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Fuseholders

This invention relates to fuseholders for blade-contact cartridge-type fuselinks.

5 A fuseholder for such fuselinks commonly comprises a fuseholder base, having disposed within it a pair of fixed terminal blocks, and a fuselink carrier having a pair of spring-clip contacts which are adapted to receive and frictionally retain the contact blades of a fuselink fitted thereto and which are themselves, on insertion of the carrier into the base, frictionally
10 received by the terminal blocks of the base so as to retain the inserted carrier and connect the terminal blocks electrically each to a respective one of the contact blades of the fuselink.

It has been proposed, in UK patent specification
15 No. 1477591, to provide the base of such a fuseholder with terminals which are themselves adapted to receive and engage directly the contact blades of the fuse-link, and to provide, in association with such base, a fuselink carrier which does not itself include any
20 electrical contacts for the fuselink but which enables the fuselink to be inserted into the base and there offered up to the terminals thereof in proper relationship to such terminals so as to be engaged directly thereby and frictionally retained. Such a fuseholder
25 has the advantages of a reduced number of electrically conductive parts and a reduction also in the number of surface-to-surface electrical contacts which its use introduces in series with the fuselink in a circuit in which it is fitted. However, the contactless fuse-link carrier proposed by the said specification is
30 a relatively cumbersome two-part assembly, comprising a handle part and a cradle into which a fuselink is fitted before the cradle and handle part are assembled together.

35 It is an object of the present invention to provide an improved contactless fuse carrier for a

blade-contact cartridge-type fuselink, and to provide a fuseholder which comprises such a fuse carrier and a co-operating fuseholder base adapted to receive the fuse carrier and a fuselink carried thereby.

5 According to the invention there is provided a fuse carrier for a blade-contact cartridge-type fuse-link, comprising an elongate body portion and first and second legs projecting from the body portion on one side thereof, spaced apart from one another and from respective
10 opposite ends of the body portion in the lengthwise direction of the body portion and each extending, generally parallel with one another, across the body portion transversely thereof, the first leg being pierced in the
15 lengthwise direction of the body portion by an elongate slot which extends in the direction in which the legs project and the second leg having a lateral recess.

 In use of this fuse carrier according to the invention, a first contact blade of a suitable fuselink is inserted through the slot in the first leg of the
20 carrier and then the other, second, contact blade is pushed, transversely of the carrier, so that it is received in the recess of the second leg while the cartridge section of the fuselink is accommodated
25 between the two legs with the cartridge at least approximately aligned with the lengthwise direction of the carrier and the contact blades projecting, in that direction, beyond the first and second legs respectively.

 Thus the invention further provides a fuse carrier as specified in the last but one preceding
30 paragraph and fitted with a blade-contact cartridge-type fuselink, the fuselink having its cartridge section accommodated between the two legs of the carrier and having a first contact blade inserted through the slot in the first leg of the carrier and a second
35 contact blade received in the recess of the second leg,

with the first and second contact blades extending beyond the first and second legs, respectively, of the carrier.

Preferably, the fuse carrier according to the invention is formed with a lug or tongue which hinders, but does not prevent, transverse movement of a fuselink second contact blade into (and more especially out of) the lateral recess of the second leg of the carrier, and with abutments which engage against end caps on respective ends of a fuselink cartridge section accommodated between the fuse carrier legs, so that it is the abutments, rather than the peripheries of the slot and of the lateral recess, by which thrust forces are transmitted from the fuse carrier to the fuselink as these are inserted together into a co-operating fuseholder base.

The invention, in another of its aspects, provides a fuseholder comprising a fuse carrier as described in any of the four last preceding paragraphs and a fuseholder base adapted to receive as a legs-first push fit the fuse carrier and a fuselink fitted thereto, the fuseholder base being provided with a pair of fixed contacts positioned to receive and co-operate with the respective blade contacts of such fuselink as the fuse carrier is fitted to the fuseholder base.

The invention in its various aspects will be more fully understood from the following description of preferred embodiments thereof with reference to the accompanying drawings, in which:-

Figure 1 is a perspective view of a fuse carrier according to the invention,

Figure 2 is a perspective view of the fuse carrier shown in Figure 1, fitted with a blade-contact cartridge-type fuselink;

Figure 3 is a longitudinal section of the fuse-carrier, taken on the plane III - III of Figure 1;

Figure 4 is a transverse sectional view taken on the line IV - IV of Figure 3;

Figure 5 is a longitudinal sectional view of the fusecarrier shown in Figures 1 to 4 and of a fuseholder base in which it is shown inserted;

Figure 6 is a transverse sectional view through the fusecarrier and fuseholder base, taken on the line VI - VI of Figure 5; and

Figure 7 is a perspective view of one of two terminal shrouds of the fuseholder base shown in Figures 5 and 6.

As shown in Figure 1, a fuse carrier 11 according to the invention, which may be formed as a one-piece plastics moulding, has an elongate and generally rectangular body portion 12 from one side of which project first and second legs 13 and 14 which are spaced apart from one another in the lengthwise direction of the body portion 12 and which extend, generally parallel with one another, across the body portion 12, transversely thereof.

The first leg 13 is pierced, in the lengthwise direction of the body portion 12, by a slot 15 which extends in the direction in which the legs project, and the second leg 14 is formed with a lateral recess 16. As shown in Figure 2, this enables a suitable blade-contact cartridge-type fuselink 17 to be fitted to the fusecarrier 11 by first inserting a first contact blade 18 of the fuselink 17 through the slot 15 and then pushing the other, second, contact blade 19 of the fuselink transversely of the fusecarrier so that it is received in the recess 16 while the cartridge section 20 of the fuselink is accommodated, between the two legs 13 and 14, at least approximately in alignment with the lengthwise direction of the fuse carrier 11 (in which direction the contact blades 18 and 19 project clear of the legs 13 and 14 respectively).

Preferably, and as shown, the fusecarrier 11 is provided with a projecting lug or tongue 21 which

hinders, but does not prevent, transverse movement of the contact blade 19 into and out of the recess 16. The tongue 21 may be slightly flexible at its end, and away from its end it may be stiffened by integral buttresses 22. Preferably, also, the fuse carrier is formed with a pair of abutments 23 which, on insertion of the fuse carrier 11 and fuselink 17 together into a fuseholder base (as described below), transmit thrust forces from the fuse carrier to end caps 20' of the cartridge section 20 of the fuselink.

The contact blades 18 and 19 of the fuse 20 lie in parallel planes spaced equally on opposite sides of a diametral plane of the cartridge section 20 which is parallel to both, and correspondingly the slot 15 in the fuse carrier first leg 13 and the position loosely defined for the contact blade 19 by the tongue 21 and the recess 16 in the fuse carrier second leg 14 are both offset on opposite sides of a longitudinal median plane of the fuse carrier.

Some of the details of the fuse carrier 11 are more precisely represented in Figures 3 and 4, which also show a small part-cylindrical projection or boss 24 not visible in Figures 1 and 2 but formed on the leg 14 and engaged by the blade 19 (shown in broken line in Figure 4) as the blade is pushed past the tongue 21. The combination of the tongue 21, the boss 24, a slight obliquity of the limiting edge of the recess 16, and a slight looseness of the fit of the fuselink contact blade 18 in the slot 15 enable the fuse carrier to accept and retain a variety of fuselinks which, though nominally identical, may have small dimensional differences because, for example, they may be the products of different manufacturers. Figures 3 and 4 also show the leg 14 provided, optionally, with a stiffening or strengthening web 14' which is not shown in Figures 1 and 2.

Figures 5 and 6 show the fuse carrier 11 and fuselink 17 inserted into a fuseholder base 25 which has the general form of an open box with a base portion 26, end walls 27 and side walls 28. The body portion 12 of the fuse carrier 11 serves as a closure for the box-form base 25, and has a rectangular skirt 29 which enters as a close clearance fit between the base walls 27 and 28. The skirt 29 is formed with two projecting ribs 30 (See Figures 1 and 2) which frictionally engage the opposed side walls 28 of the base to retain the fusecarrier in its inserted position even if it has no fuselink 17 fitted.

The base 25 is fitted with a pair of fixed contacts constituted by first and second terminal blocks 31 and 32 each secured, together with a respective springy contact stirrup 33 (see Figure 6), to the base 25 by means of a respective securing screw 34 whose head is shrouded by a subsequently fitted insulating disc 35. The base end walls 27 have apertures 36 each aligned with a bore 37 in the respective contact block 31 or 32 for insertion of a respective electrical conductor (not shown) whose end is then clamped by a respective clamping screw (not shown) screwed into a threaded bore 38 of the contact block 31 or 32. Each contact block 31 or 32 and its associated stirrup 33 is positioned to receive, as shown in Figure 6, a contact blade 18 or 19 respectively of a fuselink 17 when the fusecarrier 11, with the fuselink 17 fitted as shown in Figure 2, is inserted into the fuseholder base 25.

The fuseholder base, which is formed with a central boss 39 and fixing hole 40 by means of which it can be mounted for use, is fitted with a pair of insulating shrouds 41 (of which one is shown in perspective in Figure 7) which shroud the contact blocks 31

and 32 and their stirrups 33 against accidental contact while the fusecarrier 11 is removed. Each end wall 27 of the fuseholder base has a bore 42 to receive a spigot 43 of a respective one of the shrouds 41 as
5 the shroud is pushed into place as shown in Figures 5 and 6. Preferably, the shroud is of somewhat resilient material and its spigot and the bore 42 are profiled so that the spigot enters the bore as a snap fit; and preferably, then, each shroud is formed with a small
10 recess 44, adjacent its spigot, into which the end of a screw-driver can be inserted and then turned (to bear against the adjacent wall 27 of the fuseholder base) to withdraw the spigot from its bore 42 when it is required to remove the shroud, for example to gain
15 access to the clamping screw in the bore 38 of the shrouded contact block. The need to use a tool when removing the shrouds, even though they can be fitted manually into the fuseholder base, is a useful safety feature which assists in discouraging casual or thoughtless
20 tampering.

Each shroud 41 has a slot 45 to accept the passage of the fuselink blade contact 18 or 19 as it is inserted towards and between the respective contact block 31 or 32 and its stirrup 33, and is recessed at
25 46 to give clearance for the end of the tongue 21 of the fusecarrier. Each shroud 41 is also formed with a projecting part 46 which co-operates with a correspondingly recessed zone 47 or 48 of the fuse carrier legs 13 and 14 respectively and helps to guide and position the
30 fusecarrier correctly as it is inserted into the fuseholder base.

It will be understood that many of the details described above may be altered within the scope of the invention, but that any embodiment of the invention
35 provides a very convenient one-part contactless fuse

carrier for a blade-contact cartridge type fuse and an improved fuseholder comprising in combination such a fuse carrier and a suitable fuseholder base.



Claims

1. A fuse carrier for a blade-contact cartridge type fuselink, comprising an elongate body portion and first and second legs projecting from a body portion on one side thereof, spaced apart from one another and from respective opposite ends of the body portion in the lengthwise direction of the body portion and each extending, generally parallel with one another, across the body portion transversely thereof, the first leg being pierced in the lengthwise direction of the body portion by an elongate slot which extends in the direction in which the legs project and the second leg having a lateral recess.
2. A fuse carrier as claimed in Claim 1 and fitted with a blade-contact cartridge-type fuselink, the fuselink having its cartridge section accommodated between the two legs of the carrier and having a first contact blade inserted through the slot in the first leg of the carrier and a second contact blade received in the recess of the second leg, with the first and second contact blades extending beyond the first and second legs, respectively, of the carrier.
3. A fuse carrier as claimed in Claim 1 or Claim 2, and provided with a lug or tongue which hinders, but does not prevent, transverse movement of a fuselink second contact blade into and out of the lateral recess of the second leg of the carrier while the first contact blade of the fuselink is engaged in the slot of the first leg of the carrier.
4. A fuse carrier as claimed in any of Claims 1 to 3 and provided with abutments positioned for engagement against end caps on respective ends of a fuselink cartridge section, accommodated between the fuse carrier legs, for transmission of thrust thereto in the direction in which the legs project.
5. A fuse carrier substantially as described



herein with reference to Figures 1 to 6 of the accompanying drawings.

6. A fuseholder for a blade-contact cartridge-type fuselink, comprising a fuse carrier as claimed in any of the preceding claims and a fuseholder base adapted to receive as a legs-first push fit the fuse carrier and a fuselink fitted thereto, the fuseholder base being provided with a pair of fixed contacts positioned to receive and co-operate with the respective blade contacts of such fuselink as the fuse carrier is fitted to the fuseholder base.

7. A fuseholder as claimed in Claim 6, wherein the fuseholder base is generally in the form of an open box and the body portion of the fuse carrier serves, on insertion of the legs thereof into the fuseholder base, as a closure therefor.

8. A fuseholder as claimed in Claim 7, wherein the body portion of the fuse carrier has a skirt projecting therefrom in the same direction as the legs thereof and the skirt enters as a close clearance fit between walls of the fuseholder base.

9. A fuseholder as claimed in Claim 8, wherein the skirt of the fuse carrier is provided with projecting ribs which, on insertion of the fuse carrier into the fuseholder base, frictionally engage opposed walls thereof to retain the fuse carrier in the inserted position.

10. A fuseholder as claimed in any of claims 6 to 9 and fitted with insulating shrouds for the fixed contacts, each shroud being slotted to allow passage of a respective fuselink contact blade.

11. A fuseholder as claimed in Claim 10, wherein each shroud is provided with one element, and the fuseholder base with a respective complementary element, of a snap-fit assembly of the shroud to the base and with respective surfaces which, in the assembled



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position of the shroud are opposed to and slightly spaced from one another for insertion of a tool therebetween to facilitate removal of the shroud.

12. A fuseholder for a blade-contact cartridge-
5 type fuselink, substantially as described herein with reference to the accompanying drawings.
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