

(No Model.)

T. S. McCLINTOCK.
SAFETY PLUG.

No. 584,009.

Patented June 8, 1897.

Fig. 1.

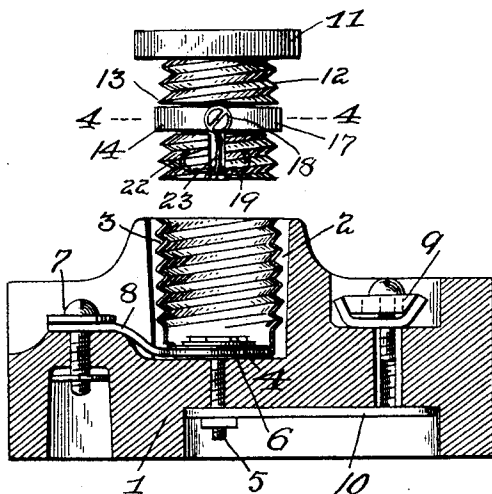


Fig. 2.

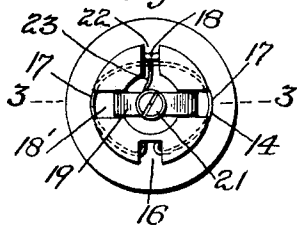


Fig. 3.

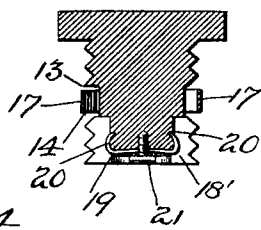
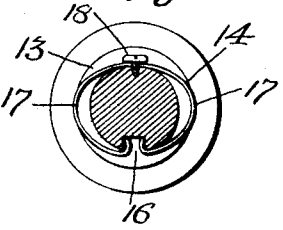


Fig. 4.



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THADDEUS S. MCCLINTOCK, OF PITTSBURG, PENNSYLVANIA.

SAFETY-PLUG.

SPECIFICATION forming part of Letters Patent No. 584,009, dated June 8, 1897.

Application filed August 5, 1896. Serial No. 601,783. (No model.)

To all whom it may concern:

Be it known that I, THADDEUS S. MCCLINTOCK, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Safety-Plugs, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention is a safety-plug for use in electric circuits to prevent a current of abnormal strength from passing through the circuit to electric receptive devices. The plug includes a fusible connection, and it is to the special construction of the safety-plug and the arrangement of the fusible wire relative thereto and to the socket-block that my invention particularly relates.

It is my object in providing a safety-plug to so arrange the parts that the fusible connection will be readily accessible by removing the plug and that its replacing by a new fusible piece will be the work of only a moment, no soldering of joints being required and no difficulty whatever being experienced in removing what may remain of the connection which may have been fused.

It is my object, while rendering the fusible connection easily accessible by the removal of the plug, to so arrange the said connection that when the plug is in place the fusible piece will be surrounded or inclosed by non-combustible parts, and thus remove all liability of fire which might ordinarily result from combustible materials adjacent to the fuse.

My invention not only includes the arrangement of the fuse-piece, but also the special form of contact-piece between the plug and the branch socket, my object here being to insure perfect contact and at the same time, in connection with special arrangement of fuse-piece, to provide a plug of the simplest construction and of the highest efficiency.

In the drawings, Figure 1 represents a branch socket-block of ordinary form in section with my improved safety-plug in side elevation in position to be screwed into the socket. Fig. 2 is a bottom plan view of the plug; Fig. 3, a section on line 3 3 of Fig. 2, and Fig. 4 a section on line 4 4 of Fig. 1.

As my invention relates mainly to the

safety-plug, I will but briefly describe the socket-piece for receiving the same, as this may be of any ordinary construction. In the form shown, 1 is a block of insulating material, having a cavity 2, in which is arranged a threaded socket 3, being held therein by the head 4 of a central post 5, the head and post being insulated from the socket by insulating material 6. The line-wire connects with a binding-screw 7 on the socket-block, and an electrical connection 8 extends from this screw to the threaded socket 3, making electrical connection in the ordinary way. On the other side the line-wire connects with a binding-post 9, and this is electrically connected through a bar 10 with the central post 5.

My improved plug is intended to complete the connection between the head of the central post 5 and the electrical connection 8 by way of the metallic threaded socket.

My improved plug comprises a head 11 and a screw-threaded body 12, extending therefrom and in one piece therewith, both of insulating material, as glass. At the point 13 the screw-threaded body is cut away or grooved externally, and in this groove a peripheral contact-piece 14 is arranged. This consists of a single piece of brass or other conducting material bent approximately into circular form and held in place by having its meeting ends bent radially inward and fitting in a depression or cavity 16 in the side of the plug and forming a continuation of the annular groove. The contact-piece is not of true circular form, but is bulged out slightly at the points 17, which are diametrically opposite each other. The central part of the contact-piece has a threaded hole to receive a screw 18, and the groove is sufficiently deep at this point to allow the screw to be countersunk or within the bottom of the screw-threads on the plug. These bulged portions 17 are slightly beyond or outside of the screw-threads of the plug, and thus when the plug is screwed into the metallic socket the contact-ring will bear at the points 17 upon the interior of the metallic socket 3, and good electrical contact will be insured at these points.

The end of the plug is grooved from side to side at 18', and in this groove a metallic clip 19 is placed, having its ends turned up to spring into place, the body of the socket

having seats 20 for these upturned ends, which ends make the clip self-retaining. Centrally of this clip and of the end of the plug there is a screw 21, which passes into the plug, and which when the plug is screwed all the way into the socket, will bear upon the head 4 of the central conducting-post 5 of the branch block. This screw may be countersunk, if desired, as well as the metal clip, and if the screw is thus countersunk a recess will be formed about it in the end of the plug sufficient to admit the head of the post 5.

My fusible connection is made between the contact-ring 14 and the end screw 21, for which purpose the plug has a vertical notch or groove 22 formed in its outer side and connecting with the peripheral groove and with the groove at the end of the plug. The fusible wire 23 is held at one end between the screw 21 and the metallic clip 19 and at the other end by the screw 18 and the circular contact-piece 14. From this construction it will be seen that the fusible wire lies within the outer periphery of the plug and its screw-threads, and when the plug is screwed into the socket it lies between the insulating material of the plug and the non-combustible material forming the threaded socket, and upon fusing there is no liability of any part being set on fire because of sparking on account of this fusible wire being thus inclosed by non-combustible parts. It will be noticed particularly that while the fusible wire is thus thoroughly protected and surrounded by non-combustible parts when it is in place it is readily accessible when the plug is removed. It is entirely external to the plug, and when taken out of the socket it is fully exposed and may be replaced by simply attaching the ends of the new fuse by means of the two screws. No soldering is necessary nor any special manipulation of any kind, and the same plug may be used over and over again, it being only necessary to replace the fusible piece.

It will be noticed that the fuse being external of the plug the latter may be a solid piece and needs no cover or cap piece which is ordinarily required to close up the cavity in the plug and in which the fuse is ordinarily located. This cap in other devices is screw-threaded onto the plug, and in manipulating the plug this cap is liable to become displaced and frequently comes off when the plug is being removed from the branch block.

It will be seen that the contact-ring and the clip 19 are self-retaining, the screws serving to hold the fuse thereto. These screws may be long or short, as desired, and unthreaded openings may be formed in the body of the plug to receive the long screw when used, or, if short screws are used, these openings may be omitted, and I wish it understood that I do not limit myself to the precise form, construction, or arrangement of the parts, as

changes may be made without departing from the spirit of the invention.

The bulged portions of the circular contact or conducting piece form a plurality of contacts which enables the plug to carry a large current. While this conducting-piece is not of true circular form, it forms substantially a ring.

I claim—

1. In combination, the safety-plug having an outer contact and having also a groove or recess in its outer face, the conducting-ring extending circumferentially about the plug to make electrical contact, and the fuse on the outside of the plug connected to the outer contact and to the conducting-ring and located within the groove in the outer face of the plug, said plug with its outer contact and contact-ring being fitted removably to a socket to make electrical connection with contacts therein.

2. In combination, the screw-threaded safety-plug externally recessed, the conducting-ring about the plug and in the recess and having bulged portions forming contact parts, a second contact-piece on the plug and the fuse connecting the same with the conducting-ring, said plug being adapted to fit into a screw-threaded socket, substantially as described.

3. In combination, the safety-plug having a screw-threaded body, and the peripheral groove, the conducting-ring held by said groove, a second contact-piece carried by the plug and the external fuse connected with the ring and with the second contact, substantially as described.

4. In combination, the safety-plug having the groove and the screw-threads, the conducting-ring held by its bent-in portions located in the groove, a second contact-piece on the plug and the fuse connected to the ring and to the second contact, the said plug being adapted for insertion into a screw-threaded socket, substantially as described.

5. In combination, the safety-plug having a screw-threaded body with a groove about it independent of the screw-threads, a conducting-ring held by said groove and having a plurality of contact-points thereon, the second contact and the fusible connection, said plug being adapted for insertion into a socket, substantially as described.

6. In combination, the plug having an external peripheral groove, the contact-ring held by said groove and adapted to form electrical contact when the plug is in place, the clip at the end of the plug, the screws for holding the contact-ring and clip, said plug having a vertical external cavity and the fusible wire in said cavity having its ends held by the screws, said plug being fitted removably to a socket to electrically connect with contacts therein, substantially as described.

7. In combination, the plug of insulating material, the fusible connection, the contact-

clips sprung into place and the screws holding the fuse between themselves and the clips, one of said clips encircling the plug and the other being at the end thereof while the fusible connection extends down alongside the plug, substantially as described.

8. In combination with the safety-plug having a circumferential groove in its outer face and having also a groove or recess extending at an angle thereto in the outer face, the contact-ring held by the circumferential groove, a second contact and the fuse extending from the contact-ring to the second contact through the said recess, substantially as described.

9. In combination with the safety-plug having an outer circumferential groove and an outer recess or cavity, a contact-ring held by

the circumferential groove and by bent-in portions extending into the recess or cavity, a second contact and a fuse-piece extending between the contacts, substantially as described.

10. In combination, the plug having a solid body with a recess in the outer side thereof, a contact-ring having a portion thereof bent into the recess, a second contact with a fuse on the outside of the solid plug connecting the second contact with the contact-ring, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

THADDEUS S. McCLINTOCK.

Witnesses:

ED. T. STEEL,

JENNIE A. STEEL.