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RAILWAY CROSSING FROG.

APPLICATION FILED NOV. 6, 1909.

955,145. Patented Apr. 19, 1910.

Fig. 1.

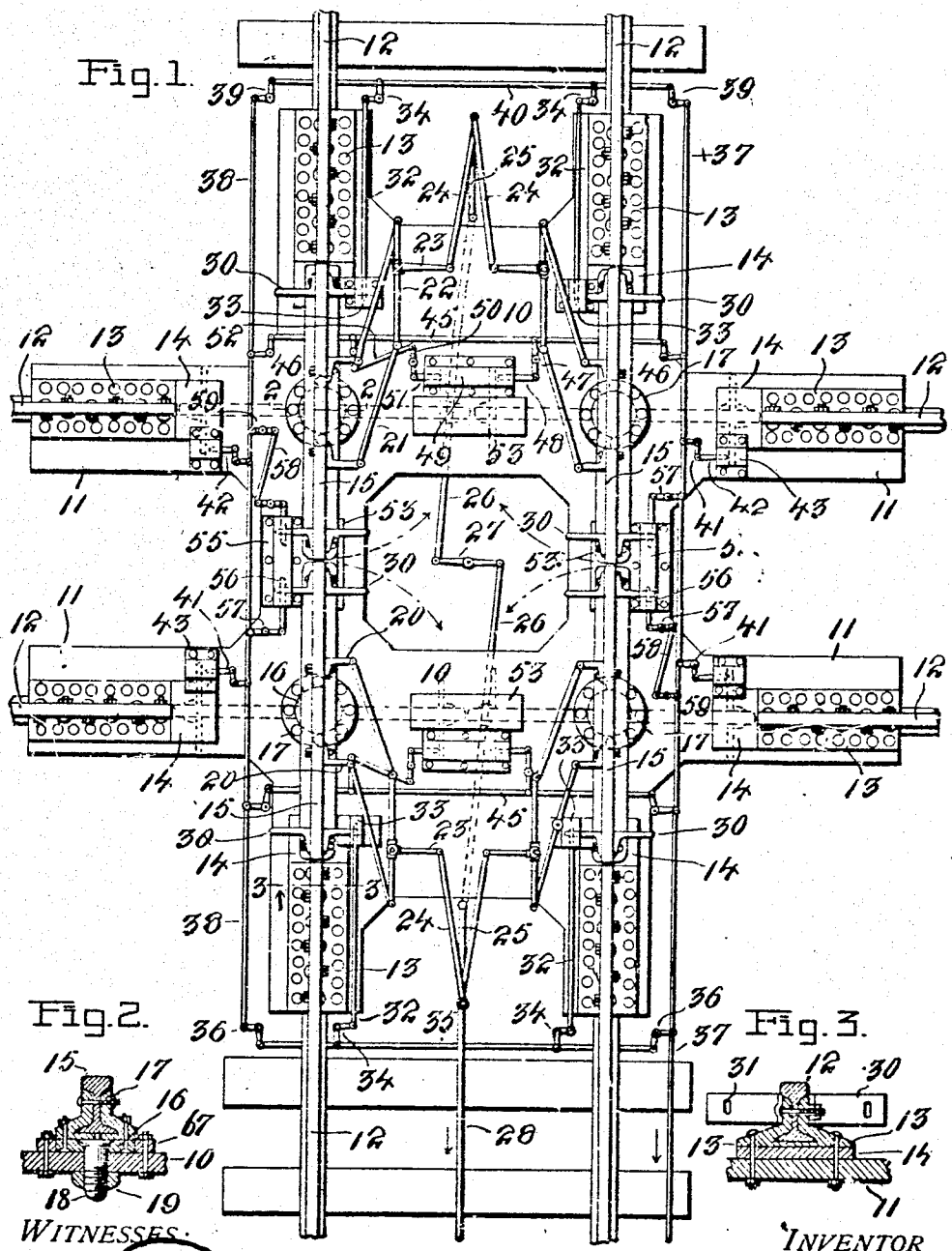

Fig. 2.

Fig. 3.

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RAILWAY-CROSSING FROG.

955,145. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed November 6, 1909. Serial No. 526,646.

To all whom it may concern:

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

This invention relates to a railway crossing frog and particularly to a structure embodying a swing rail movable from alinement with one track rail into alinement with another at an angle thereto.

The invention has for an object to provide a novel and improved construction of swinging frog rails and of means for locking them in shifted position which means are adapted to be operated by connections with an interlocking switch mechanism.

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

In the drawing—Figure 1 is a plan of the invention applied; Fig. 2 is a vertical section of line 2—2 of Fig. 1; and Fig. 3 is a similar section of line 3—3 of Fig. 1.

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

The numeral 10 designates the bed plate of the crossing which is suitably supported and provided with extensions 11 disposed beneath the ends of the fixed rails 12. This bed plate may be formed in sections if desired to facilitate storage and transportation thereof. The fixed rails 12 are secured to the bed plate by means of the angle bars 13, bolted to each of the parts in the usual manner. These plates are formed with an extended portion 14 adapted to lie beneath an end of the swing rails 15. These swing rails are mounted upon a circle plate 16 by means of the angle bars 17 bolted to each of the parts, while the circle plate is surrounded by an annular plate 67 bolted to the bed plate 10 as shown in Fig. 2. The circle plate has secured thereto a depending bolt 18 passing through the bed plate 10 and secured against vertical movement thereon by a nut 19.

For the purpose of moving the swing rails 15 from the position shown by full lines in Fig. 1 to that indicated by dotted lines therein, these rails have secured thereto brackets 20 from which pivoted links 21 extend to a lever bar 22 which is provided with a lateral arm 23 pivotally connected by links 24 to a shifting connection 25. These parts are similar at opposite ends of the bed plate and are connected to secure the necessary opposite directions of operation by means of pitmen 26 extending to a pivoted lever 27 disposed centrally of the bed plate. The shifting connection 25 at one end is connected to an operating rod 28 extending to an interlocking mechanism or other means for moving the parts.

For the purpose of locking the swing rails in their shifted positions, I have provided at each end thereof latch plates 30 disposed upon the opposite sides of the rails and properly apertured at 31 (Fig. 3) to coöperate with latch bolts movably mounted upon the bed plate. One set of these bolts is shown at each end of Fig. 1 and comprises the bolts 32 adapted to enter a casing 33 within which one of the plates 30 carried by the swing rail travels when that rail is in alinement with the fixed rail. These bolts 32 are operated by means of crank levers 34 connected to a cross bar 35 which is provided at each end with crank levers 36 one of which is pivotally connected to the operating rod 37 for the bolts while the other is connected to the auxiliary operating rod 38 extending to the opposite end of the crossing. At this end both the operating rod 37 and the auxiliary rod 38 are connected by crank levers 39 to the cross rod 40 from which motion is transmitted by the crank lever 34 to the bolts 32 as before described. Both the operating rod 37 and the auxiliary rod 38 are pivotally connected to crank levers 41 which actuate the bolts 42 disposed in casings 43 upon the extensions 11 by which the swing rails may be secured in their shifted position as shown by dotted lines in Fig. 1.

Extending between the operating rod 37 and the auxiliary rod 38 is a cross bar 45 connected to each thereof by a pivoted crank lever 46. This bar has pivoted thereto a lever 47 having a bolt 48 operating in a casing 49 and also with a lever 50 having a bolt 51 operating in the said casing to lock the swing bars upon the bed plate when in shifted positions. The lever 50 is connected by a lever 52 with the cross rod 45 before described. A similar construction

is used at each side of the crossing. The bed plate is provided with a support 53 over which the inner ends of the swing rails lie when shifted to the dotted line position shown in Fig. 1.

At each side of the bed plate a latch casing 55 is secured thereto and has coöperating bolts 56 mounted therein. One of these bolts on each side is connected by a lever 57 to the operating rods 37 and 38 respectively, while the other bolt is provided with a similar lever 57 connected by a link 58 to the rock lever 59 pivoted to the operating rods. The bolts 56 coöperate with the latch plates 30 carried by the swing rails to hold them in alinement as shown by full lines in Fig. 1.

In the operation of the invention, it will be seen that the swing rails of the crossing are held in full line position shown in Fig. 1 by the bolts 32 and 56. When it is desired to swing the rails for alinement with a cross track, they are first released through the operating rod 37 and then shifted through the connection 28 to the dotted line position shown in Fig. 1, after which the latch mechanism is again operated so that the bolts 42, 48 and 51 will respectively engage the latch plates 30 carried by the swing rails to hold them in shifted position so that the crossing is perfectly safe for the movement of a train at full speed thereover without jar or wear to any of the parts. The locking mechanism may be so connected as to open derailing devices upon the tracks opposite to that with which the swing rails are alined. This structure is mounted so that the swing rails may be readily shifted to prevent interference from snow or ice and when in alinement, are supported at their opposite ends. The operating parts of the mechanism here shown may be properly covered to prevent it from injury or interference under any conditions.

The invention presents a simple, efficient and economically constructed railway crossing frog adapted to be operated in connection with an interlocking plant or to be applied to any ordinary crossing connections.

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

1. In a crossing frog, swing rails, means for shifting said rails, latch plates carried by said rails, latch devices to coöperate with said plates in their shifted position, and means for operating said devices.

2. In a crossing frog, swing rails, means for shifting said rails, latch plates carried by said rails, latch devices to coöperate with said plates in their shifted position, parallel operating rods connected to each other, and crank lever connections between said rods and latch devices.

3. In a crossing frog, the combination with fixed rails, of swing rails mounted relative thereto, latch plates upon the opposite sides of each end of the swing rails, coöperating latch devices disposed at the ends of the fixed rails, and means for simultaneously operating said devices.

4. In a crossing frog, the combination with fixed rails, of swing rails mounted relative thereto, latch plates upon the opposite sides of each end of the swing rails, coöperating latch devices disposed at the ends of the fixed rails, a relatively fixed latch device intermediate the free ends of the fixed rails, and means for simultaneously operating all of said latch devices.

5. In a crossing frog, parallel pivoted swing rails having lateral projections at opposite sides of their pivots, a reciprocating operating rod, a crank lever pivotally connected to said rod, and links extending from the opposite ends of one arm of said rods to the projections upon said rails.

6. In a crossing frog, parallel pivoted swing rails having lateral projections at opposite sides of their pivots, a reciprocating operating rod, a crank lever pivotally connected to said rod, links extending from the opposite ends of one arm of said rods to the projections upon said rails, latch plates carried by the opposite ends of each swing rail, bolts mounted upon a fixed part to coöperate with said plates, a bolt operating rod, and connections therefrom to secure simultaneous operation of said bolts.

7. In a crossing frog, parallel pivoted swing rails having lateral projections at opposite sides of their pivots, a reciprocating operating rod, a crank lever pivotally connected to said rod, links extending from the opposite ends of one arm of said rods to the projections upon said rails, latch plates carried by the opposite ends of each swing rail, bolts mounted upon a fixed part to coöperate with said plates, a bolt operating rod, connections therefrom to secure simultaneous operation of said bolts, and latch, bolts connected to said bolt operating rod and disposed at the ends of the intersecting fixed track.

8. In a crossing frog, parallel pivoted swing rails having lateral projections at opposite sides of their pivots, a reciprocating operating rod, a crank lever pivotally connected to said rod, links extending from the opposite ends of one arm of said rods to the projections upon said rails, latch plates carried by the opposite ends of each swing rail, bolts mounted upon a fixed part to coöperate with said plates, a bolt operating rod, connections therefrom to secure simultaneous operation of said bolts, and oppositely movable bolts connected to said bolt operating rod and disposed to engage the latch plates at the adjacent ends of two swing rails.

9. In a crossing frog, a base plate, an an-

nular plate mounted thereon, a circular plate within said annular plate and provided with a pivot extending through the base plate, a swing rail, angle bars secured to said rail and upon said circular plate, and means carried by said pivot to engage the underface of said base plate.

10. In a crossing frog, a base plate, an annular plate mounted thereon, a circular plate within said annular plate and provided with a pivot extending through the base plate, a swing rail mounted upon said circular plate, and apertured latch plates extended laterally from the opposite sides of said swing rail.

11. In a crossing frog, the combination with fixed rails, of a plurality of swing rails provided with latching means at each end, coöperating latching devices disposed at each end of each swing rail, parallel operating rods, and lever connections from said rods to said latch devices at opposite sides of each rod.

12. In a crossing frog, the combination with fixed rails, of a plurality of swing rails provided with latching means at each end, coöperating latching devices disposed at each end of each swing rail, parallel operating rods, lever connections from said rods to said latch devices at opposite sides of each rod, cross rods extended between said parallel rods and having crank lever connections therewith, and crank connections from said cross rods to the latching devices disposed intermediate the free ends of the fixed rails.

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

CHAS. E. ENNIS.

Witnesses:
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C. R. JARRETTE.