Dec. 8, 1925. 1,564,761

W. W. DAIKER

TERMINAL CLIP

Filed June 19, 1922

Fig. 1.

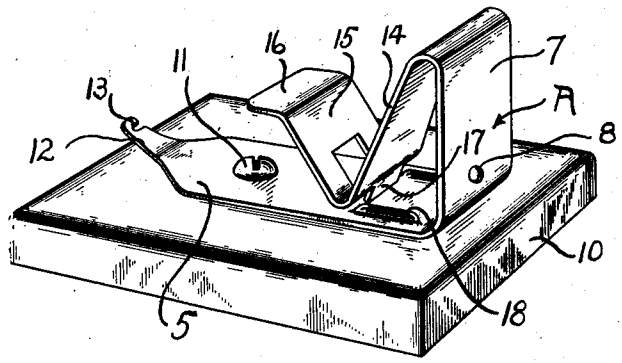


Fig. 2.

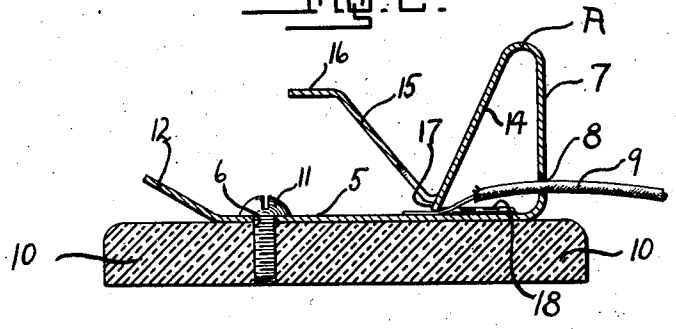
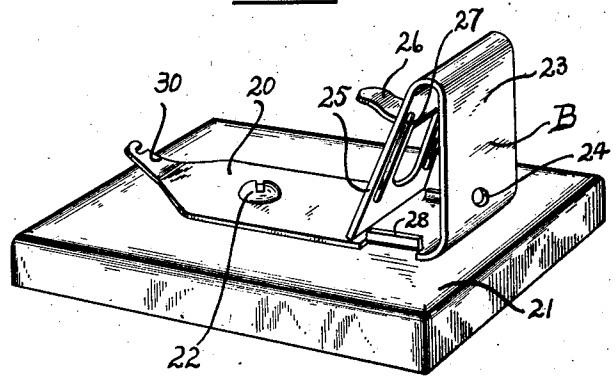


Fig. 3.



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UNITED STATES PATENT OFFICE.

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TERMINAL CLIP.

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To all whom it may concern:

Be it known that I, WALTER W. DAIKER, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Terminal Clips, of which the following is a specification.

This invention relates to terminal clips and the primary object of the invention is to provide a novel clip for receiving the terminal of an electric wire which is so constructed that the said wire can be easily and expeditiously placed in connection therewith and prevented from being accidentally displaced therefrom.

Another object of the invention is to provide a terminal clip formed of a single strip or ribbon of resilient metal embodying novel means for engaging the wire, which will tend to grip the wire tighter as the tension on the wire is increased, thereby preventing the accidental withdrawing of the wire from out of engagement with the clip.

A further object of the invention is to provide a novel terminal clip for engaging different sized electric wires of different types, such as small or large solid single wires or stranded flexible wires, which is so constructed as to bite into and clean the wire for insuring a positive contact.

A further object of the invention is to provide a terminal clip which renders the necessity of twisting or coiling the wire about a post unnecessary, and which permits the wire to be introduced into engagement with the clip at one end thereof, thus eliminating the necessity of bending the wire for bringing the wire into engagement with the side of a clip as contemplated by some of the terminal clips on the market.

A further object of the invention is to provide an improved resilient terminal clip embodying a guide for the wire, and a resilient tongue for biting into the wire for preventing displacement of the same, the clip eliminating the necessity of providing a long bare end on the wire, which is liable to contact with other clips thus permitting the clips to be placed closer together, thus taking up less space, the guide formed in the clip permitting a wire with insulation thereon to be inserted directly in the clip.

A further object of the invention is to provide an improved resilient clip which can be conveniently actuated by one hand of the operator for permitting the connection or disconnection of the electric wire thereto.

A further object of the invention is to provide an improved terminal clip embodying a base, the guide body extending upwardly from the base having a guide opening therein for receiving the electric wire and its insulation, a resilient tongue formed on the guide body for engaging the bare portion of the wire and for holding the same in contact with the base of the clip, and a handle for permitting the flexing of said resilient tongue, so as to permit the easy and convenient placing of the wire in engagement with the clip or removal of the wire from out of engagement with the clip.

A further object of the invention is to provide an improved terminal clip of the above character, which will be durable and efficient in use, one that will be simple and easy to manufacture, and one which can be placed upon the market at a reasonable cost.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, forming a part of this specification, in which drawings:

Figure 1 is an enlarged perspective view of the improved terminal clip.

Figure 2 is an enlarged longitudinal section through the clip showing the electric wire connected therewith.

Figure 3 is an enlarged perspective view of a slightly modified form of the improved clip.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A indicates one form of the improved clip; and B, another form thereof.

As shown, the improved clip A is formed of a single strip or ribbon of flexible electric conducting material, which is bent to provide the longitudinally extending base strip or plate 5. This base strip or plate 5 is, of course, adapted to be secured to a suitable support, such as the base plate 10, which is formed of non-conducting material. A set screw bolt or rivet 11 can be employed for connecting the clip A to the base plate of insulation 10, and this screw can be inserted through a suitable opening 6 formed in the base strip or plate 5 adja-

cent to the outer end thereof. The inner end of the base strip or plate 5 is provided with a right angularly disposed guide plate or strip 7, which can be provided adjacent to its lower edge with a guide opening 8, through which the electric wire 9 can be inserted. The opposite end of the plate or base strip 5 may have means formed thereon for permitting the other terminal or electric conducting wire to be electrically connected thereto as by solder, or if so desired, the other electric wire can be electrically connected to the plate through the medium of the screw 11 or another clip. This means formed on the opposite end of the plate 5 from the guide plate 7 consists in an upwardly extending reduced tongue 12, which can be notched as at 13 for permitting a wire to be placed therein.

The guide plate 7 extends above the upper surface of the base strip 5 to the desired distance and is then bent downwardly at an acute angle to the guide plate 7, to form the resilient arm 14. This resilient arm 14 extends downwardly toward the base strip 5 and terminates in relatively close proximity thereto. As shown in Figures 1 and 2 of the drawings, the resilient arm 14 has formed on its lower terminal, an upwardly extending inclined actuating arm 15, which terminates in an outwardly extending finger piece 16. This actuating arm 15 with finger piece 16 allows the convenient flexing of the arm 14 by the operator of the clip. A tongue 17 is struck out from the resilient arm 14 and the actuating arm 15 and is normally urged into intimate contact with the upper surface of the base strip 5 by the inherent resiliency of the arm 14. As shown, this tongue 17 lies in the same plane with the resilient arm 14.

In order to add strength and rigidity to the base strip or plate 5, this plate at a point intermediate the arm 14 and the guide arm or strip 7 has struck up therefrom the longitudinally extending ribs 18 which lie on opposite sides of the tongue 17 and form a guide for the electric wire 9 when the same is inserted through the guide opening 8. These ribs will serve as means for effectively guiding the wire under the tongue 17 when the same has been lifted by the finger piece 16 and the actuating arm 15.

In use of the improved clip, when it is desired to connect a wire thereto, the finger piece 16 is grasped between the fingers and lifted upwardly, which will move the tongue 17 above the upper surface of the base strip 5. The wire 9 is then inserted through the guide opening 8 and under the tongue 17. Pressure can then be released from the finger piece 16 and the tongue 17 will be forced into intimate biting contact with the wire and urge the same into frictional contact with the base strip 5. Now, it can be seen that when stress is exerted upon the wire 9, the wire will tend to pull the arm 14 and the tongue 17 inwardly and thus bind the wire into tighter engagement with the base 5, and thus absolutely preclude the withdrawing of the wire from the clip. It is merely necessary, however, to raise the finger piece 16 when it is desired to remove the wire from the clip. As clearly shown in Figure 2 of the drawings, the wire with its insulation can be inserted through the guide opening 8 and it is merely necessary to scrape a small portion of the insulation from the outer end of the wire. This entirely eliminates the necessity of scraping a large part of the insulation from the end of the wire which is liable to cause trouble due to the fact that the bare portion of the wire might come into engagement with other clips or other electrical apparatus. Owing to the inclination of the arm 14 and the tongue 17, it can be seen that only one edge of the end of the tongue 17 will come into engagement with the wire or base plate, which forms a sharp means for biting into the wire to prevent displacement of the wire.

In the modified form of the improved clip, as shown in Figure 3 of the drawings, the actuating arm 15 and the finger piece 16 is eliminated. However the principle of the clip remains exactly the same, in that it still includes the resilient arm for biting engagement with the wire which is forced into tight engagement with the wire as tension on the wire is increased. As shown, the modified from B includes the base strip 20 which is secured to a base block of insulation 21, by means of a screw 22. One end of the base strip 20 is provided with the upwardly extending right angularly disposed guide arm or plate 23, which is provided with the guide opening 24 adjacent to its lower end for receiving the electric wire which is to be connected to the clip. The upper terminal of the guide arm or strip 23 terminates in a depending inclined resilient arm 25, which is normally urged into intimate contact with the upper surface of the base plate 5 by the inherent resiliency of the material from which the clip is formed. The resilient arm 25 is arranged at an acute angle to the upstanding guide arm or strip 23 and the inner edge of the terminal of the arm 25 lies in facial contact with the base 20 and forms a sharp biting surface for engaging a wire which is placed under the same and into engagement with the base strip. This resilient arm 25 can have struck outwardly therefrom a finger piece 26, which serves as means for permitting the convenient flexing of the resilient arm 25, when it is desired to place an electric wire under the same or when it is desired to move an electric wire from under the same. On each side of the finger piece 26, the resilient arm 25 has struck out there-

from ribs 27 which tend to add rigidity to the plate.

The base strip 20 intermediate the arm 25 and the upstanding guide arm or strip 23 can have guard flanges 28 struck up from the opposite edges thereof and these flanges form means for strengthening the base strip and act as a guard for guiding a wire under the resilient arm 25 when the same is flexed. The terminal of the base strip 20, which is opposite to the terminal having the upstanding guide arm or strip 23 formed thereon can be provided with suitable means 30 for permitting the other electric wire to be rigidly connected thereto. If so desired, another clip can be employed for this purpose.

The modified form of the clip B, is of course actuated in the same manner as the form previously described. When it is desired to place the wire in engagement with the clip, it is merely necessary to insert the same through the opening 24 and flex the arm 25, by pulling up on the finger clip 26, and slipping the free end of the wire under the arm 25. The arm 25, of course, will urge the wire into intimate contact with the base plate or strip 20 and absolutely preclude the possibility of the wire being accidentally withdrawn from the clip. The arm 25 will be drawn inwardly when tension is exerted on a wire which may be associated with a clip, thus forcing the wire into tighter contact with the base plate or strip 20.

From the foregoing description, it can be seen that an improved terminal clip has been provided, for effectively holding electric wires against accidental displacement, and which will permit the wire to be conveniently and expeditiously placed into engagement therewith and moved out of engagement therewith.

Changes in details may be made without departing from the spirit or scope of this invention; but,

I claim:

1. A fastening device for electrical conductors formed of a single piece of flat resilient metallic ribbon comprising a base strip adapted to be secured to a base plate, an upstanding guide arm formed on the base plate having a guide opening therein for receiving the conductor, a depending inwardly inclined resilient arm, having a tongue struck out from the lower end thereof formed on the upper end of the guide arm said tongue adapted to frictionally engage the upper surface of the base strip for firmly forcing an electric conductor in engagement with the base strip, and a finger piece formed on said arm.

2. In a fastening device for electrical conductors, a base strip, a resilient arm formed integrally therewith arranged at an angle to the base strip and adapted to engage the upper surface thereof for forcing an electric conductor into engagement with said base strip, the arm being adapted to be drawn into tight engagement with the wire and base strip when the wire is drawn in one direction.

3. In a fastening device for electrical conductors formed of a single piece of flat resilient metallic ribbon, a body strip, means for securing the body strip to a base plate of insulation, an upstanding arm formed on the base strip at one terminal thereof having a wire guide opening formed therein adjacent to its lower end, a resilient arm formed on the outer terminal of the guide arm and extending toward said body strip at an acute angle therefrom, the inner terminal of the arm being adapted to clamp the conductor between itself and the body strip, a finger piece carried by said arm, and guide means formed on said body strip intermediate the upstanding guide arm and the clamping arm for guiding a conductor under said clamping arm.

4. In a fastening device for electrical conductors formed of a single piece of flat resilient metallic ribbon, a body strip, a right angularly disposed guide arm formed on one terminal of the strip having a guide opening formed therein for receiving a conductor wire, an inwardly extending inclined clamping arm formed upon said guide arm and disposed at an acute angle thereto, the inner terminal of said clamping arm normally engaging the body strip, an angularly disposed actuating arm, a finger piece formed on the actuating arm, and a struck down tongue formed at the juncture of the resilient clamping arm and the actuating arm for engaging the conductor to be clamped between said arm and said body strip.

WALTER W. DAIKER.