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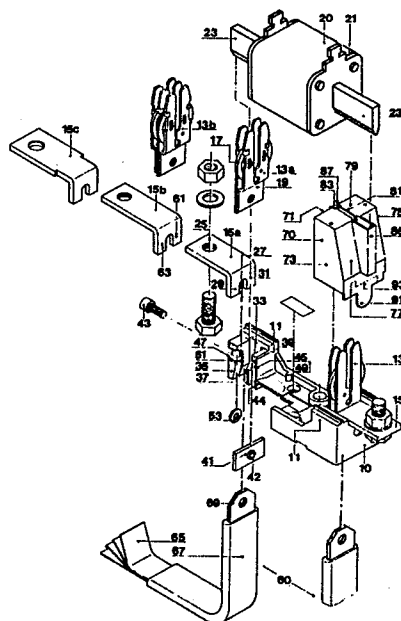
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A fuse holder.

In a fuse holder for use in switchboards and conductor rail systems and comprising a socket part (10) having mounting means for mounting contact parts (13) and terminal parts (15), the socket part (10) is in each end provided with a vertically through-going recess (33) and an longitudinally extending screw- or bolt hole (47) ending in the recess. The recess (33) is on the rear side of the socket part (10) provided with a transverse partition (45) forming a clearance (44) for a nut part (41), which together with a mounting screw (43) and a washer (53) allows fastening of the contact parts and the terminal parts to the socket part. This through-going recess in each end of the socket part increases the number of applications considerably, as there is now also a possibility of power supply and power discharge on the rear side of the holder. The fuse holder is further provided with a cap (70) for covering a contact part. The cap (70) is constructed in such a manner that no contact can be established to live parts by means of a DIN-standardized test digit.



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A Fuse Holder

The invention relates to a fuse holder for use in switchboards and conductor rail systems in power installations, said holder comprising a socket
5 part having mounting means for mounting terminal parts and contact parts.

A fuse holder of this type is wellknown to an expert and is used in numerous connections. It can by way of example be mentioned that it is used as section
10 divider between rail systems or as safeguards in connection with crash fences.

A fuse holder of the above type is characterised in that the socket part in each end is provided with a vertically through-going recess extending
15 in the transverse direction of the socket part and with a screw- or bolt hole extending in the longitudinal direction of the socket part and formed in an end wall, said screw- or bolt hole ending in said recess for collective mounting of the contact
20 parts and the terminal parts in each socket end.

By establishing through-going holes or recesses in each end of the socket part it is possible to mount power supply parts and power discharge parts on the rear side of the fuse holder. The supply parts
25 and the discharge parts may e.g. be formed as flexible, laminar terminal parts. With this liberty of choice between mounting of the terminal parts from the top and from the bottom a fuse holder is provided which is easy to mount, no matter where
30 there is a need for mounting a fuse.

An embodiment of a fuse holder according to the invention is characterised in that the part of the recess ending on the rear side of the socket part is provided with a transverse partition for defining
5 a clearance for a nut part for a mounting screw inserted from the outside through said screw-or bolt hole, said nut part forming part of the mounting means. As a result a fuse holder is obtained consisting of few parts easy to assemble as well
10 as a safe securement of both the contact parts and the terminal parts capable of resisting innumerable removals and insertions of the knife fuses, for which the holder is intended.

According to a further embodiment the fuse holder
15 according to the invention may be characterised in that each of its outer end walls on the inner side of the recess is provided with a chute-like recess for guiding a washer in such a manner that this washer during the mounting of the fuse holder by
20 insertion from the rear side of the holder may slide into correct position for passage of the mounting screw. This measure facilitates the assembling of the fuse holder considerably, and time is consequently saved.

25 When the fuse holder according to the invention is used in connection with terminal parts in the form of angle brackets to be mounted from the top, one leg may as stated in claim 4 advantageously be provided with a U-shaped recess for forming two
30 smaller legs each being provided on the inner side with a wartlike projection. This bifurcation enables a quick insertion of a terminal part either at the first mounting or later, if it is desired to switch

to another nominal current intensity. It is sufficient to loosen the mounting screw to remove the terminal part and thereafter retighten it when the new part has been inserted. The wartlike projections
5 cooperate with the washer when the screw is tightened and prevent the terminal part in question from being pulled out unintentionally.

A fuse holder according to the invention may also as stated in claim 7 further comprise at least one
10 cap for mounting above a contact part, said cap essentially being closed on five sides, the vertical side of the cap facing the center of the socket part being provided with a vertical slot, and the top side being provided with a corresponding slot
15 flushing with the first slot for receiving one terminal of a fuse. As a result a suitable shielding of a live contact part is obtained, so that the risk connected with the replacement of a fuse is eliminated.

20 A fuse holder according to the invention may further as stated in claim 8 be characterised in that the cap is made of a thermoplastic polyester material, preferably Arnite[®], that the edges of the vertical slot on the outer side of the cap is provided with
25 outwardly projecting beads, and that the slot on the top side of the cap is dimensioned tightly fitting relative to the thickness of the terminals of the fuse. It is hereby obtained that contact cannot be established by means of a DIN-standardized
30 test digit (finger) to a contact part covered by such a cap.

The invention will be described below with reference

to the accompanying drawing, in which

Figure 1 is an exploded view of a fuse holder according to the invention with a part sectional view of the socket part,

5 Figure 2 is a perspective bottom view of the socket part with mounted contact parts and ready for mounting laminated rails from the bottom side, and

Figure 3 is a bottom view of the socket part with
10 mounted laminated rails.

In the Figures of the drawing the socket part constituting the basic component of the fuse holder is provided with the general reference numeral 10. It consists in principle of a rectangular, oblong
15 block, which in each end is provided with an elevation 11 on its upper side serving as abutment and support for mounted terminal parts and contact parts. In Figure 1 a part sectional view of the right end of the socket part 10 is illustrated,
20 whereas the left end is illustrated with a DIN-standardized contact part 13 and a DIN-standardized terminal part 15 mounted thereon. The contact part 13 comprises a spring-loaded bifurcated section 17 and a base 19. As it is well-known the bifurcated
25 section 17 is used for gripping the terminal legs of a fuse and for establishing by means thereof a good power transferring connection with as small a contact resistance as possible.

A fuse of this type is provided with the general
30 reference numeral 20 in the drawing. The fuse comprises a body 21 and a terminal leg 23 projecting

from each end.

Each terminal part 15 consists of an oblong L-shaped piece of copper having a bolt hole 25 in the free end and a U-shaped recess 27 in the bent end thus
5 ending in two legs 29 and 31.

Figure 1 of the drawing illustrates three different sizes of terminal parts provided with the reference numerals 15a, 15b, and 15c, respectively. These three terminal parts illustrate the adjustability
10 to different DIN-standards, for example depending on the current the fuse concerned should sustain in the case in question.

In the same way two different embodiments are illustrated of a DIN-standardized contact part provided with the reference numerals 13a and 13b,
15 respectively.

In the right end of the socket part 10 a through-going recess 33 is illustrated extending in vertical direction in relation to the orientation of the
20 fuse holder shown in Figure 1. The recess 33 is at the upper side of the socket part dimensioned to receive the base 19 of a contact part and the L-shaped part of a terminal part comprising the legs 29 and 31. At the bottom side of the socket part
25 10 the recess 33 widens out, the outer end wall 35 on its inner side being bevelled towards the outside, whereas the inner wall 37 is provided with a ledge 39 serving as stopper for a nut part 41. The nut part, which together with a threaded hole 42
30 cooperate with a mounting screw 43 is fitted into a special clearance 44 on the bottom side of the

socket part, the recess 33 here being provided with a transverse partition 45 serving as abutment for the nut part 41. The mounting screw 43 is inserted into the recess 33 through an axial hole 47 in the outer end wall and a second hole 49 in alignment therewith in the partition 45.

Finally the outer end wall 35 of the socket part is on the inner side provided with a vertically oriented guide 51 for a washer 53. As a result the mounting of the fuse holder according to the invention is made very easy. With the holder 10 in reversed position the washer 53 falls down the guide 51 into load position opposite the hole 47 in the end wall 35, whereafter the mounting screw 43 is inserted through the hole 47 and loaded with the washer 53. At the same time the nut part 41 is allowed to fall into its clearance 44, so that it rests against the ledge 39. In this position the threaded hole 42 of the nut part is in alignment with the hole 49 in the partition 45 and the hole 47 in the outer end wall 35. It is hereafter easy to insert the base 19 of the contact part 13 into the recess 33 and grip it with the mounting screw 43, which is then pushed further through the transverse partition 45 for engagement in the threaded hole 42 of the nut part 41.

The fuse holder 10 according to the invention now offers the user two possibilities of connection to a power installation. This may either be done in the known manner by means of terminal parts 15, which are mounted from the top, or by means of mounting parts 60, which are mounted from the bottom or from the rear side. The mounting from the top

as illustrated in Figure 1 by means of the terminal parts 15 is known per se. According to the known method the bent end of the terminal parts are, however, provided with a hole, whereas the terminal parts according to the invention are provided with an open recess or slot in such a manner that two legs are formed, which can be conducted downwards on each side of the mounting screw. As a result the terminal parts are easy to dismount and mount by a slight loosening of the screw and a subsequent tightening of the screw. In order to ensure that the terminal parts are not inadvertently pulled out of the holder they are on the rear side of the legs 29 and 31 provided with small wartlike projections as indicated at the positions 61 and 63, said projections cooperating with the washer 53 when the screw 43 is tightened.

The described method of mounting requires very few components and ensures simultaneously that the fuse holder is easy to assemble and disassemble or reassemble, and that the individual components are not slackened after innumerable replacements of the fuse 20.

The mounting of the terminal parts from the bottom or from the rear side is novel and involves additional advantages of the fuse holder according to the invention, cf. the introduction to the specification. The said mounting parts 60 may be formed as flexible laminated rails 65 with a surrounding insulation 67 of crimped plastic material, and offers the switchboard constructor the possibility of adjusting these laminar connections to the purposes in question, as it is not difficult to punch

a hole 69 in an available material of the above kind. This flexible method of mounting also involves savings in material, the number of lamellae used being adjusted to the maximum current intensity they are to sustain.

Furthermore, the fuse holder according to the invention comprises at least one cap, preferably for mounting above a live contact part 13. Such a cap is illustrated in Figure 1 and is provided with the general reference numeral 70. The cap is essentially box-shaped with four substantially vertical sides 71, 73, 75, and 77, and a horizontal top side 79, and is open at the bottom. The illustrated cap 70 comprises a slot 81 in the top side 79 and a slot 83 in the vertical side 71 facing the center of the fuse holder for receiving one of the terminal legs 23 of the fuse 20. The cap is furthermore provided with a gully-shaped extension 85 of the rear wall 77 to compensate for different sizes of fuses.

In view of the safety of contact the slot 81 in the top side 79 is made slightly more narrow than the thickness of the terminal leg 23, so that the edges of the slot 81 have to be forced slightly to the side when the fuse is mounted. The edges of the vertical slot 83 are furthermore provided with a bead 87 projecting towards the center of the fuse holder. These two measures ensure that no live contact can be established with a live fuse holder by means of a DIN-standardized test digit.

Finally, the cap 70 is provided with a downwardly projecting extension or flap 91 of the rear wall

77. This flap 91 is used for covering the mounting hole 47 in the end wall in case the power supply is effected from the rear side of the fuse holder through the laminated rails 60. In case the power supply is effected through the usual terminal parts 5 15, the flap can easily be removed, as the rear wall is provided with a weakening line 93.

Although reference has only been made to DIN-standardized contact parts in the preceding explanation of the invention, there is in principle nothing to 10 prevent the fuse holder according to the invention from being used together with other standardized contact parts, contact parts e.g. complying with a BS-standard.

Claims

1. A fuse holder for use in switchboards and conductor rail systems in power installations, said holder comprising a socket part having mounting
5 means for mounting terminal parts and contact parts, characterized in that the socket part (10) in each end is provided with a vertically through-going recess (33) extending in the transverse direction of the socket part and with a screw-
10 or bolt hole (47) extending in the longitudinal direction of the socket part and formed in an end wall (35), said screw-or bolt hole opening into the said recess (33) for collective mounting of said contact parts (13) and said terminal parts (15) in
15 each socket end.

2. A fuse holder as claimed in claim 1, characterized in that the part of the recess (22) ending on the rear side of the socket part (10) is provided with a transverse partition
20 (45) for defining a clearance (44) for a nut part (41) for a mounting screw inserted from the outside through said screw- or bolt hole (47), said nut part (41) forming part of the said mounting means.

3. A fuse holder as claimed in claim 1 or 2,
25 characterized in that each outer end wall (35) on the inner side of the recess (33) is provided with a chute-like recess (51) for guiding a washer (53) in such a manner that this washer (53) during the mounting of the fuse holder by insertion
30 from the rear side of the holder may slide into correct position for passage of the mounting screw (43).

4. A fuse holder as claimed in claim 1, 2, or 3, and where the terminal parts (15) are constructed as angle brackets, one leg of which is to be inserted into said recesses (33) from the top,
5 c h a r a c t e r i s e d in that said leg is provided with a U-shaped recess (27) for forming two smaller legs (29, 31) each being provided on the inner side with a wartlike projection (61, 63).

5. A fuse holder as claimed in claim 1, 2, or 3,
10 and where the terminal parts are to be inserted into the said recesses (33) from the bottom,
c h a r a c t e r i s e d in that the said terminal parts are constructed as flexible, laminated rails (60) with an insulating casing (67) surrounding the
15 rails.

6. A fuse holder as claimed in claim 1, 2, or 3,
c h a r a c t e r i s e d by being made of a thermo-setting plastic.

7. A fuse holder as claimed in any of the preceding claims, c h a r a c t e r i s e d in that
20 it comprises at least one cap (70) for mounting above a contact part (13), said cap (70) essentially being closed on five sides, the vertical side (71) of the cap facing the center of the socket part
25 (10) being provided with a vertical slot (83) and the top side (79) being provided with a corresponding slot (81) in alignment with said first slot (83) for receiving the terminals (23) of a fuse (20).

30 8. A fuse holder as claimed in claims 1 and 7,
c h a r a c t e r i s e d in that the cap (70) is

made of a thermoplastic polyester material, preferably Arnite, that the edges of the vertical slot (83) on the outer side of the cap are provided with outwardly projecting beads (87), and that the
5 slot (81) on the top side (79) of the cap is dimensioned tightly fitting relative to the thickness of the terminals (23) of the fuse (20).

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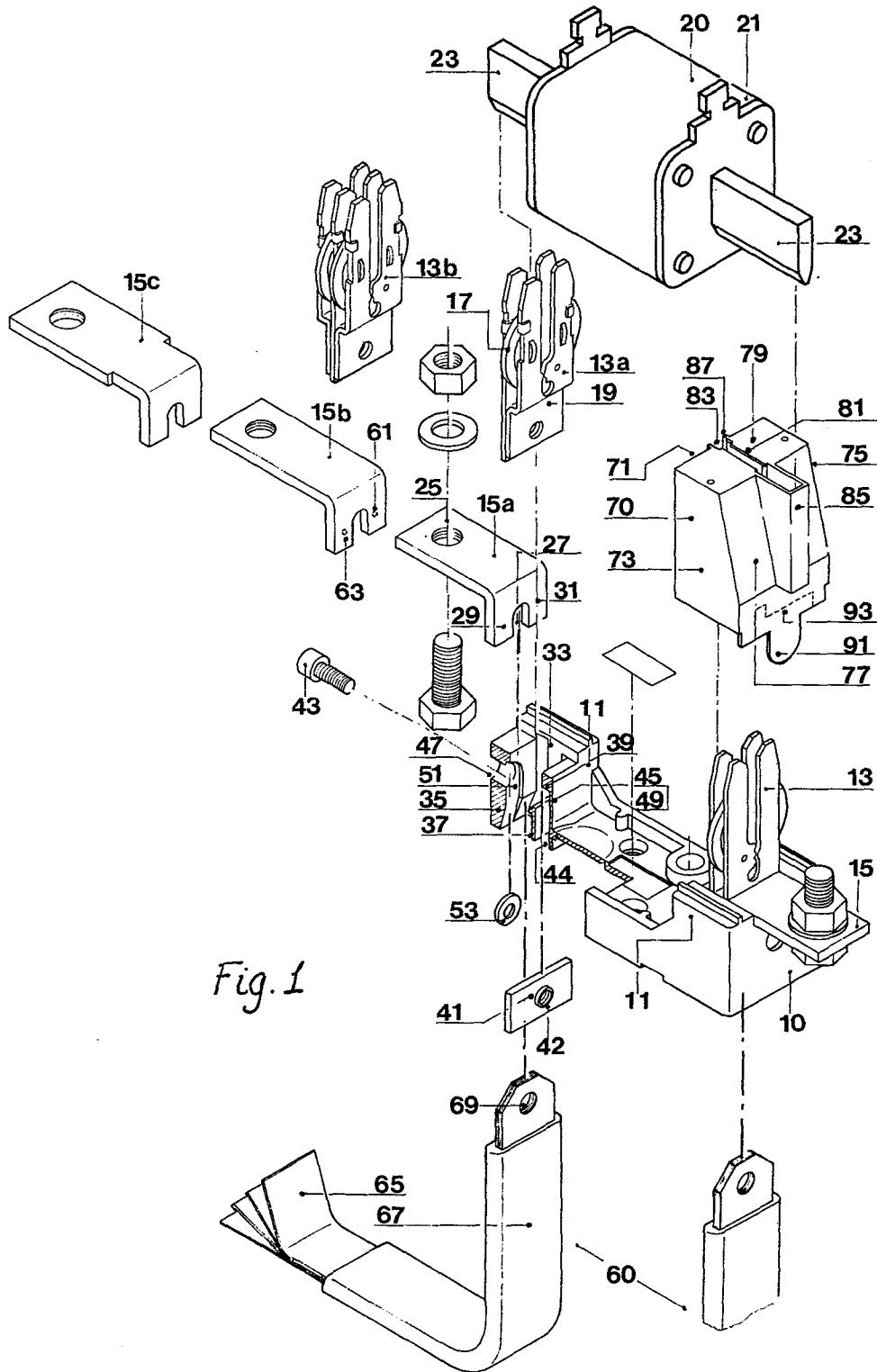


Fig. 1

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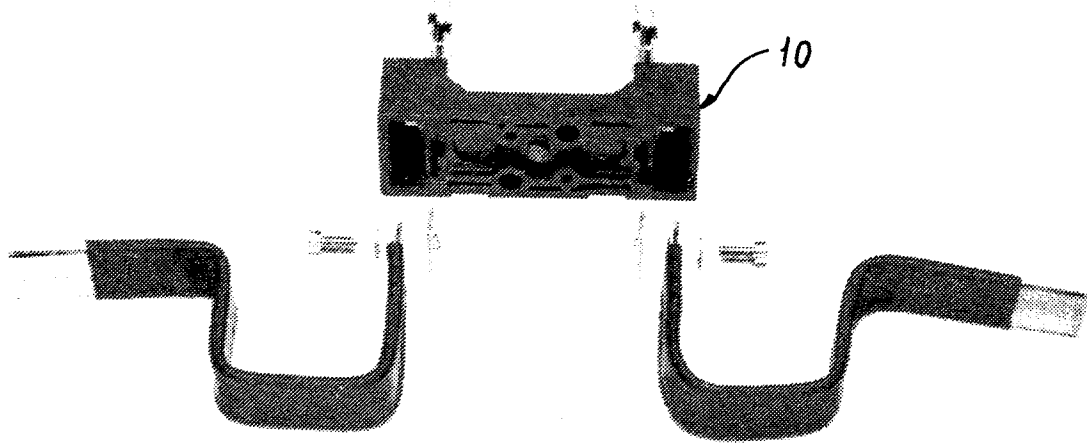


Fig. 2

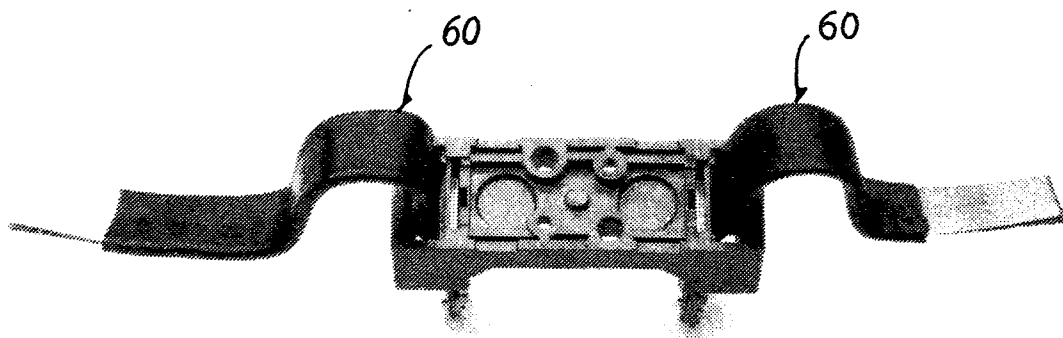


Fig. 3