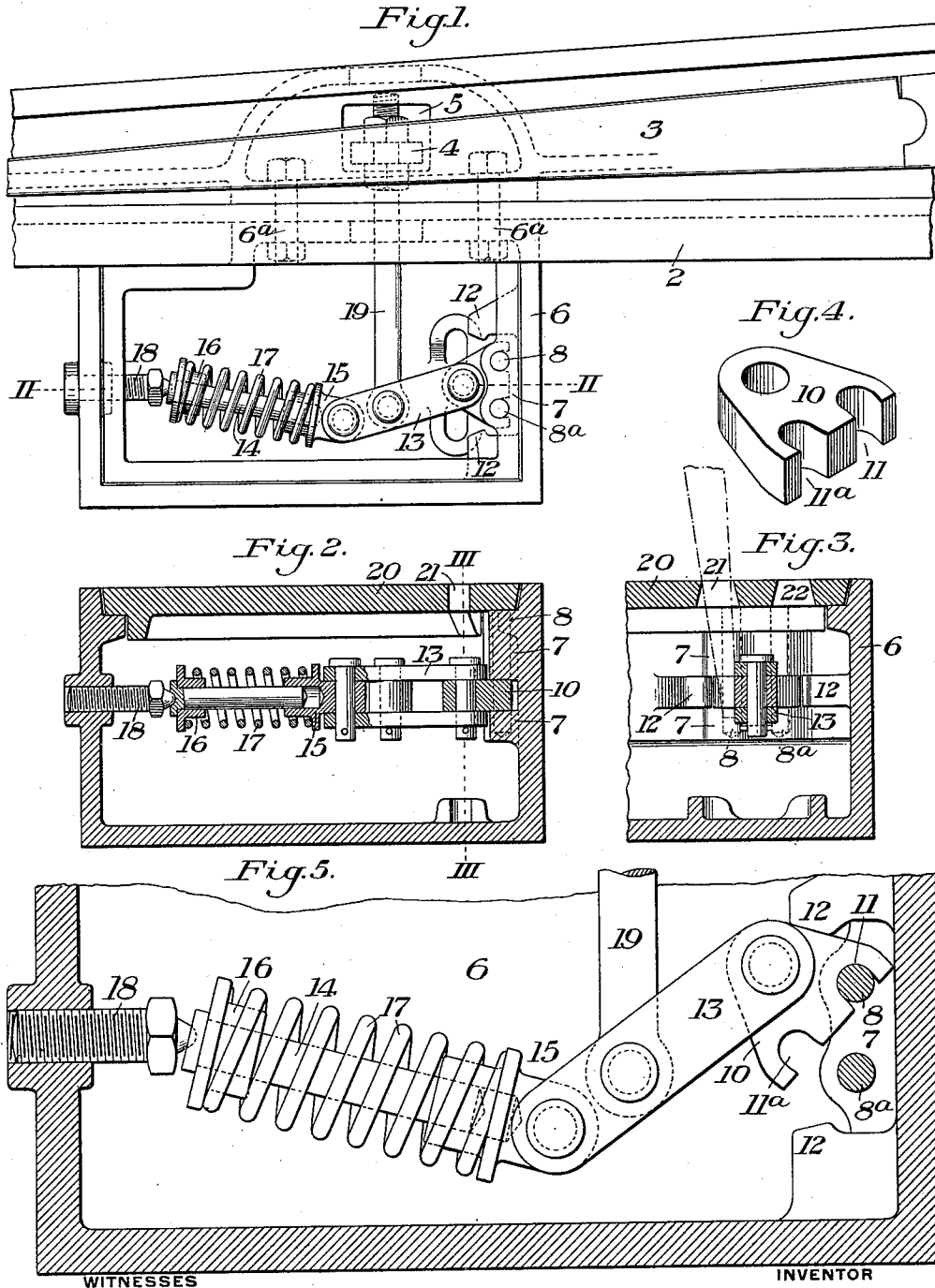


C. C. KORNS.
 SPRING SWITCH.
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1,013,297.

Patented Jan. 2, 1912.



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UNITED STATES PATENT OFFICE.

CLARENCE C. KORNS, OF COVINGTON, VIRGINIA.

SPRING-SWITCH.

1,013,297.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CLARENCE C. KORNS, a resident of Covington, in the county of Alleghany and State of Virginia, 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, forming part of this specification, in which—

Figure 1 is a plan view of a portion of a tongue switch and a spring box with the cover removed, illustrating one form of my improved tongue retaining device: Fig. 2 is a section on the line II—II of Fig. 1. Fig. 3 is a sectional view on the line III—III of Fig. 2. Fig. 4 is a perspective view of the fulcrum block for the toggle member. Fig. 5 is a detail sectional plan view showing the fulcrum shifted so that the spring is arranged to retain the tongue in one position at all times.

My invention has relation to spring switches, and is designed to provide a switch tongue retaining device which can be readily attached to a switch structure, and which can be set or adjusted to permit the tongue to be shifted freely to either right or left hand position and held therein; or which can be set so that the tongue will always be held in either its right or its left hand position, as may be desired.

The precise nature of my invention will be best understood by reference to the accompanying drawings, which will now be described, it being presumed, however, that various changes may be made in the details of construction and arrangement of the parts without departing from the spirit and scope of my invention, as defined in the appended claims.

In the drawings, the numeral 2 designates a switch structure, 3 a tongue which is pivotally mounted on said structure and which is provided with a downwardly extending lug 4 passing through the opening 5, in the switch structure.

6 is a spring box which I have shown connected to the switch structure by means of the bolts 6^a, although it will be readily understood that the box might be cast integral with the structure.

7—7 are inwardly extending flanges within the spring box, and 8—8^a are pins extending through said flanges.

10 is a fulcrum block provided with the

recesses 11—11^a, adapted to engage the pins 8 and 8^a.

12 indicates stops for the block 10 which are located between the flanges 7 and adjacent to the fulcrum pins 8.

Pivoted to the block 10 is a lever 13 forming one element of a toggle member. The other element of the toggle lever is composed of a pin 14, a socket 15 is pivoted to the other end of the lever 13 and is telescopically engaged by the end of the pin 14, and a spring 17 which is interposed between a flanged collar 16 on said pin and a flange on the socket member 15. This spring is arranged to retain the toggle member in its extreme positions, as hereinafter described.

18 is an adjusting screw extending into a tapped orifice in the side of the spring box and is provided with a conical head adapted to be seated in a concave recess in the end of the pin 14.

19 is a link connected at one end of the element 13 of the toggle member and connected at the other end of the lug 4 on the switch tongue 3.

20 is a cover for the spring box which is provided with the openings 21 and 22 for the reception of a switch iron as indicated in dotted lines in Fig. 3.

When the parts are in the position shown in Fig. 1, the switch tongue can be shifted to and positively retained in either of its extreme positions by the action of the toggle members. If the switch tongue, as shown in this figure, is thrown so that a car will take the straight track instead of the curve, the first movement of the tongue will compress the spring and bring the toggle members in alinement with each other, and as soon as the tongue has passed its central position, the toggle members will be thrown on the opposite side of the center and retain the point of the tongue against the guard for the curve.

If it is desired to use the switch as a spring switch in which the tongue will always be held in one of its extreme positions, the throw of the switch can be changed by inserting a switch iron in one of the openings 21 or 22, as indicated in Fig. 3, and shifting the position of the fulcrum block on the pin 8 as a center, as indicated in Fig. 5. In this position, the tongue will always be retained by the spring so that a car will take the curve, since the center line of the toggles has been shifted to such an extent

that the toggles will always act upon the tongue in one direction. If it is desired to use and hold the switch in its other position, the fulcrum member 10 is shifted to the other extreme stopped position about the pin 8^a as a center. This shifts the center line of the toggles in the reverse direction to that shown in Fig. 5.

The advantages of my invention result from the provision of the shifting fulcrum and toggle devices arranged to be readily set to operate in the several different ways described without disconnecting any of the mechanism or without removing the cover of the spring box. A further advantage results from the provision of a simple toggle in which the actuating spring forms one element thereof, whereby all lost motion due to wear at the pivotal points of the various members, is taken up by the spring.

I claim:

1. A switch tongue retaining device comprising a spring actuated toggle member, a shiftable fulcrum block to which the toggle member is pivoted, said block being arranged to remain stationary in its shifted position and actuating connections between the toggle and the switch tongue; substantially as described.

2. A switch tongue retaining device comprising a spring actuated toggle member, a fulcrum block for the toggle member arranged to assume any one of three positions, said block being arranged to remain stationary in its shifted position and actuating connections between the toggle member and the switch tongue; substantially as described.

3. A switch tongue retaining device comprising a spring actuating toggle member, a movable fulcrum block to which the toggle member is pivoted, said block being arranged to remain stationary in its shifted position, actuating connections between the toggle member and the switch tongue, and means for adjusting the tension of the spring for actuating the toggle member; substantially as described.

4. A switch tongue retaining device comprising a spring actuated toggle member, a normally stationary fulcrum block to which the toggle member is pivoted, said block having a plurality of fulcrums, about which the block is arranged to be swung to change the pivotal points of the toggle member and actuating connections between the toggle member and the switch tongue; substantially as described.

5. A switch tongue retaining device com-

prising a toggle member having two elements, a block to which one of the elements is pivoted, the other element comprising two members telescopically engaging each other, a spring interposed between said elements, a plurality of fulcrums for the block, and actuating connections between the first element of the toggle member and switch tongue; substantially as described.

6. A switch tongue retaining device, comprising a spring box, a fulcrum-member having a plurality of fulcrum points, stops for the fulcrum-member adjacent to said fulcrums, a toggle member pivoted to the fulcrum-member, actuating connections between the toggle member and the switch tongue, and a spring for retaining the toggle member and tongue in their extreme positions; substantially as described.

7. A switch tongue retaining device comprising a spring box having a plurality of flanges, pins extending through said flanges, a block having a plurality of bearing recesses mounted between the flanges, said recesses being adapted to seat on said pins, stops for the block adjacent to said pins and between the flanges, a spring actuated toggle member pivoted to the block, and actuating connections between the toggle member and the switch tongue, the arrangement being such that the block may be shifted to any one of three positions for the purpose described.

8. A switch retaining device, comprising a toggle connected to the movable member of the switch and including a spring, and a shiftable fulcrum member to which one member of the toggle is connected and which can be moved to different positions to change the center line of the toggle; substantially as described.

9. A switch tongue retaining device, comprising a toggle member, one of said toggle members being compressible and having a spring associated therewith which is arranged to extend said member, a movable fulcrum block to which the toggle member is pivoted, said block being arranged to remain stationary in its shifted position, and actuating connections between the toggle and the switch tongue; substantially as described.

In testimony whereof, I have hereunto set my hand.

CLARENCE C. KORNS.

Witnesses:

F. M. ALTFATHER,
W. H. SHIPLET.