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H. R. KOUGH

2,707,274

ELECTRICAL TERMINAL AND TERMINAL ASSEMBLY

Filed June 27, 1951

FIG. 1.

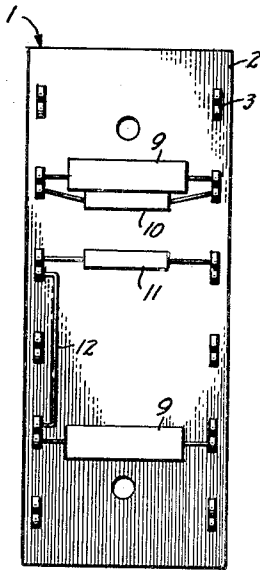


FIG. 2.

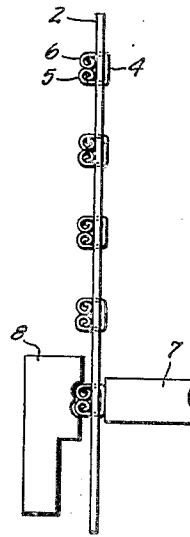


FIG. 3.

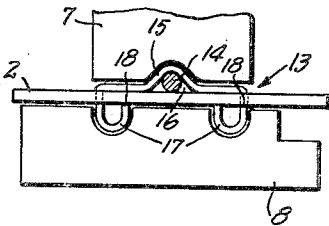
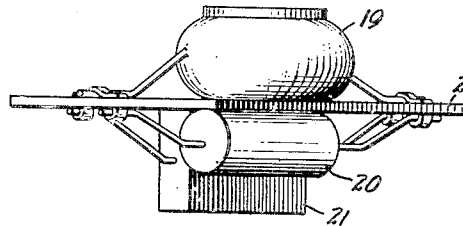


FIG. 4.



INVENTOR
H. R. KOUGH
BY *Philip M. Bolton*
ATTORNEY

1

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ELECTRICAL TERMINAL AND TERMINAL ASSEMBLY

Harold R. Kough, Pompton Plains, N. J., assignor to International Telephone and Telegraph Corporation, a corporation of Maryland

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1 Claim. (Cl. 339—198)

This invention relates to electrical terminals and terminal assemblies for electrical components including provisions for mounting said components, and to the method of making same.

In the making of modern electrical equipment much use is made of terminal assembly strips. These strips consist usually of a sheet or plate, such as of insulating material, on which are mounted a plurality of electrical terminals. Wires from the various electrical components are inserted in said terminals and soldered or otherwise connected thereto, oftentimes the components themselves being mounted on the strips. Such terminal assembly strips have been usually made of a sheet of molded material, such as for example, rubber, or a synthetic resin, into which the terminals have been molded or to which the terminals are manually attached by means of screws passing through parallel holes in the sheets. Both of these methods of making terminal assembly strips involve operations manual or otherwise, and resulting costs, which become quite substantial when large quantities of such strips are employed.

An object of the present invention is to provide terminal assembly strips and a method of making same, in which a deformable wire is driven through a plain sheet of the material and bent to form a wire-receiving terminal mounted on said sheet. This wire may be, for example, a staple.

Another object of the present invention is the provision of a new and improved terminal assembly strip of the type hereinabove described, and a method of making same, having through connections from one side of the strip to the other.

According to a feature of the present invention, there is provided a terminal strip assembly and method of making same comprising a wire with a bridge portion and two prongs, the prongs piercing and passing through a sheet of material and being curled towards their ends to form loops adapted to receive a wire.

According to a further feature of the present invention the aforementioned terminal has the bridge portion thereof which lies on one side of the sheet and abuts the sheet, raised in the form of substantially an arc, providing an opening therein adapted to receive a conductive wire for fastening thereto.

The above mentioned and other features and objects of this invention and the manner of obtaining them will become more apparent and the invention itself will be best understood by reference to the following description of an embodiment of the invention taken in conjunction with the accompanying drawings wherein:

Fig. 1 is a plan view of a terminal assembly strip embodying the present invention.

Fig. 2 is an end view of the strip shown in Fig. 1 together with the means for forming the terminal.

Fig. 3 is a side schematic view of a portion of a terminal strip together with the apparatus for forming the terminal, and

Fig. 4 is a perspective view of a terminal strip, using terminals of the type shown in Fig. 3 together with additional electrical components mounted thereon.

Referring now to the embodiment of the invention shown in Figs. 1 and 2 the terminal assembly strips,

2

designated generally by the numeral 1, are made of a sheet of material, in most cases of insulation, which material is capable of being penetrated by staples. This material may be, for example, compressed paper, for example of a type called fishpaper, or other suitably treated fibrous material or the like. The terminals, designated by the numeral 3, are arranged on opposite sides of the paper strip. It will be seen that the terminals as shown in Fig. 2 each consist of a bridge portion 4 arranged on one side of the insulating sheet 2 with prongs 5 extending from opposite ends of the bridge parallel to each other and passing through the sheet, the prongs being curled inwardly towards the sheet and each other on the opposite side of the sheet to form loops 6, each loop having an opening within which wires, which are to be connected to the terminal strip, may be inserted and soldered, as shown, for example, in Fig. 1. It will be noted that the prongs are curled to such an extent inwardly towards each other that they form closed loops and the parallel sides 5 of the prongs are tangential to these loops 6.

The assembly strips may be made by using a stapling machine and the terminals themselves may be made of metallic staples of suitable conductive material such as for example a cadmium coated metal staple. The staples are fed from a stapling machine having a head 7 which drives the prongs of the staple through the sheets where the prongs strike an anvil or die 8 and are turned gradually inward toward each other. It will be noticed that the loops lie entirely within the boundaries defined on the outside by the two parallel portions of the prongs. This is the preferred arrangement for the loops as it uses less space, although other positions of the loops may be used, if desired. The terminals are secured in position partially by the friction of the prongs passing through the sheet and partially by the grip of the loops on the opposite side thereof. Various electrical components such as condensers 9 in Fig. 1, tubular condenser 10, and resistor 11 may be mounted on the strip and held in place merely by the stiffness of the wires connecting these components to the terminals. Also, as shown by connection 12 one terminal may be easily connected with the other since there are at least two loops to each terminal, as shown in the embodiments of Figs. 1 and 2.

In Fig. 3 a modified form of terminal 13 is shown. The stapler head has a fixed round member 14 which raises a portion 15 having an opening 16 in which a wire may be inserted to provide a connection on one side of the sheet to the loops on the other side of the sheet. The arcuate portion 15 is formed as the staple is driven through the sheet by the pressure against the fixed round member 14 on the bridge of the staple, the driving member of the stapling machine being correspondingly curved. The loops 17 in the embodiment shown in Figs. 3 and 4 are not curled as much as they are in the embodiment of Figs. 1 and 2, the loops being merely turned back to form substantially a semicircle with the point of each prong abutting against the sheet as indicated at 18.

A typical assembly using the type of terminal illustrated in Fig. 3 is shown in Fig. 4 in which a toroidal coil 19 is mounted on top of the strip and has its leads passing through the openings 16 in two terminals 13. On the opposite side of the strip, a tuning capacitor 20 and a tubular base capacitor 21 both have their stiff leads secured in the loops 17 of both terminals 13.

While I have described above the principles of my invention in connection with specific apparatus, it is to be clearly understood that this description is made only by way of example and not as a limitation to the scope of my invention.

What is claimed:

An electrical terminal assembly comprising a sheet of

3

insulating material, a wire staple having a bridge portion
and two prongs extending through said sheet, the ends
of said prongs being curled towards the sheet to provide
loops substantially in the form of a semi-circle with the
point of each prong abutting against said sheet, whereby
each loop is adapted to receive a wire, and said bridge
being flat with a raised portion intermediate the ends
thereof formed to receive a wire therein on one side of
said sheet opposite to the side on which said loops are
formed.

5

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