Aug. 12, 1924. 1,504,993

P. STRUGHOLD

FUSE CLIP CLAMP

Filed Dec. 10, 1923

Fig. 1.

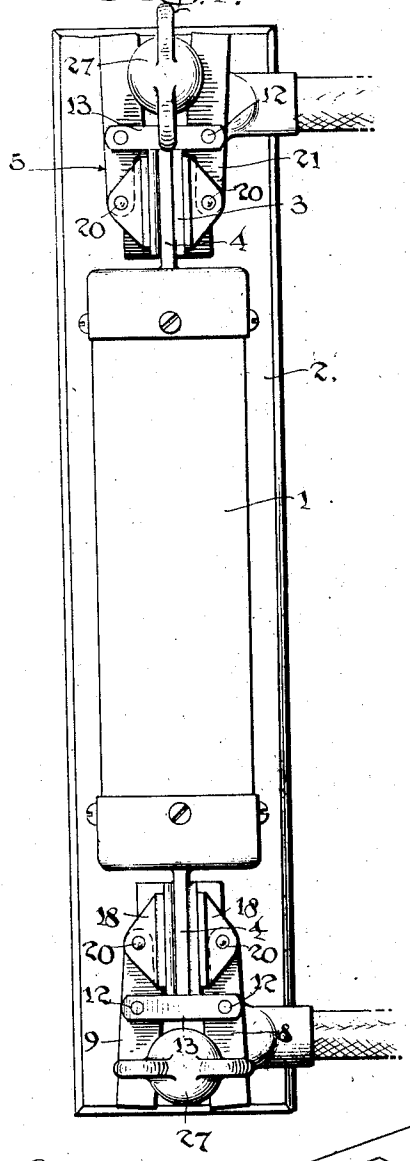


Fig. 2.

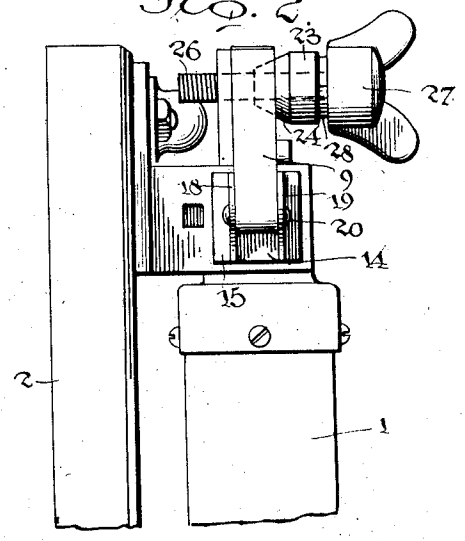


Fig. 4.

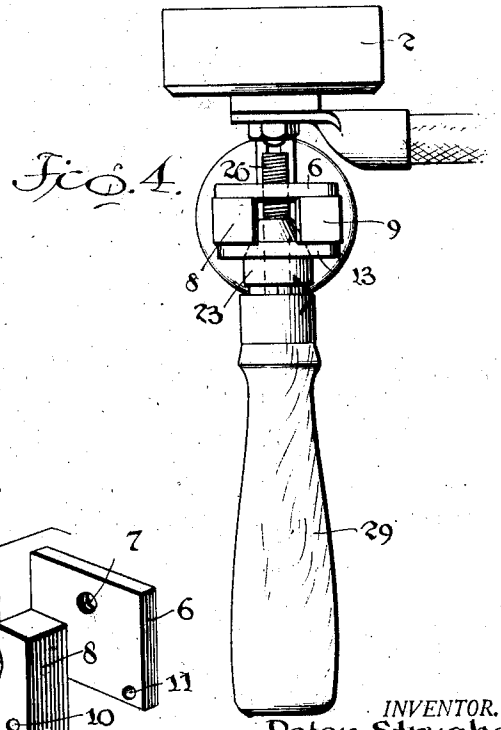
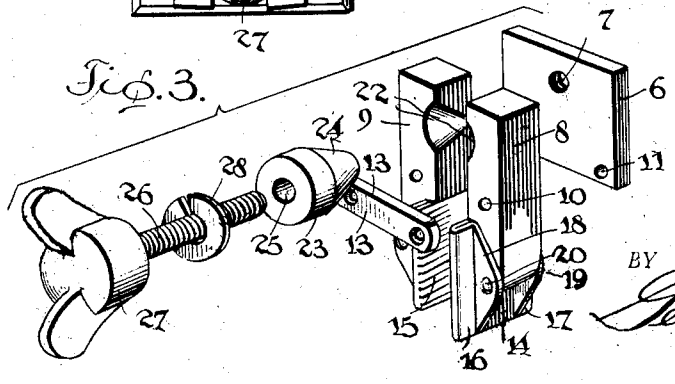


Fig. 3.



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UNITED STATES PATENT OFFICE.

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FUSE-CLIP CLAMP.

Application filed December 10, 1923. Serial No. 679,808.

To all whom it may concern:

Be it known that I, PETER STRUGHOLD, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Fuse-Clip Clamps, of which the following is a specification.

This invention relates to clamps, designed primarily for use in connection with the fuse clips of cartridge fuses of the ferrule or knife blade type, but it is to be understood that a clamp in accordance with this invention can be employed for any purposes for which it is found applicable, and the invention has for its object to provide, in a manner as hereinafter set forth, a clamp for insuring perfect connection or contact between the terminals of a fuse and the clips therefor, to prevent the jaws of the clips from spreading when the terminals of the fuses are positioned therebetween, to hold the clips and fuse terminals tightly together to set up a perfect contact thereby overcoming fuse troubles, to overcome the corroding of the clips by heating, due to improper contact between the fuse terminals and the clips, to reduce to a minimum the burning of the fuse case or shell at the ends thereof, as well as to prevent the fuse blowing at its ends, due to improper contact between the fuse terminals and the clips, and to reduce to a minimum the cost, inconvenience and trouble of replacing fuse clips.

Further objects of the invention are to provide a fuse clip clamp, in a manner as hereinafter set forth, which is simple in its construction and arrangement, strong, durable, compact, thoroughly efficient and convenient in its use, readily assembled, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view, the invention consists of the novel construction, combination and arrangement of parts, as hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which come within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:—

Figure 1 is a top plan of a fuse of the cartridge type, showing the adaptation therewith of a pair of fuse clip clamps, in accordance with this invention.

Figure 2 is a fragmentary view, in side elevation, of one end of the fuse, showing a fuse clip clamp in accordance with this invention with respect to a fuse.

Figure 3 is a grouped perspective view of a fuse clip clamp in accordance with this invention.

Figure 4 is an end view of a cartridge fuse, showing the adaptation therewith of a modified form of fuse clip clamp in accordance with this invention.

Referring to the drawings in detail, 1 denotes a fuse clamp of the cartridge type and which is mounted on a base 2, provided with a pair of fuse clips 3 at each end, and extending between each pair of clips 3 is a fuse terminal 4.

In Figure 1 of the drawings, the clamp is indicated generally by the reference character 5, and a clamp is mounted in operative relation with respect to each pair of clips 3 for maintaining the fuse terminals 4 in perfect contact with the pairs of clips 3.

Referring to Figures 1, 2 and 3 of the drawings, the fuse clip clamp as illustrated comprises a polygonal-shaped base plate 6, formed with an opening 7 having the wall thereof threaded. The opening 7 is positioned centrally of the plate 6 and in proximity to its outer end.

Arranged upon the upper face of the plate 6, at each side of the opening 7, is a pair of jaw shanks 8, 9, each formed with an opening 10 which registers with an opening 11, formed in proximity to an inner corner of the plate 6.

The shank 8, as well as the shank 9, is pivotally mounted upon the upper face of the plate 6 and is of a length so as to project a substantial distance inwardly of the plate 6, and said shank 8 as well as the shank 9, is pivotally connected to the plate 6 by a pivot pin 12, which extends through the aligning openings 10 and 11 and is fixed at its lower end to the plate 6.

Positioned upon the top of the shanks 8 and 9, is a transversely extending coupling bar 13, having the ends thereof mounted on the upper terminal portions of the pivot pins 12. The pivot pin 12 is positioned between the center and the inner ends of the shanks 8, 9, whereby these latter are eccentrically pivoted.

Positioned on the inner end of each of said shanks is a pivoted clamping jaw and with the clamping face of one jaw opposing the clamping face of the inner jaw, and with the clamping faces of the jaw arranged between the shanks 8 and 9. Each of said jaws consists of a polygonal-shaped body portion 14 standing on edge and which has the inner face thereof serrated, as at 15 and provides a clamping face. The body portion 14 is constructed of a strip of metallic material of substantial gauge bent to provide vertically disposed portions 16, 17, and horizontally extending portons 18, 19. The portions 16, 17, are arranged against the outer face of the body portion 14, and the portions 18 and 19 are disposed at right angles with respect to the body portion 14 and provide a pair of outwardly projecting flanges arranged in superposed spaced relation. The flanges 18 and 19 are seated against the top and bottom of each of said shanks and said flanges, centrally thereof, are pivotally connected, as at 20, to the inner terminus of a shank, whereby the body portion 14 will project inwardly with respect to the inner terminus of a shank. The flanges are arranged inwardly with respect to the top and bottom edges of the body portion, whereby the latter will extend above and below the top and bottom of the shank to which the clamping jaw is attached.

The shank 8, as well as the shank 9, has its inner face cut away at the inner portion thereof to provide the shank with a reduced inner terminal portion 21, whereby the body portion 14 of the clamping jaw when in normal position will be flush with the inner face of the shank. The inner face of the shank 8, as well as the shank 9, at a point between the center thereof and the outer end, is cut away to provide a curved tapered wedging surface 22.

When the clamp is set up with respect to a pair of clips 3, the clips of the pair and the clamping jaws are shifted to operative position so as to tightly engage the clips of the pair, whereby a clamping action is set up between the pair of clips and the fuse terminals 4, so as to insure perfect connection between said terminal 4 and the clips of the pair and also to prevent the clips of the pair from spreading. This action is obtained through the medium of a wedge element of frusto-conical contour and which operates against the surfaces 22 to force the outer ends of the shanks 8 and 9 outwardly, whereby the clamping jaws carried by the inner ends of the shanks will be forced into clamping engagement with the clips of the pair. The wedge element comprises a cylindrical body portion 23, having extending from the inner side thereof a frusto-conical projection 24. The wedge element is formed with an axial bore 25 for the purpose of mounting said element on a shifting means therefor, to cause, when said shifting element is operated, the moving of the wedge element to the desired position to set up the clamping action hereinbefore referred to.

In Figure 3 of the drawings, the shifting means consists of a screw threaded rod 26, extending through the wedge element and having threaded engagement with the threads of the wall of the opening 7. The outer end of the rod 26 carries a winged head 27 to provide for the convenient adjusting of the rod 26, and interposed between the head 27 and the wedge element is a locking washer 28.

The construction shown in Figure 4, is the same as that shown in Figures 1, 2 and 3, with this exception, that in lieu of providing the rod 26 with a winged head 27, it has secured to its outer end a substantially elongated handle 29. Otherwise than that as stated, the construction shown in Figure 4 is the same as that shown in Figures 1, 2 and 3.

The shifting means provided with the winged head 27, is employed on a fuse that has a switch in circuit, whereas the shifting means provided with the handle 29 is to be used for a live clip at all times. The wedge element and locking washer are always employed when the winged head shifting means or handle shifting means is used.

It is obvious that the clamp can be constructed of a size so that it can be employed in connection with any size fuse or fuse clip.

A fuse clip clamp in accordance with this invention possesses the advantages as hereinbefore referred to, and although the preferred embodiment of the invention is as illustrated and described, yet changes in the details of construction can be had which will fall within the light of the invention as claimed.

What I claim is:—

1. A fuse clip clamp comprising a base plate, a pair of clamping jaw shanks pivotally mounted on and extending inwardly from said plate, a clamping jaw pivotally connected to and projecting from the inner end of each shank and having a clamping face arranged at the inner side of a shank, said clamping faces opposing each other, a coupling bar for said shanks, a wedge element operating between the shanks for shifting said jaws into clamping position, and means extending through said element and engaging with the base plate for operating said wedge element.

2. A fuse clip clamp comprising a base plate, a pair of clamping jaw shanks pivotally mounted on and extending inwardly from said plate, a clamping jaw pivotally connected to and projecting from the inner end of each shank and having a clamping

face arranged at the inner side of a shank, said clamping faces opposing each other, a coupling bar for said shanks, a wedge element operating between the shanks for shifting said jaws into clamping position, and a threaded element extending through said wedge element and threadably engaging with said base plate for shifting the wedge element to operative position with respect to said shanks.

3. A fuse clip clamp comprising a base plate, a pair of clamping jaw shanks pivotally mounted on and extending inwardly from said plate, a clamping jaw pivotally connected to and projecting from the inner end of each shank and having a clamping face arranged at the inner side of a shank, said clamping faces opposing each other, a coupling bar for said shanks, a wedge element operating between the shanks for shifting said jaws into clamping position, and a threaded element extending through said wedge element and threadably engaging with said base plate for shifting the wedge element to operative position with respect to said shanks, said wedge element loosely mounted on said threaded element.

4. A fuse clip clamp comprising a base plate, a pair of clamping jaw shanks pivotally mounted on and extending inwardly from said plate, a clamping jaw pivotally connected to and projecting from the inner end of each shank and having a clamping face arranged at the inner side of a shank, said clamping faces opposing each other, a coupling bar for said shanks, a wedge element operating between the shanks for shifting said jaws into clamping position, a threaded element extending through said wedge element and threadably engaging with said base plate for shifting the wedge element to operative position with respect to said shanks, said wedge element loosely mounted on said threaded element, and a locking washer mounted on said threaded element in advance of and engageable with said wedge element.

5. A fuse clip clamp comprising a base plate, a pair of clamping jaw shanks pivotally mounted on and extending inwardly from said plate, a clamping jaw pivotally connected to and projecting from the inner end of each shank and having a clamping face arranged at the inner side of a shank, said clamping faces opposing each other, a coupling bar for said shanks, a wedge element operating between the shanks for shifting said jaws into clamping position, a threaded element extending through said wedge element and threadably engaging with said base plate for shifting the wedge element to operative position with respect to said shanks, said wedge element loosely mounted on said threaded element, a locking washer mounted on said threaded element in advance of and engageable with said wedge element, and each of said shanks provided with a tapered surface engageable by said wedge element.

6. A fuse clip clamp comprising a base plate, a pair of clamping jaw shanks eccentrically pivoted to said base and spaced from each other, a clamping jaw concentrically pivoted to the inner end of each shank, said jaws opposing each other, a coupling bar for said shanks, a wedge element including a frusto-conical extension opposing and engaging with said shanks for shifting said jaws to operative position, and means extending through said wedge element and threadably engaging with said base plate for operating said wedge element to shift said jaws to clamping position.

7. A fuse clip clamp comprising a base plate, a pair of clamping jaw shanks eccentrically pivoted to said base and spaced from each other, a clamping jaw concentrically pivoted to the inner end of each shank, said jaws opposing each other, a coupling bar for said shanks, a wedge element including a frusto-conical extension opposing and engaging with said shanks for shifting said jaws to operative position, a threaded element loosely extending through said wedge element and having threaded engagement with said base plate for operating said wedge element to shift said jaws to clamping position, means on the outer end of said threaded element to facilitate the shifting thereof, and a locking washer interposed between said means and said wedge element.

In testimony whereof, I affix my signature hereto.

PETER STRUGHOLD.