Dec. 1, 1936. H. WEYNAND 2,062,690

TERMINAL CLIP

Filed April 3, 1935

Fig. 1.

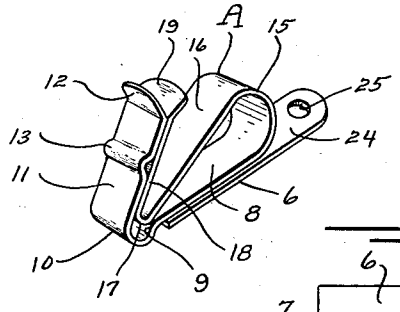


Fig. 2.

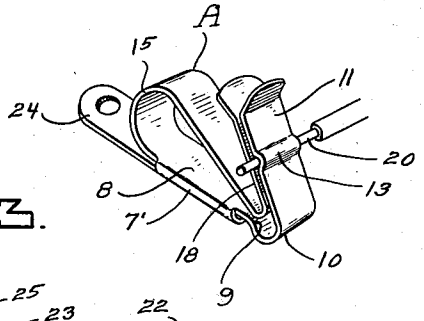


Fig. 3.

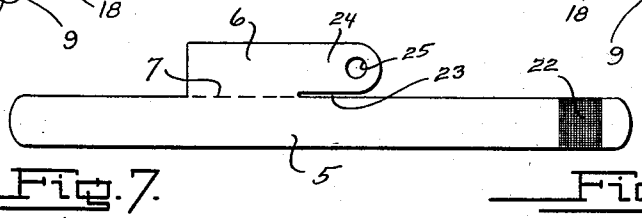


Fig. 7.

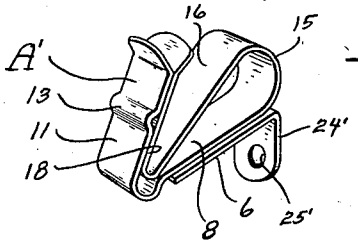


Fig. 5.

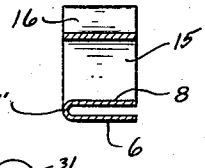


Fig. 6.

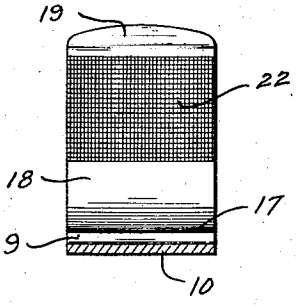


Fig. 9.

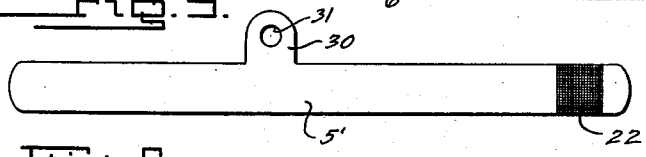


Fig. 8.

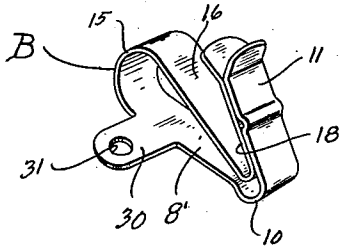
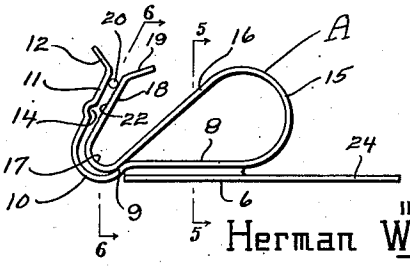


Fig. 4.



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TERMINAL CLIP

Herman Weynand, Hondo, Tex.

Application April 3, 1935, Serial No. 14,515

3 Claims. (Cl. 173—259)

The present invention relates to terminal clips for the terminals of electrical conductors or wires and the primary object of the invention is to provide a durable one-piece terminal clip of a construction permitting ready and easy placing and removal of the conductor by one hand of the operator.

A further object of the invention is to provide a terminal clip of such formation as to permit ready and easy placing of a terminal wire therein even tho the clip be located in a dark place or out of view of the person making the connection.

A further object is to provide a terminal clip wherein upon placing the wire in position in the clip, the wire will be subjected to a lateral rubbing or abrasive action for cleaning the surface of the wire and insuring good electrical contact between the wire and clip.

A further object of the invention is to provide a terminal clip embodying resilient gripping portions automatically spread apart when placing the terminal wire therebetween and so gripping or clamping the wire when in proper position as to provide a large surface contact for the wire.

A further object resides in the specific gripping means whereby the wire is firmly held by a frictional grip so as to resist accidental withdrawal of the wire axially from the clip.

A still further object is to provide a resilient terminal clip of such formation as to retain its proper operating features after continued use and thereby permitting mounting of the clip in locations where frequent replacing of clips would require considerable time and labor.

Other objects and advantages of the invention will be apparent from the following detailed description, taken in connection with the accompanying drawing forming a part of this specification and in which drawing:—

Figure 1 is a perspective view showing one form of the improved terminal clip.

Figure 2 is a perspective view looking at the other side of the clip shown in Figure 1 and showing a terminal wire connected thereto.

Figure 3 is a plan view of the metal blank from which the terminal clip as shown in Figures 1 and 2 may be formed.

Figure 4 is a view in side elevation showing a terminal wire partially moved into position in the clip.

Figure 5 is a transverse section on the line 5—5 of Figure 4.

Figure 6 is an enlarged section substantially on the line 6—6 of Figure 4.

Figure 7 is a perspective view of a clip similar to that shown in Figure 1 but showing the clip arranged for vertical mounting.

Figure 8 is a perspective view of a slightly modified form of terminal clip.

Figure 9 is a plan view of the metal blank from which the clip shown in Figure 8 may be formed.

In the drawing and wherein like reference characters designate corresponding parts thruout the several views, the forms of terminal clips A, A' and B may be formed from strips or sheets of electric conducting material such as spring brass or any other suitable resilient metal.

Referring first to the form of clip A shown in Figures 1 to 6 inclusive, this clip is primarily designed for mounting upon a horizontal surface and may be formed from a flat blank such as shown in Figure 3 embodying an elongated strip-like body portion 5 having a mounting portion 6 projecting laterally therefrom at a location substantially midway the ends of the body portion. This mounting portion 6 is of a width substantially equal to the width of the body portion 5 and is folded along the connecting line 7 to extend longitudinally of and in slightly spaced relation beneath the body portion 5. This slight spacing of the portion 6 forms a rounded bend 7' which prevents rupturing of the metal along the fold line 7 such as would materially weaken the line of connection. An intermediate section of the body portion 5, along the length of the fold or connecting line 7, forms a flat base portion 8 overlying the forward portion of the mounting plate or portion 6. At the forward end of the mounting plate, the body portion 5 bends slightly downwardly forming a transverse, forwardly facing shoulder 9, and then upwardly in a round spring bend 10 forwardly of the shoulder 9. From the spring bend 10, the forward end portion of the body portion 5 is bent upwardly and rearwardly providing a resilient wire gripping arm or portion 11 arranged in acute angular relation to the base portion 8. The upper end of the gripping arm 11 is bent forwardly providing a guide lip 12. Formed transversely of the arm 11 at a point about midway of its ends, is a corrugation 13 providing a groove or wire receiving channel 14 extending transversely across the inner or rear face of the arm. This groove 14 is of a depth slightly less than the diameter of the terminal wire to be received therein.

At the rear end of the base portion 8, the body portion 5 curves upwardly and forwardly over the base portion in a large spring loop 15. Extending forwardly and downwardly from the spring loop 15 is an inclined arm portion 16 hav-

ing its lower forward end extending slightly below the base portion 8 into the spring bend 10 so as to be engageable with the shoulder 9. The lower end of the arm 16 terminates in a loop 17 arranged within the spring bend 10, and extending upwardly and rearwardly from this loop 17 is a resilient wire gripping arm or portion 18 disposed in confronting relation to the rear face of the gripping arm 11 and in acute angular relation to the arm portion 16. The upper end of this gripping arm 18 is bent rearwardly providing a guide lip 19 which co-acts with the guide lip 12 to provide a substantially V-shaped pocket for guiding a terminal wire such as shown at 20, downwardly between the gripping arms 11 and 18.

The gripping arm 18 is normally spring urged upwardly and forwardly by the large spring loop 15 into surface contact with the rear face of the gripping arm 11 as shown in Figure 1, and in which position, the lower end of the inclined arm 16 is spaced from the shoulder 9. The forward face of the gripping arm 18, or the face confronting the gripping arm 11 is provided with a knurled or roughened surface 22 which extends from a point closely adjacent the lip 19 to a point below the wire receiving groove or channel 14 of the gripping arm 11. This knurled gripping surface 22 as will be observed in Figures 3 and 6 extends entirely across the gripping arm.

A slit as at 23 in Figure 3 separates the rear portion of the mounting plate 6 from the body portion 5 to form an attaching portion 24 projecting rearwardly from the spring loop 15 in the plane of the forward portion of the mounting plate. This attaching portion 24 may be apertured as at 25 to receive a suitable fastening element for mounting the terminal clip upon a horizontal surface.

In connecting a terminal wire to the terminal clip, the bared end of the wire is placed in the V pocket formed by the diverging lips 12 and 19 and forced downwardly as shown in Figure 4 thus spreading the spring terminal gripping arms 11 and 18. This downward pressure of the terminal wire causes a slight lowering of the gripping arm 18 against the tension of the spring loop 15 until the lower end of the inclined arm 16 engages against the shoulder 9, whereupon the gripping arm 18 yields rearwardly upon the spring loop 17. As the wire is forced downwardly between the spring tensioned gripping arms 11 and 18, the knurled surface 22 has an abrasive or rubbing action upon the wire which serves to clean the wire and provide good electrical contact between the wire and clip. The wire is forced downwardly until received in the transverse groove 14 in the gripping arm 11 where the wire is securely held with a large clean surface contact between the wire and clip. The knurled surface 22 not only serves to clean the wire, but also provides a good grip on the wire preventing accidental withdrawal of the wire axially from the clip.

When the wire is in position in the clip as in Figure 2, the lower end of the inclined arm 16 is out of contact with the shoulder 9 and the gripping arm 18 is yieldably urged toward the gripping arm 11 by the large spring loop 15 thus firmly gripping the wire. Since the main gripping tension is provided by the large spring loop 15, it will be seen that the clip will remain in proper operating condition for a long period of time, in contradistinction to such forms of terminal clips having small and relatively sharp spring bends which soon lose their resiliency after a short period of use.

As to the form of terminal clip A' shown in Figure 7, this clip is primarily intended for mounting upon a vertical surface and may also be formed from a flat blank such as shown in Figure 3. Since the only difference between the forms of the clips A and A' is in the arrangement of the attaching portion, like reference characters have been applied to parts corresponding to the clip A. In the form of terminal clip A', the attaching portion 24' is bent downwardly at a right angle to the forward portion of the mounting plate 6 and is apertured as at 25' for receiving a suitable fastening element for mounting the terminal clip upon a vertical surface.

Referring now to the form of terminal clip B shown in Figures 8 and 9, the clip may be formed from a flat metal blank such as shown in Figure 9 embodying an elongated strip-like body portion 5' having an attaching portion 30 projecting laterally therefrom at a location substantially midway the ends of the body portion. In this form of clip B, the mounting plate 6 as shown in Figures 1 and 7 is dispensed with and the attaching portion 30 projects laterally from one side edge of the base portion 8'. The attaching portion 30 is apertured as at 31 to receive a suitable fastening element. In other respects, the form of terminal clip B is similar in construction and operation to that of the forms A and A' and like reference characters have been used to designate corresponding parts of each form of the invention.

Thus it will be seen that a terminal clip of improved construction has been disclosed embodying features whereby a firm grip will be had upon the wire with good electrical contact between the clip and wire. It will also be seen that a clip has been provided enabling ready and easy placing and removal of the terminal wire by one hand of the operator.

Changes in details may be made to the forms of invention herein shown and described, without departing from the spirit of the invention or the scope of the following claims.

I claim:

1. A terminal clip comprising a base portion, an outer flat gripping arm extending upwardly and rearwardly from the forward end of the base portion, a groove formed transversely in the rear face of the outer gripping arm intermediate the ends thereof, an inner flat gripping arm confronting the outer gripping arm, a spring loop between the base and inner gripping arm for normally urging the inner gripping arm against the outer gripping arm, a knurled gripping surface on the forward face of the inner gripping arm and extending above and below said groove, and attaching means for said base portion.

2. A terminal clip comprising a base portion, an outer gripping arm connected by a downwardly looped spring bend to the forward end of the base portion and extending upwardly and rearwardly, said spring bend providing a forwardly facing shoulder at the forward end of the base portion, a spring loop curled upwardly and forwardly from the rear end of the base portion, an arm extending forwardly and downwardly from the spring loop and terminating in said spring bend for engagement at its lower end with said shoulder, an inner gripping arm extending upwardly from the lower end of said arm portion in confronting relation to the rear face of the outer gripping arm and normally spring urged thereagainst by said spring loop, and terminal receiv-

ing and gripping means at the confronting faces of the gripping arms.

3. A terminal clip comprising a base portion, an outer gripping arm extending upwardly and rearwardly from the forward end of the base portion and connected thereto by a downwardly looped spring bend, a spring loop curled upwardly and forwardly from the rear end of the base portion, an arm portion extending forwardly and downwardly from the spring loop and terminating in a loop in said spring bend, an inner gripping arm extending upwardly from the looped lower end of the arm portion in confronting relation to the rear face of the outer gripping arm and normally spring urged thereagainst by said spring loop, and an attaching portion on the base portion.

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