

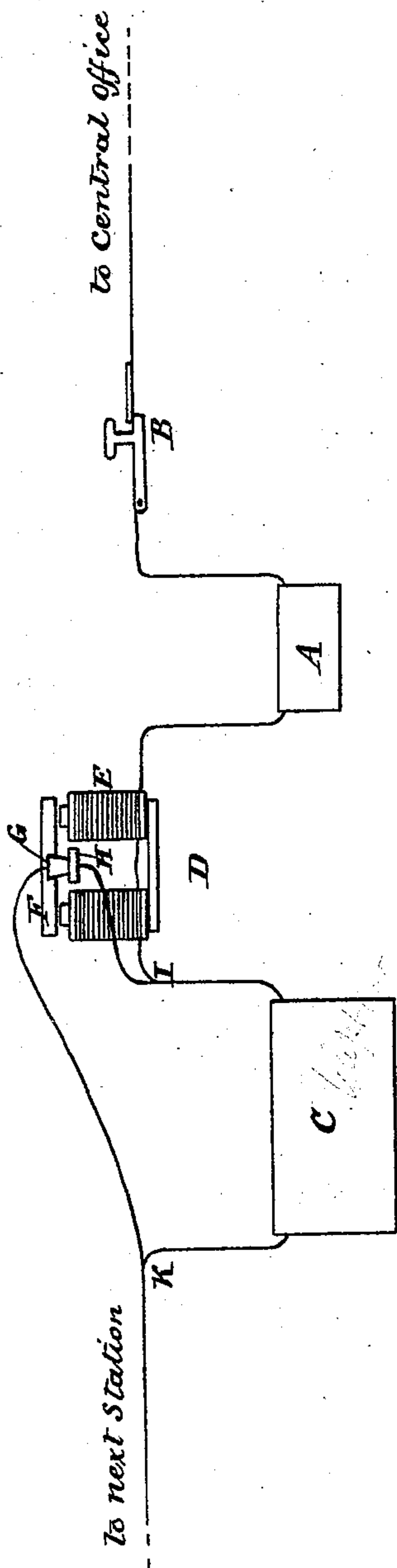
(No Model.)

A. G. BELL.

Automatic Short Circuiter for Telephones.

No. 230,168.

Patented July 20, 1880.



Witnesses:

Philip Mauro  
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# UNITED STATES PATENT OFFICE.

ALEXANDER G. BELL, OF WASHINGTON, DISTRICT OF COLUMBIA.

## AUTOMATIC SHORT-CIRCUITER FOR TELEPHONES.

SPECIFICATION forming part of Letters Patent No. 230,168, dated July 20, 1880.

Application filed March 16, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, ALEXANDER GRAHAM BELL, of Washington city, District of Columbia, have invented a new and useful Improvement in Automatic Short-Circuiters for Telephones, which invention is fully set forth in the following specification.

In the majority of telephone-exchange systems operated by batteries the telephones and call-bells in the different subscribers' offices are so arranged that the main circuit can be broken and the central office called either by pressing the push-knob attached to the call-bell or by lifting one of the telephones from its support.

My present invention consists of an arrangement for the purpose of preventing a subscriber from calling the central office except by using the proper push-knob or other contrivance specially provided for that purpose. This is accomplished by the employment of an automatic arrangement which short-circuits the telephones at each station while the central-office battery is on the circuit, and only allows the use of the telephones when the battery-current is removed.

In illustration of my invention I shall show one form of apparatus for producing the effect.

The figure illustrates the usual appointment of a telephone-station, viz: A, a call-bell; B, a push-knob; C, the telephones and transmitters.

The illustration shows the short-circuiter D, which is the subject of my present invention. This consists of an electro-magnet, E, placed upon the main line between the telephones C and the central office.

When the electro-magnet E is excited by the passage of a battery-current through its coils the armature F is attracted, thus causing the point G to come into contact with the point H, short-circuiting the telephone C. This is the normal condition of the apparatus and line. Under these circumstances any break occurring in the telephone-loop I C K does not cause a break of the main circuit, and the central office can only be called by pushing the push-knob B.

When a subscriber wishes to use the telephones he calls the central office by pushing

the push-knob B. The central office responds by removing the battery from the circuit, when the armature F flies back by the action of a spring or other suitable contrivance, and the points G H are thereby separated. The subscriber can then talk with the central office.

When the central office wishes to speak with a subscriber the bell A is rung by interrupting the battery-circuit so as to produce the signal for that subscriber. The battery is then removed from the circuit and a telephone substituted. When the subscriber hears his call he simply removes the telephone from its support and places it to his ear.

No change need be made in the arrangement of the telephones, and the usual secrecy-switch may be retained.

It is intended that the short-circuiter D should be placed in a sealed box, where it cannot be tampered with.

The magnet and armature of call-bell A may be used instead of the special electro-magnet E and armature F; but this would render it advisable or necessary to box up the bell or place it in such a position that it could not be tampered with.

Having thus fully described my said invention and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with a system of electric telephones, of a short-circuiting arrangement operated by the battery-current upon the main line, so as to short-circuit the telephone while the battery-current is on the line and introduce the telephone into the main circuit when the battery is cut out, substantially as herein shown and described.

2. The combination, with an electric call-bell and telephone, of a short-circuiting device, substantially as shown and described, operated by the armature of the call-bell, whereby the telephones are short-circuited so long as a current traverses the electro-magnet of the call-bell.

3. The electro-magnet E, armature F, and contact-pieces G H, in combination with the telephone C, substantially as shown and described, so that the contact-pieces G H are caused to come into contact and short-circuit

the telephones C during the passage of an  
electrical current through the coils of the  
electro-magnet E, and are caused to sepa-  
rate when no current passes through the elec-  
5 tro-magnet E, thus allowing the telephones  
C to form part of the main circuit, as set forth.

In testimony whereof I have signed this

specification in the presence of two subscrib-  
ing witnesses.

ALEXANDER GRAHAM BELL.

Witnesses:

PHILIP MAURO,  
A. POLLOK.