

(No Model.)

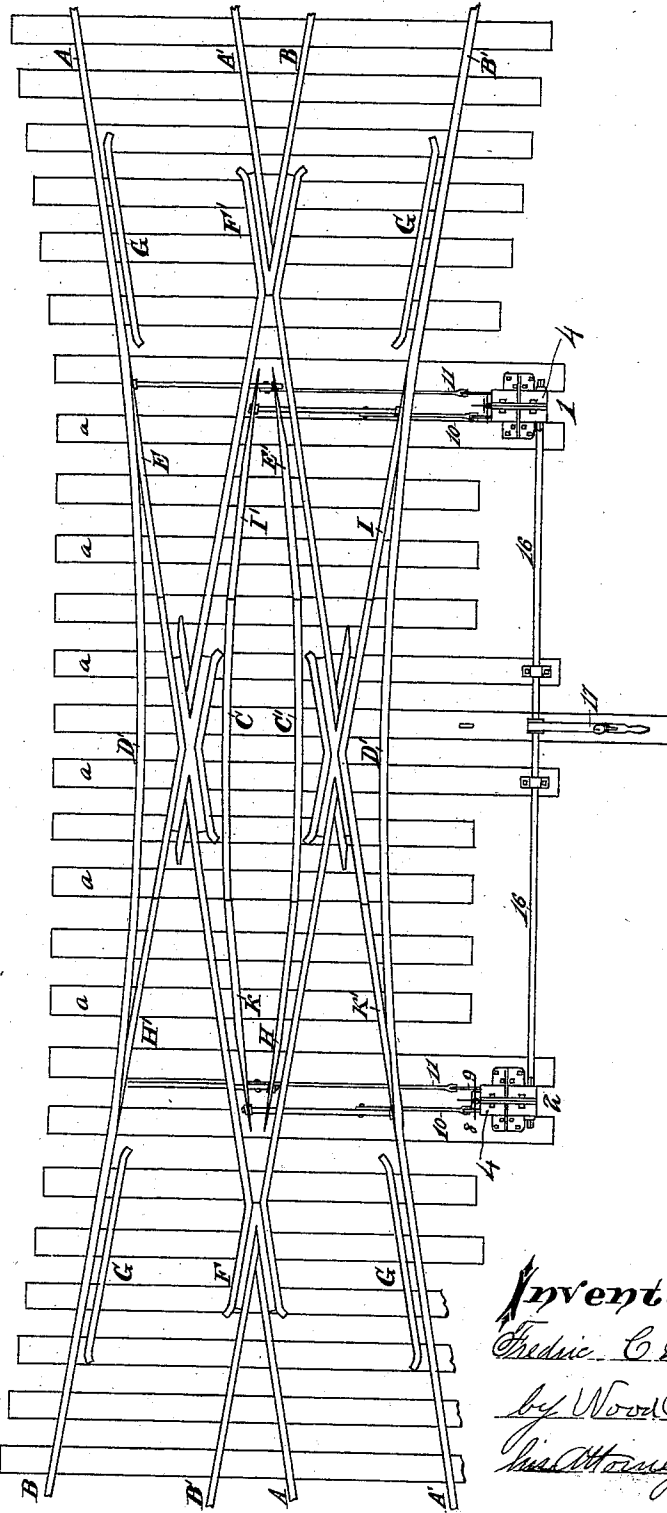
2 Sheets—Sheet 1.

F. C. WEIR.  
RAILROAD SWITCH.

No. 374,099.

Patented Nov. 29, 1887.

Fig. 1.



Attest  
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(No Model.)

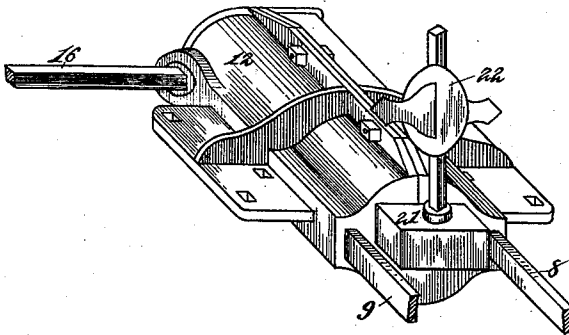
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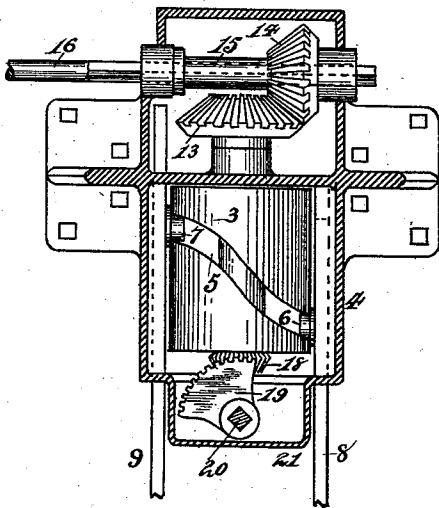
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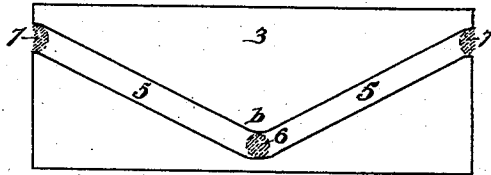
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

FREDRIC C. WEIR, OF CINCINNATI, OHIO.

## RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 374,099, dated November 29, 1887.

Application filed May 9, 1887. Serial No. 237,585. (No model.)

To all whom it may concern:

Be it known that I, FREDRIC C. WEIR, a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Railroad-Switches, of which the following is a specification.

My improvement relates to the operation of a double switch for crossings.

The objects of the invention are to provide cheap, positive, and accurate means for simultaneously moving the switches on either side of the crossing-frogs.

Another object of the invention is to simplify the parts and inclose by suitable housing the operative parts of the switch-stands, so as to protect them from the weather; also to provide automatic signals for each respective switch-stand.

Another object is to permit the rotating rod or bar to expand at will without affecting the other parts thereof.

The various features of the improvement will be explained in the description of the accompanying drawings, making a part of this specification, in which—

Figure 1 is a plan view of the improvement. Fig. 2 is a perspective view of one of the switch-stands. Fig. 3 is a plan view with the top of the stand-casing removed. Fig. 4 is a diagram illustrating the slot of the moving cylinder.

A A' represent lines of rail which constitute the track of one of the lines; B B', the track-rails of the other line.

C C' represent the crossing-frogs in the center.

D D' represent outside fixed curved rails used at opposite sides of the crossing in switching.

F F' represent the end frogs.

G represents the guard-rails.

a represents ties.

E E' represent one pair of switch-rails.

H H' represent the switch-rails at the opposite end of the crossing, which are adjusted simultaneously with the switch-rails E E' for switching a train from the line A A' to the line B B'.

I I' represent another set of switch-rails, and K K' the rails at the opposite end of the crossing, moving simultaneously therewith for switching a train from the line B B' to the

line A A'. These switches are moved by the following mechanism:

1 2 represent switch-stands at either end of the crossing, of the construction shown in Figs. 2, 3, 4, and which contain the operating-gear, hereinafter described.

3 represents the driving-cylinder of each switch-stand, which is suitably journaled in a casing, 4, and is provided with a V-shaped slot, 5, as shown in Fig. 4, in which engage friction-rollers 6 7, attached, respectively, to the parallel moving bars 8 9, which move in ways within the casing 4 and project through said casing at one end, and respectively connected to switch-bars 10 11.

12 represents a covering-casing for inclosing the parts to protect them from the weather and injury.

13 represents a bevel-wheel fitted upon the square end of shaft of cylinder 3.

14 represents a bevel-wheel with a long sleeve, 15, meshing with the bevel 13, for rotating the cylinder 3 as said sleeve 15 is revolved.

16 represents a throw-rod passing through the square part of the sleeves 15 of the two respective switch-stands. This throw-bar passes clear through the journal-bearings, so as to allow for contraction and expansion of the throw-rod.

17 represents a switch-lever connected to said rod, which is moved from one horizontal position to another for simultaneously operating the four sets of switches. As the slot 5 in each of the cylinders 3 is V-shaped in plan and the friction-rollers 6 7 occupy a position as illustrated in plan, Fig. 4, it follows that when the cylinder 3 is turned the friction-roller 7 is moving up in the slot 5 toward the center *b* when the other friction-roller, 6, is moving down toward the extreme end. This movement causes the rods 8 9 and the switch-bars 10 11 to move in opposite directions at either end of the switch. Thus, when switch-bars 11 are moving to open rails E H' and close the rails E' H, the switch-bars 10 are moving in the opposite direction to close the rails I' K and open the rails I K'.

In order to hold these rails in either of the adjusted positions above named and to prevent thrust on driving-cylinders 3, the point of guard 5 is flattened, so that the friction-

rollers 6 7 will move up onto this flattened point and form, as it were, a dead-center, to prevent any tendency of the turning of the cylinder 3 until the lever 17 is applied to rotate it. This lever is locked or held in a horizontal position by any of the usual means employed for such purposes.

In order to operate a target-signal simultaneously with the switches, the casing of the switch-stand is extended, forming a box, 21, within which is located the bevel 18, keyed upon the shaft of the cylinder 3, the segmental gear 19 meshing with the bevel 18, keyed upon the vertical target-shaft 20, to which is attached the signal 22. By this means the position of the switches is properly indicated at either end of the crossing automatically by the operation of the connecting-rod 16 and the switch devices.

Having described my invention, what I claim as new is—

1. The combination, with a crossing-switch, of the switch-stands 1 and 2, arranged, respectively, at the ends of the switch-crossing and containing the switch-rod operating cylinders and gearing, and the connecting-rod 16, engaging the gearing to turn the cylinders, substantially as described.

2. The switch-stand 2, composed substantially of the frame, the driving-cylinder 3, having the V-shaped curve 5, the switch-bars on either side of said cylinder, and the friction-rollers engaging in the curves and operated by the bevels 13 14 and shaft 15, substantially as specified.

3. The combination, with a crossing-switch, of the switch-stands 1 and 2, arranged, respectively, at the ends of the crossing and containing the rotating cylinders, pairs of parallel moving bars 8 9, engaging the cylinders, the switch-bars 10 11, connected with the pairs of bars, and the connecting-bar 16, for turning the cylinders, substantially as described.

4. In combination with the crossing-switches, the switch-stands at either end of said crossing, operated by the rod 16, the bevels and driving-cylinder 3, curves and friction-rollers, each having the parallel moving bars 8 9, connected to the switch-bars 10 11, substantially as specified.

5. The combination of the switch-stand, the cylinder 3, having a V-shaped slot, the pair of parallel moving bars 8 9, both engaging said slot and moved in opposite directions thereby, the bevel-gear 18 on the cylinder-shaft, the segmental gear 19, and the target-shaft 20, substantially as described.

6. In combination with the double-acting switch-stand having the sleeve 15 and bevel-gears, the connecting throw-rod 16, passing through the journal-bearings in said sleeves, so as to allow for the contraction and expansion of the throw-rod, substantially as specified.

In testimony whereof I have hereunto set my hand.

FREDRIC C. WEIR.

Witnesses:

ROBERT ZAHNER,  
M. E. MILLIKAN.