

J. N. REYNOLDS.
 TERMINAL STRIP.
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1,287,100.

Patented Dec. 10, 1918.

Fig. 1.

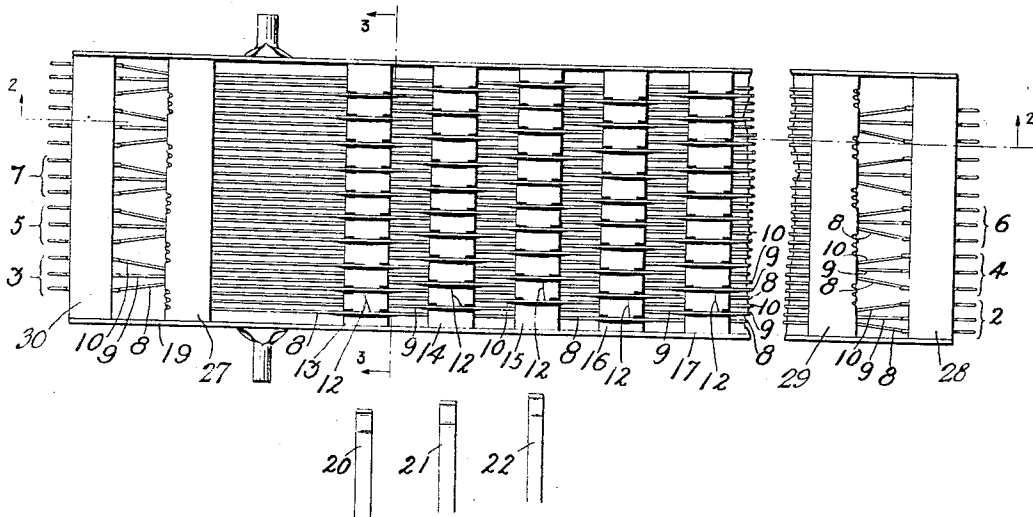


Fig. 2.

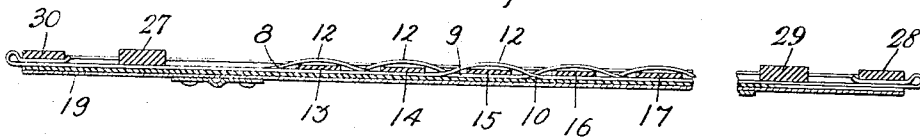


Fig. 4.

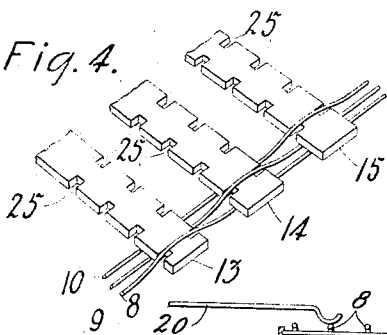
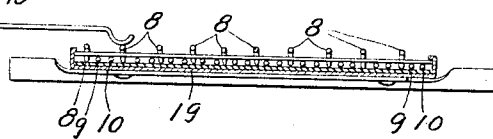


Fig. 3.



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UNITED STATES PATENT OFFICE.

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TERMINAL STRIP.

1,287,100.

Specification of Letters Patent.

Patented Dec. 10, 1918.

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To all whom it may concern:

Be it known that I, JOHN NEWBERRY REYNOLDS, a citizen of the United States, residing at Greenwich, in the county of Fairfield, and State of Connecticut, have invented certain new and useful Improvements in Terminal Strips, of which the following is a full clear, concise, and exact description.

This invention relates to multiple contact members for electric switches of the movable contact type.

The object of this invention in general is to provide a multiple contact member which is economical to manufacture, compact in structure, whereby it will utilize the minimum amount of space for the maximum number of contacts, and one which will have a long life and be efficient in its operation.

In accordance with the general features of this invention, there is provided a multiple contact member composed of a plurality of longitudinally extending conductors insulated from each other and divided into sets. Each conductor of each set has a projecting portion constituting a brush-contacting surface, the projecting portions of adjacent conductors of the same set being longitudinally separated from each other, the projecting portion of corresponding conductors of the several sets being in the same transverse line of the member. More specifically, the contact member of this invention comprises a plurality of wires between which are woven strips of insulating material to displace portions thereof to form brush-contacting surfaces, the spacing and weaving of the wires and insulating strips being such as to divide said wires into sets of contacts which may be successively engaged by brushes movable transversely of the contact member. The web or fabric composed of the wires and insulating strips is secured to a mounting or base plate by means of insulating material which leaves the contact portions of the wires exposed.

In the drawings, Figure 1 is a face view, with parts broken away of a contact member embodying the features of this invention;

Fig. 2 is a longitudinal sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a transverse sectional view taken on line 3—3 of Fig. 1; and

Fig. 4 is a perspective of a set of the insulating strips.

As shown in the drawings, 2, 3, 4, 5, 6 and

7 represent groups of conductors or wires, each group comprising three conductors 8, 9 and 10, and each conductor being provided between its ends with a plurality of displaced portions 12, 12. The ends of the wires of sets 2, 4, 6, etc. are secured to a strip 27, the remaining ends of said wires being passed through a fanning strip 28, looped in a direction parallel to the plane of the wires, and brought back through the strip 28 as shown. In a similar manner the ends of the wires of the alternate sets 3, 5, 7, etc., are secured to a strip 29, the remaining ends being passed through a fanning strip 30. The displaced portions 12, 12 are produced by weaving insulating strips 13, 14, 15, 16, 17, etc., between the separate strands of wire in such a manner that the adjacent wires 8, 9 and 10 of each set will have their displaced portions 12, 12 longitudinally separated from each other, while the corresponding wires of each set will be displaced in the same line transverse of the strip. Thus the conductors 8, 8 of each of the sets 2, 3, 4, 5, 6 and 7 will pass over the insulating strip 13 under the insulating strips 14 and 15 and over the insulating strip 16, then under the next two succeeding insulating strips and over the third and so on to the end of the member for as many contact surfaces on the conductors 8, 8 as are desired. In the same manner, the conductors 9, 9 of each of the sets 5, 6 and 7 will be displaced by passing over the strip 14, under the strips 15 and 16, over the strip 17 and under the next two succeeding strips. Likewise, the conductors 10, 10 of each of the sets 5, 6 and 7 will be displaced by passing over the strip 15, under the strips 16 and 17, and over the next succeeding strip. The insulating strips 13, 14, 15, etc., are each provided at their edges with a plurality of notches 25, 25 as clearly shown in Fig. 4, these notches serving to seat the conductors or wires, and maintain them separated. These notches 25, 25 are provided in the strips only at the portions where the conductor passes over them; that is, the strip 13 will be notched only at the portions where the conductors 8, 8 pass over it, the strip 14 at the portions where the conductors 9, 9 pass over it, and the strip 15 at the portions where the conductors 10, 10 pass over it. The web of contact members and insulating strips is preferably secured to a

mounting plate 19 of suitable design and material through the agency of heat hardenable insulating material, in such a manner as to leave the displaced portion of the wires bare.

While the contact member of this invention is shown as comprised of sets of contacts with three contacts to a set adapted to be traversed by brushes 20, 21 and 22, it is quite obvious that these sets may be comprised of more or fewer conductors and more or fewer brushes used for contacting therewith.

The use of wires for terminal members has a distinct advantage over punched and formed terminal members in the cost of material and labor, and the operation of weaving the insulating strips between the wires and securing the woven fabric to a supporting member by the application of a plastic insulating material which is subsequently hardened, is a simple operation and adds considerably to the labor cost reduction in producing contact members. Moreover, by using insulating strips of just sufficient thickness to displace sufficient amounts of the conductor to provide a good contacting surface, there is produced a very thin and compact strip which results in a considerable saving in space occupied by switching mechanisms in which a number of such contact members may be employed.

What is claimed is:

1. A multiple contact member for electric switches comprising a plurality of longitudinally arranged parallel wires insulated from each other and grouped into sets, each wire of each set having a displaced portion constituting a brush-contacting surface, the displaced portion of the wires constituting a set being longitudinally separated from each other, and the displaced portion of corresponding wires of the different sets being in the same transverse line of the member.

2. A multiple contact member for electric switches comprising a plurality of longitudinally arranged rigidly fixed wires insulated from each other and grouped into sets, means for displacing portions of each of said wires at a plurality of places between its ends to form brush-contacting surfaces, the separate wires of each set having such displaced portions longitudinally separated from the displaced portions of the adjacent wires of the same set, and the corresponding wires of each set having their displaced portions in the same longitudinal position of the member.

3. A multiple contact member for electric switches comprising a plurality of longitudinally extending rigidly fixed wires comprising a plurality of sets of contacts, and means woven between said wires to displace portions thereof to form brush-contacting

surfaces, said brush-contacting surfaces on the wires of a set being longitudinally displaced and on the wires of corresponding sets being placed in rows transverse to said member.

4. A multiple contact member for electric switches comprising a plurality of longitudinally extending wires comprising a plurality of sets of terminals and strips of insulating material to displace portions of said wires into brush-contacting positions, said displaced portions of wires of the same set being longitudinally displaced and of the wires of corresponding sets being placed in rows transverse to said member.

5. A multiple contact member for electric switches consisting of a plurality of longitudinally extending wires comprising a plurality of sets of terminals and strips of insulating material woven between the wires transversely of the lay of said wires to displace portions of said wires to form brush-contacting surfaces thereon, the weaving and spacing of said wires and insulating strips being such that the brush-contacting surfaces of wires of the same set are longitudinally separated from each other but the contacting surfaces of corresponding wires of each of the sets are in the same transverse line.

6. In a multiple contact member for electric switches, a supporting plate, a fabric comprising a plurality of longitudinally extending bare wires and interwoven insulating strips, and insulating material for securing said fabric and said plate together with portions of the bare wires exposed.

7. In a multiple contact member for electric switches, a supporting plate, a fabric comprising a plurality of longitudinally extending bare wires and interwoven insulating strips, and hardened insulating material interposed between said fabric and said plate for securing said fabric and said plate together with portions of the bare wires exposed.

8. A multiple contact member for electric switches comprising a fabric of bare wires forming the warp and insulating strips forming the woof.

9. A multiple contact member for electric switches comprising a fabric of bare wires forming the warp and rigid insulating strips forming the woof.

10. In a multiple contact member for electric switches, a plurality of longitudinally extending bare wires and interwoven insulating strips provided with notches for seating the wires and maintaining them separated.

11. In a multiple contact member for electric switches, a plurality of longitudinally extending bare wires comprising a plurality of sets of circuit terminals and strips of insulating material woven between the wires transversely of the lay of the wires to dis-

place portions of said wires to form brush-contacting surfaces, each of said insulating strips being notched at the portion where it displaces a wire to seat said wire and maintain it separated from adjacent wires.

12. A multiple contact member for automatic switches comprising a plurality of wires, each constituting a plurality of contacts, and a fanning strip located at one end of said member, each of said wires being passed through said fanning strip and bent over at one end to provide a reinforced conductor securing portion.

13. A multiple contact member for auto-

matic switches comprising a plurality of insulated wires located in the same plane, each of said wires constituting a plurality of contacts, and a fanning strip located at one end of the contact member, the ends of said wires being passed through said fanning strip, looped in a direction perpendicular to the plane of the wires and brought back through said fanning strip.

In witness whereof, I hereunto subscribe my name this 8th day of November, A. D. 1916.

JOHN NEWBERRY REYNOLDS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."