

1,411,162.

2 SHEETS--SHEET 1.



Inventor

J. Coates

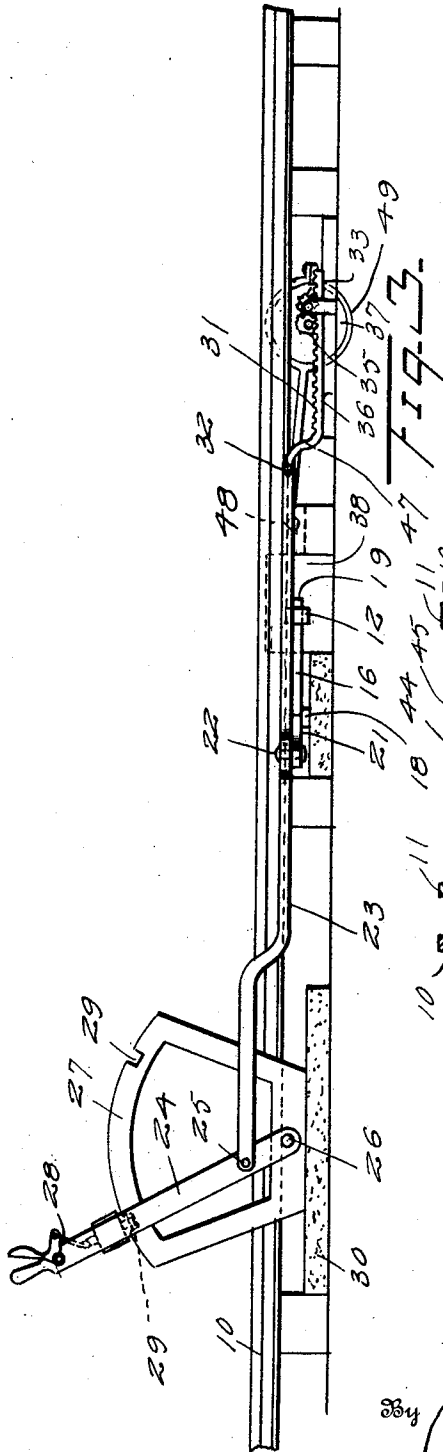
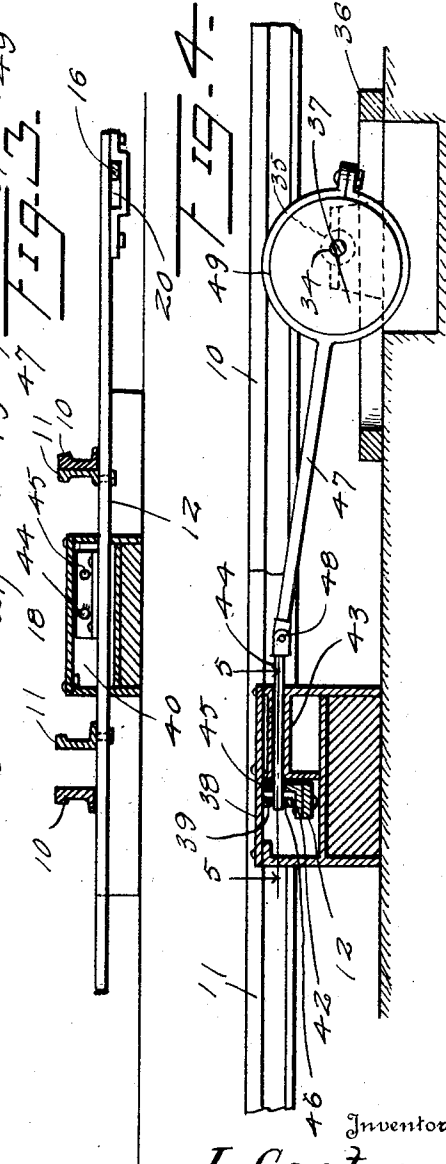
W. Randolph Jr. Attorney

1,411,162.

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2 SHEETS—SHEET 2.

FIG. 2.



By *J. Coates*
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UNITED STATES PATENT OFFICE.

JOSEPH COATES, OF LUKE, MARYLAND, ASSIGNOR OF ONE-FOURTH TO JOHN B. MAYBURY, OF PIEDMONT, WEST VIRGINIA.

LOCK RAILROAD SWITCH.

1,411,162.

Specification of Letters Patent. Patented Mar. 28, 1922.

Application filed November 15, 1921. Serial No. 515,303.

To all whom it may concern:

Be it known that I, JOSEPH COATES, a citizen of the United States, residing at Luke, in the county of Allegany and State of Maryland, have invented certain new and useful Improvements in Lock Railroad Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a mechanism to positively lock switch points or tongues of railway switches in their different positions to avoid danger of such displacement of said points or tongues as will result in accidents to rolling stock passing thereover, and passengers and goods, wares and merchandise carried thereby.

One object is to provide mechanism in which the number of means such as levers necessary to actuate the railway track switch will be reduced in number and so that the same result may be accomplished by the use of a single operating means or lever.

A second object is to provide a locking mechanism operable by an eccentric through actuation of the switch-throwing means.

Another object is to provide a means whereby a locking bolt may be moved out of locking engagement with a switch to permit throwing thereof and returned to locking engagement therewith during a single actuation of switch throwing means in one direction.

Another object is to provide means whereby the associated target or lamp will be actuated by the single actuation referred to in the last paragraph.

Additional objects and advantages will become apparent from a consideration of the description following taken in connection with accompanying drawings.

In said drawings:—

Figure 1 is a plan view illustrating the improvement in connection with a railway track;

Figure 2 is a side elevation illustrating the invention in connection with a railway track;

Figure 3 is a transverse sectional view on the line 3—3 of Figure 1;

Figure 4 is an enlarged vertical section on the line 4—4 of Figure 1, and

Figure 5 is a horizontal sectional view on

the line 5—5 of Figure 4 illustrating the co-operating openings of the switch shifting rod and lock casing.

Like or similar reference characters designate like or similar parts throughout the different views.

A railway track is conventionally shown which may consist of usual rails 10 and co-operating switch tongues or points 11 operatively secured to and movable with a shifting rod or bar 12 disposed transversely thereof. The rod 12 through the medium of a crank 13 pivoted thereto as at 14, is adapted to actuate the usual target or lamp 15.

Rod 12 is shifted in any suitable manner and as one means, I employ a bell crank lever 16 pivoted to a suitable support 17 as at 18 and having one of its arms 19 extending through an elongated slot 20 thereof. The other arm of the bell crank lever 16 is designated 21 and may be pivoted at 22 to a shifting bar 23. Bar 23 may be pivoted to a lever 24 at 25.

Lever 24 is pivoted at 26 to a quadrant frame 27 and has a suitable spring pressed locking device 28 cooperating with notches 29 of said quadrant frame to lock the lever against accidental movement. Quadrant 27 may be supported in any suitable manner as upon a base 30.

At one end of the bar 23 a rack bar or portion 31 is provided preferably being pivoted to the bar 23 at 32 so that said rack bar 31 may always remain in cooperative relation with a gear wheel or pinion 33 whose teeth are in mesh with the teeth of the rack bar. Pinion 33 is keyed or otherwise fastened to a transverse shaft 34 which is disposed below the rails 10 and journaled in bearings 35 of a suitable supporting frame 36. Within the supporting frame 36 an eccentric disk 37 is keyed or otherwise fastened on the shaft 34.

A lock casing 38 is provided intermediate the rails 10 and has spaced walls 39 and 40 providing a space 41 which receives a locking plate 42 between them rigidly secured to the rod 12 and preferably being in the form of an angle iron. The space 41 is enlarged slightly relatively to the plate 42 to compensate for the slight swinging movement had by the rod 12 during the throwing of the switch. The casing 38 has a guide tube or barrel 43 extending transversely thereof in which a locking bolt 44

is slidably mounted. Plate 42 has two openings 45 therethrough adapted to selectively register with the barrel 43 for passage of the locking bolt 44 therethrough. The plate 39 is preferably cut away or provided with an opening 46 opposite the end of the barrel 43.

The bolt 44 is adapted to be moved through motion of a pitman or arm 47 pivoted to the bolt at 48 and which pitman has a strap or ring 49 surrounding and loose on the eccentric disk 37 so as to be driven by the latter.

From Figure 5 of the drawings, it will be seen that in one operative position of the switch, the locking bolt 44 passes through one of the openings 45 of plate 42 and thus holds the shifting rod 12 against transverse movement so that the switch tongues 11 cannot be accidentally moved.

When it is desired to shift or reverse the tongues 11, the lever 24 is actuated from the position shown to the opposite end of the segment. This movement results in disengaging the locking bolt 44 from one of said openings 45, the shifting of the switch tongues 11 and movement of said locking bolt 44 into the other opening 45 so that the switch will be positively locked in the latter position. Simultaneously, the target 15 is actuated. It will be noted that motion of the lever 24 slides the bar 23 which tilts bell crank lever 16 causing the same through its connection with the rod 12 at slot 20 to move the rod 12 laterally of the track rails to bring different openings 35 into registry with the barrel 43 and to shift the crank 13 in order to actuate the target 15. At the same time, rod or bar 23 slides the rack bar 31 which drives the gear wheel 33 and its shaft 34 and eccentric disk 37, causing the latter to shift the locking bolt 44 through the connection of the pitman 47 with said bolt. Particular emphasis is laid on the fact that through the shape and movement of the eccentric 37, the bolt 44 is caused to release rod 12 for transverse sliding movement of the latter and then to reengage said rod 12 through movement of said reversing lever 24 in a single direction or actuation, or in other words, eccentrics 37 make a complete rotation to unlock the bolt 44 from one position to lock it in the other position. As the bolt 44 must move out of engagement with the rod 12, before said rod is shifted, and must move into engagement with said rod after it has been shifted, the elongation of the slot 20 and enlargement relative to the arm 19 will permit the rod 23 to actuate the eccentric, and bolt 44, and associated mechanism, independently of the rod 12; before moving the rod 12 and after moving the rod 12.

As merely one practical embodiment has been illustrated and described, it is to be un-

derstood that changes in the details may be resorted to within the spirit and scope of the invention.

I claim as my invention:—

1. In a track switch, a reversing means therefor, a means to lock said switch in its different positions, and operating mechanism common to both of said means to shift said second means from one position to another position through movement in the same direction.

2. In a track switch, an operating means therefor, and means to lock and unlock said switch through movement of said means in a single direction.

3. In a track switch, an eccentric member, and means operable during a single cycle of said eccentric member to unlock the switch from one position and lock the switch in another position.

4. In a track switch, a switch shifting member, a lever associated with said member, operating means to actuate said lever, a locking means for said member, a shaft to actuate said locking means, and means to drive said shaft from said operating member.

5. In a track switch, a switch shifting member, a casing for said member, a locking bolt mounted by said casing, means to actuate said bolt and said shifting member having a plurality of means to selectively receive said bolt.

6. In a track switch, a switch shifting member, a casing having spaced walls intermediate which said member is disposed and operates, a barrel in said casing, a locking bolt slidable in said barrel, said shifting member having a plurality of openings selectively engageable by said bolt, and means to actuate said bolt.

7. In a track switch, a shifting means therefor, locking means for said shifting means, and eccentric means operable during a single rotation to unlock said locking means from one position and lock it in another position.

8. In a track switch, a shifting means therefor, locking means for said shifting means, and eccentric means operable to actuate said locking means, and a pitman driven by said eccentric means and pivoted to said bolt.

9. In a track switch, a shifting member therefor, a lock casing having spaced walls intermediate which said member moves, said casing having a barrel, a locking bolt slidable in said barrel, said member having a plurality of openings selectively engaged by said bolt, an eccentric, pitman means driven by said eccentric operatively pivoted to said locking bolt, a shaft on which said eccentric is disposed, a gear wheel on said shaft, a rack bar in driving relation to said gear wheel, a bar pivoted to said rack bar,

means operable to actuate said bar, a bell crank lever operable by said bar, said shifting member having an elongated slot and one arm of said bell crank lever passing through said slot. and means timed to operate the first means 10 intermediate said movements.

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

JOSEPH COATES.

Witnesses:

ROBERT McC. DRANE,
JOHN B. MAYBURY.

10. In a track switch, a shifting means therefor, locking means for said shifting means, means to impart retracting and throwing movement to said locking means,