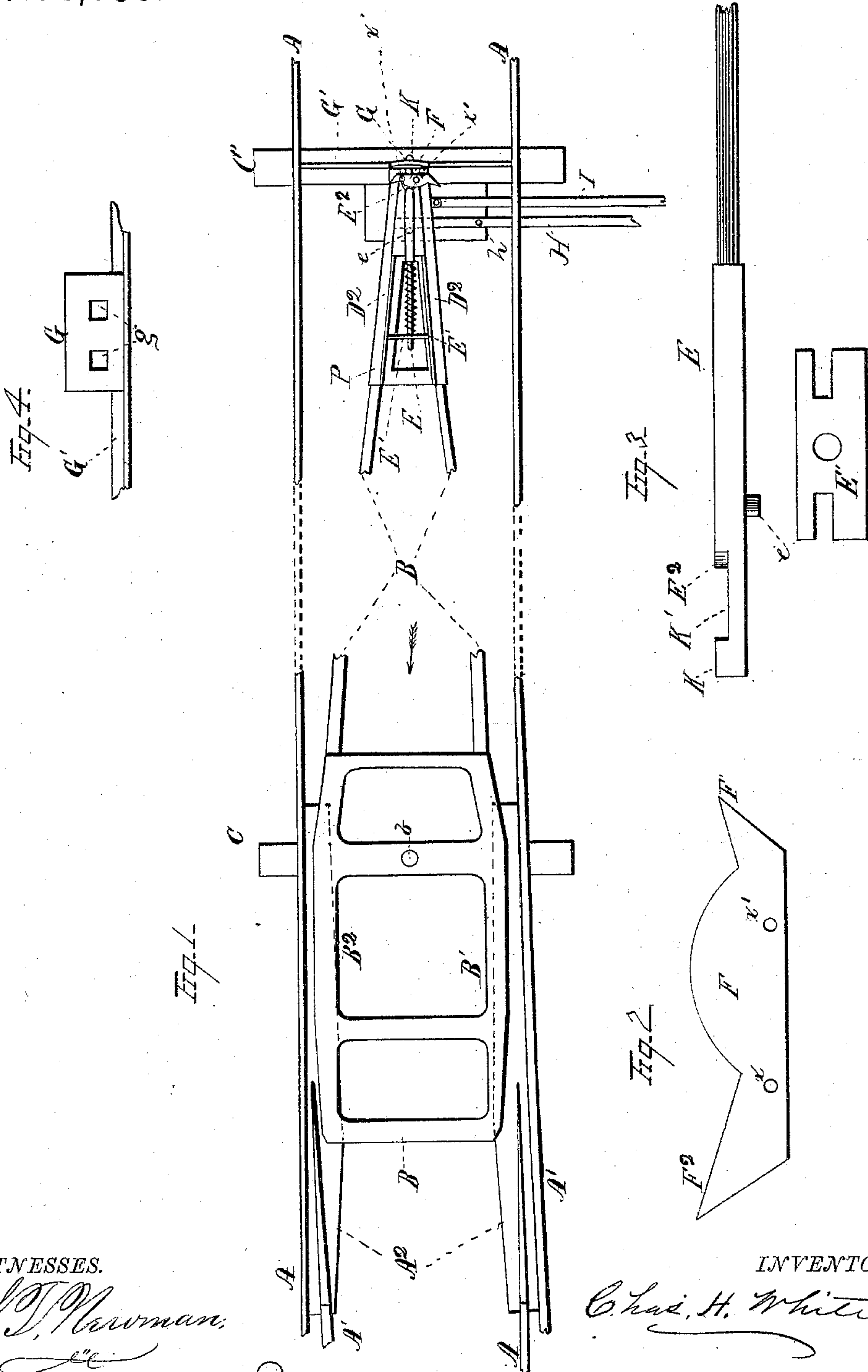


C. H. WHITE.
Railway Switches.

No. 152,586.

Patented June 30, 1874.



WITNESSES.

W. J. Newman,

Wm. L. Brereton

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INVENTOR

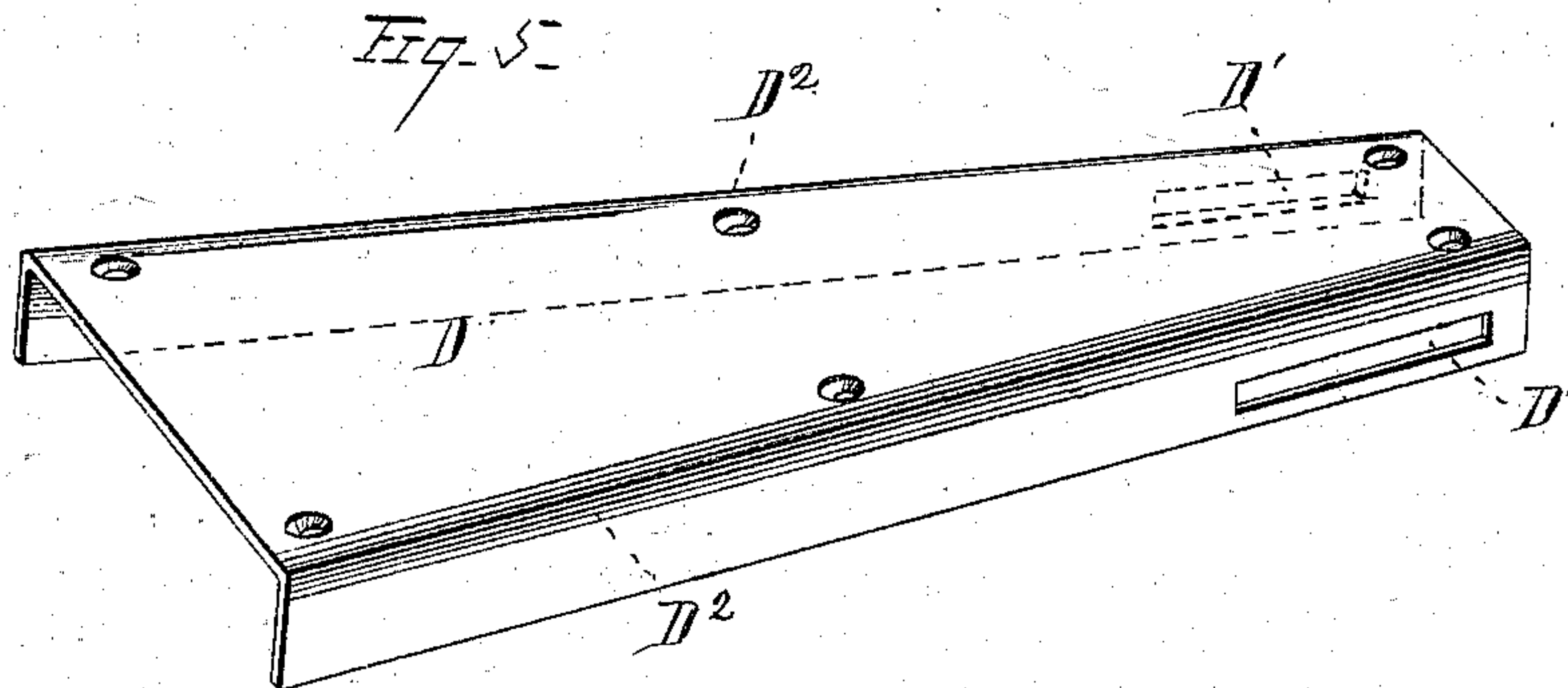
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2 Sheets--Sheet 2.

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UNITED STATES PATENT OFFICE.

CHARLES H. WHITE, OF WHITE'S STATION, MICHIGAN.

IMPROVEMENT IN RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **152,586**, dated June 30, 1874; application filed February 24, 1874.

To all whom it may concern:

Be it known that I, CHARLES H. WHITE, of White's Station, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Switches for Railroads, &c.; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to improvements in automatic railroad-switches.

In the drawings, Figure 1 represents a plan view of my invention with the housing removed, showing the operating mechanism. Fig. 2 is a detached view of the lever operating the locking-bolt. Fig. 3 is a detached view of the locking-bolt and its guide and spring-support. Fig. 4 is a front elevation of the locking-plate. Fig. 5 is a detached view of the combined housing and operating guide-plate.

My invention consists in the following parts and combinations, as hereinafter specified and claimed, wherein—

A A represent the rails of the main track, and A' A' the rails of a side track diverging from the main track A. To a cross-tie, C, properly located, is pivoted, at *b*, the switch B B¹ B². At that portion where it is pivoted, and from thence backward from the point, it is made the width of the road-gage, minus, say, four inches, or that which is sufficient to allow free passage to the flanges of the wheels passing between the rails and the switch. From the pivot *b* my switch gradually tapers at a more or less acute angle, and upon its apex or point is placed the operating mechanism, as follows: A suitable frame or bed-plate, P, may or may not be used as a floor to the operating mechanism. This mechanism consists essentially of a locking-bolt, E K, with its operating-lever F, and its guiding plate or bar D D², which may answer also as a housing to the operating mechanism. The locking-bolt E K is constructed as follows: Its point K is the locking portion of the bolt. Back of this is a seat or recess, K', in which is placed and moves the lever F, which operates to draw

the bolt from the locking-plate G. In front of the operating-lever F the bolt E is provided with a curved or circular bearing-face, against which impinges the curved or circular face of the lever F. From this the locking-plate passes back a sufficient distance, and is supported by the guide-plate E' placed upon the switch, which serves also as a support to a spring whose tendency is to force the bolt forward through the locking-plate G. The lever F, which operates the locking-bolt E K, is of peculiar construction, but is composed essentially of two arms, F¹ F², and two spuds, *x x'*. The spuds *x x'* engage beneath the lever F in circular grooves, in such a manner that the spuds *x x'* may act alternately as a center upon which the lever F shall turn, while the other spud shall travel in its guiding-groove, and thus give a steady motion to the lever F. The operation of the lever F is as follows: When either arm is operated, the circular face impinges against the curved bearing E² of the locking-bolt E K, and the bolt K is withdrawn from the locking-plate G, and the apex of the switch left free to move laterally. At the apex of the switch is situated the tie C', provided with a re-enforce or stiffening piece, G', which also serves as a brace to keep the rails A at a proper distance apart. Upon this tie C' is fixed the locking-plate G, which is curved in the arc of a circle, whose center is at the pivot *b*. The locking-plate G is provided with openings *g*, Fig. 4, for the passage of the bolt-head K. Two openings are provided, so that the switch may be locked either for the main or side track. Over the entire locking mechanism is secured, in proper manner, the guide-plate D D², which operates in moving the switch B, as will hereinafter appear. D¹ are slots or openings in the bearing-surfaces D², through which extend the arms F¹ F² of the lever F, and they are made of sufficient size to accommodate the movements of said lever F.

My switch is operated by spuds, arms, or other suitable equivalents placed upon a locomotive; preferably near the base of the pilot of the locomotive. These arms or spuds may be made in such a manner as to be under the control of the engineer, who can raise or lower them at pleasure, thus putting them into or

out of gear with the switch. In passing over the switch the spuds or arms of the locomotive are made to push against an arm, F^1 or F^2 , of the lever F , projecting through the slots $D^1 D^1$ of the guide-plates $D D^2$. By this operation the lever F draws the bolt-head K from the locking-plate G , and the switch is left free to swing. The arm or spud of the locomotive passing in a direct line between the rails A impinges against the angular bearing D^2 , upon one side or the other of the switch B , and by this means carries the point of the switch to one side or the other of the track. The bearing-surfaces D^2 are made of such a length that, when the switch has been sufficiently moved, the action of the operating arms of the locomotive will cease, and at the same time the bolt-head K engage in the locking-plate G , thus securing the switch in its proper position. The degree of angularity at which the bearing-surfaces D^2 are placed upon the switch B will determine the rapidity or smartness of the operation of my device. I prefer that the angle should be small, in order that the movement may be gentle, and the parts not subjected to the undue strain or shock that would result if the apex of the switch were made less acute.

I have described the manner in which my device is automatically operated by the locomotive. It may, however, be operated by the ordinary hand method in the following manner: The lever H , pivoted at h , will disengage the bolt-head K from its locking-plate G , when, by drawing or pushing the rod I , the switch may be obviously operated. The rod I may also be made to operate signal lights or colors in the ordinary manner.

Besides the construction and operation of my switch, as herein described, I have accomplished a device that, to a great degree at least, if not entirely, relieves the outer rail from the friction and pressure consequent upon centrifugal force in turning the curve of the ordinary switch. Said strain is received upon the part B^1 of the switch, instead of the outer rail. It will also be seen that in passing in a direction with the apex of my switch that

both the direct and side tracks are always in proper position and free for passage, and that it is only necessary to operate the switch when passing in a direction against its point or apex, and this may be done by operating either the lever-arm F^1 or F^2 of the lever F as it may be desired to pass upon the direct or side track.

I claim as my invention—

1. In a switch, the pivoted continuous frame $B B^1 B^2$, substantially as and for the purpose shown.

2. In combination with the frame $B B^1 B^2$, the angular plates or bearing-surfaces D^2 , substantially as and for the purpose shown.

3. In combination with the pivoted frame $B B^1 B^2$, the locking-bolt $E K$, substantially as and for the purpose shown.

4. In combination with the pivoted frame $B B^1 B^2$ and locking-bolt $E K$, the lever F , composed of two arms, $F^1 F^2$, and two spuds, $x x'$, whereby the locking-bolt is disengaged by the locomotive, substantially as set forth and shown.

5. In combination with the pivoted frame $B B^1 B^2$ and locking-bolt $E K$, the cross-tie C , provided with the locking-plate G and stiffening piece or re-enforce G^1 , substantially as and for the purposes described.

6. The lever F , provided with the arms $F^1 F^2$ and spuds $x x'$, in combination with the bolt $E K$, substantially as shown and set forth.

7. The combination of the main track $A A$, the pivoted switching-frame $B B^1 B^2$, provided with the locking device $G K$, and the angular bearing-surfaces D^2 , and the rails $A^1 A^1$ of the side track, substantially as and for the purpose herein set forth.

8. In combination with a frame, $B B^1 B^2$, and its locking mechanism, the housing $D D^2$ with the slots D^1 , substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 21st day of February, 1874.

CHARLES H. WHITE.

Witnesses:

LEVERETT L. LEGGETT,
ROBT. M. BARR.