

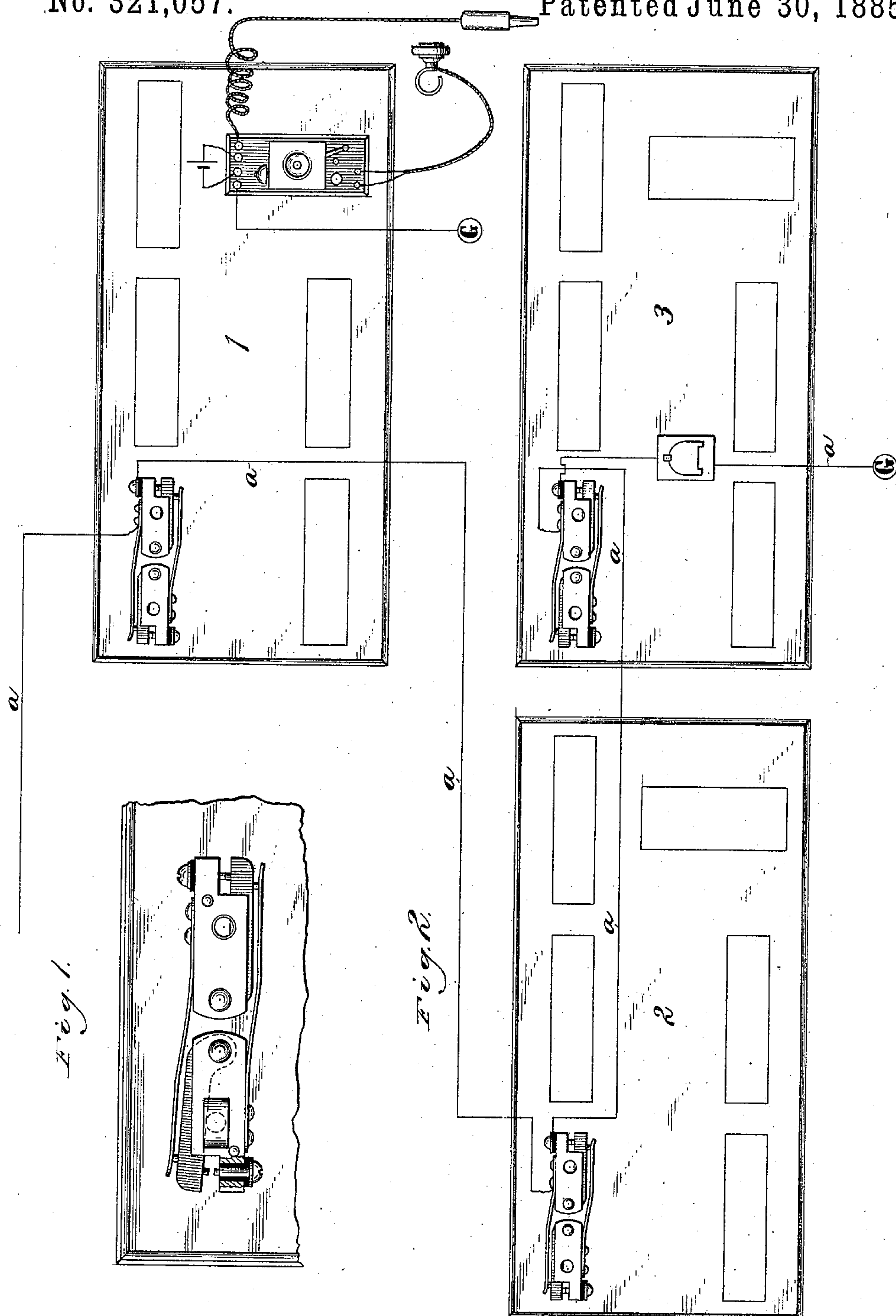
(No Model.)

C. E. SCRIBNER.

## MULTIPLE SWITCH BOARD SYSTEM.

No. 321,057.

Patented June 30, 1885.



Witnesses.

H. C. Frankfurter.  
 James S. Bowen

*Inventor.*

Charles C. Scribner.  
By George P. Barton  
Attorney.



# UNITED STATES PATENT OFFICE.

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

## MULTIPLE SWITCH-BOARD SYSTEM.

SPECIFICATION forming part of Letters Patent No. 321,057, dated June 30, 1885.

Application filed September 22, 1884. Renewed May 23, 1885. (No model.) Patented in England November 29, 1879, No. 4,903; in France January 16, 1880, No. 134,596, and in Belgium January 28, 1880, No. 50,413.

*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 Multiple Switch-Board Systems, (Case 89,) 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.

A district telephone-exchange consists of a central office with which the telephones of many subscribers are connected by independent lines, and where upon request any one subscriber may be put in communication with any other one of the subscribers. All the independent lines therefore must be connected with a single switch-board.

When the number of subscribers is large and a single attendant cannot do the necessary switching, duplicate or multiple switch-boards are provided, all the wires being branched to each of the duplicate multiple boards, so that each board is complete in itself, and thus any two subscribers may be connected by an attendant at either one of the duplicate boards. An additional board is required for about every hundred new subscribers. The subscribers are apportioned so that a switchman at a given board answers only the calls of those assigned to his board. When a third subscriber wishes to communicate with one of two who are already connected, great confusion often arises. This is almost wholly obviated by the use of my invention, which consists in classifying the subscribers and assigning their calls among the different boards and so connecting their wires from one board to another as to give those assigned to any given board the preference or first chance over all those whose calls are answered at succeeding boards.

My invention is illustrated in the accompanying drawings, in which Figure 1 is a detail view of one of the forms of my jack-knife or swing-jack switch described and claimed in my patent issued February 5, 1884, No. 293,198, application filed August 23, 1879. Any other well-known form of spring-jack switch may be used. In Fig. 2 of the drawings I have shown

three multiple switch-boards, 1 2 3. I have also shown the line *a* of a subscriber connected through a single switch on each of the boards and from the switch of the last board to ground. Upon 1 I have shown a subscriber's telephone outfit for receiving and answering the calls of the subscribers assigned to his board. A similar outfit should be provided at each of the switch-boards. A large number of the telephone-lines may thus be provided with terminal facilities at a telephone-exchange. Suppose, for example, three hundred lines were thus connected with three different switch-boards of a telephone-exchange, the calls of the subscribers numbered one to one hundred, inclusive, might be assigned to the operator of the first board, the calls of the second hundred to the operator at the second board, and the calls of the subscribers numbered two hundred and one to three hundred, inclusive, would be assigned to the third board.

Prior to my invention there were two well-known systems of calling the central office. One system was known as the "American District" system of independent wires, being the invention of Leroy B. Firman. The other system consisted in signaling over the different subscribers' lines direct through the annunciators included in their circuits at the central office. Any subscriber was thus enabled to call up the central office, and the central-office operator, answering his call, was informed of the connection desired. Connection may thus be made between the switch of the subscriber who sent in the call and the switch of the subscriber with whom he asks to be connected. Any well-known connecting apparatus may be used. The switch-boards which I have shown require flexible cords provided with terminal plugs. A plug inserted in any switch of a line—for example, the switch on board 1—opens the switch and thus cuts the line off from all succeeding switches. It will thus be seen that in the system herein described the subscribers whose calls are assigned to the first board have the advantage or precedence of those who are assigned to succeeding boards.

This application is made as a division of my application filed October 25, 1879, in which I



have shown a telephone-line connected with a switch on each board, as herein described, and from the switch on the last board back across all the other boards through switches or test-keys. I therefore disclaim as to this application the combination of pairs of bolts or switches, one pair on each multiple board for each subscriber connected with the subscriber's line, which passes successively to one bolt of each pair and in reverse order to the remaining bolt of each pair and to ground, as described and claimed in said original application.

I claim—

1. Multiple switch-boards, each provided with a single bolt or switch for each subscriber, the bolts or switches of each subscriber on the different boards being connected together and the bolt of the last board being connected with the ground, substantially as and for the purpose specified.

2. In a multiple switch-board system of telephone exchange, the combination, with the different telephone-lines, of spring-jack switches, one switch for each line on each board and each line being connected from the switch on the last board to the ground connection, and connecting-plugs at the different boards provided with flexible cords, whereby

the contact-points of the spring-jack of any given line on any given board may be separated to cut off said line from its normal ground connection by the insertion of a plug in said spring-jack, while a new connection is formed between the line and the flexible conducting-cord of the inserted plug.

3. The combination, with a telephone-line, of two or more switch-boards, each provided with a different spring-jack switch, through which switches said line is connected one after the other and from the switch on the last board to ground, one contact-point of each of said switches being connected normally to line and the other contact-point to ground, and plugs, whereby the contact-points of any given switch may be separated, thereby cutting off the line from the ground-contact of the switch in which a plug is inserted, while a new connection is formed between the line-contact of the switch and the inserted plug.

In witness whereof I hereunto subscribe my name this 13th day of September, A. D. 1884.

CHARLES E. SCRIBNER.

Witnesses:

HIRAM ODELL,  
GEORGE P. BARTON.