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2,131,584

SWITCHING DEVICE

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FIG. 1

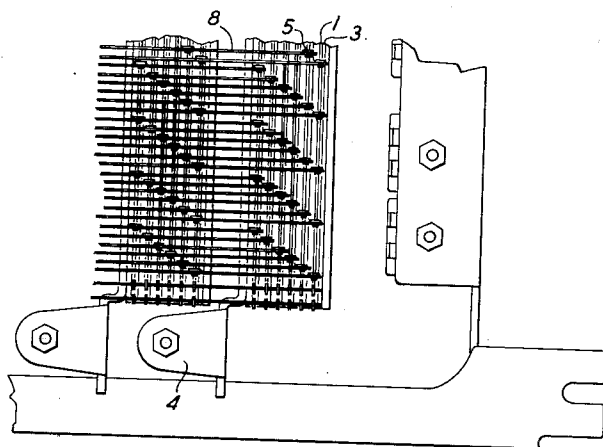


FIG. 3

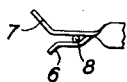


FIG. 2

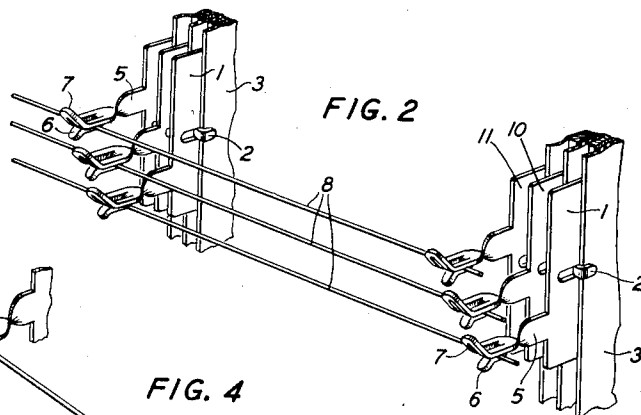
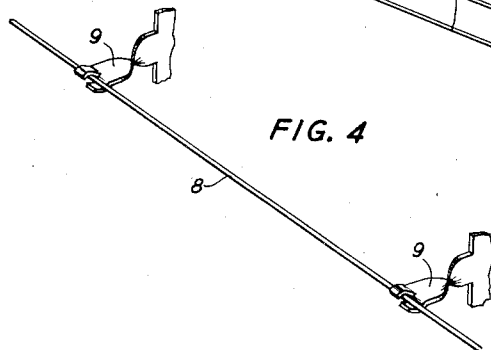


FIG. 4



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SWITCHING DEVICE

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6 Claims. (Cl. 175—306)

This invention relates to telephone equipment and has for its object to facilitate the erection of such equipment.

In cross-bar switches of the type disclosed in Patent 2,021,329, granted to J. N. Reynolds November 19, 1935, the multiple terminal elements are provided with soldering terminals which project in parallel rows from the back of the switch. These soldering terminals are equipped with notched lugs which are staggered horizontally so as to permit them to be connected together by a bare wire multiple occupying a plurality of horizontal planes. This arrangement has the difficulty that the soldering of the inner wires is somewhat awkward and the soldering surface is so narrow as to be somewhat unreliable.

In accordance with the present invention, the multiple terminal elements of a cross-bar switch are equipped with soldering terminals which are staggered vertically. The individual terminals are likewise twisted at right angles to the plane of the multiple terminal, are divided into a plurality of sections and the sections bent in opposite directions. The bare wires may therefore be inserted between the bent sections, which grip them mechanically, affording a considerable contacting surface and hold the bare wires in a single vertical plane so that each wire is as accessible as the next and if desired the entire bank may be soldered by a single dipping operation.

The invention will be more clearly understood from a consideration of the description accompanying the drawing in which:

Fig. 1 shows a fragment of a switch bank;

Fig. 2 shows in detail a part of the bare wire multiple;

Fig. 3 shows a side view of a single soldering terminal; and,

Fig. 4 shows an alternative form of soldering terminal.

Referring first to Fig. 2, the individual contact or terminal element 1 is fastened by a lug 2 to a strip of insulating material 3. Each insulating strip 3 carries a plurality of contacting elements, and a plurality of insulating strips with the attached contact elements are assembled to form a set of terminals controlled by a single magnet such as magnet 4. The assembled arrangement is indicated in Fig. 1.

Each contact element has a soldering terminal 5 which terminal is twisted at right angles to the plane of the contact elements as shown in Figs. 2 and 4. In the embodiment shown in Fig. 2, a central tongue 6 is struck up from the solder-

ing terminal and the remaining loop 7 is turned upward to act as a guide to the bare wires. The tongue 6 is bent away from the loop 7 to form with the loop 7 a clip in which the bare wire 8 is gripped. The outer end of the tongue 6 is also bent downward to guide the wire 8 into the clip. Fig. 3, showing a side view of the soldering terminal, gives a better idea of the form of the clip. This particular embodiment has the additional advantage that in case it is necessary to attach exterior wiring to the switch, the loop 7 provides a convenient means for so doing.

It is to be noted that soldering terminals 5, 10 and 11 are formed on their respective contact elements at different levels so that the soldering terminals occupy a staggered relationship in a vertical direction and permit the multiple wires 8 to occupy a single vertical plane.

An alternative arrangement is shown in Fig. 4. In this case the soldering terminal 9 is also twisted at right angles to the plane of the contact element, but the end of the terminal is bifurcated and the two sections thus formed are bent into two opposite arcs. This arrangement provides an extended soldering surface and would lend itself particularly well to soldering by a dipping process.

What is claimed is:

1. A switching device comprising a plurality of sheet metal multiple terminal units, each having a soldering terminal formed integrally therewith and extending therefrom in the plane thereof, the end of each terminal being twisted through a right angle, bifurcated and the two sections thus formed bent in opposite directions to form a clip, and multiplying wires engaged in and gripped by said clips.

2. A switching device comprising a plurality of sets of sheet metal multiple terminal units each having a soldering terminal formed integrally therewith and extending therefrom in the plane thereof, the end of each soldering terminal being twisted through a right angle, the soldering terminals of adjacent terminal units being staggered vertically, corresponding terminals of each set lying in the same horizontal level and continuous straight bare wires connecting all terminals of a level, the wires of all levels lying in the same vertical plane.

3. A switching device comprising a plurality of sets of sheet metal multiple terminal units each having a soldering terminal formed integrally therewith and extending therefrom in the plane thereof, the end of each soldering terminal being twisted through a right angle, and

the twisted end thereof having a tongue struck up therefrom, said tongue and the surrounding portion of said terminal forming an open clip, the clips of adjacent terminal units being staggered vertically, the corresponding clips of each set lying in horizontal alignment, and a continuous bare multipling wire slidably engaged in and connecting all of the clips in one horizontal level, the wires of all levels lying in the same vertical plane in preparation for soldering.

4. A switching device comprising a plurality of sets of sheet metal multiple terminal units each having a soldering terminal formed integrally therewith and extending therefrom in the plane thereof, the end of each soldering terminal being twisted through a right angle, and the twisted end thereof having a tongue struck up therefrom, said tongue and the surrounding portion of said terminal forming an open clip, the clips of adjacent terminal units being staggered vertically, the corresponding clips of each set lying in horizontal alignment with the opening of the clip parallel to said alignment, and a continuous bare multipling wire slidably engaged in and connecting all of the clips in one horizontal level, the wires of all levels lying in the same vertical plane in preparation for soldering.

5. A switching device comprising a plurality of sets of sheet metal multiple terminal units each having a soldering terminal formed integrally therewith and extending therefrom in the

plane thereof, the end of each soldering terminal being twisted through a right angle and the twisted end thereof bifurcated with the two sections thus formed bent in opposite directions to form an open clip, the clips of adjacent terminal units being staggered vertically, the corresponding clips of each set lying in horizontal alignment, and a continuous bare multipling wire slidably engaged in and connecting all of the clips in one horizontal level, the wires of all levels lying in the same vertical plane in preparation for soldering.

6. A switching device comprising a plurality of sets of sheet metal multiple terminal units each having a soldering terminal formed integrally therewith and extending therefrom in the plane thereof, the end of each soldering terminal being twisted through a right angle and the twisted end thereof bifurcated with the two sections thus formed bent in opposite directions to form an open clip, the clips of adjacent terminal units being staggered vertically, the corresponding clips of each set lying in horizontal alignment with the opening of the clip parallel to said alignment, and a continuous bare multipling wire slidably engaged in and connecting all of the clips in one horizontal level, the wires of all levels lying in the same vertical plane in preparation for soldering.

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