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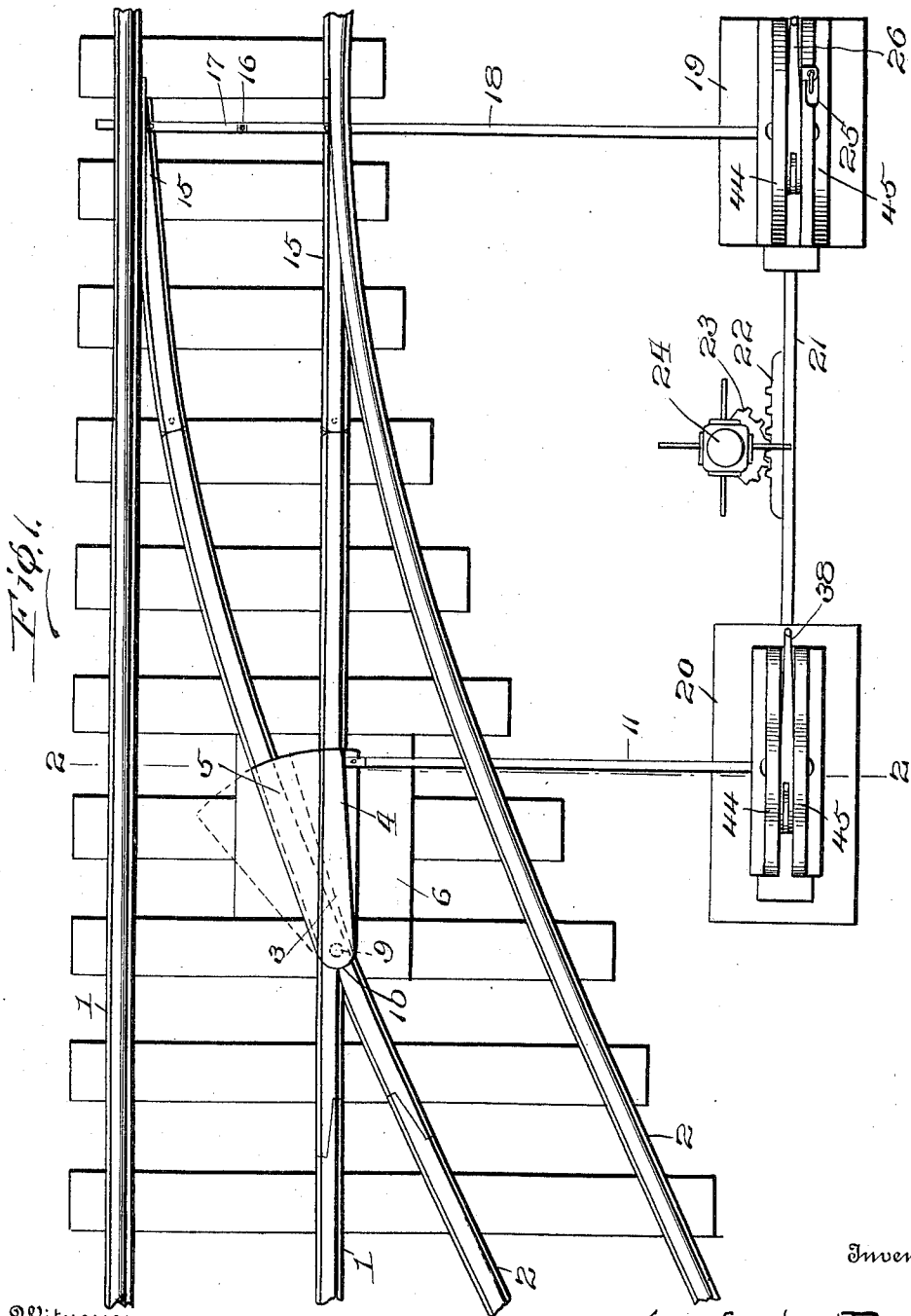
SWITCH.

APPLICATION FILED DEC. 13, 1911.

1,037,170.

Patented Aug. 27, 1912.

3 SHEETS—SHEET 1.



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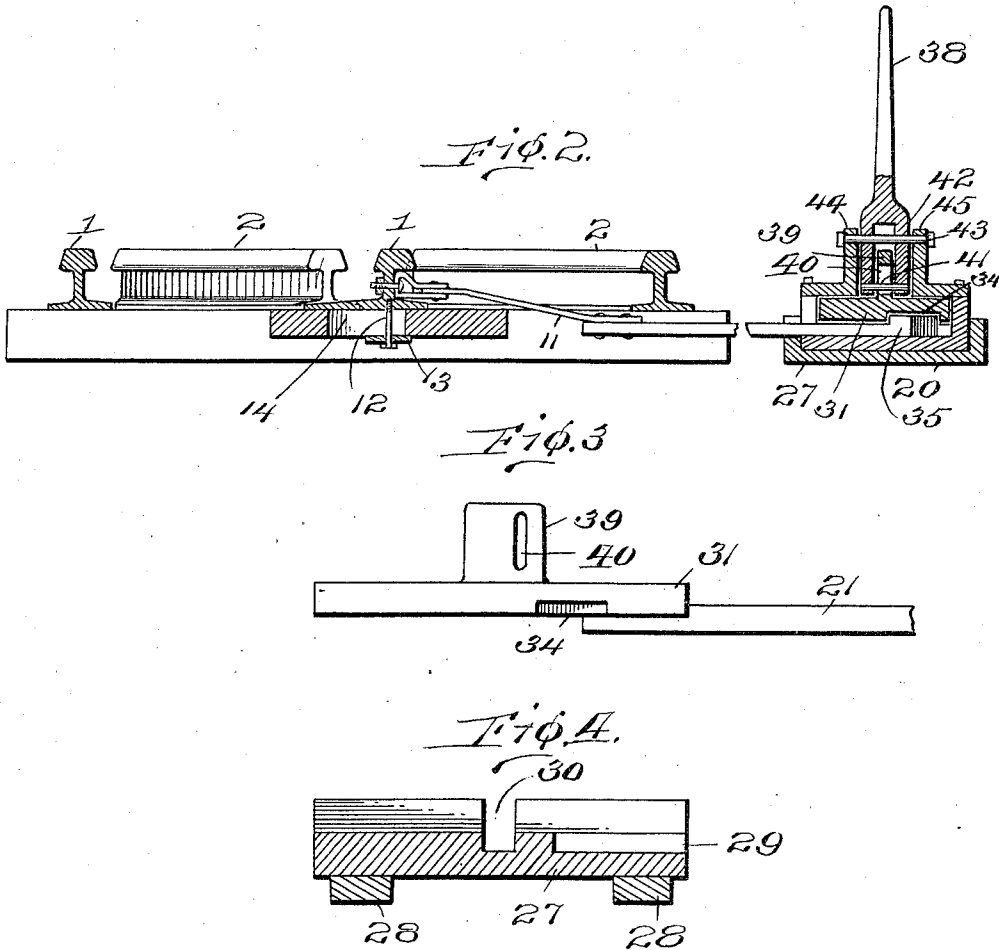
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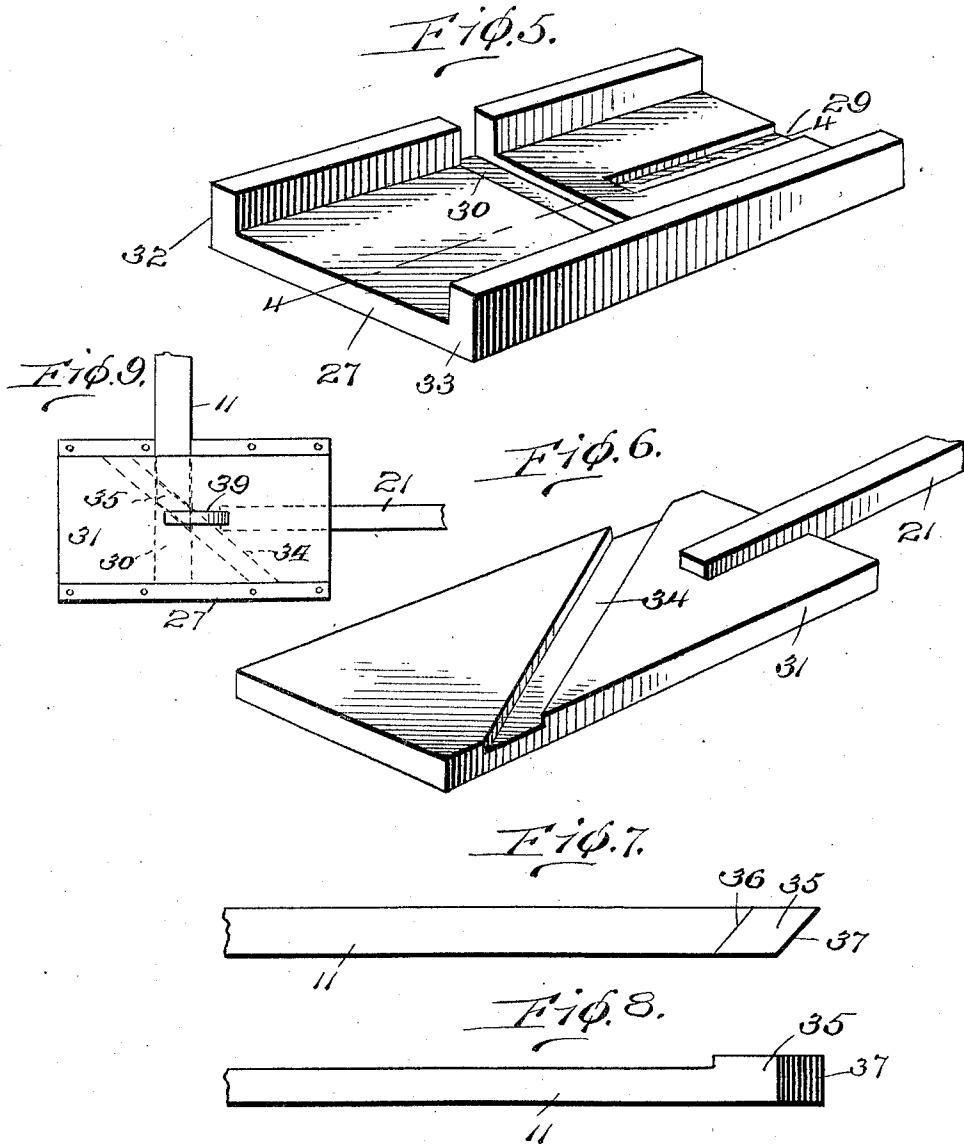
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UNITED STATES PATENT OFFICE.

JESSE SANFORD PURCELL AND JOHN M. WALKER, OF ALABAMA CITY, ALABAMA.

SWITCH.

1,037,170.

Specification of Letters Patent.

Patented Aug. 27, 1912.

Application filed December 13, 1911. Serial No. 665,569.

To all whom it may concern:

Be it known that we, JESSE SANFORD PURCELL and JOHN M. WALKER, citizens of the United States, residing at Alabama City, in the county of Etowah and State of Alabama, have invented certain new and useful Improvements in Switches, of which the following is a specification.

This invention relates to improvements in switches, and switch operating mechanism, and particularly to means for simultaneously operating a pair of switches or a switch and frog from one place.

A further object of the invention is the arrangement of a reciprocating bar formed with a cam or beveled way therein adapted to engage a co-acting cam connected with suitable connecting rods bolted or otherwise secured to the switch, whereby whenever the reciprocating bar is moved the switches will be correspondingly moved, the reciprocating rod being associated with pivotally mounted arms which are operable for shifting the position of the reciprocating bar.

A still further object of the invention is the combination of a pair of switches or a switch and pivotally mounted frog, and means for operating the same, said means comprising a substantially reciprocating rod connected with each of the switches, and means for each of the rods for moving the same longitudinally, said means being connected so as to act simultaneously for closing one switch and opening the other or for causing a reverse action.

With these and other objects in view the invention comprises certain novel constructions, combinations, and arrangement of parts as will be hereinafter more fully described and claimed.

In the accompanying drawings: Figure 1 is a top plan view of part of a track showing a switch and a movable frog associated with means for shifting the same, said means embodying certain features of the invention. Fig. 2 is a section through Fig. 1 on line 2—2. Fig. 3 is a side view of a slide embodying certain features of the inventions. Fig. 4 is a section through Fig. 5 on line 4—4. Fig. 5 is a perspective view of a base plate for supporting the slide shown in Fig. 3. Fig. 6 is a perspective view showing the bottom of the slide disclosed in Fig. 3. Fig. 7 is a top plan view of the outer end of one of the switch

shifting rods. Fig. 8 is an edge view of the structure shown in Fig. 7. Fig. 9 is a top plan view of the structure shown in Figs. 5, 6 and 7 assembled, the same being on a slightly reduced scale.

In forming a switching mechanism embodying the invention an ordinary switch is provided and a pivotally mounted switch or frog is also brought into operation, said switches being connected so as to operate simultaneously by the manually operated shifting mechanism. The frog is preferably made with a large foot or base so as to easily sustain a train of cars without any danger of tilting. Connected with the frog is an operating rod which extends outwardly from the track to any desired distance, and is formed with a lug or extension defining a cam which engages a cam slot in a reciprocating plate. The reciprocating plate is permitted a movement at right angles to the direction of the rod so that the rod is caused to move longitudinally as the plate is moved laterally of the rod. Connected with the switch a similar operating rod is provided which is operated in a similar manner and by similar mechanism by the rod connected to the frog. In order to make both the switch and frog operate simultaneously a connecting rod or bar is provided which connects the sliding plates. Associated with this connecting bar or rod is a signal lamp and signal arm which are turned as the rod is shifted back and forth for indicating the position of the switch. By this construction and arrangement the switch and frog may be operated simultaneously from a point opposite the switch or frog as the case may be, thus not necessitating the individual operation or shifting of the switch and the frog.

In order that the invention may be more clearly understood an embodiment of the same is shown in the accompanying drawings, in which—

1 indicates the rails of a straight track, and 2 the rails of a switch or side track. Associated with the rails 1 and 2 is a frog 3 provided with a rail member 4 and a base 5, base 5 preferably merging into and forming part of rail 4. Base 5 may be of any desired size in order to positively prevent any tilting of the rail member 4 when a train passes over the same. The frog 3 rests upon a plate 6 designed to carry a bolt 9 which is provided with an enlarged head

or washer for holding the bolt in place. This bolt is designed to hold the pivotal end of the frog in place. The rounded portion 10 of the frog which fits in a corresponding rounded portion in the ends of rails 1 and 2 prevents any displacement of the frog, while the bolt or pin 9 acts as an auxiliary means for holding the frog in place. The outer or swinging end of the frog 3 to which rod 11 is connected is held against vertical displacement by a bolt 12 which carries a washer 13 that acts as a sliding plate. Bolt 12 is adapted to move in a slot 14 formed in the base 6. By this construction and arrangement the outer or swinging end of the frog is prevented from lifting, and consequently prevented from tilting.

Associated with the frog 3 is a switch 15 formed in any usual or preferred manner with the respective tongues connected together by a strip 16. Strip 16 is connected at 17 to a reciprocating rod 18 which extends to an operating device 19 in a similar manner to the way rod 11 extends to the operating device 20. These operating devices 19 and 20 are connected by a reciprocating bar 21 so that when one operating device is moved the other operating device will be correspondingly moved, and in this way both the switch 15 and the frog 3 will be properly operated for switching the train onto the side track or onto the main line. Connected with bar 21 is a rack 22 which meshes with a segmental gear 23 rigidly secured to or connected with a signal lamp 24 so that when the rod is moved in one direction the signal lamp will indicate that the switch has been turned, and when the rod is moved in the opposite direction the signal lamp will indicate that the main line is clear.

The operating devices 19 and 20 are identical, and therefore the description of one will be sufficient for both. This is true with the exception of the lock 25 used for locking the operating arm 26. A bracket is secured to the operating arm 26 and a second bracket is secured to the stationary part of device 19. The bolt of lock 25 passes through apertures in these brackets connecting the same together and for locking arm 26 against movement, and, of course, for locking rod 21 and associated devices against movement. In this way the switch 15 may be locked closed for holding the main line clear. The device 20 is formed with a base 27 resting upon any suitable foundation members 28, and anchored in any desired manner against longitudinal movement. The base 27 is formed substantially in the shape of a channel iron, as shown in Fig. 5, and is provided with grooves or ways 29 and 30. The groove 29 accommodates the end of rod 21 and assists in guiding the cam

plate 31. Cam plate 31 is arranged in the base plate 27, and is preferably of such a thickness as to come flush with the top edges of the flanges 32 and 33 of the base 27.

Fig. 6 shows an inverted view of the plate 31 for disclosing the cam groove 34 into which the projection 35 extends. The projection 35 may be formed integral with rod 11, or may be formed independent thereof and rigidly secured thereto. The projection 35 is formed with beveled sides 36 and 37 which engage the respective side walls of the cam groove 34 so that when plate 31 is reciprocated by bar 21 or by handle 38 the rod 11 will be moved toward or from the track. The plate 31 in addition to having the cam groove 34 formed therein is provided with a lug or extension 39. The lug or extension 39 is formed with a vertically arranged slot 40 which is designed to accommodate a pin 41 which extends through the lower end of the bifurcated portion 42 of handle 38. In this way handle 38 is connected with slide 31 for moving the same. In order to cause a proper pivotal movement of handle 38 a pivotal member 43 is provided which extends through upstanding brackets 44 and 45 and through the upper part of the bifurcation 42. In this way the handle 38 is pivotally mounted, and conveys power to slide 31 without causing a pivotal movement of the slide 31. The upstanding brackets 44 and 45 are preferably rigidly secured to the upstanding flanges 32 and 33 of base 27. In connection with base 27 it will be noted that groove 29 does not enter groove 30 but is separated therefrom by a partition 29' so that the end of rod 11 cannot be bowed sidewise when passing the groove 29. It will be noted that the rods 11 and 18 are connected to the frog 3 and switch 15 respectively, so that when the rods are operated the frog and the switch will be operated. The frog and switch may be any desired distance apart, and yet be operated simultaneously from a single point as the operating devices 19 and 20 are connected together by bar 21 which causes a simultaneous movement of the plates 31 in both devices, and consequently a simultaneous movement of the rods 11 and 18.

What we claim is:

1. In a device of the character described, an operating device for switches comprising a reciprocating rod, a cam member connected with said rod formed with beveled walls, a cam plate formed with a groove extending at an angle to the general direction of said rod and arranged to engage said cam member, a supporting and guiding base member for said cam plate for causing said cam plate to move at right angles to the general direction of said rod, a lug projecting from said cam plate formed with a vertical slot therein, a pivotally mounted lever, and

a pin extending through the lower part of said lever and through said slot, whereby when said lever is moved said cam plate will be moved and said rod will be shifted longitudinally.

2. In a device of the character described, the combination with a switch, of means for operating the same, said means comprising a rod extending at right angles to the general direction of said switch, a cam member projecting from the outer end of said rod formed with beveled walls, a base member formed with a guiding groove for said rod and with a pair of upstanding flanges, a cam plate fitting on said base and arranged between said upstanding flanges for being guided thereby, said cam plate being formed with a diagonal groove for accommodating said cam member and with an upstanding lug projecting from the opposite

side of the plate to that in which the groove is formed, said upstanding groove being formed with a slot, a pair of brackets rigidly secured to said base, an operating lever pivotally mounted in said brackets, and a pin extending through the lower end of said operating lever and through said slot in said upstanding lug, whereby when said lever is pivotally moved in one direction said cam plate will be shifted longitudinally and laterally of said guiding groove, whereby said cam member and said rod will be shifted.

In testimony whereof we affix our signatures in presence of two witnesses.

JESSE SANFORD PURCELL.
JOHN M. WALKER.

Witnesses:

OTIS WRAGG,
W. S. SMALL.

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