

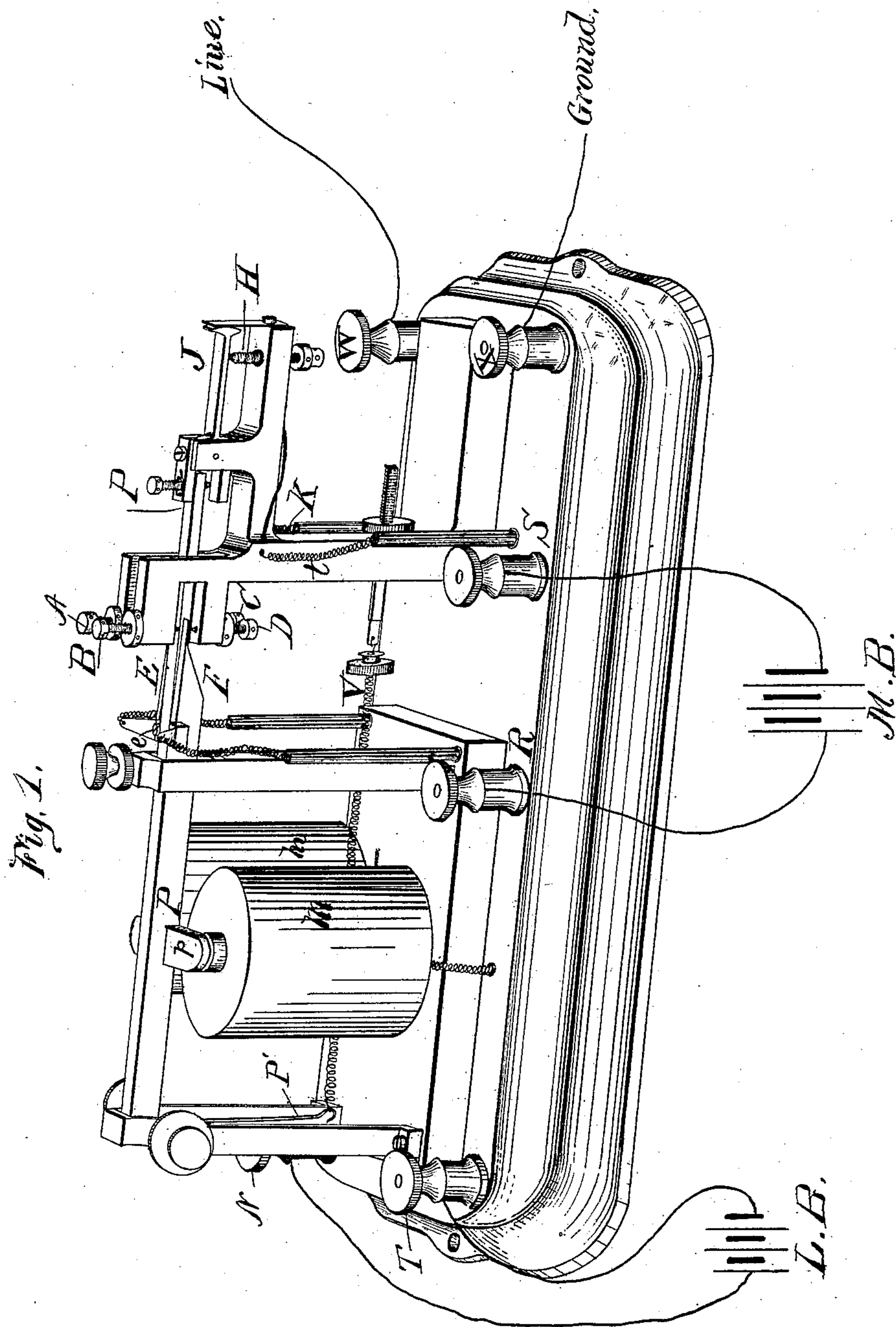
(No Model.)

2 Sheets—Sheet 1.

C. H. HASKINS.  
TELEPHONE SYSTEM.

No. 299,926.

Patented June 3, 1884.



Witnesses.

*W. Graham.*

*John M. Cauley.*

*Inventor*

*Charles H. Haskins*  
*by Stout & Underwood,*

*Attorneys.*

(No Model.)

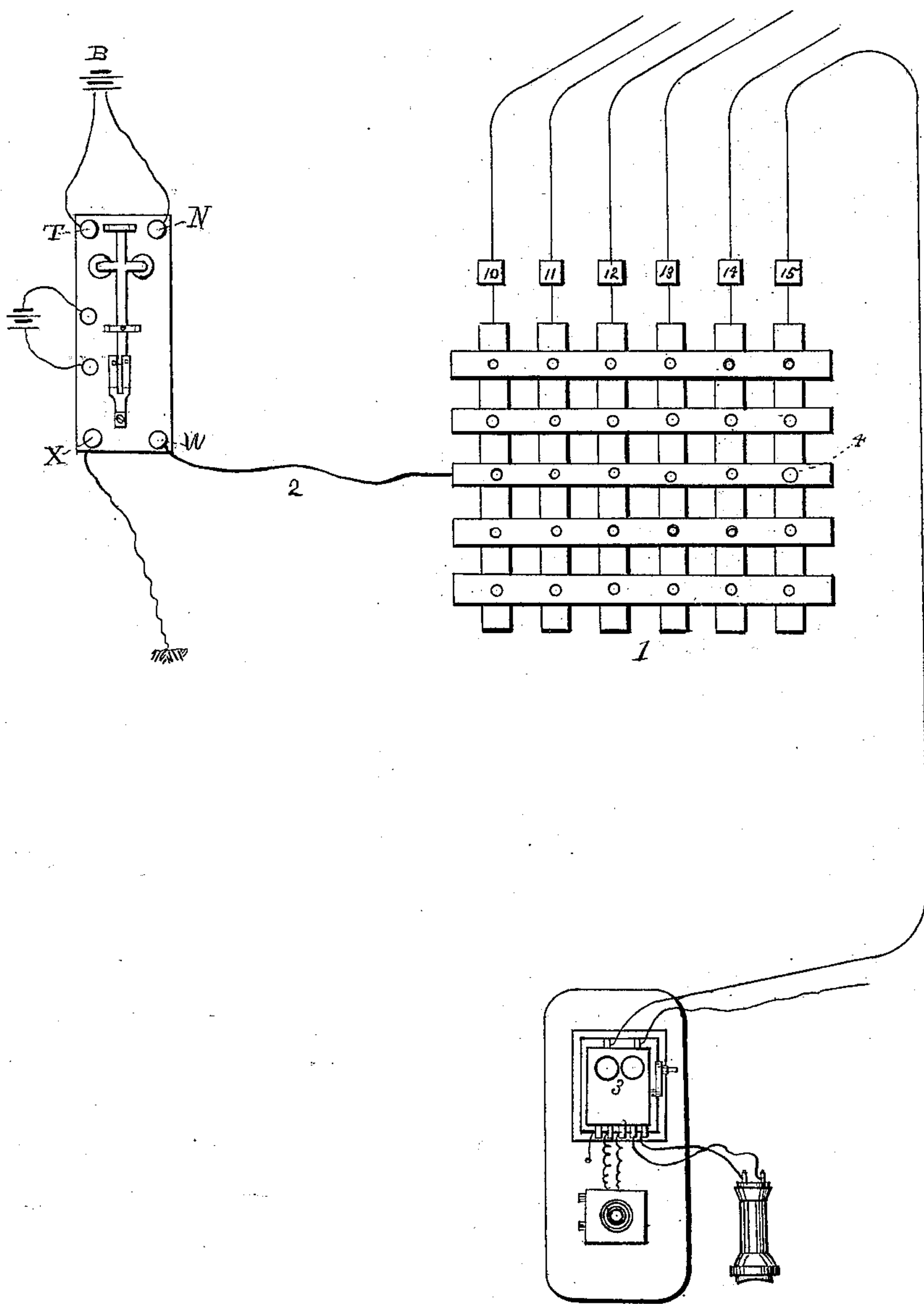
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Fig. 2.



WITNESSES  
J. W. Brown,  
Chas. Simpson

INVENTOR  
C. H. Haskins.  
per Warwick and Bartlett  
His attorneys.



# UNITED STATES PATENT OFFICE.

CHARLES H. HASKINS, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE  
WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS.

## TELEPHONE SYSTEM.

SPECIFICATION forming part of Letters Patent No. 299,926, dated June 3, 1884.

Application filed June 24, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES H. HASKINS, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented  
5 certain new and useful Improvements in Telephone Systems; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to telephonic-exchange  
10 signal systems; and it consists in the combination, with such a system, of a pole-changer or equivalent mechanism, by which the signal is operated continuously, when once actuated, until the connection with the pole-changer is  
15 broken.

Prior to my invention the signal (usually a bell) of a telephone was generally actuated by a hand magneto-generator. The operator was  
20 compelled to turn the handle of this generator until he received an answer to his call. In communicating to the central office, the labor of actuating the generator was annoying, and the confusion at the central office was sometimes great. By the substitution of a pole-  
25 changer for the hand magneto-generators of the central office, it only becomes necessary to throw the pole-changer into circuit with the signal or bell, when the signal will sound continuously until the circuit through the pole-  
30 changer is broken. It is not material to the purposes of my invention what form of pole-changer is used. I will proceed to describe one form of pole-changer which may be used; but my invention is not limited to that form,  
35 but embraces the combination of that or any other form of pole-changer with the switch-board of a telephonic exchange at the central office and with the signal-bells, when by the operation of the pole-changer the sounding of  
40 the bells is made continuous.

In the drawings, Figure 1 is a perspective view of a pole-changer; and Fig. 2 is a diagram of a switch-board and attachments, intended to illustrate the relation of the pole-  
45 changer to the switch-board and the signaling apparatus.

In the pole-changer illustrated in Fig. 1, P is a lever, having attached to its free end two horizontal flat springs, E F. These springs are

connected with the terminal wires of a battery 50 or other source of electricity, M B, through binding-posts R S, and are insulated from the lever P and from each other by a rubber plate, e. The lever P carries an armature, p, for the electro-magnet M M, which gets its current 55 from a local battery, L B. The current from this battery, entering at post T, traverses a wire under the base of the apparatus, and up wire t to point H, then on lever J, down wire K, back through electro-magnet M M, and by 60 post N to local battery L B, thus completing the circuit. The free end of lever P plays between the forked ends of lever J, and when the current from the local battery traverses the circuit as above shown, lever P will be 65 drawn by the action of the electro-magnets on its armature, until its point, pressing upon the lower arm of the forked lever J, will raise the outer end of this lever from contact with the point H, thus breaking the local circuit. 70 The electro-magnets M M now fail to attract the armature p, and the tension of spring V upon the arm P' of lever P, will again raise its free end, which, by pressure on the upper fork of lever J will depress its front end until 75 it makes contact at point H, when the completion of the circuit will again excite the magnets M M, and the force of the spring will be overcome. Thus by alternate impulses the lever P will be kept in rapid vibration. The 80 spring E extends from the lever P, so that it is between two points, A and C, and the spring F extends between two other points, B and D. The points A and D are in circuit, and so are B and C. When lever P is raised, it carries 85 spring E into contact with point B. Hence, if B is wired to ground-post X, and A is wired to line-post W, spring E being wired to positive pole of main battery M B, and spring F to its negative pole, the raising of lever P will con- 90 duct a positive current to line. A reverse movement of lever P will convey a negative current to line through spring F and its connections. Thus the current flowing to the line will be reversed with every vibration of the 95 lever P.

Fig. 2 is a diagram showing the relation of the pole-changer to the switch-board of a tele-



phonic-exchange system, it being understood that the pole-changer hereinbefore described, or any similar pole-changer which causes a constant reversal of currents, may be used.

5 The switch-board 1 at the central office is connected by wire 2 to the pole-changer, so that battery B is connected to the switch-board through said pole-changer. Now, suppose the subscriber on line 10 wishes to communicate

10 with the subscriber on line 15. He will call the operator at the central office. This operator, instead of grinding out a call by a hand magneto-machine over line 15 to the signal-bells 3 of the instrument on line 15, will insert

15 the pin 4 in the switch-board, so as to connect line 15 with the pole-changer. The signal on line 15 will be sounded by the reversal of currents from or through the pole-changer, as long as the pin 4 remains in this position, thus

20 relieving the operator at the central office of the labor of sounding the signal by means of the hand magneto-machine, and insuring a signal of sufficient duration on the subscriber's line to attract attention should any person be

25 within hearing.

Any ordinary form of switch-board may be used with my apparatus. So with the signal,

which is usually a bell, and the principle of operation of said bell is substantially that described in English Patent No. 2,462 of 1860; 30 but said English Patent shows or describes no connection between said signal and a telephone or switch-board.

The appliances for connecting the subscribers' lines are those usual in telephonic systems. 35

What I claim is—

In a telephone system, and in combination with the central-office switch-board thereof, a pole-changer adapted for continuous operation, bells adapted to be operated by reversed electric currents, electric circuits connecting said bells with the switch-board, and means for connecting the pole-changer to any line centering in said switch-board, substantially 45 as described.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of June, 1881.

CH. H. HASKINS.

Witnesses:

S. S. STOUT,  
ANGUS S. HIBBARD.