May 10, 1949. R. BALL 2,469,492

SCREW IN CIRCUIT BREAKER

Filed June 11, 1948

FIG. 1.

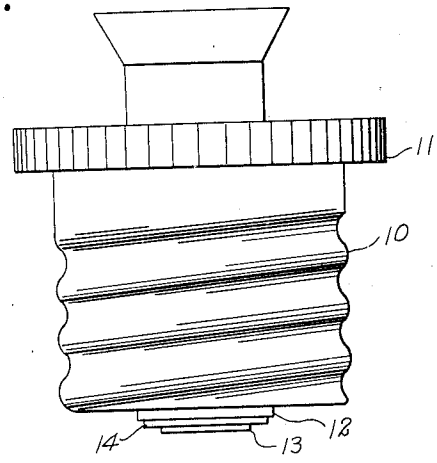


FIG. 2.

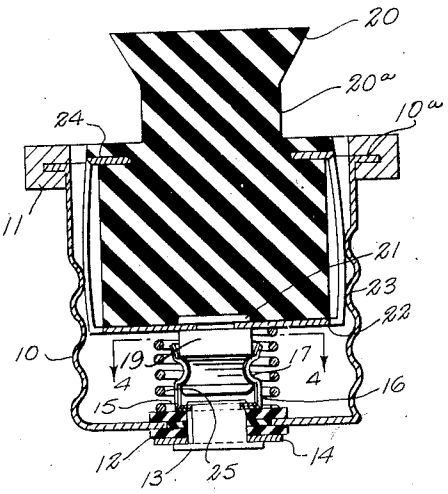


FIG. 3.

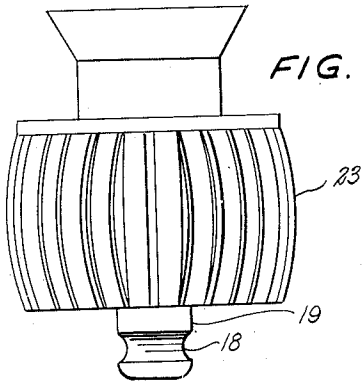
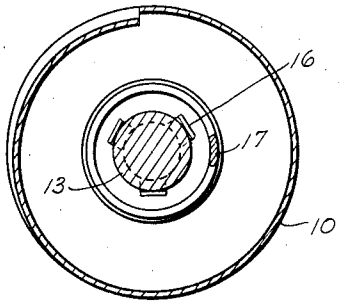


FIG. 4.



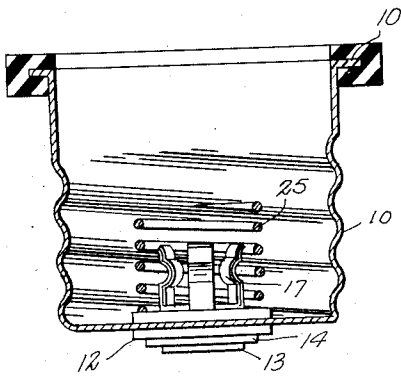


FIG. 5.

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SCREW-IN CIRCUIT BREAKER

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1 Claim. (Cl. 200—113)

1

This invention relates to a renewable screw-in circuit breaker which may be used in a conventional fuse block.

An object of this invention is to provide a circuit breaker of simple and inexpensive construction which may be substituted for the conventional one-use fuse now commonly in use.

Another object is to provide a circuit breaker which permits the passage of temporary current surges without blowing out or interrupting the circuit.

Further objects and advantages of this invention, as well as its construction, arrangement and operation, will be apparent from the following description and claim when taken in connection with the accompanying drawing, in which:

Figure 1 is a side view in elevation of the assembled circuit breaker.

Figure 2 is a side view in section of the circuit breaker.

Figure 3 is a side view in elevation of the reset plug within the fuse shell.

Figure 4 is an end view in section taken on line 4—4 of Figure 2, and

Figure 5 is a view in section of the external shell and elements of the invention within the shell.

Referring in more particular to the drawings, in Figures 1 and 2 a rolled body 10 of brass or other suitable material is secured by means of flanged portion 10*a* to the knurled insulating rim 11, and has insulating washer 12 with through contact 13 and washer 14 at the base thereof.

Through contact 13 is suitably flared at 15 to secure bimetal element 16 composed of two dissimilar metals such as, for example, brass and aluminum, firmly to the through contact and insulating washer 12. In Figures 2 and 4 the bimetal element 16 is shown as a three pronged cup having detent surfaces 17 on the inner sides thereof in which the notched sides 18 of the metal peg 19 are retained in normal position of operation. The metal peg 19 is secured to the insulating handle 20 by flanged end 21 which has electrical contact with metallic plug base 22. Plug base 22 extends over the end of the handle 20 and has spring fingers 23 formed in its periphery and bent up over the sides of the handle 20 and pinned into the insulating material of the handle at 24. Handle 20 has undercut peripheral surface 20*a* at its end hereof providing a means of gripping handle 20. A spring 25 centered over the bimetal element 16 completes the assembly and is suitably secured to the insulating washer 12 by any conventional means not here illustrated.

In operation, current is conducted by the through contact 13 from the center contact of the conventional fuse block (not shown) to the

2

bimetal element 16 and thence by contact with the peg 19 to the plug base 22 and fingers 23 to the brass body 10 which is in contact with the screw-in shell of the fuse block. Excessive current may temporarily pass the bimetal element but continued overload causes the bimetal element to expand and the spring 25 causes the plug 20 to be ejected out of contact. After the circuit load has returned to normal, the bimetal element having cooled, the plug 20 may be pushed back to where the contact is remade and the detent surfaces of the element again engages the peg.

It is understood that various modifications and changes may be made in this invention without departing from the spirit and scope thereof, as set forth in the appended claim.

What is claimed is:

A resettable circuit breaker for use in a conventional fuse block having a threaded socket and a center contact comprising a screw threaded metallic shell threadable into the fuse block socket, a rim of electrically insulating material secured to the open end of said shell, a center contact extending through the base of said shell, means electrically insulating said center contact from said shell, a bimetallic element secured to said center contact within said shell and including three parallel, indented prongs, a plug insertable into said shell and including a cylindrical body of insulating material and a knob on one end of said body, a metallic plug base overlying the opposite end of said body and including spring fingers disposed around the cylindrical side wall of said body to contact said shell when said plug is inserted into said shell, a metal peg secured to said metallic base and received between the prongs of said bimetallic element in spaced relationship to said center contact, said peg having an annular groove receiving the indentations of said prongs to releasably secure said body in said shell, and a compression spring disposed between said metallic plug base and the base of said shell and insulated from the latter to force said plug outwardly of said shell when said bimetallic element is expanded by heat of current overload passing therethrough.

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The following references are of record in the file of this patent:

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