shown
and described.

DESCRIPTION

FIG. 1 is a perspective view of the front, top and right side of the electrical connector according to an embodiment, showing our new design;
 FIG. 2 is a perspective view of the front, bottom and right side thereof;
 FIG. 3 is a perspective view of the rear, top and left side thereof;
 FIG. 4 is a perspective view of the rear, bottom and left side thereof;
 FIG. 5 is a front view thereof;
 FIG. 6 is a rear view thereof;
 FIG. 7 is a left side view thereof;
 FIG. 8 is a right side view thereof;
 FIG. 9 is a top plan view thereof; and,
 FIG. 10 is a bottom view thereof.
 The broken lines in the drawings illustrate portions of the electrical connector that form no part of the claimed design.

1 Claim, 8 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D427,150 S 6/2000 Kuo
 D430,540 S 9/2000 Nishio et al.
 D433,667 S 11/2000 Li et al.
 D469,741 S 2/2003 Shimojo
 D486,794 S * 2/2004 Okamoto D13/147
 D540,746 S 4/2007 Watanabe et al.
 D554,065 S * 10/2007 Ho D13/147
 D568,821 S * 5/2008 Ashida D13/133
 D569,345 S 5/2008 Ikegami
 D606,944 S 12/2009 Mehnert et al.
 D622,216 S 8/2010 Rizzo
 D624,021 S 9/2010 Wang et al.
 D636,341 S * 4/2011 Sasaki D13/147
 D636,730 S * 4/2011 Sasaki D13/147
 D638,361 S * 5/2011 Sasaki D13/147
 D649,118 S * 11/2011 Kawakami D13/147
 D680,959 S * 4/2013 Katayanagi D13/147
 D688,203 S 8/2013 Shimizu

D704,140 S * 5/2014 Little D13/147
 D704,664 S * 5/2014 Kawakami D13/147
 D706,721 S 6/2014 Naito et al.
 D708,579 S * 7/2014 Masumoto D13/147
 D732,476 S 6/2015 Ammann
 9,640,917 B1 5/2017 Li et al.
 D812,570 S * 3/2018 Sakaizawa D13/147
 D838,673 S 1/2019 Naganuma et al.
 D851,043 S * 6/2019 Sakaizawa D13/147
 D864,876 S * 10/2019 Sakaizawa D13/147
 10,454,220 B2 * 10/2019 Sakaizawa H01R 13/6273
 10,522,950 B2 * 12/2019 Sakaizawa H01R 13/639
 2009/0017693 A1 * 1/2009 Nagata H01R 12/724
 439/660
 2009/0023336 A1 * 1/2009 Kondo H01R 13/6474
 439/607.01
 2018/0358755 A1 12/2018 Sakaizawa
 2019/0013624 A1 1/2019 Sakaizawa et al.
 2019/0058288 A1 2/2019 Sakaizawa et al.
 2020/0044395 A1 * 2/2020 Naganuma H01R 13/658
 2020/0099171 A1 * 3/2020 Sakaizawa H01R 13/6473

* cited by examiner

Fig. 1

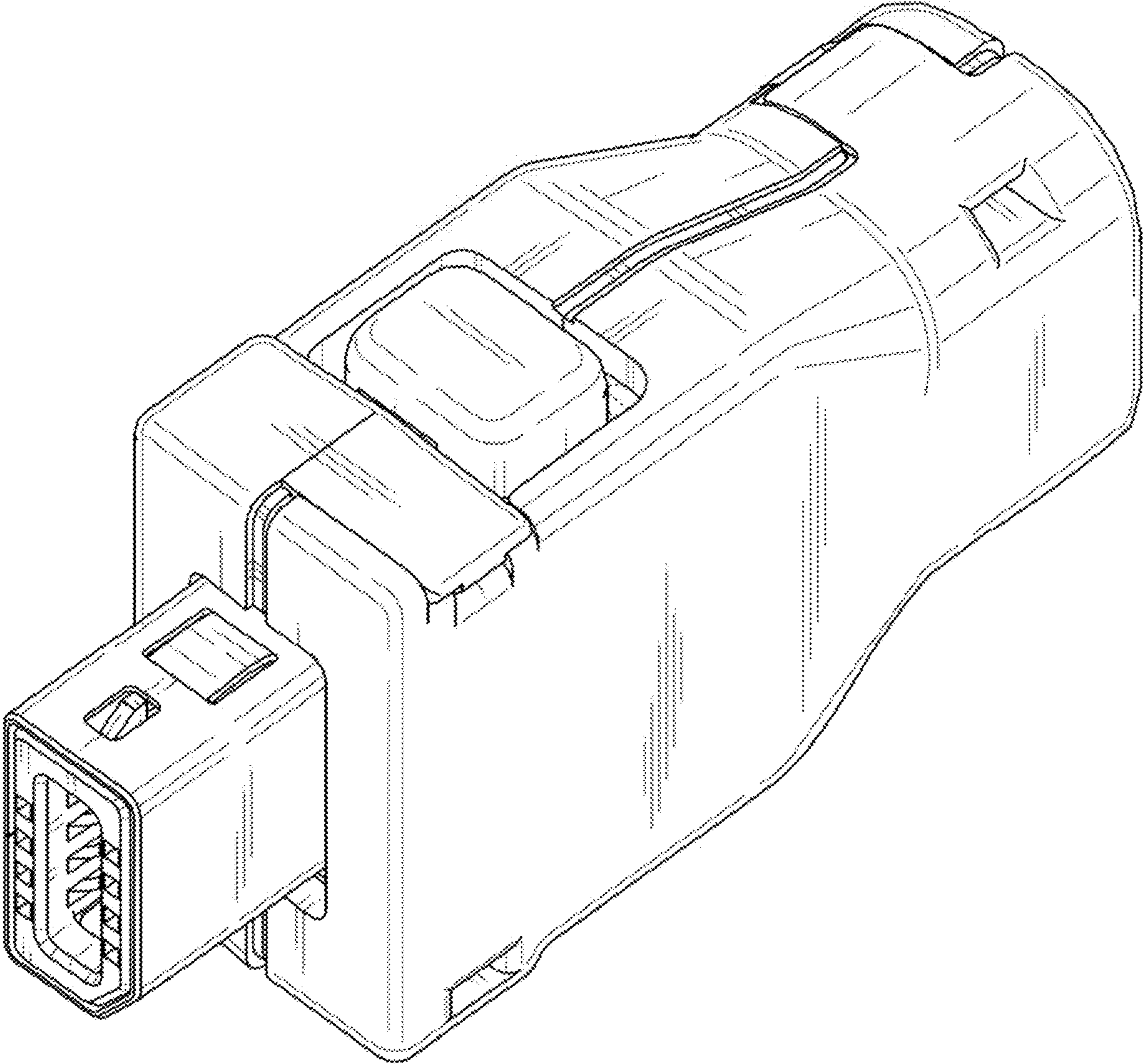


Fig. 2

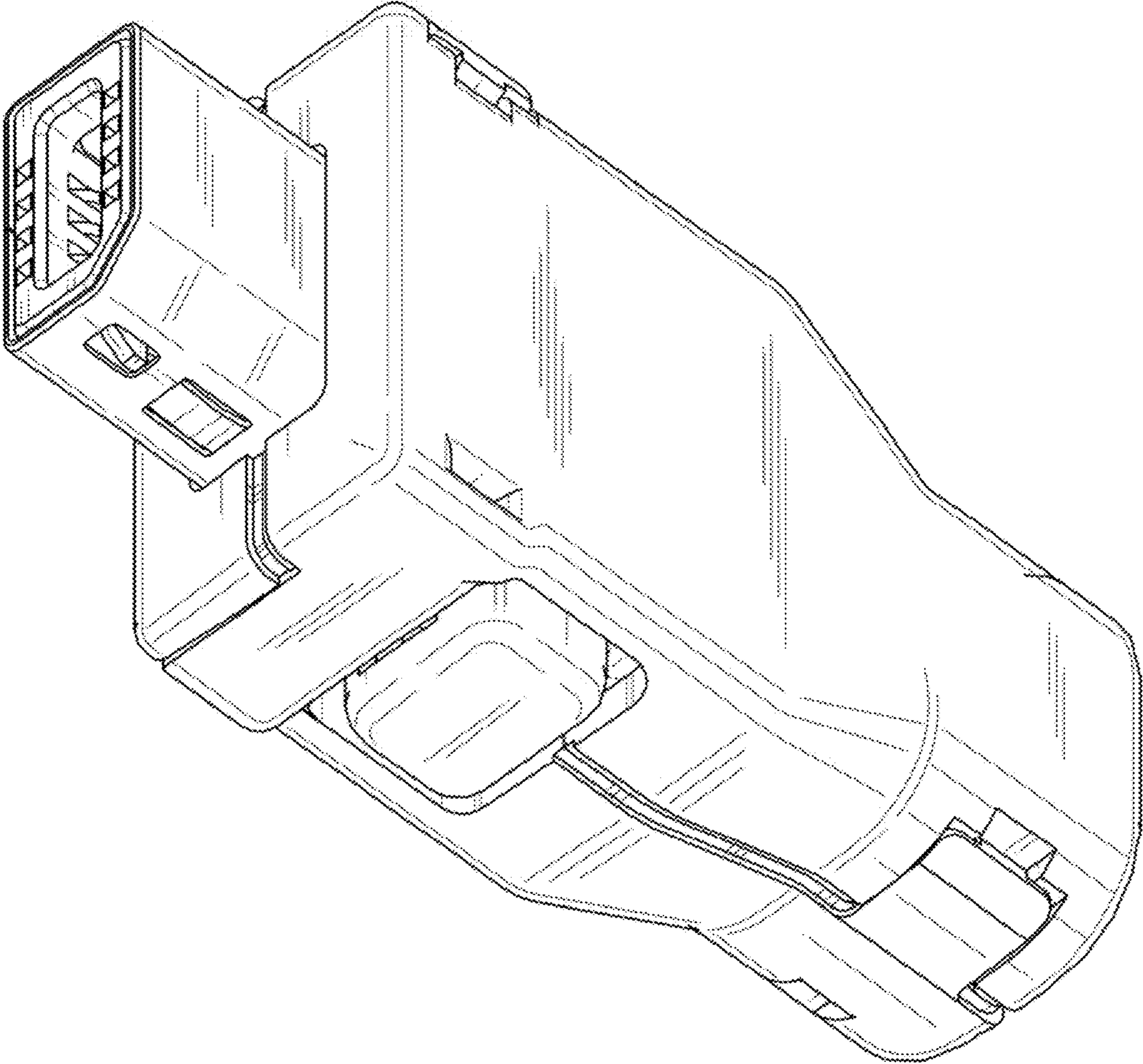


Fig. 3

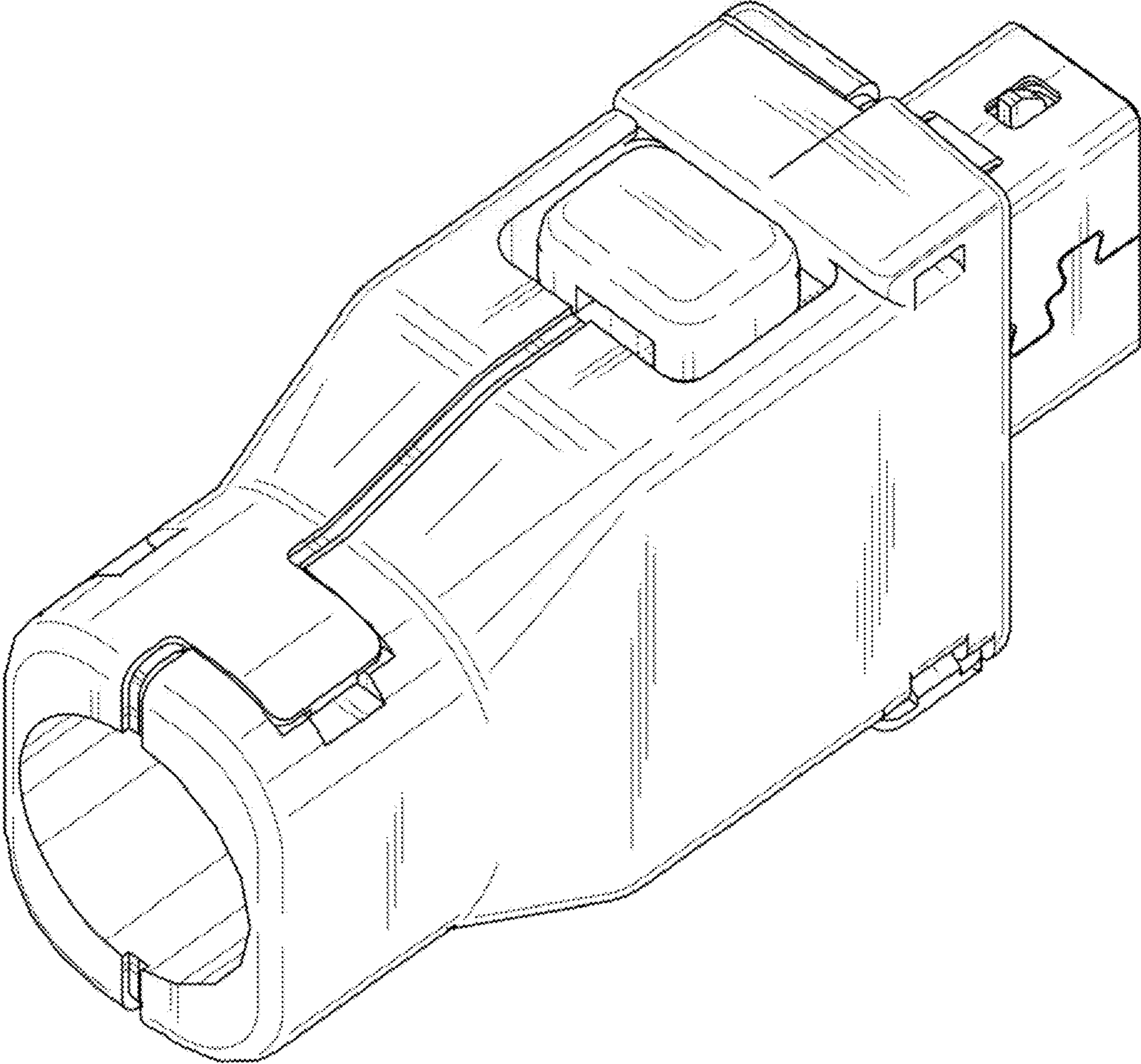


Fig. 4

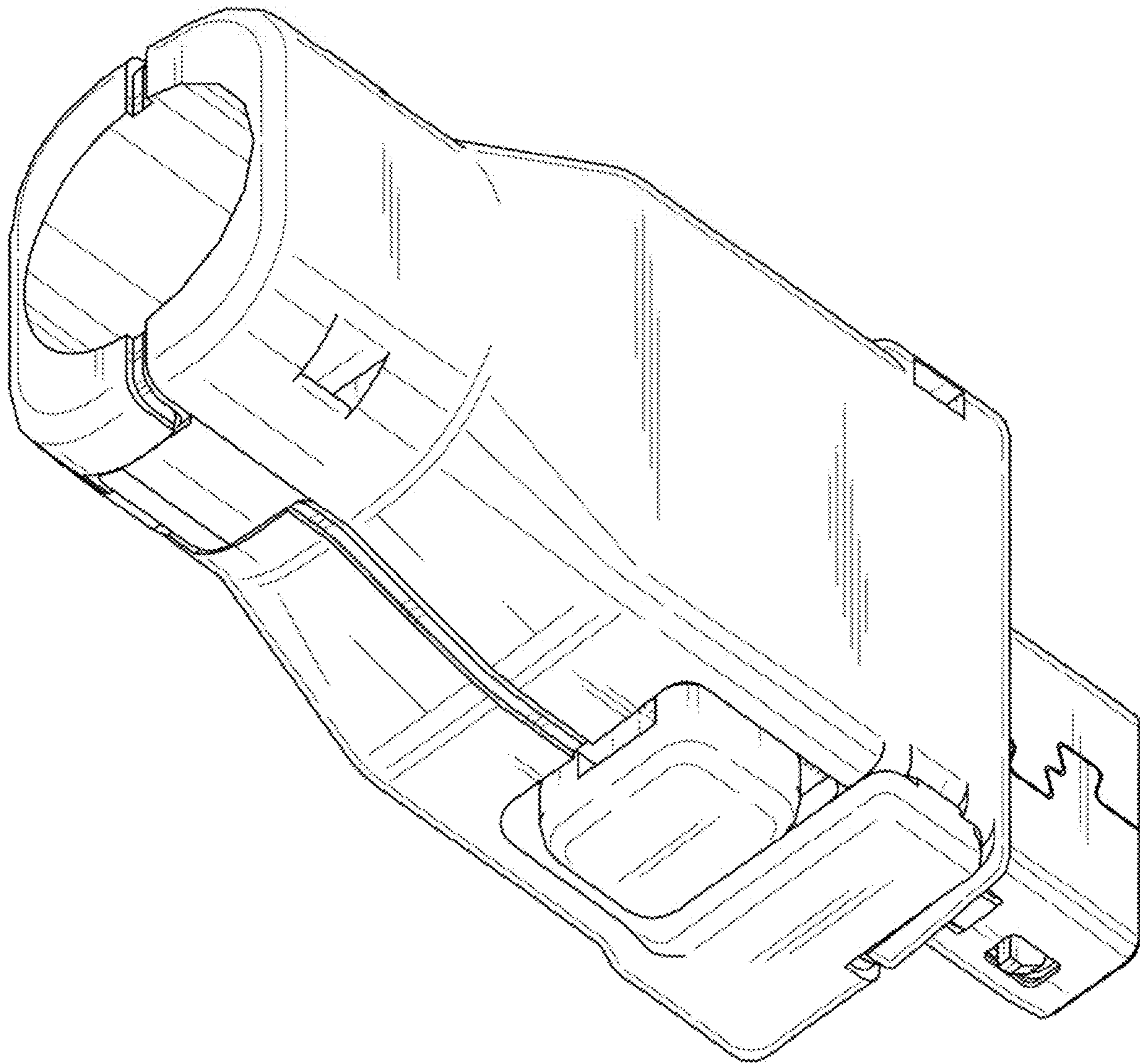


Fig. 5

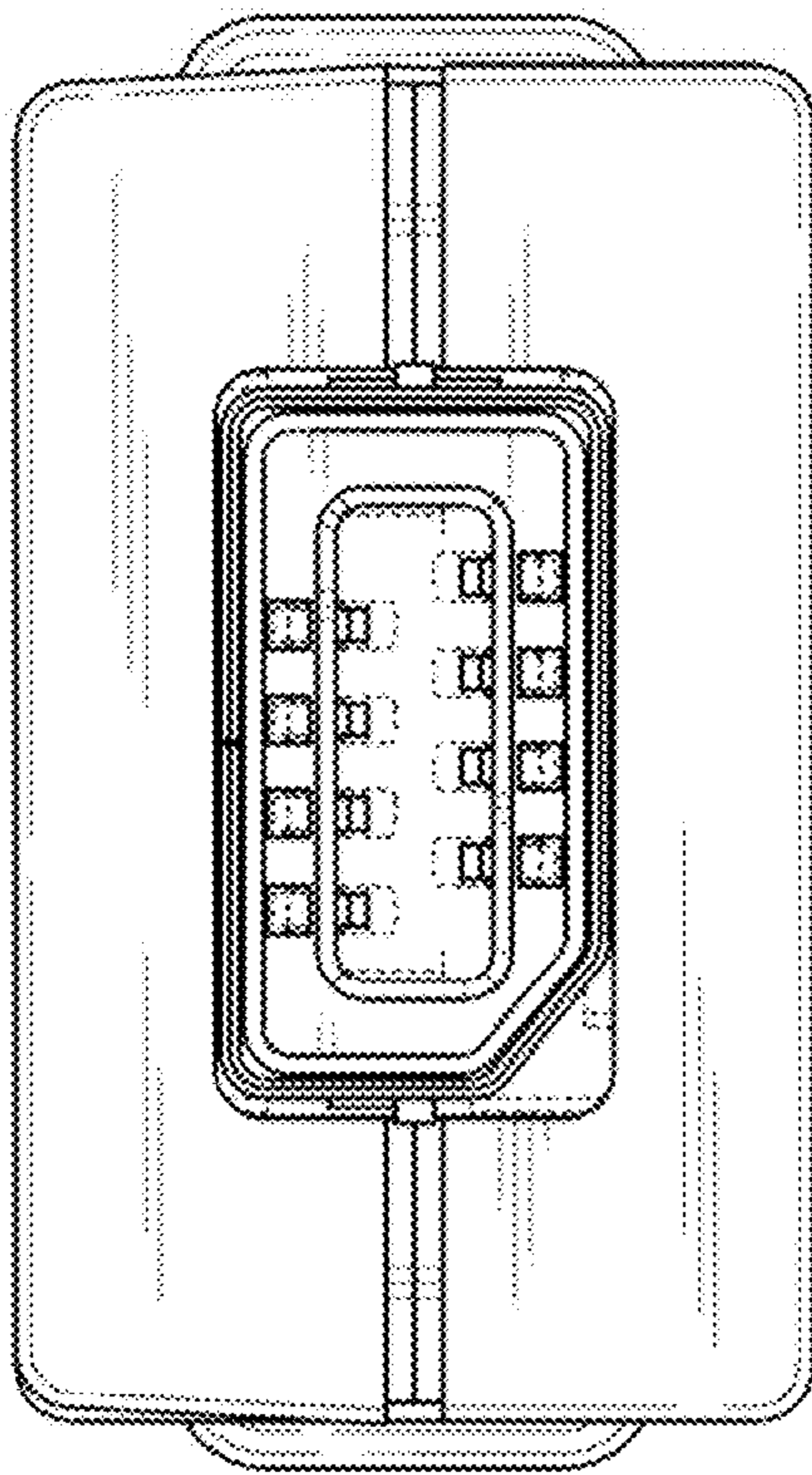


Fig. 6

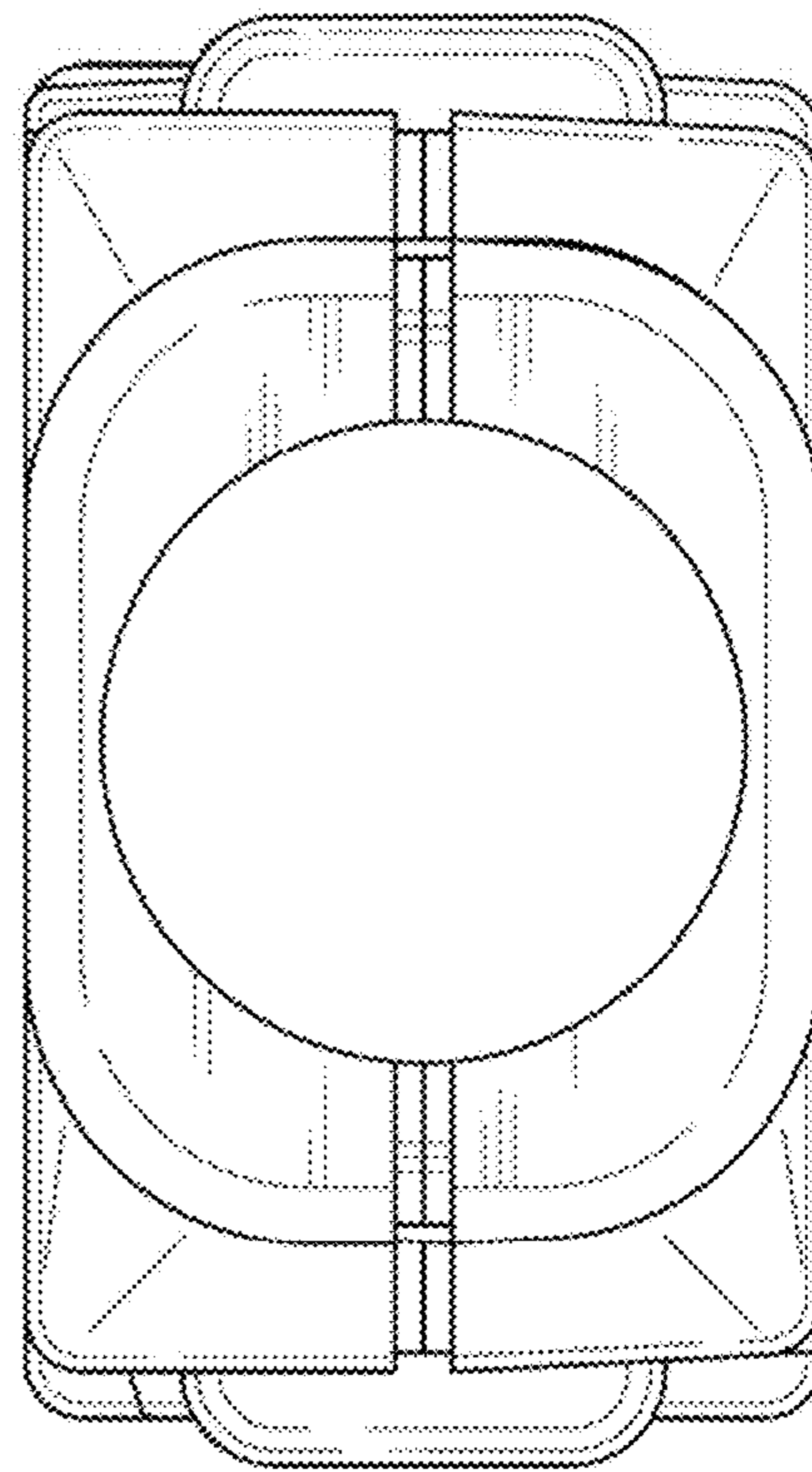


Fig. 7

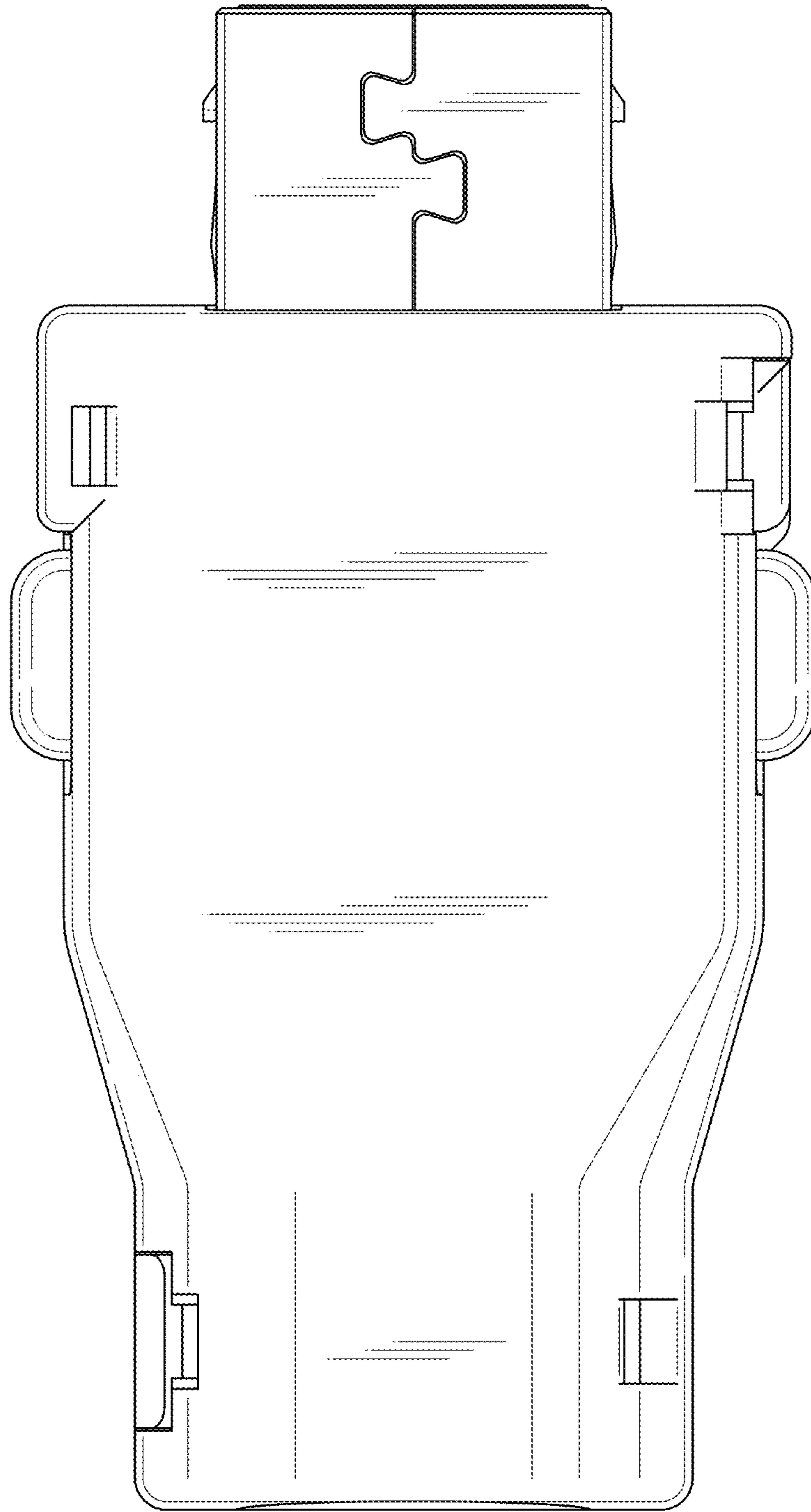


Fig. 8

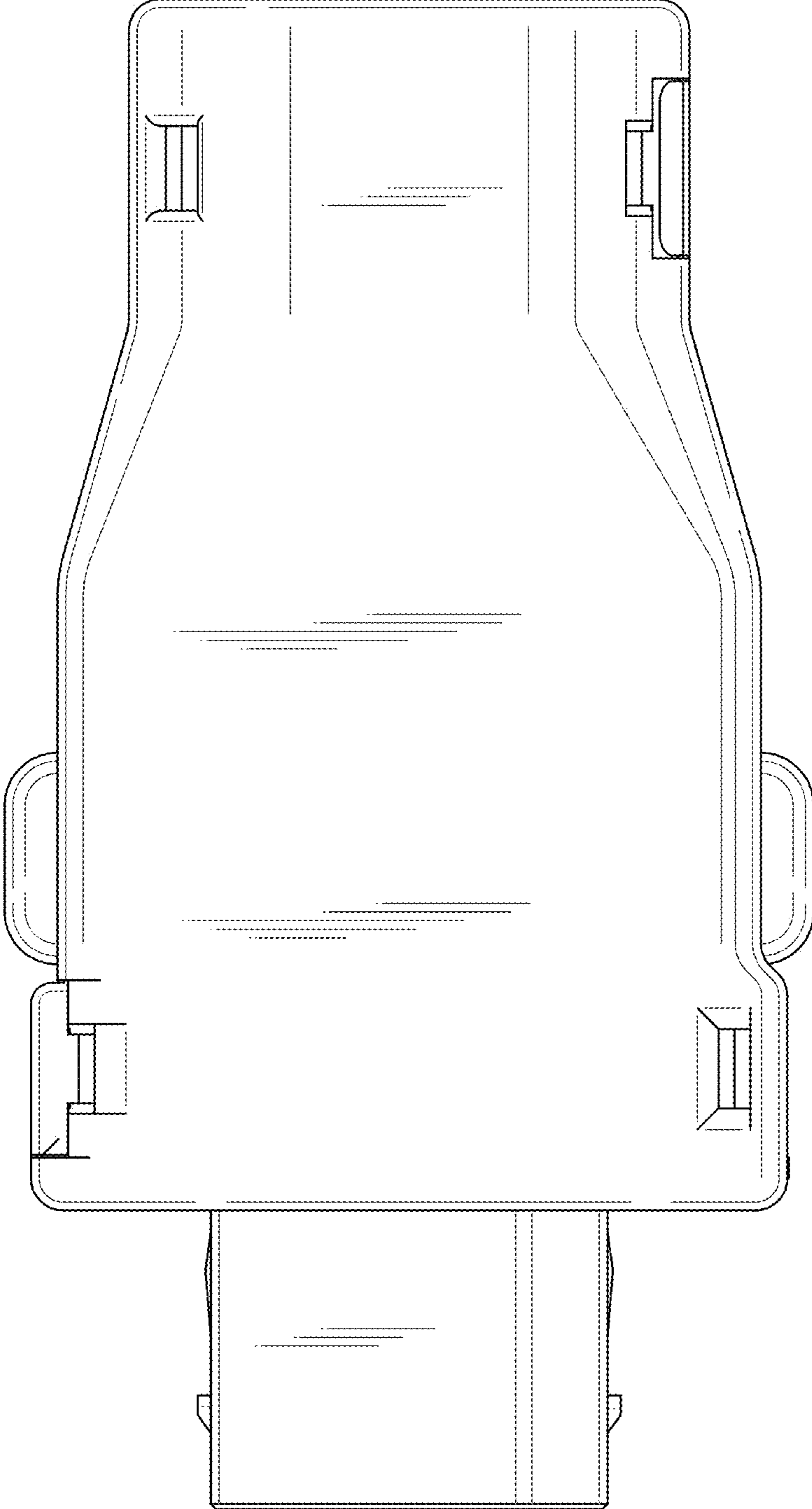


Fig. 9

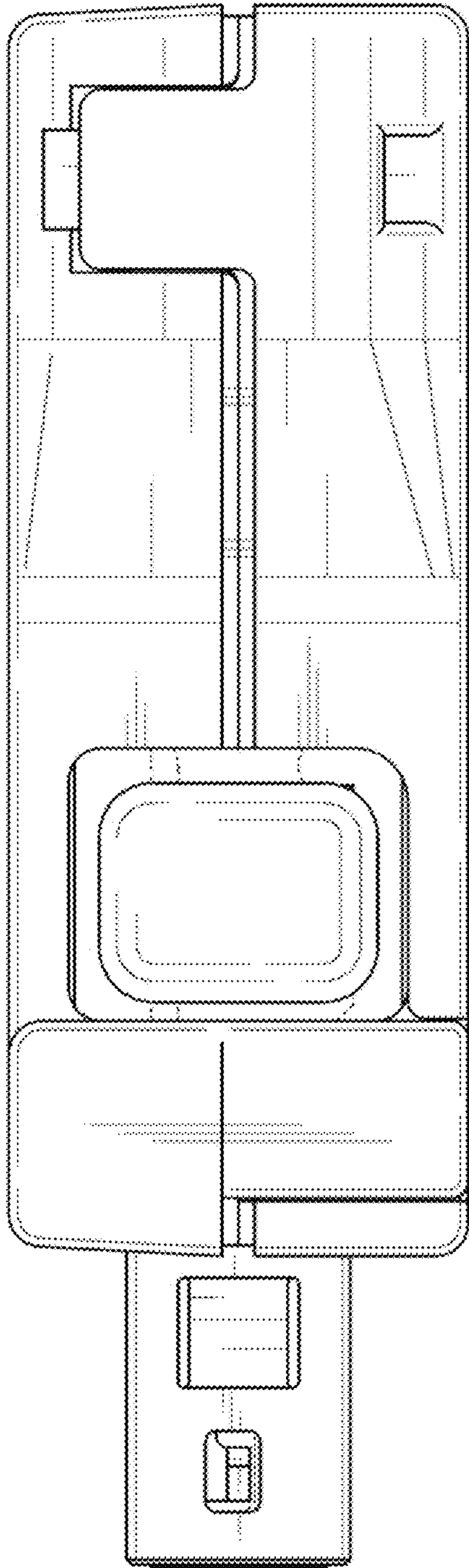


Fig. 10

