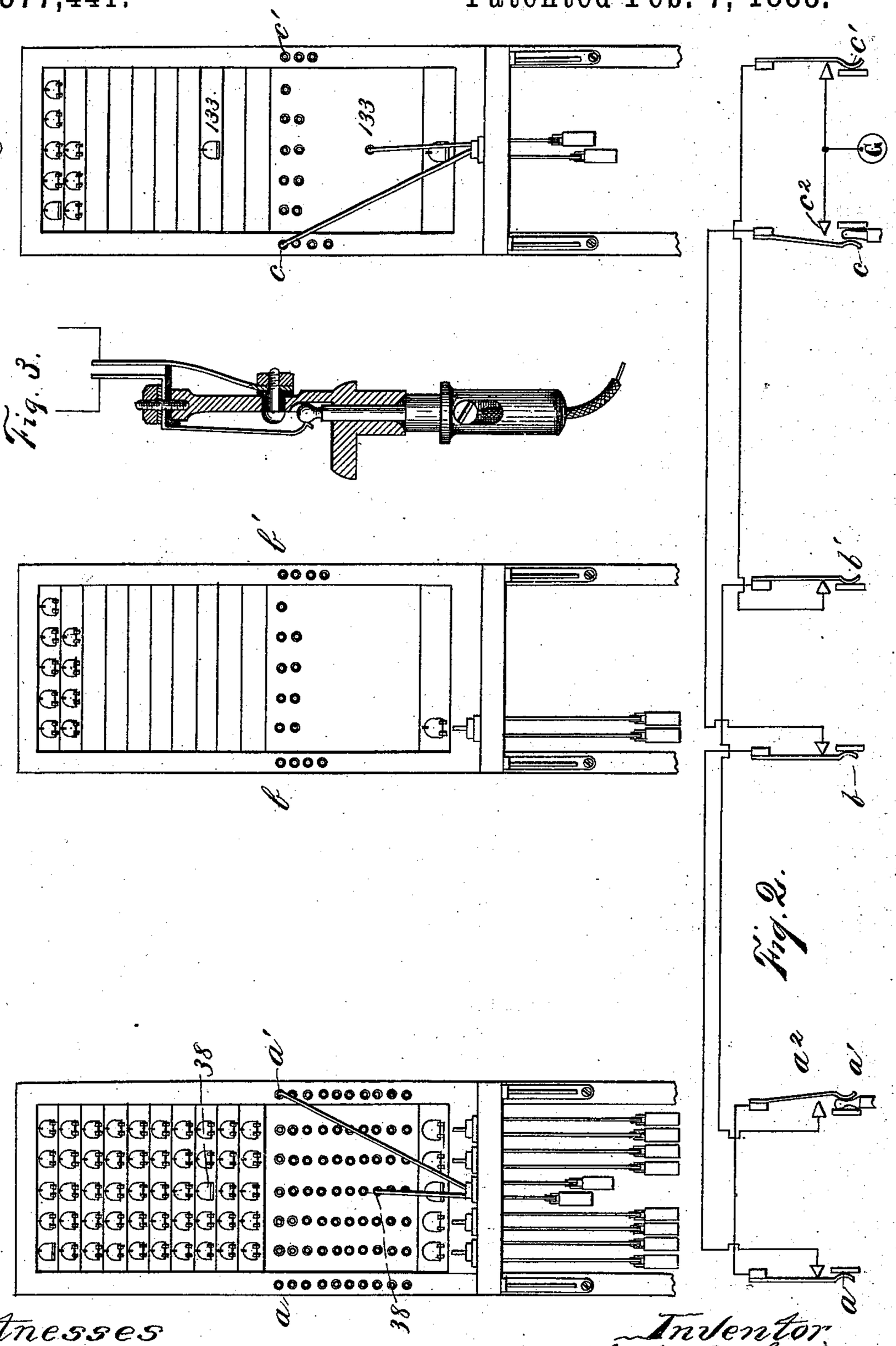
(No Model.)

C. E. SCRIBNER.

TRANSFER SWITCH AND CIRCUIT FOR TELEPHONE EXCHANGES.

No. 377,441. Patented Feb. 7, 1888.



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UNITED STATES PATENT OFFICE.

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TRANSFER SWITCH AND CIRCUIT FOR TELEPHONE-EXCHANGES.

SPECIFICATION forming part of Letters Patent No. 377,441, dated February 7, 1888.

Application filed July 11, 1885. Serial No. 171,368. (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 Transfer Switches and Circuits for Telephone-Exchanges, (Case 80), 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 telephone-exchanges in which the telephone-lines are grouped upon different tables or switch-boards.

The object of my invention is to afford facilities for making connections over the trunk lines between the different boards without the liability of leaving any subscriber's line open, or in such condition that the subscriber cannot signal the central office.

Heretofore simple thimbles or sockets have been used as the terminals for the trunk lines on the different boards, and the failure of either switchman to disconnect his subscriber's line from the transfer or trunk line leaves the line open, and the subscriber whose line is thus left open is unable to call the exchange. An open circuit is also occasioned when an operator at one table connects a subscriber with one end of the transfer-line and the operator at the other table connects his subscriber with a different transfer-line by mistake. In busy exchanges these faults are very common and are productive of very great confusion and annoyance.

By the use of my invention, herein described, I avoid leaving the lines open by using spring-jack switches as terminals for the transfer-wires, and circuits by means of which the grounds are removed when two lines are connected together through any given transfer-line, the ground-connection of the transfer-line, however, being re-esfablished when either of the telephones is disconnected therefrom.

In the drawings, Figure 1, I have shown three standard switch-boards, A B C. To each of these boards fifty telephone-lines may be connected in the usual manner. Fig. 2 is a diagram illustrative of a single transfer-wire circuit. Fig. 3 is a detailed sectional view of the ordinary Warner spring-jack, which I use both for the telephone-line connections upon the switch-boards and for the terminals of the transfer or trunk lines.

The spring-jack terminals a a' upon board A, b b' upon board B, and c c' upon board C, may be placed, as shown, in the frames outside of the portion of the board which contains the telephone-line spring-jack.

Referring now to Fig. 2, it will be seen that when plugs are inserted in spring-jacks a' c said plugs will be connected together, while the ground-connections a^2 c^2 of said spring-jacks will be taken off, as shown. The circuit between said plugs may be traced from the point of the plug inserted in spring-jack a', through spring-jack a, thence through spring-jack b, and thence to spring-jack c, and to the point of the plug inserted therein, as shown. Thus line 38 of board A may be connected with line 133 of board C by means of a pair of cords at each board and the transfer-wire connection.

For clearness I have omitted from boards B and C the greater portion of the shutters and spring-jacks, and have illustrated the transfer-circuit between terminals a a' b b' c c' in a separate figure—that is to say, in Fig. 2.

Suppose the switchman at board A forgets to disconnect line 38 when line 133 has been disconnected at board C. It is evident that subscriber's line 38 will be closed to ground at point c^2, and subscriber 38 may thus signal the switchman at board A by sending current through the clearing-out shutter included in the connecting-cords. No matter what the mistake or fault of the operator may be, a telephone-line connected at one board with a transfer-wire cannot be left open at another board.

It will be seen that two spring-jack terminals will be required for each trunk or transfer wire at each intermediate board, as board C. The outside boards, A and C, are also preferably each provided with two spring-jack terminals for each transfer-wire, so that additional boards may be readily added on either side.

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

1. The combination, with two or more switch-boards to which different lines are connected, of transfer-lines provided with two spring-jack terminals on each of the boards, and a ground-connection for each of said spring-jack terminals, whereby a line connected at one board with a transfer-wire will always be closed.

2. The combination, in a telephone-exchange, of two or more switch-boards to which different groups of telephone-lines are connected, with transfer or trunk lines connecting said boards together, the terminals of said trunk or transfer lines on the different boards being spring-jack switches, two of such terminals being provided for each transfer-wire on each intermediate board, and a ground-circuit connection for each transfer-wire, whereby a line connected at one board will be closed at the other board either to line or to the ground-connection of the transfer-wire to which the line is connected.

In witness whereof I hereunto subscribe my name this 2d day of July, A. D. 1885.

CHARLES E. SCRIBNER.

Witnesses:
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