



E. FROMM.  
RAILROAD SWITCH.  
(Application filed Feb. 25, 1901.)

(No Model.)

2 Sheets—Sheet 2.

Fig. 3.

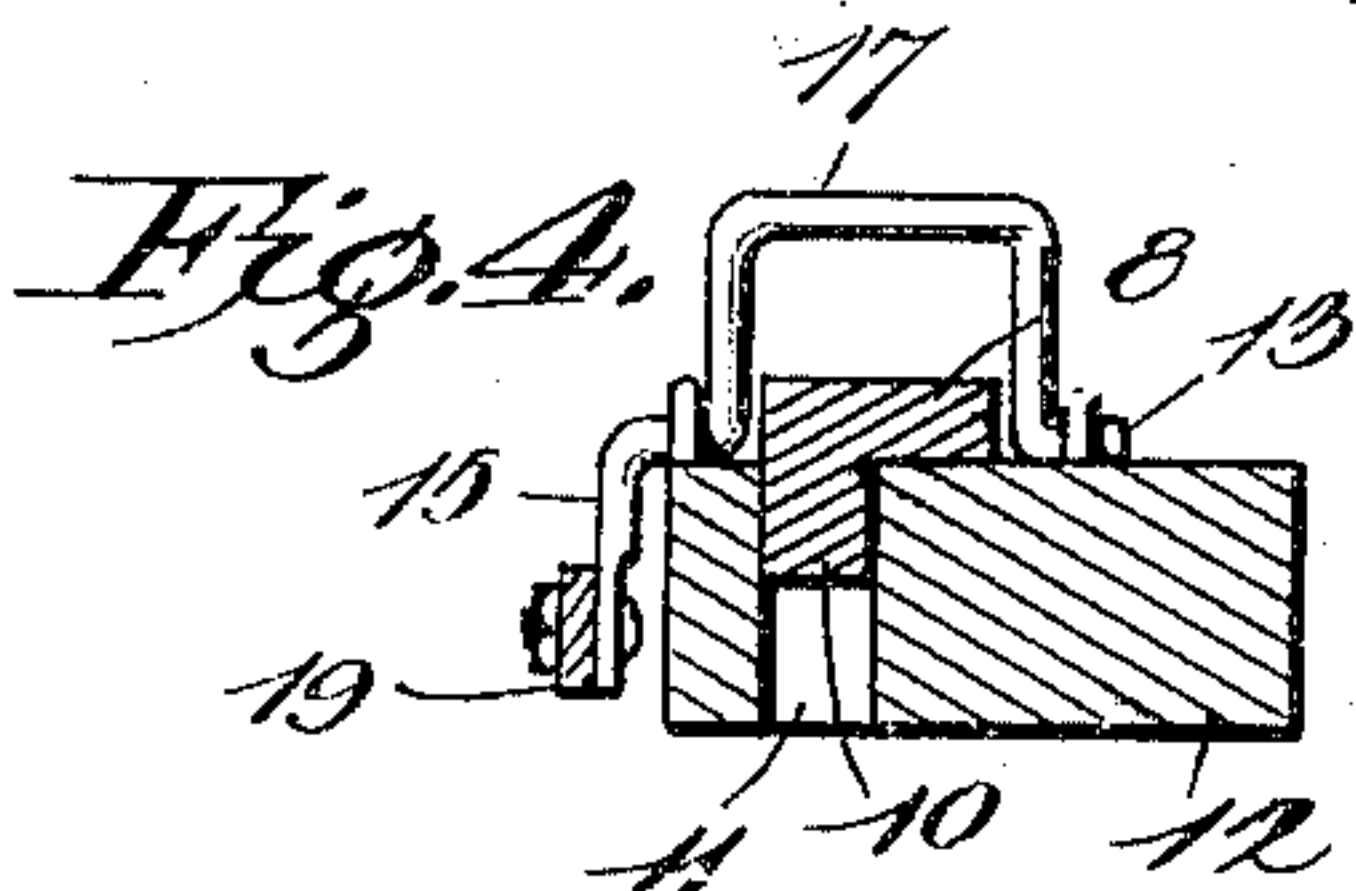
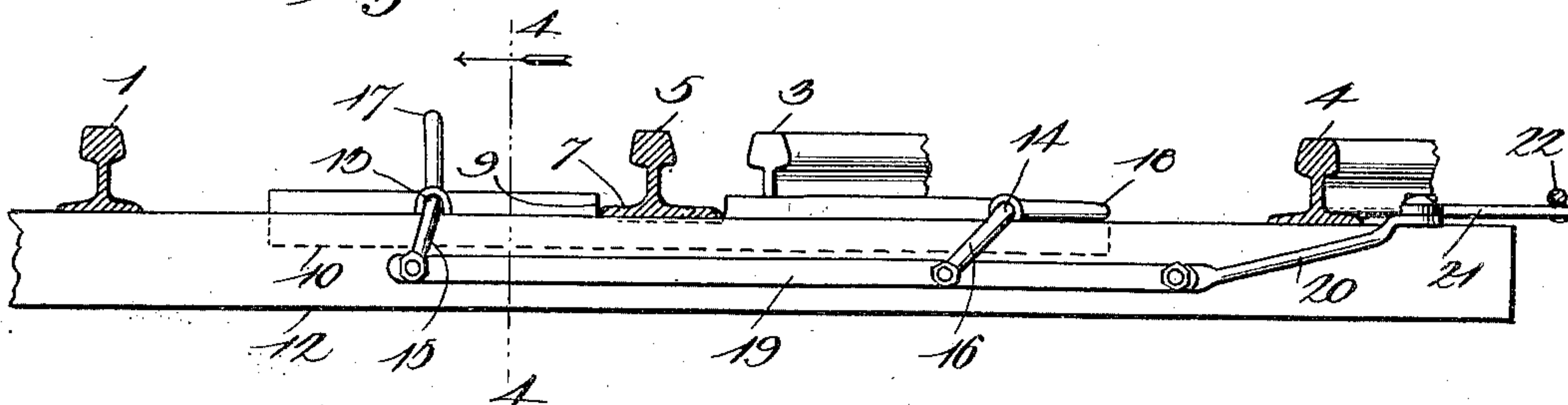


Fig. 5.

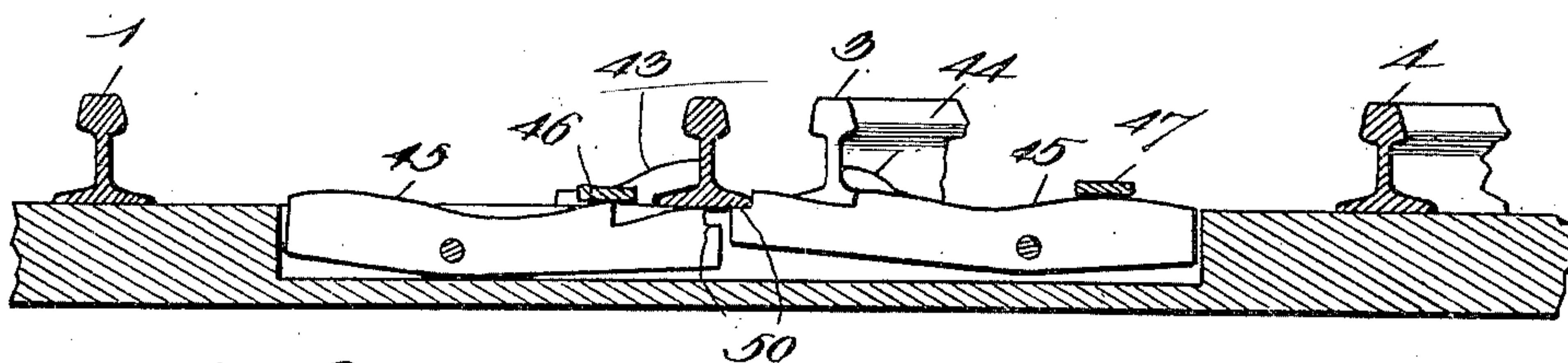
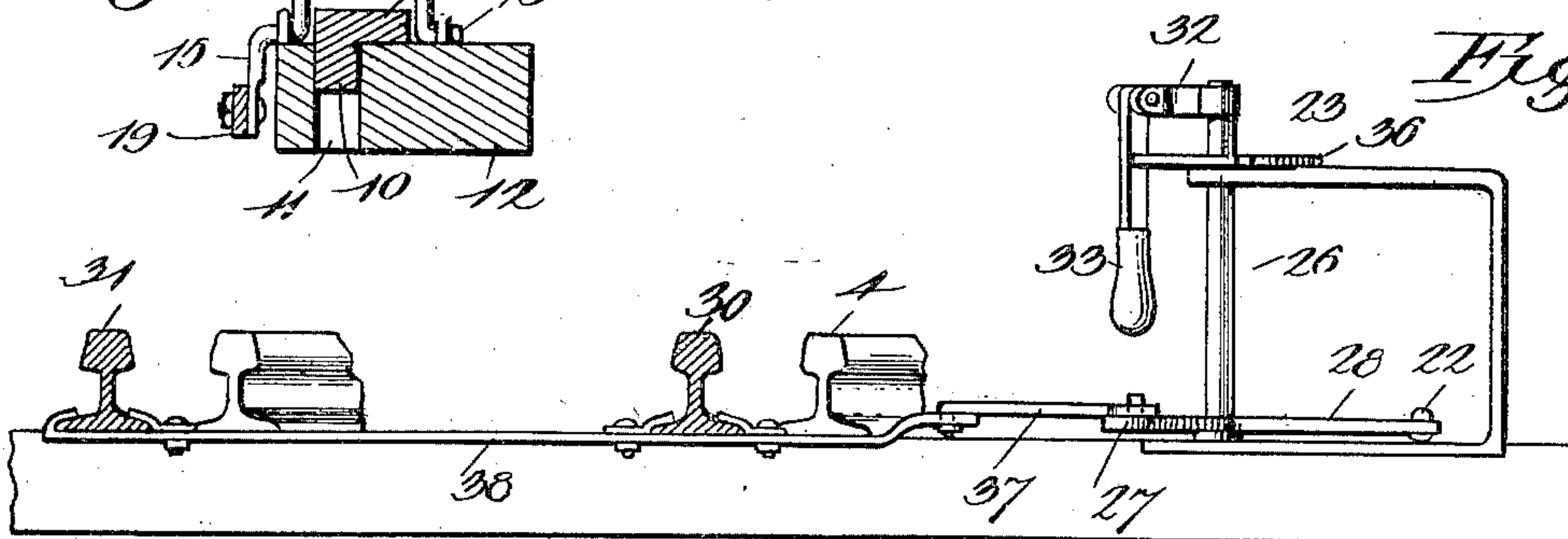


Fig. 6.

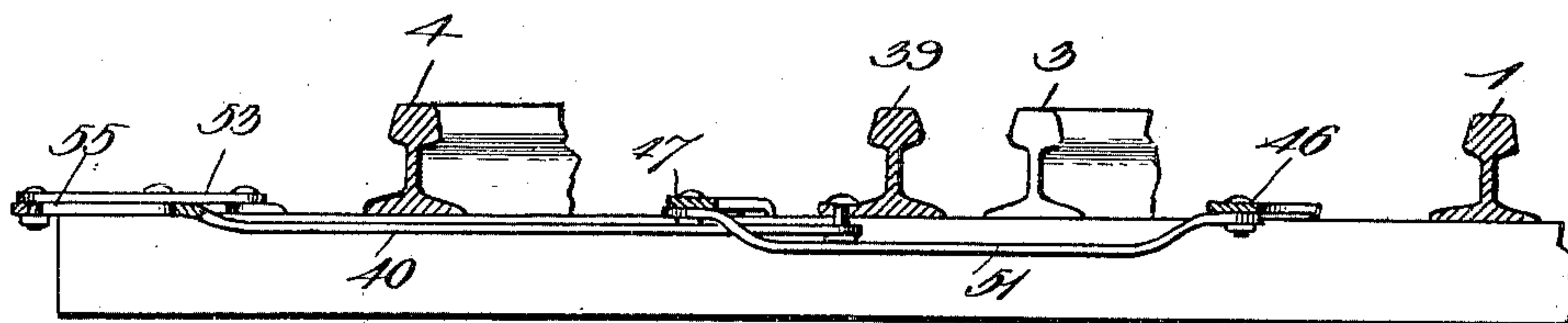


Fig. 7.

Witnesses  
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# UNITED STATES PATENT OFFICE.

EDDIE FROMM, OF OWASA, IOWA, ASSIGNOR OF ONE-HALF TO OLIVER M. CESSNA, OF SAME PLACE.

## RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 684,504, dated October 15, 1901.

Application filed February 25, 1901. Serial No. 48,841. (No model.)

*To all whom it may concern:*

Be it known that I, EDDIE FROMM, a citizen of the United States, residing at Owasa, in the county of Hardin and State of Iowa, have  
5 invented a new and useful Railroad-Switch, of which the following is a specification.

The invention relates to improvements in railroad-switches.

The object of the present invention is to improve the construction of railroad-switches and to provide simple, inexpensive, and efficient means for dispensing with the ordinary  
10 frog and to afford a continuous rail at that point and to enable the parts to be positively locked against accidental movement.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed  
15 out in the claims hereto appended.

In the drawings, Figure 1 is a plan view of a railroad-switch constructed in accordance with this invention. Fig. 2 is a similar view showing a modification of the invention. Fig.  
25 3 is a transverse sectional view on the line 3 3 of Fig. 1. Fig. 4 is a detail sectional view on the line 4 4 of Fig. 3. Fig. 5 is a transverse sectional view on the line 5 5 of Fig. 1. Fig. 6 is a similar view on the line 6 6 of Fig. 2.  
30 Fig. 7 is a sectional view on the line 7 7 of Fig. 2.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1, 2, 3, and 4 designate the rails composing the two tracks, and 5 designates a pivoted oscillatory rail which is adapted to connect the sections of the adjacent rails 2 and 3 to form practically a continuous rail and to dis-  
40 pense with the frog usually employed at this point in switches. The rail 5, which is provided with a central pivot 6, has an enlarged base 7 and is connected at one end with a reciprocating slide 8, which is provided with a recess arranged between its ends and receiving the base of the pivoted rail 5. The enlarged base 7 of the rail 5 fits snugly in the recess 9 of the slide and is held against lateral play by the walls of the recess, whereby  
50 when the slide is locked, as hereinafter explained, the pivoted rail will be firmly held

in its adjusted position. The slide 8 is preferably provided with a depending flange 10, arranged in a longitudinal way 11, consisting of a slot of an enlarged tie or sill 12 and adapted to limit the movement of the slide. 55

The reciprocating slide is locked at the ends of the way 11 by means of a pair of rock-shafts 13 and 14, having outer crank-arms 15 and 16 and provided with crank-loops 17 and 18. 60

The rock-shafts, which are journaled in suitable bearings at opposite sides of the slide, near the ends thereof, have their loops arranged alternately to engage the ends of the slide to lock the same against longitudinal movement. When the slide is abutting against one end wall of the slot which forms the way 11, the loop of the rock-shaft at the other end of the slot is arranged in a horizontal position upon the upper face of the sill or tie 12 and receives the adjacent end of the slide and holds the same against longitudinal movement. The other loop of the rock-shafts is arranged in a vertical position, and when the slide is reciprocated to carry it to the other  
75 end of the slot the rock-shafts are rotated one-quarter of a revolution and their positions are reversed to lower one of the loops to a horizontal position and to raise the one which was in a horizontal position to a vertical position. The  
80 crank-arms of the rock-shafts are connected with a bar or rod 19, which is operated by mechanism hereinafter described, whereby the rock-shafts are simultaneously actuated, as above described. The connecting bar or  
85 rod is connected at its outer end by a link 20 with one arm of a bell-crank lever 21, which is fulcrumed at its angle and which has its other arm connected with an outer longitudinal connecting-rod 22, that extends to a  
90 switch-stand 23. The other end of the pivoted rail is connected by a rod 24 with a bell-crank lever 25, fulcrumed at its angle and having one arm pivoted to the rod 24 and its other arm adjustably connected with the longitudinal rod 22, and when the latter is reciprocated by the operating mechanism the pivoted rail 5 will be oscillated and the slide reciprocated and the opposite locking devices  
95 operated. 100

The switch-stand, which may be of any desired construction, preferably consists of a



vertical shaft 26, provided at its ends with arms 27 and 28, connected, respectively, with shifting switch-rails 30 and 31 and the longitudinal rod 22. The shaft 26 is provided with  
 5 a combined locking and operating device consisting of an arm composed of inner and outer sections 32 and 33, the outer section being pivoted and provided with a handle and adapted to be swung downward into engage-  
 10 ment with notches of a head 36 of the frame of the switch-stand. The switch-stand is adapted to be operated in the usual manner to carry the shifting switch-rails into alignment with either track formed by the rails  
 15 1 to 4, inclusive, and this operation simultaneously sets the pivoted rail 5 and locks the same against lateral movement. The arm 28 is connected by a link 37 with a bar 38, extending across the track and connecting the  
 20 shifting switch-rails.

In Fig. 2 of the accompanying drawings is illustrated a modification of the invention, and the pivoted rail 39 is connected at one end by a rod 40 with the switch-operating  
 25 mechanism, and the other end of the pivoted rail 39 is arranged to be engaged by a pair of pivoted locking devices 41 and 42, which hold the pivoted rails firmly against stops 43 and 44. The locking devices consist of catches  
 30 pivoted between their ends and provided with oppositely-disposed inclined upper edges 45, which are adapted to be engaged by operating-rods 46 and 47, pivoted between their ends at 48 and 49 and connected by the means  
 35 hereinafter described with the operating mechanism for shifting the pivoted rail 39. The operating-bars are adapted to be oscillated to carry their engaging ends into and out of engagement with the inclined edges of  
 40 the pivoted locking devices to depress alternately the inner engaging ends of the latter. The inner engaging ends of the locking devices are provided with recesses 50 to receive the bottom flange of the pivoted rail, and  
 45 when the inner engaging end of one of the locking devices is depressed the outer end of the other locking device will also be depressed to raise the inner engaging end of the same to a position for locking the pivoted rail.  
 50 The rods or bars have a limited movement independently of the pivoted rail to permit the latter to remain stationary while the catches are being operated to release the said pivoted rail.

55 The operating-bars are connected by a rod 51, and the operating-rod 47 is connected at one end with a bell-crank lever 53, which is also connected with the rod 40. The bell-crank lever 53 is substantially T-shaped, and  
 60 it has one of its arms connected by a longitudinal rod 54 with operating mechanism substantially similar to that heretofore described. The rod 40 is provided with a slot-and-pin connection at its outer end at 55 to  
 65 permit the operating-rods to be moved in advance of the pivoted rail, and the connections between the shifting switch-rails are designed

to have a similar slot-and-pin connection, so that the switch-rails will move simultaneously with the pivoted rail and not while the  
 70 locking devices are being operated.

It will be seen that the switch is adapted to dispense with the frog usually employed in railroad-switches, and that it affords practically a continuous rail at that point, and  
 75 that the pivoted rail is securely held in alignment with the rails of the track by the opposite locking devices. It will also be apparent that the locking devices are positively operated by the mechanism by which the pivoted  
 80 rail and the shifting switch-rails are operated.

What I claim is—

1. In a railroad-switch, the combination of a pivoted rail adapted to be oscillated to align  
 85 it with the adjacent rails, operating mechanism connected with one end of the pivoted rail for actuating the same, a pair of locking devices located at opposite sides of the other end of the pivoted rail and adapted to hold  
 90 the same against movement, and means connected with the said operating mechanism for positively and alternately engaging and disengaging the said locking devices, substantially as and for the purpose described.  
 95

2. In a railroad-switch, the combination of a pivoted rail, operating mechanism connected with and adapted to actuate the pivoted  
 100 rail, a reciprocating slide disposed transversely of and receiving the pivoted rail, and rock-shafts connected with the said operating mechanism and arranged to alternately engage the slide, whereby the pivoted rail is positively locked, substantially as described.  
 105

3. In a railroad-switch, the combination of  
 110 a pivoted rail, operating mechanism connected with and adapted to actuate the rail, a slide connected with the rail and moving with the same, and a pair of rock-shafts connected with and actuated by the said operating  
 115 mechanism and provided with loops arranged at an angle to each other and adapted to alternately engage the slide, substantially as described.

4. In a railroad-switch, the combination of  
 120 a pivoted rail, operating mechanism for actuating the pivoted rail, a slide connected with the pivoted rail and having a limited reciprocation, and a pair of rock-shafts connected with the said operating mechanism  
 125 and provided with loops arranged at an angle to each other and located adjacent to the ends of the slide and arranged to engage alternately the said ends, substantially as and for the purpose described.

5. In a railroad-switch, the combination of a pivoted rail, switch-rails, operating mechanism connected with the switch-rails and with the pivoted rails, a slide moving with the pivoted rail, and rock-shafts connected  
 130 with the operating mechanism and arranged to lock the slide, substantially as described.

6. In a railroad-switch, the combination of a rail, pivoted between its ends, a slide hav-



ing a limited movement and provided with a  
seat receiving the said rail, rock-shafts pro-  
vided with cranks and having loops arranged  
to engage the slide, levers connected respec-  
5 tively with the said cranks and with the piv-  
oted rail, and operating mechanism connect-  
ed with the levers, substantially as described.

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

EDDIE FROMM.

Witnesses:

C. E. ALBROOK,  
J. P. FROMM.