



US00D877084S

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

(10) **Patent No.:** **US D877,084 S**
(45) **Date of Patent:** **** Mar. 3, 2020**

(54) **ELECTRICAL CONNECTOR**

FOREIGN PATENT DOCUMENTS

(71) Applicant: **Samtec, Inc.**, New Albany, IN (US)

JP 2009-218119 A 9/2009
TW D130799 S1 9/2009

(72) Inventors: **Jonathan E. Buck**, New Albany, IN (US); **John A. Mongold**, New Albany, IN (US)

(Continued)

(73) Assignee: **SAMTEC, INC.**, New Albany, IN (US)

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

Samtec Extreme Performance & Density Arrays, dated Jan. 2018, [online], [site visited May 10, 2019]. Available from Internet, URL: http://suddendocs.samtec.com/ebrochures/novaray_ebrochure.pdf (Year: 2018).*

(21) Appl. No.: **29/611,028**

(Continued)

(22) Filed: **Jul. 18, 2017**

Related U.S. Application Data

(63) Continuation-in-part of application No. 29/610,936, filed on Jul. 17, 2017.

(51) **LOC (12) Cl.** **13-03**

(52) **U.S. Cl.**
USPC **D13/147**

(58) **Field of Classification Search**

USPC D13/101, 118, 123, 133, 145–147, 149, D13/151, 154, 184, 199
CPC ... G02B 6/00; H01R 4/24; H01R 9/03; H01R 12/00; H01R 12/14; H01R 12/16; H01R 12/71; H01R 12/72; H01R 12/73; H01R 13/03; H01R 13/04; H01R 13/28; H01R 13/62; H01R 13/627; H01R 13/648; H01R 13/6588; H01R 24/00; H01R 24/60; H01R 24/62

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

D318,852 S * 8/1991 Matsumoto D13/146
D451,885 S * 12/2001 Hisatomi D13/147

(Continued)

OTHER PUBLICATIONS

Primary Examiner — Angela J Lee

Assistant Examiner — Shawn T Gingrich

(74) *Attorney, Agent, or Firm* — Keating & Bennett, LLP

(57) **CLAIM**

The ornamental design for an electrical connector, as shown and described.

DESCRIPTION

FIG. 1 is a top, front, and right side perspective view of an electrical connector showing our new design;

FIG. 2 is a top, front, and left side perspective view thereof; FIG. 3 is another top, front, and right side perspective view thereof;

FIG. 4 is bottom, front, and right side perspective view thereof;

FIG. 5 is a top plan view thereof;

FIG. 6 is a bottom plan view thereof;

FIG. 7 is a front elevation view thereof;

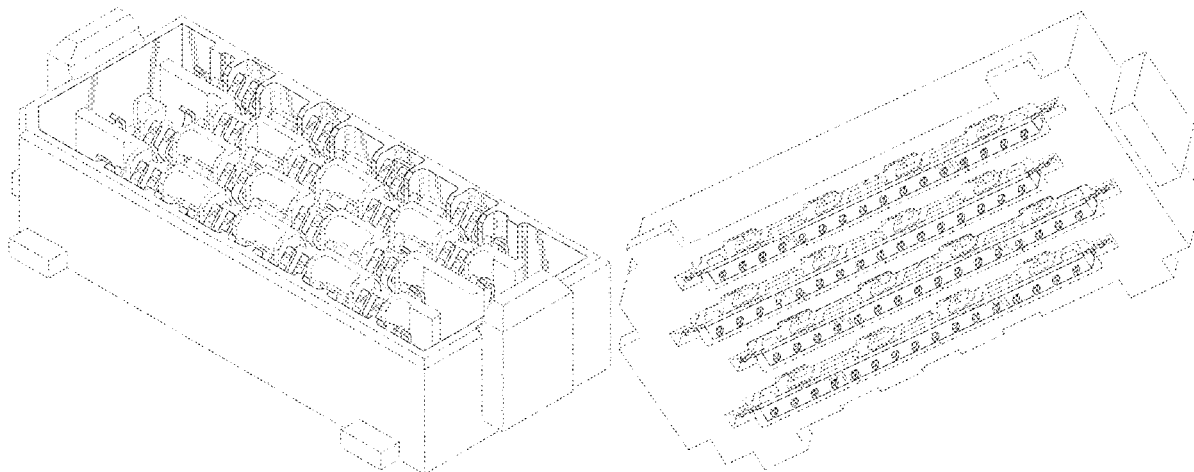
FIG. 8 is a back elevation view thereof;

FIG. 9 is a left side elevation view thereof; and,

FIG. 10 is a right side elevation view thereof.

The broken lines in the drawing views are included to show portions of the electrical connector that form no part of the claimed design.

1 Claim, 10 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

D452,477 S * 12/2001 Hiramoto D13/133
 D452,478 S * 12/2001 Hiramoto D13/147
 D452,678 S * 1/2002 Hiramoto D13/147
 6,462,957 B1 10/2002 Kwong et al.
 6,652,318 B1 11/2003 Winings et al.
 D500,740 S * 1/2005 Fan D13/147
 7,083,459 B1 8/2006 Wu et al.
 D575,743 S * 8/2008 Shifris D13/147
 D585,832 S * 2/2009 Kudo D13/147
 8,398,429 B2 3/2013 Costello
 8,506,323 B2 8/2013 Costello
 D705,172 S * 5/2014 Nomura D13/147
 D713,356 S * 9/2014 Buck D13/147
 D725,043 S * 3/2015 Urano D13/147
 8,998,645 B2 4/2015 Vanaleck et al.
 D740,757 S * 10/2015 Scholeno D13/147
 9,257,778 B2 2/2016 Buck et al.
 D766,832 S * 9/2016 Harper, Jr. D13/147
 D767,505 S * 9/2016 Buck D13/147
 9,608,348 B2 3/2017 Wanha et al.
 D823,814 S * 7/2018 Buck D13/154
 10,243,288 B2 * 3/2019 Matsuzawa H01R 12/91
 2003/0143886 A1 7/2003 Nemoto
 2005/0101176 A1 5/2005 Kachlic
 2005/0277221 A1 * 12/2005 Mongold H01R 13/6471
 438/83
 2008/0166090 A1 7/2008 Kiani et al.
 2009/0201658 A1 8/2009 Lemke et al.
 2009/0233492 A1 9/2009 Mizukami et al.
 2010/0178779 A1 7/2010 Davis et al.
 2012/0058665 A1 3/2012 Zerebilov et al.
 2012/0108109 A1 * 5/2012 Zhang H01R 12/721
 439/629
 2013/0059471 A1 * 3/2013 Mongold H01R 12/721
 439/607.14
 2013/0164987 A1 * 6/2013 Mongold H01R 13/6477
 439/626
 2014/0220795 A1 8/2014 Bai et al.
 2014/0315415 A1 * 10/2014 Wu H01R 13/6275
 439/352
 2015/0038002 A1 * 2/2015 Sabo H01R 4/2433
 439/395
 2015/0038018 A1 * 2/2015 Matsuzawa H01R 12/716
 439/638
 2016/0006150 A1 1/2016 Bachmutsky
 2016/0233598 A1 8/2016 Wittig
 2017/0125934 A1 * 5/2017 Endo H01R 13/112

FOREIGN PATENT DOCUMENTS

TW D132453 S1 12/2009
 TW D163315 S 10/2014
 TW D168325 S 6/2015
 TW D172197 S 12/2015
 WO 2015/116407 A1 8/2015

OTHER PUBLICATIONS

Faith, et al.; "Electrical Connector Having Latch"; International Application No. PCT/US2018/043025; filed Jul. 20, 2018.
 Buck, et al.; "Right-Angle Electrical Connector and Electrical Contacts for a Right Angle Connector"; International Patent Application No. PCT/US2018/057266; filed on Oct. 24, 2018.
 Buck et al., "Electrical Connector", U.S. Appl. No. 29/610,936, filed Jul. 17, 2017.
 Buck et al., "Contact Wafer", U.S. Appl. No. 29/611,655, filed Jul. 24, 2017.
 Buck et al., "Contact Wafer", U.S. Appl. No. 29/647,260, filed May 11, 2018.
 Mongold et al., "Overmolded Lead Frame Providing Contact Support and Impedance Matching Properties", U.S. Appl. No. 15/566,504, filed Oct. 13, 2017.
 Buck et al., "Electrical Connector System", International Application No. PCT/US2018/037198, filed Jun. 13, 2018.
 Faith, Chadrick P., "Electrical Connector," U.S. Appl. No. 29/611,521, filed Jul. 21, 2017.
 Official Communication issued in Taiwanese Patent Application No. 107304335, dated Oct. 31, 2018.
 Official Communication issued in Taiwanese Patent Application No. 107304336, dated Oct. 31, 2018.
 Official Communication issued in Taiwanese Patent Application No. 107304337, dated Oct. 31, 2018.
 Official Communication issued in Taiwanese Patent Application No. 107304338, dated Oct. 31, 2018.
 Official Communication issued in Taiwanese Patent Application No. 107304339, dated Oct. 31, 2018.
 Official Communication issued in Taiwanese Patent Application No. 107304340, dated Oct. 31, 2018.
 Official Communication issued in Taiwanese Patent Application No. 107304341, dated Oct. 31, 2018.
 Official Communication issued in Taiwanese Patent Application No. 107304342, dated Oct. 31, 2018.
 Musser, et al., "Electrical Cable Connector," U.S. Appl. No. 29/632,520, filed Jan. 8, 2018.
 Buck, et al., "Contact Wafers," U.S. Appl. No. 29/652,017, filed Dec. 20, 2018.

* cited by examiner

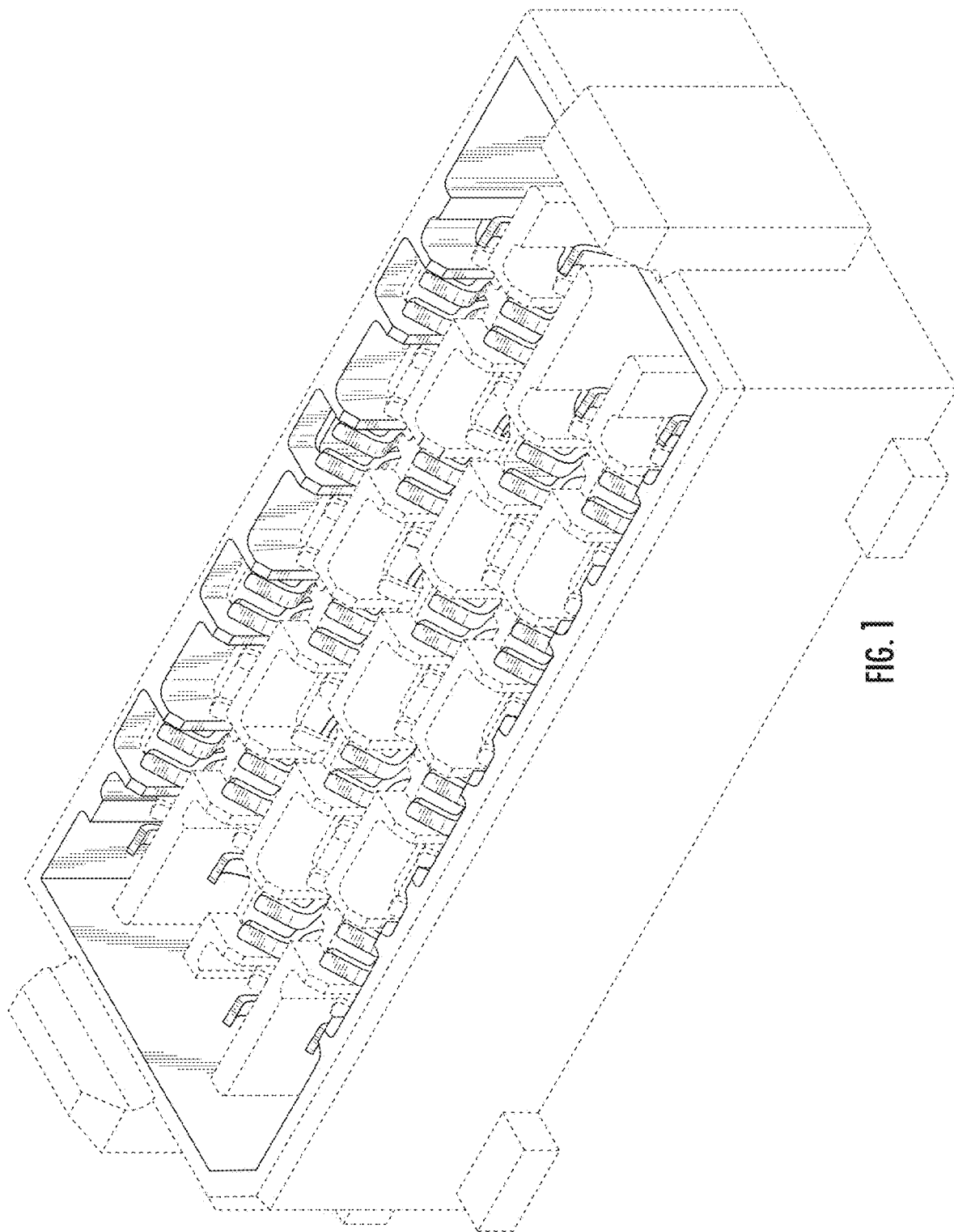
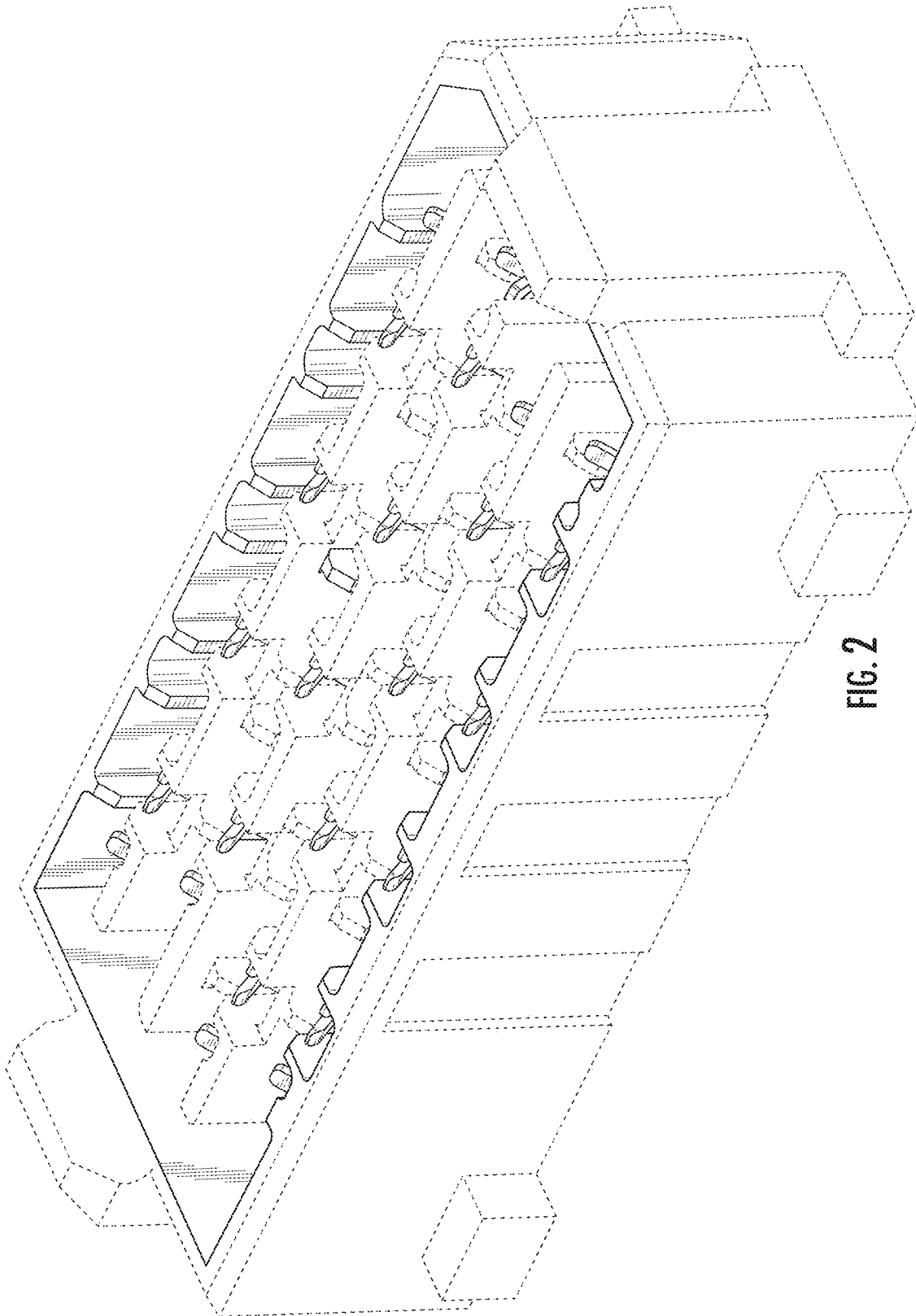


FIG. 1



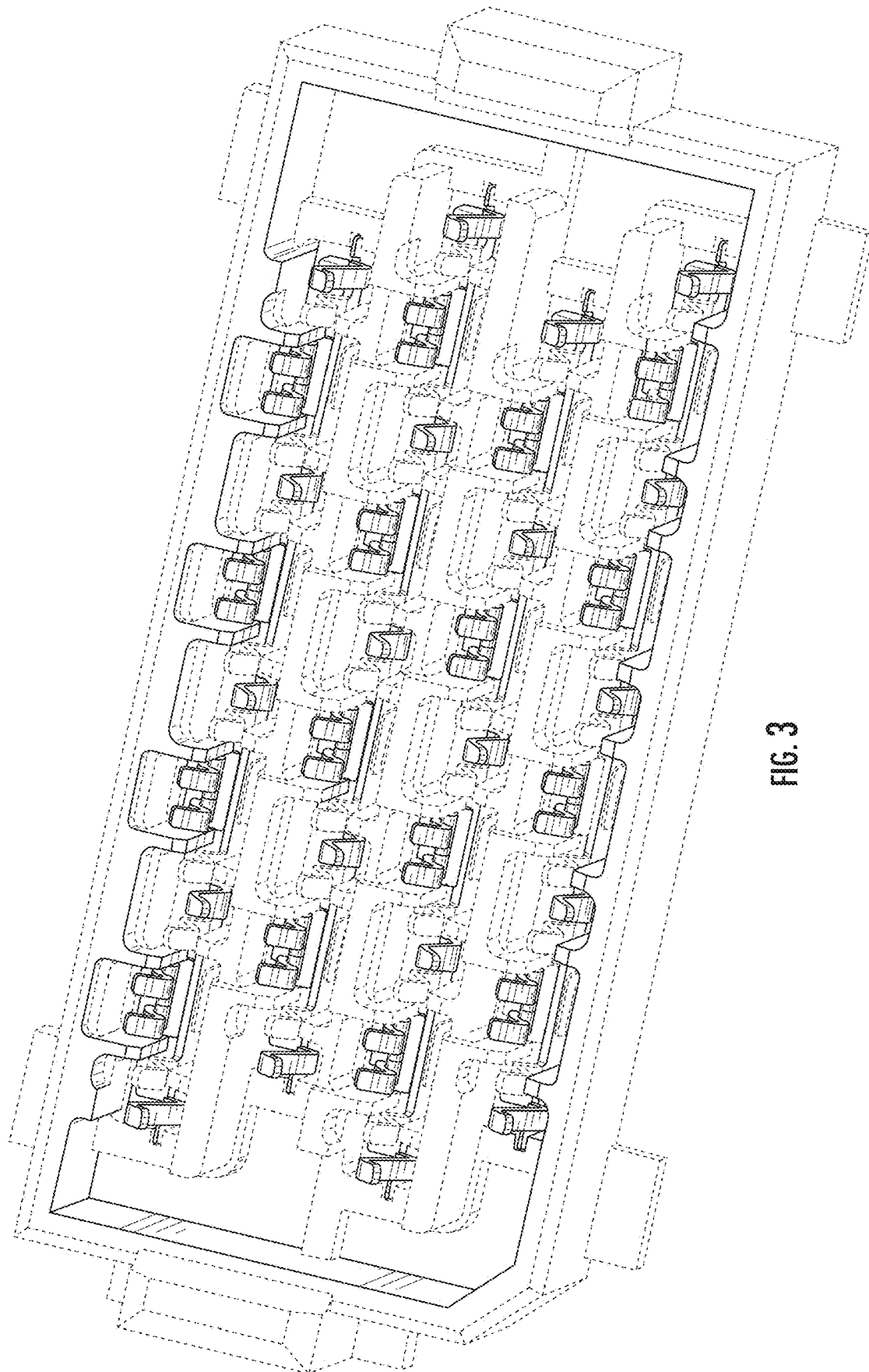


FIG. 3

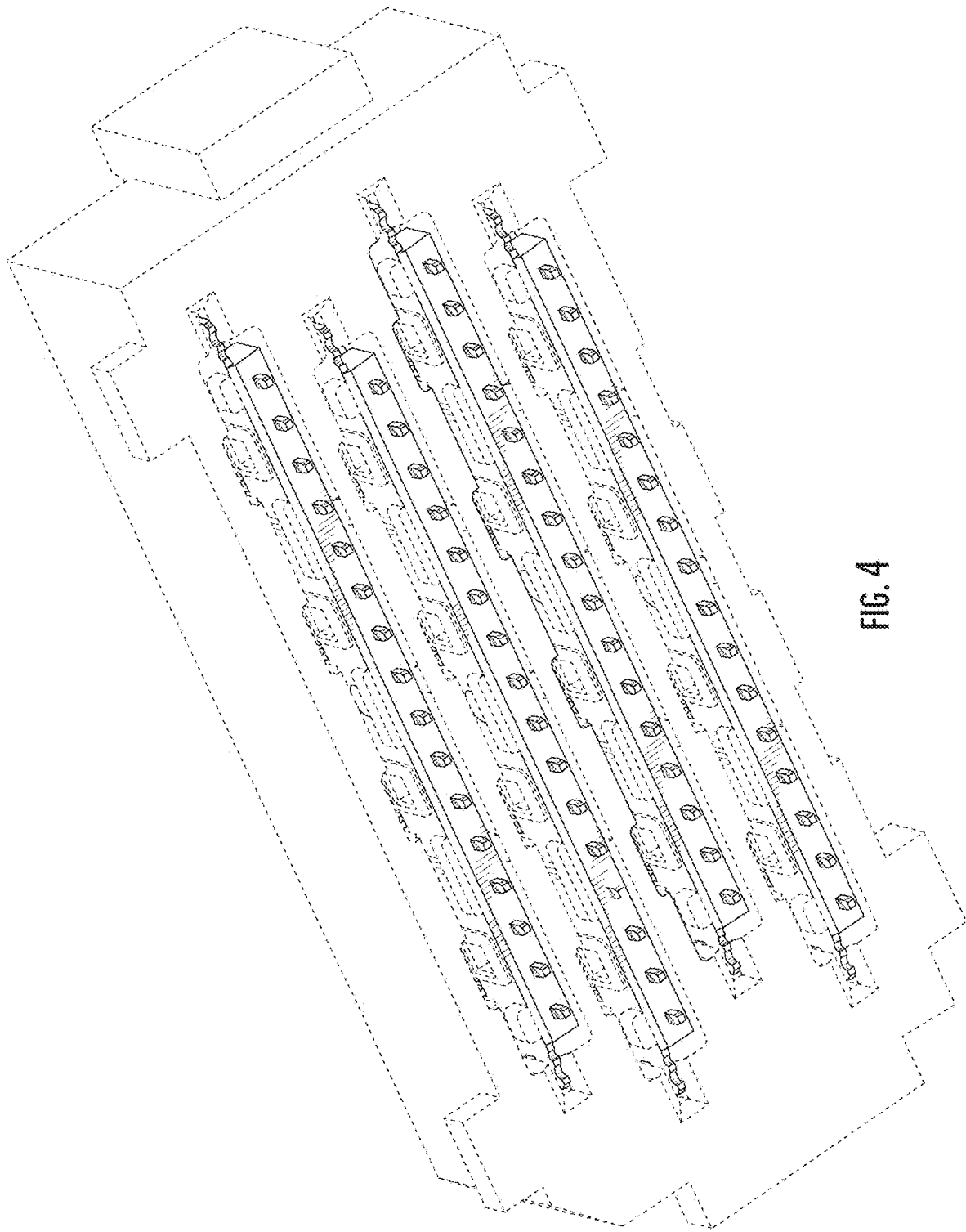


FIG. 4

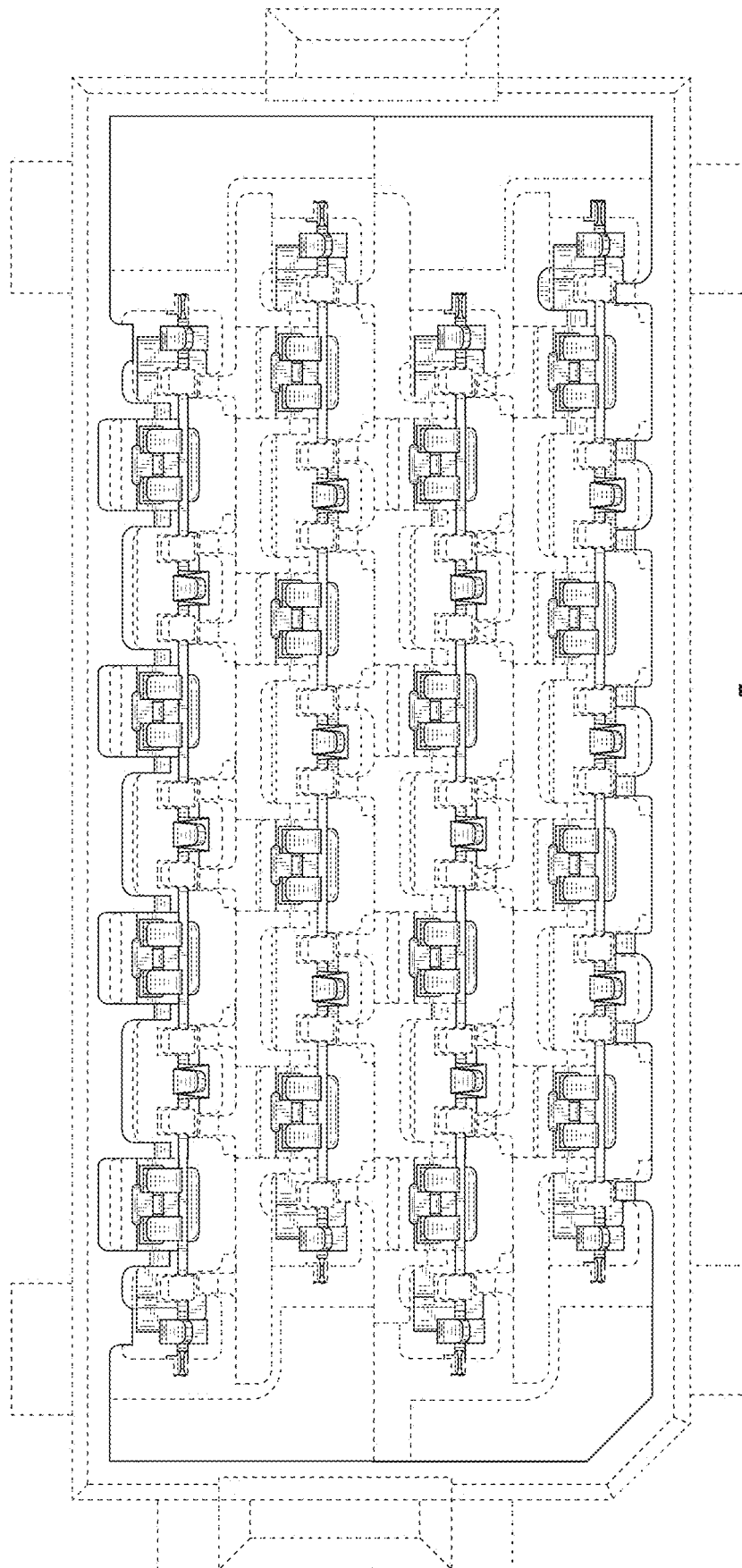


FIG. 5

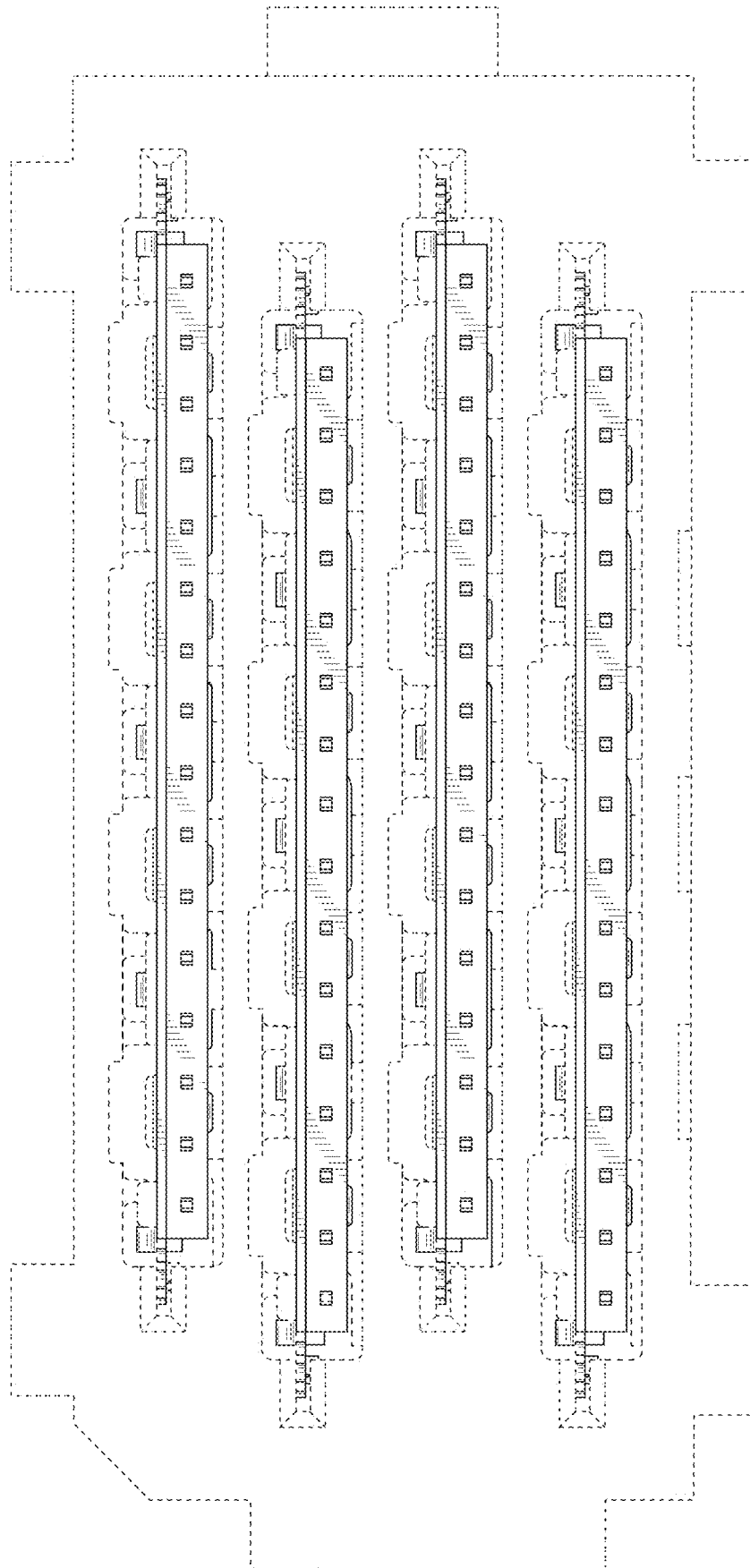


FIG. 6

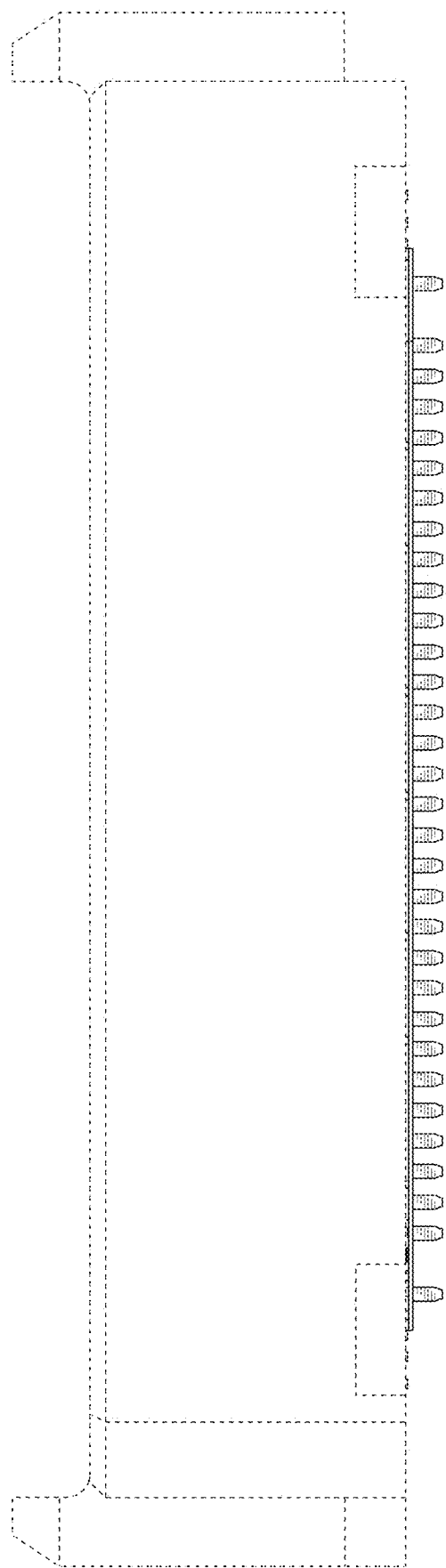


FIG. 7

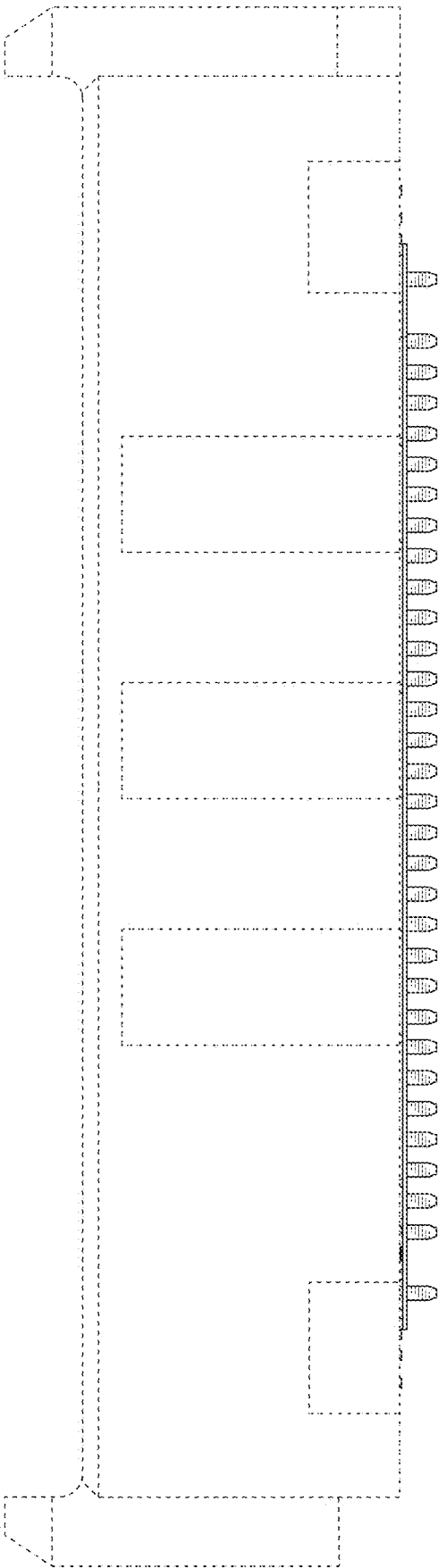


FIG. 8

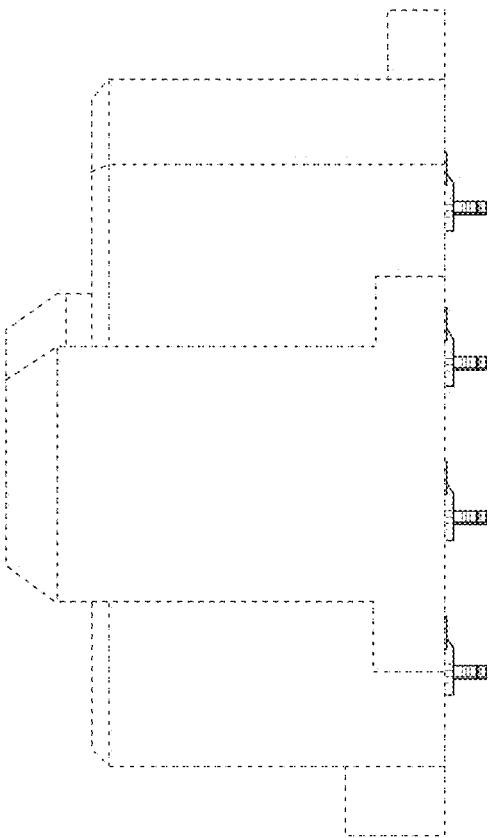


FIG. 9

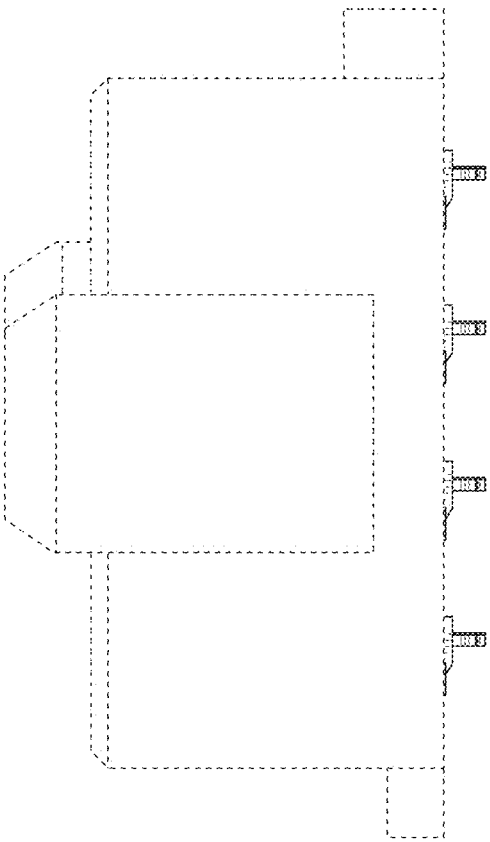


FIG. 10