(No Model.)

C. E. SCRIBNER.

ELECTRIC SWITCHBOARD.

No. 486,506. Patented Nov. 22, 1892.

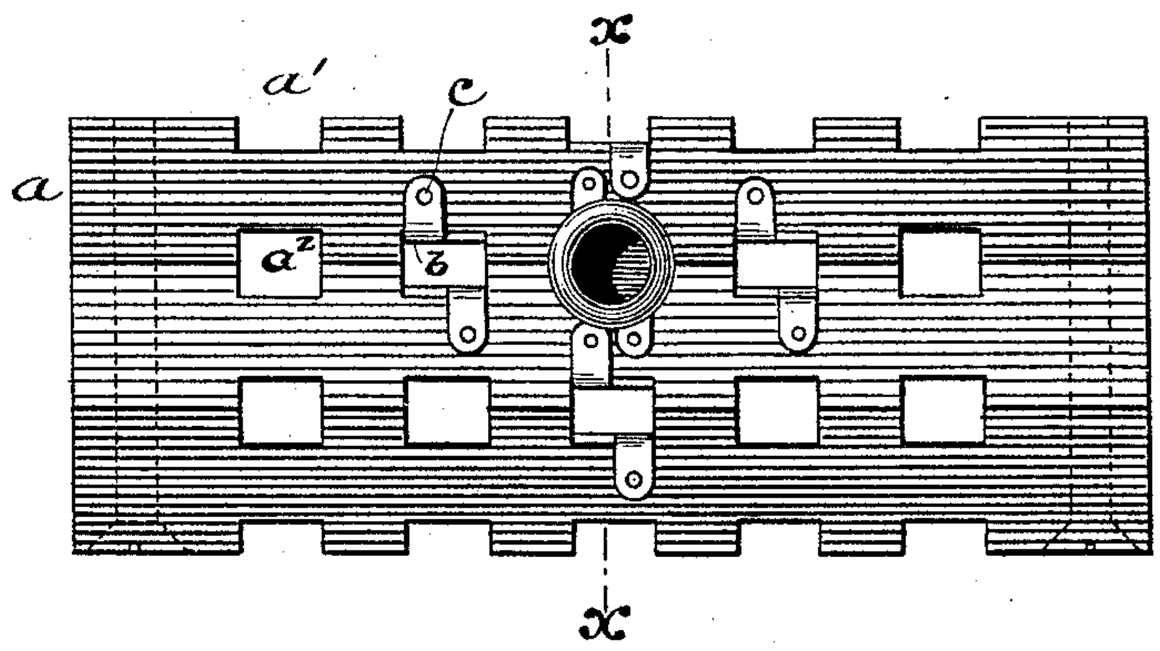

Fig. 1.

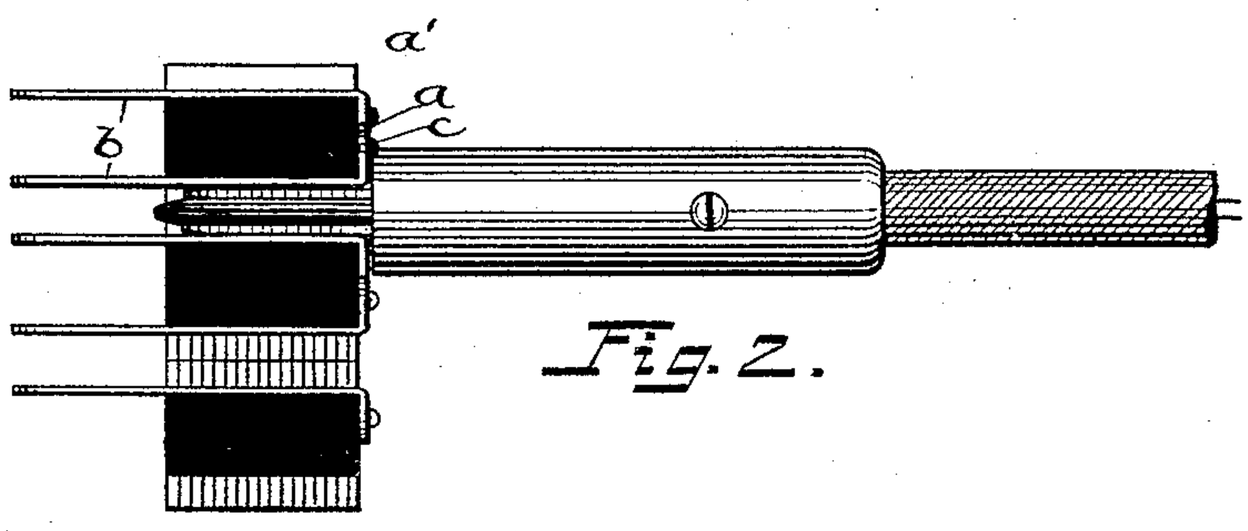

Fig. 2.

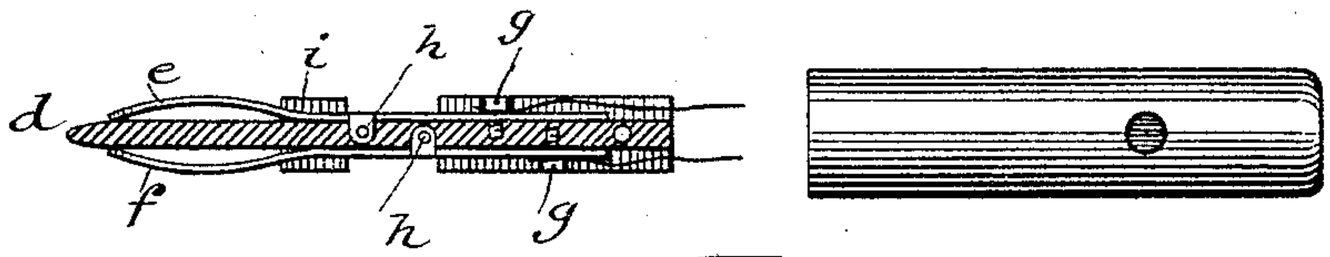

Fig. 3.

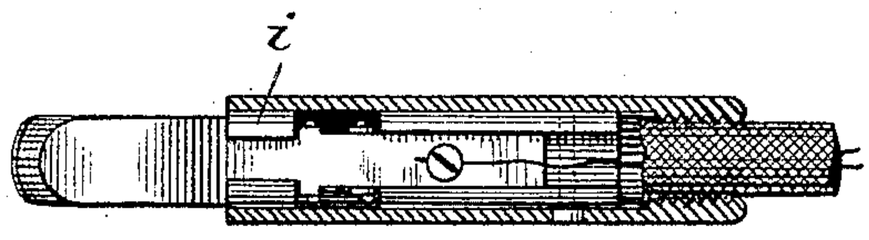

Fig. 4.

Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES E. SCRIBNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

ELECTRIC SWITCHBOARD.

SPECIFICATION forming part of Letters Patent No. 486,506, dated November 22, 1892.

Application filed February 7, 1890. Serial No. 339,596. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. SCRIBNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Electric Switchboards, (Case No. 215,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to the construction of electric switchboards of the class used in telephone-exchanges; and its object is to provide socket connections for many lines within small compass and loop-plugs adapted to be inserted in said sockets for the purpose of looping two or more lines together. I do not deem it necessary to show or describe the circuits of the telephone-lines, since my invention relates only to the switchboard itself and the loop-plugs adapted to be used in connection therewith.

Heretofore longitudinally-divided tubes have been used for switch connections upon switchboards and a test-plug provided with two terminals has been used in connection therewith, the test-plug being of such construction that when pressed against a double-terminal socket one terminal of the test will be connected with one half of the tube and the other terminal with the other half thereof, so as to loop a signal-instrument between the different halves of said tube when the test-plug is thus applied.

My invention herein consists, first, in building up the switchboard of rubber strips or of strips of similar insulating material, the different strips being milled out or notched along the edges thereof, these notches being provided each with a metallic connection and the strips being laid up together one above the other to form rows of plug-sockets.

My invention consists, second, in a loop-plug having two terminals consisting of springs placed on opposite sides of an insulating support or frame and each of said springs being connected with a different strand of a flexible cord, each loop-plug being adapted to be inserted in a socket of the switchboard to form connection with the different metallic contact-pieces of the socket into which it is inserted.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a front elevation of a switchboard embodying my invention, a loop-plug being shown inserted in one of the sockets thereof. Fig. 2 is a sectional view thereof upon line $x\,x$ of Fig. 1. Fig. 3 is a detailed view showing the springs of the loop-plug and their respective connections leading to the different strands of the flexible cord, the handle thereof being removed. Fig. 4 is an elevation of one side of the loop-plug, the handle thereof being shown in section.

Like parts are indicated by similar letters of reference throughout the different figures.

In Figs. 1 and 2 are shown three rubber strips. These strips, as strip a, are milled out on opposite sides thereof to form notches a', a^2, &c., on opposite sides thereof. Into each of these notches is placed a plate b of metal, these plates being each provided with a lug or ear which is bent over upon the face of the strip and secured thereto, preferably, by a pin c. The strips thus formed are secured together, as shown, so that notches in the contiguous strips will come opposite with one another to form a row of plug-holes, these plug-holes being rectangular and preferably of greater width than height, as shown, so that a plug can be inserted only in one position. The loop-plug is made to conform to the shape of the sockets or plug-holes, and consists of a central piece or strip d of insulating material, upon opposite sides of which are mounted the springs $e\,f$, these springs being secured on opposite sides of the central piece by means of screws g and pins h, said pins being inserted through ears provided upon the edges of the springs and bent over, as shown. The springs are thus secured to the central insulating-piece and insulated from one another. I preferably provide stops i upon the central piece for aiding in holding the springs in place and for limiting the distance to which a plug can be inserted in a socket.

It will be observed that the metallic pieces forming the different sides of the sockets are symmetrical in form, each piece projecting at

the rear of the board in the form of a spring to afford ready means of connecting the telephone-wire therewith. The front portion of each spring is bent over upon the face of the switchboard and secured thereto, preferably, by a pin *h*. In making up the strip punchings are attached to the rubber strip. The two punchings which form the adjacent sockets—as, for example, the socket in which the plug is inserted in Fig. 1 and the socket immediately below the same—have their ears bent toward each other and pinned to the rubber strip side by side, as shown, but insulated from each other. By this plan of attaching the punchings to the rubber strip the sockets may be placed closer together and space thereby economized.

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

1. The switchboard consisting in the combination of strips of insulating material provided with corresponding notches, metallic pieces being mounted in said notches and said strips being placed together to form rows of rectangular plug-holes, each having two metallic connections on opposite sides thereof, substantially as and for the purpose specified.

2. A loop-plug consisting of the central insulating-piece, two springs mounted on opposite sides thereof, being bow-shaped and insulated from one another, said springs being each connected with a different strand of a flexible cord, and a stop for limiting the distance to which said plug may be inserted in the plug-hole, the said central insulating-piece extending between the outer ends of said springs, substantially as and for the purpose specified.

3. A switchboard consisting in the combination of strips placed one above the other, each strip containing notches corresponding to notches in the strip contiguous thereto, the corresponding notches being provided with metallic pieces and each pair of notches forming a rectangular socket, substantially as and for the purpose specified.

4. A telephone-exchange switchboard provided with rectangular plug-holes, the contiguous sides thereof being unequal and two opposite sides thereof being provided with metal contact-faces, in combination with loop-connecting plugs having elastic spring-contact pieces or points, said elastic spring-contact pieces or points being bow-shaped and corresponding in shape to said plug-holes and adapted to be inserted therein only in one position to close the contact-pieces of the plugs to the metallic faces of the plug-holes, the pair of contact-pieces of each plug being maintained separated and insulated from one another, substantially as and for the purpose specified.

In witness whereof I hereunto subscribe my name this 19th day of November, A. D. 1889.

CHARLES E. SCRIBNER.

Witnesses:
GEORGE P. BARTON,
C. G. HAWLEY.