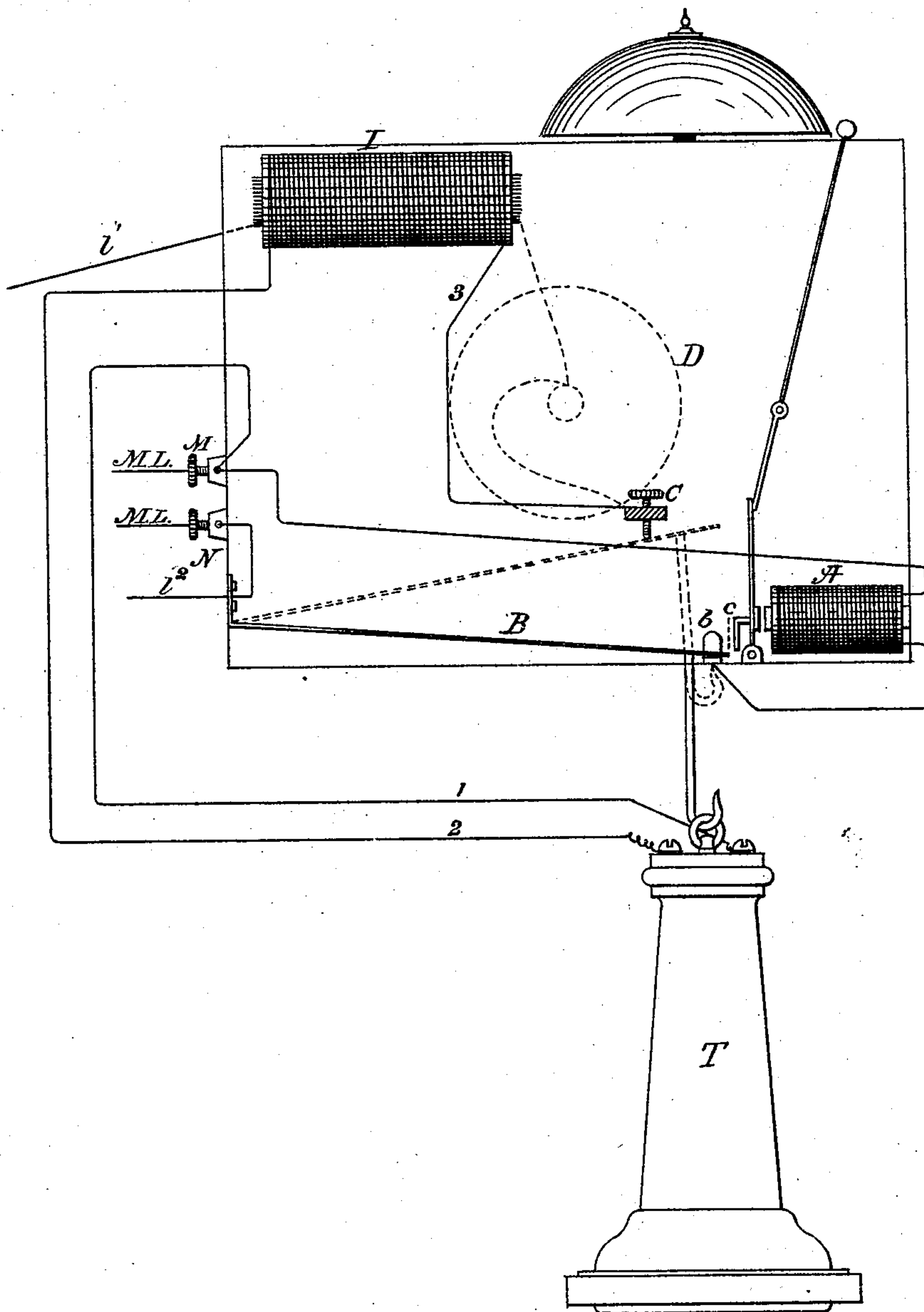


(No Model.)

C. E. BUELL.
Telephone Switch.

No. 243,103.

Patented June 21, 1881.



ATTEST:

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UNITED STATES PATENT OFFICE.

CHARLES E. BUELL, OF NEW HAVEN, CONNECTICUT.

TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 243,103, dated June 21, 1881.

Application filed March 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, CHAS. E. BUELL, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Telephone-Switches, of which the following is a specification.

My invention relates to telephone switches and connections for use at a subscribers' station of a telephone-line.

My invention is designed to furnish a simple and effective arrangement of circuits and devices whereby the proper circuit-connections for the local battery, transmitter, and receiving-telephone are automatically completed when the telephone is removed from its support, and also to provide a simple means whereby the telephones and local batteries are automatically locked out of circuit at all stations excepting the one whose telephones are in use, thus preventing conversation from being overheard at other stations.

The accompanying drawing shows the apparatus and circuits at one station of a telephone-line upon which are placed two or more subscribers.

A represents a call-bell electro-magnet in the main-line circuit, the armature-lever of which acts upon the bell-hammer lever.

B is a spring switch-lever provided with a hook, from which the magneto-telephone T may be supported. This spring is connected at its point of support with one pole of the local battery, (not shown,) and also with one of the connecting-posts of the main line M L. When the spring B is depressed by the weight of the telephone it makes contact with the point *b* connected to one terminal of the electro-magnet A, and when released from the weight of the telephone it is brought by its own elasticity into contact with the screw-stop C, which is connected to one terminal of the primary of the induction-coil I, and also to one electrode of the transmitter D, (whose diaphragm and electrodes are indicated in dotted lines,) and through the other electrode to the secondary of the induction-coil I. The armature-lever of the bell-magnet A is provided with an attachment, *c*, so placed with relation to the end of spring B that when the armature-lever is retracted the spring B will be locked under it. When, however, the main-line bat-

tery is to line and the armature-lever is attracted, the attachment *c* is carried forward, so that the end of spring B can pass it when the spring is released from the weight of the telephone. The point *b* has an upright extension, as shown, with the face of which spring B makes frictional contact, and which is of sufficient length to preserve the connection until the end of spring B has passed the point where the armature-lever of A if retracted would, by its attachment *c*, lock it. After passing beyond contact with *b* the switch passes to C, but as the space between C and *b* is considerable it in so doing breaks the circuit positively and with certainty.

The operation and the circuits of the apparatus are in detail as follows: The battery at the central station being to line, its circuit is through post M, electro-magnet A, point *b*, spring B, which is depressed by the weight of the telephone, and out at post N. The armature-lever of A is, under these circumstances, drawn forward at all the stations, and *c* is in such a position that the spring B at any station can pass it when relieved of the weight of the telephone. The circuits of the telephone T, transmitter, and local battery are all broken at the screw-point C. When the spring is relieved of the weight of the telephone, and thus enabled to make contact at C, the local circuits through transmitter, and the main-line circuit through telephone T, are as follows: The local-battery circuit is from one pole through wire 1', primary of induction-coil I, contact-points of transmitter D, contact-point C, spring B, wire 1" to the other pole. The main-line circuit, which has been broken at point *b*, is now through M, wire 1, telephone T, wire 2, secondary of induction-coil, wire 3, contact C, spring B, post N, and out to main line. The apparatus is now in condition for oral communication.

In passing from point *b* to C the spring B, it will be observed, makes a distinct break in the main-line circuit, thus giving a signal at the central office. In so doing it of course causes the armature-lever of A to fall back; but as the locking-point has been passed before the break occurs it is free to come into contact with C. The main battery at the central office having been withdrawn from circuit, the armature-levers at all stations will fall back,

and at all stations where the spring B is in contact with C, c will lock the spring, as before described, and prevent it from rising if the telephone is removed from the hook for the purpose of introducing it into the circuit. It is obvious that under these circumstances it is impossible for subscribers at other stations than the two in communication to hear what is passing. When the subscribers have finished communication the telephone is restored to the hook, and the battery at the central office having been again connected the springs B at all stations are unlocked.

What I claim as my invention is—

1. In combination with the spring telephone-switch B, connected to the main line and to local battery, the contact-point C, connected to the battery-transmitter, and to the secondary of the induction-coil, substantially as described.

2. In combination with the spring-switch B,

the armature-lever, and the locking attachment c, arranged to be thrown into position to engage with the end of the spring when the armature is retracted.

3. The combination of the spring-switch, the extended contact b, and the locking attachment c, controlled by an electro-magnet, substantially as described.

4. A spring or equivalent switch-lever arranged to break the main-line circuit in passing from one to the other of its connecting-points, in combination with a locking device carried by the armature of an electro-magnet in the main circuit, and means for prolonging the electrical contact of the switch-lever, substantially as and for the purpose described.

CHARLES E. BUELL.

Witnesses:

JNO. J. DIFFLEY,
H. C. TOWNSEND.