No. 861,960. PATENTED JULY 30, 1907.

M. FIELD.

MECHANISM FOR OPERATING RAILROAD SWITCHES.

APPLICATION FILED MAR. 20, 1907.

2 SHEETS—SHEET 1.

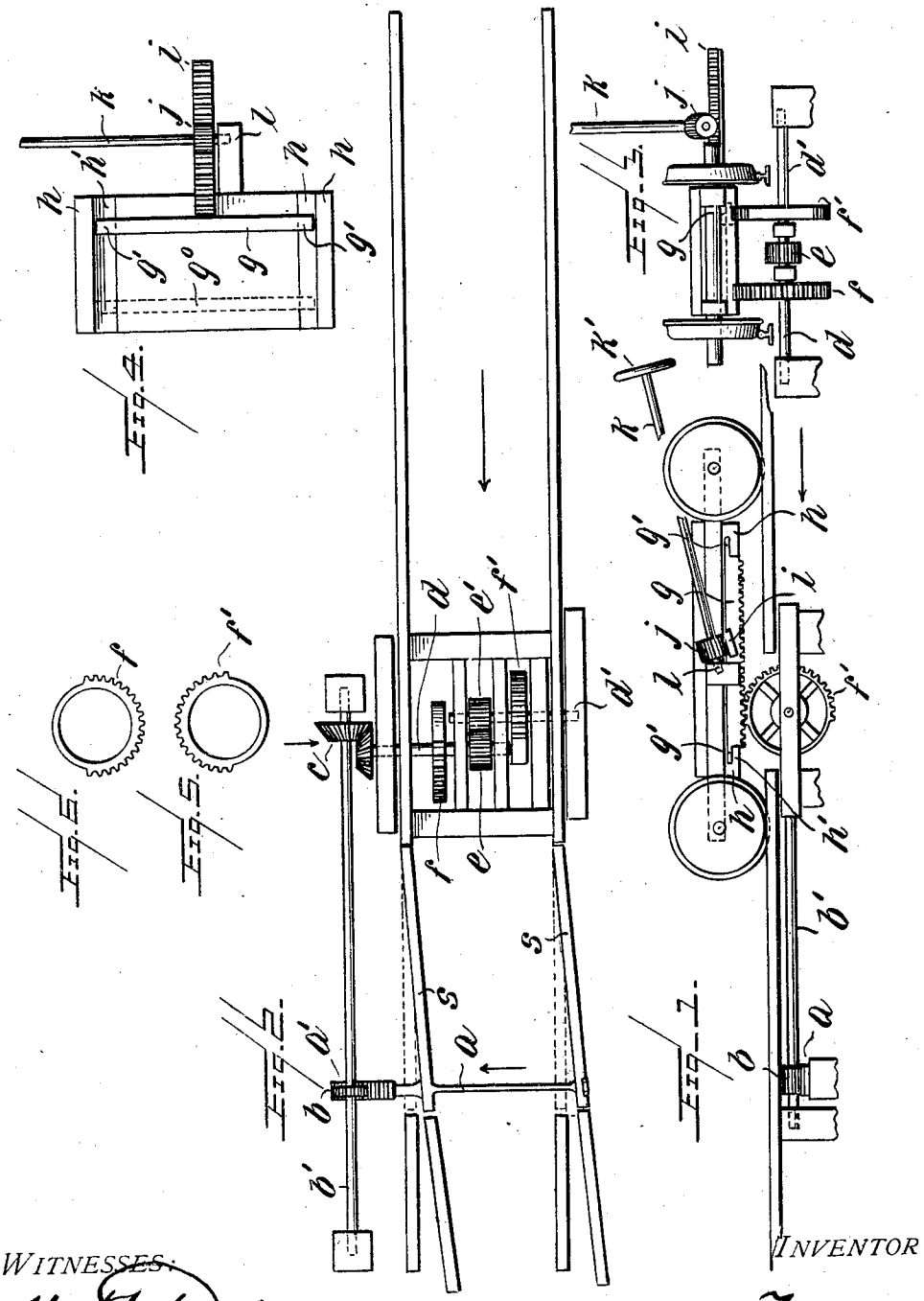


Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

WITNESSES:

Wm. F. Hoge.

H. E. Bopp.

INVENTOR

BY Martin Field

Wm. Zimmerman

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

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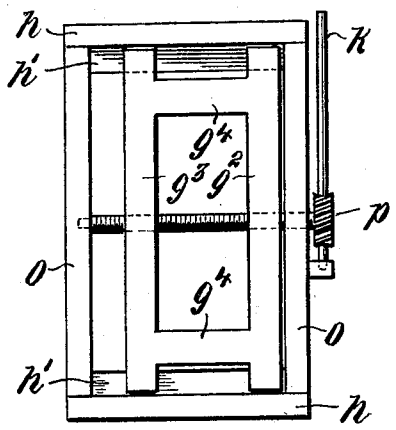
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2 SHEETS—SHEET 2.

Fig. 7.



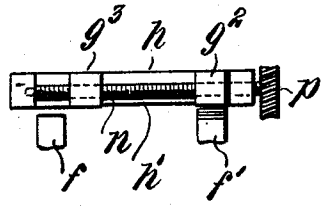


Fig. 8.

WITNESSES:

W. F. Hoffe.

W. E. Bopp

INVENTOR

Martin Field

BY Wm. Zimmerman

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

MARTIN FIELD, OF CHICAGO, ILLINOIS.

MECHANISM FOR OPERATING RAILROAD-SWITCHES.

No. 861,960. Specification of Letters Patent. Patented July 30, 1907.

Application filed March 20, 1907. Serial No. 363,360.

To all whom it may concern:

Be it known that I, MARTIN FIELD, a citizen of the United States, residing in Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Mechanism for Operating Railroad-Switches, of which the following is a true and correct specification, reference being had to the hereto-accompanying sheets of drawings, forming a part hereof, and in which—

Figure 1 shows my said device in elevation as applied to the forward truck of a locomotive. Fig. 2 shows the mechanism under the truck and which forms a part of the track, which operates with said truck-mechanism, the same is shown in plan view. Fig. 3 shows Fig. 1 seen in end view looking against the arrow. Fig. 4 shows that part of my mechanism which is attached to the truck of the locomotive, in plan view, as seen on the top. Fig. 5 shows a special form of gear-wheel in position. Fig. 6 shows the same gear-wheel reversed, and as placed when in correct position, relative to said former wheel, Fig. 5. Fig. 7 shows a set of two rack-gears which are connected and operated by a screw and worm-gear, which is a preferred form of construction. Fig. 8 shows Fig. 7, in end view with fragments of the gear-wheels f and f'.

Like reference letters denote like parts throughout.

The object of my invention is to provide a mechanism for operating railroad switches which will, automatically set the switch for any passing train, either to the right or to the left, and that without a possibility of failure.

In my device it is the engine itself which sets the switch for the train, but the engineer sets the mechanism to operate the switch long in advance of the time he arrives at the switch.

To attain said desirable ends I construct my said new device in substantially the following manner, namely; to any switch s and its connecting-bar a I attach a rack a' forming a prolongation of said bar a, and said rack is engaged with a pinion b secured to a shaft b' and on said shaft is secured one of a pair of equal sized bevel-gears c of which its companion gear-wheel is secured to a shaft d and said shaft carries at its opposite end a pinion e which meshes with a pinion e' on the end of a shaft d', and on said shaft d is secured a gear-wheel f whereon the teeth extend only about ten degrees more than half way round at each end, and on said shaft d' is a like gear-wheel f' with a like arrangement of teeth but set in a diametrically opposite relative position to said other wheel, as more clearly indicated by the free wheels, Figs. 5 and 6, which are placed as if in place, and as shown in Figs. 2 and 3. Said wheels f and f' being placed and once connected by the pinions e and e', which are of equal diameter, will always retain their relative position. A rack g engages, alternately, at will, said wheels f and f' in the following manner, namely; the said rack g is carried under the forward truck of the locomotive, beneath its axles, and is provided with tongues g' at each of its ends. Said tongues rest on lips h' forming parts of cross-bars h which are fastened to the truck, as shown, and to said rack g is secured a rack i placed at right angles to the direction of said rack, and into said rack meshes a pinion j on a shaft k whereof its outer end is held in a bracket l which is secured in any suitable way to the truck mechanism. The outer and other end of said shaft k enters the cab of the locomotive and has attached to said end a hand-wheel k', or other suitable device wherewith motion is given to said pinion j and through it are moved the racks i and g and the latter moved from its position to that indicated by the broken outlines g^0, and, thereby, caused to engage the wheel f and to release the wheel f' whereby, according to the said construction the switch-rod a with its switch s will move into the opposite position from that shown for f' and full lines of the drawing, and, thereby, a railroad switch will always be righted, as shown. If the switch happens to be in the right position the rack will make no engagement because the blank or toothless face of the wheel will then be presented to the rack.

In the preferred construction there are two racks, g^2 g^3 which are connected by cross-bars g^4 near each end spacing said racks so that when one is freed from its wheel the other is engaged with its wheel, either f or f'. Said racks are provided with ends g', like those shown on rack g, and they are held in the same parts h and h' which carry the rack g, but in place of the rack i there is a screw n carried in side-bars o o, and to one end thereof is attached a worm gear p from which a shaft k goes to the hand-wheel k' in the cab of the engine. In my said last construction it is only necessary to move the racks far enough to release one wheel, as f to engage the other wheel f' of this mechanism, and then the same end is attained as in the said former construction employing but one gear-rack.

What I claim is:

The combination with a laterally adjustable toothed rack to a locomotive, of partially toothed gear-wheels connected by equal-sized pinions, said gear-wheels set in relatively opposite positions, bevel gearing to one shaft of said wheels and a pinioned shaft to the other bevel gear and a rack to said pinion connected to a switch.

MARTIN FIELD.

Witnesses:
J. GROOSE,
WM. ZIMMERMAN.