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(54) **Connection device for a residual-current module**

Verbindungseinrichtung für Fehlerstrommodul

Dispositif de connexion pour module différentielle

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(56) References cited:
EP-A- 0 717 425

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Description

[0001] The present invention relates to a connection device for a residual-current module.

[0002] Residual-current devices are adapted to cause the opening of circuit breakers when an earth fault current exceeds, for an optionally selected time, the threshold value for which the device has been preset.

[0003] The residual-current module is associated with a circuit breaker, usually in a laterally adjacent or underlying position, and when the module is arranged laterally to the circuit breaker the mechanical connection between the two devices occurs by means of hooks or other similar connecting members.

[0004] EP-0717425 **discloses a differential protection module provided with a safety coupling for coupling to a multiple switch block. The safety coupling is constituted by a protective cover member articulated to the differential module.**

[0005] The aim of the present invention is to provide a connection device that is simplified with respect to conventional devices for the mechanical connection of a residual-current module to a circuit breaker.

[0006] An object of the invention is to provide a connection device that reduces the number of components that constitute the residual-current module.

[0007] Another object of the invention is to provide a connection device that is quick and easy to install.

[0008] This aim and these and other objects that will become better apparent hereinafter are achieved by a connection device for a rssiduai-current module, as claimed in the appended claims.

[0009] Further characteristics and advantages of the invention will become better apparent from the description of preferred but not exclusive embodiments thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a perspective view of a residual-current module provided with the connection device according to the invention;
Figure 2 is a perspective view of a residual-current module arranged laterally to a circuit breaker during their mutual connection;
Figure 3 is an enlarged-scale detail view of the connection device according to the invention, shown during application.

[0010] With reference to the figures, a connection device according to the invention, generally designated by the reference numeral 1, is particularly useful for the mechanical connection of a residual-current module 2 to a corresponding circuit breaker 3, of which only an upper cover 4 is shown in the figures.

[0011] The residual-current module 2 comprises a lower terminal strip 5, in a per se known manner.

[0012] The terminal strips can be covered, once the electrical connections to conductors 8 have been provided, by means of respective covers 7 that affect the entire width of the module. The covers are designed to provide both protection and safety and are generally present also in conventional modules, albeit not in the form described here.

[0013] According to the invention, the cover 7 includes a lateral hook 9 which, when the cover is applied to the terminal strip of the residual-current module, enters a seat 10 formed in a lateral portion of the upper cover 4 of the laterally adjacent circuit breaker 3, thus providing a mechanical connection between the circuit breaker 3 and the module 2 without the aid of additional mechanical connection members.

[0014] Locators 6 are also provided on the side of the module 2 and cooperate with appropriate seats formed in the side of the device 3 to be associated so as to precisely position the two devices with respect to each other.

[0015] In practice it has been observed that the invention achieves the intended aim and objects, a connection device having been provided that is adapted to mechanically connect a residual-current module to a circuit breaker in a laterally adjacent position by using a member that is already present in modules and circuit breakers and thus reducing the total number of components of the system.

[0016] Another advantage of the invention is the great simplicity and speed of execution of the connection, arising from the fact that with a single operation, i.e., the application of the cover of the terminal strips, the operator also provides the mechanical connection of the modules, an operation that in the prior art had to be performed subsequently by means of additional specific devices.

Claims

1. A connection device for a residual-current module, **characterized in that** it comprises a hook member formed in a covering member used to cover the terminals of the module, said hook member adapted to engage a seat formed in a lateral portion of the upper cover of a laterally adjacent circuit breaker.

Patentansprüche

1. Verbindungseinrichtung für ein Fehlerstrommodul, **dadurch gekennzeichnet, dass** es ein Hakenelement aufweist, welches in einem Abdeckungselement ausgebildet ist, das verwendet wird, um die Anschlussklemmen des Moduls abzudecken, wobei das besagte Hakenelement dafür eingerichtet ist, in einen Sitz einzugreifen, der in einem Seitenbereich der oberen Abdeckung eines seitlich angrenzenden Ausschalters ausgebildet ist.

Revendications

1. Dispositif de protection pour module différentielle, **caractérisé en ce qu'**il comprend un crochet formé d'un couvercle utilisé pour couvrir les bornes de raccordement du module, ledit crochet étant adapté pour coopérer avec un siège aménagé dans une partie latérale du couvercle supérieur d'un coupe-circuit latéralement adjacent.

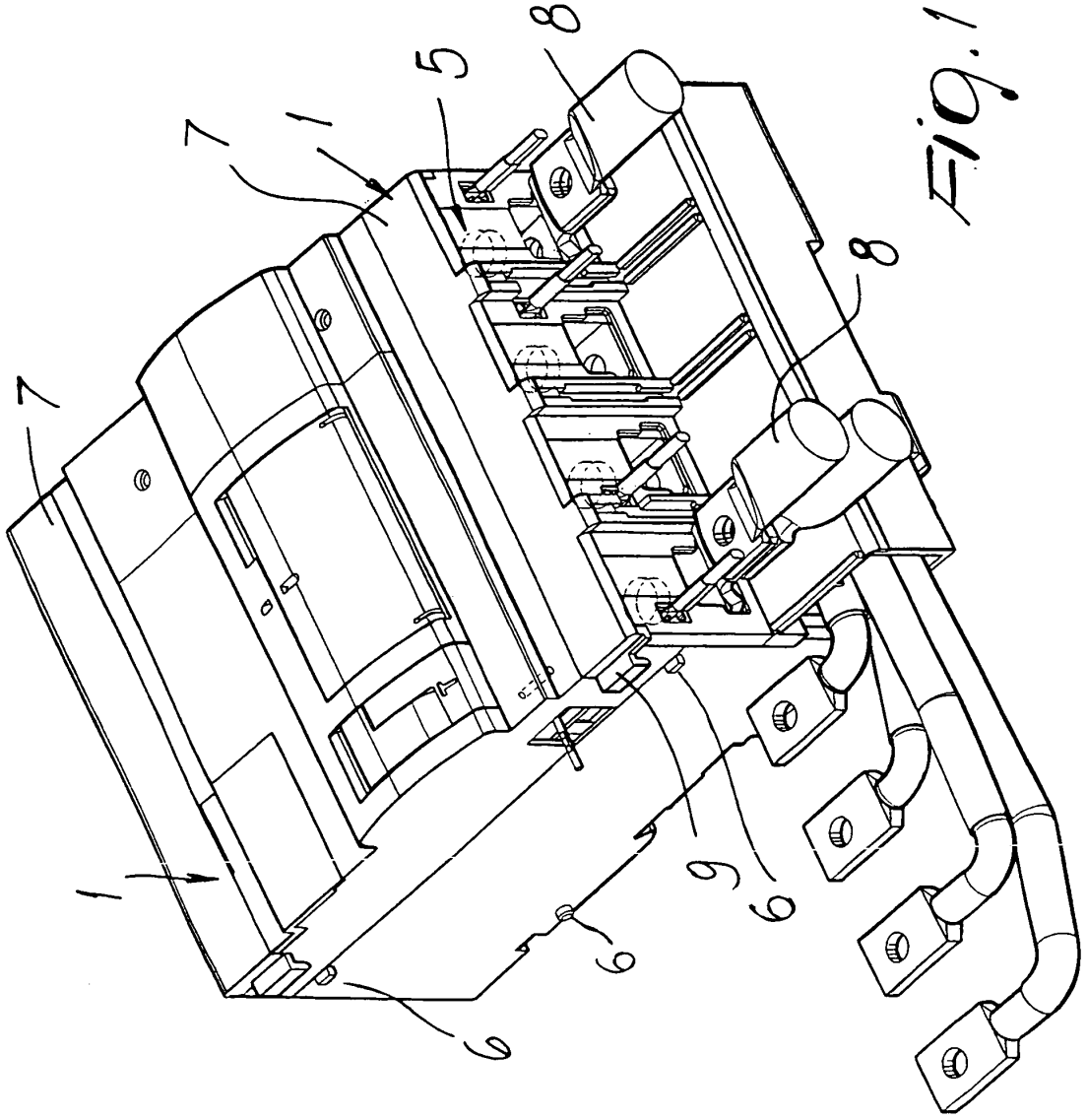

Fig. 1

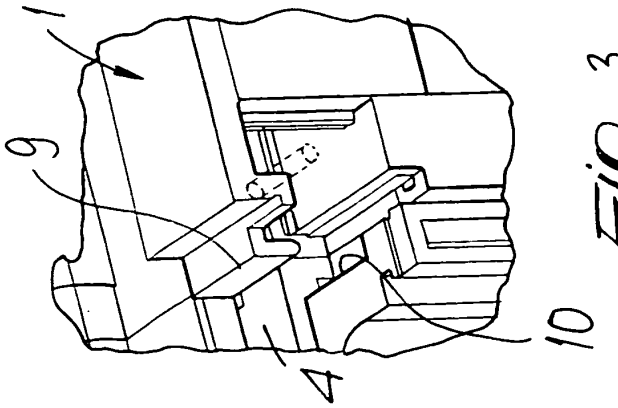

Fig. 3

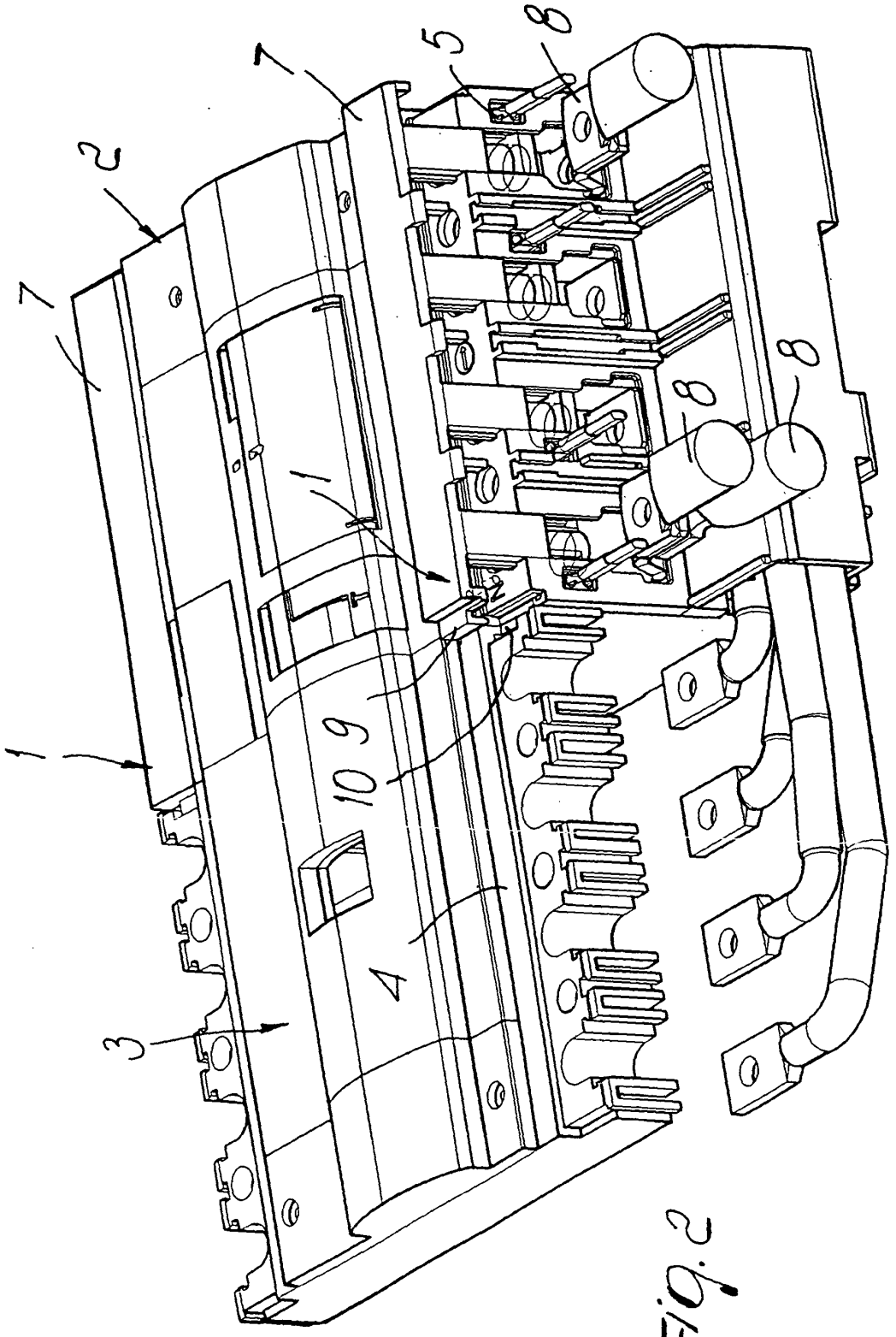

Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 0717425 A **[0004]**