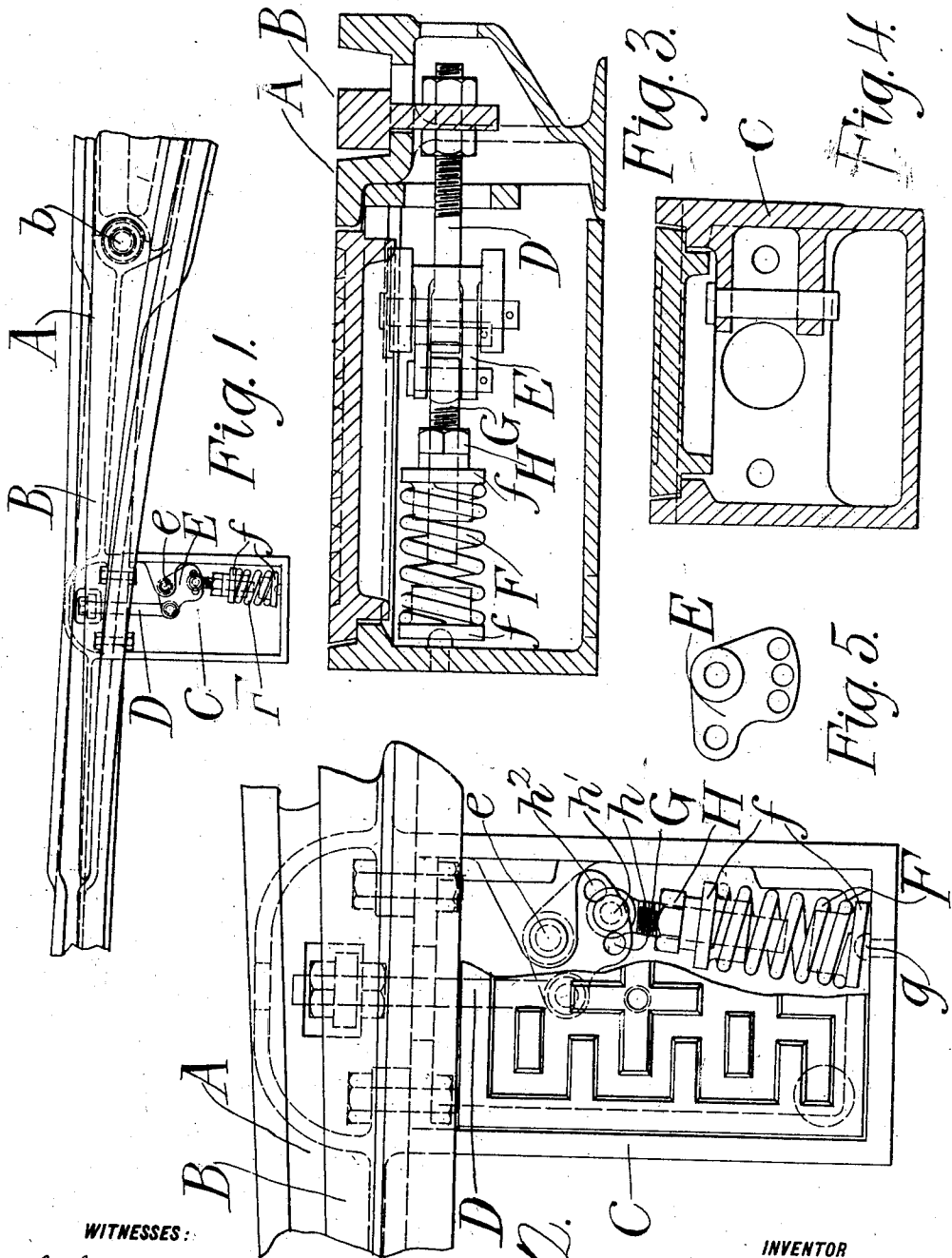


C. C. KORNS.
SPRING SWITCH.
APPLICATION FILED AUG. 24, 1906.



WITNESSES:

Charles Duram
Loretta M. O'Connell

Fig. 2.

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No. 826,433.

PATENTED JULY 17, 1906.

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2 SHEETS—SHEET 2.

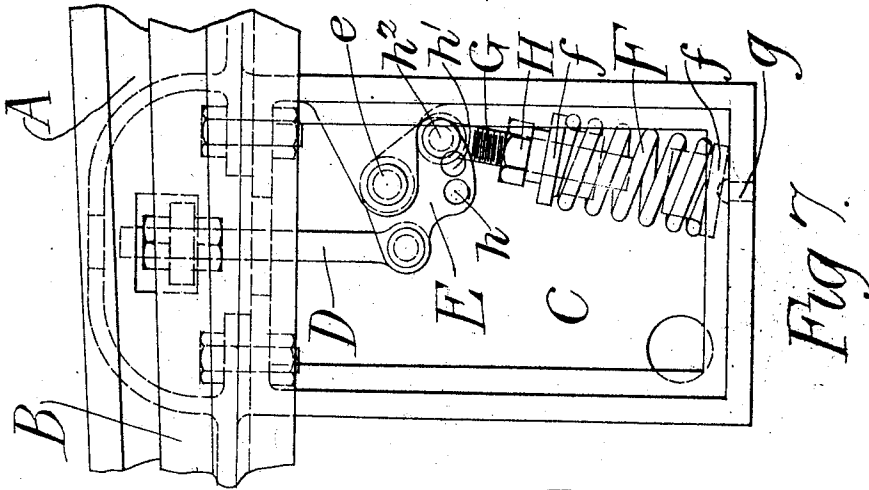


Fig. 7.

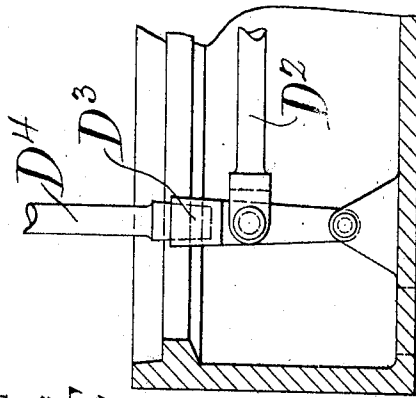


Fig. 8.

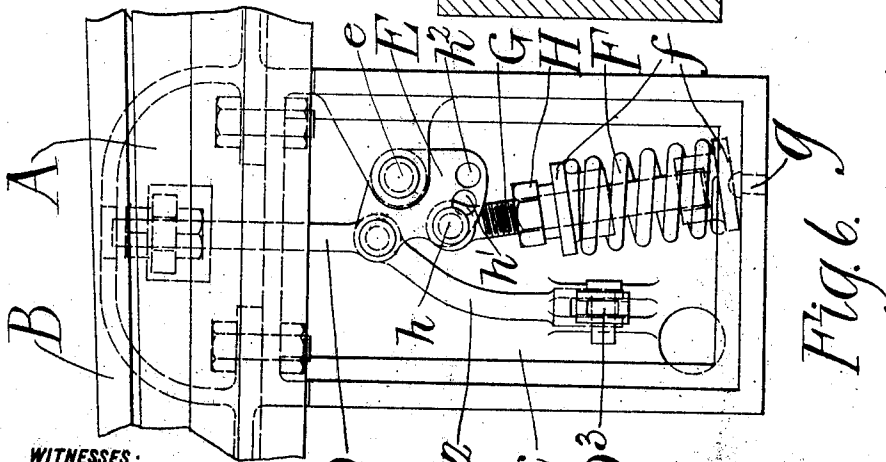


Fig. 6.

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UNITED STATES PATENT OFFICE.

CLARENCE C. KORNS, OF JOHNSTOWN, PENNSYLVANIA, ASSIGNOR TO
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SPRING-SWITCH.

No. 326,433.

Specification of Letters Patent.

Patented July 17, 1906.

Application filed August 24, 1905. Serial No. 275,526.

To all whom it may concern:

Be it known that I, CLARENCE C. KORNS, of Johnstown, in the county of Cambria and State of Pennsylvania, have invented a new and useful Improvement in Spring-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention has relation to certain new and useful improvements in spring-switches, and is designed to provide simple and efficient means whereby a switch tongue or point may be readily set as a spring-switch for either right or left hand throw and also whereby the tongue may be semilocked in either of its thrown positions. By "semilocked" I mean so held that it is prevented accidental movement, but may nevertheless be thrown at will by a motorman or switchman.

With these objects in view my invention consists in the novel construction, arrangement, and combination of parts, all substantially as hereinafter described, and pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a portion of a tongue-switch structure embodying my invention. Fig. 2 is a plan view showing the parts on a larger scale and adjusted to form the semilock; Fig. 3, a section on the line 3 3 of Fig. 2; Fig. 4, a transverse section through the spring-box; Fig. 5, a detail plan view of the bell-crank lever; Fig. 6, a plan view showing the parts adjusted for a left-hand-throw spring-switch and also showing an operating attachment; Fig. 7, a similar view showing the adjustment for a right-hand-throw spring-switch, and Fig. 8 a detail view of the operating attachment.

The letter A designates the switch structure, having the movable point or tongue B, pivoted at *b*. Formed with or attached to the structure A is a box C, into which projects from the tongue a laterally-extending rod or arm D, whose free end is pivotally connected to one arm of a horizontal bell-crank lever E, pivoted at *e* within the said box.

F is a helical spring seated in compression between the two cones or bearings *ff*, one of which has a rocking bearing at *g* on the end

wall of the box and the other of which is adjustably held on a screw-stud G, which is pivotally connected to the other arm of the said bell-crank. So arranged the bell-crank and spring together form a toggle arrangement, one member of which is the spring and the other the bell-crank.

H is a nut by means of which the adjustment of the cone, and thereby the proper tension of the spring, is secured.

The connection of the stud G to the bell-crank lever may be made at either one of the three holes *h h' h''*, provided therefor. If made at the central hole *h'*, as shown in Fig. 2, when the tongue is thrown from one running position to the other the center line of the spring is shifted with respect to the center *e*, so that the tension of the spring acts to retain the tongue at the thrown position. This tension is sufficient to prevent accidental movement of the tongue; but the latter can nevertheless be thrown by a switchman or motorman in the usual manner by a switch-bar. If, however, the connection be made at the hole *h* or *h''*, Figs. 6 and 7, the movement of the tongue is not sufficient to shift the line of action of the spring with respect to the center *e* and the switch becomes a right or left hand throw spring-switch. Thus by a simple adjustment involving no change in the pattern or construction of the parts any switch constructed in accordance with my invention may be used either as a right or left hand throw spring-switch or as a semilocked full-throw switch.

Where a switchman is to be stationed for the purpose of throwing the switch, it may be desirable to extend the arm D, as shown at *D²* in Fig. 6, and to provide the same with a socket *D³* to receive an operating-lever *D⁴*. This socket *D³* may be located within the box C, as in Fig. 6, or the rod D may be extended to any desired point, as indicated in Fig. 8. In Fig. 6 I have also shown the stud H as extended through the spring into the outer spring-bearing *f* for the purpose of stiffening the device.

It will be obvious that various changes may be made in the details of construction and arrangement without departing from the spirit and scope of my invention as defined in and by the appended claims.

Having thus described my invention, what

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

1. The combination with a movable switch tongue or point, of a toggle arrangement one member of which is formed by a bell-crank and the other by a spring, and a connection between the said tongue or point and the bell-crank.

2. The combination with a movable switch tongue or point, of a toggle arrangement, one member of which is a spring, and the other of which is a bell-crank, a connection between the bell-crank and the tongue or point, and means whereby the point of connection between the toggle members may be shifted with respect to the center of the bell-crank.

3. The combination with a movable switch tongue or point, of a bell-crank lever, a connection between one arm of said lever and the tongue or point, and a spring connected to the other arm of said lever and having a movable bearing at its free end.

4. The combination with a movable switch tongue or point, of a bell-crank lever, a connection between one arm of said lever and the tongue or point, a spring connected at one end to a second arm of said lever and having a movable or shifting bearing at its opposite end, and means for adjusting the tension of the said spring.

5. The combination with a movable switch tongue or point, of a bell-crank lever, a connection between one arm of the said lever and the point or tongue, a spring connected at one end to a second arm of said lever and hav-

ing a rocking bearing at its opposite end, and means whereby the point of connection between the said lever and spring may be shifted.

6. The combination with a movable switch tongue or point, a bell-crank lever connected to said tongue or point, a spring connected to said bell-crank lever and forming a toggle therewith, and means whereby the tongue or point may be thrown at a distance therefrom; substantially as described.

7. The combination with a movable switch tongue or point, of a bell-crank lever connected to said tongue or point, a spring connected to said bell-crank lever and forming a toggle therewith, and an extension arm or rod operatively connected with said parts and providing means whereby the tongue or point may be thrown at a distance therefrom.

8. The combination with a movable switch tongue or point, of a bell-crank lever, a spring connected to one arm of said lever at one end, and having a movable bearing at the other end whereby its line of action may shift with respect to the center of the bell-crank, and an arm or rod connecting the bell-crank to the switch-tongue and having an extension provided with means for effecting the throw of the tongue.

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

CLARENCE C. KORNS.

Witnesses:

LORELO O'CONNELL,
H. W. SMITH.