

July 13, 1937.

M. W. MORRIS

2,086,727

FUSE BLOCK

Filed Sept. 29, 1934

Fig. 1.

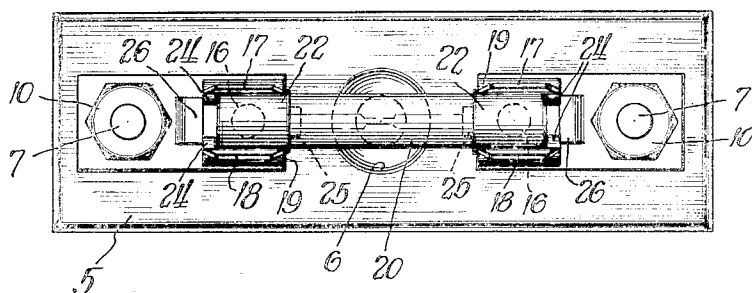


Fig. 2.

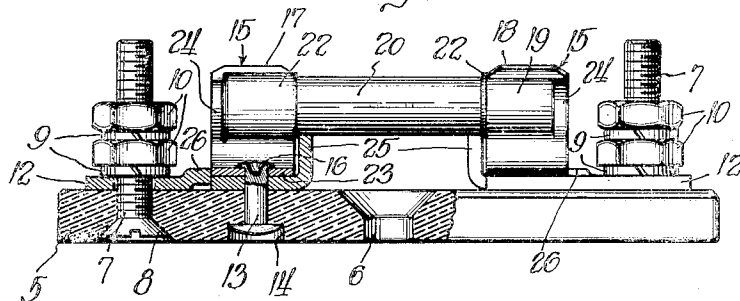
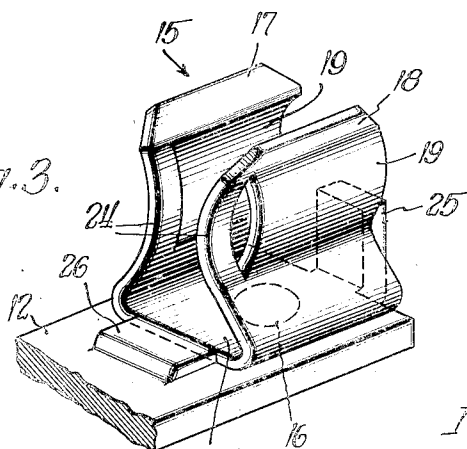


Fig. 3.



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UNITED STATES PATENT OFFICE

2,086,727

FUSE BLOCK

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Application September 29, 1934, Serial No. 746,039

5 Claims. (Cl. 200—133)

This invention relates to fuse blocks, and more particularly to fuse blocks having contact clips for receiving cartridge type fuses.

In fuse blocks of this type with which I am familiar, it has heretofore been possible to push the fuse into the clips past the arcuate gripping portion of the clip, whereby the clip jaws are sprung apart, and when the fuse is returned to its normal position the clip sides or jaws do not grip tightly about the fuse ferrules, and consequently make an undesirable loose connection therewith.

Further, in fuse blocks of this type, it is distinctly advantageous to prevent any relative angular displacement between the clips, in order to maintain the clips in proper alignment for receiving the fuse, and at the same time to prevent any possibility of longitudinal movement of the fuse member within the clips.

In the preferred embodiment of the present invention, I provide a fuse block comprising an insulating base member carrying a pair of spaced terminal posts, with fuse clips carried by lugs centered on said posts for receiving a cartridge type fuse, the lugs being provided with means for limiting the inward movement of the fuse into the gripping portion of clips, to prevent springing apart of the jaws of the clips.

It is a primary object of the present invention to provide stop means associated with the fuse clips for definitely limiting the inserting of the fuse member into the clips to prevent springing apart of the clip jaws by insertion of the fuse into the clips past the normal engaging position.

Another object of the present invention is the provision of means for maintaining a predetermined relative alignment between the clips and for preventing any angular displacement of either of the clips with respect to the terminal lugs or the fuse block.

A still further object of the invention is to provide means formed on the clip jaws for preventing longitudinal movement of the fuse member when it is placed in connected position.

The present invention is directed particularly to the production of a simplified fuse block construction possessing certain distinct advantages over the former types of construction with which I am familiar, while still maintaining the economical advantages of mass production and the provision of metal stamped parts, in order to produce such fuse block structures at relatively small cost.

Other objects and advantages of the present invention will appear more fully from the follow-

ing detailed description, which, taken in connection with the accompanying drawing, will disclose to those skilled in the art the particular construction and operation of a preferred form of the present invention.

In the drawing:

Figure 1 is a top plan view of a fuse box constructed in accordance with the teachings of the present invention;

Figure 2 is a side elevational view of the fuse block of Figure 1, partly in section, showing the construction and mounting of the fuse clips; and

Figure 3 is a detail perspective view of one of the fuse clips.

In the preferred embodiment of the invention, I provide a fuse block comprising a base member 5 formed of insulating material or the like, and which is preferably provided with an opening 6 adapted to receive any suitable securing means for mounting the fuse block in operative position. The opening 6 is preferably countersunk in order that the securing means may be disposed within the plane of the base member 5.

Extending through countersunk openings in the end portions of the block member 5 are a pair of terminal screws or binding posts 7, provided with head portions 8, and which are threaded to receive nuts 10, the nuts 10 having locking washers 9 interposed therebetween for securing terminal conductors or the like in electrical connection with the binding posts 7.

Each of the binding posts 7 is also adapted to provide a centering means for supporting a terminal lug member 12, the members 12 carried by the posts 7 extending toward each other and being secured at their inner extending ends to the base 5 by means of countersunk rivet members 13 having the head portions thereof seating in recesses 14 formed in the under surface of the base member 5.

The upwardly extending portion of each of the rivets 13 is adapted to provide a centering means for securing a contact clip indicated generally at 15 to the top surface of the lug member 12, the rivet 13 being headed over, as shown at 16, for this purpose.

The contact clip 15 comprises a substantially U-shaped resilient member having the outwardly flared extending ends 17 and 18, and provided with intermediate portions of circular or arcuate form, shown at 19, which are adapted to receive the fuse.

The fuse member 20 shown in this embodiment of the invention may comprise any suitable type of fuse member, and preferably is of the cartridge

type, having the glass enclosed portion through which the fusible conductor itself extends, and being provided with terminal portions comprising the cylindrical ferrules 22, which are adapted to be forced between the flared ends 17 and 18 of the contact clip 15 into contacting engagement with the inner peripheral surface of the portions 19 of the clip. The clip itself has a flat base portion 23 which lies over the face of the terminal lug 12, and which prevents relative lateral movement of the clip with respect to the lug. In addition, the cylindrical contacting portions 19 of the clip jaws do not extend the full width of the jaw, but are slotted out therefrom to provide the inwardly extending arched portions 24, which portions serve as stops for preventing any longitudinal movement of the fuse member 20 relative to the clips, the stops 24 engaging the end portions of the ferrules 22 to prevent such movement.

In order to prevent downward movement of the fuse member 20 whereby the ferrules 22 might be forced past their normal engaged position, the lug member 12 is provided, at its inner end, with an integrally formed upwardly extending tongue portion 25, which is adapted to engage the fuse member 20 for limiting its downward movement, the member 25 being of a height such as to allow the fuse member to be forced into a position whereby the central axis of the fuse member is disposed coincident with the center axis of the arcuate surfaces 19 formed in the fuse clips. This provides for a relatively tight, positive contact between the ferrules 22 and the contact clips, and thus eliminates any possibility of looseness of engagement due to the fact that the jaws 17 and 18 are sprung apart by forcing the fuse member 20 downwardly past the portions 19 of the clips, and thereby moving the jaws outwardly into a position such that they will not grip the fuse ferrules tightly.

Positive alinement of the contact clips 15 with respect to the lug members 12 is obtained by providing the lug members with integrally formed, upwardly extending alining portions 26, which are stamped outwardly from the plane of the lug member 12, and these abutment portions 26 are adapted to provide a positive alining surface engageable with the side wall of the base portion 23 of the contact clip, whereby upon moving the contact clip into position and heading over the rivet 13, the clip will be positioned in engagement with the vertical wall of the alining stop member 26, thereby preventing any possibility of rotational movement of the clip about the pivot. The upwardly extending tongue 25 also serves to confine the clip in position, whereby the two clips will be positively alined with respect to each other, and will be prevented from being displaced angularly with respect to the terminal lugs. Further, these stop means 26 provide for positive spacing of the clips a predetermined distance apart, whereby the standard type of cartridge fuse may be employed therein, and will nicely fit within the longitudinal stop members 24 formed in the contact clips.

It is to be noted that the binding post 7 and the washers 9 and 10 are formed of standard machine parts, and therefore are relatively low in cost, and that the terminal lugs 12 and contact clips 15 may be formed of metal stampings or the like, and are capable of mass production, whereby the cost of the entire fuse block may be kept at a minimum. In addition, by the provision of the spaced openings in the fuse block 5,

and the provision of the various alining means described, the assembly of the fuse block is facilitated, since the parts are relatively aligned with respect to each other, and accurate assembly is readily obtainable.

It is apparent that modifications of several of the features of the present disclosure may be made without departing from the invention disclosed herein, and I do not intend to be limited to the exact illustrated embodiment which I have described, but only insofar as defined by the scope and spirit of the appended claims.

I claim:

1. In combination, a terminal lug of substantially planar form, a U-shaped resilient contact clip having jaw members provided with outwardly flared ends, each of said jaw members having intermediate opposed arcuately curved portions defining a contact gripping portion for engaging a cylindrical ferrule of a fuse and a stop for limiting endwise movement of said ferrule, means for securing said clip to said lug, abutment means struck out of said lug for positioning said clip in predetermined position on said lug, and means integral with said lug at one end thereof for limiting downward movement of said ferrule beyond the curved portions of said jaw members, said last named means engaging the portion of said fuse extending between the ferrules at the ends thereof.

2. In combination, an insulating base member, a pair of binding posts carried thereby, means for securing a terminal conductor to said posts, a terminal lug carried by and extending laterally each of said posts, rivets extending through said base member and through each of said lugs, contact clips mounted on each of said lugs and secured thereto by said rivets, means integral with said lugs and engaging a defining edge of each of said clips for preventing angular movement of said clips with respect to said lugs, and integral normally extending tongue portions on each of said lugs extending upwardly across the adjacent ends of the openings of each of said clips.

3. In combination, a base member, a pair of terminal lugs mounted thereon and extending toward each other, integral normally extending transverse tongues at the adjacent ends of said lugs, integral raised portions intermediate the ends of each of said lugs and extending transversely across said lugs to provide transverse abutments spaced from and extending parallel to said tongues, U-shaped contact clips of a thickness equal to the height of said abutment and having flat base portions disposed on said lugs between said abutments and said tongues, and securing means passing through the base portions of said clips and through said lugs into said base member for securing said clips and lugs rigidly together, said clips having arcuate concave portions formed in the arms thereof for receiving the cylindrical ferrules of the fuse member to support said member therebetween, said tongues extending upwardly to the lower end of said concave portions and engaging said fuse member intermediate said ferrules to limit downward movement of said ferrules within said clips.

4. In combination, a clip member of generally U-shape having a flat apertured base and having extending arms adapted to receive and grip a fuse ferrule, a supporting lug for said clip having spaced integral projections receiving therebetween the base of said clip member and engaging the lateral edges of said base to maintain

5 said clip member in alinement with said lug, said
lug having an apertured base portion in aline-
ment beneath said clip base, one of said projec-
tions extending upwardly intermediate said arms
to limit downward movement of the ferrule with-
in said arms, and a securing member passing
10 through the apertures in said clip and lug for
clamping the same rigidly together, said secur-
ing member having the end portion thereof dis-
posed beneath the upper edge of said one of said
projections.

15 5. A contact clip assembly for a fuse ferrule
comprising an integral U-shaped contact clip
having a flat base portion provided with parallel
transverse edges and arm portions shaped to re-
ceive said ferrule at a point spaced above said
base portion, a terminal lug having an integral
normally extending transverse tongue portion

at one end thereof and having an integral raised
portion intermediate its end forming an abut-
ment spaced from and parallel to said tongue
portion and of a height substantially equal to
the thickness of said base portion, said abutment
and tongue portion forming with the interme-
5 diate portion of said lug a channel for receiving
said base portion of said clip to maintain the
same in predetermined position, said base por-
tion of said clip and the intermediate portion of
said lug each having aligned apertures, and rivet
10 means extending through said aperture for
clamping said clip and lug together in fixed posi-
tion on a base member, said rivet means having
the end portion thereof disposed below the upper
15 edge of said tongue portion of said lug.

MARION W. MORRIS.

CERTIFICATE OF CORRECTION.

Patent No. 2,086,727.

July 13, 1937.

MARION W. MORRIS.

It is hereby certified that the name of the assignee in the above
numbered patent was erroneously described and specified as "R-B-M Man-
ufacturing Co." whereas said name should have been described and specified
as R-B-M Manufacturing Company, of Logansport, Indiana, a corporation of
Indiana, as shown by the records of assignments in this office; and that
the said Letters Patent should be read with this correction therein that
the same may conform to the record of the case in the Patent Office.

Signed and sealed this 21st day of September, A. D. 1937.

Henry Van Arsdale

(Seal)

Acting Commissioner of Patents.