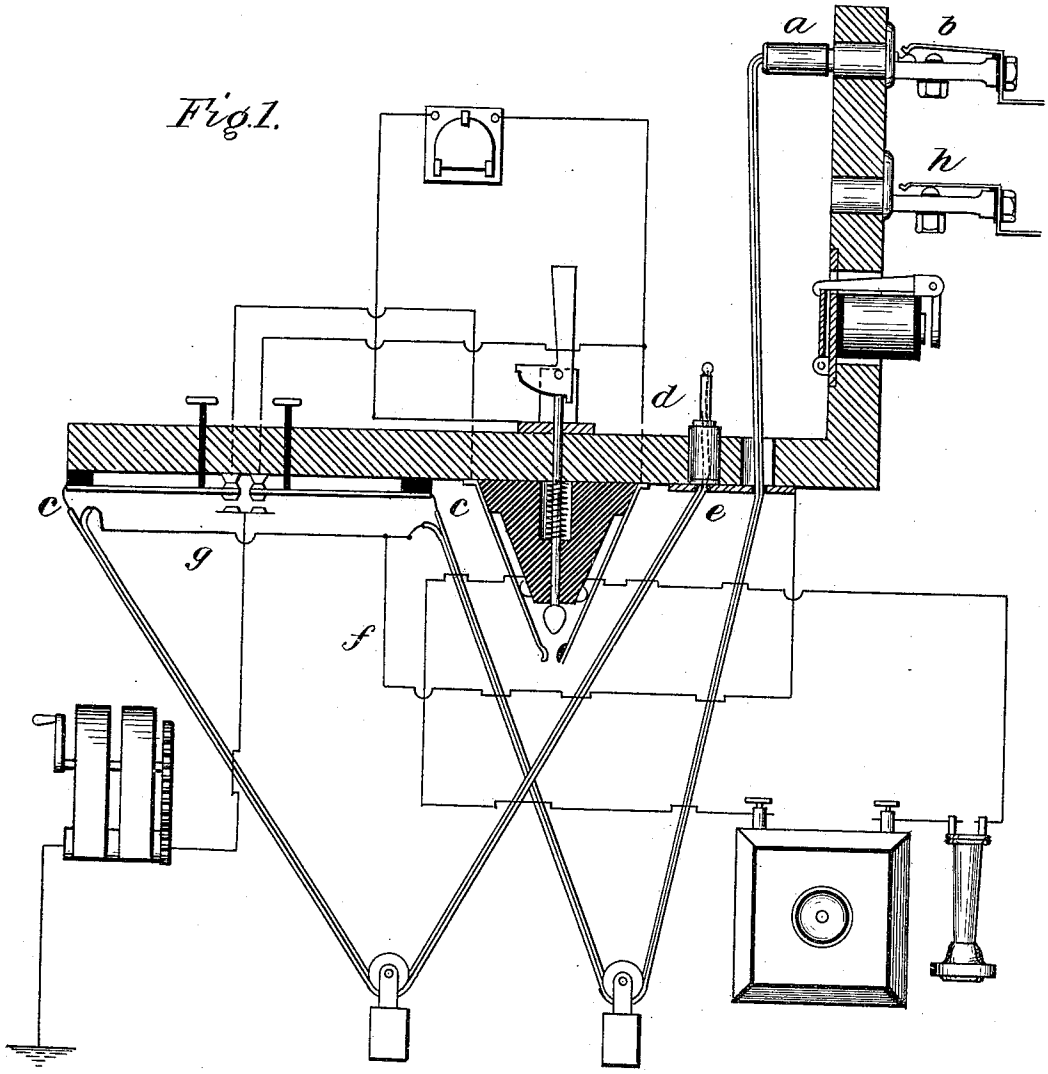
(No Model.)

C. E. SCRIBNER.

CIRCUIT FOR DOUBLE STRANDED TELEPHONE SWITCH BOARD CORDS.

No. 381,430. Patented Apr. 17, 1888.

Fig. 1.



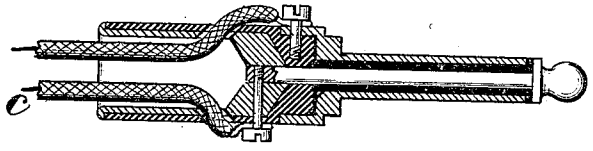


Fig. 2.

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Inventor.
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By George P. Barton,
Att'y.

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UNITED STATES PATENT OFFICE.

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

CIRCUIT FOR DOUBLE-STRANDED TELEPHONE-SWITCH-BOARD CORDS.

SPECIFICATION forming part of Letters Patent No. 381,430, dated April 17, 1888.

Application filed December 27, 1886. Renewed November 21, 1887. Serial No. 255,768. (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 Circuits for Double-Stranded Telephone-Switch-Board Cords, (Case 117,) 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 loop-plugs and double-stranded cords for connecting metallic circuits of a telephone-exchange.

My invention may be used in telephone-exchanges using single boards or in connection with multiple-switch-board systems. When one loop-plug of a pair is inserted in the spring-jack of a line, one portion of the line is connected with the tip of the plug and the other portion with the metallic insulated sleeve upon the shank of the plug, and thus to the different strands of the flexible cord.

The object of my invention is to provide a connection between the different strands of the cord which will be closed when either plug of the pair is inserted in a spring-jack, so that the metallic circuit will be completed through the strands.

My invention consists in providing a metallic heel for each of the loop-plugs of the different pairs and a metallic plate for each pair, upon which said heels normally rest in contact. This metallic plate is permanently connected to the strand of the pair of cords with which the sleeves of the plugs of the pair are connected. In this manner I am able to provide a circuit from one strand of the cord to the other, which will be closed when either plug is inserted in a spring-jack for the purpose of answering the call of the subscriber.

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

Figure 1 is a sectional view of the switch-board, upon which are placed two spring-jacks for different telephone-lines, and a pair of loop-plugs and other key-board apparatus embodying my invention. Fig. 2 is a detail sectional view of the loop-plug, the metallic point being connected with the heel and with one strand of the cord, and the insulated sleeve upon the shank being connected with the other strand.

We will consider Fig. 2 as a detail of the plug *a*, inserted in spring-jack *b*. The insulated spring of switch *b* is shown connected with the tip of the plug, while the frame of the switch is connected with the metallic sleeve. The spring and frame may be considered as the terminals of the different sides or branches of a single metallic circuit. The strand *c* of the pair of cords connected with the tips of the plugs *a* and *d* and the heel-piece of plug *d* is shown resting upon a metallic plate, *e*. From this metallic plate *e* connection *f* is made to the other strand, *g*, of the pair of cords. Thus, when plug *a* is inserted in a switch, *b*, the circuit may be traced from the insulated spring of said switch to the tip of plug *a*, thence by strand *c* through the telephone and to the tip of plug *d*, thence to the metallic plate *e*, and thence by connection *f* to strand *g*, and by strand *g* back to the metallic sleeve of plug *a*, and thence to the frame of switch *b*, thus completing the circuit between the terminals of the telephone-line through the operator's telephone. A similar circuit will be formed when plug *a* rests upon plate *e* and plug *d* is inserted in a spring-jack switch. When plug *d* is inserted in another spring-jack, as spring-jack *h*, it is evident that the two metallic circuits will be looped together through the strands of the cord, the branch *f* between plate *e* and strand *g* remaining open. I thus provide a satisfactory connection between the two strands of a pair of cords when one of the plugs only is inserted in a spring-jack, and when the two plugs are inserted in different spring-jacks the metallic circuits of said spring-jacks will be looped together. It is evident that the circuit will be modified in different ways without departing from my invention. For example, the heel of the plug may be connected with the sleeve instead of the tip, in which case the strand of the cord connecting sleeve to sleeve of the plugs would include the telephone and the branch *f* would connect with the strand connecting together the two tips.

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

1. In a switch-board apparatus, the combination, with a pair of loop-plugs and their

pair of double-stranded cords, of a metallic plate, *e*, in connection with one of said strands, and the heel-pieces of said plugs connected with the tips, respectively, whereby when one plug is inserted in a spring-jack the two strands will be connected together, substantially as described.

2. The combination, with the two terminals of a spring-jack, *b*, of a loop-plug inserted therein, and the strands of a flexible cord and another loop-plug, with its heel, which connects with its tip resting upon a metallic plate or connection, which is connected with a strand, *g*, of the cords, whereby circuit is closed between the different terminals of said spring-jack through the different strands of the cord, substantially as and for the purpose specified.

3. In a telephone-exchange switch-board apparatus, a pair of loop-plugs and their pair of double-stranded cords, one strand including the telephone and the other strand being connected with a metallic connection, with which the heel-piece of either of the plugs may be connected, in combination with the two terminals of a spring-jack, in which either of the plugs may be inserted, whereby the two terminals of the spring-jack may be connected together through the different strands, substantially as described.

4. In a telephone switch-board, the combination of a double-stranded cord, two double terminal plugs, the two strands respectively connected together, the two insulated portions of the plugs, metallic heels, one to each plug, each connected with one of the terminals of its plug and with the same strand of the cord, a plate with which the heels of the plugs may make contact, and a connection from said plate to the strand of the cord which is not normally in connection with the heels of the plugs, whereby contact between the heel of a plug and the plates connects together the two strands of the cord, while lifting the plug removes that connection and leaves the branch connection to the plate open.

5. The combination, with a spring-jack switch, of a loop-plug inserted therein, the spring of said switch being connected with the point of the plug, and the frame of the switch being connected with the metallic sleeve of the plug, the strands of a flexible cord connected with different terminals of a corresponding plug, said plug being provided with a metallic heel connected with its sleeve, and a connection, *f*, from the metallic plate upon which said heel rests leading to the strand *g*, which connects the tips, whereby the two strands of the cord are connected together, substantially as described.

In witness whereof I hereunto subscribe my name this 3d day of November, A. D. 1886.

CHARLES E. SCRIBNER.

Witnesses:
GEORGE P. BARTON,
C. C. WOODWORTH.