

AUTOMATIC SWITCH CLOSER.

Patented Aug. 21, 1883.



UNITED STATES PATENT OFFICE.

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AUTOMATIC SWITCH-CLOSER.

SPECIFICATION forming part of Letters Patent No. 283,721, dated August 21, 1883.

Application filed March 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. NORTHROP, of Salem, county of Essex, State of Massachusetts, have invented a new and useful Improvement in Automatic Switch-Closers; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention consists in the combination of devices and appliances hereinafter specified, and more particularly pointed out in the claims.

It is the object of my invention to produce a switch-shifting mechanism which is operated automatically by the engine, and of such a nature that, if the switch is set for the side track, an engine in passing on the main track will automatically shift the switch to the main track. It is designed to remedy a difficulty which is frequently a source of trouble—viz., the negligence of a switchman to shift his switch back to the main track.

The invention is illustrated by the accompanying drawings, in which Figure 1 is a plan view. Figs. 2 and 3 show variations of the invention; and Fig. 4 is an elevation of the pilot end of a locomotive, showing the wings for actuating the switch-shifting mechanism.

In the drawings, A indicates the main track; B, the side track; C, the switch-rails.

D represents levers secured to the wheels or drums D'.

E represents a chain or cable, divided, preferably, at e , so that a branch, E', passes around each of the wheels D'. This chain is also preferably divided at e' into two branches, E², which, passing around the pulleys E², are connected at the points e^3 to the shifting switch-bar F.

G is a locomotive. It is provided with hinged wing-boards G', which, by a cable or other appliance, G², may be turned up upon the side of the pilot or cow-catcher. This cable passes back into the cab, so as to be under control of the engineer.

The operation of the device as far as described will now be understood. We will suppose the switch to have been set to the side

track, and that a train that is coming along desires to go upon that side track. When the locomotive approaches the point the engineer lifts the wing-boards, so that the train passes over the levers D without disturbing them, and the train passes onto the side track. We will now presume that the switchman fails to switch the rails back into connection with the main track, and that a passenger or other train is following at considerable speed and desires to continue on the main track. Carelessness of this character on the part of the switchman would cause this train to dash off onto the side track into the train standing on that track; but with my appliances, the wing boards G' on the pilot, being down, would strike between the levers D and press them apart. This would wind the chains E' upon the wheels or drums D', and the strain coming upon the shifting-bar F would shift the switch-rails into line with the main track and the train would pass along in safety. We will now presume the switchman to have already shifted the switch back into connection with the main track. This shifting of the switch, it is apparent, would not open the levers D. This would make no difference, however, for the wing-boards G' on the pilot would simply open the levers and let the train pass, and the operation of opening would simply pick up the slack in the chain E, without in any way disturbing the switch. In passing beyond the switch, however, the engineer would have to raise the wing-boards in order to pass over the levers beyond the switch designed for trains which are going in the opposite direction; otherwise the wing-boards would destroy the said levers. To overcome this difficulty—the necessity of the engineer raising the wing-boards in passing this opposite mechanism beyond the switch—I provide the levers H, and preferably the wheels or drums H', although the latter are not absolutely essential. These levers H are connected with the levers D by chains or cables h . These need not be very heavy, since they only have to sustain the strain of opening the levers D. It will be observed, however, by inspection of the drawings, that, no matter which way the train is going, the second pair of levers H will serve to open the adjacent levers D, and vice

versa. The chains E', by impinging on the drums or rollers H', assist in opening the levers H.

In the device shown in Fig. 1 there is but one side track on the same side of the main track. Suppose, however, there were two such side tracks on the same side of the main track. It is apparent that a very slight modification of the levers would adapt it to the new condition—for instance, as shown in Fig. 2—the levers D and H would be made shorter, so as to come together at a more obtuse angle, thereby giving a greater turn to the winding-drums as the levers are opened. In this modification it is clear that when the switch is set to the farthest side track the levers would be closed, and when set to the intermediate side track the levers would be only half closed. The operation, however, of the device would be identical to that shown in Fig. 1.

While I prefer to employ the levers H, I do not regard them as absolutely essential, for instead of these levers H there might be located between the levers D, or any other suitable location, a spring or springs which would take up the slack and open the levers automatically whenever the switch was adjusted to the main track. I prefer, however, to use the extra levers H and the cord or chain connections for opening the levers D.

In Fig. 3 I show the modification just described, in which the springs—such as described—are represented at D² within or upon the wheels D', and serve to take up the slack and open the levers whenever the switch is adjusted to the main track.

What I claim is—

1. The combination, with the main and side tracks and the switch-rails, of rotating wheels or drums D', having attached levers D, with a chain or cable, E, connected at one end with the wheels or drums and at its other end with the switch-shifting device, and pulleys E³, around which the chain or cable passes, substantially as and for the purpose described.

2. The combination, with the switch-rails, the chain, the drums D', and levers D, having their free ends standing adjacent to each other when the switch is set to a siding, of means, substantially as shown, for automatically opening the levers when connection is made with the main track, substantially as described.

3. The combination, with the switch-rails, the drums D', the levers D, and the chain or cable E, of the levers H and connections h, the construction being such that if either set of levers is opened they will, in opening, also open the other set, substantially as described.

4. Apparatus for automatically shifting the switch-rails into connection with the main track, consisting of the combination, with the switch-rails, of the chain, the drums D', the levers D, and, in connection therewith, a locomotive provided at its pilot with adjustable wings G', the construction being such that the levers are actuated by the said wings, substantially as described.

In testimony whereof I sign this specification in the presence of two witnesses.

CHARLES L. NORTHRUP.

Witnesses:

EDWARD P. SMITH,
EDWD. C. BUTLER.