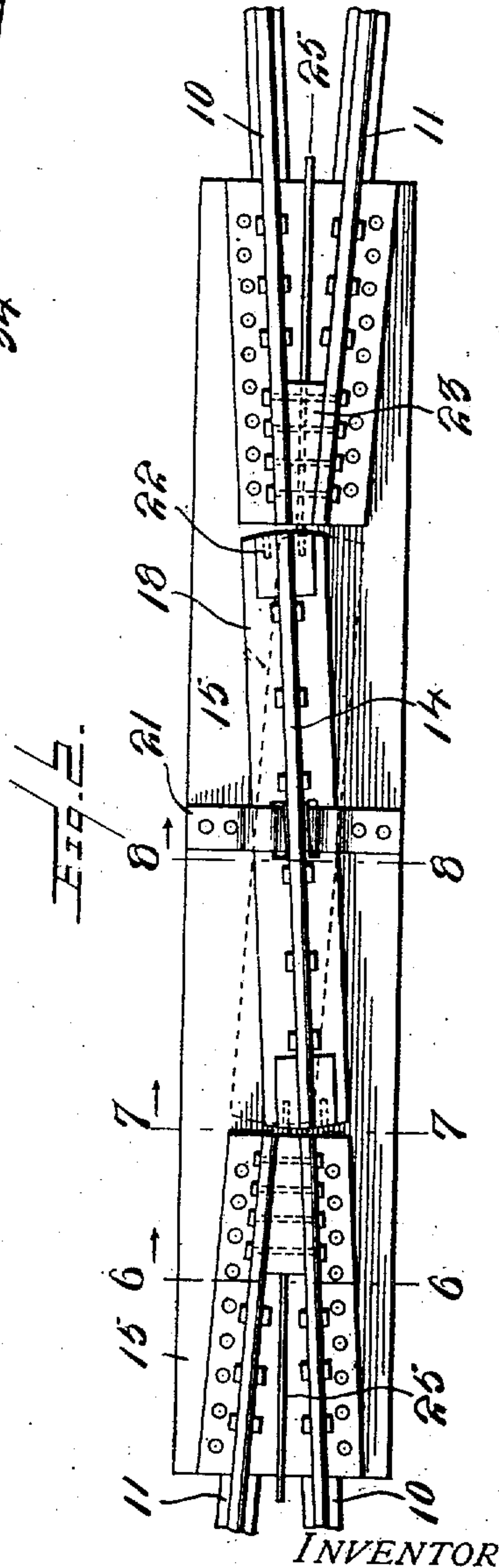
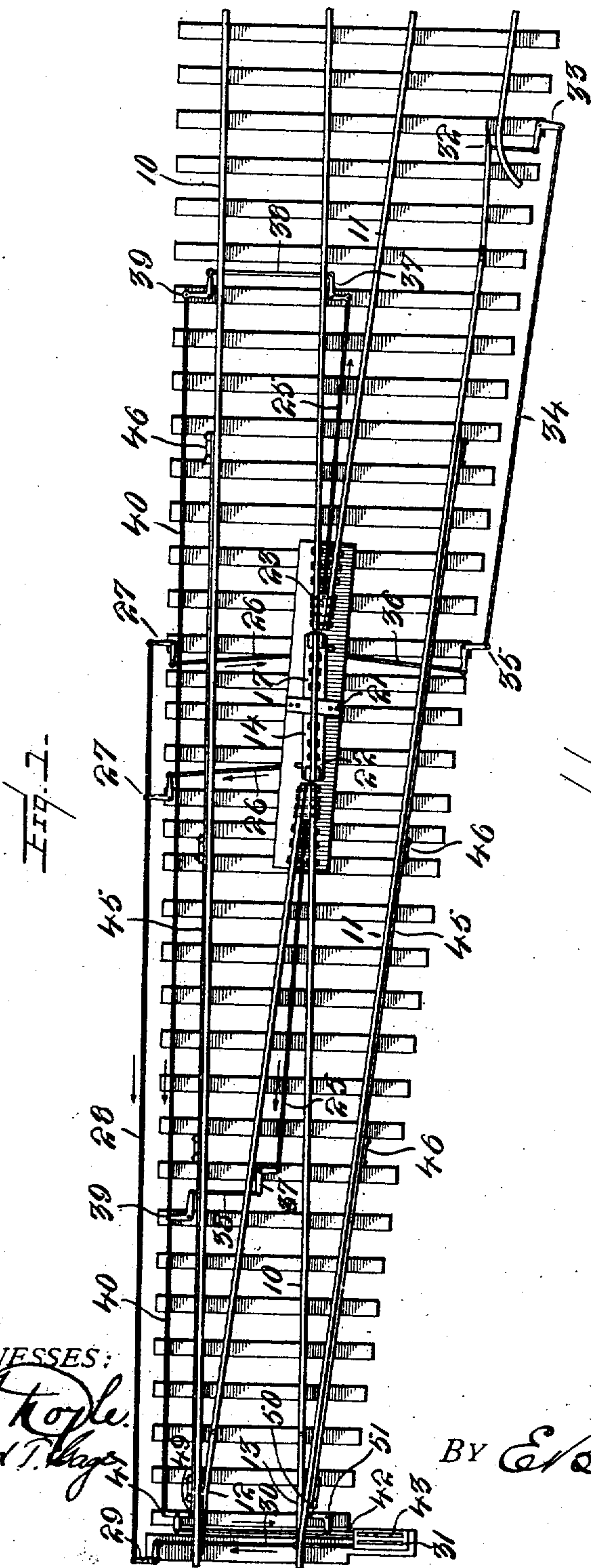


987,027.

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SWITCH FROG.
APPLICATION FILED JAN. 31, 1910.

Patented Mar. 14, 1911.

2 SHEETS—SHEET 1.



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JAMES W. WALLS, OF TRINIDAD, COLORADO.

SWITCH-FROG.

987,027.

Specification of Letters Patent.

Patented Mar. 14, 1911.

Application filed January 31, 1910. Serial No. 541,118.

To all whom it may concern:

Be it known that I, JAMES W. WALLS, a citizen of the United States, residing at Trinidad, county of Las Animas, State of Colorado, have invented certain new and useful Improvements in Switch-Frogs, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to a switch frog and particularly to means for locking the swing rail in its shifted positions and preventing its operation while a train is passing over the same.

15 The invention has for an object to provide a novel and improved construction of operating and locking mechanism for a pivoted switch frog to prevent its operation when the wheels of a train upon the rails are passing over the switch.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features defined by the appended claims.

25 In the drawings—Figure 1 is a plan of the invention applied; Fig. 2 is an enlarged plan of the swing rail; Fig. 3 is an end elevation of the detector bar; Fig. 4 is a side elevation thereof; Fig. 5 is a detail perspective of one of the angle plates for the swing rail; Fig. 6 is a section on line 6—6 of Fig. 2; Fig. 7 is a section on line 7—7 of Fig. 2; and Fig. 8 is a similar section on line 8—8 of Fig. 2.

35 Like numerals of reference refer to like parts in the several figures of the drawings.

The numeral 10 indicates the rails of the main track and 11, the rails of the switch track. One of the switch rails is provided with the usual switch point 12 mounted for movement toward and from the main rail 10 and one of the main rails is provided with a similar movable switch point 13 and adapted to be shifted relative to one of the switch rails 11. At the point where the switch rail crosses the main rail, a swing rail 14 is mounted and adapted to be shifted into alinement with either the main or switch tracks. This swing rail is mounted upon a base plate 15 having a depressed circular pivoting portion 16, substantially as shown in my Patent #909,351, dated January 12, 1909. At each side of the swing rail 14 an angle plate 17 is disposed. This plate has a horizontal flange 18 provided with an aperture 19 and a depressed portion 20

which bears upon the circular pivoting depression 16 as shown in Fig. 8 so as to provide for a proper swing of the rail. The portions 18 rest upon the upper face of the plate 15 and provide a further bearing for the swing rail. This rail is held in position by a strap or bar 21 extending through the apertures 19 and secured to the base plate as shown in my patent before referred to. The angle plates 17 are provided at each end with a bolt housing 22 preferably formed integral therewith. The main and switch rails at their ends next the swing rail are spaced by a block 23 provided with a bolt aperture 24 and adapted to receive a bolt rod 25 which passes therethrough. These rails are also mounted upon the ends of the base plate 15 in any desired manner. The swing rail is adapted to be operated by the connecting rods 26 extending to the opposite ends thereof and pivoted at their outer ends to the crank levers 27 which are connected to the shifting rod 28 which extends to a crank lever 29. A rod 30 extends from this lever to any desired point for operating the switch, for instance the switch stand 31. The switch points are connected to the rod 30 so as to be shifted in unison with the swing rail. If desired, the switch track may be provided with a derailer 32 which is connected to a crank lever 33 from which a rod 34 extends to a crank lever 35. From the lever 35 a connecting rod 36 extends to the swing rail or the operating means therefor in order to be actuated thereby substantially as shown in my patent referred to. The bolt rods 25 at the opposite ends of the swing rail each extend to a crank lever 37 from which a connection 38 extends to a crank lever 39. The crank levers 39 for both bolt rods are connected to the operating rod 40 which extends to one arm of a T-shaped lever 41, another arm of which is connected by the rod 42 with any suitable point of operation, for instance a switch stand 43 as shown in Fig. 1. This structure produces a simultaneous operation of the bolts.

Adjacent the tread of one rail of both the main and switch tracks is a detector bar 45 shown in detail in Figs. 3 and 4. This bar is mounted upon parallel links 46 disposed at proper distances apart and pivotally mounted at their lower ends in the attaching brackets 47 which are secured to the rail in any desired manner, for instance by means

of the clamps 48 upon which they are mounted. The detector bar for the main track is connected at 49 with one arm of the T-shaped lever 41, while the detector bar for the switch track is connected at 50 with a crank lever 51 which is also connected to the rod 42, through which the bolt mechanism is operated. This detector bar normally lies below the tread of the rail as shown by full lines in Fig. 4 but is raised to the dotted line position whenever the bolts are withdrawn to release the swing rail and again resumes its full line position when the bolts are reengaged with the swing rail. As the detector bar is extended for a distance upon each of the tracks, it cannot be raised to release the bolts if a train is passing over the tracks as it would, in that event, engage the wheels thereof.

In the operation of the invention when the parts are in the position shown in Fig. 1, the bolts are first released to unlock the swing rail and this action raises the detector bar above the tread of the rails. The switch lever to shift the swing rail is then operated and transmits the motion as shown by arrows in Fig. 1 to shift the swing rail into alinement with the switch rail and at the same time shifts the switch points and closes the derailler. The lever for the locking mechanism is then operated to throw the bolts into the housing carried by the swing rail, thus locking it in its shifted position and restoring the detector bar to a position below the tread of the rail. It will be seen that these bolts cannot be released when a train is passing over either the main or switch tracks and they thus prevent the unlocking of the switch before all of the cars have passed the swing rail. In restoring the parts to the position shown in Fig. 1, a reverse operation is effected.

The novel construction of angle plates for the swing rail provide a proper housing for the locking bolts and also a bearing for the shifting of the rail which is permitted by the enlarged opening through which the holding strap passes.

It will thus be seen that the invention presents a simple, efficient and economically constructed switch frog by which the swing rail and points may be shifted and locked in position and the releasing thereof prevented during the passage of a train thereover.

Having described my invention and set forth its merits what I claim and desire to secure by Letters Patent is—

1. In a switch, a swing rail provided with an angle plate having bolt housings at each

end of said rail, oppositely movable bolts cooperating therewith, and means for simultaneously moving said bolts.

2. In a switch, a swing rail provided with an angle plate having bolt housings at each end of said rail, oppositely movable bolts cooperating therewith, means for shifting said swing rail, bolts cooperating with said housings, an operating rod for said bolts, and connections from said rod to effect a simultaneous movement of said bolts in opposite directions.

3. In a switch, a swing rail provided with an angle plate having bolt housings at each end of said rail, oppositely movable bolts cooperating therewith, means for shifting said swing rail, bolts cooperating with said housings, an operating rod for said bolts, crank levers connected to said operating rod, crank levers connected to said bolts, and a connecting link between the crank levers of the operating rod and bolts.

4. In a switch, a swing rail provided with an angle plate having bolt housings at each end of said rail, oppositely movable bolts cooperating therewith, means for shifting said swing rail, bolts cooperating with said housings, an operating rod for said bolts, crank levers connected to said operating rod, crank levers connected to said bolts, a connecting link between the crank levers of the operating rod and bolts, a crank lever connected with one end of said operating rod, and an operating connection to said last mentioned lever.

5. In a switch, a swing rail, angle plates having bolt housings at each end and disposed on opposite sides of said rail, and bolts cooperating with said housings.

6. In a switch, a swing rail, angle plates having bolt housings at each end and disposed on opposite sides of said rail, bolts cooperating with said housings, and spacer blocks disposed between the adjacent main and switch track rails and provided with an aperture to receive said bolts.

7. In a switch, a swing rail, an angle plate having a seat upon its inner face to receive one side of the base of said rail and an aperture therethrough with a depending bearing lug, and bolt housings disposed at the opposite ends upon the outer face of said plate.

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

JAMES W. WALLS.

Witnesses:

B. F. ST. JOHN,
FRANK DUNLEVY.