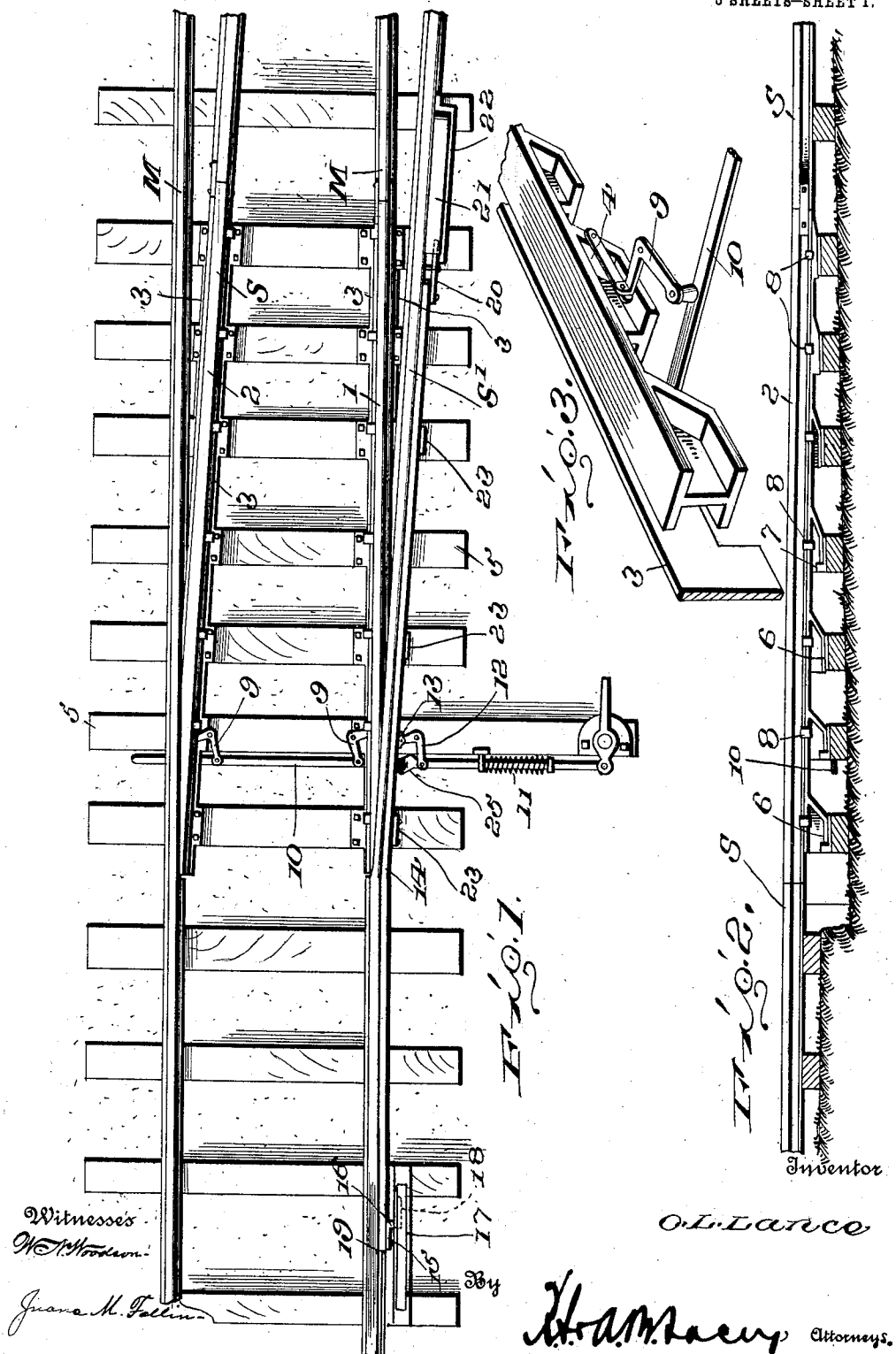


O. L. LANCE.
 AUTOMATIC RAILWAY SWITCH.
 APPLICATION FILED JUNE 8, 1911.

1,058,374.

Patented Apr. 8, 1913.

3 SHEETS-SHEET 1.

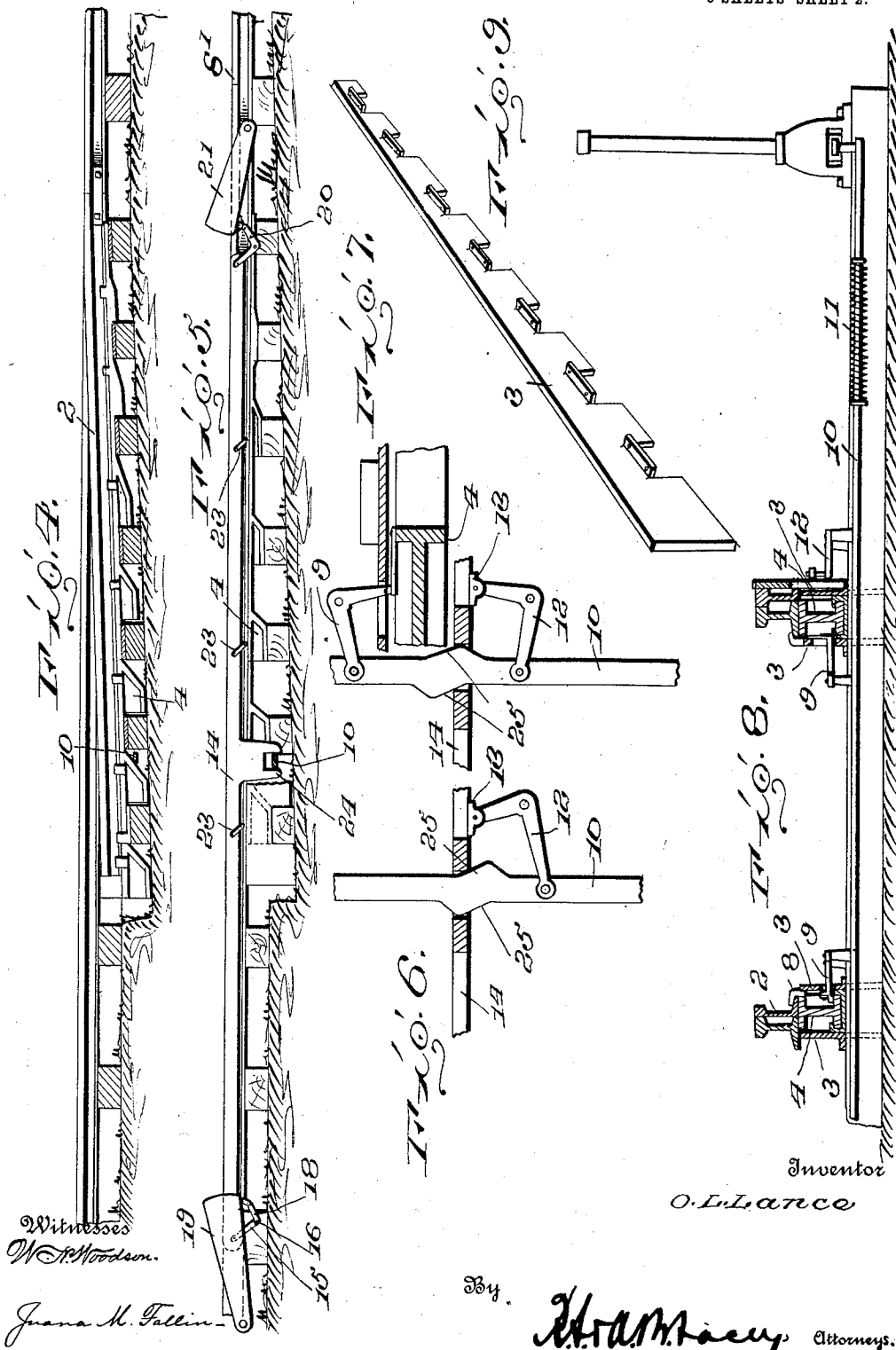


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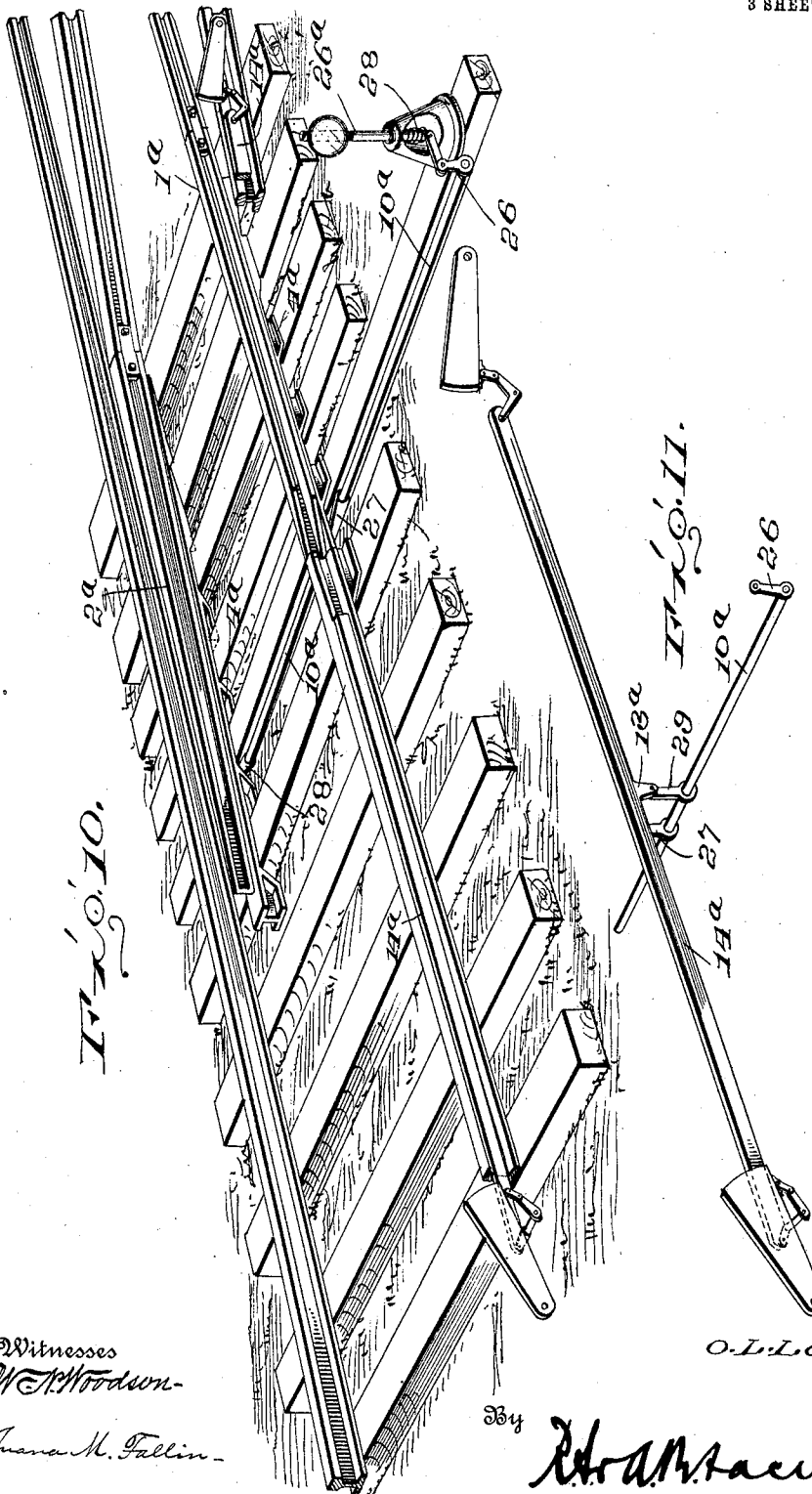


FIG. 10.

FIG. 11.

Witnesses
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UNITED STATES PATENT OFFICE.

ORA L. LANCE, OF CORVALLIS, OREGON.

AUTOMATIC RAILWAY-SWITCH.

1,058,374.

Specification of Letters Patent.

Patented Apr. 8, 1913.

Application filed June 8, 1911. Serial No. 632,042.

To all whom it may concern:

Be it known that I, ORA L. LANCE, citizen of the United States, residing at Corvallis, in the county of Benton and State of Oregon, (whose post-office address is post-office box 988, Tacoma, county of Pierce, State of Washington,) have invented certain new and useful Improvements in Automatic Railway-Switches, of which the following is a specification.

This invention comprehends certain new and useful improvements in railway switches of the automatic type, and the invention has for its primary object a switch of this character, the parts of which are so constructed and arranged that the switch cannot be left open, thereby preventing the wrecks that are so frequently caused through the neglect or incompetency of switchmen and brakemen, through their failure to keep all switches leading from the main track closed.

The invention also has for its object an improved railway switch in which the switch points are depressed when moved to an inoperative position, and raised to an operative position, instead of being turned or swung to the right or to the left, as has been customary heretofore. And the invention also aims to simplify and render more durable and efficient devices of this character, so as to increase their usefulness and commercial desirability.

With these and other objects in view as will more fully appear as the description proceeds, the invention consists in certain constructions, arrangements and combinations of the parts that I shall hereinafter fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a top plan view of one form or embodiment of my invention; Fig. 2 is a longitudinal sectional view of the track; Fig. 3 is a fragmentary perspective view of one of the wedge bars; Figs. 4 and 5 are sectional views extending longitudinally of the track; Figs. 6 and 7 are top plan views with parts in section; Fig. 8 is a transverse sectional view of the track; Fig. 9 is a detail perspective view of one of the guard plates; Fig. 10 is a perspective view of another embodiment of the inven-

tion; and, Fig. 11 is a fragmentary perspective view of details thereof.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, M and M' designate main rails of a railway track and S and S' designate, respectively, siding rails. Each of the rails M and S includes as a portion thereof a switch point, said switch points being designated 1 and 2, respectively, and being mounted for a raising and lowering movement in a true vertical plane. These switch points are held close up against their adjoining track rails S' and M' by guards 3 which assist in guiding the switch points in their vertical movements.

A series of integrally connected wedges 4 is mounted underneath each of the switch points 1 and 2, being interposed between the same and the cross ties 5 underneath, the wedges being so arranged, as will be clearly illustrated in the drawings, that when they are moved in one direction, they will cause the switch points to rise and when moved in the opposite direction will cause the switch points to be depressed. In the present instance, the wedges are provided with side flanges 6 which slidingly engage lugs 7 and lugs 8, the lugs 7 being carried by the cross ties 5 and the lugs 8 by the switch points, whereby the wedges will be properly guided in their movements and will serve to positively draw the switch points downwardly when the wedges are moved in the required direction. In the preferred embodiment of the mechanism, the wedges are all formed as part of a flat bar which connects them together.

It is, of course, to be understood that the switch points move simultaneously, but in opposite directions. That is, the switch point 1 will be lowered or depressed, while the switch point 2 is being raised, and vice versa. As one means for accomplishing this result, I connect the respective wedge bars to one arm of each of two oppositely disposed bell cranks 9 fulcrumed on one of the cross ties near the tapered end of the switch points, the other arms of said bell cranks being both pivotally connected to a transversely extending coupling rod 10, said rod 10 being movable laterally. One end of the rod 10 is operatively connected, as shown,

to provide means for manually throwing the switch, and a spring 11 encircles the rod and exerts a tension thereon to hold the switch normally closed and to automatically close the switch after it has once been opened.

The coupling rod 10 is connected to one arm of a bell crank 12, and the other arm of said bell crank is pivotally connected to an ear 13 which projects laterally from a longitudinally movable actuating bar 14, said bar in its normal position projecting slightly above the tread surface of the rails along which it extends. One end of the actuating bar 14 is pivotally connected to a crank 15 of a shaft 16, said shaft being journaled in a casing 17 supported alongside of one of the track rails. This shaft is provided with another crank, designated 18, the last named crank being pivotally connected to a trip block 19, which is pivotally mounted in the casing 17 and which normally projects in an inclined position above the top of said casing. The other end of the actuating bar 14 is pivotally connected by a lever 20 to an oppositely facing and corresponding trip block 21, said trip block 21 being pivotally mounted in a casing 22. The actuating bar may be supported intermediate of its ends by pivoted links 23.

From the foregoing description, in connection with the correlated views of the accompanying drawings, the operation of this embodiment of my invention will be apparent. In describing the practical operation of the mechanism, it will, of course, be understood that the trip blocks 19 and 21 are to be depressed, whenever desired, by a roller or similar device carried by the locomotive or a train, capable of being brought into contact with the trip block in any desired way, as by steam or water pressure devices under the control of the occupants of the locomotive cab. For example, if a train is approaching a switch from the left as viewed in the drawing, and the engineer desires to take the siding, he will cause the trip block 19 to be depressed, which will move the actuating bar 14 to the right and consequently rock the bell cranks 9 in a direction to raise the switch point 2 and lower the switch point 1. This will, of course, open the switch, and the switch will be maintained open while the train is passing through onto the siding, by the repeated engagement of the guard wheel treads one after the other, with the actuating bar 14, which in its normal position, as before stated, projects slightly above the treads of the adjoining rail section. Thus the switch will be held open while the train is passing through and until the wheels of the last car of the train have passed from the trip block 21, whereupon the spring 11 will be permitted to act to at once automatically throw the switch so

as to open it to the main track and close it to the siding. The passage of the train from the siding to the main track will produce the same operation of the parts, the actuating bar 14 being so connected to the two trip blocks 19 and 21 that the bar will be moved in a direction to open the switch to the siding when either of the trip blocks is depressed.

It will thus be seen that I have provided a very simple, durable and efficient construction of automatic railway switch which will be at all times closed to the siding and open to the main track, except when it is desired to pass from or to the siding, and it will be positive and sure in its action, as the switch points are at all times held close to the adjoining side faces of the adjacent rails, and no spaces are produced at any time in which snow, ice, or other substances can lodge or collect.

Preferably, the actuating bar 14 is formed with depending lugs 24, the opposing edges of which constitute shoulders designed to co-act with cams 25 formed on the coupling rod 10, thereby maintaining the interlocking of the parts.

It is to be understood that my invention is not limited to the precise details of construction and arrangement and proportions of the parts hereinbefore described, but that various changes may be made without departing from the scope of the invention as defined in the appended claims. For instance, as illustrated in Fig. 11, I may use a different means from that as described for moving the wedge bars that extend underneath the switch points. Instead of the laterally movable rod 10, I may employ a transversely extending shaft or rod 10^a mounted to turn about its longitudinal axis, instead of being shifted laterally. This rod 10^a is provided at one end with a crank 26 operatively connected to the switch arm 26^a which is encircled by a spring 28 designed to hold the switch closed. In addition to the crank 26, the rod 10^a is provided with cranks 27 and 28 that are pivotally connected to the wedge bars 4^a of the respective switch points 1^a and 2^a and another crank 29 formed on the rod 10^a is pivotally connected to an ear 13^a formed on the longitudinally extending actuating bar 14^a. The bar 14^a is mounted like the bar 14 before described, and hence it will be understood that as the trip blocks 19 and 21 are depressed, the switch point 1^a will be depressed and the switch point 2^a raised.

Having thus described the invention, what is claimed as new is:

1. A railway switch comprehending switch points capable of vertical movement and pivoted at one end to the rails, a series of wedges disposed in longitudinal alinement beneath said switch points and decreasing

in size as they near the pivoted end of the switch point, and means for simultaneously moving each series of wedges longitudinally of the rails and in opposite directions.

- 5 2. A railway switch including supporting ties and switch points, said switch points being pivotally attached at one end to the rails and capable of vertical movement at their free ends, bearing plates beneath the
10 switch points and movable longitudinally of the same, wedge members carried by the

plates and decreasing in size as they near the pivoted end of the switch points, said wedge members movably engaging the ties, and means for operating said plates and the 15 wedge members carried thereby.

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

ORA L. LANCE. [L. S.]

Witnesses:

CHAS. J. TAFF,
D. H. TURNER.

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