

No. 754,864.

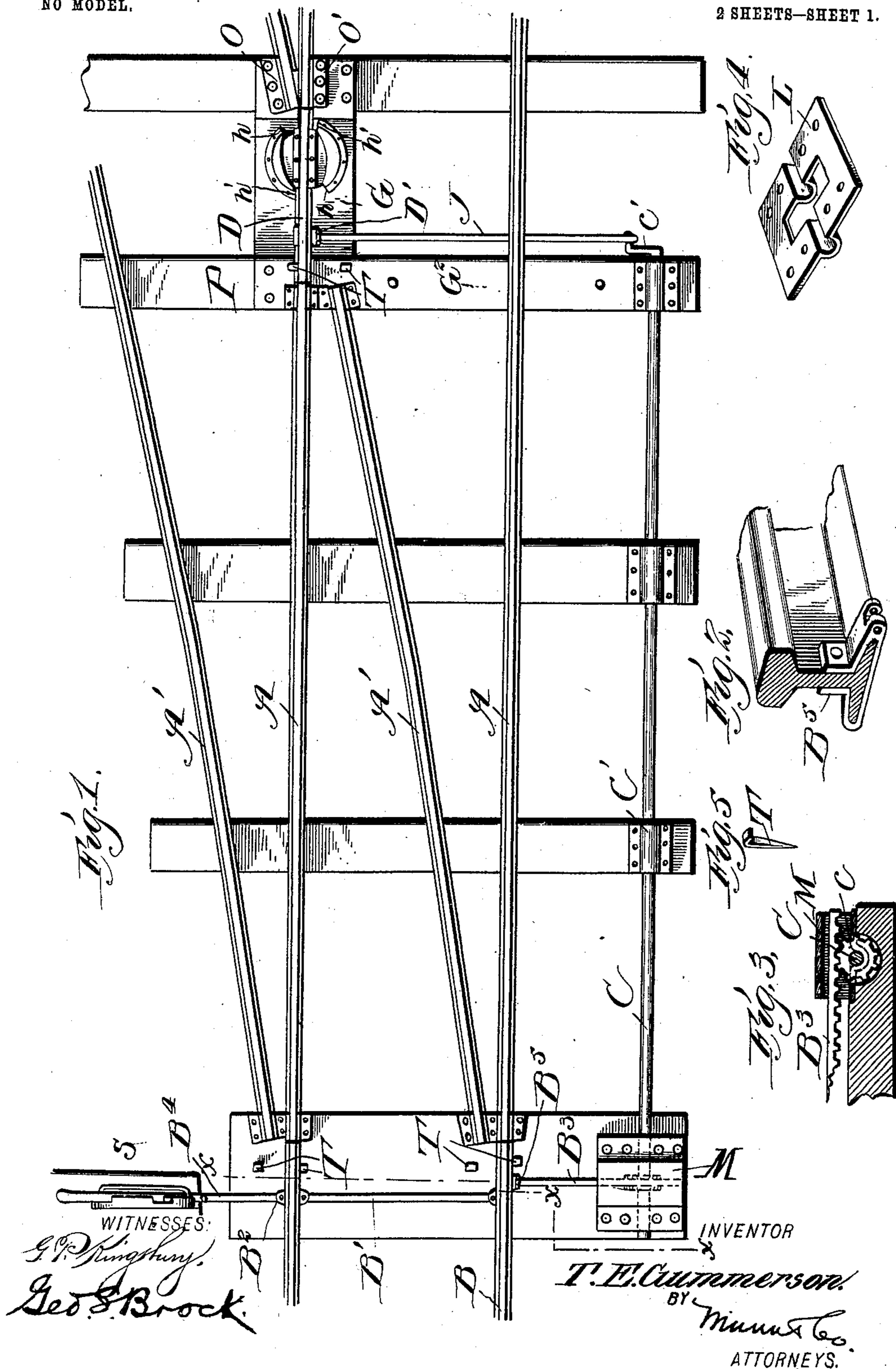
PATENTED MAR. 15, 1904.

T. E. GUMMERSON.  
RAILWAY SWITCH.

APPLICATION FILED JULY 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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INVENTOR

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2 SHEETS—SHEET 2.

Fig. 6.

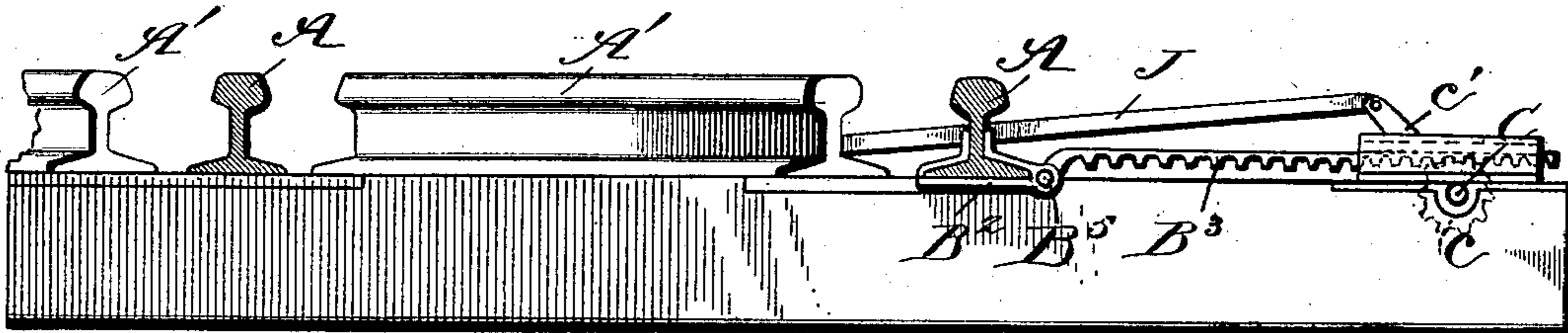


Fig. 7.

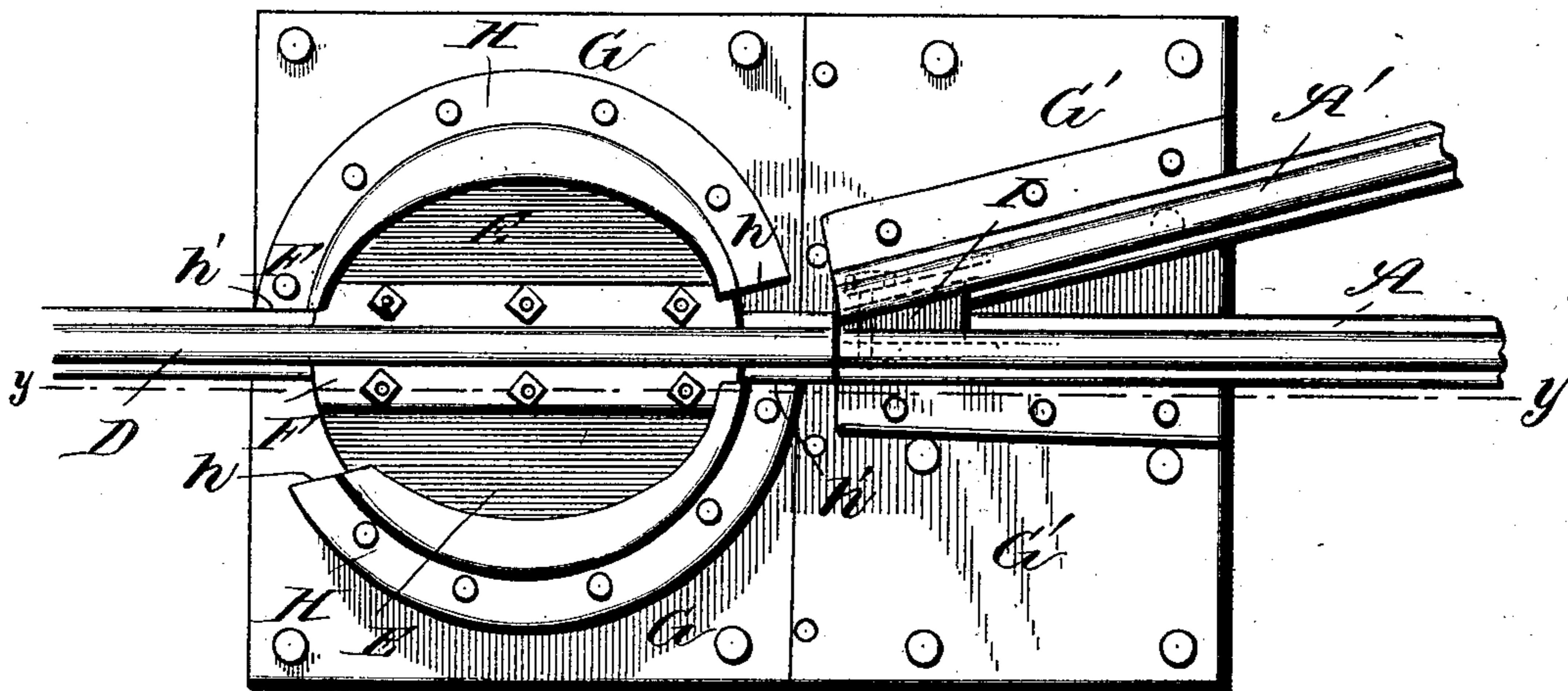


Fig. 8.

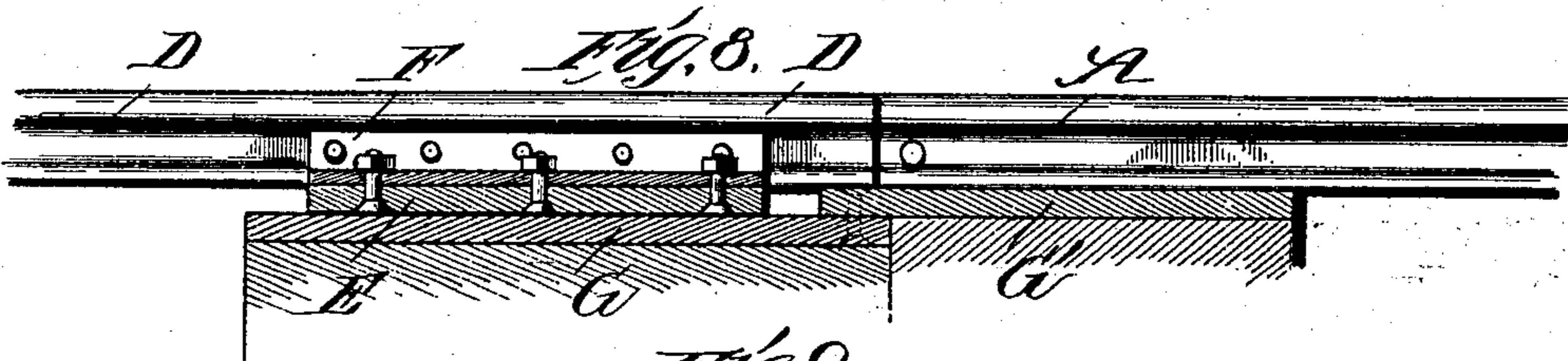


Fig. 9.

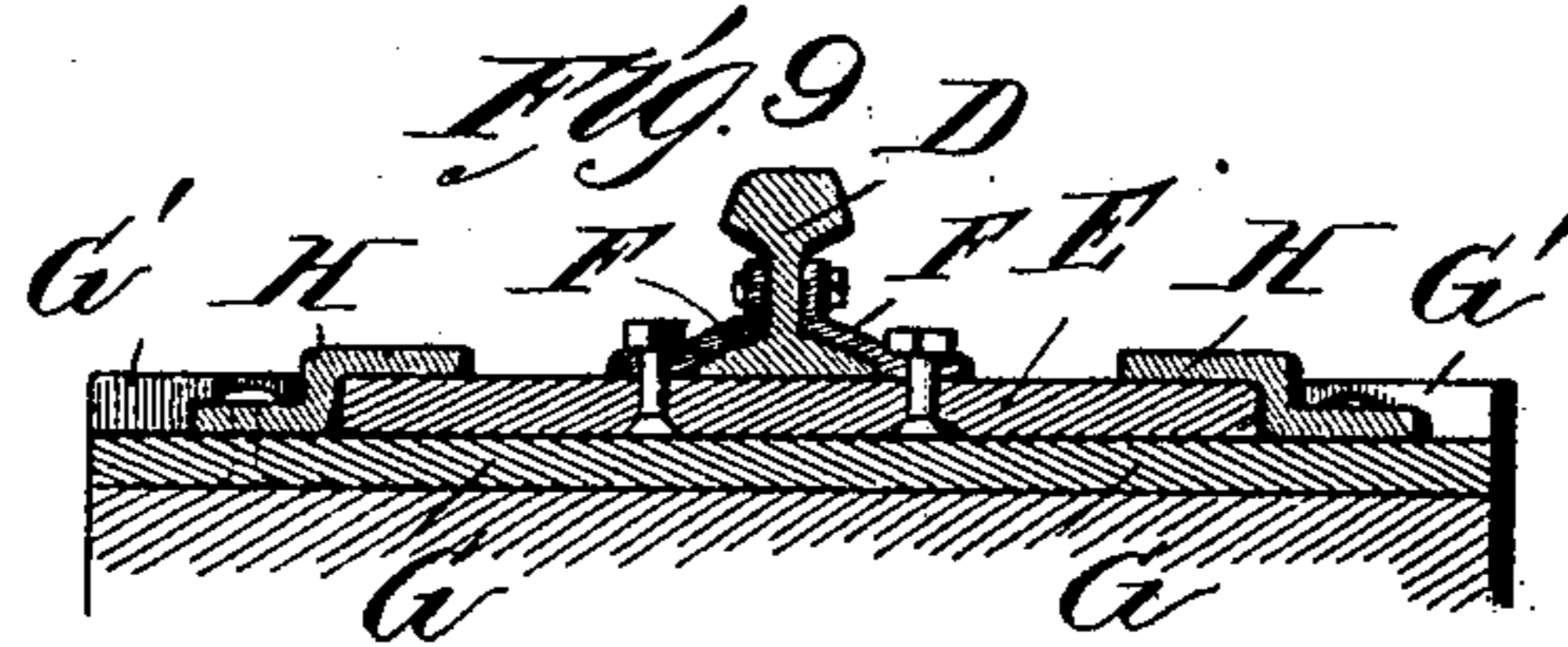
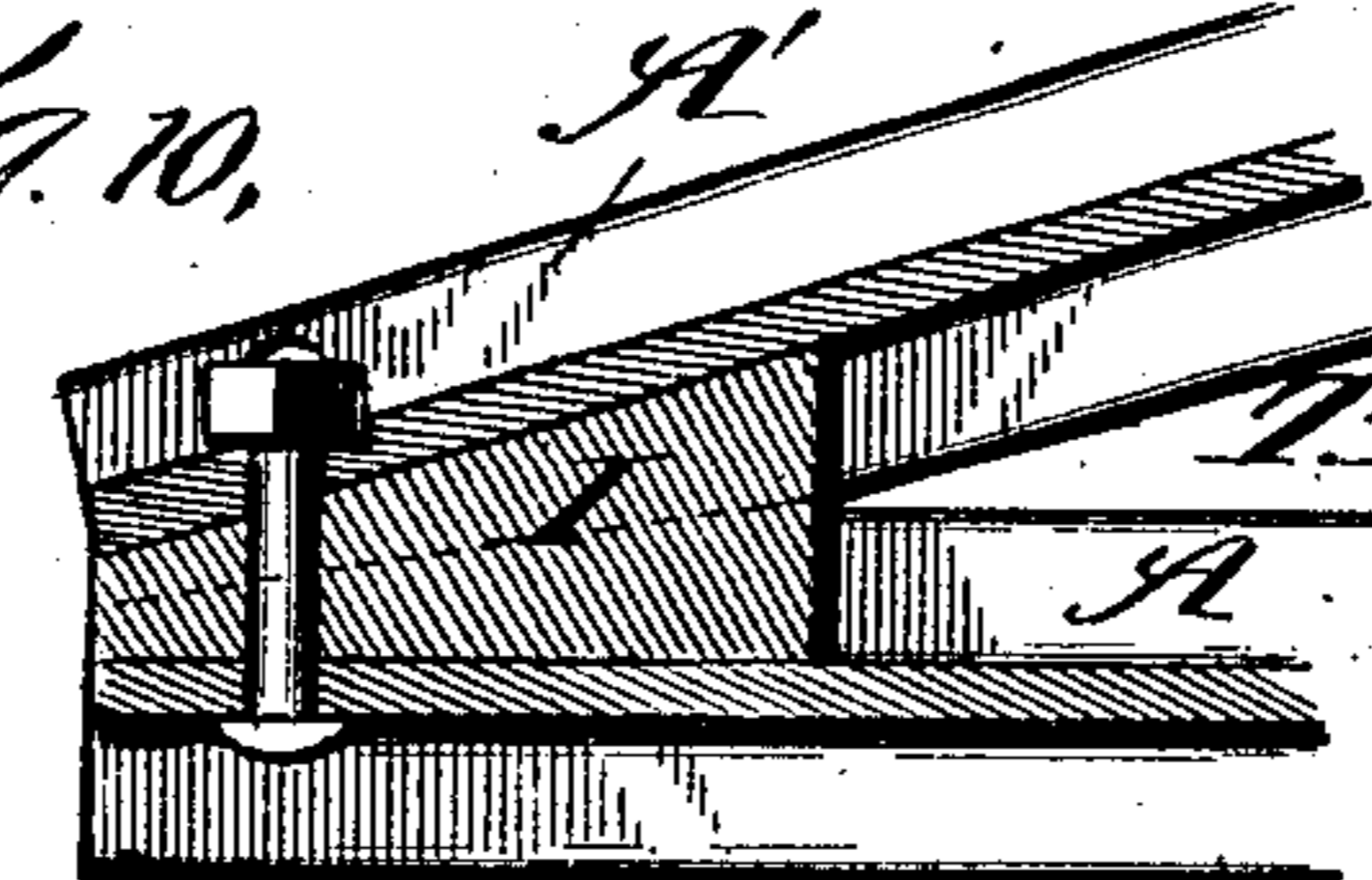


Fig. 10.



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# UNITED STATES PATENT OFFICE.

THOMAS E. GUMMERSON, OF CRESTONE, COLORADO.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 754,864, dated March 15, 1904.

Application filed July 29, 1903. Serial No. 167,426. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS E. GUMMERSON, of Crestone, in the county of Saguache and State of Colorado, have invented a new and useful Improvement in Railway-Switches, of which the following is a specification.

My invention relates to an improvement in railway-switches in which the usual construction of frog is done away with and in its stead a swinging rail is used and also to improvements in the special parts designed to carry out the purpose of the invention.

The object of my invention is to do away with the usual frog and to produce a simple, efficient, and cheap switch, one that can readily be installed, removed, or repaired and that is sure in its operation and not affected by sleet, snow, mud, or dust.

To these ends my invention consists in certain novel constructions, arrangements, and combinations of parts, as will be hereinafter fully described, and pointed out in the claims.

The structure embodying my invention is fully illustrated in the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view as in use. Fig. 2 is a detail section of one of the throw-rails, showing shoe. Fig. 3 is a sectional view showing the rack and pinion and inclosing boxing. Fig. 4 is a perspective of the wearing-plate. Fig. 5 is a view of one of the rail-stops. Fig. 6 is a sectional view on line *xx* of Fig. 1. Fig. 7 is a detail plan view of the turn-table device. Fig. 8 is a sectional view on line *yy* of Fig. 6. Fig. 9 is a central transverse vertical section through the turn-table device. Fig. 10 is a detail horizontal section showing the wedge and connecting-bolt at the meeting ends of main and switch track.

Referring to the drawings, A A are the main-track rails.

A' A' are the rails of side track or switch, and B B are the ordinary throw-rails, suitably mounted on ties to permit of their proper movement. At their free ends the throw-rails are secured to a bridle B', secured to a shoe B<sup>2</sup>, and extending outwardly from this shoe is a rod B<sup>4</sup>, secured to the lever of a switch-stand S. The end of the throw-rail farthest

from the switch-stand fits in and is secured to a shoe B<sup>5</sup>, to the outer side of which is hinged or pivotally secured a rack-bar B<sup>3</sup>, having a rack on its under surface at its outer end, which rack engages with a pinion *c*, secured to one end of a rock-shaft C, suitably mounted in boxes C', secured to the ties alongside of the main-track rails.

The end of the rock-shaft C which carries the pinion *c* is journaled in a bearing-plate L. (Shown in Fig. 4.) This bearing-plate is made of a single piece of metal having an opening in the center, through which the pinion *c* rotates, and has the struck-up portions forming the bearings for the rock-shaft C. Over this bearing-plate is placed the box-cap M, which incloses the rack-bar and pinion and protects them from dirt, water, snow, and ice. This box-cap consists of a central raised portion and the base flanges, which are secured to the bearing-plate and tie by bolts or other suitable fastenings.

I provide in the place of the usual frog a swinging rail D, which is secured to a disk E by fish-plates F by means of bolts passing through the base of said fish-plates and through the disk E, the heads of said bolts being countersunk in the bottom face of said disk. The disk rests on and is adapted to turn on a bed-plate G, forming a chair for the swinging rail, being retained in place by segmental plates or flanges H, the inner edges of said plates H being cut at such angles as to prevent the swinging rail moving beyond its registering position with relation to either the main-track rail A or the side track A'. The bed-plate, which is made of malleable cast iron or steel, as well as the parts E and H, consists usually of three pieces G, G', and G<sup>2</sup>, the part G being longer than G', and the part G' is bolted to the part G and forms a rest or base for the shorter end of the pivoted swinging rail D, or the part G' may be integral with the part G, thus forming a raised portion or shoulder. The part G<sup>2</sup> is secured to the upper face of the cross-tie P, as shown in Fig. 1.

The ends of the rails A and A' adjacent to the shorter end of swinging rail D are brought close together and firmly bolted and secured, and within the angle thus formed is secured

the wedge-shaped block I. On the outsides of these rails at this point are placed the clamping-plates O O'.

Near the free end of the longer end of swinging rail D a shoe D' is secured, within which said rail fits, and to this shoe is hinged or pivoted one end of a pitman J, the other end of the pitman extending outwardly and being secured to a crank c' at that end of the rock-shaft C, as shown. The longer end of swinging rail D rests upon plate G<sup>2</sup>, secured to the tie P, and secured to and resting upon this plate are the ends of the main rail A and side-track or switch rail A' by means of clamping-plates. As plainly shown in Fig. 7, two diagonally opposite ends of the segmental plates or flanges are beveled, as at h h, while the other two diagonally opposite edges are cut straight, as shown at h' h'. These bevel cuts and straight cuts, respectively, form stops for the swinging or oscillating rail when thrown for the side tracks and for main tracks.

The ends of the main and side track rails adjacent to the shorter end of the pivoted swinging rail D are secured on the raised or step portion G' of the bed-plate or chair G by clamp-plates, and the shorter end of said swinging rail being mounted on the disk E, which is in turn mounted upon the lower portion G of the bed-plate, it will be seen that said shorter end will slide on the raised portion G' when it is brought into juxtaposition with either the main-track rail or the side or switch track rail.

It will be understood that by throwing the lever of the switch-stand in either direction the swinging rail D will, through the rack-bar, the pinion, the bridle and rod connected to the slide rails, and the rock-shaft, open or close the main-track line, and, vice versa, the side track or switch line. By pivoting or hinging the end of the rack-bar to the shoes bearing the rails the parts will work perfectly, smoothly, and not bind or jam.

It will be seen that I produce a simple, cheap, and efficient switch device, one that can be readily installed, repaired, or removed, and one that will not be affected by snow, sleet, ice, mud, &c., as the segmental plates or flanges fitting closely the oscillating disk prevent any such substances getting in and clogging at this point. Furthermore, the introduction of the wedge-shaped block within the angle formed by the main and side track rails makes a solid and secure fastening at this point and prevents any creeping or spreading of said rails, as the said block is rigidly secured to said rails by bolts or other suitable fastening means.

The disk E with the bed-plate and the segmental retaining plates or flanges form a turntable for the swinging rail D.

T (shown in Fig. 5) represents stops for the throw-rails B B and also for the swinging rail D.

It will be observed that with the use of my improvements there will be no danger of a person getting a foot caught, as is quite common with the ordinary switch-frogs, thus making my device a safety appliance.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a railway-switch, the combination with the switch-rails and rails of the main track, a switch-stand, connections therefrom to the sliding or shifting rails, a swinging rail connected to the sliding rails through a rock-shaft, pinion and rack-bar and pitman, a turn-table to carry said swinging rail, consisting of a bed-plate having a stepped or shouldered upper surface, a disk resting on said bed-plate and secured to the swinging rail, segmental retaining plates or flanges secured to the bed-plate and embracing said disk, the diagonally opposite edges of the flanges or retaining-plates being respectively beveled and straight to form stops for the swinging rail when in its open or closed position.

2. In a railway-switch, the combination with the switch-rails and rails of the main track, a switch-stand, connections therefrom to the sliding or shifting rails, a swinging rail, a turn-table carrying said swinging rail, consisting of a bed-plate having a stepped or shouldered upper surface, a disk resting on the low portion of said bed-plate and secured to the swinging rail, segmental retaining plates or flanges secured to the low portion of said bed-plate and embracing said disk, a rock-shaft having a crank at one end, pitmen pivotally secured to said crank, a pinion secured to the opposite end of the rock-shaft, a rack-bar pivotally secured to one of the shifting rails, a shoe embracing the flanges of the swinging rail near its longer end, said shoe being pivotally secured to the pitmen, all substantially as shown and described.

3. In a railway-switch the combination with the switch-rails and rails of the main track, a switch-stand, connections therefrom to the sliding or shifting rails, a swinging rail, a turn-table carrying said swinging rail, consisting of a bed-plate having a stepped or shouldered upper surface, a disk resting on the low portion of said bed-plate and secured to the swinging rail intermediate its ends, segmental retaining plates or flanges secured to the low portion of said bed-plate and overhanging the periphery of said disk, a rock-shaft having a crank at one end, a pitman pivotally secured to said crank, a pinion secured to the opposite end of said shaft, a shoe embracing the flanges of one of the shifting rails, a rack-bar secured to said shoe and adapted to engage the pinion on the rock-shaft, a shoe embracing the flanges of the swinging rail near its longer end, said shoe pivotally secured to the pitmen, a wedge-shaped block inserted between the converging ends of the main-track and switch rail, and fastenings

for securing said block in place and fastening the said converging ends of the rails to the said block.

4. In a railway-switch the combination with  
5 the switch-rails and rails of the main track, a switch-stand, connections therefrom to the shifting rails, a swinging rail, a turn-table carrying and having secured to it said swinging rail, a rock-shaft having a crank at one end  
10 pivotally connected through a pitman with one end of the swinging rail, a pinion secured to the opposite end of the rock-shaft, a rack-bar pivotally secured to one of the shifting rails and adapted to engage the pinion on the rock-  
15 shaft, whereby movement of the shifting rails will cause the swinging rail to register with one of the switch-rails or with one of the main-track rails.

5. In a railway-switch the combination with

the switch-rails and rails of the main track, a 20 switch-stand, connection therefrom to the shifting rails, a swinging rail, a turn-table to which said swinging rail is secured, a rock-shaft provided with a crank at one end, a pitman secured to said crank at one end and at 25 its opposite end to the swinging rail, a pinion on the opposite end of the rock-shaft, a bearing-plate provided with a central opening to receive said pinion and rock-shaft, a rock-bar pivotally secured at one end to one of the shift- 30 ing rails and engaging the pinion on the rock-shaft, and a cap-box fitting over said pinion and rack.

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Witnesses:

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