

(Model.)

W. H. PRENTICE & S. H. BECKWITH.

PLUG AND BATTERY SWITCH COMBINED WITH A CUT OUT.

No. 250,752.

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Fig. 1.

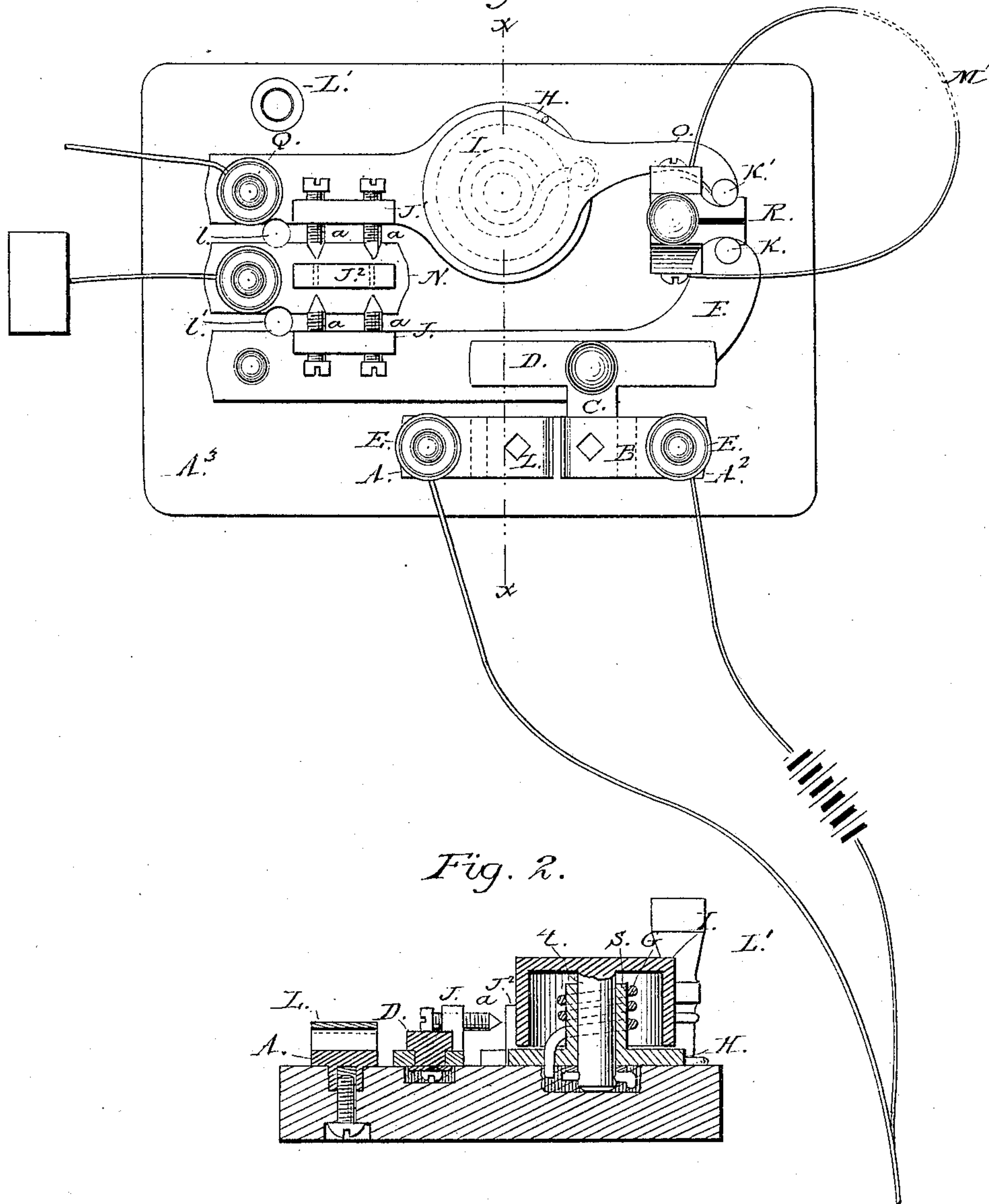
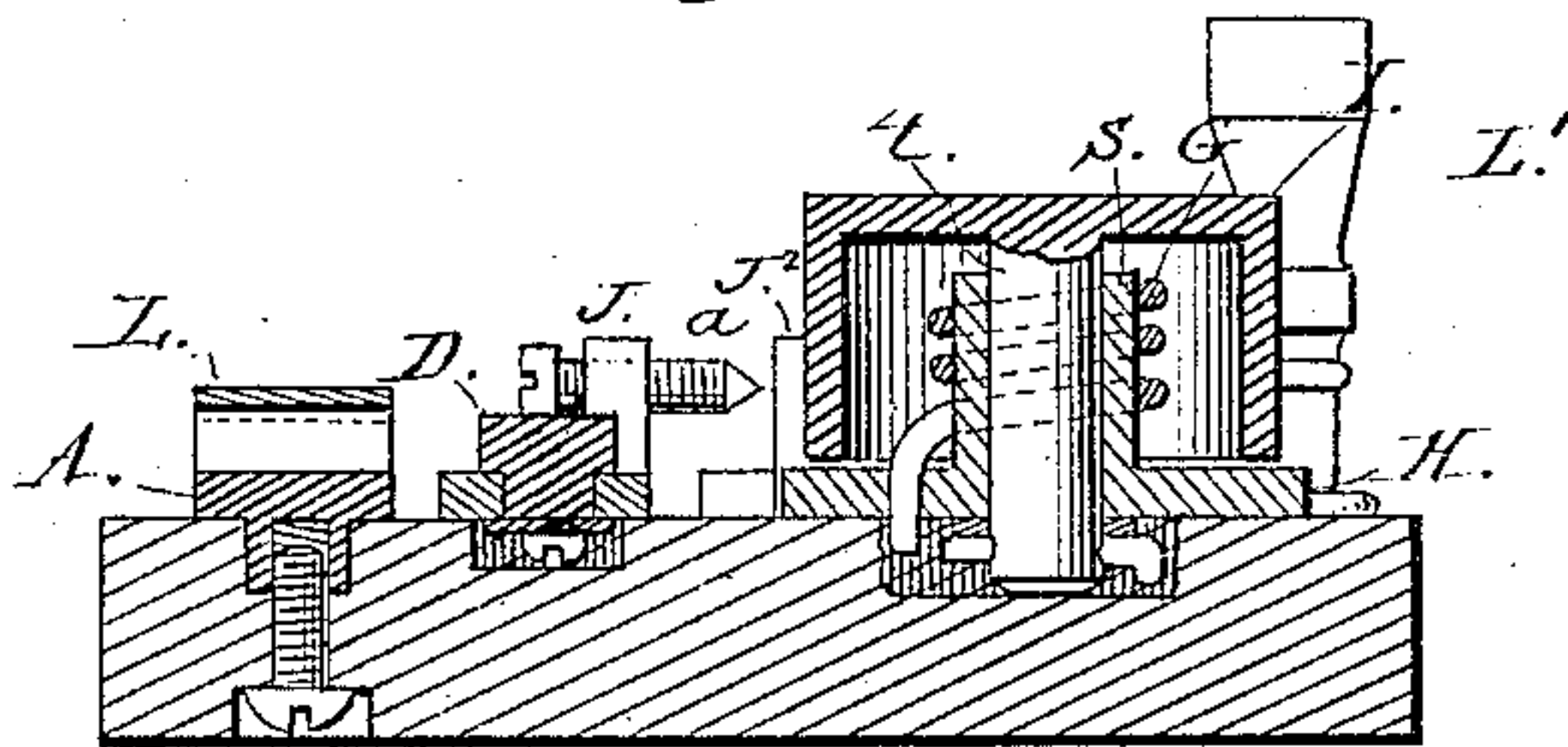


Fig. 2.



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UNITED STATES PATENT OFFICE.

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PLUG AND BATTERY SWITCH COMBINED WITH A CUT-OUT.

SPECIFICATION forming part of Letters Patent No. 250,752, dated December 13, 1881.

Application filed June 13, 1881. (Model.)

To all whom it may concern:

Be it known that we, WILLIAM H. PRENTICE and SAMUEL H. BECKWITH, both of Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Plug and Battery Switches Combined with a Cut-Out; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our present invention is an improvement in plug and battery switches combined with a cut-out.

It consist, first, in the arrangement and construction of certain plates provided with flat springs adapted to hold the arm of a sliding T-plate, the latter of which is moved to connect the line or battery wires of a system with a circuit which runs by way of a lightning-arrester, with a cut-out arrangement, and a spring-drum, the arm of which meets the curved arm of a plate when the circuit is completed, except when broken by the introduction of an insulating-plug, as will be hereinafter fully described.

It consists, secondly, in the employment of a spiral spring arranged within a drum located on a circular bed-plate, the function of said spring being to force the arm or the pointed peg fixed thereon in close contact with a corresponding pin fixed on the opposite plate and permanently secured in the tablet or mounting-board, as will be hereinafter described.

In our drawings, Figure 1 is a plan or top view of the combination, showing the several devices and their connecting parts. Fig. 2 is a transverse section on line *x x* of Fig. 1.

Similar reference-letters denote like parts in both figures.

Referring to drawings, $A A^2$ are plates secured to tablet A^3 , having each an elevated piece, upon which is secured a spring-plate, B or L. Said plates extend toward each other, and their ends are about one-fourth of an inch apart when in place. A T-shaped plate, D,

has an arm, C, of a thickness equal to the slots formed between the base of the plates $A A^2$ and said springs, which, when moved into engagement with said spring-plates—they being slightly depressed at their ends—is held snugly to place. Binding-posts E are secured to the outer ends of plates $A A^2$, to hold respectively the conducting-wires of the line and battery.

Upon the tablet A^3 is fixed by suitable screws from the under side an elongated plate, F, curved at its lower end, terminating with a pin, K, having a tapering or pointed end. This pin K passes through said plate and tablet A^3 , and is secured to the latter at the under side by a suitable nut and washer.

The T-piece D is secured by a suitable bolt in a runner, which slides in a groove in the plate F, and it may be shifted back and forth by the operator to engage by its arm C either the spring B or L, as previously mentioned.

On the straight end of the plate F is a projection, J, formed at right angles with said plate, provided to receive platinum-tipped pointed screws *a a*, to form parts of the lightning-arrester.

On the tablet A^3 , opposite the plate F, is a plate, H, provided with a circular end, which forms a base or bed plate for a drum, I, which loosely incases a spiral spring, G. This plate H is also provided with a projection, J', provided to receive discharging-screws *a a*, forming a second part of the lightning-arrester. Between the plates F and H is a third plate, N, with a projecting piece, J², which interposes between the ends of the pointed screws to form a receiver for the lightning, which is conveyed to the ground by a ground-wire fixed to the binding-post M.

The drum I is extended downward into a curved arm, O, which terminates with a pin, K', corresponding with the pin K, which moves with said arm O, being a part of the same. A plug, R, detached from the instrument, may be introduced between said pins K K' to break the circuit at this point.

The spring G, incased within the drum I, has its opposite ends fastened to the plate H, and also said drum, at a point within the same,

and its function is to throw the pin K' against its correspondent, K. The plate H has at its end a binding-post, Q, to hold one of the main wires of the line.

5 A peg, L', which is temporarily held in a thimble fixed at a convenient point in the tablet, is available for use in connecting the plates F or H with the middle plate, N, and between said plate and the former are holes to receive
10 said peg.

In the projection J², at points opposite to the pointed screws, are pieces of platinum, which serve as sensitive non-corrosive conductors for the lightning.

15 The bed-plate H has a hollow stump, S, adapted to receive a pin, t, attached to the center of the drum I, which forms the axis of motion to said drum and its extended arm O. The pin t is secured to the under side of the
20 plate H by a suitable pin or key. The stump S forms the core about which the spiral spring is coiled.

On either side of the plate N the peg L' may be inserted in the holes l', for the purpose of establishing a ground-connection, and
25 thus cut off communication with all offices on that side. The arm Q of the drum being bowed affords ample space for the plug R, and when it is desirable to use thicker insulating
30 material in said plug said arm, with its pin, will yield readily to the plug while it is being inserted to place.

The spiral spring, when the plug is removed, insures perfect connection of the pointed pin
35 on that side, with the pin attached to the curved plate on the opposite side, without any special precaution on the part of the operator.

It may be observed that the ordinary plug-switch and lightning-arrester is mounted on
40 its base in parts, and its connections are soldered onto the back of the same, and it is hardly necessary to suggest that such are objectionable for the reason that they are liable to work loose, and are therefore unreliable.
45 In our device this objection is remedied by the employment of screws which are readily and easily applied and always safe and reliable.

In the plug-switch now in use there is an objection to the strap-spring, especially when
50 the operator is inexperienced or careless, as there is a liability to his forcing said spring back too far, thus destroying its elasticity and rendering it uncertain of returning its pin to a perfect connection. In the use of the coil-
55 spring this possibility is not at all to be apprehended from the nature of its construction and arrangement. The movement of the arm attached to the spring-drum may be limited in its movement by a small pin, which is placed
60 at a convenient point in the circular bed-plate. The plug used in this device is not unlike ordinary plugs for like purposes. It is provided with binding-screws to receive wires, whereby another instrument or instruments may be cut
65 into the line or circuit. Said plug is composed, in the main, of two metallic parts separated by an insulating substance and a suitable handle.

To more fully explain the arrangement of the several parts of this device and their relation and advantages, we will trace a circuit as
70 follows: We come in through the battery to the bottom binding-post, E, the slide D being down, and run to the pin on the left of the insulating-plug R, returning thence through the
75 instrument at M', and back to the other insulated side of the plug, connecting on that side with the drum and arm of same, circular base-plate, right-angled piece, binding-post, and out. In order to cut the battery out and in-
80 strument out without breaking the circuit, we throw the sliding plate up under the spring-plate L, and the connection will then be through the main line to the exclusion of the battery.

Having thus described our invention, what we claim as new, and desire to secure by Letters
85 Patent, is—

1. The spring-plates L and B, secured to suitable base-pieces adapted to receive and hold the branching arm of the T-plate D, arranged to slide in the base-plate F, as and for
90 the purpose set forth.

2. In combination with the plate F, the T-plate D, springs L and B, and the binding-posts and line and battery wires immediately connected therewith, as and for the purpose
95 specified.

3. The combination, with the plug R, of the plate F, provided with the sliding T-plate adapted to connect the main line or battery, and drum I, with its inclosed spring, the arm
100 O, and bed-plate H, as and for the purpose set forth.

4. The bed-plate H, spring-drum I, and arm O, provided with pin K', in combination with the plate F, middle plate, N, and pin I', as
105 and for the purpose set forth.

5. The plate N, provided with projecting plate J² and a binding-post for a ground-wire, in combination with plates H, having projection J', and provided with a binding-post for
110 a line-wire and the pointed screws a a, all arranged as and for the purpose specified.

6. The plates F and H and spring-drum I, with its curved arm O, in combination with the plug R, whereby one or more instruments may
115 be shunted out or cut in to a main line, as and for the purpose set forth.

7. The plate F, with its sliding T-plate and spring-plates with which said T-plate is adapted to engage, and the plate H and spring-drum,
120 with curved arm extending therefrom, in combination with the insulating-plug R, substantially as and for the purpose set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of
125 two witnesses.

WILLIAM H. PRENTICE.
SAMUEL H. BECKWITH.

Witnesses:

E. D. HONE,
JOHN H. HOUSE.