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(54) **LATCH MECHANISM FOR COMMUNICATION MODULE**

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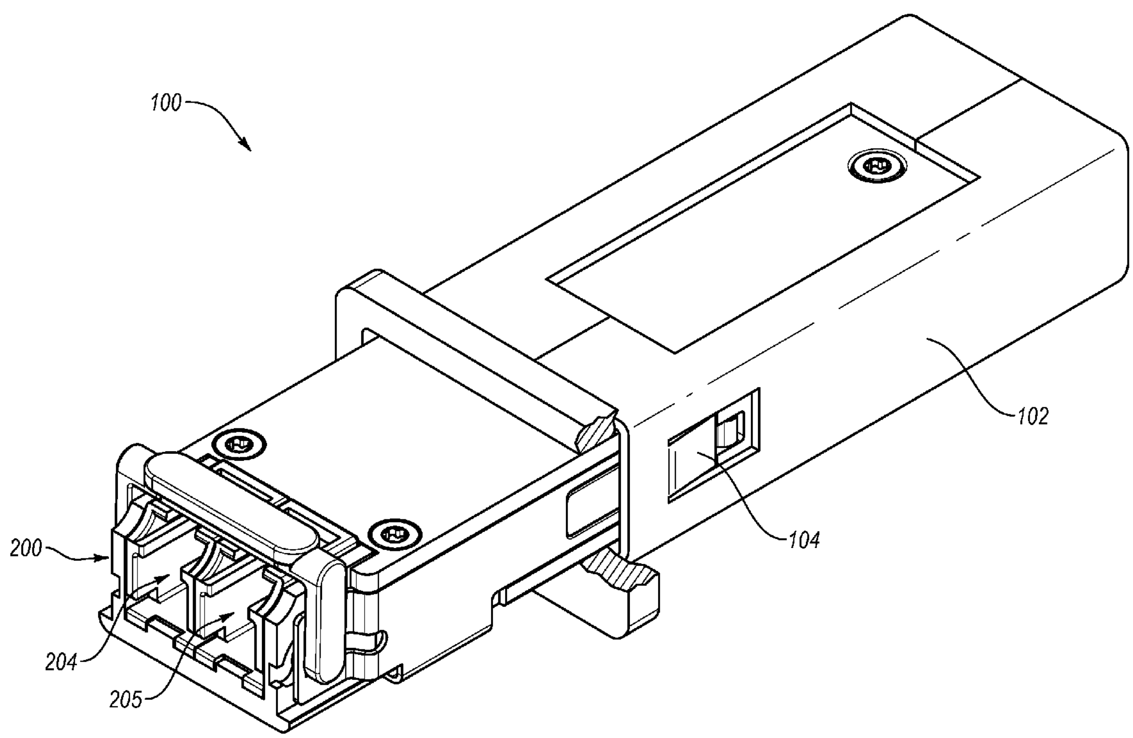
(57) **ABSTRACT**

Latch mechanism for communication modules. In an example embodiment, a module latch mechanism includes a follower configured to be slidingly positioned relative to a housing and a driver configured to be rotatingly positioned relative to the housing. The follower includes a first arm configured to facilitate selective engagement of the housing with a host device. The follower may further include a fastening mechanism configured to facilitate selective engagement of the follower with the housing. The driver is configured to be positioned relative to the follower such that the driver urges the follower toward a first position relative to the housing as the driver is rotated from an unlatched position to a latched position.



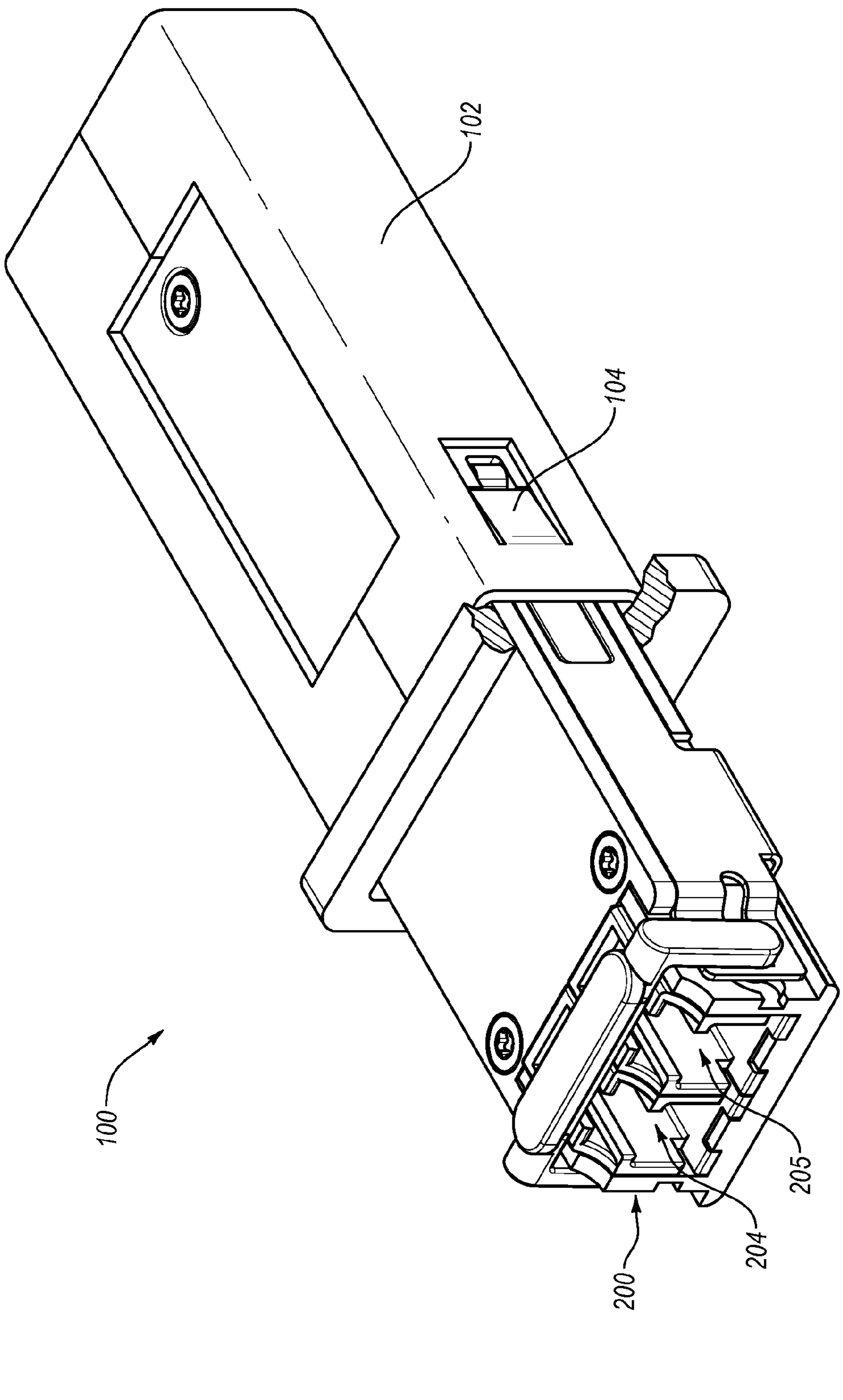


Fig. 1

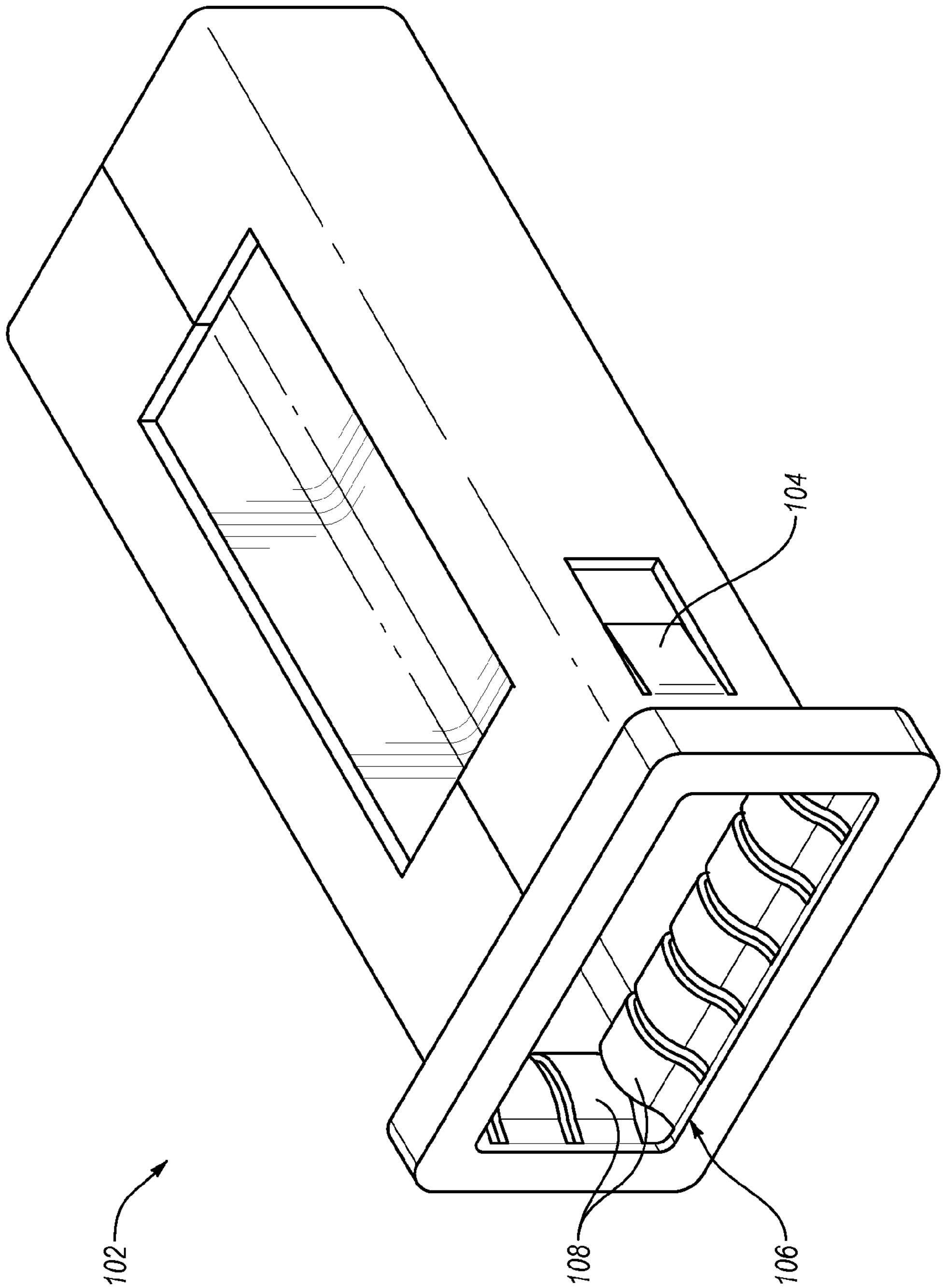


Fig. 2

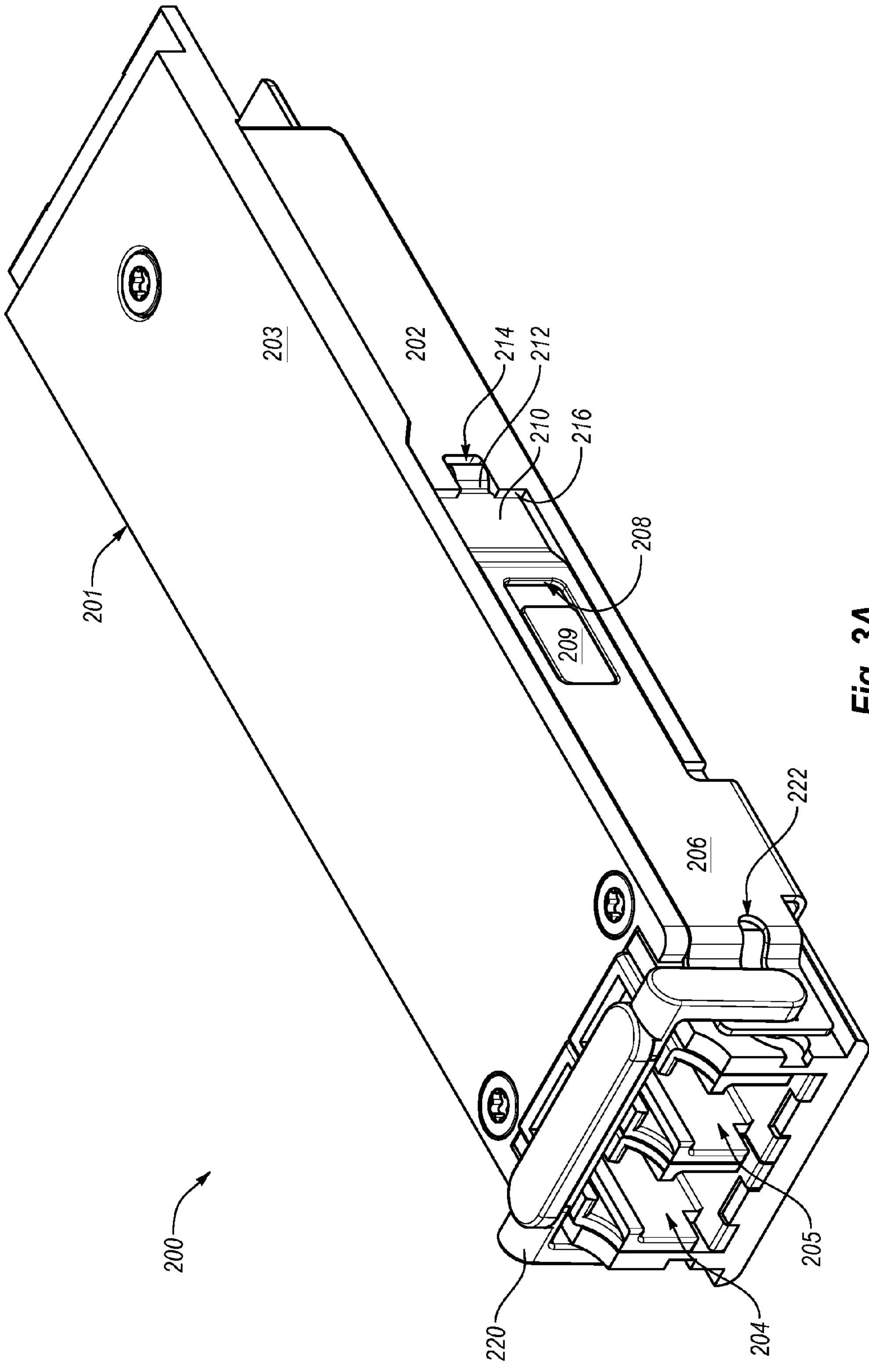
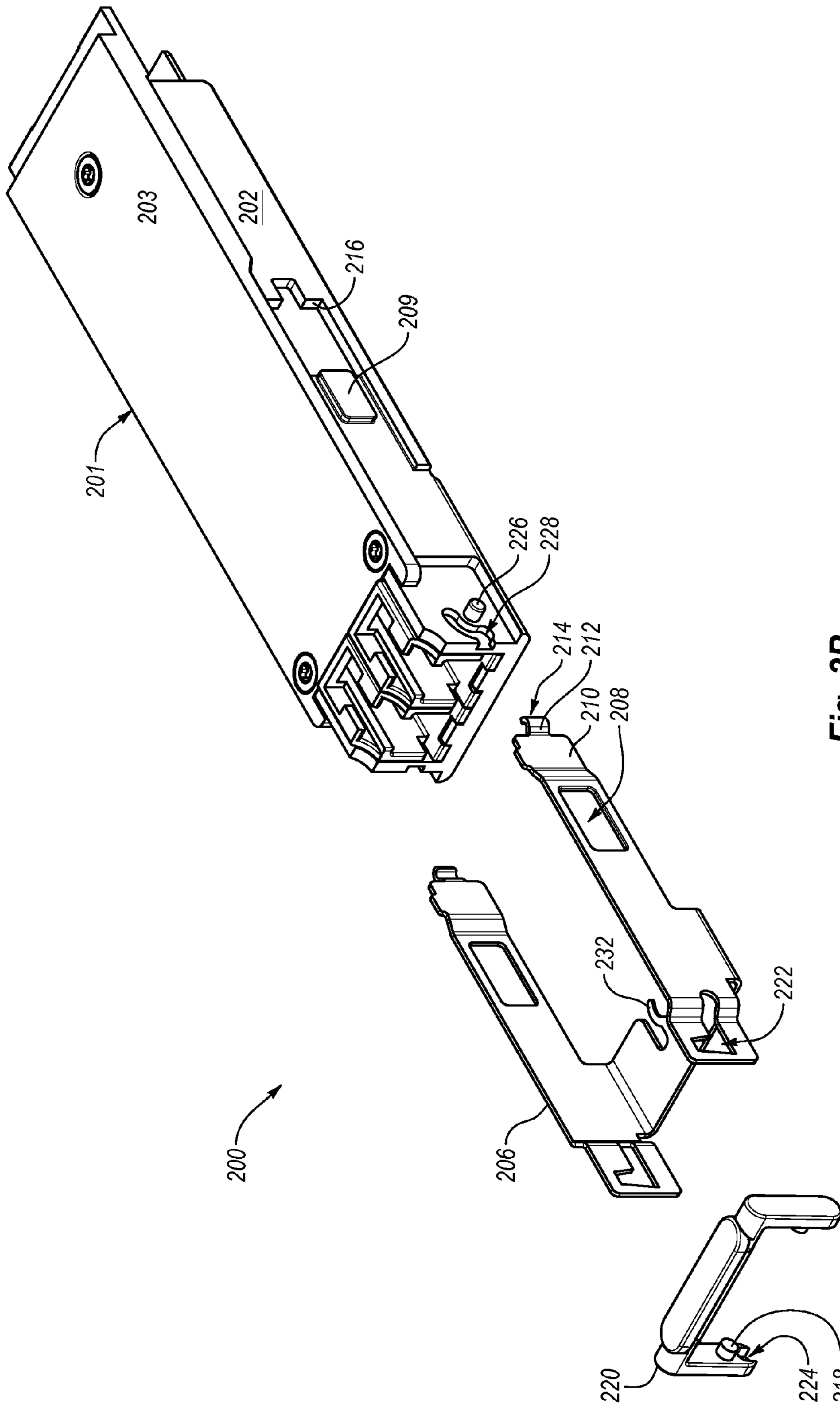


Fig. 3A



201
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Fig. 3B

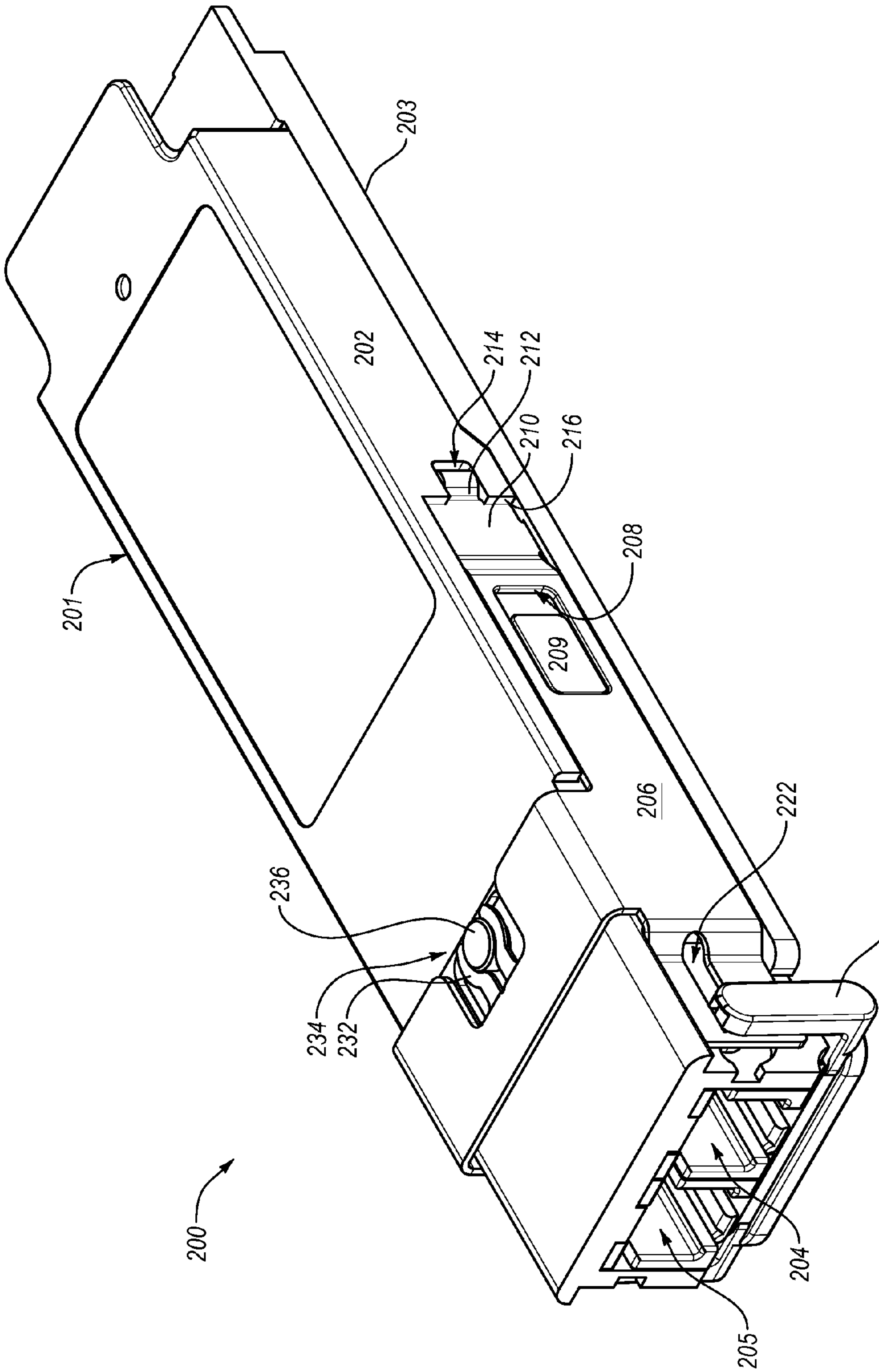

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Fig. 3C

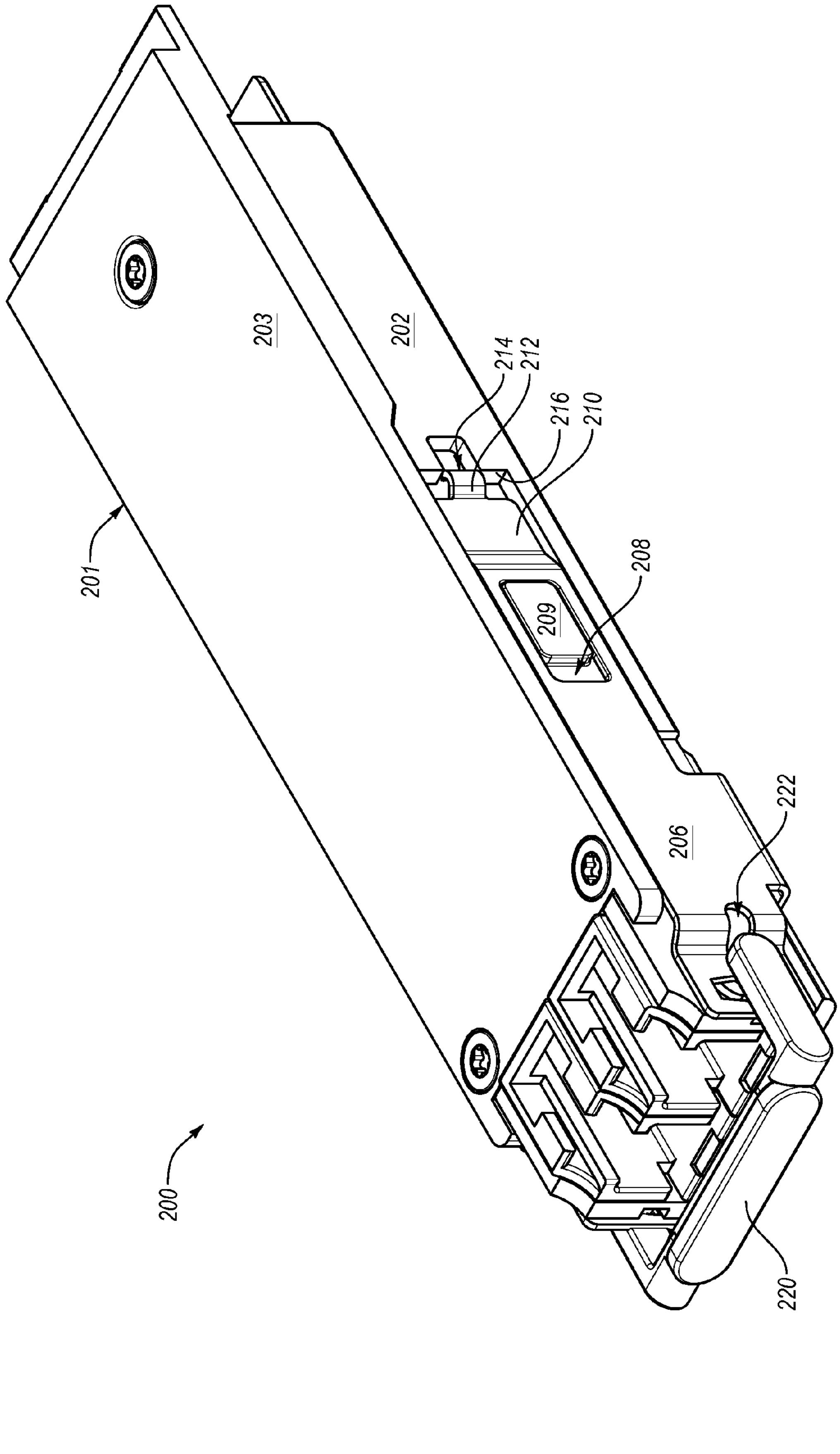

Fig. 3D

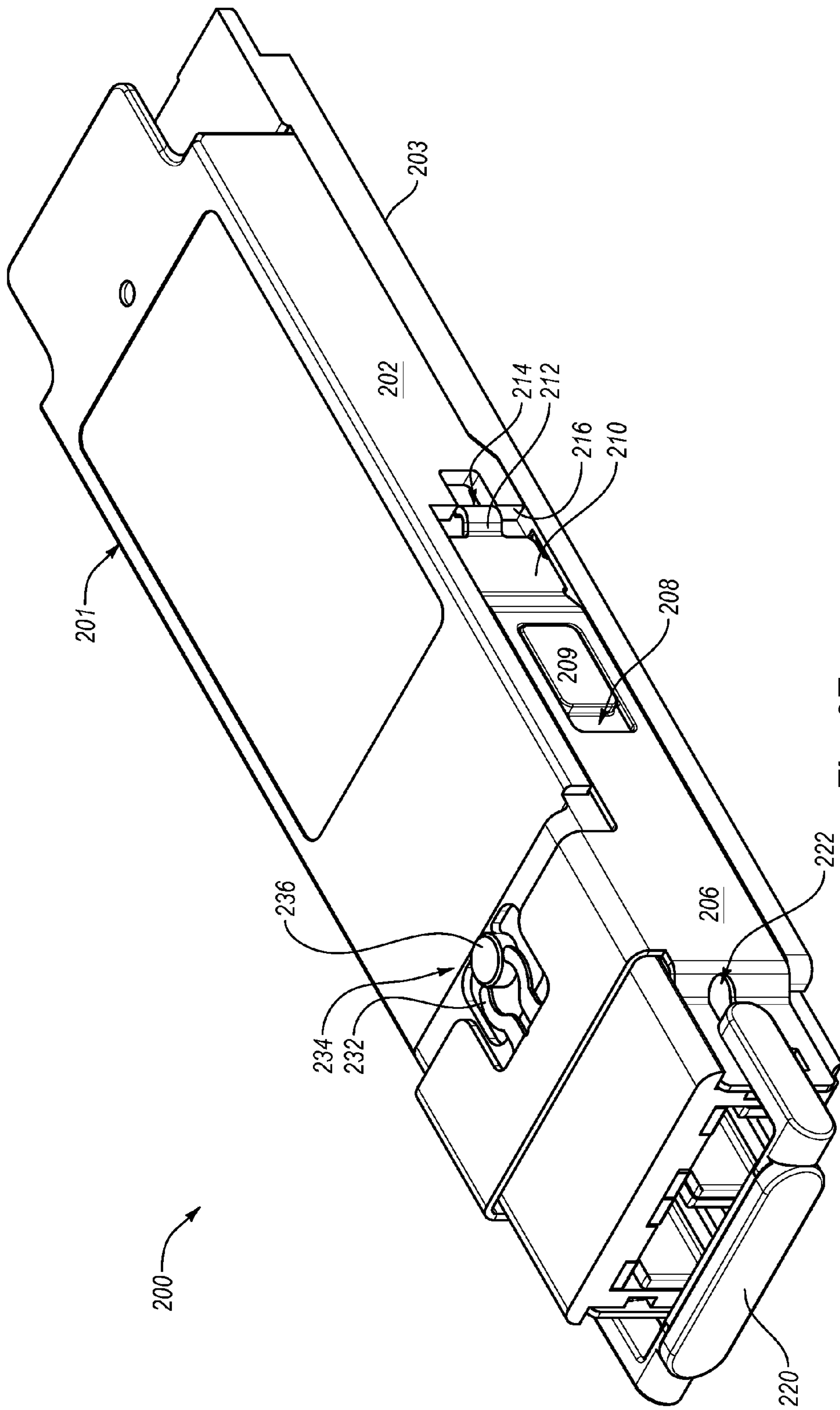

Fig. 3E

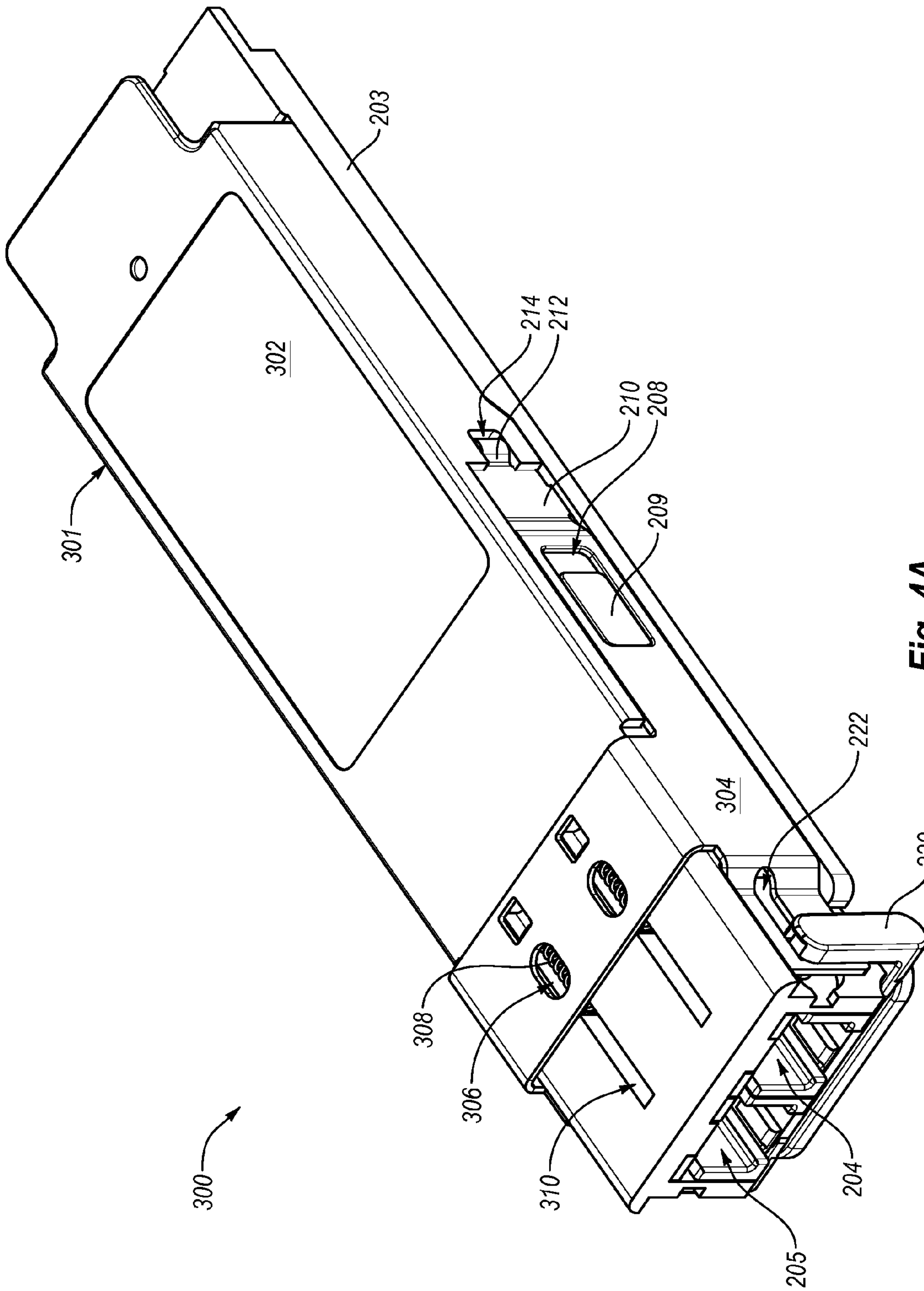
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Fig. 4A

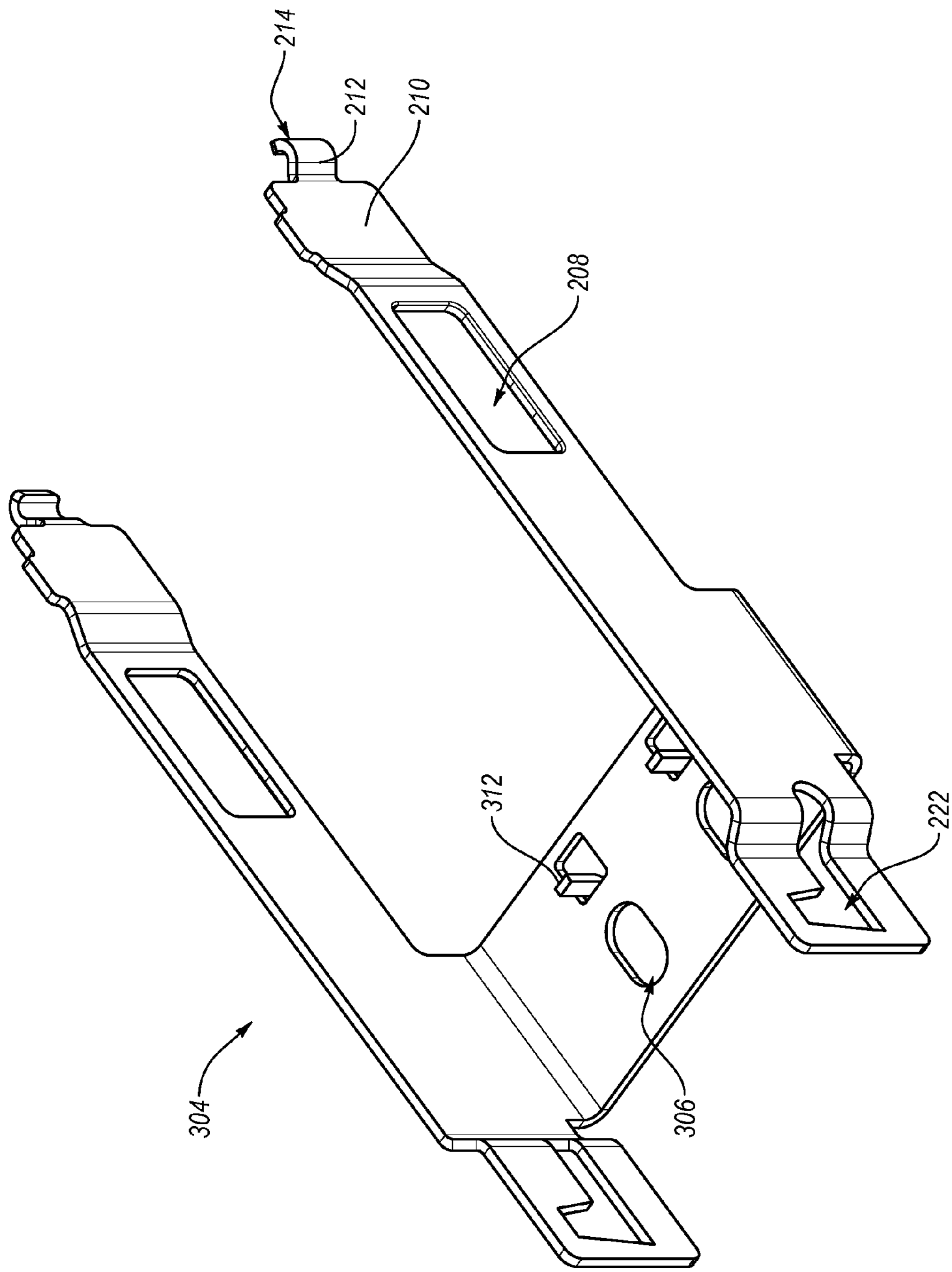

Fig. 4B

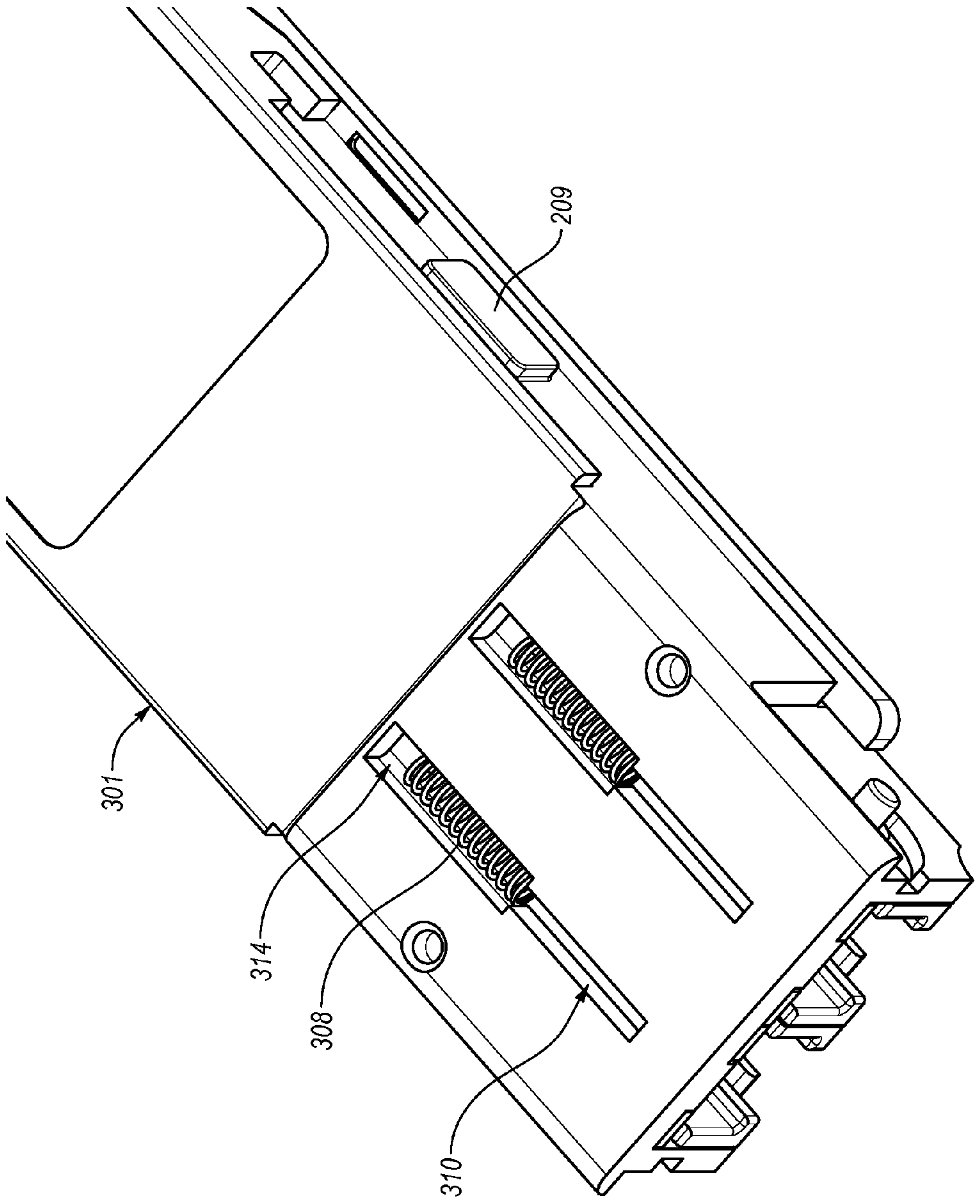

Fig. 4C

LATCH MECHANISM FOR COMMUNICATION MODULE

BACKGROUND

[0001] 1. Field

[0002] The embodiments discussed herein relate generally to communication modules. More particularly, example embodiments relate to latch mechanisms for selectively engaging communication modules with a housing of a host device.

[0003] 2. Relevant Technology

[0004] Communication modules, such as electronic or optoelectronic transceiver or transponder modules, are increasingly used in electronic and optoelectronic communication. Some modules are pluggable, which permits the module to be inserted into and removed from a housing of a host device, such as a host computer, switching hub, network router, or switch box. Latching mechanisms within the housing of the host device may be made to physically secure an inserted communication module into place. To remove the communication module, the latching mechanism may be manipulated to physically unsecure the communication module.

[0005] The subject matter claimed herein is not limited to embodiments that solve any disadvantages or that operate only in environments such as those described above. Rather, this background is only provided to illustrate one exemplary technology area where some embodiments described herein may be practiced

SUMMARY

[0006] These and other limitations are overcome by embodiments of the invention which relate to systems and methods for selectively engaging communication modules with a housing of a host device.

[0007] This Summary is provided to introduce a selection of concepts in a simplified form that are further described below in the Description of Embodiments. This Summary is not intended to identify key features or essential characteristics of the claimed subject matter, nor is it intended to be used as an aid in determining the scope of the claimed subject matter.

[0008] In an example embodiment, a module latch mechanism includes a follower and a driver. The follower is configured to be slidingly positioned relative to a housing. The driver is configured to be rotatingly positioned relative to the housing. The follower includes a first arm configured to facilitate selective engagement of the housing with a host device. The follower may further include a fastening mechanism configured to facilitate selective engagement of the follower with the housing. The driver is configured to be positioned relative to the follower such that the driver urges the follower toward a first position relative to the housing as the driver is rotated from an unlatched position to a latched position.

[0009] In another example embodiment, a module includes a housing and a module latch mechanism. The housing includes at least one electromagnetic interference (EMI) protrusion configured to contact at least a portion of an EMI shield located on a host device. The module latch mechanism includes a follower and a driver. The follower is configured to be slidingly positioned relative to the housing. The follower includes a pair of arms configured to facilitate selective engagement of the housing with the host device at least in part by way of temporary deformation of structure of the host device. The follower is further configured to be positioned at least partially around the at least one EMI protrusion. The driver is configured to be rotatingly positioned relative to the housing. The driver is further configured to be positioned relative to the follower such that the driver urges the follower toward a first position relative to the housing as the driver is rotated from an unlatched position to a latched position, and urges the follower toward a second position relative to the housing as the driver is rotated from the latched position to the unlatched position.

[0010] In yet another example embodiment, a module includes a housing and a module latch mechanism. The module latch mechanism includes a follower and a driver. The follower is configured to be slidingly positioned relative to the housing. The follower includes a pair of arms configured to facilitate selective engagement of the housing with a host device at least in part by way of temporary deformation of structure of the host device. The follower also includes a fastening mechanism including a first portion of a resilient fastener configured to selectively engage a second portion of the resilient fastener positioned on the housing. The fastening mechanism may be configured to urge the latch mechanism toward a first position when the housing is engaged with the host device. The driver is configured to be rotatingly positioned relative to the housing. The driver is further configured to be positioned relative to the follower such that the driver urges the follower toward a first position relative to the housing as the driver is rotated from an unlatched position to a latched position, and urges the follower toward a second position relative to the housing as the driver is rotated from the latched position to the unlatched position.

[0011] Additional features and advantages of the invention will be set forth in the description which follows, and in part will be obvious from the description, or may be learned by the practice of the invention. The features and advantages of the invention may be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. These and other features of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] To further clarify the above and other advantages and features of the present invention, a more particular description of the invention will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. It is appreciated that these drawings depict only typical embodiments of the invention and are, therefore, not to be considered limiting of its scope. The invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

[0013] FIG. **1** is a partially cutaway top perspective view of portions of an example host device with an example optoelectronic module in a latched configuration located inside the example host device;

[0014] FIG. **2** is a top perspective view of the host device cage of FIG. **1**, with the optoelectronic module omitted;

[0015] FIG. **3**A is a top perspective view of the example optoelectronic module of FIG. **1** in the latched configuration with the example host device omitted;

[0016] FIG. **3**B is an exploded top perspective view of the example optoelectronic module of FIG. **3**A;

[0017] FIG. **3**C is a bottom perspective view of the example optoelectronic module of FIG. **3**A in the latched configuration;

[0018] FIG. **3**D is a top perspective view of the example optoelectronic module of FIG. **3**A in the unlatched configuration;

[0019] FIG. **3**E is a bottom perspective view of the example optoelectronic module of FIG. **3**A in the unlatched configuration

[0020] FIG. **4**A is a bottom perspective view of another example embodiment of an optoelectronic module;

[0021] FIG. **4**B is a top perspective view of the follower from the example optoelectronic module of FIG. **4**A; and

[0022] FIG. **4**C is a close-up bottom perspective view of a portion of the optoelectronic module of FIG. **4**A with the follower of FIG. **4**B omitted.

DESCRIPTION OF EMBODIMENTS

[0023] Example embodiments relate to latch mechanisms for selectively engaging communication modules with host devices. Example embodiments also relate to communication modules that include latch mechanisms for selectively engaging the communication modules with host devices. Embodiments described herein may include fewer and/or less complex parts, and may allow for simplified assembly compared to traditional latch mechanisms. In addition, embodiments of the latch mechanism described herein may eliminate the need for rivets, which may reduce the space required by the latch mechanism compared to the traditional latch mechanisms that employ rivets. For at least these reasons, embodiments of the latch mechanism may be less expensive and/or less expensive to implement, and may result in communication modules with more available space for communication components than traditional latch mechanisms.

[0024] Furthermore, compared to traditional latch mechanisms, embodiments of latch mechanisms described herein may exhibit little or no tactile dead zones in the travel of the latch mechanism. Some embodiments of latch mechanisms described herein may further include a resilient member configured to urge the latch mechanisms into a latched position when the latch mechanism is not in use. As a result, embodiments described herein may exhibit an improved tactile feel and may promote a decrease in undesirable occurrences of communication modules being inadvertently left unlatched from the host device.

[0025] Some example embodiments of the latch mechanisms and communication modules disclosed herein further increase contact between housing of the communication modules and electromagnetic interference (EMI) shields of the host devices. Embodiments described herein may allow the EMI shield of the host device to contact the housing of the communication module in locations where traditional latch mechanisms would not allow such contact. For at least these reasons, some embodiments of the latch mechanisms may reduce EMI leakage from the host devices and/or may improve the EMI performance of communication modules.

[0026] Reference will now be made to the drawings wherein like structures will be provided with like reference designations. It should be understood that the drawings are diagrammatic and schematic representations of example embodiments and, accordingly, are not limiting of the scope of the present invention, nor are the drawings necessarily drawn to scale. It should also be understood that many of the features of the disclosed embodiments may be substantially symmetrical and a pluralized reference to a feature may refer to a pair of similar features of which only one may be labeled in the drawings.

1. Example Host Device and Communications Module

[0027] FIG. **1** is a partial cutaway top perspective view of portions of an example host device **100** with an example optoelectronic module **200** in a latched configuration located inside the example host device **100**. In general, the optoelectronic module **200** may be employed in the communication of optical signals and the conversion of optical signals to and from electrical signals. In connection, the host device **100** may be employed in the communication of corresponding electrical signals.

[0028] The optoelectronic module **200** may include a transmit port **204** and a receive port **205** at a front of the optoelectronic module **200**. The optoelectronic module **200** can be configured for optical signal transmission and reception via the transmit port **204** and the receive port **205** at a variety of data rates including, but not limited to, 1.25 Gb/s, 2.125 Gb/s, 2.5 Gb/s, 4.25 Gb/s, 8.5 Gb/s, 10.3 Gb/s, 10.5 Gb/s, 11.3 Gb/s, 14.025 Gb/s, or 100 Gb/s or higher. Furthermore, the optoelectronic module **200** can be configured for optical signal transmission and reception at various wavelengths including, but not limited to, 850 nm, 1310 nm, 1470 nm, 1490 nm, 1510 nm, 1530 nm, 1550 nm, 1570 nm, 1590 nm, or 1610 nm. Further, the optoelectronic module **200** can be configured to support various communication protocols including, but not limited to, Optical Fast Ethernet, Optical Gigabit Ethernet, 10 Gigabit Ethernet, and lx, 2×, 4×, 8×, and 16× Fibre Channel. In addition, although one example of the optoelectronic module **200** is configured to have a form factor that is substantially compliant with the XFP MSA, the optoelectronic module **200** can alternatively be configured in a variety of different form factors that are substantially compliant with other MSAs including, but not limited to, the QSFP MSA, the QSFP+ MSA, the CFP MSA, the CFP2 MSA, the CFP4 MSA, the SFP MSA, or the SFP+MSA. Finally, although the optoelectronic module **200** is illustrated as a pluggable optoelectronic transceiver module, example embodiments of the latching mechanism disclosed herein can alternatively be employed, for example, in connection with pluggable electronic transceiver modules, other pluggable electronic devices such as pluggable media drives, or the like.

[0029] The host device **100** may include a cage **102** configured to be connected to a host printed circuit board (not shown). The cage **102** is configured to at least partially receive the optoelectronic module **200**. The cage **102** includes a pair of inwardly-biased leaf springs **104** located on opposite sides of the cage **102**. Although the leaf springs **104** are inwardly biased, the leaf springs **104** do not substantially impede the insertion of the optoelectronic module **200** into the host device cage. The leaf springs **104** extend away from the front of the cage **102** where the optoelectronic module **200** is at least partially received. The host device **100** generally forms an electrical connection to the optoelectronic module **200** through which electrical signals may be communicated between the host device **100** and the optoelectronic module **200**.

[0030] FIG. **2** is a top perspective view of the host device **100** cage **102** of FIG. **1**, with the optoelectronic module **200** omitted. As illustrated in FIG. **2**, the cage **102** may include an

EMI shield **106**. In some embodiments, the EMI shield **106** includes multiple EMI fingers **108**. The EMI fingers **108** may be inwardly biased to improve contact with an optoelectronic module inserted into the cage **102**. Although inwardly biased, the EMI fingers **108** do not substantially impede the insertion of an optoelectronic module into the cage **102**. The EMI shield **106** may generally be configured to reduce levels of EMI radiation allowed to leak from the cage **102**. In some instances, the levels of EMI radiation allowed to leak from the cage **102** may be defined by communication standards or the like. Generally, effective EMI shielding may decrease the levels of interference experienced between modules and thus may improve performance of the modules.

[0031] FIG. **3**A is a top perspective view of the example optoelectronic module **200** of FIG. **1** in the latched position with the example host device omitted. The example optoelectronic module **200** includes a housing **201** that may include a bottom housing **202** and a top housing **203**. The housing **201** may at least partially surround receiver and/or transmitter circuitry (not shown), including a printed circuit board having an edge connector (not shown) configured to be electrically coupled to the host device. The bottom housing **202** and/or the top housing **203** may be die cast in zinc. Alternately or additionally, the bottom housing **202** and/or the top housing **203** may be die cast, or otherwise manufactured, from other suitable materials or a combination of other suitable materials.

2. Example Latching Mechanism

[0032] As disclosed in FIG. **3**A, the optoelectronic module **200** includes a driver **220** and a follower **206**. The driver **220** and the follower **206** may be formed in various ways, including, but not limited to, being stamped from metal or molded from hard plastic.

[0033] The follower **206** is configured to be slidingly positioned relative to the housing **201**. The follower **206** is shown in a first position relative to the housing **201**. In the disclosed embodiment, the follower **206** includes a pair of follower arms on opposite sides of the housing **201**. The follower arms include recesses **210**. The recesses **210** and the housing **201** are configured such that the leaf springs of the host device cage (as disclosed in FIG. **1**) may fit at least partially within the recesses **210** when the optoelectronic module **200** is in the latched configuration.

[0034] The bottom housing **202** includes shoulders **216** adjacent to the recesses **210**. The shoulders **216** are configured to at least partially abut the leaf springs when the leaf springs are within the recess **210**. When the optoelectronic module **200** is in the latched configuration, as shown in FIG. **3**A, the engagement of the shoulders **216** and the leaf springs act to prevent the optoelectronic module **200** from moving significantly within a host device cage. As a result, the electrical connection between the optoelectronic module **200** and the host device may be maintained and unintentional disconnection can be reduced and potentially eliminated.

[0035] As shown, in some embodiments, the fingers **214** may include EMI windows **208**. The EMI windows **208** may allow EMI protrusions **209** on the housing **201** to make contact with the EMI shield **106** of the host device cage (shown in FIG. **2**). Although the EMI windows **208** are shown as being located completely within the follower arms, the EMI windows **208** may alternately or additionally be located at the top and/or bottom edges of the follower arms. Furthermore, as disclosed in FIG. **3**A, the EMI windows **208** and EMI protrusions **209** may be shaped such that the follower **206** can slide relative to the housing **201** as the driver **220** is rotated between the latched position (as shown in FIGS. **1**, **3**A and **3**C) and the unlatched position (as shown in FIGS. **3**D and **3**E), described in additional detail below.

[0036] Increased contact between the housing **201** and the EMI shield of the host device cage by way of the EMI protrusions **209** may improve EMI shielding. Electromagnetic interference leaked from the host cage may be reduced and EMI performance of the optoelectronic module **200** and nearby modules (not shown) may be improved compared to modules that do not facilitate contact between the housing **201** and the EMI shield of the host device cage near the follower arms. For example, traditional latch mechanisms may include follower arms interposed between the module housing and the EMI shield such that the EMI shield makes little or no contact with the sides of the module housing. In some embodiments, the follower **206** and the housing **201**, including the EMI protrusions **209**, are configured such that the EMI shield makes contact with only the housing **201** and not the follower **206**.

[0037] Although illustrated embodiments increase contact between the EMI shield and the housing **201** by way of a pair of EMI protrusions **209** and a corresponding pair of EMI windows **208**, other configurations may be used. For example, in some embodiments, additional EMI protrusions **209** may be used with additional EMI windows **208**. Alternately or additionally, the shape of the follower **206** and the shape of the housing **201** may be configured such that the contact between the EMI shield and the housing **201** is increased. For example, the follower arms may include a thin section that fits within a trough formed in the housing **201**. In some embodiments, the housing **201** and the follower **206** may be configured based on an expected configuration of the EMI shield.

[0038] The follower arms may include fingers **214** that extend beyond the shoulders **216** when the optoelectronic module **200** is in the latched configuration. The fingers **214** may include ramped surfaces **212**. When the optoelectronic module **200** is moved from a latched configuration to an unlatched configuration, the fingers **214** and ramped surfaces **212** act to move the leaf springs such that the optoelectronic module **200** may be removed from the host device cage. Moving the optoelectronic module **200** from a latched configuration to an unlatched configuration is generally accomplished when the driver **220** is rotated from a latched position to an unlatched position.

[0039] FIG. **3**B is an exploded top perspective view of the example optoelectronic module **200** of FIG. **3**A. The driver **220** is configured to be rotatingly positioned relative to the housing **201**. As illustrated, in some embodiments, the driver **220** may include indentations **224** configured to couple with protrusions **226** on the housing **201** such that the driver **220** may be rotatingly positioned relative to the housing **201**. The driver **220** may further include interfacing protrusions **218** configured to fit though interfacing openings **222** of the follower **206**. In some embodiments, the interfacing protrusions **218** may be further configured to be slidingly received in slots **228** of the housing **201**. The slots **228** may be shaped to contain the interfacing protrusions **218** as the driver **220** is rotated between the latched and unlatched positions. The slots **228** may be configured to encourage the indentations **224** to remain coupled with the protrusions **226**, potentially preventing the driver **220** from being unintentionally detached from the housing **201**.

[0040] The surfaces of the interfacing openings **222** are shaped to engage interfacing protrusions **218** of the follower **206** such that the follower **206** is urged towards a second position relative to the housing **201** (as shown in FIG. **3**D) as the driver **220** is rotated from a latched position to an unlatched position. The surfaces of the interfacing openings **222** are further shaped to engage the interfacing protrusions **218** such that the follower **206** is urged towards the first position relative to the housing **201** (as shown in FIG. **3**A) as the driver **220** is rotated from the unlatched position to the latched position. The interfacing protrusions **218** may generally slide against the corresponding surfaces of the interfacing openings **222** during rotation of the driver **220** in order to cause sliding of the follower **206** relative to the housing **201**. The interfacing openings **222** may be further configured to slide along the protrusions **226** to allow the follower **206** to slide along the housing **201** as the driver **220** is rotated between the latched and unlatched configurations.

[0041] During assembly, the interfacing protrusions **218** of the driver **220** may be inserted into the interfacing openings **222** of the follower **206**. In some embodiments, the driver **220** and/or follower **206** may be resiliently deformed to allow the interfacing protrusions **218** to be inserted into the interfacing openings **222**. Also during assembly, the follower **206** may be resiliently deformed to allow the follower arms to be positioned on the housing **201**. In embodiments that include EMI protrusions **209** and EMI windows **208**, the follower **206** may be resiliently deformed to allow the EMI protrusions **209** to be positioned within the EMI windows **208**. Furthermore, during assembly the interfacing protrusions **218** may be positioned within the slots **228** of the housing **201** and the protrusions **226** of the housing **201** may be positioned within the indentations **224** of the driver **220**.

[0042] FIG. **3**C is a bottom perspective view of the example optoelectronic module **200** of FIG. **3**A in the latched configuration. As shown in FIG. **3**C, the optoelectronic module **200** may include a fastening mechanism **234**. The fastening mechanism **234** may include a first portion located on the follower **206** and a second portion located on the housing **201**. As illustrated, the fastening mechanism **234** may include resilient members **232** and a fastener protrusion **236**. The resilient members **232** and the fastener protrusion **236** may facilitate selective engagement of the follower **206** and the housing **201**. As disclosed in FIG. **3**C, the resilient members **232** may urge the follower **206** towards a first position relative to the housing **201** when the follower **206** is at or near its latched position. Put another way, the shape of the resilient members **232** and fastener protrusion **236**, and the resiliency of the resilient members **232** may cause the follower **206** and, consequentially, the driver **220** to be encouraged into the latched configuration as the optoelectronic module **200** nears the latched configuration from the unlatched configuration. The shapes of the resilient members **232** and fastener protrusion **236**, and the resiliency of the resilient members **232** may also provide resistance that may be overcome to move the driver **220** and follower **206** from the latched configuration to the unlatched configuration.

[0043] Although the fastening mechanism **234** is shown as having resilient members **232** that selectively engage a fastener protrusion **236**, other fastening mechanism **234** configurations may be used. For example, in some embodiments, resilient members **232** may be located on the housing **201** and may selectively engage a protrusion on the follower **206**. Alternately or additionally, resilient members **232** on the housing **201** or follower **206** may selectively engage indentations, openings, other resilient members **232**, and the like on the follower **206** or housing **201**.

[0044] FIGS. **3**D and **3**E are a top perspective view and a bottom perspective view, respectively, of the example optoelectronic module **200** of FIG. **3**A in an unlatched configuration. To extract the optoelectronic module **200** from a host device cage such as the cage shown in FIG. **1**, the driver **220** is generally rotated from the latched position (shown in FIGS. **1**, **3**A, and **3**C) to the unlatched position (shown in FIGS. **3**D and **3**E). As disclosed in FIGS. **3**D and **3**E, as the driver **220** is rotated to the unlatched position, biasing forces generated by the fastening mechanism **234** are overcome, and the follower **206** slides relative to the housing **201**.

[0045] As disclosed in FIG. **3**E, the resilient members **232** may urge the follower **206** towards a second position relative to the housing **201** when the follower **206** is at or near its unlatched position. Put another way, the shape of the resilient members **232** and fastener protrusion **236**, and the resiliency of the resilient members **232** may cause the follower **206** and, consequentially, the driver **220** to be encouraged into their unlatched positions as the optoelectronic module **200** nears the unlatched configuration from the latched configuration. The shapes of the resilient members **232** and fastener protrusion **236**, and the resiliency of the resilient members **232** may also provide resistance that may be overcome to move the driver **220** and follower **206** from their unlatched positions to their latched positions.

[0046] The sliding of the follower **206** causes the leaf springs of the cage to slide along ramped surfaces **212**, urging the leaf springs away from the center of the cage until they are located on the fingers **214**. The configuration of the fingers **214** causes the leaf springs to no longer abut the shoulders **216**, thus allowing the optoelectronic module **200** to be removed from the cage unhindered by the leaf springs.

[0047] As disclosed in FIGS. **3**D and **3**E, the EMI protrusion **209** may stop the sliding progress of the follower **206** in the unlatched position. Stopping the sliding progress of the follower **206** may prevent the follower **206** from coming off the optoelectronic module **200** housing. Stopping the progress of the follower **206** may also stop the progress of the driver **220** at the unlatched position.

[0048] FIGS. **4**A-**4**C disclose another example embodiment of an optoelectronic module **300**. The optoelectronic module **300** may selectively engage a host device cage in a manner similar to the optoelectronic module **200** of FIGS. **1** and **3**A-**3**E. In the embodiment disclosed in FIGS. **4**A-**4**C, the optoelectronic module **300** includes one or more resilient members, such as springs **308**, configured to urge a follower **304** and driver **220** toward a latched configuration. Some embodiments may further include a fastening mechanism generally corresponding to the fastening mechanism **234** disclosed in FIGS. **3**A-**3**E.

[0049] FIG. **4**A is a bottom perspective view of the optoelectronic module **300**. As disclosed in FIG. **4**A, the optoelectronic module **300** includes a housing **301** that may include a bottom housing **302** and a top housing **203**. The optoelectronic module **300** also includes the follower **304**. Similar to the follower **206** of FIGS. **3**A-**3**E, the follower **304** is configured to be slidingly positioned relative to the housing **301**. The follower **304** is shown in a first position relative to the housing **301**.

[0050] FIG. **4**B is a top perspective view of the follower **304** and FIG. **4**C is a close-up bottom perspective view of the optoelectronic module **300** with the follower **304** and driver **220** omitted. With reference to FIG. **4**B, the follower **304** may include accesses **306** and engaging members **312**. With reference to FIGS. **4**B and **4**C, the engaging members **312** may be configured to be slidingly received within channels **314** of the housing **301**. Springs **308** may be positioned in the channels **314** between the engaging members **312** and the housing **301** such that the springs **308** urge the follower **304** toward the first position. For example, as disclosed in FIG. **4**A, the springs **308** may be resiliently compressed when the follower **304** is in the first position, and thus may urge the follower **304** toward the first position to promote the follower **304** and driver **220** to stay securely in the latched position until the driver **220** is purposefully rotated. As the follower **304** is urged toward a second position by rotating the driver **220**, the force exerted by the springs **308** is overcome, causing the springs **308** to compress further and continue to urge the follower **304** toward the first position. Although helical compression springs **308** are disclosed in FIGS. **4**A and **4**C, it will be appreciated that other elastic materials and/or devices may be used.

[0051] In some embodiments, the bottom housing **302** may include assembly slots **310**. During assembly, the engaging members **312** may be inserted into the assembly slots **310** such that the follower **304** may be slid into an assembled position on the housing **301**. In embodiments that include EMI protrusions **209** and EMI windows **208**, the follower **304** may be temporarily resiliently deformed to allow the EMI windows **208** to be positioned around the EMI protrusions **209**. In some embodiments, the springs **308** may be positioned in the channels **314** by way of the access **306**.

[0052] The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

What is claimed is:

1. A module latch mechanism comprising:
a follower configured to be slidingly positioned relative to a housing, the follower including:
a first arm configured to facilitate selective engagement of the housing with a host device, and
a fastening mechanism configured to facilitate selective engagement of the follower with the housing; and
a driver configured to be:
rotatingly positioned relative to the housing, and
positioned relative to the follower such that the driver urges the follower toward a first position relative to the housing as the driver is rotated from an unlatched position to a latched position.

2. The module latch mechanism of claim **1**, wherein the fastening mechanism includes a first portion of a resilient fastener configured to selectively engage a second portion of the resilient fastener located on the housing.

3. The module latch mechanism of claim **2**, wherein:
the first portion of the resilient fastener includes two resilient members,
the second portion of the resilient fastener includes a fastener protrusion located on the housing, and
the two resilient members are configured to selectively engage the fastener protrusion.

4. The module latch mechanism of claim **1**, wherein:
the driver is further configured to be positioned relative to the follower such that the driver urges the follower toward a second position relative to the housing as the driver is rotated from the latched position to the unlatched position, and
the fastening mechanism is further configured to urge the follower toward the first position when the follower is closer to the first position than the second position.

5. The module latch mechanism of claim **1**, wherein:
the driver is further configured to be positioned relative to the follower such that the driver urges the follower toward a second position relative to the housing as the driver is rotated from the latched position to the unlatched position, and
the fastening mechanism is further configured to urge the follower toward the second position when the follower is closer to the second position than the first position.

6. The module latch mechanism of claim **1**, wherein:
the driver is further configured to be positioned relative to the follower such that the driver urges the follower toward a second position relative to the housing as the driver is rotated from the latched position to the unlatched position, and
the fastening mechanism is further configured to:
urge the latch mechanism toward the first position when the driver is in the latched position, and
urge the latch mechanism toward the second position when the driver is in the unlatched position.

7. The module latch mechanism of claim **1**, wherein the fastening mechanism is configured to engage the follower and the housing when the housing and the host device are engaged.

8. The module latch mechanism of claim **1**, wherein the first arm is configured to facilitate contact between the housing and an electromagnetic interference (EMI) finger located on the host device.

9. The module latch mechanism of claim **1**, wherein the first arm includes an opening configured to be located around an electromagnetic interference (EMI) protrusion located on the housing such that the EMI protrusion is allowed to make contact with an EMI finger located on the host device.

10. The module latch mechanism of claim **1**, the follower further including a second arm configured to facilitate selective engagement of the housing with the host device, wherein the first and second arms are configured to be slidingly positioned relative to opposite portions of the housing.

11. The module latch mechanism of claim **1**, wherein the driver is configured to be rotatingly positioned relative to a pair of axially-aligned protrusions located on the housing.

12. The module latch mechanism of claim **1**, wherein the driver includes a driver protrusion configured to be slidingly received by an opening formed in the follower.

13. The module latch mechanism of claim **12**, wherein the driver protrusion is further configured to be slidingly received by a slot formed in the housing.

14. An optoelectronic module including the module latch mechanism of claim **1**.

15. A module comprising:
a housing including at least one electromagnetic interference (EMI) protrusion configured to contact at least a portion of an EMI shield located on a host device; and

a module latch mechanism including:
a follower configured to be slidingly positioned relative to the housing, the follower including a pair of arms configured to:
facilitate selective engagement of the housing with the host device, at least in part by way of temporary deformation of structure of the host device, and
be positioned at least partially around the at least one EMI protrusion, and
a driver configured to be:
rotatingly positioned relative to the housing, and
positioned relative to the follower such that:
the driver urges the follower toward a first position relative to the housing as the driver is rotated from an unlatched position to a latched position, and
the driver urges the follower toward a second position relative to the housing as the driver is rotated from the latched position to the unlatched position.

16. The module of claim **15**, wherein at least one arm of the pair of arms includes an opening configured to be positioned around the at least one EMI protrusion.

17. The module of claim **15**, wherein the follower further includes a fastening mechanism including a first portion of a resilient fastener configured to selectively engage a second portion of the resilient fastener positioned on the housing, the fastening mechanism configured to urge the latch mechanism toward a first position when the housing is engaged with the host device.

18. A module comprising:
a housing; and
a module latch mechanism including:
a follower configured to be slidingly positioned relative to the housing, the follower including:
a pair of arms configured to facilitate selective engagement of the housing with a host device at least in part by way of temporary deformation of structure of the host device, and
a fastening mechanism including a first portion of a resilient fastener configured to selectively engage a second portion of the resilient fastener positioned on the housing, the fastening mechanism configured to urge the latch mechanism toward a first position when the housing is engaged with the host device, and
a driver configured to be:
rotatingly positioned relative to the housing, and
positioned relative to the follower such that:
the driver urges the follower toward a first position relative to the housing as the driver is rotated from an unlatched position to a latched position, and
the driver urges the follower toward a second position relative to the housing as the driver is rotated from the latched position to the unlatched position.

19. The module of claim **18**, wherein the first portion of the resilient fastener includes a pair of resilient members configured to selectively engage a fastener protrusion located on the housing.

20. The module of claim **19**, wherein:
the housing includes at least one electromagnetic interference (EMI) protrusion configured to contact at least one EMI finger located on the host device, and
at least one arm of the pair of arms includes an opening configured to be positioned at least partially around the at least one EMI protrusion.

21. A module comprising:
a housing including a channel; and
a module latch mechanism including:
a follower configured to be slidingly positioned relative to the housing, the follower including:
a pair of arms configured to facilitate selective engagement of the housing with a host device, and
an engaging member,
a driver configured to be:
rotatingly positioned relative to the housing, and
positioned relative to the follower such that the driver urges the follower toward a second position relative to the housing as the driver is rotated from a latched position to an unlatched position, and
a resilient member configured to:
be positioned at least partially within the channel, and
urge the follower towards a first position relative to the housing by way of the engaging member.

22. The module of claim **21**, the follower further including an access configured to allow the resilient member to be positioned at least partially within the channel when the follower is slidingly positioned relative to the housing.

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