Oct. 6, 1931. E. K. READ 1,825,820

DISCONNECTING SWITCH

Filed June 7, 1926

Fig. 1.

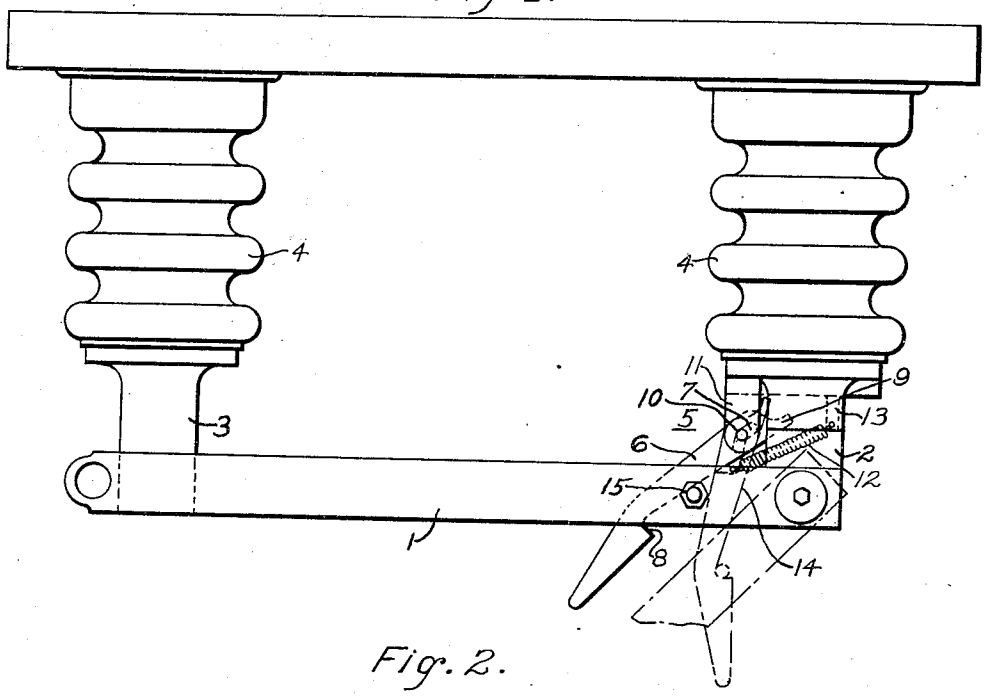
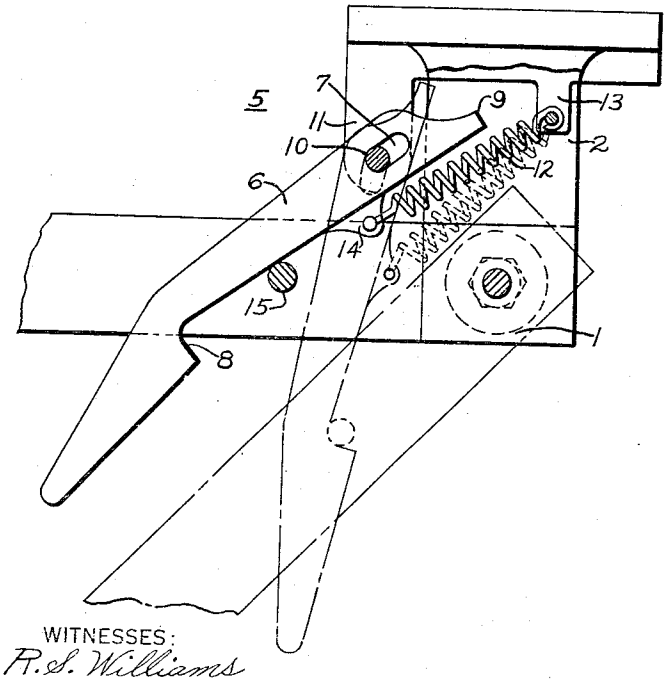


Fig. 2.



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UNITED STATES PATENT OFFICE

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DISCONNECTING SWITCH

Application filed June 7, 1926. Serial No. 114,109.

My invention relates to electrical switching apparatus and particularly to position locks for knife-blade switches.

One object of my invention is to provide a position lock for knife-blade switches that shall have a lost-motion connection relative to the stationary contact member on which the knife-blade switch is mounted.

Another object of my invention is to provide a position lock for knife-blade switches that shall be biased to such position that, after its release from engagement with the knife-blade switch, it is moved out of position to further lock the switch blade.

In installing knife-blade switches in electrical circuits, it frequently happens that it is desirable to have such switches connect the stationary contact member to which it is hinged with two or more stationary contact members at different times. In order to prevent the switch blade from being accidentally moved from one to another of the stationary contact members, position locks are frequently installed. My invention consists of certain improvements in position locks.

In the accompanying drawings

Figure 1 is an elevational view of a disconnecting switch of the knife-blade type embodying my invention, the closed position of the switch and position lock being shown in full lines and the locking position of the switch and position lock being shown in dotted lines,

Figure 2 is an enlarged detail view of the position lock and adjacent switch structure.

My invention comprises, in general, a switch blade 1 that is mounted on a hinge jaw 2 for engagement with a break jaw 3, both of which are mounted on suitable insulators 4, thereby constituting a disconnection switch, and a position lock 5 for controlling the positions taken by the switch blade 1.

The details of the disconnecting switch may be of any suitable type, as they form no part of the present invention, except insofar as they are necessary to complete the combinations hereinafter described and claimed.

It is to be understood that the details of my invention are applicable, not only to disconnection switches, but also to small knife-blade panel switches.

The position lock 5 comprises a ratchet member or latch 6 that has a slot 7 near one end and a detent 8 near the other end. An extension 9 on the latch 6 serves as a stop member. A pintle 10, that is supported by bosses 11 mounted on the stationary contact member 2, is loosely seated in the slot 7. A coil spring 12 extends from a bracket 13 mounted on the stationary contact member 2 to a projection 14 on the latch 6. The switch blade 1 is provided with a pin 15 for cooperation with the detent 8.

Referring to Figure 1, when the switch blade 1 is in its closed position, the pin 15 bears against the latch 6 and turns it into the upper, or solid-line, position. At the same time, the coil spring 12 pulls the latch 6 upwardly and inwardly so that the outer edge of the slot 7 bears against the pintle 10.

When the switch blade 1 is open, the pin 15 slides along the face of the latch 6 until it engages the detent 8. During this movement, the latch 6 is held in firm engagement with the pin 15 by the action of the spring 12. When the pin 15 engages the detent 8, the latch 6 is pulled outwardly of the slot 7 against the bias of the spring 12 into the lower, or dotted-line, position. Further movement of the switch blade 1 is prevented by the engagement between the detent 8 and the pin 15, for the reason that the pintle 10 engages the inner end wall of the slot 7.

Should the outer end of the latch 6 be given a sharp blow in a direction to disengage the detent 8 from the pin 15, the spring 12 would contract and move the latch 6 longitudinally for a distance equal to the length of the slot 7. The longitudinal movement of the latch 6 moves the detent 8 inside the circumference of the circle described by the pin 15 and, accordingly, the detent 8 cannot again engage the pin 15 until the switch blade 1 has been moved sufficiently to bring the pin 15 into engagement with the latch 6, inside of the detent 8. The latch 6 is prevented from following the pin 15 beyond a certain number of

degrees by reason of the stop action of its extension 9.

Accordingly, I have devised a simple form of position lock for knife-blade switches in which a latch member is moved outwardly against the bias of a spring during partial opening movement of the switch blade. After the position lock is disengaged from the switch blade the biasing spring moves the latch longitudinally a sufficient distance to prevent it from again engaging the knife blade.

I do not wish to be restricted to the specific arrangement of parts herein set forth, as various modifications thereof may be effected without departing from the spirit and scope of my invention. I desire, therefore, that only such limitations shall be imposed as are indicated in the appended claims.

I claim as my invention:

1. The combination with a contact member and a switch blade pivoted thereon, of a pivoted position lock for the switch blade having a lost-motion connection with the stationary contact member, and means for biasing the position lock to one of the limiting positions of the lost-motion connection.

2. The combination with a contact member and a switch blade pivoted thereon, of a position lock for the switch blade, the position lock having an elongated slot therein, means loosely fitted in the slot for pivotally mounting the position lock on the stationary contact member and means for biasing the outer edge of the slot into engagement with the means for mounting the position lock.

3. In combination with a switch blade mounted for movement into and out of engagement with a cooperating contact member, a lock in position to engage said blade after its movement from a closed position, said lock being movable from a locked position to an unlocked position to free said blade therefrom, and means for automatically moving said lock to another position displaced from its locked and unlocked positions.

4. In combination with a switch blade mounted for movement into and out of engagement with a cooperating contact member, a lock in position to engage said blade after its movement from a closed position, said lock being movable from a locked position to an unlocked position to free said blade therefrom, and means including a lost motion connection for automatically moving said lock to another position displaced from its locked and unlocked positions.

In testimony whereof, I have hereunto subscribed my name this 2nd day of June, 1926.

ERNEST K. READ.