

T. E. MURRAY.

FUSE BOX.

APPLICATION FILED MAR. 11, 1914.

1,120,223.

Patented Dec. 8, 1914.

2 SHEETS-SHEET 1.

Fig. 1

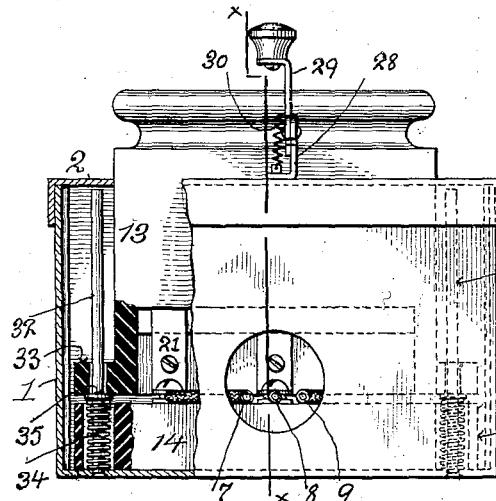


Fig. 2.

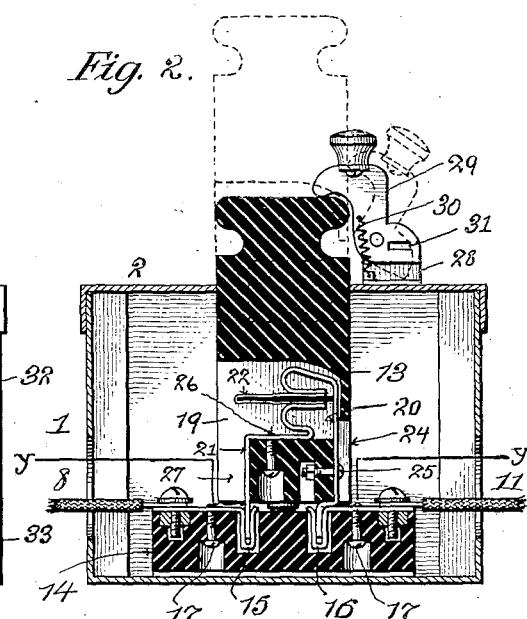


Fig. 3

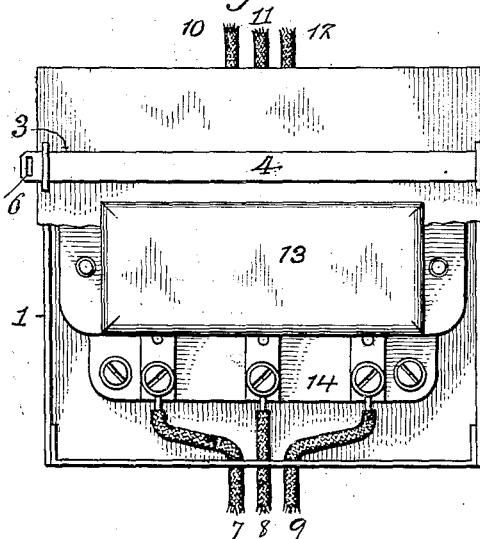
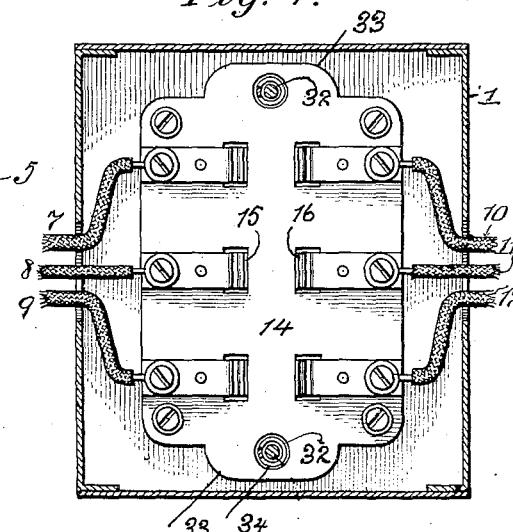


Fig. 4.



Witnesses:

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2 SHEETS—SHEET 2.

Fig. 5.

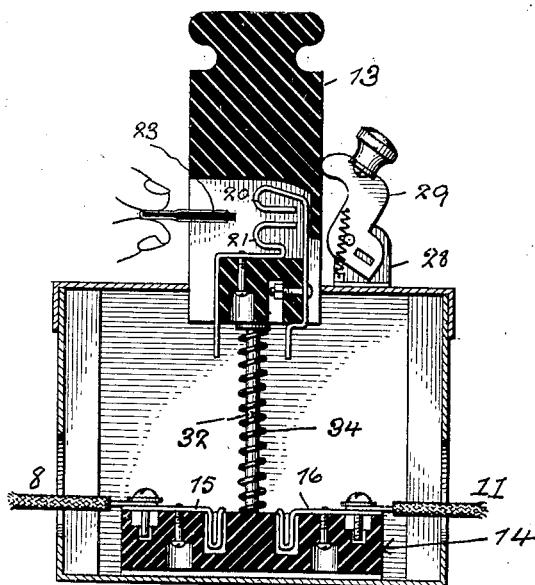
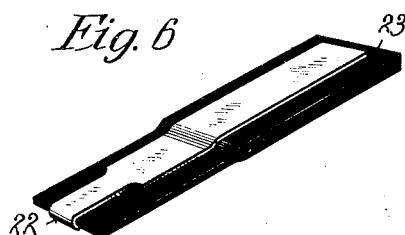


Fig. 6



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UNITED STATES PATENT OFFICE.

THOMAS E. MURRAY, OF NEW YORK, N. Y.

FUSE-BOX.

1,120,223.

Specification of Letters Patent.

Patented Dec. 8, 1914.

Application filed March 11, 1914. Serial No. 823,858.

To all whom it may concern:

Be it known that I, THOMAS E. MURRAY, a citizen of the United States, residing at New York, in the county of New York and 5 State of New York, have invented a certain new and useful Improvement in Fuse-Boxes, of which the following is a specification.

The object of the present invention is to 10 enable any one, however unskilled, to put fuses into and remove them from circuit leads without danger of shock or of doing either act wrongly.

It is especially designed for the ordinary 15 consumer of lighting current, or other unskilled person, who is frequently confronted with the necessity of replacing fuses which have blown.

The device comprises a case in which the 20 circuit terminals are inclosed, and a plug of insulating material which slides in an opening in a wall—or preferably the cover—of said case. On the plug are two separated contact plates which coöperate with said circuit terminals, and with which a separate 25 fuse strip carrier coöperates when introduced between them. In order to insert the fuse carrier, the plug must be withdrawn from the case to an extent sufficient to break circuit at the terminals, and when the circuit 30 is again closed by pushing in the plug, the contact plates and fuse carrier are wholly inclosed in the case, and hence access cannot be had to them. The fuse carrier, which is 35 simply a bar of insulating material having a fuse strip doubled over one end and secured thereto, is easily inserted when the plug is withdrawn.

The invention further consists in the construction more particularly hereinafter set forth.

In the accompanying drawings Figure 1 is an elevation of my fuse box, a portion of a side wall and of the cover being broken away. Fig. 2 is a section on the line x, x of Fig. 1. Fig. 3 is a top view a portion of the cover being broken away. Fig. 4 is a horizontal section on the line y, y of Fig. 2. Fig. 5 is a section on the line z, z of Fig. 1, 45 and Fig. 6 shows the fuse carrier separately and in perspective. In Fig. 2 the fuse plug is shown with the fuse carrier in place therein and in position to coöperate with the circuit terminals in the case. In Fig. 5 the 50 fuse plug is shown in the position indicated by dotted lines, Fig. 2, circuit then being

broken at the terminals, and the fuse carrier is represented in the fingers of the operator for insertion into or withdrawal from the plug.

Similar numbers of reference indicate like parts.

The device is herein illustrated applied to the leads of a three wire system, and the plug is therefore constructed to hold three 60 fuse carriers, so that when said plug is put in place, the three leads are fused simultaneously. It will, of course, be understood that the device may be applied to a single lead or to two leads, in which event the plug will 65 be adapted to hold one or two fuse carriers, as the case may be.

1 is a metal protecting box having a flanged cover 2. On the box walls are projections 3 having openings to receive a locking bar 4, which may have one end 5 turned at an angle, and the other end provided with an opening 6 to receive the shackle of a seal fastening in the usual way after the bar has been passed through the apertures 75 in projections 2. In the side walls of the box are openings for the admission of the leads 7, 8, 9 and 10, 11, 12. In the cover is an opening to receive the plug 13, which is preferably made of refractory insulating 80 material, such as porcelain. The base block 14, which rests on the bottom of the box is of similar material, and is provided with recesses in which lie the downwardly bent hook-shaped ends of the contact plates 15, 16. Said plates are secured to the base 85 block by screws 17, and the leads 8, 11 are respectively connected to them by similar screws. The remaining leads are similarly connected to the other two pairs of contact 90 plates, which are made and secured to the block in the same way as plates 15, 16. Formed in the plug 13 is a recess 19 which receives the hook-shaped ends of two contact plates 20, 21. The outer end portions 95 of the hooks are placed facing one another and horizontally as shown in Fig. 2, said parallel end portions then forming a pair of contact surfaces which coöperate with the fuse strip 22 when the carrier bar 23 is introduced between them, as shown in Figs. 2 and 5. The contact plate 20 is bent downwardly so that its body portion lies in a recess 24 on one side of the block, and is secured to said block by screw 25. The 100 contact plate 21 beyond the hook is bent back on itself to lie against the bottom of 105 the block. The leads 7, 8, 9 and 11, 12 are 110 connected to the respective contact plates 20 and 21.

the recess 19, as shown in Fig. 2, and is secured to the block by screw 26. It is then bent at right angles to enter a recess 27 which communicates with recess 19. Both 5 contact plates 20, 21 extend below the plug for a sufficient distance to enable them to enter the hooks of contact plates 15, 16. In this way, the fuse carrier being in place between plates 20, 21, circuit is established between the leads and through the fuse strip 10 22. Recesses similar to those already described are formed in the fuse plug to receive pairs of contact plates similar to plates 20, 21, and between these pairs of plates, 15 similar fuse carriers may be introduced, so that when the plug is in operating position, circuit is closed in the manner described, through all the leads above noted.

The fuse carrier shown in Fig. 6 consists 20 of the flat bar 23 of fiber or other insulating material and preferably made thicker over a portion of its length than over the remaining portion. The fuse strip 22 is doubled over the thin end and lies in contact with the 25 opposite faces of the bar, to which it is secured in any suitable way. The plug 13 when seated to establish circuit, extends above the cover and is provided with grooves on its opposite sides to form a head for convenience in grasping. On the cover is a standard 28, to which is pivoted a latch 29, the upper end of which extends over the plug 13 when said plug is seated, as shown in Fig. 2, the latch then being held in place 30 by a spring 30. The latch has a head for convenience in manipulation, and may be locked in engaging position by passing the shackle of a seal fastening or padlock through an opening 31 formed in the latch 35 and a similar opening formed in standard 29. In order to guide the plug in its vertical movement, two rods 32, secured to the bottom of the box, extend up through openings in the base block, and also through 40 openings in end projections 33 on the plug. In the base block openings and surrounding the rods are helical springs 34. On the rods, below projections 33 and above springs 34, are sliding collars 35. When it is desired to 45 fuse the leads, the latch is thrown back, and the plug is moved upwardly by springs 34 so as to bring the recess 19 above the cover. The plug is prevented from leaving the 50 opening by the projections 33 which meet 55 the under side of the cover. The operator then inserts the fuse carriers, as shown in Fig. 5. The plug is then pushed down until the ends of plates 20, 21 become seated in the hooks of plates 15, 16, the springs 34 60 then being compressed. The latch then engages the plug. If it is desired to prevent subsequent withdrawal of the plug, the seal fastening may be applied to the latch, as above described. The length of the carrier 65 should be less than the depth of recess 19,

and it should be inserted until the entering end gets a bearing on the downwardly bent portion of plate 20, as shown in Fig. 2. Obviously, if the carrier is carelessly inserted so that it protrudes beyond the face of the 70 plug, it will strike the cover, and thus the plug cannot be seated unless the carrier is properly put in place.

I claim:

1. An inclosing case, having an opening 75 in its wall, circuit terminals in said case, a plug slidable in said opening, a contact clip on said plug having its members respectively coöperating with said terminals, and a separate conducting member adapted to be 80 inserted in and engaged by said contact clip to close circuit between the members thereof: the said contact clip being constructed and arranged so that upon its withdrawal from the case to an extent sufficient to permit removal of said separate inserted circuit closing member, circuit shall be broken between said clip members and said terminals. 85

2. An inclosing case, having an opening 90 in its wall, circuit terminals in said case, a plug slidable in said opening, a contact clip on said plug having its members respectively coöperating with said terminals, and a fuse carrier separate from the instrument 95 and adapted to be inserted in and engaged by said contact clip to close circuit through said fuse: the said contact clip being constructed and arranged so that upon its withdrawal from the case to an extent sufficient to permit removal of said separate inserted 100 fuse carrier, circuit shall be broken between said clip members and said terminals. 100

3. An inclosing case, having an opening 105 in its wall, circuit terminals in said case, a plug slidable in said opening, fixed guide rods within said case received in said plug, springs interposed between the bottom of said plug and said case, means on the exterior of said case engaging said plug for holding said plug in seated position against 110 the resiliency of said springs, a pair of separated contact plates on said plug coöperating with said circuit terminals, and a fuse carrier adapted to coöperate with said contact plates; the aforesaid parts being constructed 115 and arranged so that when said plug is withdrawn from the case sufficiently to expose said contact plates to permit the insertion of said fuse carrier between them, circuit shall be broken between said contact plates 120 and said circuit terminals. 120

4. An inclosing case, having an opening 125 in its wall, circuit terminals in said case, a plug slidable in said opening and having a side recess, separated contact plates secured to said plug, disposed in said recess and extending beyond said plug to coöperate with said circuit terminals, and a separate fuse carrier adapted to enter said recess and coöperate with said contact plates; the said 130

5 plug being disposed so that when said plug contact plates and said circuit terminals are in coöperation, said recess shall be within said case.

5. An inclosing case, having an opening in its wall, circuit terminals in said case, a plug slideable in said opening and having a side recess, separated contact plates secured to said plug, disposed in said recess and extending beyond said plug to coöperate with said circuit terminals, a spring in said case for moving said plug outwardly in said opening, means on said plug for preventing escape of said plug from said case when protruded by said spring, a latch on the ex-

terior of said case engaging said plug when said plug contact plates and said circuit terminals are in coöperation, and a separate fuse carrier adapted to enter said plug recess and coöperate with the contact plates there-in; the said plug being disposed so that when said plug contact plates and said circuit terminals are in coöperation, said recess shall be within said case. 20

In testimony whereof I have affixed my 25
signature in presence of two witnesses.

THOMAS E. MURRAY.

Witnesses:

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MAY T. McGARRY.