

L. W. DOWNES & R. C. PATTON.

FUSE.

APPLICATION FILED MAY 23, 1917.

1,248,091.

Patented Nov. 27, 1917.

Fig. 1

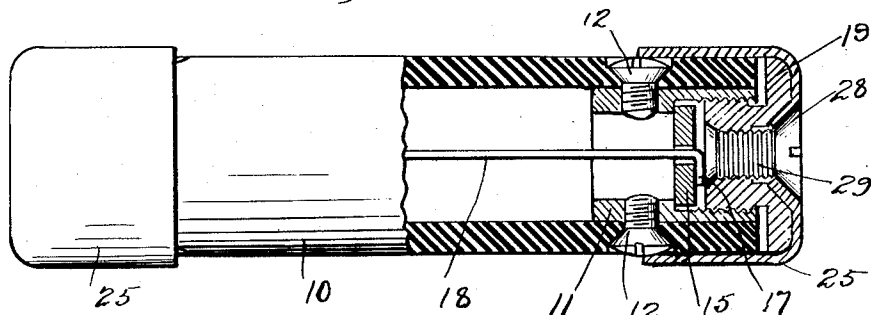


Fig. 2

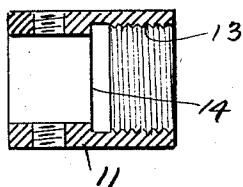


Fig. 3

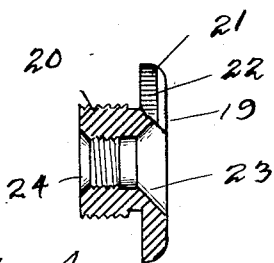
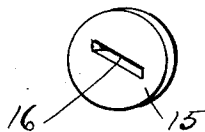


Fig. 4

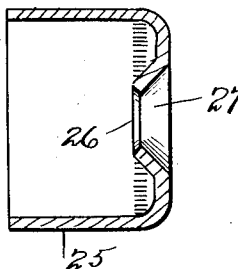


Fig. 5

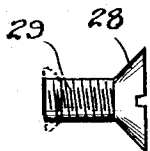


Fig. 6

Witnesses

B. F. Macready.
J. L. Macdermott

By

Inventor

Louis W. Downes
Ralph Clifton Patton.

Howard E. Barlow
Attorney

UNITED STATES PATENT OFFICE.

LOUIS W. DOWNES AND RALPH CLIFTON PATTON, OF PROVIDENCE, RHODE ISLAND,
ASSIGNORS TO D & W FUSE COMPANY, OF PROVIDENCE, RHODE ISLAND, A CORPO-
RATION OF RHODE ISLAND.

FUSE.

1,248,091.

Specification of Letters Patent.

Patented Nov. 27, 1917.

Application filed May 23, 1917. Serial No. 170,384.

To all whom it may concern:

Be it known that we, LOUIS W. DOWNES and RALPH CLIFTON PATTON, citizens of the United States, and residents of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Fuses, of which the following is a specification.

This invention relates to electric fuses and more particularly to those of the refillable type.

An object of this invention is to provide a simple, practical and inexpensive construction whereby when the fuse link blows, the end of the fuse may be readily removed, for the purpose of positioning a fresh link in the casing, and quickly replacing the parts so that the whole will be as strong and capable of withstanding as much short-circuiting pressure as when originally assembled.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1— is a side elevation of my improved fuse partly in section illustrating the arrangement of the removable parts.

Fig. 2— is a detail of the inner sleeve member in section.

Fig. 3— is a perspective view of the washer or plate member against which the end of the fuse link is bound.

Fig. 4— is a sectional elevation of the plug threaded to engage the sleeve, a portion of the edge of said plug being in elevation to show the knurled or engaging teeth formed thereon.

Fig. 5— is a sectional side elevation of the end cap.

Fig. 6— shows the screw which permanently connects together the plug and the end cap.

Referring to the drawings, 10 designates the tubular casing for this cartridge type of fuse, which casing may be made of any suitable insulating material. A short sleeve member 11 is formed preferably from a piece of steel tubing to fit closely within the end of the casing and is shown herein as being attached thereto by means of screws 12 which extend through the casing and are threaded into the sleeve, but any other suitable means may be employed for securing

this sleeve to the casing. The outer end of this sleeve is internally threaded as at 13 and an annular shoulder 14 is formed at the inner end of the threaded portion against which a washer or plate 15 rests. This plate is shown as being provided with a slotted opening 16 through which the end 17 of the fuse link 18 extends, said end being turned at a right angle to rest against the outer face of this plate.

Instead of forming the opening 16 through the center of the plate its outer edge may be clipped or cut away if desired, to permit the end of the fuse link to pass beyond to the opposite side thereof.

A plug member 19 has a body portion 20 threaded to screw into said sleeve, the periphery of the flange portion 21 of this plug being knurled, notched or toothed as at 22 for the purpose presently described.

This plug is provided with a threaded hole through its middle portion, the inner end of which is counterbored slightly as at 24 and the outer end counterbored deeply as at 23.

The end caps 25 for the casing are constructed of brass or other metal of high conductivity, the end of each being pierced as at 26 and the edges of this pierced hole are forced inward forming a counter-sunk portion 27 for the reception of the head 28 of the screw 29.

One of the features of this invention is the simple and practical means by which this plug member is permanently attached to this cap, which is that of forcing the plug into the cap. The teeth on the periphery of the flange of the plug bite into the inner surface of the cap which is of a softer metal thereby firmly securing them together against relative rotation. These two members are further connected together by threading the large brass or copper screw 29 through the plug, its head binding the counter-sunk portion of the cap into the counterbore of the plug and the inner end of the screw is riveted over into the inner counterbore portion 24 of the plug thereby permanently binding these three members together so that they must rotate as one.

One of the features of this invention is that the screw is of brass or other metal of high conductivity and of standard make and size, and as the head is slotted a screw-driver may be employed for positioning and

removing the plug-cap assembly without the use of other tools. Then again by this construction all of the parts may be made of steel with the exception of the screw and cap which are of brass or other metal of high conductivity, the screw end serving to bind the link end against the plate 15 and so provides a path of high conductive metal from the link to the caps. When the fuse is in operative position these caps are engaged by the clips of the usual fuse block (not shown).

Other features of our construction are that in event of injury to the casing the sleeve and all of the metallic parts may be readily removed and applied to another casing, and in event of injury to the sleeve it is only necessary to remove the screws 12 and replace the injured sleeve with a fresh one.

Then again when the parts are in position the whole is locked together as the skirt on the cap extends over the screws 12 securely locking them against backing out.

The description is directed solely toward the construction illustrated but we desire it to be understood that we reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being limited in no other way than by the terms of the appended claims.

We claim:

1. An electric fuse comprising a tubular casing, a sleeve removably secured in the end of said casing, a shoulder in said sleeve, a plate engaging said shoulder, a fuse link in said casing extending through said plate its end being turned back against the outer face of said plate, and a plug threaded into said sleeve binding said link end against said plate.

2. An electric fuse comprising a tubular casing, a sleeve secured in the end of said casing, a shoulder in said sleeve, a plate engaging said shoulder, a fuse link in said casing whose end projects beyond and is turned back against the outer face of said plate, a cap fitting over the casing end, a plug within and attached to said cap, said plug being threaded into said sleeve for binding said link end against said plate.

3. An electric fuse comprising a tubular casing, a sleeve removably secured within the end of said casing, a binding member supported by said sleeve, a fuse link in said casing having its end laid against the said member, a cap fitting over the end of said casing, a plug within said cap, means for permanently attaching said plug to said cap, said plug being threaded into said sleeve and binding said link end against said member.

4. An electric fuse comprising a tubular casing, a sleeve removably secured within the end of said casing, a binding member supported by said sleeve, a fuse link in said casing having its end laid against said member, a cap fitting over the end of said casing its end plate being counter-sunk to receive a screw head, a plug within said cap counterbored to receive said counter-sunk portion of said end plate, a screw having its head in said counter-sunk portion and its inner end riveted over said plug to permanently connect the plug to the cap, said plug being threaded on its body portion to engage said sleeve, the end of said screw engaging and binding said link end against said member.

5. An electric fuse comprising a tubular casing, a sleeve secured in the end of said casing, a shoulder in said sleeve, a plate engaging said shoulder, a fuse link in said casing whose end projects beyond and is turned back against the outer face of said plate, a cap fitted over the end of said casing its end plate being counter-sunk to receive a screw head, a plug within said cap counterbored to receive said counter-sunk portion and its end riveted over said plug and permanently connecting the plug to the cap, said plug being threaded on its body portion to engage said sleeve, the end of said screw engaging and binding said link end against said member.

In testimony whereof we affix our signatures in presence of two witnesses.

LOUIS W. DOWNES.

RALPH CLIFTON PATTON.

Witnesses:

GEORGE W. STEERE,

JOLNES L. TONGE.