(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 378 057 A2**

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **89830056.1**

(22) Date of filing: **16.02.89**

(51) Int. Cl.5: **H01R 19/18, H01R 13/58, H01R 13/68**

(30) Priority: **12.01.89 IT 1906989**

(43) Date of publication of application: **18.07.90 Bulletin 90/29**

(84) Designated Contracting States: **DE FR GB**

(71) Applicant: **ELETTRO GIBI S.p.A.**
Via A. Volta, 83
I-20090 Cusago (Milano)(IT)

(72) Inventor: **Pizzi, Giordano**
Via A. Volta, 83
I-20090 Cusago (Milano)(IT)

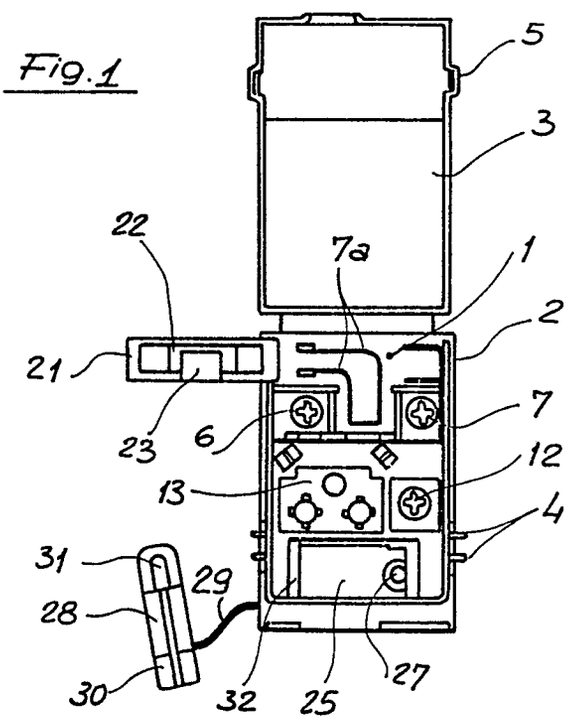
(74) Representative: **Cicogna, Franco**
Ufficio Internazionale Brevetti Dott.Prof. Franco Cicogna Via Visconti di Modrone, 14/A
I-20122 Milano(IT)

(54) Terminal block assembly including an electrical cable clamp member in particular for household electrical appliances.

(57) The present invention relates to a terminal block assembly provided with an electrical cable clamp member for application on the outside of the casing of household electrical appliances in general, which assembly essentially comprises a supporting base (1) which, on the front face thereof, bears two power supply terminals (6, 7, 7a) and a ground or earth terminal and, on the reverse face thereof, said base supporting corresponding pairs of blade-like terminals (8, 9).

On that same base, moreover, there are further provided mechanical members for restraining a cover member (3) and other mechanical members for anchoring the cover to a wall of the appliance casing.

Fig.1



EP 0 378 057 A2

TERMINAL BLOCK ASSEMBLY INCLUDING AN ELECTRICAL CABLE CLAMP MEMBER IN PARTICULAR FOR HOUSEHOLD ELECTRICAL APPLIANCES

BACKGROUND OF THE INVENTION

The present invention relates to a terminal block assembly, including an electrical clamping member, for application on the outside of the casing of household appliances in general.

As is known, washing machines, dish washing machines and other like household electrical appliances, of a comparatively high electric power, must ne necessarily power supplied through three-pole electrical cables.

Also known is the fact that, usually, the mentioned power supply electrical cables and earth or ground cables are coupled to terminal blocks arranged inside the apparatus.

Thus, as the power supply cable is to be replaced, it is necessary to quickly and easily access the inside of the apparatus, which represents a drawback.

Further drawbacks, as it should be apparent, would occur during the shop assembling of the appliance, in order to provide the proper electrical connections.

SUMMARY OF THE INVENTION

Accordingly, the task of the present invention is to overcome the above mentioned drawbacks, by providing a terminal block assembly, including a related electrical cable clamping member, which affords the possibility of arranging at least the power supply and earth electrical cables on an outside surface of the casing of the electrical appliance.

Within the scope of the above task, it is a main object of the present invention to provide such a terminal block assembly which is very simple construction wise, of reduced size and can be applied, through box-like members, so designed and arranged as to receive an antinoise filter.

Another object of the present invention is to provide such a terminal block assembly which further includes a protection fuse.

According to one aspect of the present invention, the above mentioned task and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a terminal block assembly, including an electric cable clamping member, for application on an outside surface of the casing of a household electrical appliance, characterized in that said terminal block assembly essentially comprises a bearing base which bears, on a front face thereof, two power supply terminals and an earth or ground terminal, thereto correspond, on the reverse of said face, corresponding pairs of bladelike terminals, which can be coupled, by means of coupling members, to bias keys, said base, which is provided with a closure cover member, further supporting mechanical members for restraining said cover member and mechanical members for anchoring said cover member to a wall of the casing of the household electrical appliance.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the terminal block assembly according to the present invention will become more apparent hereinafter from the following detailed description of a preferred embodiment of this assembly which is illustrated, by way of an indicative but not limitative example, in the figures of the accompanying drawings, where:

Figure 1 is a top plan view illustrating the terminal block assembly according to the present invention, the cover member thereof being shown in a raised condition;

Figure 2 is a bottom view showing a base member included in the terminal block assembly according to the invention;

Figure 3 is a side view of the terminal block assembly according to the present invention; and

Figure 4 shows the terminal block assembly according to the invention, with its cover member upwardly tilted, as applied on a household electrical appliance.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference to the figures of the accompanying drawings, the terminal block assembly, with electrical cable clamping member, for application on the outside of the casing of a household electrical appliance, according to the present invention, comprises a base 1 which has shaped side longitudinal profiles 2 and pivotably supports, at one end thereof, a box-like structure 3, adapted to operate as a closure cover member, and, possibly,

also adapted to support a protecting fuse for breaking the electrical circuit as the latter is electrically opened.

On the mentioned longitudinal profiles there are formed pairs of restraining tooth members 4, of the slanted surface type, which are adapted to engage in corresponding cantilever strips 5 provided on the side walls of the cover member.

On the front face of the base 1 there are applied two electrical terminals 6, 7 and 7a thereto correspond, on the reverse of said base face, corresponding pairs of blade-like electrical terminals indicated respectively at 8 and 9.

This terminal pairs are enclosed between protecting side walls 10 and are separated by a middle vertical separating wall 11 where a connector 34 can be housed, with coupling biasing keys. This connector member 34 can also be adapted to house a antinoise filter 35.

On said base, moreover, there is provided a further side electrical terminal 12 coupled to a plate 13 which, in turn, is electrically coupled to a underlying plate 14, provided for contacting with said household electrical appliance casing and also including a pair of bladelike electrical terminals 15.

In this connection, it should be pointed out that the mentioned plates are provided with cross-shape throuhgoing holes 16 therein there are screw engaged corresponding self-screwing screws 17 for anchoring the base to a wall 18 of the appliance.

On this wall, in particular, there is provided an elongated hole or slot 19, for receiving the projecting elements formed on the reverse of the mentioned face of the base 1.

Near said projecting elements, moreover, there are formed at least three hook shaped resilient tabs 20 which project downward and are adapted to engage on the edges of the mentioned holes.

At the top of the base 1 there is moreover provided a strip 21 which, at one end, is affixed to one of the walls of said base and is provided, at an intermediate position thereof, with a bracket 22 holding a fuse 23, which, as said strip is rotated, will engage in the corresponding electrical contacts 7 and 7a.

At the bottom of said base, moreover, there is formed a cross recess 25, so designed and arranged as to receive a power supply electrical cable 26 and perimetrically provided with a cylindrical ridge 27 including a central counterbore.

With the mentioned cross recess a rigid strip 28 cooperates, which is affixed to said base by means of a thread-like lug 29.

More specifically, the mentioned rigid strip is provided, at one end thereof, with a cross slot 30 and, at the opposite end thereof, with an elongated throughgoing hole 31.

Thus, as the mentioned strip is engaged, from the bottom, with its slot 30 in a corresponding bridge member 32 provided on the recess 25 and in the hole 31, through a self-screwing screw 33 in the ridge 27 of said recess, will firmly lock the end portion of the power supply electrical cable 26 on the base 1 so as to allow for said screw to always vertically operate independently from the diameter of the used cable.

In this connection it should be apparent that the terminal block assembly thereinabove dissclosed is of the pre-wired type which greatly simplifies the household electrical appliance assembling steps.

Moreover, that same terminal block has the additional very important characteristics of comprising a housing for receiving a protection fuse which, in this manner, can be easily accessed and replaced.

Another main feature of the invention is that the subject terminal block is adapted to house a coupling connector provided with biassing keys and specifically designed for receiving antinoise filters 35.Moreover, the subject electrical terminal block affords the possibility of automatically opening the electric circuit as the cover member is opened.

From the above disclosure it should be apparent that the terminal block according to the present invention fully achieves the intended task and objects.

While the invention has been disclosed and illustrated with reference to a preferred embodiment thereof, it should be apparent that the disclosed embodiment is susceptible to several modifications and variations, all of which will come within the spirit and scope of the appended claims.

Claims

1. A terminal block assembly, including an electrical cable clamping member, for application on an outside surface of the casing of a household electrical appliance, characterized in that said terminal block assembly essentially comprises a bearing base which bears, on a front face thereof, two power supply terminals and an earth or ground terminal, thereto correspond, on the reverse of said face, corresponding pairs of bladelike terminals, which can be coupled, by means of coupling members, to bias keys, said base, which is provided with a closure cover member, further supporting mechanical members for restraining said cover member and mechanical members for anchoring said cover member to a wall of the casing of the household electrical appliance.

2. A terminal block assembly, according to Claim 1, characterized in that said assembly comprises a protecting fuse.

3. A terminal block assembly, according to preceding Claim, characterized in that said base comprises longitudinal shaped side profiles and pivotably supports, at one end thereof, a box-like structure adapted to operate as a closure cover member and to support said protecting fuse for opening the electrical circuit as said cover member is opened, on said longitudinal profiles there being formed pairs of slanted surface restraining tooth members for engaging with corresponding cantilever strips provided on the side walls of said cover member.

4. A therminal block assembly, according to one or more of the preceding claims, characterized in that said pairs of bladelike electrical terminals, arranged opposite to the two power supply terminals, are enclosed between protecting side walls and are separated by a vertical middle wall.

5. A terminal block assembly, according to one or more of the preceding claims, characterized in that it is provided for housing bias key connectors in turn adapted to house antinoise filters.

6. A terminal block assembly, according to one or more of the preceding claims, characterized in that said ground or earth terminal is coupled to a plate which, in turn, is electrically coupled to a underlaying plate provided for contacting the casing of said appliance and also including a pair of bladelike terminals, said plates including cross-shaped throughgoing holes adapted to receive corresponding self-screwing screws for anchoring said base to a wall of the casing of said appliance.

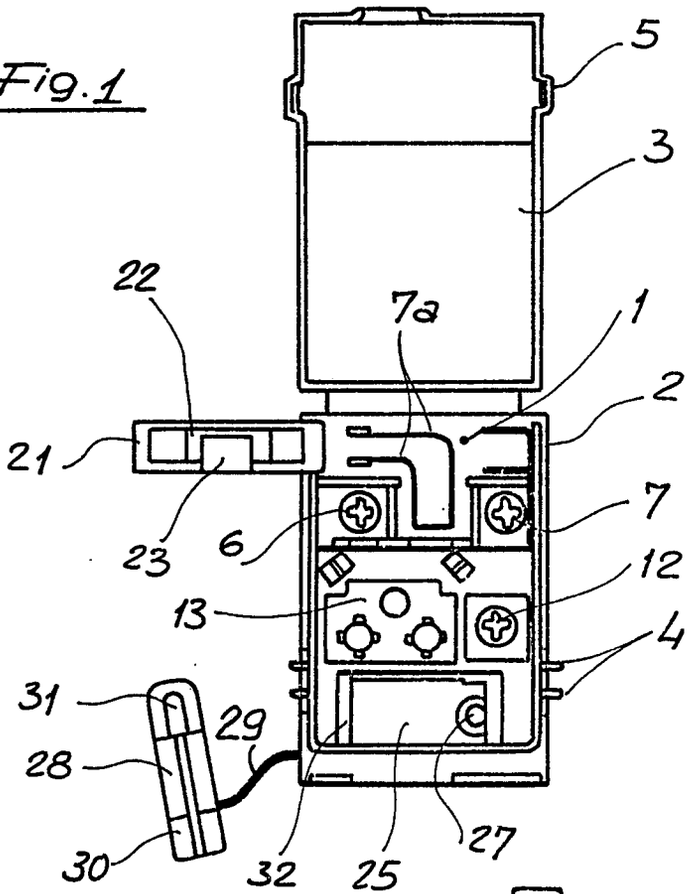
7. A terminal block assembly, according to one or more of the preceding claims, characterized in that, near the bottom elements on said base, there are provided at least three resilient tabs, of hook shape, which downward project and are adapted to engage on the edges of the hole formed through said wall of said appliance casing.

8. A terminal block assembly according to one or more of the preceding claims, characterized in that on the top of said base there is provided a strip member which, at one end thereof, is coupled to one of the walls of said base and is pro vided, to a middle position, with a bracket adapted to restrain a fuse.

9. A terminal block assembly, according to one or more of the preceding claims, characterized in that at the bottom of said base there is formed a cross recess, so designed and arranged as to transversely engage a power supply cable, said recess being perimetrically provided with a cylindrical ridge having a blind central hole, with said cross recess cooperating a rigid strip coupled to said base by means of a thread like lug.

10. A terminal block assembly, according to one or more of the preceding claims, characterized in that said rigid strip is provided, at one end thereof, with a cross slot and, at the opposite end thereof, with an elongated slot, said rigid strip engaging from the bottom with said slot in a corresponding bridging member provided on said recess and with said elongated slot through a self screwing screw, which always operates vertically, in the ridge of said recess being able of firmly locking the end portion of a variable diameter power supply cable.

Fig.1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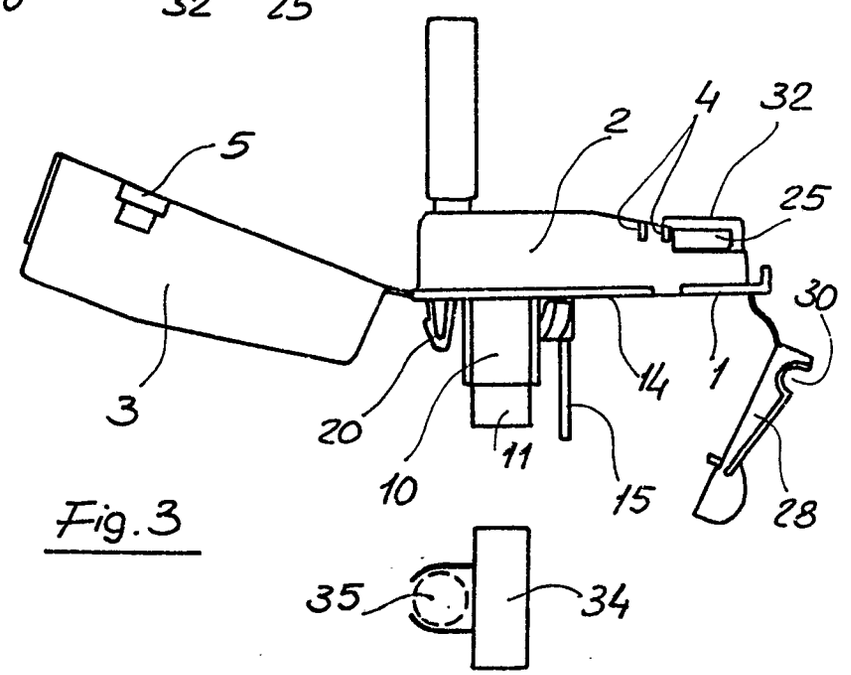
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Fig.3

35
34

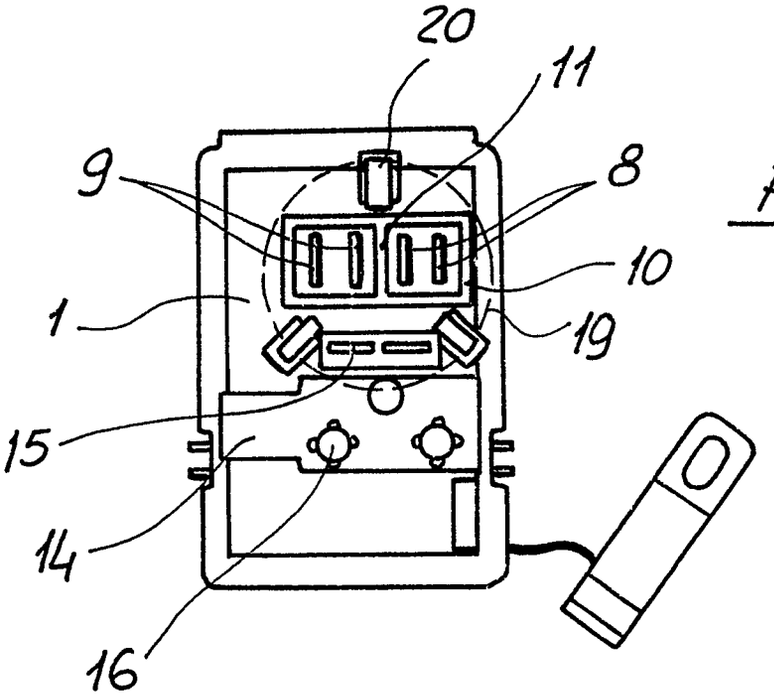

Fig.2

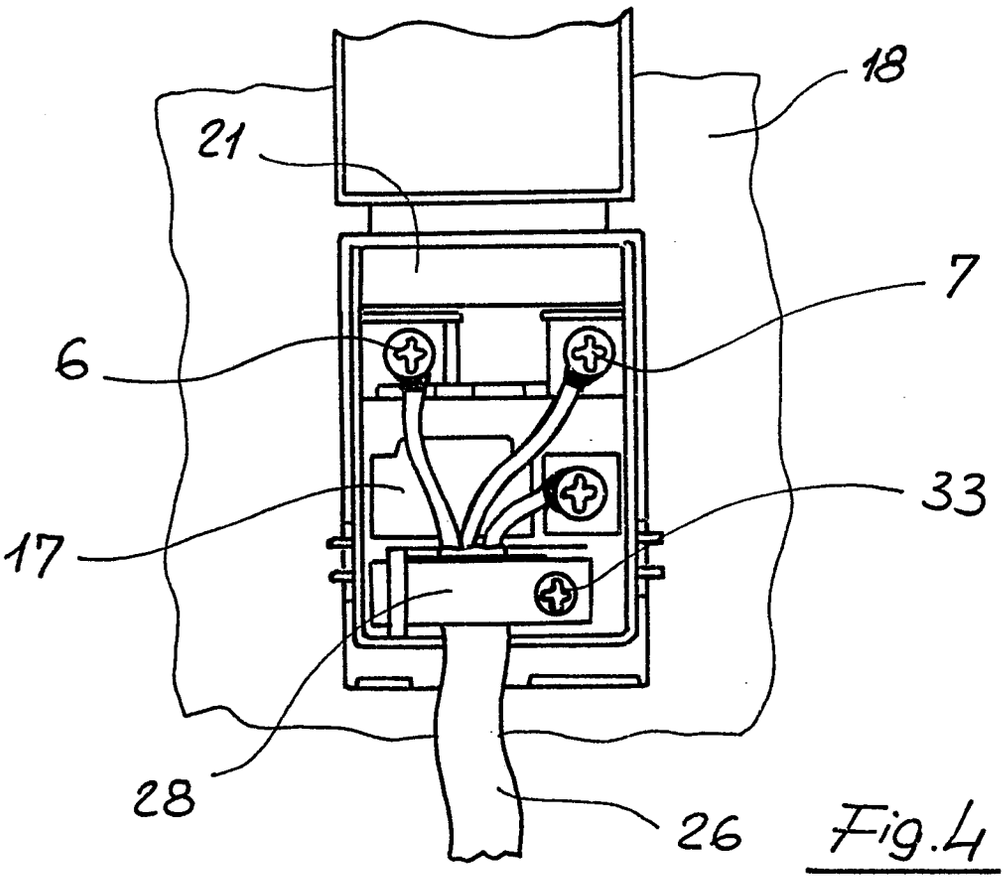

Fig.4