



US0D1089808S

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

(10) **Patent No.:** **US D1,089,808 S**

(45) **Date of Patent:** **** Aug. 19, 2025**

(54) **LIGHT-EMITTING ELEMENT MODULE**

(71) Applicant: **HAMAMATSU PHOTONICS K.K.**,
Hamamatsu (JP)

(72) Inventors: **Naoto Sakurai**, Hamamatsu (JP);
Akihiro Oguri, Hamamatsu (JP); **Yuya Iwazaki**, Hamamatsu (JP)

(73) Assignee: **HAMAMATSU PHOTONICS K.K.**,
Hamamatsu (JP)

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

(21) Appl. No.: **29/798,752**

(22) Filed: **Jul. 9, 2021**

(30) **Foreign Application Priority Data**

Jan. 20, 2021 (JP) 2021-001097 D
Jan. 20, 2021 (JP) 2021-001098 D

(51) **LOC (15) Cl.** **26-05**

(52) **U.S. Cl.**
USPC **D26/120**

(58) **Field of Classification Search**

USPC D26/1, 2, 35, 120; D13/180, 181
CPC H01L 33/00; H01L 33/04; H01L 33/08;
H01L 33/10; H01L 33/20; H01L 33/38;
H01L 33/42; H01L 25/167; H01L
25/0753; H01L 27/0248; H01L 27/15;
H01L 27/156; F21S 43/00; H10H 20/80;
H10H 20/811; H10H 20/813; H10H
20/814; H10H 20/819; H10H 20/831;
H10H 20/833; H10H 29/14; H10H
29/142; H10D 84/60

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

6,777,719 B1 8/2004 Fujii
D576,571 S * 9/2008 Itai D13/180
(Continued)

FOREIGN PATENT DOCUMENTS

JP 1389544 S 6/2010

OTHER PUBLICATIONS

"Lumistrips The new Chip Scale Packaged Flip Chip LED technology", Lumistrips LED Professional https://www.lumistrips.com/lumistrips-blog/chip_scale_leds_explained, Mar. 12, 2020.

(Continued)

Primary Examiner — Clint A Samuel

(74) *Attorney, Agent, or Firm* — Faegre Drinker Biddle & Reath LLP

(57) **CLAIM**

The ornamental design for a light-emitting element module as shown and described.

DESCRIPTION

FIG. 1 is a front view of a light-emitting element module of the first embodiment of the present invention;

FIG. 2 is a rear view thereof;

FIG. 3 is a top plan view thereof;

FIG. 4 is a bottom plan view thereof;

FIG. 5 is a right side view thereof;

FIG. 6 is a left side view thereof;

FIG. 7 is a front, top and right side perspective view thereof;

FIG. 8 is a rear, bottom and left side perspective view thereof;

FIG. 9 is a sectional view thereof with inner mechanism is omitted taken along the line 9-9 in FIG. 3;

FIG. 10 is an enlarged view thereof defined by the line 10-10 in FIG. 7;

FIG. 11 is an enlarged sectional view thereof with inner mechanism is omitted defined by the line 11-11 in FIG. 9;

FIG. 12 is a front view of a light-emitting element module of the second embodiment of the present invention;

FIG. 13 is a rear view thereof;

FIG. 14 is a top plan view thereof;

FIG. 15 is a bottom plan view thereof;

FIG. 16 is a right side view thereof;

FIG. 17 is a left side view thereof;

FIG. 18 is a front, top and right side perspective view thereof;

FIG. 19 is a rear, bottom and left side perspective view thereof;

FIG. 20 is a sectional view thereof with inner mechanism is omitted taken along the line 20-20 in FIG. 14;

(Continued)

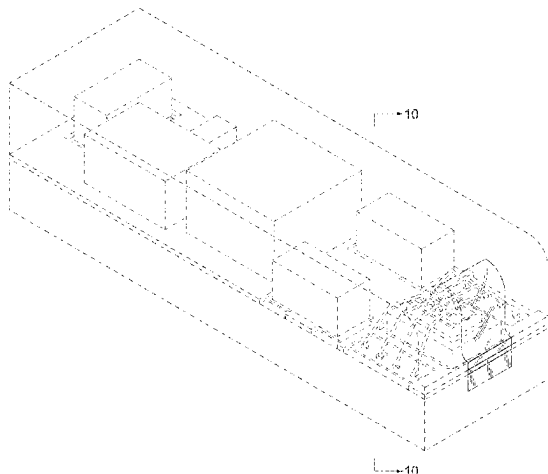


FIG. 21 is an enlarged view thereof defined by the line 21-21 in FIG. 18; and,

FIG. 22 is an enlarged sectional view thereof with inner mechanism is omitted defined by the line 22-22 in FIG. 20. The broken lines show portions of a light-emitting element module that form no part of the claimed design.

The alternate long and short dash lines are merely the boundary lines between the claimed parts and the non-claimed parts.

1 Claim, 22 Drawing Sheets

(56)

References Cited

U.S. PATENT DOCUMENTS

7,491,977 B2 * 2/2009 Fukasawa H10H 20/856
257/E33.068
D590,355 S 4/2009 Tsuchiya et al.
D590,357 S * 4/2009 Miyashita D13/180
D597,502 S * 8/2009 Ogata D26/1
D599,303 S 9/2009 Seo et al.
7,589,354 B2 9/2009 Lin et al.
D602,884 S 10/2009 Wada et al.
7,675,087 B1 3/2010 Cheng et al.
D624,883 S * 10/2010 Lin D13/180
D624,886 S 10/2010 Ni et al.
D626,097 S * 10/2010 Takeuchi D13/180
D627,310 S * 11/2010 Lin D13/180
D633,449 S * 3/2011 Lin D13/180
D640,644 S 6/2011 Tsou
D640,994 S * 7/2011 Lin D13/180
D644,190 S * 8/2011 Shimizu D13/180
D649,942 S 12/2011 Shimizu et al.
D653,222 S * 1/2012 Fukui D13/180
D653,628 S 2/2012 Miyashita
D653,629 S 2/2012 Miyashita
D656,110 S 3/2012 Shimizu et al.
D663,703 S 7/2012 Kobayakawa et al.
D664,104 S * 7/2012 Hsu D13/180
D668,623 S * 10/2012 Hsu D13/180
D674,965 S * 1/2013 Lueken D26/120
D708,154 S * 7/2014 Hayashi D13/180
D724,549 S 3/2015 Song
D731,989 S 6/2015 Huang et al.
D737,784 S 9/2015 Song
D741,821 S 10/2015 Song
D744,965 S 12/2015 Chen et al.
D763,805 S 8/2016 Huang et al.
D774,475 S 12/2016 Song
D774,476 S 12/2016 Song
D778,846 S 2/2017 Song
D778,847 S 2/2017 Song
D783,547 S 4/2017 Bergmann et al.
D792,639 S * 7/2017 Deyaf D26/120
D793,002 S * 7/2017 Kim D26/120

D797,359 S * 9/2017 Deyaf D26/120
D797,360 S * 9/2017 Deyaf D26/120
D797,361 S * 9/2017 Deyaf D26/120
D797,362 S * 9/2017 Deyaf D26/120
D797,363 S * 9/2017 Deyaf D26/120
D797,364 S * 9/2017 Deyaf D26/120
D797,365 S * 9/2017 Deyaf D26/120
D797,366 S * 9/2017 Deyaf D26/120
D799,103 S * 10/2017 Gloor D26/120
D831,593 S 10/2018 Nishio et al.
D832,802 S 11/2018 Nishio et al.
D846,511 S 4/2019 Nishio et al.
D847,102 S 4/2019 Chen et al.
D856,946 S 8/2019 Song
D906,270 S 12/2020 Song
11,935,910 B2 3/2024 Yang et al.
D1,022,307 S * 4/2024 Tomney D26/35
11,949,050 B2 4/2024 Chen et al.
12,113,159 B2 10/2024 Park et al.
12,132,154 B2 10/2024 Lee et al.
D1,057,674 S * 1/2025 Bailey D13/180
D1,060,278 S * 2/2025 Trinkle D13/180
D1,060,754 S * 2/2025 Na D26/1
D1,062,026 S * 2/2025 Kao D26/113
D1,067,205 S * 3/2025 Hashimoto D13/180
2006/0214273 A1 9/2006 Wang et al.
2007/0034855 A1 2/2007 Hwang et al.
2007/0063213 A1 3/2007 Hsieh et al.
2007/0096114 A1 5/2007 Aoki et al.
2008/0303018 A1 12/2008 Kim et al.
2009/0045428 A1 2/2009 Lin
2010/0006888 A1 1/2010 Watanabe et al.
2010/0123145 A1 5/2010 Lee
2011/0180782 A1 7/2011 Fattal et al.
2013/0068936 A1 3/2013 Nagai
2015/0211935 A1 7/2015 Ojima et al.
2020/0013759 A1 * 1/2020 Yoo H01L 25/0753
2021/0005590 A1 1/2021 Ishii et al.
2021/0183825 A1 6/2021 Wu et al.
2021/0348739 A1 11/2021 Lee et al.
2021/0358998 A1 11/2021 Kishimoto
2021/0398479 A1 * 12/2021 Kim H01L 25/162
2022/0052229 A1 2/2022 Min et al.
2022/0181532 A1 6/2022 Hasunuma
2022/0279638 A1 9/2022 Iwazaki et al.
2023/0126339 A1 4/2023 Do
2023/0411563 A1 12/2023 Do
2024/0204150 A1 * 6/2024 Kawano A61K 40/405
2024/0222565 A1 7/2024 Do

OTHER PUBLICATIONS

“New LED packaging technology improves performance”, phys.org
<https://phys.org/news/2012-09-packaging-technology.html>, Sep. 25, 2012.

Notice of Allowance issued Jan. 21, 2025 for non-counterpart Design U.S. Appl. No. 29/798,678.

* cited by examiner

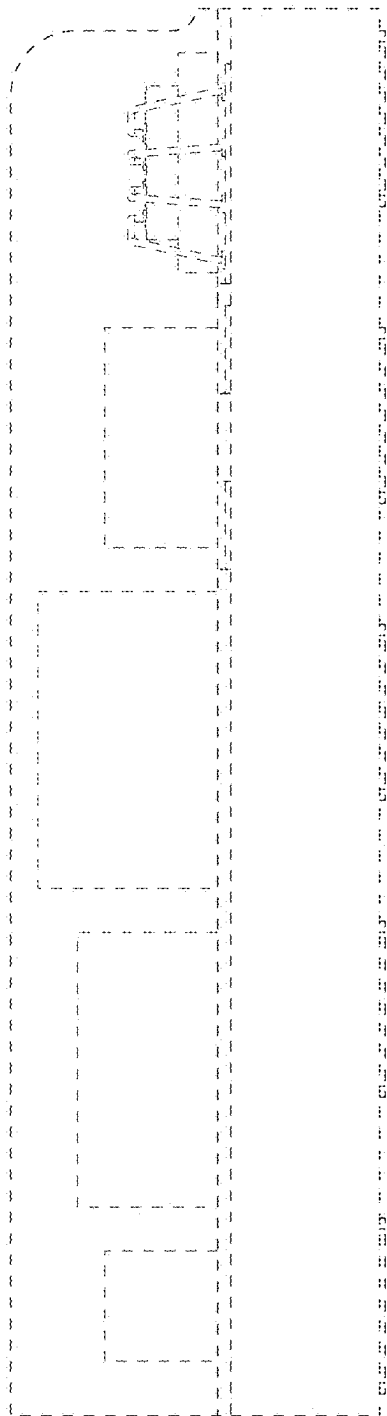


FIG. 1

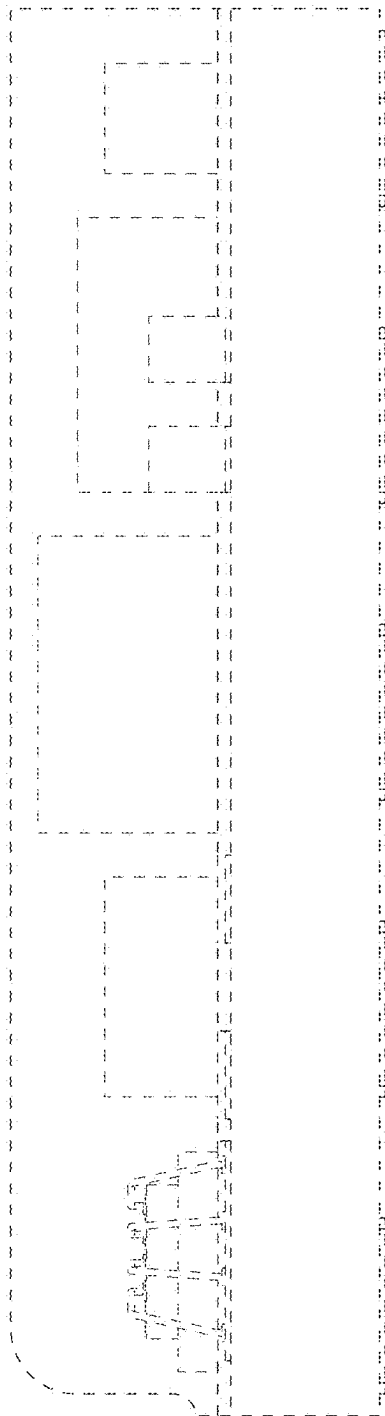


FIG. 2

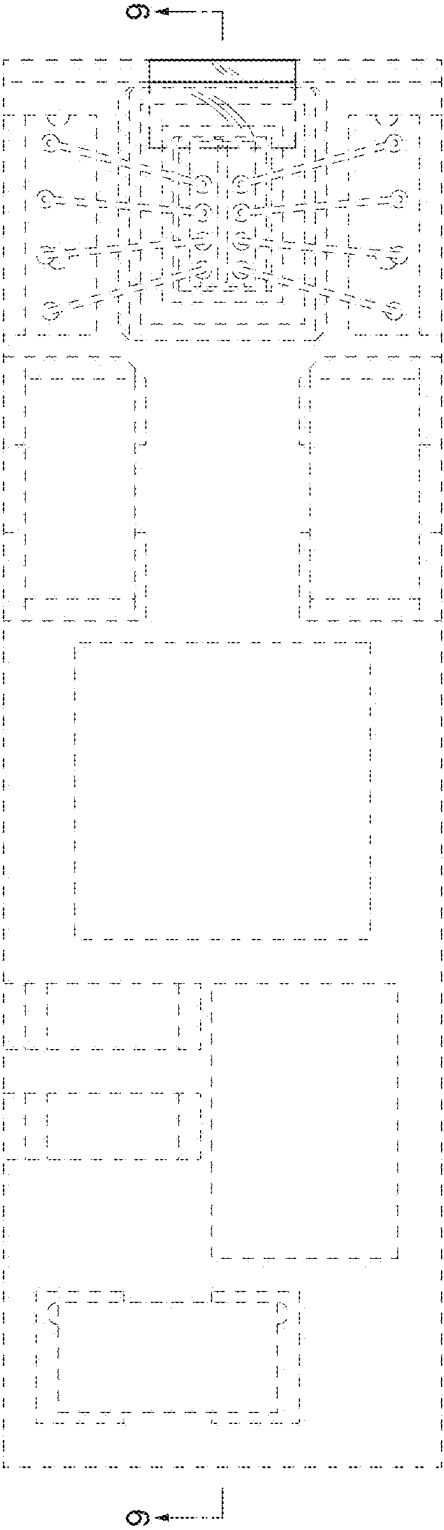


FIG. 3

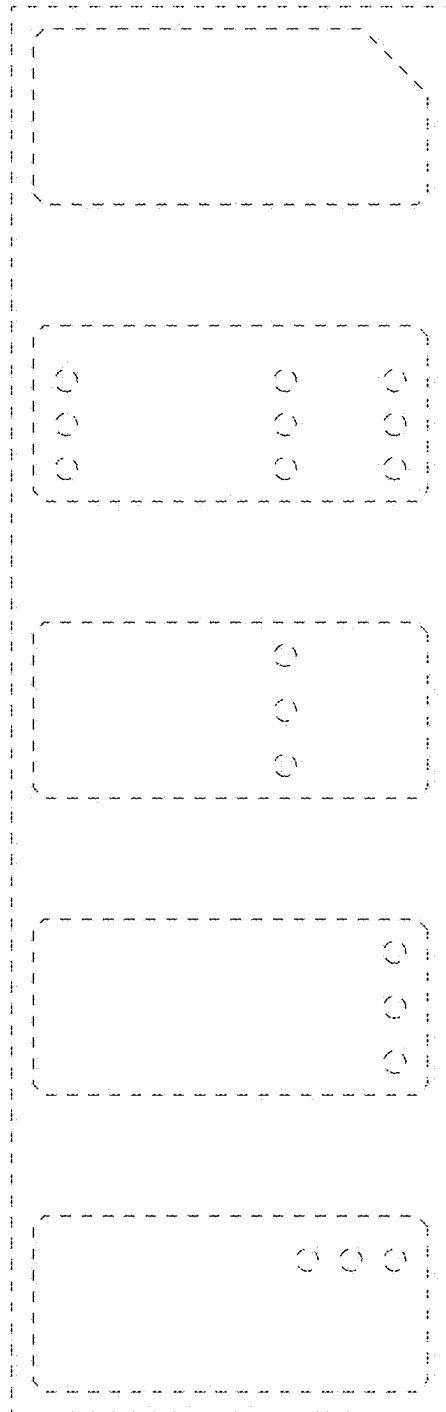


FIG. 4

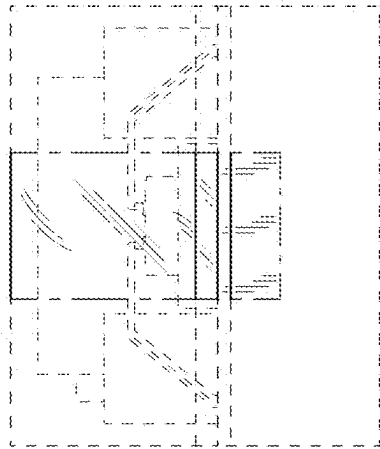


FIG. 5

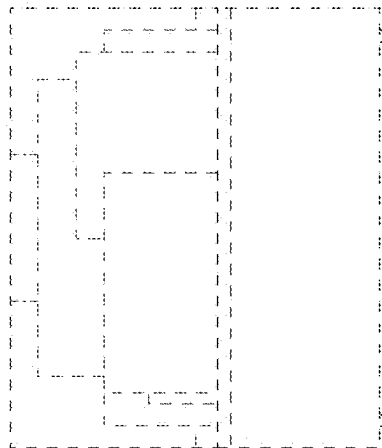


FIG. 6

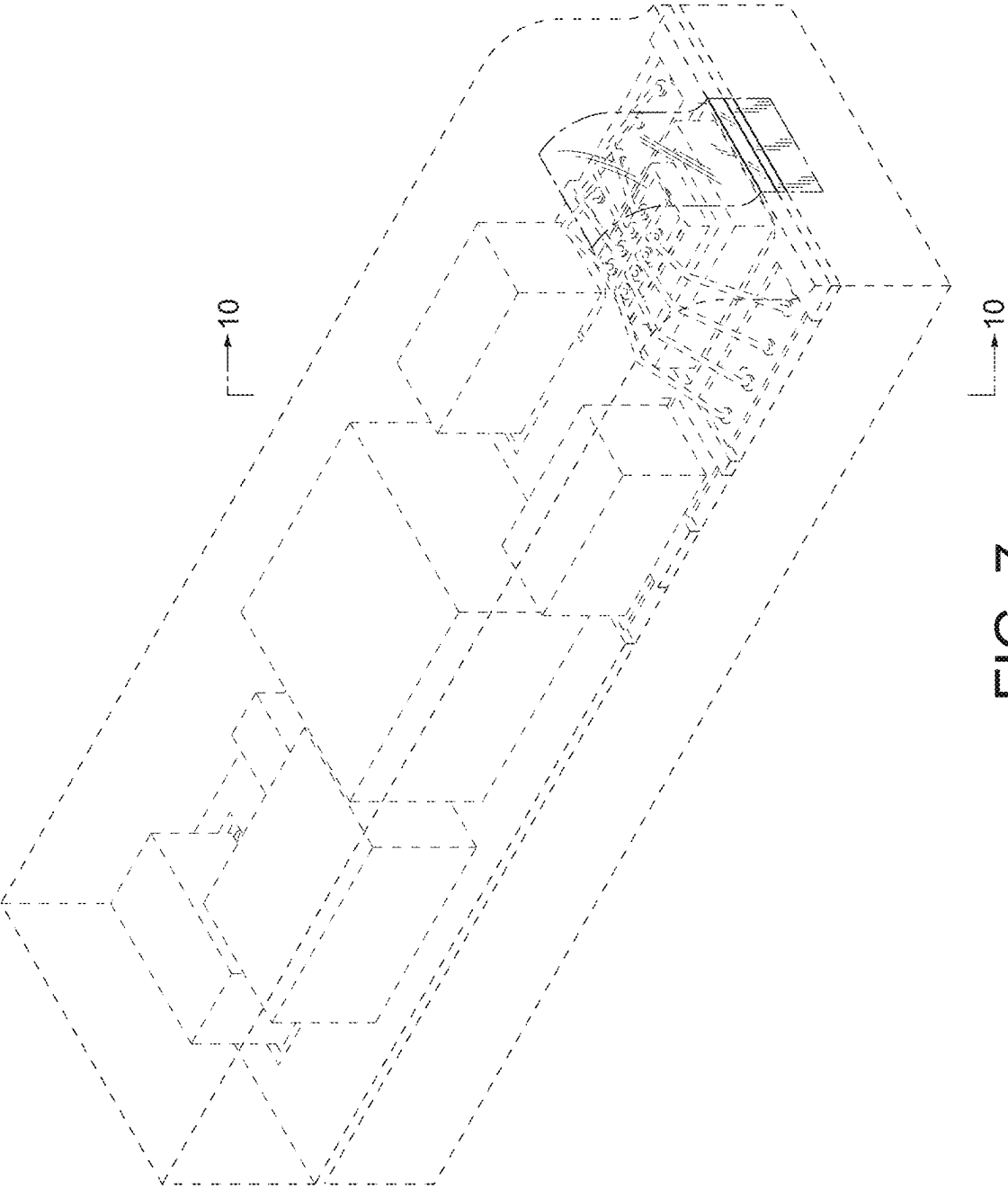


FIG. 7

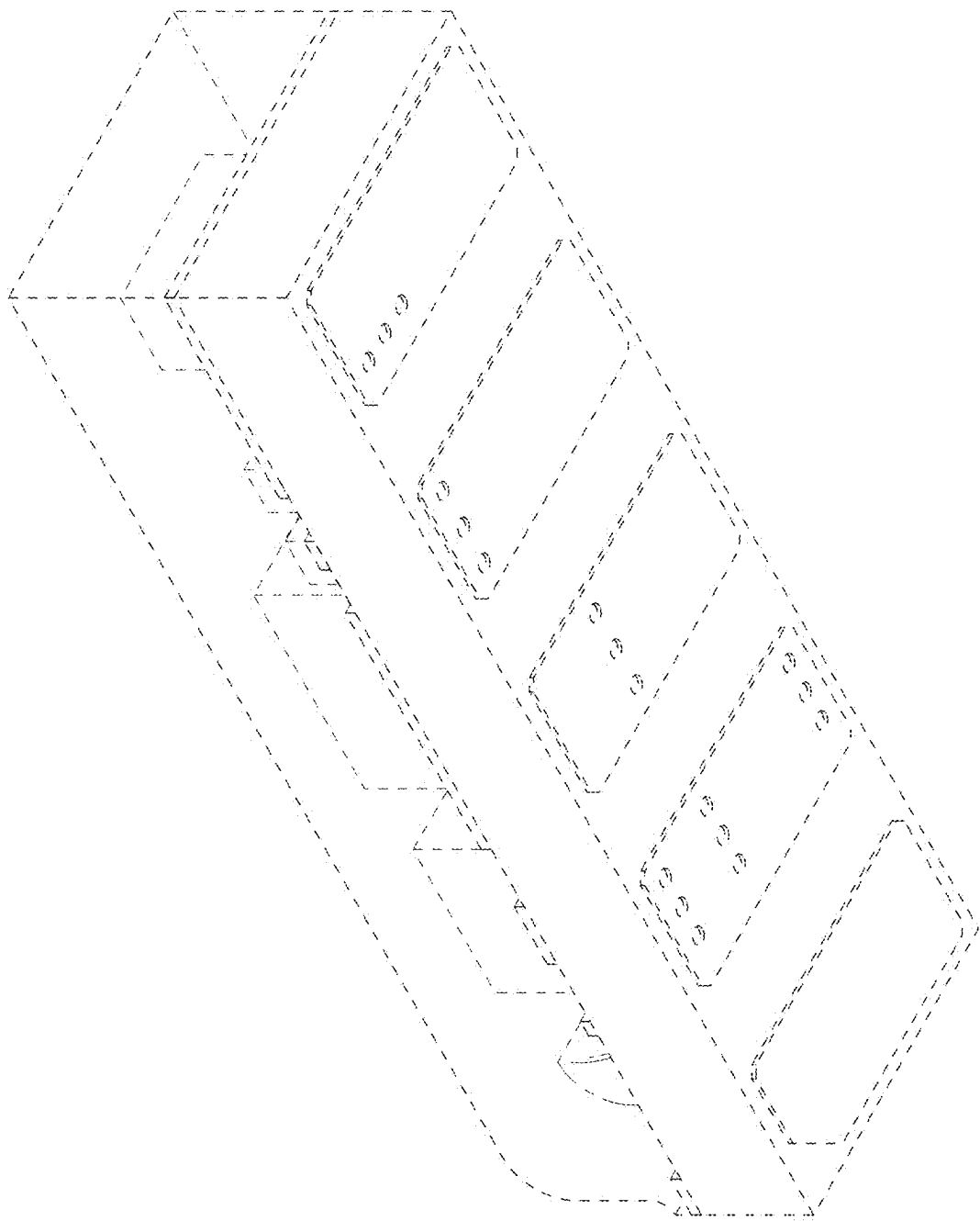


FIG. 8

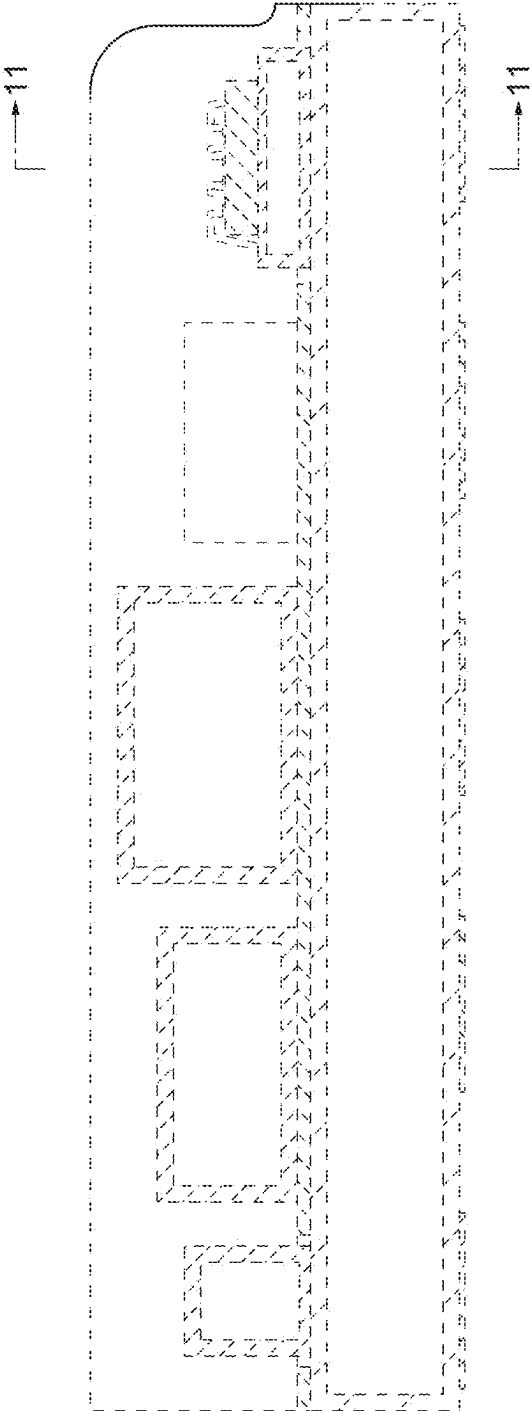


FIG. 9

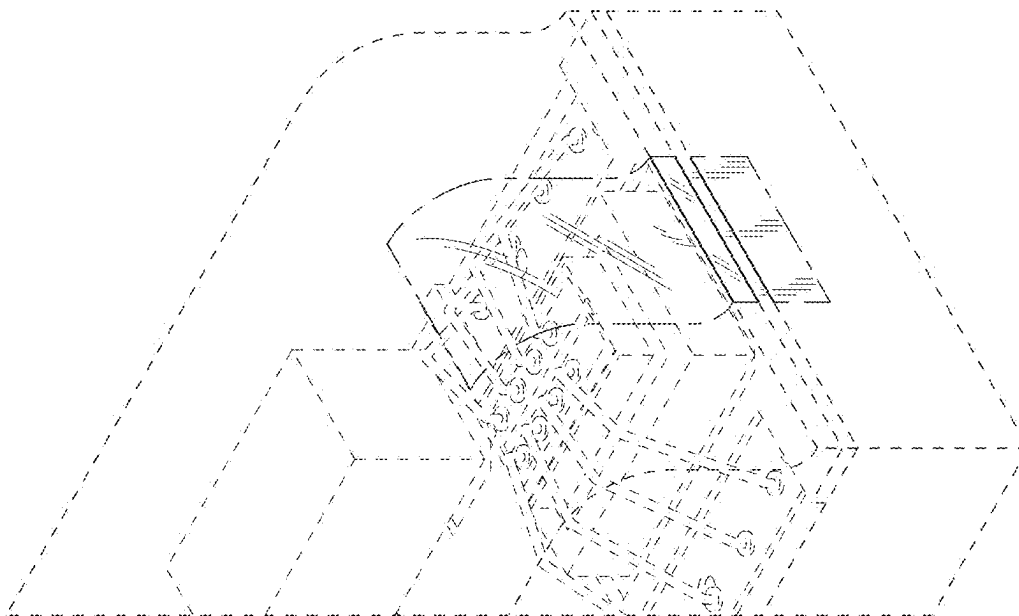


FIG. 10

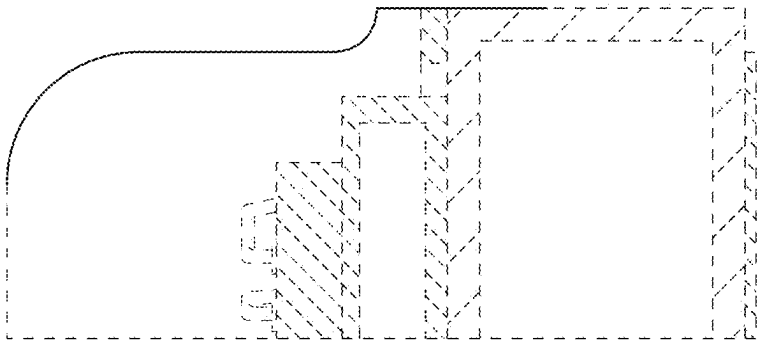


FIG. 11

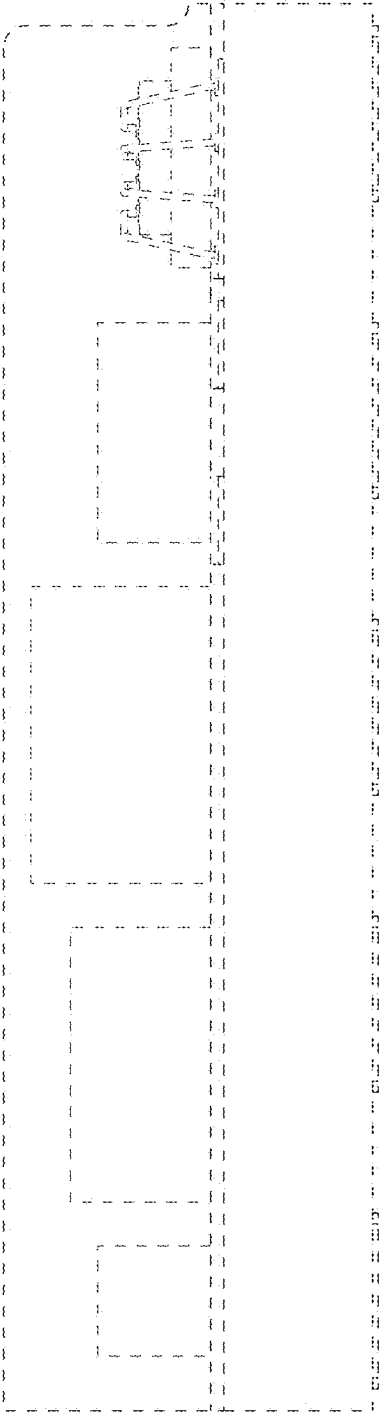


FIG. 12

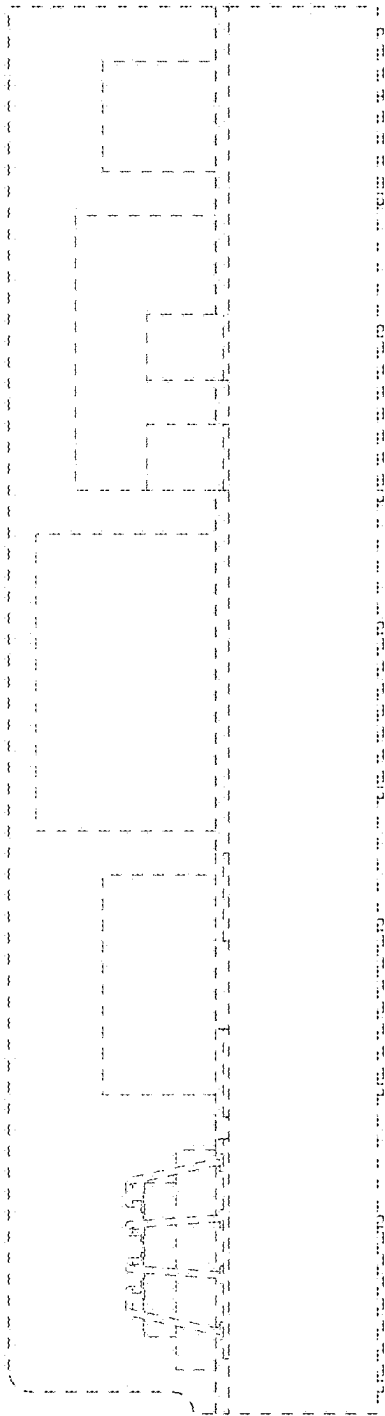


FIG. 13

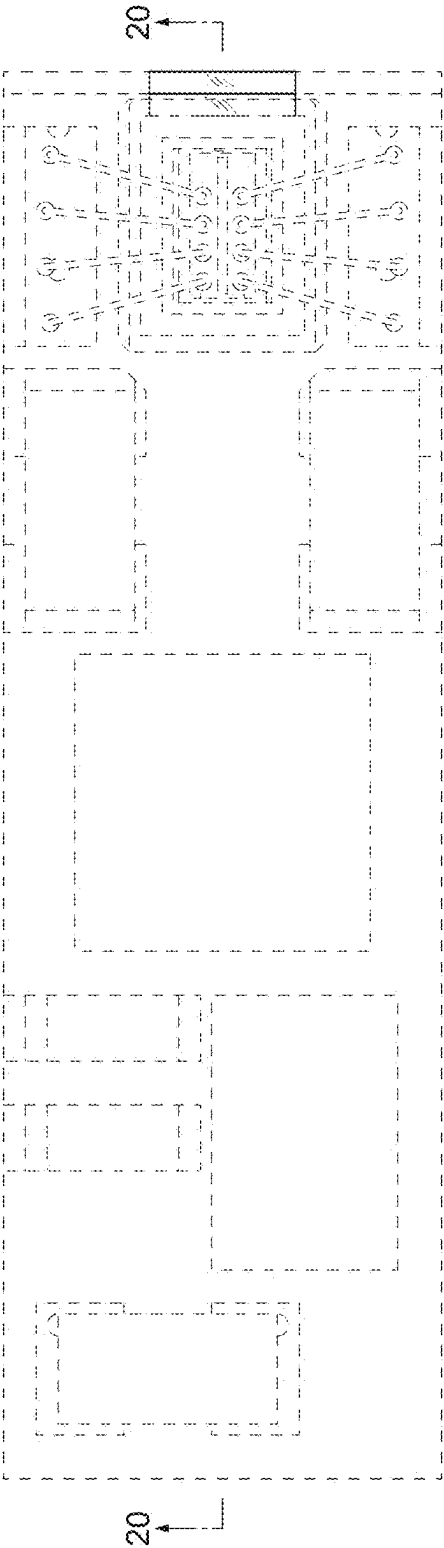


FIG. 14

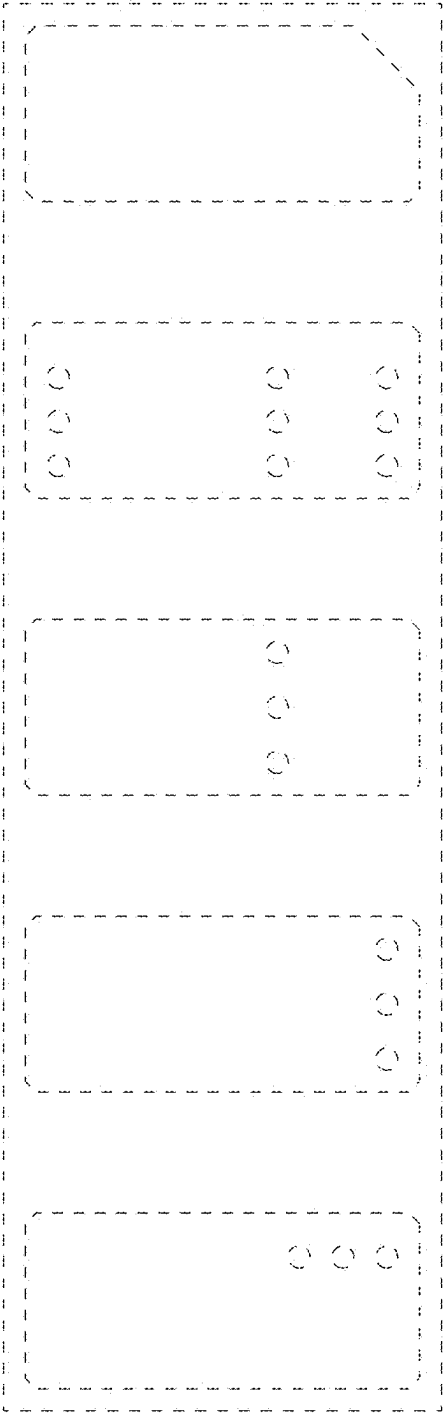


FIG. 15

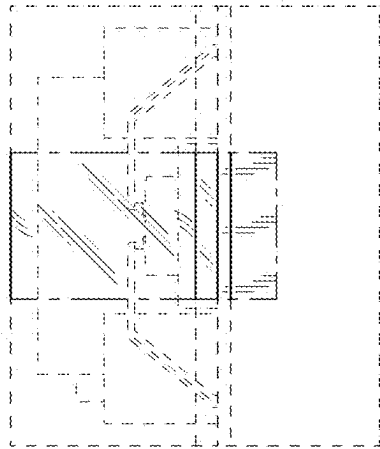


FIG. 16

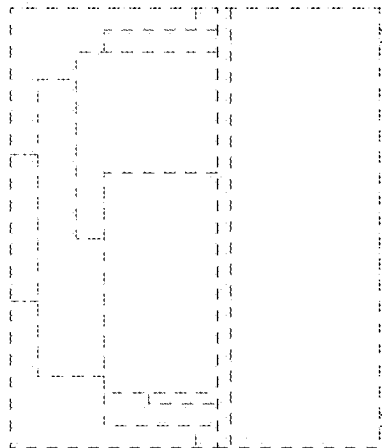


FIG. 17

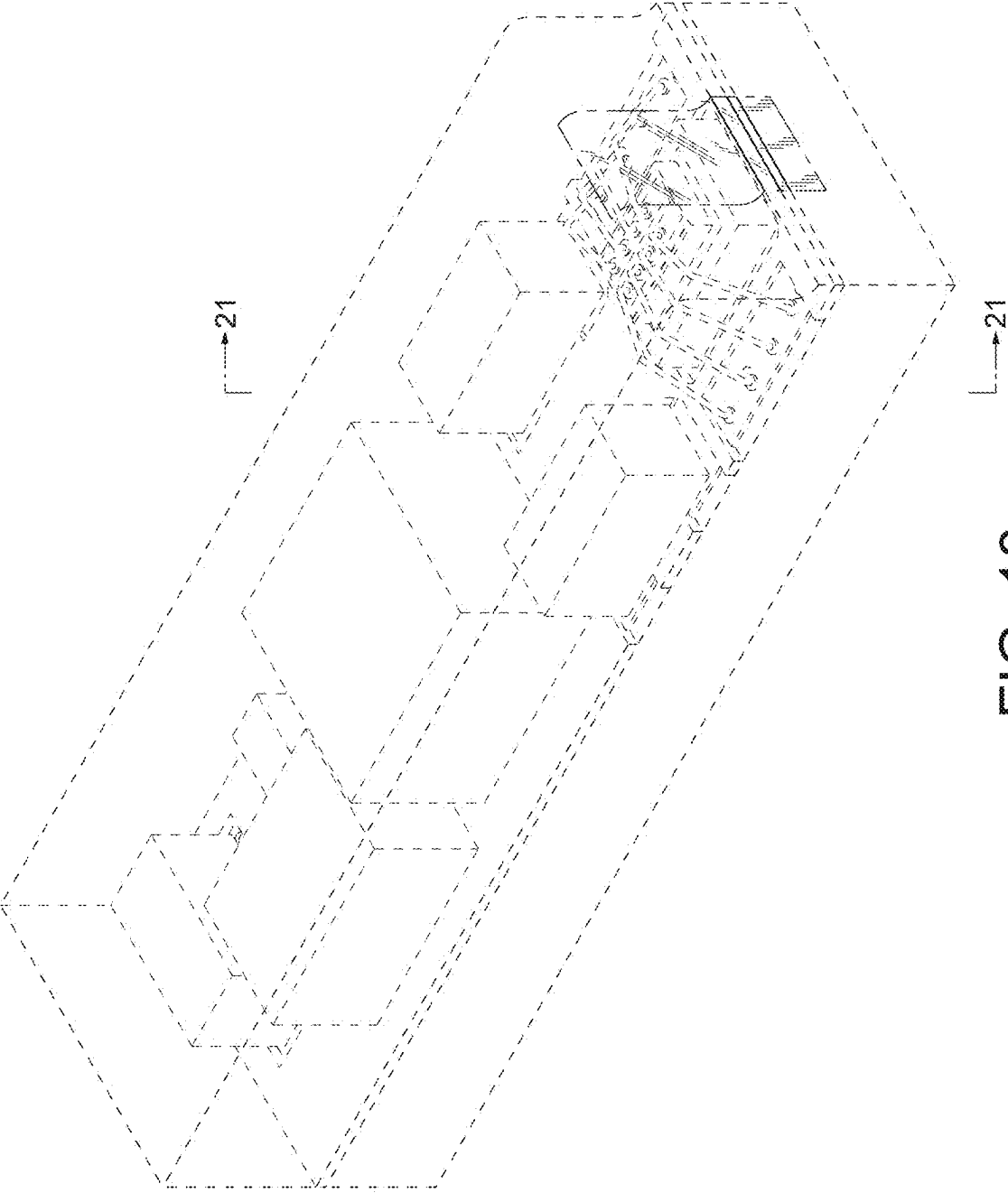


FIG. 18

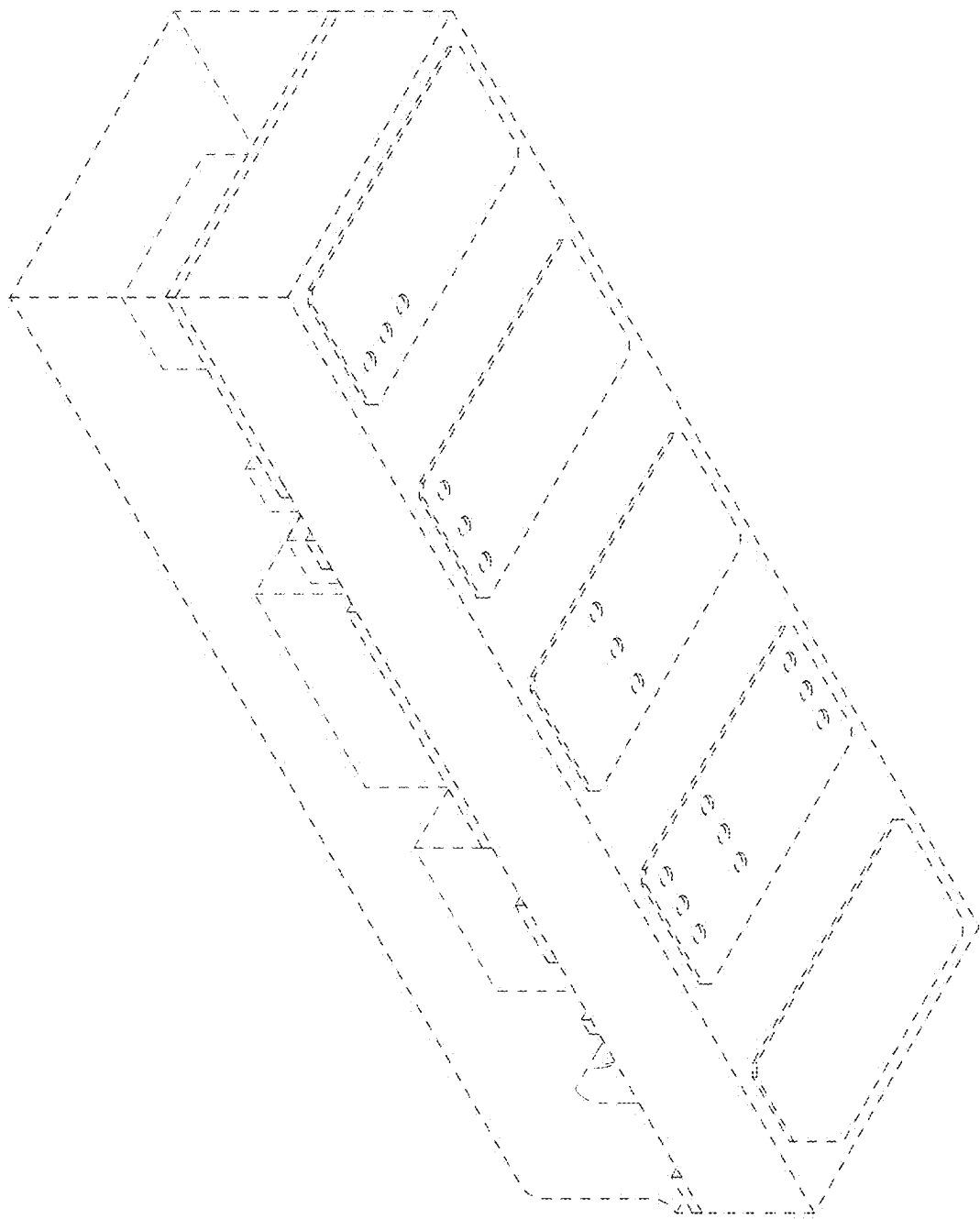


FIG. 19

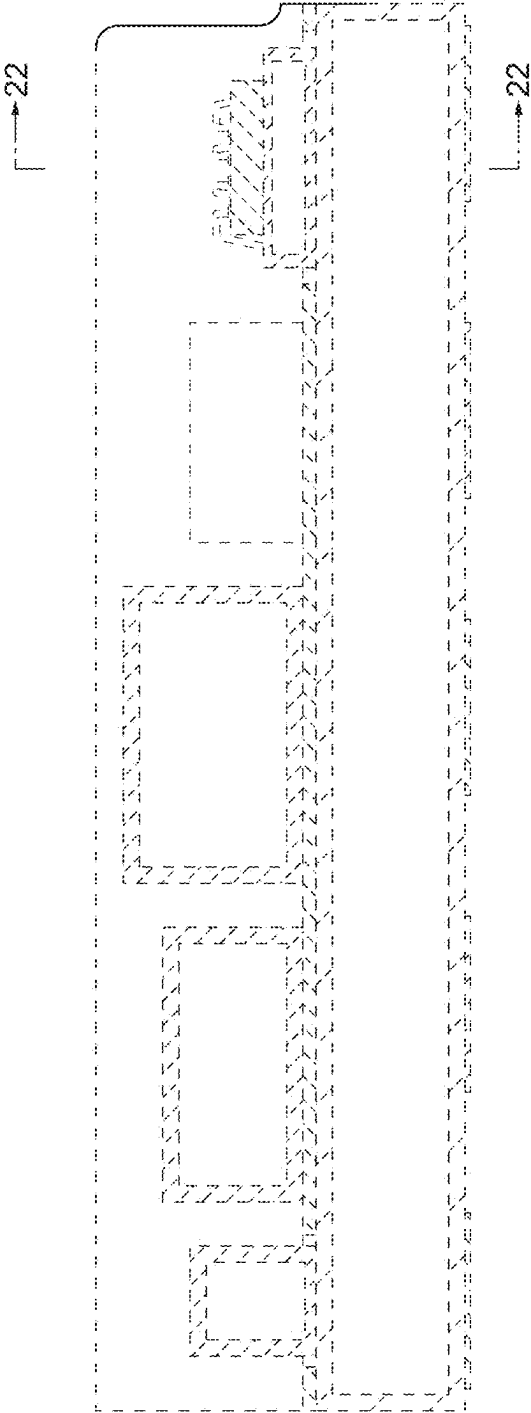


FIG. 20

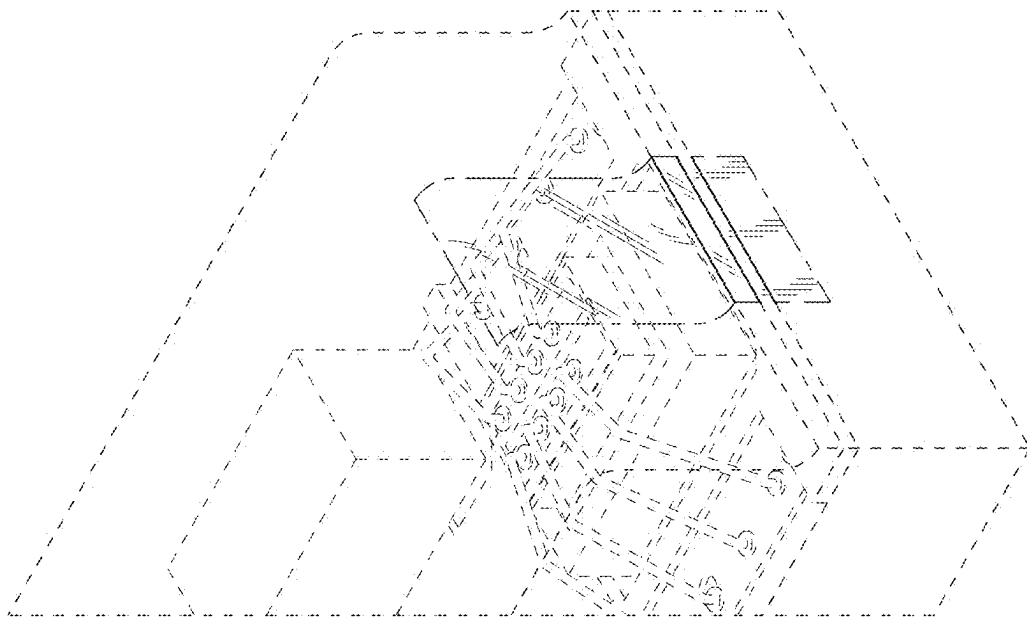


FIG. 21

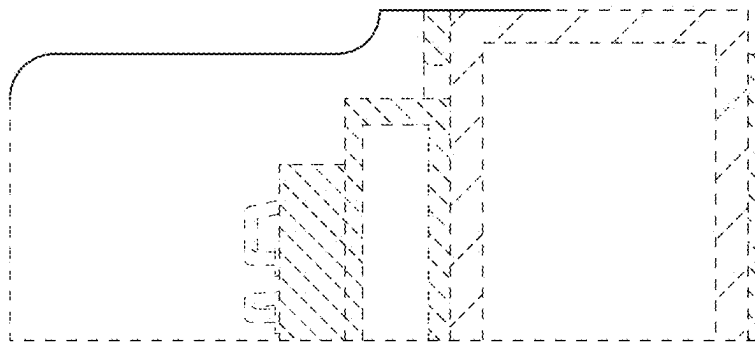


FIG. 22