Dec. 29, 1931. O. H. JUNG 1,838,406

FUSE CLAMP

Filed Feb. 14, 1930 2 Sheets-Sheet 1

Fig. 1.

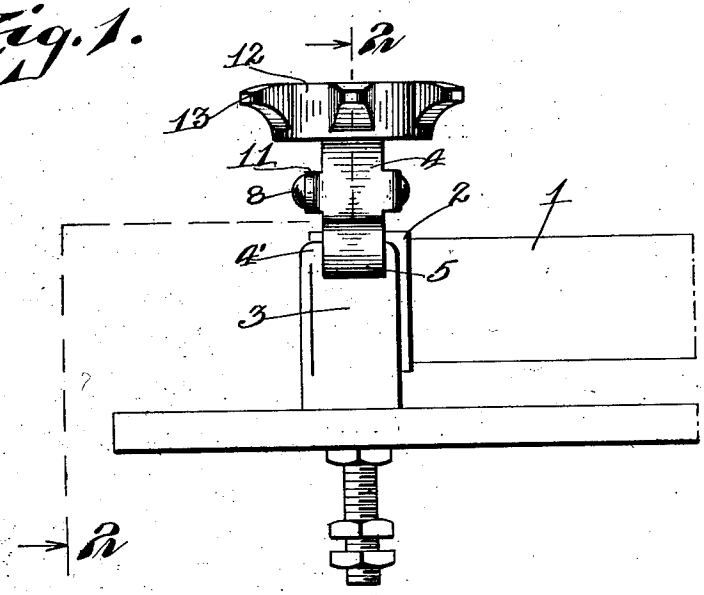



Fig. 2a.

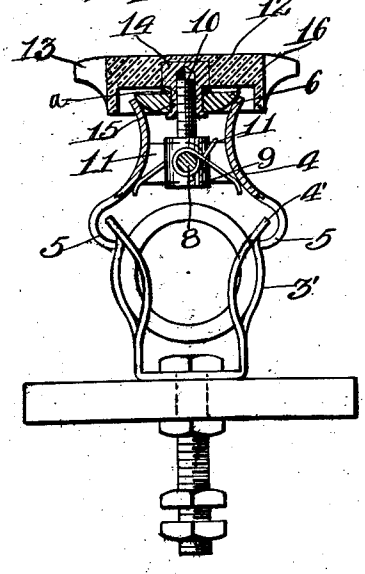
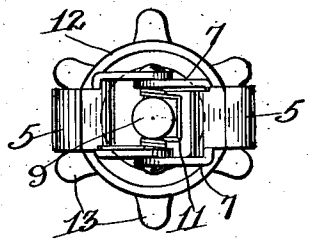



Fig. 3.




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Fig. 4.

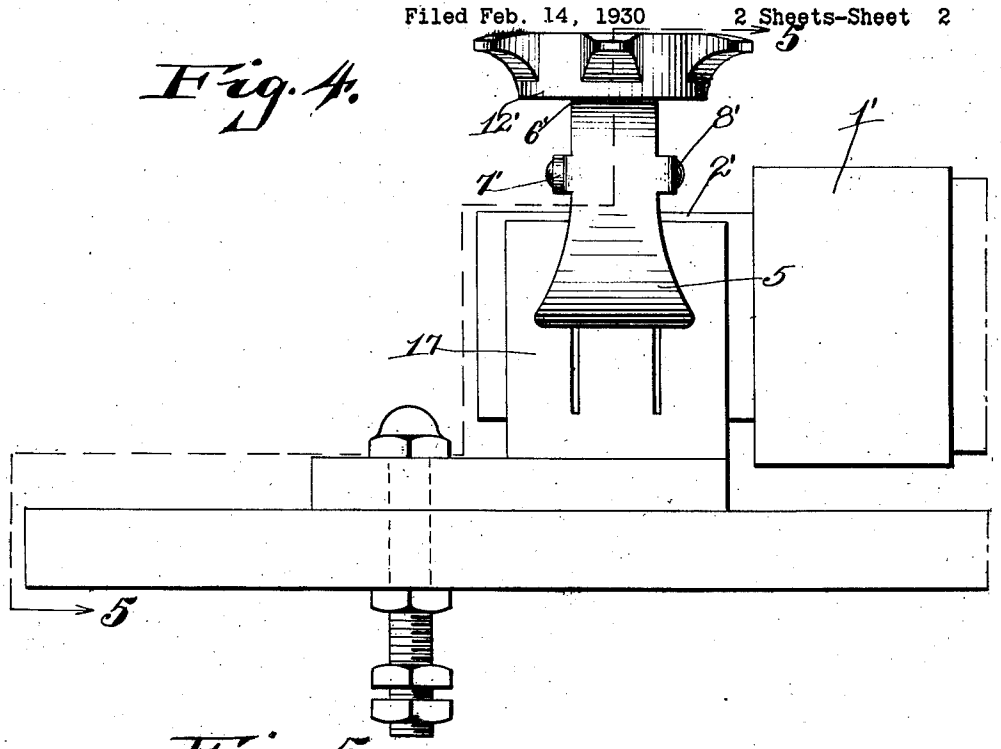
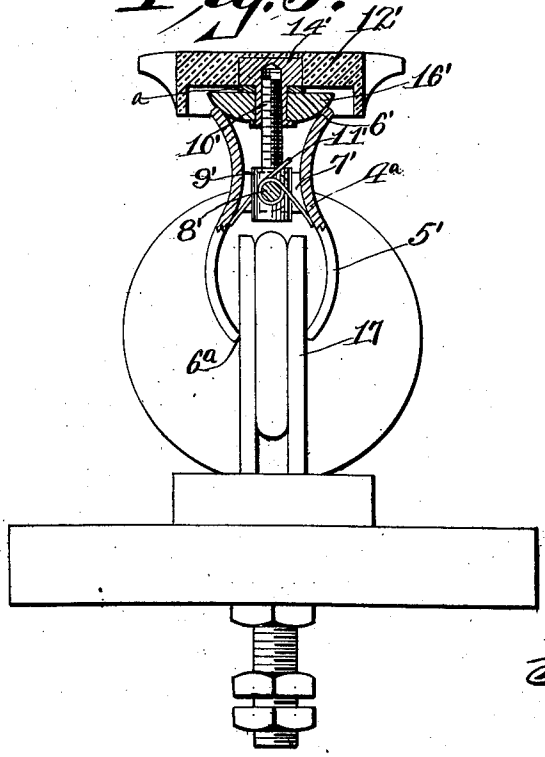



Fig. 5.




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# UNITED STATES PATENT OFFICE

OSCAR H. JUNG, OF MILWAUKEE, WISCONSIN

## FUSE CLAMP

Application filed February 14, 1930. Serial No. 428,497.

This invention relates to new and useful improvements in fuse clamps.

It is a well known fact that in placing fuses in position, that the ends thereof, in the usual holding clamps, do not sufficiently grip the ends of the fuses and in a great many instances create an arc between the fuse plug and the clamp.

It is one of the objects of my invention to provide a clamping member adapted to cooperate with a fuse clip for clamping the clip securely to the end of the fuse so as to prevent the creation of an arc between the fuse and the fuse clip.

Another object of my invention is the provision of a clamp which can be quickly and readily engaged with the fuse clip and securely urge the fuse clip into tight engagement with the fuse terminals so as to prevent the creation of an arc between the two members, and the clamp is so constructed and arranged that it can be quickly and easily applied or removed.

Another object of my invention is the provision of a clamping element of the above character which can be applied to fuse clips of different types and which will readily urge the contacting parts of the fuse clips into engagement with the ends of the fuse and securely hold them in this position.

A further object of my invention is the provision of a clamping element of the above character which can be readily adjusted for engagement with fuse holders of different sizes so that the clamping portion of a fuse holder may be readily urged into intimate contact with the fuse when in position.

With the above and other objects in view, the invention consists in the novel features of construction, the combination and arrangement of parts hereinafter more fully set forth, pointed out in the claims and shown in the accompanying drawings wherein:

Figure 1 is a side elevation of a clamping member constructed in accordance with my invention;

Figure 2 is a sectional view on the line 2—2 of Figure 1;

Figure 3 is a bottom plan view of the clamping member;

Figure 4 is a side elevation, illustrating a slightly modified form of the invention; and,

Figure 5 is a sectional view on the line 5—5 of Figure 4.

Referring more particularly to the drawings, it will be noted in Figure 1 and 2 that I have illustrated a fuse 1, which is provided with the usual end caps 2 having one end thereof fitted within the usual fuse clips 3 for the fuse plug. While only one end of the fuse and one clip has been illustrated, it is understood that the usual construction of clips and fuses is well known in the art, but for the purpose of illustrating the application of my invention, it is only necessary to illustrate one clip.

As a general rule, these clips are of the resilient clamping type and consequently when the terminal 2 of the fuse is positioned within the clip, as illustrated, there is created, as a general rule, an arc between the outer periphery of the terminal 2 and the arcuate clamping portions of the clip. This is principally due to the fact that in a great many instances, the clips do not properly conform to the shape of the terminals and, therefore, it is essential that pressure be applied to the arms of the clips in order to bring them into intimate contact with the terminals of the fuses.

My improved clamping element includes a pair of spaced clamping arms 4 having curved outer ends 5 and having the inner ends slightly curved as at 6, in a direction opposite to the curvature of the ends 5. The intermediate portions of the arms 4 support the perforated ears 7 which are arranged in spaced relation, as shown in Figure 3, and have their outer perforated ends mounted upon the pin 8 which extends through the head 9 of a screw member 10. Thus, the clamping arms 4 are pivotally mounted upon the cross pin 8 and the curved ends 5 thereof are normally urged away from each other by means of the spring 11, the ends of which are wrapped about the pin 8 upon opposite sides of the head 9 and each extremity is engaged with one of the arms 4, as shown in Figure 2.

In order to manipulate the arms 4, a hand wheel 12 is provided and this hand wheel is

preferably of composition material as illustrated, and provided with radially disposed finger pieces 13 to facilitate rotation of this hand wheel.

Embedded within the material in which the hand wheel is formed, is a socket 14 having an outwardly extending internally threaded sleeve 15 for receiving the screw member 10. Mounted upon the sleeve 15 is a cam member 16, the curved faces of which engage the curved ends 6 of the arms 4, so that when the cam 16 is urged inwardly between the ends 6 of the arms 4, the curved ends 5 will be urged toward each other for moving them into clamping engagement with the portions 3′ of the clip or clamping element 3.

It will be apparent from the foregoing that normally the curved ends 5 are in spaced relation, urged apart by the ends of the spring member 11. However, as soon as these curved ends 5 are engaged with the outwardly curved portions 4′ of the portions 3′, the hand wheel 12 can be rotated, urging the cam 16 inwardly and forcing the curved portions 6 of the arms 4 apart, so as to urge the curved portions 5 into tight clamping engagement with the portions 3′, causing the portions 3′ to be brought into intimate contact with the terminal 2 of the fuse 1.

It will thus be apparent that the clamping member may be quickly and readily engaged with different types of fuse clips or removed therefrom and when operatively engaged therewith will urge the clamping arms of the clips into engagement with the terminals of the fuse so as to reduce to a minimum the creation of an arc between the fuse clip and the fuse.

In Figures 4 and 5, I have illustrated a slightly modified form of the invention by describing the manner in which the clamping member is to be constructed for use on a knife switch type of fuse.

Referring now to the illustration in Figures 4 and 5, it will be noted that the fuse 1′ is provided with a bladelike terminal 2′, which is, when in operative position, positioned between the spaced clips 17 and in order to urge these clips 17 into intimate contact with the opposed faces of the terminal 2′, the arms 4*a* of the clamping member have their outer ends provided with a slight curved portion 5′, so that the ends or terminals 6*a* of the arms 4*a* will be brought into binding contact with the outer faces of the clips 17. Thus, by rotating the hand wheel 12′, the cam member 16′ will engage the curved portions 6′ of the arms 4*a* and due to the adjustment of the hand wheel upon the screw member 10′, the terminals 5′ of arms 4*a* will be maintained in intimate contact with clips 17.

The construction of the clamping member is substantially the same as illustrated and described in the preferred form of the invention, and includes the cross pin 8′ with perforated ears 7′ and spring 11, the ends of which are positioned at opposite sides of the heads 9′.

From the above, it will be apparent that after the terminal 2′ has been fitted between the clips 17, my improved element can be applied thereto for normally urging the clips 17 into tight engagement with the terminal 2′, thus reducing to a minimum the creation of an arc between the terminal 2′ and the clips 17.

It will be noted that in the two forms illustrated in the drawings, the cam members 16 and 16′ have positioned against one face thereof, a washer *a*, the other face of the washer bearing against the inner face of the socket members 14 and 14′. This washer is in the form of a lubricating washer and as the cam members 16 and 16′ engage the clamping arms, the cam members will cease to rotate, thus the lubricating washers will form an anti-friction device between the sockets and the cam members.

Attention is directed to the fact that after the fuse members have been engaged with the clips any length of time, the entire device becomes heated, and if it were not for the lubricating washers, it would be rather difficult to rotate the hand wheels 12 and 12′ for loosening the cam members, and it is, therefore, essential that the washers *a* be placed in their relative positions between the sockets 14 and 14′ and the cam members 16 and 16′.

I claim:

1. A device of the class described including opposed arms each having their ends curved in opposite directions, spaced perforated ears extending inwardly from each arm, a pivot pin extending through said ears, a screw member carried by said pivot pin, a yieldable member mounted upon the pin and engaging the arms at one side of their pivot point for urging them apart and adjustable means mounted upon the screw and engaging the arms at the other side of the pivot for normally urging the latter ends apart and urging the former ends toward each other against the tension of the yieldable member.

2. A device of the class described including pivotally mounted arms, a cam member positioned between the arms at one end thereof, a non-conductive hand wheel, a socket member carried thereby, and having a sleeve supporting the cam member and a lubricating washer between the cam member and the socket.

3. A device of the class described including pivotally mounted arms, a cam member positioned between the arms at one end thereof, a hand wheel, and a socket member carried by the hand wheel having a sleeve supporting the cam member.

4. A fuse clamp including a screw having

a head, clamping arms pivotally mounted on the head, a hand wheel having adjustable connection with the screw and a cam carried by the hand wheel and engaging said arms at one end.

5. A fuse clamp including a head, clamping arms pivotally carried thereby, a hand wheel adjustably connected with the head and a cam member carried by the hand wheel for engagement with said clamping arms at one end.

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin.

OSCAR H. JUNG.