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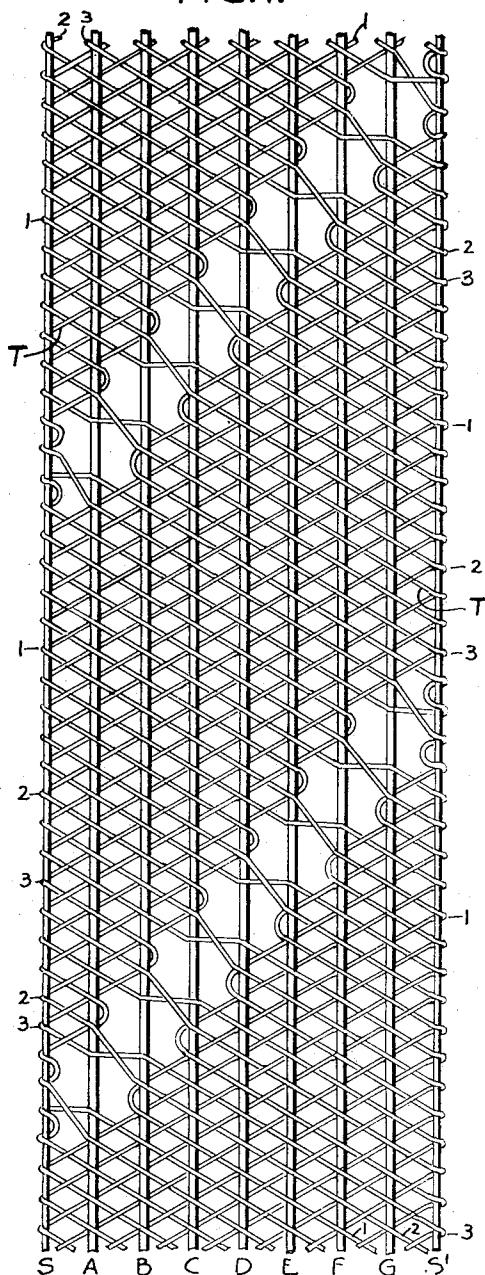
1,941,121

RIBBON CABLE

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2 Sheets-Sheet 1

FIG. 1.



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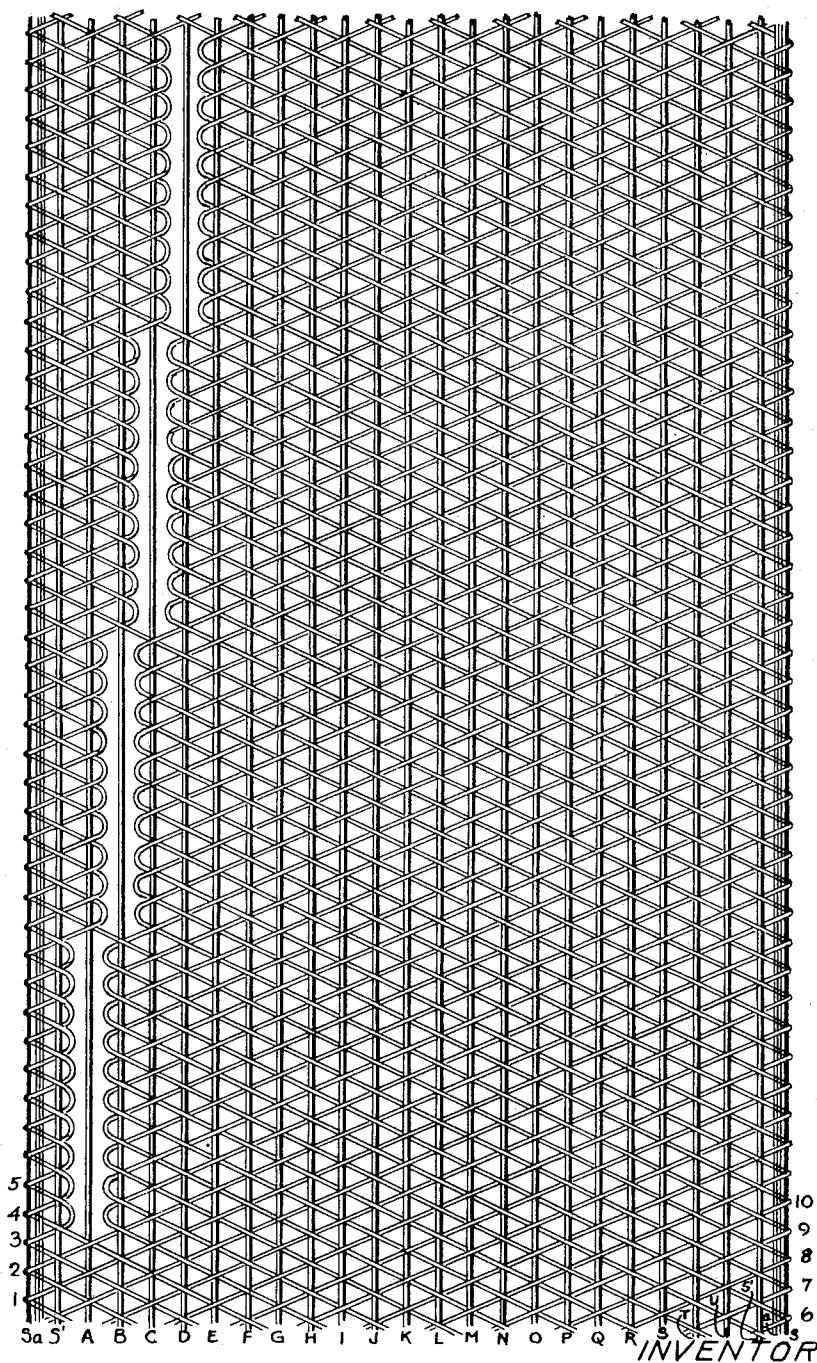
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FIG. 2.



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RIBBON CABLE

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and in Great Britain October 17, 1928

7 Claims. (Cl. 173-264)

This invention relates to improvements in ribbon cable and more particularly to cables of the type used in automatic telephone installations for the multiple connections between selecting
5 switches.

Such a cable generally consists of a number of wires laid side by side and held together by weaving so that the wires are insulated from each other. The weaving, which is done in a loom,
10 exposes the wires in such a way that a diagonal line of exposed portions of the wires is left across the cable at set intervals. Thus by bending the ribbon on the diagonal lines the exposed wires will coincide with the selector terminals and
15 they can be connected to the latter by soldering.

An object of the present invention is to form a ribbon cable by braiding or knitting, as distinguished from weaving. This method possesses the advantage that the speed of operation of a
20 braiding or knitting machine is much in excess of what can be attained with the weaving machines heretofore used for the production of this type of cable and also that a very satisfactory cable is produced in which the insulating strands
25 are tightly interlaced with the conductors.

According to a feature of the invention the braiding or knitting threads are alternately on different sides of the conductors. The threads extending in one direction are on one side of
30 the conductors, whereas the threads extending in the opposite direction are on the other side of the conductors and are interlaced with the first mentioned braiding or knitting threads between the conductors.

35 According to another feature of this invention portions of said conductors are left bare in a periodically recurring order. These bare portions are obtained by the braiding or knitting operation and are arranged to form a diagonal
40 line across the cable.

Further objects and features of this invention will appear from the following detailed description of two forms of the invention and the method of manufacturing same, given in connection with
45 the accompanying drawings.

In the drawings, Fig. 1 represents one form of the improved ribbon cable according to this invention, whereas Fig. 2 shows a modified form of the improved ribbon cable.

50 Referring now to Fig. 1, this represents schematically a portion of a seven conductor braided ribbon cable showing periodically recurring bare portions of the metallic conductors, these being denuded of insulation and intended for soldering.

55 The vertical lines A, B, C, D, E, F and G repre-

sent the metallic conductors and the two outside wires S and S' are selvages. The diagonal lines T represent the insulating cotton or silk threads, individual threads being designated 1, 2 and 3
60 respectively.

The method of braiding the ribbon cable is as follows:

Beginning from the lower right hand corner of this figure, it is to be noted that the threads 1, 2 and 3 lie diagonally over the conductors G, F, E,
65 D, C and B and pass alternatively over and under the other cotton or silk threads. Between the conductors B and A, the two threads 2 and 3 cross each other and continue their course diagonally towards the left.
70

On the other hand, thread 1, before reaching the conductor A, passes between the two threads 2 and 3 and under conductor B, and continues its course to the right or in the direction opposite to the one it originally followed. It now passes
75 under the conductors C, D, E, F and G and alternatively over and under the braiding threads.

Each time that the cotton or silk threads reach the selvage wires S and S', they turn around the same and continue their course in the opposite
80 direction, excepting that the threads, which passed initially over the conductors, now pass under them and vice-versa.

The object of this method of braiding is to leave periodically recurring denuded portions of
85 the conductors at certain places on the ribbon cable as well as to obtain a tightly adhering insulation on the conductors.

Fig. 2 represents schematically a part of a ribbon cable and shows four of the periodically recurring bare portions of metallic conductors, these being denuded of insulation and intended
90 for soldering. The vertical lines A, B, C, D, E, . . . U represent metallic conductors, the lines S and S' indicate the metallic selvage wires; the
95 lines a show the cotton or silk selvages; the threads 1, 2, 3, 4, etc. are the braiding threads.

The method of braiding the ribbon cable of Fig. 2 is as follows:

The braiding threads lie alternately over and
100 under the conductors. Each time that the braiding threads reach the selvages S and a, they turn around the same and continue their course in the opposite direction; but the threads which passed initially over the conductors now pass
105 under them and vice-versa.

The braiding threads, when reaching the conductor preceding the one which must be denuded, turn around the first mentioned conductor and continue their course in the opposite direc-
110

tion. For every ten braiding threads, or more if the bare portion of the conductor must be longer, a thread going from the right to the left, instead of turning around the conductor preceding the conductor to be denuded, continues its course to the left. The object of this method is to leave periodically recurring denuded portions of the conductors at certain places, as well as to obtain a tightly adhering insulation on the conductors.

It will be understood that the above described methods are given by way of examples only, as two manners of carrying the invention into effect. The invention however is not limited to this precise arrangement and other methods of braiding or knitting the conductors and the insulating threads may be adopted.

What is claimed is:

1. A ribbon cable comprising a plurality of substantially parallel metallic strands spaced from one another and insulated by threads, said threads forming a braiding with one another substantially enveloping said strands and said threads being periodically turned back in their directions across said plurality of strands to form bared portions at intervals along each strand spaced by several threads.

2. A ribbon cable in accordance with claim 1, in which each of said threads pass in a layer on one side of said strand in being run in one direction across the ribbon cable, then turn to pass in a layer on the opposite side of said strands in being run in the other direction, the interbraiding of the threads in the opposite layers taking place at crossing points occurring between said strands.

3. A ribbon cable comprising a plurality of strands of conducting material longitudinally disposed in said cable, a continuous braiding of insulating threads for interlacing said strands into a ribbon, a plurality of series of closed meshes of said braiding enveloping each of said conductors to insulate it, and open spaces in said braiding at the places between adjacent series

of closed meshes for exposing widely separated portions of each of said strands.

4. A ribbon cable in accordance with claim 3, in which the threads of the braiding forming the closed meshes are turned for braiding in the opposite direction by turning about a strand adjacent to a strand having an exposed portion in one of said open spaces, and in which a thread adjacent to one of said open spaces continues in its direction of braiding past said space to interconnect the series of closed meshes on opposite sides of said open space.

5. A ribbon cable comprising a plurality of longitudinally disposed conducting strands, a braiding for spacing and insulating said strands from one another, said braiding being formed of insulating threads braided together to form a comparatively close mesh and periodically turned back in their directions across said strands to form comparatively open interruptions in said mesh at regularly recurring intervals to expose a plurality of widely separated portions of said conducting strands.

6. A ribbon cable in accordance with claim 5, in which said interruptions are formed by reversing the direction of the braiding threads by turning them about the strand adjacent to the strand exposed over a distance along said adjacent strand substantially equal to the length of the portion of said strand to be exposed.

7. A method of braiding a ribbon cable which comprises laying a plurality of longitudinal conducting strands, passing a plurality of insulating threads on opposite sides and in opposite directions across said strands to form a braiding separating and substantially enclosing said strands, and at regularly recurring intervals turning the direction of braiding of some of said threads to form an interrupted braiding with regularly recurring openings in which said strands are left exposed.

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