Aug. 6, 1957 L. H. SPANGLER 2,801,560

ELECTRICAL WIRE LUG AND TERMINAL CRIMPER

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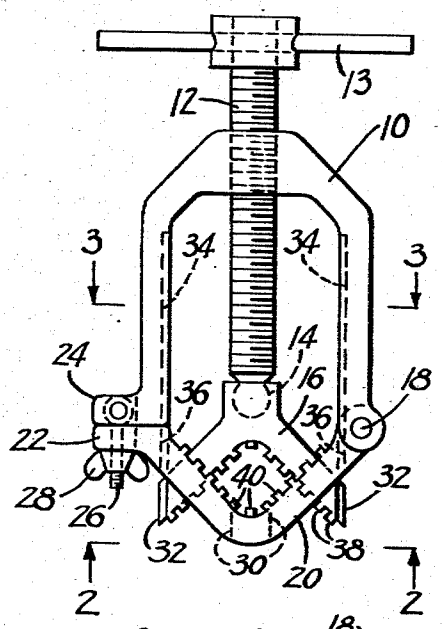


FIG. 1

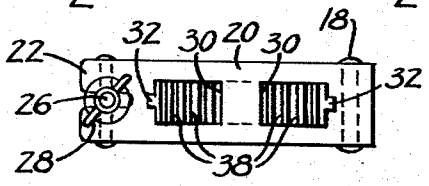


FIG. 2

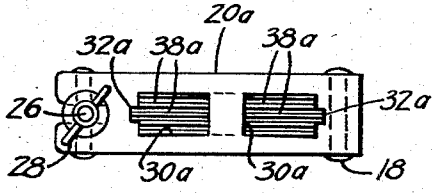


FIG. 4

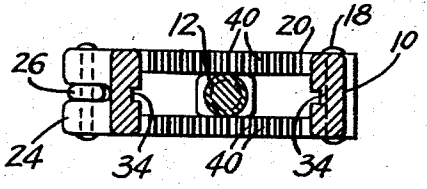


FIG. 3

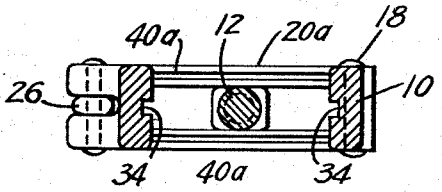


FIG. 5

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ELECTRICAL WIRE LUG AND TERMINAL CRIMPER

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2 Claims. (Cl. 81—15)

In many instances, it is necessary to crimp lugs or terminals on electric wire or cable, etc.

The main object of the present invention is to provide a device which will facilitate the crimping of lugs or terminals onto the ends or other portions of an electrical cable or wire. To this end, the invention, summarized briefly, comprises a yoke of substantially U-shape, and threaded in the bight of the yoke is a stem, to which is swivelly connected a crimping jaw of V-shape having over its full length crimping lugs or teeth, projections or the like. Hingedly connected to one leg of the yoke is an opposing crimping jaw, also of V-shape and having crimping projections confronting those of the first jaw. The second jaw can be lockably engaged with the other leg of the yoke to cooperate with the yoke in providing a frame. Formed in the legs of the yoke and in the second jaw are guide grooves, in which the ends of the first jaw are slidably engaged.

Among the specific objects of the invention are the following:

To provide a device which can be used more efficiently and easily than previous tools designed for the same purpose;

To permit the application of a maximum amount of crimping pressure in relation to the lightness of the device;

To permit speedy adjustment of the jaws toward and away from one another, thus to correspondingly speed up the crimping of the lugs and associated wires;

To provide an improved jaw construction and relationship that will result in a progressively reduced opening in which the lug and wire being crimped are confined, tending to apply pressure to the same at all locations about the circumferences thereof; and

To permit the device to be manufactured at a minimum of cost, while still being rugged and substantially trouble free in operation.

Other objects will appear from the following description, the claims appended thereto, and from the annexed drawings, in which like reference characters designate like parts throughout the several views and wherein:

Figure 1 is a front elevational view of a tool formed according to the present invention;

Figure 2 is a bottom plan view of the tool as seen from line 2—2 of Figure 1;

Figure 3 is a transverse section on line 3—3 of Figure 1;

Figure 4 is a view like Figure 2 showing a modified construction; and

Figure 5 is a view like Figure 3 of the modification.

Designated at **10** is a generally U-shaped yoke, the bight of which has a threaded opening in which is engaged a threaded stem **12** having a handle **13** at one end and a ball element **14** at its other end. The ball element swivels in a mating recess formed in a boss provided upon the apex part of a V-shaped movable crimping jaw **16**.

Pivotally connected at **18** to the outer end of one leg of yoke **10** is a V-shaped crimping jaw **20** opposing jaw **16**, and having at the end thereof remote from the hinge

pin **18** a lateral extension **22** adapted to contact opposing extension **24** formed upon the yoke **10**. A connecting eye bolt **26** is pivotally connected to extension **24**, within a slot of extension **24**, and swings into a slot of extension **22**. A wing nut **28** threaded on bolt **26** may be turned home against extension **22** to fixedly connect jaw **20** to yoke **10** in a position in which jaw **20** extends transversely of and closes the open end of the yoke **10**.

In the arms of the jaw **20** (which may be termed a fixed jaw) elongated openings or slots **30** are formed, the end walls of which parallel the legs of yoke **10**. In the outer end walls of the openings narrow guide grooves **36** are formed. The arms of the movable jaw **16** project through the slots, and at their free ends have tongues **32** guided in the grooves **36**, and also guided in longitudinal guide grooves **32** formed in the inner surfaces of the yoke legs. Grooves **34**, **36** are in alignment, and define at each side of the yoke a single guideway for the adjacent tongue **32**.

On the faces of the arms of jaw **16** that confront the jaw **20** closely spaced, transversely extending projections or ribs **38** are formed, and similar ribs **40** are formed on the jaw.

By reason of this construction, a terminal or lug, not shown, which is to be crimped onto a wire, also not shown, is inserted with the wire in the diamond shaped opening defined between the oppositely disposed jaws **16**, **20**. Then, the handle **13** is rotated, and this advances jaw **16** toward the jaw **20**, with tongues **32** slidably engaged first in the grooves **34** and subsequently, as the terminal and wire are approached, in the grooves **36**. Continued rotation of the stem **12** causes the outer ends of the jaw **16** to move out of the guideways, to the position shown in Figure 1. Jaw **16** will still be held against rotation, by engagement of its opposite side surfaces against the side walls of openings **30**.

Continued advancing of the jaw **16** will progressively reduce the size of the diamond shaped opening defined between the two jaws. As a result, a crimping pressure is applied to the terminal and the associated wire over their full circumferences. As said pressure is applied, the opposed crimping projections **38**, **40** are thereby forced into the material of the terminal and wire, so as to crimp or interlock the same.

To remove the crimped terminal and wire, one only need back off the wing nut **28** to an extent sufficient to permit connecting bolt **26** to be swung outwardly, thus freeing jaw **20** for swinging movement away from jaw **16**. In this connection, while the free ends of jaw **16** might limit full swinging movement of the jaw **20**, the jaw will still be swingable to an extent sufficient to enlarge the opening designed between the two jaws enough for removal of the crimped wire and terminal. Alternatively, the jaw **16** can of course be backed away from jaw **20** before the jaw **20** is swung to an open position.

In Figures 4 and 5 a modified construction is shown. This is similar in every respect to the first form, except for the form and disposition of the crimping projections. Thus, there is a stationary jaw **20a** having openings **30***a*, through which extend the arms of the movable jaw having longitudinally extending crimping ribs **38***a* instead of transverse ribs **38**. The movable jaw has tongues **32***a* engageable in the guideways previously described.

The jaw **20a** in this form has, adjacent the opposite side edges thereof, longitudinal crimping ribs **40***a*. One rib **40***a* is provided at each side of jaw **20***a*, to effect crimping of the terminal and wire.

Other shapes and arrangements of crimping projections can also be employed within the scope of the appended plans.

It is believed apparent that the invention is not neces-

sarily confined to the specific use or uses thereof described above since it may be utilized for any purpose to which it may be suited. Nor is the invention to be limited to the specific construction illustrated and described, since such construction is only intended to be illustrative of the principles, it being considered that the invention comprehends any minor change in construction that may be permitted within the scope of the appended claims.

What is claimed is:

1. A device for crimping together a terminal and wire comprising a generally U-shaped yoke; a stem threadedly engaged in the bight of the yoke; a generally V-shaped jaw carried by and extending transversely between the legs of the yoke and formed with crimping projections facing inwardly of the yoke; and a second jaw swivelly connected to the stem and formed substantially to a V-shape, the second jaw being arranged oppositely to the first jaw and including crimping projections facing toward the first jaw, said yoke and first jaw being formed with guide grooves for holding the first jaw against rotation during movement thereof toward and away from the second jaw, said first jaw having elongated openings receiving the ends of the second jaw, thus to define between the jaws a generally diamond shaped aperture in which the terminal and wire are disposed during the crimping thereof, said apertures being progressively reduced in area responsive to adjustment of the second jaw toward the first jaw, the guide grooves of the yoke extending longitudinally of the legs of the yoke and the guide grooves of the first jaw being formed in the walls of said openings of the first jaw and constituting extensions of the guide grooves of said legs, said second jaw being formed with tongues at opposite ends thereof slidably engaging in the guide grooves of the yoke and first jaw.

2. A device for crimping together a terminal and wire comprising a generally U-shaped yoke; a stem threadedly engaged in the bight of the yoke; a generally V-shaped jaw carried by and extending transversely between the legs of the yoke and formed with crimping projections facing inwardly of the yoke; and a second jaw swivelly

connected to the stem and formed substantially to a V-shape, the second jaw being arranged oppositely to the first jaw and including crimping projections facing toward the first jaw, said yoke and first jaw being formed with guide grooves for holding the first jaw against rotation during movement thereof toward and away from the second jaw, said first jaw having elongated openings receiving the ends of the second jaw, thus to define between the jaws a generally diamond shaped aperture in which the terminal and wire are disposed during the crimping thereof, said apertures being progressively reduced in area responsive to adjustment of the second jaw toward the first jaw, the guide groves of the yoke extending longitudinally of the legs of the yoke and the guide grooves of the first jaw being formed in the walls of said openings of the first jaw and constituting extensions of the guide grooves of said legs, said second jaw being formed with tongues at opposite ends thereof slidably engaging in the guide grooves of the yoke and first jaw, said second jaw being hinged at one end to one of the legs of the yoke to swing into and out of position extending transversely of the yoke, the yoke including means on the other leg thereof engaging the first jaw in said position to fixedly connect the first jaw to the yoke.

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