

(No Model.)

2 Sheets—Sheet 1.

G. E. LEMMON.  
RAILWAY SWITCH.

No. 531,439.

Patented Dec. 25, 1894.

Fig. 1.

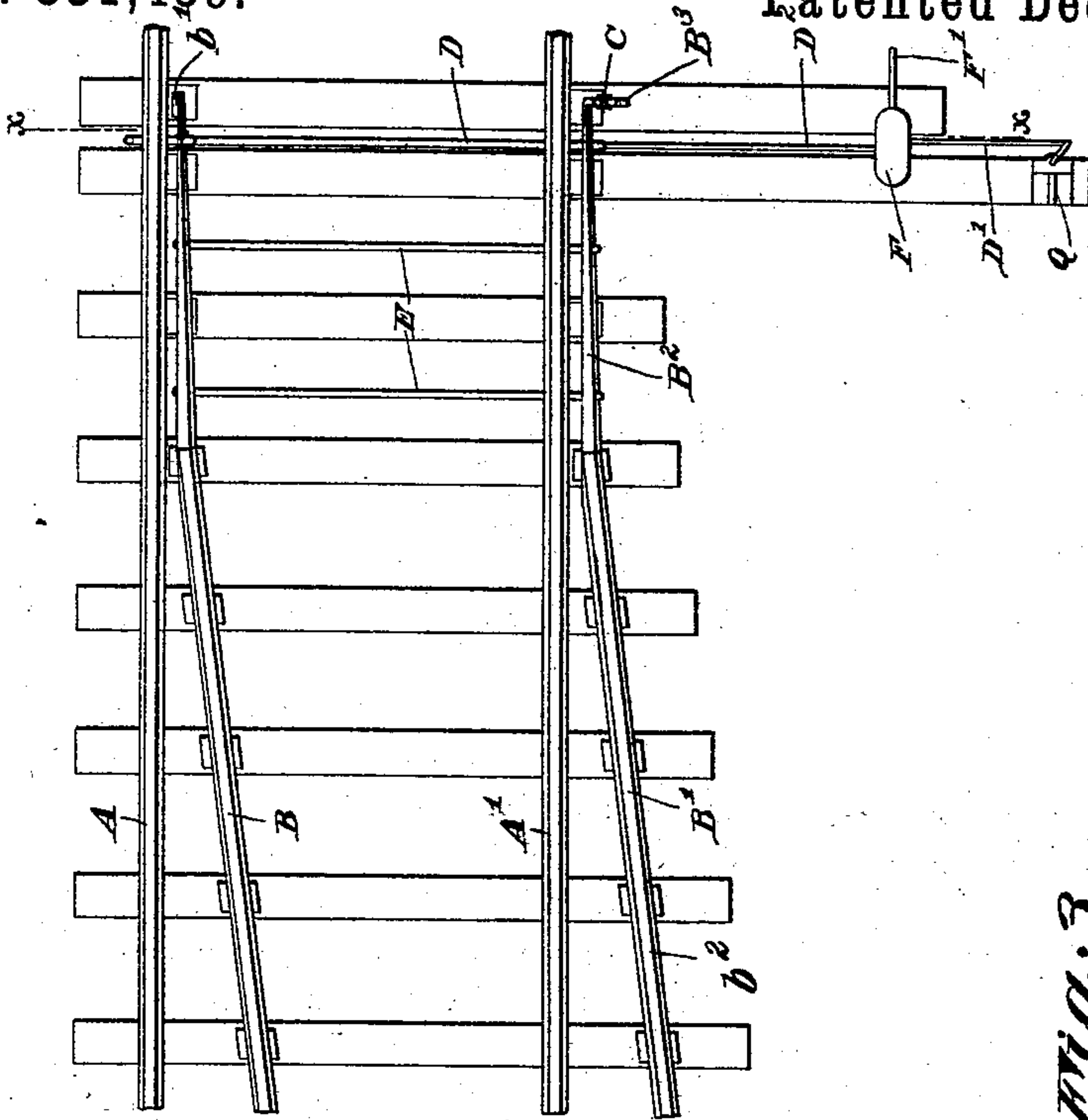
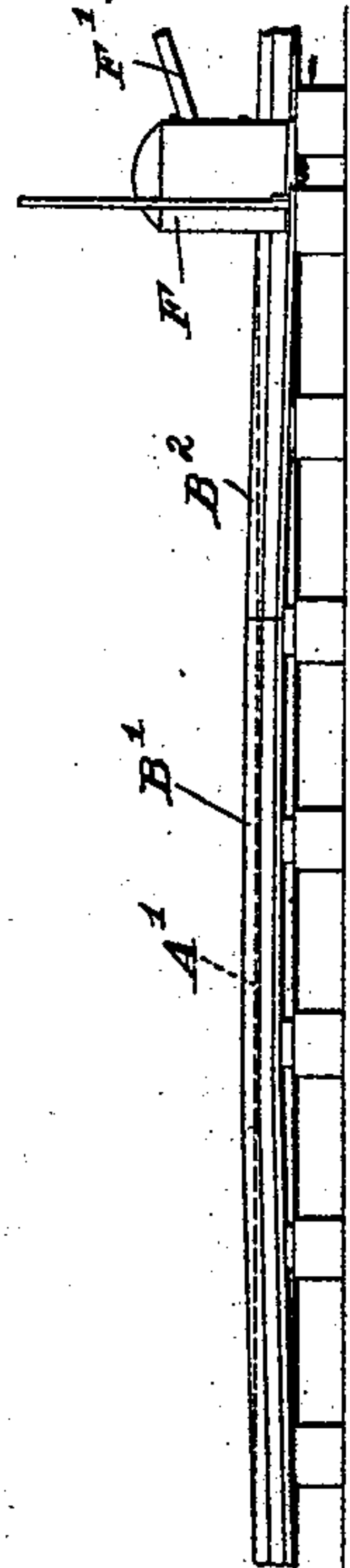


Fig. 3.



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2 Sheets—Sheet 2.

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Fig. 2.



Fig. 4.

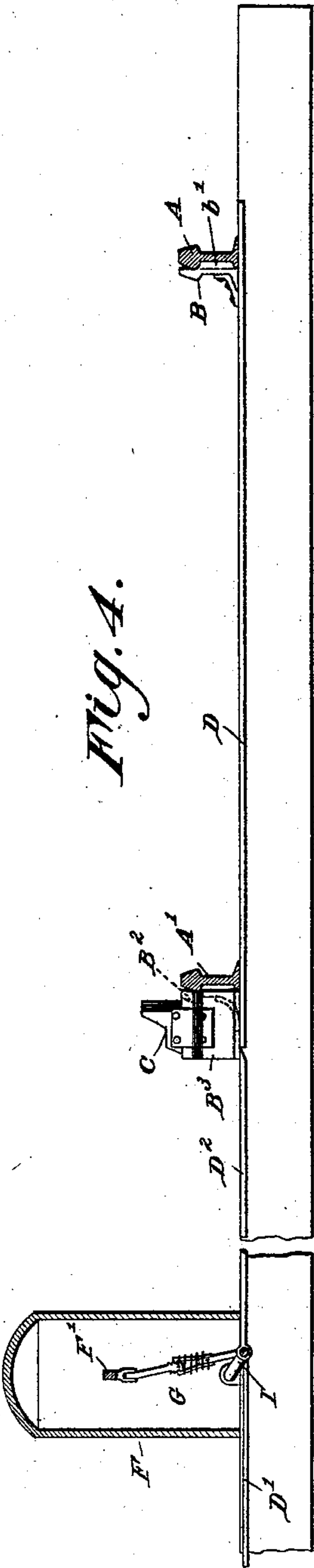


Fig. 5.

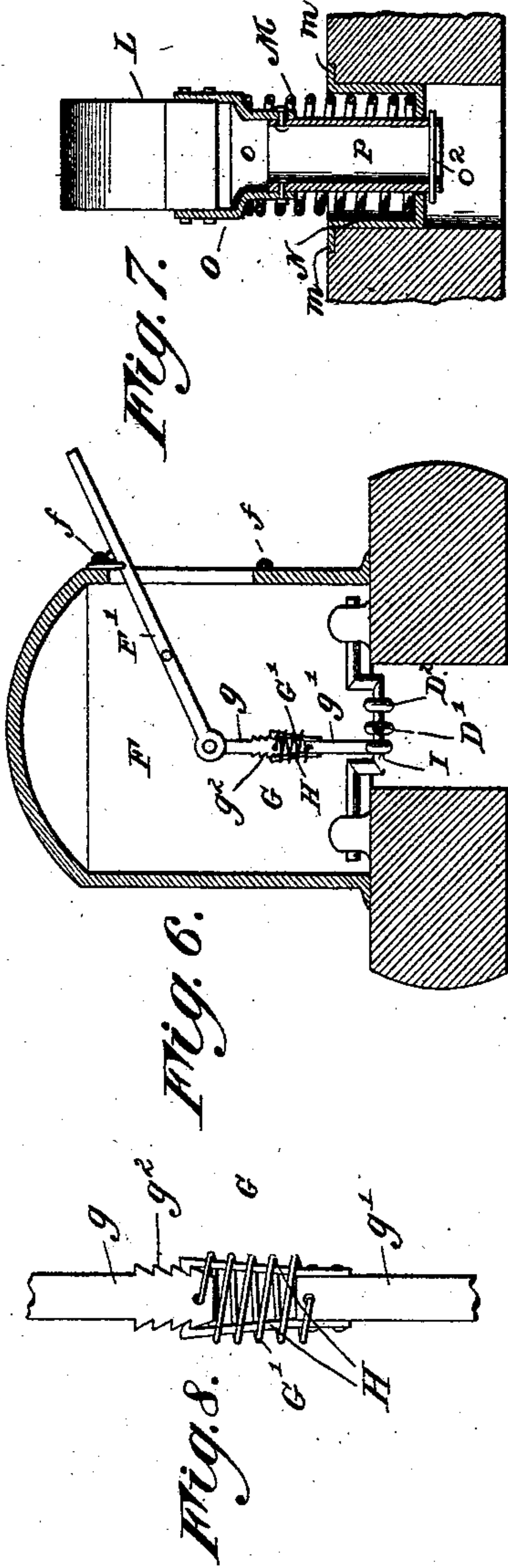
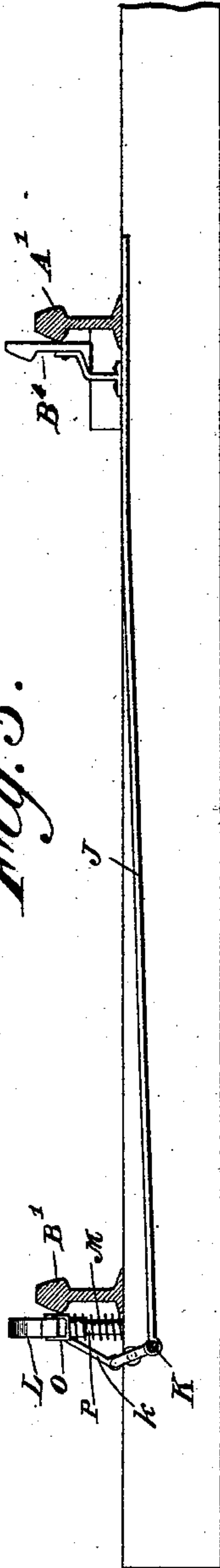


Fig. 7.

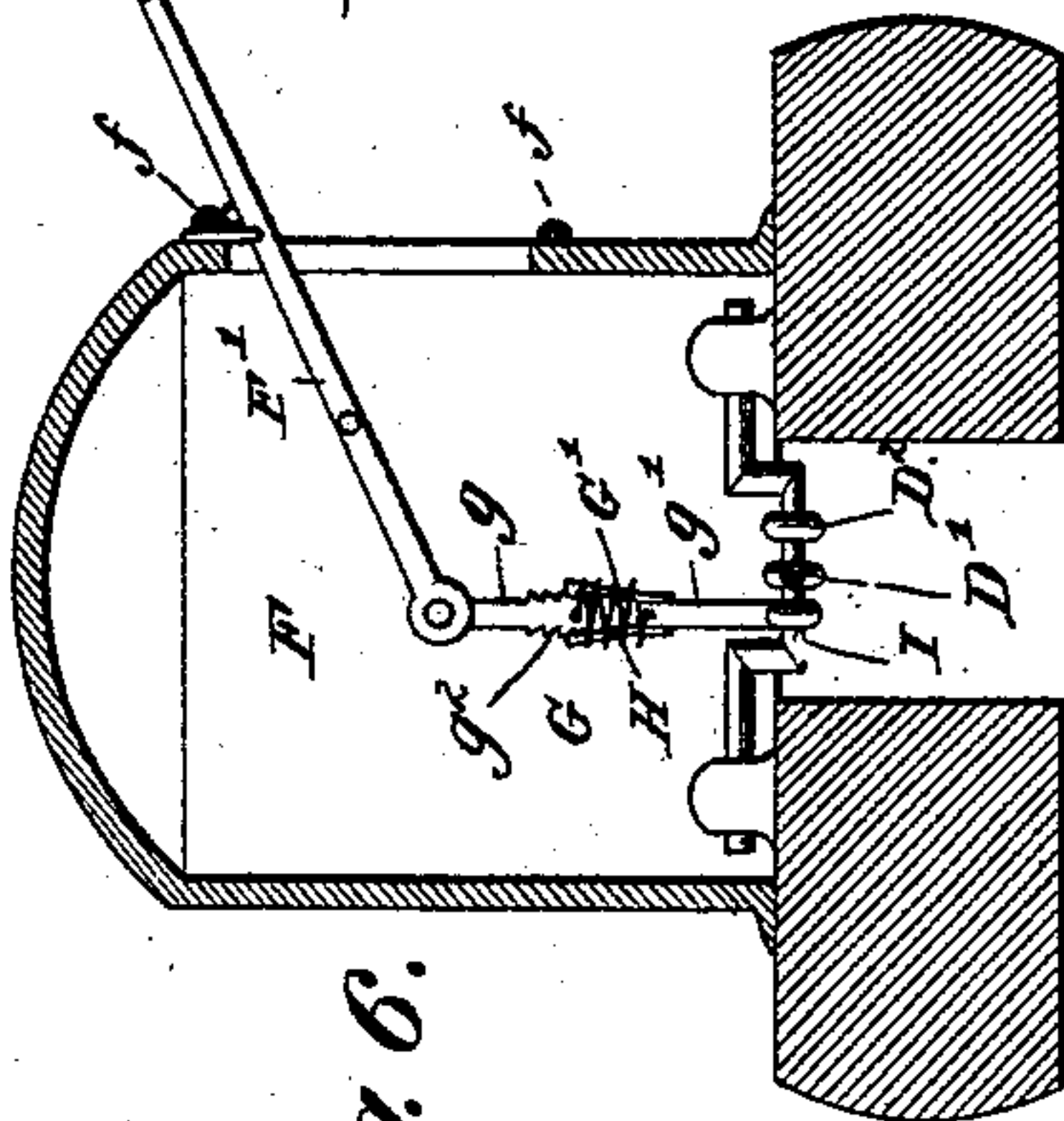
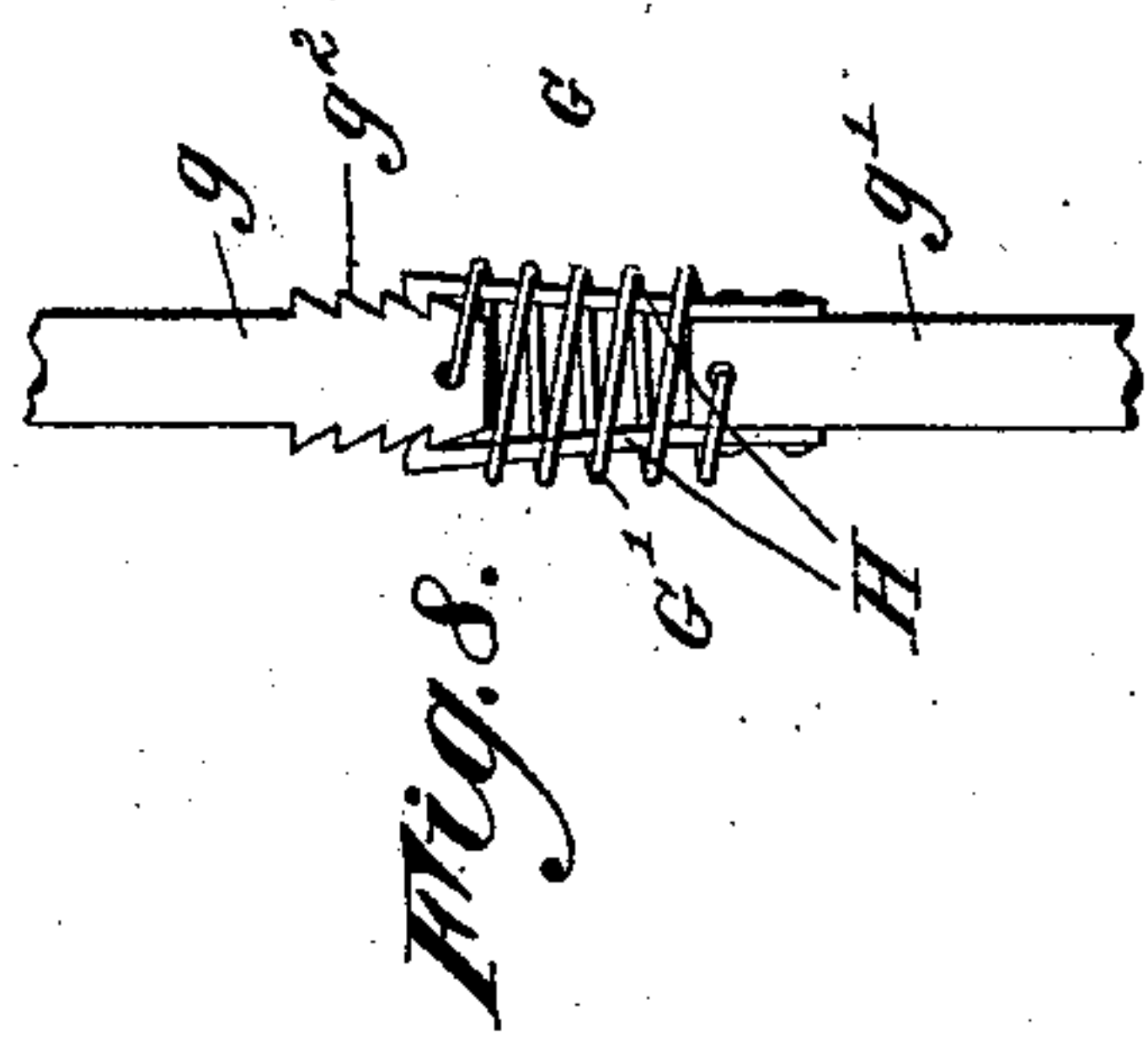


Fig. 8.



Witnesses

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# UNITED STATES PATENT OFFICE.

GEORGE E. LEMMON, OF CARY, NORTH CAROLINA.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 531,439, dated December 25, 1894.

Application filed September 27, 1894. Serial No. 524,292. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE E. LEMMON, a citizen of the United States, residing at Cary, in the county of Wake and State of North Carolina, have invented certain new and useful Improvements in Railway-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a new and useful improvement in railway switches, and it consists in the construction and arrangement of parts hereinafter described and definitely pointed out in the claims.

The invention relates more particularly to that class of railroad switches wherein the use of "frogs" is dispensed with and the aim and purpose thereof are the provision of improved mechanism and arrangement of parts whereby the main track is maintained in its continuity or unbroken state.

A further object is the provision of mechanism which will embody structural simplicity and durability, avoiding the use of complicated features and multiplicity of parts, and which will insure the perfect operation and adjustment of the switch. These objects are attained by the construction illustrated in the accompanying drawings, wherein like letters of reference designate corresponding parts in the several views, and in which—

Figure 1 represents a plan view of a track and switch. Figs. 2 and 3 are elevations of the switch rails indicating in dotted lines the position of the main rails. Fig. 4 is a cross section on the line  $xx$  of Fig. 1. Fig. 5 is a section on the line  $yy$  of Fig. 1. Fig. 6 is a detail section through the switch stand or box. Fig. 7 is an enlarged detail sectional view of the spring connection for the actuating rail, and Fig. 8 is a detail view of the yielding section of the lever rod or link.

In the drawings  $A A'$  designate the main track rails which are continuous or unbroken at the switches.

$B B'$  designate the switch or sliding rails, the former extending across the track between the rails  $A A'$ , at which point it is elevated above the plane of the top of the main rails as shown in Fig. 2. The movable end

section of rail  $B$  is curved slightly downward and tapered, and has a lateral extension or rib  $b'$  on its side which fits in the side groove and against the web of rail  $A$ . The rail  $B'$  is located outside the main track and has an elevated section  $b^2$  for a relative short distance from the switch and at a point intermediate the ends of the elevated section of rail  $B$  it is curved down and continues at an elevation corresponding with that of the main rails for purposes hereinafter described.

$B^2$  designates the movable section of rail  $B'$ , it consisting of a section of a rail having its free end bent down to the plane of the main rails and then outward at an angle forming the supporting offset  $B^3$  on which is securely fixed the block  $C$  extending upwardly therefrom to a point above the rails.

$D$  designates the switch actuating rod fixedly secured to the rails  $B B'$ , its inner or free end extending below the rail  $A$  and serving to retain the rod in position against vertical movements.

The movable sections of the rails  $B B'$  are united by the brace bars  $E$  and held parallel, as in the usual manner.

$F$  designates the switch box in which the actuating lever  $F'$  is fulcrumed, the latter passing to the outside and arranged to be locked in a raised or depressed position by locks  $f$ . The inner end of the lever  $F'$  carries the link or connecting rod  $G$  which is formed in two sections  $g g'$  united by a coil spring  $G'$  whereby a yielding connection is formed in the switch actuating mechanism.

$H$  designates spring hooks secured to section  $g'$  and extending up inside the spring  $G'$ , their hooked ends engaging rack or ratchet teeth  $g^2$  on the opposite sides of the section  $g$ , the teeth having inclined lower sides and horizontal upper edges on which the hooks rest. By this means the section  $g'$  can be forced up when the lever is locked and retained in its elevated position.

The section  $g'$  is pivoted at its lower end to the crank  $I$ , to which the throw rod  $D^2$  of the switch actuating rod  $D$  and the banner rod  $D'$  are pivoted. The crank is preferably journaled in suitable bearings at opposite ends which bearings are mounted on the ties or suitable base.

The opposite end of the rail  $B$  is carried in



the usual, but elevated manner, to the inside of main rail A' at which point it is curved outwardly. The continuation or movable switch section B<sup>4</sup> of rail B is located on the

5 outer side of the main track and tapered at its end, which tapered section is elevated above the main rail A, and its point carried back to a point opposite the straight section of the rail B.

10 To move the section B<sup>4</sup> a throw bar J is fixedly secured thereto, its outer or free end being projected below the rail A' to prevent vertical vibration. The opposite end of the throw bar is pivotally connected to one member of

15 a double crank K journaled in suitable boxes set in the ties or other suitable supports. To the other crank member is pivoted a link  $\frac{1}{2}$  which is carried by and loosely connected to an actuating rail L arranged in close prox-

20 imity to and projecting above the rail B'. The actuating rail L is tapered or inclined downward at its opposite ends, the inclination terminating or extending to the plane of the top of rail B'. This rail L is elongated and ex-

25 tends in opposite directions beyond the cross point of the rail B, so that the same will be struck by the wheels prior to the arrival of the opposite wheels at the point of crossing.

M designates spiral springs located below

30 the ends of the rail L and supporting the same. These springs are seated on U-shaped brackets N which have horizontal flanges  $m$  resting on adjacent ties and the depending central section between the ties. The upper

35 end of the springs are held in contact with the rail L by a clamp O fastened to the foot or base of the rail and formed with a circular flange  $o$  at its base around which the spring is placed and secured. The springs are guided

40 in their movements by guide rods or tubes  $p$  which are bolted to the flange  $o$  and at their lower ends project through circular apertures in the base of the brackets.

$o^2$  designates a cross pin passing through

45 the guide P and beyond the same below the bracket serving to limit the upward movement of the rail L.

In Fig. 1, I have shown the target at Q, the same being located beyond the box and actuated by the throw rod D' connected with the switch crank. By this means the target will be turned as the switch is opened or closed.

In operation the main track is at all times unbroken. When the train is to be run on

55 the siding the switch lever is moved and may be locked in position, throwing the movable sections of the rails B B' into close proximity with the rails A A'. The tread of the wheels will pass onto the end section B<sup>2</sup> and owing

60 to the upward curve thereof, the flanges of the wheels are elevated above the plane of the rail A'. As the wheels progress the opposite wheels strike the movable section of rail B, the flanges thereof serving to positively

65 direct the wheels on the rail B'. By forming the rib on the tapering movable section of rail B all danger of the flanges of the wheels en-

tering between the point and rail is avoided. As the train progresses the outer wheels move from the inclined elevated section of rail B' 70 onto the lower even section, coming in contact with the rail L depressing the same, forcing the crossing section B<sup>4</sup> into close proximity to the rail A'. At this moment the treads of the inner wheels engage the section 75 B<sup>4</sup> cross the rail A' their flanges passing onto the inner edge of the section, while the guard L' is engaged by the flange of the opposite wheel and positively directs the inner wheel onto the section B<sup>4</sup>. Should the switch remain 80 closed by error or oversight, so that a following train would be conducted onto the siding instead of continuing on the main track, the engineer lowers or adjusts a suitable trip or arm, prior to the arrival of the train at the 85 switch. The arm will engage the inclined face of the block C with sudden impact moving the rail section B<sup>2</sup> out and the section  $g'$  of the rod G up, the spring hooks H thereon engaging the ratchet teeth on the section  $g$  thereby prevent-

90 ing the rebound or back movement of the switch. The spring hooks remain in their elevated positions until the box is opened and the same, by suitable hand implements, are forced from engagement with the teeth and returned 95 to their initial position by the coil springs, it being understood that this coil spring is sufficiently strong to hold the parts  $g g'$  in contracted positions so that the switch can be easily operated by the lever without mate-

100 rially varying the position of the parts  $g g'$ . By requiring the employment of hand means for re-adjusting the hooks H, as above indicated, the switch will serve as an indicator of errors made by the switchman in not open-

105 ing the switch to close the main track.

It will readily be seen that when a train has the right of way the engineer need only to adjust the arm or other suitable engaging means on the engine so that the same will 110 strike the block C thereby avoiding all danger of the train running onto the siding.

It is to be expressly understood that I do not limit myself to the exact details herein described, as it is obvious that minor changes 115 can be made in the construction and arrangement of the parts and substituted for those herein shown and described without in the least departing from the nature and principle of my invention. 120

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

1. In a switch, the combination with a main track, of a siding, having a switch section, a 125 movable cross-over section for the inner rail of the siding, an elongated tapering rail L parallel with and in close proximity to the outer rail of the siding and extending in opposite directions beyond the plane of the point 130 of the movable cross-over section, springs supporting the rail L, a double crank shaft arranged parallel with the axis of the outer siding rail, a link connection between one of



the cranks and rail L, and a throw rod secured to the movable cross-over section having its outer end connected with the other crank of the crank shaft, substantially as described.

2. In a switch, the combination with an unbroken main track, of a siding, a switch section elevated above the plane of the main track, a switch actuating means comprising a lever, a throw rod, a yielding intermediate link member, means for permitting the yielding movement thereof in one direction only, and means connected with the switch actuated mechanism arranged to be struck by a passing train for forcing the yielding link member toward the lever, substantially as described.

3. In a switch, the combination with an unbroken main track, of an elevated switch section, a lock therefor means actuated by a passing train for opening the switch, and means for preventing the return movement of the switch and locking the same substantially as described.

4. In a railway switch, the combination with an unbroken main track, of a switch section elevated above the plane of the rails thereof, means for setting the switch, a lock for the setting means, a projection extending above the rails connected to said switch section and arranged in the path of a passing train, and means for permitting the movement of the switch in one direction only substantially as described.

5. In a switch, the combination with a switch section comprising two movable rail points locked together, the end of one of the points being turned out at an angle, an independent contact block secured on the upper face of said turned out portion, and means for setting the switch, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE E. LEMMON.

Witnesses:

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WM. W. GWATHNEY, Jr.