

No. 697,591.

Patented Apr. 15, 1902.

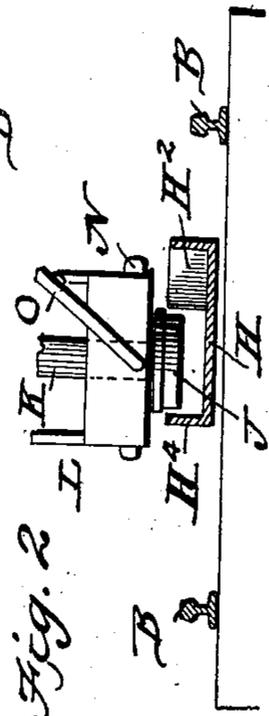
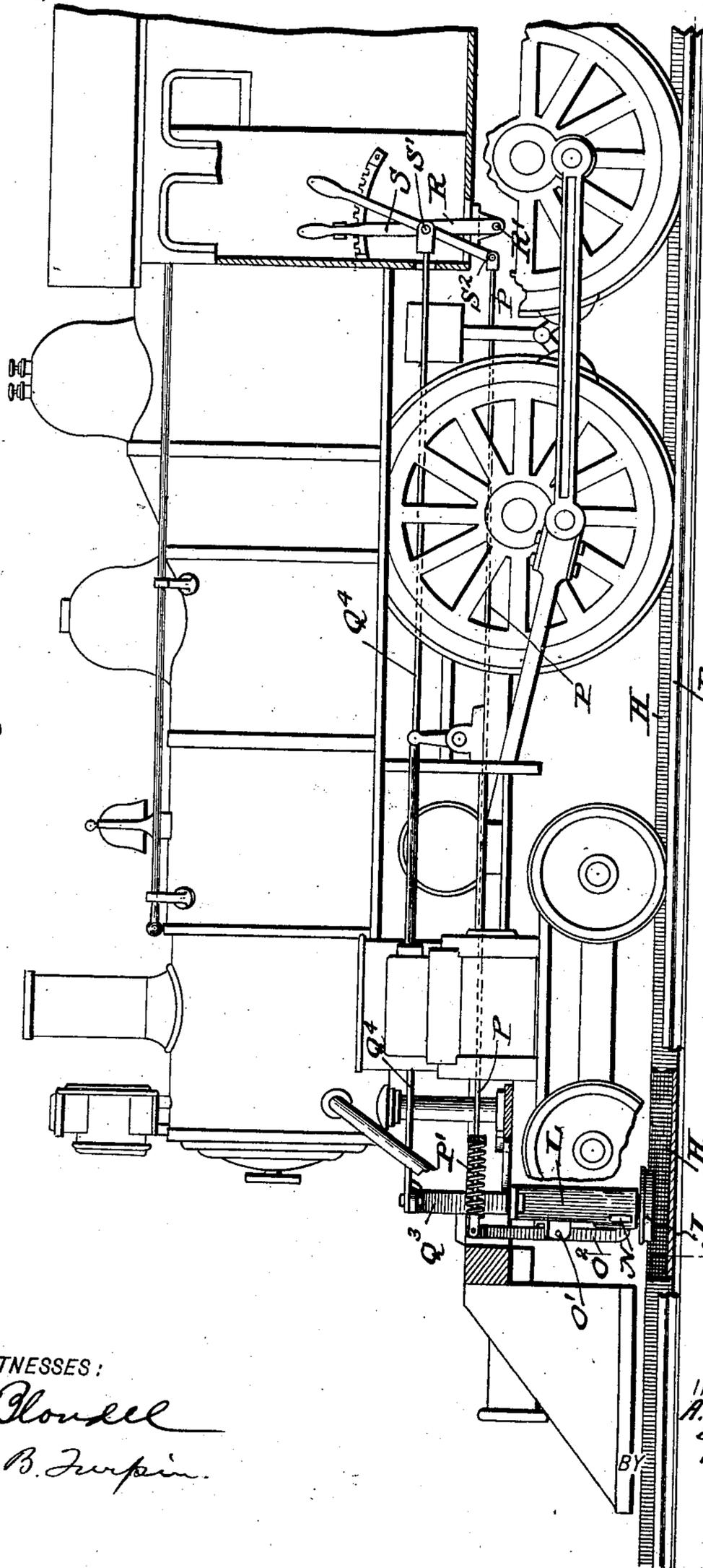
A. YOUNGBLOOD.  
OPERATING RAILWAY SWITCHES.

(Application filed Sept. 14, 1900.)

(No Model.)

3 Sheets—Sheet 1.

*Fig. 1.*



*Fig. 2*

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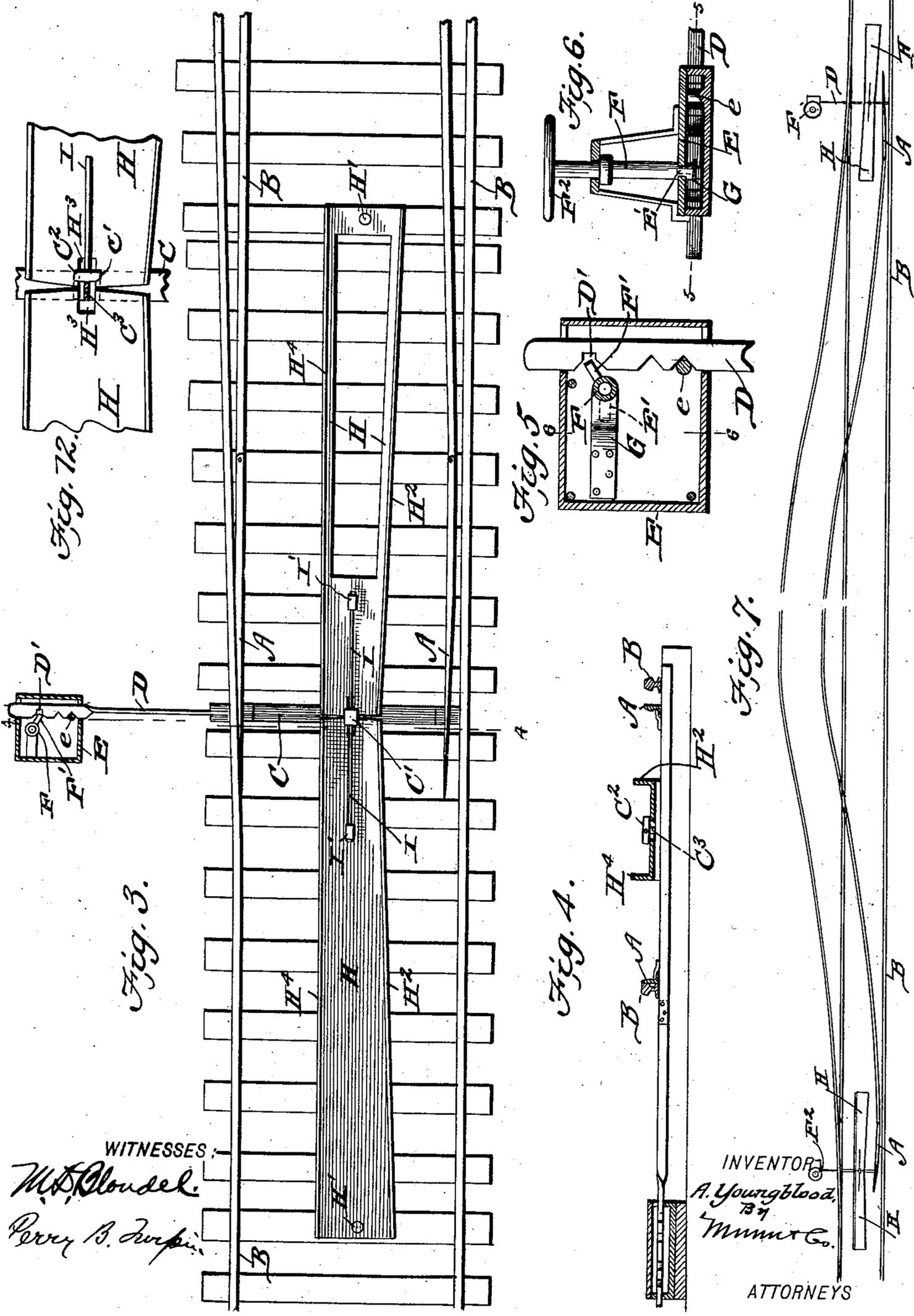
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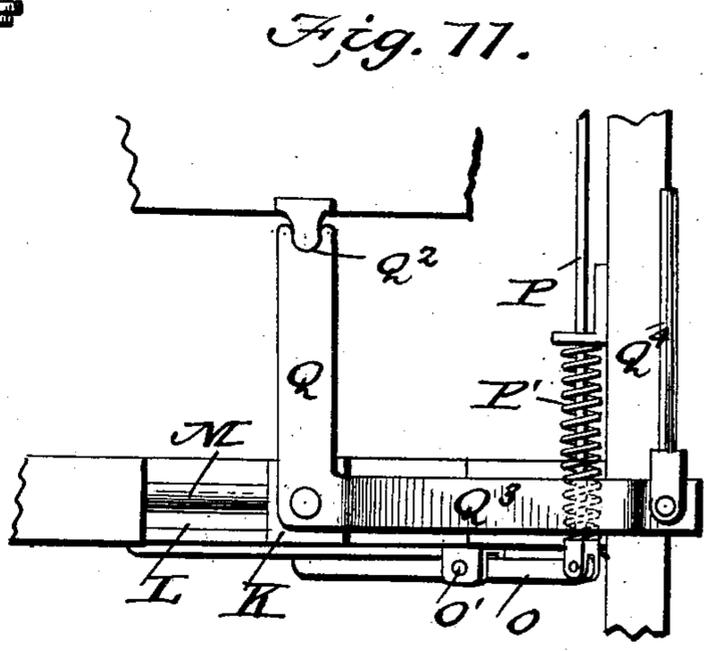
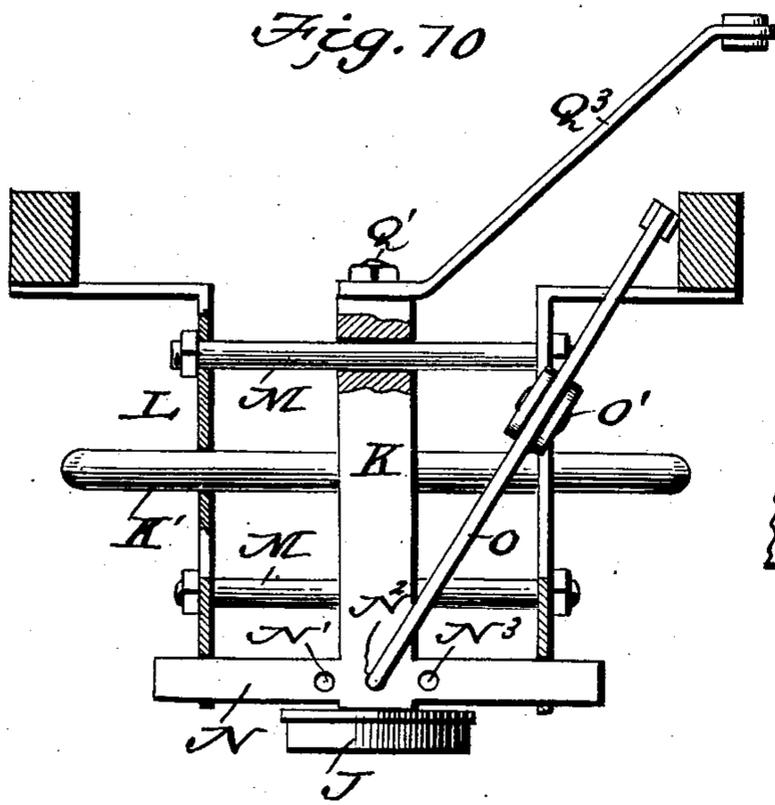
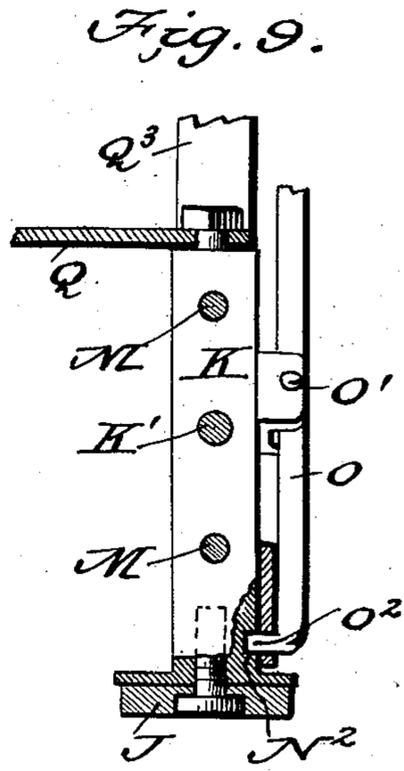
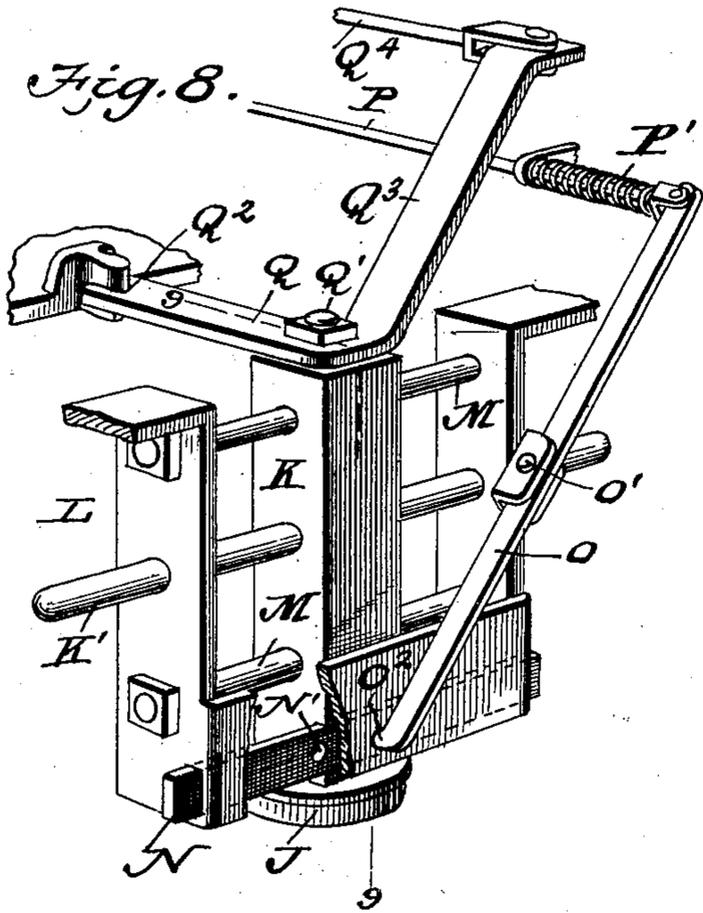
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3 Sheets—Sheet 3.



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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. 697,591, dated April 15, 1902.

Application filed September 14, 1900. Serial No. 30,015. (No model.)

*To all whom it may concern:*

Be it known that I, AMOS YOUNGBLOOD, a citizen of the United States, residing at North Augusta, in the county of Aiken and State of South Carolina, have made certain new and useful Improvements in Operating Railway-Switches, of which the following is a specification.

My invention is an improvement in railway-switches, and particularly in that class of such devices which are arranged for operation automatically by projections on the rolling-stock; and the present invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side view, partly in section, of a locomotive provided with my improvements and operating on a track constructed in accordance with my invention. Fig. 2 is a detail sectional view on about line 2 2 of Fig. 1. Fig. 3 is a top plan view of a switch embodying my invention. Fig. 4 is a cross-sectional view on about line 4 4 of Fig. 3. Fig. 5 is a detail section on about line 5 5 of Fig. 4. Fig. 6 is a detail vertical section on about line 6 6 of Fig. 5. Fig. 7 is a diagrammatic plan view illustrating two switches in connection with the main rail. Fig. 8 is a detail perspective view of a portion of the switch-operating devices on the locomotive. Fig. 9 is a detail sectional view on about line 9 9 of Fig. 8. Fig. 10 is a detail front elevation, partly in section, of the operating devices on the locomotive, and Fig. 11 is a top plan view of said devices. Fig. 12 is a detail sectional plan view illustrating the connection between the switch-bar and the operating-frames.

The switch is arranged for operation by a projection on the rolling-stock and includes the movable switch-points A, which may be supported in the usual manner and are arranged relatively to the main line B as is usual in switches. These switch-points A are movable to open the switches or to close the same, as is well known, and this movement is effected by the operation of the switch-bar C through the means presently described. This switch-bar C is connected with the switch-points A and has connected with it an operating-rod D, which extends through a lock-

case E and is notched at D' for engagement by the lug or ward F' of the lever F, which has a wheel F<sup>2</sup> or similar device by which it may be operated. This switch-lever F rests at its lower end upon a spring G, which operates to press the lever upward when its ward F is in line with the keyhole-slot E' in the casing E to set the said ward out of position for engagement with the switch-bar D, except when it is desired to positively operate the said switch-bar by the switch-lever. When it is desired to operate the switch-bar, it is only necessary to depress the spring G by pressure of the shaft F in such manner as to permit the ward F' to pass below the top case E, when the shaft may be turned to operate the switch-bar as may be desired. By this construction I avoid any operation of the switch by the movement of the shaft F by reason of the jarring of train over the rail, and thus avoid any operation of the switch-points by the movement of the shaft except when so desired. For operating the switch-points from the rolling-stock I provide within the track operating-frames H H, which are connected at their adjacent ends with the switch-bar and are pivoted at their opposite ends at H', as best shown in Fig. 3. These frames H are provided at one edge with an inclined side H<sup>2</sup> for engagement by the projection on the rolling-stock, so such projection may be adjusted to operate upon the said inclined side to close the switch or to open the same, as may be desired. I find it desirable to connect the adjacent ends of the operating-frames H yieldingly with the switch-bar C to compensate for the lateral movements of the rolling-stock on the track and also to relieve the jar incident to the operation of the switch by trains moving at a comparatively high rate of speed. This is preferably accomplished by providing the switch-bar C with an upwardly-projecting boss C', which has a head C<sup>3</sup> at its upper end and has its shank C<sup>3</sup> arranged to operate in slots H<sup>3</sup>, formed in the swinging ends of the frames H and made wider than the shank C<sup>3</sup>, so the frames H have a limited lateral movement independently of the switch-bar C. This independent lateral movement is controlled in a measure by springs, which are preferably in the form of spring bars or rods I, secured at one end to

the bosses C' and at their other ends at I' to the frames H, so there is permitted a limited independent movement of the frames H and the bars C, as will be understood from the 5 drawings. By this construction I avoid any injury to the track or rolling-stock by reason of the sudden jars or shock in the operation of the device and also render the operation of the device smoother and easier, whether 10 such operation be by hand or automatically through the devices upon the rolling-stock.

It will be noticed that as the two frames H H are connected with the switch-bar it is desirable to connect them yieldingly, as de- 15 scribed, as by so doing the movement of one of the frames by the positive operation of the adjacent frame is effected without any sudden jar or shock. These frames H are formed with the inclined flange H<sup>2</sup> for engagement 20 by the projection on the rolling-stock and with the opposite relatively straight flange H<sup>3</sup>, and it will also be noticed from Fig. 7 of the drawings that when the projection on the 25 rolling-stock is adjusted to open one switch into a siding the same adjustment of the operating projection operates to adjust the other switch, or that at the other end of the siding, to open it to permit the passage of the train 30 back again onto the main line. It will be noticed especially from Figs. 1 and 2 that the flanges H<sup>2</sup> of the switch-operating frames are higher than the rails B of the main line, so the projection J of the rolling-stock can 35 properly engage with the switch-operating frame. Preferably the projection J is in the form of a roller and is supported on the locomotive, as shown, and arranged to be shifted 40 laterally to properly engage the operating-frames to adjust the switch as may be desired. As shown, the roller J is journaled at the lower end of a carrier K, which is in the form of a bar and which is shiftable laterally in a frame L upon rods M, which 45 extend from side to side of the said frame. The carrier K is further guided by means of a rod K', which slides in bearings in the frame L, as shown, and I provide the said carrier K at its lower end with a laterally-extending bar 50 or portion N, which slides in the frames L and is provided with a series of three holes or sockets N', N<sup>2</sup>, and N<sup>3</sup>. These sockets are engaged by a point on the lower end of the detent O, which is pivoted at O' to the frame 55 L, has its lower end provided with a point O<sup>2</sup> to engage in the holes N', N<sup>2</sup>, and N<sup>3</sup>, and has its upper end connected by the rod P or other suitable connection with the operating devices presently described. This detent O 60 operates to secure the carrier K in its central neutral position or in the position to which it may be adjusted at either side. This lateral adjustment of the carrier K is effected by means of a bell-crank lever Q, which is piv- 65 oted at Q' to the carrier-bar K, fulcrums at Q<sup>2</sup>, and is provided with an arm Q<sup>3</sup>, which is connected by a rod Q<sup>4</sup> with the lever R, by

which it is operated. This lever R is pivoted at R' and may be operated to set the carrier 70 to either side or to the center of its frame, as may be desired. The lever S for operating the detent O through the rod P is pivoted at S' to the lever R in such manner that when the said lever S is adjusted to release the de- 75 tent the connection at S<sup>2</sup> of the said lever S and its rod P will coincide with the pivot R' of the lever R, so the operations of the said lever R to adjust the carrier K laterally as may be desired will not affect the position of 80 the detent, which is released whenever the handles of the levers S and R are brought together. The connection of the rod P with the detent O is preferably yieldingly effected by means of a spring P', as shown in the draw- 85 ings. In the operation of this construction it is manifest the lever S can be first operated to release the detent O, when the lever R can be operated to adjust the carrier K from side 90 to side, as desired, and when the carrier has been adjusted to the desired position the detent may be released to secure the carrier in such position.

It will be noticed that the switch-bar D is arranged vertically edgewise between the casing E and the switch-points and is horizontal 95 in said casing E, and is provided in its horizontal portion with a notch for engagement by the ward F' and with locking-notches for engagement by the bolt e, the switch-bar springing out of engagement with the bolt e 100 when such bar is positively operated by the shaft F, but being held by the spring of the bar D in engagement with said bolt e against accidental displacement.

Having thus fully described my invention, 105 what I claim as new, and desire to secure by Letters Patent, is—

1. The combination substantially as described of the switch-points, the switch-bar 110 connecting the same, the operating-frame having a yielding connection with the switch-bar and provided with an inclined flange for engagement by the operating projection on the rolling-stock, said operating projection 115 being provided with a carrier, a frame in which said carrier is movable laterally, a detent-lever for locking the carrier in its lateral adjustments, an operating-lever arranged to 120 adjust the carrier laterally, and a lever arranged to release the detent and located relatively to the lever for operating the carrier, substantially as and for the purpose set forth.

2. In an apparatus substantially as described, the combination of the operating pro- 125 jection, the carrier therefor, a frame in which the said carrier is movable laterally, a detent-lever by which to lock the carrier in its different adjustments, a rod or connection lead- 130 ing from said detent, an operating device connecting with the rod or connection, and the lever for adjusting the carrier laterally, the point of connection between the rod or connection for operating the detent and its operating device, being arranged to coincide

with the pivot-point of the lever for adjusting the carrier in the released position of the detent, substantially as set forth.

3. The combination of the metal points, the spring switch-bar connected therewith and notched for engagement by the locking-bolt, and arranged to spring into and out of engagement with said bolt, and means for operating said switch-bar, substantially as set forth.

4. In an apparatus substantially as described, the combination with the switch-operating projection, the carrier therefor, the frame in which said carrier is adjustable laterally, the pivoted lever and intermediate devices whereby it adjusts the carrier laterally, the detent for securing the carrier in its different adjustments, the lever for operating said detent, a connection between said lever and the detent, and the lever for adjusting the carrier laterally, the detent-releasing lever being pivoted to the carrier-adjusting lever and having its connection with the rod or connection leading to the detent arranged to coincide with the pivot of the carrier-adjusting lever when the detent is released, substantially as set forth.

5. In a railway-switch the combination with the switch-points and the switch-bar, of the movable frame for operating said switch-bar having means whereby it may be operated by a projection on the rolling-stock, said operating-frame being engaged at one end with the switch-bar and being movable to a limited extent at such end independently of the switch-bar, and a spring for resisting such independent movement, substantially as set forth.

6. In a railway-switch the combination of the switch-points, the switch-bar connecting the same and having an upwardly-projecting boss, the operating-frame having at one end a notch or recess fitting over said boss and made wider than the same whereby to permit a limited independent movement of the said boss, and a spring operating to arrest such movement, substantially as set forth.

7. In a railway-switch, the combination of the switch-points and the switch-bar having a boss, the operating-frame having a slot or recess in which said boss operates and which is wider than the said boss whereby to permit an independent movement of the parts, and a spring operating between said boss and the frame whereby to cushion the operation of the parts, substantially as set forth.

8. The combination in a railway-switch, of

the points, the switch-bar connecting the same and having a boss, the operating-frame having a slot or recess for receiving said boss and made wider than the same, and a spring rod or bar secured at one end to the boss and at its other end to the operating-frame, substantially as set forth.

9. In a railway-switch the combination with the switch-points and the switch-bar, of the opposite operating-frames and spring devices by which the adjacent ends of the operating-frames are yieldingly connected with the switch-bar, substantially as set forth.

10. In a railway-switch, the combination with the switch-points and the switch-bar, of the operating-frames pivoted at their outer ends and connected at their adjacent ends with the switch-bar and having at their opposite edges flanges spaced apart for the operation between them of the projection of the rolling-stock substantially as set forth.

11. In a railway-switch substantially as described, the combination of the switch-points, a switch-operating bar in connection therewith, a casing through which said switch-operating bar is passed, said casing having a slot for the passage of the ward of the operating-lever, the operating lever or shaft having a ward arranged to be passed through said slot and adapted to engage the switch-operating bar, and a spring arranged to exert an upward tendency upon the said lever and shaft whereby to press the same into position to adjust its ward out of position for engagement with the switch-operating bar, substantially as set forth.

12. In a railway-switch the combination substantially as described of the switch-points, the operating-bar connected therewith, a notch for engagement by the ward of the operating shaft or lever, the casing through which said operating-bar is passed, said casing having a keyhole-slot, the lever or shaft having a ward and movable through said slot to position for the engagement of its ward with the notches of the switch-operating bar, and the spring arranged in said casing below the keyhole-slot in position to form a seat for the lower end of the operating-lever, whereby it will exert an upward tendency upon said shaft or lever, substantially as set forth.

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Witnesses:

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