

(No Model.)

J. A. SEELY.

KEYBOARD SYSTEM FOR METALLIC CIRCUITS.

No. 476,494.

Patented June 7, 1892.

Fig. 1.

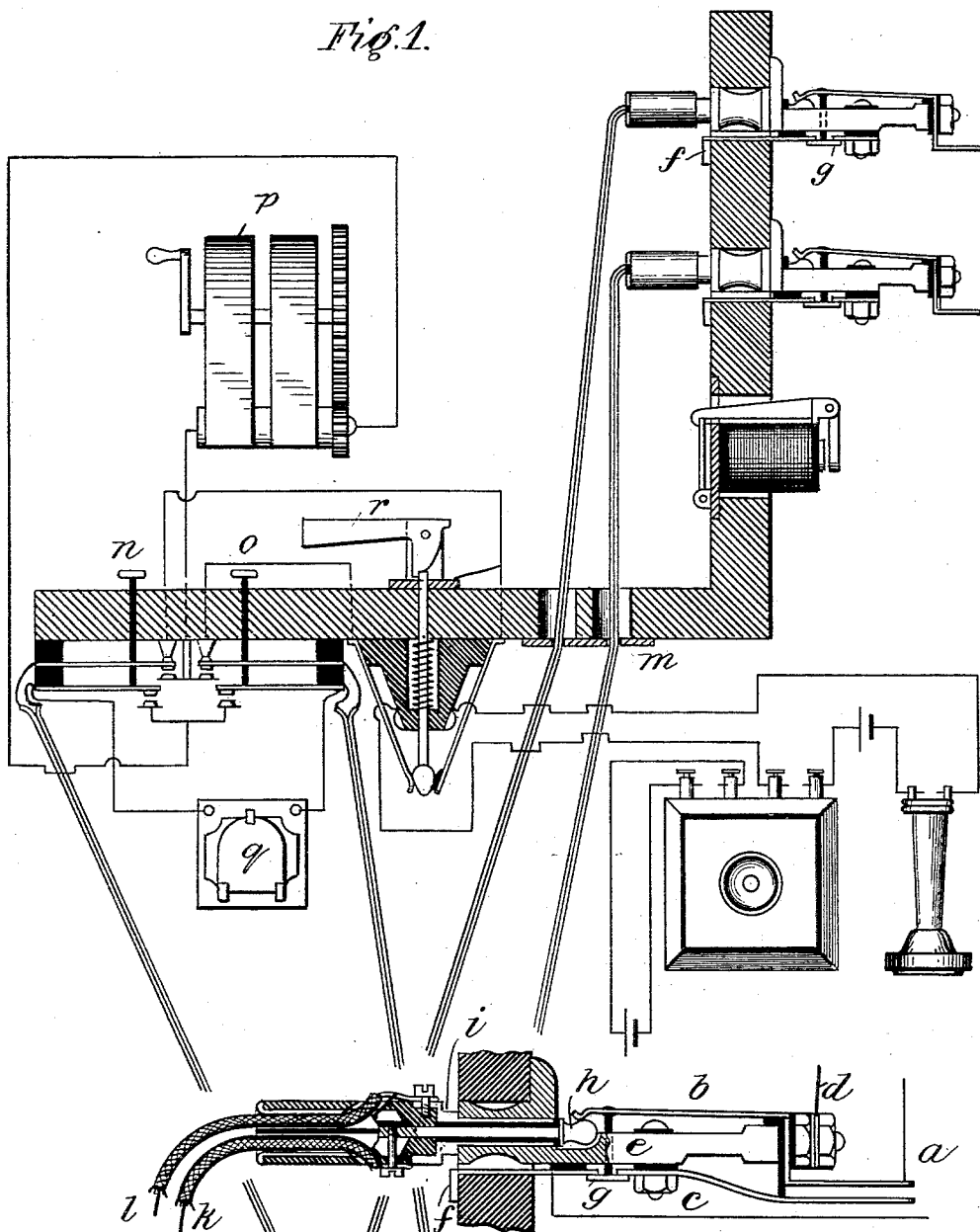


Fig. 2.

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Att'y.

UNITED STATES PATENT OFFICE.

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KEYBOARD SYSTEM FOR METALLIC CIRCUITS.

SPECIFICATION forming part of Letters Patent No. 476,494, dated June 7, 1892.

Application filed November 15, 1886. Serial No. 218,948. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. SEELY, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Keyboard Systems for Metallic Circuits, (Case No. 3,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to the central-office switching apparatus of a telephone-exchange, in which the subscribers are provided with metallic circuits.

My invention was designed more especially for use as a keyboard system for multiple switchboards; but it is evident that it may be used in connection with standard or single switchboards.

The object of my invention is to connect the clearing-out annunciator in the circuit of one of the cords in such manner that no current will be sent through said clearing-out shutter when a signal of the generator is sent over the line.

My invention will be readily understood by reference to the accompanying drawings, in which—

Figure 1 is a sectional view of a switchboard and keyboard with a diagram of the circuits and connections which I have invented. Fig. 2 is a detailed sectional view of one of the spring-jacks with a plug inserted therein.

Like parts are indicated by similar letters of reference throughout the different figures.

As shown in Fig. 2, the telephone-line *a* is connected with the lever *b* of the spring-jack, and thence normally the circuit may be traced to ground-point *c*. The other wire *d* of the metallic circuit is connected with the insulated frame *e*.

In multiple-switchboard systems a test-point *f* is provided near each switch on each board, the different test-points *f* of any board being connected together by the test-wire of said line. By means of a key *g*, operated by the lever *b*, when the lever is lifted from the ground-contact point the test-piece *f* is closed to said ground-contact point, so that the test-

wire is provided with a ground connection. The test-wire and key *g*, forming no part of my invention herein, will not be further described, their object being well known in connection with multiple-switchboard systems. When the plug is inserted, the point *h* connects with the switch-lever *b* and the insulated sleeve *i* connects with the frame or insulated tube of the spring-jack. Strand *k* of the cord is thus connected through the medium of the tip of the plug and spring *b* with wire *a*. Moreover, strand *l* of the cord is connected through the medium of the sleeve *i* and the frame *e* with the wire *d*. When the other plug of the pair rests upon the metallic plate *m*, the two strands are connected together, since the strands *l* *k* are each provided with a separate point or connection upon the heel of the plug, and when these points rest upon a common plate *m* it is evident that the two strands will be connected. When, however, the other plug of the pair is inserted in the spring-jack of another line, the different strands of the cord will be connected with the different wires of the metallic circuit of the other line, and thus the two lines will be looped together. By means of the calling-keys *n* *o* the generator *p* may be connected or looped into either one of two connected lines; but in neither case will current be sent through the clearing-out drop *q*. It should be noted that the two upper springs of the calling-keys *o* *n* are placed above a common contact, which is connected to one pole of the calling-generator *p*, while the other pole of the generator is connected with a contact common to the other or lower corresponding springs of said calling-keys. Therefore when either calling-key is depressed the generator will be brought into circuit between the springs or levers thereof. When the cam-lever *r* is thrown down, as shown, the telephone is disconnected from the circuit while the lines remain connected together. On throwing the cam-lever *r* up the plunger of the listening-key is raised so that the springs of the calling-key, closed upon the points of the key, connect with the telephone. Thus the telephone may be brought into the circuit of the strand of the cord which connects the tips of the two plugs together.

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

1. In a keyboard system, the combination of
5 calling-keys composed each of two levers, a pair of cords having two strands, the two strands being connected to the levers of the calling-keys, respectively, contact-points connecting with the calling-generator, a clearing-out
10 out annunciator permanently included in a circuit between corresponding levers or springs of the keys, whereby the generator may be looped into the circuit of either of the two telephone-lines, while at the same time
15 the clearing-out annunciator is excluded from the circuit.

2. The combination, with the clearing-out drop *q* included in a circuit between two corresponding springs or levers of the calling-keys *n o*, of the generator connected between
20 contacts common to the corresponding springs of said calling-keys, whereby the generator may be looped in a metallic circuit in either direction without sending current through the clearing-out drop, substantially as and for the
25 purpose specified.

In witness whereof I hereunto subscribe my name this 6th day of November, A. D. 1886.
JOHN A. SEELY.

Witnesses:

H. B. THAYER,
A. D. SALT.