

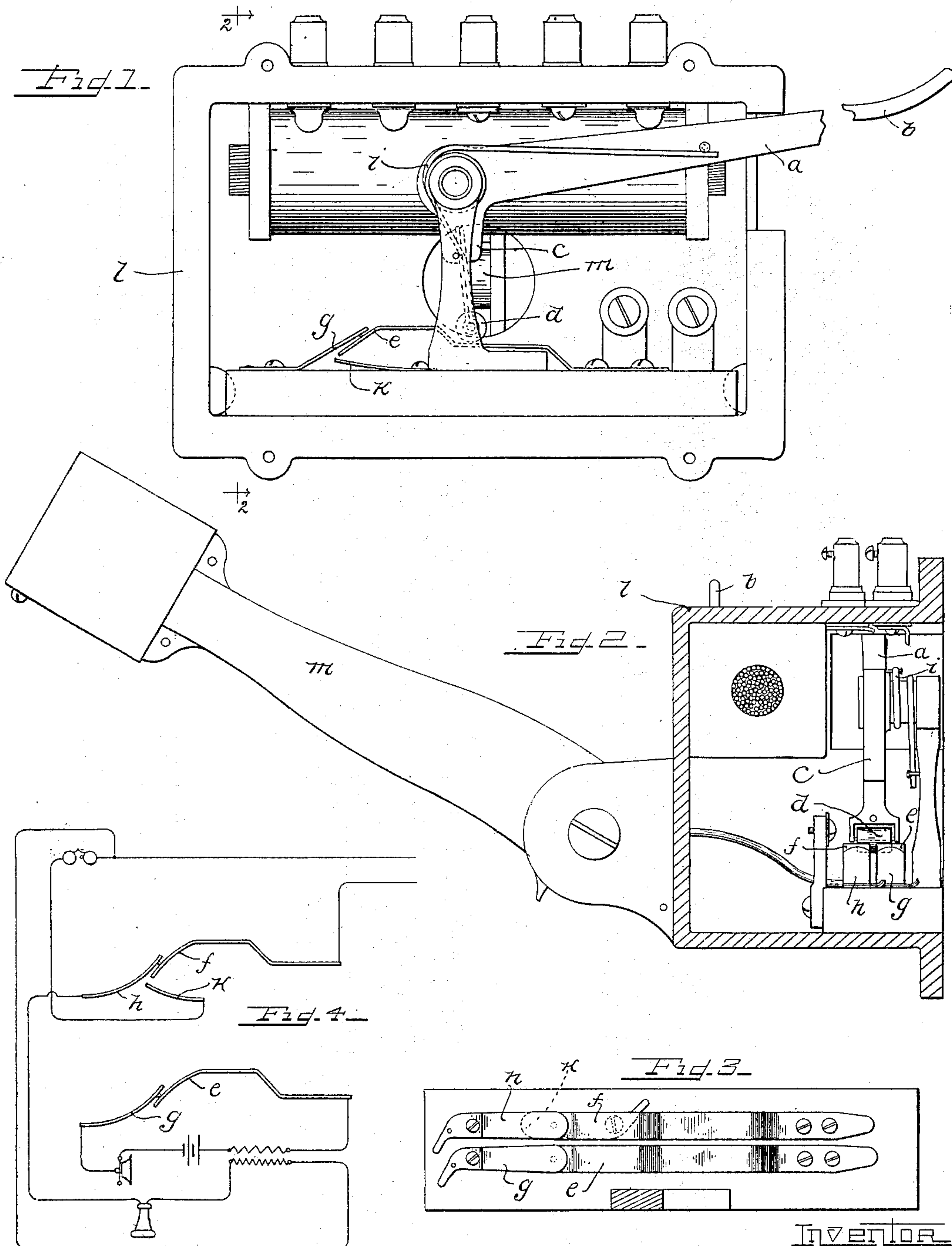
No. 659,940.

Patented Oct. 16, 1900.

A. STROMBERG.
TELEPHONE SWITCH.

(Application filed June 13, 1900.)

(No Model.)



WITNESSES

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TELEPHONE-SWITCH.

SPECIFICATION forming part of Letters Patent No. 659,940, dated October 16, 1900.

Application filed June 13, 1900. Serial No. 20,129. (No model.)

To all whom it may concern:

Be it known that I, ALFRED STROMBERG, 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 Telephone-Switches, (Case No. 8,) 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 telephone-switches, and has for its object the provision of an improved form of gravity switch-hook for use at subscribers' stations.

My invention has for one of its objects the provision of an improved form of gravity switch-hook wherein those parts that are frequently subject to changeable engagement are relieved of excessive friction and whereby a positive actuation of circuit-changing spring portions is secured.

By means of my invention I have been able to employ stiff springs as circuit-changing means, which may be readily actuated through the agency of a switch-hook constructed in accordance with my invention.

In the preferred embodiment of my invention the receiver supporting the hook is electrically distinct from the switching apparatus, the switch-hook being preferably in the form of a bell-crank lever hinged at its elbow to a suitable support. One arm of the bell-crank extends horizontally and is provided with a hook for supporting a receiver at its free end. The remaining arm of the bell-crank is preferably much shorter and extends vertically from the pivotal mounting of the bell-crank. This shorter arm of the bell-crank is provided with a roller-contact, preferably in the form of a cylinder of insulating material, that is adapted for engagement with circuit-changing springs, the roller in changing its points of engagement with the springs serving, as the bell-crank is actuated, to effect and permit changes in the circuit condition of the instrument or apparatus. A coiled spring preferably surrounds the shaft where the switch-arm is pivoted, one end of the coiled spring engaging the switch-hook mounting, while the other end engages a pin upon the switch-hook, the coiled

spring serving to lift the horizontal arm of the bell-crank when the receiver is removed.

I will explain my invention more fully by reference to the accompanying drawings, in which—

Figure 1 is a rear view of a switch-hook and containing-case constructed in accordance with my invention. Fig. 2 is a sectional view thereof on line 2 2 of Fig. 1. Fig. 3 is a top view, partially in section, of my improved switching mechanism; and Fig. 4 is a diagrammatic view illustrating the electrical connections.

Like parts are indicated by similar characters of reference throughout the different figures.

The telephone-switch hook is preferably in the form of a bell-crank lever, having a long horizontal arm *a*, provided with a hook *b* for supporting the receiver. The switch-arm *c* is preferably placed substantially at right angles with relation to the arm *a* and is bifurcated at its lower end to receive a roller *d*, constructed, preferably, of insulating material. Two springs *e* and *f* are adapted for mechanical engagement with the roller, each spring being provided with an incline, through the agency of which and the engaging roller they are depressed from contact-springs *g* and *h* when the longer arm of the bell-crank is depressed through the agency of the receiver when carried thereby. When the bell-crank is relieved of the weight of the receiver, the coiled spring *i* and the springs *e* and *f* serve to lift the long arm of the bell-crank, thereby permitting the springs *e* and *f* to engage the contacts *g* and *h*.

The telephone-switch hook is shown as being applied to a battery-transmitter, the springs *e* and *f* serving, upon their engagement with the contacts *g* and *h*, to close circuit through the transmitter with its battery and through the telephone-receiver, the spring *f* upon its elevation being at the same time removed from engagement with the lower contact *k*, which constitutes the terminal of a signaling-circuit, the spring *f* being brought into engagement with this terminal when the receiver is restored, circuit through the transmitter and receiver being at the same time open.

I have illustrated casing *l*, that contains the induction-coil, the mounting for the receiver-supporting arm, and the switch parts. A swinging arm *m* is provided upon the front 5 of the casing *l* and supports a suitable form of transmitter.

I have thus devised an improved form of switch-supporting lever-arm that is capable of effecting the actuation of stiff springs with- 10 out any appreciable frictional wear. The switch-arm is free of electrical connection.

Changes may readily be made from the preferred embodiment of my invention herein shown and particularly described, and I do 15 not, therefore, wish to be limited to the precise construction shown; but,

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

20 In a telephone-switch, the combination with a bell-crank lever, provided with a long arm having a hook for holding the receiver and a short arm, of a roller provided upon the free end of the short arm, contact-springs *e* and *f*

provided with sloping portions for engage- 25 ment with the roller, one of said contact-springs being connected with one side of the telephone-line, while the other constitutes a terminal of a transmitter-circuit, contacts *g* and *h* located above the contact-springs *e* and 30 *f*, one of said contacts constituting a terminal of the branch including the receiver, while the other constitutes the remaining terminal of the transmitter-circuit, and a lower con- 35 tact *k* adapted for engagement with the contact-spring that is connected with the line when the said spring is depressed through the agency of the receiver, the latter spring also engaging the contact-terminal of the receiver 40 when elevated upon the removal of the telephone-receiver, substantially as described.

In witness whereof I hereunto subscribe my name this 8th day of June, A. D. 1900.

ALFRED STROMBERG.

Witnesses:

MAX W. FABEL,
GEORGE L. CRAGG.