No. 799,160. PATENTED SEPT. 12, 1905.

C. M. HEDMAN.

SWITCHING APPLIANCE FOR TELEPHONE EXCHANGES.

APPLICATION FILED MAY 22, 1902.

Fig. 1.

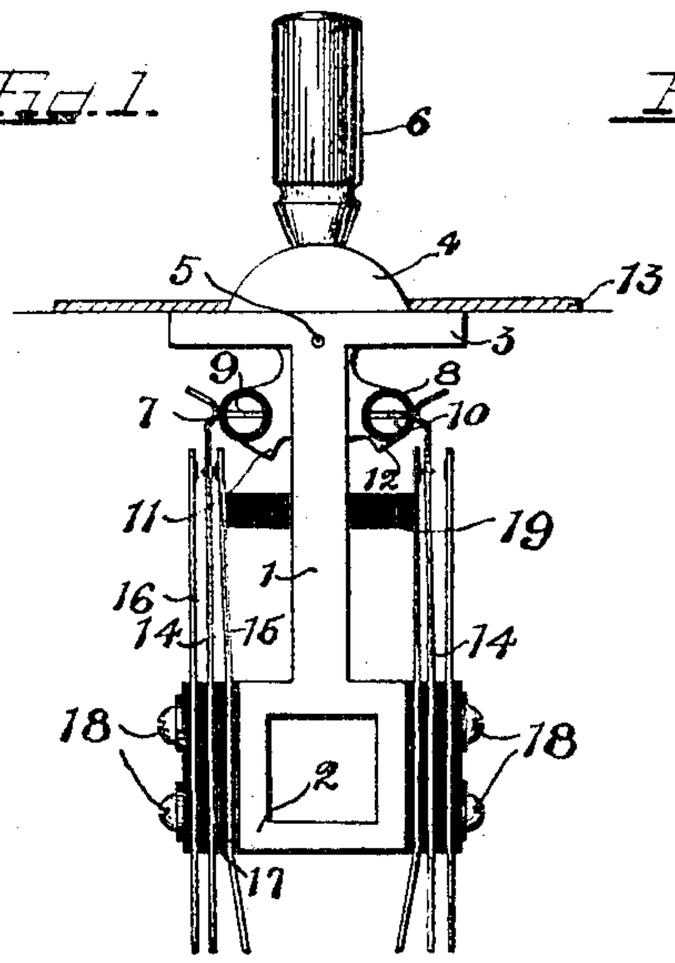


Fig. 2.

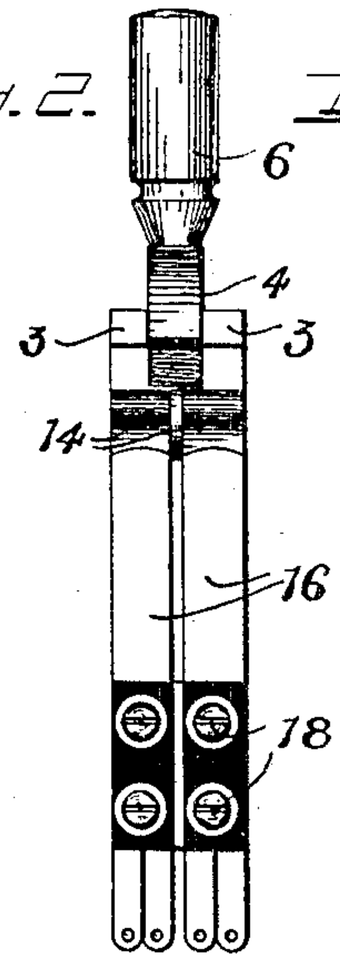


Fig. 6.

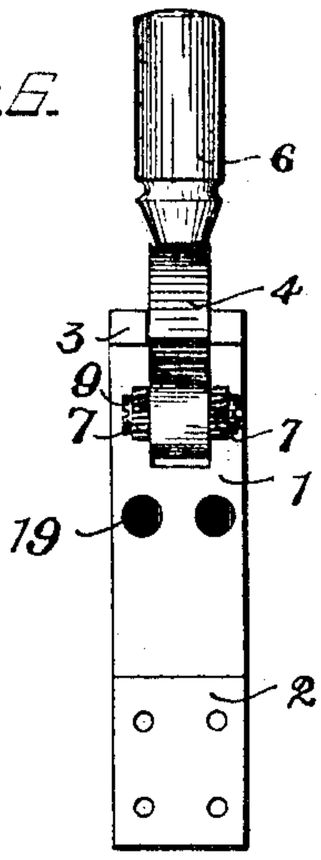


Fig. 3.

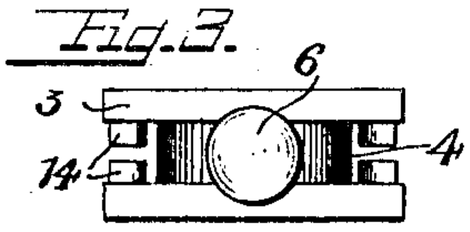


Fig. 4.

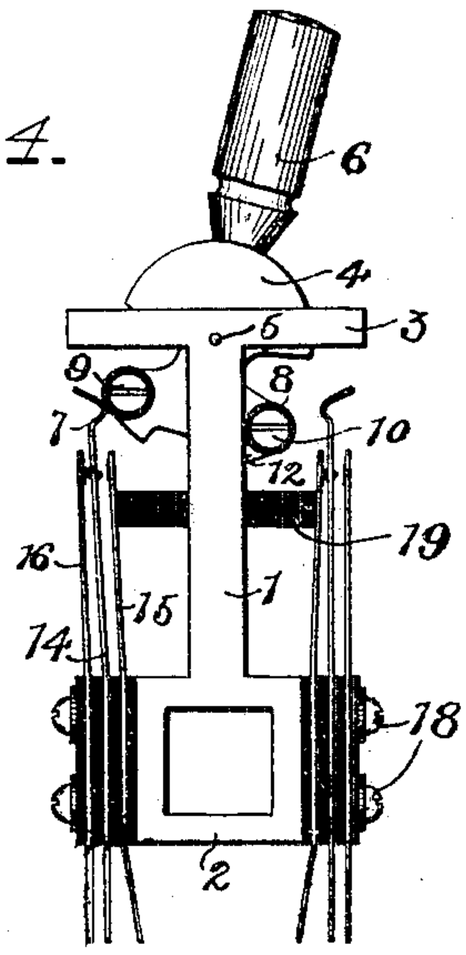
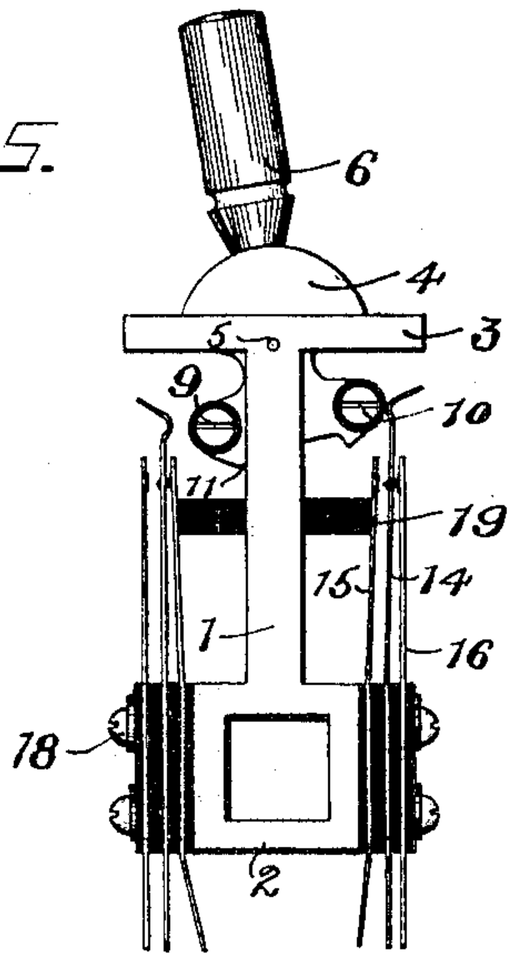


Fig. 5.



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UNITED STATES PATENT OFFICE.

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SWITCHING APPLIANCE FOR TELEPHONE-EXCHANGES.

No. 799,160. Specification of Letters Patent. Patented Sept. 12, 1905.

Application filed May 22, 1902. Serial No. 108,534.

To all whom it may concern:

Be it known that I, CARL M. HEDMAN, 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 Switching Appliances for Telephone-Exchanges, 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 switching appliances, and has for its object the provision of an improved apparatus of this kind by means of which change of circuit conditions may be readily effected.

My invention is particularly applicable in connection with telephone-exchanges and provides a construction in which a plurality of changes of circuit conditions may be effected, the switching appliance being of such a character as to be self-locking in one position, the construction being designed to enable the operator of a telephone-exchange to readily effect the change in circuit conditions necessary in interconnecting subscribers for conversation.

More particularly my invention is designed to provide a new ringing and listening key for telephone-exchanges in which the space occupied thereby is reduced to a minimum and in which the wear upon the operating parts is reduced to the lowest possible amount.

I will describe my invention more in detail by reference to the accompanying drawings, illustrating the preferred embodiment thereof, in which—

Figure 1 is a side view of an improved key constructed in accordance with my invention. Fig. 2 is an end view thereof. Fig. 3 is a top view thereof. Figs. 4 and 5 are side views illustrating the same in its various operating positions. Fig. 6 is a side view with the springs removed.

Like characters of reference indicate like parts throughout the different figures.

My improved key comprises a suitable yoke 1, which has a hollow box-like base 2 for supporting springs, and which has a bifurcated top comprising the sections 3 3, between which the actuating switch-plate 4 is adapted to be supported.

The switch-plate 4 is pivotally mounted by means of a pin 5 and is supplied with a handle 6 for causing a suitable actuation thereof. The switch-plate 4 carries two sets of rollers 7 and 8, pivotally mounted, respectively, by means of screws 9 and 10 upon the base portions of the said plate at opposite sides of the yoke 1, as shown most clearly in Figs. 1, 4, and 5.

The bottom portion of the switch-plate 4 is cut away to form with the ends of said cut-away portion detents 11 and 12, which are adapted to engage the central portion of the yoke 1 upon a sufficient actuation of said switch-plate. The yoke 1 is adapted, by means of its upper sections 3 3, to be secured to the table 13 of the telephone-switchboard. I employ four sets of springs, each set comprising a central switching-spring 14, which is adapted in one position or another to be electrically connected with springs 15 16, placed on either side thereof. The rollers 7 and 8 are adapted to engage the springs 14 14, one roller being provided for each spring 14. The rollers are normally in engagement with said springs and are adapted to move either spring outwardly, depending upon the direction in which the switch-handle 6 is pressed.

When the switch-handle 6 is in its central position, the switching-springs 14 14 are electrically connected, respectively, with the springs 15 15, and when either spring 14 is pressed outwardly the same engages its alternate contact-spring 16. When the key by virtue of an actuation of the switch-handle 6 assumes the position as shown in Fig. 4, the rollers 7 are actuated a distance sufficient to place them on top of the straight surface of the left-hand springs 14, so that the said springs, jointly with the roller, retain the switch-plate 4, together with the switch-handle, in its actuated position, no tendency to press the same back being exerted. The detent 12 upon the switch-plate 4 prevents too great a movement of said switch-plate. This position of the key is preferably utilized for listening purposes, as is well understood. When the switch-handle 6 is moved to the opposite position, the detent 11 prevents a movement thereof sufficient to allow the roller 8 to engage the straight surface of the spring 14, so that the spring always exerts

sidewise pressure against the switch-plate, and the key in that position is not locked. This is the ringing position of the key, which is not desired to be self-locking, as is well understood by those skilled in the art.

By means of the rollers which I employ the friction of the operating parts is reduced to a minimum and the wear consequent upon the frequent actuation of the key is materially reduced.

The great advantage of mounting the springs, as shown, in vertical position upon a yoke with the actuating-arm, as shown, will also be readily apparent to those skilled in the art, as very little space is occupied by the key when in place upon the key-shelf in the switch-board. Pieces of insulation 17 17 are inserted between the springs 14, 15, and 16, and screws 18 are employed to hold the whole structure in place upon the yoke 1. An insulating distance-piece 19 is fixedly secured in the yoke 1 and retains the springs 15 in correct position.

It will be apparent that many changes and modifications may be made in my invention without departing from its spirit, and I do not wish to limit myself to the precise construction and arrangement as herein set forth; but,

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

In a switching apparatus, the combination with a supporting-frame 1, of a transverse member 3 at the top thereof and a supporting-base 2 at the lower end thereof, circuit-changing springs mounted at each side of said supporting-base and extending upwardly toward the top transverse member, a switch-plate 4 pivoted at 5 at the upper end of said supporting-frame, a handle 6 for said switch-plate, cylindrical studs 8 and 9 at the lower end of said switch-plate, one at either side thereof, actuating-springs 14 for the circuit-changing springs associated with said studs, said actuating-springs 14 having their upper ends bent transversely, and detents 11 and 12 on said switch-plate, the detent 12 being at a greater distance from the center of the switch-plate, said detent 12 upon actuation of the handle 6 toward the right allowing sufficient movement of the switch-plate to carry the stud 9 to the top of the transverse end of the corresponding actuating-spring 14 whereby the switch-plate is locked in position, the detent 11 upon actuation of the handle toward the left preventing sufficient movement of the switch-plate to carry the stud 8 to the top of the transverse end of the corresponding actuated spring 14.

In witness whereof I hereunto subscribe my name this 20th day of May, A. D. 1902.

CARL M. HEDMAN.

Witnesses:
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