

No. 663,595.

Patented Dec. 11, 1900.

A. YOUNGBLOOD.
OPERATING RAILWAY SWITCHES.

(Application filed Mar. 5, 1900.)

(No Model.)

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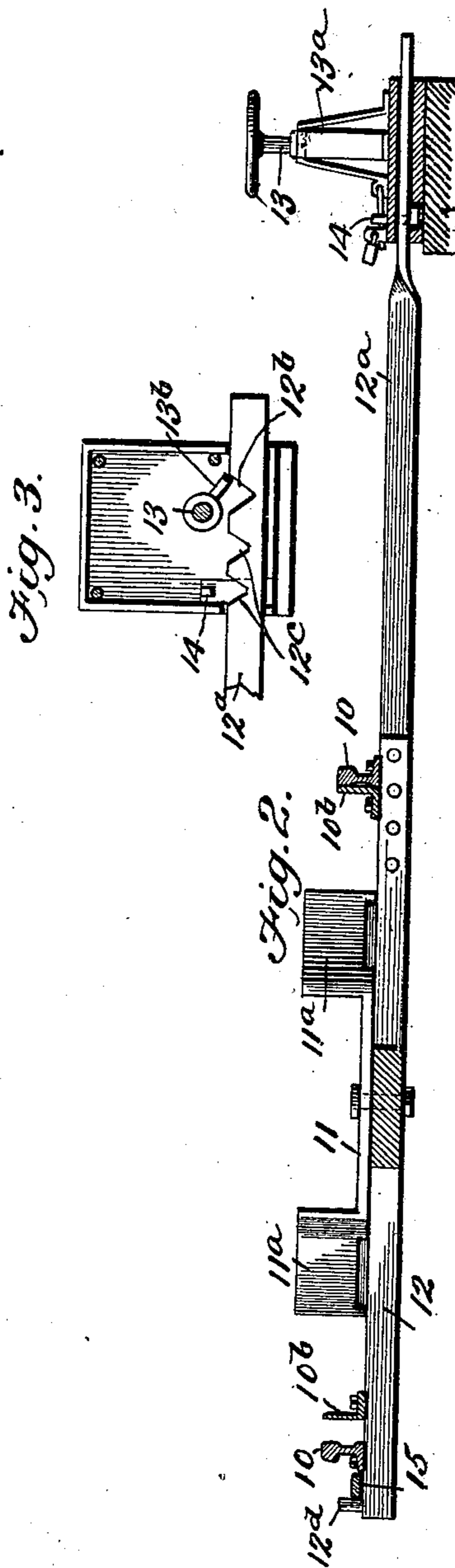
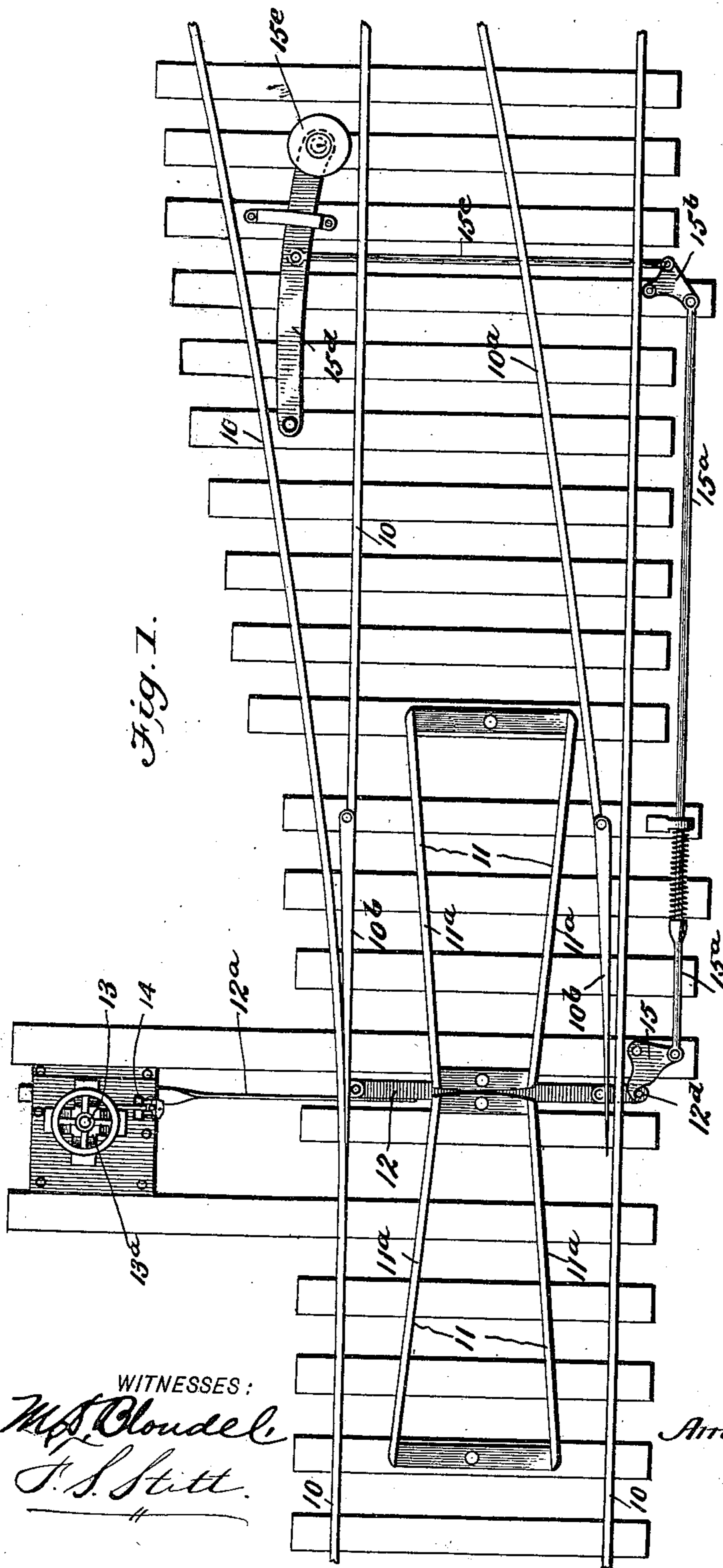
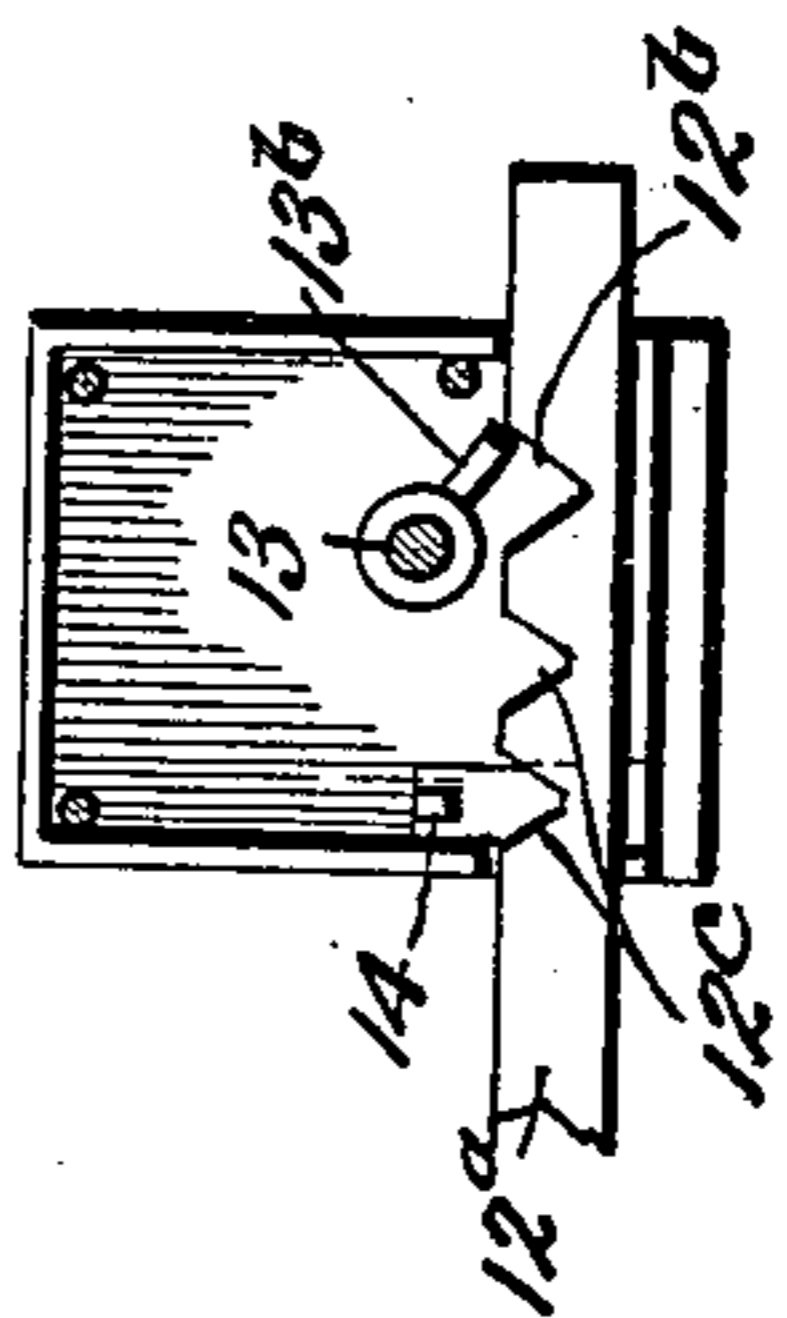


Fig. 3.



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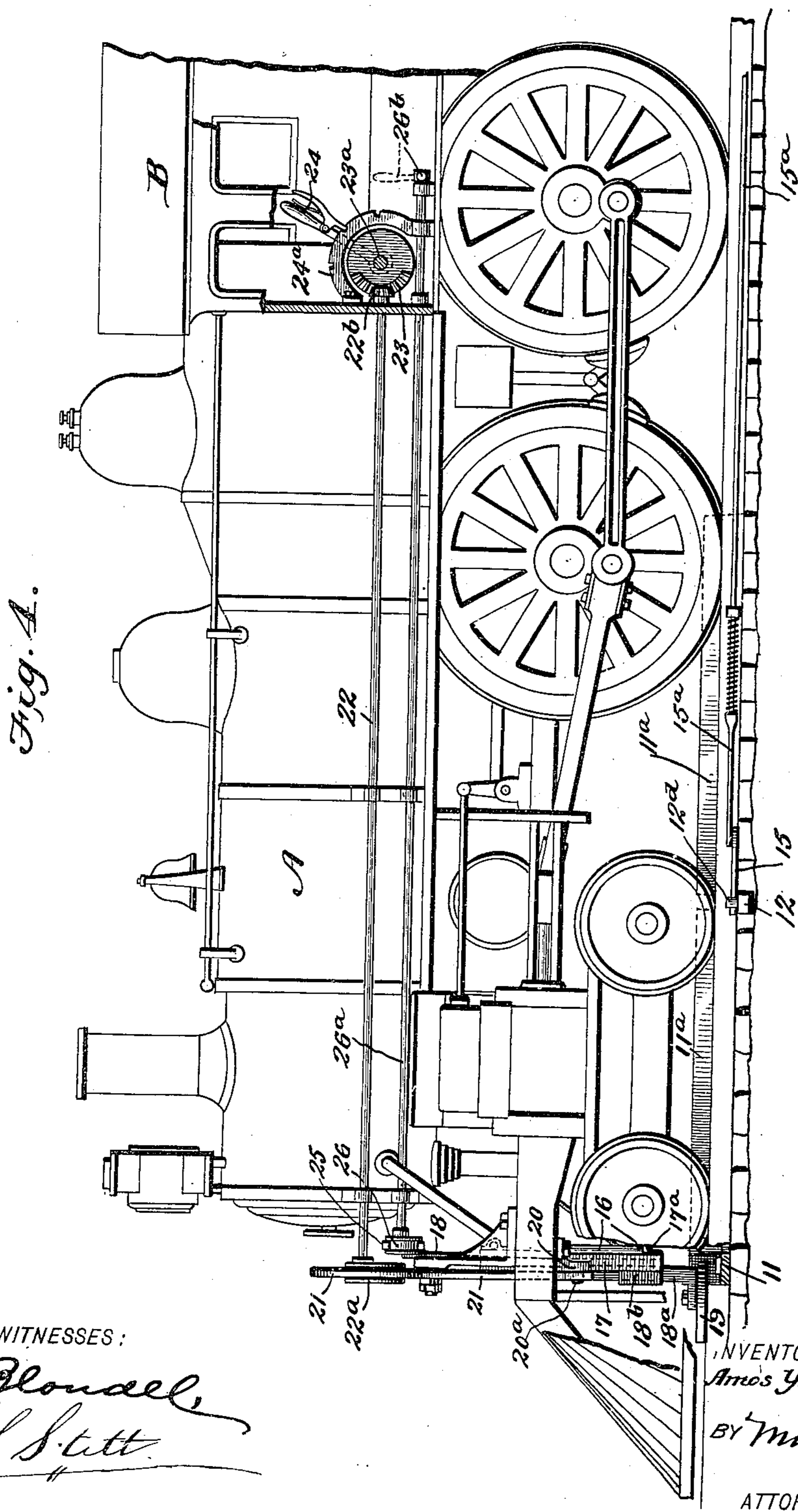
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3 Sheets—Sheet 3.

Fig. 5.

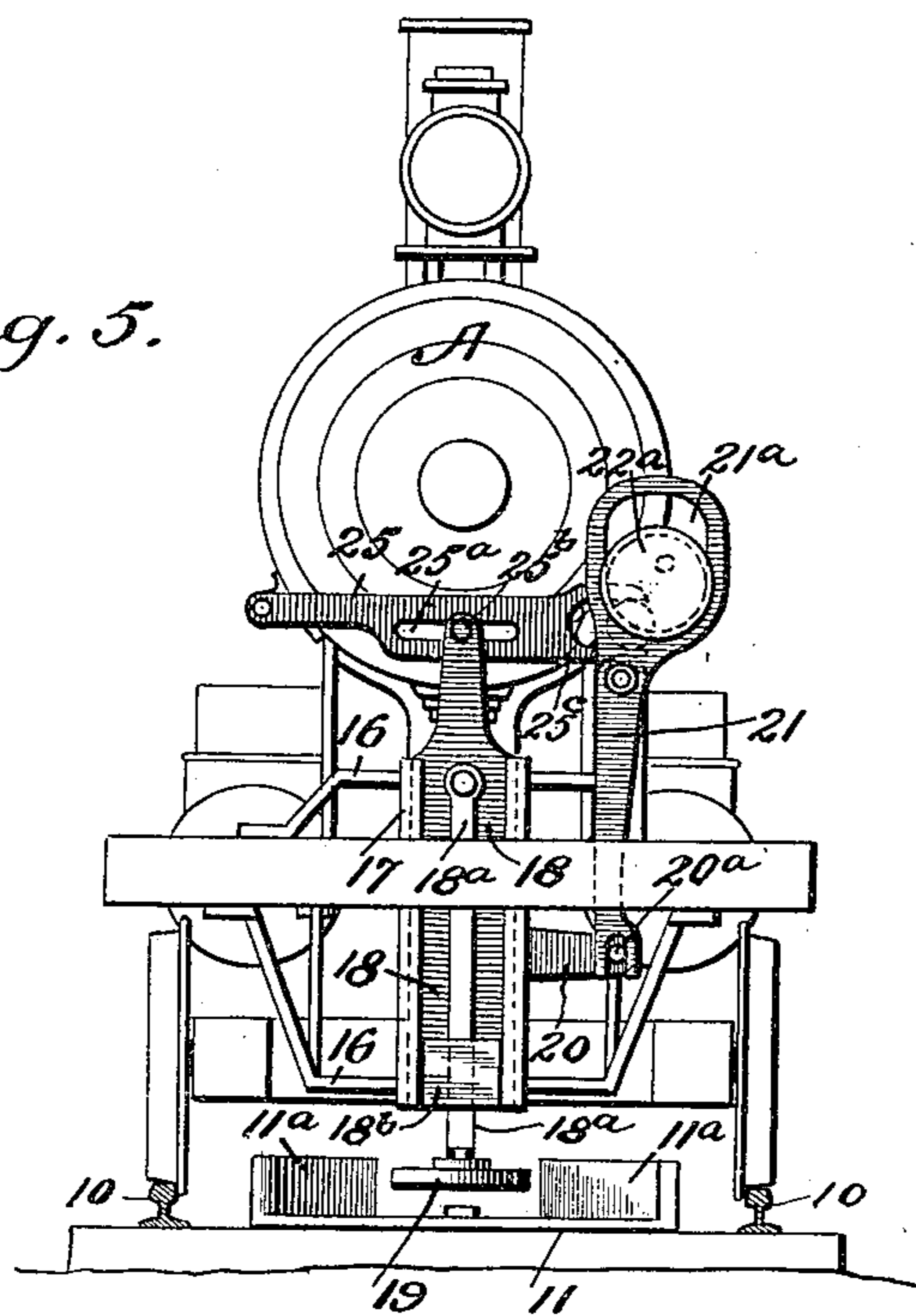


Fig. 6.

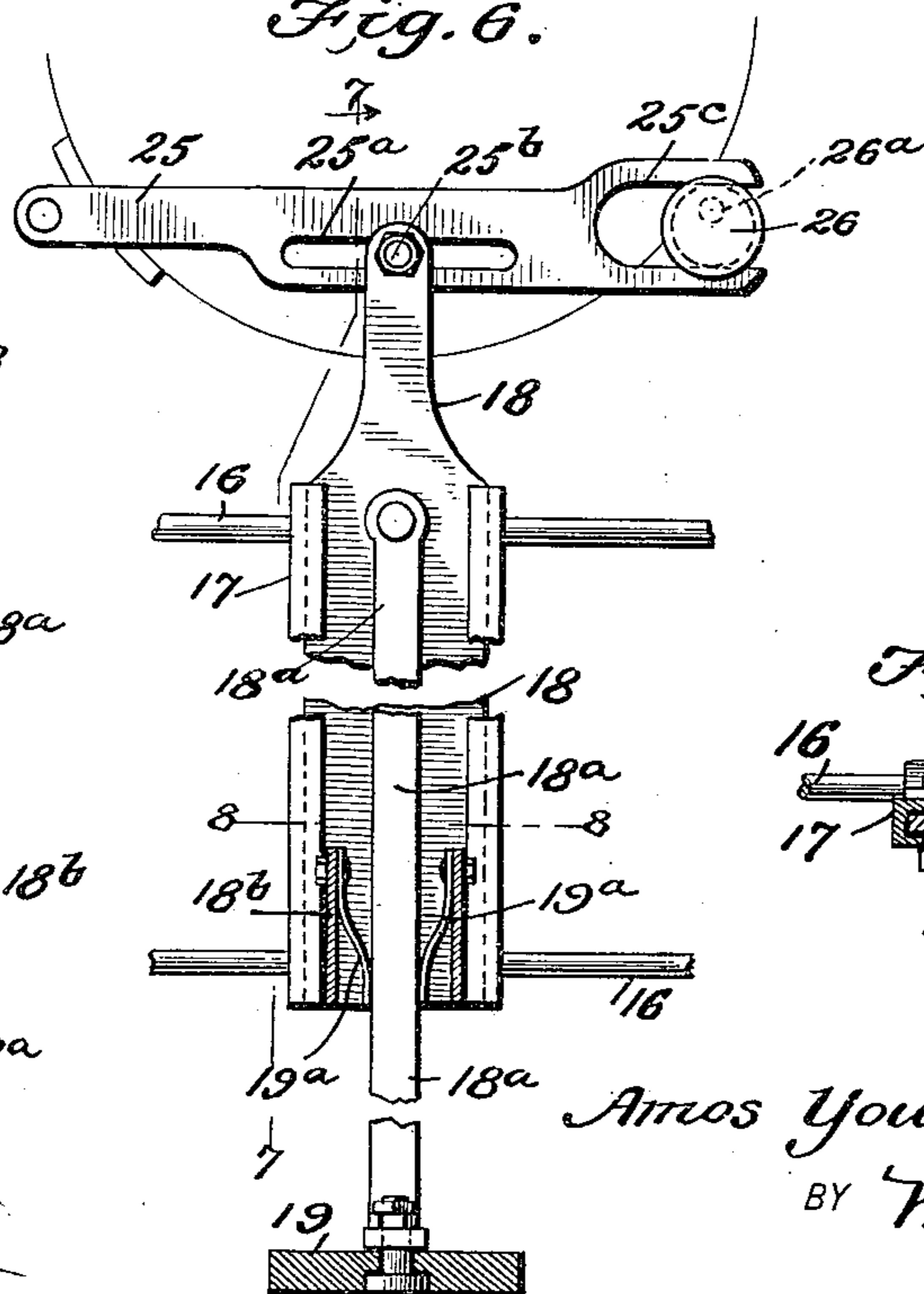
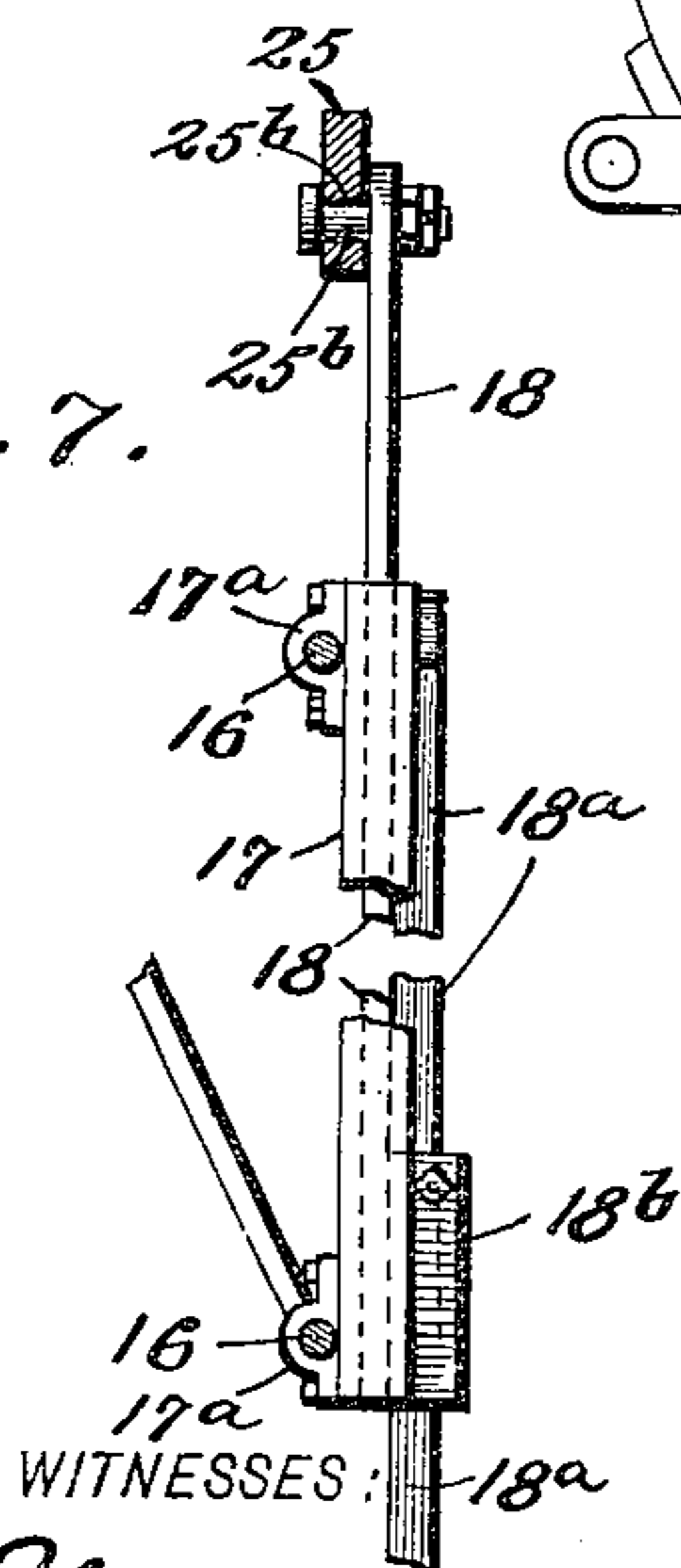


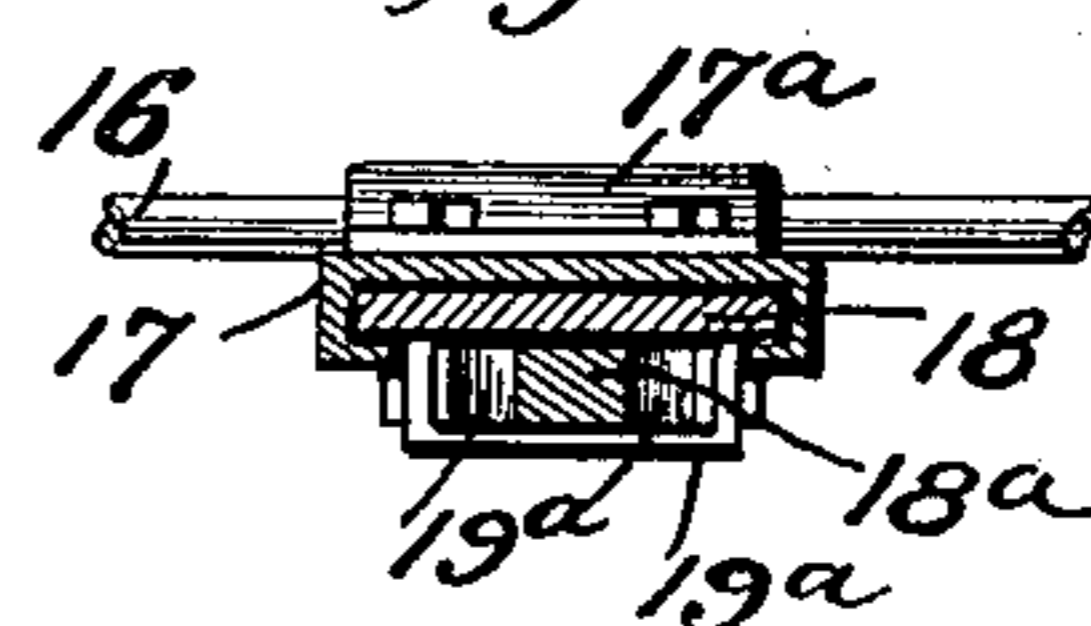
Fig. 7.



WITNESSES:

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Fig. 8.



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UNITED STATES PATENT OFFICE.

AMOS YOUNGBLOOD, OF NORTH AUGUSTA, SOUTH CAROLINA.

OPERATING RAILWAY-SWITCHES.

SPECIFICATION forming part of Letters Patent No. 663,595, dated December 11, 1900.

Application filed March 5, 1900. Serial No. 7,317. (No model.)

To all whom it may concern:

Be it known that I, AMOS YOUNGBLOOD, of North Augusta, in the county of Aiken and State of South Carolina, have invented a new and useful Improvement in Operating Railway-Switches, of which the following is a specification.

My invention relates to that class of railway-switches automatically operated by the railway rolling-stock, and has for its object certain improvements in the construction of the switches and the operating means therefor whereby the setting of the switch is always properly insured and the possibility of wreck on account of an open or misplaced switch is precluded.

The invention consists in certain details of construction and arrangements and combinations of the parts of the switch and the automatic operating means therefor, which I shall hereinafter fully describe and claim.

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

Figure 1 is a plan view of a portion of a railroad-track, illustrating my invention. Fig. 2 is a transverse section thereof. Fig. 3 is a sectional plan view of the devices for manually setting the switch. Fig. 4 is a side view of a locomotive provided with my improved automatic switch-operating devices. Fig. 5 is a front view thereof. Fig. 6 is a detail enlarged face view of the switch-operating devices. Fig. 7 is a vertical section on the line 7 7 of Fig. 6, and Fig. 8 is a section taken on the line 8 8 of Fig. 6.

Referring to the drawings, 10 designates a section of the main track, and 10^a the siding, arranged for connection to the main-track rails by means of the pivoted switch-tongues 10^b. Between the main rails are pivoted two frames 11, formed with inclined or converging sides 11^a and placed with their narrow ends abutting and pivotally connected to the opposite sides of the switch-bar 12. The sides of these frames serve as cam or inclined surfaces which are adapted to be engaged by a part of the switch-throwing mechanism hereinafter described to direct a train onto the siding or to allow it to continue upon the main track. The switch-bar 12 is provided with a

side extension 12^a, extending to a manually-operated switch-rod 13, which, as shown in Fig. 2, is rotatably mounted in a suitable casing 13^a and has a crank 13^b, adapted to enter a notch 12^b in the switch-bar extension 12^a when it is desired to manually throw the switch, and to lock the switch in either position a lock 14 is provided in the casing and is adapted to engage either one of the notches or keepers 12^c in the said extension.

In order to insure the proper position of the switch-tongues 10^b when a train is on the siding and intends to return to the main track, the opposite end of the switch-bar 12 is formed with a shoulder or stud 12^d, whereby it is adapted to be engaged and moved into proper position by one arm of a bell-crank lever 15, connected by its other arm to a forwardly spring-pressed slidable rod 15^a, the rear end of said rod being connected by a T-lever 15^b to a link 15^c, extending across to the siding, as shown, and there connected to an operating-lever 15^d, having a roller 15^e mounted on its free end. The said roller is adapted for engagement by the same operating mechanism described below, which engages the inclined guiding-frames 11. This operating mechanism is adapted to be located in the front of the locomotive A and to be actuated in the locomotive-cab B, and it consists of the following parts: On the front of the locomotive A are fixedly secured spaced-apart transversely-extending guide-rods 16, on which, by means of sleeves 17^a, a vertically-flanged plate 17 is fitted to travel, and held on said plate by the flanges thereof is a slide 18, on which an arm 18^a is pivoted, the lower end of said arm passing through a loop 18^b on the slide and carrying at its lower bent end the switch-operating roller or disk 19, which is adapted to ride against the inclined sides of the frames 11, as described above. Springs 19^a engage each side of the arm 18^a, as shown, to allow the roller to compensate for slight differences in the positions of the frames with respect to the track-rails in different switches.

As shown particularly in Fig. 5, an arm 20 extends laterally from the plate 17 and is formed with a projection or pin 20^a, fitted in the recessed shank of the rocker 21, the latter being formed with a seat 21^a for an eccentric 22^a on the end of a rotatable shaft 22. The

said shaft extends back into the cab B, where it is provided with a pinion 22^b, meshing with a toothed wheel 23 on a shaft 23^a, which latter is operated by the hand-lever 24, arranged
5 for engagement with the quadrant 24^a.

It is evident that a movement of the lever will rotate the shaft 22 and cause the rocker 21 to move the roller 19 to the left or right to throw the switch. The quadrant 24^a is formed
10 with three notches. When the lever engages the upper, the roller will throw the switch so that the engine will take a siding to the left. When it is in the lower notch, the engine will take a siding to the right, and when it is in
15 the middle notch the roller will put the frames 11 directly in the middle of the track, thus causing the train to keep the main track and correctly placing any misplaced switch.

It may be desired to throw the automatic
20 switch-operating mechanism out of operative position, and for this purpose I pivotally mount a shifting-lever 25 above the guide-rods 16, and in such lever is formed an elongated slot 25^a, in which works a stud 25^b on
25 the upper end of the slide 18. The free end of said lever is formed with a seat 25^c for an eccentric 26 on a shaft 26^a, running back to the cab and there turned by a crank-handle 26^b. By thus raising and lowering the shift-
30 ing lever the slide 18 may be moved vertically to raise the roller 19 above contact with the frame 11.

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

1. In a railway-switch, the combination with the switch-tongues and their bar, of pivoted frames having converging sides arranged and adapted for engagement by the operating
40 device on the rolling-stock, said frames being placed in the track with narrow ends adjacent each other and pivotally connected to opposite sides of the switch-bar, as set forth.

2. In a railway-switch, the combination
45 with the switch-tongues and their bar, of frames pivotally mounted in the track and having inclined sides connected to opposite sides of the switch-bar, and a roller carried by the rolling-stock, and adapted to ride
50 against said inclined sides, as set forth.

3. In a railway-switch, the combination with the switch-tongues and their bar, of the pivoted frames formed with converging sides, extended practically throughout their lengths
55 and arranged and adapted for engagement by the operating device on the rolling-stock, said frames being connected to said switch-bar, as set forth.

4. In a railway-switch, the combination
60 with the switch-tongues and their bar which latter is provided with a projection, a bell-crank lever having one arm disconnected from and arranged for engagement with the projection to move the bar in one direction, and
65 an operating-lever arranged for movement by the rolling-stock, said lever being fulcrumed at a distance from said bell-crank lever and

connected therewith to move the latter, as set forth.

5. In a railway-switch, the combination
70 with a main track and a siding connected therewith by switch-tongues, of a switch-throwing device in the main track arranged for engagement by the rolling-stock, a lever fulcrumed in the siding at a distance from the
75 switch-tongues, a bell-crank lever free of positive connection with the tongues whereby it is adapted to move the tongues in but one direction, and a connection between said latter lever and the lever in the siding as set forth.
80

6. In a railway-switch, the combination with the switch-tongues and their bar, which latter is formed with a projection near one end, of a bell-crank lever having one arm arranged for engagement with the projection to
85 move the bar in one direction, a forwardly spring-pressed slidable rod connected to the other arm of said lever, and a lever fulcrumed in the siding and arranged for engagement by the rolling-stock, said lever being connected
90 with the rear end of said slidable rod, as set forth.

7. In a railway-switch-operating mechanism the combination of a carrier a slide movable vertically in said carrier, an arm carried
95 by said slide provided at its lower end with means for operating the switch and movable laterally at such end and devices for resisting such lateral movement of the said arm substantially as set forth.
100

8. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of a roller adapted to ride against said inclines, a support for
105 said roller, transverse guides on which said support is mounted, a rocker connected with said support to move the same and having a seat for an eccentric, an eccentric fitted in said seat and secured on a shaft, and means for turning said shaft as set forth.
110

9. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of a roller adapted to ride against said inclines, a support for
115 said roller movable laterally across the front portion of a locomotive, a rocker connected to said support to move the same and having a seat for an eccentric, an eccentric fitted in said seat and secured to a shaft extending rearwardly to the locomotive-cab, and means
120 for turning said shaft, as set forth.

10. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of a transversely-movable roller carried by the rolling-stock
125 and adapted to ride against said inclines, and means for holding said roller above contact with said inclines, as set forth.

11. In a railway-switch, the combination with the switch-tongues and the inclines
130 arranged to move the same, of transverse guides on the rolling-stock, a plate movable on said guides, means for moving said plate and for holding it in different positions, a vertically-

movable slide on said plate, means for moving said slide and a roller carried by said slide and adapted to ride against said inclines, as set forth.

5 12. In a railway-switch, the combination with the switch-tongues, and the inclines arranged to move the same, of a laterally and vertically movable roller arranged to ride against said inclines, means for moving said
10 roller laterally and a shifting-lever for raising and lowering said roller, as set forth.

13. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of transverse guides
15 on the rolling-stock, a plate movable on said guides, a slide vertically movable on said plate and carrying a roller adapted to ride against said inclines, said slide being provided with a pin at its upper end, and a vertically-movable shifting-lever having an
20

elongated slot, in which said pin is fitted as set forth.

14. In a railway-switch, the combination with the switch-tongues and the inclines arranged to move the same, of the laterally- 25 movable roller arranged to ride against said inclines, the slide carrying said roller, the vertically-movable shifting-lever connected with said slide to raise and lower the same, said lever having a seat for an eccentric at its
30 free ends, an eccentric fitted in said seat, and a shaft to which said eccentric is secured, as set forth.

In testimony whereof I have signed my name to this specification in the presence of 35 two subscribing witnesses.

AMOS YOUNGBLOOD.

Witnesses:

B. M. YOUNGBLOOD,
W. D. NELSON.