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Fuse Carrier

This invention relates to fuse carriers for blade-contact cartridge-type fuselinks, and especially to such fuse carriers which are of the kind comprising an elongate body portion having a pair of legs projecting from one side adjacent to opposite ends for supporting
5 between them a fuselink with the ends of its blades projecting through the legs so as to engage frictionally the contacts of a co-operating fuse base when the carrier is inserted therein.

In one form of fuse base the fuse base contacts are arranged to engage the fuselink blades in a resilient manner which serves to
10 retain the fuselink and carrier in its operative position.

According to the present invention a fuse carrier of the kind referred to for a blade-contact cartridge-type fuselink is formed of a moulded plastics material and has at each end a resilient tongue, the tongues having cam surfaces arranged such that on insertion into a
15 co-operating fuse base the tongues are depressed towards the respective legs by engagement with retaining surfaces of the fuse base and, when fully inserted, return at least partially to their original positions to retain the carrier in position in the fuse base.

Such an arrangement has the advantage that it holds the fuse
20 carrier in position even when it does not support a fuselink, and also, when a fuselink is carried, it provides additional security by supplementing the frictional engagement of the fuse base contacts with the fuselink blades, and thereby

assists in preventing the carrier working loose under vibration.

The cam surfaces of the tongues should, of course, be such as to enable the carrier to be
5 removed manually from the fuse base when it is desired to replace or inspect a fuse carried thereby.

Conveniently the legs of the carrier extend generally parallel to each other transversely across the body portion with the first leg pierced in the
10 lengthwise direction of the body portion by an elongate slot which extends in the direction in which the legs project, for receiving one blade of a said fuselink, and the second leg having a lateral recess into which the blade can be slid in a transverse direction, and
15 the carrier having a resilient projection which hinders, but does not prevent, transverse movement of the second fuselink blade into and out of said recess while the first contact blade is engaged in the slot in the first leg of the carrier, thereby serving to
20 retain the fuselink in the carrier when inserted therein, but enabling it to be manually removed when desired.

The said projection is preferably located adjacent the recessed leg in a position so that it
25 engages the respective end of the cartridge section of a fuselink inserted into the carrier. Preferably also the carrier is also formed with abutments which engage the diameter of the cartridge section of the fuselink in a manner such that it is the abutments,
30 rather than the edges of the slot and recess, by which thrust forces are transmitted from the fuse carrier to the fuselink as these are inserted into a co-operating fuse base.

The invention is especially applicable to
35 fuselink carriers of the kind referred to employed in switch fuses, that is to say devices incorporating, in addition to the fuse-receiving contacts, switch

contacts capable of being actuated to isolate the fuse-receiving contacts from both the supply and load circuits.

5 However a fuselink carrier in accordance with the invention may also be employed in other suitable forms of fuse base.

10 Accordingly it will be understood that the invention includes within its scope a fuselink carrier as above described in combination with a co-operating switch fuse or other fuse base.

 One fuselink carrier in accordance with the invention will now be described by way of example with reference to Figures 1 to 8 of the accompanying schematic drawings, in which

15 Figure 1 represents a side view of the carrier,

 Figures 2 and 3 show opposite ends of the carrier,

20 Figure 4 represents a perspective view of a blade-contact cartridge-type fuselink for use with the carrier,

25 Figure 5 represents a sectional view of part of a switch fuse with which the fuselink carrier is designed to be used, showing part of a carrier/ fuselink assembly inserted therein,

 Figure 6 represents an end view of a fuse-receiving contact of the switch fuse, and

30 Figures 7 and 8 illustrate one end of the carrier partially and fully engaged with the switch fuse.

 Referring to the drawings, the fuse carrier, which is formed as a one-piece plastics moulding, has an elongate and generally rectangular body portion 1, from one side of which project a pair of legs 2, 3
35 which are spaced apart from each other in the lengthwise direction of the body portion, and which extend, substantially parallel to one another

transversely across the body portion.

The first leg 2 is pierced in the lengthwise direction of the body portion 1 by a slot 4 which extends in the direction in which the legs project, and the other leg 3 is formed at one side with a lateral recess 5 of approximately the same depth as the slot 4.

In use a blade-contact cartridge-type fuselink 6, as shown in Figure 4, is fitted to the carrier by first inserting one of the contact blades 7 at one end of the fuselink through the slot 4, and then pushing the second of the contact blades 7 of the fuselink transversely into the recess 5, so that the cartridge section 8 of the fuselink is accommodated between the two legs 2, 3 of the carrier. The leg 3 carries at the end remote from the body portion 1 a flange 9 carrying a projection 10 which hinders, but does not prevent, the transverse movement of the fuselink 6 into and out of the recess 5, the projection serving to retain the fuselink in the carrier whilst enabling it to be manually removed when necessary.

It will be seen by reference to Figure 4 that the contact blades 7 of the fuselink 6 lie in parallel planes spaced equally on opposite sides of the axis of the cartridge section 8, the slot 4 and the inner edge of the recess 5 being similarly offset on opposite sides of the longitudinal median plane of the carrier.

The fuselink/carrier assembly is designed for use with a switch fuse, part of which is illustrated in sectional view in Figure 5. The switch fuse is conveniently as described in co-pending Patent Application No. 8418921, and comprises a number of modules each accommodating, within a moulded plastic housing, formed as two identical sections, one of which is shown in part at 11, a pair of contacts 12

for receiving the blades of a fuselink supported by a respective carrier, together with switch contacts capable of being actuated to isolate the fuse-receiving contacts 12 from the supply and load
5 circuits. The precise form of the switching arrangements are not relevant to the present invention and have not been illustrated.

Each of the fuse-receiving contacts 12 comprises a resilient strip bent into an approximate
10 U-shape with one of the legs 13 turned back inwards and downwards, as shown more clearly in Figure 6, so that its end 14 lies adjacent and approximately parallel to the other leg 15 to form, between it and said other leg, a slot 16 for receiving a respective
15 contact blade 7 of a fuselink, the end part 14 of the leg 13 bearing resiliently against the side of the fuselink blade assisted by a steel stirrup spring 12a, so that the clip serves to retain the fuselink, when inserted, in place by friction.

20 In order to prevent the fuselink from working loose due to vibration, the carrier is provided, in accordance with the invention, with a pair of resilient tongues 18 disposed one at each end, and arranged to engage co-operating parts 19 of
25 the switch fuse housing when the fuselink/carrier assembly has been inserted. Thus the carrier is provided at each end with a short wall section 21 adjoining one side of the respective leg 2, 3 and lying at right angles to both the body portion 1 and
30 the leg, the wall sections 21 being disposed at opposite sides of the median plane of the body portion. The outer end of each wall section 21 is formed with an elongated slot 22 extending away from the body portion so as to form the respective
35 resilient tongue 18, the free end of which has a rounded outer edge 23. This constitutes a cam such that, as the carrier is inserted into the switch fuse,

the edge 23 engages the parts 19 at the end of the aperture 24 formed in the switch fuse housing into which the fuselink is arranged to be inserted. This produces a depression of the tongue 18 (See Fig. 7),
5 which is allowed to spring back at least partly to its original position when the carrier has been fully inserted (Fig. 8), thereby serving to retain the carrier in position in the switch fuse. The cam-shaped end of the tongues, however, result in
10 the tongues being depressed by the end parts 19 of the aperture 24 when force is exerted on the fuse carrier to remove it, thereby enabling the carrier to be readily withdrawn when desired.

In order to facilitate removal of the
15 fuselink/carrier assembly from the switch fuse the body portion 1 of the carrier is provided, on the side opposite to the legs 2, 3, with two wing-like projections 25 which are located adjacent the ends and are provided with outwardly extending lips 26 to
20 provide a hand grip.

Slots as at 27 extending at right angles to the body portion 1 of the carrier are conveniently provided in the outside surface of the walls 21, these co-operating with suitably positioned
25 projections (not shown) on the inner surface wall of the fuse base in order to maintain the alignment of the carrier as it is inserted and removed.



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CLAIMS

1. A fuse carrier of the kind referred to for a blade-contact cartridge-type fuselink formed of a moulded plastics material and having at each end a resilient tongue, the tongues having cam surfaces arranged such that on insertion into a co-operating fuse base the
5 tongues are depressed towards the respective legs by engagement with retaining surfaces of the fuse base and, when fully inserted, return at least partially to their original positions to retain the carrier in position in the fuse base.
2. A fuse carrier according to Claim 1 wherein the legs of the
10 carrier extend generally parallel to each other transversely across the body portion with the first leg pierced in the lengthwise direction of the body portion by an elongate slot which extends in the direction in which the legs project, for receiving one blade of a said fuselink, and the second leg having a lateral recess into which the
15 blade can be slid in a transverse direction, and the carrier having a resilient projection which hinders, but does not prevent, transverse movement of the second fuselink blade into and out of said recess while the first contact blade is engaged in the slot in the first leg of the carrier, thereby serving to retain the fuselink in the carrier
20 when inserted therein, but enabling it to be manually removed when desired.
3. A fuse carrier according to Claim 2 wherein the said projection is located adjacent the recessed leg in a position so that it engages the respective end of the cartridge section of a fuselink
25 inserted into the carrier.
4. A fuse carrier according to Claim 3 having abutments which engage the diameter of the cartridge



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- section of the fuselink in a manner such that it is the abutments, rather than the edges of the slot and recess, by which thrust forces are transmitted from the fuse carrier to the fuselink as these are
- 5 inserted into a co-operating fuse base.
5. A switch fuse incorporating at least one fuse carrier according to any preceding Claim.
6. A fuse carrier of the kind referred to substantially as shown in and as hereinbefore
- 10 described with reference to Figures 1 to 3 and 5 to 8 of the accompanying drawings.
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