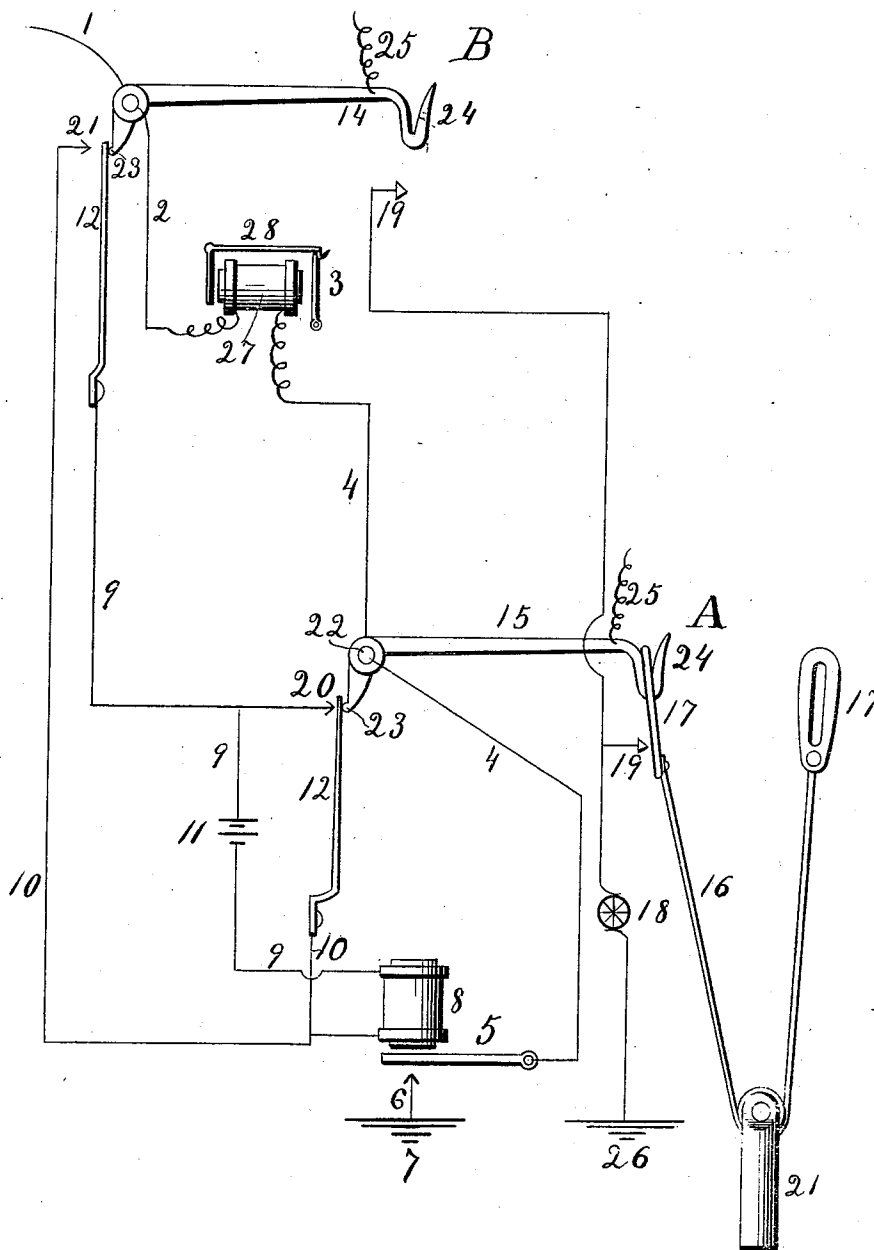


(No Model.)

G. S. MAXWELL.
TELEPHONE SWITCHBOARD.

No. 562,009.

Patented June 16, 1896.



WITNESSES,
N. Stevens.
M. C. Hillyard.

INVENTOR.
George S. Maxwell.
by *W. C. Stevens.* ATT'Y.

UNITED STATES PATENT OFFICE.

GEORGE S. MAXWELL, OF RICHMOND, VIRGINIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, OF THREE-TENTHS TO WILLIAM H. CULLINGWORTH AND JOSEPH N. CULLINGWORTH, OF SAME PLACE.

TELEPHONE-SWITCHBOARD.

SPECIFICATION forming part of Letters Patent No. 562,009, dated June 16, 1896.

Application filed March 17, 1896. Serial No. 583,528. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. MAXWELL, a citizen of the United States, residing at Richmond, in the county of Henrico and State of Virginia, have invented a new and useful Improvement in Telephone-Switchboards; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which my invention is illustrated by a diagram showing a telephone system passing through the switching-tables of two operators.

This invention relates particularly to switching-tables used at central telephone-stations; and its object is, first, to provide simple and reliable means for automatically completing the local circuit of any subscriber's line and at the same time to disconnect it from the ground by the act of connecting his line with the line of another subscriber; second, to provide ready and simple means for signaling the subscriber called for.

To this end my invention consists in the construction and combination of parts forming a telephone-switchboard hereinafter described and claimed, reference being had to the accompanying drawing, in which—

A represents one operator's switchboard and B another operator's switchboard at a central station. A subscriber's line enters the table B at 1 and passes on wire 2 to annunciator 3, thence through table A by wire 4 to armature-lever 5, which is hung to vibrate between the wire 6, leading to the ground 7, and an electromagnet 8. From this electromagnet 8 one wire 9 passes through a battery 11 to a contact-point 20 in the board A and to a spring 12 in the board B, and another wire 10 connects with a spring 12, opposite the point 20 in tables A, and with another point 21, which is in similar relation to spring 12 in table B.

15 represents a connecting-lever pivoted at 22 in electrical connection with the main or subscriber's line 4 2 1 and provided at one end with a projecting heel 23, located near the spring 12, and at the other end the lever 15 is shaped as a hook 24 to receive a connecting-loop 17 of the switch-cord 16, by means

of which the operator connects the lines of two subscribers.

25 represents a spring acting upon the lever 15 to hold it up with its heel 23 normally out of contact with the spring 12.

18 represents a magneto-generator or other source of electrical energy, whose circuit is grounded at 26 and terminates in points 19, which are located near the hooks 24 and preferably below them, so that when a loop 17 is hung upon a hook 24 for the purpose of connecting the lines of two subscribers the loop 17 may be pressed against the point 19, bringing the generator 18 into circuit, so that the current from the generator will pass through the loop 17 and lever 15 into the subscriber's line and ring his call-bell. In this manner a signal is given. Other levers, such as the lever 14 in table B, may be hung in the same relation to the generator 18 and springs 12 as that described of lever 15 in table A.

21 represents the usual weight on the switch-cord.

27 represents an electromagnet, and 28 any usual lock for the drop 3.

If by any means the wires 9 and 10 are connected, a local circuit will be established through the battery 11, whereby the electromagnet 8 will be energized, and the armature-lever 5 will be attracted thereto, thus breaking the ground connection at 6, and another subscriber may be taken into the circuit by means of the usual switch-cord. In the table herein shown if a switch-loop 17 be hung upon a hook 24 the lever 15 will be pulled down, and its heel 23 will press the spring 12 of the wire 10 into contact with the point 20 of the wire 9, thus completing the local circuit through the battery 11 and coil 8, whereby the armature-lever 5 will be drawn from the normal ground connection 6. Now if the opposite loop 17 be hung on the other subscriber's hook 24 the lines of the two subscribers will be in circuit, and by pressing a loop 17 against the adjacent point 19 the circuit will be energized by the generator 18, and the respective call-bell will be sounded. When the loop 17 is removed from a hook 24, the spring 25 will raise the lever 15 and break the local

circuit at 23, whereby energy is withdrawn from the magnet 8, and the armature-lever 5 will be permitted to fall to its normal connection with the ground-wire 6.

5 Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

1. In a telephone-switchboard the combination of a pivoted lever in electrical connection with a subscriber's line, and provided at one end with a projecting heel and at the other with means for supporting a connecting-loop; an annunciator in said line; and an armature-lever also in the line and normally completing the circuit through its back-stop to ground; a magnet controlling said armature, and a circuit for said magnet controlled by contacts in the path of the heel of the pivoted lever, substantially as described.

20 2. In a telephone-switchboard, the combination of a number of connecting-levers each provided with a loop-support and a heel, and pivoted in electrical connection with subscriber's line; an annunciator in said line; an

armature-lever also in said line and normally completing the circuit through its back-stop to ground; a magnet controlling said armature, and a multiple circuit for said magnet-controller by contacts in the paths of the heels of the said connecting-levers, substantially as described.

3. In a telephone-switchboard, switching-levers; switching-cords and loops adapted to engage the levers, and a magneto-generator or other source of electricity having terminals adjacent to the said loops when hung upon the levers, substantially as described, whereby a little movement of a loop when so hung will connect one of the said terminals with a lever for the purpose of energizing the line to sound a signal.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE S. MAXWELL.

Witnesses:

R. J. ACORE, Jr.,

FRED W. COLLOTON.