

No. 692,004.

Patented Jan. 28, 1902.

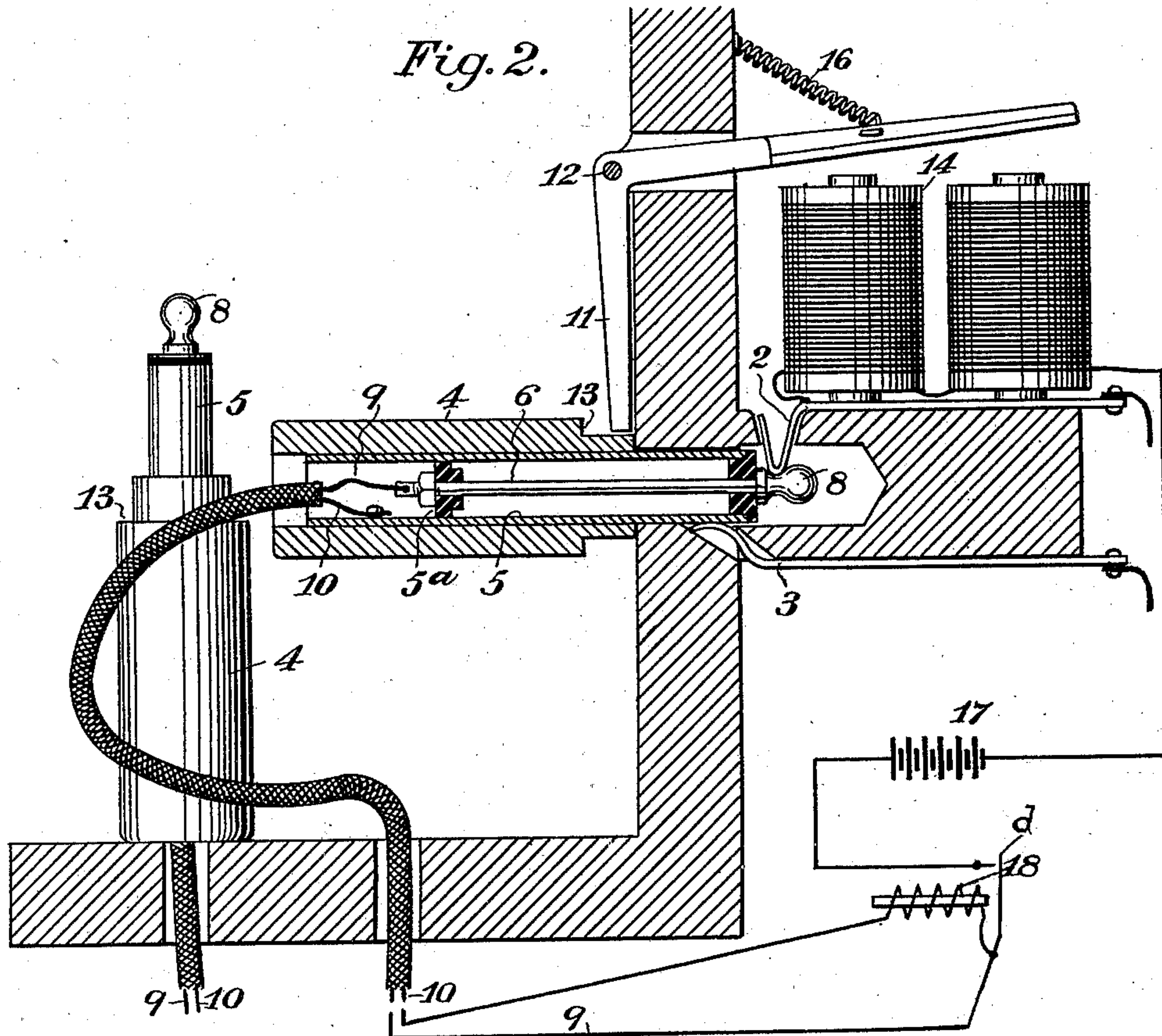
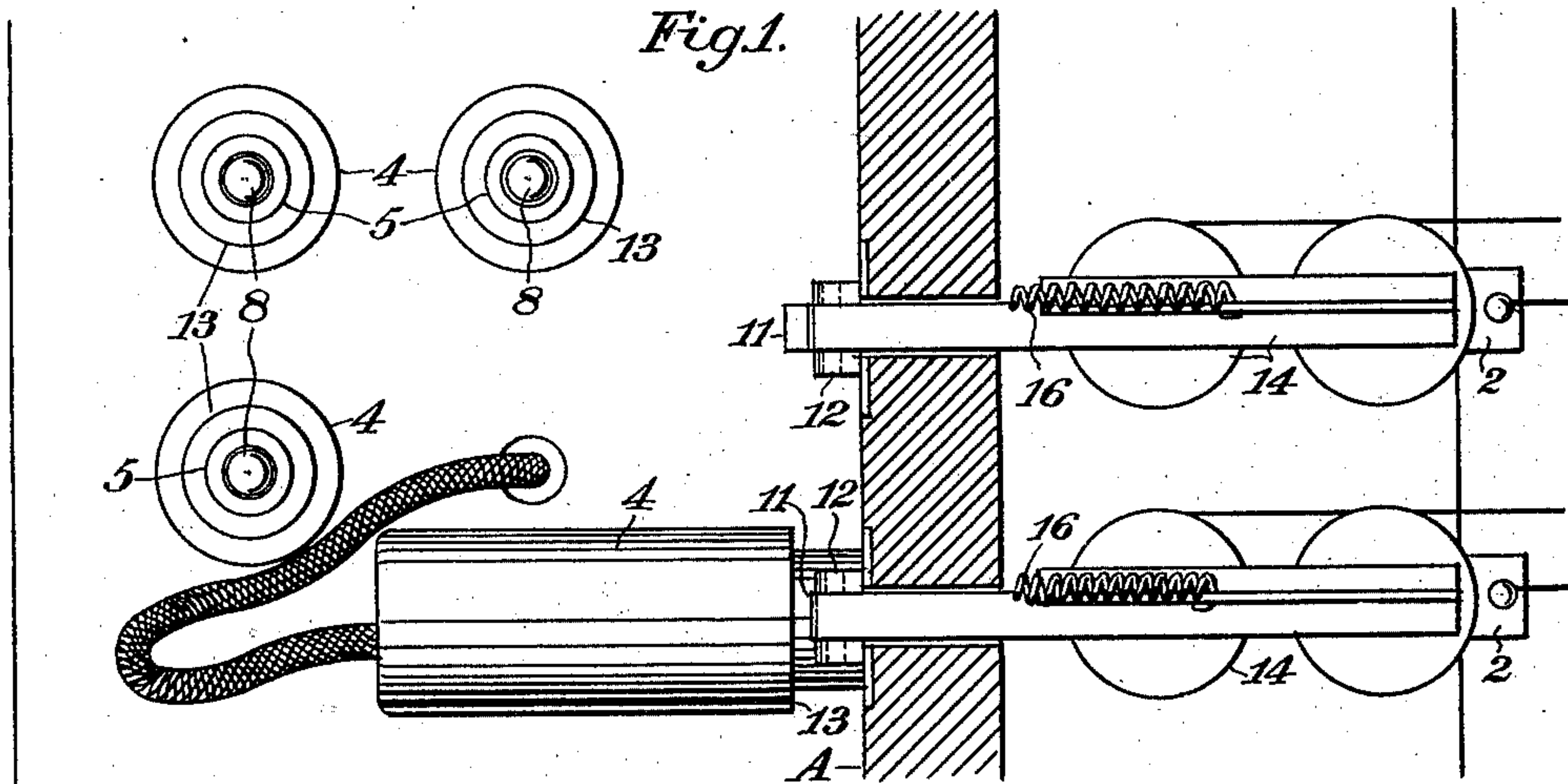
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SELF EJECTING PLUG FOR TELEPHONE SWITCHBOARDS.

(Application filed Apr. 30, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses,
E. A. Brandau,
J. H. Morse

Inventor,
Charles F. Butte
By Denny Strong & Co. atty.

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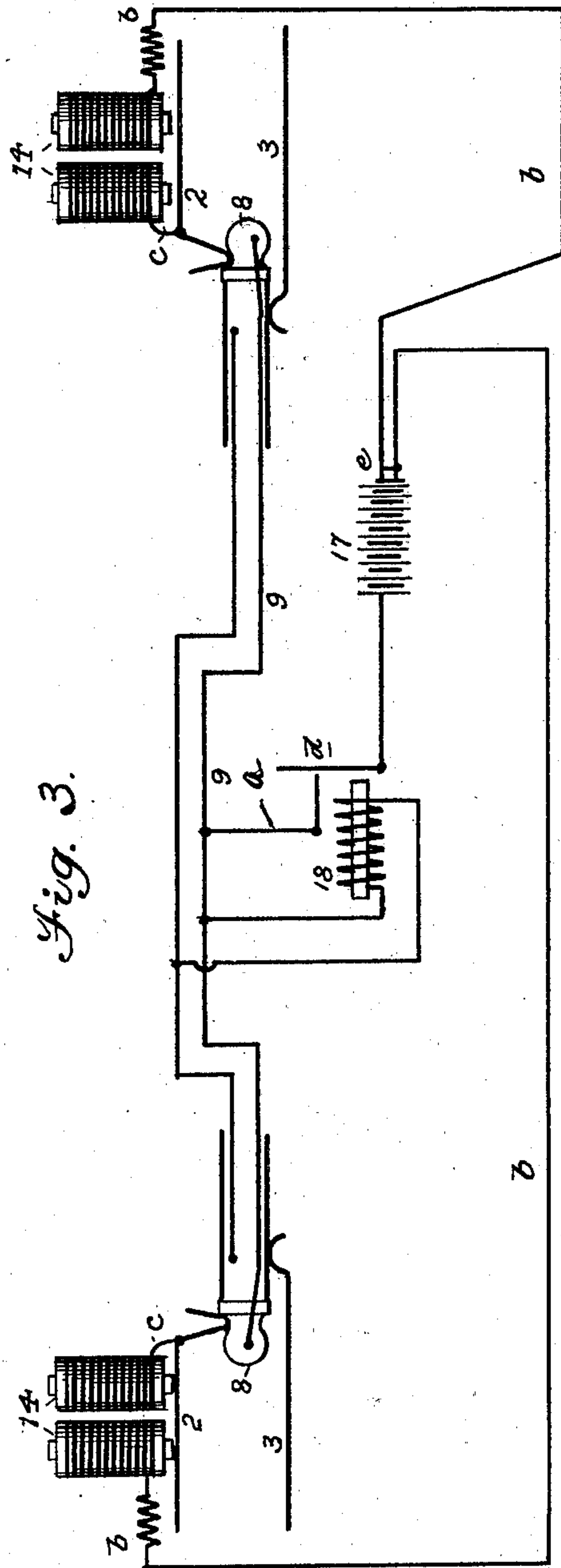
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2 Sheets—Sheet 2.



WITNESSES

C. M. Fowler
Howell Butte

INVENTOR

Charles F. Butte
by Dewey, Strong & Co
his Attorneys

UNITED STATES PATENT OFFICE.

CHARLES F. BUTTE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO PAUL C. F. BUTTE, OF SAN FRANCISCO, CALIFORNIA.

SELF-EJECTING PLUG FOR TELEPHONE-SWITCHBOARDS.

SPECIFICATION forming part of Letters Patent No. 692,004, dated January 28, 1902.

Application filed April 30, 1901. Serial No. 58,123. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. BUTTE, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Self-Ejecting Plugs for Telephone-Switchboards; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in telephone-switchboards and attachments therefor.

It consists in the combination with the switchboard, with its sockets to receive the plugs by which connections are made between subscribers, of a series of plug-ejecting levers corresponding with the sockets, and electromagnets, either of which when energized acts upon its lever and through it to eject the plug.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a part horizontal section and part plan of my device. Fig. 2 is a vertical section. Fig. 3 is a diagrammatic figure to be hereinafter described.

A is the switchboard, having any number of sockets to receive the plugs 4, and 2 and 3 are the springs through which the line connection is made. Each plug 4 is adapted to fit any socket in the board, and through these plugs connection is made between subscribers in the usual manner. Each plug has a tube 5, fixed to a base 5^a, and within the tube is a pin 6, insulated from the tube, as shown at 7. Each pin has a head 8, and when the tubular part of the plug is inserted into a socket the tube contacts with the spring 3 and the head 8 with the spring 2. The pin 6 is connected with one of the cords 9, and the tube 5 is connected with the other cord 10, through which the connection is completed between any two subscribers in the usual and well-known manner. Whenever the plug is withdrawn the connection is interrupted. In order to automatically eject a plug, I have shown a bell-crank lever 11, fulcrumed, as shown at 12, so that one end extends to a point where it will engage a shoulder 13 of the plug 4. The other arm of the lever extends above an electromagnet 14 and carries an ar-

mature which when the electromagnet is energized acts to draw this arm of the lever down and correspondingly throw the other arm outward, and this acts to eject the plug. When connection is to be made between the two subscribers, the plug is pushed in so that the head of the pin 8 engages a spring 2. The sleeve 5 contacts with the spring 3, and when no current is passing through the electromagnet 14 the armature of the electromagnet is raised by the spring 16 and the other arm of the lever lies against the board A. When the subscriber hangs up his receiver or rings off, a connection is made, which energizes the electromagnet 14, and this attracts the armature and causes the lever to eject the plug, as before described. One terminal of the electromagnet connects with the common battery 17 and the other with one of the socket-springs 2 or 3. When a plug is put into a socket, it connects the electromagnet with the battery side of relay 18, and when the receiver is hung up and relay energized the circuit is completed through common battery. The plug thus ejected will be returned to its place on the switchboard-table by a weight on the cord in which the wires 9 and 10 are inclosed in the usual manner. By this means the plugs are automatically ejected without any direct action or attention of the switchboard operator.

In Fig. 3 I illustrate a diagram representing two sockets with plugs inserted, and the course of the circuits will be understood from the following: Commencing at the point *e* of the battery 17 the current flows over the wire *b* to the coils 14 and through these coils to the wire *c*, spring 2, knob 8, wire 9, and wire *a* to the point *d*, where the circuit is broken, which point *d* leads to the battery 17. When the point *d* is closed by means of a coil 18 of a relay, the circuit through the coils 14 of the ejector is completed, thereby ejecting the plug. The coils 18 of the relay are energized in the same manner as any present "clearing-out" drop or signal, as well understood by those skilled in this art.

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

1. The combination in a telephone-switch-

board, its sockets, and plugs adapted to be inserted therein, of a device for ejecting the plug, consisting of a lever, one end of which engages the plug, an armature carried by the
5 other end, and an electromagnet which acts thereon when energized and moves the lever to eject the plug.

2. The combination in a telephone-switch-board, having sockets and plugs slidable
10 therein, and contacts controlled by said plugs through which circuits are completed when the plugs are introduced, of levers, one arm of each of which engages a plug, and electromagnets by which the other arm is moved
15 whereby the plugs are ejected by the energizing of the electromagnets.

3. The combination with a telephone-switch-

board, its sockets, and plugs adapted to be inserted therein, of a plug-ejecting device consisting of a lever, one end of which en- 20 gages the plug, an armature carried by the other end, an electromagnet by which the armature is attracted, and the lever moved, and connections between said magnet, a com-
25 mon battery and a relay whereby the magnet is energized and the plug ejected when the receiver is hung up.

In witness whereof I have hereunto set my hand.

CHARLES F. BUTTE.

Witnesses:

S. H. NOURSE,

JESSIE C. BRODIE.