Oct. 10, 1933. J. G. JACKSON ET AL 1,930,428

FUSE BOX

Filed Oct. 21, 1929 2 Sheets-Sheet 1

Fig. 1.

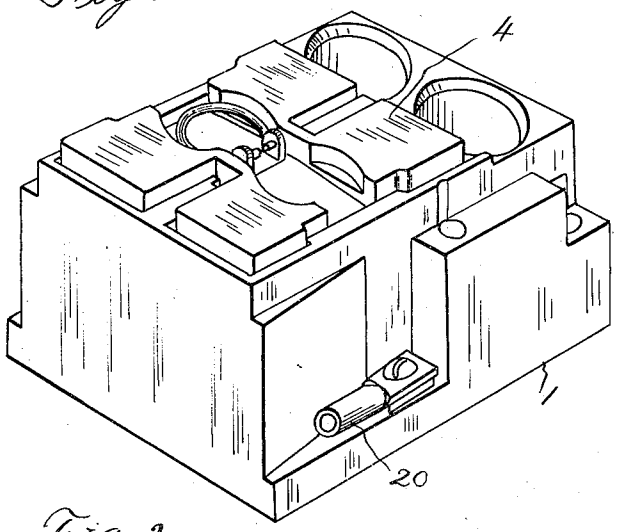


Fig. 2.

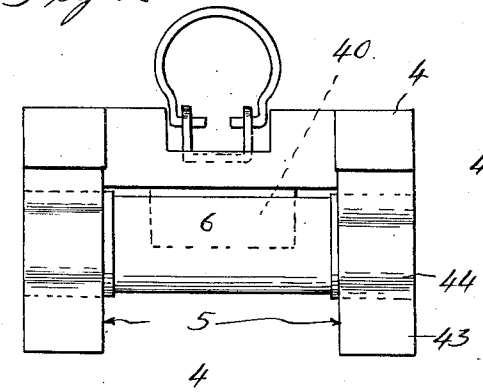
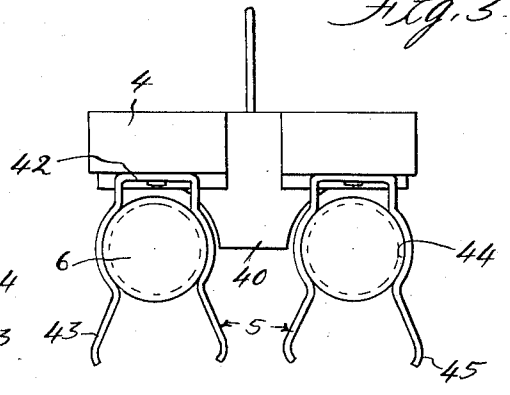


Fig. 3.



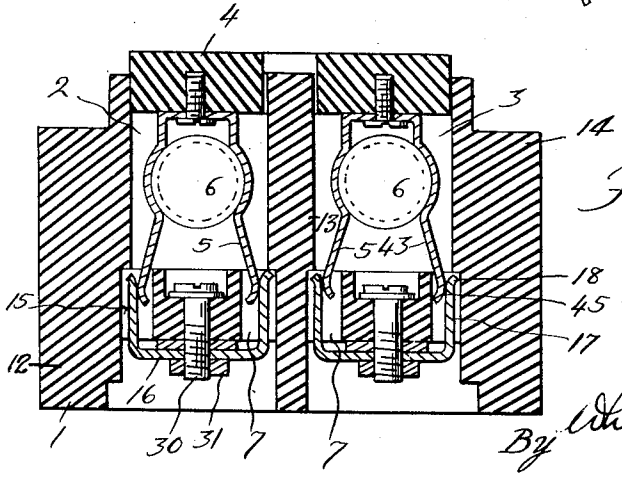


Fig. 7

INVENTORS:
John G. Jackson, 2d
Ralph H. Kingdon,
By Whittemore, Hulbert & Whittemore & Belknap
ATTORNEYS

Oct. 10, 1933. J. G. JACKSON ET AL 1,930,428

FUSE BOX

Filed Oct. 21, 1929 2 Sheets-Sheet 2

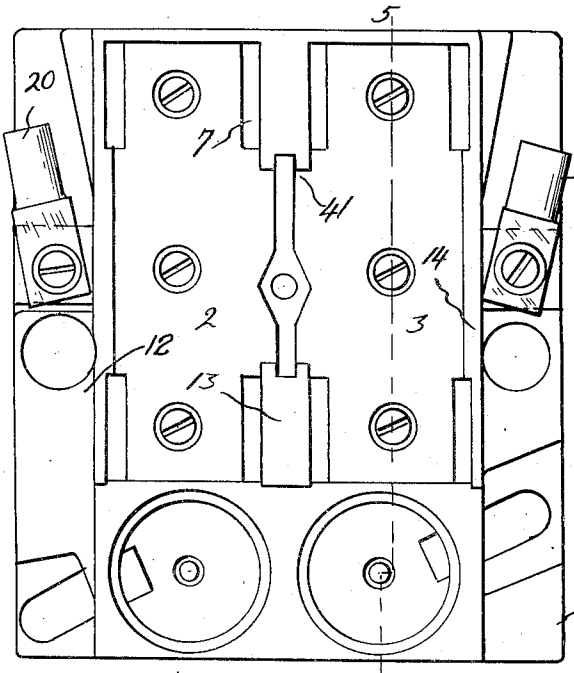


Fig. 4.

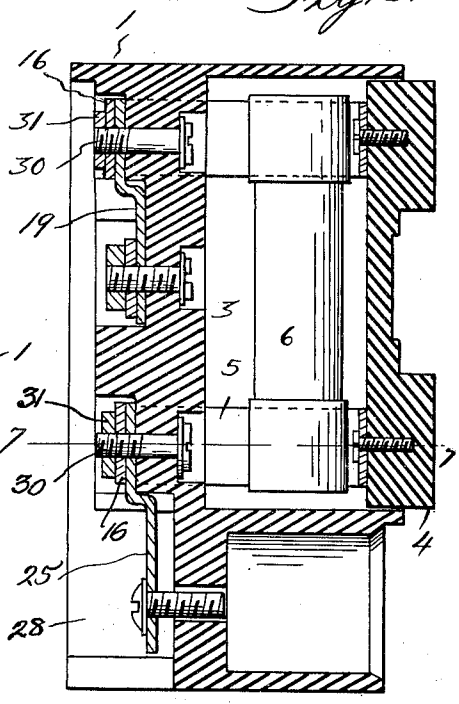


Fig. 5.

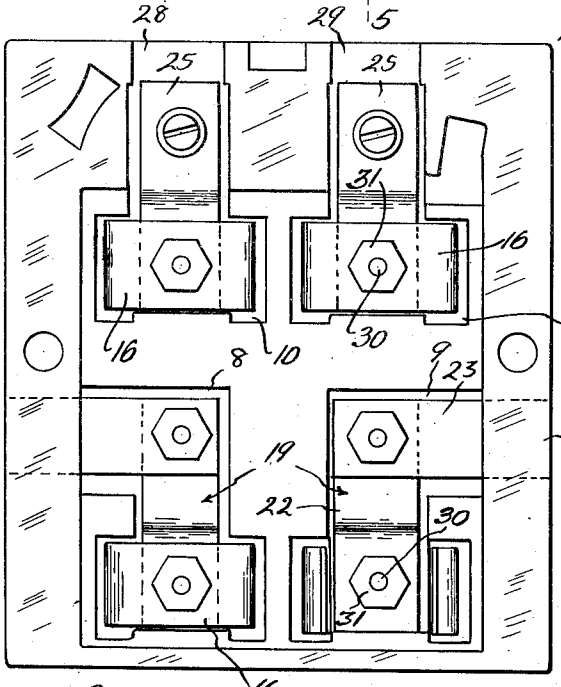


Fig. 6.

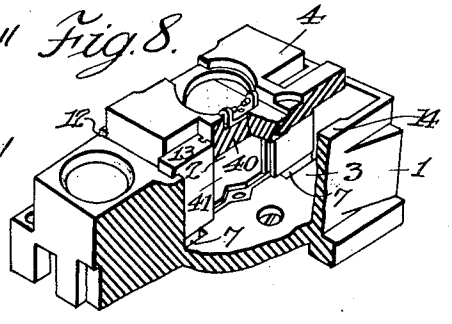


Fig. 8.

INVENTORS:
John G. Jackson, &
Ralph H. Kingdon,
BY Whittemore, Hulbert & Whittemore
& Belknap

ATTORNEYS

Patented Oct. 10, 1933 1,930,428

UNITED STATES PATENT OFFICE

1,930,428

FUSE BOX

John G. Jackson and Ralph H. Kingdon, Detroit, Mich., assignors to Square D Company, Detroit, Mich., a corporation of Michigan

Application October 21, 1929. Serial No. 401,263

22 Claims. (Cl. 200—133)

This invention relates generally to fuse blocks or boxes and consists of certain novel features of construction, combinations and arrangements of parts that will be hereinafter more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a perspective view of a fuse box embodying our invention;

Figure 2 is a side elevation of the fuse box cover with fuses applied thereto;

Figure 3 is an end elevation thereof;

Figure 4 is a top plan view of the fuse box with the cover removed;

Figure 5 is a vertical sectional view taken on the line 5—5 of Figure 4;

Figure 6 is a bottom plan view of the fuse box;

Figure 7 is a section on the line 7—7 of Figure 5;

Figure 8 is a perspective view of a fuse box embodying our invention with parts broken away and in section.

Referring now to the drawings, 1 is a base, 2 and 3 respectively are fuse chambers on the base, 4 is a common cover for the fuse chambers, 5 are clips upon the inner face of the cover, and 6 are fuses carried by said clips and normally disposed within the chambers 2 and 3. As shown, the base 1 is provided at opposite ends of the chambers with elongated slots 7 and is provided in its lower face with recesses 8, 9, 10 and 11 respectively. Preferably the slots 7 extend along the walls 12, 13 and 14 respectively of the chambers and connect into the recesses 8, 9, 10 and 11. Contact clips 15 have flat base portions 16 in recesses 8, 9, 10 and 11 and have substantially parallel arm portions 17 that extend upwardly in the slots 7 and terminate in laterally extending portions 18 adjacent the walls 12, 13 and 14 respectively. Lug connectors 19 are also received in the recesses 8 and 9, preferably between the bases 1 and 16, and project laterally through portions of the base to the lugs 20 and 21. As shown, the connectors comprise overlapping sections 22 and 23, however, if desired, they may be formed from a single stamping of L configuration. Bus connectors 25 are received in the recesses 10 and 11, and extend longitudinally of parallel portions 28 and 29 respectively of the recesses 10 and 11. Any suitable means such as the bolts 30 and nuts 31 may be used as means for securing the connectors 19 and 25 respectively to the contact clip bases 16 and to the base of the box.

In the present instance the cover 4 is substantially H-shape in form and is provided at the center thereof with a depending portion 40 that is received in a slot 41 in the intermediate wall 13 when the cover is in closed position. The clips 5 are U-shape in form and open downwardly. Preferably the bases 42 of the U's are rigid with the lower face of the cover while the arms 43 of the U are yieldable and serve to hold the fuse 6 and to establish an electrical connection between said fuses and the contact clips 15 in the slots 7. Preferably the arms 43 of the U's diverge slightly from the base 42, have intermediate longitudinally curved portions 44 for receiving the fuse and have inturned end portions 45. As illustrated in Figure 3, the fuses are held firmly by the longitudinally curved portions 44 of the arms and serve to spread apart the inturned end portions 45 thereof. Hence when the cover 4 is applied to the chambers 2 and 3 the inturned end portions 45 will be compressed slightly by and will slide inwardly upon the walls 12, 13 and 14 of the chambers until they reach the slots 7 whereupon they will engage the arm portions 17 of the clips. As a result the cover 4 with the clips thereon is held firmly in closed position. Both portions 17 and 45 are constructed of spring metal and the portions 17 are in the path of and constitute interference for the portions 45. Thus when inserted in the slots 7 the portions 45 will overlap the portions 17, causing both portions 17 and 45 to be deflected slightly and insuring positive contact between the parts. In fact, the construction and arrangement of the portions 17 and 45 are such that the contact therebetween will be along lines substantially parallel to the base 1. As a result a shallower construction may be utilized. The intermediate curved portions 44 of the fuse clip arms are pressed against the fuses so that the latter are held tighter and under greater pressure. Thus a better contact between these parts is obtained. It will also be noted that the contact clips 15 and connectors 19 and 25 are entirely concealed. In fact, the structure as a whole is exceedingly neat and compact.

What we claim as our invention is:

1. In a fuse box, a fuse chamber, a cover for said chamber, a clip secured to the cover having portions engageable with and compressible by the walls of the chamber when the cover is applied to the chamber and having intermediate portions adapted to grip a fuse and to hold the same securely when the first mentioned portions are compressed by reason of their engagement with the chamber walls.

2. A fuse box having a base provided with a recess, a fuse chamber above the base, and slots ex-

tending between and connecting the recess and fuse chamber for receiving overlapping electrical contact elements.

3. In combination, a fuse box having a base provided with a recess, a fuse chamber above the base, and slots extending between and connecting the recess and fuse chamber, a cover for the chamber, and electrical contact elements secured in said recess and to said cover respectively and having portions of spring metal overlapping within the slots aforesaid.

4. In combination, a fuse box having a base provided with a recess, a fuse chamber above the base, and slots extending between and connecting the recess and fuse chamber, a cover for the chamber, electrical contact elements secured in the recess and having portions within the slots, and electrical contact elements secured to the cover and having portions overlapping the portions aforesaid within the slots and contacting with said portions along lines substantially parallel to the base.

5. In combination, a fuse box having a base provided with a recess, a fuse chamber above the base, and slots extending between and connecting the recess and fuse chamber, a cover for the chamber, electrical contact elements carried by the cover and having portions insertable within the slots, and electrical contact elements secured in the recess and having portions extending longitudinally of the slots in the path of and constituting interference for the portions aforesaid, both portions being constructed of spring metal and being deflectable when brought together, insuring positive contact between the said parts.

6. In a fuse box, a fuse chamber having slots through the base thereof, a cover for the chamber, and cooperating electrical contact elements carried respectively by the base and cover and having overlapping portions within said slots.

7. In a fuse box, a fuse chamber having slots through the base thereof, a cover for the chamber, and co-operating electrical contact elements carried respectively by the lower faces of said base and cover and having contacting portions within said slots, one of said contact elements having means for holding a fuse.

8. In combination, a fuse box having a fuse chamber provided in its bottom wall at its side walls with slots, contact clips secured to the under side of the bottom wall and having contact arms within said slots, a cover for the chamber, a fuse clip carried by the cover and having a pair of contact arms engageable with the contact arms aforesaid, the construction and arrangement of the slots and contact arms aforesaid being such that the last mentioned contact arms engage and are guided by the side walls aforesaid of the chamber into operative engagement with the contact arms within the slots.

9. In combination, a fuse box having a fuse chamber therein, the base of the box having recesses in its lower face and having slots extending upwardly to the chamber aforesaid, contact clips secured within the recesses aforesaid and having contact arm portions extending upwardly within the slots, a cover for the chamber, and fuse clips secured to the lower face of the cover and having contact arm portions within the slots aforesaid and overlapping and contacting with the arm portions of the contact clips.

10. In combination, a fuse box having fuse chambers side by side with a common wall therebetween, the wall being provided substantially midway of its ends with an upwardly opening recess, a cover for the box having slots receiving portions of the wall at opposite ends of the recess and having portions fitting within the fuse chambers, the upper face of the cover being provided above the recess in the wall with an upwardly opening recess for receiving a handle, and the lower face of the cover being provided in vertical alignment with the recesses aforesaid with a depending enlargement that extends between the portions aforesaid fitting within the fuse chambers into the recess in said wall and has a depth substantially equal to the depth of one of said cover portions, whereby the cover is of substantially uniform thickness from one side edge to the other.

11. In combination, a fuse box having a fuse chamber, the bottom wall of said chamber being provided with downwardly opening recesses and upwardly extending spaced slots, contact clips of substantially U configuration having the bases of the U's in the recesses and secured to said bottom wall and having the arms of the U's extending upwardly in the spaced slots, a cover for the chamber, and a fuse clip carried by the cover and having arms received within the spaced slots in the bottom wall and overlapping the arms of the U-shaped contact clips aforesaid, the contact between the arms of the contact and fuse clips being along lines substantially parallel to the bottom wall of the chamber.

12. In combination, a fuse box having a fuse chamber with substantially vertical slots extending through the bottom wall thereof, contact clips having portions below and secured to said bottom wall and having other portions extending upwardly in said slots and terminating below the upper ends thereof, a cover for the chamber, and fuse clips carried by the cover and having depending portions overlapping and having line contact with the clip portions aforesaid within said slots.

13. In combination, a fuse box having a fuse chamber with substantially vertical slots extending through the bottom wall thereof, clips having portions below and secured to the bottom wall of the chamber and having contact portions extending upwardly in said slots, a cover for the chamber, and clips carried by the cover and having contact portions overlapping but having line contact only with the contact portions aforesaid.

14. In combination, a fuse box having a fuse chamber, the bottom wall of said chamber having slots therein, substantially U-shaped clips having the bases of the U's secured to the under side of the bottom wall of the fuse chamber and having the arms of the U's extending upwardly in said slots, a cover for the chamber, and inverted substantially U-shaped clips having the bases of the U's secured to the cover, and having the arms thereof overlapping and contacting with the arms of the first mentioned U-shaped clips.

15. In combination, a box of insulating material having an open top chamber, the bottom wall of said chamber having slots therethrough, electric contact members having portions secured to the underside of said bottom wall and having portions extending upwardly in said slots, a cover of insulating material for the chamber, and electric contact members having portions secured to the underside of said cover and having portions overlapping and engaging the second mentioned portions of the first mentioned contact members.

16. In combination, a box having an insulated

open top chamber, the bottom wall of said chamber having a slot therein, an electric contact member having a portion secured to the underside of said bottom wall and having a portion extending upwardly in said slot, a cover for the chamber, and an electric contact member having a portion secured to the underside of the cover and having a depending portion overlapping and engaging the upwardly extending portion of the first mentioned contact member.

17. In combination, a box having an open top chamber, the bottom wall of said chamber having slots therein, electric contact members having portions secured to the underside of said bottom wall and having portions extending upwardly in said slots, a cover for the box having a portion fitting within the chamber, and electric contact members having portions secured to the cover and having depending portions overlapping and engaging the upwardly extending portions of said first mentioned contact members, the engagement between the upwardly extending portions of the first mentioned contact members and the depending portions of the second mentioned contact members being such as to removably maintain the portion aforesaid of the cover within said chamber.

18. In combination, a box having two open top chambers side by side with a common partition therebetween, said partition having an upwardly opening slot therein, the bottom walls of said chambers having slots therein, electric contact members having portions secured to the undersides of said bottom walls and having portions extending upwardly in said slots, a common cover for said chambers, and electric contact members having portions secured to the underside of said cover and having depending portions overlapping and engaging the upwardly extending portions of said first mentioned contact members.

19. In combination, a box of insulating material having an open top chamber, the bottom wall of said chamber having slots therethrough, electric contact members having portions secured to the underside of said bottom wall, a cover of insulating material for the chamber, and electric contact members having portions secured to the underside of said cover and having portions overlapping and engaging portions of the first mentioned contact members.

20. In a fuse box, an open top chamber having slots extending through the bottom wall thereof, electric contact members having portions secured to the under-side of said bottom wall and having portions within said slots, a cover for the chamber, and electric contact members having portions secured to the cover, having portions overlapping and engaging the second mentioned portions of the first mentioned contact members and having intermediate portions fashioned to grip and hold a fuse, the construction and arrangement of the contact members aforesaid being such that pressure upon a fuse held by the intermediate portions just mentioned is increased upon engagement of the second mentioned portions of the last mentioned members with the last mentioned portions of the first mentioned members.

21. In a fuse box, an open top fuse chamber having a slot through the bottom wall thereof, an electric contact member having a portion secured to the underside of said bottom wall and having a portion within said slot, a cover for the chamber, and an electric contact member having a portion secured to said cover and having a portion engaging the second mentioned portion of the first mentioned contact member.

22. In a fuse box, an open top fuse chamber having slots through the bottom wall thereof adjacent its side walls, a cover for said chamber, electric contact members having portions secured to the underside of the base and having portions within said slots, and cooperating electric contact members having portions secured to the cover, having portions engageable successively with the side walls of the chamber and with the second mentioned portions of the first mentioned contact members, and having intermediate portions fashioned to grip and hold a fuse, the construction and arrangement of the contact members aforesaid being such that the pressure upon a fuse held by said intermediate portions will be increased upon the successive engagement of the second mentioned portions of the cooperating contacts with the side walls and first mentioned contact members.

JOHN G. JACKSON.
RALPH H. KINGDON.