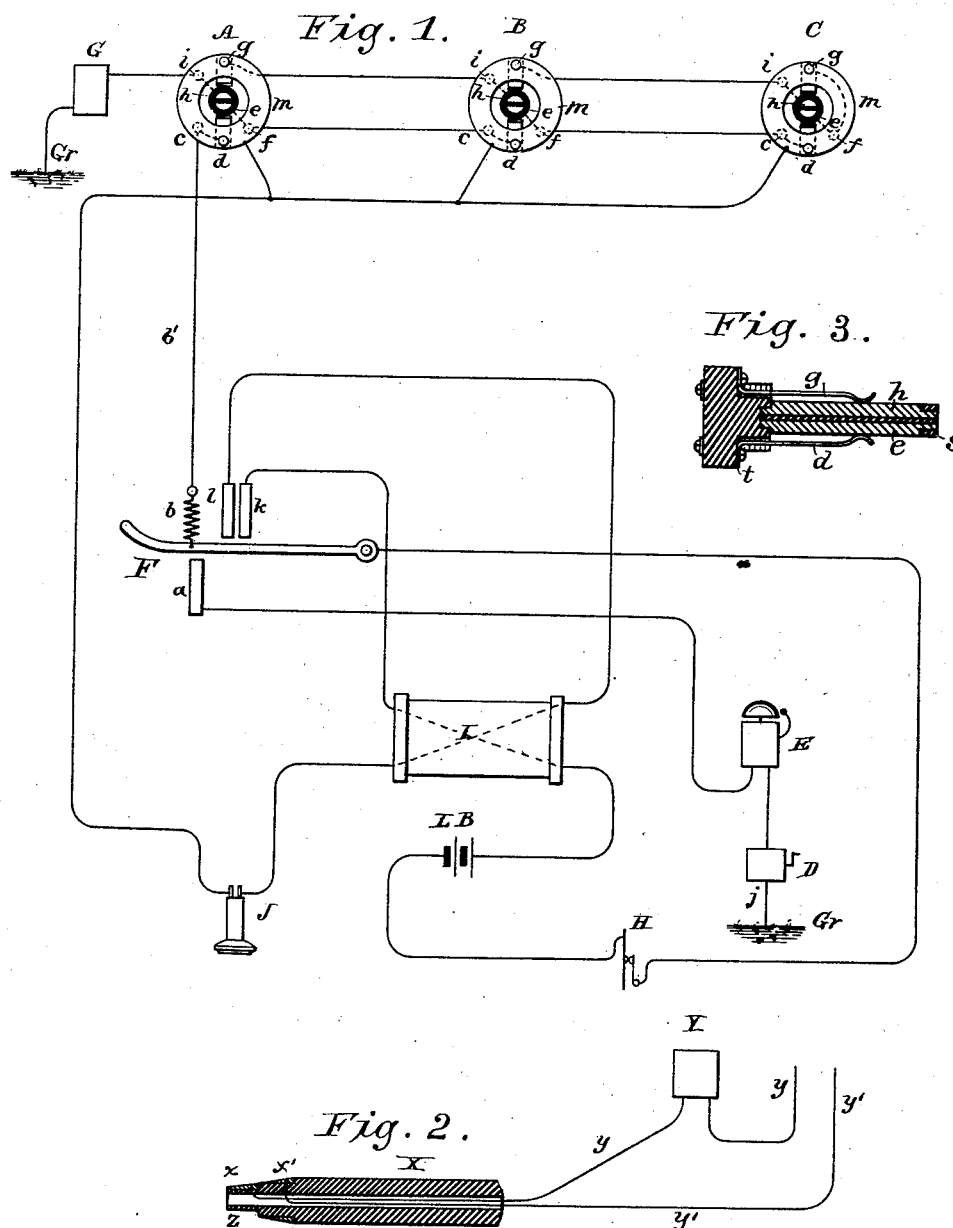


(No Model.)

T. J. PERRIN.
MULTIPLE SWITCH BOARD.

No. 348,579.

Patented Sept. 7, 1886.



WITNESSES

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MULTIPLE SWITCH-BOARD.

SPECIFICATION forming part of Letters Patent No. 348,579, dated September 7, 1886.

Application filed December 19, 1885. Serial No. 136,911. (No model.)

To all whom it may concern:

Be it known that I, THOMAS J. PERRIN, of Brooklyn, Kings county, State of New York, have invented certain Improvements in Multiple Switch-Boards, of which the following is a specification.

My invention consists in certain modifications of a multiple switch-board shown in an application for Letters Patent of the United States filed by me October 6, 1885, serially numbered 179,141. In that application I have shown my improvements applied to a "one-wire" system of telephonic intercommunication.

The improvements herein set forth involve certain changes in the board shown in my said application, whereby it is adapted for use in a "two-wire" system.

In the accompanying drawings, Figure 1 is a view showing diagrammatically a telephone system embodying my improvements. Fig. 2 is a view of one of the main line connecting-plugs and circuit-connections, and Fig. 3 a detail view of a spring-jack.

The upper part of Fig. 1 indicates three spring-jacks, A, B, and C, at three separate sections of a multiple switch-board. The spring-jacks here employed are precisely the same as those described in my former application, above referred to. A detail view of one of the jacks is shown in Fig. 3. The spindle sections and springs are secured to an insulating-block, *t*. The spindle-sections are insulated from each, as indicated, and an insulating-ring, *s*, is placed around the outer end of the spindle-sections. The circuit-connections are, however, somewhat different, and will be hereinafter fully described.

The lower part of Fig. 1 illustrates a subscriber's station connected with the exchange. The signaling-circuit is grounded at the central office and subscriber's station. The talking-circuit is entirely metallic.

Referring first to the signaling-circuit when in its normal condition, the line runs from signaling apparatus D at sub-station to signal-bell E to contact *a*, switch-lever F, (which is normally held down upon contact *a* by the weight of the telephone,) to spring *b*, through line *b'*, to binding-post *c* at spring-jack A; thence to spring-finger *d*, to spindle-section *e*,

to binding-post *f*, and thence to the corresponding parts *c d e f* at spring-jacks B and C. From the binding-post *f*, at C, the line runs to spring-finger *g*, then to spindle-section *h*, to binding-post *i*, and thence through connections *g h i*, at B and A, and annunciator G to ground. The circuit back to the signaling apparatus D is completed through ground and the wire *j*.

When the subscriber removes his telephone from the switch-lever F, the lever is drawn up by the spring *b* against the contacts *k* and *l*, thereby cutting out the signaling-circuit and closing a local battery-circuit at his station. The local circuit runs from local battery L B through transmitter H to switch-lever F and contact *k*, thence through primary of induction-coil I to battery L B.

The secondary or talking circuit is normally open, and is closed by the plugging devices. The line runs from lower spring-finger, *d*, to binding-post *c*, to switch-lever F and contact *l*, to induction-coil I, telephone J, and the face plates or rings *m* at the several spring-jacks or terminals on the boards.

The plugging devices are shown in Fig. 2. The plug consists of a handle, X, of insulating material, in the front end of which are placed two separate metallic contact-pieces, *x* and *x'*. The front contact-piece, *x*, extends only part way around the front end of the plug, and is connected by wire *y* through clearing-out annunciator Y, with the contact *x* on the other plug. The contact *x'* (which is insulated from *x*) is a sleeve extending around the plug just back of *x*, and is connected by a wire, *y'*, with the corresponding sleeve on the other plug. When the plugs are inserted in the spring-jacks, of two different lines, the upper spring-finger, *g*, is moved out of contact with the spindle-section *h* by the non-conducting end *z* of the plug X, the lower spring-finger, *d*, makes contact with *x*, and the sleeve *x'* makes contact with face-plate *m*. The complete secondary or talking circuit is then as follows: From clearing-out annunciator Y to contact *x* on one plug, to lower spring-finger, *d*, to binding-post *c*, to switch-lever F and contact *l*, to induction-coil I, to telephone J, to face-plates *m*, then to sleeve *x'* on the other plug, and so through the second subscriber's

line and second spring-jack back to clearing-out annunciator.

It will be observed that that part of the circuit which includes the clearing-out annunciator is the signaling-line to and from the sub-station, so that the subscriber can signal for disconnection, having first replaced his telephone on the switch-lever, so as to break or open the other part of the circuit.

The line may be tested and signaled over in the same manner and by the same apparatus as that shown in my above-mentioned application.

I claim as my invention—

1. The combination of the several sections of a multiple switch-board, a subscriber's station with its apparatus and local circuit, a terminal on each of said sections of board for said subscriber's station, the signaling-line, and the talking-line, said terminals consisting, substantially as set forth, of the upper and lower insulated spindle sections or contacts and the upper and lower insulated spring fingers or contacts.

2. The combination of the several sections of a multiple switch-board, a subscriber's station with its apparatus and local circuit, the signaling-line, the talking-line, the terminal devices for said subscriber's station on each

section of the switch-board, which devices consist of the upper and lower spindle sections or contacts and the spring fingers or contacts, plugging apparatus, substantially such as described, and a clearing-out annunciator interposed between the connecting-plugs and the circuit-connections, substantially as described.

3. The combination, substantially as set forth, of the upper and lower spindle-sections, the upper and lower spring-fingers, the signaling-line in which said sections and fingers are included, the face-plates, the talking-line electrically connected with said face-plates, the plugging devices, and circuit-connections.

4. In a two-wire system of telephonic inter-communication, the combination of the multiple switch-board, the line-terminals thereon, the normally-closed signaling-circuit, the normally-open talking-circuit, and plugging devices which are normally removed from the terminals, but which when inserted in the terminals open the signaling-circuit and close the talking-circuit.

In testimony whereof I have hereunto subscribed my name.

T. J. PERRIN.

Witnesses:

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