

No. 614,459.

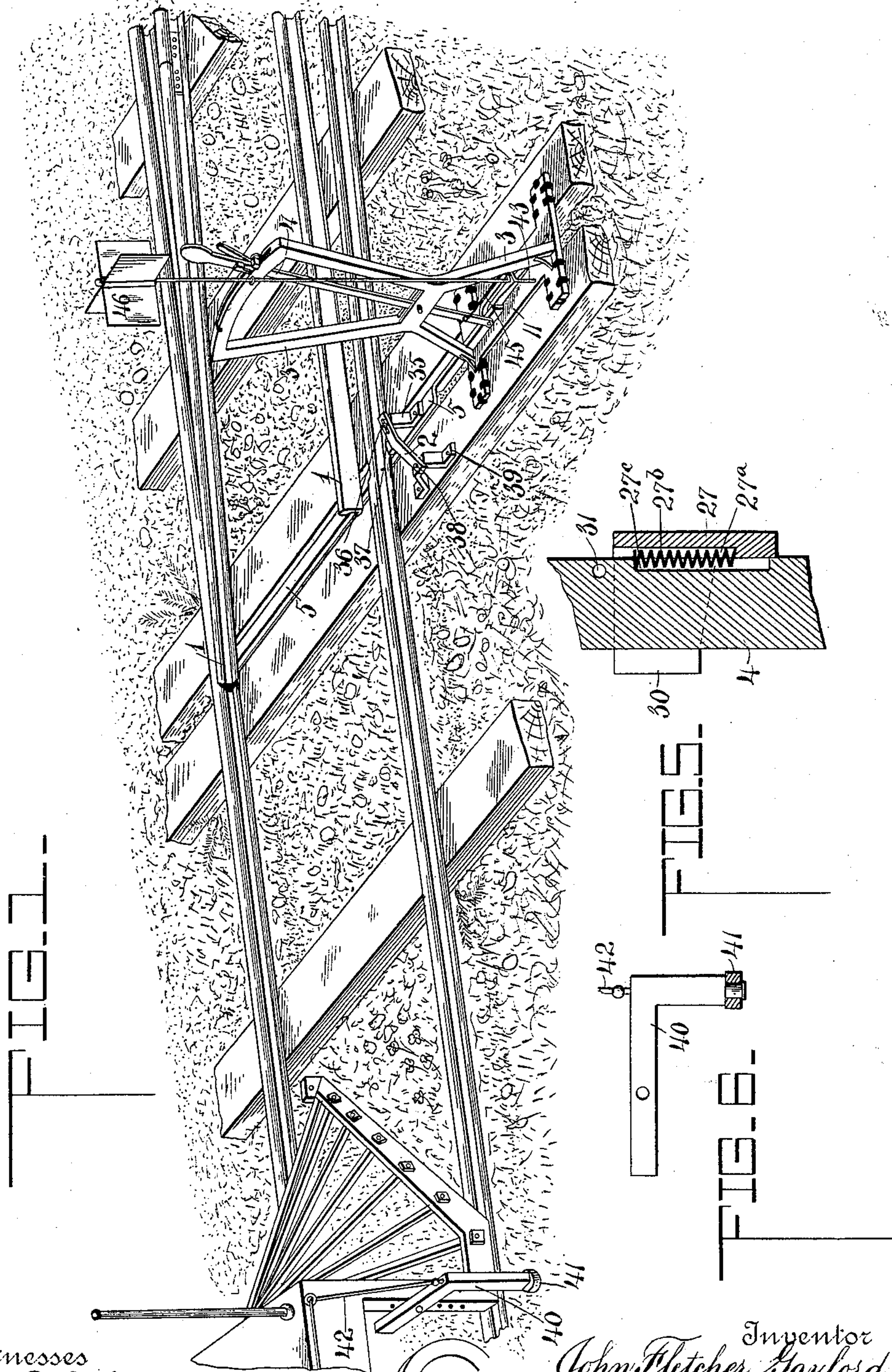
Patented Nov. 22, 1898.

J. F. GAYLORD.  
SWITCH STAND.

(Application filed June 19, 1897.)

(No Model.)

2 Sheets---Sheet 1.



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FIG. 3.

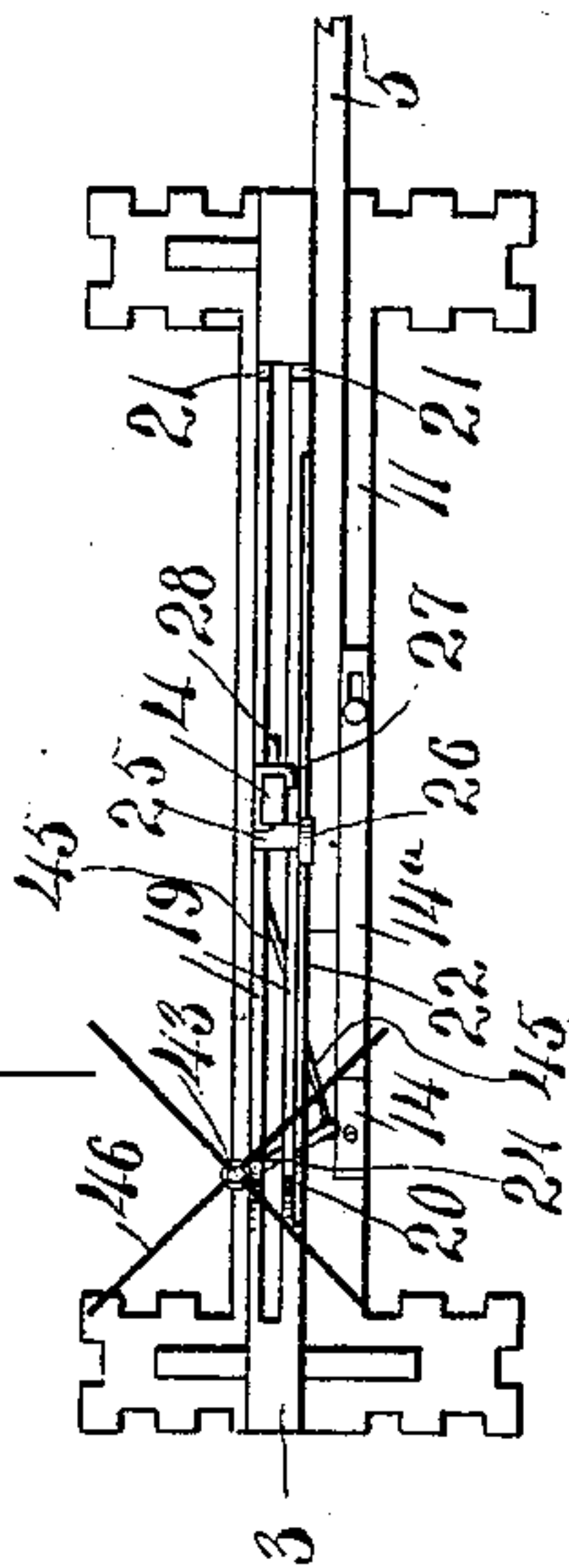


FIG. 4.

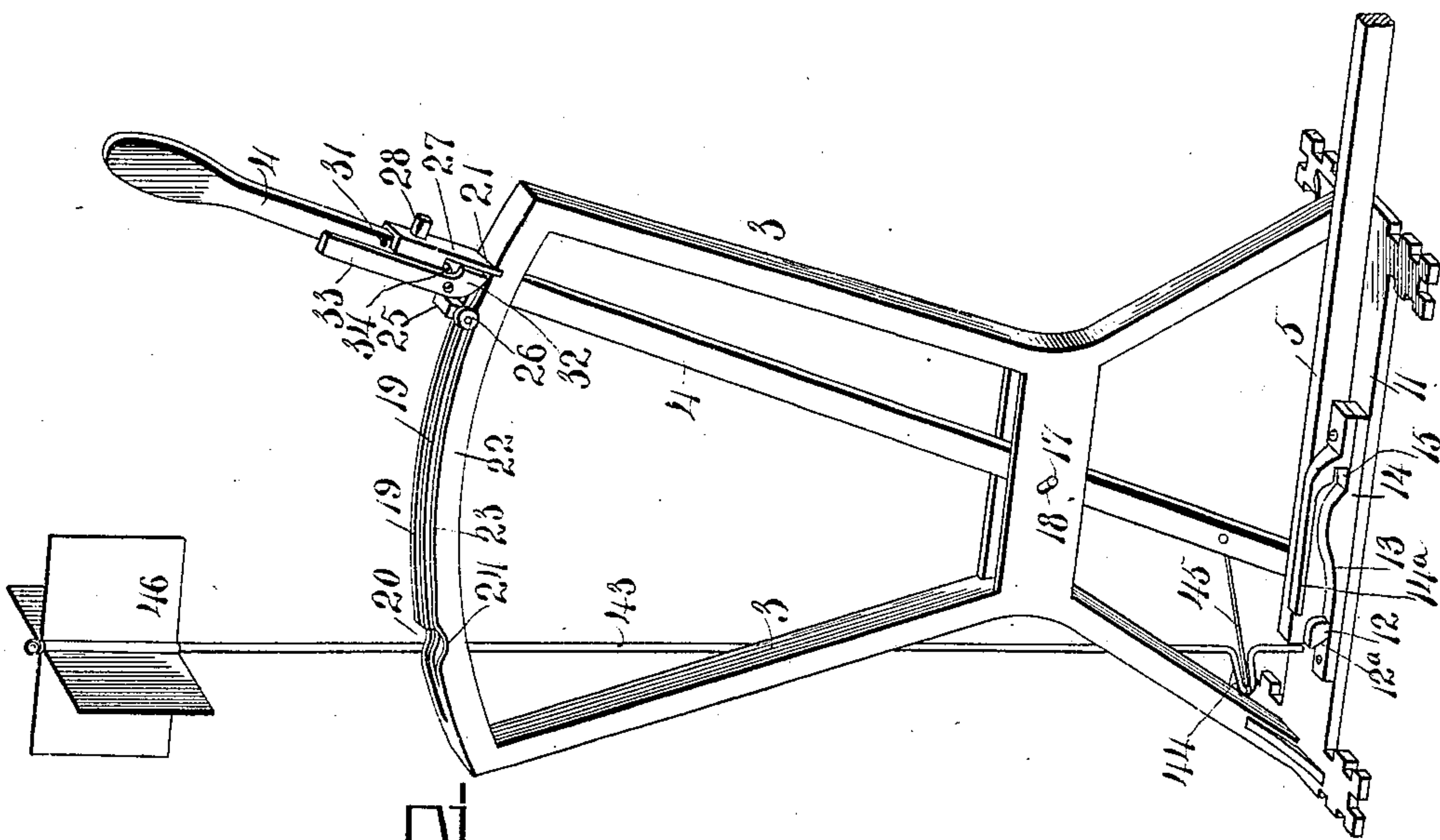
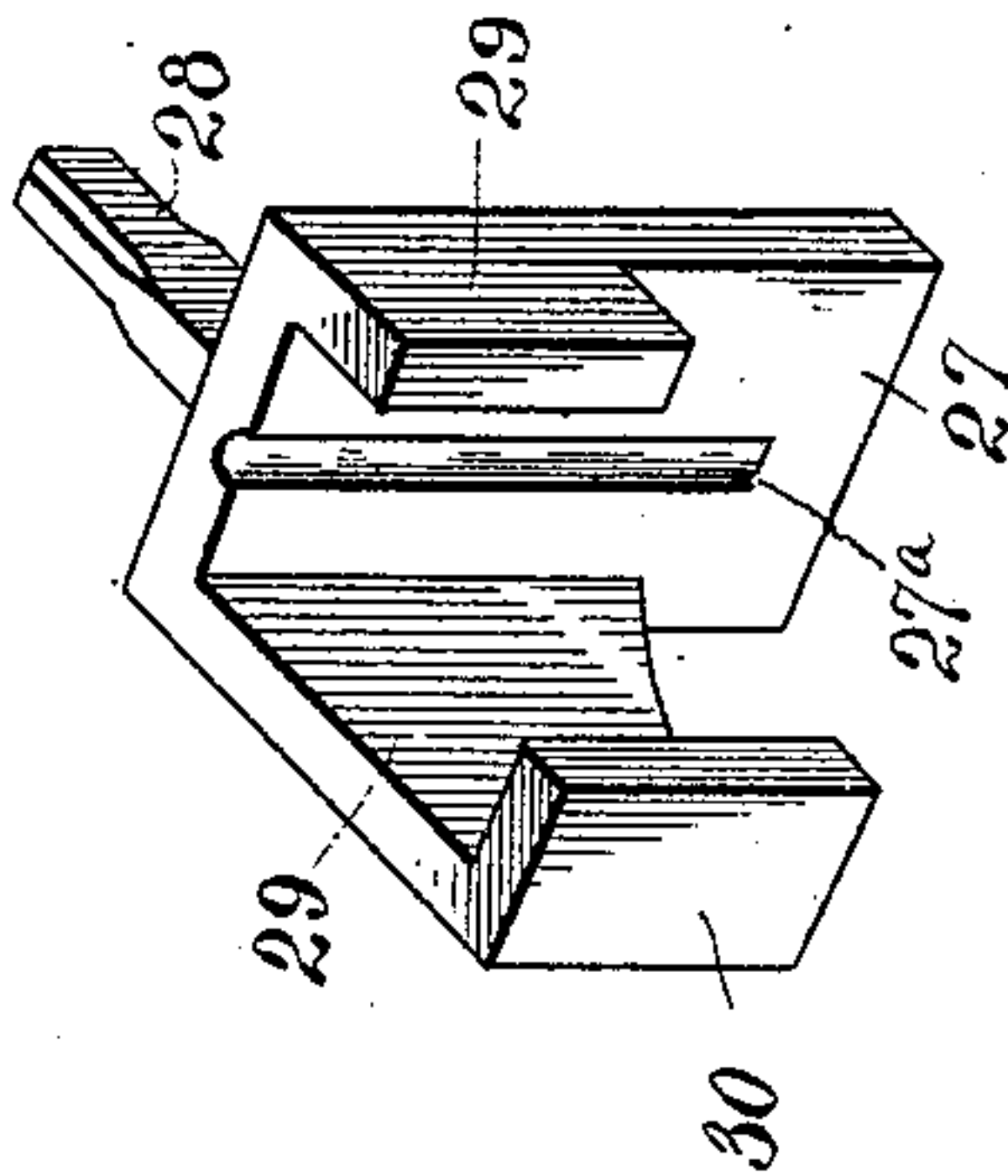


FIG. 2.

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# UNITED STATES PATENT OFFICE.

JOHN FLETCHER GAYLORD, OF PORTSMOUTH, VIRGINIA.

## SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 614,459, dated November 22, 1898.

Application filed June 19, 1897. Serial No. 641,511. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN FLETCHER GAYLORD, of Portsmouth, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Switch-Stands; 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 improvements in the operating mechanism of railway-switches, and has more particular reference to the switch shown in my application, Serial No. 620,793, filed January 26, 1897, and allowed May 19, 1897, and renewed March 8, 1898, No. 673,145.

In the accompanying drawings, forming part of this specification, Figure 1 represents a perspective view of the device embodying my invention applied to a railroad-track. Fig. 2 represents an enlarged detail perspective view of the switch stand and lever, the latter being thrown forward to leave the main line clear. This view shows the side of the stand opposite that seen in Fig. 1. Fig. 3 represents a top plan view of my improved switch. Fig. 4 represents an enlarged detail perspective view of the sliding pawl; and Fig. 5 represents an enlarged detail, partly in section, of a portion of the switch-lever, pawl, and spring. Fig. 6 is a view of the operating-lever detached from locomotive.

1 1 in the drawings represent the pivoted switch-rail; 2, the trip-lever; 3, the switch-stand; 4, the switch-lever, and 5 the rod, connecting said lever with the movable rails 1. Said rails are mounted and connected in the usual manner of siding and main rail-switches.

The rod 5 is provided with a stand 35, having a pin 36 mounted at its upper end and projecting through an elongated slot 37, formed in the trip-lever 2, which latter is pivotally mounted, as at 38, upon a stand 39, similar to the stand 35. The relative positions of the stands 35 and 39 are such that the trip-lever 2, when the switch-rails 1 have position to break the main track, occupies a position at an angle to the rails of the main

line, so that the operating-lever 40, mounted upon a suitable projection of the locomotive, will engage the side of said lever 2 and force its free end outward or away from the track-rails, thus carrying the bar or rod 5 with it. Said operating-lever 40 is preferably of the bell-crank type and is pivoted upon any suitable projection of the locomotive, so that it normally remains in its depressed position by its inherent weight. The lower end of said lever is provided with an antifriction-roller 41, which is adapted to engage the side of the lever 2 when said lever 40 is in its depressed position. In order to raise said latter lever at such times when its use is undesirable, I connect the cord 42 with the handle of the same. This cord passes up through suitable guiding-eyes upon the side of the locomotive to any suitable operating-lever, whereby said lever 40 may be raised or lowered at will. In order to permit of vertical adjustment of the lever 40, I preferably provide the projection of the engine with a plurality of apertures into which its pivot-pin may be passed; but this is not material, as any suitable means of adjustment may be employed. The said rod 5 is provided at its rear end with a lateral supporting-pin 12, having a forward inclined face 12<sup>a</sup>, which rests on an inclined surface 13, formed on a horizontal strip secured to the base-plate 11. This strip 14 is formed at one end of the surface 13 with a depression 15, into which the pin 12 is adapted to drop when the lever 4 is in its rear position for setting the switch open to the siding. An angular arm 14<sup>a</sup> is secured upon the strip 14, so as to lie above and parallel with the same and form a guide for the pin 12. The lever 4 is provided with laterally-projecting trunnions 17, adapted to work in elongated slots 18, formed in the stand 3. These trunnions constitute the pivot, and the lever 4 is vertically movable. The upper end of said lever 4 operates between two segmental plates 19, each of which is provided at each end with a notch or depression 20 and 21, respectively. One of said plates 19 is further provided with a rabbeted groove 22, having a segmental periphery 23 and a notch or dip 24, coincident with the notch 20. The said



lever 4 is provided with a cross-bar 25, the opposite ends of which are adapted to become seated in the notches 20 when said lever is in its rear or open-switch position. This laterally-projecting cross-bar is provided at one end with an antifriction-roller 26, that rests upon the segmental surface 23, and thus supports the lever 4 in position with a minimum amount of friction while being moved over the segmental plates 19. When said lever 4 is in the open-switch position, this antifriction-wheel 26 drops into the notch 24. Said lever 4 is further provided with a locking-pawl 27, having a handle 28 and provided with side flanges 29 and a rear flange 30, the arrangement of said flanges being such that said pawl will slide vertically upon said lever, but cannot be displaced laterally upon the same. The inner surface of said pawl is formed with a semicylindrical recess 27<sup>a</sup>, into which is fitted a coil-spring 27<sup>b</sup>, the outer half of said spring being adapted to fit into a semicylindrical recess 27<sup>c</sup>, formed in the rear side of the lever 4. By this means the raising of the pawl will compress the coil-spring, and thus form a tension to return the pawl to its original position when the handle is released. When the lever 4 is in the closed-switch position that it occupies when the main line is open and the siding closed, this pawl 27 by its own weight and the action of the spring drops into the notches 21 on the segmental plates 19, and thus locks the lever in this position. To prevent the said pawl from being raised by unauthorized persons who may wish to throw the switch open and break the main line, the said lever 4 is provided with a padlock-passage 31, which lies just above the upper end of said pawl when it has dropped into the notches 21. It will thus be observed that a padlock applied to this aperture will prevent the said pawl from rising, and thus will lock the lever 4 permanently in position. When the pawl is in the raised position which it occupies when the switch is open to the siding, the side flanges 29 of the same cover the two ends of the passage 31, and thus prevent the padlock from being applied to said lever until it is again moved forward to close the switch. By this construction the switch-lever can only be locked when the main line is clear and the siding closed. The said lever 4 is provided with a bell-crank lever 32, pivotally mounted thereon and provided with an operating-handle 33. When the said lever is in its rear or open-siding position, with the cross-arm 25 resting in the notches 20, it is first necessary to lift said cross-arm out of said notches before the lever 4 can be pressed forward. In order to accomplish this, the handle 33 of the bell-crank lever is forced forward toward the lever 4, which causes the lower end 32 of said lever to engage the upper surface of one of the segmental plates 19, and thus raise the cross-arm and lever 4. Upon the release of said handle 33 it automatically

resumes its normal position because of its own weight, a suitable stop 34 being mounted upon the lever 4 to prevent said handle dropping back too far. By the peculiar mounting of the trunnions 17 within the elongated slots 18 and the lateral pin 12 on the surface 13, provided with the notch 15, this vertical movement of the lever 4 is permitted without injury to any of the moving parts.

A vertical shaft 43 is suitably journaled upon the switch-stand and is formed with a crank-bend 44, connected to the lever 4 by a pivoted link 45, so that when said lever is operated the shaft 43 is rotated either one way or the other, according to the direction in which said lever is adjusted. The upper end of said shaft 43 is provided with any suitable target or semaphore wings 46, which are suitably colored to indicate, respectively, the condition of the switch to the engineer upon the approaching train.

By the novel means employed in the construction of this device the switch is automatically closed to the siding upon the approach of the train along the main line, as the trip-lever is operated by the lateral pressure upon it of the car attachment.

When the switch-lever 4 is in its rear position, the shifting of the pivoted rails by means of the trip 2 will force the connecting-bar 5 rearward, thus causing the inclined face of the pin 12 to contact with the forward inclined surface of the notch 15 to raise the lever 4 and permit the ends of the cross-bar 25 to clear the notches 20. Said lever upon reaching its forward position is automatically locked by the pawl 27 dropping into the notches 21. By this means the said switch-lever 4 may be instantly thrown from the rear to the forward main-line position by the approaching train, but cannot be operated vice versa without the pawl 27 being lifted by the attendant.

This invention altogether obviates the use of springs on the operating parts, and thus permits of a positive and definite action, unaffected by the temperature or elements to which it may be exposed.

Should the engineer of an approaching train desire to take the train onto the siding, he simply raises the bell-crank lever so as to clear the trip, when the trainman can operate the switch-lever 4 to open said siding.

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

1. In a railway-switch the combination with the pivoted switch-rails, of an automatically-locking switch-lever, 4; a rod, 5, connecting the switch-lever with the switch-rails and provided with a stand, 35; a stationary stand, 39; a laterally-movable trip-lever, 2, having one end pivoted to the said stationary stand and its movable end loosely engaged with the said stand on the connecting-rod; and a projection mounted on an engine and adapted to



engage the side of said laterally-movable trip-lever and force its free end away from the track-rails.

2. In a railway-switch the combination of  
5 a switch-stand having a segmental top provided with notches; a lever for throwing the switch-rails, pivoted on said stand and provided on its side with a vertical groove or recess, 27<sup>c</sup>; a vertically-sliding pawl having  
10 flanges which take about the said lever and provided on its inner surface with a vertical groove or recess, 27<sup>a</sup>; and a spiral spring,

27<sup>b</sup>, fitted into both the grooves or recesses on the lever and pawl and serving to press the said pawl downward into engagement 15 with the said notches.

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

JOHN FLETCHER GAYLORD.

Witnesses:

ARTHUR BROWNING,  
WM. MUZZY.