

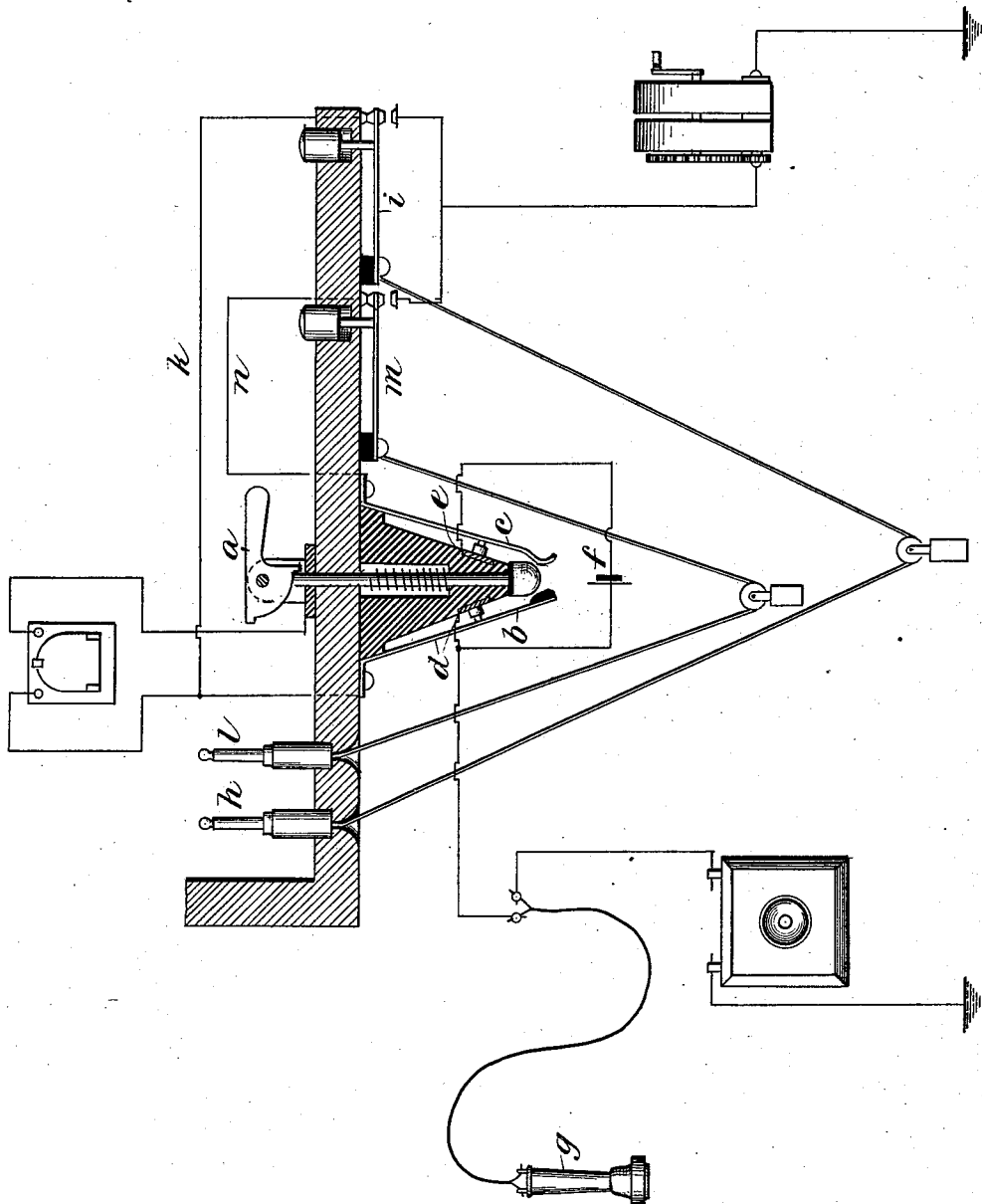
(No Model.)

E. P. WARNER.

TELEPHONE EXCHANGE CENTRAL OFFICE CONNECTION.

No. 378,030.

Patented Feb. 14, 1888.



Witnesses:
Sam B. Dover.
L. M. Page.

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UNITED STATES PATENT OFFICE.

ERNEST P. WARNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN
ELECTRIC COMPANY, OF SAME PLACE.

TELEPHONE-EXCHANGE CENTRAL-OFFICE CONNECTION.

SPECIFICATION forming part of Letters Patent No. 378,030, dated February 14, 1888.

Application filed November 17, 1887. Serial No. 255,450. (No model.)

To all whom it may concern:

Be it known that I, ERNEST P. WARNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Telephone-Exchange Central-Office Connections, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

My invention relates to test-battery central-office circuits of a multiple switch-board system of a telephone-exchange; and its object is to enable the switchmen to answer calls more rapidly than heretofore, and at the same time avoid including the test-battery in circuit, except at the moment of testing.

Heretofore on plugging into the switch of a calling subscriber it has been usually necessary to operate a cam-lever switch to bring the telephone and test-battery of the switchman into circuit, the circuit of said battery and telephone being common to all the connecting-cords of the particular switchman's section.

My invention consists in placing the switchman's telephone in a ground branch permanently connected with the back contact-strips of the cam-lever switches, the test-battery, as heretofore, remaining in circuit between the back and the front strips of the cam-lever switches. By this arrangement the ground-plates heretofore connected with metallic heels provided on the plugs are dispensed with.

My invention is illustrated in the accompanying drawing, in which I have shown a cam-lever switch, a pair of cords, the telephone in a ground branch connected to the back strip, and a test-battery between the back and front strips of the cam-lever switch. I have not shown the telephone-lines nor the spring-jack switches of the switch-board.

By means of the apparatus shown any desired tests or connections may be made.

The cam-lever *a* being down, the springs *b* and *c* rest upon back strip, *d*, and front strip,

e, respectively. The springs are each connected with a different cord of the pair, and the circuit of the test-battery *f* is open. The operator's telephone *g* is included in a circuit connected from back strip, *d*, to ground.

It will be seen that the circuit of plug *h* may be traced to the calling-key *i*, and thence by wire *k* to spring *b*. From plug *l* the circuit may be traced to calling-key *m*, and thence by wire *n* to spring *c*.

The switchman on seeing a shutter fall plugs at once into the spring-jack of the calling-line with plug *h*, and, listening at his telephone, receives the order. Thereupon he tests the line of the subscriber wanted with plug *l*. If the line wanted should be busy, the circuit will be closed through the battery *f* and telephone *g*. If he finds that the line is free, he completes the connection and throws up the cam-lever, disconnecting the test-battery.

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

1. The combination, with a pair of cords and plugs, of a loop-switch and a test-battery in circuit between two contact-points of the switch, and contact-springs normally resting on said contact-points to close the battery to the cords, and a telephone in a circuit branched from one of the contact-points to ground, substantially as described.

2. The combination, with a pair of cords and plugs, of a telephone included in a branch circuit to ground, a loop-switch, with a battery in circuit between two contacts of the switch, and circuit-changing devices for disconnecting the telephone and battery from the cords and connecting the two cords together, substantially as described.

In witness whereof I hereunto subscribe my name this 13th day of September, A. D. 1887.

ERNEST P. WARNER.

Witnesses:

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