

No. 630,730.

Patented Aug. 8, 1899.

E. P. NEWMAN.
RAILWAY SWITCH.

(Application filed Apr. 12, 1899.)

(No Model.)

Fig. 1.

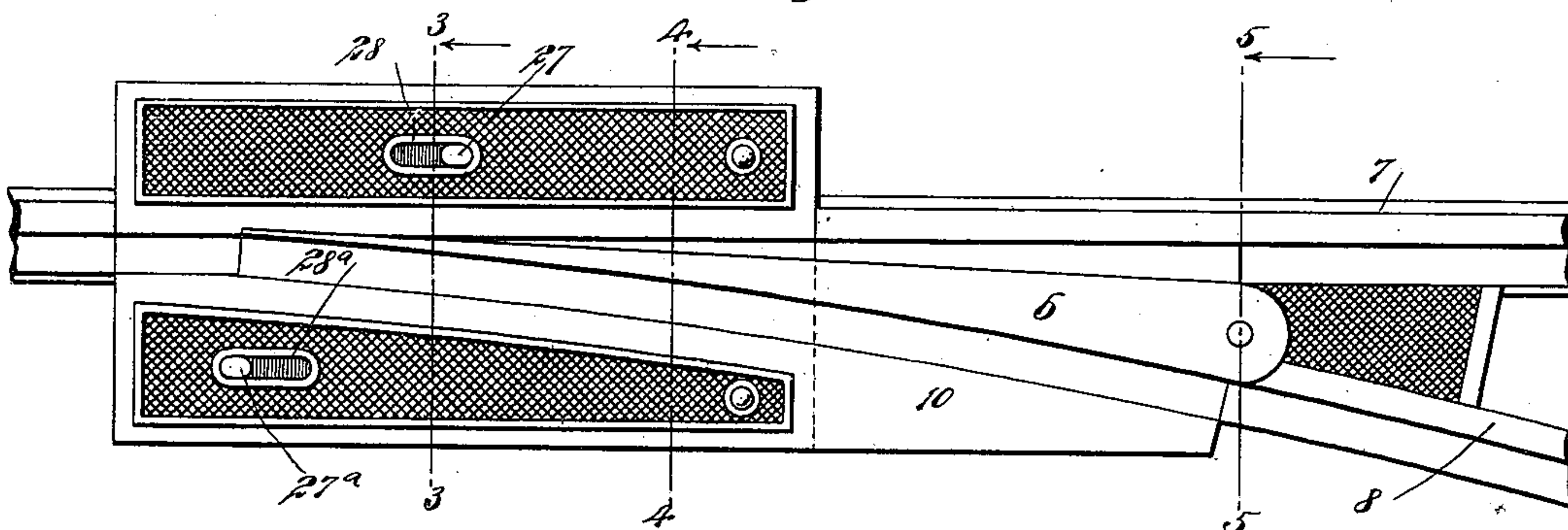


Fig. 2.

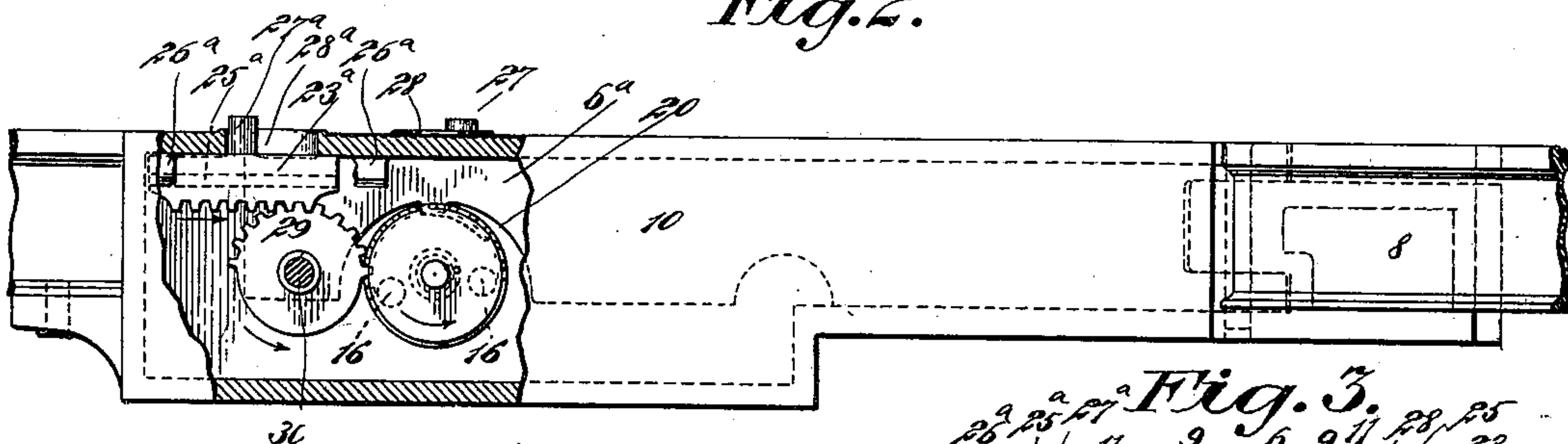


Fig. 4.

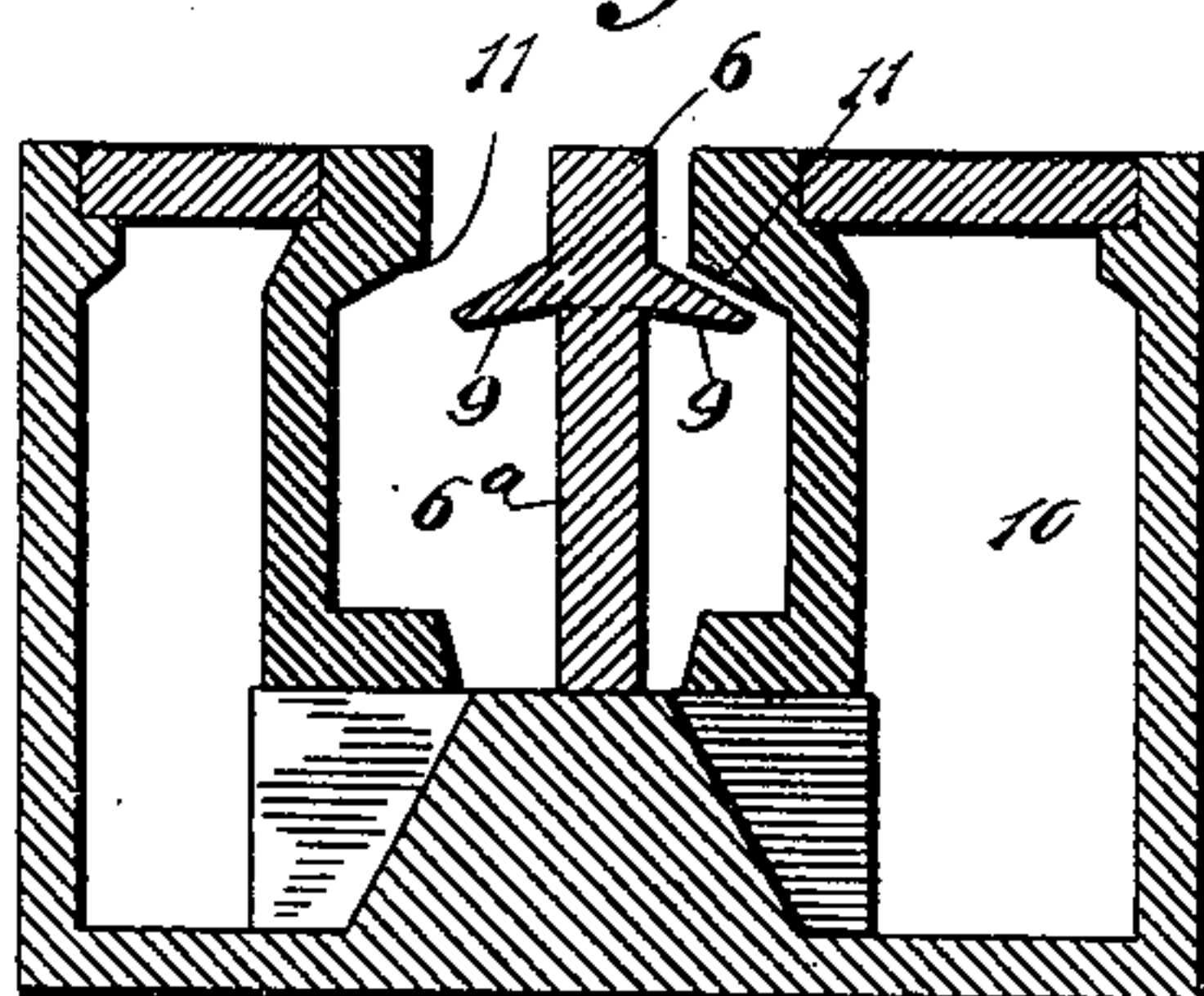
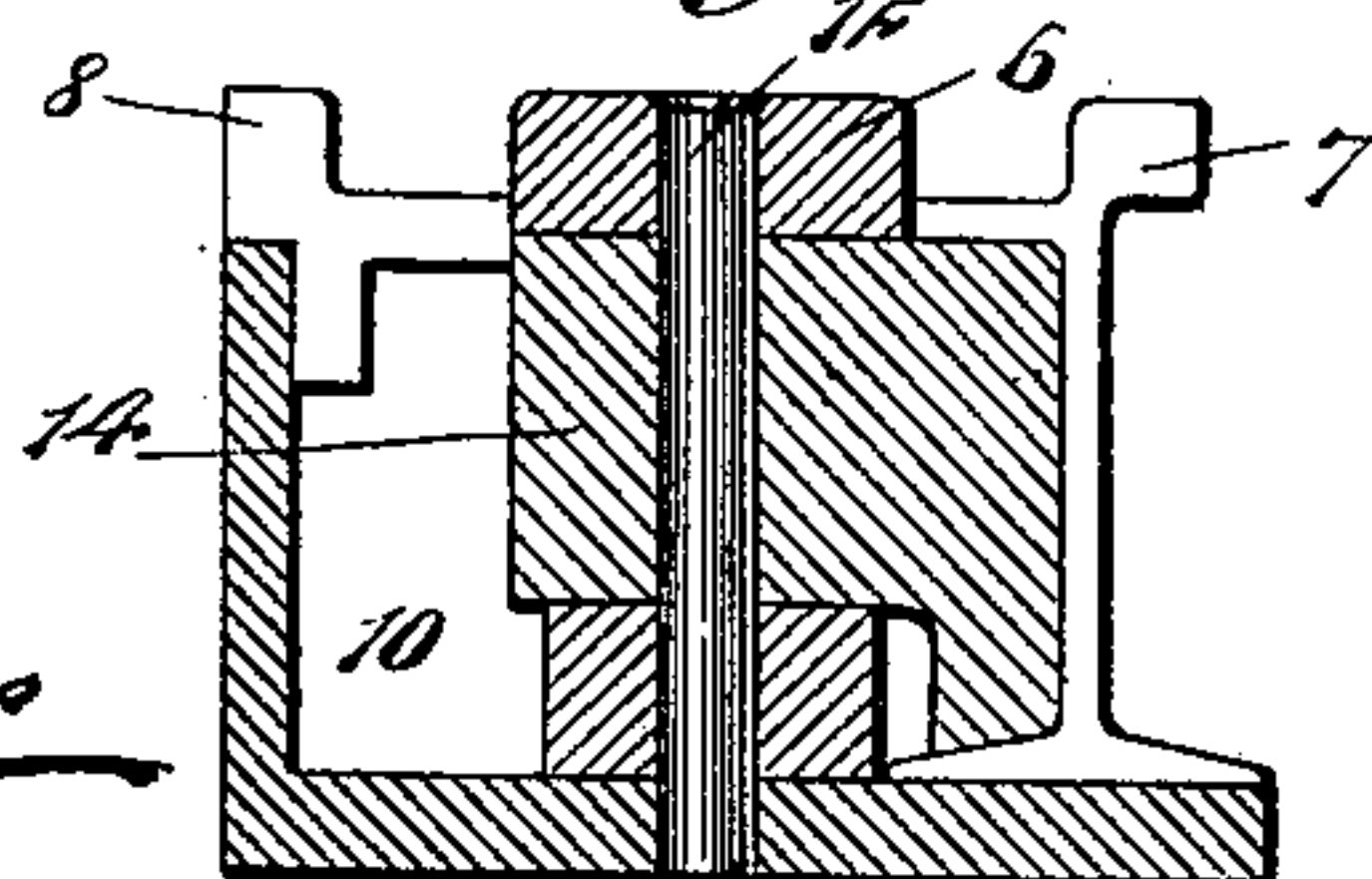


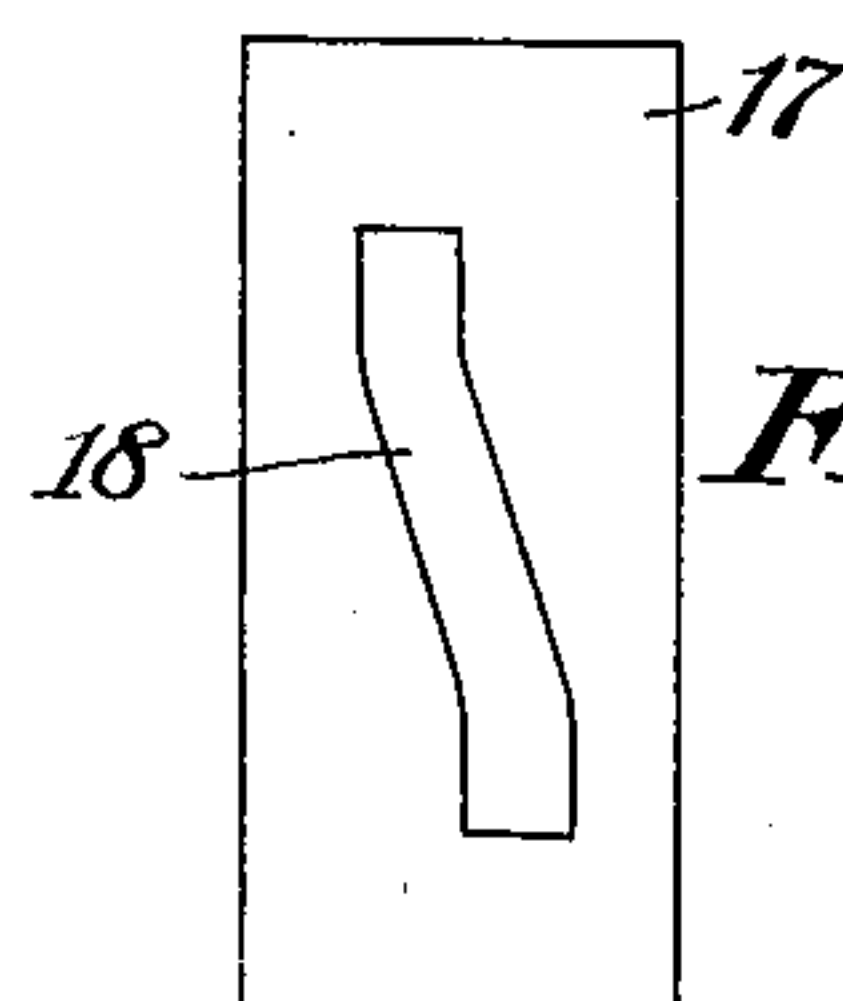
Fig. 5.



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Fig. 6.



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ERNEST P. NEWMAN, OF STILLWATER, MINNESOTA.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 630,730, dated August 8, 1899.

Application filed April 12, 1899. Serial No. 712,739. (No model.)

To all whom it may concern:

Be it known that I, ERNEST P. NEWMAN, of Stillwater, in the county of Washington and State of Minnesota, have invented a new and Improved Railway-Switch, of which the following is a full, clear, and exact description.

The purpose of this invention is to provide a switch-point with means by which the point may be shifted effectually from one position to the other by a detent on the train.

The invention also is capable of being shifted by a switch-lever, if so desired.

To this end the invention comprises a grooved cam in connection with the switch-point and certain novel gearing by which the cam may be turned to throw the switch-point in either direction.

This specification is the disclosure of one form of the invention, while the claims define the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the invention. Fig. 2 is a side elevation thereof with parts broken away. Fig. 3 is a section on the line 3 3 of Fig. 1. Fig. 4 is a section on the line 4 4 of Fig. 1. Fig. 5 is a section on the line 5 5 of Fig. 1, and Fig. 6 is a developed view of a cam to be hereinafter described.

The switch-point 6 is arranged in the usual manner with respect to the main rail 7 and switch 8, so that by swinging from the one to the other the switch is opened and closed. The switch-point 6 is provided with a laterally-projected wing 9 on each side thereof, such wings being adapted to bear under shoulders 11, formed on the interior of the frog-box 10, as shown in Figs. 3 and 4. These wings serve to prevent the entrance of dirt and other foreign matter into parts of the gearing, as will be fully described hereinafter. The point 6, as shown best in Fig. 5, is mounted by means of a pin 12 on a stud 14, forming part of the frog.

Mounted in the frog-box 10 are two disks 15, which turn on trunnions 16, bearing in recesses in the respective side walls of the frog-box 10 and which are joined rigidly with each other to move together by means of two transverse rods 16^a. (Shown in Figs. 2 and 3.)

Sliding on the rods 16^a between the disks 15 is a cam 17, which is formed with a groove 18, adapted to receive a stud 19, formed on and projecting from the bottom of the switch-point 6. The switch-point 6 has a downwardly-projecting web 6^a, extending below the shoulders 11 and wings 9, and this web is formed with a recess 20 cut on its bottom, as indicated in Fig. 2, which recess receives the cam 17. The slot 18 of the cam extends diagonally in the face thereof, so that the turning of the cam serves to throw the switch-point from one position to the other. An expansive spiral spring 21 presses against each side of the cam 17 and against the respective disks 15 to hold the cam normally in a position centrally between the two disks. The ends of the slot 18 are turned at right angles to the axis of the cam 17, as shown in Fig. 6, so that when the stud 19 is situated in said ends the switch-point will be locked until the cam is turned. This permits the cam to slide transversely toward either disk without the movement of the disks 15 and rods 16^a, which provides for the shifting of the switch-point by the engagement therewith of the flanges of the wheels. Should either of the disks 15 be turned, the cam 17, through the medium of the rods 16^a, will also be turned, and this turning movement of the cam will, through the medium of the stud 19 and slot 18, throw the switch-point 6.

The disks 15 are each provided with a line of gear-teeth 22, such teeth of one of the disks meshing with the teeth of a rack-bar 23, mounted within the frog-box 10 at the upper portion thereof and sliding longitudinally with the rail. The rack-bar 23 is formed with a longitudinally-extending slot 24, receiving a key 25, formed on a stationary part of the frog-box. The outer side of the rack 23 is guided by a stationary flange 26, formed in the frog-box. The rack 23 is provided with an upwardly-extending stud 27, (see Figs. 1 and 2,) which stud projects through a slot 28, formed in the top of the frog-box 10 and extending longitudinally therewith, so that a detent on the train may strike the stud 27 to throw the rack-bar 23, and this rack, through the medium of its teeth and the teeth 22 of the corresponding disk 15, will throw the disk 15, and consequently the cam 17. The other

disk 15 has its teeth 22 in mesh with a sector-gear 29, mounted loosely on a stub-shaft 30, stationary in the frog-box. This sector-gear 29 serves to impart movement to the disk 15 with which it meshes, and the gear 29 in turn is driven by a sliding rack 23^a, similar to the rack 23, and guided by a key 25^a and flange 26^a. The rack 23^a has a stud 27^a projected upward through a slot 28^a in the top of the frog-box, the same as the stud 27 of the rack 23. The purpose of the sector-gear 29 for one of the disks 15 is to reverse the movement of the disks. The cam 17 will be turned in different directions by movements of the racks in like directions.

Any suitable devices may be provided for throwing the studs 27 and 27^a. These devices should be carried by the train and arranged to strike the studs to throw the switch-point in the direction desired. The train in approaching the switch strikes either one of the studs, according to the direction in which it is desired that the train travel, and the switch-point will be thrown in the manner described. The same action results by the operation of the studs 27 and 27^a from a train moving in the other direction. If so desired, the disks 15 may be connected with mechanism for throwing them manually or the racks 23 23^a may be located at a point removed from the switch and the disks operated by suitable connections between the racks and the disks, all of which is considered to be within the knowledge of a skilled mechanic. Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with a switch-frog and the point thereof, of a cam in connection with the point, two gears having a bar extending between them to join the gears, the cam being mounted to slide independently on the bar and to turn with the bar and gears, springs bearing between the cam and gears to hold the cam normally in position, a rack meshing with one of the gears, a counter-gear meshing with the other of the gears, and a second rack meshing with the other gear.

2. The combination with a switch-frog and the point thereof, of two gears adapted to be driven in opposite directions, a rod extend-

ing between the gears and joining the same to move together, and a cam mounted to slide on the rod and to turn with the same, the cam having connection with the switch-point to impart movement thereto.

3. The combination with a switch-frog and the point thereof, of two gears mounted to turn in the frog, a rod extending between the gears and joining them to each other, a cam mounted to slide on the rod and to turn with the same, and having connection with the switch-point, and springs bearing between the gears and cam to hold the cam normally in position.

4. The combination with a switch-point, of a cam having connection with the point to throw the same, a rod on which the cam is mounted to slide, the cam being arranged to turn with the rod, and two gears in connection with the rod, whereby the gears are caused to turn in unison, means for driving the gears, and springs bearing between the cam and the gears to hold the cam normally in position.

5. The combination with a switch-point, of two gears mounted to turn, two rods extending between and attached to the gears to cause the same to turn in unison, a cam mounted to slide on the rods, and springs bearing between the gears and the cam to hold the cam in normal position, the cam having connection with the switch-point.

6. The combination with a switch-point, of a cam having a groove in the face thereof, a rod on which the cam is mounted to slide independently, the cam turning with the rod, means for moving the rod, and springs bearing against the opposite sides of the cam to hold the same normally in position.

7. The combination with a switch-frog and the points thereof, of two gears adapted to be driven in opposite directions, a connection between the gears to move them in unison, and a rotary cam mounted to slide axially and driven by the gears, the cam having connection with the switch-point, to shift the same.

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Witnesses:

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