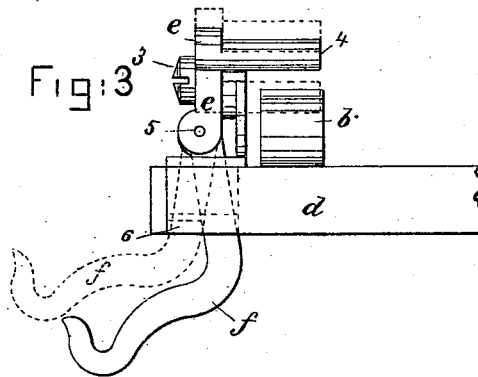
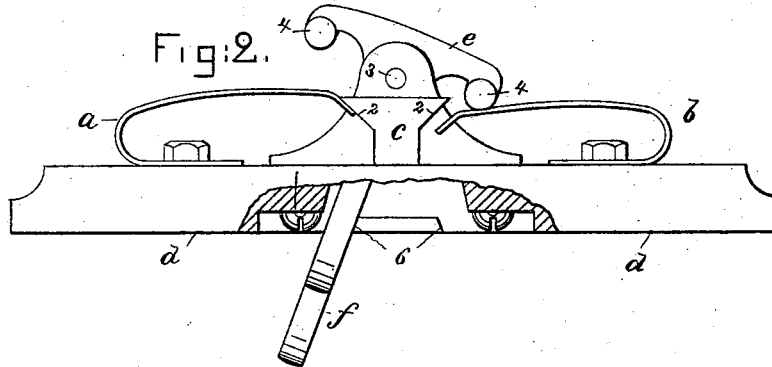
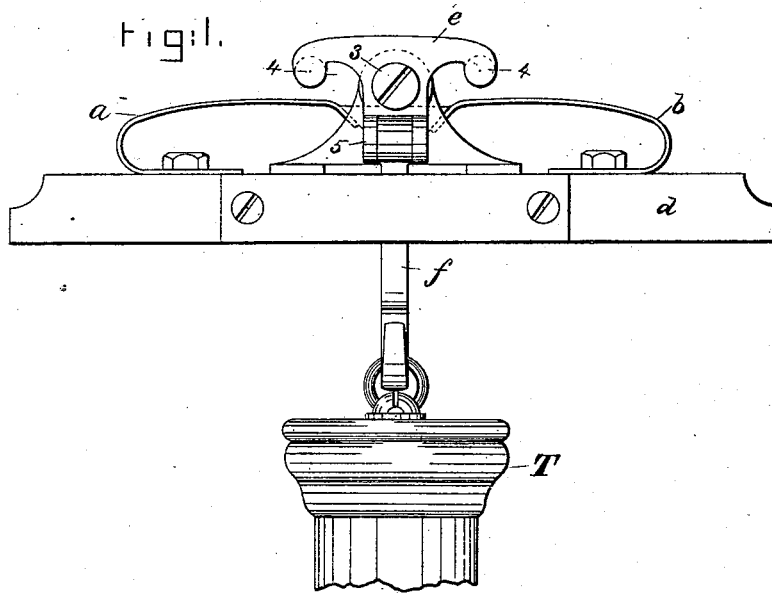


(No Model.)

J. O. ZIEGLER.
Electric Switch.

No. 240,492.

Patented April 19, 1881.



WITNESSES.
W. D. Dearborn.
Arthur Reynolds.

INVENTOR-
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UNITED STATES PATENT OFFICE.

J. OSCAR ZIEGLER, OF MALDEN, ASSIGNOR OF ONE-HALF TO CHARLES WILLIAMS, JR., OF SOMERVILLE, MASSACHUSETTS.

ELECTRIC SWITCH.

SPECIFICATION forming part of Letters Patent No. 240,492, dated April 19, 1881.

Application filed October 5, 1880. (No model.)

To all whom it may concern:

Be it known that I, J. OSCAR ZIEGLER, of Malden, county of Middlesex, and State of Massachusetts, have invented a new and useful Improvement in Electric Switches, of which the following description, in connection with the accompanying drawings, is a specification.

My invention is intended as an improvement on what is known as the "secrecy-switch" for telephonic circuits, and has for its object to render the operation of the said switch more perfect and certain.

In the latch secrecy-switch as now constructed two springs are connected with the main line on each side of the station containing the switch, the said two springs being normally electrically connected together by a metal connecting-plate carried on and movable with, but insulated from, a metallic pivoted switch-lever provided with a hooked arm upon which to hang the telephone. When desired to use the circuit the telephone is removed from the said hooked arm, and the switch-lever is then turned on its pivot to one side or other in order to remove the metal connecting-plate which connected the springs from contact therewith and to bring the pivoted switch-lever which is connected with the ground into contact with one or other of the said springs, according to the direction in which it is turned, to thus ground the main line extending from the office in one or the other direction. When turned in this manner to one or the other side the pivoted switch-lever is engaged by a catch, which retains it in the said position until the telephone is again hung on its hooked arm, when the weight of the said telephone causes the arm to be disengaged from the catch and to return to its normal position. It is found that after these switches have been some time in use, owing to the wear and friction of the said pivoted arm on the said spring, the arm does not return to its normal position when the telephone is hung thereon, but frequently only partially returns and leaves the two springs disconnected, because the metallic connecting-plate on the said lever is not moved therewith to the proper position to form a suitable contact with both springs.

My invention consists in providing a metallic stop common to both the said springs, having inclined bearing-faces to be engaged thereby, and fixed on the frame-work in proper position, so that when the pivoted lever is in its normal position the springs will both press against the inclined faces of the said stop and be electrically connected by the metal thereof, the pivoted lever being then wholly disconnected from both the said springs and free to turn readily on its pivot under the weight of the telephone, which tends to retain the lever out of contact with the springs. When the lever is turned in either direction it bears upon one or the other of the said springs, moving it out of contact with the said common stop, and itself forming an electrical contact therewith.

Figure 1 is a front view of my improved switch in its normal position, the telephone being on the hook and the two springs being electrically connected by their common stop; Fig. 2, a rear elevation thereof, the frame-work being partly in section, and the pivoted switch-lever being turned to one side to form electrical connection with one of the springs, and at the same time disconnect it from the common stop and the other spring and circuit connected therewith; and Fig. 3, a side elevation of Fig. 1, showing the form of the pivoted arm.

The two springs *a b* are connected with the main line, extending from the station in either direction, in the usual manner, and normally, when the telephone is out of use and hung up, as shown in Fig. 1, rest against the inclined surfaces 2 of the common stop, *c*, connected with the frame-work *d*, and immovable thereon. The switch-lever *e*, pivoted at 3, is provided with two short arms, 4, extended over but normally separated from the springs *a b*, and with a hooked arm, *f*, pivoted at 5, and adapted to receive and support the telephone *T* when out of use, in the usual manner. When desired to place the telephone in communication with the circuit connected with one or other of the arms *a b*, it is removed from the hook and the switch-lever *e* turned on its pivot 3, as shown in Fig. 2, and the hooked arm *f* drawn forward, as shown in dotted lines, Fig. 3, to engage one of

the shoulders 6 formed to receive it when in this position. By this movement one of the arms 4 is brought in contact with one of the springs, as the one *b*, (see Fig. 2,) and depresses it, removing it from the stop *c*, so that the circuit now passes from the spring *b* by the switch-lever *e* to the ground, in the usual manner, and the circuit leading from the spring *a* is disconnected from that leading from the spring *b*, now passing through the telephone.

The hooked arm *f* is so shaped, as shown in Fig. 3, that when the telephone is replaced on the hook thereof, after the communication has been finished, the weight of the telephone throws it back out of engagement with the shoulder 6, when it is again free to turn on its pivot 3, and is turned thereon and by the weight of the telephone to the vertical position shown in Fig. 1, its movement being at first accelerated by the force of the spring *b*.

By this construction the friction of the springs *a b* on the arms 4 is not applied in such a manner as to in any way retard the movement of the switch-lever *e* in its pivot 3, and the spring *a* or *b* is certain to come to a bearing on the corresponding face 2 of the common stop, *c*, as soon as the hooked arm *f* is disengaged from the shoulder 6, so that the line will never be accidentally left open between the springs *a b*, as frequently occurs with the switches of common construction after they have been for some time in use and have become somewhat worn.

It will be seen that the arms 4 are also sure to be disconnected from the springs *a b* when the telephone is hung up, as there is no friction to prevent the lever from turning under the weight of the telephone, while in the com-

mon form of switch it frequently happens that the arm remains in contact with the spring. The arms 4 are rounded on the sides that rub upon the springs *a b*, to prevent any cutting action which might arise if they were sharp or angular in form.

By making the bearing-surfaces 2 of the stop *c* inclined to the direction of movement of the ends of the springs, the said springs are brought to rest thereon with a rubbing contact.

I am aware that a key has been used in electric telegraphy adapted in its movement caused by an electro-magnet and retracting-spring to alternately move one or the other of two springs from contact with a common anvil, and at the same time itself to make electrical contact therewith, and I do not broadly claim such elements in combination.

I claim—

In a secrecy-switch, the combination of the pivoted switch-lever provided with a hooked arm to receive and be operated by the weight of the telephone, the two springs to be operated by the said lever, and the common stop for the said springs, rigidly connected with the frame-work, and provided with inclined surfaces to be engaged by the ends of the said springs when the telephone is hung on the said hooked arm and not in use, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

J. OSCAR ZIEGLER.

Witnesses:

JOS. P. LIVERMORE,
BERNICE J. NOYES.