

Title: MULTI-GANG CASSETTE SYSTEM

TECHNICAL FIELD

[0001] The disclosed subject matter relates to a fiber optic cassette system, and, for example, to a cassette system that allows cassettes of different sizes to be installed within the same cassette mounting system.

BACKGROUND

[0002] Fiber optic cables are often used as a medium for telecommunication and computer networking due to their flexibility, high data capacity, and immunity to interference. Since light is used as the data transmission medium, fiber optic cables can carry data over long distances with little attenuation relative to electrical data transmission. Fiber optic cables are used in many types of applications, including local area networks that use optical transceivers, corporate intranets that deploy optical pathways for high-speed transmission of data on a corporate campus, or other such data transmission applications.

[0003] Fiber optic cassettes are often used to organize and manage fiber optic connections within telecommunication wiring enclosures. An example cassette-based system may include a fiber optic enclosure within which are installed one or more fiber optic trays, with one or more fiber optic cassettes mounted on each tray. Such cassette-based systems are typically designed around a single size of cassette.

[0004] The above-described deficiencies of the conventional technologies are merely intended to provide an overview of some of the problems of current technology, and are not intended to be exhaustive. Other problems with the state of the art, and corresponding benefits of some of the various non-limiting embodiments described herein, may become further apparent upon review of the following detailed description.

SUMMARY

[0005] The following presents a simplified summary of the disclosed subject matter in order to provide a basic understanding of some aspects of the various embodiments. This summary is not an extensive overview of the various embodiments. It

is intended neither to identify key or critical elements of the various embodiments nor to delineate the scope of the various embodiments. Its sole purpose is to present some concepts of the disclosure in a streamlined form as a prelude to the more detailed description that is presented later.

[0006] One or more example embodiments described herein relate to a fiber optic cassette system designed to allow multiple different sizes of cassettes to be mounted within the system. To this end, cassette trays of the system are configured with cassette mounting interfaces that work in conjunction with specially designed single-gang and multi-gang cassettes to allow both single-gang and multi-gang cassettes to be mounted on the same tray simultaneously.

[0007] Both single-gang and multi-gang cassettes configured for use within the cassette system described herein can comprise rails on the right and left side of the cassette. When the cassette is installed through the front of the cassette tray, the rails on either side of the cassette engage with rail guides formed on the tray to guide the cassette into position. In order to lock the cassettes in place on the tray, both single-gang and multi-gang cassettes include a latching mechanism on the left side, on the right side, or in a middle section of the cassette. The latching mechanism can comprise a latching tab configured to engage with an aperture in the surface of the cassette tray when the cassette is fully engaged with the guide rail (that is, when the cassette reaches a designated stopping position), thereby securing the cassette in place on the tray. A front-facing release latch at the front end of the latching mechanism can be actuated to disengage the latching tab from the aperture, freeing the cassette for removal through the front of the cassette system. In one or more embodiments, the rail guides comprise sections of the tray surface that are raised to form ledges with which the cassette rails engage.

[0008] It is to be understood that both the foregoing general description and the following detailed description are intended to provide an overview or framework for understanding the nature and character of the disclosure. The accompanying drawings are included to provide a further understanding, the drawings illustrate various embodiments, and together with the description serve to explain the principles and operation of the concepts disclosed.

[0009] However, these aspects are indicative of a few of the various ways in which the principles of the subject matter can be employed. Other aspects, advantages, and novel features of the disclosed subject matter will become apparent from the following detailed description when considered in conjunction with the drawings. It will also be appreciated that the detailed description may include additional or alternative embodiments beyond those described in this summary.

BRIEF DESCRIPTION OF DRAWINGS

[0010] FIG. 1 is a three-dimensional view of an example fiber optic tray that includes a cassette mounting system.

[0011] FIG. 2 is a three-dimensional view of the example fiber optic cassette tray with a number of cassettes and adapter plates installed thereon.

[0012] FIG. 3 is a top view of a mounting interface on which are mounted a number of fiber optic cassettes of different sizes.

[0013] FIG. 4 is a three-dimensional view illustrating installation of an example single-gang adapter plate into a cassette bay of a mounting interface.

[0014] FIG. 5 is a view of a single-layer cassette tray, on which are mounted two single-gang cassettes.

[0015] FIG. 6 is a top view of an example double-gang cassette with the top of the cassette housing removed to expose the interior of the cassette.

[0016] FIG. 7 is a top view depicting a double-gang cassette and a single-gang cassette mounted on the same cassette tray.

[0017] FIG. 8 is a cross-sectional view of a double-gang cassette installed on a mounting interface of a tray.

[0018] FIG. 9 is a three-dimensional view of a dual-gang cassette.

[0019] FIG. 10 is an exploded view of a dual-gang cassette depicting components of a latching mechanism integrated into the cassette housing.

[0020] FIG. 11 is a view depicting a spring and release mechanism disposed within a dual-gang cassette.

[0021] FIG. 12 is a cross-sectional side view of a cassette that illustrates interaction between a release mechanism and a spring of a latching mechanism integrated into the housing of the cassette.

[0022] FIG. 13 depicts a cassette fully installed on a tray and locked in position.

[0023] FIG. 14 is a cross-sectional side view of a single-gang cassette.

[0024] FIG. 15 is a three-dimensional view of a fiber optic enclosure in which are installed a number of fiber optic cassette trays.

[0025] FIG. 16 is a view depicting an example cassette tray being installed within an enclosure.

[0026] FIG. 17 is a flowchart of an example methodology for mounting fiber optic cassettes on a fiber optic tray or other mounting surface.

DETAILED DESCRIPTION

[0027] The subject application now will be described more fully hereinafter with reference to the accompanying figures, in which example embodiments of the subject application are shown. The various embodiments may, however, be embodied in many alternate forms and should not be construed as limited to the example embodiments set forth herein, but on the contrary, the subject application is to cover all modifications, equivalents, and alternatives falling within the spirit and scope of the subject application as defined by the claims. The example embodiments may be combined, other embodiments may be utilized, and structural changes may be made without departing from the spirit or scope of the subject application.

[0028] It will be understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

[0029] Furthermore, to the extent that the terms "includes," "has," "possesses," and the like are used in the detailed description, claims and drawings, such terms are intended to be inclusive in a manner similar to the term "comprising" as "comprising" is interpreted when employed as a transitional word in a claim.

[0030] In addition, the term “or” is intended to mean an inclusive “or” rather than an exclusive “or.” That is, unless specified otherwise, or clear from context, “X employs A or B” is intended to mean any of the natural inclusive permutations. That is, if X employs A; X employs B; or X employs both A and B, then “X employs A or B” is satisfied under any of the foregoing instances.

[0031] Moreover, articles “a” and “an” as used in the subject specification and annexed drawings should generally be construed to mean “one or more” unless specified otherwise or clear from context to be directed to a singular form.

[0032] Moreover, the word "exemplary" is used herein to mean serving as an example, instance, or illustration. Any aspect or design described herein as "exemplary" is not necessarily to be construed as preferred or advantageous over other aspects or designs.

[0033] In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the subject disclosure. It may be evident, however, that the subject disclosure may be practiced without these specific details. The subject disclosure is now described with reference to the drawings wherein like reference numerals are used to refer to like elements throughout.

[0034] As noted in the background, fiber optic cassettes, either single-gang or multi-gang, used within a given enclosure are typically configured in uniform shapes or sizes. Discrete and size specific cassette bays in conventional telecommunication wiring enclosures are not typically configured to accommodate variously sized or shaped cassettes.

[0035] A fiber optic cassette system according to one or more embodiments described herein comprises one or more cassette trays on which cassettes of various sizes can be mounted. Rail guides on the cassette trays are configured to interface with corresponding rails of both single-gang and multi-gang cassettes to facilitate guiding the rails into position on the trays. The cassettes themselves have a structure that, in conjunction with the rail guide design, allows both single-gang and multi-gang cassettes to be mounted simultaneously and in various positions on a given tray. As such, different sizes of cassettes or adapter plates can be installed on the cassette tray without

modification of the cassette system. A spring-loaded latching mechanism integrated in the cassette housing includes a latching tab or protrusion that engages with an aperture on the tray when the cassette is fully engaged with the rail guides. The latching mechanism includes a front-facing release latch that, when actuated, disengages the latching tab from the aperture, allowing the cassettes to be removed through the front of the tray. The latching tab comprises the sole locking point between the cassette and the tray, and thus the cassette can be unlocked for removal from the tray by actuating a single release latch that is easily accessible from the front of the tray (or from the front of the enclosure in which the tray is disposed). The trays can be installed within a fiber optic enclosure to facilitate management and organization of fiber optic connections.

[0036] FIG. 1 is a three-dimensional view of an example fiber optic tray 102 that includes a cassette mounting system according to one or more embodiments. The tray 102 is shown without cassettes in FIG. 1 for clarity. Example tray 102 is designed to hold multiple fiber optic cassettes, and to be installed in a fiber optic enclosure. It is to be appreciated, however, that the features described herein for mounting cassettes of different sizes on a common cassette mounting system are not limited to use in such fiber optic trays, but rather are applicable to any system in which fiber optic cassettes are to be mounted on a surface for management and organization of fiber optic connections.

[0037] The example tray 102 depicted in FIG. 1 comprises two rows of cassette bays 106 – a lower row (including cassette bay 106A) located on the main tray surface, and an upper row (including cassette bay 106B) located on a raised mounting interface 104 that is elevated above the main tray surface. Each cassette bay 106 is defined by a pair of parallel rail guides 108 on the left and right sides of the bay. The rail guides 108 are designed to interface with rails located along the left and right sides of the respective cassettes or adapter plates, as will be described in more detail below. The rail guides 108 are spaced substantially equidistant along the respective mounting surfaces, such that the space between adjacent rail guides 108 generally corresponds to the width of a single-gang cassette to be mounted on the tray 102. As will be described in more detail below, since multi-gang cassettes are wider than single-gang cassettes by multiple factors (e.g., a dual-gang cassette is approximately twice as wide as a single-gang cassette, a three-gang cassette is approximately three times as wide as a single-gang cassette, etc.), a multi-gang

cassette will span more than one rail guide. In one or more embodiments, each cassette bay 106 has an associated locking aperture 124 disposed on the mounting surface near one of the guide rails. As will be described in more detail below, the locking aperture 124 is configured to receive a spring-loaded locking protrusion built into the cassette to facilitate locking the cassette in place within the cassette bay 106.

[0038] FIG. 2 is a three-dimensional view of the example fiber optic cassette tray 102 with a number of cassettes and adapter plates installed thereon, and FIG. 3 is a top view of the installed cassettes. As shown in FIGs. 2 and 3, the cassette mounting system allows a user to mount cassettes of different sizes (e.g., both single-gang and multi-gang cassettes) on the same cassette tray 102 simultaneously at any position on the mounting interfaces. In the example depicted in FIGs. 2 and 3, a single-gang cassette 112, a dual-gang cassette 110, and a single-gang adapter plate 114 are mounted on the upper mounting interface 104 of tray 102 in selected positions. As described in more detail below, any combination of single-gang cassettes (or adapter plates) and multi-gang cassettes (or adapter plates) can be disposed simultaneously on the upper and lower mounting interfaces of the cassette tray 102 subject to overall space limitations of the mounting surfaces. The cassettes and adapter plates are held in place on the tray by rail guides 108, which interface with rails located along the left and right sides of the respective cassettes and adapter plates. When a cassette is installed from the front of the tray 102, the rail guides 108 ensure that the cassette is oriented in the correct position on the tray. Notches 406 disposed on the cassette rails engage with notches on the front-facing ends of the rail guides 108, preventing the cassettes from over-traveling through the rear of the tray as the cassette is being installed between two rail guides. Thus, the rail guides 108 prevent rearward and sideways movement of the cassette when the cassette is fully installed between the rail guides.

[0039] Throughout this disclosure, it is to be understood that the structural features described herein are intended for use with both fiber optic cassettes and fiber optic adapter plates. Accordingly, mounting features described in connection with either a cassette or an adapter plate are to be understood to be equally applicable to both cassettes and adapter plates.

[0040] FIG. 4 is a three-dimensional view illustrating installation of an example single-gang adapter plate into a cassette bay of the upper mounting interface 104 of tray 102 (single-gang cassettes can also be installed in a similar manner). As shown in this figure, each rail guide 108 comprises an elongated section of the mounting surface that is raised to form a ledge on both sides of the elongated section. The front-facing end 132 of each rail guide 108 is notched on the left and right side in order to allow the rails 404 of the adapter plate 402 or cassette to enter the rail guides 108 and pass under the ledges of the rail guides 108.

[0041] After the rails 404 have entered the front end of their respective rail guides 108, the adapter plate 402 or cassette can be pushed rearward until notches 406 disposed on the rails 404 engage with the front-facing end 132 of the rail guides. This engagement prevents continued rearward movement of the adapter plate 402 or cassette when the adapter plate 402 or cassette is fully installed on the mounting interface, ensuring that the adapter plate 402 or cassette is correctly located on the tray. The rear-facing end 122 of each rail guide 108 is not notched, creating a secondary stopping mechanism to prevent the adapter plate 402 or cassette from over-traveling beyond the rear side of the rail guides.

[0042] The cassettes and adapter plates include integrated latching mechanisms 120 that lock the cassettes and adapter plates in place on the mounting interface when fully installed on the tray. For example, adapter plate 402 reaches the stopping position (e.g., when the notches 406 of the rails 404 engage with the front-facing end 132 of the rail guides), a locking protrusion of the latching mechanism 120 engages with an aperture 124 on the mounting surface (see also FIG. 1 for another view of the relative locations of the apertures 124 relative to the rail guides). Thus, when the adapter plate 402 is fully installed and locked into position, the rail guides 108 prevent rearward and sideways movement of the adapter plate 402, while the locking tab of latching mechanism 120 prevents forward and rearward movement of the adapter plate 402. The cassettes of the present cassette mounting system – both single-gang and multi-gang – include similar integrated latching mechanisms 120. Although the illustrations depict the integrated latching mechanism as comprising a locking protrusion that interfaces with an aperture

124, some embodiments of the cassette system may include other types of latching mechanisms without departing from the scope of this disclosure.

[0043] The latching mechanisms 120 include front-facing release latches 116. Actuating the release latch 116 disengages the locking protrusion of the latching mechanism 120 from the mounting surface and unlocks the adapter plate 402 or cassette, allowing the adapter plate 402 or cassette to be removed through the front of the tray 102. As shown in FIGs. 2 and 3, single-gang cassette 112 and adapter plate 114 include release latches 116B and 116C located on the right side of their respective housings, while double-gang cassette 110 includes a release latch 116A located in a middle section between the two gangs of the cassette. Each release latch 116 is accessible from the front of the tray, allowing the user to easily access the release latch from the front.

[0044] In the example cassette tray system illustrated in FIGs. 1-4, the cassette tray 102 – with its upper and lower rows of cassette bays - is designed to allow two-layered stacking of cassettes and adapter plates. However, it is to be appreciated that this two-layered configuration is only intended to be exemplary, and that trays configured to allow stacking of more than two layers are within the scope of one or more embodiments described herein. As the number of layers increases, the density of the cassettes and/or adaptor plates is also increased, thereby increasing the connectivity density of the enclosure in which the tray is installed. Similarly, the cassette mounting features described herein can also be implemented on single-layer cassette trays. FIG. 5 is a view of a single-layer cassette tray 502 on which are mounted two single-gang cassettes 504. In this example, the single-gang cassettes 504 are installed on the left-most and right-most cassette bays, respectively, leaving two adjacent empty cassette bays in the middle of the tray. The mounting interface features described herein allow the user to install either two more single-gang cassettes in these two empty cassette bays, or to install one double-gang cassette spanning the two adjacent cassette bays. As described below, structural features of the double-gang cassette (and other multi-gang cassettes having more than two gangs) allow the cassette to be installed on the same cassette mounting system without physically modifying the cassette or the mounting interface.

[0045] FIG. 6 is a top view of example dual-gang cassette 110 with the top of the cassette housing removed to expose the interior of the cassette 110, and FIG. 7 is a top

view depicting dual-gang cassette 110 and single-gang cassette 112 mounted on the same cassette tray (also with the top of the cassette housings removed). Dual-gang cassette 110 comprises a first gang 604A and a second gang 604B within which optical fibers and/or cables can be routed. As described in previous examples, a pair of rails 404A and 404B are disposed on the left and right side, respectively, of the cassette 110. These rails are configured to interface with rail guides 108 on the cassette tray to facilitate guiding and holding the cassette 110 into place on the tray.

[0046] Whereas a single-gang cassette 112 or adapter plate 114 will interface with two adjacent rail guides 108 when installed on the mounting interface of the tray (that is, the two adjacent rail guides on either side of a single cassette bay 106), a double-gang cassette will interface with three rail guides 108. This is illustrated in FIG. 8, which is a cross-sectional view of a dual-gang cassette 110 installed on the mounting interface of a tray. As shown in this figure, non-adjacent rail guides 108C and 108E interface with rails 404A and 404B (obscured in FIG. 8, located below rail guides 108C and 108E) to hold dual-gang cassette 110 in place on the mounting surface. Since dual-gang cassette 110 is approximately twice the width of single-gang cassette (which is designed to fit between two adjacent rail guides), the dual-gang cassette 110 also spans an intermediate rail guide 108D. This intermediate rail guide 108D is located underneath a middle portion of the cassette 110 corresponding to the joint area between the two gangs 604A and 604B. In order to accommodate this intermediate rail guide 108D, a clearance area 602 – such as a slot or raised area - is formed along the bottom surface of the cassette 110 between the two gangs 604A and 604B. This clearance area 602 allows the intermediate rail guide 108D to pass underneath the cassette 110 when the cassette is installed on the mounting surface. The interaction between the intermediate rail guide 108D and the slot or groove formed by the clearance area 602 can also assist in properly aligning the cassette on the mounting surface as the cassette is being installed on the tray. As can be seen in FIG. 8, the clearance area 602 is designed to leave sufficient space 802 between the top of the clearance area 602 and the ceiling of the cassette housing to allow optical fibers to pass easily between the two gangs 604A and 604B.

[0047] Multi-gang cassettes having more than two gangs can generally conform to a design similar to that described above for the dual-gang cassette 110. For example, a

three-gang cassette would interface with four rail guides when installed on the mounting interface of a tray or other mounting surface – to rail guides that interface with the rails on the left and right sides of the cassette, and two intermediate rail guides. Accordingly, the three-gang cassette would include clearance areas between each pair of adjacent gangs in order to accommodate the two intermediate rail guides.

[0048] As shown in FIGs. 6 and 7 (as well as FIG. 9, which is a three-dimensional view of the dual-gang cassette 110), the latching mechanism 120 for the example dual-gang cassette 110 is disposed in a middle section of the cassette between the two gangs 604A and 604B, with release latch 116A protruding from the front of the cassette 110. However, in some embodiments, the latching mechanism 120 for a double-gang cassette can be located on the left or right side of the cassette, similar to single-gang cassettes. Similarly, for multi-gang cassettes having more than two gangs, the latching mechanism 120 can be located between any two adjacent gangs of the cassette, or on either the left or right side of the cassette.

[0049] Fiber optic connectivity features of the example cassettes depicted in the drawings are now described in connection with FIG. 6. However, it is to be appreciated that the mounting system described above for installing fiber optic cassettes and adapter plates of different sizes within the same fiber optic cassette system is not limited to use with the particular fiber optic cassettes depicted in the drawings, but rather can be implemented in cassettes having alternative fiber optic connectivity features without deviating from the scope of this disclosure.

[0050] As shown in FIG. 6 (as well as FIGs. 2-5), each cassette is configured to hold a horizontal row of fiber optic adapters 126 along the front edge of the cassette. Each adapter 126 is configured to receive multiple fiber optic connectors (dust caps 128 of which are shown in FIG. 6), which may be used to terminate respective optical fibers to be plugged into the adapters 126. An interfacing connector 130 is disposed on the rear side of the cassette 110. Individual fibers 606 of a fiber optic cable entering the cassette through the interfacing connector 130 can be broken out inside the cassette and terminated on the rear sides of fiber optic adapters 126 (in the case of adapter plates, unbundled individual fibers – rather than a fiber optic cable - may enter through the rear of the adapter plate). The adapters 126 provide connectivity between the fibers 606

terminated on the rear sides of adapters 126 and the fibers terminated on the front sides of adapters 126 using the fiber optic connectors. Although FIG. 6 depicts adapters 126 that are configured to receive Lucent connectors (LC connectors), cassettes that accommodate other fiber optic connector types are also within the scope of one or more embodiments described herein. In various embodiments, the fiber optic cassettes can be configured to accept single-fiber connectors (e.g., LC, Standard Connector, etc.) and multi-fiber connectors (e.g., mechanical transfer pull-off, multi-fiber push-on, etc.)

[0051] FIG. 10 is an exploded view of dual-gang cassette 110 depicting components of the latching mechanism 120. Although the latching mechanism 120 is described in connection with a dual-gang cassette in FIG. 10, it is to be appreciated that the same latching mechanism design can be implemented in single-gang cassettes, other multi-gang cassettes having more than two gangs, and both single- and multi-gang adapter plates.

[0052] Latch mechanism 120 can comprise a spring 1004 (e.g., a leaf spring or other spring mechanism) and a release mechanism 1002. Spring 1004 includes a locking protrusion 1006 on the bottom of the front end of the spring 1004 configured to engage with an aperture 124 disposed on the mounting surface of the cassette tray near a rail guide 108 (see FIGs 1, 4, 5 for views of apertures 124), thereby locking the cassette in place on the tray when installed (see, e.g., FIG. 4 and the associated description above). Release mechanism 1002 includes the release latch 116 that facilitates disengagement of the locking protrusion 1006 from the aperture and removal of the cassette through the front of the tray.

[0053] In the example dual-gang cassette depicted in FIG. 10, the latching mechanism 120 is disposed in the middle area of the dual-gang cassette (e.g., above the rail clearance area 602). FIG. 11 is a view depicting the spring 1004 and release mechanism 1002 disposed within the dual-gang cassette. As shown in this figure, the latching mechanism comprising the spring 1004 and release mechanism 1002 resides within a recessed area formed in a middle section of the cassette, above the clearance area 602. FIG. 12 is a cross-sectional side view of the cassette 110 that illustrates the interaction between the release mechanism 1002 and the spring 1004. FIG. 13 depicts the cassette 110 fully installed on a tray or other mounting surface and locked in position. As

described above in connection with FIG. 4, as the cassette is being inserted between a pair of rail guides 108, locking protrusion 1006 will be received by aperture 124 when the cassette reaches the stopping position. Downward pressure applied by spring 1004 is translated to the locking protrusion 1006, ensuring that the locking protrusion 1006 remains engaged with aperture 124 until the release mechanism is actuated.

[0054] When downward pressure is applied to the release latch 116 - which may be a button, a lever, or other type of pressure-actuated mechanism - the release mechanism 1002 rotates about a pivot area 1202. This pivoting action causes a first tab 1008 on the release mechanism 1002 to apply upward pressure on a second tab 1010 on the end of spring 1004, counteracting the downward pressure applied by the spring 1004 and lifting the locking protrusion clear of the aperture 124. Thus disengaged, the cassette 110 can then be removed from the tray by pulling the cassette toward the front of the tray.

[0055] As noted above, a similar latching mechanism can be used for single-gang cassettes. FIG. 13 is a view depicting spring 1004 and release mechanism 1002 disposed within a single-gang cassette 112, and FIG. 14 is a cross-sectional side view of the single-gang cassette 112 installed on a tray. In this example, the latching mechanism comprising release spring 1004 and release mechanism 1002 are disposed within a walled area 1302 on the right side of the single-gang cassette 112. However, in some embodiments the latching mechanism can be disposed on the left side of the cassette without deviating from the scope of this disclosure. The spring 1004 and release mechanism 1002 operate in the same manner as described above in connection with the dual-gang cassette.

[0056] Although FIGs. 10-14 depict the latching mechanism as comprising a release latch 116 that is actuated downward, causing the locking protrusion 1006 to pivot upward in order to clear the aperture 124, other types of latching mechanisms are also within the scope of one or more embodiments of this disclosure. For example, in some embodiments the latching mechanism 120 may be configured such that the protrusion faces sideways in order to engage with a notch or aperture in the rail guide 108. In such embodiments, the release latch 116 may be configured to be actuated to the left or right in order to disengage the protrusion from the notch or aperture.

[0057] As noted above, the fiber optic cassette mounting system described herein can be incorporated in fiber optic cassette systems in which fiber optic cassettes and/or adapter plates are mounted to cassette trays, which can then be installed in a fiber optic enclosure. FIG. 15 is a three-dimensional view of a fiber optic enclosure 1508 in which are installed a number of fiber optic cassette trays 1510. In this example system, the fiber optic cassette trays 1510 include rail guides on their upper surface similar to those described in previous examples. The rail guides interface with rails and (in the case of multi-gang cassettes) clearance areas of the cassettes in a manner that allows cassettes of different sizes to be installed on the same tray within the system (the example illustrated in FIG. 15 depicts only single-gang cassettes 112 installed on trays 1510; however, in accordance with the design features described above, different sizes of cassettes can be installed on the trays 1510 within enclosure 1508). As a result of the structural features described above - e.g., the placement and design of the rail guides on the mounting surfaces, inclusion of rail clearance areas located between the gangs of the multi-gang cassettes, etc. - any combination of single-gang and multi-gang cassettes can be installed on a given tray 1510, subject to space limitations of the tray.

[0058] As described in previous examples, each cassette 112 has an integrated latching mechanism, where each latching mechanism includes a release latch 116 facing toward the front of the tray 1510. This configuration allows a user to easily access and actuate the release latch 116 from the front of the enclosure 1508, thereby unlocking the cassette and allowing the cassette to be removed through the front of the tray 1510.

[0059] As shown in FIG. 15, multiple cassette trays 1510 can be stacked within the enclosure 1508. In some embodiments, each tray 1510 can include a central cable management ring 1504 (e.g., a T-shaped ring) on a front edge of the tray. Also, end cable management rings 1502 can be disposed on the left and right ends of the front edge of the tray 1510. These cable management rings can be used to bundle optical fibers entering the cassette through the adapters 126 on the front of the cassettes, and to route the bundled fibers neatly along the front edge of the tray 1510. Additionally, strain relief cable guides 1506 are disposed on the left and right rear corners of the enclosure 1508. Fiber optic cables entering the rear of the enclosure can pass through these strain relief cable guides 1506 to prevent over-stretching of the cables.

[0060] Enclosure 1508 is configured to hold multiple trays 1510 in a stacked formation. FIG. 16 is a view depicting an example cassette tray 1602 being installed within an enclosure. In this example, cassette tray 1602 is inserted through the front opening of the enclosure, such that the left and right edges of the cassette trays engage with corresponding guide channels 1604 formed in left and right tray guides 1606 mounted on the inside left and right inside walls of the enclosure 1508 (FIG. 16 shows only the left tray guide for clarity). The guide channels 1604 guide the tray 1602 into the correct position within the enclosure. One or more locking indentations 1608 located near each guide channel 1604 are configured to receive a corresponding spring-loaded locking tab of a tray latch mounted to the side of the tray 1602 when the rear edge of the tray 1602 reaches the end of travel at the rear end of the guide channel, thereby locking the tray 1602 in place within the enclosure.

[0061] The enclosure system depicted in FIG. 15 and 16 is only intended to be an example, non-limiting system in which the cassette mounting features described herein can be implemented, and it is to be appreciated that the mounting interface features described above for installing cassettes of different sizes on the same cassette mounting surface can be implemented within the context of any type of fiber optic cassette mounting system.

[0001] FIG. 17 illustrates a methodology in accordance with one or more embodiments of the subject application. While, for purposes of simplicity of explanation, the methodology shown herein are shown and described as a series of acts, it is to be understood and appreciated that the subject innovation is not limited by the order of acts, as some acts may, in accordance therewith, occur in a different order and/or concurrently with other acts from that shown and described herein. For example, those skilled in the art will understand and appreciate that a methodology could alternatively be represented as a series of interrelated states or events, such as in a state diagram. Moreover, not all illustrated acts may be required to implement a methodology in accordance with the innovation. Furthermore, interaction diagram(s) may represent methodologies, or methods, in accordance with the subject disclosure when disparate entities enact disparate portions of the methodologies. Further yet, two or more of the disclosed example

methods can be implemented in combination with each other, to accomplish one or more features or advantages described herein.

[0062] FIG. 17 illustrates an example methodology 1700 for mounting fiber optic cassettes on a fiber optic tray or other mounting surface. Initially, at 1702, a first fiber optic cassette of a first size is mounted on a cassette tray. The fiber optic cassette may be, for example, a single-gang cassette or a multi-gang cassette having two or more gangs for housing fiber optic cables or fibers. The fiber optic tray or other mounting surface may comprise a number of parallel rail guides configured to interface with the fiber optic cassette to facilitate guiding the cassette into a correct location and orientation on the tray.

[0063] At 1704, a second fiber optic cassette of a second size is mounted on the cassette tray. For example, if the first fiber optic cassette is a single-gang cassette, the second fiber optic cassette maybe a dual-gang cassette or other multi-gang cassette. Structural features of the rail guides and the first and second cassettes allow the first and second cassettes to be installed on the same tray (subject to space limitations of the tray) without structural modification of the mounting interfaces on the tray or the cassettes themselves.

[0064] At 1706, one of the first cassette or the second cassette is disengaged from the tray by pressing a front-facing release latch integrated in the cassette's housing. In one or more embodiments, the release latch can be part of a latching mechanism that resides within the cassette housing, and which includes a spring-loaded locking protrusion that engages with an aperture in the tray's surface when the cassette is installed on the tray, thereby locking the cassette in the tray and preventing forward and rearward movement of the cassette. The single locking protrusion of the latching mechanism represents the sole locking point of the cassette. As such, pressing the single release latch disengages the cassette and allows the cassette to travel forward between the two rail guides interfacing with the cassette. At 1708, the cassette is removed through the front of the cassette tray.

[0065] The above description of illustrated embodiments of the subject disclosure, including what is described in the Abstract, is not intended to be exhaustive or to limit the disclosed embodiments to the precise forms disclosed. While specific

embodiments and examples are described herein for illustrative purposes, various modifications are possible that are considered within the scope of such embodiments and examples, as those skilled in the relevant art can recognize.

[0066] In this regard, while the disclosed subject matter has been described in connection with various embodiments and corresponding figures, where applicable, it is to be understood that other similar embodiments can be used or modifications and additions can be made to the described embodiments for performing the same, similar, alternative, or substitute function of the disclosed subject matter without deviating therefrom. Therefore, the disclosed subject matter should not be limited to any single embodiment described herein, but rather should be construed in breadth and scope in accordance with the appended claims below.

[0067] What has been described above includes examples of systems and methods illustrative of the disclosed subject matter. It is, of course, not possible to describe every combination of components or methodologies here. One of ordinary skill in the art may recognize that many further combinations and permutations of the claimed subject matter are possible. Furthermore, to the extent that the terms “includes,” “has,” “possesses,” and the like are used in the detailed description, claims, appendices and drawings such terms are intended to be inclusive in a manner similar to the term “comprising” as “comprising” is interpreted when employed as a transitional word in a claim.

CLAIMS

What is claimed is:

1. A fiber optic cassette mounting system, comprising:
a fiber optic cassette; and
a fiber optic cassette tray comprising rail guides configured to engage with respective rails of the fiber optic cassette, wherein a rail guide, of the rail guides, comprises an elongated portion of a surface of the fiber optic cassette tray that is raised from the surface to form ledges on a left side and a right side of the elongated portion, wherein the rail guides are configured to hold a single-gang cassette and a multi-gang cassette simultaneously on the fiber optic cassette tray.
2. The fiber optic cassette mounting system of claim 1, wherein the rail guide is notched at a front end of the rail guide to allow a rail of the fiber optic cassette to enter the rail guide under one of the ledges.
3. The fiber optic cassette mounting system of claim 1, wherein the fiber optic cassette is a multi-gang cassette, and comprises at least one clearance area between two gangs of the cassette configured to allow a guide rail to reside between the two gangs when the fiber optic cassette is mounted on the fiber optic cassette tray.
4. The fiber optic cassette mounting system of claim 1, wherein the fiber optic cassette comprises a latching mechanism comprising a latching protrusion configured to engage with an aperture on the fiber optic cassette tray.
5. The fiber optic cassette mounting system of claim 4, wherein a rail, of the rails of the fiber optic cassette, comprises a notch that engages with a front end of the rail guide to prevent the fiber optic cassette from traveling rearward beyond a stopping position.

6. The fiber optic cassette mounting system of claim 5, wherein the latching protrusion is configured to engage with the aperture in response to the fiber optic cassette reaching the stopping position while being pushed rearward between the rail guide and another rail guide.
7. The fiber optic cassette mounting system of claim 4, wherein the latching mechanism further comprises a release mechanism that faces toward the front of the fiber optic cassette, wherein the release mechanism is configured to disengage the latching protrusion from the aperture in response to pressure being applied to the release mechanism.
8. The fiber optic cassette of claim 7, wherein the release mechanism is configured to rotate about a pivot point in response to the pressure being applied to the release mechanism, and wherein rotation of the release mechanism about the pivot point causes a contact tab on the release mechanism to lift the locking protrusion clear of the aperture.
9. The fiber optic cassette mounting system of claim 7, wherein the latching mechanism is disposed on a left side of the fiber optic cassette, on a right side of the fiber optic cassette, or in an area between two gangs of the fiber optic cassette.
10. The fiber optic cassette mounting system of claim 1, wherein the fiber optic cassette is configured to hold a row of fiber optic adapters disposed on a front edge of the fiber optic cassette, and wherein the fiber optic adapters are configured to receive fiber optic connectors that terminate respective optical fibers.
11. The fiber optic cassette mounting system of claim 1, further comprising an enclosure configured to house the fiber optic tray, wherein the enclosure comprises tray guides disposed on a left inside wall and a right inside wall, respectively, of the enclosure, and wherein the tray guides comprise guide channels configured to engage with a left edge or a right edge of the fiber optic tray.

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12. The fiber optic cassette mounting system of claim 1, wherein the fiber optic cassette tray comprises at least two tray levels.
13. A fiber optic cassette, comprising:
 - a housing comprising at least a first gang and a second gang configured to house optical fibers;
 - a left rail disposed on a left side of the fiber optic cassette;
 - a right rail disposed on a right side of the fiber optic cassette; and
 - a clearance area disposed between the first gang and the second gang,wherein
 - the left rail and the right rail are configured to engage with corresponding rail guides of a cassette mounting surface to facilitate mounting the fiber optic cassette on the cassette mounting surface,
 - adjacent rail guides of the cassette mounting surface define a cassette bay configured to receive a single-gang fiber optic cassette, and
 - the fiber optic cassette is configured to span at least two cassette bays of the cassette mounting surface when mounted on the cassette mounting surface.
14. The fiber optic cassette of claim 13, wherein the clearance area comprises a groove on a lower surface of the housing configured to allow a rail guide of the cassette mounting surface to pass under the fiber optic cassette.
15. The fiber optic cassette of claim 13, further comprising a latching mechanism disposed within the housing and comprising a spring and a release mechanism that interacts with the spring.
16. The fiber optic cassette of claim 15, wherein the spring comprises a locking protrusion configured to lock within an aperture on the cassette mounting surface when the fiber optic cassette is fully installed between the corresponding rail guides.

17. The fiber optic cassette of claim 16, wherein the release mechanism comprises a release latch that faces outward from a front edge of the fiber optic cassette, and wherein the release mechanism is configured to unlock the locking protrusion from the aperture in response to pressure applied to the release mechanism.

18. The fiber optic cassette of claim 17, wherein the release mechanism is configured to rotate about a pivot point in response to the pressure applied to the release mechanism, and wherein rotation of the release mechanism about the pivot point causes a contact tab on the release mechanism to lift the locking protrusion clear of the aperture.

19. The fiber optic cassette of claim 15, wherein the latching mechanism is disposed on a left side of the housing, on a right side of the housing, or in a middle area of the housing between the first gang and the second gang.

20. The fiber optic cassette of claim 13, further comprising a row of fiber optic adapters disposed along a front edge of the cassette, wherein the fiber optic adapters are configured to receive fiber optic connectors that terminate respective optical fibers.

21. The fiber optic cassette of claim 13, wherein the housing is configured to allow the optical fibers to pass between at least the first gang and the second gang.

ABSTRACT

A cassette mounting system allows fiber optic cassettes of different sizes to be mounted on the same fiber optic tray or other mounting surface. Cassettes configured for use in the system comprise rails on the left and right sides of the cassette, which are configured to engage with rail guides on the fiber optic tray to facilitate mounting the cassettes on the tray. Adjacent guide rails on the tray define cassette bays within which single-gang cassettes can be installed. Multi-gang cassettes are also configured with clearance areas between the gangs that allow guide rails to reside underneath the cassette when mounted on the tray, allowing both multi-gang cassettes and single-gang cassettes to be installed on the tray. The cassettes include integrated front-facing release mechanisms that can be easily accessed from the front of the tray to facilitate unlocking the cassettes and removing the cassettes from the tray.

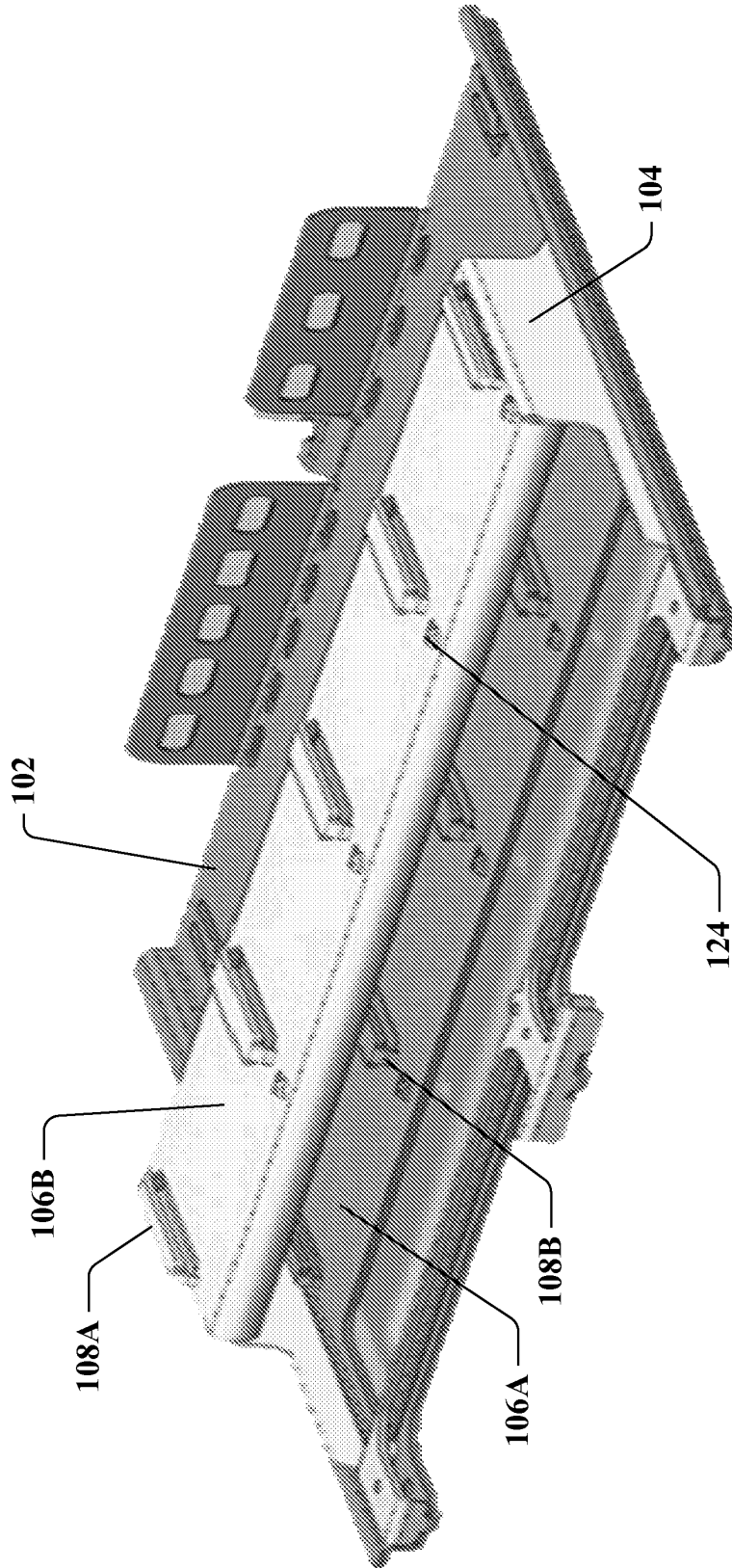


FIG. 1

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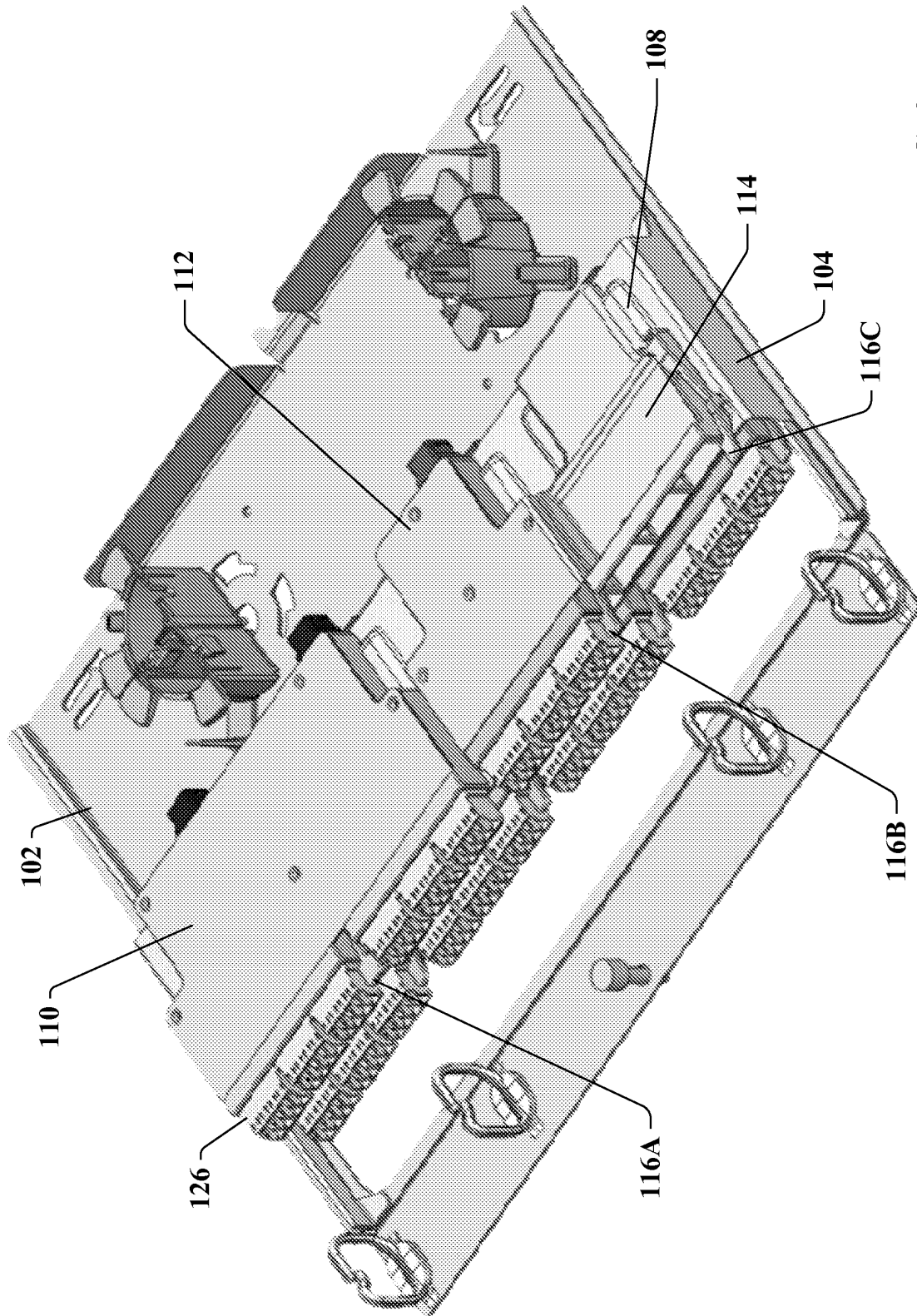


FIG. 2

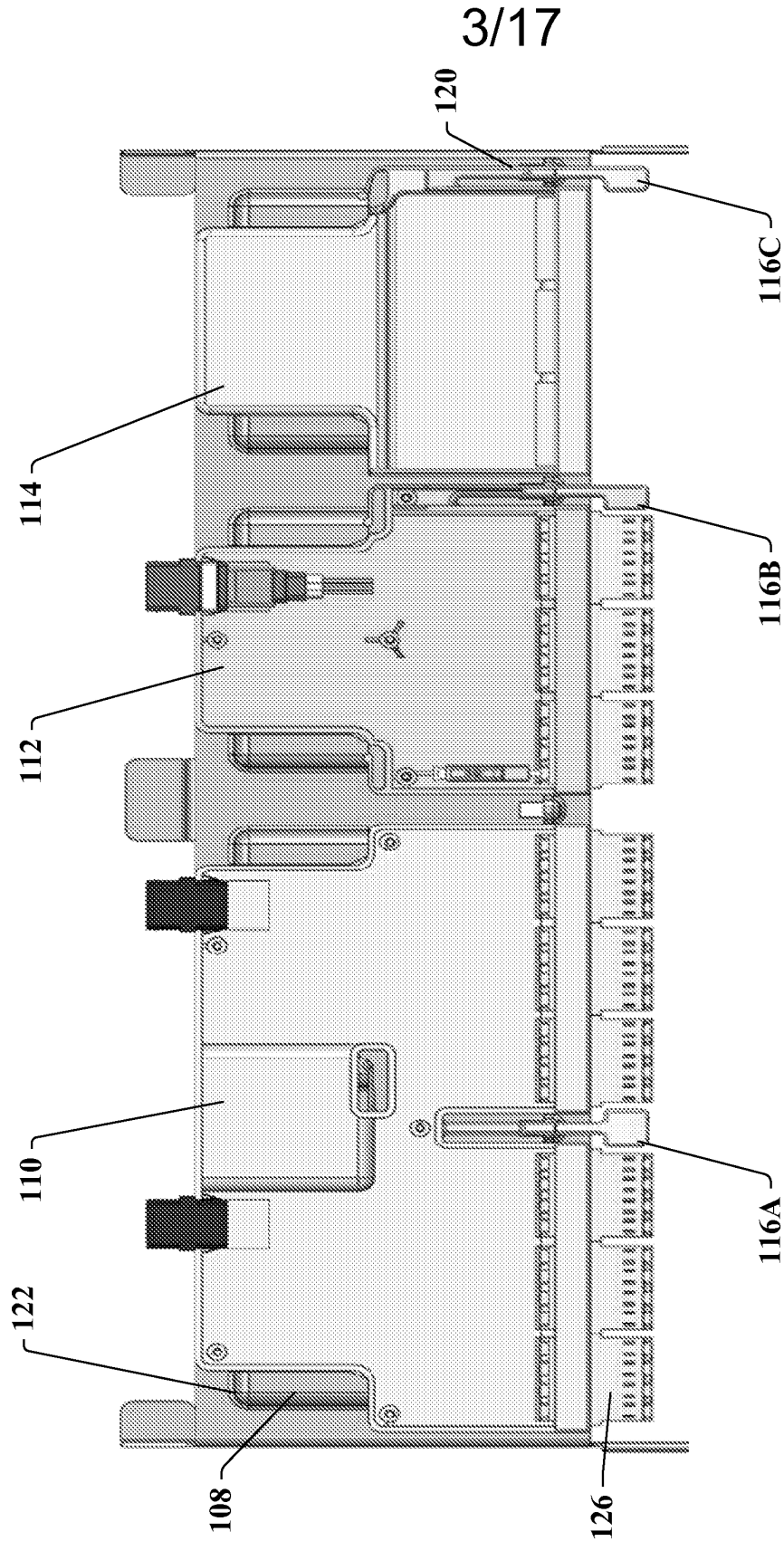


FIG. 3

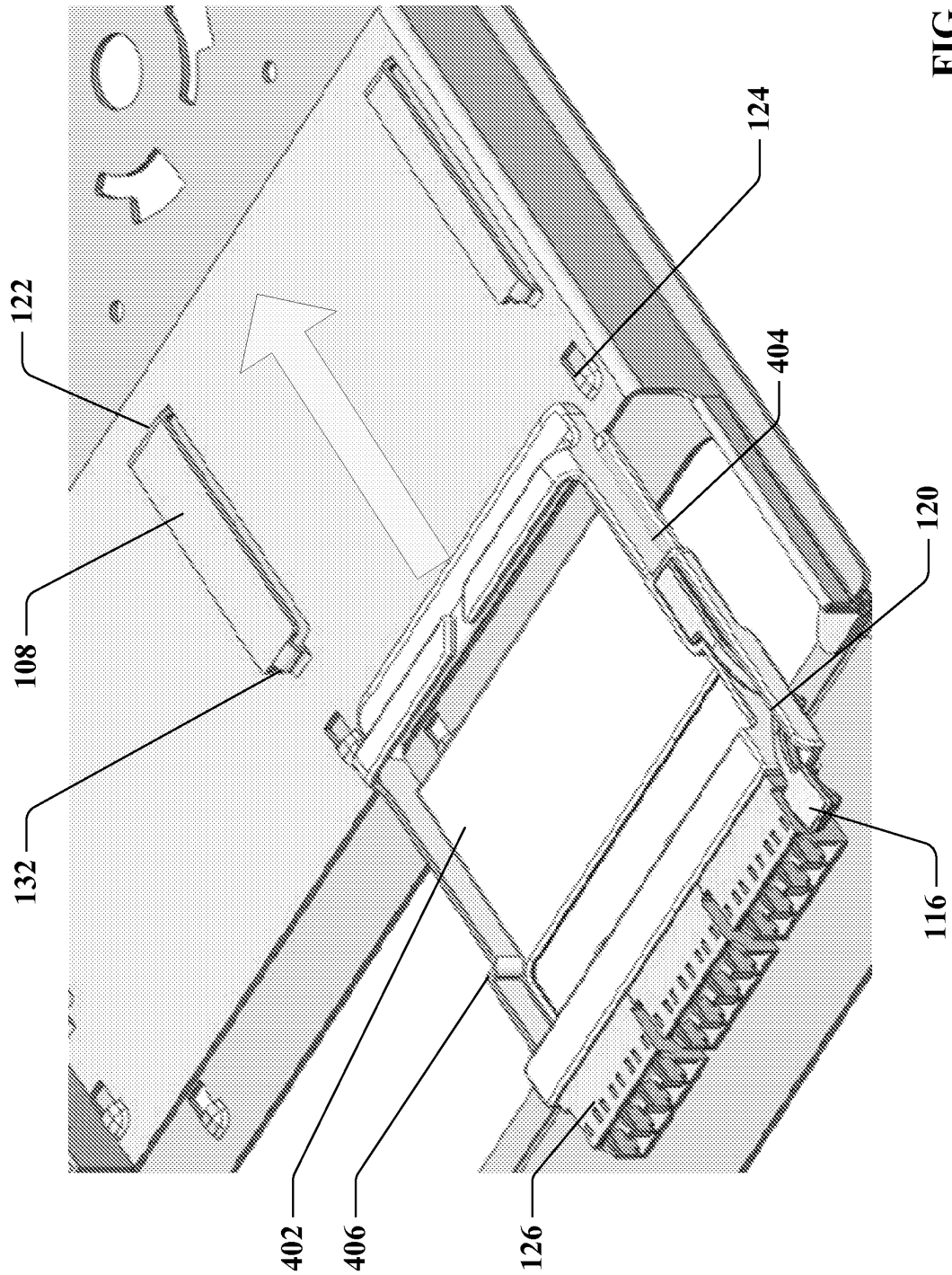


FIG. 4

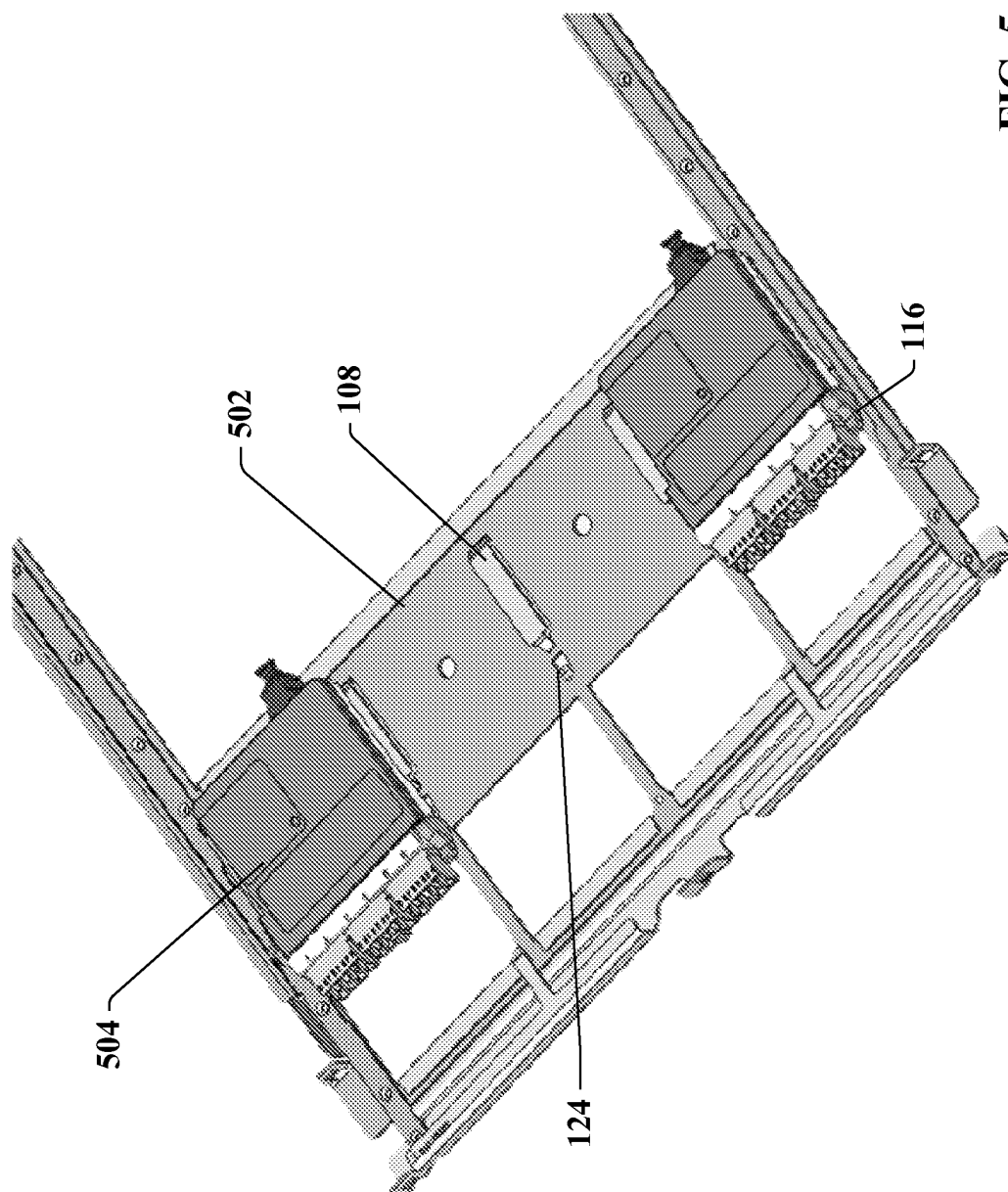


FIG. 5

FIG. 6

120

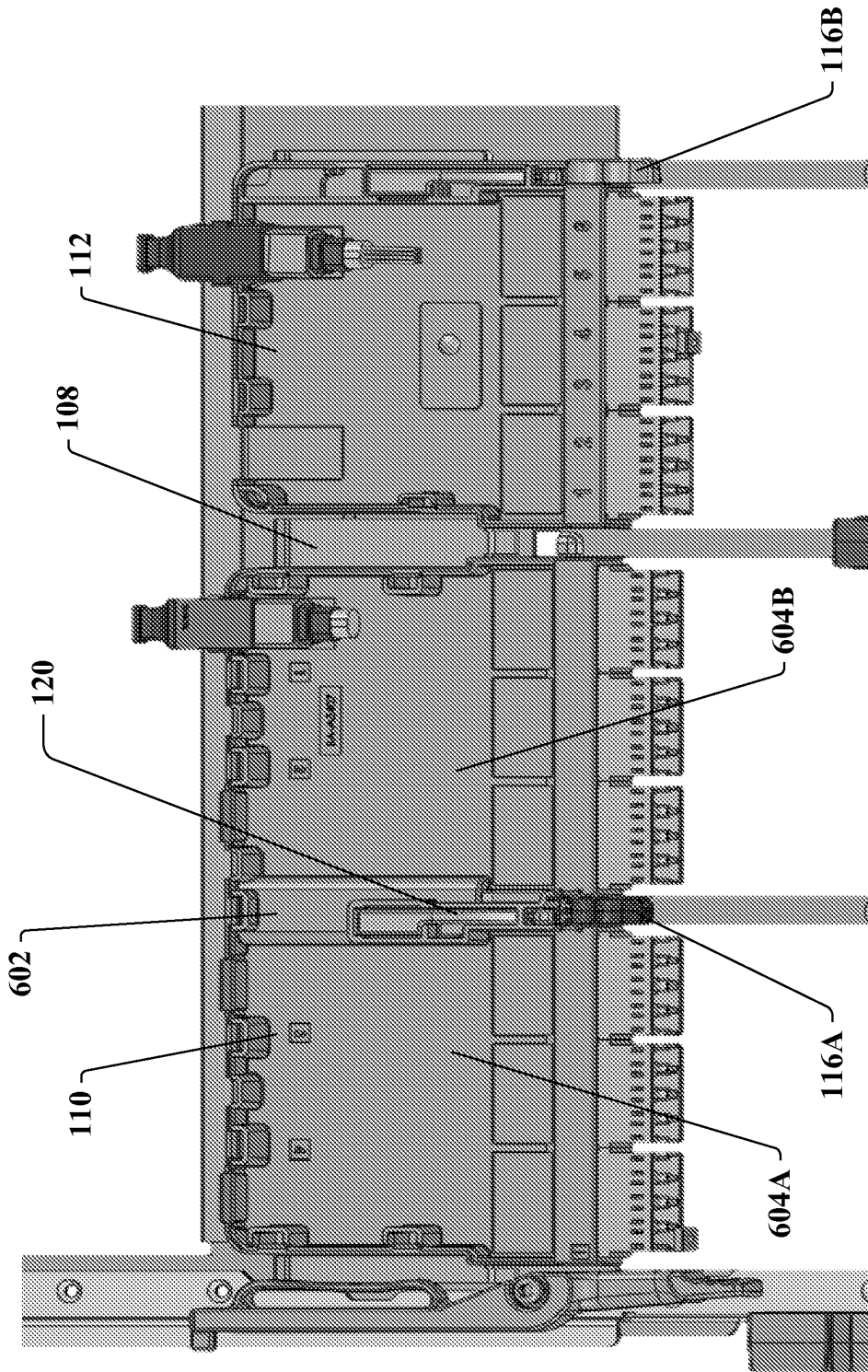


FIG. 7

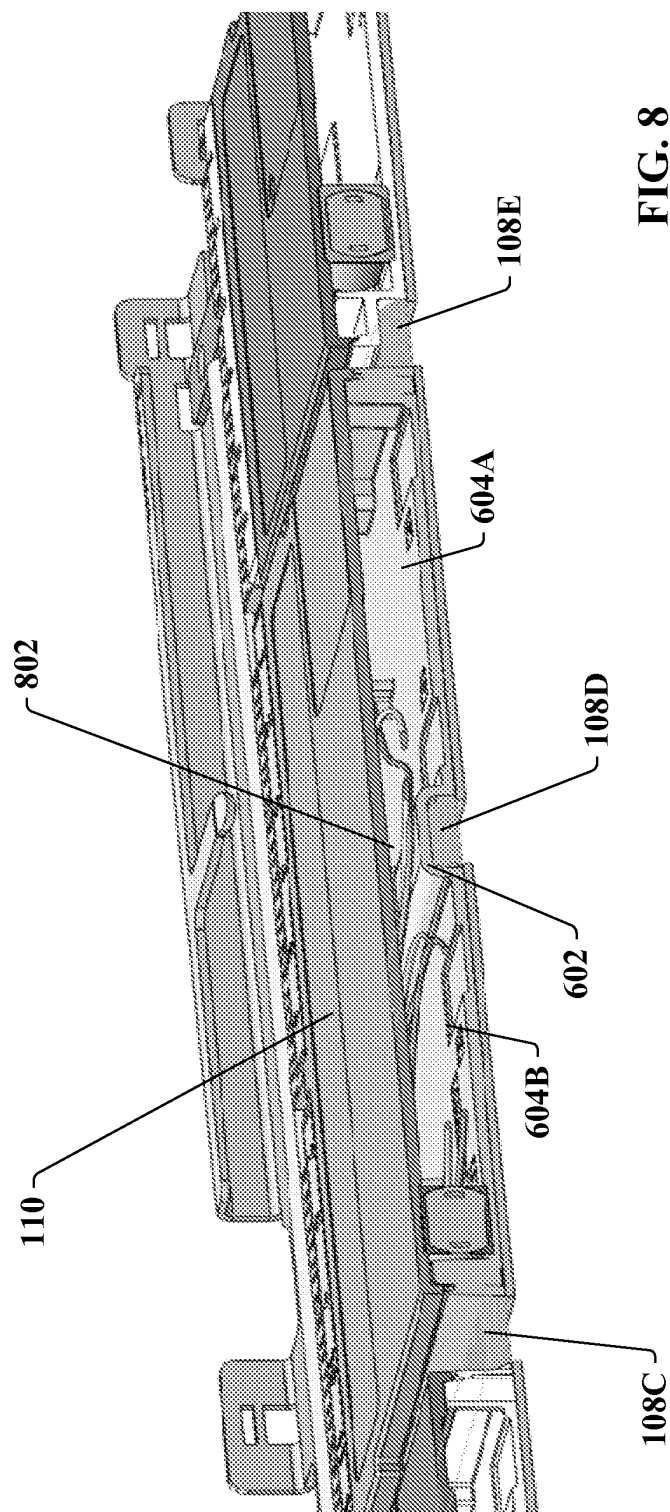


FIG. 8

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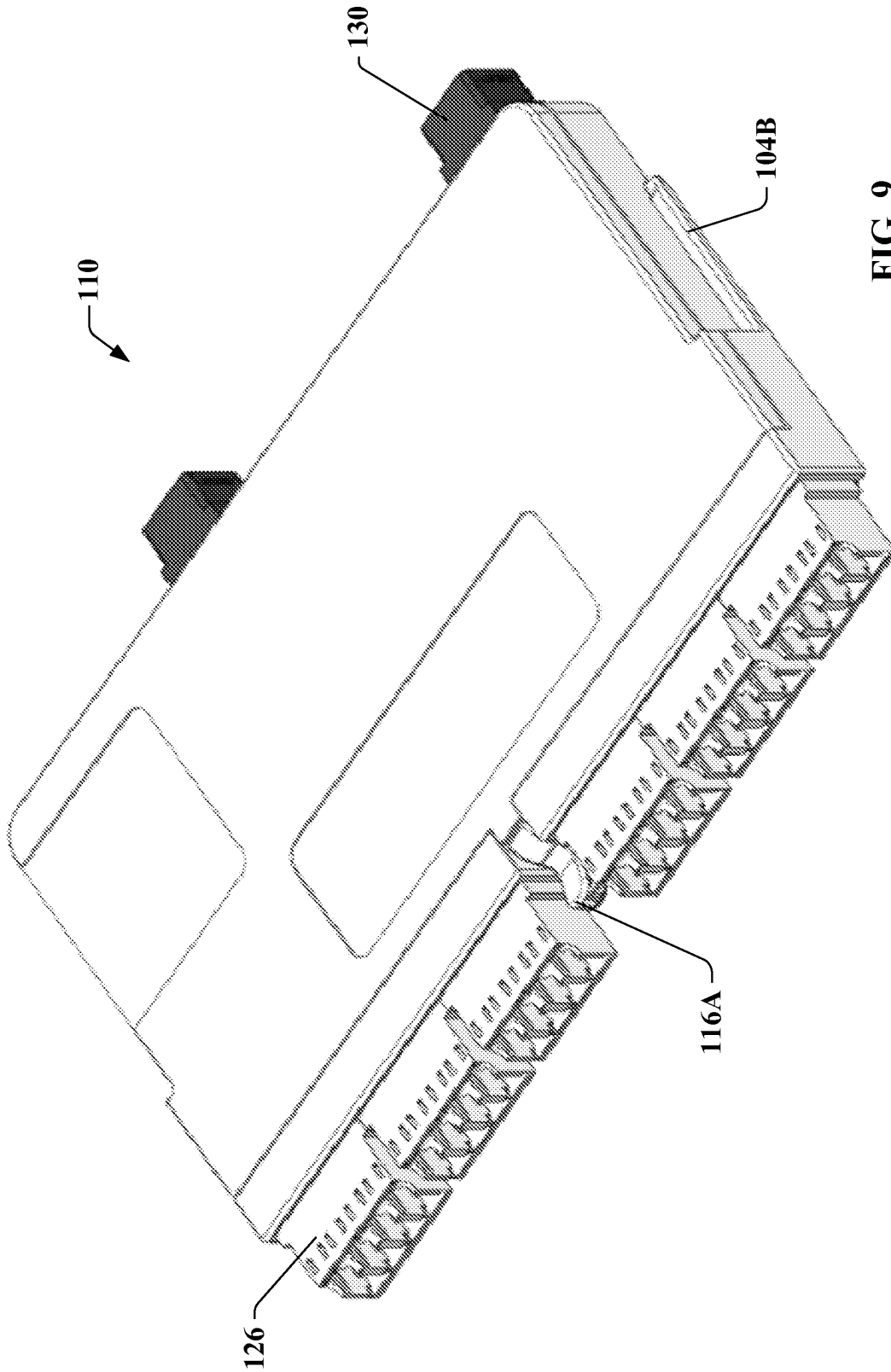


FIG. 9

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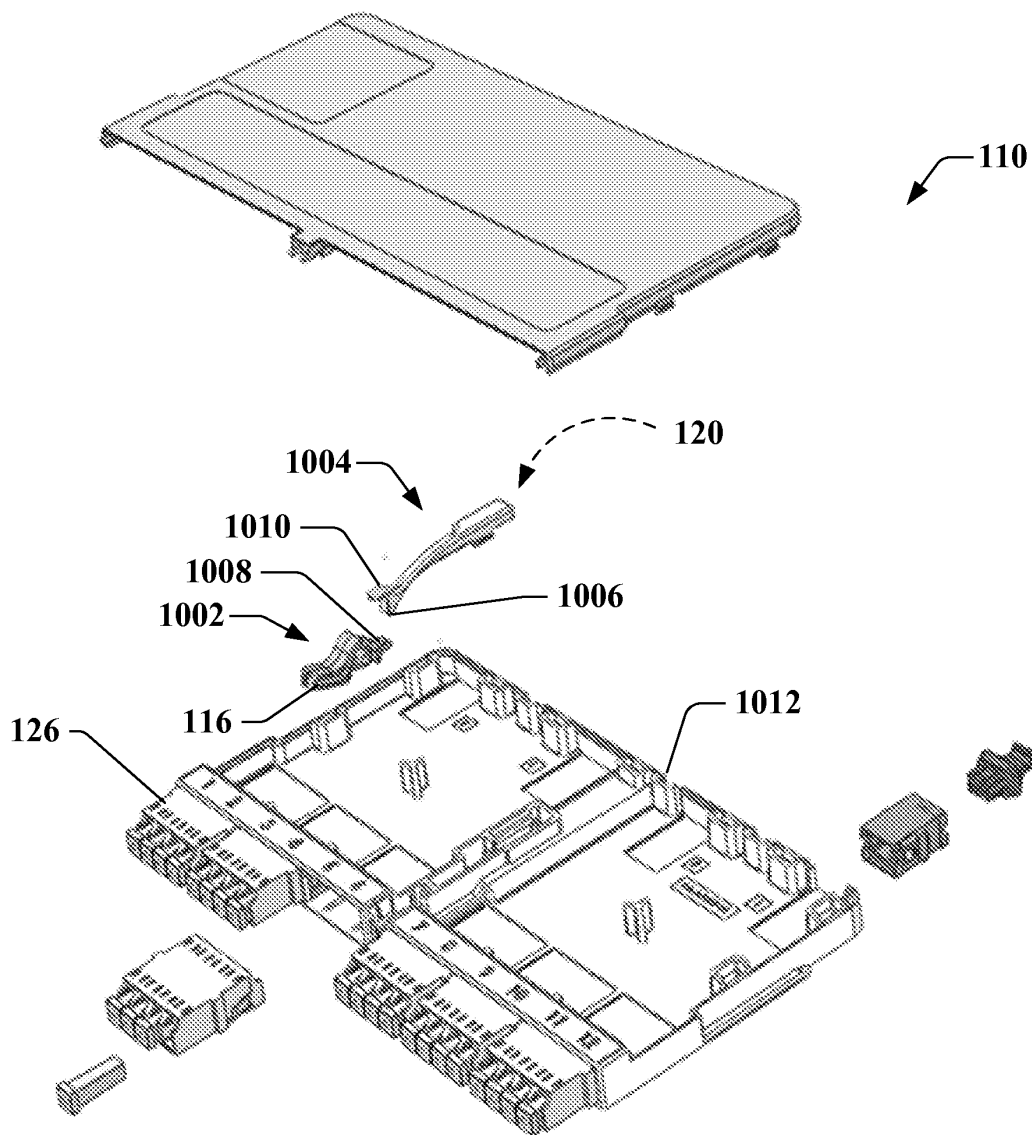


FIG. 10

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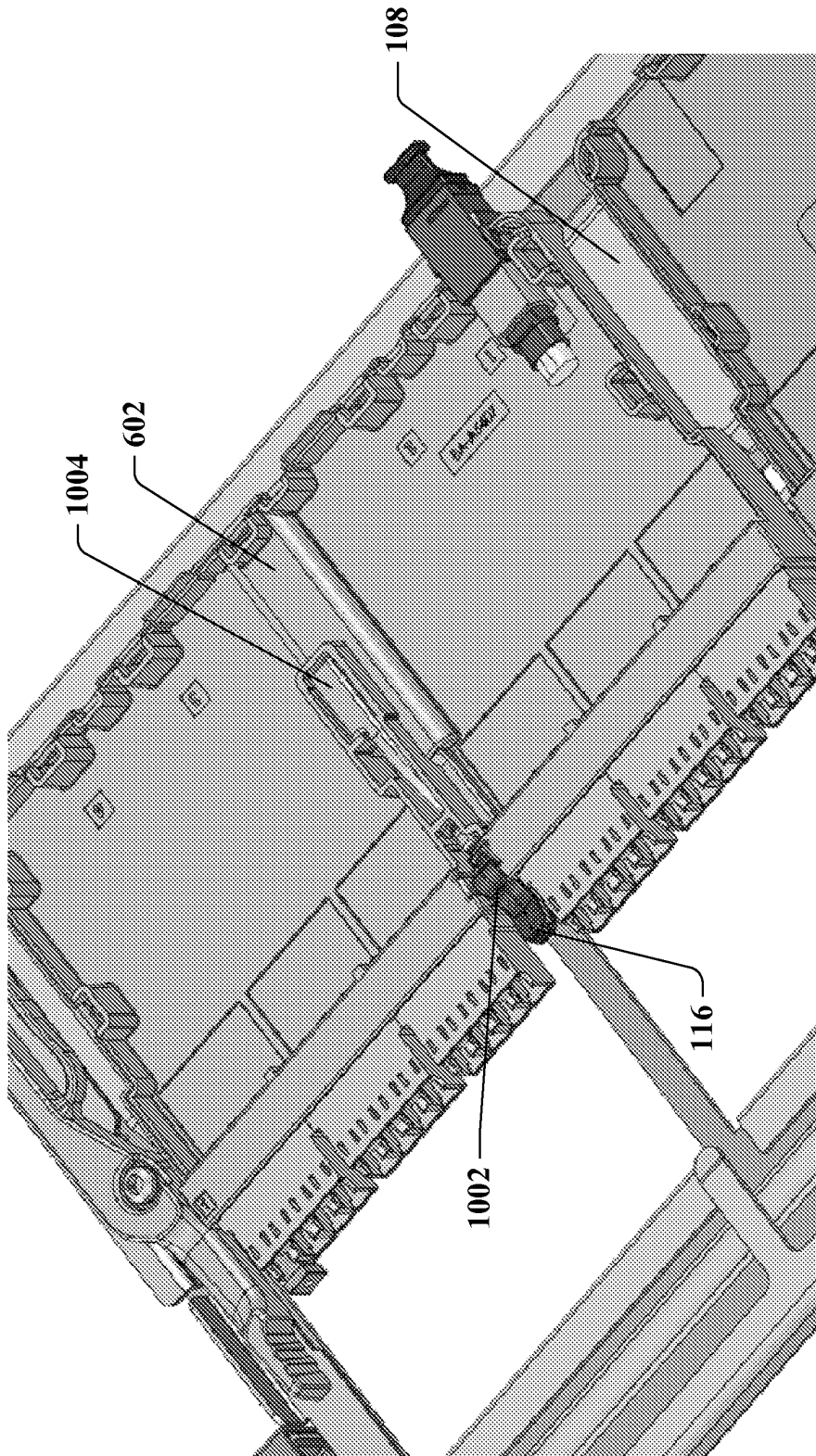


FIG. 11

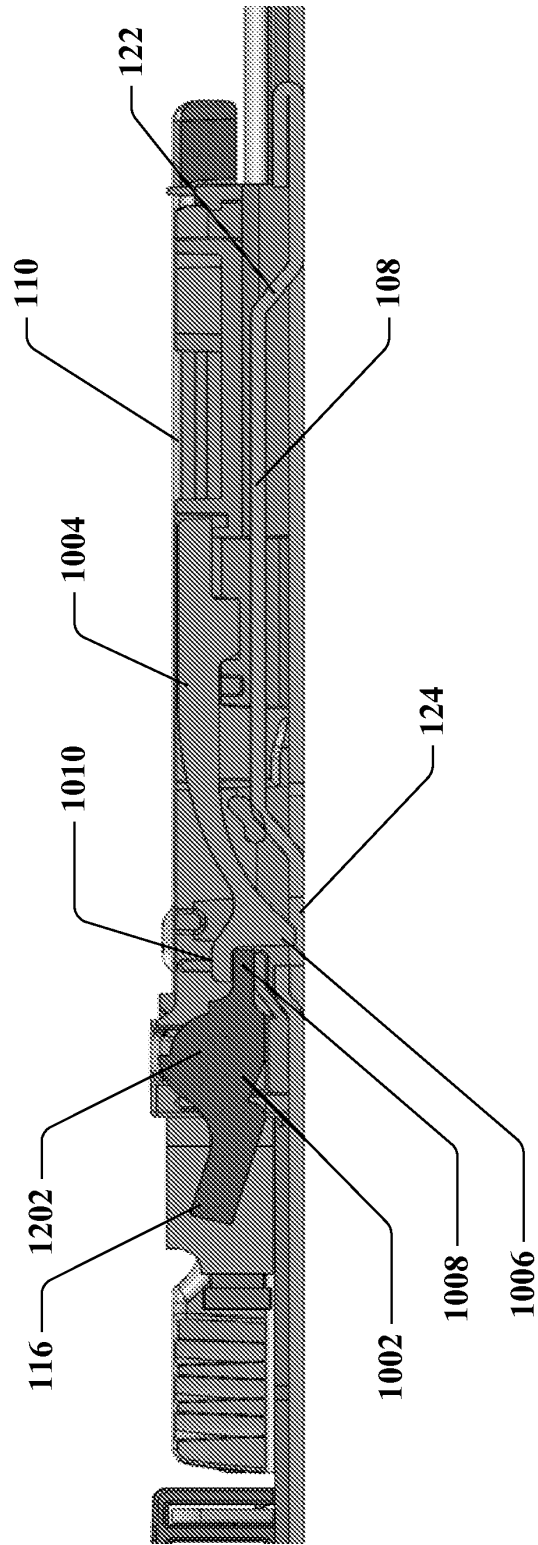


FIG. 12

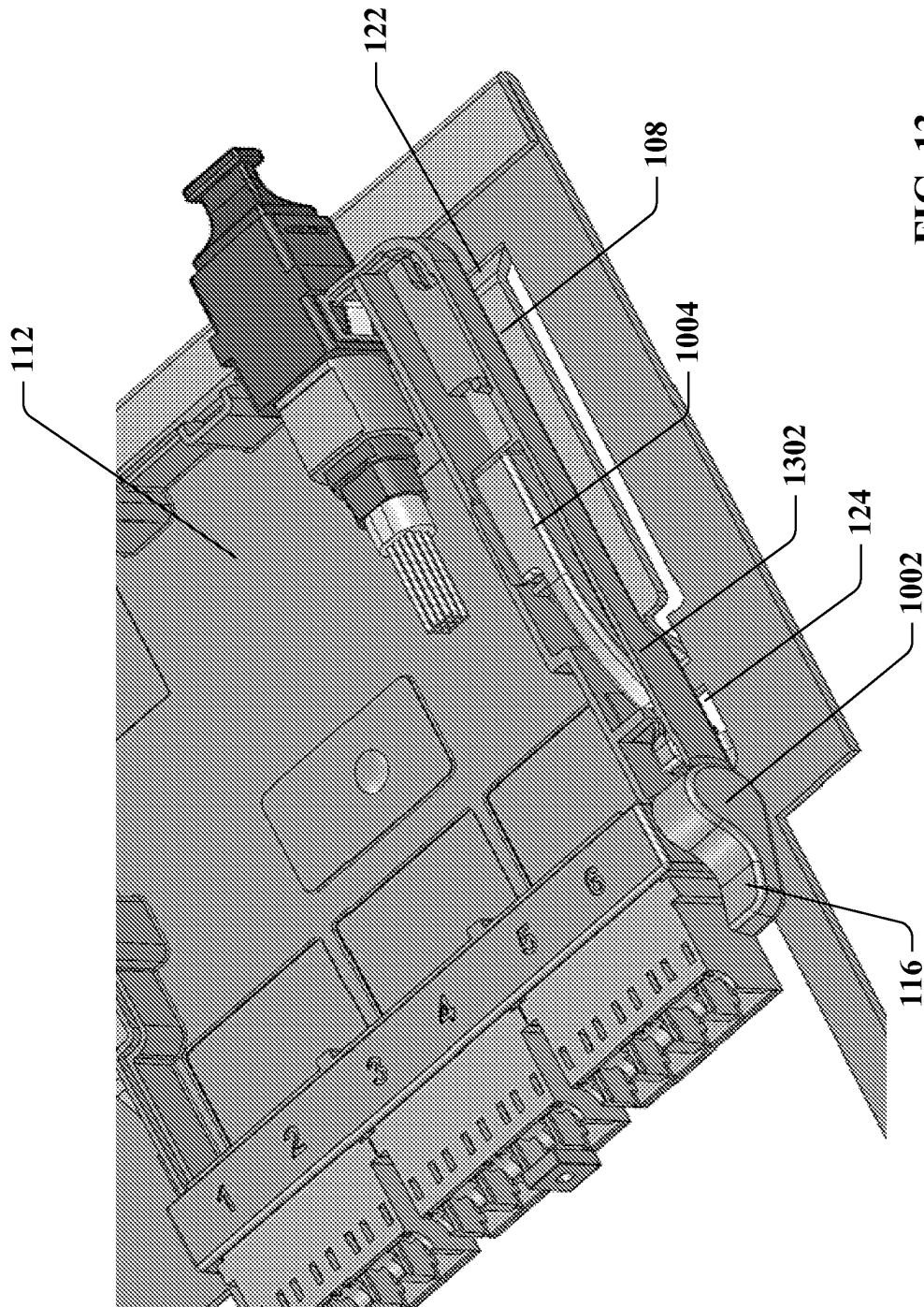


FIG. 13

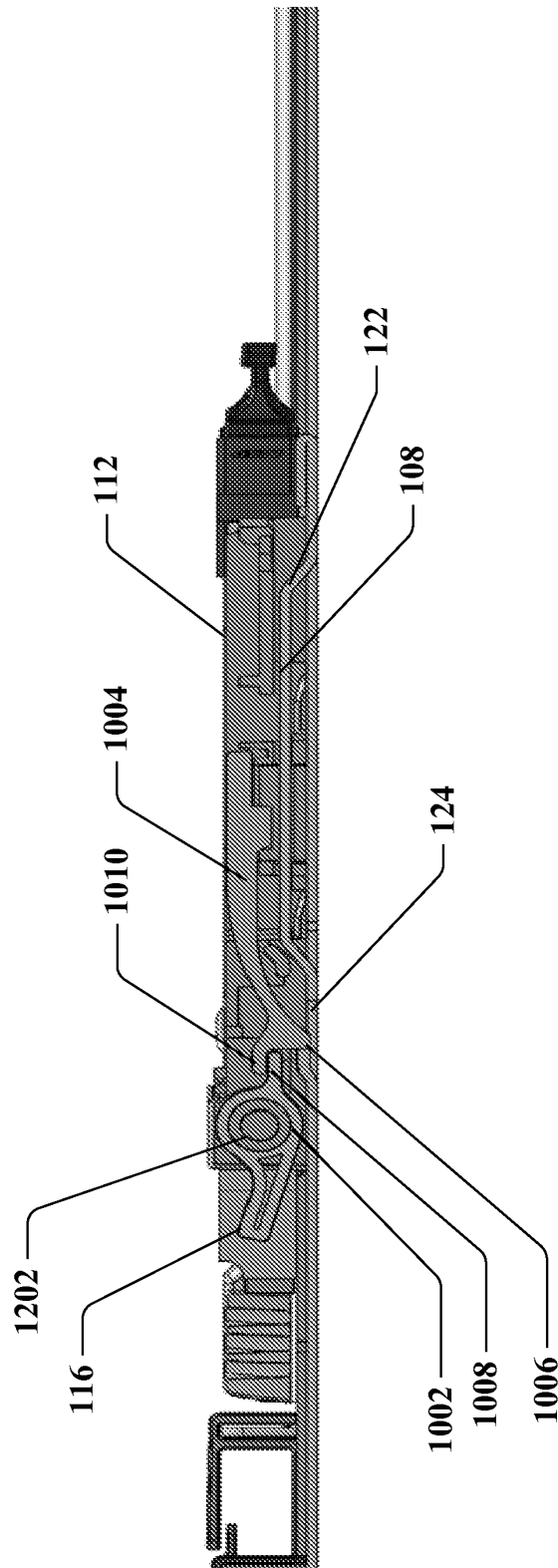


FIG. 14

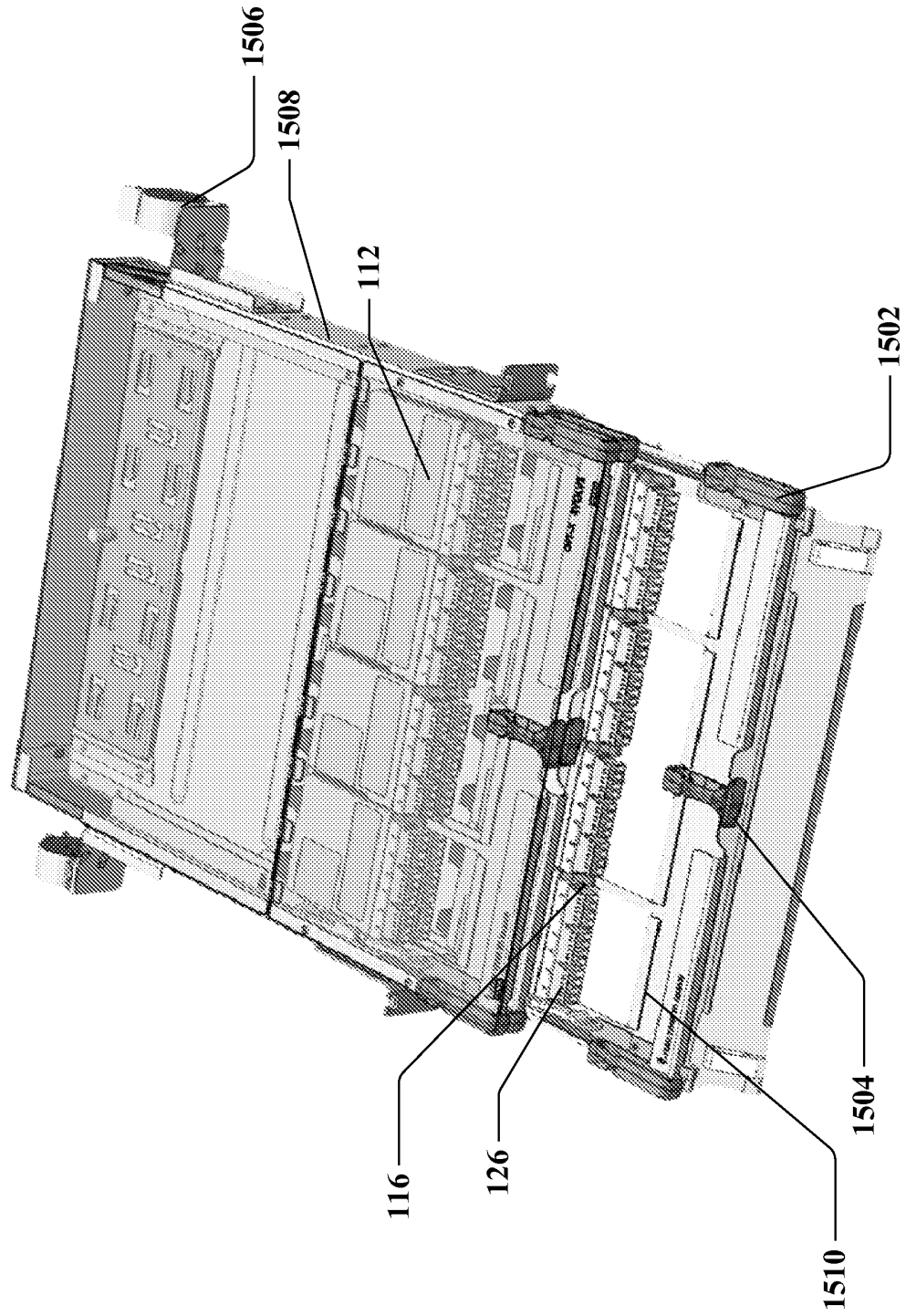


FIG. 15

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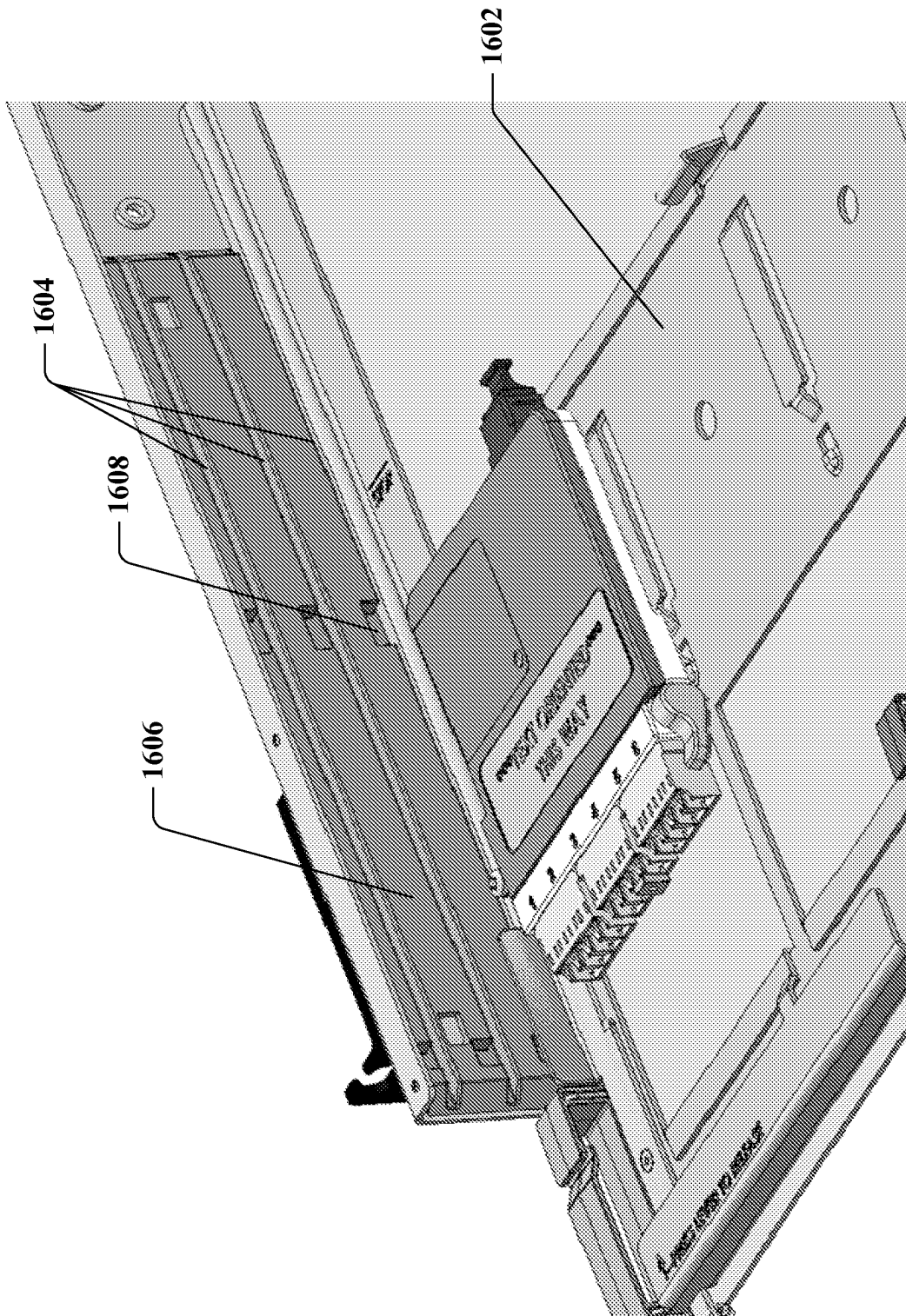


FIG. 16

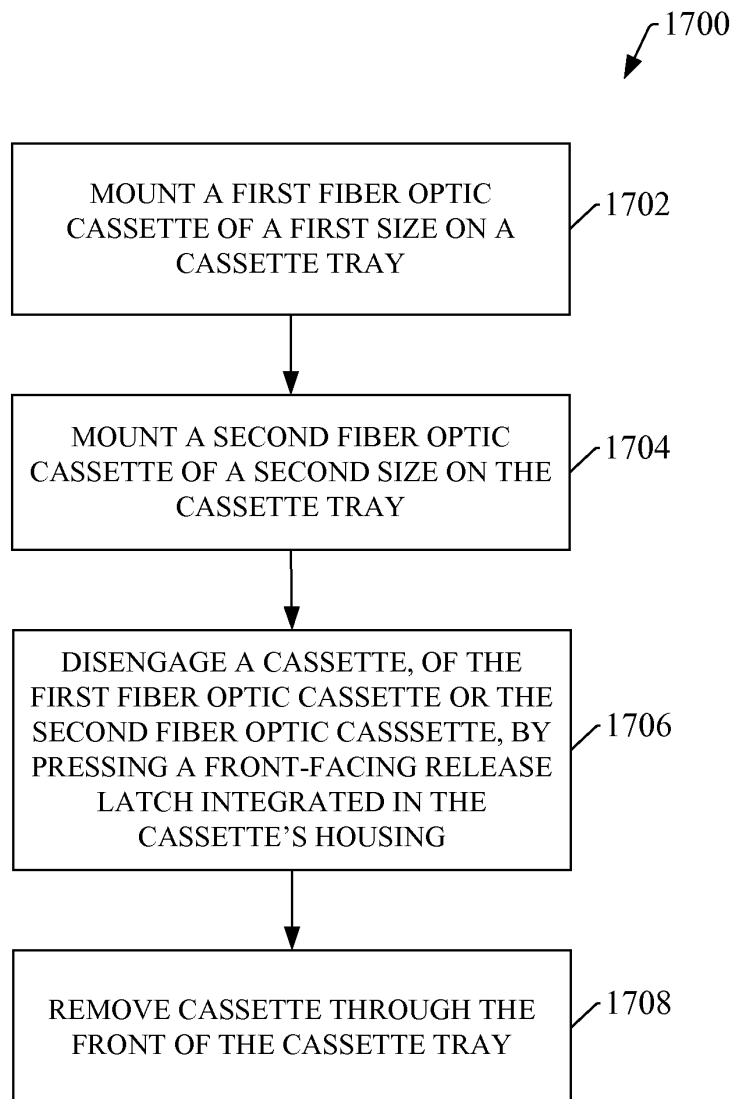


FIG. 17

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PA-02720/LEVIP114US
		Application Number	
Title of Invention	MULTI-GANG CASSETTE SYSTEM		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Tom		Sauter		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Seattle	State/Province	WA	Country of Residence i	US
Mailing Address of Inventor:					
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Address 2					
City	Seattle	State/Province	WA		
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Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Gary		Bernstein		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
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Mailing Address of Inventor:					
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Address 2					
City	Bothell	State/Province	WA		
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All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

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For further information see 37 CFR 1.33(a).

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PA-02720/LEVIP114US
		Application Number	
Title of Invention	MULTI-GANG CASSETTE SYSTEM		

☐ An Address is being provided for the correspondence information of this application.			
Customer Number	99045		
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Application Information:

Title of the Invention	MULTI-GANG CASSETTE SYSTEM		
Attorney Docket Number	PA-02720/LEVIP114US	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	17	Suggested Figure for Publication (if any)	1

Filing By Reference :

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	99045		

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PA-02720/LEVIP114US
		Application Number	
Title of Invention	MULTI-GANG CASSETTE SYSTEM		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the application number blank.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

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Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ^j (if applicable)
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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. ☐ NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.
--

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PA-02720/LEVIP114US
		Application Number	
Title of Invention	MULTI-GANG CASSETTE SYSTEM		

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☒ Authorization to Permit Access to the Instant Application by the Participating Offices
If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application. In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application. In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

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If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:		
Name of the Deceased or Legally Incapacitated Inventor :		
If the Applicant is an Organization check here. ☒		
Organization Name	Leviton Manufacturing Co., Inc.	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PA-02720/LEVIP114US
		Application Number	
Title of Invention	MULTI-GANG CASSETTE SYSTEM		

Mailing Address Information:			
Address 1		201 North Service Road	
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City		Melville	State/Province NY
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Signature	/Brian Steed/	Date (YYYY-MM-DD)	2015-11-10

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number		PA-02720/LEVIP114US	
		Application Number			
Title of Invention		MULTI-GANG CASSETTE SYSTEM			
First Name	Brian	Last Name	Steed	Registration Number	64095
Additional Signature may be generated within this form by selecting the Add button.					Add

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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Application Number:				
Filing Date:				
Title of Invention:		MULTI-GANG CASSETTE SYSTEM		
First Named Inventor/Applicant Name:		Tom Sauter		
Filer:		Brian David Steed/Robin Wardzala		
Attorney Docket Number:		PA-02720/LEVIP114US		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility application filing	1011	1	280	280
Utility Search Fee	1111	1	600	600
Utility Examination Fee	1311	1	720	720
Pages:				
Claims:				
Claims in Excess of 20	1202	1	80	80
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1680

Electronic Acknowledgement Receipt	
EFS ID:	24044532
Application Number:	14937817
International Application Number:	
Confirmation Number:	8774
Title of Invention:	MULTI-GANG CASSETTE SYSTEM
First Named Inventor/Applicant Name:	Tom Sauter
Customer Number:	99045
Filer:	Brian David Steed/Robin Wardzala
Filer Authorized By:	Brian David Steed
Attorney Docket Number:	PA-02720/LEVIP114US
Receipt Date:	10-NOV-2015
Filing Date:	
Time Stamp:	21:35:41
Application Type:	Utility under 35 USC 111(a)

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Specification.pdf	108356	yes	22
			237896fab8f896aa238298681f33c44baba5d9b5		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	17	
	Claims		18	21	
	Abstract		22	22	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	Figures.pdf	4273284	no	17
			c422bc393efa6d28ef947d89d9aa56acfe28714b		
Warnings:					
Information:					
3	Application Data Sheet	ADS.pdf	1560663	no	7
			460e8a1611f5a01afd685ef2b01b6f1cbc6bb566		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	37125	no	2
			ffa60753f0c1a785bb16f2617bbaf1142b47ea9f		
Warnings:					
Information:					
Total Files Size (in bytes):			5979428		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

SCORE Placeholder Sheet for IFW Content

Application Number: 14937817

Document Date: 11/10/2015

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions below.

At the time of document entry (noted above):

- Examiners may access SCORE content via the eDAN interface.
- Other USPTO employees can bookmark the current SCORE URL (<http://Score.uspto.gov/ScoreAccessWeb/>).
- External customers may access SCORE content via the Public and Private PAIR interfaces.

Form Revision Date: September 30, 2013

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 14/937,817				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	600			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720			
TOTAL CLAIMS (37 CFR 1.16(j))	21	minus 20 = *	1			x 80 =	80			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *				x 420 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	1680			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
TOTAL ADD'L FEE								TOTAL ADD'L FEE		
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=		x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=		x	=
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))									
TOTAL ADD'L FEE								TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.										



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
14/937,817	11/10/2015	2883	1680	PA-02720/LEVIP114US	21	2

CONFIRMATION NO. 8774

FILING RECEIPT



0000000078820342

99045

Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

Date Mailed: 11/25/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Tom Sauter, Seattle, WA;
Gary Bernstein, Bothell, WA;

Applicant(s)

Leviton Manufacturing Co., Inc., Melville, NY;

Power of Attorney: None

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 11/23/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/937,817**

Projected Publication Date: 05/11/2017

Non-Publication Request: No

Early Publication Request: No
Title

MULTI-GANG CASSETTE SYSTEM

Preliminary Class

385

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US

CONFIRMATION NO. 8774

99045

Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

IMPROPER LETTER



Date Mailed: 11/25/2015

**NOTICE OF ACCEPTANCE OF AUTHORIZATION TO PERMIT
ACCESS TO APPLICATION VIA PRIORITY DOCUMENT EXCHANGE**

This is in response to the applicant's authorization to permit access to the application-as-filed by participating offices under 37 CFR 1.14(h)(1) submitted on 11/10/2015.

The authorization to permit access to the application under 37 CFR 1.14(h)(1) is accepted.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/kxaysana/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US

CONFIRMATION NO. 8774

99045

Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

FORMALITIES LETTER



OC000000078820543

Date Mailed: 11/25/2015

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing.

Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- Surcharge as set forth in 37 CFR 1.16(f) must be submitted.
The surcharge is due for any one of:
 - late submission of the basic filing fee, search fee, or examination fee,
 - late submission of inventor's oath or declaration,
 - filing an application that does not contain at least one claim on filing, or
 - submission of an application filed by reference to a previously filed application.

SUMMARY OF FEES DUE:

The fee(s) required within **TWO MONTHS** from the date of this Notice to avoid abandonment is/are itemized below. No entity status discount is in effect. If applicant is qualified for small entity status, a written assertion of small entity status must be submitted to establish small entity status. (See 37 CFR 1.27). If applicant is qualified for micro entity status, an acceptable Certification of Micro Entity Status must be submitted to establish micro entity status. (See 37 CFR 1.29 and forms PTO/SB/15A and 15B.)

- \$ **140** surcharge.
- \$(**0**) previous unapplied payment amount.
- \$ **140** TOTAL FEE BALANCE DUE.

Items Required To Avoid Processing Delays:

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

- A properly executed inventor's oath or declaration has not been received for the following inventor(s):
Tom Sauter
Gary Bernstein

Replies must be received in the USPTO within the set time period or must include a proper Certificate of Mailing or Transmission under 37 CFR 1.8 with a mailing or transmission date within the set time period. For more information and a suggested format, see Form PTO/SB/92 and MPEP 512.

Replies should be mailed to:

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Registered users of EFS-Web may alternatively submit their reply to this notice via EFS-Web, including a copy of this Notice and selecting the document description "Applicant response to Pre-Exam Formalities Notice".
<https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html>

For more information about EFS-Web please call the USPTO Electronic Business Center at 1-866-217-9197 or visit our website at <http://www.uspto.gov/ebc>.

If you are not using EFS-Web to submit your reply, you must include a copy of this notice.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/kxaysana/

PATENT

PA-02720/LEVIP114US

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence (along with any paper referred to as being attached or enclosed) is being submitted *via* the USPTO EFS Filing System on the date shown below to Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Date: January 22, 2016

/Robin Wardzala/
Robin Wardzala

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicant(s): Tom Sauter, et al.

Examiner: Unknown

Serial No: 14/937,817

Art Unit: 2883

Filing Date: 11-10-2015

Title: MULTI-GANG CASSETTE SYSTEM

**Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450**

**REPLY TO NOTICE TO FILE MISSING PARTS OF NON-PROVISIONAL
APPLICATION DATED NOVEMBER 25, 2015**

Dear Sir:

This is a Reply to the Notice to File Missing Parts of Non-Provisional Application mailed November 25, 2015. Enclosed is an executed Oath and Declaration.

A credit card payment form is filed concurrently herewith in connection with the fee for filing this reply. In the event any additional fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees, or credit any overpayment to Deposit Account No. 50-1063 [LEVIP114US].

Respectfully submitted,

AMIN, TUROCY & WATSON, LLP

/Thomas E. Watson/

Thomas E. Watson

Reg. No. 43,243

AMIN, TUROCY & WATSON, LLP
127 Public Square
57th Floor, Key Tower
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

**Title of
Invention**

MULTI-GANG CASSETTE SYSTEM

As the below named inventor, I hereby declare that:

This declaration
is directed to:



The attached application, or



United States application or PCT international application number _____

filed on _____

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

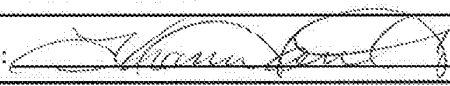
WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Tom Sauter

Date (Optional): 11/17/15

Signature: 

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-8199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of
Invention

MULTI-GANG CASSETTE SYSTEM

As the below named inventor, I hereby declare that:

This declaration
is directed to:



The attached application, or



United States application or PCT international application number _____

filed on _____

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor:

Gary Bernstein

Date (Optional):

11/10/15

Signature:

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-6199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal				
Application Number:		14937817		
Filing Date:		10-Nov-2015		
Title of Invention:		MULTI-GANG CASSETTE SYSTEM		
First Named Inventor/Applicant Name:		Tom Sauter		
Filer:		Thomas Edward Watson/Robin Wardzala		
Attorney Docket Number:		PA-02720/LEVIP114US		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Late Filing Fee for Oath or Declaration	1051	1	140	140
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				140

Electronic Acknowledgement Receipt	
EFS ID:	24705060
Application Number:	14937817
International Application Number:	
Confirmation Number:	8774
Title of Invention:	MULTI-GANG CASSETTE SYSTEM
First Named Inventor/Applicant Name:	Tom Sauter
Customer Number:	99045
Filer:	Thomas Edward Watson/Robin Wardzala
Filer Authorized By:	Thomas Edward Watson
Attorney Docket Number:	PA-02720/LEVIP114US
Receipt Date:	22-JAN-2016
Filing Date:	10-NOV-2015
Time Stamp:	17:52:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$140
RAM confirmation Number	6586
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	Reply-MissingParts.pdf	22798 a46d612b0d0caed45f6fba4c372a80a371504780	no	2
Warnings:					
Information:					
2	Oath or Declaration filed	Declaration.pdf	2030094 01481237bdf358b9f56af110f7e35a05e27fd9ef	no	4
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30697 8ac0e637e0e81991b9c91ee70593674be95ccb8d	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			2083589		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 14/937,817	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	600
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720
TOTAL CLAIMS (37 CFR 1.16(i))	21	minus 20 = *	1			x 80 =	80
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *				x 420 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	1680
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				TOTAL ADD'L FEE		TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=
	Application Size Fee (37 CFR 1.16(s))						
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
				TOTAL ADD'L FEE		TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
14/937,817	11/10/2015	2883	1820	PA-02720/LEVIP114US	21	2

CONFIRMATION NO. 8774

UPDATED FILING RECEIPT



0000000080279395

99045

Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

Date Mailed: 02/02/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Tom Sauter, Seattle, WA;
Gary Bernstein, Bothell, WA;

Applicant(s)

Leviton Manufacturing Co., Inc., Melville, NY;

Power of Attorney: None

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 11/23/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/937,817**

Projected Publication Date: 05/11/2017

Non-Publication Request: No

Early Publication Request: No
Title

MULTI-GANG CASSETTE SYSTEM

Preliminary Class

385

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14937817
	Filing Date	2015-11-10
	First Named Inventor	Tom Sauter
	Art Unit	2883
	Examiner Name	
	Attorney Docket Number	PA-02720/LEVIP114US

U.S. PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	4283150		1981-08-11	Hanazono et al.	
	2	4528728		1985-07-16	Schmidt et al.	
	3	4659119		1987-04-21	Reimert	
	4	4692809		1987-09-08	Beining et al.	
	5	4944568		1990-07-31	Danbach et al.	
	6	5004866		1991-04-02	Cooke et al.	
	7	5312263		1994-05-07	Zapalski et al.	
	8	5713752		1998-02-03	Leong et al.	

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	Filing Date		2015-11-10
	First Named Inventor	Tom Sauter	
	Art Unit		2883
	Examiner Name		
	Attorney Docket Number		PA-02720/LEVIP114US

	9	5781366		1998-07-14	Matsuoka	
	10	6485322		2002-11-26	Branch et al.	
	11	6607308		2003-08-19	Dair et al.	
	12	6626697		2003-09-30	Martin et al.	
	13	6796715		2004-09-28	Chiu et al.	
	14	7298946		2007-11-20	Mueller	
	15	7347633		2008-03-25	Minota	
	16	7473131		2009-01-06	Dunwoody et al.	
	17	7689089		2010-03-30	Wagner et al.	
	18	7841779		2010-11-30	Bianchini et al.	
	19	8147272		2012-04-02	Rhein	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14937817	
	Filing Date		2015-11-10	
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	20	8337243		2012-12-25	Elkhatib et al.	
	21	8740478		2014-06-03	Weberpals	
	22	8781284		2014-07-15	Bragg	
	23	8958680		2015-02-17	Bragg	
	24	9077126		2015-07-07	Bragg	
	25	9236691		2016-01-12	Bragg	

If you wish to add additional U.S. Patent citation information please click the Add button.

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U.S.PATENT APPLICATION PUBLICATIONS

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20100322580		2010-12-23	Beamon, et al.	
	2	20020131122		2002-09-19	Anderl et al.	
	3	20050208822		2002-11-26	Ishigami et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14937817
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	First Named Inventor	Tom Sauter	
	Art Unit	2883	
	Examiner Name		
	Attorney Docket Number	PA-02720/LEVIP114US	

	4	20060103140		2006-05-18	Bella et al.	
	5	20090138637		2009-05-28	Hargreaves et al.	
	6	20110177710		2011-07-21	Tobey	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	International Search Report for PCT/US2012/049554 dated 26 February 2013, 3 pages.	
	2	Notice of allowance for U.S. Application No. 13/564,495 dated 3/6/2014, 22 pages.	
	3	Notice of allowance for U.S. Application No. 14/295,599 dated 10/23/2014, 21 pages.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14937817
	Filing Date		2015-11-10
	First Named Inventor	Tom Sauter	
	Art Unit	2883	
	Examiner Name		
	Attorney Docket Number	PA-02720/LEVIP114US	

	4	Notice of allowance for U.S. Application No. 14/447,460 dated 3/3/2015, 19 pages.
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If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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	First Named Inventor	Tom Sauter	
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	Examiner Name		
	Attorney Docket Number	PA-02720/LEVIP114US	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas E. Watson/	Date (YYYY-MM-DD)	2016-06-08
Name/Print	Thomas E. Watson	Registration Number	43243

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	25998312
Application Number:	14937817
International Application Number:	
Confirmation Number:	8774
Title of Invention:	MULTI-GANG CASSETTE SYSTEM
First Named Inventor/Applicant Name:	Tom Sauter
Customer Number:	99045
Filer:	Thomas Edward Watson/Robin Wardzala
Filer Authorized By:	Thomas Edward Watson
Attorney Docket Number:	PA-02720/LEVIP114US
Receipt Date:	08-JUN-2016
Filing Date:	10-NOV-2015
Time Stamp:	03:24:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	NPL-1.pdf	148211 7fd309dafdfb05c284a0090e056f0756971d06	no	3
Warnings:					
Information:					

2	Non Patent Literature	NPL-2.pdf	918825 1ff6f43c82d37e1017e0b10ccfefa0d7f33e007b	no	22
Warnings:					
Information:					
3	Non Patent Literature	NPL-3.pdf	834795 79cedf68466e3ac7429ae1355f7142d71763d09	no	21
Warnings:					
Information:					
4	Non Patent Literature	NPL-4.pdf	814716 5efb8e20bb3933b76bb91ec7937d105f143fb856	no	19
Warnings:					
Information:					
5	Information Disclosure Statement (IDS) Form (SB08)	updated_IDS.pdf	1035845 e3fbff449b1bdac71b051cc17c928f5aeb60433	no	7
Warnings:					
Information:					
Total Files Size (in bytes):			3752392		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PA-02541PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2012/049554	International filing date (<i>day/month/year</i>) 03 AUGUST 2012 (03.08.2012)	(Earliest) Priority Date (<i>day/month/year</i>) 01 AUGUST 2012 (01.08.2012)
Applicant LEVITON MANUFACTURING CO., INC. et al		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (See Box No. III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1A
☒ as suggested by the applicant.
☐ as selected by this Authority, because the applicant failed to suggest a figure.
☐ as selected by this Authority, because this figure better characterizes the invention.
- b. ☐ none of the figure is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2012/049554**A. CLASSIFICATION OF SUBJECT MATTER****G02B 6/46(2006.01)i, G02B 6/38(2006.01)i**

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G02B 6/46; G08B 13/12; G08B 13/14; H01R 13/62; G02B 6/00; G02B 6/36; H01J 5/16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & keywords: optical connector, optical fibers, multi output, outlet assemblies, bezel, latch

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6626697 B1 (MARTIN et al.) 30 September 2003 See abstract, paragraphs [0010]-[0020], column 3, line 46 ~ line 63, claims 1, 9 and figure 1.	1-20
A	US 7689089 B2 (WAGNER et al.) 30 March 2010 See abstract, paragraphs [0010]-[0020], claims 1, 10 and figure 1.	1-20
A	US 2011-0177710 A1 (TOBEY) 21 July 2011 See abstract, paragraphs [0010]-[0020], claims 1, 10 and figure 2.	1-20
A	US 6607308 B2 (DAIR et al.) 19 August 2003 See abstract, paragraphs [0010]-[0020], claims 1-2, 6 and figure 6.	1-20
A	US 4944568 A (DANBACH et al.) 31 July 1990 See abstract, paragraphs [0010]-[0020], claims 1, 8, 10 and figure 1.	1-20



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

25 FEBRUARY 2013 (25.02.2013)

Date of mailing of the international search report

26 FEBRUARY 2013 (26.02.2013)

Name and mailing address of the ISA/KR



Facsimile No. 82-42-472-7140

Authorized officer

KANG, Sung Chul

Telephone No. 82-42-481-8405



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/049554

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6626697 B1	30.09.2003	AU 2003-291309 A1	03.06.2004
		AU 2003-291309 B2	31.05.2007
		CA 2504858 A1	27.05.2004
		CN 100593345 C	03.03.2010
		CN 1723717 A	18.01.2006
		CN 1723717 C0	18.01.2006
		DE 60330891 D1	25.02.2010
		DK1559277T3	26.04.2010
		EP 1559277 A2	03.08.2005
		EP 1559277 B1	06.01.2010
		ES 2336666 T3	15.04.2010
		JP 2006-505915 A	16.02.2006
		JP 4440111 B2	24.03.2010
		KR 10-1006271 B1	06.01.2011
		KR 10-2005-0074560 A	18.07.2005
		US 2004-0192094 A1	30.09.2004
		US 6976867 B2	20.12.2005
		WO 2004-045263 A2	27.05.2004
		WO 2004-045263 A3	11.11.2004
US 7689089 B2	30.03.2010	CN 101523925 A	02.09.2009
		EP 2074833 A2	01.07.2009
		JP 2010-507107 A	04.03.2010
		JP 5113850 B2	19.10.2012
		KR 10-2009-0068226 A	25.06.2009
		MX 2009003463 A	14.04.2009
		US 2008-0089656 A1	17.04.2008
		US 2010-0135633 A1	03.06.2010
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		WO 2008-045994 A2	17.04.2008
		WO 2008-045994 A3	12.06.2008
US 2011-0177710 A1	21.07.2011	CN 202103265 U	04.01.2012
		EP 2346118 A1	20.07.2011
		US 8062049 B2	22.11.2011
US 6607308 B2	19.08.2003	US 2002-0110336 A1	15.08.2002
		US 2002-0110338 A1	15.08.2002
		US 2003-0152331 A1	14.08.2003
		US 2003-0152339 A1	14.08.2003
		US 2004-0037517 A1	26.02.2004
		US 6659655 B2	09.12.2003
		US 6874953 B2	05.04.2005
US 04944568 A	31.07.1990	JP 03-100504 A	25.04.1991

Form PCT/ISA/210 (patent family annex) (July 2009)



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US	8774
99045 7590 10/20/2016 Leviton Mfg. Co. - Turocy & Watson, LLP 127 Public Square, 57th Floor, Key Tower Cleveland, OH 44114			EXAMINER DOAN, JENNIFER	
			ART UNIT 2883	PAPER NUMBER
			MAIL DATE 10/20/2016	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 14/937,817	Applicant(s) SAUTER ET AL.	
	Examiner JENNIFER DOAN	Art Unit 2883	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 11/10/15.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1-21 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1-3, 10-13, 20 and 21 is/are rejected.

8) ☒ Claim(s) 4-9 and 14-19 is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. ____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date 060816.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.

4) ☐ Other: ____.

DETAILED ACTION

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Information Disclosure Statement

2. The prior art documents submitted by applicant in the Information Disclosure Statement filed on 06/08/16, have all been considered and made of record (note the attached copy of form PTO-1449).

Drawings

3. The drawings, filed on 11/10/15, are accepted.

Specification

4. Applicants' cooperation is requested in correcting any errors of which applicants may become aware in the specification.

Claim Rejections - 35 USC § 102

5. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of

rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

7. Claims 1-3, 10-13, 20 and 21 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Cooke et al. (US 2012/0106911 A1).

With respect to claim 1, Cooke et al. (figures 8-10) disclose a fiber optic cassette mounting system, comprising a fiber optic cassette (10); and a fiber optic cassette tray (70) comprising rail guides (72) configured to engage with respective rails (40A, 40B) of the fiber optic cassette (10), wherein a rail guide (72), of the rail guides, comprises an elongated portion of a surface of the fiber optic cassette tray that is raised from the surface to form ledges on a left side and a right side of the elongated portion (figure 9), wherein the rail guides (72) are configured to hold a single-gang cassette and a multi-gang cassette simultaneously on the fiber optic cassette tray (see figure 8 and [0030-0032]).

With respect to claim 2, Cooke et al. (figures 8-10) disclose the fiber optic cassette mounting system, wherein the rail guide (figure 9) is notched at a front end of the rail guide to allow a rail of the fiber optic cassette to enter the rail guide under one of the ledges (see figure 9).

With respect to claim 3, Cooke et al. (figures 8-10) disclose the fiber optic cassette mounting system, wherein the fiber optic cassette is a multi-gang cassette, and comprises at least one clearance area between two gangs of the cassette configured to allow a guide rail to reside between the two gangs when the fiber optic cassette is mounted on the fiber optic cassette tray (see figure 8).

With respect to claim 10, Cooke et al. disclose the fiber optic cassette mounting system, wherein the fiber optic cassette is configured to hold a row of fiber optic adapters disposed on a front edge of the fiber optic cassette, and wherein the fiber optic adapters are configured to receive fiber optic connectors that terminate respective optical fibers (see [0031]).

With respect to claim 11, Cooke et al. (figure 12A) disclose the fiber optic cassette mounting system, further comprising an enclosure (100) configured to house the fiber optic tray (70), wherein the enclosure comprises tray guides (102) disposed on a left inside wall and a right inside wall, respectively, of the enclosure, and wherein the tray guides (88) comprise guide channels configured to engage with a left edge or a right edge of the fiber optic tray (see [0051]).

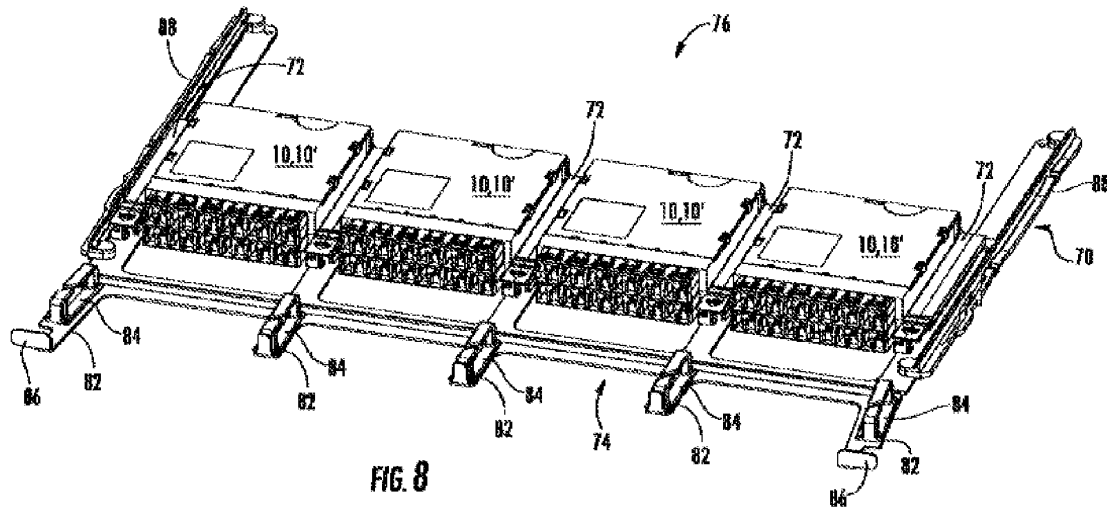
With respect to claim 12, Cooke et al. (figure 13) disclose the fiber optic cassette mounting system, wherein the fiber optic cassette tray comprises at least two tray levels (see figure 13).

With respect to claim 13, Cooke et al. (figures 8-10) disclose a fiber optic cassette, comprising a housing (100) comprising at least a first gang (10) and a second gang (10) configured to house optical fibers ([0031]); a left rail (40B) disposed on a left

side of the fiber optic cassette; a right rail (40A) disposed on a right side of the fiber optic cassette; and a clearance area disposed between the first gang and the second gang (see figure 8), wherein the left rail (40B) and the right rail (40A) are configured to engage with corresponding rail guides (72) of a cassette mounting surface to facilitate mounting the fiber optic cassette on the cassette mounting surface, adjacent rail guides (72) of the cassette mounting surface define a cassette bay configured to receive a single-gang fiber optic cassette (10), and the fiber optic cassette (10) is configured to span at least two cassette bays of the cassette mounting surface when mounted on the cassette mounting surface (see figures 8-10).

With respect to claim 20, Cooke et al. disclose the fiber optic cassette, further comprising a row of fiber optic adapters disposed along a front edge of the cassette, wherein the fiber optic adapters are configured to receive fiber optic connectors that terminate respective optical fibers (see [0031]).

With respect to claim 21, Cooke et al. disclose the fiber optic cassette, wherein the housing is configured to allow the optical fibers (22) to pass between at least the first gang and the second gang (see figure 2 and [0030-0031]).



Allowable Subject Matter

8. Claims 4-9 and 14-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art fails to disclose the fiber optic cassette comprises a latching mechanism comprising a latching protrusion configured to engage with an aperture on the fiber optic cassette tray as recited in claim 4; wherein the clearance area comprises a groove on a lower surface of the housing configured to allow a rail guide of the cassette mounting surface to pass under the fiber optic cassette as recited in claim 14 and further comprising a latching mechanism disposed within the housing and

comprising a spring and a release mechanism that interacts with the spring as recited in claim 15.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Friday from 7:00am to 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Hollweg can be reached on (571) 270-1739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

Application/Control Number: 14/937,817

Page 8

Art Unit: 2883

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ JENNIFER DOAN /

Primary Examiner, Art Unit 2883

Notice of References Cited	Application/Control No. 14/937,817	Applicant(s)/Patent Under Reexamination SAUTER ET AL.	
	Examiner JENNIFER DOAN	Art Unit 2883	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2012/0106911 A1	05-2012	Cooke; Terry L.	G02B6/4452	385/135
	B	US-				
	C	US-				
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20161017

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S4	18767	(G02B6/4452 OR G02B6/3897 OR G02B6/4471 OR G02B6/4453 OR G02B6/4454).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/10/17 06:38
S5	83	((("4283150") or ("4528728") or ("4659119") or ("4692809") or ("4944568") or ("5004866") or ("5312263") or ("5713752") or ("5781366") or ("6485322") or ("6607308") or ("6626697") or ("6796715") or ("7298946") or ("7347633") or ("7473131") or ("7689089") or ("7841779") or ("8147272") or ("8337243") or ("8740478") or ("8781284") or ("8958680") or ("9077126") or ("9236691") or ("20100322580") or ("20020131122") or ("20050208822") or ("20060103140") or ("20090138637") or ("20110177710"))).PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2016/10/17 08:36
S9	11464	sauter.in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/10/17 09:34
S10	21	S9 and tom	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/10/17 09:38
L6	9	cassette\$1 same tray\$1 same (rail adj guid\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/10/17 10:40
L8	1019	tray\$1 same (rail adj guid\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/10/17 11:09

EAST Search History

L9	1	tray\$1 same (rail adj guid\$3) same hold\$3 same cassette\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/10/17 11:11
L10	3	tray\$1 same (rail adj guid\$3) same hold\$3 same adapter\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/10/17 11:12
L11	204	tray\$1 same (rail adj guid\$3) same hold\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/10/17 11:15

EAST Search History (Interference)

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10/ 17/ 2016 12:41:57 PM

C:\ Users\ jdoan\ Documents\ EAST\ Workspaces\ 14937817.wsp

Search Notes 	Application/Control No. 14937817	Applicant(s)/Patent Under Reexamination SAUTER ET AL.
	Examiner JENNIFER DOAN	Art Unit 2883

CPC- SEARCHED		
Symbol	Date	Examiner
G02B6/4452; G02B6/3897; G02B6/4471; G02B6/4453; G02B6/4454	10/17/2016	JD

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
East search (text search - see search history printout)	10/17/2016	JD

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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Receipt date: 06/08/2016

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14937817
	Filing Date	2015-11-10
	First Named Inventor	Tom Sauter
	Art Unit	2883
	Examiner Name	
	Attorney Docket Number	PA-02720/LEVIP114US

U.S. PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	4283150		1981-08-11	Hanazono et al.	
	2	4528728		1985-07-16	Schmidt et al.	
	3	4659119		1987-04-21	Reimert	
	4	4692809		1987-09-08	Beining et al.	
	5	4944568		1990-07-31	Danbach et al.	
	6	5004866		1991-04-02	Cooke et al.	
	7	5312263		1994-05-07	Zapalski et al.	
	8	5713752		1998-02-03	Leong et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JD/

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Receipt date: 06/08/2016

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		14937817
Filing Date		2015-11-10
First Named Inventor	Tom Sauter	
Art Unit	2883	
Examiner Name		
Attorney Docket Number	PA-02720/LEVIP114US	

9	5781366		1998-07-14	Matsuoka	
10	6485322		2002-11-26	Branch et al.	
11	6607308		2003-08-19	Dair et al.	
12	6626697		2003-09-30	Martin et al.	
13	6796715		2004-09-28	Chiu et al.	
14	7298946		2007-11-20	Mueller	
15	7347633		2008-03-25	Minota	
16	7473131		2009-01-06	Dunwoody et al.	
17	7689089		2010-03-30	Wagner et al.	
18	7841779		2010-11-30	Bianchini et al.	
19	8147272		2012-04-02	Rhein	

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Receipt date: 06/08/2016

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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First Named Inventor	Tom Sauter
Art Unit	2883
Examiner Name	
Attorney Docket Number	PA-02720/LEVIP114US

20	8337243		2012-12-25	Elkhatib et al.
21	8740478		2014-06-03	Weberpals
22	8781284		2014-07-15	Bragg
23	8958680		2015-02-17	Bragg
24	9077126		2015-07-07	Bragg
25	9236691		2016-01-12	Bragg

If you wish to add additional U.S. Patent citation information please click the Add button.

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U.S.PATENT APPLICATION PUBLICATIONS

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Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20100322580		2010-12-23	Beamon, et al.	
	2	20020131122		2002-09-19	Anderl et al.	
	3	20050208822		2002-11-26	Ishigami et al.	

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Art Unit	2883
Examiner Name	
Attorney Docket Number	PA-02720/LEVIP114US

4	20060103140	2006-05-18	Bella et al.
5	20090138637	2009-05-28	Hargreaves et al.
6	20110177710	2011-07-21	Tobey

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NON-PATENT LITERATURE DOCUMENTS

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	International Search Report for PCT/US2012/049554 dated 26 February 2013, 3 pages.	
	2	Notice of allowance for U.S. Application No. 13/564,495 dated 3/6/2014, 22 pages.	
	3	Notice of allowance for U.S. Application No. 14/295,599 dated 10/23/2014, 21 pages.	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Application Number	14937817
Filing Date	2015-11-10
First Named Inventor	Tom Sauter
Art Unit	2883
Examiner Name	
Attorney Docket Number	PA-02720/LEVIP114US

4	Notice of allowance for U.S. Application No. 14/447,460 dated 3/3/2015, 19 pages.
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EXAMINER SIGNATURE

Examiner Signature	/Jennifer Doan/	Date Considered	10/17/2016
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

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BIB DATA SHEET

CONFIRMATION NO. 8774

SERIAL NUMBER 14/937,817	FILING or 371(c) DATE 11/10/2015 RULE	CLASS 385	GROUP ART UNIT 2883	ATTORNEY DOCKET NO. PA-02720/LEVIP114US		
APPLICANTS Leviton Manufacturing Co., Inc., Melville, NY; INVENTORS Tom Sauter, Seattle, WA; Gary Bernstein, Bothell, WA; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 11/23/2015						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/JENNIFER DOAN/</u> Examiner's Signature		☐ Met after Allowance JD Initials	STATE OR COUNTRY WA	SHEETS DRAWINGS 17	TOTAL CLAIMS 21	INDEPENDENT CLAIMS 2
ADDRESS Leviton Mfg. Co. - Turocy & Watson, LLP 127 Public Square, 57th Floor, Key Tower Cleveland, OH 44114 UNITED STATES						
TITLE MULTI-GANG CASSETTE SYSTEM						
FILING FEE RECEIVED 1820	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees		
				☐ 1.16 Fees (Filing)		
				☐ 1.17 Fees (Processing Ext. of time)		
				☐ 1.18 Fees (Issue)		
				☐ Other _____		
			☐ Credit			

<i>Index of Claims</i> 	Application/Control No. 14937817	Applicant(s)/Patent Under Reexamination SAUTER ET AL.
	Examiner JENNIFER DOAN	Art Unit 2883

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant
 ☐ CPA
 ☐ T.D.
 ☐ R.1.47

CLAIM		DATE								
Final	Original	10/17/2016								
	1	✓								
	2	✓								
	3	✓								
	4	O								
	5	O								
	6	O								
	7	O								
	8	O								
	9	O								
	10	✓								
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	12	✓								
	13	✓								
	14	O								
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	16	O								
	17	O								
	18	O								
	19	O								
	20	✓								
	21	✓								



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US	8774
99045 7590 12/05/2016 Leviton Mfg. Co. - Turocy & Watson, LLP 127 Public Square, 57th Floor, Key Tower Cleveland, OH 44114			EXAMINER DOAN, JENNIFER	
			ART UNIT 2883	PAPER NUMBER
			MAIL DATE 12/05/2016	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<i>Applicant-Initiated Interview Summary</i>	Application No.	Applicant(s)	
	14/937,817	SAUTER ET AL.	
	Examiner	Art Unit	
	JENNIFER DOAN	2883	

All participants (applicant, applicant's representative, PTO personnel):

(1) Jennifer Doan. (3) ____.

(2) Brian Steed (Attorney). (4) ____.

Date of Interview: 29 November 2016.

Type: ☒ Telephonic ☐ Video Conference
 ☐ Personal [copy given to: ☐ applicant ☒ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
 If Yes, brief description: ____.

Issues Discussed ☐ 101 ☐ 112 ☒ 102 ☐ 103 ☐ Others
 (For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 13.

Identification of prior art discussed: Cooke et al. (US 2012/0106911 A1).

Substance of Interview
 (For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

The applicants' representative discussed the proposed amendment, in which claims 1 and 13 will be amended to include the allowable subject matter of claims 4 and 15. Also, Claims 4 and 15 will be canceled. The examiner agreed this proposed amendment will overcome the rejection based on Cooke et al. reference.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/JENNIFER DOAN/ Primary Examiner, Art Unit 2883	
--	--

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

PATENT

LEVIP114USA

CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence (along with any paper referred to as being attached or enclosed) is being submitted *via* the USPTO EFS Filing System on the date shown below to Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Date: January 20, 2017

/Robin Wardzala/
Robin Wardzala

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Applicant(s): Tom Sauter, et al.

Examiner: Jennifer Doan

Serial No: 14/937,817

Art Unit: 2883

Filing Date: November 10, 2015

Conf. No: 8774

Title: MULTI-GANG CASSETTE SYSTEM

**Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450**

REPLY TO OFFICE ACTION DATED OCTOBER 20, 2016

Examiner Doan:

Favorable reconsideration of the above-identified patent application is respectfully requested in view of the following amendments and comments.

AMENDMENTS TO THE DRAWINGS

The attached sheets contain revisions to FIGs. 1-16 of the drawings to render those drawings more clear. These sheets replace the original sheets including FIGs. 1-16. Specifically, the originally filed greyscale drawings have been replaced with line drawings for clarity. These amendments to the drawings add no new matter.

Attachments: 16 Replacement Sheets

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims:

1. (Currently Amended) A fiber optic cassette mounting system, comprising:
a fiber optic cassette; and
a fiber optic cassette tray comprising rail guides configured to engage with respective rails of the fiber optic cassette, wherein a rail guide, of the rail guides, comprises an elongated portion of a surface of the fiber optic cassette tray that is raised from the surface to form ledges on a left side and a right side of the elongated portion,
wherein the rail guides are configured to hold a single-gang cassette and a multi-gang cassette simultaneously on the fiber optic cassette tray, and
wherein the fiber optic cassette comprises a latching mechanism comprising a latching protrusion configured to engage with an aperture on the fiber optic cassette tray.
2. (Original) The fiber optic cassette mounting system of claim 1, wherein the rail guide is notched at a front end of the rail guide to allow a rail of the fiber optic cassette to enter the rail guide under one of the ledges.
3. (Original) The fiber optic cassette mounting system of claim 1, wherein the fiber optic cassette is a multi-gang cassette, and comprises at least one clearance area between two gangs of the cassette configured to allow a guide rail to reside between the two gangs when the fiber optic cassette is mounted on the fiber optic cassette tray.
4. (Canceled)

5. (Currently Amended) The fiber optic cassette mounting system of claim [[4]] 1, wherein a rail, of the rails of the fiber optic cassette, comprises a notch that engages with a front end of the rail guide to prevent the fiber optic cassette from traveling rearward beyond a stopping position.
6. (Original) The fiber optic cassette mounting system of claim 5, wherein the latching protrusion is configured to engage with the aperture in response to the fiber optic cassette reaching the stopping position while being pushed rearward between the rail guide and another rail guide.
7. (Currently Amended) The fiber optic cassette mounting system of claim [[4]] 1, wherein the latching mechanism further comprises a release mechanism that faces toward the front of the fiber optic cassette, wherein the release mechanism is configured to disengage the latching protrusion from the aperture in response to pressure being applied to the release mechanism.
8. (Original) The fiber optic cassette of claim 7, wherein the release mechanism is configured to rotate about a pivot point in response to the pressure being applied to the release mechanism, and wherein rotation of the release mechanism about the pivot point causes a contact tab on the release mechanism to lift the locking protrusion clear of the aperture.
9. (Original) The fiber optic cassette mounting system of claim 7, wherein the latching mechanism is disposed on a left side of the fiber optic cassette, on a right side of the fiber optic cassette, or in an area between two gangs of the fiber optic cassette.
10. (Original) The fiber optic cassette mounting system of claim 1, wherein the fiber optic cassette is configured to hold a row of fiber optic adapters disposed on a front edge of the fiber optic cassette, and wherein the fiber optic adapters are configured to receive fiber optic connectors that terminate respective optical fibers.

11. (Original) The fiber optic cassette mounting system of claim 1, further comprising an enclosure configured to house the fiber optic tray, wherein the enclosure comprises tray guides disposed on a left inside wall and a right inside wall, respectively, of the enclosure, and wherein the tray guides comprise guide channels configured to engage with a left edge or a right edge of the fiber optic tray.

12. (Original) The fiber optic cassette mounting system of claim 1, wherein the fiber optic cassette tray comprises at least two tray levels.

13. (Currently Amended) A fiber optic cassette, comprising:
a housing comprising at least a first gang and a second gang configured to house optical fibers;
a left rail disposed on a left side of the fiber optic cassette;
a right rail disposed on a right side of the fiber optic cassette; [[and]]
a clearance area disposed between the first gang and the second gang[[]]; and
a latching mechanism disposed within the housing and comprising a spring and a release mechanism that interacts with the spring,
wherein
the left rail and the right rail are configured to engage with corresponding rail guides of a cassette mounting surface to facilitate mounting the fiber optic cassette on the cassette mounting surface,
adjacent rail guides of the cassette mounting surface define a cassette bay configured to receive a single-gang fiber optic cassette, and
the fiber optic cassette is configured to span at least two cassette bays of the cassette mounting surface when mounted on the cassette mounting surface.

14. (Original) The fiber optic cassette of claim 13, wherein the clearance area comprises a groove on a lower surface of the housing configured to allow a rail guide of the cassette mounting surface to pass under the fiber optic cassette.

15. (Canceled)

16. (Currently Amended) The fiber optic cassette of claim [[15]] 13, wherein the spring comprises a locking protrusion configured to lock within an aperture on the cassette mounting surface when the fiber optic cassette is fully installed between the corresponding rail guides.
17. (Original) The fiber optic cassette of claim 16, wherein the release mechanism comprises a release latch that faces outward from a front edge of the fiber optic cassette, and wherein the release mechanism is configured to unlock the locking protrusion from the aperture in response to pressure applied to the release mechanism.
18. (Original) The fiber optic cassette of claim 17, wherein the release mechanism is configured to rotate about a pivot point in response to the pressure applied to the release mechanism, and wherein rotation of the release mechanism about the pivot point causes a contact tab on the release mechanism to lift the locking protrusion clear of the aperture.
19. (Currently Amended) The fiber optic cassette of claim [[15]] 13, wherein the latching mechanism is disposed on a left side of the housing, on a right side of the housing, or in a middle area of the housing between the first gang and the second gang.
20. (Original) The fiber optic cassette of claim 13, further comprising a row of fiber optic adapters disposed along a front edge of the cassette, wherein the fiber optic adapters are configured to receive fiber optic connectors that terminate respective optical fibers.
21. (Original) The fiber optic cassette of claim 13, wherein the housing is configured to allow the optical fibers to pass between at least the first gang and the second gang.

22. (New) A fiber optic cassette, comprising:

a housing comprising at least a first gang and a second gang configured to house optical fibers;

a left rail disposed on a left side of the fiber optic cassette;

a right rail disposed on a right side of the fiber optic cassette; and

a clearance area disposed between the first gang and the second gang,

wherein

the left rail and the right rail are configured to engage with corresponding rail guides of a cassette mounting surface to facilitate mounting the fiber optic cassette on the cassette mounting surface,

the clearance area comprises a groove on a lower surface of the housing configured to allow a rail guide of the cassette mounting surface to pass under the fiber optic cassette,

adjacent rail guides of the cassette mounting surface define a cassette bay configured to receive a single-gang fiber optic cassette, and

the fiber optic cassette is configured to span at least two cassette bays of the cassette mounting surface when mounted on the cassette mounting surface.

REMARKS

Upon entry of the amendments herein, claims 1-3, 5-14, and 16-22 will be pending in the subject application and under consideration. Claims 1, 5, 7, 13, 16, and 19 have been amended, claims 4 and 15 have been canceled, and claim 22 is newly added as shown on pages 3-7 of the Reply. In addition, the drawings have been amended as indicated on page 2. No new matter has been added by these amendments.

Assignee's representative appreciates the Examiner's acknowledgement that claims 4-9 and 14-19 would be allowable if rewritten in independent claim form. Accordingly, independent claims 1 and 13 have been amended herein to incorporate the allowable subject matter of claims 4 and 15, respectively. Also, new independent claim 22 comprises the subject matter of allowed claim 14 rewritten in independent claim form including the limitations of originally filed base claim 13, from which claim 14 depends.

Assignee's representative also thanks Examiner Doan for the courtesies extended during the telephonic interview conducted on November 29, 2016, during which the proposed amendments were discussed. During the discussion, the Examiner confirmed that the amendments submitted herein overcome the current rejection, and may be deemed allowable pending a final search for relevant art.

In view of the amendments submitted herein and the Examiner's comments, it is believed that the subject patent application is in condition for allowance.

I. Rejection of Claims 1-3, 10-13, 20, and 21 under 35 U.S.C. § 102

Claims 1-3, 10-13, 20, and 21 stand rejected under 35 U.S.C. § 102(a)(2) as allegedly being anticipated by Cooke et al. (US 2012/0106911 A1). However, independent claims 1 and 13 have been amended herein to incorporate subject matter deemed allowable by the Examiner, as noted in the Remarks above. Withdrawal of this rejection is therefore respectfully requested.

CONCLUSION

Reconsideration and withdrawal of all outstanding rejections is respectfully requested in view of the comments and amendments herein. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [LEVIP114US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact assignee's undersigned representative at the telephone number below.

Respectfully submitted,

AMIN, TUROCY, & WATSON, LLP

/Brian Steed/

Brian Steed

Reg. No. 64,095

AMIN, TUROCY, & WATSON, LLP
127 Public Square
57th Floor, Key Tower
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731

MULTI-GANG CASSETTE SYSTEM
Tom Sauter, et al.
14/937,817
LEVIP114US

Title:
Inventor(s):
Serial No.
Docket No.

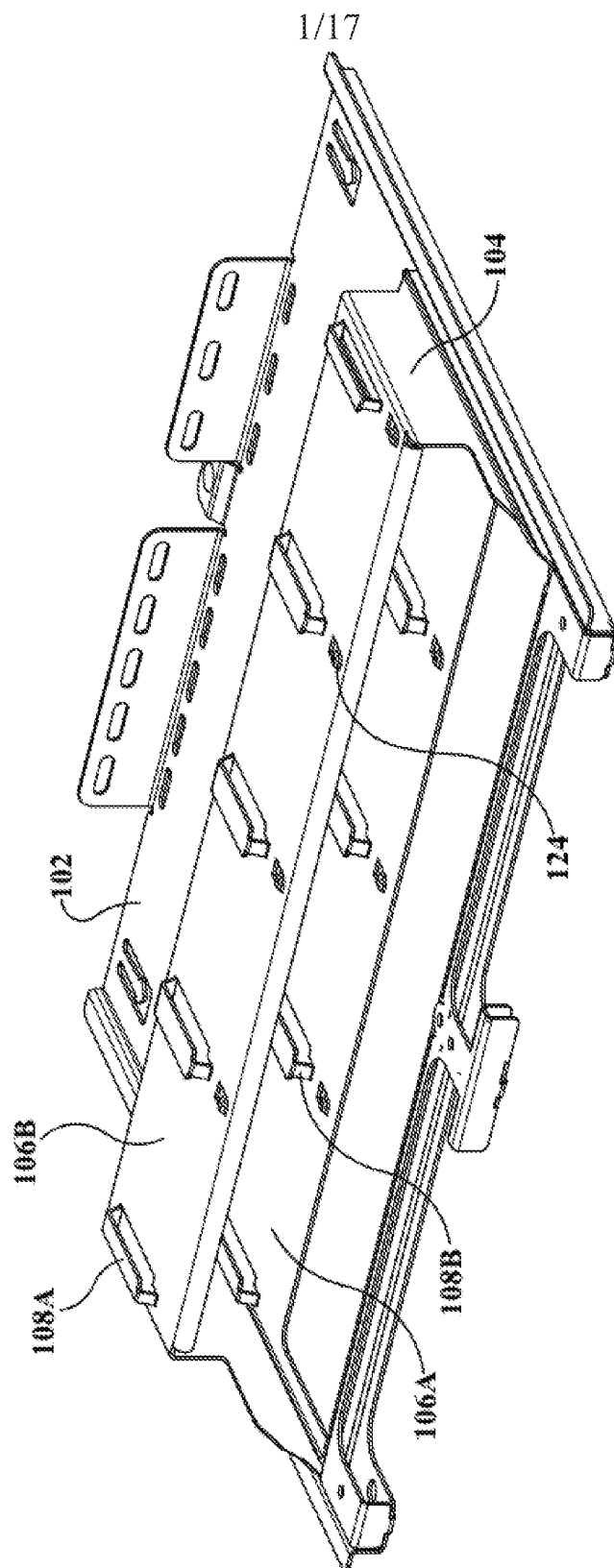


FIG. 1

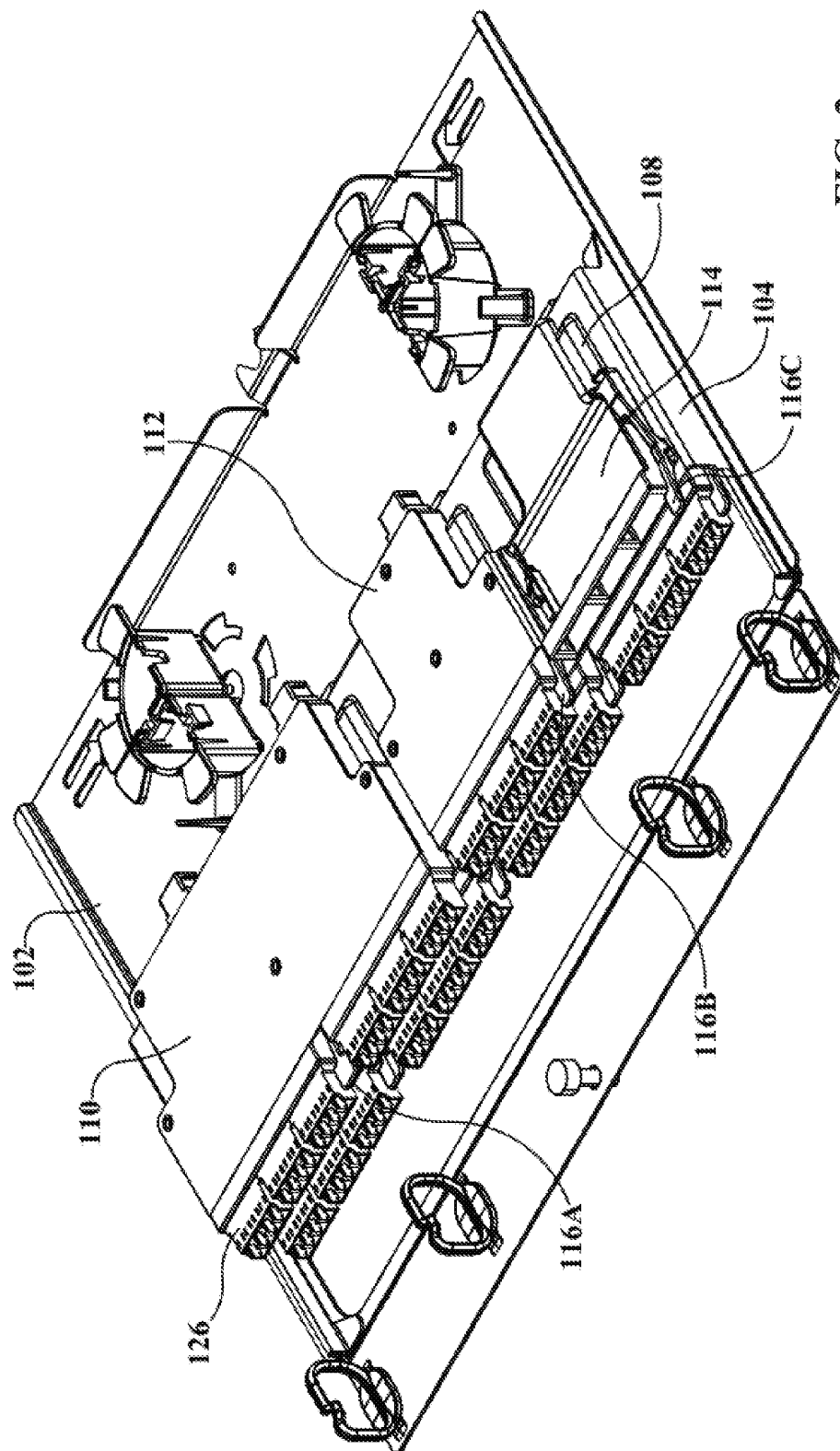


FIG. 2

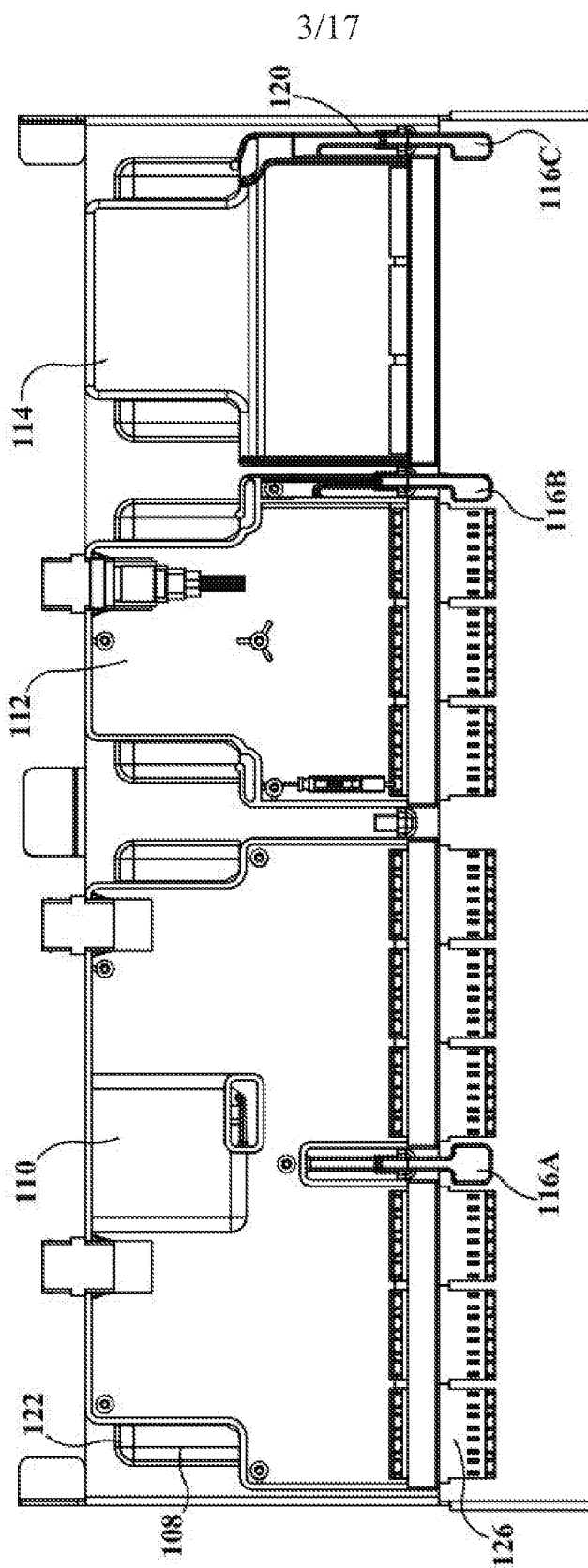


FIG. 3

REPLACEMENT SHEET

Title: MULTI-GANG CASSETTE SYSTEM
 Inventor(s): Tom Sauter, et al.
 Serial No. 14/937,817
 Docket No. LEVIP114US

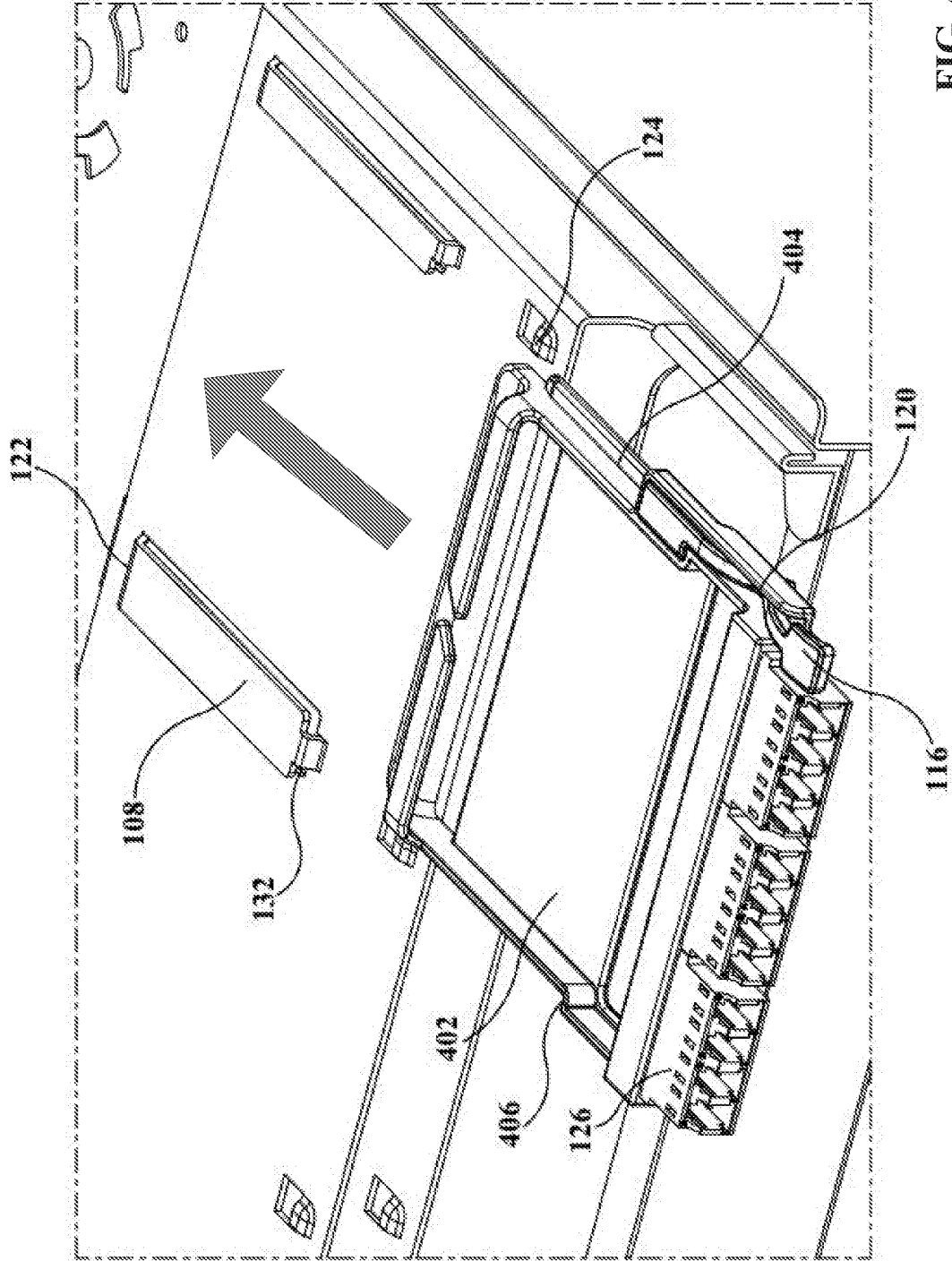


FIG. 4

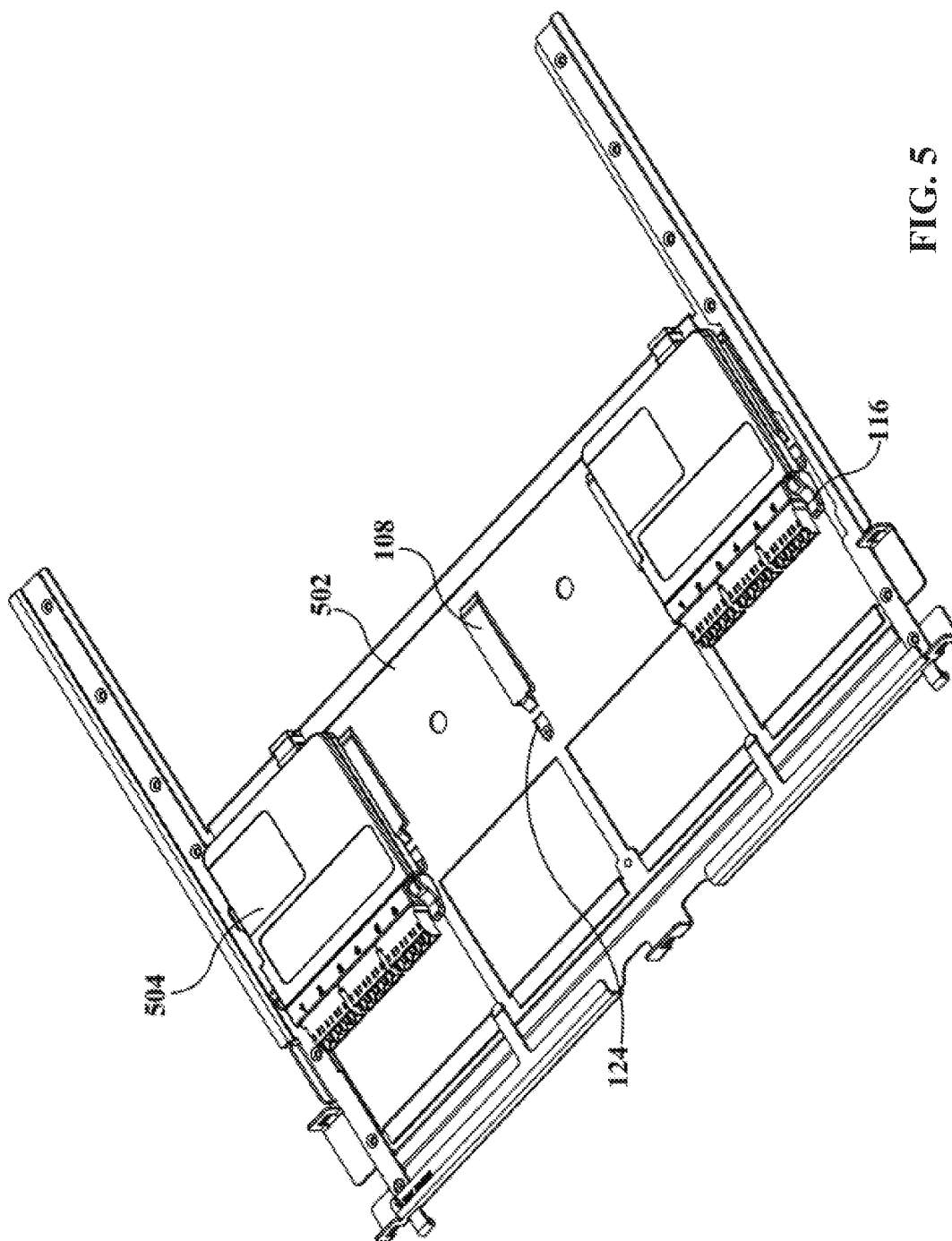


FIG. 5

Title: MULTI-GANG CASSETTE SYSTEM
 Inventor(s): Tom Sauter, et al.
 Serial No. 14/937,817
 Docket No. LEVIP114US

6/17

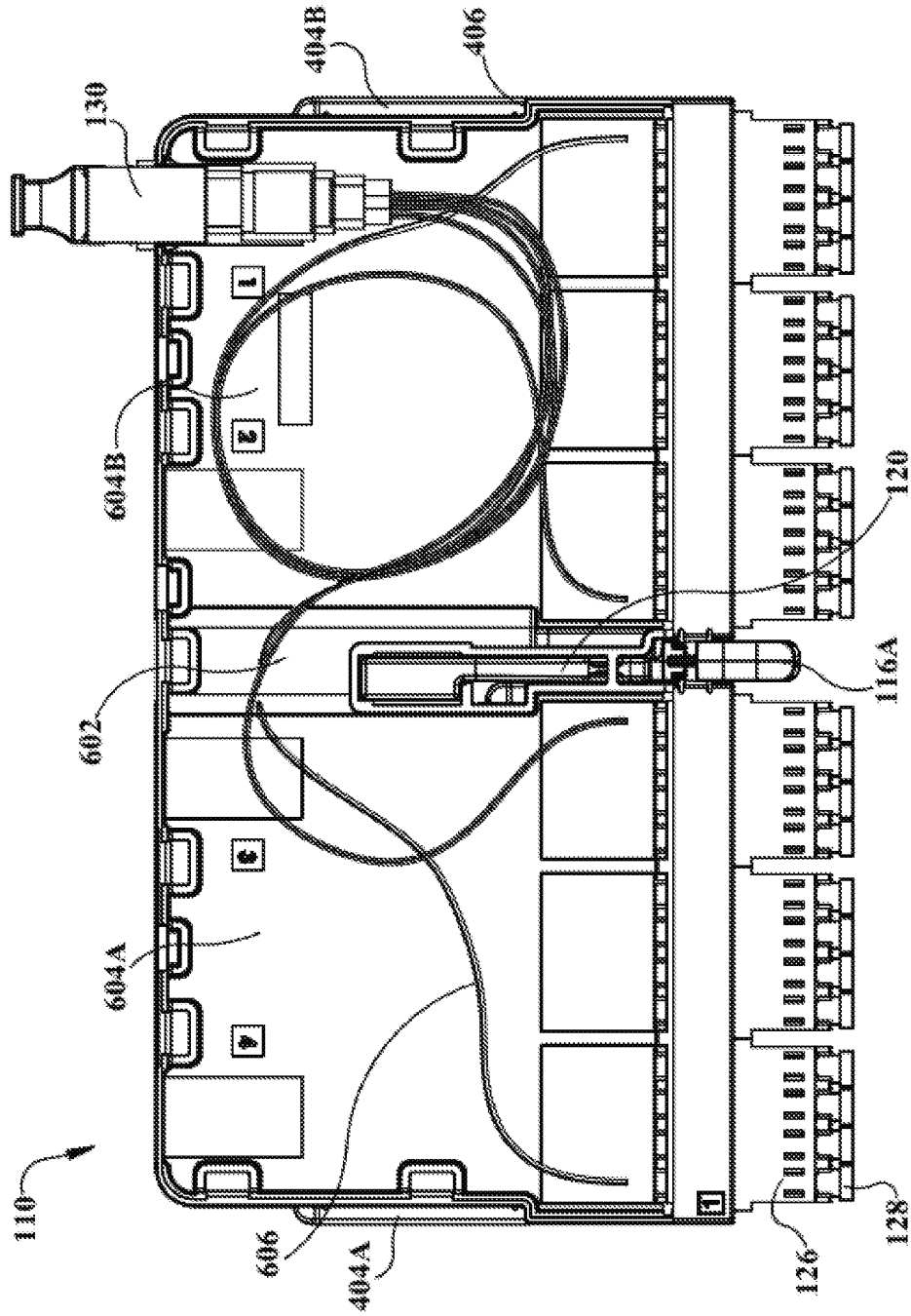


FIG. 6

Title:
 Inventor(s):
 Serial No.
 Docket No.

MULTI-GANG CASSETTE SYSTEM
 Tom Sauter, et al.
 14/937,817
 LEVIP114US

7/17

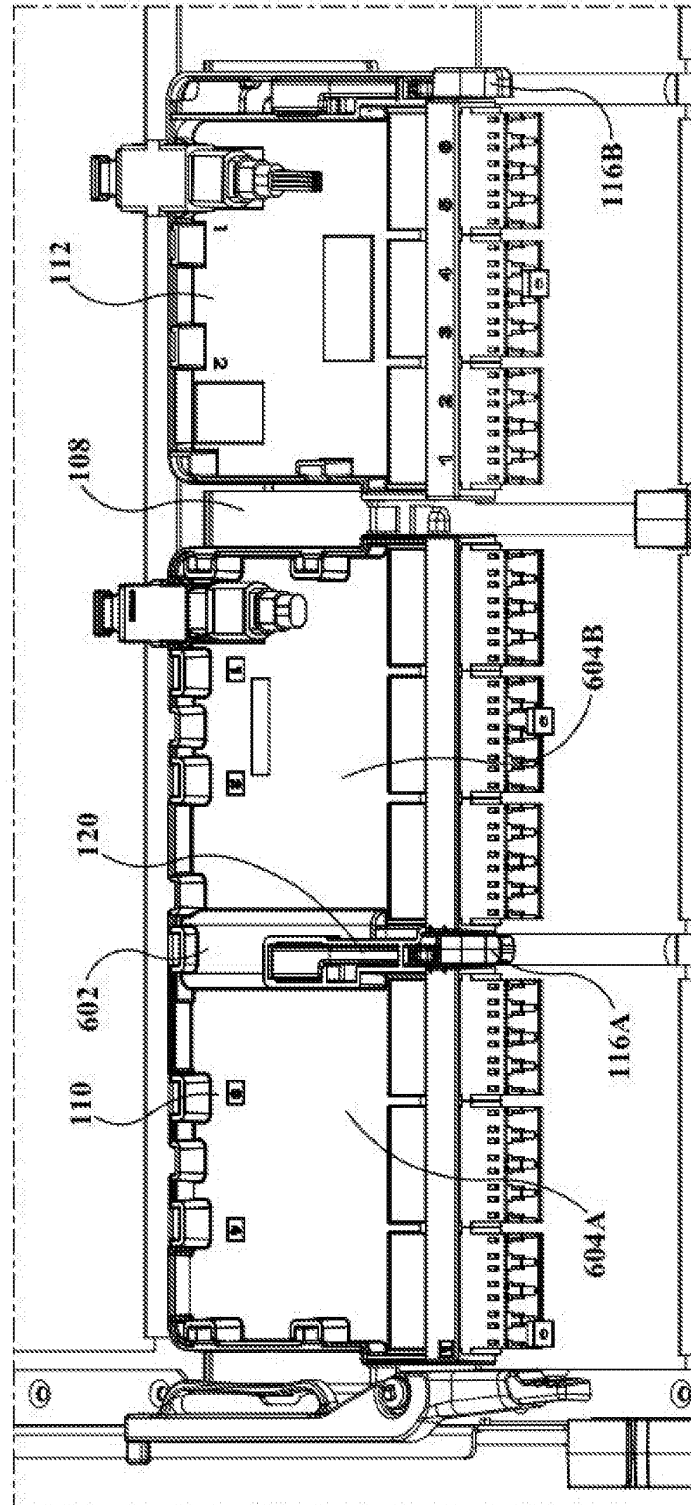


FIG. 7

Title: MULTI-GANG CASSETTE SYSTEM
 Inventor(s): Tom Sauter, et al.
 Serial No. 14/937,817
 Docket No. LEVIP114US

8/17

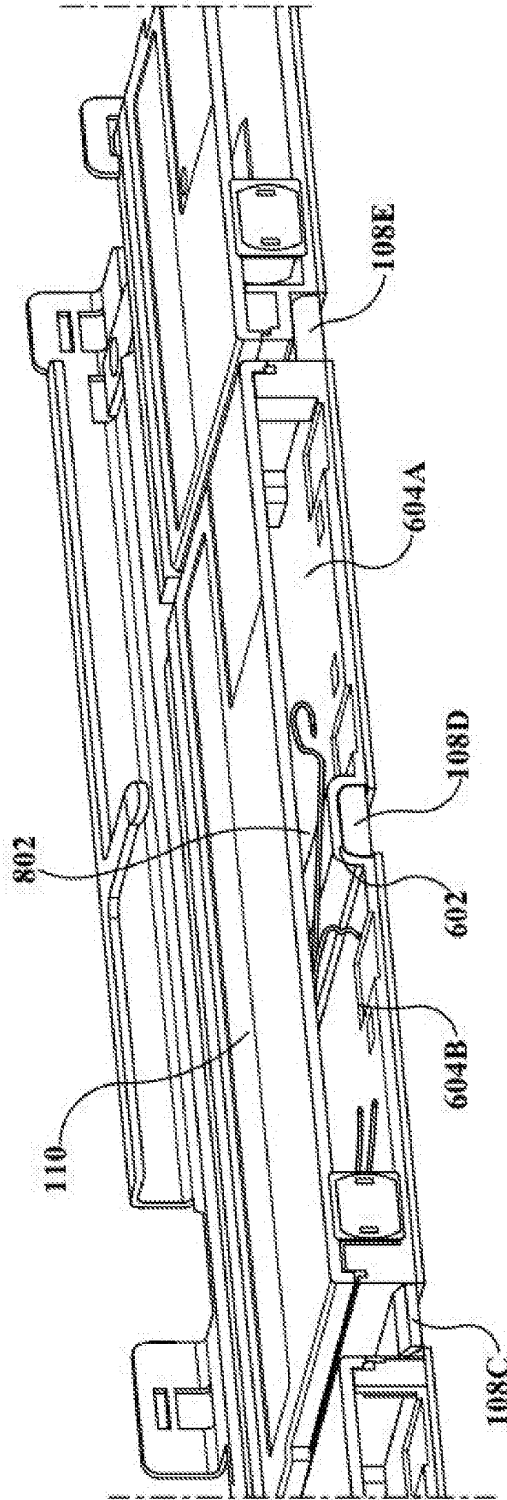


FIG. 8

9/17

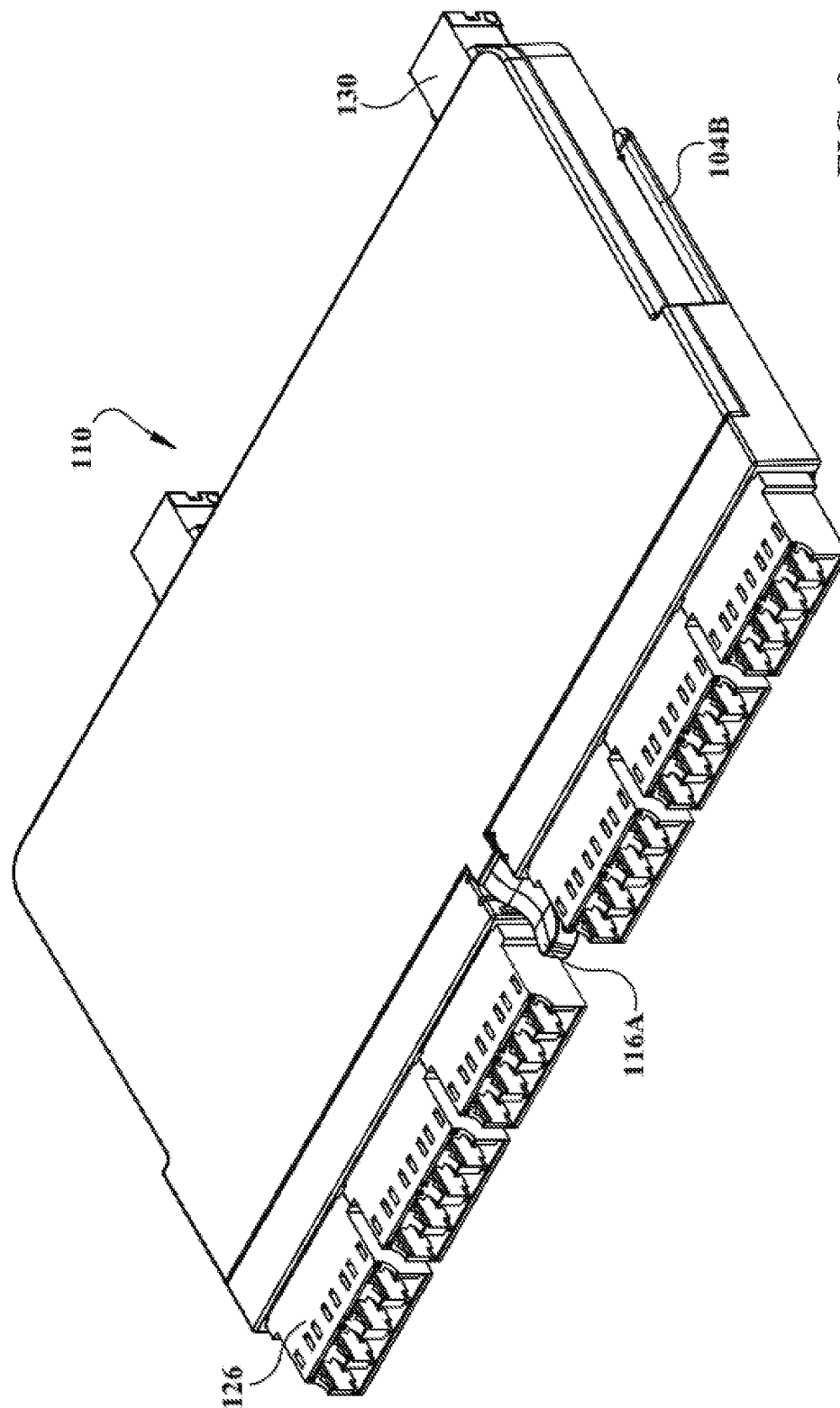


FIG. 9

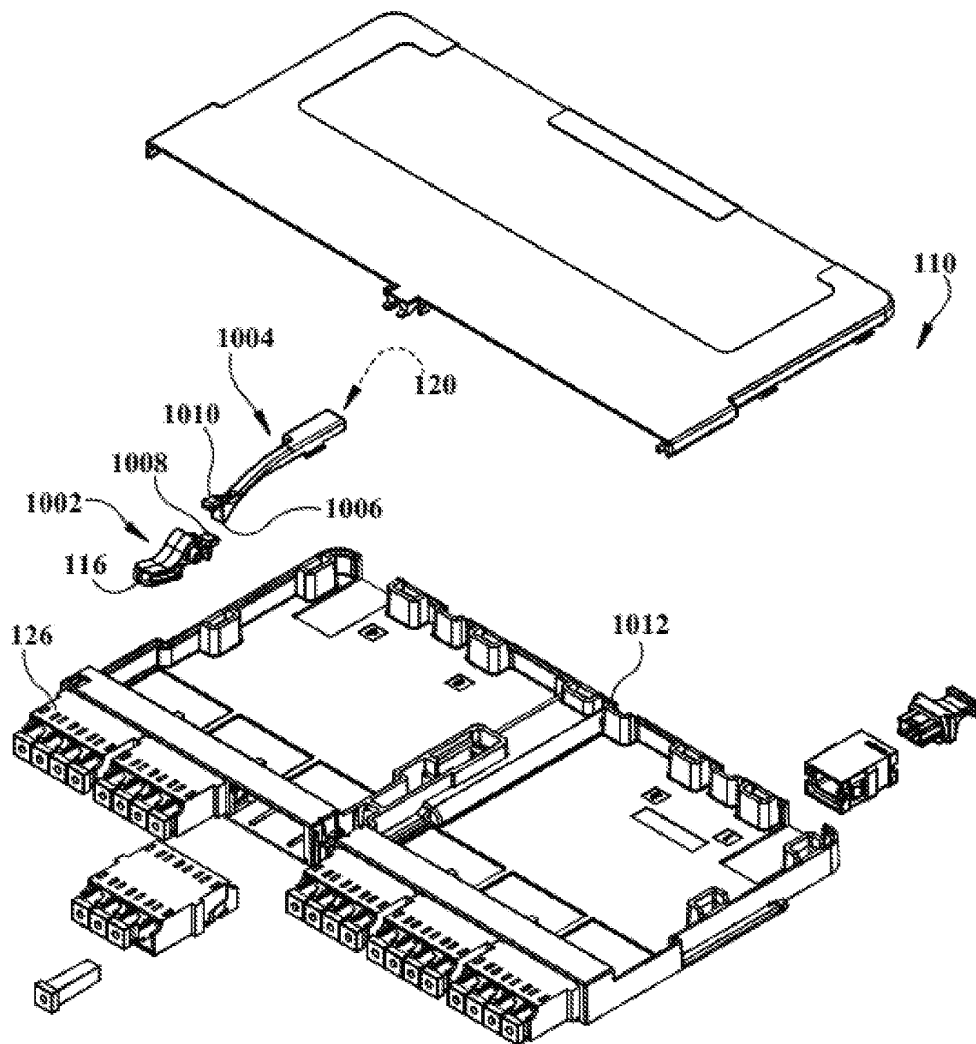


FIG. 10

MULTI-GANG CASSETTE SYSTEM
Tom Sauter, et al.
14/937,817
LEVIP114US

Title:
Inventor(s):
Serial No.
Docket No.

11/17

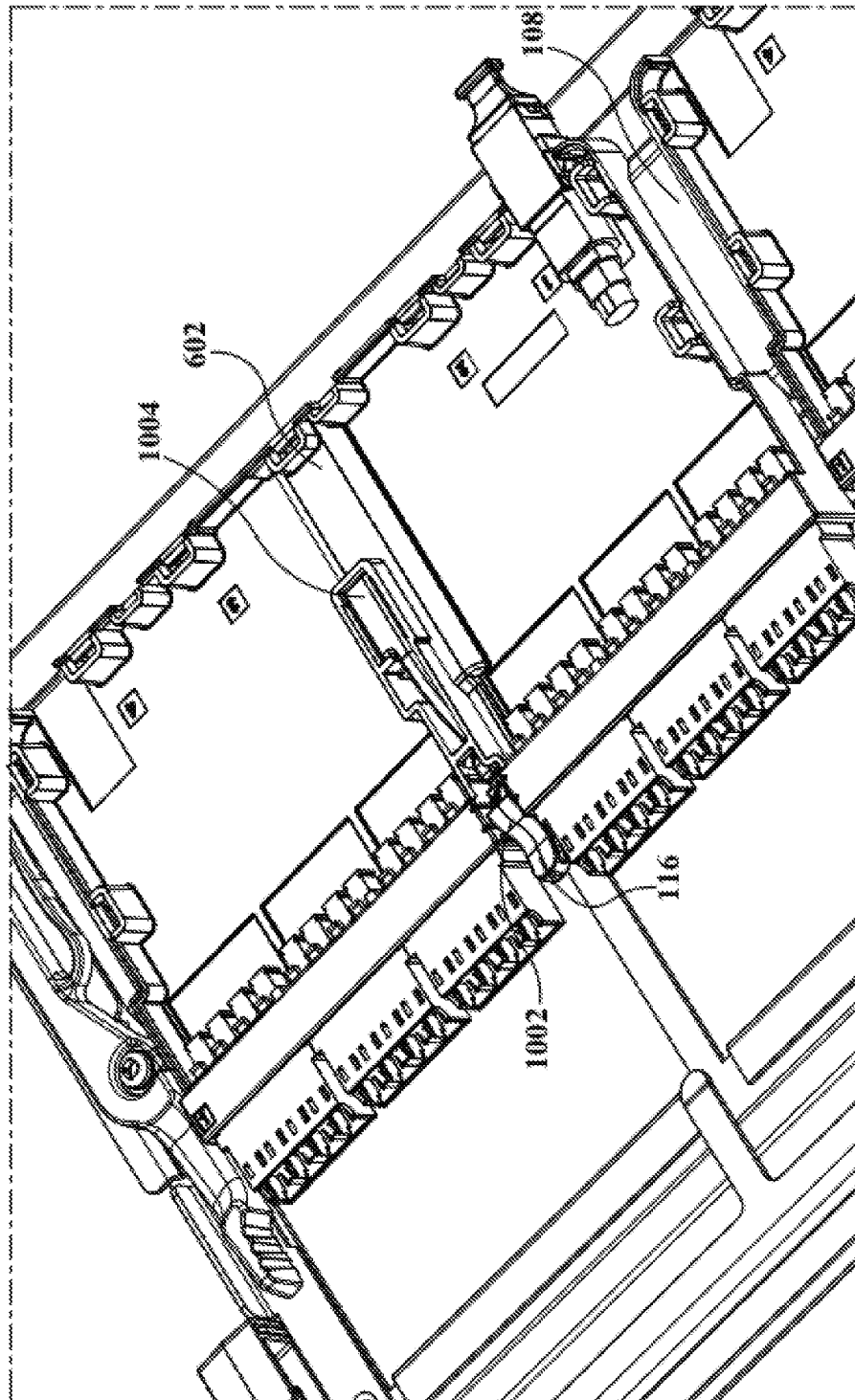


FIG. 11

Title:
 Inventor(s):
 Serial No.
 Docket No.

MULTI-GANG CASSETTE SYSTEM
 Tom Sauter, et al.
 14/937,817
 LEVIP114US

12/17

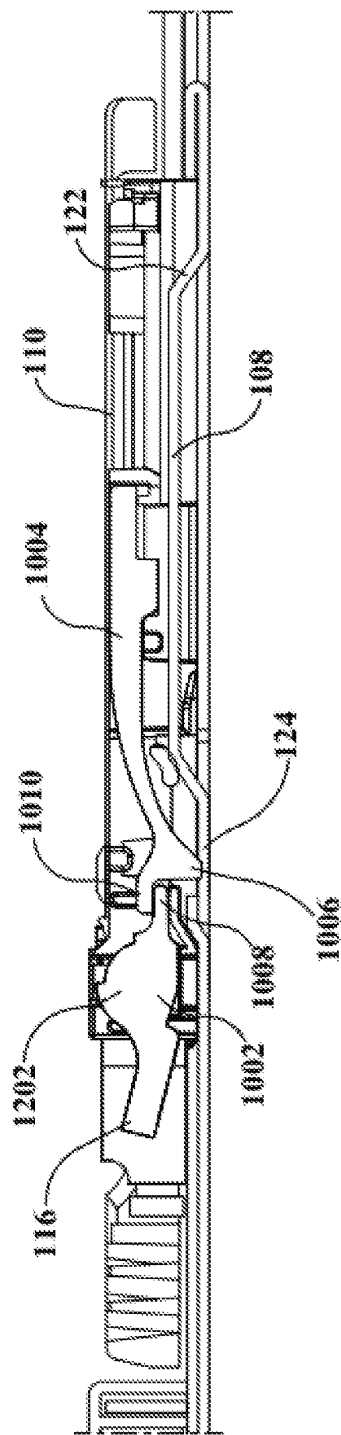


FIG. 12

Title: MULTI-GANG CASSETTE SYSTEM
 Inventor(s): Tom Sauter, et al.
 Serial No. 14/937,817
 Docket No. LEVIP114US

13/17

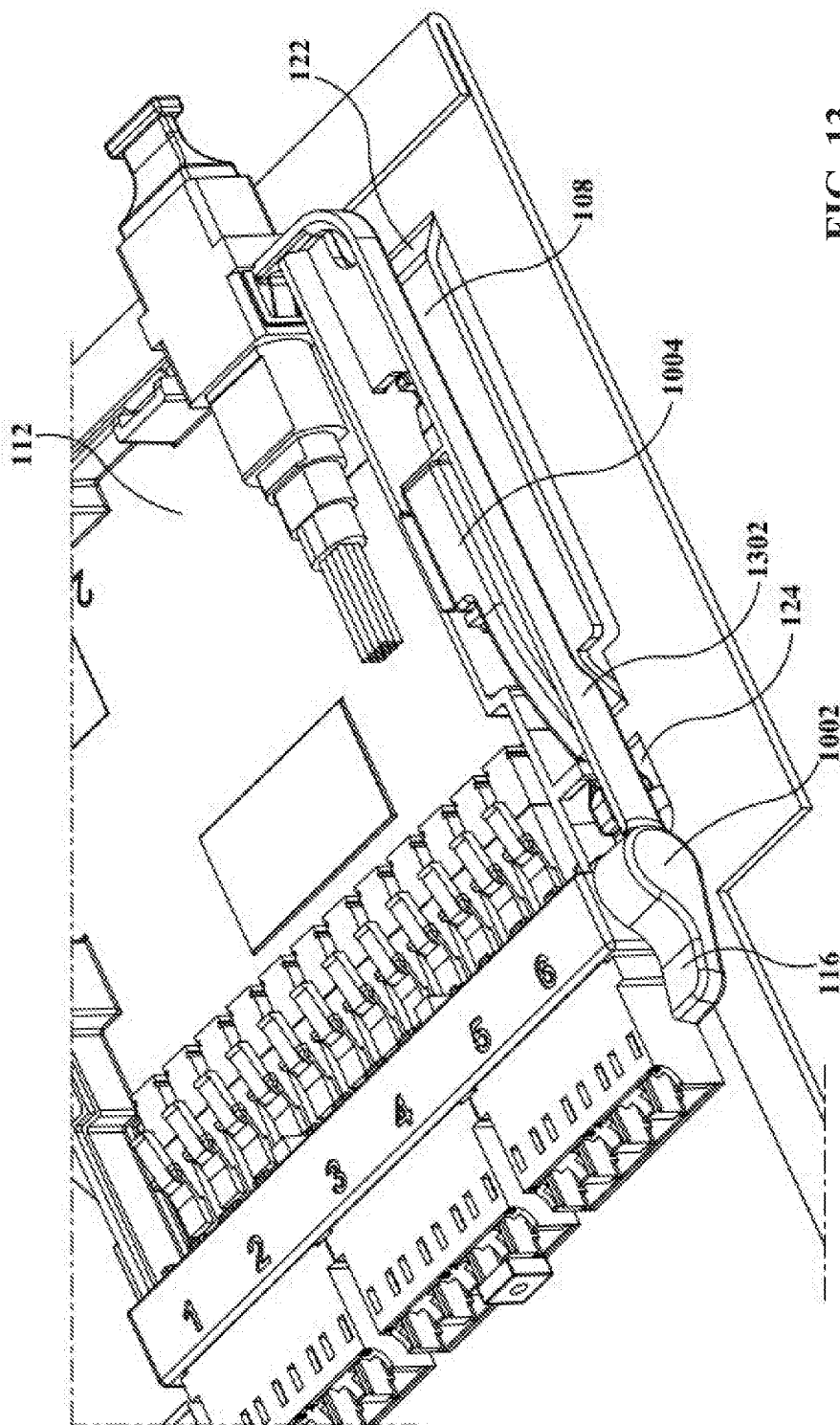


FIG. 13

Title:
MULTI-GANG CASSETTE SYSTEM
Inventor(s):
Tom Sauter, et al.
Serial No.
14/937,817
Docket No.
LEVIP114US

Title:
MULTI-GANG CASSETTE SYSTEM
Inventor(s):
Tom Sauter, et al.
Serial No.
14/937,817
Docket No.
LEVIP114US

15/17

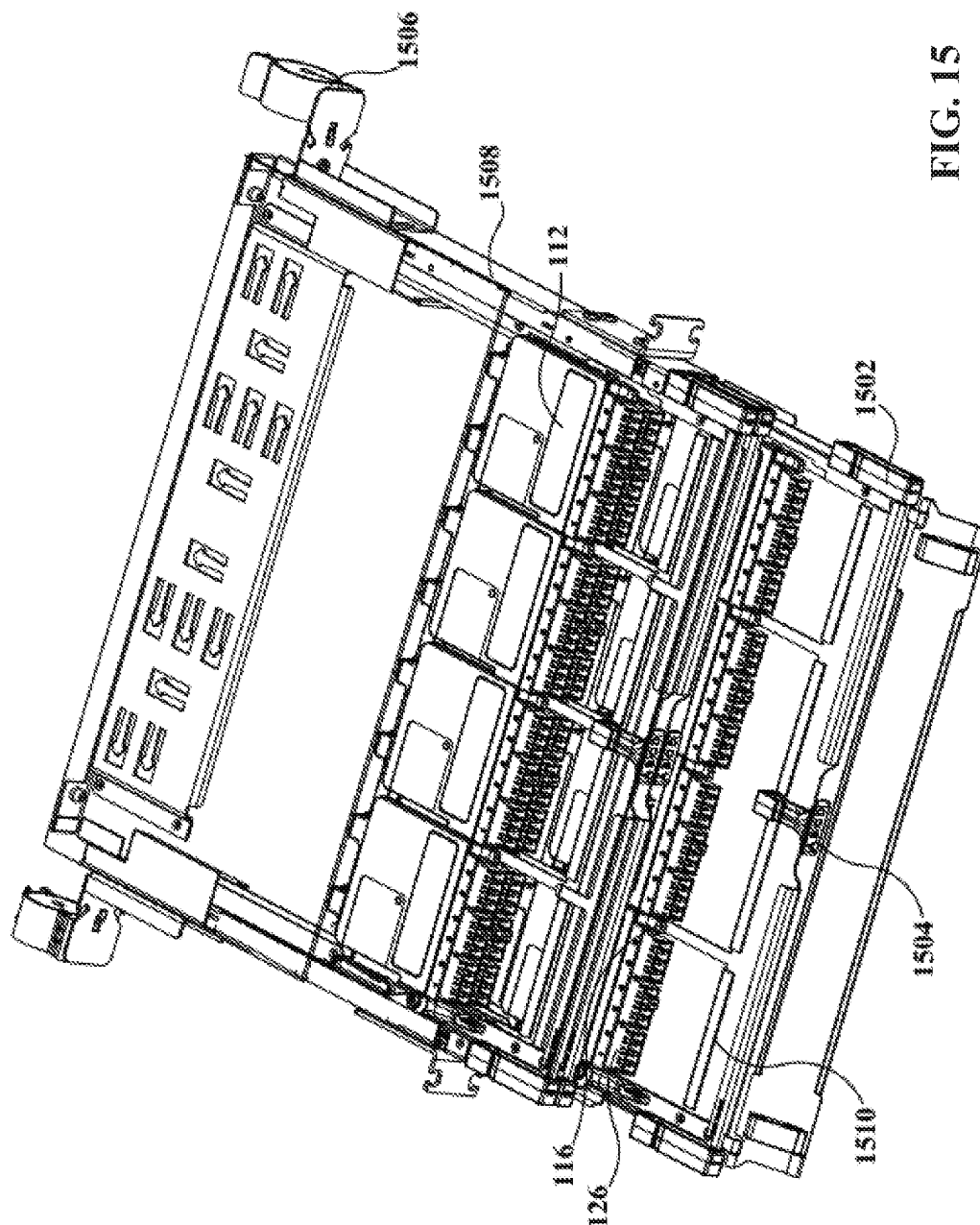


FIG. 15

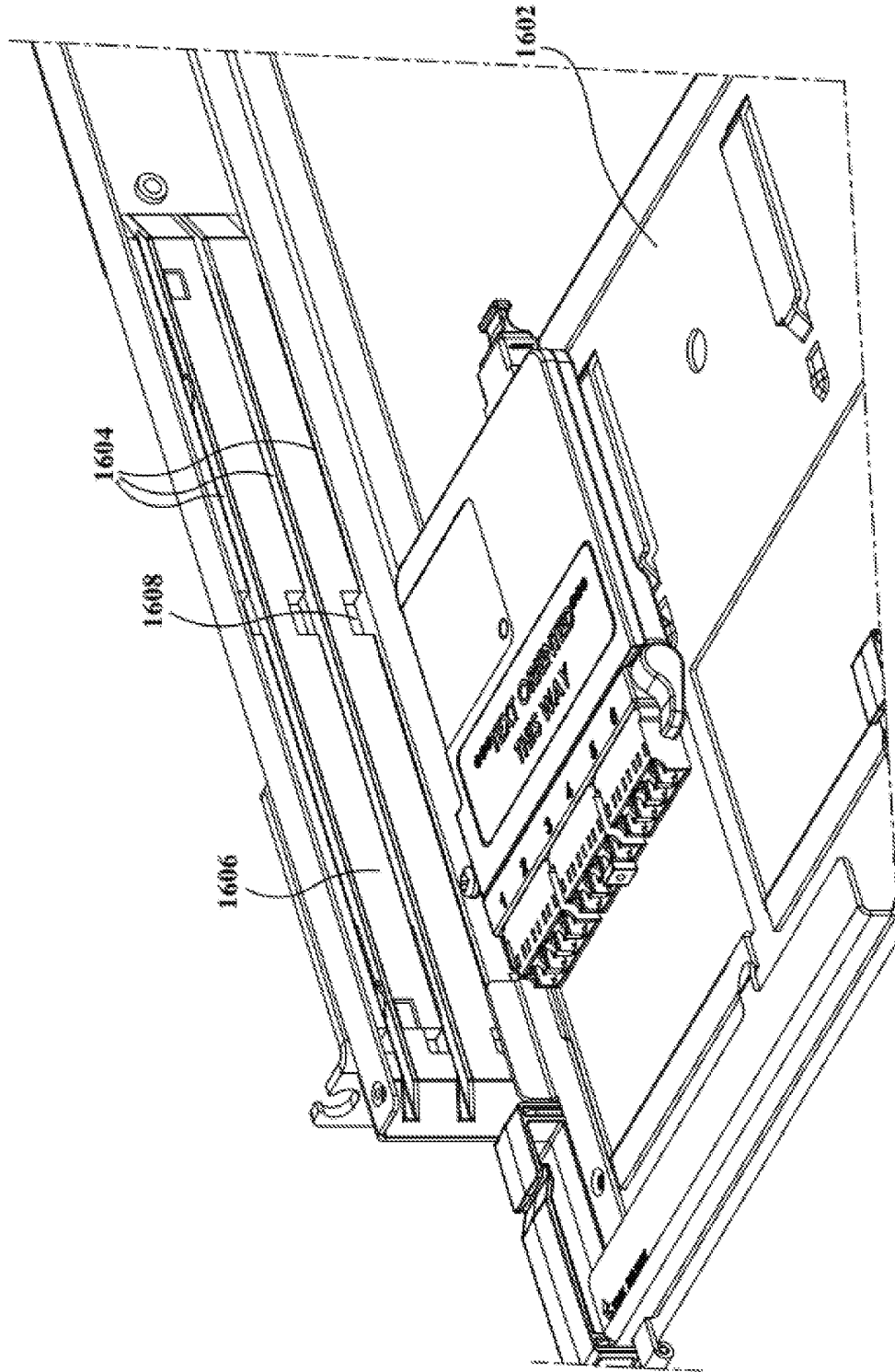


FIG. 16

Electronic Acknowledgement Receipt	
EFS ID:	28126285
Application Number:	14937817
International Application Number:	
Confirmation Number:	8774
Title of Invention:	MULTI-GANG CASSETTE SYSTEM
First Named Inventor/Applicant Name:	Tom Sauter
Customer Number:	99045
Filer:	Brian David Steed/Robin Wardzala
Filer Authorized By:	Brian David Steed
Attorney Docket Number:	PA-02720/LEVIP114US
Receipt Date:	20-JAN-2017
Filing Date:	10-NOV-2015
Time Stamp:	18:53:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no				
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PA-02720Reply.pdf	46878	yes	9
			958b18bd16aede6c288a4450f30d836569985dcc		

Multipart Description/PDF files in .zip description					
Document Description			Start	End	
Amendment/Req. Reconsideration-After Non-Final Reject			1	1	
Drawings-only black and white line drawings			2	2	
Claims			3	7	
Applicant Arguments/Remarks Made in an Amendment			8	9	
Warnings:					
Information:					
2	Drawings-only black and white line drawings	LEVIP114US_ReplacementFigs.pdf	3089834	no	16
			4106fd745abc04ea90e6ead036a03e9f6366e058		
Warnings:					
Information:					
Total Files Size (in bytes):			3136712		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD				Application or Docket Number		Filing Date		☐ To be Mailed	
Substitute for Form PTO-875				14/937,817		11/10/2015			
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A					
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A					
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		X \$ =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		X \$ =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL					
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	01/20/2017	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 20	Minus	** 21	= 0	X \$80 =		0	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$420 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
TOTAL ADD'L FEE						0			
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
TOTAL ADD'L FEE									
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

SCORE Placeholder Sheet for IFW Content

Application Number: 14937817

Document Date: 01/20/2017

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions below.

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- Examiners may access SCORE content via the eDAN interface.
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(<http://Score.uspto.gov/ScoreAccessWeb/>).
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Form Revision Date: September 30, 2013



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Alexandria, Virginia 22313-1450
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NOTICE OF ALLOWANCE AND FEE(S) DUE

99045 7590 02/14/2017
Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

EXAMINER

DOAN, JENNIFER

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 02/14/2017

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US	8774

TITLE OF INVENTION: MULTI-GANG CASSETTE SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/15/2017

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

99045 7590 02/14/2017
Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US	8774

TITLE OF INVENTION: MULTI-GANG CASSETTE SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/15/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
DOAN, JENNIFER	2883	385-135000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US	8774
99045	7590	02/14/2017	EXAMINER	
Leviton Mfg. Co. - Turocy & Watson, LLP			DOAN, JENNIFER	
127 Public Square, 57th Floor, Key Tower			ART UNIT	
Cleveland, OH 44114			PAPER NUMBER	

2883

DATE MAILED: 02/14/2017

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/937,817	Applicant(s) SAUTER ET AL.	
	Examiner JENNIFER DOAN	Art Unit 2883	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed on 1/20/17.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-3,5-14 and 16-22. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. ☐ Notice of References Cited (PTO-892) | 5. ☐ Examiner's Amendment/Comment |
| 2. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 6. ☒ Examiner's Statement of Reasons for Allowance |
| 3. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. ☐ Other _____. |
| 4. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____. | |

/JENNIFER DOAN/
Primary Examiner, Art Unit 2883

DETAILED ACTION

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Response to Amendment

2. Applicants' amendment filed on 01/20/17 has been fully considered and entered.

Reasons for Allowance

3. Claims 1-3, 5-14 and 16-22 are allowed.
4. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to disclose or reasonably suggest all the limitations of claim 1. Specifically, the prior art fails to disclose a fiber optic cassette mounting system, comprising a fiber optic cassette tray comprising rail guides configured to engage with respective rails of the fiber optic cassette, wherein a rail guide, of the rail guides, comprises an elongated portion of a surface of the fiber optic cassette tray that is raised from the surface to form ledges on a left side and a right side of the elongated portion, wherein the rail guides are configured to hold a single-gang cassette and a multi-gang cassette simultaneously on the fiber optic cassette tray, and wherein the fiber optic cassette comprises a latching mechanism comprising a latching protrusion configured to engage with an aperture on the fiber optic cassette tray, in combination with other recited limitations in the claim.

Claims 2-3, 5-12 depend from claim 1.

The prior art of record fails to disclose or reasonably suggest all the limitations of claim 13. Specifically, the prior art fails to disclose a fiber optic cassette, comprising a housing comprising at least a first gang and a second gang configured to house optical fibers; a clearance area disposed between the first gang and the second gang; and a latching mechanism disposed within the housing and comprising a spring and a release mechanism that interacts with the spring, wherein the left rail and the right rail are configured to engage with corresponding rail guides of a cassette mounting surface to facilitate mounting the fiber optic cassette on the cassette mounting surface, adjacent rail guides of the cassette mounting surface define a cassette bay configured to receive a single-gang fiber optic cassette, and the fiber optic cassette is configured to span at least two cassette bays of the cassette mounting surface when mounted on the cassette mounting surface, in combination with other recited limitations in the claim.

Claims 14 and 16-21 depend from claim 13.

The prior art of record fails to disclose or reasonably suggest all the limitations of claim 22. Specifically, the prior art fails to disclose a fiber optic cassette, comprising a housing comprising at least a first gang and a second gang configured to house optical fibers; and a clearance area disposed between the first gang and the second gang, wherein the left rail and the right rail are configured to engage with corresponding rail guides of a cassette mounting surface to facilitate mounting the fiber optic cassette on the cassette mounting surface, the clearance area comprises a groove on a lower

surface of the housing configured to allow a rail guide of the cassette mounting surface to pass under the fiber optic cassette, adjacent rail guides of the cassette mounting surface define a cassette bay configured to receive a single-gang fiber optic cassette, and the fiber optic cassette is configured to span at least two cassette bays of the cassette mounting surface when mounted on the cassette mounting surface, in combination with other recited limitations in the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Doan whose telephone number is (571) 272-2346. The examiner can normally be reached on Monday to Friday from 7:00am to 3:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Hollweg can be reached on (571) 270-1739. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JENNIFER DOAN/

Primary Examiner, Art Unit 2883

EAST Search History**EAST Search History (Prior Art)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S22	19752	(G02B6/4452 OR G02B6/3897 OR G02B6/4471 OR G02B6/4453 OR G02B6/4454).CPC.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/05 15:45
S23	9	cassette\$1 same tray\$1 same (rail adj guid\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/05 21:28
S24	1064	tray\$1 same (rail adj guid\$3)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/05 21:37
S25	1	tray\$1 same (rail adj guid\$3) same hold\$3 same cassette\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/05 21:43
S26	3	tray\$1 same (rail adj guid\$3) same hold\$3 same adapter\$1	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/05 22:06
S27	213	tray\$1 same (rail adj guid\$3) same hold\$3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/05 22:27
S28	2	tray\$1 same (rail adj guid\$3) same hold\$3 and 385/\$.cls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2017/02/05 23:29

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	6	cassette\$1 same tray\$1 same (rail adj guid\$3)	US-PGPUB; USPAT	OR	ON	2017/02/06 06:52
L2	515	tray\$1 same (rail adj guid\$3)	US-PGPUB; USPAT	OR	ON	2017/02/06 07:19
L4	1	tray\$1 same (rail adj guid\$3) same hold\$3 same cassette\$1	US-PGPUB; USPAT	OR	ON	2017/02/06 08:17
L6	140	tray\$1 same (rail adj guid\$3) same hold\$3	US-PGPUB; USPAT	OR	ON	2017/02/06 08:18
L5	3	tray\$1 same (rail adj guid\$3) same hold\$3 same adapter\$1	US-PGPUB; USPAT	OR	ON	2017/02/06 08:18
L7	2	tray\$1 same (rail adj guid\$3) same hold\$3 and 385/\$.cls.	US-PGPUB; USPAT	OR	ON	2017/02/06 09:03
L9	113	((tray\$1 same (rail adj guid\$3)).clm.	US-PGPUB; USPAT	OR	ON	2017/02/06 09:06

EAST Search History

L12	2	(tray\$1 same (rail adj guid\$3) same hold\$3 same adapter\$1).clm.	US-PGPUB; USPAT	OR	ON	2017/02/06 09:47
L14	15	(tray\$1 same (rail adj guid\$3) same hold\$3).clm.	US-PGPUB; USPAT	OR	ON	2017/02/06 09:56

2/ 6/ 2017 10:17:46 AM

C:\ Users\ jdoan\ Documents\ EAST\ Workspaces\ 14937817.wsp

Search Notes 	Application/Control No. 14937817	Applicant(s)/Patent Under Reexamination SAUTER ET AL.
	Examiner JENNIFER DOAN	Art Unit 2883

CPC- SEARCHED		
Symbol	Date	Examiner
G02B6/4452; G02B6/3897; G02B6/4471; G02B6/4453; G02B6/4454	10/17/2016	JD
G02B6/4452; G02B6/3897; G02B6/4471; G02B6/4453; G02B6/4454	2/5/2017	JD

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
East search (text search - see search history printout)	10/17/2016	JD
East search update (text search - see search history printout)	2/6/2017	JD

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
US-PGPUB & USPAT text search (see interference search printout)		2/6/2017	JD

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Issue Classification 	Application/Control No. 14937817	Applicant(s)/Patent Under Reexamination SAUTER ET AL.	
	Examiner JENNIFER DOAN	Art Unit 2883	

CPC					
Symbol				Type	Version
G02B		6	4452	F	2013-01-01
G02B		6	4455	I	2013-01-01

CPC Combination Sets					
Symbol			Type	Set	Ranking

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/JENNIFER DOAN/ Primary Examiner. Art Unit 2883	2/6/17	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

Issue Classification 	Application/Control No. 14937817	Applicant(s)/Patent Under Reexamination SAUTER ET AL.
	Examiner JENNIFER DOAN	Art Unit 2883

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	19												
2	2	18	20												
3	3	19	21												
4	5	20	22												
5	6														
6	7														
7	8														
8	9														
9	10														
10	11														
11	12														
12	13														
13	14														
14	16														
15	17														
16	18														

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/JENNIFER DOAN/ Primary Examiner. Art Unit 2883 (Primary Examiner) _____ (Date) _____		O.G. Print Claim(s) 1	O.G. Print Figure 2

<i>Index of Claims</i> 	Application/Control No. 14937817	Applicant(s)/Patent Under Reexamination SAUTER ET AL.
	Examiner JENNIFER DOAN	Art Unit 2883

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
CLAIM		DATE													
Final	Original	10/17/2016	02/06/2017												
1	1	✓	=												
2	2	✓	=												
3	3	✓	=												
	4	O	-												
4	5	O	=												
5	6	O	=												
6	7	O	=												
7	8	O	=												
8	9	O	=												
9	10	✓	=												
10	11	✓	=												
11	12	✓	=												
12	13	✓	=												
13	14	O	=												
	15	O	-												
14	16	O	=												
15	17	O	=												
16	18	O	=												
17	19	O	=												
18	20	✓	=												
19	21	✓	=												
20	22		=												



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US

CONFIRMATION NO. 8774

99045

Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

PUBLICATION NOTICE



OC000000091300204

Title:MULTI-GANG CASSETTE SYSTEM

Publication No.US-2017-0131500-A1

Publication Date:05/11/2017

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

99045 7590 02/14/2017
Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

/Kristen Freeman/	(Depositor's name)
Kristen Freeman	(Signature)
May 12, 2017	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US	8774

TITLE OF INVENTION: MULTI-GANG CASSETTE SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	05/15/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
DOAN, JENNIFER	2883	385-135000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.	2. For printing on the patent front page, list (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.	1 <u>Amin, Turocy, & Watson LLP</u> 2 _____ 3 _____
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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Leviton Manufacturing Co., Inc.

Melville, NY

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.

☒ Payment by credit card. Form PTO-2038 is attached.

☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 50-1063 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Thomas E. Watson/

Date May 12, 2017

Typed or printed name Thomas E. Watson

Registration No. 43,243

Electronic Patent Application Fee Transmittal				
Application Number:		14937817		
Filing Date:		10-Nov-2015		
Title of Invention:		MULTI-GANG CASSETTE SYSTEM		
First Named Inventor/Applicant Name:		Tom Sauter		
Filer:		Thomas Edward Watson/Kristen Freeman		
Attorney Docket Number:		PA-02720/LEVIP114US		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt	
EFS ID:	29187366
Application Number:	14937817
International Application Number:	
Confirmation Number:	8774
Title of Invention:	MULTI-GANG CASSETTE SYSTEM
First Named Inventor/Applicant Name:	Tom Sauter
Customer Number:	99045
Filer:	Thomas Edward Watson/Kristen Freeman
Filer Authorized By:	Thomas Edward Watson
Attorney Docket Number:	PA-02720/LEVIP114US
Receipt Date:	12-MAY-2017
Filing Date:	10-NOV-2015
Time Stamp:	17:54:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$960
RAM confirmation Number	051517INTEFSW17561900
Deposit Account	501063
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1	Information Disclosure Statement (IDS) Form (SB08)	LEVIP114US_IDS.pdf	1035772	no	4
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3	Foreign Reference	FPL2.pdf	615508	no	8
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4	Foreign Reference	FPL3.pdf	1410281	no	18
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	Art Unit	2883
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	Filing Date		2015-11-10	
	First Named Inventor	Tom Sauter		
	Art Unit	2883		
	Examiner Name	DOAN, JENNIFER		
	Attorney Docket Number	PA-02720/LEVIP114US		

1	CN205787267	CN	U	2016-12-07	ADVANCED-CONNECTEK (KUNSHAN) LTD.		
2	CN204925469	CN	U	2015-12-30	SHENZHEN GIGALIGHT TECHNOLOGY CO. LTD.		
3	CN 203012204	CN	U	2013-06-19	SUNSEA TELECOMM CO. LTD.		
4	CN 203573012	CN	U	2014-04-30	YANGTZE OPTICAL FIBRE AND CABLE COMPANY LTD.		

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	1	International Search Report for International Application No. PCT/US2016/060907 dated 2/22/2017, 5 pages.	
	2	Written Opinion for International Application No. PCT/US2016/060907 dated 2/22/2017, 4 pages.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14937817
	Filing Date	2015-11-10
	First Named Inventor	Tom Sauter
	Art Unit	2883
	Examiner Name	DOAN, JENNIFER
	Attorney Docket Number	PA-02720/LEVIP114US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Thomas E. Watson/	Date (YYYY-MM-DD)	2017-05-12
Name/Print	Thomas E. Watson	Registration Number	43243

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**Espacenet****Bibliographic data: CN205787267 (U) — 2016-12-07**

光纤卡匣轨道结构

Inventor(s):**Applicant(s):****Classification:** - international: **G02B6/44**
- cooperative:**Application number:** CN20162482960U 20160525**Priority number(s):** CN20162482960U 20160525**Abstract of CN205787267 (U)**

种光纤卡匣轨道结构，轨道结构装配光纤箱内之板件上，轨道结构包括轨道本体、第卡掣结构及第二卡掣结构，通过轨道本体二端之第卡掣结构与第二卡掣结构活动卡掣于板件上之第扣合结构与第二扣合结构，用户可将其中个轨道结构拆除，脱离板件，剩下在板件上的两个轨道结构之间的距离相对变宽，进而将另规格且宽度较大的光纤卡匣安装在两个轨道之间，增加适用性，提供使用人员变换光纤卡匣的机种并同时具有快速拆卸轨道结构的效果。



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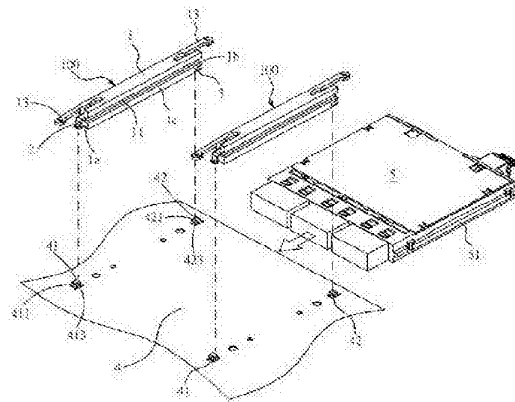
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(54)实用新型名称

光纤卡匣轨道结构

(57)摘要

一种光纤卡匣轨道结构,轨道结构装配光纤箱内之板件上,轨道结构包括轨道本体、第一卡掣结构及第二卡掣结构,通过轨道本体二端之第一卡掣结构与第二卡掣结构活动卡掣于板件上之第一扣合结构与第二扣合结构,用户可将其中一个轨道结构拆除,脱离板件,剩下在板件上的两个轨道结构之间的距离相对变宽,进而将另一规格且宽度较大的光纤卡匣安装在两个轨道之间,增加适用性,提供使用人员变换光纤卡匣的机种并同时具有快速拆卸轨道结构的效果。



1. 一种光纤卡匣轨道结构, 该轨道结构装配一光纤箱内之一板件上, 该轨道结构包括:
一轨道本体, 二端分别定义一第一端面及一第二端面, 该轨道本体侧边形成一凹槽轨道;

一第一卡掣结构, 形成于该轨道本体之该第一端面上; 以及

一第二卡掣结构, 形成于该轨道本体之该第二端面上;

其特征在于: 该第一卡掣结构可活动卡掣于该板件上之一第一扣合结构, 该第二卡掣结构可活动卡掣于该板件上之一第二扣合结构。

2. 如权利要求1所述的光纤卡匣轨道结构, 其特征在于: 所述第一卡掣结构包括一自该第一端面朝外延伸之第一悬臂。

3. 如权利要求2所述的光纤卡匣轨道结构, 其特征在于: 所述第一卡掣结构包括一自该第一悬臂端部朝外突出之卡钩。

4. 如权利要求2所述的光纤卡匣轨道结构, 其特征在于: 所述第一卡掣结构包括一贯穿该第一悬臂上之第一扣槽。

5. 如权利要求1所述的光纤卡匣轨道结构, 其特征在于: 所述第二卡掣结构包括一自该第二端面朝外延伸之第二悬臂以及一贯穿该第二悬臂上之第二扣槽。

6. 如权利要求1所述的光纤卡匣轨道结构, 其特征在于: 所述第一卡掣结构包括一自该第一端面内凹形成之第一槽孔。

7. 如权利要求1所述的光纤卡匣轨道结构, 其特征在于: 所述第二卡掣结构包括一自该第二端面内凹形成之第二槽孔。

8. 如权利要求1所述的光纤卡匣轨道结构, 其特征在于: 所述第一扣合结构包括一自该板件上朝外延伸之第一卡扣块。

9. 如权利要求1所述的光纤卡匣轨道结构, 其特征在于: 所述第一扣合结构包括一形成该板件上之第一扣孔。

10. 如权利要求9所述的光纤卡匣轨道结构, 其特征在于: 所述第一扣合结构包括一自该第一扣孔内壁面朝外延伸之第一卡扣块。

11. 如权利要求9所述的光纤卡匣轨道结构, 其特征在于: 所述第一扣合结构包括一自该第一扣孔内壁面突出之第一扣钩。

12. 如权利要求1所述的光纤卡匣轨道结构, 其特征在于: 所述第二扣合结构包括一自该板件上朝外延伸之第二卡扣块。

13. 如权利要求1所述的光纤卡匣轨道结构, 其特征在于: 所述第二扣合结构包括一形成该板件上之第二扣孔。

14. 如权利要求13所述的光纤卡匣轨道结构, 其特征在于: 所述第二扣合结构包括一自该第二扣孔内壁面朝外延伸之第二卡扣块。

15. 如权利要求13所述的光纤卡匣轨道结构, 其特征在于: 所述第二扣合结构包括一自该第二扣孔内壁面突出之第二扣钩。

光纤卡匣轨道结构

技术领域

[0001] 本实用新型有关于一种轨道结构,特别是指一种光纤卡匣轨道结构。

背景技术

[0002] 因特网的运用早已无远弗届,一般近距离之传输,多是用同轴电缆线为主,但距离限制约为500公尺。而对于远程之传输,为确保数据之安全及稳定性,一般使用光纤来传递。

[0003] 光纤通讯已经成为当今最主要的有线通讯方式,将传送的信息在传送端输入到传送机中,将信息迭加或调变到作为信息讯号载体的载波上,然后将已调变的载波通过传输媒质传送到远处的接收端,由接收机解调出原来的信息。

[0004] 现有抽屉式收容箱,包含光纤卡匣及供光纤插头插接之光纤适配器等,光纤卡匣为呈滑轨式抽屉,通过收容箱内的两侧轨道结构相对滑移,方便光纤卡匣拉出整线、维修及统一管理。然而,现有轨道结构的固定方式为采用螺丝锁固方式,无法快速拆除轨道结构,使两轨道结构之间的距离仅能适用单一种光纤卡匣的宽度供其装配,故,如何解决现有结构的问题,即为相关业者所必须思考的问题所在。

实用新型内容

[0005] 针对上述问题,本实用新型提供一种光纤卡匣轨道结构,轨道结构装配光纤箱内之板件上,轨道结构包括轨道本体、第一卡掣结构及第二卡掣结构,轨道本体两端分别定义第一端面及第二端面,轨道本体侧边形成凹槽轨道,第一卡掣结构形成于轨道本体之第一端面上,第二卡掣结构形成于轨道本体之第二端面上。其中,第一卡掣结构可活动卡掣于板件上之第一扣合结构,第二卡掣结构可活动卡掣于板件上之第二扣合结构。

[0006] 在一些实施例中,第一卡掣结构包括自第一端面朝外延伸之第一悬臂。并且,第一卡掣结构包括自第一悬臂端部朝外突出之卡钩。而第一卡掣结构包括贯穿第一悬臂上之第一扣孔。

[0007] 在一些实施例中,第二卡掣结构包括自第二端面朝外延伸之第二悬臂以及贯穿第二悬臂上之第二扣孔。

[0008] 在一些实施例中,第一卡掣结构包括自第一端面内凹形成之第一槽孔。

[0009] 在一些实施例中,第二卡掣结构包括自第二端面内凹形成之第二槽孔。

[0010] 在一些实施例中,第一扣合结构包括自板件上朝外延伸之第一卡扣块。

[0011] 在一些实施例中,第一扣合结构包括形成板件上之第一扣孔。并且,第一扣合结构包括自第一扣孔内壁面朝外延伸之第一卡扣块。此外,第一扣合结构包括自第一扣孔内壁面突出之第一扣钩。

[0012] 在一些实施例中,第二扣合结构包括自板件上朝外延伸之第二卡扣块。

[0013] 在一些实施例中,第二扣合结构包括形成板件上之第二扣孔。并且,第二扣合结构包括自第二扣孔内壁面朝外延伸之第二卡扣块。此外,第二扣合结构包括自第二扣孔内壁面突出之第二扣钩。

[0014] 通过轨道本体二端之第一卡掣结构与第二卡掣结构活动卡掣于板件上之第一扣合结构与第二扣合结构,用户可将其中一个轨道结构拆除,脱离板件,剩下在板件上的两个轨道结构之间的距离相对变宽,进而将另一规格且宽度较大的光纤卡匣安装在两个轨道之间,增加适用性,可提供使用人员变换光纤卡匣的机种并同时具有快速拆卸轨道结构的效果。

附图说明

- [0015] 图1为本实用新型之第一实施例之外观示意图。
[0016] 图2为本实用新型之第一实施例之局部外观示意图。
[0017] 图3为本实用新型之第一实施例之局部分解示意图。
[0018] 图4为本实用新型之第一实施例之轨道结构外观示意图。
[0019] 图5为本实用新型之第一实施例之轨道结构与板件之侧视剖面示意图(一)。
[0020] 图6为本实用新型之第一实施例之轨道结构与板件之侧视剖面示意图(二)。
[0021] 图7为本实用新型之第一实施例之拆掉轨道结构之分解示意图。
[0022] 图8为本实用新型之第二实施例之轨道结构与板件之局部分解示意图。
[0023] 图9为本实用新型之第三实施例之轨道结构与板件之局部分解示意图。
[0024] 图10为本实用新型之第四实施例之轨道结构与板件之局部分解示意图。
[0025] 图11为本实用新型之第五实施例之轨道结构与板件之局部分解示意图。

[0026] 符号说明

- | | | |
|--------|-----|--------|
| [0027] | 100 | 轨道结构 |
| [0028] | 200 | 光纤箱 |
| [0029] | 1 | 轨道本体 |
| [0030] | 1a | 第一端面 |
| [0031] | 1b | 第二端面 |
| [0032] | 1c | 侧边 |
| [0033] | 1d | 转角 |
| [0034] | 11 | 凹槽轨道 |
| [0035] | 13 | 拉柄 |
| [0036] | 2 | 第一卡掣结构 |
| [0037] | 21 | 第一悬臂 |
| [0038] | 211 | 延伸段 |
| [0039] | 212 | 摆动臂 |
| [0040] | 22 | 卡钩 |
| [0041] | 24 | 第一扣槽 |
| [0042] | 25 | 第一槽孔 |
| [0043] | 3 | 第二卡掣结构 |
| [0044] | 31 | 第二悬臂 |
| [0045] | 34 | 第二扣槽 |
| [0046] | 35 | 第二槽孔 |

[0047]	4	板件
[0048]	41	第一扣合结构
[0049]	411	第一卡扣块
[0050]	413	第一扣孔
[0051]	414	第一扣钩
[0052]	42	第二扣合结构
[0053]	421	第二卡扣块
[0054]	423	第二扣孔
[0055]	424	第二扣钩
[0056]	5	光纤卡匣
[0057]	51	滑块
[0058]	D	间距。

具体实施方式

[0059] 参照图1、图2及图3,本实用新型之轨道结构100的第一实施例,图1为复数轨道结构100为装配光纤箱200内之外观示意图,并且,轨道结构100组装在板件4上,图2为复数轨道结构100与光纤卡匣5之局部外观示意图,图3为复数轨道结构100与光纤卡匣5之局部分解示意图。在此,光纤卡匣5在两个轨道结构100之间滑动装配,而各个轨道结构100包含轨道本体1、第一卡掣结构2及第二卡掣结构3。板件4上包括有与第一卡掣结构2相卡掣之第一扣合结构41、以及与第二卡掣结构3相卡掣之第二扣合结构42。在此,光纤卡匣5为安装在机架式光纤箱200中。

[0060] 参照图2、图3及图4,图4为图3之轨道结构100底部观看之外观示意图,本实施例中,轨道本体1为塑料料质制成,轨道本体1为一长条型塑料块,轨道本体1二端(短边)分别定义第一端面1a及第二端面1b,轨道本体1侧边1c(长边)形成一凹槽轨道11,光纤卡匣5侧边突出有滑块51,滑块51对应凹槽轨道11滑动。在此,以五个轨道本体1的两侧侧边1c各别形成凹槽轨道11,供四个光纤卡匣5各别在各轨道本体1之间滑动,并在一个光纤箱200内形成三层层迭结构,让十二个光纤卡匣5摆放。此外,在轨道本体1之第一端面1a及第二端面1b上朝外延伸有拉柄13,手部拉动拉柄13将连动光纤卡匣5退出,换言之,可将光纤卡匣5由前方拉出,或者是,可将光纤卡匣5由后方拉出。

[0061] 参照图2、图3及图4,本实施例中,第一卡掣结构2形成于轨道本体1之第一端面1a上,在此,第一卡掣结构2包括自第一端面1a朝外延伸之第一悬臂21,第一悬臂21包括自第一端面1a朝外水平延伸一段距离后的延伸段211、以及自延伸段211端缘再向下转折之摆动臂212,延伸段211与摆动臂212呈90度,并且,摆动臂212与第一端面1a之间形成一间距D。此外,第一卡掣结构2包括自第一悬臂21端部朝外突出之卡钩22,卡钩22自第一悬臂21末端的外侧面突出,通过摆动臂212与第一端面1a之间的间距D,利用手工具按压摆动臂212时,摆动臂212以延伸段211为支点朝第一端面1a摆动,摆动臂212偏摆到间距D时,卡钩22可脱离第一扣合结构41。

[0062] 参照图2、图3及图4,本实施例中,第二卡掣结构3形成于轨道本体1之第二端面1b上,在此,第二卡掣结构3包括自第二端面1b内凹形成之第二槽孔35,第二槽孔35贯穿轨道

本体1的侧边1c壁面,换言之,第二槽孔35形成在轨道本体1长边与短边的转角1d处,并且,第二槽孔35内形成内缩外扩状的槽孔,便于第二扣合结构42卡掣于第二槽孔35中。

[0063] 参照图2、图3及图5,图5为轨道结构100与板件4安装前之侧视剖面示意图,本实施例中,板件4上之第一扣合结构41包括形成板件4上之第一扣孔413以及自第一扣孔413内壁面朝外延伸之第一卡扣块411,第一卡扣块411与卡钩22相卡掣。板件4上之第二扣合结构42包括形成板件4上之第二扣孔423以及自第二扣孔423内壁面朝外延伸之第二卡扣块421,第二卡扣块421与第二槽孔35相卡掣。

[0064] 参照图5、图6及图7,图6为轨道结构100与板件4安装后之侧视剖面示意图,图7为拆掉轨道结构100之分解示意图。在此,轨道本体1放在板件4上时,由后端的第二卡掣结构3先与第二扣合结构42卡掣,再由前端的第一卡掣结构2向下卡入第一扣合结构41固定。退开时则按压前端的第一卡掣结构2,使卡钩22脱离第一卡扣块411,直接取出,简言之,第一卡掣结构2可活动卡掣于板件4上之第一扣合结构41,第二卡掣结构3可活动卡掣于板件4上之第二扣合结构42。此外,用户可将其中一个轨道结构100拆除,脱离板件4,剩下在板件4上的两个轨道结构100之间的距离相对变宽,进而将另一规格且宽度较大的光纤卡匣5安装在两个轨道之间,增加适用性,可提供使用人员变换光纤卡匣5的机种并同时具有快速拆卸轨道结构100的效果。

[0065] 参照图8,为本实用新型之第二实施例,图8为轨道结构100与板件4之局部分解示意图,本实施例与第一实施例中差别在于:第一卡掣结构2包括贯穿第一悬臂21上之第一扣槽24,与第一实施例之卡钩22结构以及卡掣方式不同。并且,第二卡掣结构3包括自第二端面1b朝外延伸之第二悬臂31以及贯穿第二悬臂31上之第二扣槽34,本实施例中,第一卡掣结构2与第二卡掣结构3的结构相同。而第一扣合结构41包括自第一扣孔413内壁面突出之第一扣钩414,第一扣钩414卡掣第一扣槽24。而第二扣合结构42包括自第二扣孔423内壁面突出之第二扣钩424,第二扣钩424卡掣卡掣第二扣槽34。

[0066] 参照图9,为本实用新型之第三实施例,图9为轨道结构100与板件4之局部分解示意图,本实施例与第一实施例中差别在于:第一卡掣结构2之卡钩22直接穿过第一扣孔413而卡掣于板件4的底面,在板件4上形成第一扣孔413结构即可。并且,第二扣合结构42包括自板件4上朝外延伸之第二卡扣块421,第二卡扣块421直接由板件4表面突出。

[0067] 参照图10,为本实用新型之第四实施例,图10为轨道结构100与板件4之局部分解示意图,本实施例与第一实施例中差别在于:第一扣合结构41之第一卡扣块411由第一扣孔413内壁面突出,第一卡扣块411与板件4垂直,第一卡扣块411内侧供卡钩22卡掣。并且,第二扣合结构42包括自板件4上朝外延伸之第二卡扣块421,第二卡扣块421直接由板件4表面突出。

[0068] 参照图11,为本实用新型之第五实施例,图11为轨道结构100与板件4之局部分解示意图,本实施例与第一实施例中差别在于:第一卡掣结构2包括自第一端面1a内凹形成之第一槽孔25,而第一扣合结构41包括自板件4上朝外延伸之第一卡扣块411,第二扣合结构42包括自板件4上朝外延伸之第二卡扣块421,第二卡扣块421直接由板件4表面突出。组装时,将轨道本体1摆放斜向,先将第一卡扣块411插入第一槽孔25,将轨道本体1摆正后,第二卡扣块421卡掣入第二槽孔35中。

[0069] 特别说明的是,第一卡掣结构2可形成钩状结构或扣孔结构,而第一扣合结构41可

分别形成钩状结构或扣孔结构,此外,第二卡掣结构3可形成钩状结构或扣孔结构,而第二扣合结构42可分别形成钩状结构或扣孔结构。

[0070] 通过轨道本体二端之第一卡掣结构与第二卡掣结构活动卡掣于板件上之第一扣合结构与第二扣合结构,用户可将其中一个轨道结构拆除,脱离板件,剩下在板件上的两个轨道结构之间的距离相对变宽,进而将另一规格且宽度较大的光纤卡匣安装在两个轨道之间,增加适用性,可提供使用人员变换光纤卡匣的机种并同时具有快速拆卸轨道结构的效果。

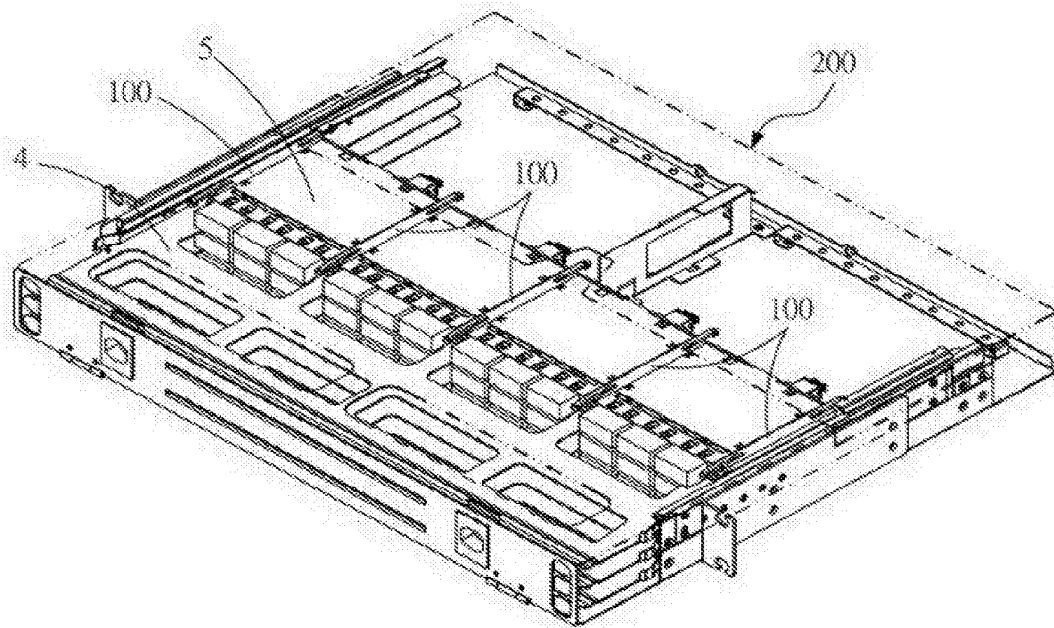


图1

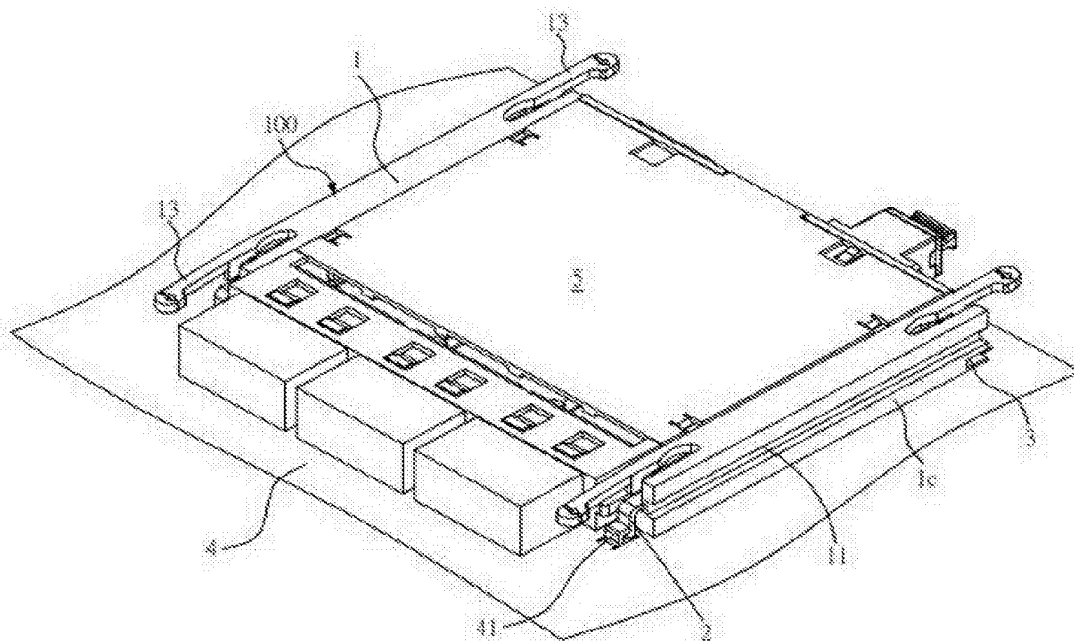


图2

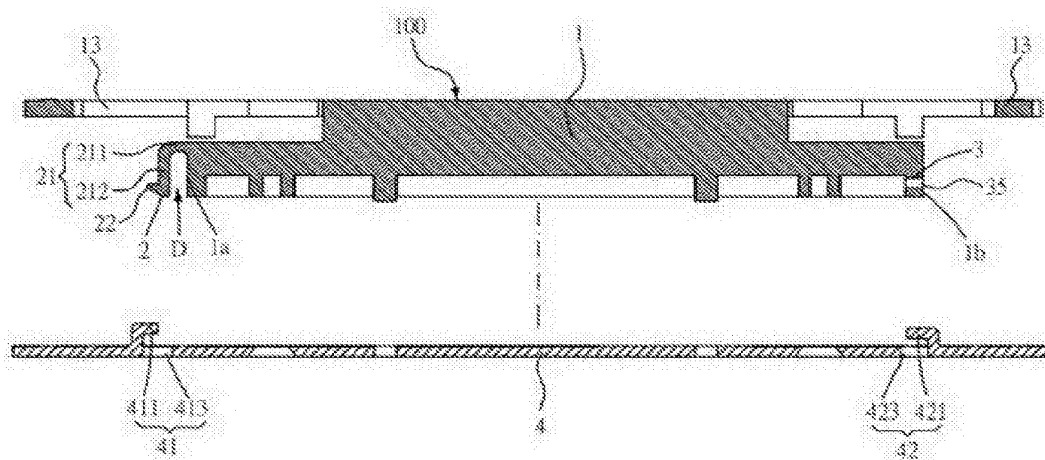


图5

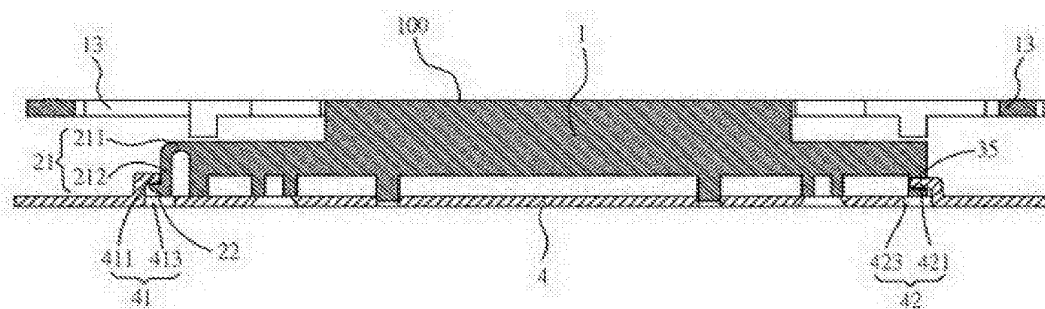


图6

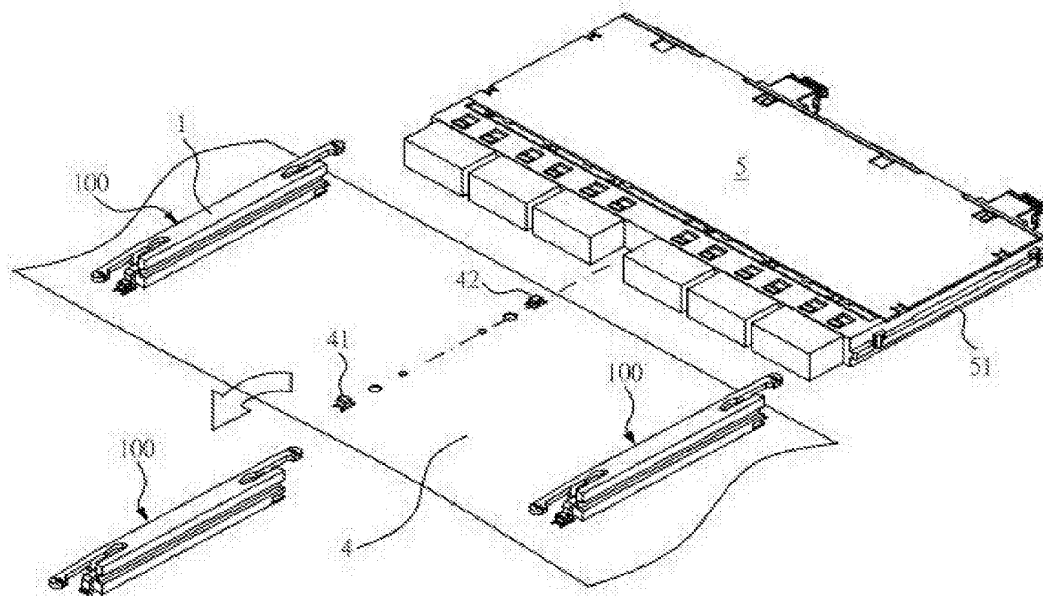


图7

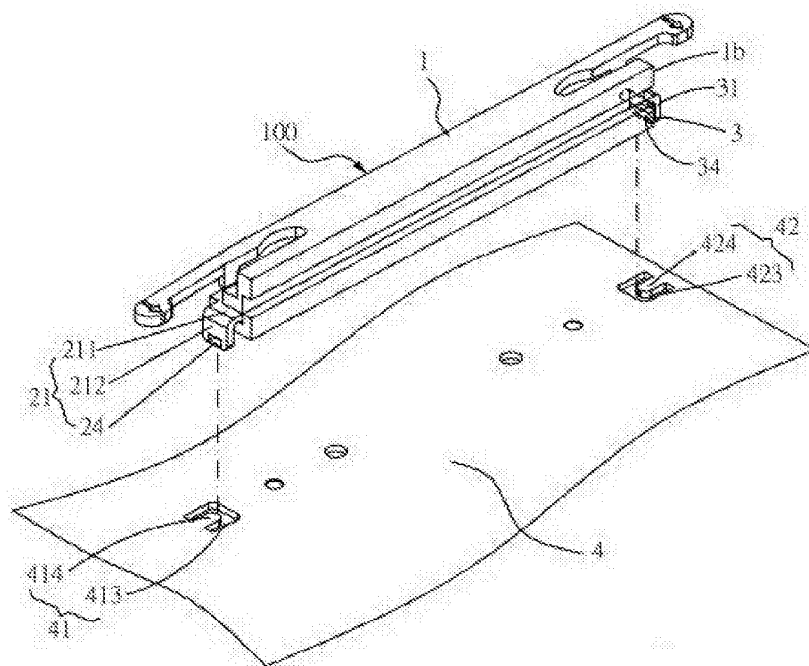


图8

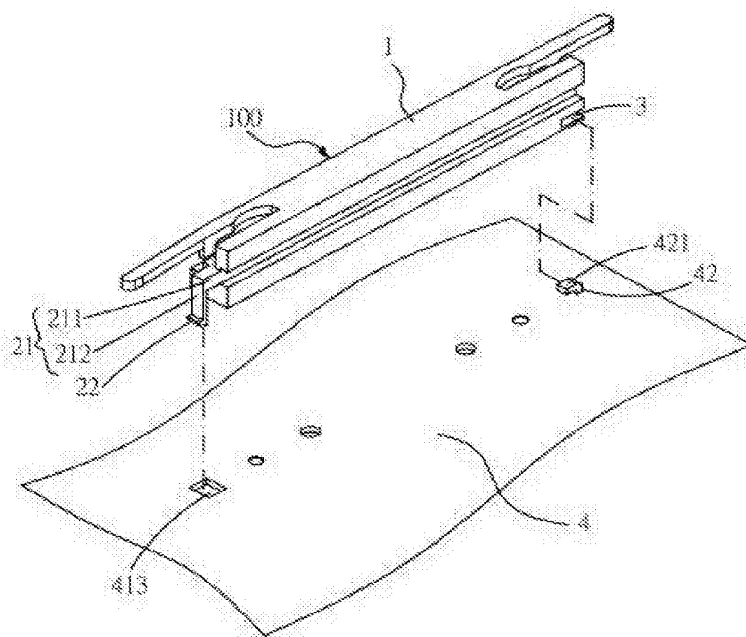


图9

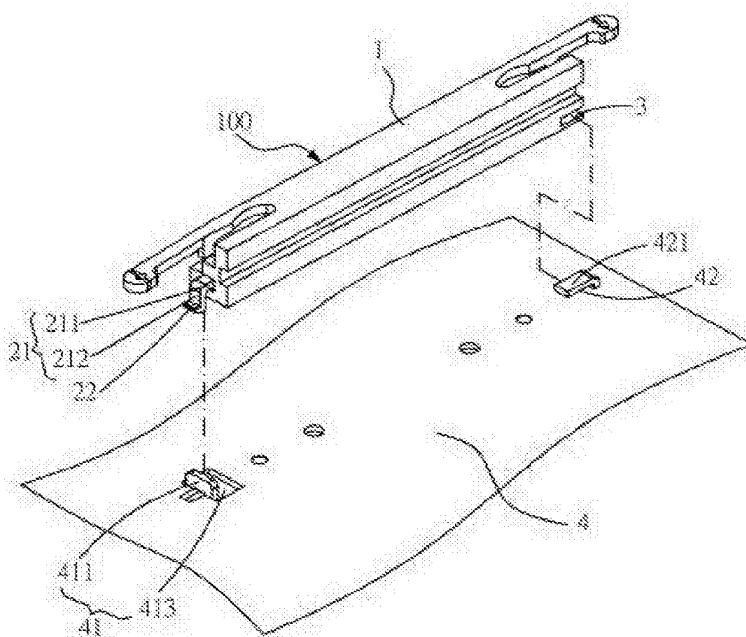


图10

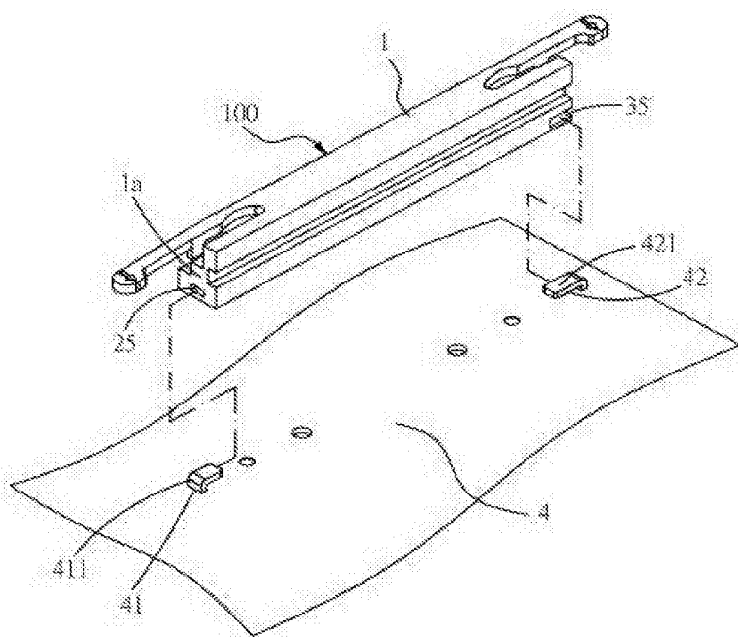


图11



Espacenet

Bibliographic data: CN204925469 (U) — 2015-12-30

Optic fibre mounting structure and be equipped with quick -witted case of this structure

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Classification: - international: **G02B6/44; G02B6/46**
- cooperative:

Application number: CN20152541341U 20150723

Priority number(s): CN20152541341U 20150723

Abstract of CN204925469 (U)

The utility model relates to an optic fibre mounting structure and be equipped with quick -witted case of this structure, include: the casing is formed with accommodation space, a plurality of support piece, the interval install in the casing will accommodation space separates into the mounting groove with the installation the optic fibre module, wherein, a plurality of support piece follow the first direction interval and arrange. Above - mentioned quick -witted case, thus can be equipped with a plurality of mounting grooves make a plurality of optic fibre modules can directly insert locate the mounting groove in, change the change that partial optic fibre can be accomplished to one of them optic fibre module alone, reduced the degree of difficulty of maintaining and upgrading and reform transform.



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G02B 6/46(2006. 01)

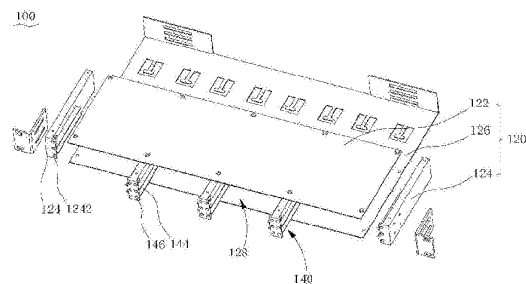
权利要求书1页 说明书3页 附图2页

(54) 实用新型名称

光纤安装结构及设有该结构的机箱

(57) 摘要

本实用新型涉及一种光纤安装结构及设有该结构的机箱,包括:壳体,形成有容纳空间;多个支撑件,间隔安装于所述壳体,将所述容纳空间分隔成安装槽以安装所述光纤模块;其中,所述多个支撑件沿第一方向间隔排布。上述机箱,可设有多个安装槽从而使多个光纤模块可直接插设于安装槽内,单独更换其中一个光纤模块即可完成部分光纤的更换,降低了维护与升级改造的难度。



1. 一种光纤安装结构,用于安装光纤模块,其特征在于,包括:
壳体,形成有容纳空间;
多个支撑件,间隔安装于所述壳体,将所述容纳空间分隔成安装槽以安装所述光纤模块;及
其中,所述多个支撑件沿第一方向间隔排布。
2. 根据权利要求1所述的光纤安装结构,其特征在于,所述壳体包括上盖、两个侧板及与所述上盖平行且间隔设置的底板,两个所述侧板在所述第一方向上间隔设置,分别连接所述上盖与所述底板两端,以与所述上盖及所述底板共同形成所述容纳空间。
3. 根据权利要求2所述的光纤安装结构,其特征在于,所述支撑件及所述侧板的侧壁设有固定槽,用于固定所述光纤模块。
4. 根据权利要求3所述的光纤安装结构,其特征在于,所述支撑件及所述侧板的侧壁设有形成所述固定槽的固定板,所述固定板平行于所述上盖及所述底板,且所述固定板的延伸方向垂直于所述第一方向。
5. 根据权利要求3所述的光纤安装结构,其特征在于,所述支撑件为三个,位于所述支撑件及所述侧板一侧的所述固定槽为三个,以使所述光纤模块在垂直于所述第一方向的方向上层叠设置。
6. 一种机箱,其特征在于,包括上述权利要求1~5任意一项所述的光纤安装结构及安装于所述光纤安装结构的光纤模块。
7. 根据权利要求6所述的机箱,其特征在于,所述光纤模块为12芯模块盒。
8. 根据权利要求6所述的机箱,其特征在于,所述光纤模块包括光纤模块主体,所述光纤模块主体插设于所述安装槽内,所述光纤模块还包括凸设于所述光纤模块主体的侧壁的固定部,所述固定部与所述支撑件及所述壳体固接。
9. 根据权利要求8所述的机箱,其特征在于,所述支撑件及所述壳体开设有安装孔,所述光纤模块的所述固定部设有与所述安装孔对应的固定件,以固接于所述光纤安装结构。
10. 根据权利要求9所述的机箱,其特征在于,所述光纤模块主体开设有容纳腔,所述容纳腔内设有光纤适配器。

光纤安装结构及设有该结构的机箱

技术领域

[0001] 本实用新型涉及光纤通信领域,特别是涉及一种光纤安装结构及设有该结构的机箱。

背景技术

[0002] 随着通信技术领域的快速发展,云计算、云存储等应用逐渐渗透至各个行业,存储区域网络以及数据中心对于连接系统的要求也越来越高。光纤作为宽带接入的一种方式,有着通信容量大、中继距离长、保密性能好、适应能力强、体积小重量轻、原材料来源广价格低廉等的优点,因此在通信领域有着广泛的应用。

[0003] 目前,由于机箱的结构限制,设置于机箱上的光纤无法独立拆卸,维护的难度较大,为操作者带来了不便。

实用新型内容

[0004] 基于此,有必要针对机箱上的光纤维护难度较大的问题,提供一种维护难度较小的光纤安装结构及设有该结构的机箱。

[0005] 一种光纤安装结构,用于安装光纤模块,包括:

[0006] 壳体,形成有容纳空间;

[0007] 多个支撑件,间隔安装于所述壳体,将所述容纳空间分隔成安装槽以安装所述光纤模块;及

[0008] 其中,所述多个支撑件沿第一方向间隔排布。

[0009] 上述机箱,可设有多个安装槽从而使多个光纤模块可直接插设于安装槽内,单独更换其中一个光纤模块即可完成部分光纤的更换,降低了维护与升级改造的难度。

[0010] 在其中一个实施例中,所述壳体包括上盖、两个侧板及与所述上盖平行且间隔设置的底板,两个所述侧板在所述第一方向上间隔设置,分别连接所述上盖与所述底板两端,以与所述上盖及所述底板共同形成所述容纳空间。

[0011] 在其中一个实施例中,所述支撑件及所述侧板的侧壁设有固定槽,用于固定所述光纤模块。

[0012] 在其中一个实施例中,所述支撑件及所述侧板的侧壁设有形成所述固定槽的固定板,所述固定板平行于所述上盖及所述底板,且所述固定板的延伸方向垂直于所述第一方向。

[0013] 在其中一个实施例中,所述支撑件为三个,位于所述支撑件及所述侧板一侧的所述固定槽为三个,以使所述光纤模块在垂直于所述第一方向的方向上层叠设置。

[0014] 一种机箱,包括上述的光纤安装结构及安装于所述光纤安装结构的光纤模块。

[0015] 在其中一个实施例中,所述光纤模块为 12 芯模块盒。

[0016] 在其中一个实施例中,所述光纤模块包括光纤模块主体,所述光纤模块主体插设于所述安装槽内,所述光纤模块还包括凸设于所述光纤模块主体的侧壁的固定部,所述固

定部与所述支撑件及所述壳体固接。

[0017] 在其中一个实施例中,所述支撑件及所述壳体开设有安装孔,所述光纤模块的所述固定部设有与所述安装孔对应的固定件,以固接于所述光纤安装结构。

[0018] 在其中一个实施例中,所述光纤模块主体开设有容纳腔,所述容纳腔内设有光纤适配器。

附图说明

[0019] 图 1 为一实施例的光纤安装结构的结构示意图;

[0020] 图 2 为一实施例的安装有光纤模块的机箱的结构示意图;

[0021] 图 3 为一实施例的光纤模块的示意图。

具体实施方式

[0022] 为了便于理解本实用新型,下面将参照相关附图对本实用新型进行更全面的描述。附图中给出了本实用新型的较佳的实施例。但是,本实用新型可以以许多不同的形式来实现,并不限于本文所描述的实施例。相反地,提供这些实施例的目的是使对本实用新型的公开内容的理解更加透彻全面。

[0023] 需要说明的是,当元件被称为“固定于”另一个元件,它可以直接在另一个元件上或者也可以存在居中的元件。当一个元件被认为是“连接”另一个元件,它可以是直接连接到另一个元件或者可能同时存在居中元件。本文所使用的术语“垂直的”、“水平的”、“左”、“右”以及类似的表述只是为了说明的目的。

[0024] 除非另有定义,本文所使用的所有的技术和科学术语与属于本实用新型的技术领域的技术人员通常理解的含义相同。本文中在本实用新型的说明书中所使用的术语只是为了描述具体的实施例的目的,不是旨在于限制本实用新型。本文所使用的术语“及/或”包括一个或多个相关的所列项目的任意的和所有的组合。

[0025] 如图 1 及图 2 所示,本较佳实施例的一种光纤安装结构 100,用于安装光纤模块 200。该光纤安装结构 100 包括壳体 120 及支撑件 140。壳体 120 形成有容纳空间以容纳光纤模块 200,支撑件 140 间隔安装于壳体 120,将容纳空间分隔成多个安装槽 128,光纤模块 200 插设于该安装槽 128 内。其中,多个支撑件 140 沿第一方向间隔排布。

[0026] 上述机箱,可设有多个安装槽 128 从而使多个光纤模块 200 可直接插设于安装槽 128 内,单独更换其中一个光纤模块 200 即可完成部分光纤的更换,降低了维护与升级改造的难度。

[0027] 请再次参阅图 1 及图 2,具体地,在本实施例中,壳体 120 包括上盖 122、两个侧板 124 及与上盖 122 平行且间隔设置的底板 126。两个侧板 124 在第一方向上间隔设置,分别连接上盖 122 与底板 126 两端,以与上盖 122 及底板 126 共同形成前述容纳空间。在本实施例中,侧板 124 与上盖 122 及底板 126 相接触的端面开设有固定孔(图未标),以与上盖 122 及底板 126 固接。其中,上盖 122 与底板 126 相对设置。

[0028] 侧板 124 及支撑件 140 侧壁开设有固定槽(图未标),用于固定光纤模块 200。具体地,两个侧板 124 相互靠近的一侧及支撑件 140 的两侧壁设有形成固定槽的固定板 144,以支撑并分隔相邻光纤模块 200,使光纤模块 200 可沿固定板 144 滑动而进行安装或拆卸。

具体在本实施例中,固定板 144 平行于上盖 122 与底板 126,且其延伸方向垂直于第一方向。

[0029] 在其中一实施例中,每个支撑件 140 或侧板 124 一侧的固定槽为三个,从而可使三个光纤模块 200 在垂直于第一方向的方向上层叠设置,光纤模块 200 的两端卡设于固定槽内。如此,一个安装槽 128 内可安装三个独立的光纤模块 200,并且三个光纤模块 200 可单独拆卸及安装,而不会相互干扰。

[0030] 在其中一实施例中,支撑件 140 的数量为三个,从而与侧板 124 配合,将光纤安装结构 100 的壳体 120 分为四个安装槽 128。每一个安装槽 128 内设有三个层叠设置的固定槽,每一个固定槽内皆可拆卸安装芯光纤模块 200。因此,在不改变机箱大小的情况下,有效提高了光纤线路密度,节省了机房空间,降低了使用成本。

[0031] 支撑件 140 上沿垂直于上盖 122 及底板 126 的方向依次设有安装孔 146。侧板 124 上沿垂直于上盖 122 及底板 126 的方向依次开设有两列安装孔 1242,以固定光纤模块 200。

[0032] 上述光纤安装结构 100,开设有独立的多个安装槽 128 以层叠安装光纤模块 200,从而使多个光纤模块 200 可独立安装与拆卸而不会相互干扰,方便操作人员维护。并且,层叠设置的固定槽使该光纤安装结构 100 结构较为紧凑,从而提高了光纤的安装密度,节省了占用的空间。

[0033] 如图 2 所示,一种机箱 300,包括上述光纤安装结构 100 及安装于该光纤安装结构 100 的多个光纤模块 200。

[0034] 请参阅图 2 及图 3,光纤模块 200 包括光纤模块主体 220,该光纤模块主体 220 插设于光纤安装结构 100 的安装槽 128 内。具体地,光纤模块 200 插设于固定槽内,并沿固定板 144 长度方向移动而进行安装及拆卸。光纤模块主体 220 开设有容纳腔,容纳腔内设有 12 芯的光纤适配器 260。具体在本实施例中,光纤模块 200 为 12 芯小型 MPO(multifiber push-on,多芯可插拔)模块盒。

[0035] 光纤模块 200 还包括凸设于光纤模块主体 220 的侧壁的固定部 240,该固定部 240 自光纤模块主体 220 的边缘向远离光纤模块主体 220 的侧壁方向延伸,与支撑件 140 或侧板 124 端面相匹配,以与支撑件 140 及壳体 120 固接。

[0036] 在一实施例中,光纤模块 200 的固定部 240 设有与安装孔 146 或安装孔 1242 对应的固定件 242,固定件 242 插设于安装孔 146 或安装孔 1242,以使光纤模块 200 固接于光纤安装结构 100。

[0037] 上述机箱 300,间隔安装于安装槽 128 的光纤模块 200 有效利用了机箱 300 的容纳空间,提高了光纤线路密度,从而节省了机房空间,增加了机箱 300 连接的光纤数量。且光纤模块 200 可独立安装及拆卸,因此方便升级改造,有效降低了维护难度与成本。

[0038] 以上所述实施例的各技术特征可以进行任意的组合,为使描述简洁,未对上述实施例中的各个技术特征所有可能的组合都进行描述,然而,只要这些技术特征的组合不存在矛盾,都应当认为是本说明书记载的范围。

[0039] 以上所述实施例仅表达了本实用新型的几种实施方式,其描述较为具体和详细,但并不能因此而理解为对实用新型专利范围的限制。应当指出的是,对于本领域的普通技术人员来说,在不脱离本实用新型构思的前提下,还可以做出若干变形和改进,这些都属于本实用新型的保护范围。因此,本实用新型专利的保护范围应以所附权利要求为准。

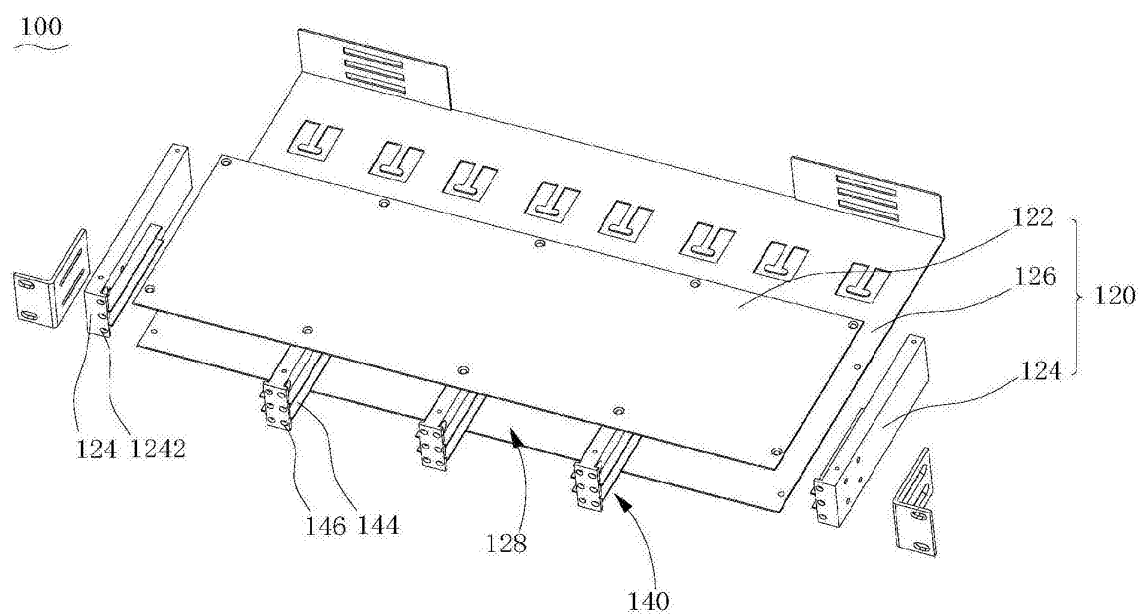


图 1

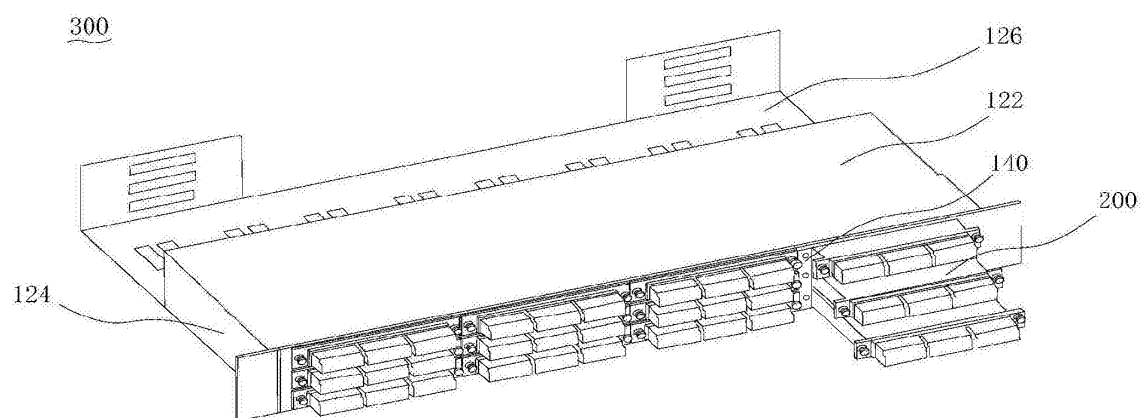


图 2

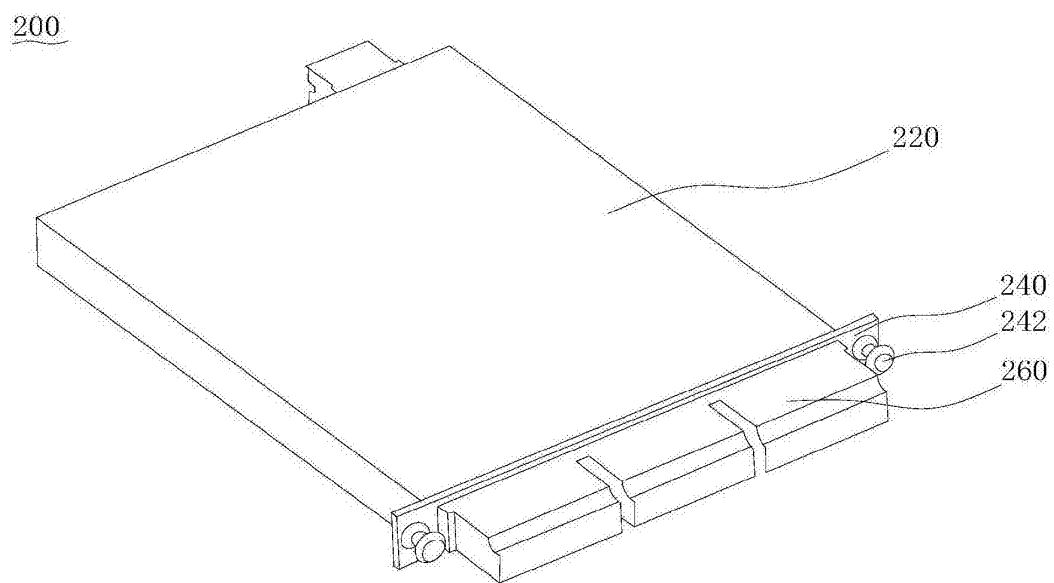


图 3



Espacenet

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Module box assembling structure and distribution equipment having the module box assembling structure

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Classification: - international: **G02B6/44**
- cooperative:

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Priority number(s): CN20122680184U 20121211

Abstract of CN203012204 (U)

The utility model belongs to the technical field of distribution equipments in communication equipments and provides a module box assembling structure and a piece of distribution equipment having the module box assembling structure. The module box assembling structure comprises module boxes and guide clamping rails. There are at least two guide clamping rails. Each module box is arranged between two guide clamping rails. The two sides of each module box are both provided with a front buckle and a rear buckle. The front buckle and the rear buckle are arranged in a way to have their backs opposed to each other. Each guide clamping rail further comprises a guide groove which runs through the two ends of the corresponding guide clamping rail. Each front buckle is clamped on one end of the guide groove while each rear buckle is clamped on the other end of the guide groove. The distribution equipment comprises the above-mentioned module box assembling structure. The module box assembling structure and the distribution equipment having the module box assembling structure facilitate the dismounting of module boxes and communication cables. Great convenience is brought for the dismounting and maintenance of module boxes and also for cable connection.



(12) 实用新型专利

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G02B 6/44 (2006.01)

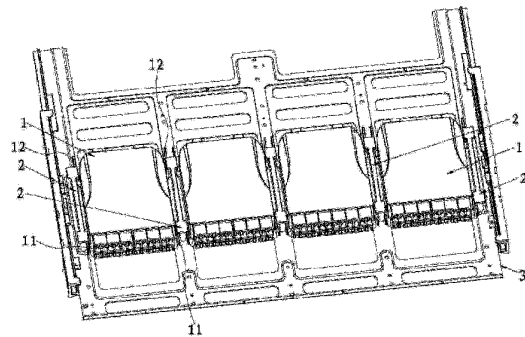
权利要求书1页 说明书4页 附图11页

(54) 实用新型名称

模块盒装配结构及具有该模块盒装配结构的
配线设备

(57) 摘要

本实用新型适用于通讯设备中的配线设备技术领域,提供了一种模块盒装配结构及具有该模块盒装配结构的配线设备。上述模块盒装配结构,包括模块盒,还包括导向卡轨,所述导向卡轨设置有至少两个,所述模块盒设置于两个所述导向卡轨之间,所述模块盒的两侧均设置前卡扣和后卡扣,所述前卡扣和后卡扣之间背向设置,所述导向卡轨具有贯通于所述导向卡轨两端的导向槽,所述前卡扣卡设于所述导向槽的一端,所述后卡扣卡设于所述导向槽的另一端。所述配线设备具有上述的模块盒装配结构。本实用新型所提供的模块盒装配结构及具有该模块盒装配结构的配线设备,其便于模块盒的拆装及通信线缆的拆装,给模块盒的拆装、维护及线缆的连接带来了方便。



1. 一种模块盒装配结构,包括模块盒,其特征在于,还包括导向卡轨,所述导向卡轨设置有至少两个,所述模块盒设置于两个所述导向卡轨之间,所述模块盒的两侧均设置前卡扣和后卡扣,所述前卡扣和后卡扣之间背向设置,所述导向卡轨具有贯通于所述导向卡轨两端的导向槽,所述前卡扣卡设于所述导向槽的一端,所述后卡扣卡设于所述导向槽的另一端。

2. 如权利要求 1 所述的模块盒装配结构,其特征在于,所述前卡扣包括连接于所述模块盒侧面的第一连接部和连接于所述第一连接部且指向于所述模块盒一端的第一弹性臂;所述后卡扣包括连接于所述模块盒侧面的第二连接部和连接于所述第二连接部且指向于所述模块盒另一端的第二弹性臂;所述第一弹性臂上凸设有第一卡扣,所述第二弹性臂上凸设有第二卡扣,所述导向槽的两端处分别开设有与所述第一卡扣、第二卡扣相匹配的第一卡槽和第二卡槽。

3. 如权利要求 2 所述的模块盒装配结构,其特征在于,所述第一卡槽靠近于所述导向卡轨的端部的一侧壁设置为直面,靠近于第二卡槽的一侧壁设置为倾斜面;所述第二卡槽靠近于所述导向卡轨的端部的一侧壁设置为直面,靠近于第一卡槽的一侧壁设置为倾斜面。

4. 如权利要求 2 所述的模块盒装配结构,其特征在于,所述第一弹性臂的上端与所述模块盒底部之间的高度尺寸大于第二弹性臂的上端与所述模块盒底部之间的高度尺寸。

5. 如权利要求 2 所述的模块盒装配结构,其特征在于,所述第二弹性臂的端部倒圆。

6. 如权利要求 2 所述的模块盒装配结构,其特征在于,所述第一弹性臂凸出于所述导向卡轨的一端,所述第二弹性臂凸出于所述导向卡轨的另一端,所述第一弹性臂和第二弹性臂的外侧均设置有防滑纹。

7. 如权利要求 2 至 6 中任一项所述的模块盒装配结构,其特征在于,所述导向卡轨的横截面呈“工”字形,其包括上平板、下平板及连接于所述上平板和下平板之间的纵向板,所述导向槽形成于所述纵向板的两侧,所述第一弹性臂夹设于所述上平板和下平板之间。

8. 如权利要求 7 所述的模块盒装配结构,其特征在于,所述上平板的两侧开设有开口槽。

9. 如权利要求 1 至 6 中任一项所述的模块盒装配结构,其特征在于,所述模块盒装配结构还包括层板,所述导向卡轨设置有多且平行间距固定连接于所述层板上。

10. 一种配线设备,其特征在于,所述配线设备具有如权利要求 1 至 9 中任一项所述的模块盒装配结构。

模块盒装配结构及具有该模块盒装配结构的配线设备

技术领域

[0001] 本实用新型属于电子、通讯设备技术领域,尤其涉及一种模块盒装配结构及具有该模块盒装配结构的配线设备。

背景技术

[0002] 目前的配线设备,例如配线架,其包括模块盒和层板。现有技术中模块盒装配结构,其模块盒通常固定连接于层板上,不便于对模块盒及通信线缆进行拆装及维护,给模块盒的安装、维护带来不便。

实用新型内容

[0003] 本实用新型的目的在于克服上述现有技术的不足,提供了模块盒装配结构及具有该模块盒装配结构的配线设备,其模块盒安装、维护方便。

[0004] 本实用新型是这样实现的:一种模块盒装配结构,包括模块盒,还包括导向卡轨,所述导向卡轨设置有至少两个,所述模块盒设置于两个所述导向卡轨之间,所述模块盒的两侧均设置前卡扣和后卡扣,所述前卡扣和后卡扣之间背向设置,所述导向卡轨具有贯通于所述导向卡轨两端的导向槽,所述前卡扣卡设于所述导向槽的一端,所述后卡扣卡设于所述导向槽的另一端。

[0005] 具体地,所述前卡扣包括连接于所述模块盒侧面的第一连接部和连接于所述第一连接部且指向于所述模块盒一端的第一弹性臂;所述后卡扣包括连接于所述模块盒侧面的第二连接部和连接于所述第二连接部且指向于所述模块盒另一端的第二弹性臂;所述第一弹性臂上凸设有第一卡扣,所述第二弹性臂上凸设有第二卡扣,所述导向槽的两端处分别开设有与所述第一卡扣、第二卡扣相匹配的第一卡槽和第二卡槽。

[0006] 具体地,所述第一卡槽靠近于所述导向卡轨的端部的一侧壁设置为直面,靠近于第二卡槽的一侧壁设置为倾斜面;所述第二卡槽靠近于所述导向卡轨的端部的一侧壁设置为直面,靠近于第一卡槽的一侧壁设置为倾斜面。

[0007] 具体地,所述第一弹性臂的上端与所述模块盒底部之间的高度尺寸大于第二弹性臂的上端与所述模块盒底部之间的高度尺寸。

[0008] 具体地,所述第二弹性臂的端部倒圆。

[0009] 具体地,所述第一弹性臂凸出于所述导向卡轨的一端,所述第二弹性臂凸出于所述导向卡轨的另一端,所述第一弹性臂和第二弹性臂的外侧均设置有防滑纹。

[0010] 具体地,所述导向卡轨的横截面呈“工”字形,其包括上平板、下平板及连接于所述上平板和下平板之间的纵向板,所述导向槽形成于所述纵向板的两侧,所述第一弹性臂夹设于所述上平板和下平板之间。

[0011] 具体地,所述上平板的两侧开设有开口槽。

[0012] 具体地,所述模块盒装配结构还包括层板,所述导向卡轨设置有多且平行间距固定连接于所述层板上。

[0013] 本实用新型还提供了一种配线设备,所述配线设备具有上述的模块盒装配结构。

[0014] 本实用新型所提供的模块盒装配结构及具有该模块盒装配结构的配线设备,其通过设置导向卡轨并将模块盒设置于导向卡轨之间,并于模块盒的两侧设置卡扣连接于所述导向卡轨的前卡扣和后卡扣,通过按压前卡扣,可拉动模块盒沿导向槽向前滑动,通过按压后卡扣,可拉动模块盒沿导向槽向后滑动,以便于模块盒的拆装及通信线缆的拆装,给模块盒的拆装、维护及线缆的连接带来了方便,利于提高产品的安装及维护效率。

附图说明

[0015] 图 1 是本实用新型实施例提供的模块盒装配结构的立体图;

[0016] 图 2 是本实用新型实施例提供的模块盒装配结构中模块盒的立体图;

[0017] 图 3 是本实用新型实施例提供的模块盒装配结构中导向卡轨的立体图;

[0018] 图 4 是本实用新型实施例提供的模块盒装配结构中模块盒的另一立体图;

[0019] 图 5 是本实用新型实施例提供的模块盒装配结构中模块盒的平面图;

[0020] 图 6 是本实用新型实施例提供的模块盒装配结构中其中一模块盒向前滑动的俯视图;

[0021] 图 7 是本实用新型实施例提供的模块盒装配结构中其中一模块盒向后滑动的俯视图;

[0022] 图 8 是本实用新型实施例提供的模块盒装配结构中其中一模块盒向前滑动的俯视图;

[0023] 图 9 是本实用新型实施例提供的模块盒装配结构中其中一模块盒向前滑动的立体图;

[0024] 图 10 是图 9 中 A 处局部放大示意图;

[0025] 图 11 是本实用新型实施例提供的模块盒装配结构中其中一模块盒向前并向上越过障碍的立体图。

具体实施方式

[0026] 为了使本实用新型的目的、技术方案及优点更加清楚明白,以下结合附图及实施例,对本实用新型进行进一步详细说明。应当理解,此处所描述的具体实施例仅仅用以解释本实用新型,并不用于限定本实用新型。

[0027] 如图 1~图 3 所示,本实用新型实施例提供了一种模块盒装配结构,包括模块盒 1 和导向卡轨 2,模块盒 1 可为光纤终端盒、接线盒,可用于连接光纤等通讯线缆。导向卡轨 2 设置有至少两个,模块盒 1 设置于两个导向卡轨 2 之间。模块盒 1 的两侧均设置前卡扣 11 和后卡扣 12,前卡扣 11 和后卡扣 12 之间背向设置,前卡扣 11 指向模块盒 1 的一端,后卡扣 12 指向模块盒 1 的另一端。导向卡轨 2 具有贯通于导向卡轨 2 两端的导向槽 20,前卡扣 11 卡设于导向槽 20 的一端,避免模块盒 1 向前随意滑动。后卡扣 12 卡设于导向槽 20 的另一端,避免模块盒 1 向后滑动。通过按压前卡扣 11,可拉动模块盒 1 沿导向槽 20 向前滑动,通过按压后卡扣 12,可拉动模块盒 1 沿导向槽 20 向后滑动,以便于模块盒 1 的拆装及通信线缆的拆装,给模块盒 1 的拆装、维护及线缆的连接带来了方便,利于提高产品的安装及维护效率。

[0028] 可以理解地,本实施例中的前、后、上、下等方位术语,其以产品的正常使用状态为参考或者是互为相对概念,而不应该认为是具有限制性的。

[0029] 具体地,如图1~图4所示,前卡扣11包括连接于模块盒1侧面的第一连接部112和连接于第一连接部112且指向于模块盒1一端的第一弹性臂111;第一连接部112与第一弹性臂111一体成型,第一弹性臂111与模块盒1的侧壁有一定的间距,通过按压模块盒1两侧的第一弹性臂111,可解除前卡扣11与模块盒1之间的锁定,可相对导向卡轨2沿导向槽20向前拉动模块盒1。后卡扣12包括连接于模块盒1侧面的第二连接部122和连接于第二连接部122且指向于模块盒1另一端的第二弹性臂121;第二连接部122与第二弹性臂121一体成型,第二弹性臂121与模块盒1的侧壁有一定的间距,通过按压模块盒1两侧的第二弹性臂121,可解除后卡扣12与模块盒1之间的锁定,可相对导向卡轨2沿导向槽20向后拉动模块盒1。

[0030] 具体地,如图1~图4所示,第一弹性臂111上凸设有第一卡扣113,第二弹性臂121上凸设有第二卡扣123,导向槽20的两端处分别开设有与第一卡扣113、第二卡扣123相匹配的第一卡槽201和第二卡槽202。

[0031] 具体地,如图1~图4所示,第一卡槽201靠近于导向卡轨2的端部的一侧壁设置为直面2011,第一卡槽201靠近于第二卡槽202的一侧壁设置为倾斜面2012;具体地,第二卡槽202靠近于导向卡轨2的端部的一侧壁设置为直面,靠近于第一卡槽201的一侧壁设置为倾斜面2022。

[0032] 只有按压第一弹性臂111,使第一卡扣113脱离第一卡槽201的直面2011,模块盒1方可被拉动向前,此时第二卡扣123可沿第二卡槽202的斜面2022向前滑动,设计巧妙。

[0033] 只有按压第二弹性臂121,使第二卡扣123脱离第二卡槽202的直面,模块盒1方可被拉动向后,此时第一卡扣113可沿第一卡槽201的斜面2012向后滑动,设计巧妙。

[0034] 具体地,第一连接部112与第二连接部122相距设置,当然,第一连接部112与第二连接部122也可以连接为一体。

[0035] 如图1和图6所示,第一弹性臂111凸出于导向卡轨2的一端,第二弹性臂121凸出于导向卡轨2的另一端,以便于操作人员相向按压模块盒1两侧的两个第一弹性臂111或两个第二弹性臂121。

[0036] 具体地,如图1和图4所示,第一弹性臂111和第二弹性臂121的外侧均设置有防滑纹,以便操作人员可以可靠地按压第一弹性臂111和第二弹性臂121,可靠性高。

[0037] 具体地,如图1~图6所示,导向卡轨2的横截面呈“工”字形,其包括上平板21、下平板22及连接于上平板21和下平板22之间的纵向板23,导向槽20形成于纵向板23的两侧,这样,导向卡轨2的两侧可分别设置有模块盒1,有利于提高导向卡轨2的利用率。具体地,上平板21的两侧开设有开口槽211。第一弹性臂111夹设于上平板21和下平板22之间,可对模块盒进行限位。

[0038] 具体地,如图1~图6所示,模块盒1装配结构还包括层板3,导向卡轨2设置有多个且平行间距固定连接于层板3上,模块盒1可设有多个且卡接于相邻的导向卡轨2之间。

[0039] 具体地,如图3~图5所示,第一弹性臂111的上端与模块盒1底部之间的高度尺寸大于第二弹性臂121的上端与模块盒1底部之间的高度尺寸,形成前高后矮的结构,向前拉动模块盒1时,当第二弹性臂121抵顶于导向卡轨2时,较矮的第二弹性臂121有较大的

旋转调整空间,可以方便地将模块盒 1 自导向卡轨 2 的导向槽 20 中抽出。

[0040] 具体地,如图 7~图 10 所示,第二弹性臂 121 的端部倒圆,第二弹性臂 121 的端部的下部倒圆,可起到转轴的作用,前拉动模块盒 1 时,如图 11 所示,若前方有障碍,可将模块盒 1 的上端向上提升,第二弹性臂 121 的端部倒圆处可起到转轴的作用,便于将模块盒 1 向前抽出。

[0041] 具体地,如图 8~图 11 所示,第二弹性臂 121 的端部倒圆,第二弹性臂 121 的端部的下部倒圆,可起到转轴的作用,前拉动模块盒 1 时,若前方有障碍,可将模块盒 1 的上端向上提升,第二弹性臂 121 的端部倒圆处可起到转轴的作用,便于将模块盒 1 向前抽出。

[0042] 本实用新型还提供了一种配线设备,配线设备具有上述的模块盒 1 装配结构。配线设备可为配线柜或配线架等。

[0043] 本实用新型所提供的模块盒 1 装配结构及具有该模块盒 1 装配结构的配线设备,其通过设置导向卡轨 2 并将模块盒 1 设置于导向卡轨 2 之间,并于模块盒 1 的两侧设置卡扣连接于导向卡轨 2 的前卡扣 11 和后卡扣 12,通过按压前卡扣 11,可拉动模块盒 1 沿导向槽 20 向前滑动,通过按压后卡扣 12,可拉动模块盒 1 沿导向槽 20 向后滑动,以便于模块盒 1 的拆装及通信线缆的拆装,给模块盒 1 的拆装、维护及线缆的连接带来了方便,利于提高产品的安装及维护效率。

[0044] 以上仅为本实用新型的较佳实施例而已,并不用以限制本实用新型,凡在本实用新型的精神和原则之内所作的任何修改、等同替换或改进等,均应包含在本实用新型的保护范围之内。

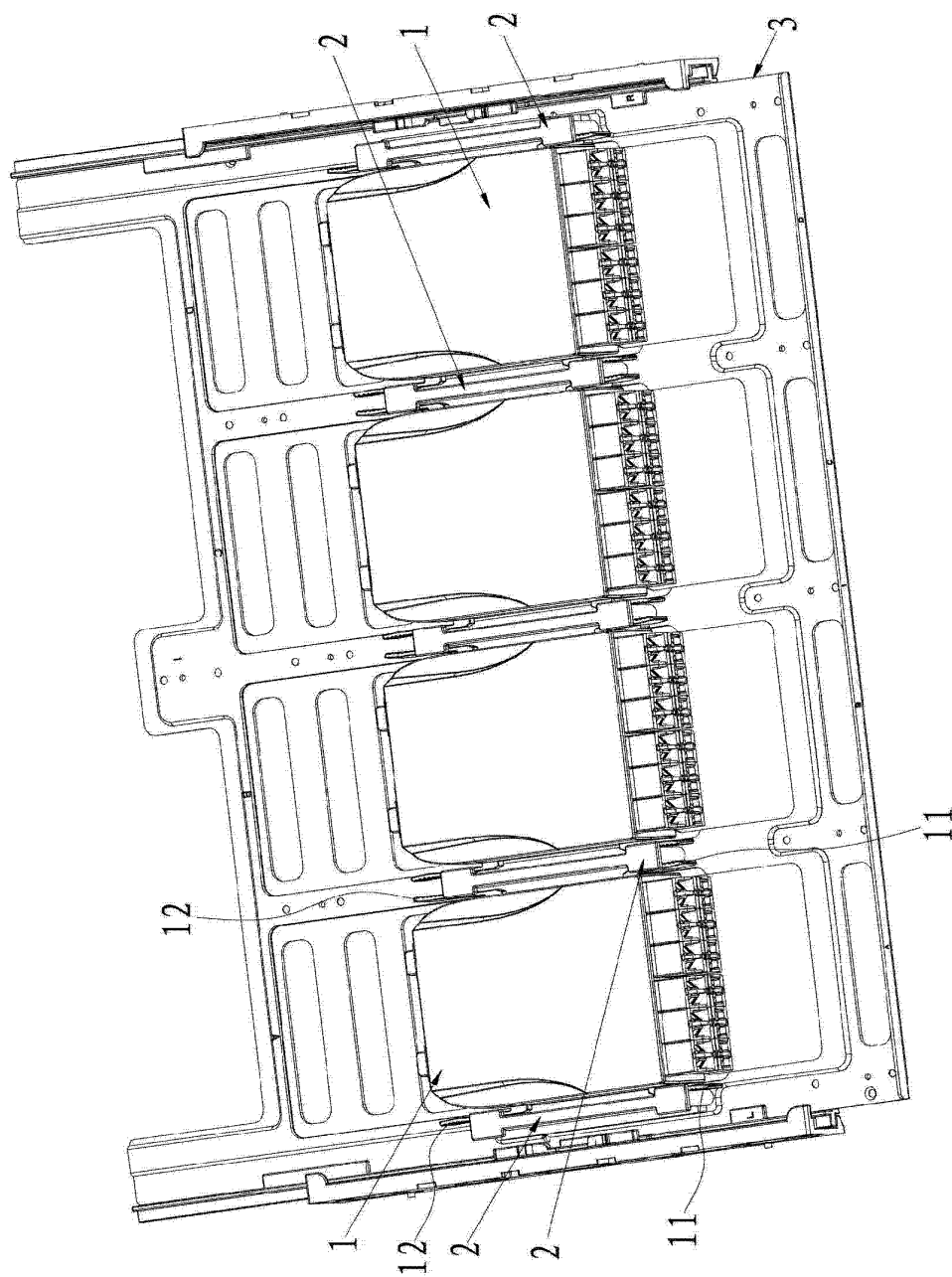


图 1

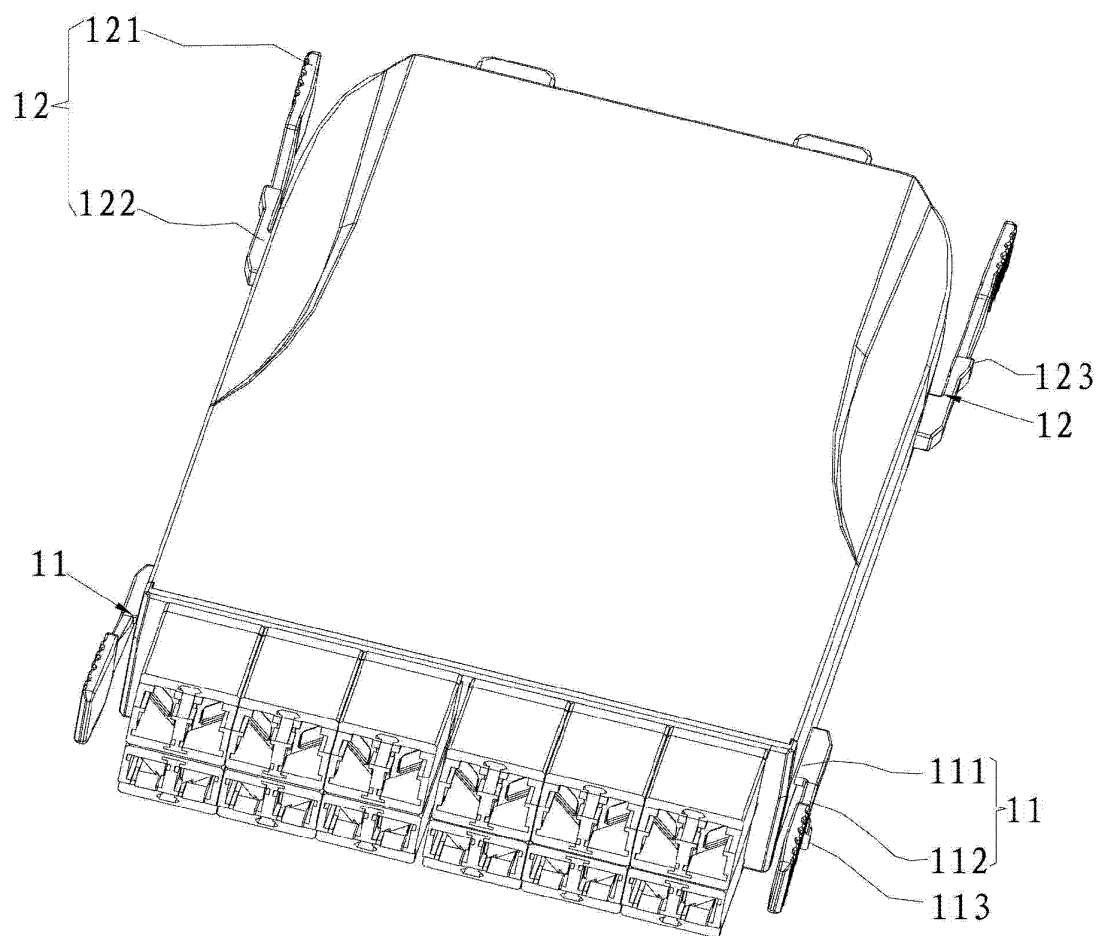


图 2

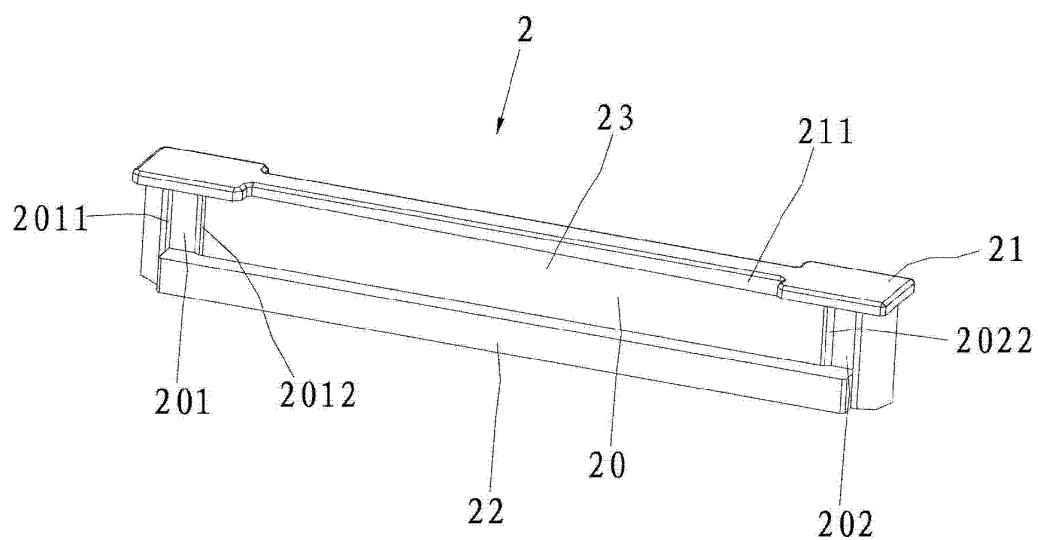


图 3

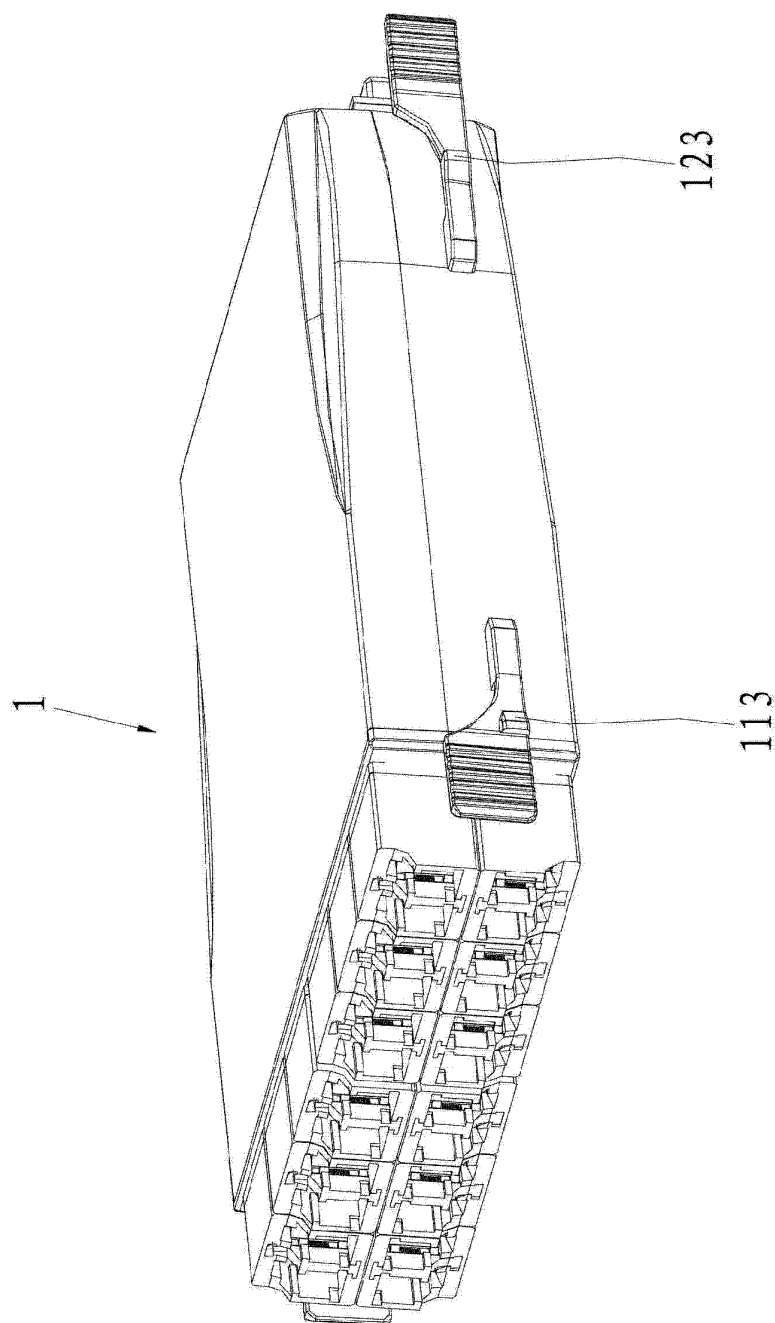


图 4

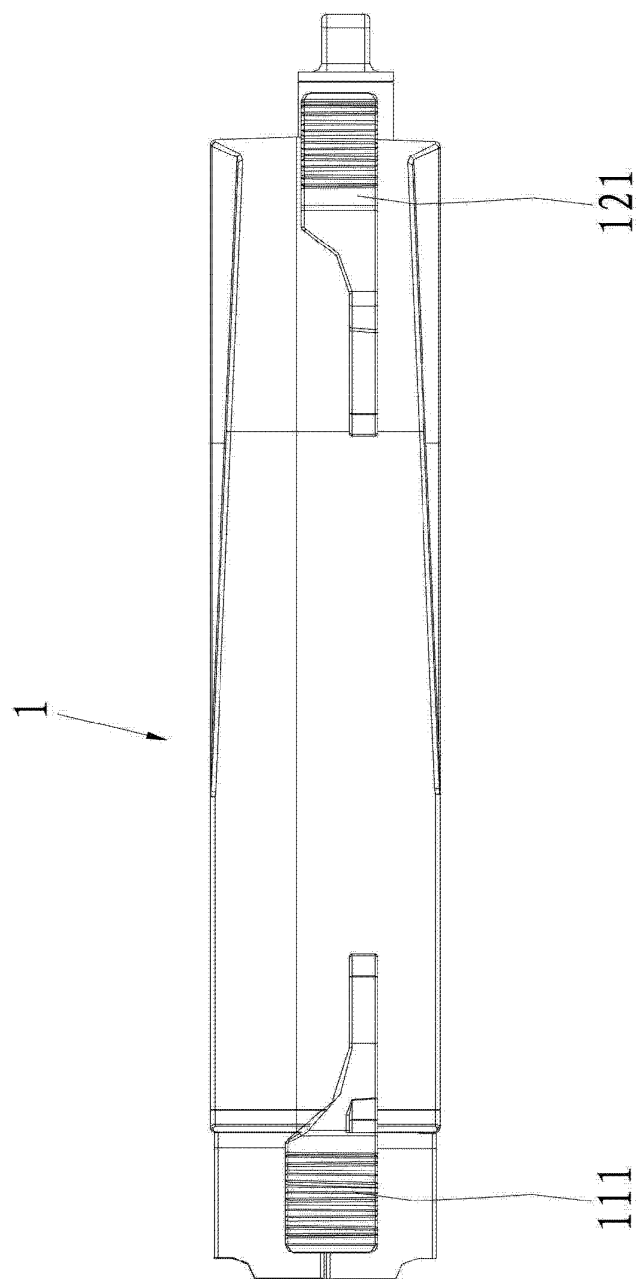


图 5

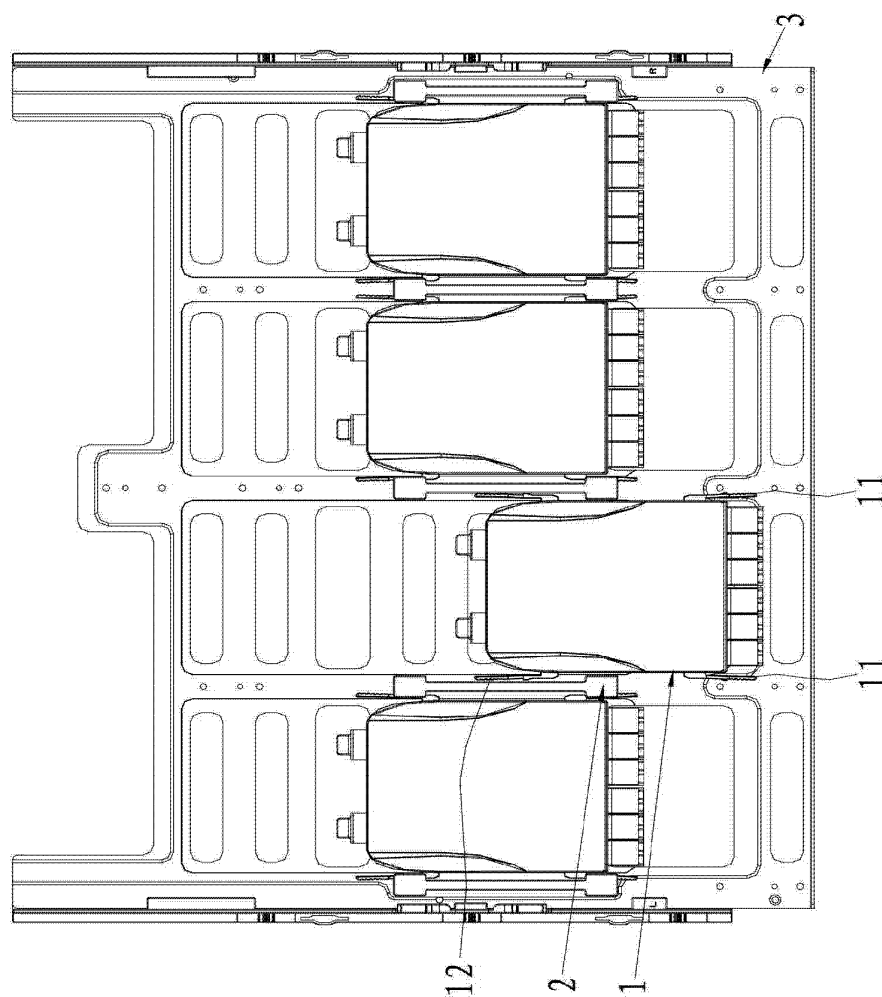


图 6

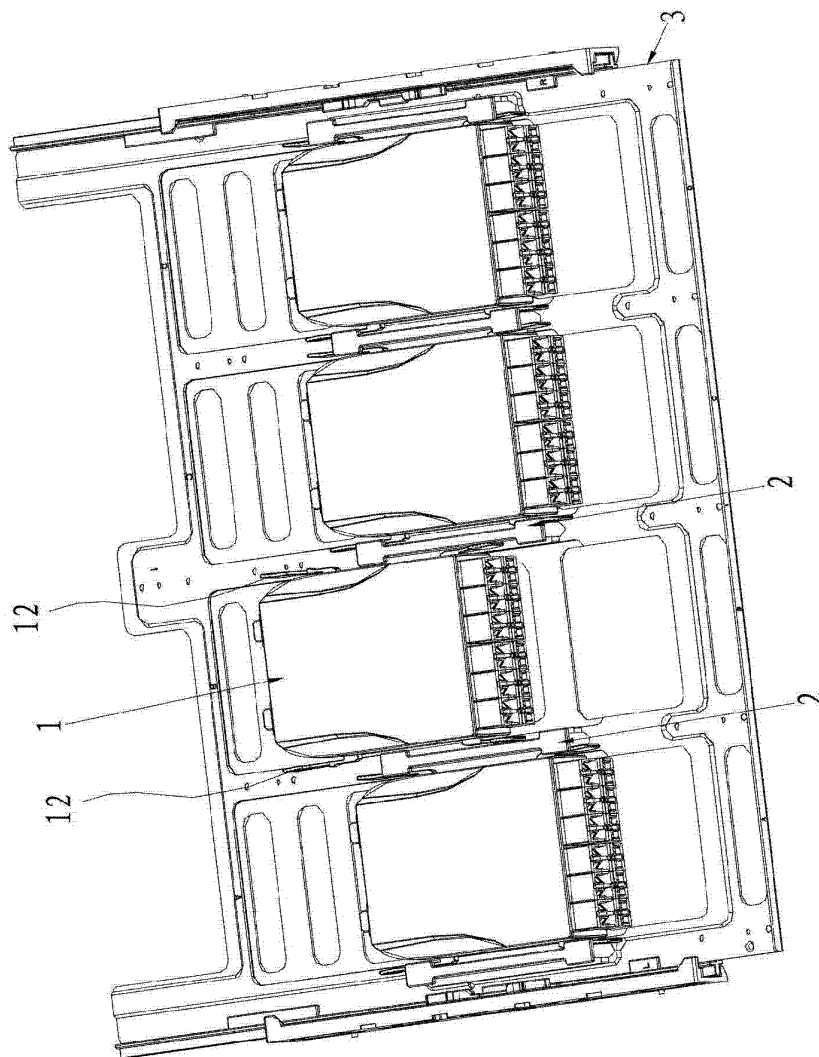


图 7

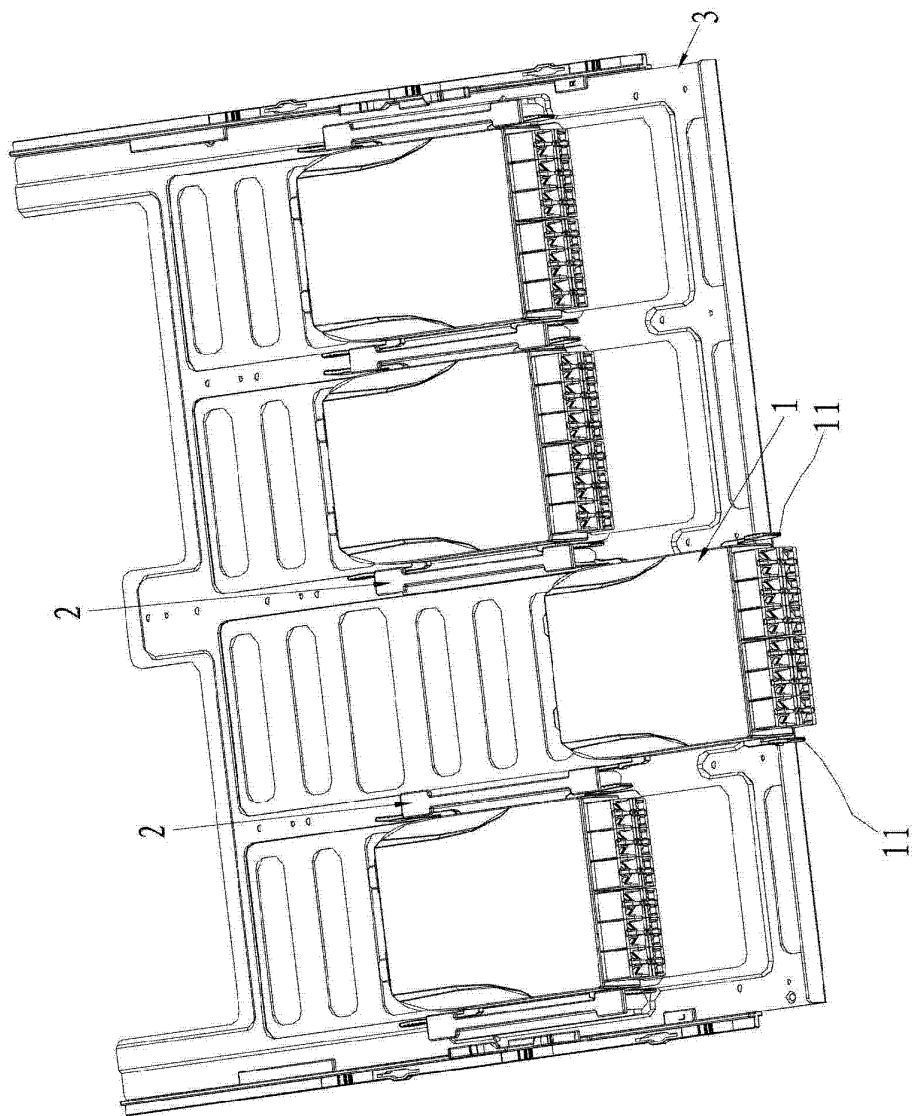


图 8

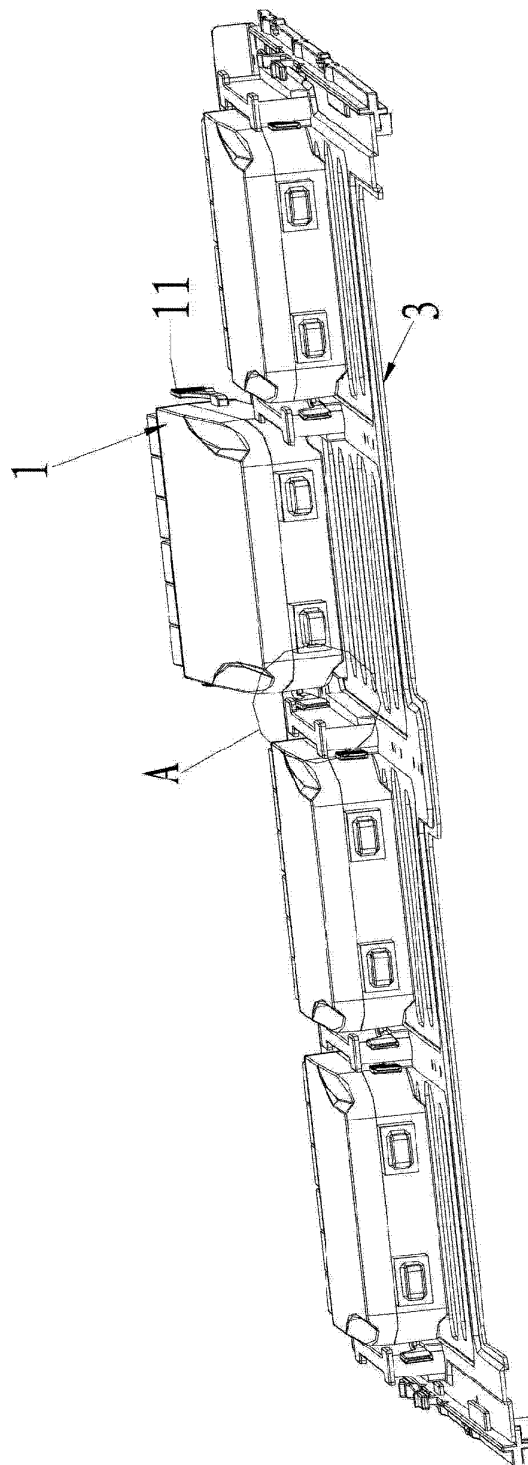


图 9

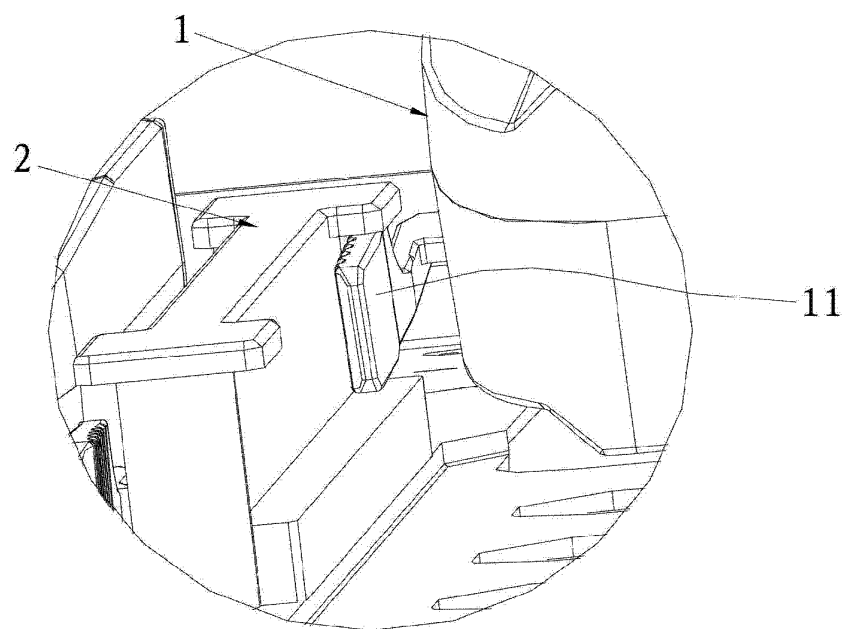


图 10

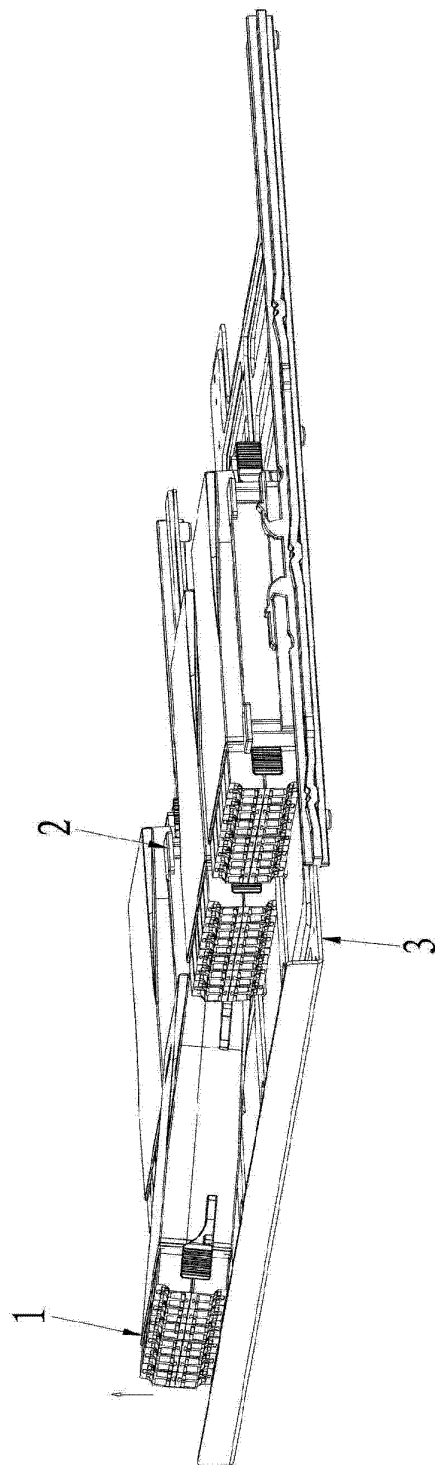


图 11



Espacenet

Bibliographic data: CN203573012 (U) — 2014-04-30

Modularized optical fiber distribution frame

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Classification: - international: **G02B6/44**
- cooperative:

Application number: CN20132776366U 20131202

Priority number(s): CN20132776366U 20131202

Abstract of CN203573012 (U)

The utility model relates to a modularized optical fiber distribution frame including a cabinet, a pallet rack and module boxes. The modularized optical fiber distribution frame is characterized in that the pallet rack is mounted in the cabinet and connected with two sides the cabinet, guide rails are disposed on the pallet rack at an interval in parallel, each of the module boxes are disposed between two guide rails, two sides of each of the module boxes are movably disposed on the guide rails, and fasteners are disposed between two sides of each of the module boxes and the guide rails. According to the modularized optical fiber distribution frame, the module boxes are disposed on the pallet rack through the disposed guide rails and the fasteners, to enable the module boxes to slide out and slide in along the guide rails in the front and the back directions, assembly and disassembly are flexible, installation and maintenance of a distribution optical cable or a connection optical cable are convenient, convenience is provided for users, capacity expanding upgrade and maintenance of equipment at a later period are convenient, and installation and the maintaining efficiency of the equipment are raised. The modularized optical fiber distribution frame is compact in structure, low in the duty ratio of the cabinet, and miniaturization and the high density of a distribution module are achieved on the premise of ensuring the transmission performance of an optical fiber.



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(51) Int. Cl.

G02B 6/44 (2006. 01)

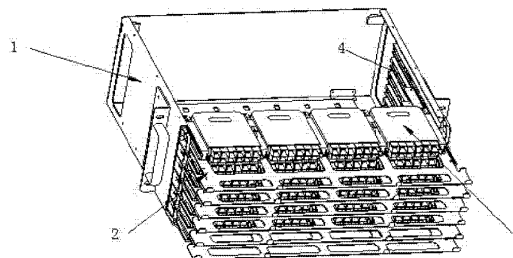
权利要求书1页 说明书2页 附图2页

(54) 实用新型名称

一种模块式光纤配线架

(57) 摘要

本实用新型涉及一种模块式光纤配线架,包括有机箱、托盘架和模块盒,其特征在于所述的托盘架安设在机箱内并与机箱两侧相连,所述的托盘架上平行间隔安设导轨,所述的模块盒安设在两导轨之间,模块盒两侧与导轨活动配置,且在模块盒两侧和导轨之间安设有卡扣件。本实用新型通过安设导轨和卡扣件将模块盒安设在托盘架上,使得模块盒能沿导轨前后滑动脱出和进入,拆装灵活,便于配线光缆或连接光缆的安装和维护,给使用带来了方便,也便于后期设备的扩容升级和维护,提高了设备的安装和维护效率。本实用新型结构紧凑,机箱的占空率低,在保证光纤传输性能的前提下,实现配线模块的小型化和高密度。



1. 一种模块式光纤配线架,包括有机箱、托盘架和模块盒,其特征在于所述的托盘架安设在机箱内并与机箱两侧相连,所述的托盘架上平行间隔安设导轨,所述的模块盒安设在两导轨之间,模块盒两侧与导轨活动配置,且在模块盒两侧和导轨之间安设有卡扣件。
2. 按权利要求 1 所述的模块式光纤配线架,其特征在于所述的导轨为两侧设置贯通凹槽的工字型导轨,模块盒两侧与导轨两侧的凹槽相配置。
3. 按权利要求 1 或 2 所述的模块式光纤配线架,其特征在于所述的卡扣件包括前卡扣件和后卡扣件。
4. 按权利要求 3 所述的模块式光纤配线架,其特征在于所述的前卡扣件包括安设在模块盒前端两侧的侧向弹性卡扣,侧向弹性卡扣与导轨凹槽前端设置的止挡块相配置,构成前卡扣件。
5. 按权利要求 4 所述的模块式光纤配线架,其特征在于所述的后卡扣件包括安设在模块盒后端两侧的后限位块,后限位块与导轨凹槽后端设置的上下弹性卡扣相配置,构成后卡扣件。
6. 按权利要求 1 或 2 所述的模块式光纤配线架,其特征在于所述的导轨在一个托盘架上平行间隔安设 3~10 根,所述的模块盒对应安设 2~9 个。
7. 按权利要求 1 或 2 所述的模块式光纤配线架,其特征在于所述的机箱为矩形机箱,机箱内两侧安设导槽,托盘架两侧与机箱两侧的导槽活动配置。
8. 按权利要求 7 所述的模块式光纤配线架,其特征在于所述的托盘架沿机箱的上下设置 1~10 层。

一种模块式光纤配线架

技术领域

[0001] 本实用新型涉及一种模块式光纤配线架,属于光通信技术领域。

背景技术

[0002] 光纤配线架用于光通信配线设备中,光纤配线架由机箱、托盘架和模块盒组成,现有的光纤配线架模块盒与托盘架的连接为简单的固定连接方式,模块盒不能灵活地从配线架上拆装,这样不仅不便于配线光缆或连接光缆的安装和维护,而且给后期设备的扩容升级和维护也带来不便。

实用新型内容

[0003] 本实用新型所要解决的技术问题是针对上述现有技术存在的不足提供了一种拆装灵活、实用方便的模块式光纤配线架。

[0004] 本实用新型为解决上述提出的问题所采用的技术方案为:

[0005] 包括有机箱、托盘架和模块盒,其特征在于所述的托盘架安设在机箱内并与机箱两侧相连,所述的托盘架上平行间隔安设导轨,所述的模块盒安设在两导轨之间,模块盒两侧与导轨活动配置,且在模块盒两侧和导轨之间安设有卡扣件。

[0006] 按上述方案,所述的导轨为两侧设置贯通凹槽的工字型导轨,模块盒两侧与导轨两侧的凹槽相配置。

[0007] 按上述方案,所述的卡扣件包括前卡扣件和后卡扣件。

[0008] 按上述方案,所述的前卡扣件包括安设在模块盒前端两侧的侧向弹性卡扣,侧向弹性卡扣与导轨凹槽前端设置的止挡块相配置,构成前卡扣件。

[0009] 按上述方案,所述的后卡扣件包括安设在模块盒后端两侧的后限位块,后限位块与导轨凹槽后端设置的上下弹性卡扣相配置,构成后卡扣件。

[0010] 按上述方案,所述的导轨在一个托盘架上平行间隔安设 3~10 根,所述的模块盒对应安设 2~9 个。

[0011] 按上述方案,所述的机箱为矩形机箱,机箱内两侧安设导槽,托盘架两侧与机箱两侧的导槽活动配置。

[0012] 按上述方案,所述的托盘架沿机箱的上下设置 1~10 层。

[0013] 本实用新型的有益效果在于:1、通过安设导轨和卡扣件将模块盒安设在托盘架上,通过按压卡扣件,使得模块盒能沿导轨前后滑动脱出和进入,拆装十分灵活,便于配线光缆或连接光缆的安装和维护,给使用带来了方便,也便于后期设备的扩容升级和维护,提高了设备的安装和维护效率;2、托盘架能从机箱抽出,使得模块盒拆装的灵活性进一步增强;3、结构紧凑,机箱的占空率低,在保证光纤传输性能的前提下,实现配线模块的小型化和高密度。

附图说明

- [0014] 图 1 是本实用新型一个实施列的立体图。
- [0015] 图 2 是本实用新型一个实施列中模块盒和导轨的装配正视结构图。
- [0016] 图 3 是本实用新型一个实施列中模块盒的立体图。
- [0017] 图 4 是本实用新型一个实施列中模块盒和托盘架部分的正视结构图。

具体实施方式

[0018] 下面结合实施例和附图对本实用新型作进一步的详细说明。

[0019] 包括有机箱 1、托盘架 2 和模块盒 3,所述的机箱为矩形机箱,机箱内两侧安设导槽 4,托盘架安设在机箱内,托盘架两侧与机箱两侧的导槽活动配置,使得托盘架可从机箱灵活拉出和推进,所述的托盘架为框架型,两侧后端的侧梁向后延伸一段距离,所述的托盘架沿机箱的上下设置 6 层。所述的托盘架上平行间隔安设导轨 5,所述的模块盒安设在两导轨之间,所述的导轨为两侧设置贯通凹槽的工字型导轨,模块盒两侧与导轨两侧的凹槽活动配置,在模块盒两侧和导轨之间安设有卡扣件。所述的卡扣件包括前卡扣件和后卡扣件;前卡扣件包括安设在模块盒前端两侧的侧向弹性卡扣 9,侧向弹性卡扣与导轨凹槽前端设置的止挡块 8 相配置,构成前卡扣件;后卡扣件包括安设在模块盒后端两侧的后限位块 6,后限位块与导轨凹槽后端上方设置的上下弹性卡扣 7 相配置,构成后卡扣件。所述的导轨在一个托盘架上平行间隔安设 5 根,所述的模块盒对应安设 4 个。

[0020] 使用时,按压模块盒 1 前端的侧向弹性卡扣,使侧向弹性卡扣脱离止挡块,模块盒可被向前拉出。同样,按压导轨后端的上下弹性卡扣,使模块盒 1 后端两侧的后限位块脱离上下弹性卡扣的束缚,模块盒可被向后拉出。这种设计,方便了模块盒的拆装,同时也给光缆的装配以及后期的设备扩容升级带来便捷,提高了设备的安装和维护效率。

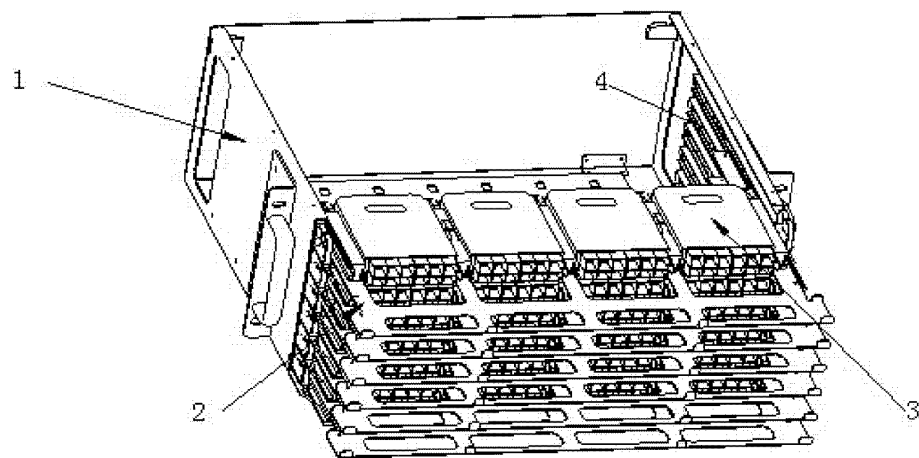


图 1

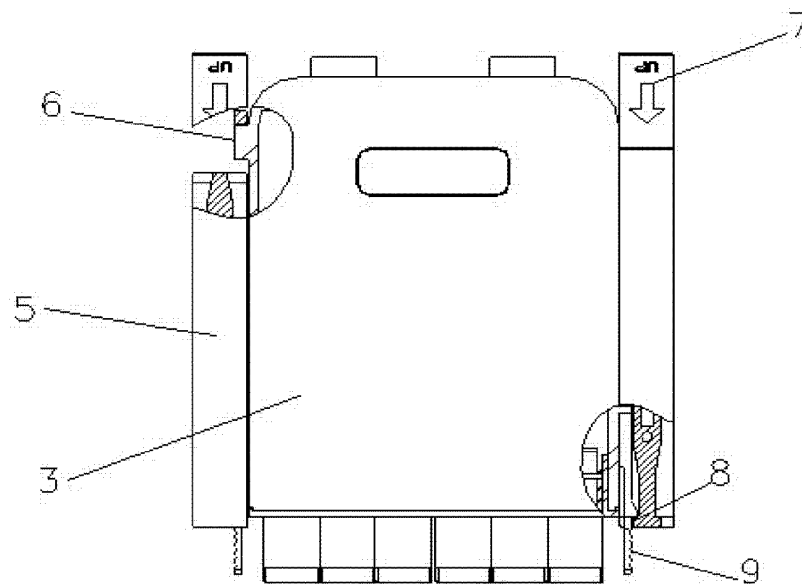


图 2

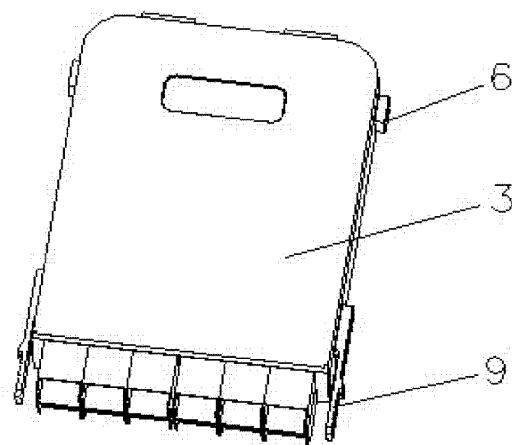


图 3

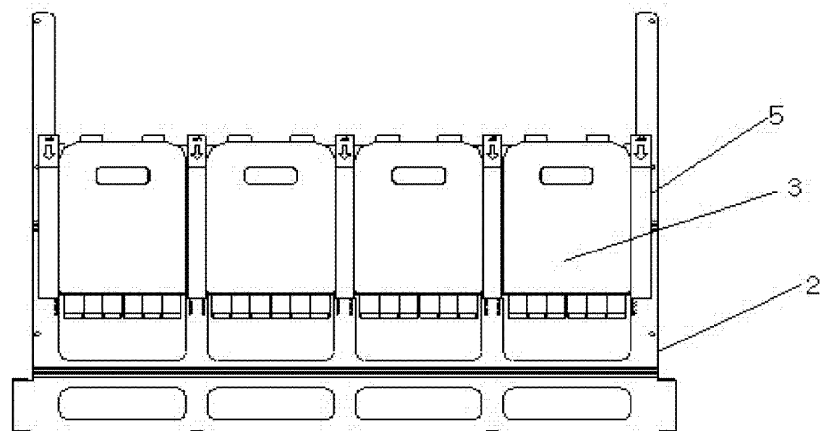


图 4

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PA-02720WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.		
International application No. PCT/US2016/060907	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">International filing date <i>(day/month/year)</i> 08 Nov 2016</td> <td style="width: 50%; border: none;">(Earliest) Priority Date <i>(day/month/year)</i> 10 Nov 2015</td> </tr> </table>	International filing date <i>(day/month/year)</i> 08 Nov 2016	(Earliest) Priority Date <i>(day/month/year)</i> 10 Nov 2015
International filing date <i>(day/month/year)</i> 08 Nov 2016	(Earliest) Priority Date <i>(day/month/year)</i> 10 Nov 2015		
Applicant LEVITON MANUFACTURING CO., INC.			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed.
☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (see Box No. II).

3. ☐ **Unity of invention is lacking** (see Box No. III).

4. With regard to the **title**,

- ☐ the text is approved as submitted by the applicant.
☒ the text has been established by this Authority to read as follows:
 MULTI-GANG FIBER OPTIC CASSETTE SYSTEM

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant.
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 2
☐ as suggested by the applicant.
☐ as selected by this Authority, because the applicant failed to suggest a figure.
☒ as selected by this Authority, because this figure better characterizes the invention.
- b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2016/060907

A. CLASSIFICATION OF SUBJECT MATTER

IPC (2017.01) G02B 6/44

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC (2017.01) G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Databases consulted: THOMSON INNOVATION, Google Patents, DWPI

Search terms used: MOUNTING, FIBER, OPTIC, CASSETTES, TRAY, INSTAL, SIZE, ENCLOSURE, PLACE, MODULE, CARTRIDGE, BOX, RACK, WIDTH, LENGTH

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2014226946 A1 (CORNING OPTICAL COMM. LLC.) 14 Aug 2014 (2014/08/14) Para. 0051, 0069; Figs. 6-7, 10A, 19-20.	1-11,13-21
Y	Whole document.	12
Y	US 2008025683 A1 (ORTRONICS, INC.) 31 Jan 2008 (2008/01/31) Fig. 1, 7.	12
T	CN CN205787267 U (ADVANCED-CONNECTEK (KUNSHAN) LTD.) 07 Dec 2016 (2016/12/07) Whole document	1-21
P,A	CN 204925469 U (SHENZHEN GIGALIGHT TECHNOLOGY CO. LTD.) 30 Dec 2015 (2015/12/30) Whole document.	1-21

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

“E” earlier application or patent but published on or after the international filing date

“L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

21 Feb 2017

Date of mailing of the international search report

22 Feb 2017

Name and mailing address of the ISA:

Israel Patent Office

Technology Park, Bldg.5, Malcha, Jerusalem, 9695101, Israel

Facsimile No. 972-2-5651616

Authorized officer

AGMAIL Waleed Ibrahim Ramadan

Telephone No. 972-2-5651626

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2016/060907

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CN 203012204 U (SUNSEA TELECOMM CO, LTD.) 19 Jun 2013 (2013/06/19) Whole document	1-21
A	CN 203573012 U (YANGTZE OPTICAL FIBRE AND CABLE COMPANY LTD.) 30 Apr 2014 (2014/04/30) Whole document.	1-21
A	US 2012106911 A1 (COOKE TERRY L. et. al.) 03 May 2012 (2012/05/03) Whole document.	1-21
P,A	US 2016116697 A1 (ADC TELECOMMUNICATIONS INC. et. al.) 28 Apr 2016 (2016/04/28) Whole document.	1-21

Form PCT/ISA/210 (continuation of second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/US2016/060907

Patent document cited search report			Publication date	Patent family member(s)			Publication Date
US	2014226946	A1	14 Aug 2014	US	2014226946	A1	14 Aug 2014
				AU	2010260251	A1	02 Feb 2012
				AU	2010260251	B2	09 Jul 2015
				AU	2015230742	A1	15 Oct 2015
				CA	2765912	A1	23 Dec 2010
				CN	102804013	A	28 Nov 2012
				CN	102804013	B	21 Oct 2015
				EP	2443500	A1	25 Apr 2012
				EP	2443500	A4	21 Nov 2012
				EP	3096166	A1	23 Nov 2016
				JP	2012530937	A	06 Dec 2012
				JP	5746691	B2	08 Jul 2015
				US	2010322579	A1	23 Dec 2010
				US	8712206	B2	29 Apr 2014
				WO	2010147924	A1	23 Dec 2010
US	2008025683	A1	31 Jan 2008	US	2008025683	A1	31 Jan 2008
				US	7509015	B2	24 Mar 2009
CN	203012204	U	19 Jun 2013	CN	203012204	U	19 Jun 2013
CN	203573012	U	30 Apr 2014	CN	203573012	U	30 Apr 2014
CN	CN205787267	U	07 Dec 2016	NONE			
CN	204925469	U	30 Dec 2015	CN	204925469	U	30 Dec 2015
US	2012106911	A1	03 May 2012	US	2012106911	A1	03 May 2012
				US	9116324	B2	25 Aug 2015
				AU	2011320664	A1	30 May 2013
				AU	2015207831	A1	20 Aug 2015

Form PCT/ISA/210 (patent family annex) (January 2015)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2016/060907

Patent document cited search report	Publication date	Patent family member(s)	Publication Date
		CA 2815790 A1	03 May 2012
		CN 103221864 A	24 Jul 2013
		EP 2633353 A1	04 Sep 2013
		WO 2012058186 A1	03 May 2012
US 2016116697 A1	28 Apr 2016	US 2016116697 A1	28 Apr 2016
		WO 2016066614 A1	06 May 2016

Form PCT/ISA/210 (patent family annex) (January 2015)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

ULRICH Richard J.
Leviton Manufacturing Co., Inc.
201 North Service Road
Melville, New York 11747
United States of America

Date of mailing
(day/month/year)

22 Feb 2017

Applicant's or agent's file reference
PA-02720WO

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/US2016/060907

International filing date (day/month/year)

08 Nov 2016

Priority date (day/month/year)

10 Nov 2015

International Patent Classification (IPC) or both national classification and IPC
IPC (2017.01) G02B 6/44

Applicant

LEVITON MANUFACTURING CO., INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:

Israel Patent Office
Technology Park, Bldg.5, Malcha, Jerusalem, 9695101, Israel
Facsimile No. 972-2-5651616

Date of
completion of
this opinion

21 Feb 2017

Authorized officer

AGMAIL Walced Ibrahim Ramadan

Telephone No. 972-2-5651626

Form PCT/ISA/237 (cover sheet) (January 2015)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2016/060907

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed.
☐ a translation of the international application into _____ which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:

- a. ☐ forming part of the international application as filed:
 ☐ in the form of an Annex C/ST.25 text file.
 ☐ on paper or in the form of an image file.
- b. ☐ furnished together with the international application under PCT Rule 13*ter*.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
- c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
 ☐ in the form of an Annex C/ST.25 text file (Rule 13*ter*.1(a)).
 ☐ on paper or in the form of an image file (Rule 13*ter*.1(b) and Administrative Instructions, Section 713).

4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2016/060907

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>5-9,12,15-19</u>	YES
	Claims <u>1-4,10,11,13,14,20,21</u>	NO
Inventive step (IS)	Claims _____	YES
	Claims <u>1-21</u>	NO
Industrial applicability (IA)	Claims _____	YES
	Claims <u>1-21</u>	NO

2. Citations and explanations:

List of references cited

D1: US 2014226946	A1	(CORNING OPTICAL COMM. LLC.)	14.08.2014.
D1: US 2008025683	A1	(ORTRONICS, INC.)	31.01.2008.

Novelty

The subject matter of claims **1-4, 10-11, 13-14, 20-21** does not fulfill the criteria set forth in article 33(1) PCT in the sense of article 33(2) PCT, since they are not novel.

Regarding **independent claim 1**, D1 discloses (see references below in parenthesis)

*A fiber optic cassette mounting system (Fig. 19), comprising:
a fiber optic cassette (Fig. 19, fiber optic module 190) ; and
a fiber optic cassette tray (Fig. 19, fiber optic tray 20) comprising rail guides (Fig. 19, rail guides 32) configured to engage with respective rails (Fig. 19, module rails 195A, 195B) of the fiber optic cassette, wherein a rail guide, of the rail guides, comprises an elongated portion (Fig. 19) of a surface of the fiber optic cassette tray that is raised from the surface to form ledges (Fig. 6, channels 30 of the rail guides) on a left side and a right side of the elongated portion, wherein the rail guides are configured to hold a single-gang cassette and a multi-gang cassette simultaneously on the fiber optic cassette tray (Para. 0069).*

Hence, claim 1 lacks novelty in view of D1.

Regarding claim **2**, D1 further discloses that the rail guides comprise notches on their front sides facilitating the insertion of the module rails therein (Fig. 6).

Hence, claim 2 lacks novelty in view of D1.

Regarding claim **3, 14**, D1 further discloses that the fiber optic module has two parts (Fig. 19) separated by a longitudinal receiver (Fig. 19, longitudinal receiver 192) which is designated for receiving the rail guides of the tray.

Hence, claims 3, 14 lack novelty in view of D1.

Regarding claim **4**, D1 further discloses that the fiber optic module comprises a latch (Fig. 20, upper right edge, not numbered), comprising a protrusion, which can be disengaged from a corresponding aperture (not shown in the figures, though inherent thereof) through pushing of a lever (Fig. 20, upper right edge, not numbered). For further clarifying the latching mechanism, one may refer to Fig. 10A, which describes another embodiment, where the latching parts are described in detail (see there latch 44 and lever 46)

Hence, claim 4 lacks novelty in view of D1.

Regarding claims **10, 20**, D1 further discloses that the fiber optic modules connect to several adapters (Fig. 20, adapters 23) that support fiber optic connectors (Para. 0051).

Hence, claims 10, 20 lack novelty in view of D1.

Regarding claim **11**, D1 further discloses that the fiber optic tray comprises side rails (Fig. 19, tray rails 56) which are designated for sliding inside corresponding rails (Fig. 7, chassis rails 58) disposed on the interior surface of a chassis (Fig. 7, chassis 12) which houses the trays.

Hence, claim 11 lacks novelty in view of D1.

Regarding **independent claim 13**, and as previously explained with regard to claims 1 and 3, D1 discloses that the fiber optic modules have two parts separated by longitudinal receivers for introducing of the middle guide rails. Moreover, the modules comprise side rails for sliding within the corresponding end guide rails of the tray in order to insert simplex or duplex modules inside the tray.

Hence, claim 13 lacks novelty in view of D1.

Regarding claim **21**, Although D1 does not disclose, laterally, that module 190 encloses fiber optic cables, this feature is inherent within the disclosure.

Hence, claim 21 lacks novelty in view of D1.

Inventive step

The subject matter of claims **5-9, 12, 15-19** does not fulfill the criteria of Article 33(1) PCT in the sense of article 33(3) PCT, since they do not involve an inventive step.

Regarding claims **5-6, 16**, the additional features of these claims concern one of several straightforward possibilities from which the skilled person would select, in accordance with the circumstances, without the exercise of any inventive skill, in order to solve the problem of preventing further movement of optic cassettes after insertion inside the tray.

Hence, claims 5-6, 16 do not involve any inventive step in view of D1.

Regarding claim **7-9, 15, 17-19**, the subject-matter of these claims refer to well known latching techniques. These features are considered here as an implementation details accustomed by the skilled person in the art, in accordance with circumstances, without the exercise of any inventive skill, in order to solve the problem posed.

Hence, claims 7-9, 15, 17-19 do not involve any inventive step over D1.

Regarding claim **12**, D2, which belongs to the same art of fiber optic cassettes enclosures, discloses a secured cabinet for housing several optic cassettes installed on a tray. Said cassettes can be attached to the tray using pins, which shear the fiber upon physical tampering attempt and thus destroys the cassettes while preventing from unauthorized personnel to gain access to secured data channels. The cassettes are arranged in two rows within the tray (Fig. 1 and 7, see there two rows of cassettes 2). In view of this disclosure, it would be obvious for the person skilled in the art, seeking to enhance stacking abilities of a fiber communication system, to provide the trays disclosed in D1 with additional rows of cassettes as disclosed in D2.

Hence, claim 12 does not involve any inventive step over D1 in view of D2.

Industrial applicability

The subject matter of claims **1-21** is considered industrially applicable in the sense of Article 33(4) PCT.

Electronic Patent Application Fee Transmittal				
Application Number:		14937817		
Filing Date:		10-Nov-2015		
Title of Invention:		MULTI-GANG CASSETTE SYSTEM		
First Named Inventor/Applicant Name:		Tom Sauter		
Filer:		Thomas Edward Watson/Heather McKee		
Attorney Docket Number:		PA-02720/LEVIP114US		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
Total in USD (\$)				180

Electronic Acknowledgement Receipt	
EFS ID:	29200464
Application Number:	14937817
International Application Number:	
Confirmation Number:	8774
Title of Invention:	MULTI-GANG CASSETTE SYSTEM
First Named Inventor/Applicant Name:	Tom Sauter
Customer Number:	99045
Filer:	Thomas Edward Watson/Heather McKee
Filer Authorized By:	Thomas Edward Watson
Attorney Docket Number:	PA-02720/LEVIP114US
Receipt Date:	12-MAY-2017
Filing Date:	10-NOV-2015
Time Stamp:	18:46:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$180
RAM confirmation Number	051517INTEFSW18474400
Deposit Account	501063
Authorized User	Heather McKee
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Fee Worksheet (SB06)	fee-info.pdf	30728	no	2
			b8100275569f7b471ed690d83e6765c25969ca3b		

Warnings:

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Total Files Size (in bytes): 30728

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Receipt date: 05/12/2017

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)

Approved for use through 07/31/2016. OMB 0651-0031

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14937817
	Filing Date	2015-11-10
	First Named Inventor	Tom Sauter
	Art Unit	2883
	Examiner Name	DOAN, JENNIFER
	Attorney Docket Number	PA-02720/LEVIP114US

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	1	20140226946	A1	2014-08-14	Cooke et al.			
	2	20080025683	A1	2008-01-31	Murano			
	3	20120106911	A1	2012-05-03	Cooke et al.			
	4	20160116697	A1	2016-04-28	Kostecka, et al.			
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	Examiner Name	DOAN, JENNIFER		
Attorney Docket Number		PA-02720/LEVIP114US		

1	CN205787267	CN	U	2016-12-07	ADVANCED-CONNECTEK (KUNSHAN) LTD.		
2	CN204925469	CN	U	2015-12-30	SHENZHEN GIGALIGHT TECHNOLOGY CO. LTD.		
3	CN 203012204	CN	U	2013-06-19	SUNSEA TELECOMM CO. LTD.		
4	CN 203573012	CN	U	2014-04-30	YANGTZE OPTICAL FIBRE AND CABLE COMPANY LTD.		

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	1	International Search Report for International Application No. PCT/US2016/060907 dated 2/22/2017, 5 pages.	
	2	Written Opinion for International Application No. PCT/US2016/060907 dated 2/22/2017, 4 pages.	

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Examiner Signature	/JENNIFER DOAN/ (05/16/2017)	Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/937,817	11/10/2015	Tom Sauter	PA-02720/LEVIP114US	8774
99045 7590 05/26/2017 Leviton Mfg. Co. - Turocy & Watson, LLP 127 Public Square, 57th Floor, Key Tower Cleveland, OH 44114			EXAMINER DOAN, JENNIFER	
			ART UNIT 2883	PAPER NUMBER
			MAIL DATE 05/26/2017	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Corrected Notice of Allowability	Application No. 14/937,817	Applicant(s) SAUTER ET AL.	
	Examiner JENNIFER DOAN	Art Unit 2883	AIA (First Inventor to File) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Information Disclosure Statement filed on 05/12/17.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are 1-3,5-14 and 16-22. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

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- a) ☐ All b) ☐ Some *c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: ____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date ____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. ☐ Notice of References Cited (PTO-892) | 5. ☐ Examiner's Amendment/Comment |
| 2. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>051217</u> | 6. ☐ Examiner's Statement of Reasons for Allowance |
| 3. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 7. ☐ Other ____. |
| 4. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____. | |

/JENNIFER DOAN/
Primary Examiner, Art Unit 2883

Receipt date: 06/08/2016

Changes requested to document
**INFORMATION DISCLOSURE
 STATEMENT BY APPLICANT**
 (Not for submission under 37 CFR 1.99)
 2/27/2017

Application Number	14937817
Filing Date	2015-11-10
First Named Inventor	Tom Sauter
Art Unit	2883
Examiner Name	
Attorney Docket Number	PA-02720/LEVIP114US

20	8337243		2012-12-25	Elkhatib et al.
21	8740478		2014-06-03	Weberpals
22	8781284		2014-07-15	Bragg
23	8958680		2015-02-17	Bragg
24	9077126		2015-07-07	Bragg
25	9236691		2016-01-12	Bragg

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	1	20100322580		2010-12-23	Beamon, et al.	
	2	20020131122		2002-09-19	Anderl et al.	
	3	20050208822		09-2005 ~~2002-11-26~~	Ishigami et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /JD/



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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/937,817	06/27/2017	9690064	PA-02720/LEVIP114US	8774

99045 7590 06/07/2017
Leviton Mfg. Co. - Turocy & Watson, LLP
127 Public Square, 57th Floor, Key Tower
Cleveland, OH 44114

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Tom Sauter, Seattle, WA;
Leviton Manufacturing Co., Inc., Melville, NY;
Gary Bernstein, Bothell, WA;

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