

(No Model.)

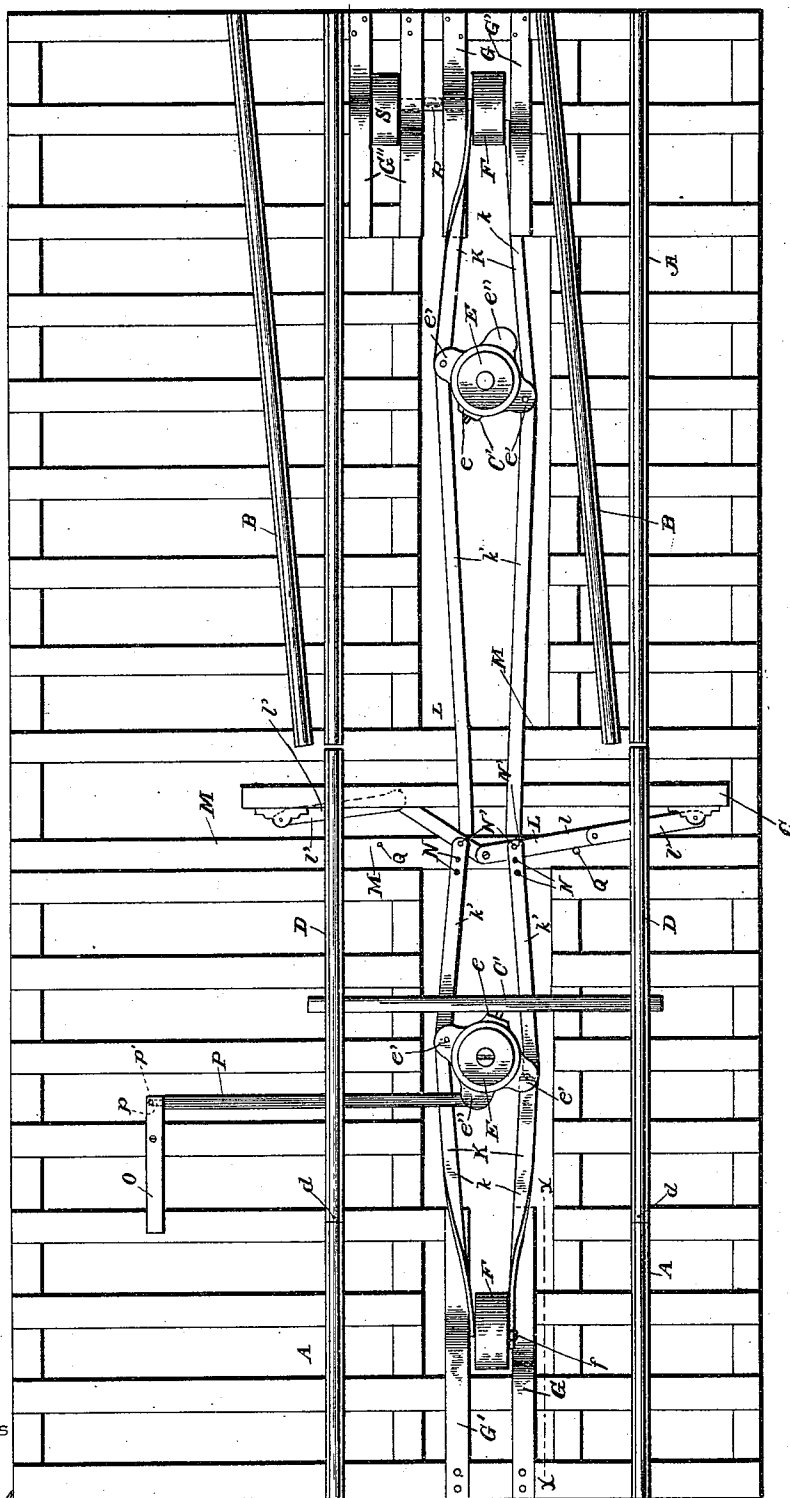
2 Sheets—Sheet 1.

J. C. McLAUGHLIN.
RAILROAD SWITCH.

No. 510,144.

Patented Dec. 5, 1893.

Fig. 1.



Witnesses

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Fig. 2.

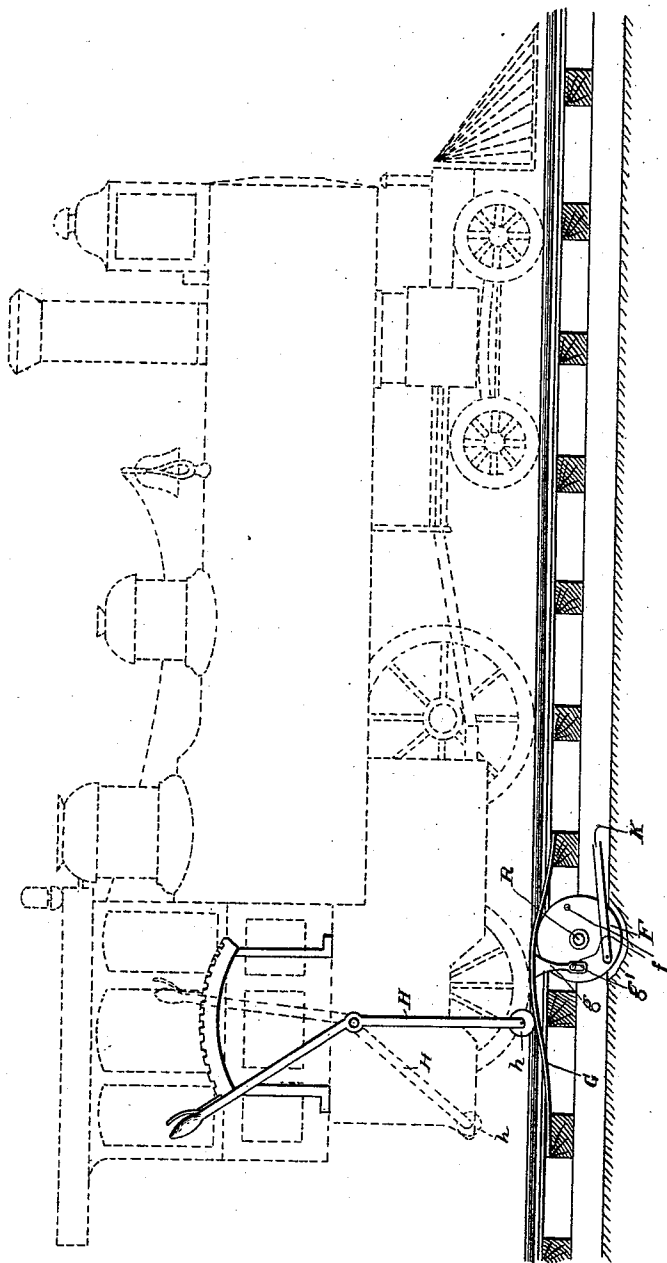
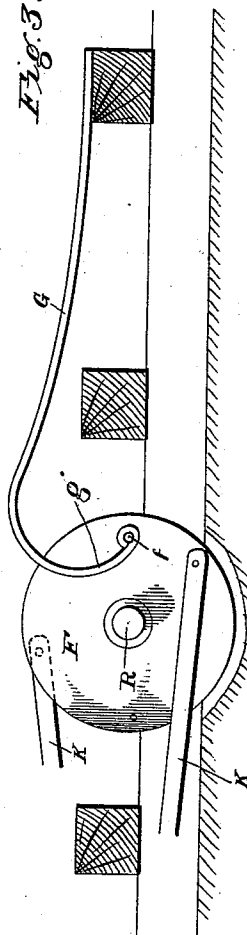


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSIAH C. McLAUGHLIN, OF BRONSON, KANSAS.

RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 510,144, dated December 5, 1893.

Application filed December 10, 1892. Serial No. 454,750. (No model.)

To all whom it may concern:

Be it known that I, JOSIAH C. McLAUGHLIN, a citizen of the United States, residing at Bronson, in the county of Bourbon and State of Kansas, have invented a new and useful Railroad-Switch, of which the following is a specification.

My invention relates to improvements in railway switches, the object of my invention being to provide a simple, cheap and effective switch mechanism which may be operated from the engine or other portion of the train by the engineer or train hands.

It is my object, furthermore, to provide a switch mechanism which may be operated by hand in the ordinary way, the means whereby the switch is operated by hand being capable of being locked to prevent improper persons from changing the switch by means of the lever, without affecting or preventing the adjustment of the switch from the engine or train.

Further objects and advantages of my invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings: Figure 1 is a plan view of a switch mechanism constructed in accordance with my invention. Fig. 2 is a vertical sectional view, upon line $x-x$ of Fig. 1 showing one of the spring treads and the operating lever which is carried by the train, the engine being indicated in dotted lines. Fig. 3 shows a slightly modified form of spring tread in connection with the rocker.

A designates the main-track rails, B the side-track rails, and D the switch-rails, pivoted at d , and arranged at their free ends to align with either the main or siding-track rails. The free ends of the switch-rails are connected for simultaneous movement by the movable tie, C.

E represents a horizontally-disposed, four-armed bell-crank lever, arranged between the switch-rails, and having one of its arms, e , loosely or pivotally connected to a transverse movable tie, C' , which is secured to the switch-rails.

F represents a vertically-disposed disk-shaped rocker, provided at opposite sides with

lateral studs, $f f$, and G G' designate spring-treads, provided with depending arms, $g g$, which are vertically slotted, as shown at g' , to receive the studs, f . These spring-treads are preferably of the semi-elliptical shape shown in Figs. 1 and 2, but may be terminated at the depending arm, as shown in Fig. 3. The treads being disposed as described, the engine or train, as indicated in Fig. 2, is provided with an operating lever, H, provided at its lower end with an antifriction-roll, h , said lever being movable as indicated in dotted lines in said figure, and when arranged in the position shown in full lines the tread will be depressed, as the roll passes thereover, and the rocker will be turned. The rocker is connected, at diametrically opposite points to the opposite side arms, $e' e'$, of the bell-crank lever, E, by means of the connecting-bars, K K, whereby as the rocker is turned by the depression of one of the treads the bell-crank lever will be turned.

The connecting-bars, K, each consist of two sections, $k k'$, jointed at their points of connection with the side-arms, e' , of the bell-crank lever, and the sections, k' , which extend beyond the bell-crank lever are pivotally connected to the inner or adjacent members of the toggle-arms, L. These toggle-arms are arranged horizontally, adjacent to the transverse movable tie, C, and comprise the inner members, l , and the outer members, l' . The inner members are pivotally connected to a stationary tie or sleeper, M, and the free ends of the outer arms are pivotally connected to the tie, C. The extremities of the connecting-bars adjacent to the toggle-arms are provided with series of perforations, N N, for the reception of the adjustable pivot-bolts, $N' N'$, by which the connecting-bars are fulcrumed to the toggle-arms, to permit of the proper adjustment of the connection to insure accurate operation.

O represents a hand-lever, arranged at one side of the track, in a convenient position to be operated by a switchman, and P represents a connecting-rod, fulcrumed at one end to the remaining arm, e'' , of the bell-crank lever, and at the other end provided with a longitudinal slot, p , for the reception of a depending pin, p' , at the end of the hand-

lever. Any suitable means for locking this hand-lever may be provided, such as those now in common use, and therefore it has been thought unnecessary to illustrate such means in the drawings. Such locking devices form no part of the present invention.

Q Q represent stop-pins, which are arranged in the path of the inner members of the toggle-arms to stop the latter when the switch-rails reach one or the other of the adjusted positions, or reach alignment with either the main or siding track rails.

With the parts of my improved switch constructed as above described, the operation thereof is as follows: As a train approaches the switch, if the latter is not properly set, the engineer or other train hand, lowers the pressure-roll which will engage the tread which it is desired to depress. (It will be understood that duplicate operating levers, H, are employed, one to engage each of the treads.) When the roll carried by the operating-lever engages and depresses the spring-tread the rocker is turned, the bell-crank lever is partly rotated, and the toggle-arms are operated, thus moving the movable ties, C and C', in the desired direction and setting the switch-rails. The lateral movement of the switch-rails is limited by the engagement of one of the toggle-arms with one of the stop-pins, in which position the toggle-arm which engages the stop-pin is straight, or its members are aligned, as shown clearly in Fig. 1. This position of one of the toggle-arms forms a lock to prevent the jarring of the switch-rails out of position. The slot in the outer end of the connecting rod, P, allows the bell-crank lever to turn independent of the hand-lever, which may be locked to prevent improper persons tampering with the same to change the switch. The slots in the depending arms of the treads allow the latter to resume their normal positions as soon as the pressure of the operating lever is removed.

While I have confined my description to one portion or member of my switch mechanism, namely that portion or member which lies upon one side of the free ends of the switch-rails, it will be understood that this mechanism, as shown in Fig. 1, is duplicated upon the other side thereof so as to enable the switch to be set by trains approaching in either direction. Furthermore, the shaft, R, of that rocker which is arranged upon that side of the switch adjacent to the siding track, is extended laterally and is provided with a duplicate rocker, S, and spring-treads, G'', similar to those above described are connected to said duplicate rocker in a manner similar to the treads G & G', whereby a train upon the siding may adjust the switch as it approaches the same.

It will be noted that the number of operating parts of my improved switch is small, this being a desideratum for the reason that such mechanisms are liable under the most favorable circumstances to get out of order

and refuse to perform their functions, but it will be obvious that the danger of such casualties is reduced as the number of parts of the mechanism is reduced.

The parts are simple and direct-acting, and the toggle-arms form an automatic lock to prevent the disarrangement of the switch by the jarring of the train in passing thereover.

Changes in the form, proportion, and minor details of construction may be resorted to without departing from the principles or sacrificing any of the advantages of the invention.

I propose to use an ordinary signal to indicate the condition of the switch, and as the construction thereof forms no part of my invention, and as the connection with the working parts of the switch will be obvious, I have not considered it of sufficient importance to illustrate it in the drawings or describe it specifically in the specification.

Having thus described my invention, I claim—

1. In a railroad switch, the combination with pivotal switch-rails, of a rocker F, mounted upon a horizontal spindle, bowed spring-treads provided with depending arms having longitudinal slots engaging pins upon the rocker, said pins being arranged upon opposite sides of the spindle of the rocker, and operating connections between the rocker and the switch-rails, substantially as specified.

2. In a railroad switch, the combination with pivotal switch rails, of a pair of duplicate toggle levers connected to said switch-rails, a rocker, spring treads connected to said rocker and adapted, when depressed, to operate the same, a bell crank lever arranged at a point intermediate between said rocker and the toggle levers, and connections between the rocker and the bell crank lever and between the opposite arms of said lever and the inner members, respectively, of the toggle levers, substantially as specified.

3. In a railroad switch, the combination with the switch-rails, and toggle-arms connected thereto, of a rocker, treads connected to the rocker, a bell-crank lever, a hand-lever connected to said bell-crank lever, and connecting-bars connecting the toggle-arms and bell-crank lever to the rocker, substantially as specified.

4. In a railroad switch, the combination with the switch-rails connected by transverse movable ties, the toggle-arms connected to one of said ties, the rocker, the treads connected to the rocker, the bell-crank lever arranged between the rocker and the toggle-arms, the jointed connecting-bars connecting the toggle-arms and the bell-crank lever to the rocker, the hand-lever, and the slotted connecting-rod, connecting the bell-crank lever to the hand-lever, said bell-crank lever having an arm pivotally connected to the other transverse tie, substantially as specified.

5. In a railroad switch, the spring treads G, G', provided with depending slotted arms g,

and the disk-shaped rocker F, having studs
f, to engage the slotted arms, the bell crank
lever E, the toggle levers L, the connecting
bars K connecting the rocker F, lever E and
5 toggle levers L, the latter being connected to
the switch rails of the switch, substantially
as specified.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

JOSIAH C. McLAUGHLIN.

Witnesses:

GEO. McLAUGHLIN,
J. W. COLEMAN.