No. 767,584. PATENTED AUG. 16, 1904.

C. T. MASON.

TELEPHONE HOOK SWITCH.

APPLICATION FILED APR. 9, 1904.

NO MODEL.

Fig. 1.

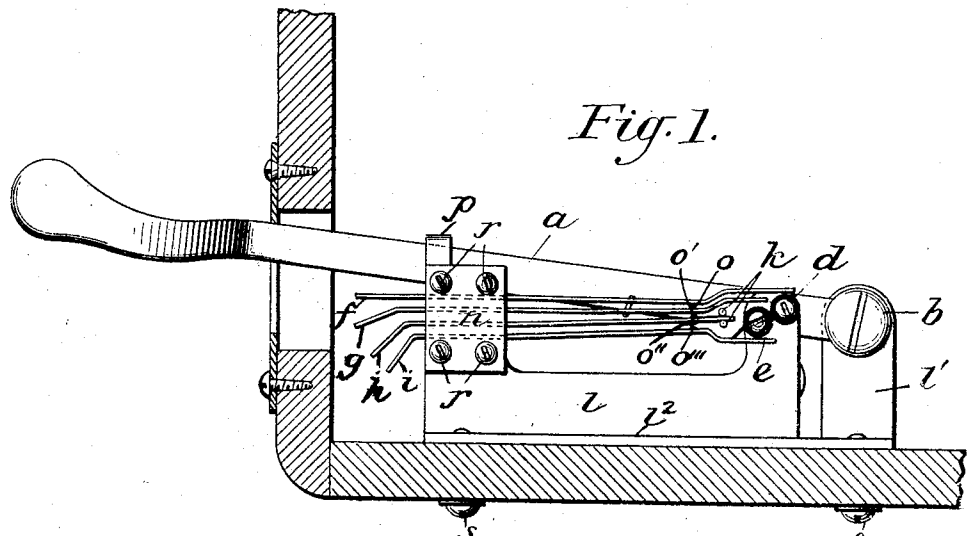


Fig. 2.

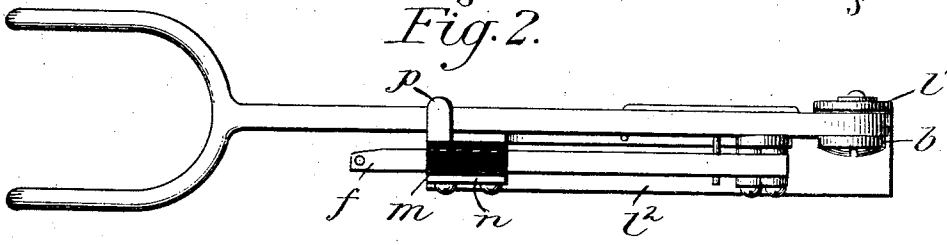
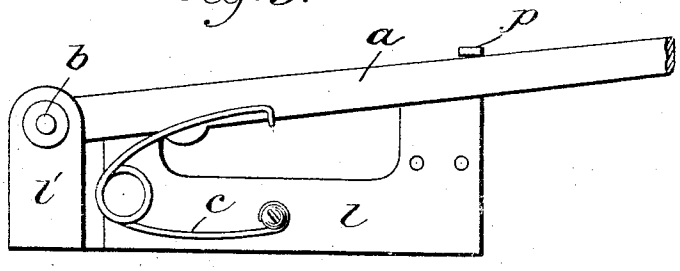


Fig. 3.



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No. 767,584. Patented August 16, 1904.

UNITED STATES PATENT OFFICE.

CHARLES T. MASON, OF SUMTER, SOUTH CAROLINA.

TELEPHONE HOOK-SWITCH.

SPECIFICATION forming part of Letters Patent No. 767,584, dated August 16, 1904.

Application filed April 9, 1904. Serial No. 202,318. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. MASON, a citizen of the United States, residing at Sumter, county of Sumter, State of South Carolina, have invented certain new and useful Improvements in Telephone Hook-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has for its object to provide a hook-switch in which the pivoted hook-lever is combined with circuit-changing springs normally insulated from one another and in which the outer springs have a limited tendency to move toward the intermediate spring and when the intermediate spring is connected to and moves with the hook-lever to engage the outer springs alternately, so as to establish signaling and talking circuits, respectively.

To this end the invention comprises a bracket or support having a hook-lever pivoted thereon, circuit-changing springs insulatingly mounted on said support, the outer springs tending to move toward the intermediate spring, with means on said support for limiting the movement of said outer springs toward the intermediate spring, and connections between the intermediate spring and the hook-lever to cause the said intermediate spring to move with the hook-lever and to engage the outer springs alternately, and thereby establish the signaling and talking connections, as desired.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my improved hook-switch mounted in the usual form of box or cover. Fig. 2 is a plan view of said hook-switch; and Fig. 3 is a rear elevation of the apparatus, the forward end of the hook being broken away.

Referring to the accompanying drawings, *a* indicates the lever-arm of the hook-switch, pivoted at its rear end by a stud *b* to a laterally-offset standard or lug *l'*, preferably formed as an integral part of a metal support or bracket adapted to be secured to the bottom of the usual box or cover. Said bracket comprises a vertical body portion *l* in a plane substantially parallel with that of the standard *l'*, both of said parts being supported upon a bottom flange l^2, which is secured to the box-bottom by screws *s s*. A lifting-spring *c*, secured at one end to the rear face of the body *l*, bears upon the lower edge of the hook-lever *a* and serves to swing the latter into its upper position when the telephone-receiver is removed from the forked end of said lever. The forward end of the body *l* is prolonged upwardly and bent rearwardly to form a stop *p* to limit the upward movement of the switch-lever.

Mounted on an upward extension of the bracket-body *l* is a support for the circuit-changing contact-springs *f*, *g*, *h*, and *i*, which support preferably comprises a block of insulating material *m*, provided with a series of transverse grooves or kerfs to receive and properly space the respective springs aforesaid and an outer face-plate *n*, of metal, the whole being secured to the base by screws *r r*.

The springs *f*, *g*, *h*, and *i* are of course adapted to be connected to the circuit-wires or leads in the usual manner and for this purpose are provided at their ends adjacent to their attachment to the bracket with perforations in which the circuit-wires are soldered. The upper springs *f g* and lower spring *i* are so adjusted as to normally tend to move toward and into contact with the intermediate spring *h*, and this inward movement is limited or restrained by stops *e* and *d*, mounted on an upward extension of the bracket-body *l*, each of said stops comprising a screw or bolt surrounded by a sleeve of insulating material. The ends of the said springs *f*, *g*, and *i* are offset, as shown, so as to permit them to properly engage the insulating-stops and also to accommodate two laterally-projecting pins *k k* on the hook-lever, which pins engage the free end of intermediate spring *h*. The pins *k k* afford a sliding connection between the lever-arm *a* and the intermediate spring *h*, which causes the end of said spring to move with the lever-arm. The springs are provided with platinum contacts, (indicated on the drawings by *o*, *o'*, *o''*, and *o'''*, respectively,) which under proper conditions are brought into contact in certain predetermined relation

to establish signaling and talking connections, respectively, between the line-circuit and the local set.

When the receiver is removed from the hook, the lever-arm *a* is lifted on its pivot by spring *c* until it engages stop *p*. The upward movement of said arm causes the outer end of the intermediate spring *h* to move upward by reason of its connection with said arm through pins *k k*. As the end of said spring *h* moves upward contact *o''* leaves contact *o'''* on lower spring *i*, and the free end of the latter spring rests upon insulated stop *e*. Contact *o'* on the upper side of spring *h* engages spring *g*, which is moved into contact with spring *f*, and both of said springs are lifted from engagement with insulated stops *e* and *d*, and the talking-circuit is established through the contact of springs *f* and *g* with spring *h*.

When the lever-arm *a* is pulled down by the receiver, the outer end of spring *h* moves downward with said arm, carrying contact *o* out of engagement with spring *g*, breaking the talking-circuits and permitting the springs *g* and *f* to rest upon the insulated stops *e* and *d*, respectively. The continued downward movement of said spring *h* brings contact *o''* into engagement with contact *o'''* on the lower spring *i*, establishes the signaling connection with the line-circuit, and moves the end of spring *i* away from the insulated stop *e*.

It is to be particularly observed that the relative arrangement of the lever and the springs is definitely determined when they are assembled on the supporting-bracket and that it is practically impossible for the parts to be forced out of proper coöperative relation under normal conditions of operation. It will be noted also that springs *f*, *g*, and *i* are always under tension, while spring *h* is practically neutral, except when in engagement with the upper or lower springs. The condition of tension is preserved in the said springs *f*, *g*, and *i* even when the said springs are engaging the stops *d* and *e*, and as this tensions tends to move the springs toward the intermediate spring *h* it will be apparent that a firm and uniform contact is secured between said spring *h* and the upper and lower springs, respectively, as soon as the said intermediate spring has advanced in an upward or downward direction sufficient to move either the springs *f* and *g* or spring *i* out of engagement with stops *e* and *d*.

Having thus described my invention, what I claim is—

1. In a telephone hook-switch, the combination of a pivoted hook-lever, insulated circuit-changing springs, the outer springs tending to move toward the intermediate spring, and means for positively limiting the movement of said outer springs toward the intermediate spring, said intermediate spring being connected to the hook-lever and moving therewith to engage the outer springs alternately and establish signaling and talking connections respectively.

2. In a telephone hook-switch, the combination of a pivoted hook-lever, insulated circuit-changing springs, the outer springs tending to move toward the intermediate spring, and an insulating-stop for positively limiting the movement of said outer springs toward the intermediate spring and the hook-lever to cause said intermediate spring to engage the outer springs alternately and establish signaling and talking connections respectively.

3. In a telephone hook-switch, the combination of a supporting-bracket, a hook-lever pivoted to one end of said bracket, insulated circuit-changing springs secured to the other end thereof, the outer springs tending to move toward the intermediate spring, an insulated stop on said bracket limiting the movement of the outer springs toward the intermediate spring, and a connection between the free end of the intermediate spring and the hook-lever to cause said spring to move with said lever and engage the outer springs alternately and thereby establish signaling and talking connections respectively.

4. In a telephone hook-switch, the combination of a supporting-bracket, a hook-lever pivoted to one end thereof, a lug on the other end of said bracket to limit the upward movement of said lever, a lifting-spring interposed between said bracket and said lever, insulated circuit-changing springs mounted on said bracket and extending toward the pivot end of the lever, the outer springs tending to move toward the intermediate spring, a stop on said support for limiting the movement of said outer springs toward the intermediate spring, and a connection between said intermediate spring and the hook-lever to cause said spring to move with said lever and engage the outer springs alternately and thereby establish signaling and talking connections respectively.

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

CHARLES T. MASON.

Witnesses:
MURR HALL,
C. G. ROWLAND.