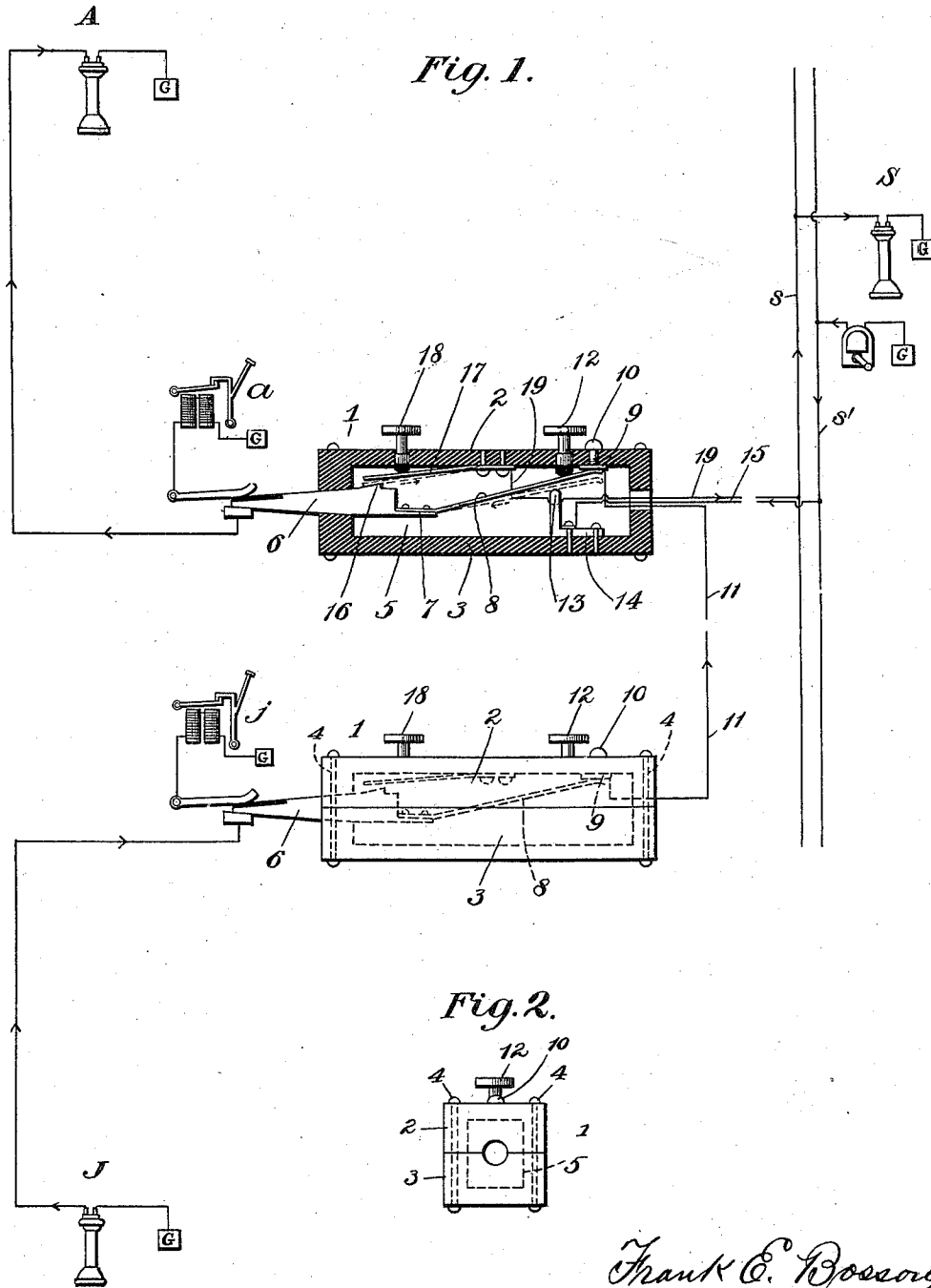


(No Model.)

F. E. BOSSONG.
TELEPHONE SWITCHBOARD PLUG.

No. 579,036.

Patented Mar. 16, 1897.



WITNESSES
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TELEPHONE-SWITCHBOARD PLUG.

SPECIFICATION forming part of Letters Patent No. 579,036, dated March 16, 1897.

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To all whom it may concern:

Be it known that I, FRANK EDWARD BOSSONG, a citizen of the United States, residing at Watseka, in the county of Iroquois and State of Illinois, have invented certain new and useful Improvements in Telephone-Switchboard Plugs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in telephone-switchboard plugs for electrically connecting any two of a series of subscribers' lines.

The object is to provide a plug for a common return, metallic, or ground-return system which will permit the central operator to make quick connections between subscribers, using the same plug to receive the called number and to ring up the desired subscriber.

To this end the invention consists, essentially, of means for cutting in a subscriber's circuit temporarily with a central head-phone; secondly, cutting the desired subscriber's circuit in with the central call-generator, and, finally, cutting in the desired subscriber with the calling subscriber, all combined in one switchboard-plug, the said means for accomplishing these several steps being actuated by the operator while the plug is being inserted in the switchboard-socket.

Other objects and advantages will be apparent from the description to follow and from the accompanying drawings, fully illustrated in my invention, in which—

Figure 1 is a diagrammatic view of a telephone system, showing two plugs in position for use, one of which is in section to more clearly illustrate the construction. Fig. 2 is an end elevation of the plug.

Similar letters and numerals of reference designate similar parts throughout the figures of the drawings.

In the system illustrated I have shown for the sake of simplicity only two subscribers A and J, provided with the usual subscriber's apparatus and ground return, with the usual central station S, provided with an operator's set and call-generator in separate circuits *s s'*.

The plug for the switchboard at central is constructed with a non-conducting body or shell 1, formed in sections 2 and 3 and se-

cured together by the pins 4. These sections are so shaped that when placed together there is a chamber 5 for the reception of the working parts of said plug. A metallic point 6 is so secured in the front of the plug that it projects exteriorly for insertion in the plug-socket of the switchboard, and interiorly where it is provided with an extension 7. To this extension is secured a conducting-strip or spring-contact 8, extending upwardly to the top of the chamber 5, where it normally rests against a conducting-point or metallic plate 9, secured to said plug by the screw 10. This plate is electrically connected by the line-wire 11 with a plug similar to the one described by means of its screw 10. The object of this connection will be explained more fully hereinafter.

Extending down into the plug 1, through a perforation in the section 2, is a non-conducting push-button 12. The tip of this push-button rests on the spring-contact 8, and is designed to force the same into contact with a conducting-point 13 of an L-shaped conductor 14, attached to the section 3. This L-shaped conductor is electrically connected by means of the line-wire 15 with the line *s'* of the call-generator circuit.

The portion of the metallic point 6 which projects into the interior of the plug 1 is provided upon its upper surface with a shoulder or projection 16, and contiguous thereto and normally out of contact therewith is a second spring-contact 17, secured to the upper section 2 of the plug, as shown. This spring-contact is provided with a push-button 18, similar to the push-button 12. The function of this push-button is to force the spring-contact 17 into electrical connection with the shoulder or projection 16 of the metallic point 6. By means of the line conductor 19 the spring-contact just described is electrically connected with the line-wire *s* of the circuit, in which the operator's transmitting and receiving set is located. With the drop-shutters *a j* this completes the description of the construction of the plug and system.

The operation of the same is as follows: When a call is received from a subscriber, say J, as indicated by its drop-shutter *j*, the operator at central station inserts the metallic point 6 of one of these plugs, which are connected in pairs, as shown by the line-wire

11, and cuts the circuit, so that it is from J to metallic point 6 through the spring-contact 8, plate 9, and screw 10 to conductor 11, up to the plug which the operator holds with the push-button 18 depressed. From the metallic plate 9 of this plug, to which the line conductor 11 connects, the circuit continues down through the second spring-contact 8 to the second metallic point 6, which has not yet been inserted in the switchboard, up through the depressed spring-contact 17, (shown by dotted lines as contacting with the shoulder 16,) thence through the line conductor 19 to the conductor *s* in circuit with the telephone-operator's transmitting and receiving set at S.

After ascertaining that the subscriber J desires communication with subscriber A the central operator releases the push-button 18 and depresses the push-button 12, inserting the point 6 of the plug into the plug-socket with which subscriber A is electrically connected. The calling-generator is then actuated and the circuit is through *s'* to line conductor 15 to the L-shaped conductor 14 in the said plug, thence through the depressed spring-contact 8 to the point 6, and from there to the subscriber A and to ground, as indicated by arrows. After A has been called both of the push-buttons 12 and 18 are released and the spring-contacts 8 and 17 assume the positions shown in full lines. The subscribers are now in direct connection, and the circuit is from A to central through the metallic point 6 of the plug inserted in its plug-socket, thence through the spring-contact 8 to the metallic plate 9, and down through the line conductor 11 to the second plug, where it is connected to the screw 10, securing the plate 9. From there it is through the spring-contact 8 of that plug to the metallic point 6, down through the subscriber's line conductor to J, and return by way of ground or metallic connection.

From the foregoing description of parts, in connection with the accompanying drawings, it will be seen that a plug is provided, extremely simple in construction, which will readily permit the operator, by the manipulation of the hereinbefore-described push-buttons, to communicate with the calling subscriber, to place him in connection with the called subscriber, and to ring up this second subscriber without removing the plug and without ringing through to the first-named subscriber, and, finally, by releasing the push-buttons, to place both subscribers into communication.

I do not desire to limit myself to the precise details of construction herein shown and described, but reserve to myself the right and privilege to alter the same within the bounds of mechanical ingenuity without departing from the spirit of my invention.

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

1. The herein-described plug for telephone-

switchboards, comprising a non-conducting body portion, a conducting portion or head, a stationary contact, secured within said body portion and, designed to be electrically connected with a subscriber, a second stationary contact secured therein, and designed to be electrically connected with a signaling-current generator, a movable contact, connected to said conducting portion or head, and adapted to contact alternately with said stationary contacts, a second movable contact attached to the non-conducting body portion and adapted to be moved into contact with the conducting portion or head, said movable contact designed to be electrically connected with a central operator's telephone-set, and push-buttons for actuating said movable contacts.

2. The combination with a central signaling-current generator, and a central operator's telephone-set, of a telephone-switchboard plug suitably connected therewith and wired to connect two subscribers' lines, means for cutting the calling subscriber and signaling-current generator alternately into circuit with the second subscriber, and means for maintaining the central operator's telephone-set constantly in circuit with said second subscriber, during such alteration.

3. The combination with a central signaling-current generator, of a telephone-switchboard plug suitably connected therewith and wired to connect two subscribers' lines, means for cutting the calling subscriber and signaling-current generator alternately into circuit with the second subscriber, an additional wire leading from said plug to a central operator's telephone-set and normally out of contact with a conducting-head carried by said plug, and means for electrically connecting said wire and conducting-head, whereby the operator's telephone-set may be cut into circuit with the second subscriber when either the signaling-current generator or calling subscriber is in circuit therewith, substantially as described.

4. The herein-described switchboard-plug, consisting of a non-conducting hollow body, a conducting point or tip carried thereby, a spring-contact 8 extending from said point into the hollow body, a second spring-contact 17 secured to the interior of the plug and normally out of contact with the conducting point or tip, a contact-plate 9 against which the spring-contact 8 normally rests, a contact 14 secured to the interior of the plug and normally out of contact with said spring-contact 8, and electrical conductors leading from the spring-contact 17 to a central operator's set and from the contact 14 to a calling-generator, and a third electrical conductor leading from the contact-plate 9, substantially as described.

FRANK EDWARD BOSSONG.

Witnesses:

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