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(54) INSULATING ISOLATION MEMBER FOR ARC FAULT DETECTION MODULE, AND ARC FAULT DETECTION MODULE

(57) The present invention relates to an insulating isolation member for an arc fault detection module, and an arc fault detection module. The insulating isolation member comprises: a body having four sides, comprising a first side and a second side opposite each other and a third side and a fourth side opposite each other; a first terminal accommodating slot, located on the first side; a second terminal accommodating slot, located on the second side, the second terminal accommodating slot being capable of cooperating with a first terminal accommodating slot of another insulating isolation member to form a terminal accommodating cavity for accommodating a terminal; a first plug-together component, located on the first side; and a second plug-together component, located on the second side, the second plug-together component being capable of forming an interference fit with a first plug-together component of the other insulating isolation member. Based on the present invention, the production cost of an arc fault detection module can be reduced.

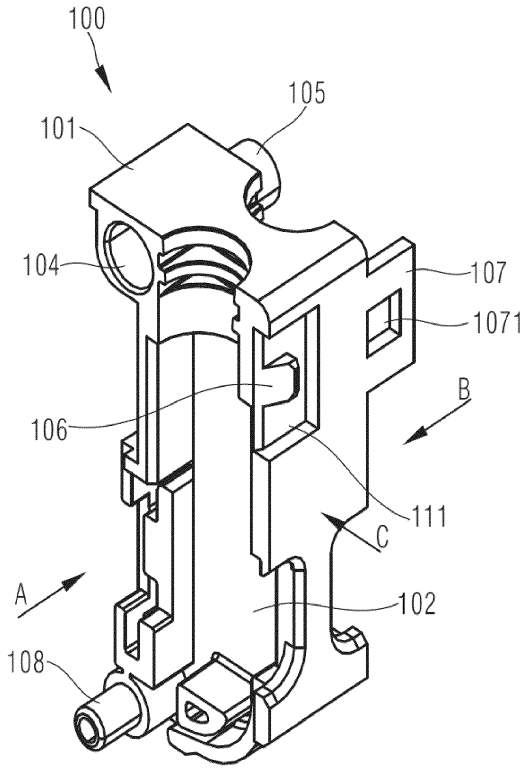

Fig. 1

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Description

Cross reference

[0001] This patent application claims the priority of the Chinese application 201720615494.3, filed May 27, 2017, which is incorporated by reference herein, in the entirety and for all purposes.

Technical field

[0002] The present invention relates to the field of power equipment, in particular an insulating isolation member for an arc fault detection module. Furthermore, the present invention also relates to an arc fault detection module using such an insulating isolation member.

Background art

[0003] As the economy rapidly develops and people's living standards improve with each passing day, residents' electricity usage is also steadily increasing. Electrical accidents arising from the use of electricity are also increasing year on year. In order to reduce the occurrence of electrical accidents, various types of electrical protection devices, including arc fault detection modules (arc fault detection units, AFD units) have become an indispensable part of electrical circuits.

[0004] When an arc fault occurs in an electrical circuit due to poor insulation or contact, an arc fault detection module can detect the arc fault, and trigger a circuit breaker to cut off a power supply, thereby protecting the electrical device and personal safety. An existing circuit fault protection apparatus comprises a housing, a detection circuit located in the housing, and a terminal electrically connected to the detection circuit. There may be one terminal or multiple terminals, with each terminal being connected to one phase of a circuit breaker. In the case of multiple terminals, the terminals must be isolated from one another using insulating isolation members. If the detection circuit detects an arc fault, the detection circuit will, via the terminal, trigger the circuit breaker to cut off a power supply.

[0005] In view of the widespread use of arc fault detection modules, the question of how to reduce the production cost of arc fault detection modules has become a problem in urgent need of a solution.

Content of the invention

[0006] In view of the above, the present invention proposes an insulating isolation member for an arc fault detection module, and an arc fault detection module, to reduce arc fault detection module production costs.

[0007] One aspect of the present invention provides an insulating isolation member for an arc fault detection module, comprising a body having four sides, a first terminal accommodating slot, a second terminal accommodating slot, a first plug-together component and a second plug-together component.

[0008] The body comprises a first side and a second side opposite each other and a third side and a fourth side opposite each other. The first terminal accommodating slot is located on the first side. The second terminal accommodating slot is located on the second side. The second terminal accommodating slot is capable of cooperating with a first terminal accommodating slot of another insulating isolation member to form a terminal accommodating cavity. The terminal accommodating cavity is used for accommodating a terminal. The first plug-together component is located on the first side. The second plug-together component is located on the second side. The second plug-together component is capable of forming an interference fit with a first plug-together component of the other insulating isolation member. The insulating isolation member according to the present invention can be connected in an interference fit with another insulating isolation member having the same structure, and can cooperate therewith to form the terminal accommodating cavity for accommodating the terminal. Thus, in actual production, only one mold need be used to manufacture multiple identical insulating isolation members, which cooperate with each other for the purpose of fixing terminals; production is low-cost, and also easy to expand, i.e. the number of insulating isolation members used can be selected at will, according to actual requirements. Furthermore, the insulating isolation member of this embodiment may employ a sequence of assembly in a direction S; such a sequence is the same as the sequence of assembly of other internal components of the vast majority of arc fault detection modules. Thus, the assembly of the arc fault detection module can be accomplished without adjusting an assembly workstation; this increases production efficiency and further reduces production costs.

[0009] The insulating isolation member as described above optionally further comprises at least one of the following assemblies: an engagement assembly and a plug-together assembly.

[0010] The engagement assembly comprises a first engagement component and a second engagement component. The first engagement component is located on the third side. The second engagement component is located on the

third side. The first engagement component is capable of engaging with a second engagement component of another said insulating isolation member.

[0011] The plug-together assembly comprises a third plug-together component and a fourth plug-together component. The third plug-together component is located on the first side. The fourth plug-together component is located on the second side. The fourth plug-together component is capable of forming an interference fit with a third plug-together component of another insulating isolation member.

[0012] When the engagement assembly and the plug-together assembly are both present, this is equivalent to each insulating isolation member having three fixing points, hence the fixing between the insulating isolation members will be more secure.

[0013] In the insulating isolation member as described above, optionally, the first plug-together component and the fourth plug-together component have the same structure. By using different plug-together structures on the same side to fix the insulating isolation members, the fixing between the insulating isolation members can be made more secure.

[0014] In the insulating isolation member as described above, optionally, the first plug-together component is located at the top of the first side. The second plug-together component is located at the top of the second side. The third plug-together component is located at the bottom of the first side. The fourth plug-together component is located at the bottom of the second side. Thus, all the plug-together components are located, to the greatest extent possible, at the top and bottom of the sides, and the fixing of the insulating isolation members can be made more secure by dispersing the force-bearing positions.

[0015] In the insulating isolation member as described above, optionally, the first plug-together component is a cylinder and the second plug-together component is a circular slot. Alternatively, the first plug-together component is a circular slot and the second plug-together component is a cylinder. By using the plug-together structure of circular slot and cylinder, the assembly of the plug-together components can be made more convenient.

[0016] In the insulating isolation member as described above, optionally, the third plug-together component is a cylinder and the fourth plug-together component is a circular slot. Alternatively, the third plug-together component is a circular slot and the fourth plug-together component is a cylinder. By using the plug-together structure of circular slot and cylinder, the assembly of the plug-together components can be made more convenient.

[0017] In the insulating isolation member as described above, optionally, the first engagement component is a boss. This is located in a slot on the third side. The second engagement component is an extension extending away from the first side. The extension has a through-hole. The through-hole is used for being penetrated by a boss of another insulating isolation member.

[0018] Another aspect of the present invention provides an arc fault detection module, having a housing, an insulating isolation member and a terminal.

[0019] The insulating isolation member is any one of the insulating isolation members as described above. It is located in the housing. The housing comprises a first side shell and a second side shell opposite each other. The first side shell has a third terminal accommodating slot and a fifth plug-together component. The fifth plug-together component forms an interference fit with the first plug-together component. The third terminal accommodating slot cooperates with the first terminal accommodating slot to form one said terminal accommodating cavity. The second side shell has a fourth terminal accommodating slot and a sixth plug-together component. The sixth plug-together component forms an interference fit with the second plug-together component. The fourth terminal accommodating slot and the second terminal accommodating slot cooperate to form another said terminal accommodating cavity. The terminal is located in the terminal accommodating cavity.

[0020] At least one insulating isolation member is disposed in the housing of the arc fault detection module; the insulating isolation member is connectable in a fixed manner to another insulating isolation member having the same structure, and can cooperate to form the terminal accommodating cavity for accommodating the terminal. Thus, in actual production, only one mold need be used to manufacture multiple identical insulating isolation members, which cooperate with each other for the purpose of fixing terminals; production is low-cost, and also easy to expand, i.e. the number of insulating isolation members used can be selected at will, according to actual requirements. Furthermore, the insulating isolation member of this embodiment may employ a sequence of assembly in direction S; such a sequence is the same as the sequence of assembly of other internal components of the vast majority of arc fault detection modules. Thus, the assembly of the arc fault detection module can be accomplished without adjusting an assembly workstation; this increases production efficiency and further reduces production costs.

[0021] The arc fault detection module as described above optionally further comprises at least one additional said insulating isolation member. An interference fit is formed between the insulating isolation members located in the housing. The first side shell and an adjacent said insulating isolation member form an interference fit with each other and cooperate to form one said terminal accommodating cavity. The second side shell and an adjacent insulating isolation member form an interference fit with each other and form a terminal accommodating cavity.

[0022] The second terminal accommodating slot of one of each pair of adjacent said insulating isolation members cooperates with the first terminal accommodating slot of the other one to form a terminal accommodating cavity in which

a terminal is accommodated, and the second plug-together component of one of each pair of adjacent said insulating isolation members forms an interference fit with the first plug-together component of the other one.

[0023] In the arc fault detection module as described above, optionally, a material of the insulating isolation member is plastic. When plastic is used, not only is shaping easy, but the price is low.

Description of the accompanying drawings

[0024] Preferred embodiments of the present invention are described in detail below with reference to the accompanying drawings, to give those skilled in the art a clearer understanding of the abovementioned and other features and advantages of the present invention. Drawings:

Fig. 1 is a structural schematic view of an insulating isolation member for an arc fault detection module according to an embodiment of the present invention.

Fig. 2 is a structural schematic view of the insulating isolation member in fig. 1 from another angle.

Fig. 3 is a structural schematic view of insulating isolation members and terminals according to another embodiment of the present invention before assembly.

Fig. 4 is a structural schematic view of an arc fault detection module according to another embodiment of the present invention before assembly.

Fig. 5 is a structural schematic view of an arc fault detection module according to another embodiment of the present invention after assembly.

[0025] Labels used in the accompanying drawings:

100 - insulating isolation member	101 - body	102 - first terminal accommodating slot
103 - second terminal accommodating slot	104 - first plug-together component	105 - second plug-together component
106 - first engagement component	107 - second engagement component	108 - third plug-together component
109 - fourth plug-together component	110 - terminal	111 - slot
1071 - through-hole	200 - housing	201 - first side shell
202 - second side shell	210 - arc fault detection module	A - first side
B - second side	C - third side	D - fourth side

Particular embodiments

[0026] In order to clarify the object, technical solution and advantages of the present invention, the present invention is explained in further detail below by way of embodiments.

Embodiment 1

[0027] This embodiment provides an insulating isolation member for an arc fault detection module.

[0028] Fig. 1 shows a structural schematic view of an insulating isolation member according to this embodiment. Fig. 2 shows a structural schematic view of the insulating isolation member in fig. 1 from another angle.

[0029] The insulating isolation member 100 comprises a body 101 having four sides, a first terminal accommodating slot 102, a second terminal accommodating slot 103, a first plug-together component 104 and a second plug-together component 105.

[0030] The body 101 comprises a first side A and a second side B opposite each other, and a third side C and a fourth side D opposite each other. The first terminal accommodating slot 102 is located on the first side A. The second terminal accommodating slot 103 is located on the second side B. The second terminal accommodating slot 103 can cooperate with a first terminal accommodating slot 102 of another insulating isolation member 100 to form a terminal accommodating cavity. The terminal accommodating cavity is used to accommodate a terminal 110. The first plug-together component

104 is located on the first side A. The second plug-together component 105 is located on the second side B, and can form an interference fit with a first plug-together component 104 of another insulating isolation member 100.

[0031] A specific explanation is given below by means of examples.

[0032] For example, there are two insulating isolation members 100. The first plug-together component 104 of one insulating isolation member 100 can form an interference fit with the second plug-together component 105 of the other insulating isolation member 100, thereby fixing the two insulating isolation members 100 together. Furthermore, the first terminal accommodating slot 102 of one insulating isolation member 100 can cooperate with the second terminal accommodating slot 103 of the other insulating isolation member 100 to form a terminal accommodating cavity for accommodating a terminal 110, as shown in fig. 3. Thus, the two insulating isolation members 100 with the same structure can fit together for the purpose of fixing the terminal 110; moreover, the two insulating isolation members 100 can also be fixed together by means of an interference fit between the first plug-together component 104 and the second plug-together component 105.

[0033] Optionally, the insulating isolation member 100 of this embodiment may also comprise at least one of the following assemblies: an engagement assembly and a plug-together assembly. The engagement assembly comprises a first engagement component 106 and a second engagement component 107. The first engagement component 106 and the second engagement component 107 are both located on the third side C. The first engagement component 106 of one of the two insulating isolation members 100 can engage with the second engagement component 107 of the other one. Thus, the two insulating isolation members 100 are fixed in position in the direction of the third side C.

[0034] In one embodiment, the first engagement component 106 is a boss, located in a slot 111 on the third side C. The second engagement component 107 is an extension extending away from the first side A. The extension has a through-hole 1071. The through-hole 1071 is used for being penetrated by a boss of another insulating isolation member 100. As shown in figs. 1 and 2, the boss may be wedge-shaped: a side close to the through-hole 1071 is higher than a side remote from the through-hole 1071. Of course, the first engagement component 106 and the second engagement component 107 could also be implemented in another way; no specific restrictions are imposed.

[0035] The plug-together assembly comprises a third plug-together component 108 and a fourth plug-together component 109. The third plug-together component 108 is located on the first side A, and the fourth plug-together component 109 is located on the second side B; the fourth plug-together component 109 can form an interference fit with a third plug-together component 108 of another insulating isolation member 100. Thus, the first side A and the second side B each have two plug-together components for the purpose of forming an interference fit with another insulating isolation member 100, so that the fixing between the two insulating isolation members 100 can be made more secure. When the engagement assembly and the plug-together assembly are both present, this is equivalent to each insulating isolation member 100 having three fixing points, hence the fixing between the insulating isolation members 100 will be more secure. Optionally, the first plug-together component 104 and the fourth plug-together component 109 in this embodiment have the same structure. Thus, the two plug-together components located on the first side A have different structures, and the two plug-together components located on the second side B have different structures. By using different plug-together structures on the same side to fix the insulating isolation members 100, the fixing between the insulating isolation members 100 can be made more secure.

[0036] Optionally, the first plug-together component 104 is located at the top of the first side A, the second plug-together component 105 is located at the top of the second side B, the third plug-together component 108 is located at the bottom of the first side A, and the fourth plug-together component 109 is located at the bottom of the second side B. Thus, all the plug-together components are located, to the greatest extent possible, at the top and bottom of the sides, and the fixing of the insulating isolation members 100 can be made more secure by dispersing the force-bearing positions.

[0037] In one embodiment, the first plug-together component 104 is a cylinder and the second plug-together component 105 is a circular slot, or the first plug-together component 104 is a circular slot and the second plug-together component 105 is a cylinder. In another embodiment, the third plug-together component 108 is a cylinder and the fourth plug-together component 109 is a circular slot, or the third plug-together component 108 is a circular slot and the fourth plug-together component 109 is a cylinder. By using the plug-together structure of circular slot and cylinder, the assembly of the plug-together components can be made more convenient.

[0038] In this embodiment, the material of the insulating isolation member 100 is plastic. When plastic is used, not only is shaping easy, but the price is low.

[0039] Furthermore, it can be seen from fig. 3 that a direction in which the insulating isolation members 100 are fitted together may be a direction S, i.e. a direction of assembly from right to left. When the insulating isolation members 100 are assembled, the direction of assembly need not be changed. Of course, a direction of assembly that is opposite to direction S could also be employed.

[0040] The insulating isolation member 100 according to this embodiment can be connected in an interference fit with another insulating isolation member 100 having the same structure, and can cooperate therewith to form the terminal accommodating cavity for accommodating the terminal 110. Thus, in actual production, only one mold need be used to manufacture multiple identical insulating isolation members 100, which cooperate with each other for the purpose of

fixing terminals; production is low-cost, and also easy to expand, i.e. the number of insulating isolation members 100 used can be selected at will, according to actual requirements. Furthermore, the insulating isolation member 100 of this embodiment may employ a sequence of assembly in direction S; such a sequence is the same as the sequence of assembly of other internal components of the vast majority of arc fault detection modules. Thus, the assembly of the arc fault detection module can be accomplished without adjusting an assembly workstation; this increases production efficiency and further reduces production costs.

Embodiment 2

[0041] This embodiment provides an arc fault detection module.

[0042] Fig. 4 shows a structural schematic view of the arc fault detection module according to this embodiment before assembly.

[0043] Fig. 5 shows a structural schematic view of the arc fault detection module according to this embodiment after assembly.

[0044] The arc fault detection module 210 of this embodiment has a housing 200, an insulating isolation member 100 and a terminal 110.

[0045] The structure of the insulating isolation member 100 in this embodiment is the same as that described in the previous embodiment, so is not described again here.

[0046] The housing 200 of this embodiment comprises a first side shell 201 and a second side shell 202 opposite each other. The first side shell 201 has a third terminal accommodating slot and a fifth plug-together component. The fifth plug-together component forms an interference fit with the first plug-together component 104. The third terminal accommodating slot cooperates with the first terminal accommodating slot 102 to form a terminal accommodating cavity. The second side shell 202 has a fourth terminal accommodating slot and a sixth plug-together component; the sixth plug-together component forms an interference fit with the second plug-together component 105, and the fourth terminal accommodating slot and the second terminal accommodating slot 103 cooperate to form another terminal accommodating cavity. The structure of the third terminal accommodating slot of this embodiment may be the same as the structure of the second terminal accommodating slot 103. The structure of the fifth plug-together component may be the same as the structure of the second plug-together component 105. The structure of the fourth terminal accommodating slot of this embodiment may be the same as the structure of the first terminal accommodating slot 102. The structure of the sixth plug-together component may be the same as the structure of the first plug-together component 104. Thus, one side of the insulating isolation member 100 may form an interference fit with the housing 200 by means of plug-together components.

[0047] The terminal 110 of this embodiment is located in the terminal accommodating cavity. A one-to-one correspondence exists between the terminal 110 and the terminal accommodating cavity, i.e. one terminal accommodating cavity accommodates one terminal 110. Furthermore, the number of terminals 110 is one more than the number of insulating isolation members 100. For example, if there is one insulating isolation member 100, then correspondingly, the number of terminals 110 is two. If the number of insulating isolation members 100 is two, then correspondingly, the number of terminals 110 is three.

[0048] The arc fault detection module 210 of this embodiment further comprises at least one additional insulating isolation member 100. An interference fit is formed between the insulating isolation members 100 located in the housing 200. The first side shell 201 and an adjacent insulating isolation member 100 form an interference fit with each other and form a terminal accommodating cavity; the second side shell 202 and an adjacent insulating isolation member 100 form an interference fit with each other and form a terminal accommodating cavity. Furthermore, the second terminal accommodating slot 103 of one of each pair of adjacent insulating isolation members 100 cooperates with the first terminal accommodating slot 102 of the other one to form a terminal accommodating cavity in which a terminal 110 is accommodated, and the second plug-together component 105 of one of each pair of adjacent insulating isolation members 100 forms an interference fit with the first plug-together component 104 of the other one. This is specifically shown in figs. 3, 4 and 5.

[0049] When the insulating isolation member 100 also comprises the engagement assembly and/or the plug-together assembly, a structure matched to the engagement assembly and/or the plug-together assembly may also be provided on the housing 200.

[0050] As a specific example, a third engagement component may also be provided on the first side shell 201. The third engagement component engages with the first engagement component 106 of an adjacent insulating isolation member 100. The structure of the third engagement component may be the same as the structure of the second engagement component 107. A fourth engagement component may also be provided on the second side shell 202. The fourth engagement component engages with the second engagement component 107 of an adjacent insulating isolation member 100. The structure of the fourth engagement component may be the same as the structure of the first engagement component 106.

[0051] A seventh plug-together component may also be provided on the first side shell 201; the seventh plug-together component forms an interference fit with the third plug-together component 108 of an adjacent insulating isolation member 100. The structure of the seventh plug-together component may be the same as the structure of the fourth plug-together component 109. An eighth plug-together component may also be provided on the second side shell 202, and forms an interference fit with the fourth plug-together component 109 of an adjacent insulating isolation member 100. The structure of the eighth plug-together component may be the same as the structure of the third plug-together component 108.

[0052] In this embodiment, the material of the insulating isolation member 100 is plastic. When plastic is used, not only is shaping easy, but the price is low.

[0053] It can be seen from figs. 4 and 5 that a sequence of assembly of the housing 200 in this embodiment may be direction S, or a direction opposite to direction S. Thus, the insulating isolation members may be assembled in the same direction as the housing 200. In other words, in an actual operation, there is no need to adjust a direction of assembly of a workstation, hence the production efficiency can be increased, and the production costs can be lowered.

[0054] According to this embodiment, at least one insulating isolation member 100 is disposed in the housing 200 of the arc fault detection module 210; the insulating isolation member 100 is connectable in a fixed manner to another insulating isolation member 100 having the same structure, and can cooperate to form the terminal accommodating cavity for accommodating the terminal. Thus, in actual production, only one mold need be used to manufacture multiple identical insulating isolation members 100, which cooperate with each other for the purpose of fixing terminals; production is low-cost, and also easy to expand, i.e. the number of insulating isolation members 100 used can be selected at will, according to actual requirements. Furthermore, the insulating isolation member 100 of this embodiment may employ a sequence of assembly in direction S; such a sequence is the same as the sequence of assembly of other internal components of the vast majority of arc fault detection modules. Thus, the assembly of the arc fault detection module can be accomplished without adjusting an assembly workstation; this increases production efficiency and further reduces production costs.

[0055] The embodiments above are merely preferred embodiments of the present invention, which are not intended to limit it. Any amendments, equivalent substitutions or improvements etc. made within the spirit and principles of the present invention shall be included in the scope of protection thereof.

Claims

1. An insulating isolation member (100) for an arc fault detection module, **characterized by** comprising:

a body (101) having four sides, comprising a first side (A) and a second side (B) opposite each other and a third side (C) and a fourth side (D) opposite each other;
a first terminal accommodating slot (102), located on the first side (A);
a second terminal accommodating slot (103), located on the second side (B), the second terminal accommodating slot (103) being capable of cooperating with a first terminal accommodating slot (102) of another insulating isolation member (100) to form a terminal accommodating cavity for accommodating a terminal (110) ;
a first plug-together component (104), located on the first side (A); and
a second plug-together component (105), located on the second side (B), the second plug-together component (105) being capable of forming an interference fit with a first plug-together component (104) of the other insulating isolation member (100).

2. The insulating isolation member (100) as claimed in claim 1, **characterized by** further comprising at least one of the following assemblies:

an engagement assembly, comprising:

a first engagement component (106), located on the third side (C); and
a second engagement component (107), located on the third side (C), the first engagement component (106) being capable of engaging with a second engagement component (107) of another said insulating isolation member (100);

a plug-together assembly, comprising:

a third plug-together component (108), located on the first side (A); and
a fourth plug-together component (109), located on the second side (B), the fourth plug-together component (109) being capable of forming an interference fit with a third plug-together component (108) of another

insulating isolation member (100).

3. The insulating isolation member (100) as claimed in claim 2, **characterized in that** the first plug-together component (104) and the fourth plug-together component (109) have the same structure.

4. The insulating isolation member (100) as claimed in claim 3, **characterized in that** the first plug-together component (104) is located at the top of the first side (A), the second plug-together component (105) is located at the top of the second side (B), the third plug-together component (108) is located at the bottom of the first side (A), and the fourth plug-together component (109) is located at the bottom of the second side (B).

5. The insulating isolation member (100) as claimed in any one of claims 1 to 4, **characterized in that** the first plug-together component (104) is a cylinder and the second plug-together component (105) is a circular slot, or the first plug-together component (104) is a circular slot and the second plug-together component (105) is a cylinder.

6. The insulating isolation member (100) as claimed in any one of claims 2 to 4, **characterized in that** the third plug-together component (108) is a cylinder and the fourth plug-together component (109) is a circular slot, or the third plug-together component (108) is a circular slot and the fourth plug-together component (109) is a cylinder.

7. The insulating isolation member (100) as claimed in any one of claims 2 to 4, **characterized in that** the first engagement component (106) is a boss, located in a slot (111) on the third side (C), and the second engagement component (107) is an extension extending away from the first side (A), the extension having a through-hole (1071) for being penetrated by a boss of another insulating isolation member (100).

8. An arc fault detection module (210), **characterized by** having:

an insulating isolation member (100) as claimed in any one of claims 1 to 7, located in a housing (200);
the housing (200), comprising a first side shell (201) and a second side shell (202) opposite each other, the first side shell (201) having a third terminal accommodating slot and a fifth plug-together component, the fifth plug-together component forming an interference fit with the first plug-together component (104), the third terminal accommodating slot cooperating with the first terminal accommodating slot (102) to form a terminal accommodating cavity, the second side shell (202) having a fourth terminal accommodating slot and a sixth plug-together component, the sixth plug-together component forming an interference fit with the second plug-together component (105), and the fourth terminal accommodating slot and the second terminal accommodating slot (103) cooperating to form another terminal accommodating cavity; and
a terminal (110), located in the terminal accommodating cavity.

9. The arc fault detection module (210) as claimed in claim 8, **characterized by** further comprising:

at least one additional said insulating isolation member (100), wherein an interference fit is formed between the insulating isolation members (100) located in the housing (200), the first side shell (201) and an adjacent said insulating isolation member (100) form an interference fit with each other and form a terminal accommodating cavity, and the second side shell (202) and an adjacent said insulating isolation member (100) form an interference fit with each other and form a terminal accommodating cavity;
the second terminal accommodating slot (103) of one of each pair of adjacent said insulating isolation members (100) cooperates with the first terminal accommodating slot (102) of the other one to form a terminal accommodating cavity in which a terminal (110) is accommodated, and the second plug-together component (105) of one of each pair of adjacent said insulating isolation members (100) forms an interference fit with the first plug-together component (104) of the other one.

10. The arc fault detection module (210) as claimed in claim 8 or 9, **characterized in that** a material of the insulating isolation member (100) is plastic.

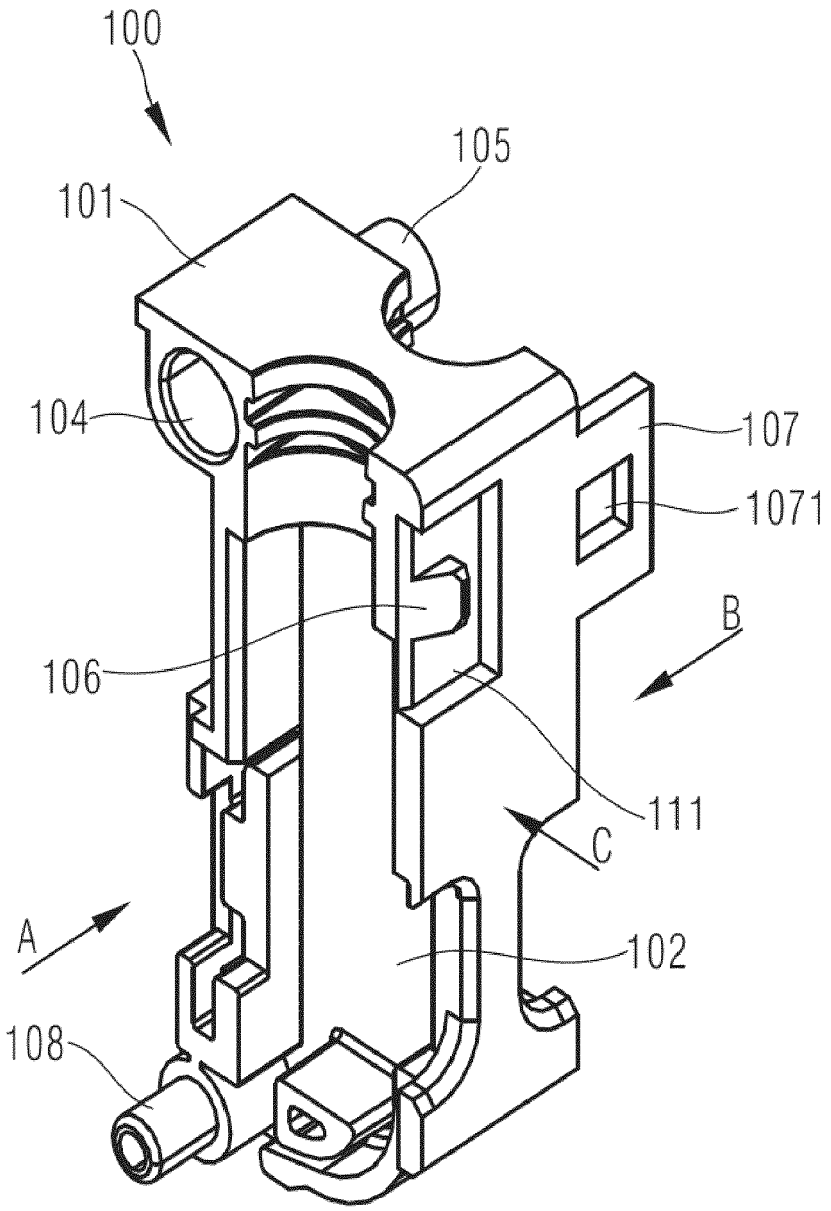

Fig. 1

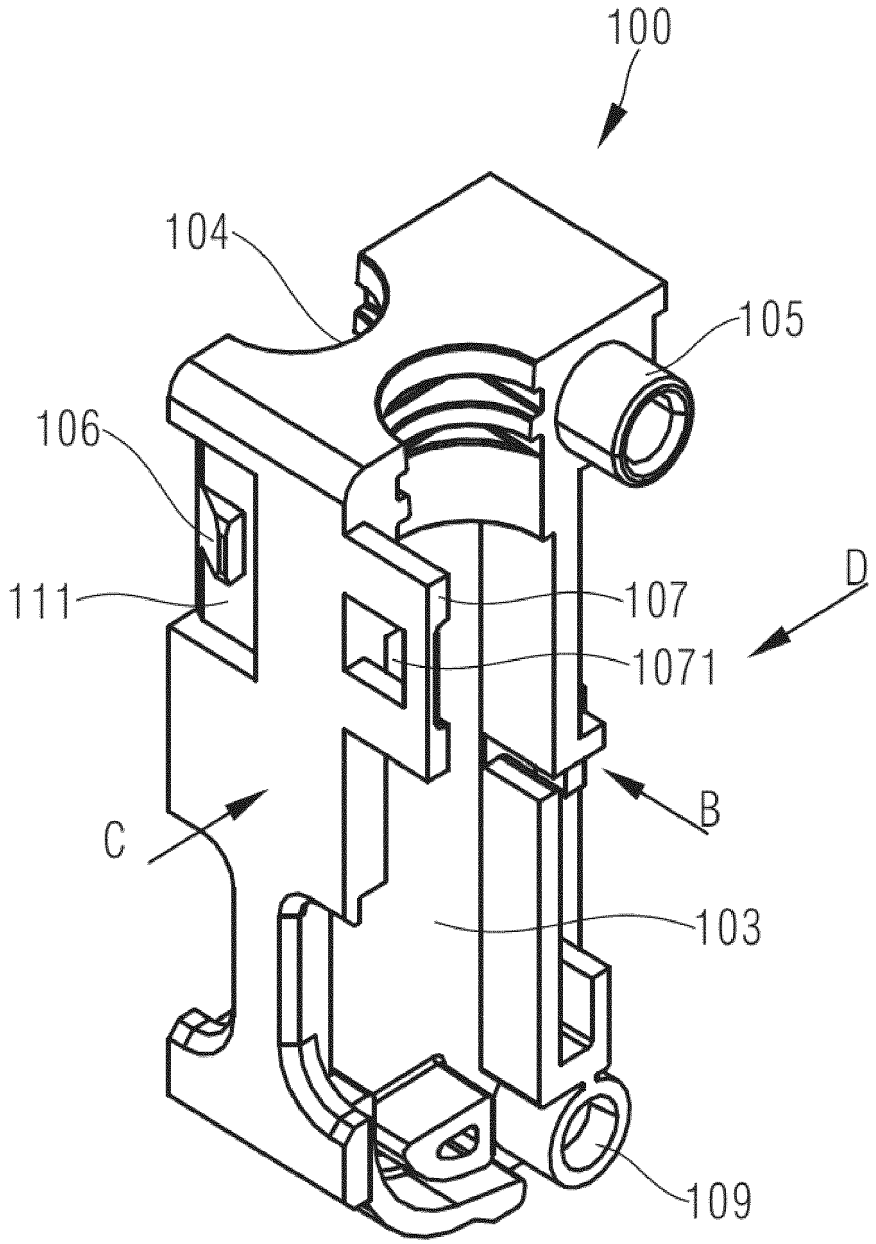

Fig. 2

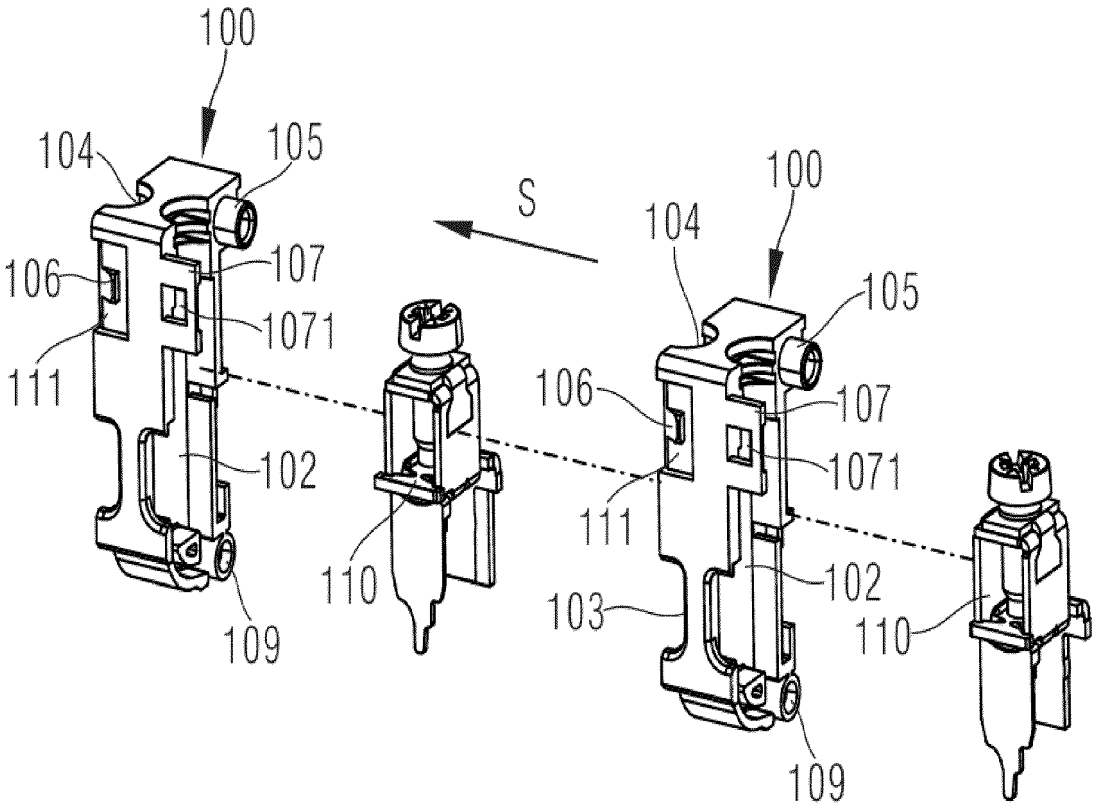
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Fig. 3

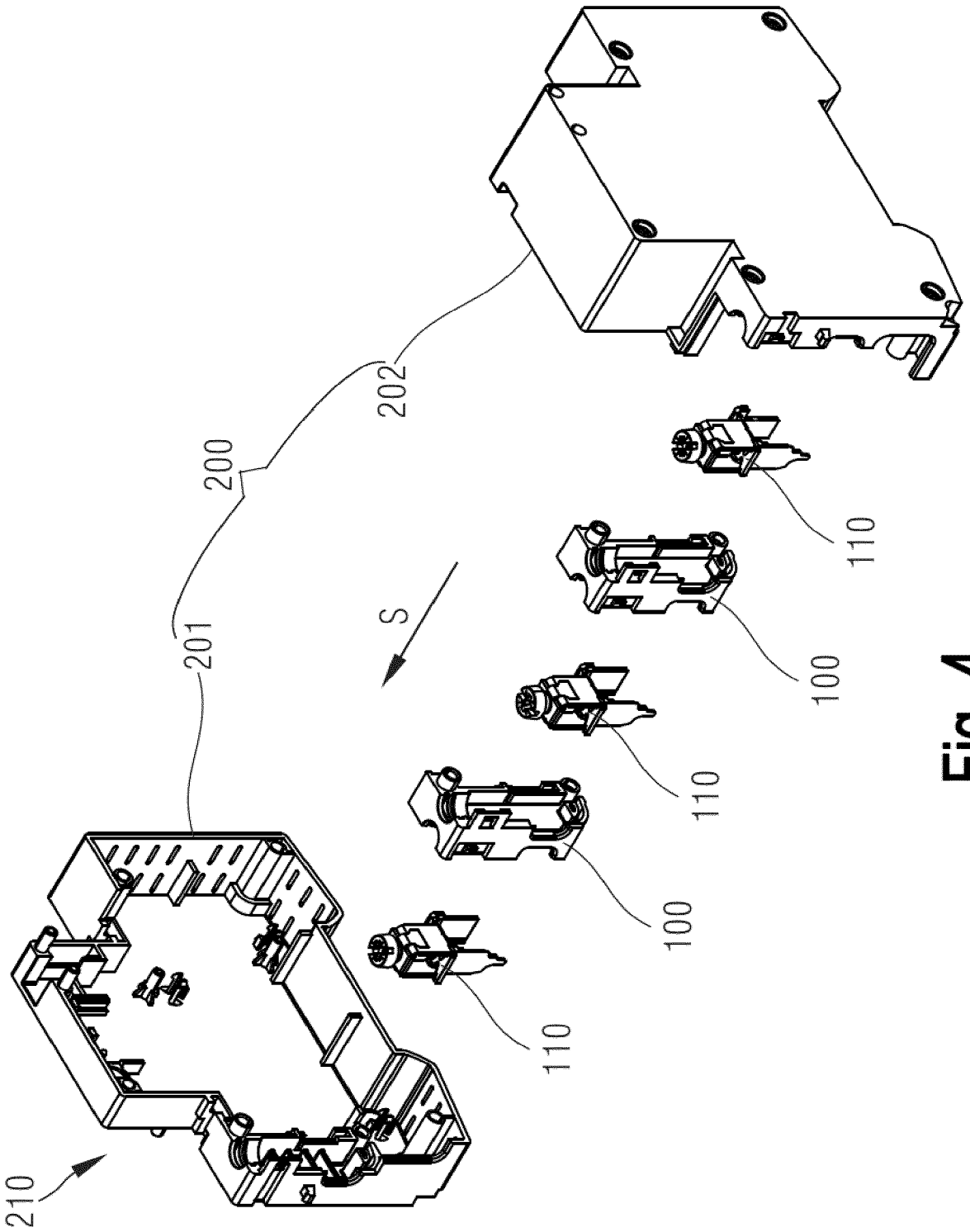

Fig. 4

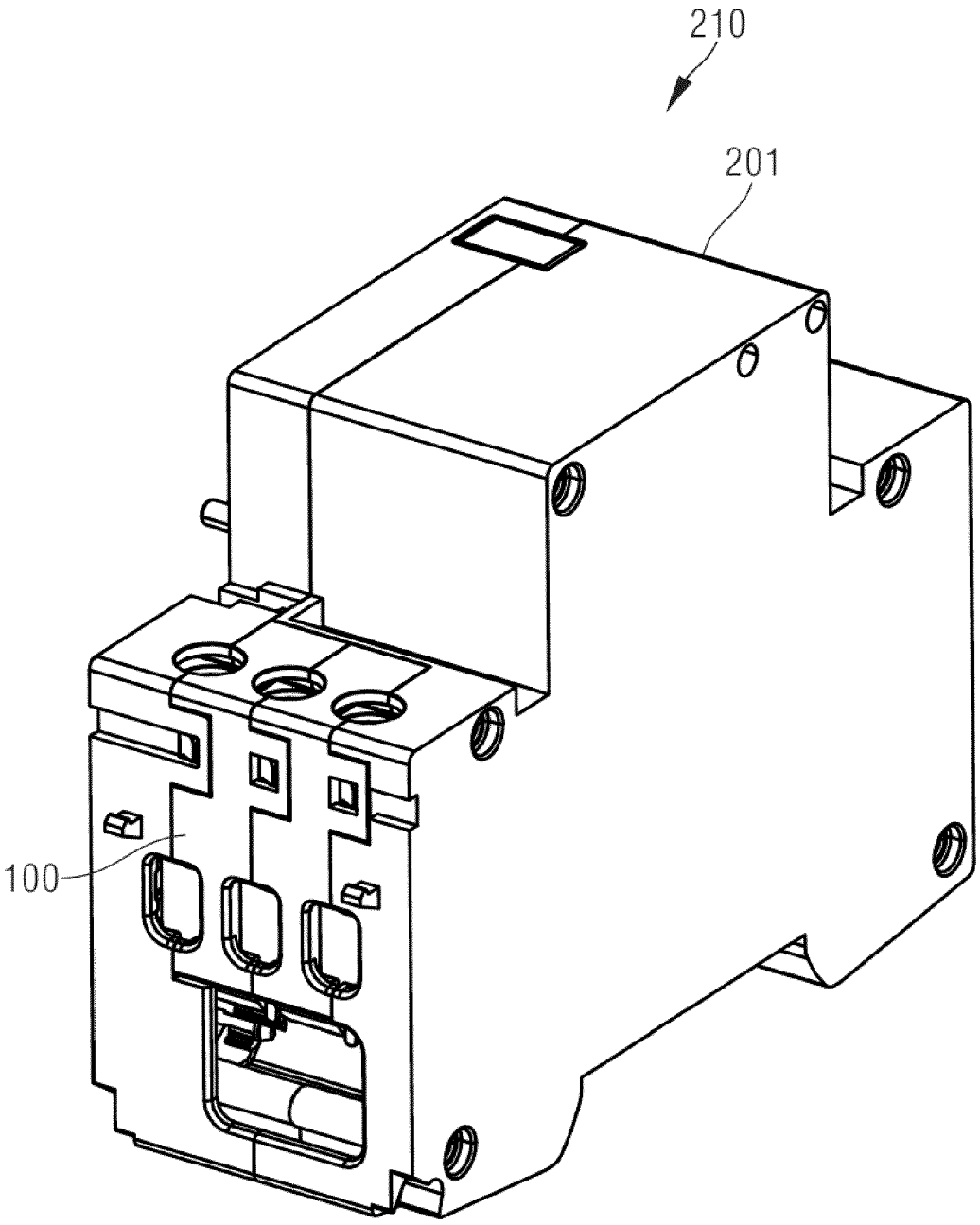

Fig. 5

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EUROPEAN SEARCH REPORT

Application Number
EP 18 17 4273

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Place of search	Date of completion of the search	Examiner
Munich	20 September 2018	Ernst, Uwe

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