

W. A. LINES.
 SWITCH THROW.
 APPLICATION FILED FEB. 8, 1912.

1,058,876.

Patented Apr. 15, 1913.

2 SHEETS—SHEET 1.

Fig. 7. Fig. 1.
 101 100

Witnesses
J. P. Corns
L. H. Wilcox

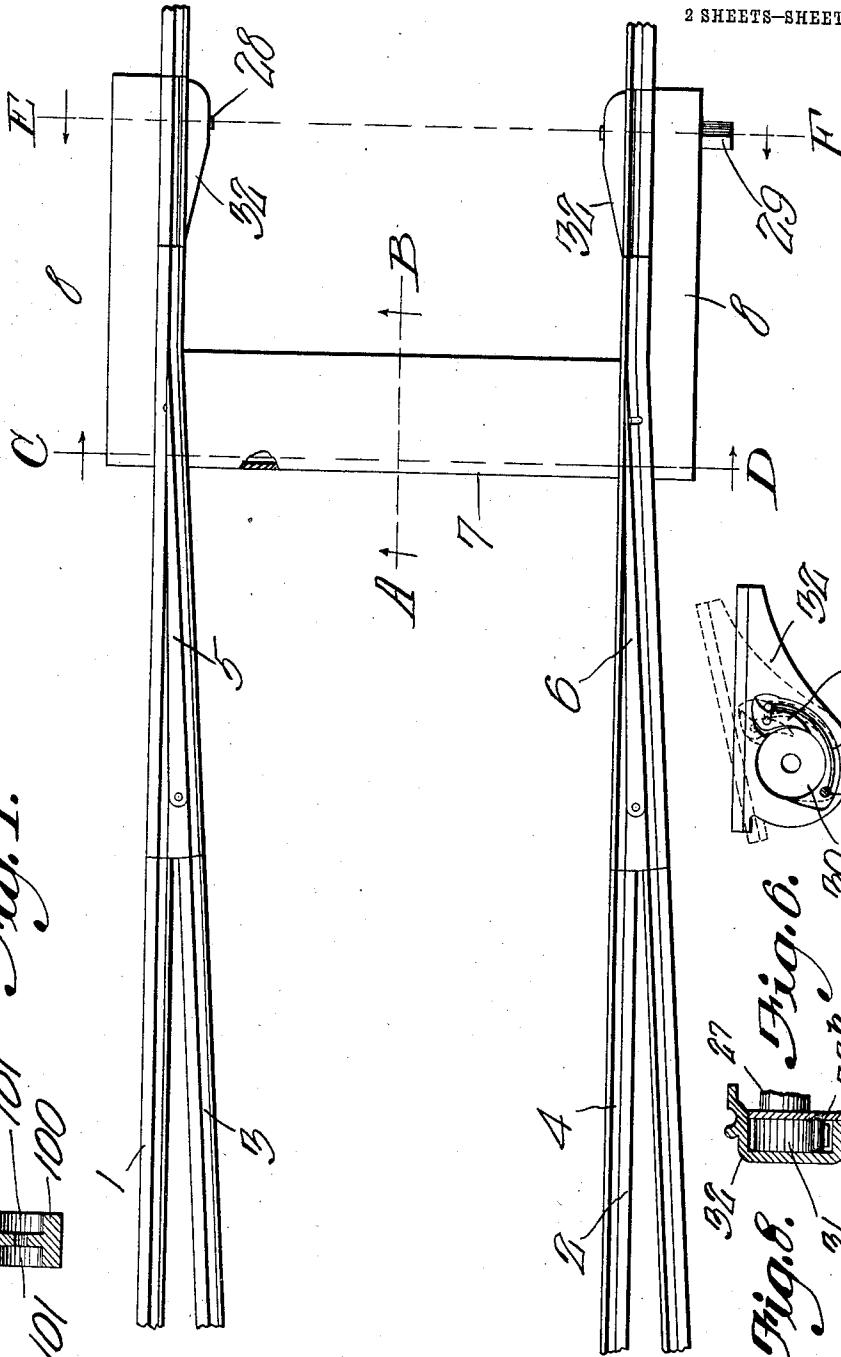


Fig. 6. Fig. 8.
 27 32 33 33a 33b 30 31

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2 SHEETS-SHEET 2.

Fig. 2.

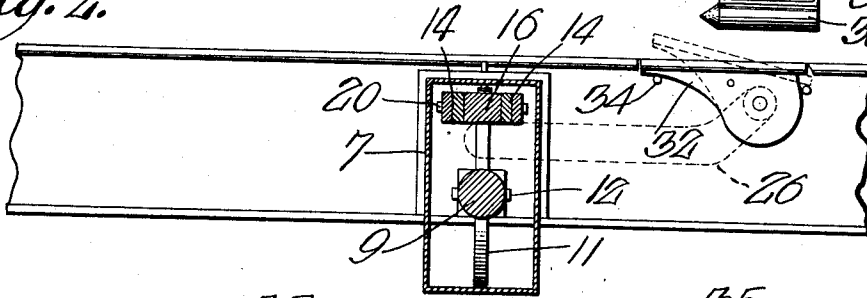


Fig. 3.

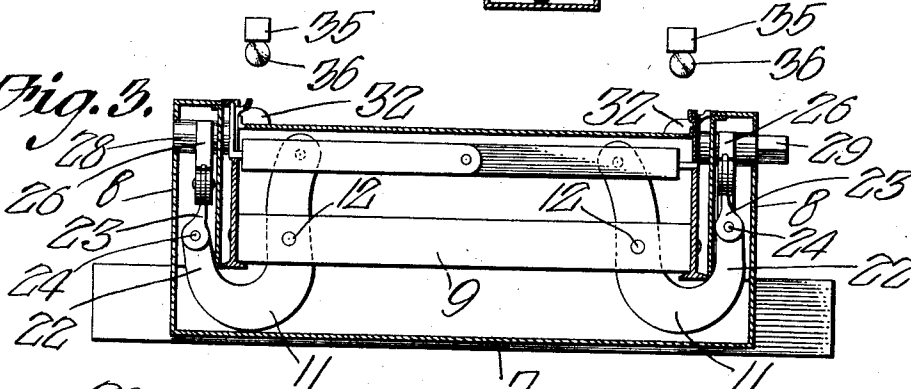
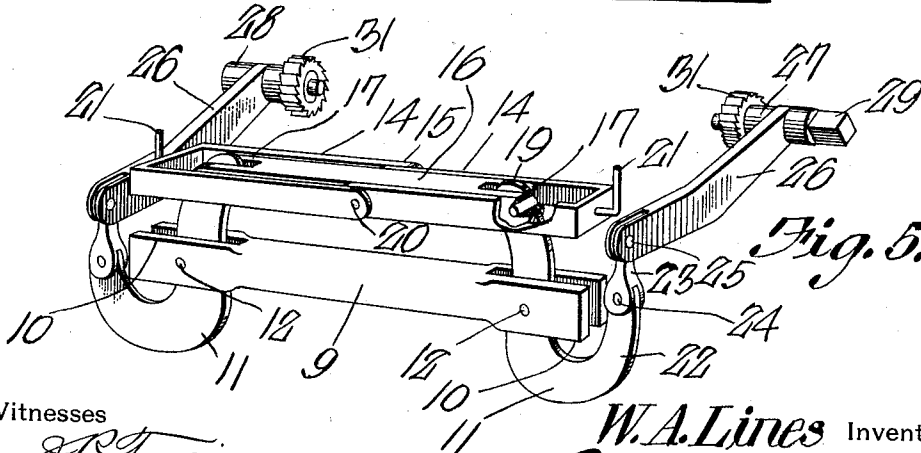
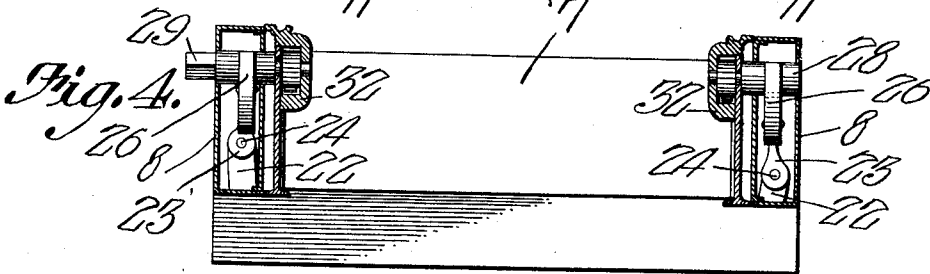


Fig. 4.



Witnesses

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WILLIAM A. LINES, OF FORD, IDAHO.

SWITCH-THROW.

1,058,876.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed February 8, 1912. Serial No. 676,306.

To all whom it may concern:

Be it known that I, WILLIAM A. LINES, a citizen of the United States, residing at Ford, in the county of Kootenai and State of Idaho, have invented a new and useful Switch-Throw, of which the following is a specification.

It is the object of the present invention to provide means whereby the switch points may be thrown by a passing car.

Specifically, the invention aims to provide novel means for connecting the switch points, to provide wheel-engaging elements of novel form; to provide mechanism for connecting the wheel-engaging elements with the means whereby the switch points are connected; and to provide car-carried electro-magnetic means for elevating the wheel-engaging elements alternately, so that the switch points may be moved in one direction or in another, depending upon whether the car is to continue upon the main track, or to take a siding.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings,—Figure 1 shows the invention in top plan; Fig. 2 is a transverse section upon the line A—B of Fig. 1; Fig. 3 is a section upon the line C—D of Fig. 1; Fig. 4 is a section upon the line E—F of Fig. 1; Fig. 5 is a perspective of the operating mechanism; Fig. 6 is an elevation of one of the wheel-engaging elements; Fig. 7 is a transverse section showing a modified form of wheel-engaging member; and Fig. 8 is a transverse section of one rail, showing the pawl and ratchet mechanism.

Referring to the drawings, the main line rails are denoted by the numerals 1 and 2, the siding rails being denoted by the numerals 3 and 4, and the switch points by the numerals 5 and 6.

Extended transversely of the track, is a casing 7, having extensions 8, prolonged longitudinally of the track, and located upon the outside of the rails. Located within the casing 7 and preferably secured to the main line rails 1 and 2, is a supporting bar 9, the ends of which are bifurcated as shown at 10' to receive U-shaped levers 11, the levers 11 being pivoted as shown at 12 between the bifurcations 10 of the supporting bar 9. The invention further includes a pair of U-shaped yokes 14, the ends of which are overlapped, as shown at 15. Located within the yokes 14 is a bar 16, having bifurcations 17 at its ends, pivot pins 18 being passed through the bifurcations 17, to engage the upper ends 19 of the levers 11. The overlapped ends 15 of the members 14 are engaged by a pivot pin 20 which is also engaged with the intermediate portion of the bar 16. Outstanding from the ends of the yokes 14, are fingers 21, engaging with the switch points 5 and 6.

The bills 22 of the hook-shaped levers 11 are located in the extensions 8 of the casing 7. The bills 22 of the levers 11 are received between the bifurcations of the links 23, the links 23 being pivotally connected with the bills 22 of the hook-shaped levers 11, as indicated at 24. The upper ends of the links 23 are received between the bifurcations of the crank arms 26, and are pivoted between these bifurcations, as shown at 25, the crank arms 26 preferably being formed integrally with the shafts 27 and 28 which are journaled for rotation in the main line rails 1 and in the extensions 8 of the casing 7. The shafts 27 and 28 are similar, saving for the fact that the shaft 27 is equipped with a squared end 29 protruding through one of the extensions 8, whereby the switch may be thrown manually. The casing 7 and the extensions 8 thereof may contain oil, so that most of the working parts of the device may move smoothly and anti-frictionally, in the oil.

Mounted for free tilting movement upon the inner ends of the shafts 28 and 27 are wheel-engaging members 32, recessed in their inner faces, as shown at 30, to receive ratchet wheels which are secured to the

inner ends of the shafts 28 and 27. The ratchet wheels 31 are adapted to be engaged by pawls 33, pivoted upon the wheel-engaging members 32. The downward movement of the free ends of the wheel-engaging members 32 is limited by stop pins 34 carried by the main line rails 1 and 2. Under normal conditions, the upper faces of the wheel-engaging members 32 are flush with the upper faces of the main line rails 1 and 2.

Springs 33^a are secured to the rails as shown at 33^b, the free ends of the springs bearing against the pawls 33. The springs 33^a normally hold the pawls 33 engaged with the ratchet wheels 31. However, at the end of the downward movement of the free ends of the wheel-engaging members 32, the free ends of the springs 33^a will ride past the points of suspension of the pawls 33 and swing the pawls out of engagement with the ratchet wheels 31 (see Fig. 6). Since both of the crank arms 26 are actuated when but one of the members 32 is depressed by the wheel, a lost motion must be provided adjacent that member 32 which is not raised by the action of one electro-magnet 36. This lost motion is provided for, since, when the free end of each member 32 is at the limit of its downward movement, the free end of each spring 33^a will ride past the point of suspension of the corresponding pawl 33 and swing the said pawl out of engagement with its associated ratchet wheel 31.

The numeral 35 serves to indicate, conventionally, spaced portions of a car, each of these portions 35 carrying electro-magnets 36, located above the wheel-engaging members 32 and in advance of the wheels whereby the members 32 are actuated.

If desired, the wheel-engaging member may be fashioned as shown in Fig. 7. Under such circumstances, the wheel-engaging member 100 is provided in its opposite faces with recesses 101, corresponding to the recesses 30, the construction being such that the wheel-engaging member 100 may be reversed.

When it is desired to throw the switch point, one of the magnets 36 is energized. This magnet 36 will thereupon elevate the free end of one of the wheel-engaging members 32, the pawl 33 clicking over the ratchet wheel 31, the free end of the wheel-engaging member 32 being thus maintained in elevated position. When the wheel of the car rides over the wheel-engaging member 32, the free end thereof will be depressed, causing a rotation of the ratchet wheel 31, and, say, a rotation of the shaft 28. The crank arm 26 will thus be actuated, and the corresponding link 23 will effect a tilting of the lever 11, the lever 11 moving the bar 16

transversely of the track, and the bar 16 actuating the yieldable frame composed of the yokes 14, the fingers 21 of which engage the switch points 5 and 6. As will be readily understood, when the shaft 28 is actuated the switch points will be thrown in one direction, whereas, if the shaft 29 is actuated, the switch points will be thrown in an opposite direction.

Having thus described the invention, what is claimed is:—

1. In a device of the class described, rotatably supported shafts; wheel-engaging members loose upon the shafts; pawl and ratchet mechanisms operatively connecting the wheel-engaging members with the shafts; a switch point; connections between the shafts and the switch point; and separate, car-carried, electro-magnetic means for actuating the wheel-engaging members, alternately, into wheel-engaging position.

2. In a device of the class described, a supporting structure; a lever fulcrumed intermediate its ends in said structure, a switch point; means for connecting one end of the lever with the switch point; a shaft supported for rotation; a wheel-engaging member loose upon the shaft; pawl and ratchet mechanism connecting the wheel-engaging member with the shaft; an arm upon the shaft; and a link connecting the arm with the other end of the lever.

3. In a device of the class described, a supporting structure; hook-shaped levers fulcrumed intermediate their ends in the supporting structure; a yieldable frame connecting the levers at one end; a switch point; means for connecting the switch point with the frame; shafts supported for rotation; wheel-engaging members loose upon the shafts; means for operatively connecting the wheel-engaging members and the shafts; and means for connecting the shafts with the other ends of the levers.

4. In a device of the class described, a supporting structure; levers fulcrumed intermediate their ends in the supporting structure; a yieldable connection between one end of the levers; switch points; means for uniting the switch points with the connection; shafts supported for rotation; wheel-engaging members loose upon the shafts; means for connecting the shafts and the wheel-engaging members; crank arms upon the shafts; and links connecting the crank arms with the other ends of the levers.

5. In a device of the class described, a supporting structure; levers fulcrumed intermediate their ends on the supporting structure; a bar pivotally connected with the levers at one end of the levers; yokes pivotally connected with the bar; switch points; means for connecting the switch points with the yokes; shafts supported for

rotation; wheel-engaging members loose upon the shafts; pawl and ratchet mechanisms operatively connecting the wheel-engaging members with the shafts; crank arms upon the shafts; and means connecting the crank arms with the other ends of the levers.

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

WILLIAM A. LINES.

Witnesses:

ED. FUNDING,

CHARLES P. CORY.

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