

(No Model.)

J. T. RICHARDSON.

SWITCH STAND.

No. 304,034.

Patented Aug. 26, 1884.

Fig. 1.

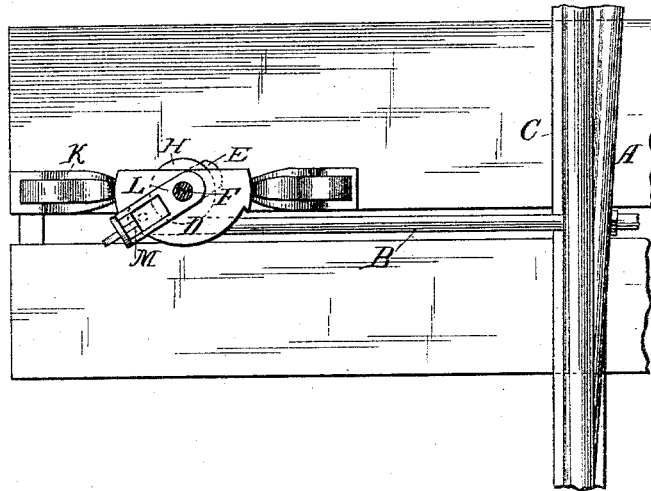


Fig. 2.

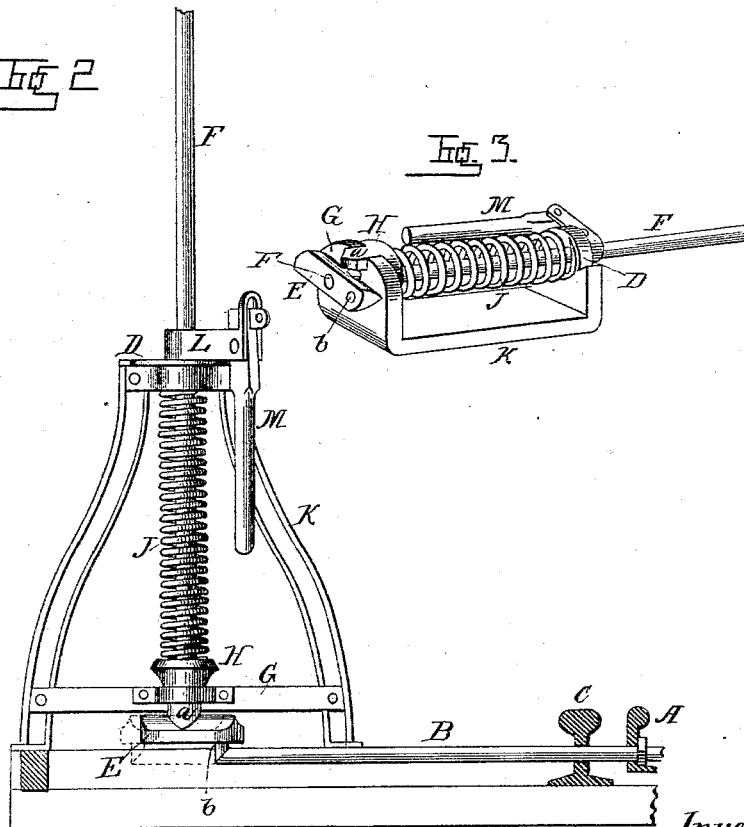
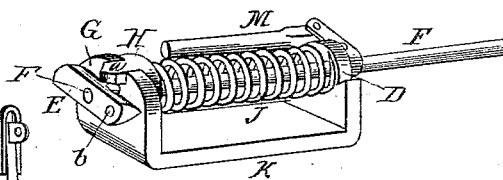


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN T. RICHARDSON, OF HARRISBURG, ASSIGNOR OF ONE-HALF TO ALEX-
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SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 304,034, dated August 26, 1884.

Application filed February 2, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. RICHARDSON, a citizen of the United States, residing at Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented certain new and useful Improvements in Switch-Stands, of which the following is a description.

The object of my invention is to provide an improved switch-stand of simple, efficient and inexpensive construction, which is designed to shift and lock railroad-switches at will, and at the same time provide a means of automatically locking the same into the position to which the movable rails thereof may be thrown by the lateral pressure of the wheel-flanges of a car when the switch is set to the siding and the train moves down the main line, or when set to the main line and the train comes down the siding in the direction that the switch trails, so that every successive wheel will not be required to exert the said lateral pressure to the undue and frequent compression of the switch-spring.

The invention consists of a switch-stand provided with a vertical shaft for operating the switch when it is desirable to use the same in connection with a target or of a horizontal shaft in a suitable housing when the same is used as a ground-tumbler. Around this vertical shaft there is loosely fitted a forked collar or sleeve, said forks terminating in V-shaped ends, said ends resting upon or engaging a correspondingly-inclined V-shaped elongated cam rigidly attached to the tie-rod end of the shaft, said cam being pivoted to the connecting-rod that transmits the lateral movement to the switch-rails when shunting. Above the forked sleeve and around the vertical shaft is a spiral spring of a somewhat greater diameter than that of the shaft, its longitudinal thrust being confined within the limits of the plane of the horizontal upper surface of the sleeve (or vertical surface as the case may be) and the opposite engaging surface of the housing-wall, the entire mechanism being journaled in a standard at the side of the railway-track. Said standard further consists, preferably, of a cast-iron hollow structure either of cylindrical or general truncated cone-like shape, the latter form being preferred on account of the greater stability attainable in its use, and the broader base facilities thereby

afforded for planting the same. When the stand consists of a single casting the more prominent appliances of the inner structure may be made a part thereof, and thus avoid the subsequent fitting together of the co-operating parts of the same.

Similar reference-letters indicate corresponding parts in all the figures.

Figure 1 is a plan view of our improved automatic switch-stand, showing the pointed rails set to the siding, the form to be used in connection with a target. Fig. 2 is a longitudinal vertical section of the same, showing the pointed rails set to the main line. Fig. 3 is a perspective view of the same when the appliance is used as a ground-tumbler.

The switch-point rails A (one of which is shown) are connected in the usual manner by a switch-rod, B, which switch-rod passes under or through the permanent rail C, and is pivoted to the under surface at *b* of the crank-arm, having the elongated cam E, rigidly attached to the lower end of the vertical shaft F, which pierces the bracket or horizontal partition G, and is supported in the forked collar or sleeve H, and the spiral spring J, which in turn are supported in the stand K, planted at the side of the railroad-track. The V-shaped limbs *a* of the forked or recessed sleeve H may either pierce the bracket G on either side of the perforation journaling the shaft F, or they may be inclosed in recesses upon opposite sides of the bracket G, as in Fig. 2, or one may pierce and the other (if but two limbs be used) be recessed, as in Fig. 3, the object being in so recessing said limbs to prevent the revolution of the sleeve when the shaft F is revolved. In addition the shaft F also pierces another bracket or partition, D, on the top of the stand K, and revolves freely therein. Upon the top of said bracket or partition a forked plate, L, rests, which is either keyed or riveted fast to the shaft F in such manner that when the said plate is turned the shaft is turned with it. The extremities of the forks or limbs of said recessed plate L are united upon their upper surfaces by means of a bow-shaped connection, that affords, in combination with the outer ends of the fork, a resistive surface, against which the switch-lock rests when the hand-lever is at rest or locked within the vertical walls of the recess formed by the out-

wardly-projecting limbs of the said plate L. The hand-lever M is pivoted between the walls or shanks of the forked plate, and is adapted to be locked therein in the usual manner. Any suitable kind of day or night signal may be secured to the upper or outer end of the shaft F.

The operation of the appliances of my switch-stand is as follows: When we desire to set the switch, we simply turn the shaft F by means of the hand-lever M, and after the switch has been set the hand-lever is turned downward, its opposite end rising into the seat or aforesaid bow and locked therein. Suppose, for instance, the switch be set for the siding, as in Fig. 1, and a train run down the main line in the direction that the switch trails. In this case the wheel-flanges, entering wedge-like between the pointed movable rail A of the switch and the permanent main track-rail C, force the former away from its previous lateral contact with the latter, and by this means a longitudinal motion is given to the switch-rod B, which in turn is communicated by its pivotal connection with the cam E to the shaft F, and thereby revolves the latter, and thus reverses the position of said cam, in consequence of which reversion the pointed switch-rail C is retained in the position to which it has been thrown by the supposed action of the wheel-flanges; and the switch is in this case now set to the main line, and remains so after the passage of the train, a result that is particularly desirable from the fact that the safety of the main line should always be conserved to the neglect of all other contingencies; or again, should the train pass out the siding with the switch set to the main line, there would be a similar action of the wheel-flanges, as in the former supposed case, and the switch-rail A would be left in lateral contact with the main track-rail C after the passage of the train, in which case the switch would be reset to the main line by the switchman, whose attention, under the circumstances, would no doubt be directed to the fact of the automatic reversal of the switch in consequence of his neglect.

It will be seen that, by the peculiar form of the elongated cam and the sleeve when the latter has been raised by the cam moving through an arc of ninety degrees or more, the pressure of the spring upon the sleeve will tend to throw the cam or crank E over to its full limit of one hundred and eighty degrees or so, thereby insuring the complete movement of the switch-rail from one position to the other.

I am aware that a switch-shaft provided with a sleeve rigidly secured thereto, and having inclined faces, and a sleeve sliding by gravity in a frame, also provided with inclined faces, has been described, and I do not claim such construction.

It will be seen that the construction of my switch-stand is very simple and cheap, while it performs its work well and accurately, and without liability to derangement of the parts.

I claim—

1. The combination, in a switch-stand with a rotating shaft, of a crank-arm having a V-shaped cam formed integral therewith, and a spring-actuated sleeve having similar shaped cams, as and for the purpose set forth.

2. In a switch-stand, the combination, with a rotating shaft, of a crank-arm having a double cam fixed thereto, and a forked spring-actuated sleeve, the ends of which forks are cam-shaped, the arrangement being such that the sleeve is raised by the cams as the shaft is revolved.

3. In a switch-stand, the combination, with a rotating shaft, having a crank-arm and cams attached thereto and supported in suitable brackets or partitions, of a spring-actuated sleeve having cam-ended forks, said forks embracing the sides of, and passing through recesses in, the bracket or partition, as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN T. RICHARDSON.

Witnesses:

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