F. F. YOUNG.

SWITCH MECHANISM.

APPLICATION FILED MAY 14, 1909.

930,018.

Patented Aug. 3, 1909.

2 SHEETS—SHEET 1.

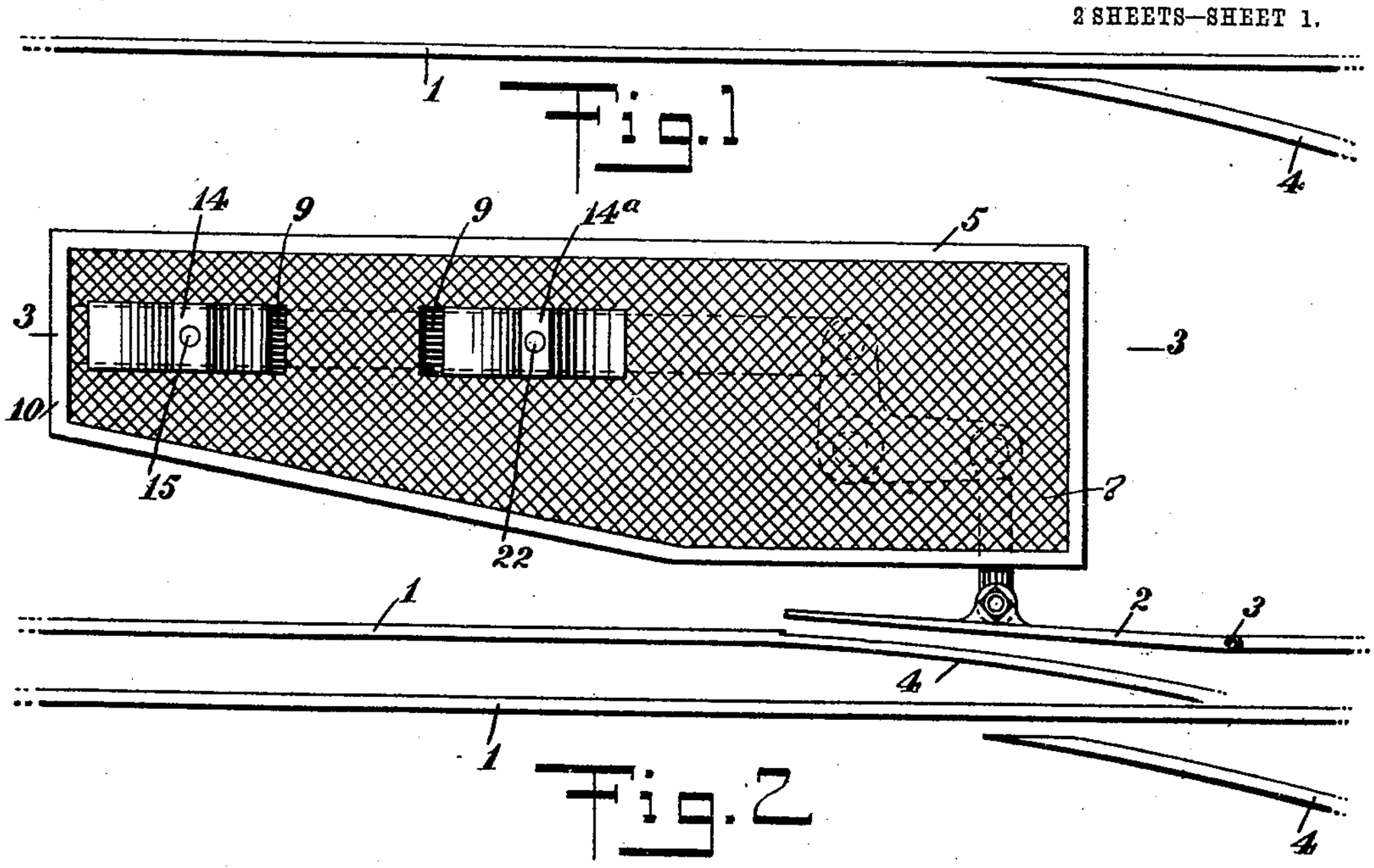


Fig. 1

Fig. 2

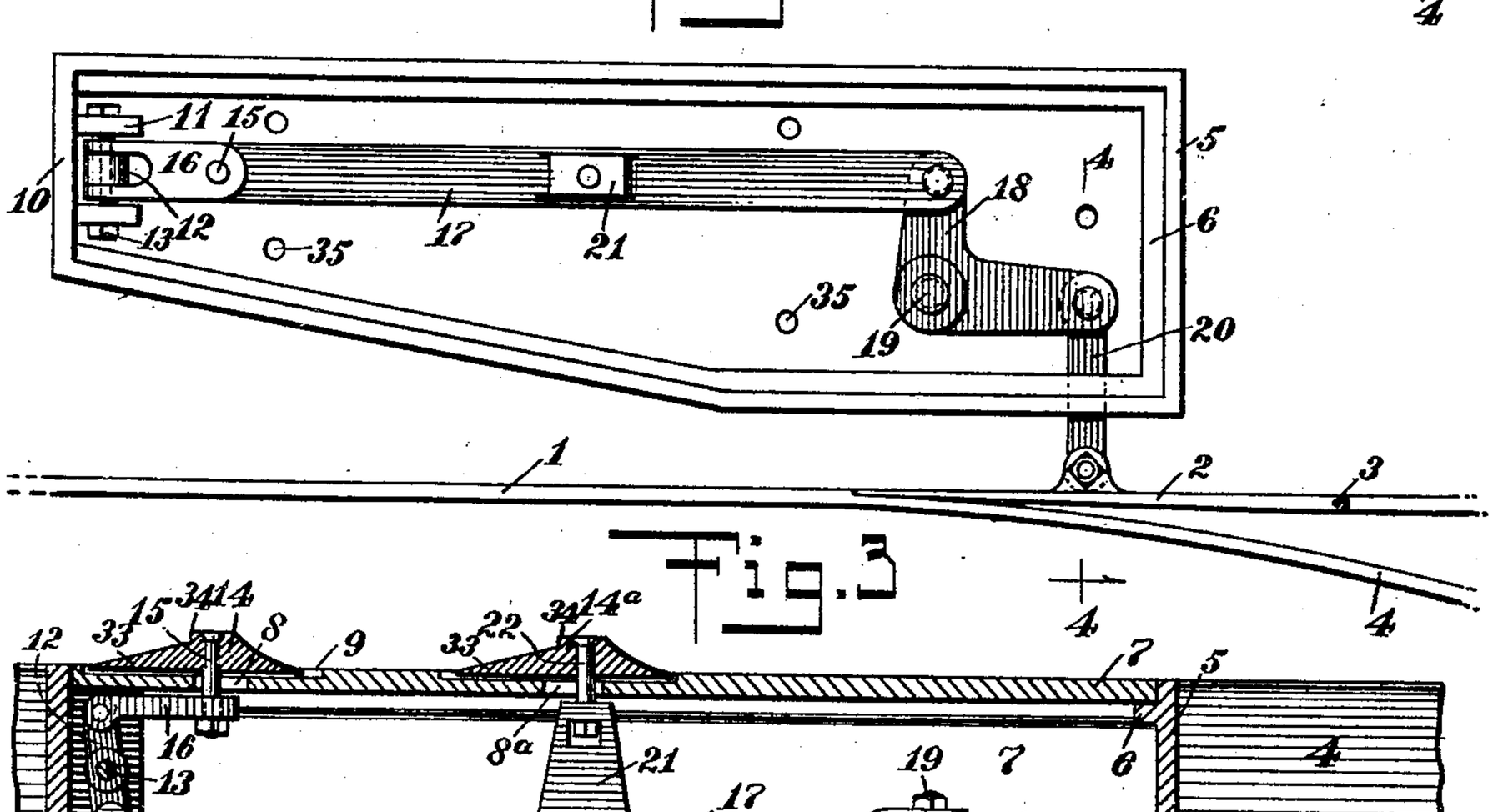


Fig. 3

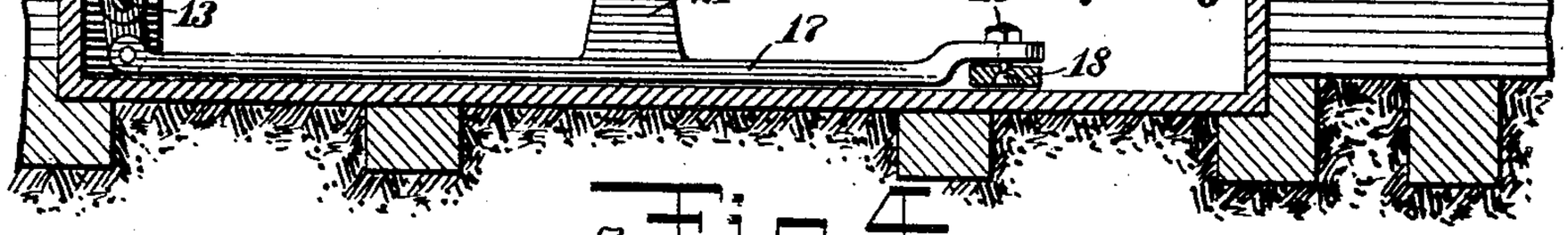
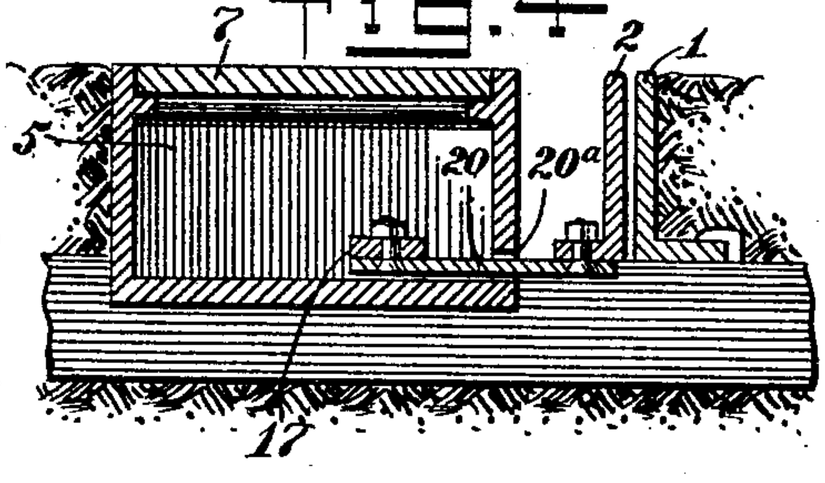


Fig. 4



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 6

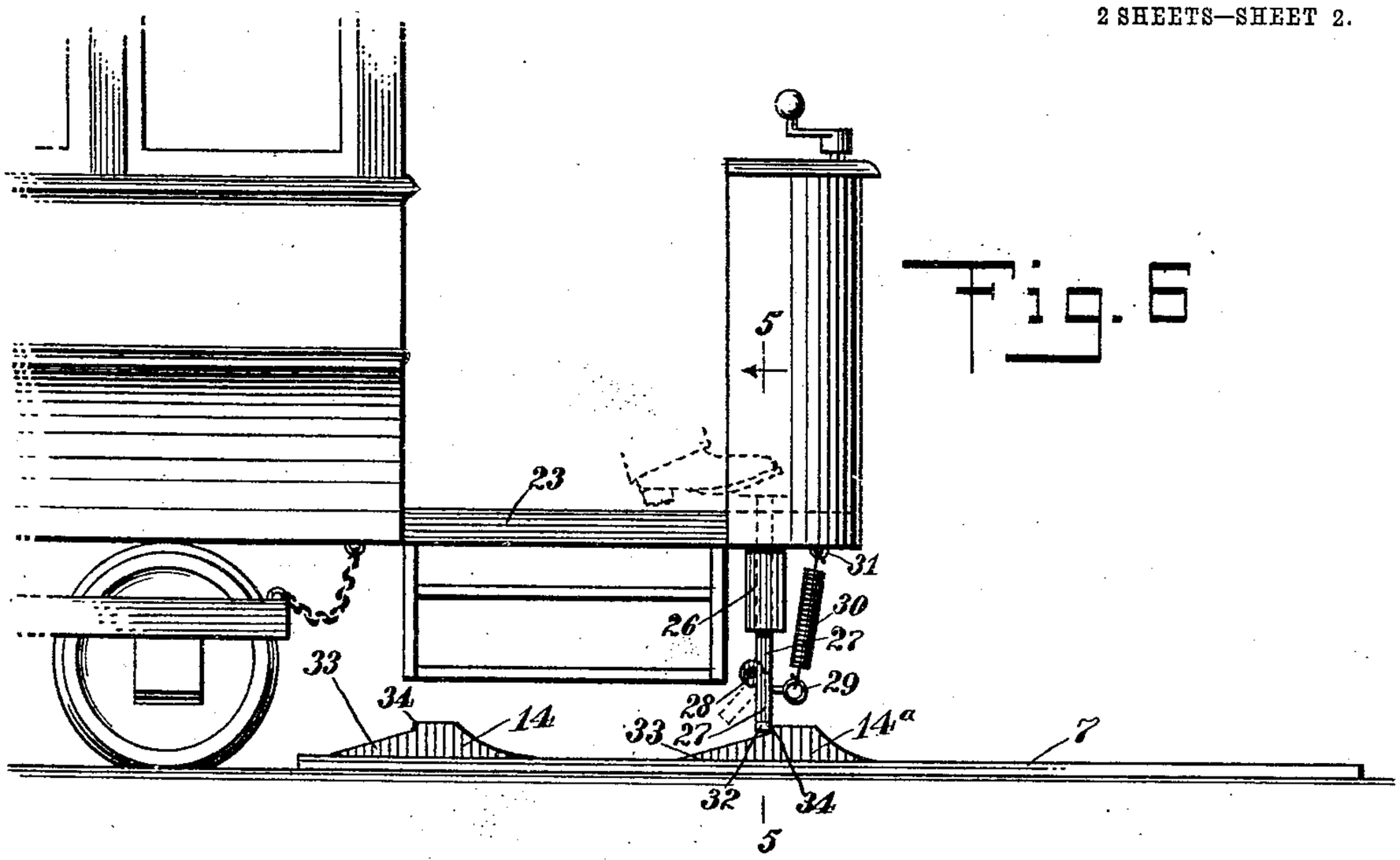
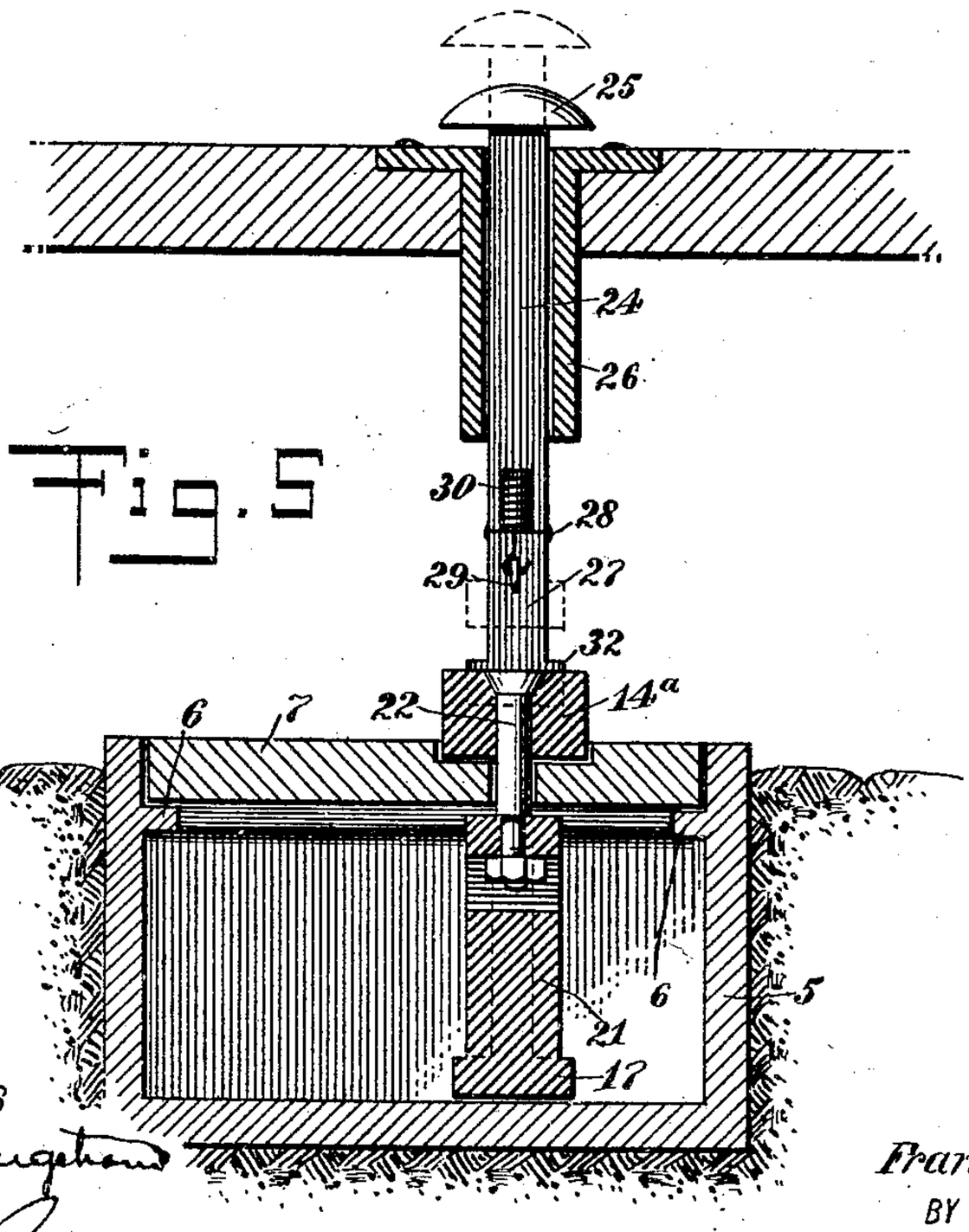


Fig. 5



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SWITCH MECHANISM.

No. 930,018. Specification of Letters Patent. Patented Aug. 3, 1909.

Application filed May 14, 1909. Serial No. 495,969.

To all whom it may concern:

Be it known that I, FRANK F. YOUNG, a citizen of the United States, and a resident of Lowell, in the county of Washington and State of Ohio, have invented a new and Improved Switch Mechanism, of which the following is a full, clear, and exact description.

This invention relates to railway switches, and particularly to the switches of light railways such as trolley tracks.

The object of the invention is to provide means for operating the switch from the car platform so as to obviate the necessity for operating the switch by hand.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

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 figures.

Figure 1 is a plan of the track at a switch which is operated by mechanism constructed according to this invention, this view showing the switch open; Fig. 2 is a plan similar to Fig. 1, but representing the cover of the casing or switch box removed so as to disclose the arrangement of parts; Fig. 3 is a vertical section taken on the line 3—3 of Fig. 1; Fig. 4 is a vertical section taken on the line 4—4 of Fig. 2; Fig. 5 is a vertical section taken on the line 5—5 of Fig. 6 and passing through the car platform, this view illustrating the manner in which the switch may be operated from the car; and Fig. 6 is a side elevation showing the forward end of a car and illustrating the manner in which the switch mechanism is operated.

Referring more particularly to the parts, and especially to Figs. 1 to 4, 1, 1, represent the rails of the track, and 2 represents the movable switch point which is pivoted at the point 3. In Fig. 1 this switch point is represented in its open position so that a car coming from the left would run onto the rails 4, 4, which lead to a branch track or siding. In applying my invention I provide in the bed of the track a case or box 5 which is preferably formed of cast iron or similar material. The body of this case is depressed, as shown, and it is provided with an inwardly projecting shoulder 6 which supports a removable cover or cover plate 7. This cover plate is provided with slots 8 and 8ª which extend longitudinally of the case, and above these slots, wide grooves or recesses 9 are formed, as shown. The case tapers toward the end which is remote from the switch point, and on the end wall 10 at this end of the case, webs 11 are provided, between which a lever 12 is pivotally mounted on a horizontal pivot bolt 13. In the recesses or seats 9 I provide slides 14 and 14ª, and these slides are provided with bolts 15 and 22 which pass down through the slots 8 and 8ª, as indicated. The bolt 15 of the slide 14 is connected by a horizontal link 16 with the upper end of the lever 12. To the lower end of the lever 12, a long link 17 is attached, which extends longitudinally of the case, as shown. The opposite end of this link is attached to one arm of a bell crank lever 18, said bell crank lever being rotatably mounted on a pin 19. The other arm of this bell crank lever is connected by a link 20 with the switch point 2, said link passing out through a suitable opening 20ª in the adjacent side wall of the case. On the link 17, under the slot 8ª, an upward extension or post 21 is formed, and this post is attached by a pin or bolt 22 to the slide 14ª.

Referring now to Figs. 5 and 6, on the platform 23, a depressible plunger 24 is provided, said plunger having a head 25 which is adapted to be pushed downwardly by the motorman's foot. This plunger is guided in a sleeve or bushing 26 and is extended downwardly below the bushing, as indicated. To the lower end of the plunger, a trip or trigger 27 is attached by a hinge connection 28. This hinge is disposed at the rear side so that the trigger can swing in a rearward direction, but not in a forward direction. On the forward side of the trigger, an eye-bolt 29 is provided, to which there is attached a coil spring 30, and this spring extends upwardly and is attached at 31 to the under side of the car platform. The lower end of the trigger 27 is expanded laterally so as to form a head 32, and this head has a special function in engaging the slides 14 and 14ª to operate them. As indicated in Figs. 3 and 6, these slides present inclined faces 33 on their upper sides, and on the left, that is, on the side from which the car approaches. On the upper edge of these inclined faces the slides project upwardly so as to provide shoulders 34, and these shoulders are adapted to be engaged by the head 32, as indicated

in Fig. 6. When this takes place, the trigger will operate to move the slide in the direction in which the car is advancing. It should be understood that the plunger is normally held elevated by the spring so that the trip device will pass over the slides without operating them; this enables the car to pass over the main track without passing over the switch.

In connection with the mode of operation of the device, it should be noted that the slides 14 and 14ª when moved will throw the switch in opposite directions, that is, when the slide 14 moves toward the right it will open the switch, and when the slide 14ª moves toward the right it will close the switch. This enables the motorman on the car to control the switch point as he approaches the switch. If the switch is open and he wishes to close it, he will depress the plunger just before the plunger has reached the slide 14ª. If he wishes to go onto the switch, he can open the switch simply by depressing the plunger before it arrives at the slide 14. The spring 30 permits the trip 27 to be deflected back toward the position shown in the dotted lines in Fig. 6 so as to permit the trigger to pass over the slide. Attention is called to the fact that the slides 14 and 14ª are sufficiently long to cover the slots 8 and 8ª in either position. In this way they assist in excluding the rain and snow from the interior of the box.

The bottom of the box is provided with a plurality of openings 35 which are at different intermediate positions on the length of the box, enabling bell crank levers having different lengths of lever arms to be used when desired. This may be done in order to increase the power of the lever arm of the slides.

The slides 14 and 14ª may be placed any desirable distance apart to suit special requirements, and need not be so near together as illustrated.

. When a car runs from the rails 4 onto the rails 1, its forward wheels will open the switch of their own accord through the wedging action of the flanges of the wheels in the space between the switch point and the adjacent rail. Similarly if the car approaches from the right on the main track, its wheels will throw the switch to its closed position if the switch happens to be open.

In practice, the part of the link 20 which projects from the case may be covered.

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

1. In a switch device, in combination, a bell crank lever, a switch point, a link connecting said bell crank lever with said switch point, a lever connected with said link, a slide connected with said lever to throw said switch in one direction, and a second slide connected directly with said link and affording means for throwing said switch in the opposite direction.

2. In a device of the class described, in combination, a box set in a roadway, a switch point, a bell crank lever, a link connecting said switch point with said bell crank lever, a second link, a lever connected with said second link, a slide mounted over said box and c nnected with said lever to throw said switch point in one direction, said second link having a post projecting upwardly therefrom, and a second slide attached to said post and adapted to actuate said link directly.

3. In a device of the class described, in combination, a case, a removable cover therefor, said cover having alining slots therein extending longitudinally with respect to the track, a switch point, a bell crank lever mounted in said case, a link connecting said switch point with said bell crank lever, a second link extending longitudinally under said slots and connected at one end to said bell crank lever, a lever attached at one end to said second link, a slide having a bolt passing downwardly through one of said slots, a third link connecting said slide with said lever, a second slide having a bolt passing downwardly through the other of said slots, and a post formed on said second link and connected with said second bolt, one of said slides affording means for throwing said switch in one direction and the other of said slides affording means for throwing the switch in an opposite direction.

4. In a device of the class described, in combination, a vertically depressible plunger mounted on a car, a trigger having a hinge connection with the lower end of said plunger, and a spring attached to said trigger and normally holding said trigger in longitudinal alinement with said plunger, and in position to engage the track device.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK F. YOUNG.

Witnesses:
CARRIE M. SPIES,
J. H. MATTERN.