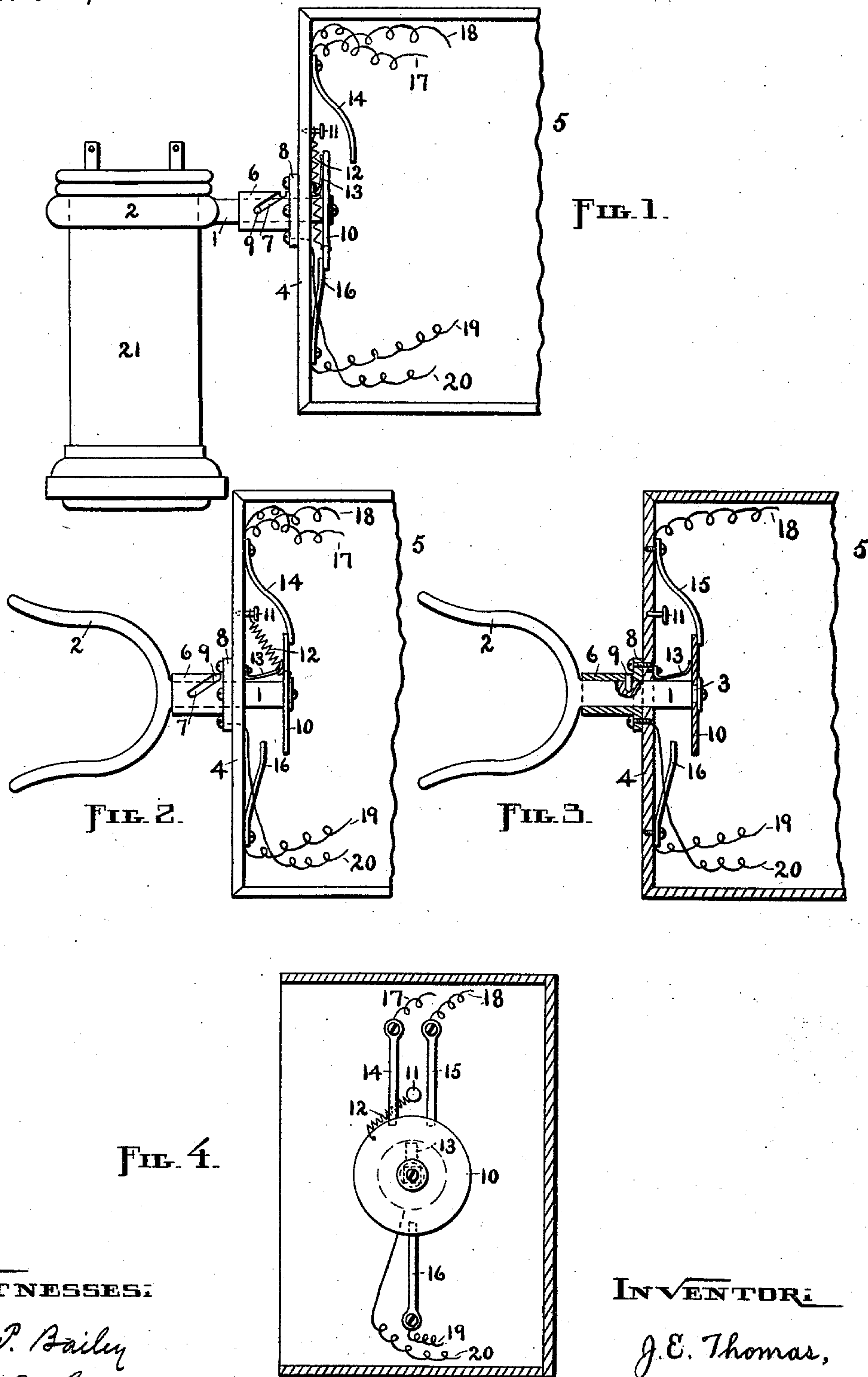


(No Model.)

J. E. THOMAS.
TELEPHONE SWITCH.

No. 548,897.

Patented Oct. 29, 1895.



WITNESSES:

H. P. Bailey
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INVENTOR:

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UNITED STATES PATENT OFFICE.

JOHN E. THOMAS, OF CLEVELAND, OHIO, ASSIGNOR TO THE UNION ELECTRIC COMPANY, OF SAME PLACE.

TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 548,897, dated October 29, 1895.

Application filed April 17, 1895. Serial No. 545,998. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. THOMAS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Telephone-Switches, of which the following is a full, clear, and exact description.

My invention relates to that class of switches for telephones which are operated automatically by hanging the receiver on a protruding hook or removing said receiver therefrom; and it consists, essentially, of a spring-actuated rotary shaft operating in a slotted sleeve, said shaft terminating at one end in a hook and provided at the other end with a disk, and a pin extending into the slot in said sleeve from said shaft for the purpose of reciprocating the same, as hereinafter more fully set forth and claimed.

The object of my improvement is to provide a cheap, durable, and simple switch for telephones, which serves also as a holder for the receiver and is automatic in its action coincident with the connection or disconnection of said receiver therewith.

That my invention may be seen and fully understood by those skilled in the art, reference will be had to the following specification and annexed drawings, forming a part thereof, in which—

Figure 1 is an interior view of a telephone-transmitter box, showing a front elevation of my switch attached to the side of said box, with a receiver hanging on the hook; Fig. 2, a similar view showing my device in its normal position, receiver removed; Fig. 3, a sectional view of said device; and Fig. 4, an interior view of said box, looking at the side to which the switch is attached.

Similar figures of reference designate like parts in the drawings and specification.

In Figs. 1, 2, and 3 the right-hand portion of the box is broken off, only the left side and a part of the back, top, and bottom being shown, and the door at the front is not shown in any of the views.

The shaft 1 is bifurcated at its outer terminal to form the forked hook 2, and the inner end 3 of said shaft is square. The shaft 1 extends through an opening in the side 4

of the box 5 and is held in place by the sleeve 6. The sleeve 6 is provided with the slot 7 and the flange 8, which is screwed to the outside of the box 5. The slot 7 extends from the center of the top of the sleeve 6, at or near its junction with the flange 8, around to the center of the front side of said sleeve and a little remote from the outer end. The length of the slot 7 corresponds to the distance which it is necessary for the shaft 1 to travel laterally, as will appear hereinafter. The shaft 1 fits loosely in the sleeve 6 and may be rotated therein as far as the pin 9 will permit. The pin 9 is driven into one side of the shaft 1 and projects into the sleeve-slot 7. The disk 10 has a square hole in its center to receive the end 3 of the shaft 1, and said disk rotates with said shaft. The disk 10 is attached to the end 3 by a washer and screw after the shaft 1 is in place, or said disk may be secured to said shaft in any other suitable manner. The pin 11 extends inward from the side 4, and the spiral spring 12 connects said pin with the front edge of the disk 10. The flat spring 13 is screwed to the side 4, above the shaft 1, and bears against the outer face of the disk 10. The contact-springs 14 and 15 are screwed to the side 4 and extend downward beyond the inner face of the disk 10. The contact-spring 16 is screwed to the side 4 and extends upward between said side and the outer face of the disk 10. The wire 17 connects the contact-spring 14 with the battery, the wire 18 connects the spring 15 with the transmitter, and the wires 19 and 20 connect the spring 16 with the call-bell.

More than one pin 9 may be employed, if desired, and a corresponding number of slots 7 in the sleeve 6.

When the receiver 21 is suspended from the hook 2, as shown in Fig. 1, the latter is brought into a horizontal position by the weight of the former, the shaft 1 being rotated and reciprocated outward by means of the pin 9 bearing in the slot 7. The disk 10 leaves the springs 14 and 15 to form a contact with the spring 16, thus bringing the call-bell into circuit through the wires 19 and 20, the shaft 1, and the sleeve 6.

As soon as the receiver 21 is removed from the hook 2 said hook at once assumes a ver-

tical position through the resiliency of the springs 12 and 13, since the former, drawing on the front periphery of the disk 10, tends to rotate said disk and the shaft 1, and the latter spring, pressing on said disk, tends to force it and said shaft inward. The combined force of the springs 12 and 13 overcomes whatever friction may exist between the pin 9 and the sleeve 6. The shaft 1 travels inward, carrying said pin from the outer to the inner end of the slot 7, and again forms a contact with the springs 14 and 15 after leaving the spring 16. The wires 17 and 18 are now brought into circuit and the instrument is in proper condition for the transmission of speech.

I am aware that other means than those herein shown and described may be employed for turning and reciprocating the shaft 1, as by a stationary finger or stud attached to either the sleeve or box and projecting into a groove in said shaft; but the slotted sleeve is believed to be preferable to other mechanically equivalent devices. Either of the springs 12 or 13 may be dispensed with, provided the remaining spring is strong enough to rotate the disk and shaft against the friction generated between contiguous parts of the sleeve and said shaft.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination in a telephone switch, of a sleeve having a spiral slot therein, a shaft extending through said sleeve, a pin projecting from said shaft into said slot, springs adapted to normally rotate and reciprocate said shaft until said pin is at one end of said slot, and contact points arranged to make and break circuit in conjunction with said shaft, substantially as and for the purpose set forth.

2. The combination in a telephone switch, of a rotary reciprocating shaft, a disk on the inner end thereof, means for imparting the double motion to said shaft and disk, and

contact points or springs arranged to alternately bear on opposite sides of said disk as it is reciprocated between them, substantially as and for the purpose set forth.

3. The combination in a telephone switch, of a rotary reciprocating shaft hooked at one end and provided with a disk at the other, means for imparting the double motion thereto, contact points or springs arranged to alternately bear on opposite sides of said disk as it is reciprocated between them, and a receiver adapted to hang on the hooked end of said shaft, substantially as and for the purpose set forth.

4. The combination in a telephone switch, of a rotary reciprocating shaft hooked at one end and provided with a disk at the other, means for imparting the double motion thereto, and a receiver adapted to hang on the hooked end of said shaft, substantially as and for the purpose set forth.

5. The combination in a telephone switch, of a rotary reciprocating shaft hooked at one end and provided with a disk at the other, means for imparting the double motion thereto, and contact points or springs arranged to alternately bear on opposite sides of said disk as it is reciprocated between them, substantially as and for the purpose set forth.

6. The combination in a telephone switch, of a rotary reciprocating shaft hooked at one end and provided with a disk at the other, means for imparting the double motion thereto, a receiver adapted to hang on the hooked end of said shaft, and contact points or springs arranged to alternately bear on opposite sides of said disk as it is reciprocated between them, substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN E. THOMAS.

Witnesses:

F. A. CUTTER,
L. H. WAIN.