



(51) International Patent Classification:

G09F 3/10 (2006.01) **B32B 37/00** (2006.01)
G09F 3/02 (2006.01) **H01R 11/00** (2006.01)

(21) International Application Number:

PCT/US2010/038806

(22) International Filing Date:

16 June 2010 (16.06.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

12/485,770 16 June 2009 (16.06.2009) US

(71) Applicant (for all designated States except US): **LEVITON MANUFACTURING CO., INC.** [US/US]; 201 North Service Road, Melville, New York 11747 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **GIBSON, Adam** [US/US]; 18232 - 36th Avenue West, Apt. G12, Lynnwood, Washington 98037 (US). **KOSANOVICH, Keith** [US/US]; 14427 - 34th Drive SE, Mill Creek, Washington 98012 (US). **BANAKAR, Max** [US/US]; 10324 NE 28th Place, Bellevue, Washington 98004 (US).

(74) Agents: **RUSYN, Paul F.** et al.; Graybeal Jackson LLP, 400 - 108th Avenue NE, Suite 700, Bellevue, Washington 98004 (US).

(81) Designated States (unless otherwise indicated, for every

kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every

kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— as to the identity of the inventor (Rule 4.17(i))

[Continued on next page]

(54) Title: ADHESIVE LAMINATE LABEL FOR A COMMUNICATION CONNECTOR JACK AND COMMUNICATION CONNECTOR JACK AND COMMUNICATIONS DEVICES INCLUDING SAME

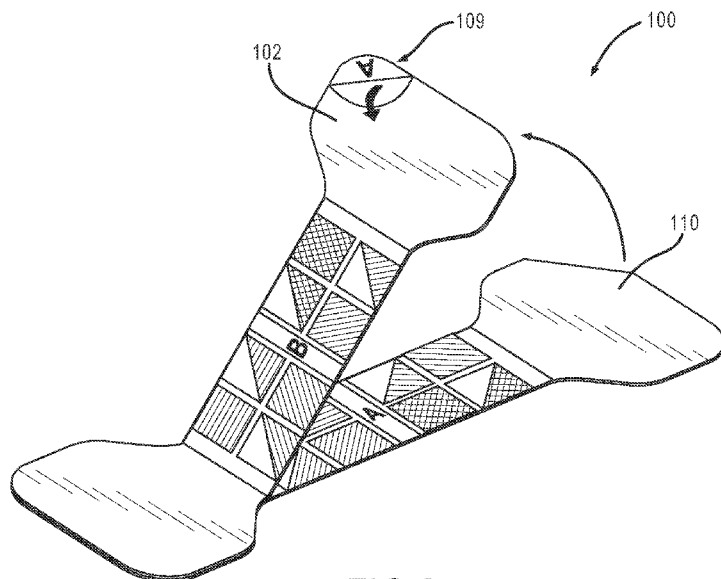


FIG. 2

(57) Abstract: An embodiment of the invention is directed to an adhesive laminate label for a communications device. The adhesive laminate label includes an upper label including visible indicia and at least one lower label. Each of the lower labels includes corresponding visible indicia that are different than the visible indicia of the upper label and of the other lower labels. At least the visible indicia of each lower label are covered by either the upper label or one of the other lower labels and the upper and lower labels are removably adhered to one another.



-
- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
- Published:**
- *without international search report and to be republished upon receipt of that report (Rule 48.2(g))*

**ADHESIVE LAMINATE LABEL FOR A COMMUNICATION CONNECTOR
JACK AND COMMUNICATION CONNECTOR JACK AND
COMMUNICATIONS DEVICES INCLUDING SAME**

5

PRIORITY CLAIM

[1] The present application is a Continuation-In-Part of copending United States Patent Application Serial No. 12/148,709, filed April 21, 2008, which application is incorporated herein by reference in its entirety.

10

BACKGROUND

[2] A modular communication connector jack is a receptacle that accepts a communication plug. Common communication connector jacks include Category 5, 5e, 6, 6a, or 10G electrical connector jacks that are configured to accept a communication plug, such as a voice/data/video plug. For example, such communication connector jacks may be configured to accept a communication plug from a communication cable, such as an Ethernet cable. Typically, such communication connector jacks are used to electrically interconnect telecommunication equipment.

[3] Communication connector jacks of this type typically include an electrically insulating housing that supports a plurality of electrical terminals at which electrical conductors of a multi-conductor cable are terminated. For example, many commercially available communication connector jacks employ insulation displacement contacts, and each electrical conductor may be terminated at one of the insulation displacement contacts using a specially designed termination tool.

[4] For proper functioning of a communication connector jack, it is important that each conductor of the multi-conductor cable is correctly paired, sequenced, and terminated at a correct one of the electrical terminals of the communication connector jack. Incorrect termination and subsequent connection to telecommunications equipment can impede the

functioning of and can cause damage to such telecommunications equipment. Furthermore, incorrect termination of the multi-conductor cable can cause costly and timely troubleshooting.

SUMMARY

- 5 [5] An embodiment of the invention is directed to an adhesive laminate label for a communications device. The adhesive laminate label includes an upper label including visible indicia and at least one lower label. Each of the lower labels includes corresponding visible indicia that are different than the visible indicia of the upper label and of the other lower labels. At least
10 the visible indicia of each lower label are covered by either the upper label or one of the other lower labels and the upper and lower labels are removably adhered to one another.

BRIEF DESCRIPTION OF THE DRAWINGS

- [6] **FIG. 1** is a top plan view of an adhesive laminate label, according to
15 one embodiment of the invention, including an upper label having a first termination diagram.

[7] **FIG. 2** is an isometric view of the adhesive laminate label shown in **FIG. 1** illustrating the upper label being removed from an underlying lower label.

- 20 [8] **FIG. 3** is a top plan view of a lower label of the adhesive laminate label after removal of the upper label shown in **FIGS. 1** and **2** that includes a second termination diagram that is different from the first termination diagram.

- [9] **FIG. 4** is a front isometric view of a modular communication
25 connector jack that includes the adhesive laminate label shown in **FIG. 1** positioned thereon according to one embodiment of the invention.

[10] **FIG. 5** is a side isometric view of the communication connector jack shown in **FIG. 4**.

[11] **FIG. 6** is a back isometric view of the communication connector jack shown in **FIG. 4** that shows the first termination diagram on the upper label of the adhesive laminate label.

[12] **FIG. 7** is an isometric view of the communication connector jack shown in **FIGS. 4 – 6** without the connector body that illustrates the printed circuit board and associated electrical contact tines and insulation displacement contacts.

[13] **FIG. 8** is a back isometric view of the communication connector jack shown in **FIG. 6** in which a multi-conductor cable is terminated according to the T568B standard.

[14] **FIG. 9** is a back isometric view of the communication connector jack shown in **FIG. 6**, with the upper label of the adhesive laminate label being removed from the underlying lower label.

[15] **FIG. 10** is a back isometric view of the communication connector jack with the lower label of the adhesive laminate label revealed after removal of the upper label, and a multi-conductor cable terminated according to the T568A wiring standard on the lower label.

[16] **FIG. 11** is an isometric view of an adhesive laminate label including multiple lower labels according to another embodiment of the invention.

[17] **FIG. 12** is an isometric view of a communications device including two adhesive laminate labels of **FIGS. 1** and/or **11** positioned thereon according to another embodiment of the invention.

[18] **FIG. 13** is an isometric view of a patch panel including the adhesive laminate label of **FIGS. 1** and/or **11** positioned thereon between rows of insulation displacement connectors (IDCs) according to another embodiment of the invention.

[19] **FIG. 14** is a rear view of the patch panel of **FIG. 13** illustrating in more detail the positioning of the adhesive laminate label of **FIGS. 1** and/or **11** between the rows of IDCs.

5

DETAILED DESCRIPTION

[20] Embodiments of the invention relate to an adhesive laminate label that includes an upper label having a first termination diagram (e.g., a T568B termination diagram) that covers a second termination diagram (e.g., a T568A termination diagram) of a lower label, and a modular communication connector jack including such an adhesive laminate label. The disclosed adhesive laminate label embodiments enable an installer to select which one of the upper and lower labels is visible to provide a visual aid so that the installer can correctly terminate signal lines (e.g., electrical conductors of a multi-conductor cable or optical fibers) at signal-line terminals of a modular communication connector jack in accordance with a termination diagram on the selected one of the upper and lower labels in view.

[21] **FIG. 1** is a top plan view of an adhesive laminate label **100** according to one embodiment of the invention. The adhesive laminate label **100** includes an upper label **102** having a first plurality of color-coded symbol pairs **104a-104d** arranged to represent a first termination diagram for terminating signal lines of a multi-signal-line cable at signal-line terminals of a modular communication connector jack. For example, in the illustrated embodiment, the first termination diagram is in accordance with the T568B wiring standard and a symbol (e.g., the letter “**B**” in the illustrated embodiment) may be provided on the upper label **102** to represent that the first termination diagram is in accordance with the T568B wiring standard. It should be noted that the use of the T568B wiring standard is merely one

example for the first termination diagram and other termination diagrams are contemplated.

[22] Still referring to **FIG. 1**, each symbol pair **104a-104d** includes a corresponding color-coded symbol **106a-106d** and a corresponding color-coded symbol **108a-108d**. The type of cross-hatching or lack thereof used to represent each color-coded symbol **106a-106d** and **108a-108d** represents the color. For example, in the T568B wiring standard, the color-coded symbols **106a-106d** may be blue, white/orange, white/brown, and green, respectively, and the color-coded symbols **108a-108d** may be white/blue, orange, brown, and white/green, respectively. As will be discussed in more detail with respect to **FIGS. 4 – 11**, each color-coded symbol pair **104a-104d** may be color coded to correspond with a pair of signal lines of a multi-signal-line cable, such as a pair of electrical conductors of a multi-conductor cable to be terminated at a modular communication connector jack to which the adhesive laminate label **100** is adhered.

[23] Referring to the isometric view of the adhesive laminate label **100** shown in **FIG. 2**, the adhesive laminate label **100** includes at least one underlying lower label **110** that is at least partially covered by the upper label **102**. For example, the upper label **102** may be removably adhered to the lower label **110**. The upper label **102** and lower label **110** may each be formed from a number of well-known polymeric materials. Further, a back side of the upper label **102** may include a pressure-sensitive adhesive or an adhesive backing for adhering it to the underlying lower label **110**, and a back side of the lower label **110** may employ the same or similar adhesives or adhesive backing for adhering it to a connector body of a modular communication connector jack. Thus, the back side of the lower label **110** includes an adhesive in some embodiments of the adhesive laminate label **100** for adhering the adhesive laminate label to a communications device.

In other embodiments of the adhesive laminate label **100** the back side of the lower label **110** does not include an adhesive, with the adhesive laminate label being attached to the associated communications device through other suitable techniques in such embodiments. For example, the
5 adhesive laminate label **100** could be sized such that when inserted between rows of IDCs on a communication device the adhesive laminate label is held in place by pressure applied to the adhesive laminate label by the IDCs. Alternatively, the communications device could include suitable slots or guides into which the adhesive laminate label is inserted to attach
10 the label to the device. Note that where the lower label **110** does not include an adhesive its back side, the back side of the upper label **102** still includes such an adhesive of course for removably adhering the upper label to the lower label.

[24] Still referring to **FIG. 2**, the upper label **102** may be manually peeled
15 off of the lower label **110**. A marking **109** positioned on the upper label **102**, such as a corner thereof, may indicate the presence of a second termination diagram on the underlying lower label **110**. For example, in the illustrated embodiment, the marking **109** is a letter “A” that indicates that the second termination diagram on the lower label **110** is in accordance
20 with the T568A wiring standard. However, any other suitable marking may be used.

[25] It is also noted that although the adhesive laminate label **100** is illustrated as including only one lower label **110**, in other embodiments of the invention, the adhesive laminate label **100** may include two or more
25 lower labels each of which may have a different respective termination diagram thereon that is different than that of the first termination diagram on the upper label **102**.

[26] **FIG. 3** is a top plan view of the lower label **110** after removal of the upper label **102**. The lower label **110** includes a second plurality of color-

coded symbol pairs **112a-112d** arranged to represent the second termination diagram for terminating electrical conductors of a multi-conductor cable at electrical terminals of a modular communication connector jack. The second termination diagram is different than that of the first termination diagram of the upper label **102**. For example, in the illustrated embodiment, the second termination diagram may be in accordance with the T568A wiring standard, and a symbol (e.g., the letter “A” in the illustrated embodiment) may be provided on the lower label **110** to represent that the second termination diagram is in accordance with the T568A wiring standard. It should be emphasized that the use of the T568A wiring standard is merely one example for the second termination diagram and other termination diagrams are contemplated. Prior to removal of the upper label **102**, the second plurality of color-coded symbol pairs **112a-112d** representing the second termination diagram are concealed by and not substantially visible through the upper label **102**.

[27] Still referring to **FIG. 3**, each symbol pair **112a-112d** includes a corresponding color-coded symbol **114a-114d** and a corresponding color-coded symbol **116a-116d**. Again, the type of cross-hatching or lack thereof used to represent each color-coded symbol **114a-114d** and **116a-116d** represents the color. For example, in the T568A wiring standard, the color-coded symbols **114a-114d** may be blue, white/green, white/brown, and orange, respectively, and the color-coded symbols **116a-116d** may be white/blue, green, brown, and white/orange, respectively. As will be discussed in more detail with respect to **FIGS. 4 – 11**, each color-coded symbol pair **112a-112d** may be color coded to correspond with a pair of signal lines of a multi-signal-line cable (e.g., electrical conductors of a multi-conductor cable) to be terminated at a modular communication connector jack on which the adhesive laminate label **100** is positioned.

[28] The adhesive laminate label **100** allows an installer of a communication connector jack to select between multiple (e.g., at least two) different termination diagrams for terminating signal lines of a multi-signal-line cable, such as electrical conductors, at signal-line terminals of a modular communication connector jack. When the communication connector jack is to be terminated according to the first termination diagram on the upper label **102** of the adhesive laminate label **100**, the installer can leave the upper label **102** in place adhered to and concealing the second termination diagram on the underlying lower label **110**. When the communication connector jack is to be terminated according to the second termination diagram on the lower label **110** of the adhesive laminate label **100**, the installer may manually peel the upper label **102** off of the underlying lower label **110** to expose the lower label **110** and the second termination diagram thereof.

[29] It is noted that in the illustrated embodiment of the adhesive laminate label **100** shown in **FIGS. 1 – 3**, each of the color-coded symbols **106a-106d**, **108a-108d**, **114a-114d**, and **116a-116d** is given a particular color or combination of colors. However, in other embodiments of the invention, symbols besides color-coded symbols may be used. In another embodiment, individual letters may be used to represent a particular color. For example, the color-coded symbol **106a** may be replaced with a letter “**B**” for blue or another suitable symbol.

[30] The use of the adhesive laminate label **100** is better understood with reference to a modular communication connector jack **400** shown in **FIGS. 4 – 10**. **FIGS. 4** and **5** are front and side isometric views, respectively, of the communication connector jack **400** having the adhesive laminate label **100** positioned thereon according to one embodiment of the invention. The illustrated communication connector jack **400** is a Category 6 RJ series electrical connector jack, which is also commonly referred to as an eight

position electrical connector jack. However, the adhesive laminate label **100** may be used on a multitude of other types of communication connector jacks besides a Category 6 RJ series electrical connector jack, such as a six or a ten position electrical connector jack. The communication connector jack **400** includes a connector body **402** defining a recess **404** configured to receive a communication plug (not shown), such as a voice/data/video plug. The connector body **402** may also house a printed circuit board **406** or other circuitry, and further houses a plurality of electrical contact tines **408** that may be individually electrically coupled to the printed circuit board **406**. Each electrical contact tine **408** projects forwardly from the printed circuit board **406** into the recess **404**, and is configured to electrically connect with electrical contacts of the communication plug (not shown) inserted within the recess **404**. For example, the communication plug may be a modular connector plug having a tab configured to releasably lock with the connector body **402** when inserted into the recess **404**.

[31] **FIG. 6** is a back isometric view of the communication connector jack **400**, and more clearly shows the relationship of the first termination diagram on the upper label **102** of the adhesive laminate label **100** to a plurality of electrical terminals **410-417** (i.e., signal-line terminals) partially enclosed by the connector body **402**. Referring to **FIG. 7**, each electrical terminal **410-417** is connected to and projects rearwardly from the printed circuit board **406**. The electrical terminals **410-417** are each configured to be electrically coupled to a corresponding electrical conductor of a multi-conductor cable. Each electrical terminal **410-417** is electrically coupled to a corresponding one of the electrical contact tines **408** via circuitry formed in the printed circuit board **406**. Although each electrical terminal **410-417** is shown configured as an insulation displacement contact, other types of electrical terminals may be used. During use, the electrical contact tines **408** carry data signals (e.g., voice, video, and/or data signals) to the

communication plug inserted in the recess **404** from the multi-conductor cable connected to the electrical terminals **410-417** and vice versa. It is noted that in other embodiments of the invention, the printed circuit board **406** may be omitted, and each electrical contact tine **408** may be electrically
5 coupled to a corresponding one of the electrical terminals **410-417** without an intervening printed circuit board **406**.

[32] Turning again to **FIG. 6**, the adhesive laminate label **100** may be positioned on a rear portion of the connector body **402** and recessed between the electrical terminals **410-413** and **414-417**. The color-coded
10 symbol pairs **104a-104d** (not labeled) on the upper label **102** may be arranged in two rows so that the each color-coded symbol **106a-106d** and **108a-108d** is positioned proximate to a corresponding one of the electrical terminals **410-417** to indicate the type of color-coded electrical conductor of a pair of electrical conductors to terminate.

15 [33] As can be appreciated from **FIG. 6**, the color-coded symbols **106a-106d** and **108a-108d** may be sufficiently large and easily readable by the installer that has to perform the tedious and repetitive task of terminating electrical conductors at the electrical terminals **410-417**. For example, an installer may have to install several hundred communication connector
20 jacks in a typical day during construction of a building. Often, installation of the communication connector jacks is performed in the dark or under other less than optimal light conditions.

[34] **FIG. 8** is a back isometric view of the communication connector jack **400** in which a multi-conductor cable **800** (e.g., a multi-signal-line cable) is
25 terminated at the electrical terminals **410-417** according to the T568B standard of the first wiring pattern on the upper label **102**. The multi-conductor cable **800** includes pairs of color-coded electrical conductors **801-804** (e.g., twisted pairs of color-coded electrical conductors). The pair of color-coded electrical conductors **801** is associated with the color-coded

symbol pair **104a** (not labeled), and includes an electrical conductor **805** having blue insulation and an electrical conductor **806** having white insulation. The electrical conductor **805** is terminated at the electrical terminal **410** proximate to the correspondingly color-coded symbol **106a**
5 and the electrical conductor **806** is terminated at the electrical terminal **411** proximate to the correspondingly color-coded symbol **108a**. The pair of color-coded electrical conductors **802** is associated with the color-coded symbol pair **104b** (not labeled), and includes an electrical conductor **807** having orange insulation and an electrical conductor **808** having white
10 insulation. The electrical conductor **807** is terminated at the electrical terminal **413** proximate to the correspondingly color-coded symbol **108b** and the electrical conductor **808** is terminated at the electrical terminal **412** proximate to the correspondingly color-coded symbol **106b**.

[35] Still referring to **FIG. 8**, the pair of color-coded electrical conductors
15 **803** is associated with the color-coded symbol pair **104c** (not labeled), and includes an electrical conductor **809** having brown insulation and an electrical conductor **810** having white insulation. The electrical conductor **809** is terminated at the electrical terminal **415** proximate to the correspondingly color-coded symbol **108c** and the electrical conductor **810**
20 is terminated at the electrical terminal **414** proximate to the correspondingly color-coded symbol **106c**. The pair of color-coded electrical conductors **804** is associated with the color-coded symbol pair **104d** (not labeled), and includes an electrical conductor **811** having green insulation and an electrical conductor **812** having white insulation. The electrical conductor
25 **811** is terminated at the electrical terminal **416** proximate to the correspondingly color-coded symbol **106d** and the electrical conductor **812** is terminated at the electrical terminal **417** proximate to the correspondingly color-coded symbol **108d**.

[36] Referring to **FIG. 9**, when the multi-conductor cable **800** is to be terminated according to the second termination diagram on the underlying lower label **110**, an installer may remove the upper label **102** of the adhesive laminate label **100** from the underlying lower label **110**. **FIG. 10** is a back isometric view of the communication connector jack **400** with the lower label **110** of the adhesive laminate label **100** revealed after removal of the upper label **102**. As shown in **FIG. 10**, the color-coded electrical conductors **805-812** of corresponding pairs of color-coded electrical conductors **801-804** may be terminated in accordance with the second termination diagram shown on the lower label **110** that, in the illustrated embodiment, is in accordance with the T568A wiring standard.

[37] Although **FIGS. 4 – 10** illustrates a specific type of configuration for the communication connector jack **400**, many other different types of communication connector jack configurations may be employed in combination with the adhesive laminate label **100**. For example, in other embodiments of the invention, a connector body of a modular communication connector jack may not have sufficient space between insulation displacement contacts for the adhesive laminate label **100**. In such embodiments, the adhesive laminate label **100** may be positioned on a side portion of the connector body, while still providing a termination diagram that an installer can terminate electrical conductors or other types of signal lines at the signal-line terminals. For example, the adhesive laminate label **100** may not be positioned between the signal-line terminals. Thus, as desired or needed, the adhesive laminate label **100** may be positioned on any suitable location of a connector body of a communication connector jack. Moreover, in other embodiments of the invention, electrical terminals or other signal-line terminals of a communication connector jack may be arranged generally in a single row or staggered, as opposed to two rows.

[38] **FIG. 11** is an isometric view of an adhesive laminate label **1100** including an upper label **102** and multiple lower labels **110** according to another embodiment of the invention. The embodiment of **FIG. 11** includes three lower labels **110**, which are designated **110-1**, **110-2**, and **110-3**.
5 More than three lower labels **110** or only two lower labels are included in other embodiments of the invention. The upper label **102** and each of the lower labels **110** include visible indicia (not shown) that function to assist an installer or other user of a communications device (not shown) to which the label **1100** is attached to correctly connect signal lines to the
10 communications device. The visible indicia may be, for example, termination diagrams as previously discussed with reference to the adhesive laminate label **100** of **FIG. 1**. In this situation, each of the upper label **102** and lower labels **110** includes symbol pairs **104a-104d** (not shown in **FIG. 11**) that include a corresponding color-coded symbol **106a-106d** and a corresponding color-coded symbol **108a-108d**, as illustrated in
15 **FIGS. 1-3**.

[39] The construction of the adhesive laminate label **1100**, such as materials utilized to form the label, will be understood from the more detailed description of the adhesive laminate label **100** provided above with
20 reference to the embodiments shown in **FIGS. 1-3**. Thus, for the sake of brevity, the construction of the adhesive laminate label **1100** will not be discussed in more detail herein. Briefly, note that in the adhesive laminate label **1100** the upper and lower labels **102**, **110** are removably adhered to one another and that a lowermost or final one of the lower labels **110** may
25 or may not include an adhesive on a back side of that final lower label, just as described above regarding the lower label **110** of **FIGS. 1-3**. In some embodiments it may be desirable for the final lower label **110-3** to include no adhesive on its back side, with the adhesive laminate label **1100** instead being attached to an associated communications device (not shown)

through other suitable ways, such as being held in place by pressure applied to the adhesive laminate label from IDCs or other signal line termination contacts on the communications device, or through suitable slots or guides on the communications device.

5 **[40]** In the embodiment of **FIG. 11**, the upper label **102** includes the letter "A" and the lower labels **110-1**, **110-2**, and **110-3** include the letters "B," "C," and "D," respectively. Each letter A-D represents a corresponding termination diagram that is contained on the corresponding upper label **102** or lower label **110**. The upper label **102** further includes a marking **1102**
10 and each of the lower labels **110-1** and **110-2** also include similar markings **1104** and **1106**, respectively. The markings **1102-1106** are positioned at a corner of the corresponding label **102**, **110**, and indicate the presence of another termination diagram on the underlying label along with information about that other termination diagram. The precise locations of the markings
15 **1102-1106** on their respective labels may of course vary, as may the specific visual information conveyed by respective markings.

[41] The marking **1102** is the letter "B" to indicate that the termination diagram contained on the immediate underlying lower label, lower label **110-1** in this case, is in accordance with some wiring standard associated
20 with the letter "B." Similarly, the marking **1104** is the letter "C" to indicate that the termination diagram contained on the immediate underlying lower label, lower label **110-2** in this case, is in accordance with some wiring standard associated with the letter "A." Finally, the marking **1106** is the letter "D" to indicate that the termination diagram contained on the
25 immediate underlying lower label, lower label **110-3** in this case, is in accordance with some wiring standard associated with the letter "D."

[42] **FIG. 12** is an isometric view of a communications device **1200** including two adhesive laminate labels **100** and/or **1100** of **FIGS. 1** and **11** positioned thereon according to another embodiment of the invention. The

communications device **1200** may be any type of device that includes signal line termination ports **P** to which signal lines are connected and where utilization of the adhesive laminate labels **100/1100** may assist an installer or other user of the device to properly connect signal lines to the device. In the example of **FIG. 12**, the communications device **1200** includes a housing **1202** having a faceplate **1204** through which a number of ports **P1-P16** are accessed. The ports **P1-P16** are arranged in two rows on the faceplate **1204**, with ports **P1-P4** and **P5-P8** being contained in a first row and ports **P9-P12** and **P13-P16** being contained in a second row.

A first one of the adhesive laminate labels **100/1100** is positioned on the faceplate **1204** between the ports **P1-P4** and **P9-P12**. The second one of the adhesive laminate labels **100/1100** is positioned on the faceplate **1204** between the ports **P5-P8** and **P13-P16**. Adhesive laminate labels **100/1100** may also be a single elongated label positioned on the faceplate **1204** and extending between the ports **P1-P8** and **P9-P16**. Each of these adhesive laminate labels **100/1100** includes visible indicia, which are not shown in **FIG. 12**, to assist an installer or other user of the communications device **1200** in connecting signal lines to the ports **P1-P16**. The installer or other user removes the upper and lower labels of the adhesive laminate labels **100/1100** until the desired termination diagram is exposed and thereafter connects signal lines to the ports **P1-P16** pursuant to the exposed termination diagram. In one embodiment, the communications device **1200** is a "fiber box" that interconnects fiber optic cables in applications requiring patching, cross-connect, and/or splicing of single mode and multimode fiber optic cables, as will be appreciated by those skilled in the art.

[43] **FIG. 13** is an isometric view of a patch panel **1300** including the adhesive laminate labels **100** and/or **1100** of **FIGS. 1** and **11** positioned thereon between rows of insulation displacement connectors (IDCs) according to another embodiment of the invention. The patch panel **1300**

includes a circuit board **1302** having a front side **1302a** to which a number of communication connector jacks **1304-1** to **1304-6** are attached. The circuit board **1302** has a back side **1302b** to which a number of insulation displacement connectors (IDCs) **1306-1** to **1306-6** are attached. Electrical components within the communication connector jacks **1304** are electrically connected to electrical components of the IDCs **1306** through conductive traces (not shown) of the circuit board **1302**. The IDCs **1306-2**, **1306-4**, and **1306-6** form a first row of IDCs on the backside **1302b** of the circuit board **1302** while IDCs **1306-1**, **1306-3**, and **1306-5** form a second row of IDCs. Three adhesive laminate labels **100** and/or **1100** of the embodiments of **FIGS. 1 and 11**, respectively, are attached to the back side **1302b** of circuit board **1302** between the rows of IDCs **1306** as shown. Adhesive laminate labels **100/1100** may also be a single elongated label positioned on the back side **1302b** and extending between the row of IDCs **1306-2** to IDCs **1306-6** and the row of IDCs **1306-1** to IDCs **1306-5**. An installer removes the upper label and one or more of the lower labels as appropriate to expose the desired termination diagram contained on the labels **100/1100**, and thereafter connects signal lines to the IDCs **1306** according to the exposed termination diagrams.

[44] **FIG. 14** is a rear view of the patch panel **1300** of **FIG. 13** illustrating in more detail the positioning of the adhesive laminate labels **100/1100** of **FIGS. 1 and 11** between the rows of IDCs **1306** on the back side **1302b** of the circuit board **1302**. Each adhesive laminate label **100/1100** includes termination diagrams represented as squares along the upper and lower edges of the label. In the example illustrated, a single adhesive laminate label **100/1100** therefore includes the termination diagram for the upper IDC **1306** and lower IDC positioned adjacent the adhesive laminate label. For example, the adhesive laminate label **100/1100** on the far left of the circuit board **1302** contains termination diagrams for the IDC **1306-2** and IDC

1306-1. In another embodiment, the adhesive laminate labels **100/1100** are still positioned between the rows of IDCs **1306** but for each IDC a separate adhesive laminate label is affixed to the backside **1302b** of the circuit board **1302** adjacent that IDC. . Adhesive laminate labels **100/1100**
5 may also be a single elongated label positioned on the back side **1302b** and extending between the row of IDCs **1306-2, 1306-4, 1306-6** and the row of IDCs **1306-1, 1306-3, 1306-5**. **FIG. 14** also illustrates a housing **1400**, which is not shown in **FIG. 13**, to which the circuit boards **1302** of the patch panel **1300** are typically connected, as will be appreciated by those
10 skilled in the art. One skilled in the art will understand the detailed construction and operation of the patch panel **1300** and thus, for the sake of brevity, the patch panel will not be described in more detail herein.

[45] Note that although the patch panel **1300** is shown and described as including IDCs, other types of wire termination contacts could be utilized in
15 place of the IDCs, such as terminals, bonding pads, soldering, vias or through holes, and so on. The same is true for the ports **P** of the communications device **1200** of **FIG. 12**, where each of these ports may be any suitable type of wire termination contact and may also be other types of ports such as fiber optic ports.

20 [46] The teachings disclosed herein may also be employed with other signal lines besides electrical conductors. For example, in an optical communication connector jack, optical fibers may be terminated according to a termination diagram on a label of an adhesive laminate label at signal-line terminals. In such an embodiment, each optical fiber is terminated at a
25 corresponding ferrule (*i.e.*, a signal-line terminal) housed by a connector body and the connector body is configured to receive or otherwise interface with an optical communication plug.

[47] The principles of the embodiments disclosed herein are also applicable to patch panels including multiple communication connector

jacks, face plates, ceiling enclosures, floor boxes, and many other different applications of the disclosed adhesive laminate labels and communication connector jacks. Also note that the term “adhesive laminate label” is not meant to indicate a particular type of label, but is intended as a functional
5 descriptive name for any suitable label that may be formed to include multiple layers adhered to one another and that may be attached to a communications device as described with reference to the various embodiments of the invention described above.

[48] While various aspects and embodiments of the invention have been
10 disclosed herein, other aspects and embodiments will be apparent to those skilled in the art. The various aspects and embodiments disclosed herein are for purposes of illustration and are not intended to be limiting.

CLAIMS

1. An adhesive laminate label for a communications device,
comprising:
an upper label including visible indicia; and
5 at least one lower label, each of the lower labels including
corresponding visible indicia that are different than the visible indicia of the
upper label and of the other lower labels, and wherein at least the visible
indicia of each lower label are covered by either the upper label or one of
the other lower labels and wherein the upper and lower labels are
10 removably adhered to one another.
2. The adhesive laminate label of claim 1 wherein at least
some of the visible indicia on the upper and lower labels are termination
diagrams.
3. The adhesive laminate label of claim 2 wherein at least
15 some of the termination diagrams comprise a plurality of color-coded
symbol pairs.
4. The adhesive laminate label of claim 3 wherein at least
some of the plurality of color-coded symbol pairs are arranged in two rows
to form the corresponding termination diagram.
- 20 5. The adhesive laminate label of claim 2 wherein each of
the termination diagrams is in accordance with a corresponding wiring
standard
6. The adhesive laminate label of claim 1 wherein the
upper label and each lower label are configured to fit between first and
25 second rows of signal-line termination ports of the communications device.

7. The adhesive laminate label of claim 1,
wherein the upper label comprises a marking thereon that indicates the presence of the first lower label to which the upper label is removably adhered; and
- 5 wherein at least some of the lower labels include similar markings thereon that indicate the presence of another lower label to which a given lower label is removably adhered.
8. The adhesive laminate label of claim 1 wherein the adhesive laminate label includes a plurality of lower labels.
- 10 9. The adhesive laminate label of claim 8 wherein a lowermost one of the adhesive labels includes adhesive on a back side of that lowermost adhesive label.
10. The adhesive laminate label of claim 8 wherein a lowermost one of the adhesive labels does not include adhesive on a back
- 15 side of that lowermost adhesive label.
11. The adhesive laminate label of claim 1 wherein the adhesive laminate label includes a single lower label.
12. The adhesive laminate label of claim 11 wherein the lower label includes adhesive on a back side of the lower label.
- 20 13. The adhesive laminate label of claim 11 wherein the lower label does not include adhesive on a back side of the lower label.
14. A communications device, comprising:
a device body including at least one signal line termination port; and

at least one adhesive laminate label positioned on the device body, each adhesive laminate label including:

an upper label including visible indicia; and

at least one lower label, each of the lower labels including corresponding visible indicia that are different than the visible indicia of the upper label and of the other lower labels, and wherein at least the visible indicia of each lower label are covered by either the upper label or one of the other lower labels and wherein the upper and lower labels are removably adhered to one another.

10 15. The communications device of claim 14 wherein the communications device comprises a fiber optic box and wherein each of the signal line termination ports comprises a fiber optic port.

15 16. The communications device of claim 14 wherein the communications device comprises a patch panel and wherein each of the signal line termination ports comprises a plurality of wire termination contacts associated with a corresponding communication connector jack.

17. The communications device of claim 14 wherein each of the signal line termination ports comprises a plurality of insulation displacement contacts.

20 18. The communications device of claim 14 wherein the device body includes a plurality of signal line termination ports arranged in first and second rows, and wherein each adhesive laminate label is positioned between the first and second rows of signal line termination ports.

25 19. The communications device of claim 14 wherein each upper and lower label includes a corresponding termination diagram and

wherein each adhesive laminate label is mounted on the body so the termination diagrams of the associated upper and lower labels are positioned proximate to a corresponding one of the signal line termination ports.

5 20. The communications device of claim 14 wherein the adhesive laminate label includes a plurality of lower labels.

21. The communications device of claim 14 wherein at least some of the visible indicia on the upper and each lower label are termination diagrams.

10 22. The communications device of claim 21 wherein at least some of the termination diagrams comprise a plurality of color-coded symbol pairs.

23. The communications device of claim 22 wherein at least some of the plurality of color-coded symbol pairs are arranged in two rows
15 to form the corresponding termination diagram.

24. The communications device of claim 14,
wherein the upper label comprises a marking thereon that indicates the presence of the first lower label to which the upper label is removably adhered; and
20 wherein at least some of the lower labels include similar markings thereon that indicate the presence of another lower label to which a given lower label is removably adhered.

25. A patch panel, comprising:
at least one circuit board, each circuit board including first and
25 second sides and including a plurality of electrically conductive traces;

a plurality of communication connector jacks, each communication connector jack physically connected to the first side of a corresponding circuit board;

5 a plurality of wire termination contacts, each wire termination contact physically connected to the second side of a corresponding circuit board, the wire termination contacts arranged in at least one row on the second side of each circuit board and the communication connector jacks connected to a given circuit board electrically coupled to the wire termination contacts connected to that circuit board through the electrically
10 conductive traces of that circuit board; and

at least one adhesive laminate label attached to the patch panel, each adhesive laminate label being attached so the adhesive laminate label is adjacent to at least some of the wire termination contacts, and each adhesive laminate label including:

15 an upper label including visible indicia; and
at least one lower label, each of the lower labels including corresponding visible indicia that are different than the visible indicia of the upper label and of the other lower labels, and wherein at least the visible indicia of each lower label are covered by either the upper label
20 or one of the other lower labels and wherein the upper and lower labels are removably adhered to one another

26. The patch panel of claim 25 further comprising a housing physically connected to the circuit board.

27. The patch panel of claim 25 wherein each adhesive
25 laminate label is attached to a corresponding one of the circuit boards.

28. The patch panel of claim 27 wherein at least some of the wire termination contacts are insulation displacement connectors.

29. The patch panel of claim 25 wherein at least some of the visible indicia on the upper and lower labels are termination diagrams.

30. The patch panel of claim 29 wherein at least some of the termination diagrams comprise a plurality of color-coded symbol pairs.

5 31. The patch panel of claim 30 wherein at least some of the plurality of color-coded symbol pairs are arranged in two rows on each label to form the corresponding termination diagram.

32. The patch panel of claim 25 wherein for each adhesive laminate label,
10 the upper label comprises a marking thereon that indicates the presence of the first lower label to which the upper label is removably adhered; and
at least some of the lower labels include similar markings thereon that indicate the presence of another lower label to which a given
15 lower label is removably adhered.

33. The patch panel of claim 25 wherein at least some of the adhesive laminate labels includes a plurality of lower labels.

34. The patch panel of claim 33 wherein for each adhesive laminate label including a plurality of lower labels a lowermost one of the
20 lower labels does not include adhesive on a back side of the lowermost lower label.

35. The patch panel of claim 33 wherein for each adhesive laminate label including a plurality of lower labels a lowermost one of the lower labels includes adhesive on a back side of the lowermost lower label

36. The patch panel of claim 25 wherein at least some of the adhesive laminate labels include a single lower label.

37. The patch panel of claim 36 wherein for each adhesive laminate label including a single lower label that single lower label does not
5 include adhesive on a back side of the single lower label.

38. The patch panel of claim 36 wherein for each adhesive laminate label including a single lower label that single lower label includes adhesive on a back side of the single lower label.

39. A method, comprising:
10 selectively displaying only one termination diagram of at least two termination diagrams of an adhesive laminate label affixed to a patch panel; and
terminating a plurality of signal lines at corresponding wire termination contacts of the patch panel in accordance with the selectively
15 displayed termination diagram.

40. The method of claim 39 further comprising physically attaching the adhesive laminate label to the patch panel prior to the operations of selectively displaying and terminating.

41. The method of claim 39 wherein selectively displaying
20 only one termination diagram of at least two termination diagrams of an adhesive laminate label affixed to the patch panel comprises peeling an upper label having a first termination diagram off of an underlying lower label having a second termination diagram that is different than that of the first termination diagram until the desired termination diagram is displayed.

42. The method of claim 41 wherein terminating each of the signal lines at a corresponding one of the wire termination contacts in accordance with the second termination diagram comprises terminating each of the signal lines at a corresponding one of the wire termination contacts located proximate to a correspondingly color-coded symbol of the second termination diagram.

43. The method of claim 39 wherein:
selectively displaying comprises leaving an upper label having a first termination diagram at least partially covering an underlying lower label having a second termination diagram that is different than that of the first termination diagram; and
terminating comprises terminating each of the signal lines at a corresponding one of the signal-line terminals in accordance with the first termination diagram.

44. The method of claim 43 wherein terminating comprises terminating each of the signal lines at a corresponding one of the wire termination contacts located proximate to a correspondingly color-coded symbol of the first termination diagram.

45. A method, comprising:
physically attaching an adhesive laminate label to a patch panel, the adhesive laminate label including:

- an upper label including visible indicia; and
at least one lower label, each of the lower labels including corresponding visible indicia that are different than the visible indicia of the upper label and of the other lower labels, and wherein at least
- 5 the visible indicia of each lower label are covered by either the upper label or one of the other lower labels and wherein the upper and lower labels are removably adhered to one another.

46. The method of claim 45 further comprising:
selectively displaying only one termination diagram of at least
- 10 two termination diagrams of the adhesive laminate label affixed to the patch panel; and
terminating a plurality of signal lines at corresponding wire termination contacts of the patch panel in accordance with the selectively displayed termination diagram.

- 15 47. The method of claim 46 wherein at least some of the termination diagrams comprise a plurality of color-coded symbol pairs.

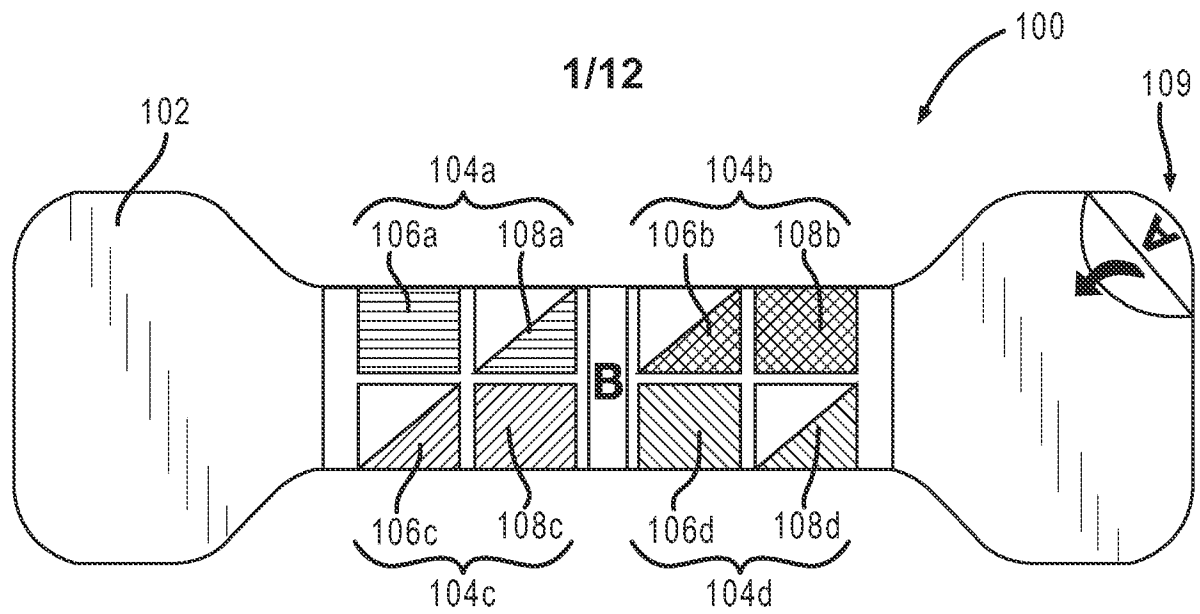


FIG.1

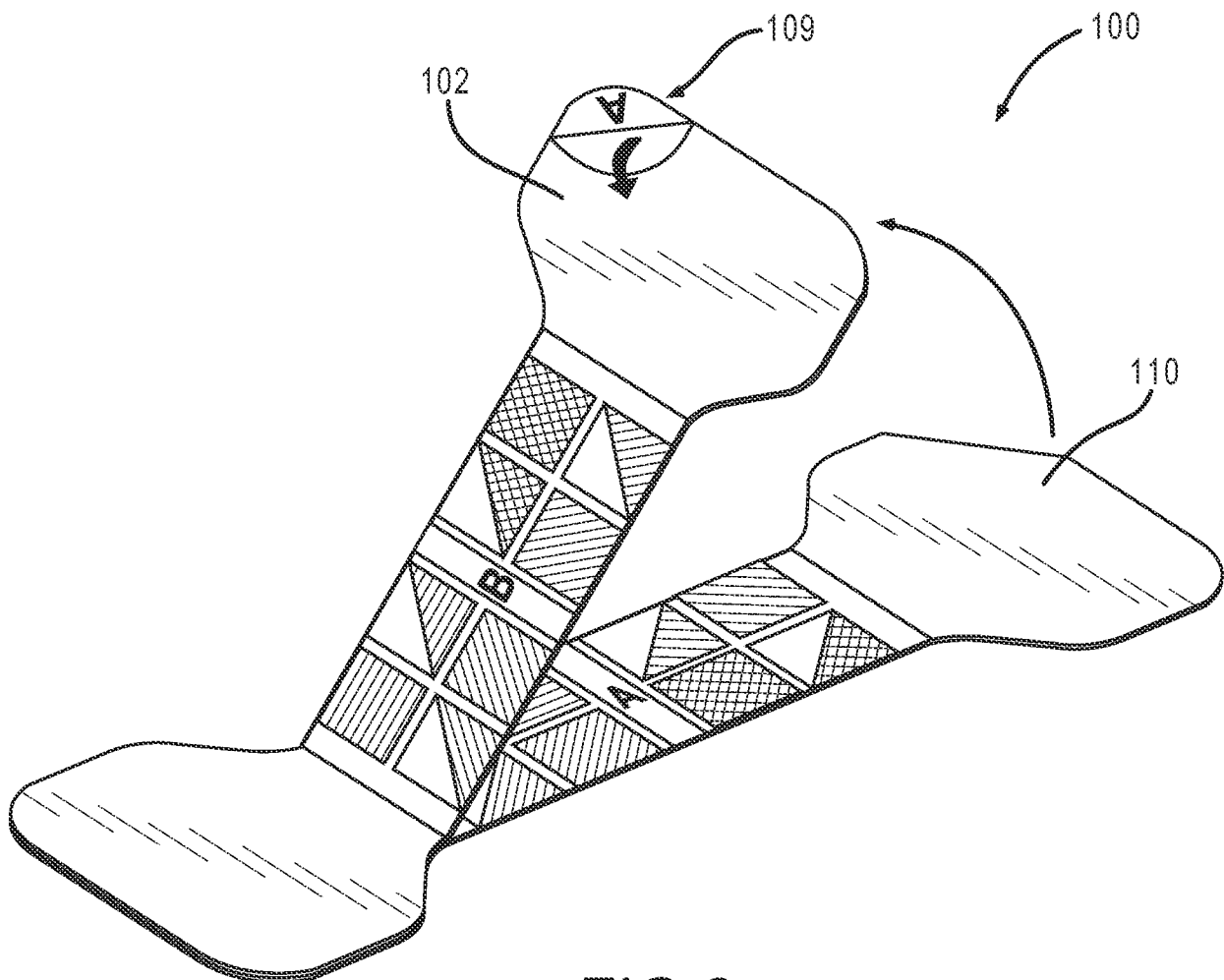
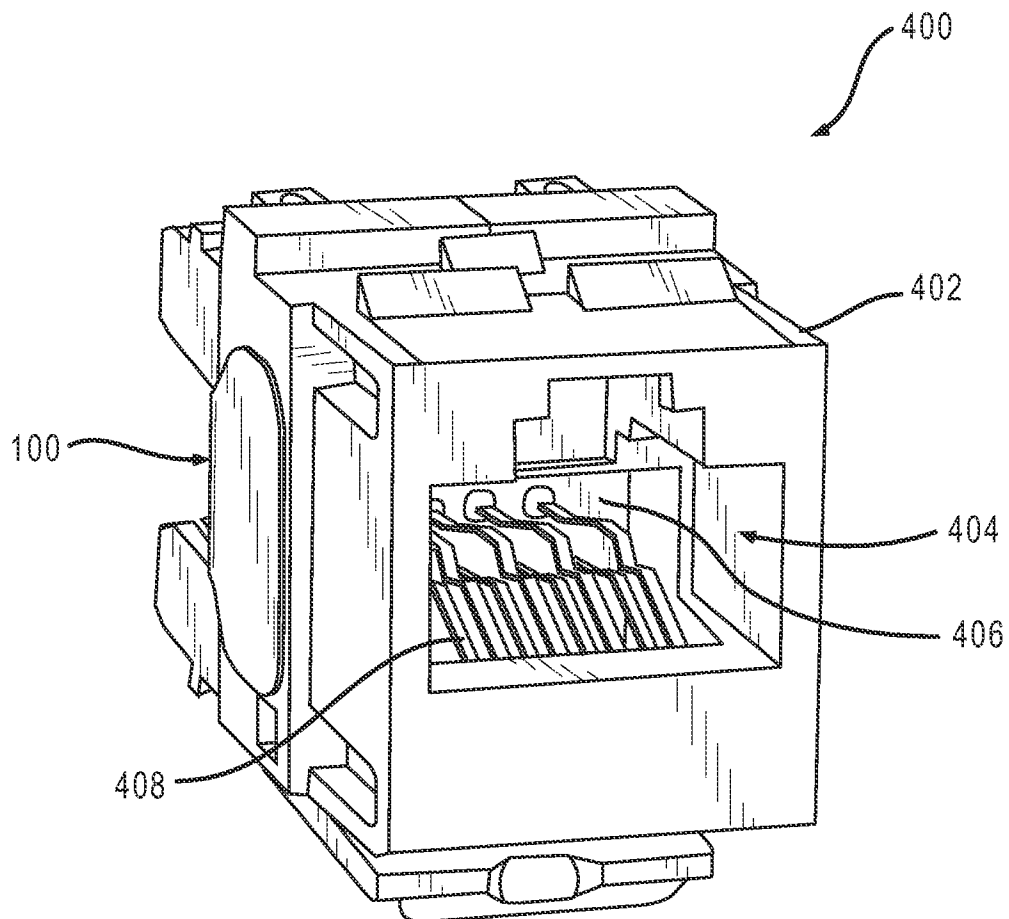
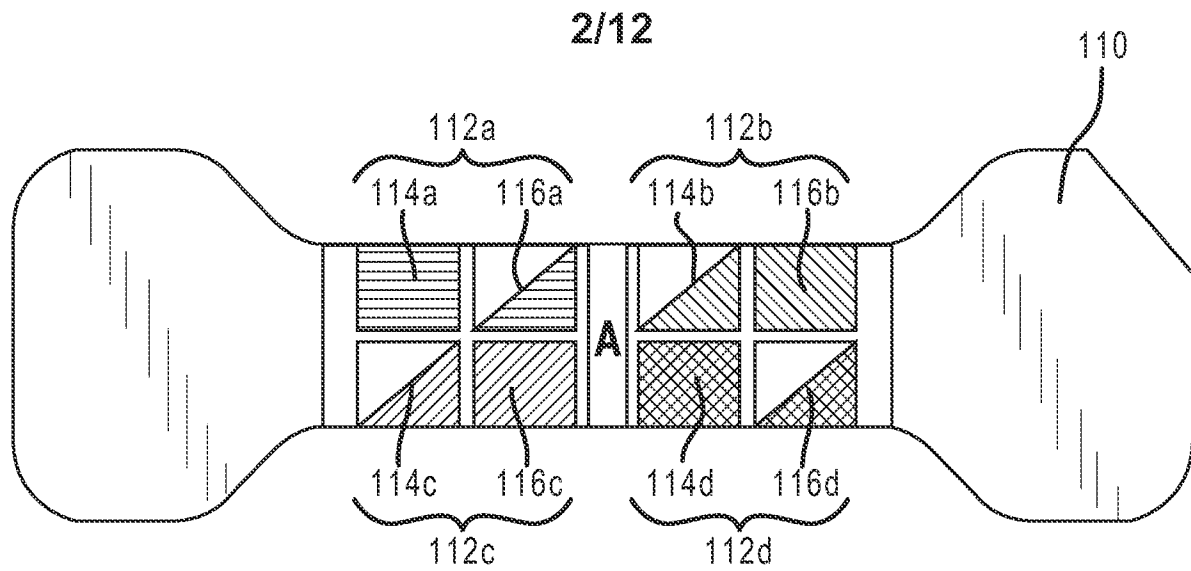


FIG.2



3/12

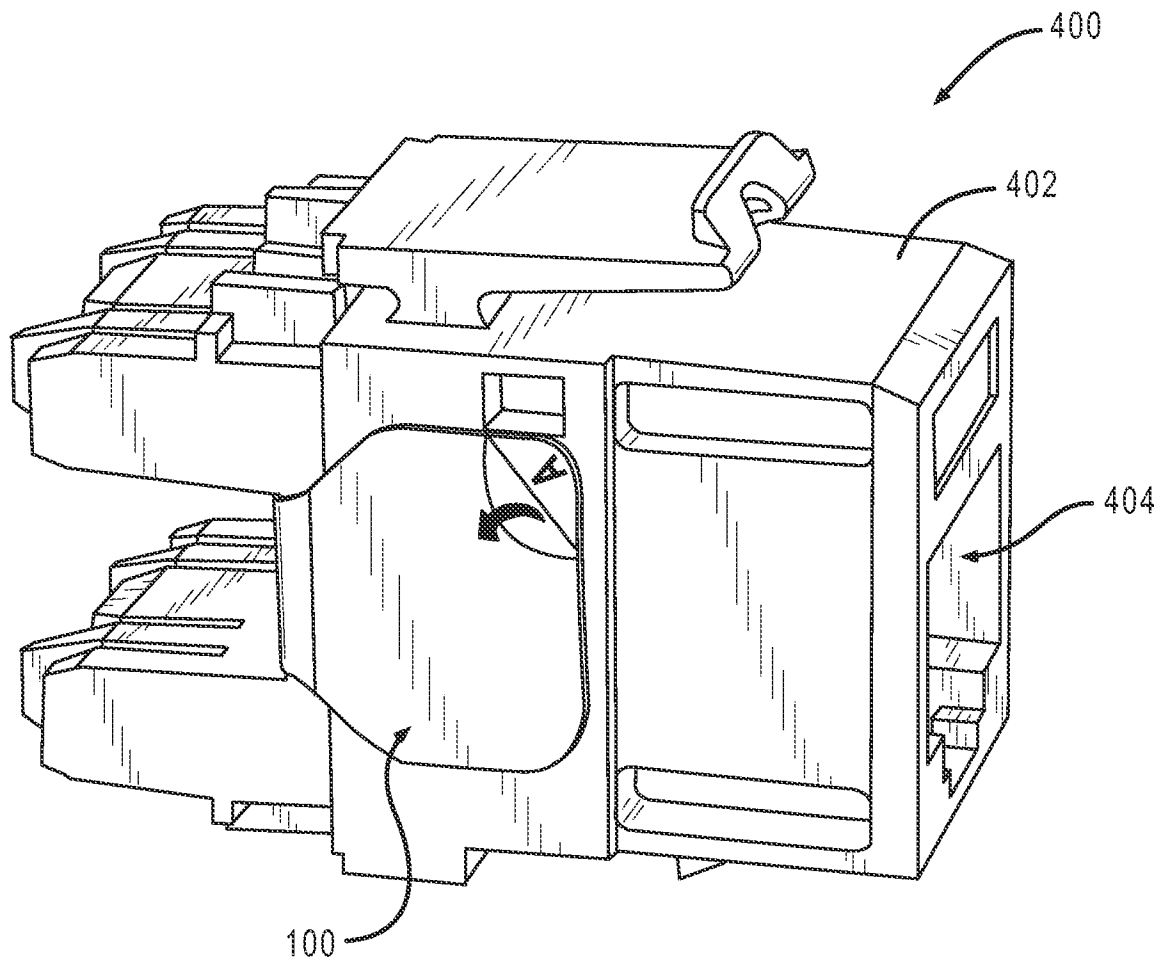


FIG.5

4/12

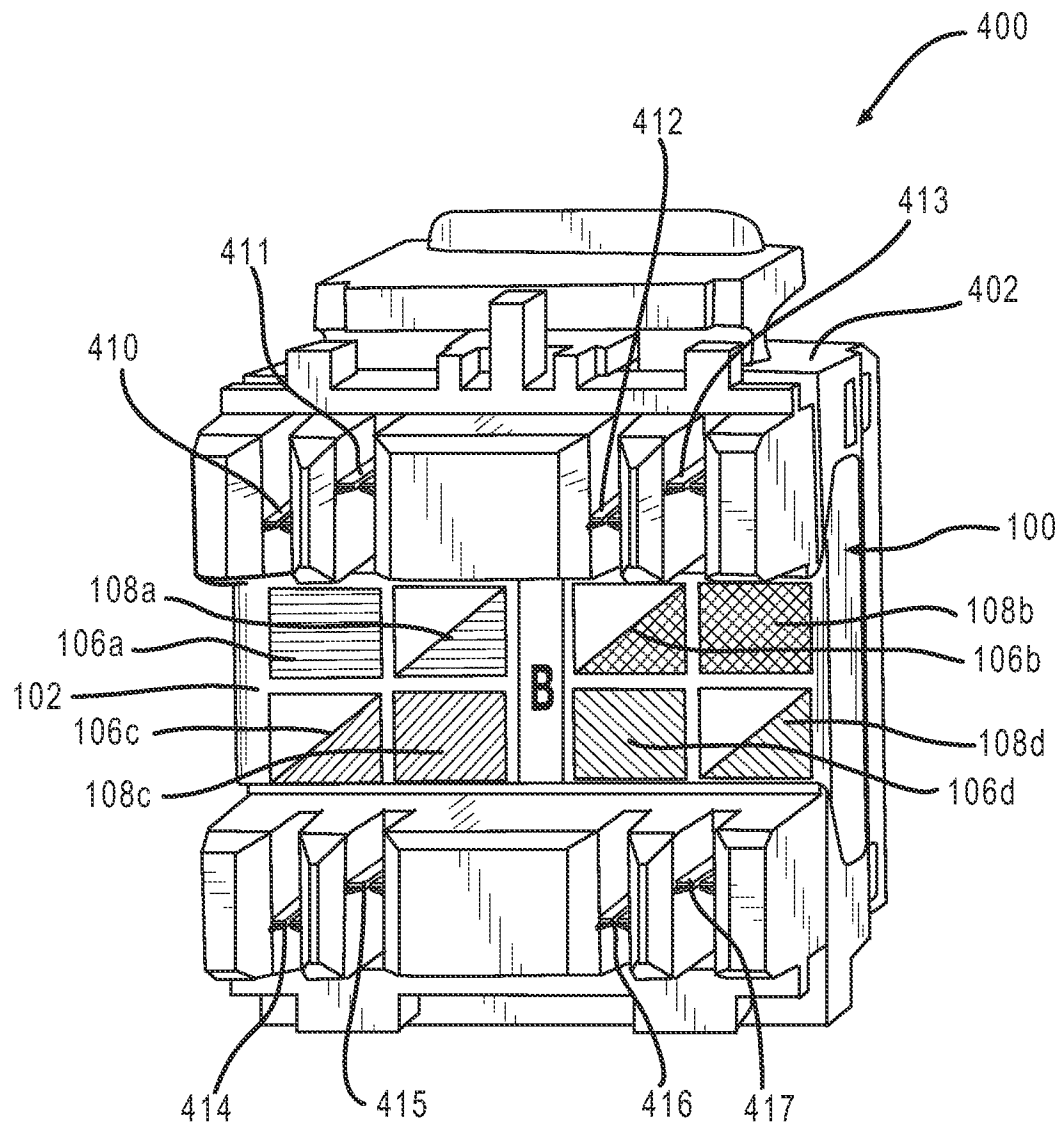


FIG.6

5/12

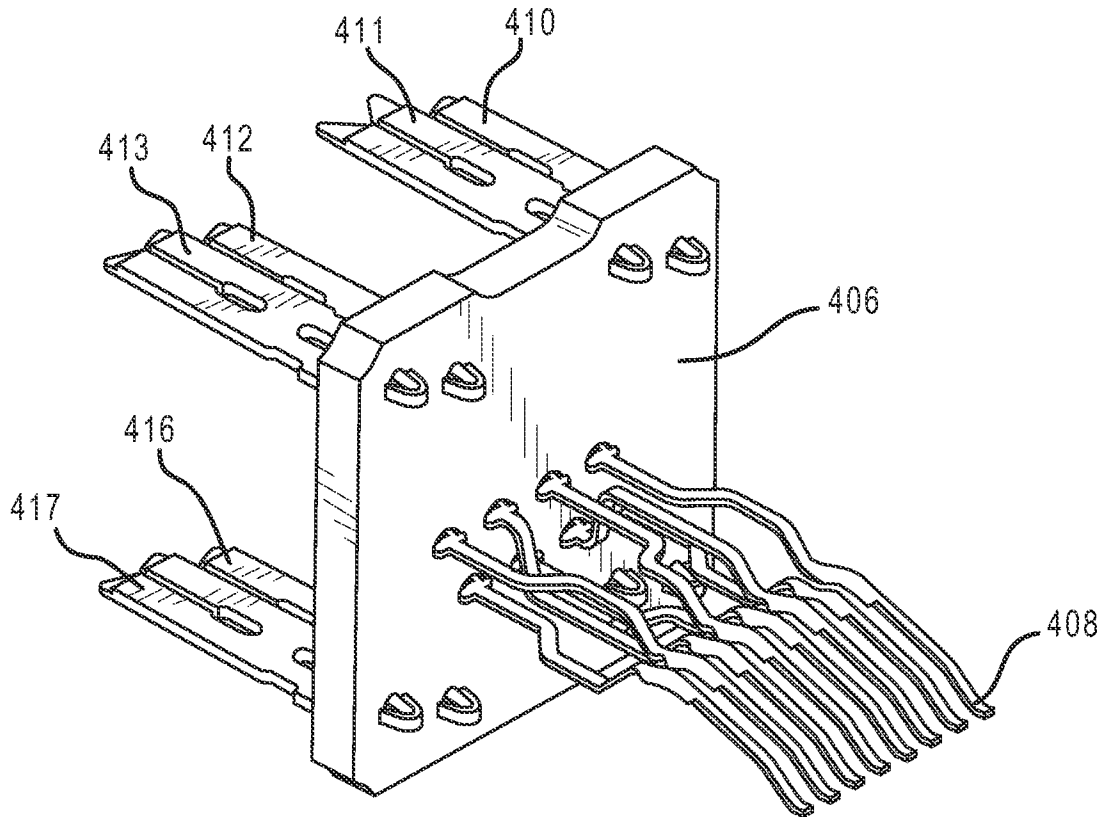
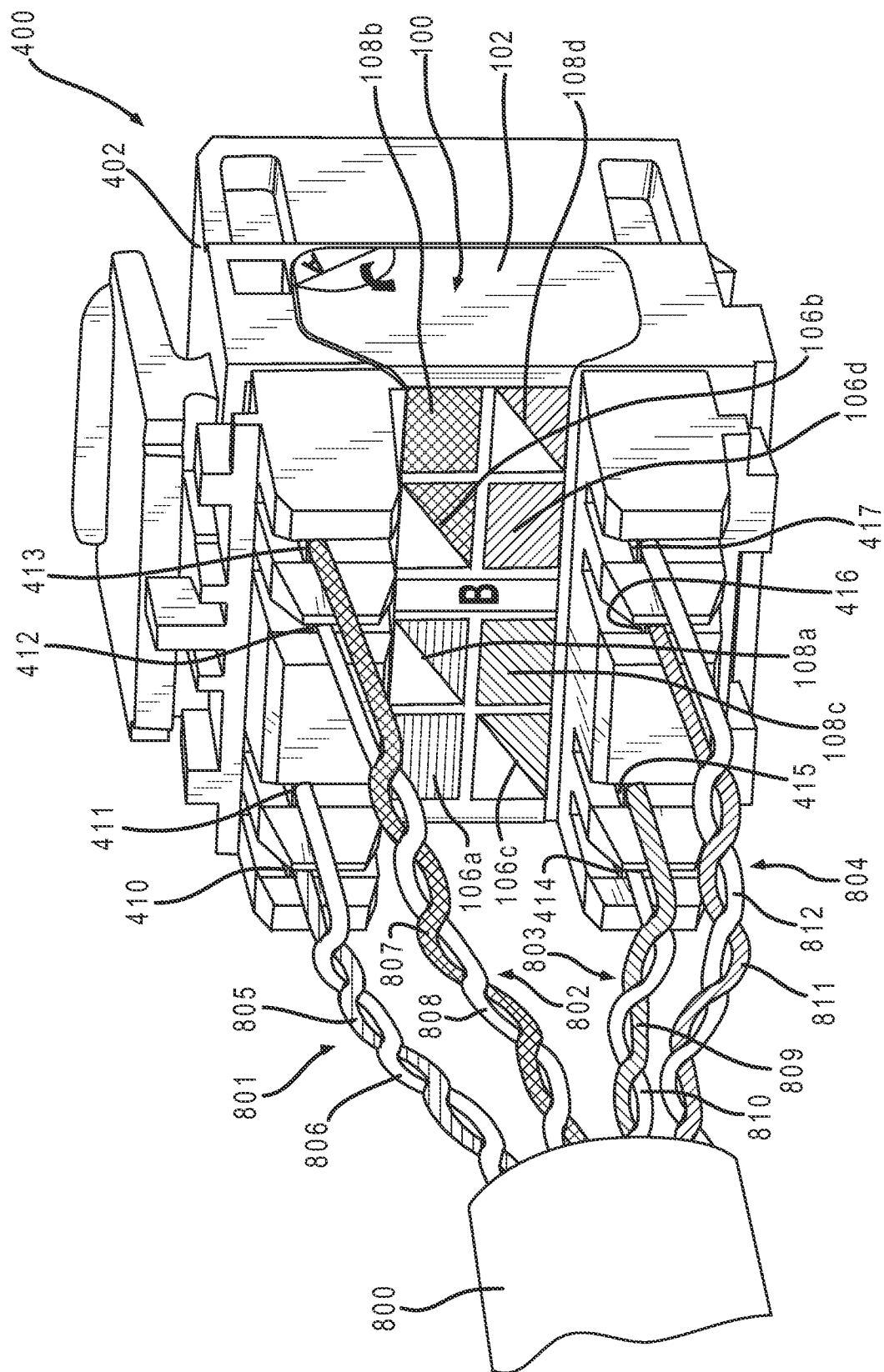


FIG. 7

6/12



7/12

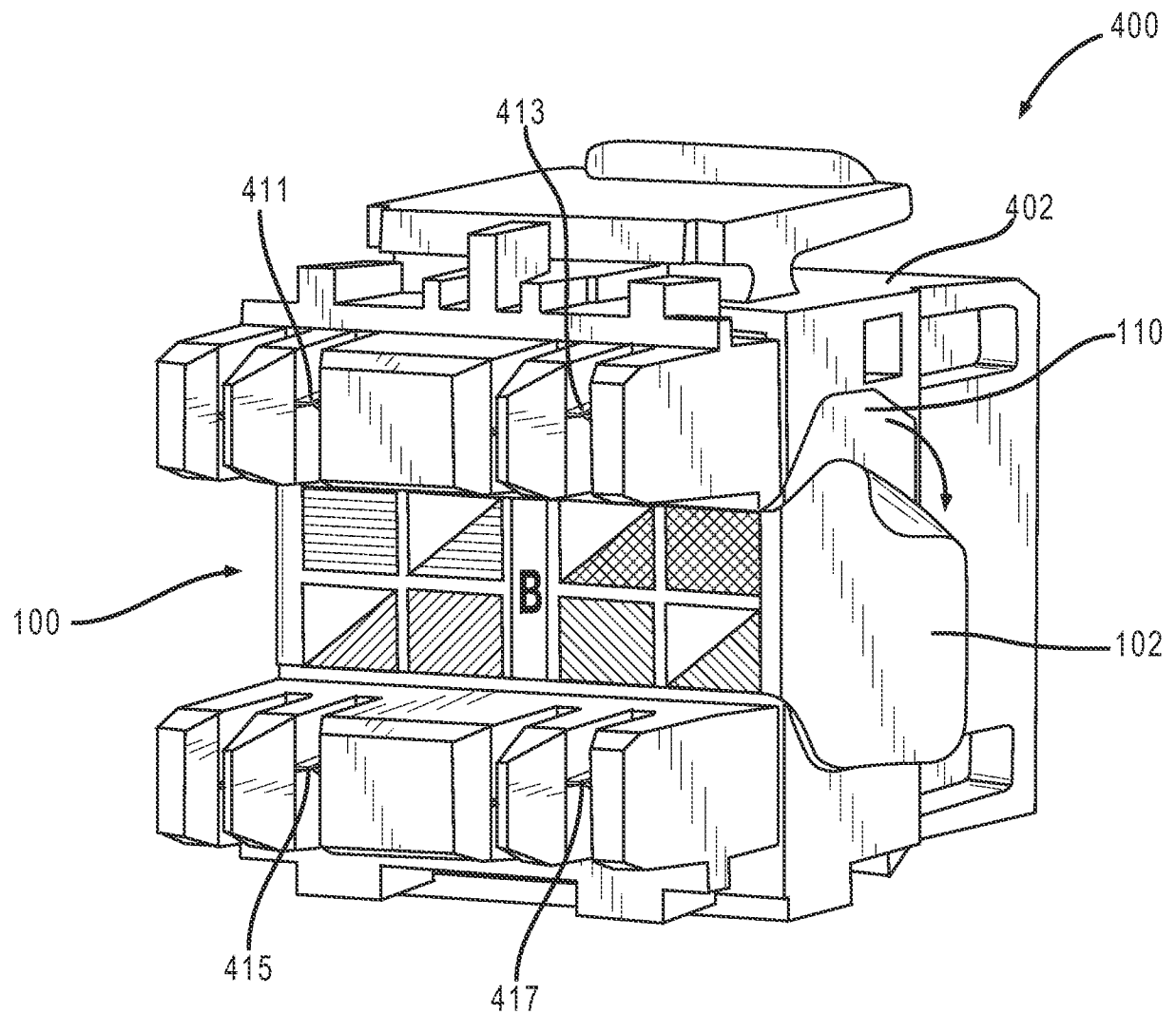


FIG.9

8/12

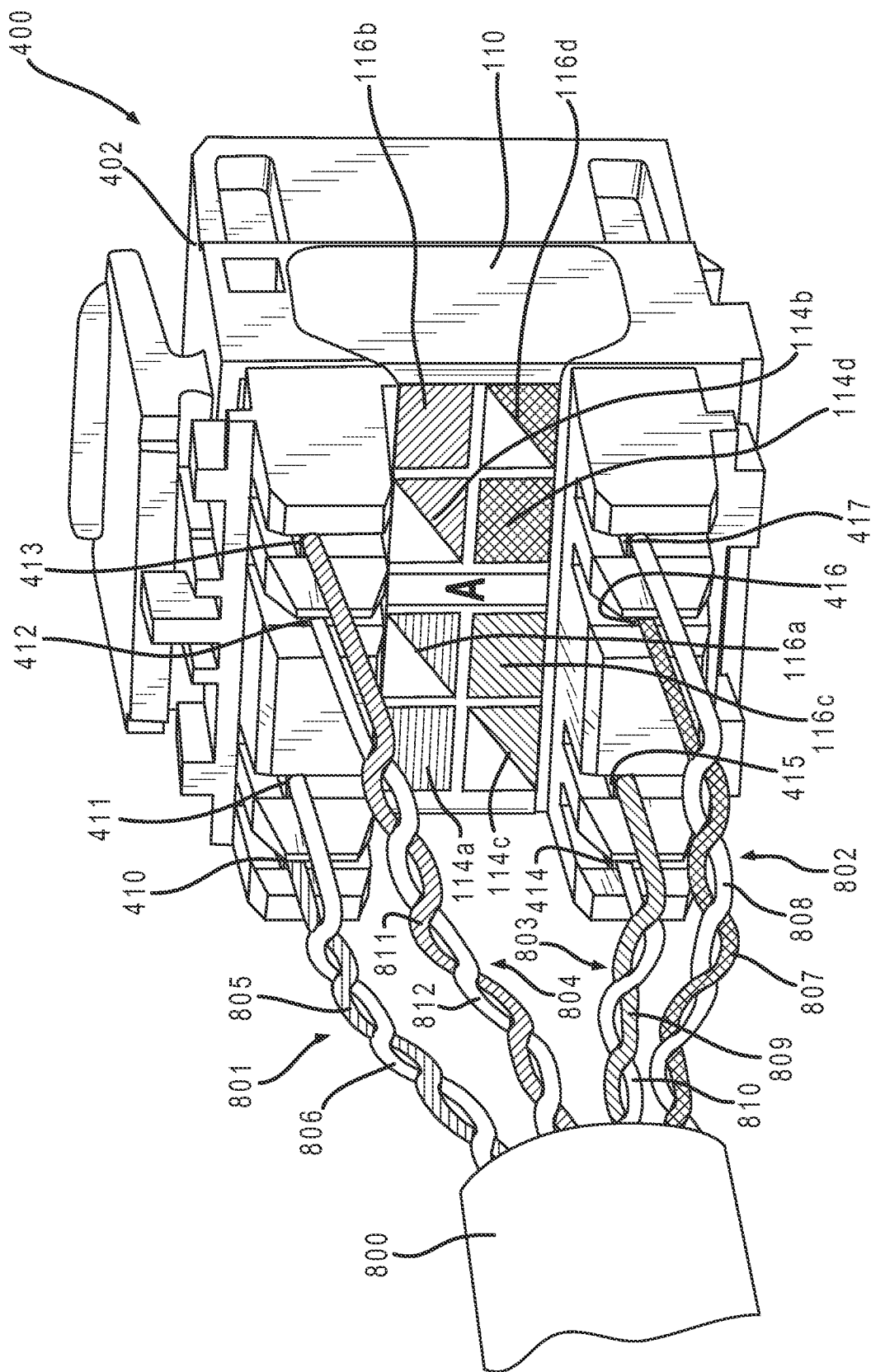


FIG. 10

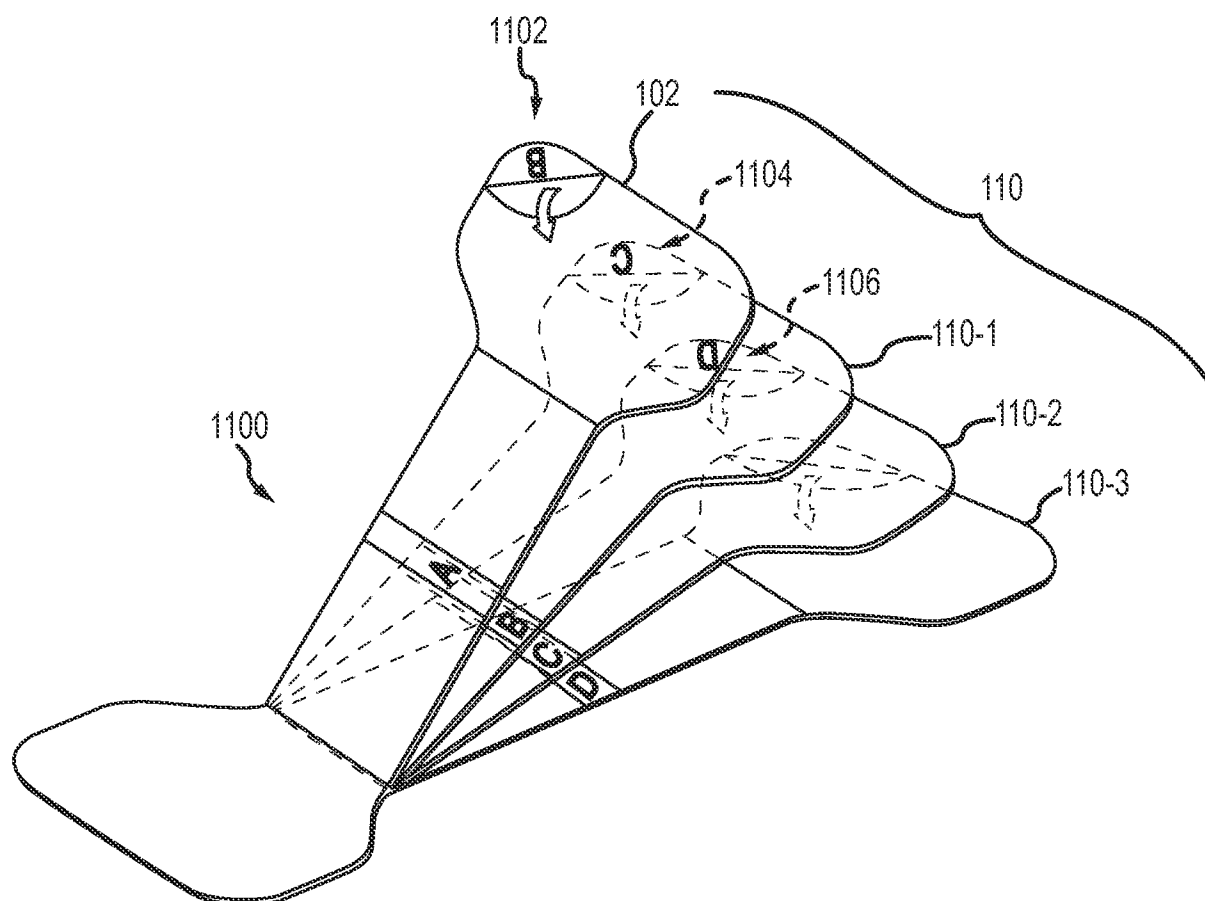


FIG. 11

10/12

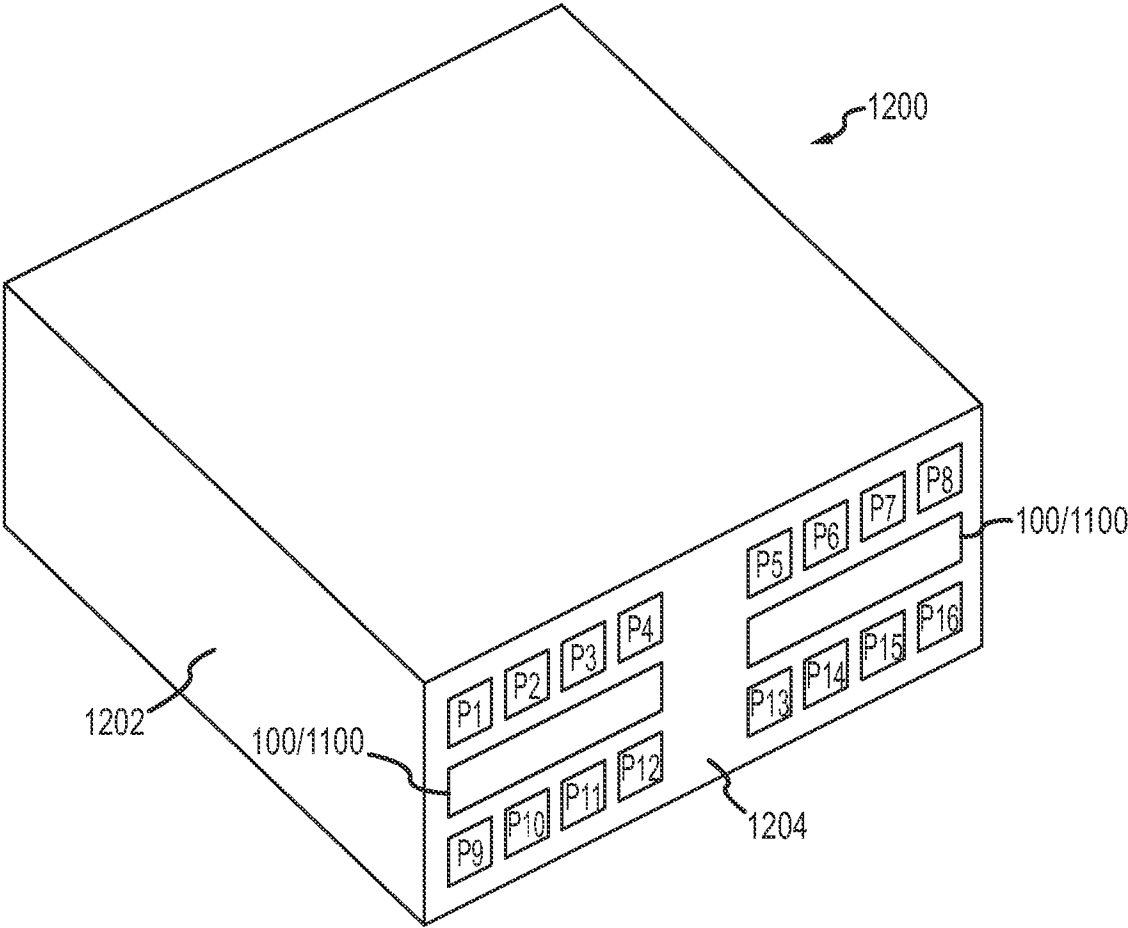


FIG.12

11/12

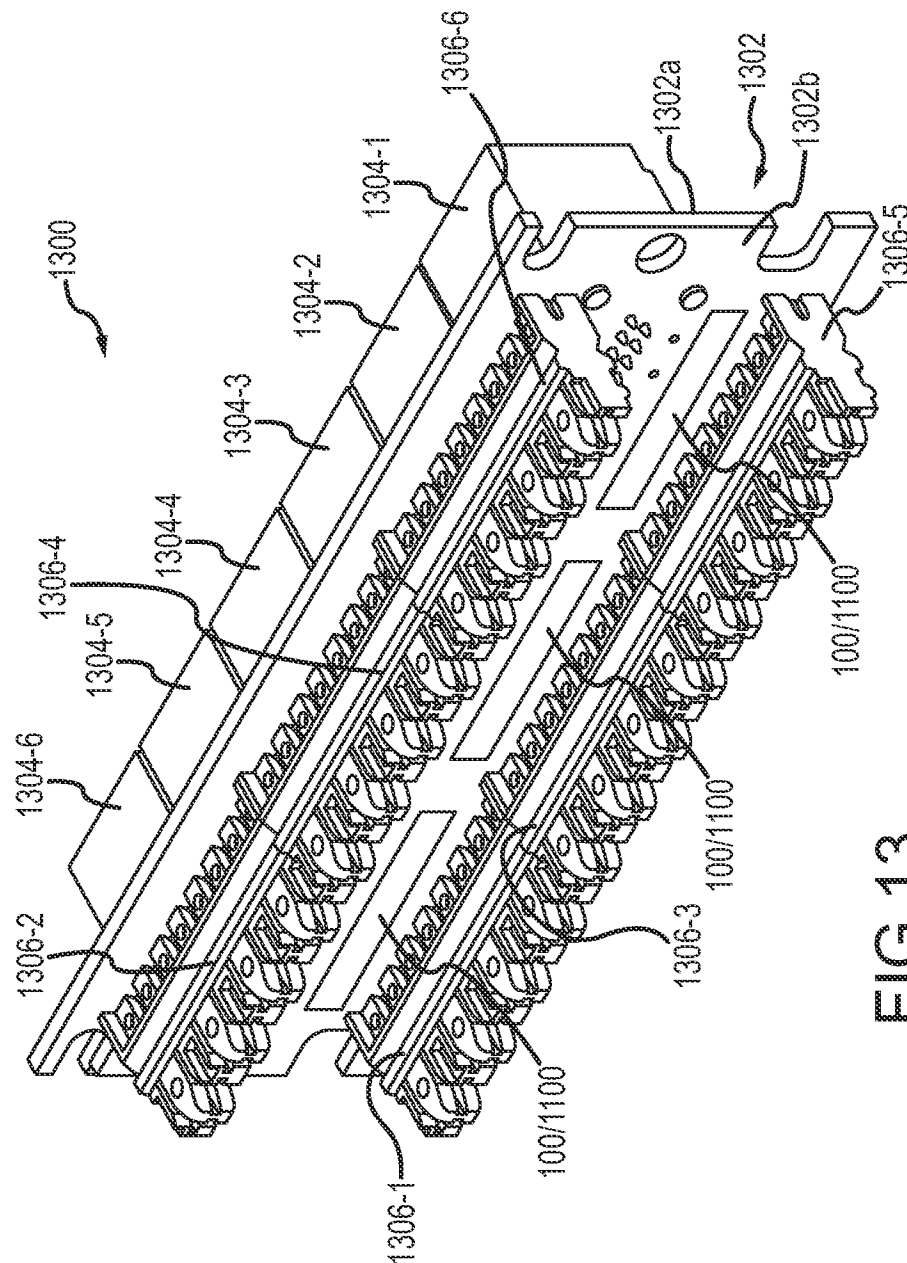


FIG. 13

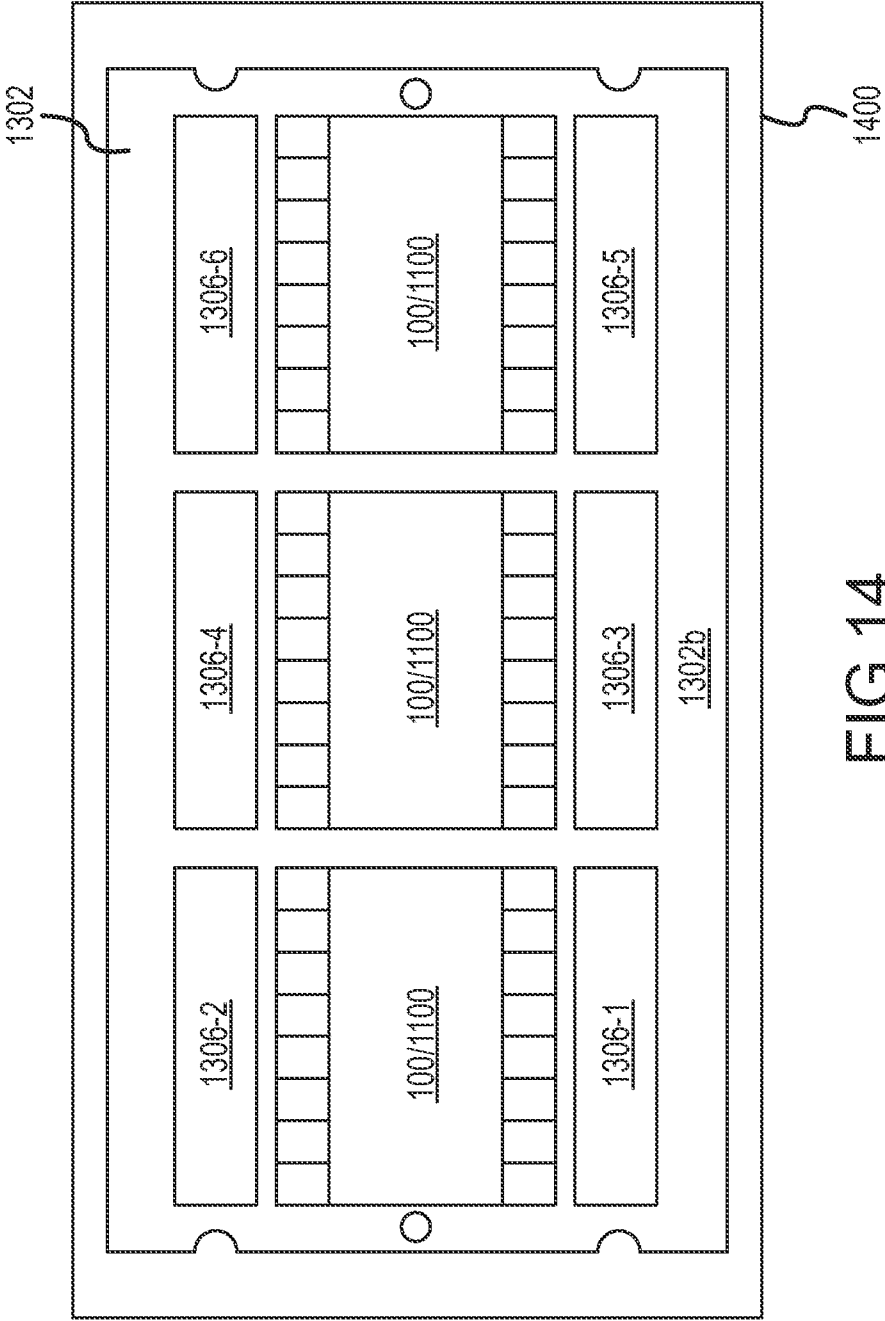


FIG. 14