

No. 765,489.

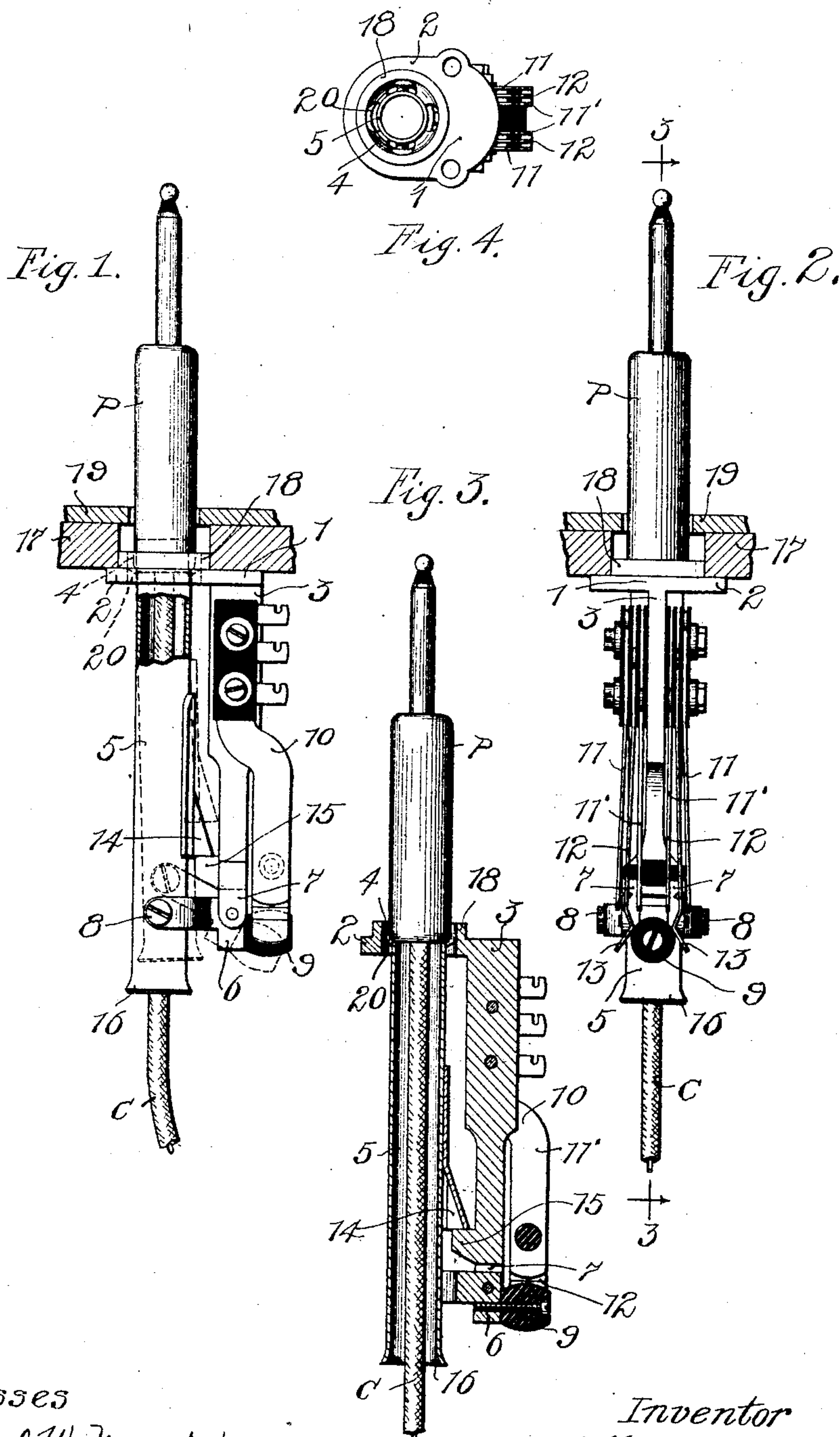
PATENTED JULY 19, 1904.

W. KAISLING.

PLUG SEAT SWITCH FOR TELEPHONE SWITCHBOARDS.

APPLICATION FILED NOV. 23, 1903.

NO MODEL.



Witnesses
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PLUG-SEAT SWITCH FOR TELEPHONE-SWITCHBOARDS.

SPECIFICATION forming part of Letters Patent No. 765,489, dated July 19, 1904.

Application filed November 23, 1903. Serial No. 182,393. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM KAISLING, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Plug-Seat Switches for Telephone-Switchboards, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to circuit-changing apparatus, and particularly to plug-seat switches employed in the telephone art, and has for its object an improved construction which will render a switch of this class more efficient and more positive in its operation.

Heretofore more or less trouble has been experienced with plug-seat switches owing to the ineffectual manner in which the springs of the switch and the plug and cord were associated, the springs refusing to act at all times, thereby causing uncertainty of circuit conditions. By my improved construction I am enabled to overcome these defects heretofore experienced and I construct a switch in which the parts are so related as to cause certainty of action and proper operation at all times. I provide a tube upon the top of which the plug may normally rest, the cord connected with the plug leading downwardly through said tube. The lower end of this tube energizes one end of a pivoted actuating-lever terminating at its other end in an actuating-button, and leaf contact-springs are disposed in range of said button to be actuated to properly change the circuit connections upon upward movement of said tube. A weight associated with the cord exerts a sufficient downward pull on the plug to maintain the tube in its lower position when the plug is seated thereon, the button on the actuating-lever being repelled by the switch-springs to return the tube to its upper position upon removal of the plug therefrom. Thus by a proper number and placement of switch-springs any desired circuit change may be established upon unseating of the plug.

I shall more clearly describe my invention

by referring to the accompanying drawings, in which—

Figure 1 is a side elevational view of the switch, part of the tube being broken away to reveal the interior thereof, a plug being shown seated on the tube. Fig. 2 is a front elevation thereof. Fig. 3 is a sectional view thereof, taken on line 3 3 of Fig. 2; and Fig. 4 is a top view thereof.

Like reference characters refer to like parts throughout the figures.

A supporting-frame 1 is composed of a horizontal plate portion 2 and a downwardly-extending bar 3. The plate portion 2 may be secured to the under side of an operator's keyboard and is provided with an aperture 4, through which extends the upper end of a tube 5. The bar 3 is bifurcated at its lower end, and an actuating-lever 6 is pivoted between the limbs 7 7 of said bifurcated end. One end of said actuating-lever is bifurcated and straddles the lower part of the tube, being pivoted thereto by means of pivot-screws 8 8. The other end of the actuating-lever 6 is provided with an actuating-button 9, of insulating material. Leaf contact-springs 10 10 are mounted at the upper end of said bar 3, being insulated therefrom and from each other, the springs extending downwardly to be actuated by the actuating-button 9 upon vertical movement of the tube 5. Any number of springs may be used or any arrangement thereof may be used; but I have shown outer and inner short springs 11 and 11' and long springs 12, which are engaged by the actuating-button to make contact with either of the short springs. The long springs 12 are provided with outturned ends 13 13 and are so disposed that their action will cause the actuating-button to be repelled when there is no pressure exerted upon the tube, as is the case when the plug P is unseated. Upon the plug being seated on the tube the pull on the plug due to the cord-weights employed, as is well known to those skilled in the art, will carry the tube downwardly to operate the actuating-lever, so that the actuating-button becomes disposed between the long springs 12 to press them

apart and into contact with the outer short springs 11. A stop 14 on the tube and the stop 15 on the bar 3 meet upon downward travel of the tube to limit such downward travel and to prevent the actuating-button from entering far enough between the ends of the long spring to be held thereby. As the plug is now removed from the tube the actuating-button is pushed from the springs to raise the tube, the long springs now engaging the inner short springs 11' 11'. The lower edge 16 of the tube 5 is flared out, thereby preventing abrasion to the cord C as the cord passes through the tube.

I have shown the switch secured to the under side of the operator's board 17, the plate portion 2 being provided at its top with an annular ridge 18, which may be countersunk into the material of the board to more rigidly secure the switch. A facing 19, of leather or other material, may surround the plug-seats, and I preferably cut openings or slots 20 into the walls about the aperture 4, which slots allow the escape of any foreign material which might enter between the tube and the walls of the aperture to bind, and so prevent free movement of the plug.

I do not wish to limit myself to the exact construction as illustrated and described, as changes may readily be made without departing from the spirit of the invention.

I claim as new and desire to secure by Letters Patent—

1. In a device of the class described, the combination with a tube through which may pass a cord and upon the top of which a plug may be seated, of an actuating-lever engaged thereby, an actuating-button on said actuating-lever, and switch-springs disposed in the path of said actuating-button, said springs being spread apart by said actuating-button upon downward travel of said tube, substantially as described.

2. In a plug-seat switch, the combination with a supporting-frame provided with an aperture, of a supporting-bar extending downwardly therefrom, an actuating-lever pivoted at the lower end of said bar, a tube engaged at its lower end by said lever and extending upwardly through said aperture, an actuating-button at the other end of said lever, and leaf switch-springs supported from the upper end of said bar and extending downwardly into the path of said actuating-button, said tube being held down by a plug seated thereon to cause the actuating-button to engage said springs, substantially as described.

3. In a plug-seat switch, the combination with a supporting-frame having an aperture, of a supporting-bar extending downwardly therefrom, an actuating-lever pivoted at the lower end of said bar, a tube engaged at its lower end by said lever and extending upwardly through said aperture, an actuating-button at the other end of said lever, and leaf

switch-springs supported from the upper end of said bar and extending downwardly into the path of said actuating-button, said tube being held down by a plug seated thereon to cause the actuating-button to engage said springs to cause one circuit condition, said actuating-button being expelled by the engaged springs upon removal of the plug from said tube whereby another circuit condition is established, substantially as described.

4. In a plug-seat switch, the combination with a supporting-frame provided with an aperture, of a supporting-bar extending downwardly therefrom, an actuating-lever pivoted at the lower end of said bar, a tube engaged at its lower end by one end of said actuating-lever, the upper end of said tube extending through said aperture, an actuating-button of insulating material at the other end of said actuating-lever, switch-springs disposed in the path of said actuating-button to be engaged by said button upon downward travel of said tube, and stops for limiting the downward travel of said tube, substantially as described.

5. In a device of the class described, the combination with a horizontal supporting-frame provided with an aperture, of a supporting-bar extending downwardly therefrom, a tube at one side of said bar upon the upper end of which a plug may be seated and through which a plug-cord may pass, the upper end of said tube passing through said aperture, an actuating-lever pivoted at the lower end of said supporting-bar, one end of said lever pivotally engaging the lower end of said tube and the other end terminating in an actuating-button of insulating material, switch-springs mounted at the upper end of said bar and extending downwardly to be disposed in the path of said actuating-button, outturned ends for a pair of said springs, said tube being held down when a plug is seated thereon to cause said actuating-button to spread said springs to cause one circuit condition, the outturned ends of said springs upon unseating of said plug repelling said actuating-button to raise said tube to cause other circuit connections to be established, and stops on said tube and said bar for limiting the downward travel of said tube, substantially as described.

6. In a plug-seat switch, the combination with a tube at the top of which may be seated a plug and through which the plug-cord may pass, of an actuating-lever pivotally engaged at its one end by the lower end of said tube, an actuating-button at the other end of said lever, and switch-springs adapted to be actuated upon downward travel of said tube as a plug is seated thereon, the lower edge of said tube being flared outwardly, substantially as described.

7. In a plug-seat switch, the combination with a horizontal supporting-frame provided with an aperture, of a supporting-bar extend-

ing downwardly therefrom, an actuating-lever pivoted at the lower end of said supporting-bar, switch-springs mounted upon said supporting-bar and extending downwardly at one side thereof to be disposed in the path of said actuating-button, a tube at the other side of said supporting-bar pivotally engaged at its lower end by the other end of said actuating-lever, the upper end of said tube extending through said aperture, the lower edge of said tube being flared outwardly, and stops on said tube and bar for limiting the downward travel of said tube, substantially as described.

8. In a plug-seat switch, the combination with a horizontal supporting-frame provided with an aperture, of a supporting-bar extending downwardly therefrom, an actuating-lever pivoted at the lower end of said bar, an actuating-button at one end of said lever, switch-springs disposed at one side of said bar in the path of said actuating-button, a tube at the other side of said bar pivotally engaging at its lower end with the other end of said actuating-lever and the upper end thereof extending through said aperture, and slots cut about the edge of said aperture, substantially as described.

9. In a device of the class described, the combination with a horizontal supporting-frame provided with an aperture, of a supporting-bar extending downwardly therefrom, an actuating-lever pivoted at the lower end of said supporting-bar, an actuating-button at one end of said lever, switch contact-springs mounted upon said bar and disposed at one side thereof in the path of said actuating-button, a tube at the other side of said bar, the lower end thereof being in pivotal engagement with the other end of said actuating-lever and the upper end thereof extending through said aperture, slots cut into the edge of said aperture, downward travel of said tube caused by a plug being seated thereon causing said actuating-button to actuate said springs, and stops on said tube and said bar for limiting the downward travel of said tube, the lower edge of said tube being flared outwardly, substantially as described.

In witness whereof I hereunto subscribe my name this 9th day of November, A. D. 1903.

WILLIAM KAISLING.

Witnesses:

CHARLES J. SCHMIDT,
JOHN STAHR.