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(72) Inventors:  
• **Velmail, Sivakumar**  
**560066 Thubrahalli, Bangalore (IN)**  
• **Karlsson, Kurt**  
**266 31 Munka-Ljungby (SE)**  
• **Andersson, Thomas**  
**262 65 Ängelholm (SE)**  
• **Persson, Stefan**  
**792 35 Mora (SE)**

(71) Applicant: **Schneider Electric Industries SAS**  
**92500 Rueil-Malmaison (FR)**

(74) Representative: **Swea IP Law AB**  
**P.O. Box 44**  
**151 21 Södertälje (SE)**

(54) **CONNECTOR MOUNTING ASSEMBLY**

(57) The present invention relates to a connector mounting assembly (100) to mount various types of connectors (104,105,106), wherein said connector mounting assembly (100) comprises comprising a fixing frame (103), common adaptor (101) and a front cover (102) wherein said common adaptor (101) is provided with a first locking arrangements (107) and a second locking arrangements (109) a cut portion on its one side and at least one flexible protuberance (108) for imparting flexibility to said common adaptor (101) and to reversibly deform said second locking arrangements (109) and thereupon said connectors (104,105,106) removably engage with corresponding locking arrangements (107,109).

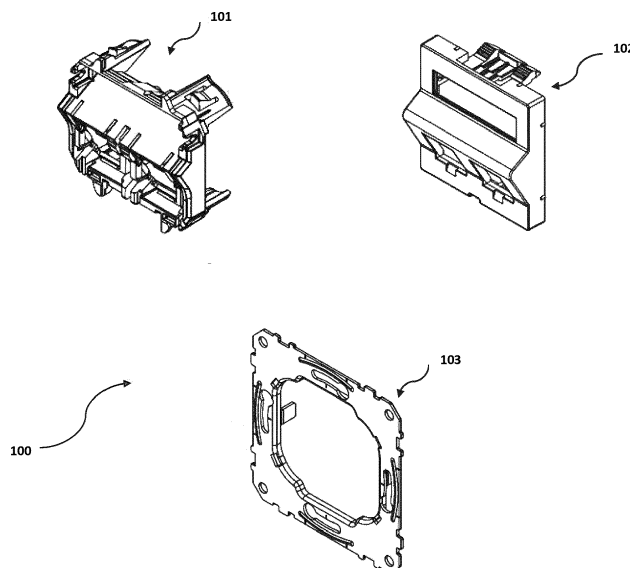


Fig. 1

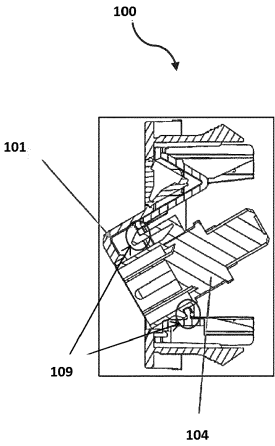


Fig. 5(b)

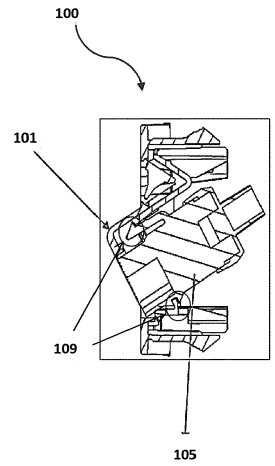


Fig. 7(b)

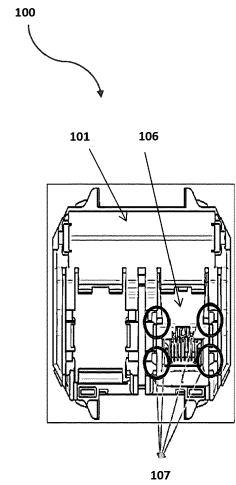


Fig. 9(c)

## Description

### Field of invention:

[0001] The present invention relates to a connector mounting assembly to mount various types of connectors in the of field network connectivity. More particularly it relates to a common adaptor to mount connectors of different footprint and mounting system with flexible locking engagements.

### Background of the invention:

[0002] In current network connectivity market, there are various types of connectors used according to the type of application. The connector is mounted with particular type of adaptor to fix as a complete product in the wall or any unit. Each connector has separate foot print value that defines the size of the connector. According to the foot print size of the connector, it is fixed to the preferred adaptor.

[0003] There are various types of connector mounting arrangements used in the adaptor such as side snapping system and top and bottom locking system. The mounting system in the adaptor is decided according to the connector mounting assembly. In current network connectivity, there are various types of connectors such as Keystone connectors, S1 connectors, DPM connectors, shielded and unshielded connectors and these connectors have different foot print and mounting system. Keystone connectors have a foot print value of 19.2mm and 20.1mm, S1 connectors have the foot print of 20.1 mm. Keystone connectors and S1 connectors have different mounting system used such as top and bottom locking system and side snapping system respectively.

[0004] To conclude, at present, to mount a particular type of connector a specific type of adaptor is used in reference to the product in use. If the consumer already has one type of adaptor and there is a need to have any other type of connector which has different foot print and/or mounting system then the consumer must buy the complete product assembly again which is the drawback of existing products in this field.

[0005] With a view therefore to overcome the drawbacks associated with conventional products in connector mounting assembly, the inventors felt the need to develop a novel connector mounting assembly. The present invention proposes to provide a solution to the existing difficulties in said field of invention by providing a common adaptor in said connector mounting assembly to mount connectors of different foot print and mounting system.

### Summary of the invention:

[0006] Accordingly, the present invention provides a novel connector mounting assembly for electronic connectors, said connector mounting assembly comprising:

a fixing frame;

a common adaptor removably attached with said fixing frame; and

a front cover, removably attached with the fixing frame, to cover said common adaptor;

wherein said common adaptor is provided with a first locking arrangements and a second locking arrangements to engage with corresponding engagement projections of said electronic connectors, and

wherein of said common adaptor is provided with a cut portion on its one side and at least one flexible protuberance for imparting flexibility to said common adaptor and to reversibly deform said second locking arrangements so that said connectors removably engage with corresponding locking arrangements.

[0007] According one preferred embodiment, said cut portion is chamfer cut provided on the backside of said common adaptor, wherein chamfer angle of said chamfered cut portion is changed for deforming said second locking arrangements reversibly to adapt to the size of said connectors and removably engage said connectors with corresponding locking arrangements.

[0008] Alternatively, said cut portion is a radial cut, provided with curves at the edges whose angle varies for deforming said second locking arrangements reversibly in order to adapt to the size of connectors and removably engage said connectors with corresponding locking arrangements.

[0009] According to another preferred embodiment, said second locking arrangements are provided at the top and bottom part of said common adaptor for mounting and demounting keystone connectors having locking projections at top and bottom part.

[0010] Preferably, said flexible protuberance is provided at the top part of the locking arrangements provided at the top and bottom part of said common adaptor for deforming reversibly, to adapt to the size of said keystone connectors and thereby mount and demount said keystone connectors.

[0011] According to yet another preferred embodiment, said locking arrangements are provided at the sides of said common adaptor for mounting and demounting S 1 connector having locking projections at the sides.

[0012] According to an aspect of the invention, said common adaptor is provided with guiding means at the locking arrangements for guiding the engagement projections of said connectors into their respective locking arrangements.

[0013] These and other objects, features and advantages of the present invention will become apparent to those skilled in the art upon reading and understanding the detailed description of the invention set forth below taken in conjunction with the drawings.

### **Brief description of drawings:**

**[0014]** For better understanding, an illustrative embodiment of the invention will now be described with reference to the accompanying drawings. It will however be appreciated that the embodiment exemplified in the drawings are merely illustrative and not limitative to the scope of the invention, because it is quite possible, indeed often desirable, to introduce a number of variations in the embodiment that have been shown in the drawings. In the accompanying drawings:

Figure 1 shows different components of an invented connector mounting assembly excluding the connector.

Figures 2(a), 2(b) and 2(c) show various types of electrical connectors which are to be mounted on said connector mounting assembly.

Figure 3 shows the locking arrangements provided at sides of a common adaptor and flexible protuberance provided with the common adaptor of said connector mounting assembly.

Figure 4 shows the exploded view of the connector mounting assembly with different components along with smaller Keystone connector.

Figure 5(a) shows a front view of the connector mounting assembly along with a smaller Keystone connector.

Figures 5(b) and 5(c) show smaller the Keystone connector mounted on the common adaptor with locking arrangements provided at the top and bottom of the common adaptor.

Figure 6 shows the exploded view of the connector mounting assembly with a larger Keystone connector.

Figure 7(a) shows the front view of the connector mounting assembly along with the larger Keystone connector.

Figures 7(b) and 7(c) show the larger Keystone connector mounted with the common adaptor with locking arrangements provided at the top and bottom of the common adaptor.

Figure 8 shows the exploded view of the connector mounting assembly along with an S1 connector.

Figure 9(a) shows the front view of the connector mounting assembly with an S 1 connector.

Figures 9(b) and 9(c) show S1 connector mounted

with the common adaptor with locking arrangements provided at sides of the common adaptor.

Figures 10 (a) and 10 (b) shows guiding means provided on the common adaptor.

Figure 11 shows a chamfered cut with curves at the edges provided in the common adaptor, to adapt to the dimension of the connectors.

### **Detailed description of the invention:**

**[0015]** In the following, numerous specific details are set forth to provide a thorough description of various embodiments. Certain features are described in less detail so as not to obscure other aspects. The level of detail associated with each of the elements or features should not be construed to qualify the novelty or importance of one feature over the others.

**[0016]** Figure 1 of the accompanying drawings depicts the invented connector mounting assembly (100) for electronic connectors (104,105,106). Said connector mounting assembly (100) comprises a fixing frame (103), a common adaptor (101) and a front cover (102). Connectors (104,105,106) (as seen in figures 2(a), 2(b) and 2(c)) are mounted on said common adaptor (101) and assembled with said fixing frame (103) along with said front cover (102) and mounted into wall (not shown).

**[0017]** The fixing frame (103) acts as an intermediate member between the wall and the common adaptor (101). Said fixing frame (103) is mounted into the wall by screwing or nailing. Said common adaptor (101) is also attached with said fixing frame (103) by means of clipping members provided on the common adaptor (101).

**[0018]** As mentioned earlier, in network connectivity, there are various types of connectors (104,105,106) such as Keystone connectors (104,105), S1 connectors (106). These connectors (104,105,106) have various dimensions, i.e. foot print values. Keystone connectors (104,105) have a foot print value of 19.2mm which are referred as smaller Keystone connectors (104). Larger Keystone connectors (105) have a footprint value of 20.1mm. S1 connectors (106) have the foot print of 20.1mm

**[0019]** Additionally, said connectors (104,105,106) have various engagement projections (110,111) for mounting. Keystone connectors (104,105) and S1 connectors (106) have different mounting system used such as top and bottom engagement projections (110) and side engagement projections (111) respectively. These connectors (104,105,106) are illustrated in figures 2(a), 2(b) and 2(c).

**[0020]** The front cover (102) is aesthetic part of said invention (100) mounted with said fixing frame (103) to cover the common adaptor (101).

**[0021]** The common adaptor (101) is provided with one locking arrangements (109) at the top and bottom and other locking arrangements (107) at the sides of said

common adaptor (101) which is illustrated in figures 5(c) and 9(c).

**[0022]** With reference to figures 3, 5(b), 7(b) and 9(b), the common adaptor (101) is provided with a chamfered cut at the back side of said common adaptor (101). A flexible protuberance (108) is provided at top part of the locking arrangements (109) provided at the top and bottom part of said common adaptor (101). While mounting a connector (104,105,106) chamfered angle varies and thereupon deflects said flexible protuberance (108) and said locking arrangements (109) reversibly deform in order to adapt to the dimension of said connector (104,105,106).

**[0023]** As illustrated in figure 11, the chamfered cut can be replaced by radial cut (114). Said radial cut (114) is provided with curves at the edges whose angle varies for reversibly deforming said locking arrangements (109), provided at the top and bottom of the common adaptor (101), in order to adapt to the size of connectors (104,105,106) and removably engage said connectors (104,105,106) with corresponding locking arrangements (107,109).

**[0024]** The mounting and fixation of smaller keystone connectors (104) having foot print value of 19.2mm and top and bottom engagement projections (110) is illustrated in figures 4 to 5(c). The smaller Keystone connector (104) is inserted into the common adaptor (101) and engaged with the top and bottom locking arrangements (109). Said smaller Keystone connector (104) has the engagement projections (110) at the top and bottom and said common adaptor (101) is provided with locking arrangements (109) at the top and bottom side. Also, said smaller Keystone connector (104) and locking arrangements (109) have the same foot print values therefore the smaller Keystone connector (104) is mounted firmly.

**[0025]** The mounting and fixation of the larger Keystone connectors having foot print value of 20.1mm (105) and top and bottom engagement projections (110) is illustrated in figures 6 to 7(c). As mentioned earlier, flexible protuberance (108) and the chamfered cut provided at the back side of the common adaptor (101) provide resilience in said common adaptor (101). When the larger Keystone connector (105) is inserted in said common adaptor (101), the chamfered angle changes to deflect said flexible protuberance (108) and thereupon locking arrangements (109) at the top and bottom deflect reversibly to adapt to the side of said larger Keystone connector (105). The engagement projections (110) at the top and bottom side of said larger Keystone connector (105) engage with said locking arrangements (109) at the top and bottom of said common adaptor (101) and thereupon said larger Keystone connector (105) is mounted firmly on said common adaptor (101).

**[0026]** When a S1 connector (106) with 20.1mm foot print value is inserted into the common adaptor (101), said S1 connector (106) engages with the locking arrangements (107) provided at the sides of the common adaptor (101). The chamfered angle of the chamfered

cut provided at the back side of said common adaptor (101) changes resiliently to reversibly deflect said flexible protuberance (108) to adapt to the dimension of said S1 connectors (106) and thereupon the locking arrangements (107) provided at the sides of said common adaptor (101) engage with the engagement projections (111) of said S1 connector (106) firmly. The mounting and fixation of said connector is illustrated in figures 8 to 9(c).

**[0027]** With reference to figures 10(a) and 10(b), connector guiding notches (112,113) are provided at both of the locking arrangements (107,109) at the top, bottom and sides for guiding the engagement projections (110,111) of said connectors (104,105,106) into their respective locking arrangements (107,109). The guiding means (113) at the top and bottom locking arrangements (109) guide the engagement projections (110) of the Keystone connectors (104,105) and provide ease of mounting Keystone connectors (104,105). The guiding means (112) at the side locking arrangements (107) guide the engagement projections (111) of the S1 connectors (106) and provide ease of mounting the S1 connectors (106).

**[0028]** As already mentioned, the foregoing description is illustrative of the invention and not limitative to its scope, because it will be apparent to persons skilled in the art to devise other alternative embodiments without departing from the broad ambit of the disclosures made herein.

## Claims

1. A connector mounting assembly (100) for electronic connectors (104,105,106), said connector mounting assembly (100) comprising:

a fixing frame (103);  
 a common adaptor (101) removably attached with said fixing frame (103); and  
 a front cover (102), removably attached with the fixing frame (103), to cover said common adaptor (101);  
 wherein said common adaptor (101) is provided with a first locking arrangements (107) and a second locking arrangements (109) to engage with corresponding engagement projections (110,111) of said electronic connectors (104,105,106), and  
 wherein said common adaptor (101) is provided with a cut portion on its one side and at least one flexible protuberance (108) for imparting flexibility to said common adaptor (101) and to reversibly deform said second locking arrangements (109) so that said connectors (104,105,106) removably engage with corresponding locking arrangements (107,109).

2. The connector mounting assembly (100) as claimed in claim 1, wherein said cut portion is chamfer cut

provided on the backside of said common adaptor (101), wherein chamfer angle of said chamfered cut portion is changed for deforming said second locking arrangements (109) reversibly to adapt to the size of said connectors (104,105,106) and removably engage said connectors (104,105,106) with corresponding locking arrangements (107,109). 5

3. The connector mounting assembly (100) as claimed in claim 1, wherein said cut portion is a radial cut (114), provided with curves at the edges whose angle varies for deforming said second locking arrangements (109) reversibly in order to adapt to the size of connectors (104,105,106) and removably engage said connectors (104,105,106) with corresponding locking arrangements (107,109). 10  
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4. The connector mounting assembly (100) as claimed in any of the preceding claims 1 to 3, wherein said second locking arrangements (109) are provided at the top and bottom part of said common adaptor (101) for mounting and demounting keystone connectors (104,105) having locking projections at a top and bottom part. 20  
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5. The connector mounting assembly (100) as claimed in any of the preceding claims 1 to 4, wherein said flexible protuberance (108) is provided at the top part of the locking arrangements (109) provided at the top and bottom part of said common adaptor (101) for deforming reversibly to adapt to the size of said keystone connectors (104,105) and thereby mount and demount said keystone connectors (104,105). 30
6. The connector mounting assembly (100) as claimed in any of the preceding claims 1 to 5, wherein said locking arrangements (107) is provided at the sides of said common adaptor (101) for mounting and demounting S1 connector (106) having locking projections at the sides. 35  
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7. The connector mounting assembly (100) as claimed in any of the preceding claims 1 to 6 wherein, said common adaptor (101) is provided with guiding means (112,113) at the locking arrangements (107,109) for guiding the engagement projections (110,111) of said connectors (104,105,106) into their respective locking arrangements (107,109). 45  
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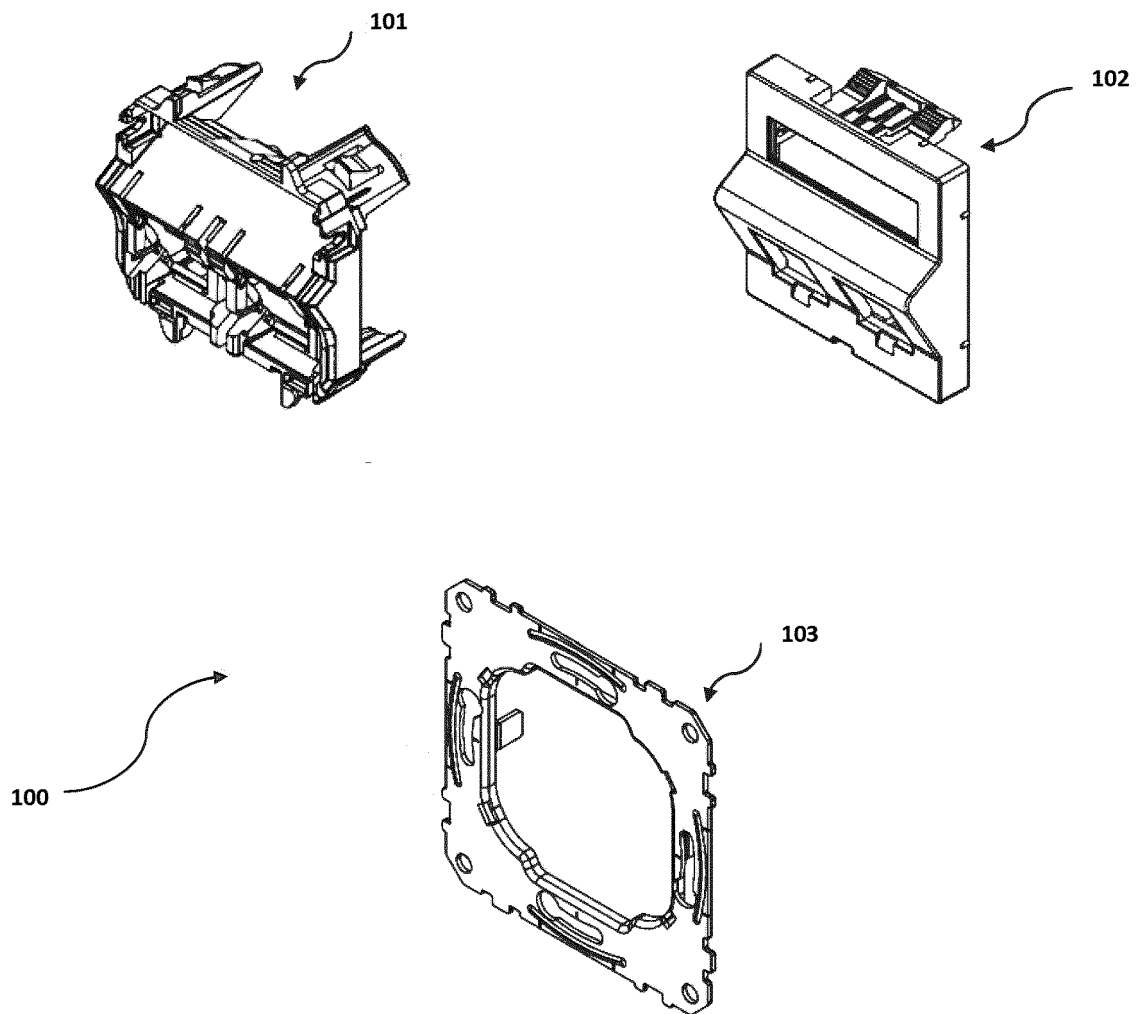


Fig. 1

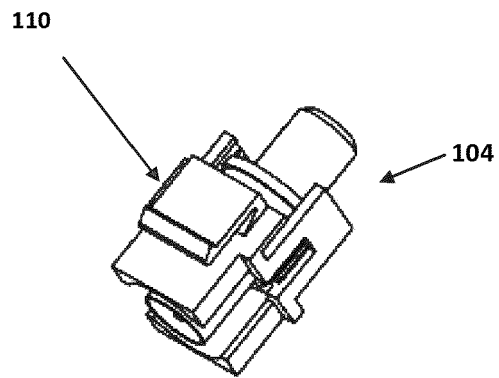


Fig. 2(a)

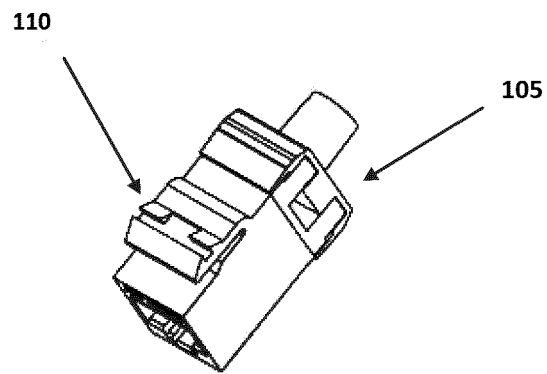


Fig. 2(b)

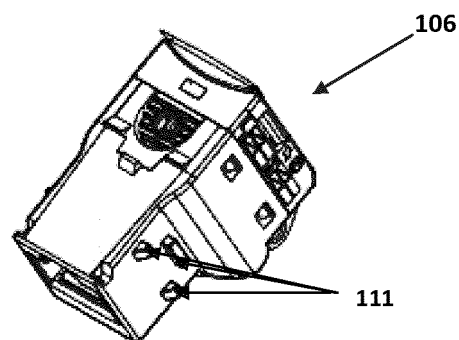


Fig. 2(c)



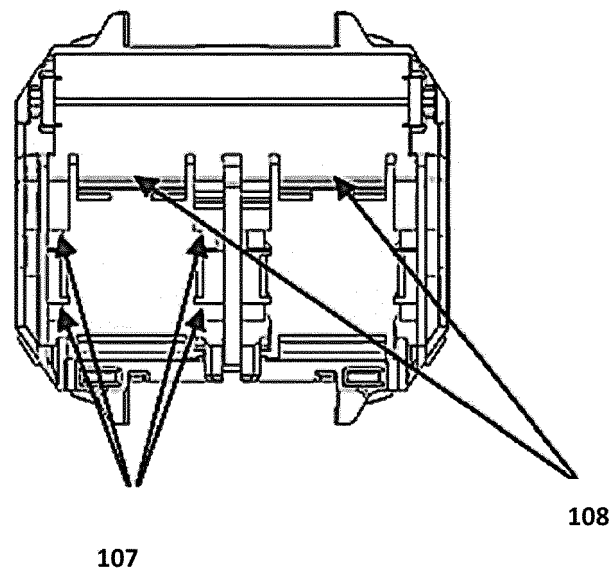


Fig. 3

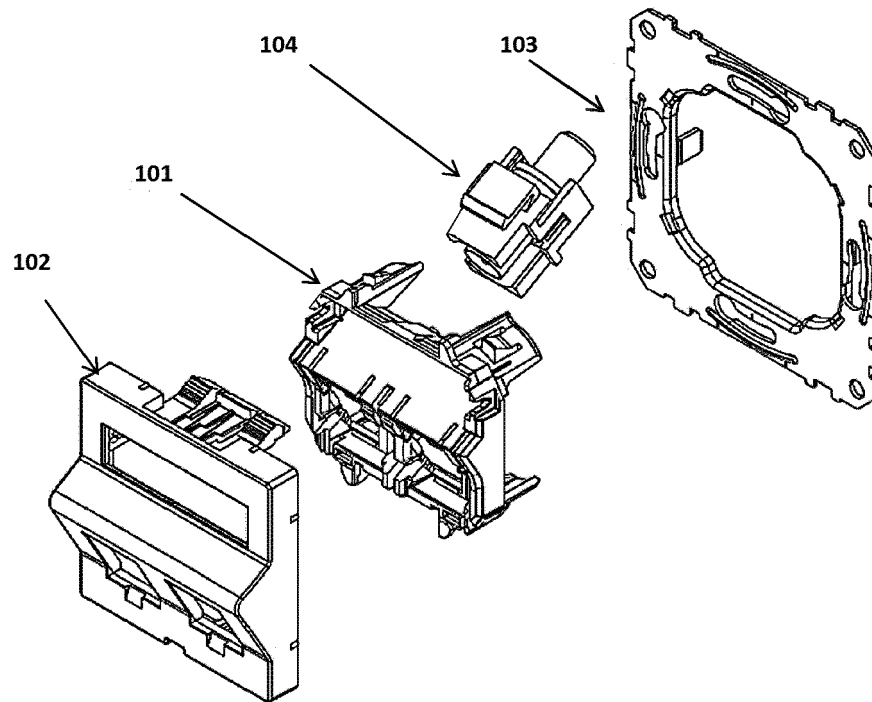


Fig. 4

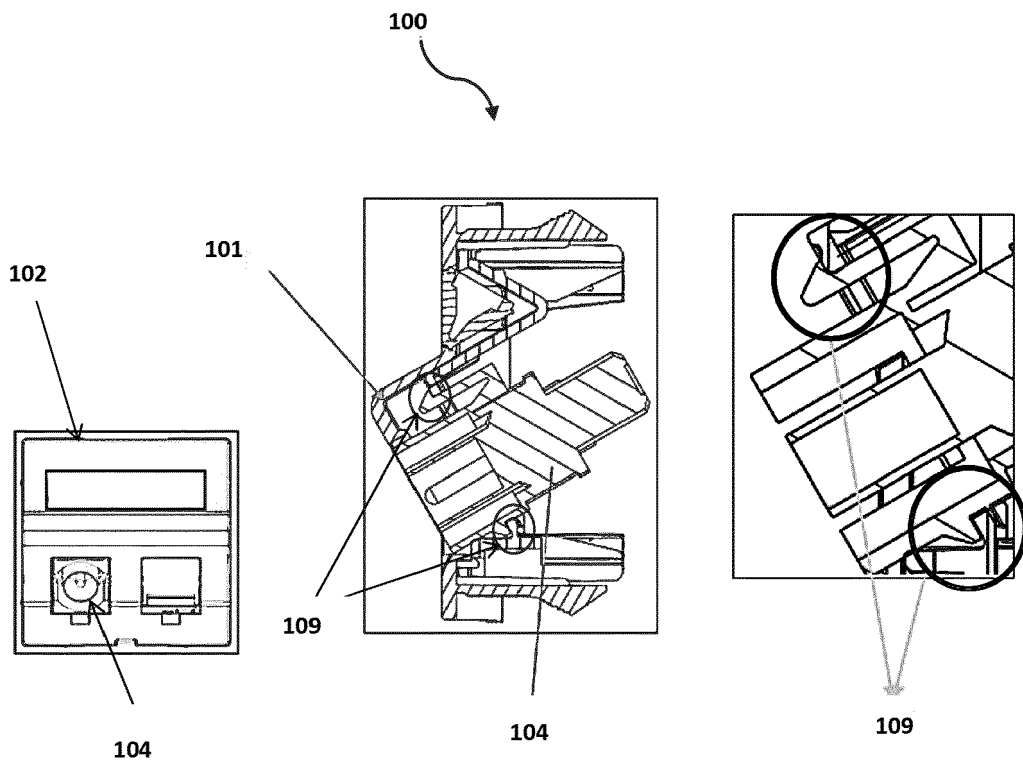


Fig. 5(a)

Fig. 5(b)

Fig. 5(c)

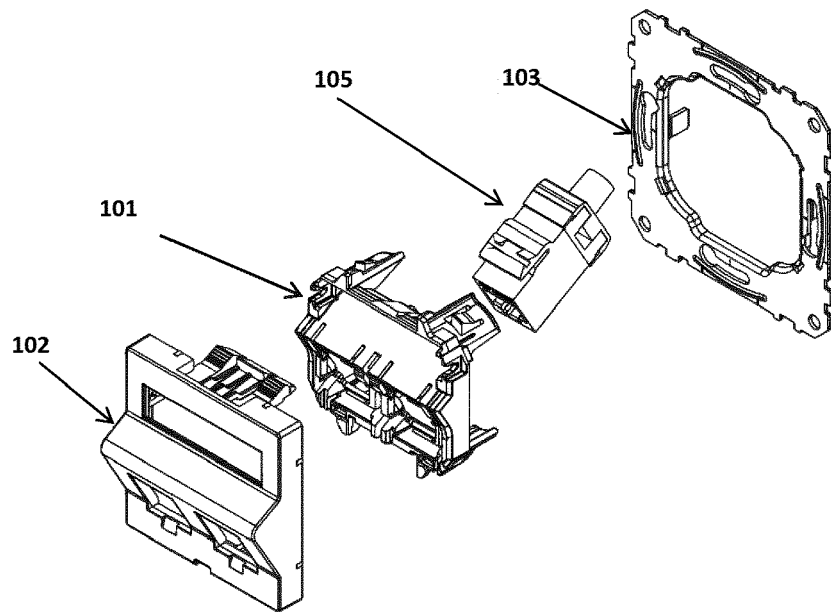


Fig. 6

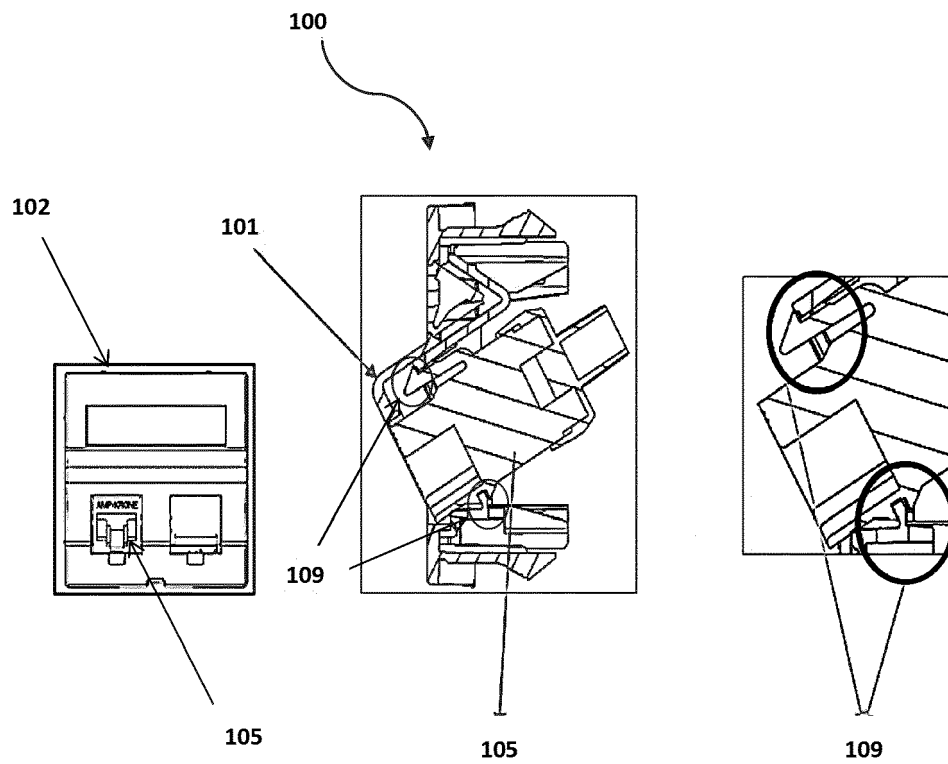


Fig. 7(a)

Fig. 7(b)

Fig. 7(c)

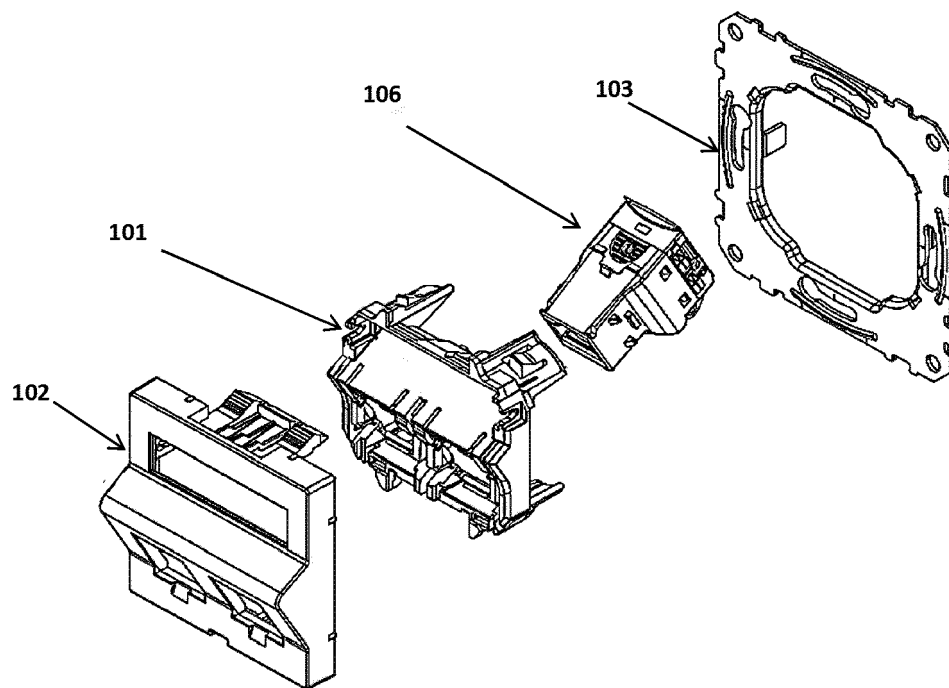


Fig. 8

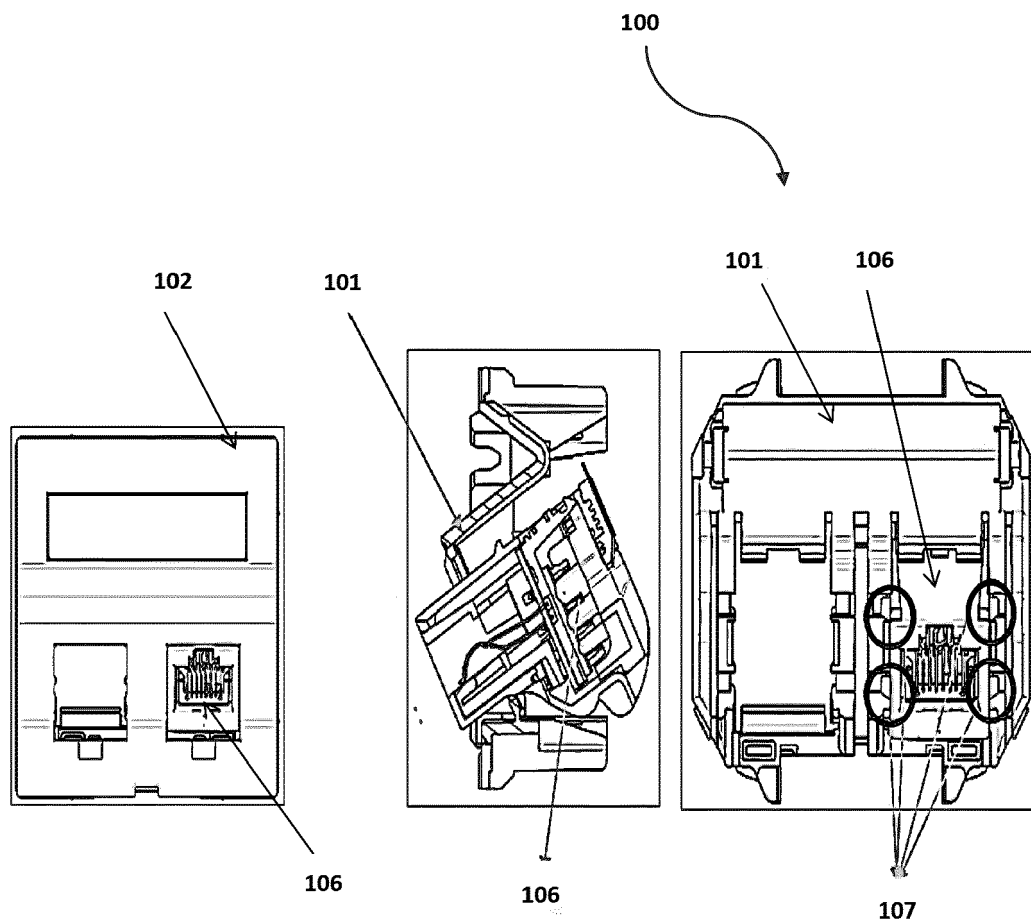


Fig. 9(a)

Fig. 9(b)

Fig. 9(c)

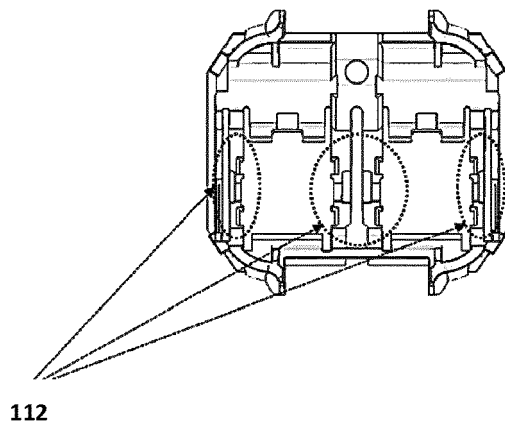
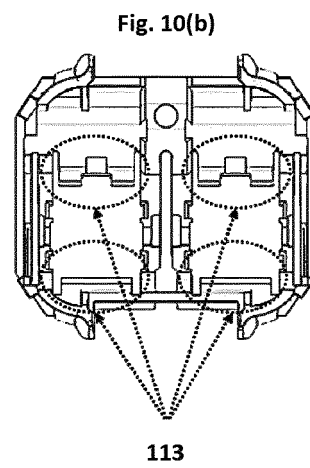


Fig. 10(a)





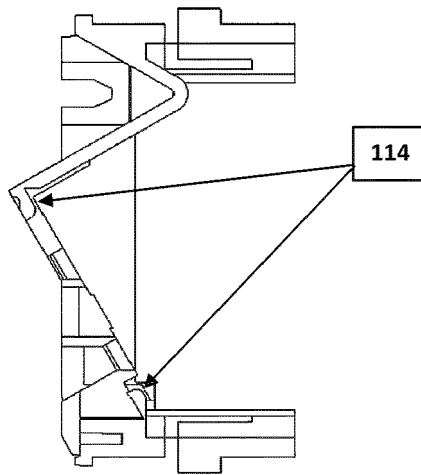


Fig. 11



## EUROPEAN SEARCH REPORT

Application Number  
EP 19 16 2124

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A	WO 2010/042593 A1 (MOLEX INC [US]; PANELLA AUGUSTO P [US] ET AL.) 15 April 2010 (2010-04-15) * figure 2 * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			H01R
The present search report has been drawn up for all claims			
Place of search <b>The Hague</b>		Date of completion of the search <b>19 August 2019</b>	Examiner <b>Hugueny, Bertrand</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 16 2124

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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19-08-2019

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