

July 21, 1942.

G. WALKER

2,290,787

STRAIN RELIEF

Filed Aug. 27, 1940

Fig. 1.

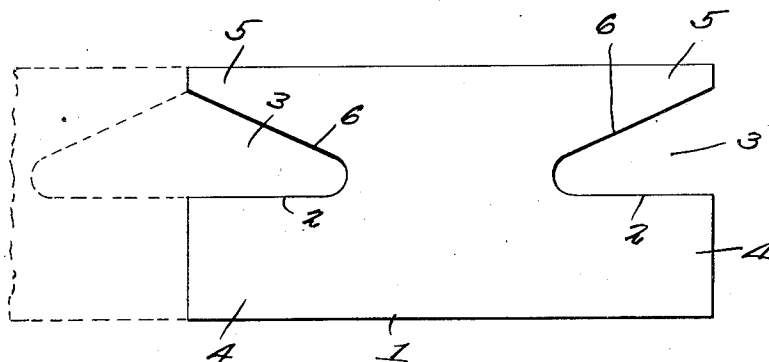


Fig. 2.

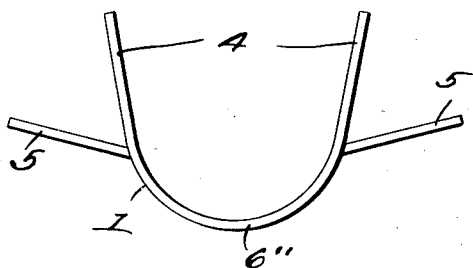
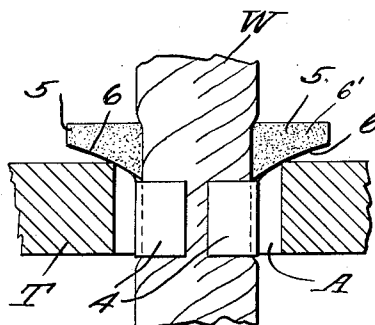


Fig. 4.

Fig. 5.

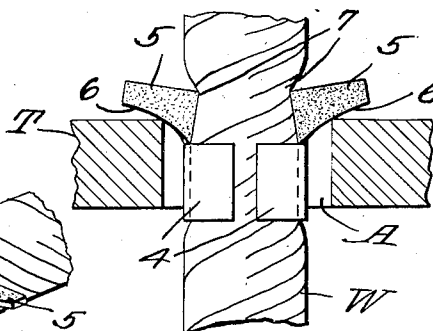
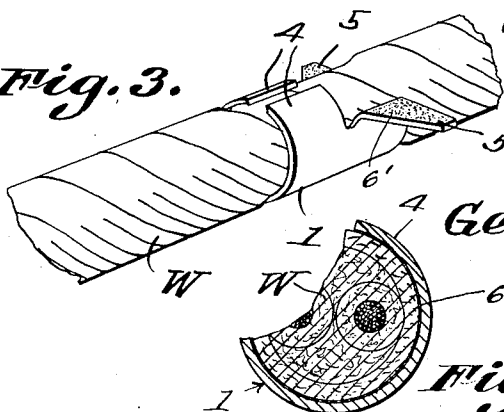


Fig. 3.



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ATTORNEYS.

Fig. 6

UNITED STATES PATENT OFFICE

2,290,787

STRAIN RELIEF

George Walker, Passaic, N. J.

Application August 27, 1940, Serial No. 354,426

2 Claims. (Cl. 173-322)

This invention relates to a mechanical device for affording relief to connection terminals of electrical equipment. It is designed primarily as a strain relief for use within electrical devices when excessive pull and torque forces from without tend to loosen an electric wire connected inside the apparatus. It is a rule of the Underwriters' Laboratories, Inc., that relief devices be provided on connecting wires in practically all electrical apparatus thereby to afford increased safety against short circuits.

The present invention has as an object the provision of a device of this character which can be produced at low cost and readily applied to wires for the purpose of properly supporting them against strains or pulling forces.

A further object is to provide a device of this character which can be produced readily from a band of metal with the formation of a very small amount of waste and can readily be shaped and applied to a wire for the purpose of gripping it.

A still further object is to provide a mechanical grip device which tends to take hold of the engaged wire with increasing force as the strains to which the wire is subjected increase.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

In the accompanying drawing the preferred form of the invention has been shown.

In said drawing

Figure 1 is a plan view of a blank from which the device is produced.

Figure 2 is an end view showing the article shaped prior to being applied to a wire.

Figure 3 shows the relief in position on a wire.

Figure 4 is an elevation of the device in engagement with a wire and also with a supporting structure.

Figure 5 is a view similar to Figure 4, showing the pinching action of the relief when the wire is subjected to pulling or torque strains.

Figure 6 is a sectional view on an enlarged scale of a portion of the device in engagement with a wire.

Referring to the figures by characters of reference, 1 designates an oblong piece of sheet metal having the requisite strength and at about the longitudinal center of this blank are located

the straight alining sides 2 of substantially V-shaped recesses 3 which extend into the ends of the blank and have their other sides converging outwardly toward one edge of the blank. Thus the blank is formed, at its ends, with rectangular wings 4 and substantially triangular arms 5, the arms having inclined bearing edges 6 as hereinafter explained. Obviously these blanks can be cut out readily from a strip of metal and coated with an insulating compound 6', which may be in the form of an enamel coating. The blanks are shaped so as to assume an appearance such as shown for example in Figure 2. By referring to that figure it will be noted that the blank is bent into substantially U-shape so that the wings 4 constitute diverging sides merging into the rounded intermediate or bottom portion 6'' of the blank 1. The arms 5, however, are extended laterally away from the wings 4.

In using the relief, the same is placed astride the wire or cable W to be held and the wings 4 are pressed therearound so as to tightly grip the wire as indicated in Figures 3, 4 and 5. The arms 5, however, will extend laterally in opposite directions from the gripped wire W as shown in these figures.

If the wire is to be supported in an aperture A formed in a timber T, for example, the edges 6 of the arms 5 are placed where they will bear against the timber T at opposite sides of the aperture A, thereby properly holding the engaged wire. Should the wire be subjected to an excessive pull and/or torque force, the thrust transmitted through the supported arms 5 will tend to bend that portion of the device between the arms so that it will pinch the engaged wire as indicated at 7, this pinching action increasing in proportion to the force exerted. Thus danger of the wire being pulled loose is practically eliminated and the same will be supported in proper position under all conditions.

Obviously changes may be made in the shapes of the various parts without departing from the spirit of the invention as claimed.

In some cases the Underwriters' Laboratories require insulation between the metallic strain relief clamp and the electric cable. Heretofore it has been the practice to use a sheet of fibre or other insulation in such application. My invention eliminates these additional parts making a much less expensive installation.

What is claimed is:

1. The combination with spaced fixed bearings, and a wire extending between the bearings, of a strain relief comprising a single piece of sheet

metal having a channelled portion embracing the wire, wings extending along the side edges of said channel portion at one end and cooperating with said channel portion to clamp upon the wire, the other end of the channel portion being contracted about the wire, and arms extending along and extended in opposite directions from the side edges of the channel portion at said other end, said arms having edges diverging toward that end of the relief remote from the wings, said diverging edges engaging and cooperating with the respective bearings to support the wire.

2. A strain relief comprising a single piece of

sheet metal including a wire-receiving channel extending from end to end thereof, wire-gripping wings extending along the sides of one end portion of the channel, support-engaging arms extending along the sides of the other end portion of the channel, said arms being substantially flat and extended along planes substantially parallel with the longitudinal center of the channel, said arms having support-engaging edges diverging toward one end of the channel from the wings at the other end of the channel.

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