

June 14, 1932.

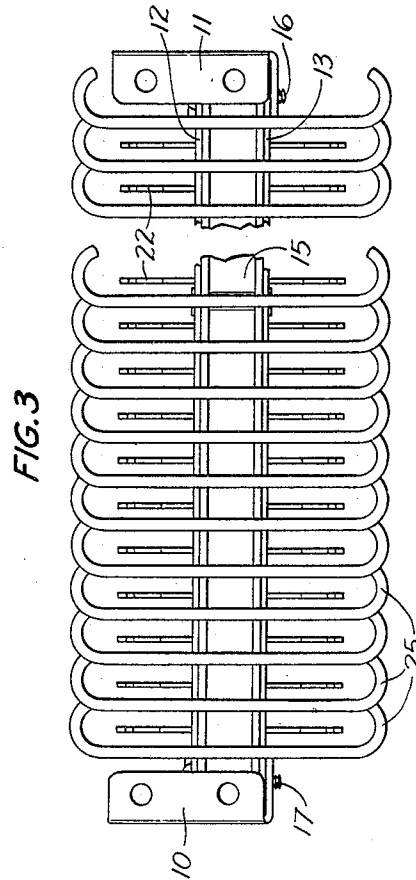
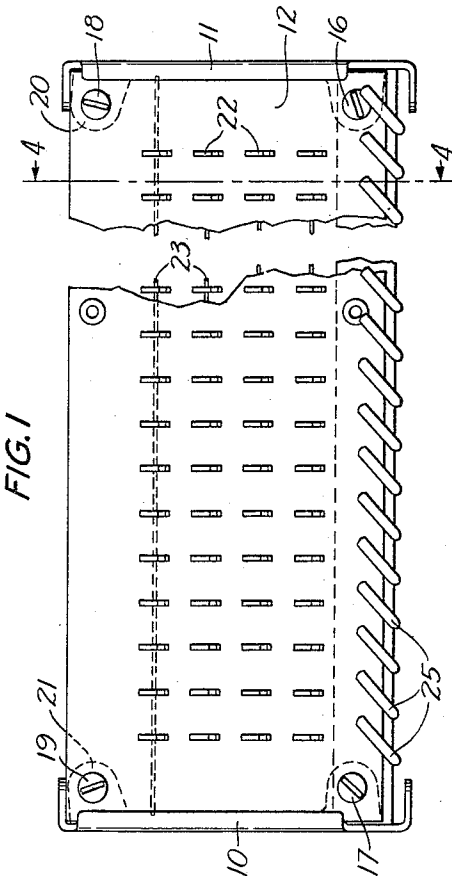
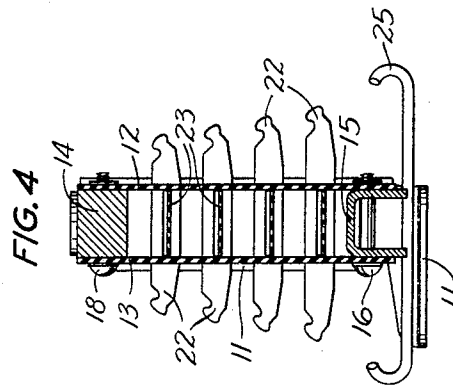
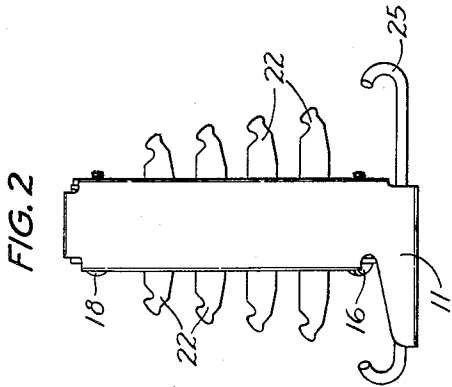
H. W. GOFF

1,862,571

TERMINAL STRIP

Filed April 13, 1929

2 Sheets-Sheet 1



INVENTOR
H. W. GOFF
BY *John A. Hall*
ATTORNEY

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FIG. 6

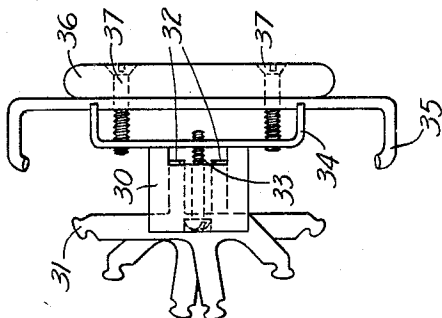


FIG. 5

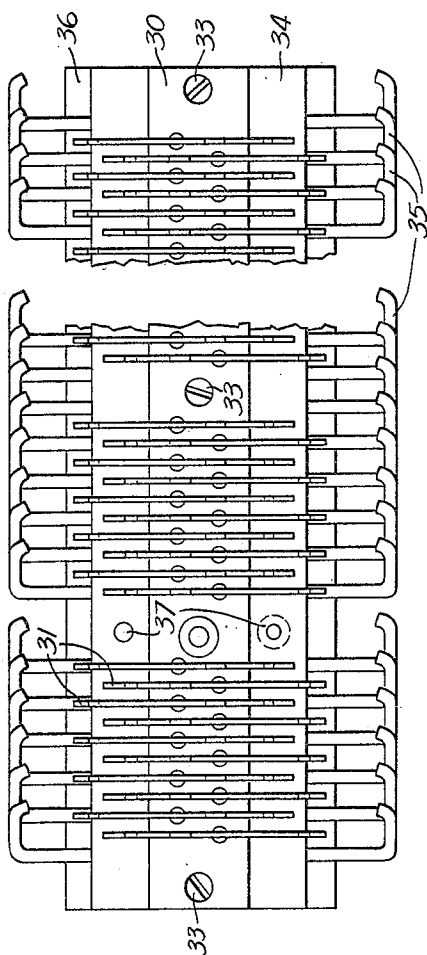
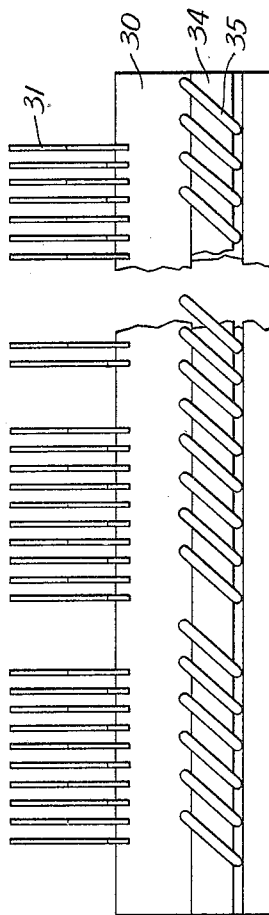


FIG. 7



INVENTOR
H. W. GOFF
BY *John Attall*
ATTORNEY

UNITED STATES PATENT OFFICE

HAROLD W. GOFF, OF GREAT NECK, NEW YORK, ASSIGNOR TO BELL TELEPHONE LABORATORIES, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK

TERMINAL STRIP

Application filed April 13, 1929. Serial No. 354,792.

This invention relates to terminal strips or junction blocks employed to interconnect electrical circuits.

In the telephone field, it is well known that for each subscriber's line terminating at an exchange, provision must be made for accommodating a plurality of wires which are employed in the establishment of telephone connections. In most instances such wires terminate in what is known as a distributing frame from which connections are made to a manual switchboard or a mechanical switching device as the case may be, and in order to provide a methodical and orderly arrangement of such wires, terminal blocks of various descriptions have been devised.

A common method of providing connecting means for telephone wires is to imbed a plurality of contact members in a plastic mass of insulating material, with their ends protruding and providing some means for attaching the wires to these ends. Upon solidification, the contacts become rigidly set in position. Another well known method is to provide what is sometimes called a "pile-up", which comprises alternate layers of contact elements and insulating material, usually in the form of blocks or long narrow strips, and means such as screws or the equivalent, for securing the layers together to form a unitary structure. Usually, such terminal blocks are provided with a base board having a plurality of perforations, one or more perforations being allotted to the row of contacts immediately above. A cable end may then be spread or "fanned", and the individual wires passed through the perforations nearest the contact members to which they are to be connected.

It is the object of this invention to improve the equipment heretofore employed in interconnecting telephone wires.

This object is attained in accordance with a feature of the invention by the provision of a box-like construction, two of the opposite sides of which are of insulating material and are provided with a plurality of rows of perforations. These perforations permit the passage of contact members therethrough, a pair of oppositely disposed perforations ac-

commodating and supporting the same contact member.

Another feature of the invention resides in the provision of a locking element comprising a thin strip of insulating material which passes within the box-like structure and through slots in the individual contact members of each row. By this means the contact members or terminals are firmly secured in position and may only be removed, for repair or replacement upon the withdrawal of the locking strip. This arrangement also provides for the distribution over the entire side of the box, of any undue strain that may be applied to any one of the contacts. This strain distribution permits the use of a relatively delicate side construction.

A still further feature of the invention is embodied in a novel fanning strip which comprises a plurality of heavy wire strips or bars secured to a channel or trough-like mounting plate which constitutes the base of the box and extends over its entire length. The wire strips, extending from either side of the box and perpendicularly to its longitudinal axis, are provided with overlapping hooked ends. This fanning strip permits an orderly distribution of the wires and prevents them from being pulled away from the terminal block. The superiority of this fanning strip over that having holes, is in that time is saved by having only to lay the wires in between the bars, instead of having to thread them through holes.

The invention will be readily understood from the following detailed description made with reference to the accompanying drawings in which Fig. 1 is a front elevation of a terminal block embodying the features of this invention;

Fig. 2 is a side elevation of the terminal block shown in Fig. 1;

Fig. 3 is a bottom plan view of the same block;

Fig. 4 is a section taken along the line 4—4 in Fig. 1 and looking in the direction indicated by the arrows;

Fig. 5 is a top plan view of another type of terminal block to which the fanning strip

which is a feature of applicant's invention is particularly adapted;

Fig. 6 is a side elevation of the terminal block shown in Fig. 5;

Fig. 7 is a front elevation of the same.

Referring to Figs. 1 to 4 inclusive, the two standards or side pieces 10 and 11 are provided with a series of flanges which serve to confine the main body portion of the terminal block and also to support it.

The two insulating strips 12 and 13, made preferably of phenol fibre are separated by the spacer 14 at their upper ends and by the channel or trough-like member 15 at their lower ends. Screw bolts 16 and 17 are provided at each end of the structure to secure the lower ends of the strips 12 and 13 to the channel member 15, whereas screw bolts 18 and 19 are provided to secure the upper ends of the strips 12 and 13 and the spacer 14 to the bracket flanges 20 and 21 respectively of the side pieces 11 and 10.

The insulating strips 12 and 13 which constitute two sides of the box-like structure are each provided with a plurality of rows of slots, the slots in each row on strip 12 aligning with the slots in corresponding rows in strip 13. Each pair of oppositely disposed slots serves as a mounting for a contact element 22, each of which is so stamped out as to be provided with a centrally located slot and a projection at each end to which wire ends may be readily secured.

A locking strip 23 made of insulating material, passes through the contact slots of each row of contacts. The insulating strip 23 serves to secure the terminals in position and prevents them from being accidentally pulled away from the block when any undue strain is applied to them. It will also be observed that by the use of this locking strip, any excessive pull that may be applied to a contact will be distributed over the entire length of one side 12 or 13, depending upon in which direction the pull is exerted, instead of being confined to the immediate vicinity of the terminal. This permits a more delicate side structure to be employed.

Welded or secured in any other suitable manner across the edges of the channel member 15 are a plurality of equally spaced thin metallic bars or heavy wire strips 25. The bars 25 and their mounting element 15 constitute a fanning strip. The ends of the bars 25 are hooked and lie in overlapping positions, so that wires to be secured to the terminals, can be passed between the hooked ends but cannot readily come out.

A cable end, the wires of which are to be secured to the terminals 23 of this block, is brought towards the centre of the block and "fanned" or spread, the wires assigned to the terminals in a certain vertical row being passed between the hooked ends of the bars 25 nearest the desired vertical row, and car-

ried upward, each to its respective terminal for soldering.

In the event that a terminal is to be removed the screw bolts such as 16 and 18 at one end of the block are removed and the support 11 pulled away from the rest of the structure. Then the locking strip individual to the horizontal row of terminals in which the terminal to be removed is located is withdrawn. The withdrawal of this locking member renders all the terminals in that row easily removable. The faulty terminal may then be withdrawn and replaced by a new one. The locking strip is again threaded through the terminal slots in the row and the side piece 11 replaced and screw bolts 16 and 18 made fast.

It is evident from the foregoing description that applicant has devised a simple, compact, durable and practical terminal strip which provides for an orderly distribution of wires and in which the terminals are securely locked but are readily removable for replacement or repair.

Reference is now made to Figs. 5, 6 and 7. A mounting block 30 made of any suitable insulating material is provided with two rows of holes or perforations, tapped in any desirable manner, with the holes in one row in staggered relation to the holes in the other row. The terminal elements 31 are each provided with a projection which fits into one of the holes in the mounting plate 30. This projection passes through the hole and a tab on the end thereof is bent over tightly to engage the underside of the mounting block 30 as indicated by 32 in Fig. 6. Each terminal element 31 is rigidly secured to the block 30 in this manner.

The block 30 is also tapped at regular intervals to permit the passage of screw bolts 33 which engage the channel member 34 and secure the block 30 thereto.

Across the edges of the channel member 34 a plurality of thin metal bars or heavy wire strips 35 are welded, or secured in any other suitable manner, which, as in the previous description, are provided with overlapping hooked ends to serve as a fanning strip.

The entire assembly, so far described, is secured to a wooden mounting base 36 by means of screw bolts 37 which engage the channel member 34.

What is claimed is:

1. In a terminal block, a box-like structure having two of its opposite sides of insulating material each side having a plurality of rows of slots, terminal members supported in oppositely disposed slots in said sides of insulating material and an insulating locking member for each row of terminal members engaging each terminal in a row and locking them in their respective positions.

2. In a terminal block, a box-like structure having two of its opposite sides of insulating

- material, each side having a plurality of rows of slots, a plurality of apertured terminal members each supported in a pair of oppositely disposed slots in said sides of insulating material and locking means passing through the apertures in said terminal members for locking said terminal members in their respective positions. 70
3. In a terminal block, a box-like structure having two of its opposite sides of insulating material, each side having a plurality of rows of slots, a plurality of apertured terminal members each supported in a pair of oppositely disposed slots in said sides of insulating material, locking means passing through the apertures in said terminal members for locking said terminal members in their respective positions, and an end piece removable from said structure to permit the removal of said locking means. 80
4. In a terminal block, a box-like structure having two of its opposite sides of insulating material each side having a plurality of rows of slots, a plurality of apertured terminal members each supported in a pair of oppositely disposed slots in said sides of insulating material, and an insulating strip engaging the inner surfaces of said insulating sides throughout its length and passing through the apertures in said terminal members for locking said members in their respective positions. 85
5. In a terminal block, a box-like structure having two of its opposite sides provided with vertical rows of slots, terminal members supported in oppositely disposed slots in said sides, a spacing element to which said sides are secured at their lower ends and a plurality of fanning bars having overlapping hooked ends mounted on said spacing element, each of said bars being disposed immediately below one of said vertical rows of slots. 90
6. In a terminal block, a box-like structure having two of its opposite sides provided with vertical rows of slots, terminal members supported in oppositely disposed slots in said sides, a channel member to which said sides are secured at their lower ends and a plurality of fanning bars having overlapping hooked ends, each welded across the edges of said channel member, at a point immediately below one of said vertical rows of slots. 95
7. A fanning strip comprising a base and a plurality of fanning bars having overlapping hooked ends secured to said base and disposed coordinately in both directions thereto. 100
8. In combination, a terminal block consisting of a box-like structure having two of its opposite sides provided with vertical rows of slots, terminal members supported in oppositely disposed slots in said sides and a fanning strip removably associated with said terminal block as a unit comprising a channel member to which said sides are secured at one end and a plurality of fanning bars having overlapping hooked ends each welded across the edges of said channel member at a point immediately below one of said vertical rows of slots. 105
- In witness whereof, I hereunto subscribe my name this 12th day of April, 1929. 110
- HAROLD W. GOFF. 115
7. A fanning strip comprising a base and a plurality of fanning bars having overlapping hooked ends secured to said base and disposed coordinately in both directions thereto. 120
8. In combination, a terminal block consisting of a box-like structure having two of its opposite sides provided with vertical rows of slots, terminal members supported in oppositely disposed slots in said sides and a fanning strip removably associated with said terminal block as a unit comprising a channel member to which said sides are secured at one end and a plurality of fanning bars having overlapping hooked ends each welded across the edges of said channel member at a point immediately below one of said vertical rows of slots. 125
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