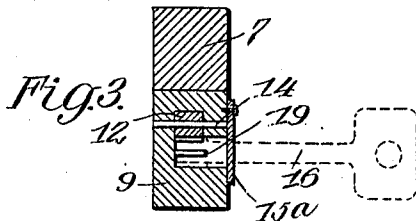
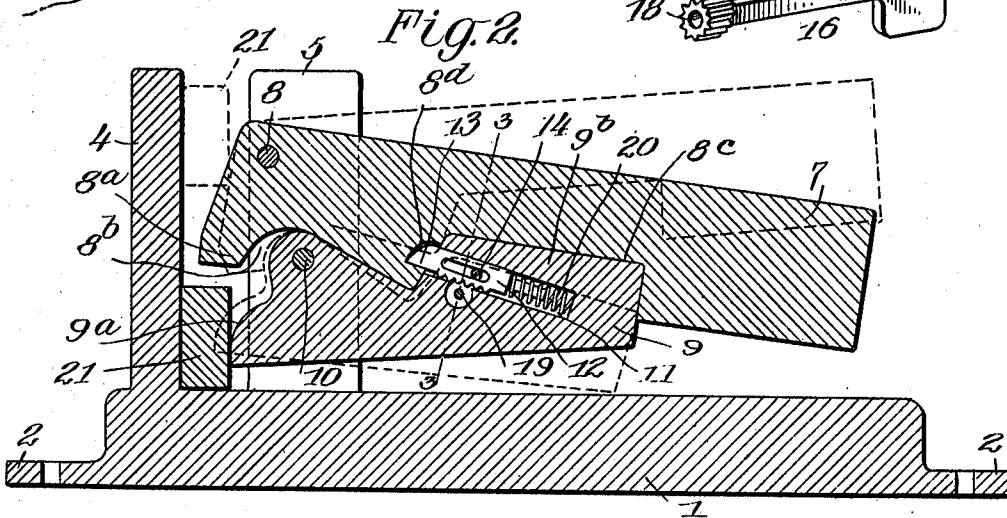
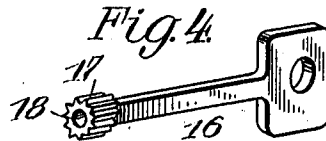


APPLICATION FILED JULY 19, 1910.

Patented Dec. 6, 1910.



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UNITED STATES PATENT OFFICE.

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SWITCH-LOCK.

978,046.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed July 19, 1910. Serial No. 572,677.

To all whom it may concern:

Be it known that we, CHARLES MCGILL and AVERL R. HIGGINBOTHAM, citizens of the United States, and residents of Red House Shoals, in the county of Putnam and State of West Virginia, have invented certain new and useful Improvements in Switch-Locks, of which the following is a specification.

Our invention relates to means for locking switch levers, such as those commonly used on railways, and it consists in the combinations, constructions and arrangements herein described and claimed.

The main object of our invention is to provide a device by means of which the switch lever or handle may be automatically locked by the mere act of throwing the switch.

A further object of our invention is to provide a lock having a peculiar form of key of simple construction, which, however, cannot be readily made, as are keys cut from blanks, and which, therefore, is not likely to be duplicated by vandals or mischievous boys, or other persons who wish to throw the switch at times when the change of the switch might result in disaster to trains.

A further object of our invention is to provide a novel form of switch lock consisting of very few parts, these parts, however, being of great durability, and not liable to get out of order.

Other objects and advantages will appear in the following specification and the novel features of the device will be particularly pointed out in the appended claims.

Our invention is illustrated in the accompanying drawings, forming part of this application in which similar reference characters indicate like parts in the several views, and in which—

Figure 1 is a perspective view showing one embodiment of our invention, Fig. 2 is a longitudinal section through the device, Fig. 3 is a transverse section along the line 3—3 of Fig. 2, and Fig. 4 is a perspective view of the key.

In carrying out our invention, we provide a base 1 having flanges 2, by means of which the device may be secured to the ties 3. Upon the base is an upright 4, which extends across one end of the base, while adjacent thereto are side uprights 5 and 6. These latter uprights form pivotal supporting members for the locking members. The

locking mechanism proper consists of an upper locking member 7 of the shape shown in Figs. 1 and 2. This member is pivoted at 8 to the supports 5 and 6 and is provided at one end with a head 8^a which forms an abutment for retaining the switch lever in its position. On its under side it is provided with a recess 8^b and with a second recess 8^c. A third recess 8^d extends into the body portion from the recess 8^c.

The lower switch member 9 is pivoted at 10 between the supports 5 and 6. The lower member has a cam portion 9^a and is provided with an extension 9^b arranged to extend into the recess 8^c of the upper member 7. The lower member is provided with an inwardly extending recess 11 arranged to hold a slidable rack member 12, the outer end 13 of which constitutes a latch. The rack member 12 is slotted and is held in position by means of a pin 14, which extends through the slot as shown in Figs. 2 and 3. The locking member 9 is also provided with a key-hole 15 for the reception of the key 16 like that shown in Fig. 4. This key is provided with an integral pinion 17 on one end and has a guide opening 18 arranged to fit over the guide pin 19 to guide the key into place. A spring 20 keeps the rack member normally in a forward position. A key hole cover 15^a is pivotally secured to the member 9. This cover is provided with a notch 15^b for a purpose hereinafter described.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood. It will be understood that one of these locking devices may be placed on either side of the switch to receive the switch lever 21. It will be noted that the pivot pins 8 and 10 are out of alinement. If, now, the key is inserted in the opening and the rack member is turned inwardly the tongue 13 will retract from the recess 8^d and the lower locking member will swing downwardly into the position shown in dotted lines in Fig. 2, it being understood, of course, that the switch lever has not yet entered between the standards 4 and 5—6. Now, the upper member is permitted to rest upon the lower member, and, as stated before, the pivot pins 8 and 10 being out of alinement, the portion 9^b of the lower member will not enter the recess 8^c of the upper member, but the upper member will rest upon the lower member so as to leave the

switch lock in an unlocked condition. When the train approaches it is only necessary to swing the switch lever 21, which is pivoted like most levers of this type, and is provided with the ordinary connections with the rails, not shown. As the switch lever comes down, it first cams the upper member into the position shown in dotted lines in Fig. 2. On its further descent it swings the lower member upwardly, the member 9^b entering the recess 8^c and the latch 13 entering the recess 8^a. In this position, it will be seen that the switch lever is locked, since any attempt to force it upwardly will be resisted by the head 8^a of the upper member and the abutting side 9^a of the lower member. In order to throw the switch again the key 16 must be inserted and the latch 13 withdrawn. The upper member must now be raised so as to permit the withdrawal of the lever handle. As soon as the handle is withdrawn the lower member drops down into the position shown in dotted lines in Fig. 2 and the upper member is supported upon it in an unlocked condition and ready for the next throw of the lever to automatically lock the switch. If it is desired to keep the latch 13 in a retracted position the key hole cover 15^a may be lowered so that the square sides of the stem of the key 16 will engage the notch 15^b thereby preventing the rotation of the key and locking the latch in its retracted position. This may be useful where the lever is to be thrown temporarily, as, for instance, in backing or switching.

It will be seen that we have provided means for automatically locking the switch lever by merely throwing the latter into position. Each brakeman will carry a key like that shown in Fig. 4, and as this is of unusual shape, it will not be readily duplicated, and, hence, there will be no danger of the switch being tampered with.

We claim:—

1. The combination with a switch lever, of a switch locking device therefor comprising a base portion, an end upright and a pair of side uprights carried thereby, said end upright being spaced from said side uprights, said space constituting a socket adapted to receive the switch lever, an upper locking member pivotally suspended between said side supports and being provided with a head arranged to project in the path of said switch lever and having a large recess and a small recess adjacent to said large

recess, a lower locking member pivotally supported between said side supports, the pivot of said lower member being out of alinement with the pivot of the upper member, an extension carried by said lower member arranged to enter the large recess in said upper member, said extension being provided with a recess, a spring pressed rack member slidably disposed in the recess in said extension and adapted to project into the small recess in said upper member, and a key for moving said rack member.

2. The combination with a switch lever, of a switch locking device therefor comprising a base portion, an end upright and a pair of side uprights carried thereby, said end upright being spaced from said side uprights, said space constituting a socket adapted to receive the switch lever, an upper locking member pivotally suspended between said side supports and being provided with a head arranged to project in the path of said switch lever and having a large recess and a small recess adjacent to said large recess, a lower locking member pivotally supported between said side supports, the pivot of said lower member being out of alinement with the pivot of the upper member, a latch member carried by said extension arranged to enter the small recess in said upper locking member, and means for retracting said latch member.

3. The combination with a switch lever, of a switch locking device therefor comprising a base portion, an end upright and a pair of side uprights carried thereby, said end upright being spaced from said side uprights, said space constituting a socket adapted to receive the switch lever, an upper locking member pivotally suspended between said side supports and being provided with a head arranged to project in the path of said switch lever and having a large recess, a lower locking member pivotally supported between said side supports, the pivot of said lower member being out of alinement with the pivot of the upper member, an extension carried by said lower member arranged to enter the large recess in said upper member, and means carried by said extension for securing the latter to the upper member.

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