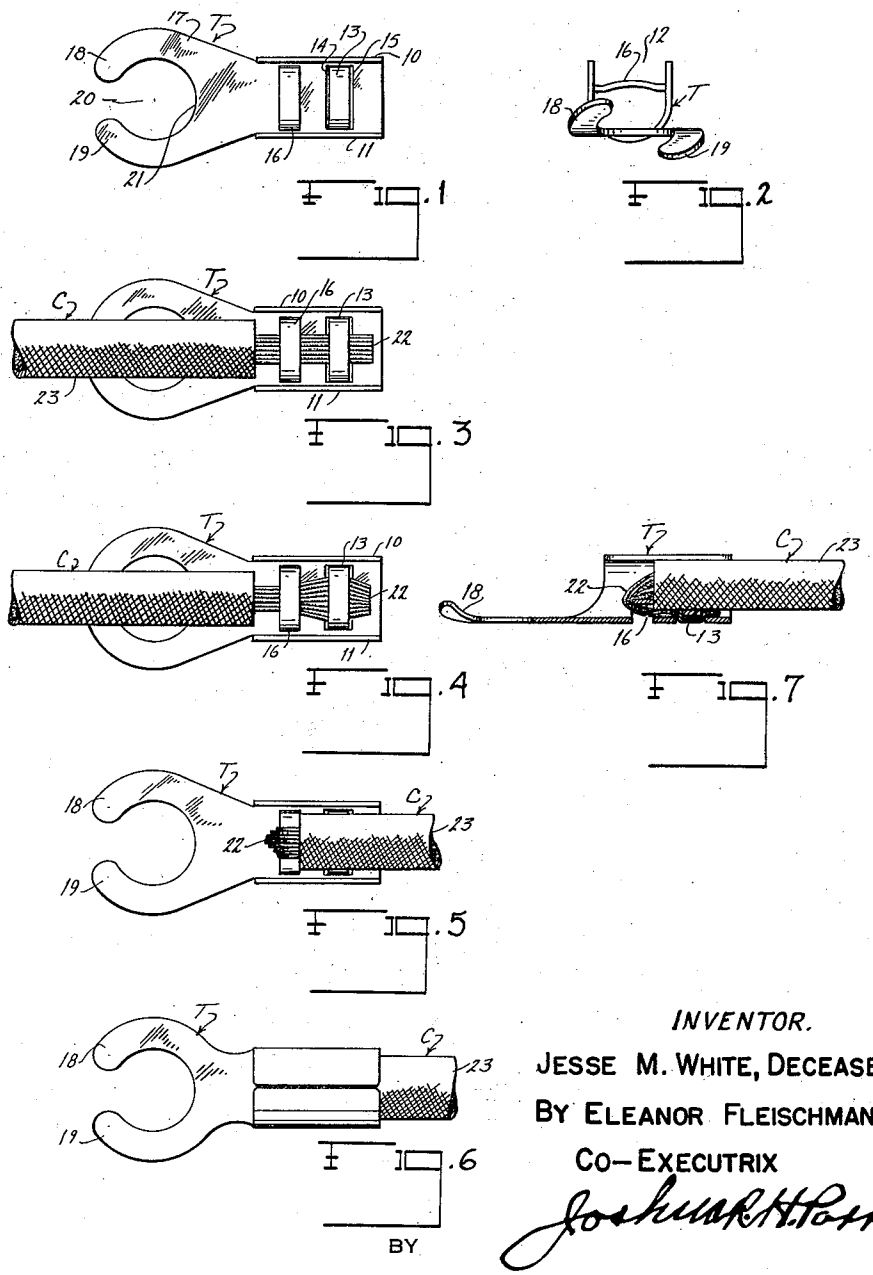
Jan. 2, 1951 J. M. WHITE 2,536,862

ELECTRIC TERMINAL

Original Filed Aug. 30, 1945



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Patented Jan. 2, 1951 2,536,862

UNITED STATES PATENT OFFICE

2,536,862

ELECTRIC TERMINAL

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Continuation of application Serial No. 613,468, August 30, 1945. This application September 1, 1948, Serial No. 47,261

4 Claims. (Cl. 173—269)

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This invention relates to electric terminals and is concerned primarily with certain improvements involving the anchorage of a conductor to a terminal.

This application is a continuation of the copending application of Jesse M. White, Serial Number 613,468, filed August 30, 1945, now abandoned, entitled "Electric Terminal."

At the present time, it is common practice throughout the various arts in which electric terminals are employed, to utilize a terminal which consists essentially of a piece of sheet metal that is shaped to provide a fork or bifurcation that is adapted to encircle the binding post and a channel construction which receives the conductor of a cable, the insulation having been stripped back to bare the conductor.

It has also been the practice in this art to anchor the conductor of a cable to a terminal like this to the channel portion of the terminal by passing it beneath a strap which is struck from the terminal body and which is defined by slits on each side thereof. After passage beneath this strap, the strap is again pressed back so as to generally conform to the contour of the terminal and thereby anchor the conductor.

It has also been proposed to bring the bared conductor in from the side adjacent to the binding post connection and then fold the conductor back upon itself to increase the anchorage effects.

The above noted arrangement, which is typical of the prior art, presents certain disadvantages due to the close proximity of the side edges of each of the slits which define the strap. There is a tendency of these edges to sever the conductor when the strap is pressed back into place. This, of course, seriously weakens the connection.

Then again, in a single strap structure of the type indicated, the strap is required to perform two functions. It must act not only as the connecting or anchoring means, which establishes the connection between the conductor and the terminal, but also as the abutment means about which the conductor is bent in being folded back upon itself.

The carrying out of this latter function also has a tendency to weaken the connecting elements.

With the foregoing conditions in mind, the present invention has in view as its foremost objects, the provision in an electric terminal of the type indicated, of a channel structure for receiving the cable, and which structure is characterized as including a pair of straps spaced apart and each of which is defined by slots of appreciable width, in contrast to slits which, theoretically, have no width.

With such an arrangement, one of the straps is adapted to function as the connecting or anchoring means, and when this strap is pressed back into the shape of the channel structure, the

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width of the slots accommodate the conductor so as to preclude any shearing action.

In the construction above proposed, the strap which is more remote from the terminal post connection, is employed as the connecting or anchoring strap, while the other strap, which is intermediate the connecting strap and the terminal post connection, acts as an abutment about which the cable is bent in being folded back upon itself. Thus, the functions of the abutment strap are removed from those of the connecting strap so as not to impair the function of the connection established by the latter.

Various other more detailed objects and advantages of the invention such as arise in connection with the above noted ideas in a practical embodiment, will in part become apparent and in part be hereinafter stated as the description of the invention proceeds.

The invention therefore comprises an electric terminal, consisting of a binding post connection and a cable receiving channel which are integrally connected together and with the channel being formed with a pair of spaced straps, each of which is defined by a slot of appreciable width on each side thereof, and which straps are struck or deformed from the channel structure so as to provide for the passage of a bared conductor therebeneath.

The strap more remote from the binding post connection constitutes the connecting or anchoring strap, while that adjacent to the binding post connection constitutes an abutment strap about which the conductor may be bent as it is folded back upon itself.

For a full and more complete understanding of the invention, reference may be had to the following description and accompanying drawing wherein:

Figure 1 is a top plan view of the terminal of this invention prior to the application of the stranded conductor thereto;

Figure 2 is an elevational view taken from the forked end of the terminal;

Figure 3 is a view similar to Figure 1 with the end of a stranded and insulated conductor in place for attachment to the terminal;

Figure 4 is a view similar to Figure 3 with the secure electrical connection effected between the terminal and the stranded conductor;

Figure 5 is a view showing the next step in the attachment operation in which the body of the stranded insulated conductor is swung through approximately 180 degrees to place the insulated portion thereof in position to be clamped by the skirt portions of the terminal;

Figure 6 is a plan view of the terminal and insulated conductor in completely assembled and attached condition, and

Figure 7 is a view partly in section showing

the electrical and mechanical connections between the various parts of the complete device and conductor.

Referring now to Figure 1, the terminal generally referred to by the letter T is formed from a flat strip of metal having appreciable spring characteristics, such as hard brass, bronze or other metal having suitable characteristics. From the plane of the flat strip opposing skirt portions 10 and 11 are pressed upwardly into opposing relation to define a channel 12 therebetween. A binding post connection or anchoring strap 13 lying transversely of the base of channel 12 is formed from the plane of the terminal body by the cutting of slots 14 and 15. These slots may be cut prior to the raising of skirt portions 10 and 11 by dies or by a cutter after channel 12 is formed.

The slots 14 and 15 should have sufficient width to permit the strap 13 to be bent downwardly from the position indicated in Figures 1 and 2 almost into the bottom wall of channel 13 when the stranded conductor is completely attached without shearing or damaging the strands of the conductor.

Spaced longitudinally in channel 12 from strap 13 is a clamping strap or bridge 16 which lies transversely of the channel 12 and is cut from the plane of the terminal material. The end of the terminal, opposite the skirts 10 and 11, is formed into a fork 17, the opposing jaws 18 and 19 thereof being bent in opposite directions as shown in Figure 2 and defining a mouth 20 having a transverse dimension less than the diameter of the post-receiving ring portion 21 of the terminal T.

Referring now to Figure 3, the stranded insulated conductor shown generally by the letter C, having a conductor core 22 formed of a plurality of copper wires of small dimension and an insulating jacket or cover 23 formed of rubber and encased in the conventional braided sleeve, is prepared for attachment by stripping the insulation 23 from the conductor core 22 at the end of conductor C. This stripped end, shown generally at 24, in then inserted beneath the attaching strap or bridge 16 and the binding or anchoring strap 13.

As shown in Figure 4, binding strap 13 is then pressed downwardly very firmly until it flattens the cylindrical formation of the individual wires of the conductor core 22 and clamps them into efficient current conducting contact. Due to the width as well as the length of slots 14 and 15, the individual wires of core 22 are free to spread and be bent into clamped relation while still retaining their mechanical strength and current carrying capacity.

It is to be noted that attaching strap 16 is not bent downwardly toward the base of channel 12 and upon the conductor core 22 to such a degree as strap 13 because the primary function of strap 16 is to provide a mechanical holding means and abutment when the insulated portion of conductor C is swung from the position shown in Figure 4 through substantially 180 degrees to the position shown in Figure 5. After the insulated portion of the conductor rests upon the bottom of channel 12, with a portion thereof resting upon strap 13 and having an end thereof abutting against one edge of attaching strap 16, the skirts 10 and 11 are bent around the insulation of conductor C into secure clamping engagement.

Due to the restricted mouth 20 of fork 17, it can be seen that the forked end of the terminal could not be pressed directly upon a terminal

post having a diameter substantially equal to the ring portion 21 of the terminal, nor could the terminal T be withdrawn from the terminal post after assembly without a slight tilting of the terminal with a resulting springing of the jaws 18 and 19. Due to their opposite angles of inclination, these jaws separate into planes inclined to and spaced from the plane of the main body of terminal T.

After assembly upon a terminal post while the terminal nut is still in position upon the post, the terminal nut is tightened to clamp the jaws 18 and 19 so as to bring them more closely together and into approximately the same plane to maintain the connection. Thus, assembly of the terminal upon the terminal post may be effected more quickly than the prior art ring terminal, and the connection between the terminal and terminal post will be more secure than the prior art forked terminal.

Due to the clamping means of electrical and mechanical attachment of the conductor to the terminal, the metal of the terminal T is able to retain its normal characteristics, which would be lost by the application of acid and heat during the conventional soldering operation.

Likewise, the clamping attachment provides a connection of long life due to freedom from the use of heat and acid which tends to destroy the serviceability of the stripped end 24 of conductor C and the insulation 23 immediately adjacent thereto.

While a preferred specific embodiment of the invention is hereinbefore set forth, it is to be clearly understood that the invention is not to be limited to the exact construction and details illustrated and described because various modifications of these details may be provided in putting the invention into practice within the purview of the appended claims.

What is claimed is:

1. In an electric terminal, a binding post connection and a channel structure, said channel structure being formed with a pair of parallel slots of appreciable width and spaced apart to define a strap, said strap being raised from the main body of said structure and integrally joined thereto at each end to provide for the insertion therebeneath of the bared end of an electric conductor, said raised portion being adapted to thereafter be pressed down to securely anchor said conductor to said structure with the slots having spaced edges accommodating the conductor.

2. In an electric terminal, a binding post connection and a conductor receiving channel, said conductor receiving channel comprising a base and strap struck upwardly from said base to provide a vertical clearance between the strap and base, the base on each side of the strap being cut away to provide a lateral clearance between the strap and base, said strap being integrally joined to said base at each end and adapted to be pressed down on a conductor inserted between the strap and base for clamping the conductor therebetween, with said clearance accommodating the conductor to preclude shearing of the wire resulting from the clamping operation.

3. In combination, a terminal having a binding post connection and a conductor receiving channel, said channel having a base and connecting strap struck upwardly from and extending transversely of the base of said channel, the base on each side of said strap being cut away to provide lateral vertical clearance between said strap and

said base, an abutment strap struck upwardly from said base and extending transversely of said channel in spaced relation with respect to said connecting strap, a conductor having a portion disposed beneath both said straps, said connecting strap being pressed down for clamping the conductor between said strap and said base, the conductor being bent about said abutment and returned across the tops of both said straps, and side wall portions carried by said base and adapted to be bent inwardly upon the conductor as so connected for binding the same in position.

4. In combination, a terminal having a terminal post receiving portion and a conductor receiving channel, a connecting strap extending across the base of said channel and separated along its sides from the bottom wall of the channel by slots, a clamping and abutment strap spaced from said connecting strap and lying transversely of said channel, a stranded conductor having a portion lying beneath said connecting strap and said clamping and abutment strap and a portion lying above said straps and clamping skirts joined to the bottom wall of said

channel and securely holding the body of said conductor with said connecting strap pressed close to the plane of the bottom of said channel to connect said conductor and terminal in good mechanical and electrical contact.

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Co-executrix of the Estate of Jesse M. White, Deceased.

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