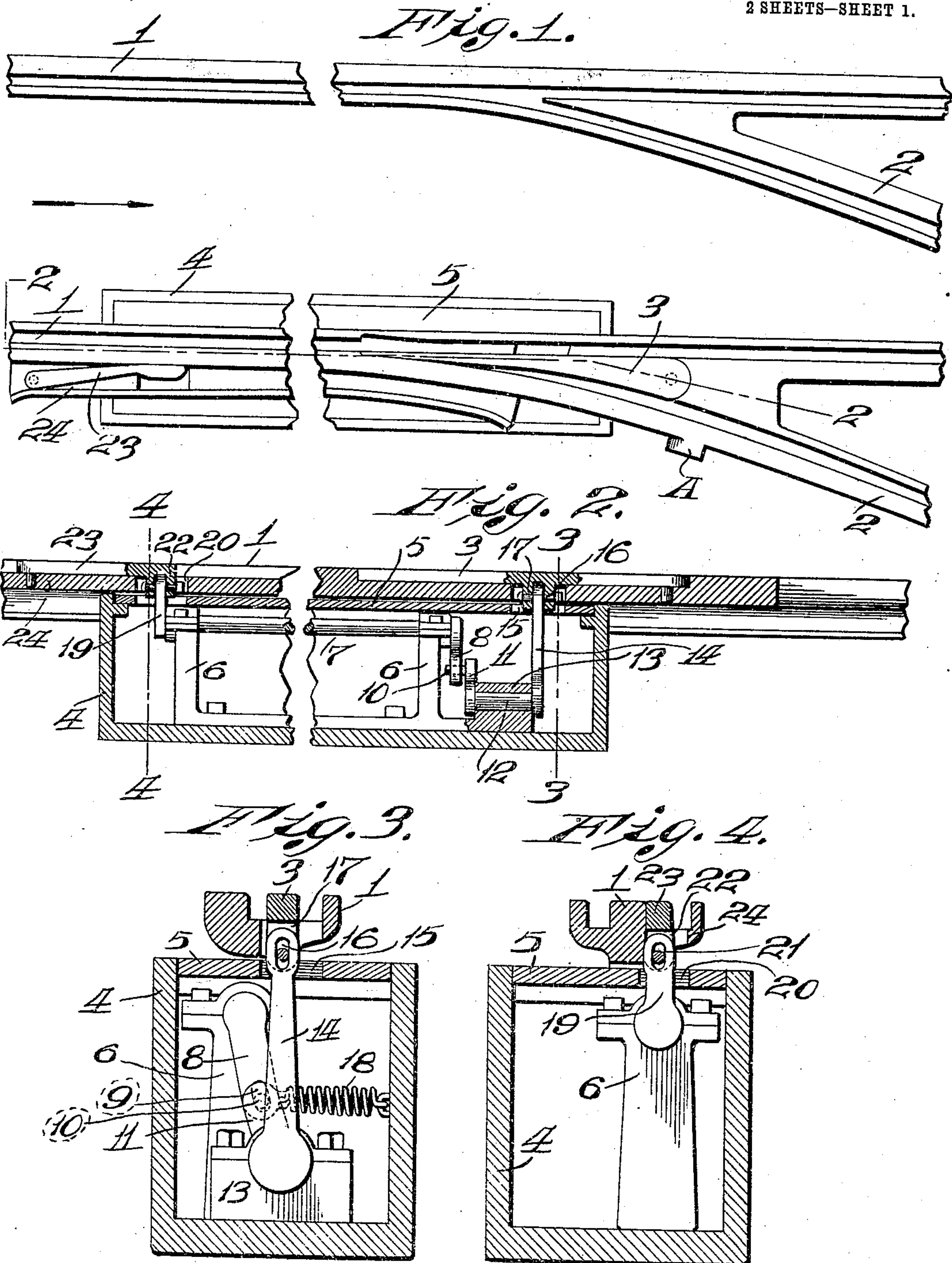


E. H. WHITAKER.
RAILWAY SWITCH OPERATING DEVICE.
APPLICATION FILED NOV. 23, 1908.

945,655.

Patented Jan. 4, 1910.

2 SHEETS—SHEET 1.



Attest.
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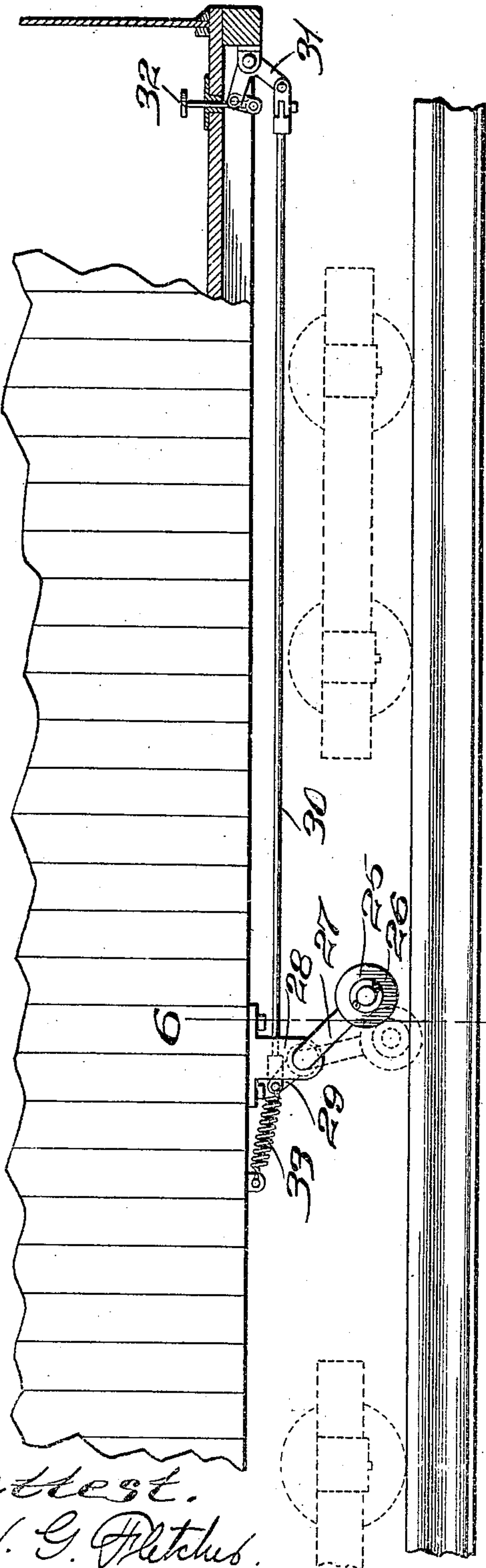
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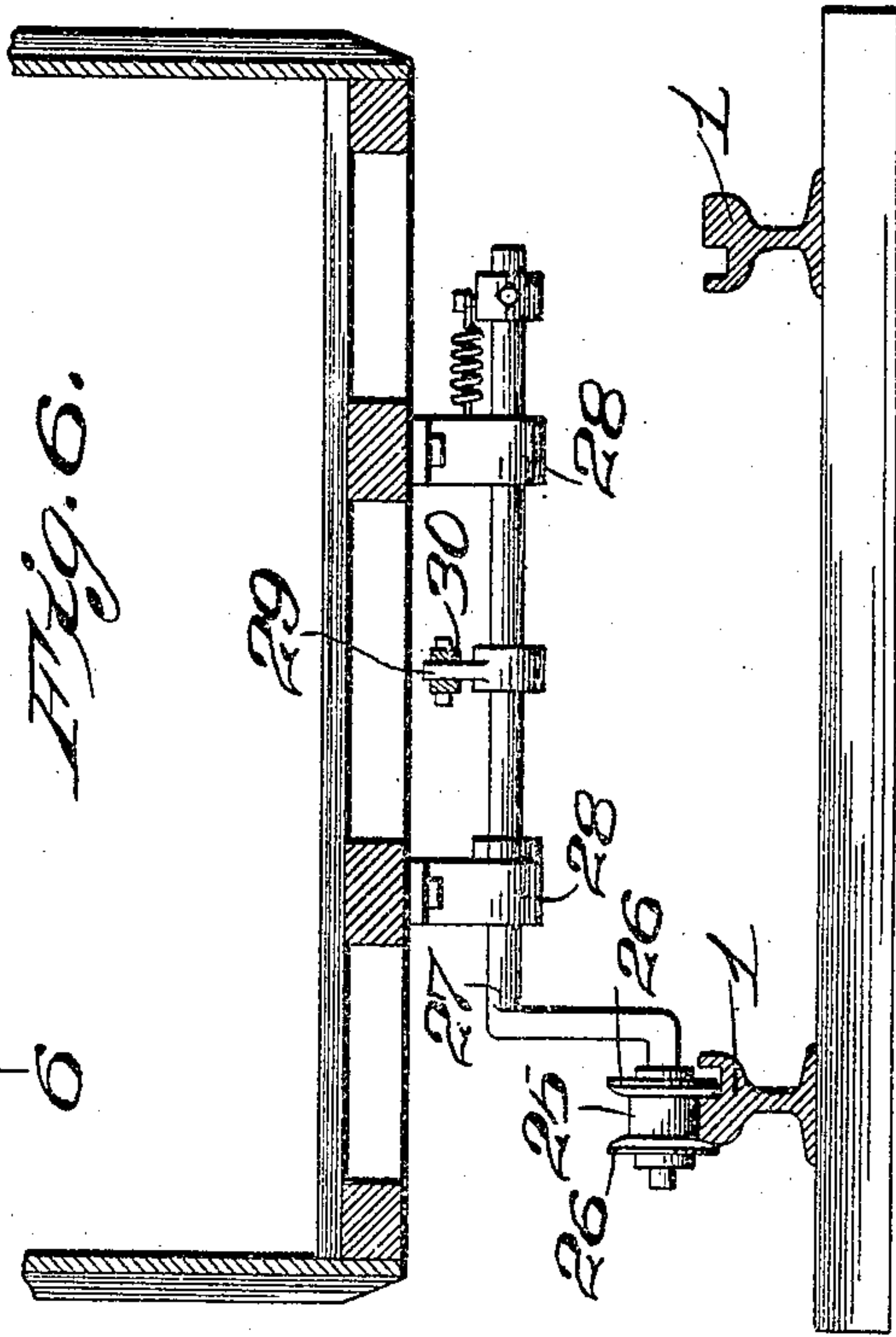
2 SHEETS—SHEET 2.

Fig. 5.



Attest.
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Fig. 6.



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UNITED STATES PATENT OFFICE.

EDGAR H. WHITAKER, OF ST. LOUIS, MISSOURI.

RAILWAY-SWITCH-OPERATING DEVICE.

945,655.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed November 23, 1908. Serial No. 464,117.

To all whom it may concern:

Be it known that I, EDGAR H. WHITAKER, a citizen of the United States, and resident of St. Louis, Missouri, have invented certain new and useful Improvements in Railway-Switch-Operating Devices, 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 a railway switch operating device, the object of my invention being to provide simple means for shifting the switch point rail of a street railway switch or the like, and which device is controlled by the driver or person in charge of the car, thus doing away with the necessity of shifting the switch point rail by means of a hand lever or the like.

To the above purposes, my invention consists in certain novel features of construction and arrangement of parts which will be hereinafter more fully set forth, pointed out in the claims and illustrated in the accompanying drawings, in which:

Figure 1 is a plan view of a railway switch and showing my improved operating device connected to the movable switch point; Fig. 2 is a vertical section taken on the line 2—2 of Fig. 1; Fig. 3 is an enlarged cross section taken on the line 3—3 of Fig. 2; Fig. 4 is an enlarged cross section taken on the line 4—4 of Fig. 2; Fig. 5 is a side elevation of a portion of a car and showing the mechanism arranged thereon for engaging the switch actuating means; Fig. 6 is a cross section taken on the line 6—6 of Fig. 5.

Referring by numerals to the accompanying drawings: 1 designates the main rails of a railway track; 2 the switch rails leading from the main track rails, and 3 the movable switch point which is pivotally mounted at one end and arranged to operate in the usual manner between one of the main track rails and one of the switch rails.

Located in the ground beneath the track rail against which the movable switch point 3 engages, is a housing 4, the top 5 of which is removable, and fixed within said housing is a pair of standards 6, in the upper ends of which is journaled a shaft 7. Fixed on the end of this shaft 7, beneath the switch point 3, is a crank arm 8, the lower end of which is provided with a slot 9, and engag-

ing in said slot is a pin 10, carried by a crank 11, which latter is fixed on one end of a short shaft 12, the same being journaled in a bearing 13 within the housing 4, and fixed on the opposite end of this shaft 12 is a vertically disposed crank arm 14, the upper end of which projects through an opening 15 formed in the top 5 of the housing, and the upper end of said crank arm has a pin and slot connection 16 with a lug 17, which depends from the under side of the movable switch point 3.

A retractile coil spring 18 is connected at one end to the lower end of the crank arm 8 and at its opposite end to the housing 4, the normal tendency of which coil spring is to maintain the movable switch point 3 in such a position as to cause the wheels of a car to travel over the main track rails 1. Fixed on the end of the shaft 7, opposite the end carrying the crank arm 8, is a vertically disposed crank arm 19, which projects through an opening 20 formed in the top 5, and the upper end of said crank arm 19 has a pin and slot connection 21, with a lug 22, formed on the under side of a short horizontally disposed lever 23, the opposite end of which is pivotally mounted on a flange 24, which is formed on or fixed to the outside of the ball of the corresponding one of the track rails 1. The forward end of this lever 23 or the end having the pin and slot connection with the crank arm 19, normally bears directly against the outside of the ball of the corresponding track rail.

The mechanism just described comprises the switch actuating device, and the means carried by the car for throwing the switch actuating device into operation is illustrated in Figs. 5 and 6, and comprises a wheel or roller 25, provided on both sides with flanges 26, and said wheel being of such size as to fit snugly over and travel upon the ball of the track rail. This wheel is journaled on the lower end of a crank shaft 27, the main body portion of which is journaled in suitable bearings 28 fixed to the under side of the car body, between the trucks, and fixed on the center of this crank shaft is an arm 29, to the upper end of which is pivotally connected the rear end of a rod 30, which extends to a point beneath the car platform, and the forward end of said rod is pivotally connected to a bell crank 31, which is ac-

tuated by a plunger 32, extending vertically through the platform.

Fixed to the upper end of the arm 29 is one end of a retractile coil spring 33, the opposite end of which is fixed to the car body, and said spring normally maintains the parts in the positions seen in Fig. 5, with the wheel 25 elevated from the track rail.

The operation of my improved switch operating device is as follows: Assuming that a car is approaching the switch and that the operator of the car desires to shift the movable switch point so as to cause the wheels of the car to travel onto the side track, the plunger 32 is depressed, thus actuating the bell crank 31, drawing the rod 30 forward against the resistance offered by the coil spring 33, and as a result the crank shaft 27 will be rocked in such a manner as to throw the wheel 25 downward onto the ball of the corresponding track rail 1, with the flanges 26 engaging on each side of the ball of said rail. Before the wheels of the front truck reach the movable switch point 3, the outer one of the flanges 26 will bear against the end of the lever 23, which is engaged against the ball of the rail, and as a result said lever will be shifted slightly, which movement imparts a rocking motion to the shaft 7, by reason of the connection between the crank arm 19 and said lever 23. As the shaft 7 is thus rocked, a corresponding rocking movement will be imparted to the shaft 12, owing to the connections between the shafts 7 and 12, and as a result the arm 14 will be shifted in such a manner as to actuate the movable switch point 3 and swing the free pointed end thereof away from the ball of the track rail 1, and into position where said movable switch point will be engaged by the car wheels, and the latter will be guided or deflected onto the side track rails 2. Before the rear wheel of the front truck leaves the movable switch point 3, the wheel 25 has traveled past the forward free end of said movable switch point, and the inner flange of said wheel 25 will maintain said switch point 3 in its shifted position until the forward one of the wheels of the rear truck engage against said movable switch point, and thus the car wheels of both trucks are caused to pass onto the rails 2 of the switch or side track. After the wheel 25 has passed the switch point 3 it will strike against and ride over the lug A, formed on the ball of the corresponding one of the rails 2, which action imparts a movement to the plunger 32, thus notifying the operator that the wheels of the rear truck have passed the switch point and that it is therefore no longer necessary to maintain the plunger in a depressed condition. After the last car wheel passes the switch point 3, the retractile coil spring 18 acts to shift the various parts of the switch op-

erating device back to their normal positions, and thus the various parts are in position for the succeeding operation.

I claim—

1. The combination with a movable switch point of a railway switch, of a movable member arranged adjacent one of the track rails in advance of the switch point, which point is spring-held in one direction, connections between said movable member and the movable switch point and spring-held means carried by the car passing over the switch for engaging the movable member to shift the movable switch point and maintain it in such shifted position until the forward wheels of the rear truck engage said movable switch point.

2. The combination of the movable switch point of a railway switch, of a movable member adjacent one of the track rails in advance of the movable switch point, which point is normally spring-held in a "closed" position, connections between said movable member and the movable switch point and manually operated, spring-held means carried by the car passing over the switch, between the trucks thereof, for engaging the movable member to shift the movable switch point in an "open" position and maintain it in such "open" position until the forward wheels of the rear truck engage said movable switch point.

3. The combination with the movable switch point of a railway switch, of a movable member adjacent one of the track rails, in advance of the movable switch point, connections between said movable member and movable switch point, and means carried by the car, passing over the switch, in such position relative to the trucks thereof, for engaging the movable member to open the switch in advance of the forward truck and engage the movable switch point and hold it open for the passage of the rear truck.

4. The combination with the movable switch point of a railway switch, of a movable member adjacent one of the track rails, in advance of the movable switch point, connections between said movable member and movable switch point, and a manually operated spring-held roller carried by the car, passing over the switch, in such position relative to the trucks thereof that it will engage the movable member to open the switch in advance of the forward truck and engage the movable switch point and hold it open for the passage of the rear truck.

5. The combination of a movable switch point of a railway switch, of a movable member arranged adjacent one of the track rails in advance of the movable switch point, a housing arranged to one side and beneath the track rail against which the movable switch point engages, a pair of standards within the housing, a shaft journaled in the

standards, a crank arm fixed on one end of the shaft having a slot in its lower end, a second shaft mounted in the housing, a crank on said second shaft and a pin on the
5 crank engaging in said slot, a crank on the opposite end of the second shaft and a pin and slot connection between the said second crank and the movable switch point, a retractile coil spring connected at its one end
10 to the lower end of the first mentioned crank and its opposite end to the housing, a crank arm fixed to the opposite end of the first

mentioned shaft, a pin and a slot connection between said crank and the movable member in advance of the movable switch point, 15 and means carried by the car for engaging the movable member.

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

EDGAR H. WHITAKER.

Witnesses:

M. P. SMITH,
E. L. WALLACE.