

No. 751,868.

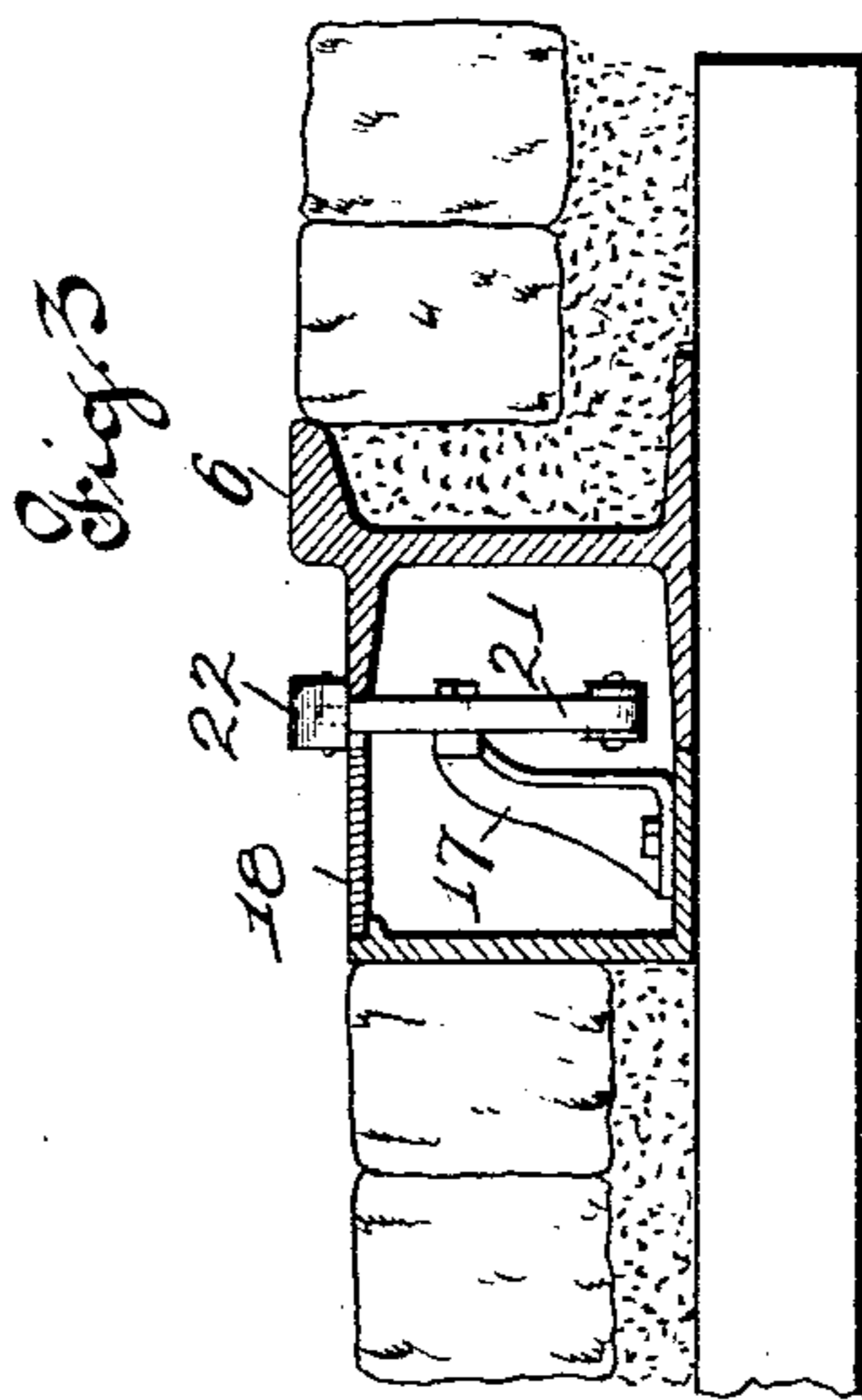
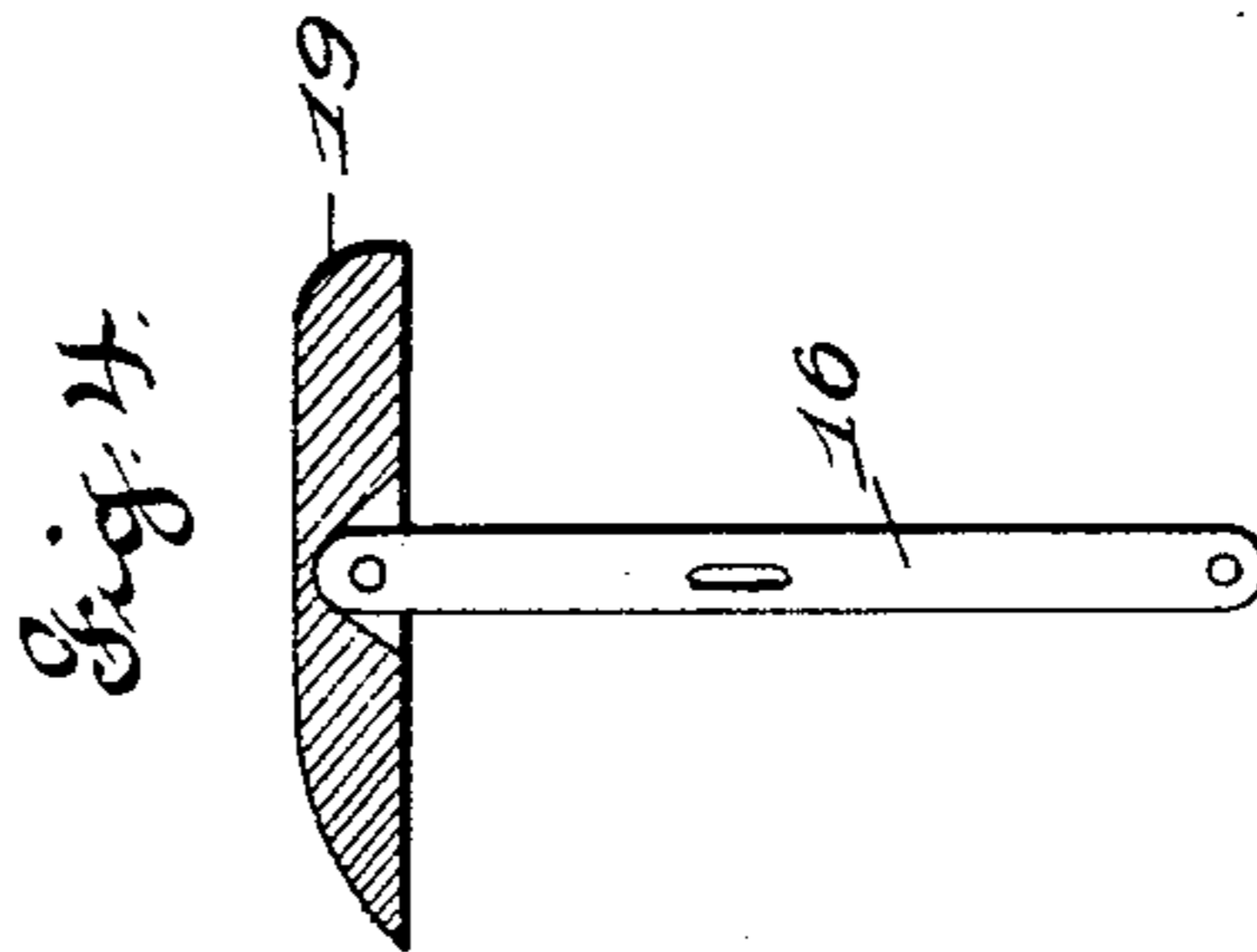
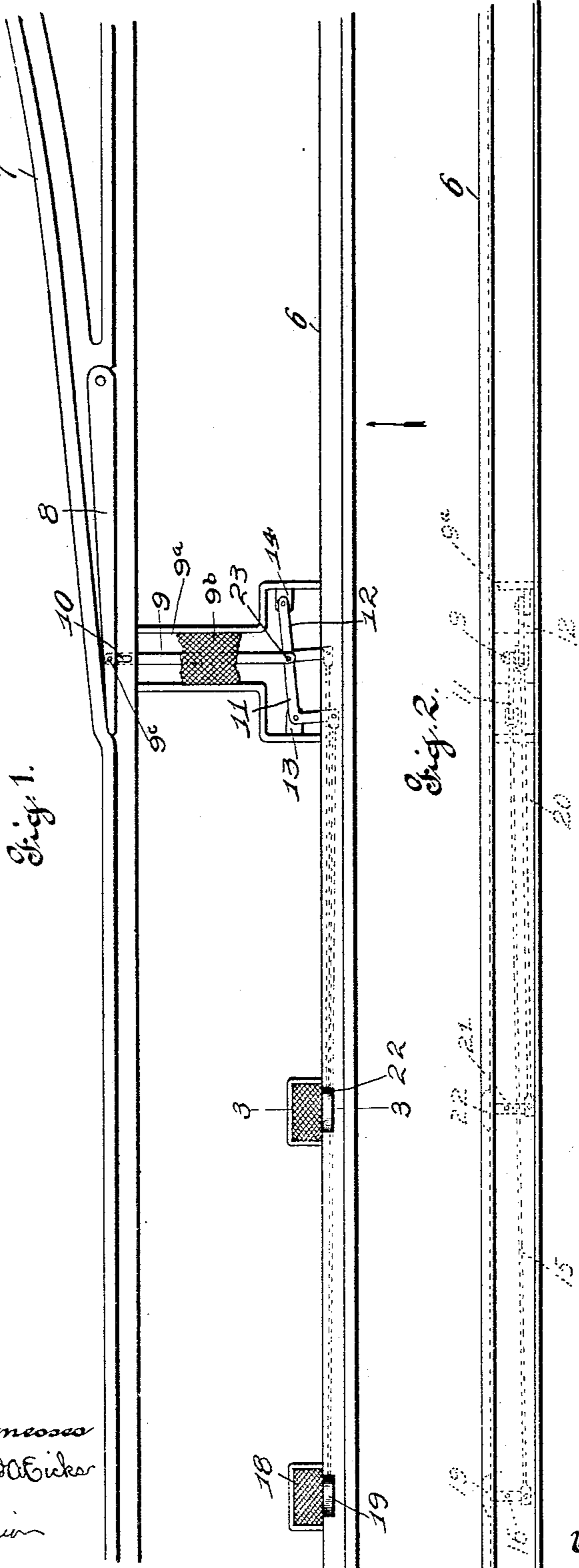
PATENTED FEB. 9, 1904.

W. R. MURPHY.
AUTOMATIC RAILWAY SWITCH.

APPLICATION FILED JUNE 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
Alfred E. Ecker
M. L. L. L.

Inventor
William R. Murphy

by Higdon & Longan & Hopkinson
Attys

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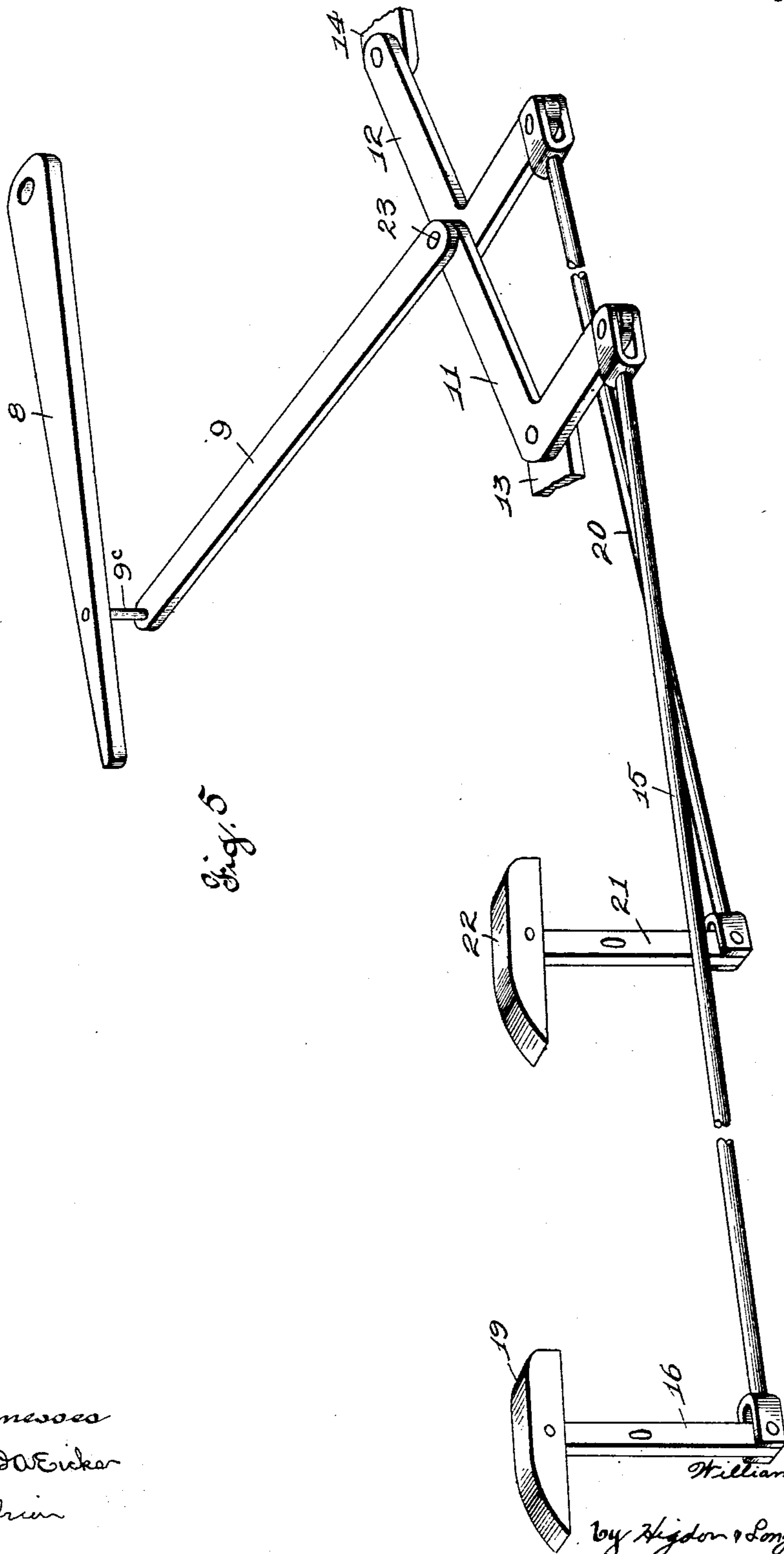
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UNITED STATES PATENT OFFICE.

WILLIAM R. MURPHY, OF ST. LOUIS, MISSOURI.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 751,868, dated February 9, 1904.

Application filed June 23, 1903. Serial No. 162,736. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM R. MURPHY, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Automatic Railway-Switches, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to automatic railway-switches; and it consists in the novel construction, arrangement, and combination of parts hereinafter specified and claimed.

My object is to improve upon the construction shown and described in my United States Letters Patent No. 718,503, dated January 13, 1903, whereby the same will be simplified and rendered more durable and certain in operation.

Figure 1 is a plan view of a piece of railway-track having my improved automatic switch applied thereto. Fig. 2 is a side elevation of the parts shown in Fig. 1 looking in the direction indicated by the arrow. Fig. 3 is a sectional detailed view taken on the line 3 3 of Fig. 1. Fig. 4 is a detailed view of one of the tripping-shoes. Fig. 5 is a perspective view of the operating parts detached from the railway-track.

The rail 6 forms part of the main line, and the rail 7 forms part of the side track. The usual movable switch-rail 8 is made use of for the purpose of causing the cars to pass upon the side track whenever desired. A connecting-bar 9 is mounted beneath the track and extends transversely thereof in a suitable chamber 9^a, which may be provided with a cover 9^b, and a pin 9^c extends upwardly from said bar 9 through a slot 10 and connects said bar to the free end of the movable switch-rail 8.

Mounted within the chamber 9^a are two bell-crank levers 11 and 12. The bell-crank lever 11 is fulcrumed centrally upon a bracket 13, while the bell-crank lever 12 is fulcrumed at one end to a bracket 14. One arm of each bell-crank lever projects outwardly, and the outwardly-projecting arm of the bell-crank lever 11 is pivotally connected to an operating-rod 15, which extends parallel to the rail

6 a suitable distance from the chamber in which the bell-crank levers are mounted, and the opposite end of said rod 15 is pivotally connected to the lower end of one of the tripping-shoe levers 16, which latter is fulcrumed at about the middle of its length to a bracket 17, mounted in a small chamber or box provided with a cover 18.

Pivotally mounted upon the upper end of the tripping-shoe lever 16 is a tripping-shoe 19. Pivotally connected to the outer end of the bell-crank lever 12 is another operating-rod, 20, which extends substantially parallel to the rod 15 and has its opposite end pivotally connected to the lower end of the vertical tripping-shoe lever 21, which is pivoted to another bracket, 17, in a manner identical with that in which the tripping-shoe lever 16 is pivoted, as previously described. Said tripping-shoe lever 21 is provided upon its upper end with a tripping-shoe 22. The shoes 19 and 22 are separated about a car's length, but are located in alinement.

The inner end of the bell-crank lever 11 is pivotally connected to the connecting-bar 9 by means of a bolt 23, and the bell-crank lever 12 is also connected to the said bar by the same bolt; but said bell-crank lever 12 has its connection made at a point separated as far as possible from the outer end of its arms, which is shown as the base of said arms.

The operation is as follows: When a car is approaching the switch from the left hand in Fig. 1, the motorman will with a suitable instrument move forward the tripping-shoe 19 if he desires the car to pass to the side track. The forward movement of said shoe 19 will draw the connecting-rod 15 in a reverse direction, thereby moving the bell-crank lever 11 in a corresponding direction and throwing the movable switch-rail 8 in a position to throw the car in a direction desired. Should the motorman desire his car to pass upon the straight track, he will of course leave the parts in the position in which they are shown in Fig. 1. Should he approach the switch with the intention of continuing upon the main line, but find the switch had been previously thrown for the side track, he will then pass by the tripping-shoe 19 until it reaches

the next shoe 22, and by moving the latter forwardly a slight distance with any suitable instrument he will thereby move the connecting-rod 20 in a reverse direction, and such
5 movement will operate the bell-crank lever 12, and it in turn will force the connecting-bar 9 and the movable switch-rail 8 to return to their normal position, as shown in Fig. 1. Such movement will also cause the shoe 19
10 and all its connections to be returned to their normal position.

What I claim is—

1. An improved automatic railway-switch, comprising the combination with a movable
15 switch-rail, of a connecting-bar pivoted at one end to said movable switch-rail, a bell-crank lever pivoted to said connecting-bar, a tripping-shoe mounted at the side of one of the rails of the track some distance from bell-
20 crank lever, a tripping-shoe lever pivotally mounted beneath said shoe and connected to the same, a rod connecting said shoe-lever to said bell-crank lever, a second tripping-shoe mounted in alinement with the first-mentioned
25 shoe, a second bell-crank lever pivotally connected to the said connecting-bar, and suitable connections whereby when one of said tripping-shoes is moved said movable switch-rail

will be moved in one direction, and when the other shoe is moved said movable switch-rail 30 will be moved in the opposite direction, and said first-mentioned shoe will be returned to its original position, substantially as specified.

2. In an automatic railway-switch, the combination with a movable switch-rail, a connecting-bar attached to said movable switch-rail, two bell-crank levers pivotally connected to said connecting-bar by a single bolt, two tripping-shoes mounted to move adjacent one of the track-rails, and connections between 40 said shoes and said bell-crank levers, whereby movement of one of said shoes will move both of said bell-crank levers and throw the said movable switch in one direction, and movement of the other shoe will move both of said 45 bell-crank levers and throw said movable switch-rail in an opposite direction, substantially as specified.

In testimony whereof I have signed my name to this specification in presence of two sub- 50 scribing witnesses.

WILLIAM R. MURPHY.

Witnesses:

ALFRED A. EICKS,
JOHN C. HIGDON.