

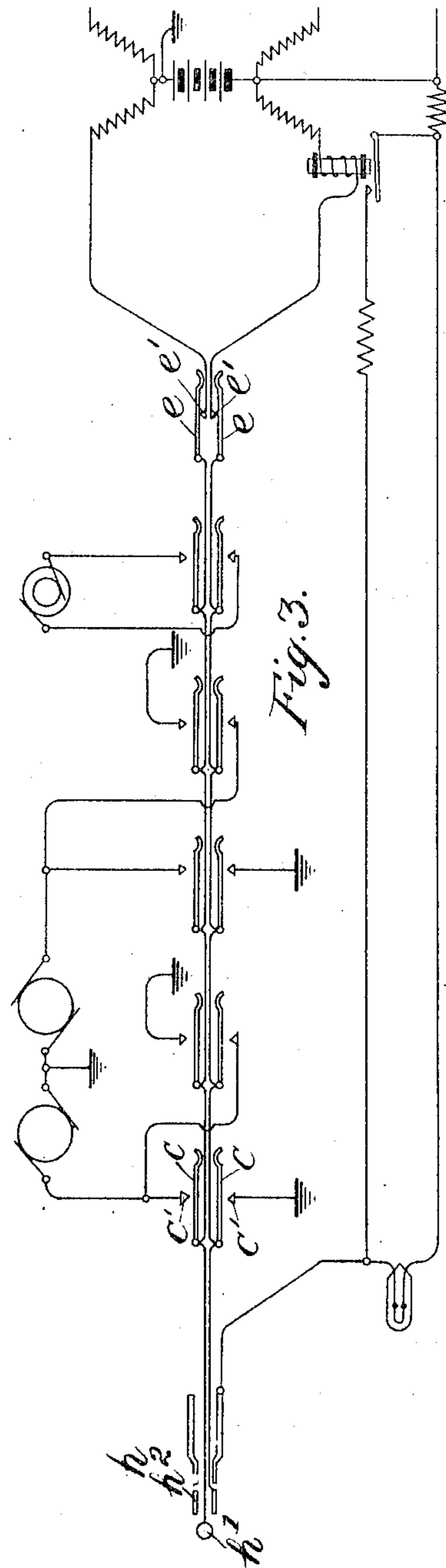
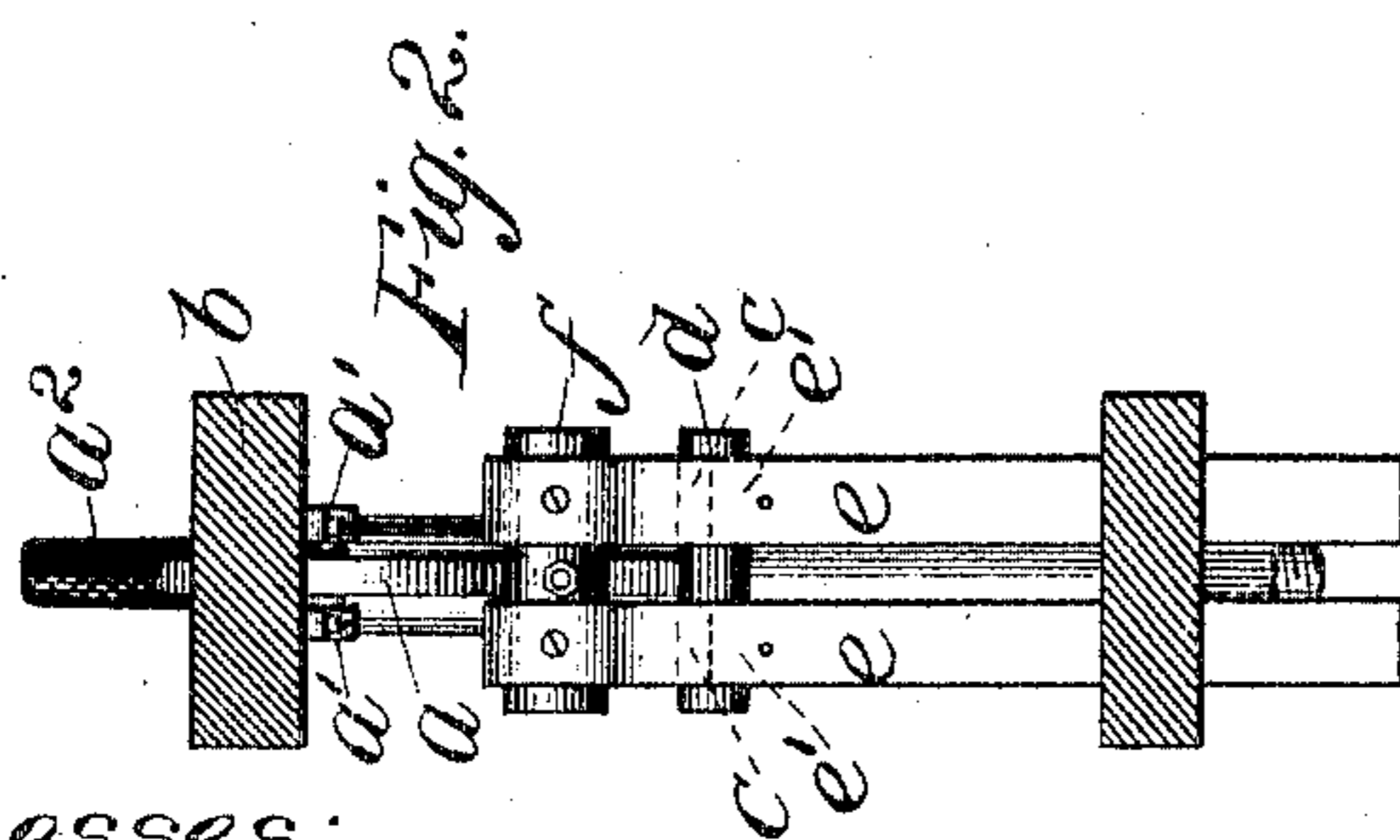
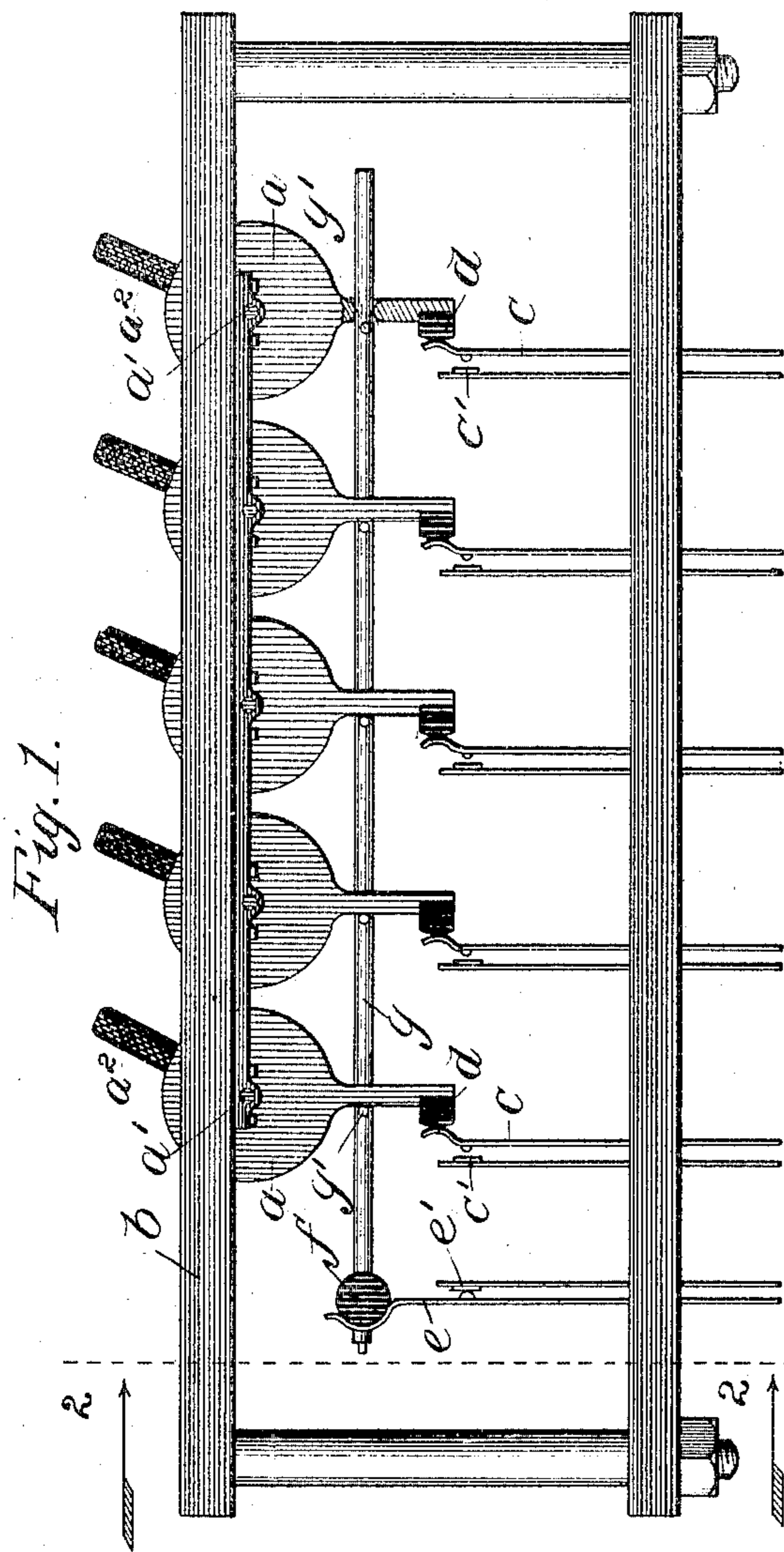
No. 776,413.

PATENTED NOV. 29, 1904.

F. R. McBERTY.
SWITCH KEY.

APPLICATION FILED MAY 9, 1902.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

FRANK R. McBERTY, OF EVANSTON, ILLINOIS, ASSIGNOR TO WESTERN ELECTRIC COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

SWITCH-KEY.

SPECIFICATION forming part of Letters Patent No. 776,413, dated November 29, 1904.

Application filed May 9, 1902. Serial No. 106,566. (No model.)

To all whom it may concern:

Be it known that I, FRANK R. McBERTY, a citizen of the United States, residing at Evanston, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Switch-Keys, (Case No. 115,) of which the following is a full, clear, concise, and exact description.

My invention relates to a switch-key, and is applicable more particularly to a party-line ringing-key for telephone-switchboards.

It has been usual heretofore to provide a party-line ringing-key in association with an operator's plug-circuit at the central office of a telephone-exchange, such key having a number of pairs of switch-springs connected serially in the operator's cord-circuit, each pair of springs being adapted when actuated to sever the cord-circuit and connect the ends thereof leading to the plug-terminal with a source of ringing-current. An objection to this arrangement has been that the several switch-contacts thus interposed serially in the talking-circuit were apt to interfere with proper transmission of telephone-currents.

It is the object of this invention to provide a key which will accomplish all the functions of the keys heretofore known, but which will eliminate all but a single pair of contacts from the talking-circuit.

The selective call-signal appliance of my invention comprises a number of connecting-switches in multiple with one another and with the movable terminal or plug of the link conductors. Each of said connecting-switches controls the application of a source of current to the conductor leading to the aforesaid movable terminal, and a cut-off switch is provided to control the circuit behind the connecting-switches, with means whereby said cut-off switch is actuated in the actuation of any one of the connecting-switches.

I will describe my invention more particularly by reference to the accompanying drawings, in which—

Figure 1 is a view in elevation, partially in section, of a ringing-key embodying my invention. Fig. 2 is a sectional view thereof on line 2 2 of Fig. 1, and Fig. 3 is a diagram illus-

trating the circuits associating the ringing-key 50 with an operator's plug-circuit.

A number of rocking levers *a a*, pivoted at *a' a'*, respectively, are arranged in alinement in the framework *b*. Each rocking lever has a handle *a''* to facilitate its manipulation by the operator. Individual switch-springs *c c* are provided for each lever in position to be engaged by an insulating cross-bar *d*, carried by the lever. When the lever is rocked, the cross-bar *d* thrusts the springs *c c* against contact-anvils *c' c'*. I have shown five of the rocking levers with their individual switch-springs. Four of these levers may control the application of positive and negative pulsating current to one side or the other of the line in the usual way, and the fifth may control the application of ordinary alternating current. A pair of switch-springs *e e* is provided in alinement with the others, said springs *e e* being connected by an insulating yoke-piece *f*, from which a rod *g* extends forward through holes in the several rocking levers *a a*. Cross-pins *g' g'* are provided in the rod *g* in position to be engaged by said rocking levers when the latter are moved to actuate their switch-springs. Thus when any one of the rocking levers is rotated it thrusts its individual springs *c c* against their respective contact-anvils *c' c'* and also moves the rod *g* longitudinally, whereby the cut-off springs *e e* are forced back and separated from their normal resting contact-anvils *e' e'*.

The circuit connections are illustrated in the diagram Fig. 3. It will be seen that the several pairs of contact-springs or connecting-switches are connected in multiple with one another and with the contact-pieces *h' h''*, respectively, of the movable terminal or plug *h*. The alternate contacts of each pair of springs are connected with a source of ringing-current, so that when any of the rocking levers is actuated a particular source of ringing-current is applied to the plug-circuit. Instead of each pair of switch-springs being arranged to sever the plug-circuit when the ringing-current is applied the special cut-off switch *e e'* is provided, said switch being actuated by means of the rod *g* when any one

of the individual switches is actuated, the plug-circuit being thus severed behind the connecting-switches when ringing-current is applied to confine the application of ringing-current to the calling-plug.

I claim—

1. The combination with a telephone-switch-board and a link conductor having a movable terminal for temporarily uniting telephone-lines thereat, of a selective call-signal appliance for the link conductor comprising a number of connecting-switches in multiple with one another and with said terminal, each of said switches controlling the application of a source of current to the conductor leading to said terminal, a cut-off switch adapted when actuated to break the circuit of the link conductor behind the connecting-switches, and means for actuating said cut-off switch in the actuation of any one of said connecting-switches.

2. A signaling appliance comprising a number of rocking levers arranged in alinement, a pair of individual switch-contacts for each lever arranged to be closed together by said lever when rocked, corresponding members of each pair of contacts being connected in multiple with one another and with an electric circuit, the other members being connected respectively with sources of current, a pair of cut-off contacts normally closed,

controlling the circuit behind the multiple switches, and a connection between said cut-off contacts and the several rocking levers, whereby any of said rocking levers actuates the cut-off switch when moved to actuate its individual switch.

3. In a calling-key, the combination with a plurality of pivoted rocking levers and switch-springs *c c'* for each of said rocking levers operated thereby, of the longitudinally-movable rod *g* common to said levers, each of said levers being adapted to engage said rod to move it when the lever is rocked in one direction, and the switch-springs *e e'* operated by the rod, as described.

4. In a calling-key, the combination with a plurality of rocking levers, of individual switch-springs for each of said levers adapted to be operated thereby, a longitudinally-movable rod *g* mounted in association with said levers, cross-pins *g' g'* carried by said rod in position to be engaged by said rocking levers when actuated to move said rod, and cut-off switch-springs actuated in the movement of said rod.

In witness whereof I hereunto subscribe my name this 2d day of April, A. D. 1902.

FRANK R. McBERTY.

Witnesses:

GERTRUDE EYSTER,
ETHYL B. PALMER.