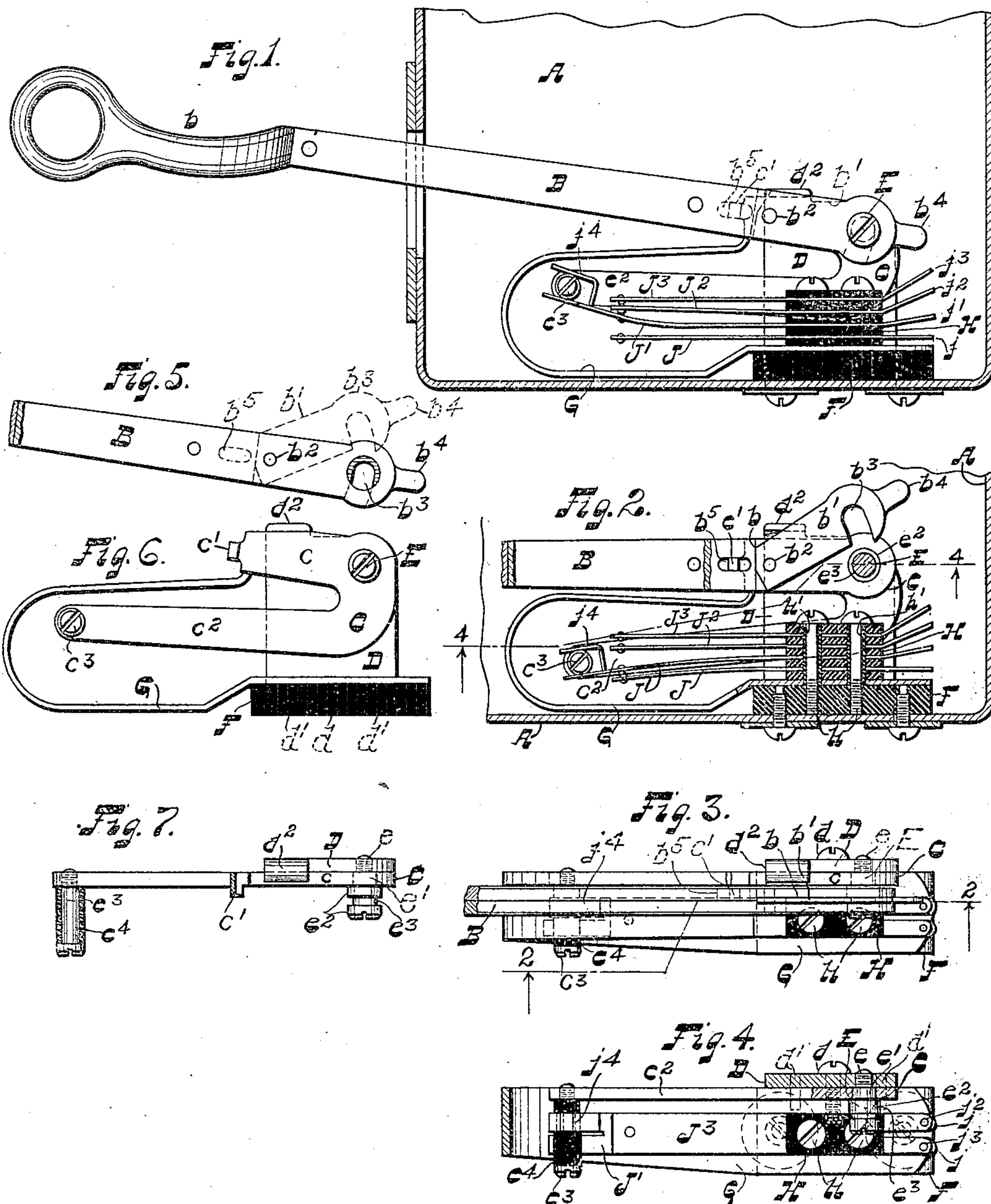


No. 825,397.

PATENTED JULY 10, 1906.

H. L. KNIGHT.
TELEPHONE HOOK SWITCH.
APPLICATION FILED MAR. 15, 1905.



Witnesses:
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UNITED STATES PATENT OFFICE.

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WILLIAMS-ABBOTT ELECTRIC COMPANY, OF CLEVELAND, OHIO,
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TELEPHONE HOOK-SWITCH.

No. 820,397.

Specification of Letters Patent.

Patented July 10, 1906.

Application filed March 15, 1905. Serial No. 250,232.

To all whom it may concern:

Be it known that I, HERBERT L. KNIGHT, a citizen of the United States of America, and a resident of Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Telephone Hook-Switches, of which the following is a specification, reference being had to the accompanying drawings, which form a part thereof.

My invention relates to telephone hook-switches, and more particularly to removable hook mechanism therefor, whereby the devices are more readily packed for shipping and damage to the switch-hook and associated mechanism is avoided. Its objects are to improve, simplify, and cheapen the construction of such switches; and it consists of such improvements in the details of construction and relative assemblage of the parts, as will hereinafter be fully described and claimed. Certain features herein set forth, however, are specifically claimed by Charles C. Cadden in his application, Serial No. 250,233, filed of even date herewith.

The accompanying drawings show my improvements in such detailed forms and assemblage of parts as is now deemed most desirable by me; but changes not requiring the exercise of invention might be made therein by a skillful mechanic without departure from the spirit of my invention, as set forth in the claims at the end of this specification.

It will be understood that my said removable switch-hook is not necessarily associated with the particular form of switch mechanism herein shown and described.

In the drawings, Figure 1 is a side elevation, partly in section, of my improved switch mechanism as applied to a telephone-subscriber's station-box, preferably a metallic box. Fig. 2 is a similar view, partly in section, on the line 2 2 of Fig. 3, with the pivotal portion of the main operating-lever shown in a different position from that of Fig. 1 and partly broken away. Fig. 3 is a plan view of the parts shown in Fig. 2, but in the positions of Fig. 1. Fig. 4 is a similar view with the main portion of the actuating-lever removed and the parts in section on the line 4 4 of Fig. 2. Fig. 5 is a view in elevation of the pivotal end of the removable portion of the actuating-lever. Fig. 6 is a side elevation of the insulating-

base, the pivot-standard, the secondary portion of the actuating-lever, and its spring. Fig. 7 is a plan view of the pivot-standard and the secondary portion of the actuating-lever mounted thereon.

The same characters of reference are employed throughout the several figures to indicate similar parts.

My electric switch mechanism is a complete unit of itself and may be applied in any desired way. In the drawings I have shown it as mounted in box A, adapted for use at a telephone-subscriber's station. For this purpose the operating-lever B is provided at its end, projecting from the box, with prongs *b*, upon which to hang a telephone-receiver.

The box A may be of any suitable material, wood or metal; but I prefer to make it of thin metal, as shown.

A block F of non-conducting material constitutes the base of my device, and its side is a standard D, secured in place by a screw *d* and dowel-pins *d'*. Near the top of the standard is a projecting stud-pin E, which serves as a pivot for the operating-lever B, and at its upper corner farthest from the stud-pin is an overhanging lug *d*², which serves as a stop to limit the movement of the operating-lever.

The operating-lever is made in two parts B and C, the former having the projecting forked end, before referred to, being removable from the pivot E, while the latter is permanently mounted on the pivot and is provided with means whereby it may be connected to the removable portion of the lever.

The pivot-pin E has a threaded portion *e*, which screws into the standard, and a larger shouldered portion *e'*, upon which is mounted the permanent portion C of the lever, and a still larger portion *e*², upon which is mounted the removable portion B of the lever and in which is formed an annular groove *e*².

The pivotal end of the removable portion B of the lever is slotted, as at *b*, and in this slot is a thin latch *b'*, pivoted on a pin *b*² and provided with a slot *b*³, which engages the pivot-pin E at the groove *e*³, as will be readily understood. The latch is provided with a projection *b*⁴, which serves as a handle for operating it.

The permanent portion C of the lever extends forwardly from the pivot E and is pref-

erably U-shaped to secure lightness. Its upper arm c lies beneath the lug d^2 of the standard, and it is provided with a side projecting lug c' , which engages a slot b^5 in the other member of the lever to insure unison of movement therewith. The lower arm c^3 of this portion of the lever extends considerably in advance of the upper arm and carries a side projecting screw-stud c^3 , on which is a non-conducting sleeve c^4 .

On the base F is mounted a strong flat spring G , the free end of which is curved back toward the base and engages the upper arm c' of the lever C , as shown, tending to hold the lever in its normal raised position. Upon the heel of this spring is imposed a series of blocks H of insulating material, and between these blocks are secured the heel ends of contact-springs or switch-arms J , J' , J^2 , and J^3 , which, together with the blocks and the mainspring G , are secured to the base by screws h , surrounded by sleeves h' , of insulating material. Projections j , j' , j^2 , and j^3 from the heel ends of these switch-arms are apertured, as shown, to afford ready means for making conducting-wire connections.

The switch-arms normally extend horizontally and out of contact except as they may be sprung by the switch-arm J' . This arm is longer than the others, is bifurcated at its free end, and has one of its forks bent up, as shown at J^4 , so that the stud-pin c^3 of the lever portion C lies between the two prongs and actuates the arm J' in unison with the lever. The number of these spring switch-arms and the manner of connecting them in circuit may be varied as desired in the use to which my invention may be put.

As previously stated, I have shown it as adapted for use at a telephone-subscriber's station, and in this adaptation the spring-arms J and J' , which are normally in contact, as shown in Fig. 2, when the receiver is on the hook, might be included in the signaling-circuit of the telephone system, while the arms J^2 and J^3 , which are only in contact when the receiver is off the hook and the lever raised, as shown in Fig. 1, might be included in the talking-circuit.

Having thus described my invention, what I claim as new and useful, and desire to secure by Letters Patent, is—

1. In an electric switch mechanism, the combination of a standard, a pivot-pin projecting from said standard having a reduced portion adjacent to the standard and an enlarged portion with a shoulder between said portions and an annular groove in said en-

larged portion, a two-part lever, one part permanent and one part removable, pivoted on said pin, the permanent part of the lever being on the reduced portion of the pin and the removable part on the enlarged portion of the pin, with a pivoted latch on the removable part of the lever adapted to engage the annular groove of the pivot-pin, substantially as set forth.

2. In an electric switch mechanism, the combination of a standard, a pivot-pin extending therefrom and having an annular groove, a two-part lever, one part permanent and one part removable, pivoted on said pin, a slot in the heel of the removable part of the lever and a latch pivoted in said slot adapted to engage the groove in the pivot-pin and another slot in the side of said lever part with a projecting lug on the permanent part of the lever adapted to engage the last-mentioned slot substantially as set forth.

3. In an electric switch mechanism, the combination with a base portion, of a plurality of switch-springs imposed on said base, a standard secured to the base, a grooved pivot-pin projecting from the standard, a two-part lever, one part permanent and the other part removable, pivoted on said pin, the permanent part having an insulated portion adapted to engage and operate the said switch-fingers, a spring secured to the base and at its free end engaging the permanent part of the lever, a stop on the standard to limit the movement of said lever part, and a U-shaped retaining part for detachably mounting the removable lever part upon the grooved pivot-pin, substantially as set forth.

4. In a removable telephone hook-switch, the combination with the standard and its laterally-projecting recessed pivot-pin, of a two-part switch-lever, comprising a normally pivoted member and removable telephone-hook adapted to be placed in position over said pivot-pin, a securing-latch or part thereon for engagement with said pivot-pin; whereby the telephone-hook is secured in position thereon, switch-springs and connecting means for actuating said springs upon the movement of the telephone-hook, substantially as set forth.

Signed at Cleveland, this 11th day of March, 1905, in the presence of two subscribing witnesses.

HERBERT L. KNIGHT.

Witnesses:

CHARLES C. CADDER,
ALBERT LYNN LAWRENCE.