Aug. 11, 1942. L. P. THRALL 2,292,552

CONNECTOR

Filed Sept. 5, 1941

Fig. 1.

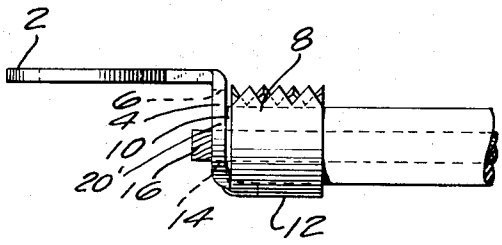


Fig 2.

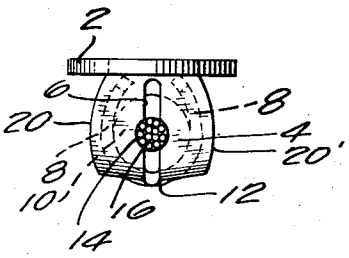
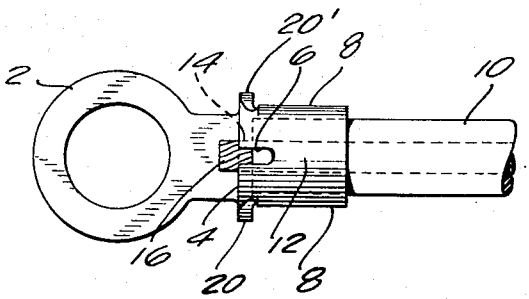


Fig. 3.



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CONNECTOR

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2 Claims. (Cl. 173—269)

This application relates to connectors for removably attaching electric wires to binding posts and the like.

It is an object of the present invention to provide a connector which may be stamped out from a piece of sheet metal. It is another object to provide a connector which may be quickly and easily attached to the wire with only a pair of pliers, and will provide a good electrical and mechanical connection. It is another object of this invention to provide a connector which is capable of good service while subjected to mechanical vibrations. It is another object to divide the mechanical stress, in the case of insulated wire, between the insulating covering and the conductor wire, so that neither will be required to carry the entire pull on the wire. It is another object to provide a connector to which, if desired, the wire may readily be soldered, but which will be fully operative without soldering.

Further objects and advantages of my invention will be apparent from the following description and claims and the drawing, in which:

Figure 1 is a side elevation of a connector made in accordance with my invention;

Figure 2 is an end elevation of the same connector showing the conductor wire projecting through; and

Figure 3 is a top elevation of a connector as shown in Figures 1 and 2.

Referring first to the figures, I have shown a form of my connector in which the connector portion 2 is a simple lug or circular part. This is probably the most common form of connector, but it may be of any desired form. This lug member 2 is integrally connected by an intermediate portion 4 to a sleeve portion having wings 8 to grip the insulating covering on the wire. This intermediate portion 4 is shown disposed transversely, advantageously, although not necessarily, at approximately right angles to the part 12 forming the root of the wings 8. One important feature of my invention is to have the intermediate portion 4 substantially wider than the root portion 12 of the wings 8.

In attaching this connector to an electric wire, first the insulation is stripped from the wire for a short distance, e. g., approximately an eighth of an inch. This stripped conductor 16, which is indicated in the drawing as being a stranded conductor, is then slipped through the hole 14, which is formed as a recessed part of the slot 6 in the intermediate portion 4, until the insulation material 10 lies between the wings 8 and abuts against the intermediate portion 4. With a pair of pliers the wings 8 are squeezed until they tightly engage the insulation material 10, and thus fix the wire in position. Then the sides 20, 20' of the intermediate portion 4 are grasped with the pliers or other compressing device and pressed together until the sides of the slot 6 are compressed together and the wire 16 is thereby securely held in the hole 14 and with tight electrical contact.

The advantage of having the intermediate portion 4 of wider width than ordinary considerations would require is now apparent. Instead of having interference between the wings 8 and the sides 20, 20' of the portion 4 when grasped by the pliers, the sides project so far beyond the wings 8 as to avoid such interference, and to make it possible to use an ordinary pair of square-jawed pliers for clamping the connector onto the wire.

It is very advantageous in this construction that the length of the slot 6 should be of such that it extends at each end substantially beyond the projection on the slot of surfaces 20, 20', which the pliers or other pressure applying means engage, so as to make it possible to produce a good connection. Advantageously also the sides 20, 20' are curved as shown so that the compressive force is concentrated more near the center of the slot than at its ends. The slot, of course, may be at a different angle, e. g., parallel to the lug 2, but with less advantage.

After the conductor is securely attached to the connector the mechanical and electrical connection between the two should be excellent, but if it is still desired to make an even more positive connection the ends of the wire 16 may be fanned out if a stranded conductor is used, or the end may be bent over if a solid conductor is used, and with or without such bending the conductor wire may be soldered to the connector terminal.

While my invention is specifically described here as applied to a lug for connecting to a binding post, it might equally well be applied to a connector for connecting two wires together, in which case instead of the lug another duplicate intermediate portion and winged portion might be used. Also the device of my invention may be made integrally with or affixed to a male as well as a female connector or to any other electrical part.

The wings, or ears, 8 are shown of the single type, but it is, of course, to be understood that the double or any other type might be used.

It is to be understood, of course, that the above specification and the figures are exemplary and it is intended that others skilled in the art shall

be enabled by this description and the drawing to modify the form of construction and apply the invention to other uses without departing from its spirit or scope, and it is my intention to include those in the scope of this application.

What I claim is:

1. A connector for attachment to an electric wire having a conductor and an insulating covering, said connector being formed from a flat piece of metal, and comprising a lug adapted to receive a binding post, an intermediate portion disposed at a right angle to the lug portion, and having a central slot running longitudinally of the metal of the connector and being enlarged near its center to receive the conductor of the electric wire, and a portion extending from one side of said intermediate portion and having wings adapted to engage the insulating covering of said electric wire, said connector being further characterized by having the intermediate portion wider in a direction transverse to said slot than the diameter of the wings, in the same direction when said wings are in their position for engaging said insulating covering, whereby the wire may be clamped into the intermediate portion by pressing the sides of said intermediate portion together with a pair of pliers and without interference from said wings.

2. A connector for attaching to an electric wire having a conductor and an insulating covering, said connector comprising a lug to receive a binding post, and a clamp to grip the insulating covering of the wire, and an intermediate portion having a slot therethrough, said slot being enlarged at one point to receive the conductor in said electric wire, and the sides of said intermediate portion opposite the enlarged portion of said slot being extended in an outward curve beyond and free from other parts, so that when gripped between the jaws of a pair of flat-jawed pliers said intermediate portion may be clamped onto the conductor by a compressing force on the sides which will be concentrated near said enlarged portion of the slot.

LEROY P. THRALL.