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AUTOMATIC SWITCH CLOSER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM NOAKES, a citizen of the United States, residing at Adams, in the county of Gage and State of Nebraska, have invented a new and useful Automatic Switch-Closer, of which the following is a specification.

This invention has relation to automatic switch closers, and it consists in the novel construction and arrangement of its parts, as hereinafter shown and described.

The object of the invention is to provide an attachment adapted to be applied to an ordinary railway switch, the parts of which are so disposed that an approaching car or train will actuate the same, whereby the switch, which has previously been left open by accident or otherwise, is automatically closed in advance of the approaching train or car, thus preventing accident as the consequence of the approaching car running into an open switch.

With the above object in view, the appliance consists of a simple arrangement of parts which may be easily and readily applied to railway switches now generally used and which offers no obstruction or obstacle to manual operation of the switch or the passage of cars or trains over the track-way.

In the accompanying drawings:—Figure 1 is a top plan view of a section of main track and siding, with the switch-closer applied to the switch. Fig. 2 is a plan view showing an instantaneous position of parts of the switch-closer during the act of opening the switch. Fig. 3 is a plan view showing the positions of the parts of the switch-closer when the switch is open. Fig. 4 is a plan view of a lock-block used upon the switch-closer. Fig. 5 is an edge view of the lock-block.

Introductory to the description of the automatic switch-closer, a brief description of a main and side track and cooperating switch, together with means for manually throwing the switch, will be given.

The reference numeral 1 designates the main track rails, which are provided at intervals with the cross braces 2, 3 and 4.

The reference numeral 5 designates side track rails, and the reference numeral 6 designates the movable switch-points or tongues. The said points 6 are connected together by a cross-brace 7 in the usual manner. A
55 bridle-bar 8 also connects the free end por-

tions of the switch-tongues 6 together and extends transversely under or through one of the rails of the track 1. A vertically disposed crank shaft 9 is journaled for rotation at the side of the track 1, and its crank is pivotally connected by means of a pitman 10 with the projecting end of the bridle-bar 8. Any suitable means may be provided for partially rotating the shaft 9 manually.

The parts above described are those generally employed in railway switches now in common use, and the parts, of which the following description is given, are those that constitute the automatic switch-closer of which this disclosure is the subject of invention.

A lever 11 is pivoted at one end to the bridle-bar 8 at a point between the side track rails 5, and is fulcrumed, at an intermediate point, to the brace-bar 2, and at its opposite end portions lies adjacent the inner side of one of the rails of the main track 1. The lever 11 extends longitudinally along the switch tongues 6. A lever 12 is fulcrumed to the brace bar 4, and, at one end, lies adjacent the inner side of one of the rails of the main track 1. The opposite end portion of the said lever 12 is free, and the lever 12 is disposed upon the opposite side of the bridle-bar 8 from the lever 11. A brace bar 13 is attached at its ends to the side rails of the main track 1 and is located approximately at the extremities of the switch-tongues 6. A lock-block 14 is pivotally mounted upon the bridle-bar 8 at an intermediate point thereof, and is provided at one end with a notched shoulder 15, from the under side of which depends a lug 16, which, at times, is adapted to engage the side of the bridle-bar 8. The opposite end portion of the said lock-block 14 extends transversely across the brace-bar 13, and its extremity is provided with a downwardly disposed pin 17, which enters a slot 18 provided in a bar 19, hereinafter to be located and described. A stop 20 is pivotally mounted upon the brace bar 13 adjacent the notched end 15 of the lock-block 14, and the free end of the said stop 20 is adapted to engage, at times, the notched end 15 of the said lock-block. The opposite end of the stop 20 is pivotally connected with the inner end of the rod 19 above referred to. The said rod 19 extends transversely under or through one of the side rails of the main track 1 and

at its outer end is pivotally connected with the lower end of the lever 21, which, in turn, is supported upon a fulcrum 22 and is provided with a weighted end 23.

5 When it is desired to move the switch tongues 6 so that a train or car may pass from the main track 1 upon the side track rails 5, an operator partially turns the crank shaft 9 in the usual manner, whereby the
10 pitman rod 10 is moved longitudinally and out of alinement with the bridle bar 8, and the crank of the shaft 9 assumes a position substantially parallel with the main track 1. The longitudinal movement on the part of
15 the pitman 10 moves the bridle bar 8 transversely with relation to the track rails 1 and 5, and the switch tongues 6 are moved so that a train may pass from the main track 1 upon the side track rails 5; or, in other
20 words, the switch is opened. As the bridle bar 8 is moved longitudinally as above described the lever 11 is swung upon its fulcrum and the outer end of the said lever is brought in contact with the side of one of
25 the track rails 1. At the same time the lock block 14 moves with the bridle bar 8 and the shouldered end 15 thereof engages the end of the stop 20 and swings the said stop upon its pivot, so that its opposite end is moved
30 toward the lever 21. This movement on the part of the said stop 20 moves the rod 19 longitudinally, and the said lever 21 is swung upon its fulcrum, so that its weighted end 23 is slightly elevated. As soon as the op-
35 erator releases the shaft 9 the weight of the end 23 of the lever 21 comes into play and the said lever is swung upon its fulcrum 22, whereupon the rod 19 moves longitudinally under one of the track rails 1, and the stop
40 20 is swung upon its pivot so that its free end is moved toward the lock block 14, and the said block is swung upon its pivotal connection with the bridle bar 8, and the free end of the stop 20 enters the notch 15,
45 provided in the said lock block 14. This movement on the part of the lock block 14 is not sufficient to move the bridle bar 8 longitudinally, but is sufficient to move the free end of the lever 12, whereby the opposite
50 end of the said lever is brought in contact with the side of the track rail 1, or approximately so. Presuming that the operator should then leave the switch without exer-
55 cising the care of closing the same, and should a train or car approach the switch upon the main track rails 1 from the direction in which the free end of the lever 11 is pointing, the flange of the first wheel that
60 comes in contact with the said lever 11 will swing the free end of the said lever upon its fulcrum, whereby the opposite end of the said lever will be swung toward the shaft 9 and the bridle bar moved longitudinally and
65 one of the switch tongues 6 will be closed against one of the main track rails 1. Thus

the switch is automatically closed when a train or car is approaching the same from the direction above described.

Presuming that a train or car should approach the switch when the switch rails are 70 open as above indicated, and the said train or car comes in the direction opposite from that in which the free end of the lever 12 is pointing, the flange of the first wheel of the
75 said train or car will engage the outer end of the lever 12, and the said lever will be swung upon its fulcrum, whereby its inner end will engage the end of the lock block 14 which has slot and pin connection with the
80 rod 19. Inasmuch as the stop 20 has been swung as above indicated by the gravity means of which the lever 21 forms a component part, so that its free end is in the
85 notched extremity of the lock block 14, the said block 14 cannot swing upon its pivotal connection with the bridle bar 8, and consequently the said bridle bar is moved longi-
90 tudinally, so that the switch tongues 6 are moved, and that tongue 6 which closes the siding is moved in engagement with the rail of the main track 1, while the other switch
95 tongue 6 is moved away from the opposite rail of the track 1. Thus it will be seen that means is provided for automatically closing the switch should it be left open acciden-
100 tally, and that the said means is adapted to be actuated by a train or car approaching the switch upon the main track from either direction.

Having described my invention, what I 100 claim as new, and desire to secure, by Letters Patent, is:—

1. In combination with a main track and a siding and movable switch tongues, and a 105 bridle bar connecting said tongues together, together with means for moving the said bridle bar, an automatic switch-closer comprising a lock block pivotally mounted upon the bridle bar and having a notched extremity, a stop pivotally mounted adjacent the 110 notched extremity of the lock block and having a free end adapted to engage the notched extremity of the said block, gravity means operatively connected with the opposite end of the said stop, and a lever fulcrumed and 115 having one end portion lying adjacent a track rail, and its opposite end portion within the path of movement of the lock block.

2. An automatic switch-closing device 120 comprising a lock-block for pivotal attachment with the bridle bar of a switch and having a notched extremity, a stop pivotally mounted adjacent the notched extremity of the lock block, gravity means operatively 125 connected with the opposite end of the said stop, and a pivoted lever having one end located adjacent the track rail and its opposite end located in the path of movement of the said lock block.

3. An automatic switch-closer comprising 130

a lock-block pivotally connected to the
bridle-bar of the switch and having a
notched extremity, a stop pivotally mounted
adjacent the notched extremity of said lock
5 block, and having one end adapted to en-
gage the notched extremity of the said block,
gravity means operatively connected with
the opposite end of the said stop, a pivoted
lever having one end disposed adjacent the
10 track rail, and its opposite end located in the
path of movement of the said lock-block, and
a pivoted lever having one end disposed ad-
jacent the track rail and its opposite end
pivotally connected with the bridle-bar of
15 the switch.

4. An automatic switch-closer comprising

a pivoted lock-block having a notched ex-
tremity, a stop pivotally mounted and hav-
ing its free end adapted to engage the
notched extremity of the said block, gravity 20
means operatively connected with the oppo-
site end of the said stop, and oppositely dis-
posed levers fulcrumed at suitable points
and having ends adjacent the track rails.

In testimony that I claim the foregoing 25
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

WILLIAM NOAKES.

Witnesses:

JAMES O. GARTRELL,

B. P. ZUVER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
