April 4, 1944. W. A. DANIELS ET AL 2,345,890

DROP WIRE TIE

Filed Dec. 31, 1942

Fig. 1.

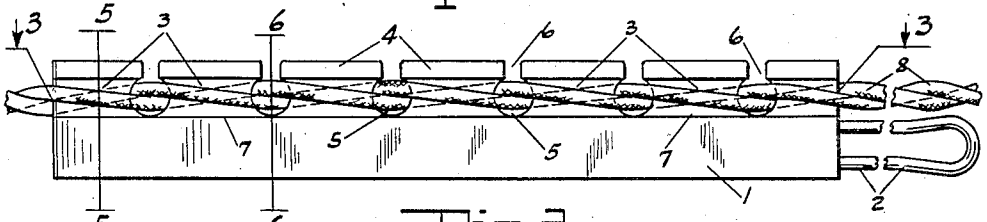


Fig. 2.

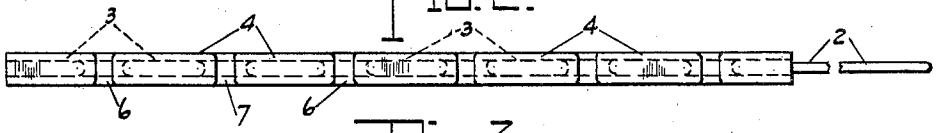


Fig. 3.

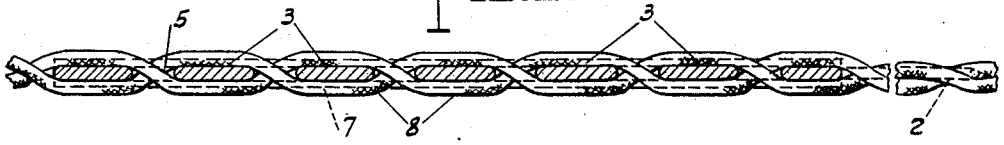


Fig. 4.

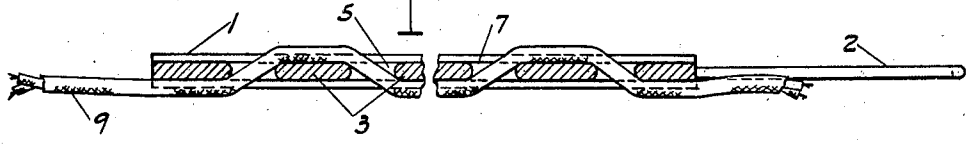


Fig. 5.

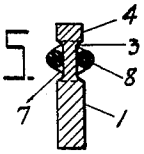


Fig. 6.

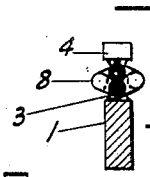


Fig. 7.

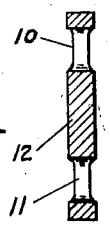
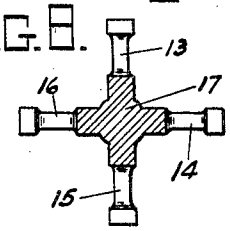


Fig. 8.



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DROP WIRE TIE

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2 Claims. (Cl. 24—129)

This invention relates to connectors of the type which are commonly known in the field as drop wire ties, having for their primary object the attachment of electrical conductors, such as telephone, lighting, or other wires, to buildings, poles, and other structures.

In general, it has been the practice heretofore to bring the drop or service wire to the outer wall of a building and either directly attach the same to a fixed anchor, such as a porcelain knob or eye, or, as an alternative, indirectly secure the same to a fixed anchor by means of a special clamping device which applies clamping or gripping pressure to the wire, the clamping device being itself suitably attachable to the wall or anchor. This latter type of tie is probably the one most extensively used at the present time, although other types of connector devices have been proposed.

It has been found, however, that practically all of these former tie or connector devices, including the clamping type, have the important disadvantage of a tendency to puncture, strip or unduly wear or chafe the usual insulation on the drop or service wire, which damage is rapidly promoted still further by the vibration and whipping of the wire under the influence of weather conditions.

Moreover, the former connectors are largely made of metal, particularly metals which are in so great demand for other purposes at present that they are no longer available for use in the manufacture of connectors.

Having the foregoing conditions and limitations in view, as well as others which need not be mentioned herein because of their obvious character, it is the primary purpose of the present invention to provide an improved drop wire tie which is of simple and relatively inexpensive character, and which can not only be made of metal, but also of other less essential and more readily available materials, such as porcelain, glass, fiber, composition, "Bakelite," and the like.

Another important object of our invention is to provide a drop wire tie or connector of distinctly novel and improved form, which serves to eliminate, or at least substantially reduce and minimize, damage to the insulation of the drop or service wire, while at the same time acting effectively to connect or anchor the wire to its support, the latter of which may be of any suitable type, such as have heretofore been used, but not limited thereto.

A further object of our invention is to provide a drop wire tie which is easily and quickly engageable with a drop or service wire with an effective snubbing action distributed along a sufficient length of the wire near the point of anchorage as will prevent slippage of the wire under the usual strains encountered in use, and without unduly applying strain or producing wear upon the insulation of the wire as would tend to damage the insulation.

A still further object of the invention is to provide an improved drop wire tie which utilizes the snubbing principle aforementioned, as attained by the provision of a plurality of laterally projecting snubbing posts or members longitudinally spaced along an elongated body, about which posts or members a drop or service wire may be laced in continuous fashion, with the drop or service wire passing into one end of the device and leaving the other end without interruption or severance of the wire.

Still another object is to provide a drop wire tie which readily lends itself to unitary construction in either single or multiple form, and when in multiple form, accommodating a plurality of drop or service wires.

Other and further objects and advantages of the invention will be hereinafter described and the novel features thereof defined in the appended claims.

In the drawing:

Figure 1 is a view in side elevation of a single form of drop wire tie constructed in accordance with out invention, and showing the laterally projecting, longitudinally spaced snubbing members along one edge of the body of the device, with a twist type drop or service wire interlaced therewith as one illustration of the use thereof;

Figure 2 is a view in top plan of the drop wire the device shown in Figure 1, the drop or service wire being omitted from Figure 2;

Figure 3 is a longitudinal sectional view taken on the line 3—3 of Figure 1, with the drop or service wire shown in top plan;

Figure 4 is a fragmentary, longitudinal sectional view generally similar to Figure 3, illustrating the use of the drop wire tie with a single or parallel laid type of drop or service wire, the latter type being shown in this figure;

Figures 5 and 6 are transverse sectional views taken respectively on the lines 5—5 and 6—6 of Figure 1;

Figure 7 is a transverse sectional view generally corresponding to Figure 5, but illustrating a modified form of the drop wire tie, the same having dual sets of snubbing members along the opposite edges thereof to accommodate a plurality of drop or service wires; and

Figure 8 is a view in transverse section gen-

erally corresponding to Figure 7, but illustrating a further modified multiple form of drop wire tie.

Like reference characters designate corresponding parts in the several figures of the drawing, wherein 1 denotes a substantially flat, rigid elongated body having fixed thereto at one end a bail member 2 which may be formed of relatively heavy wire, and by means of which the body 1 may be connected to an anchor or other fixed support (not shown), such as is commonly used in anchoring the usual drop wire ties or connectors to the side of a building, pole, or other structure.

Projecting laterally from one side or edge of the body 1 is a series of alined, longitudinally spaced snubbing members 3, having generally the form of flattened posts or pins, as will be best understood from reference to Figure 3 of the drawing. The outer or free extremities of the snubbing members 3 are preferably provided with enlarged or transversely thickened heads 4 which overhang the body 1 between the respective adjacent pairs of snubbing members. As best shown in Figure 1, the snubbing members 3 are preferably so constructed as to leave between each adjacent pair thereof a space 5 of sufficient size to accommodate the particular size of the drop or service wire which is to be applied to the drop wire tie, and hence the device may be constructed in different sizes and with different spacings of the snubbing members as may be required to accommodate the various wire sizes encountered in use. As will be seen from Figure 1, the adjacent ends of the snubbing members 3 are preferably rounded so that each space 5 has the general outline of a circle which is broken at the outer side by the space 6 between the adjacent heads 4 of the snubbing members to allow the wire to be passed therethrough into the space 5. In lieu of the rounded configuration of the spaces 5, the sides of these spaces may be straight, if preferred, and set back a sufficient distance from the adjacent ends of the heads 4 of the snubbing members 3 so as to afford enough room to receive the drop or service wire therein, this arrangement being more particularly suitable for single or parallel laid drop or service wires. In either construction, the corners of the snubbing members are preferably rounded off or beveled so that they will not present any sharp corners which would unduly chafe or damage the usual insulation on the drop or service wire.

The body 1 of the drop wire tie also preferably has a transverse thickness generally corresponding to the transverse thickness of the heads 4 of the snubbing members 3, and thus greater than the transverse thickness of the portions of the snubbing members lying between the heads and the body proper. By virtue of this construction, there is provided a longitudinal groove or channel 7 along the opposite sides of the snubbing members between the heads 4 and the body 1 proper, these grooves or channels serving to receive the drop or service wire therein so that the wire does not project substantially beyond the opposite sides of the drop wire tie device.

Obviously, the drop wire tie device may be constructed from a unitary bar of suitable material from which portions of the material may be cut away to form the spaces 5, 6, between the snubbing members 3, and also at the opposite sides of the snubbing members 3 to form the wire-receiving groove or channel 7. As an alternative method of forming the channel 7, the heads 4 of the snubbing members and the body 1 proper may both be built up in transverse thickness by adding material to opposite sides of a central core, thereby leaving a thinner section at the channel or groove 7, following which the spaces 5 and 6 may be cut out. Of course, if the material so permits, the device may be molded in unitary form.

According to the construction of the drop wire tie or connector device as just described, it may be conveniently made of metal throughout, or, excepting for the bail 2, may be made of any other suitable material, such as porcelain, glass, fiber, composition, "Bakelite," and the like. The size and specific shape of the body 1 and the snubbing members 3 are not critical, and may be varied according to the tensile strength of the material employed, so long as the device is sufficiently large in cross section to withstand the strain to which the same will be subjected when in use.

In the use of the drop wire tie described above, the drop or service wire is laced about the snubbing members 3 in the manner shown in Figures 1 and 3, the drop or service wire in these figures being of the twist type and being designated 8. When so laced about the snubbing members, the twisted wires cross each other in the spaces 5 between the adjacent pairs of snubbing members, the wires being separately introduced into these spaces through the spaces 6. When so laced, the wires lie in the channel or groove 7 at the opposite sides of the snubbing members. Thus, a substantial length of the drop or service wire is engaged with the snubbing members to produce an effective snubbing action upon the wires, preventing the wires from slipping or pulling through the tie. By reason of the overhanging construction of the heads 4 on the free ends of the snubbing members, the wires will not become inadvertently displaced from engagement with the snubbing members.

In the case of a single or parallel laid drop or service wire, the lacing of the same about the snubbing members 3 follows the form shown in Figure 4 of the drawing, in which a parallel laid type of drop or service wire is shown, and is designated 9. As will be understood by those skilled in the art, there are usually two conductors in a parallel laid type of wire, with both conductors enclosed within a common jacket or covering of insulation, and thus, in effect, corresponding to the construction of a single wire for an insulated conductor.

According to the principle of the drop wire tie or connector construction hereinbefore described, a powerful snubbing action is applied to the drop or service wire by the tie or connector device, without unduly applying strain to the usual insulation or covering on the wire, and damage to the insulation or covering is thus prevented. As clearly shown in Figures 1 to 4, the drop or service wire passes into the tie or connector device at one end and leaves the other end without interruption or severance of the wire. This contributes to the rapid and accurate anchorage of the wire which becomes effectively anchored to the building, pole or other structure, by the simple expedient of fastening the bail 2 of the tie or connector device to a fixed point of attachment on the building or pole.

Referring to Figures 7 and 8, the drop wire tie or connector devices illustrated therein are generally similar to that of Figures 1 to 4 inclusive, excepting that two sets of snubbing members generally designated 10 and 11 are provided along

the opposite edges of a single body 12, in the case of Figure 7, and four sets of snubbing members 13, 14, 15 and 16 are provided about a central core 17, in the case of Figure 8. The principle of operation of these modified forms of drop wire ties is the same as has been hereinbefore described, and, therefore, need not be repeated. In all the forms of the invention, the drop wire tie is preferably of unitary construction, and according to the modified forms shown in Figures 7 and 8 of the drawing, may be of multiple form to accommodate a plurality of drop or service wires. Obviously, the particular number of sets or series of snubbing members employed may be varied at will, as well as the number of snubbing members per set, and while there have been illustrated in Figures 7 and 8 two types of multiple ties, one employing two sets of snubbing members, and the other four sets of snubbing members, these sets may be varied to provide three sets of snubbing members, or any other greater than four, within practicable limits. In each case of a multiple form of drop wire tie, the snubbing members of each set are preferably equi-distantly spaced from each other about the longitudinal central axis of the body or core of the tie unit.

While the specific details have been herein shown and described, our invention is not confined thereto, as changes and alterations may be made without departing from the spirit thereof as defined by the appended claims.

What we claim is:

1. A wire connector device, comprising an elongated rigid body having a series of spaced, longitudinally alined, and laterally extended snubbing members positioned thereon for engagement with a wire, said snubbing members being of less transverse thickness than the body and provided at their free extremities with heads generally corresponding in thickness to that of the body, and thereby defining between the heads and the body a wire-receiving channel or groove along opposite sides of the snubbing members, permitting uninterrupted lacing of the wire about the snubbing members, with the wire extended beyond the opposite ends of the body, and means carried by the body for attaching the same to a support.

2. A wire connector device of the class described, comprising a flat, elongated body having a series of apertures provided therein adjacent to one long edge thereof, said apertures being equidistantly spaced apart and uniformly spaced from the edge of the body, said body also being transversely slotted along its edge to provide a corresponding series of slots leading from the long edge aforesaid into the respective apertures, thereby defining between each pair of apertures and slots a laterally extended snubbing member, said snubbing members being longitudinally aligned with each other so that a wire may be interlaced thereabout by passing the same through the slots into the apertures between the snubbing members, and the snubbing members each being provided with a recess on opposite sides thereof, with the recesses on the corresponding sides arranged in alignment with the apertures and extending longitudinally of the body so as to form a wire-receiving channel or groove along opposite sides of the body to receive the wire, with the wire extending longitudinally of the body and lying at opposite sides of alternate snubbing members, and means disposed at one end of the body for attaching the same to a support to which the wire is to be connected.

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