Aug. 4, 1959 J. J. GHIGLIA 2,897,702

SKINNING TOOL

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Fig 1

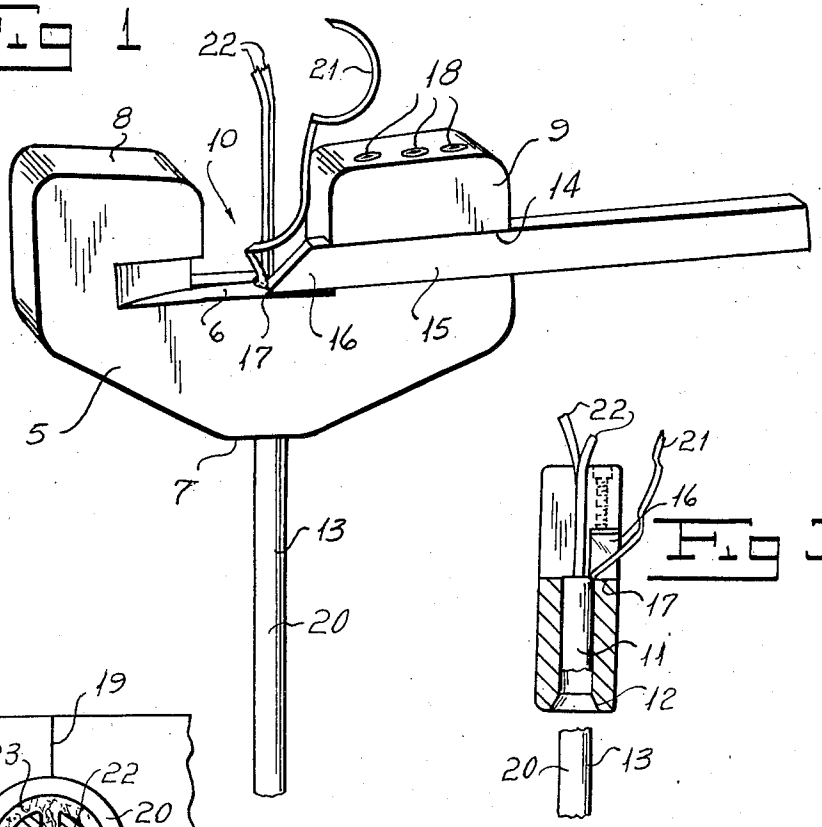


Fig 3

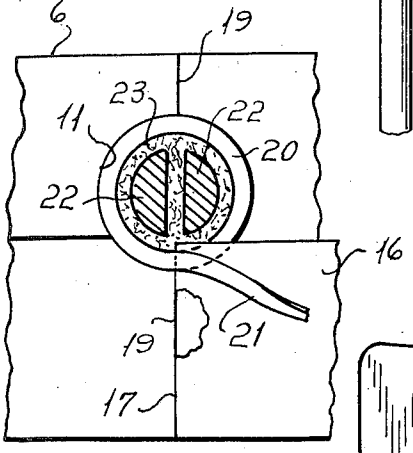


Fig 4

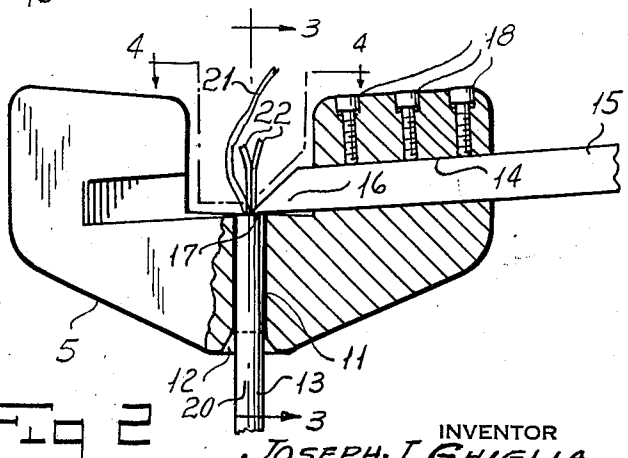


Fig 2

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SKINNING TOOL

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4 Claims. (Cl. 81—9.5)

My invention relates to tools and more particularly to skinning or dressing tools for removing the outer sheaths from relatively rigid and diametrically small electric leads or conduits of the type fashioned with interior conductors or wires spaced from the sheaths and generally employed in conjunction with electrical devices such as indicators, pyrometers, and thermocouples as distinguished from tools for removing insulation directly engaging or adhering to electric wires as exemplified in United States Letters Patent Nos. 1,725,114 and 2,530,219.

One of the objects of my invention is to provide a tool for removing or skinning the outer sheath from an electrical lead or conduit to expose the wire or conductor means insulatingly contained within the sheath.

Another object of my invention is to provide a tool of the foregoing described character wherein a cutter is so arranged and maintained with respect to the lead or conduit being operated upon as to preclude damaging or severing of the conductor means contained in the sheath by the operation of the cutter.

A further object of my invention is to provide a tool of the foregoing described character which is so constructed and arranged as to insure operation of the tool about a conduit in a precisional manner to preclude damage to the conductor means or wire contained within the conduit.

A special object of my invention is to provide a tool of the foregoing described character which is simple in construction, durable in use, efficient in operation, and economical in manufacture.

With the above and other objects in view, as will hereinafter appear, the invention consists in the combination and arrangement of parts hereinafter set forth and illustrated in the accompanying drawings from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

Referring to the drawings wherein like reference characters designate like parts throughout the several views:

Figure 1 is a perspective view of my invention;

Figure 2 is a side elevation, partly in section, illustrating my invention in operating position on a lead or conduit;

Figure 3 is a sectional view taken on the line 3—3 of Figure 2; and

Figure 4 is a fragmentary sectional view on an enlarged scale, taken on line 4—4 of Figure 2.

In practicing my invention, as illustrated in the drawing, I provide a small somewhat sagittal body 5 having a pair of oppositely disposed faces which, for the purpose of explanation, constitute, in the present instance, upper and lower faces 6 and 7, respectively. The body is structurally integrally formed on the upper face 6 with a pair of upwardly projecting spaced wings 8 and 9, respectively, defining therebetween a slot or work receiving zone 10. The body is also formed with a bore 11 extending therethrough and communicating at its outlet end with the zone 10. The opposite or inlet end of the bore is

formed with a counterbore 12 opening through the lower face 7 to facilitate insertion of a lead or conduit 13 into the bore 11 for a purpose hereinafter made apparent.

A side face of the wing 9 is formed with a groove or kerf 14 in which is positioned an elongated cutter or blade 15 provided with an inner beveled end 16 terminating in a sheath skinning or cutting edge 17. The wing 9 has threaded therein a plurality of set-screws 18 for engaging and maintaining the blade 15 fixed in the kerf 14 and in a cutting position relative to the bore. When so positioned, the cutting edge 17 of the blade extends transversely of the body and in right-angular relation to the longitudinality of the blade.

The blade 15, coincident with the kerf 14, is inclined slightly downwardly and inwardly toward the bore 11 to dispose the section 16 over the face 6 and seat the edge 17 on the face 6 in said cutting position as indicated by the guide-mark 19 inscribed on the face 6.

In the aforementioned cutting position, a corner of the section 16 projects over the outlet end of the bore 11 with the edge 17 being disposed in a plane bisecting the axis of the bore and abaxially thereof, whereby, the edge 17 penetrates and cuts the proximate side of the sheath 20 of the lead or conduit 13, as illustrated in Figure 4, upon spiral rotation of the lead within the bore towards the blade, the sheath being constructed of any suitable material, for example, metal. Obviously, upon relative rotation of the body and lead, in a spiral manner, the sheath 20 will be peeled or skinned, in the form of a shaving 21, from that portion of the lead projecting out of the outlet end of the bore with the result that the ends of the conductors or wire 22 contained within said portion will be exposed, whereupon, the shaving 21 from the sheath may be removed therefrom, together with any insulating material 23 disposed about the exposed ends of the wire, upon completion of the skinning operation. In instances wherein a ceramic material is employed as the insulating medium, as in the present case, the ceramic material crumbles during the skinning operation to expose the ends of the conductors.

While I have described my invention in conjunction with a lead or conduit having a pair of semi-cylindrical electrodes disposed therein and in insulated relation to each other and the sheath by means of a suitable ceramic material, the tool will operate with equal facility on leads containing a single or a greater number of electrodes, it being apparent that a close fit of the lead with the bore is essential to effect precisional positioning of the lead relative to the blade for operation of the latter on the sheath. This is especially desirable in the present instance wherein the diameters of the sheath and the wire contained therein are relatively small in order to prevent damaging or severing of the wire. It will, therefore, be apparent that only leads within a predetermined size range may be received and operated upon by the tool, said range being determined by the location of the cutting edge 17 relative to the position of the wire within the sheath in view of the amount of play of the lead within the bore during a skinning operation. It will also be apparent that the slot 10, between the wings 8 and 9, serves as a means of access to the lead for detaching the shaving 21 therefrom to permit the lead to be withdrawn from the body through the inlet end of the bore 11.

Without further elaboration, the foregoing will so fully explain the invention that others may, by applying current knowledge, readily adapt the same for use under various conditions of service. Moreover, it is not indispensable that all the features of the invention be used conjointly since they may be employed advantageously in various combinations and subcombinations.

It is obvious that the invention is not confined solely to the use herein disclosed in connection therewith as it

may be utilized for any purpose to which it is adaptable. It is therefore to be understood that the invention is not limited to the specific construction as illustrated and described, as the same is only illustrative of the principles involved which are capable of extended application in various forms, and the invention comprehends all construction within the scope of the appended claims.

What I claim is:

1. A skinning tool comprising a body having a face provided with a pair of spaced members extending from said face, said body being formed with a bore extending therethrough and having an outlet opening through said face, one of said members being provided with a slot extending obliquely relative to said bore and a cutter mounted in said slot in parallelism therewith, said cutter having a cutting edge projecting partly over said outlet for penetrating and peeling the outer sheath of an electric lead disposed in sliding and close fitting relation within said bore upon spiral rotation of said lead therein towards said edge whereby to expose an end portion of a conductor contained within said sheath and spaced therefrom, said members being of a definite spatiality to permit ready access to the peeled shaving of the sheath for detaching the sheaving from the lead and withdrawal of said body from the lead over the exposed end portion.

2. A skinning tool comprising a body having a face provided with a pair of spaced members extending from said face, said body being formed with a bore extending therethrough and having an outlet opening through said face, one of said members being provided with a slot extending obliquely relative to said bore, a cutter mounted in said slot in parallelism therewith, said cutter having a cutting edge projecting partly over said outlet end for penetrating and peeling the outer sheath of an electric lead disposed in sliding and close fitting relation within said bore upon spiral rotation of said lead therein towards said edge whereby to expose an end portion of a conductor contained within said sheath and spaced therefrom, said members being of a definite spatiality to permit ready access to the peeled shaving of the sheath for detaching the shaving from the lead and withdrawal of said body from the lead over the exposed end portion, and anchoring means carried by said one member and engaging said cutter for maintaining the latter fixed in said slot, said anchoring means being operable to permit adjustment of said cutter within said slot to limit penetration of said edge to substantially that of said outer sheath whereby to preclude damage to said conductor by said edge.

3. A skinning tool comprising a body provided with a pair of spaced wings and having a face extending between said wings, said body being formed with a bore extending therethrough and having inlet and outlet ends with the outlet end of said bore opening through said face between said wings, one of said wings constituting a mounting extending above said face and with said mounting being provided with a groove inclined downwardly and inwardly towards said bore and over said face, a cutter set in said groove and formed with an end section extending over said face and inclining downwardly and inwardly towards said bore, said end section terminating in a cutting edge projecting partly over said outlet end for penetrating and spirally peeling the outer sheath from a lead spirally rotated within the bore toward said edge to thereby expose end portions of a conductor contained within said sheath and spaced therefrom, said bore being of a definite diameter for accommodating a lead having a diameter effecting a sliding and close fit therein to maintain said sheath in the path of said edge for peeling thereby and said conductor out of range of said edge during said rotation, said wings defining a slot therebetween to permit ready access to the shaving for detaching the latter from the lead to permit removal of the lead through the inlet end of said bore, said cutter being adjustable within said mounting to limit penetration of said cutting edge to substantially that of said outer sheath whereby to preclude damage to said conductor by said cutter.

4. A skinning tool for peeling the outer sheath from an electric lead having centrally disposed relatively thin and fragile conductor means insulated from said sheath by ceramic insulation, comprising a somewhat sagittal one-piece body having a pair of oppositely disposed upper and lower faces and with the upper face formed with a pair of upwardly projecting spaced wings defining therebetween a work receiving zone, said body being provided with a bore extending therethrough and having inlet and outlet ends formed in said lower and upper faces, respectively, and communicating with said zone through said upper face intermediate said wings, one of said wings constituting a mounting extending above said upper face and with said mounting being provided with a laterally disposed groove inclined downwardly and inwardly toward said bore and over said upper face, a cutter set in said groove and formed with an end section extending over said upper face and inclining downwardly and inwardly towards said bore, said end section terminating in a cutting edge projecting partly over said outlet end for penetrating and spirally peeling the outer sheath from a lead spirally rotated within said bore towards said edge to thereby expose end portions of conductor means contained within the sheath and spaced therefrom by insulation, said bore being of a definite diameter for accommodating a lead having a diameter to effect a sliding and close fit of said lead within the bore to maintain said sheath in the path of said edge for peeling thereby and said conductor means out of range of said edge during said peeling, said wings being spaced a sufficient distance to permit ready access to said zone for detaching the peeled shaving from said lead to permit removal of said lead through the inlet end of said bore, said cutter being adjustable within said mounting to limit penetration of said cutting edge to substantially that of said outer sheath whereby to preclude damage to said conductor means by said cutter.

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