(No Model.)

U. H. BALSLEY.

ELECTRICAL CONDUCTOR.

No. 417,402. Patented Dec. 17, 1889.

FIG. 1.

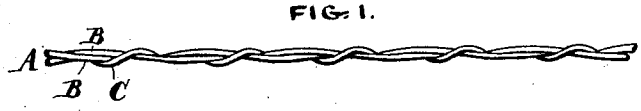


FIG. 2.

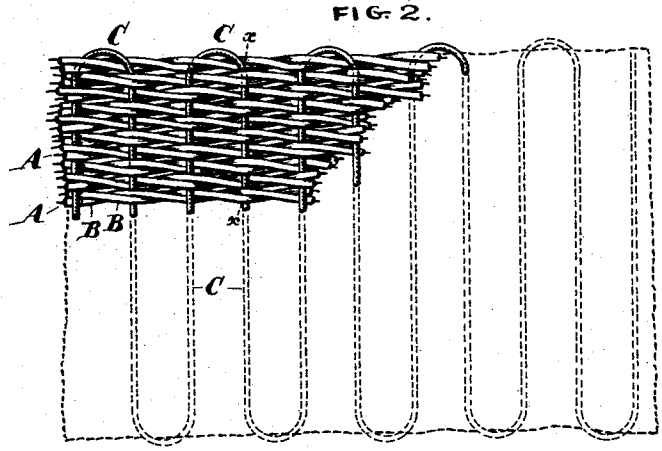


FIG. 3.

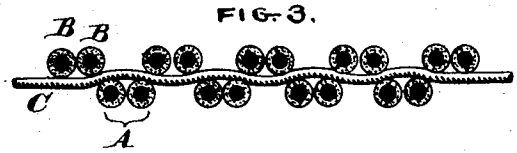
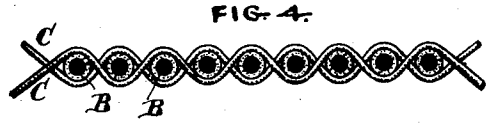


FIG. 4.



WITNESSES:

Henry Drury

David B. Williams

INVENTOR:

Upton H. Balsley

By his atty

UNITED STATES PATENT OFFICE.

UPTON H. BALSLEY, OF PHILADELPHIA, PENNSYLVANIA.

ELECTRICAL CONDUCTOR.

SPECIFICATION forming part of Letters Patent No. 417,402, dated December 17, 1889.

Application filed June 8, 1889. Serial No. 313,577. (No model.)

To all whom it may concern:

Be it known that I, UPTON H. BALSLEY, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Electrical Conductors, of which the following is a specification.

My invention has reference to electrical conductors; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to construct a compact form of multiple conductor fabric which shall be suitable for wiring switch-boards for central-station telephonic work, house-wiring, conduit-wiring, &c.

In carrying out my invention I weave, in conjunction with a flexible weft-cord or fine wire, a series of warps consisting of insulated wires preferably twisted in pairs and so that each pair constitutes a warp.

In the drawings, Figure 1 is an elevation of one edge of my improved multiple conductor fabric. Fig. 2 is a plan view of same. Fig. 3 is a cross-section on part of same on line *x x*, and Fig. 4 is a similar view of a modification of same.

A are the warps, each of which is composed of the two insulated wires B B, constituting a pair. These wires B B of a pair are preferably twisted together to destroy as far as possible the induction effect so detrimental in telephony. These two wires of a pair may, if desired, form a single metallic circuit. These warps are tied together by the weft-cord C, which is woven very loosely and so that the transverse portions come at a considerable distance apart, for the twofold purpose of making the conductor fabric flexible in its transverse direction and to prevent needless bending of the insulated wires. The flexibility in the transverse direction is very important, as it enables the fabric in switch-board use to adjust itself automatically to the limited space into which it is crowded, and also permits being rolled up into a cable. The employment of cord in this connection is more desirable than fine wire, because it is cheaper, more flexible, and better adapted to the purpose, since it is of itself an insulator. However, fine flexible wire might be used, if desired. If the wefts were not separated at considerable distance, as shown in Fig. 2, the warps would be badly bent out of a straight line, would put the insulation under a needless strain, would make the conductor thick and unwieldy, and would not allow easy connection with the wires. With a fabric conductor of this kind it is possible to employ thousands of wires in a very small space and yet be able to follow out at once the circuit of any wire for repair or connection.

In Fig. 4 the conductors are shown as single and not twisted.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. As an article of manufacture, a multiple conductor consisting of a series of warps, each formed of a pair of insulated wires arranged side by side in mechanical contact with each other and bound together into a flat web by weft-threads interlacing with said warps without passing between and separating the wires of each pair forming said warps.

2. As an article of manufacture, a multiple conductor fabric having a series of warps of insulated wires in pairs and twisted upon each other tied together into a flat fabric by a flexible weft the transverse portions of which are widely separated.

3. As an article of manufacture, a multiple conductor consisting of a series of warps arranged side by side and in combination with a binding-weft of flexible textile material interwoven with said warp-conductors, so as to bind them into a flat fabric.

4. As an article of manufacture, a multiple conductor consisting of a series of warps arranged side by side and each composed of two insulated wires twisted upon each other, in combination with a binding weft-cord interwoven with said warp-conductors, so as to bind them into a flat fabric.

In testimony of which invention I have hereunto set my hand.

UPTON H. BALSLEY.

Witnesses:
R. M. HUNTER,
ERNEST HOWARD HUNTER.