

(No Model.)

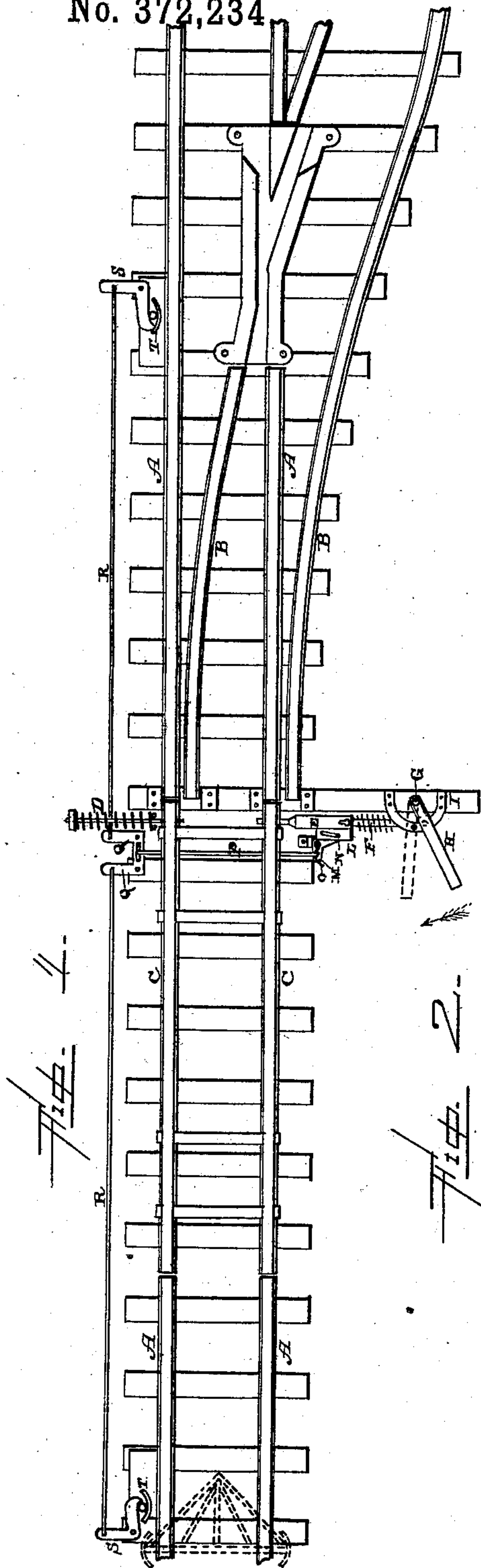
2 Sheets—Sheet 1.

A. P. ODELL.

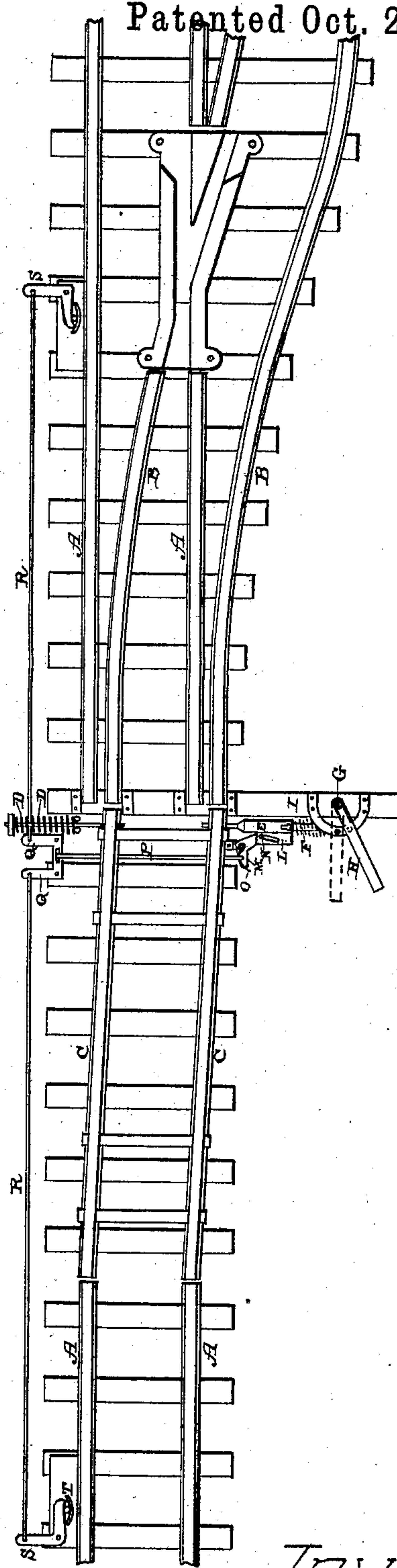
AUTOMATIC RAILWAY SWITCH.

No. 372,234

Patented Oct. 25, 1887.



Witnesses.
T. J. Gardner
E. P. Ellis.



Inventor.
A. P. Odell,
per F. A. Lehmann, atty.

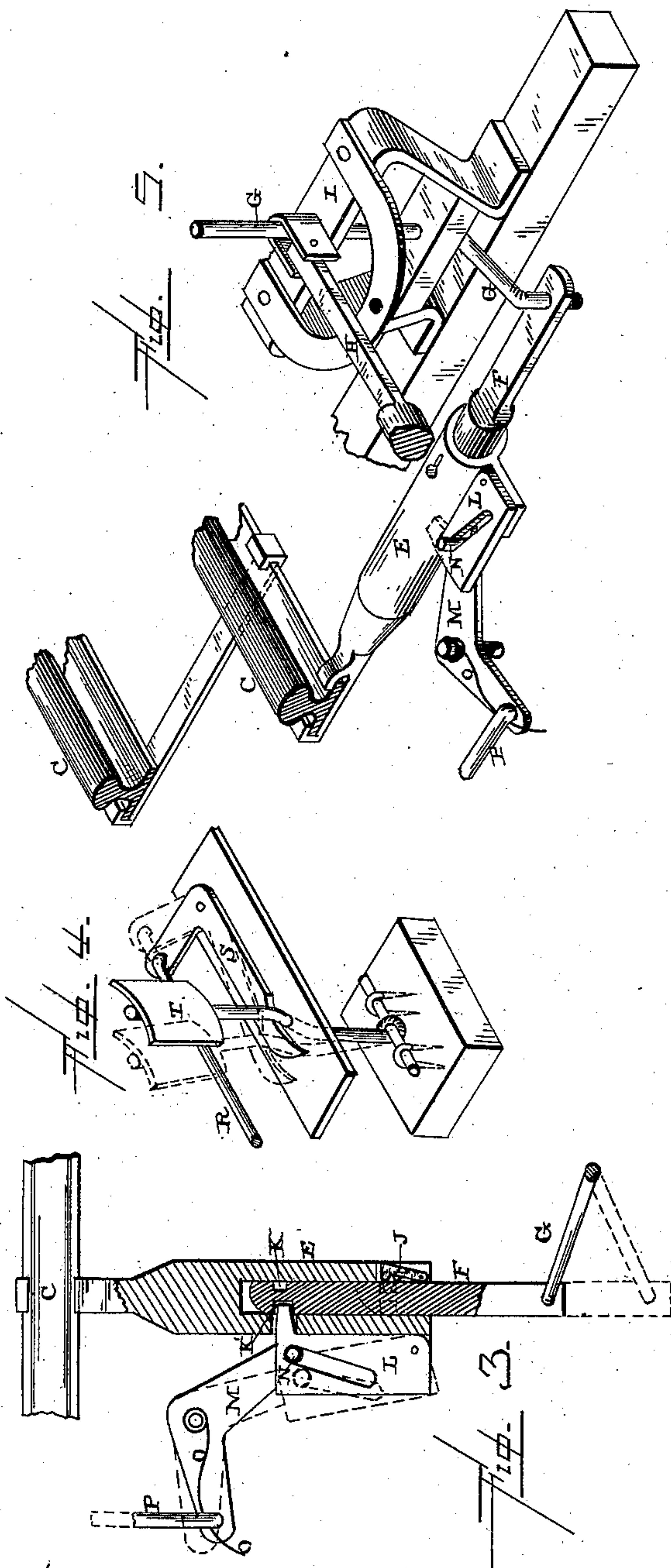
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UNITED STATES PATENT OFFICE.

ALBERT P. ODELL, OF BRADFORD, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO J. K. CHAPMAN, OF SAME PLACE.

AUTOMATIC RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 372,234, dated October 25, 1887.

Application filed January 26, 1887. Serial No. 225,584. (No model.)

To all whom it may concern:

Be it known that I, ALBERT P. ODELL, of Bradford, in the county of McKean and State of Pennsylvania, have invented certain new and useful Improvements in Automatic 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in automatic railway-switches; and it consists in the arrangement and combination of parts which will be more fully described hereinafter, and set forth in the claims.

The object of my invention is to provide an automatically-operating mechanism for shifting the switch-rails from the side to the main track at the passage of every train along the main track from either direction, and to have the train which passes from the side track upon the main one automatically shift the switch-rails from the side to the main track, so that as the train passes along the switch will be left closed with the main track without the trouble of having to stop the train for the purpose of operating the switch.

Figures 1 and 2 are plan views of a switch embodying my invention, showing the parts in different positions. Fig. 3 is a section taken through the socket and the switch-rod. Fig. 4 is a detached view showing one of the shifting-levers placed along the track. Fig. 5 is a perspective of the switch-lever and the parts connected directly thereto.

A represents the rails of the main track, B the rails of the side track, and C the shifting switch-rails. Connected to these switch-rails, upon one side, is a spiral spring, D, sufficiently powerful to move the free ends of the switch-rails C from the rails of the side to those of the main track whenever the switch-rails are left free to move. Connected to the outer side of the other switch-rail is the socket E, which receives the inner end of the switch-rod F, which is connected to the lower end of the cranked switch-lever G. To the upper end of the switch-lever G is fastened the operating-lever H, by means of which the lever G is

turned in its bearing I, and the switch-rails shifted from the rails of the main to those of the side track. In the inner end of the socket E is pivoted a spring locking device, J, of any suitable description, which is to engage with the switch-rod F for the purpose of locking the rod and the socket together, so that the rod cannot have any movement unless the socket moves with it.

The locking device J never engages with the notch K in the rod F until the socket is moved endwise by the movement of the switch-rails C, so as to bring the notch K near the outer end of the socket, where the device J engages with it. When the switch-rails are in a line with the rails of the main track, the rod F is nearly withdrawn from the socket, as shown in Fig. 1, and is locked thereto by the device J. If it is desired to move the switch-rails into line with the side track B, the switchman must first insert his key through the key-hole in the end of the socket E, detach the locking device J from the rod F, and then move the switch-lever H in the direction of the track, so as to force the rod F into the socket, as shown in Figs. 3 and 5, so that the locking device L will engage with the notch K', as shown in Fig. 3. Then, by moving the switch-lever H outward from the tracks, the rod F and socket E draw the switch-rails into the position shown in Fig. 2. As long as the locking device J, with the rod F and the switch, is locked rigidly in line with the rails of the main track, the switch-rails cannot be moved unless the person desiring to tamper with the switch has a key which will operate the device J. No matter whether the socket E and rod F are connected together by the locking device J or L, when fastened together they always cause the switch-rails to move with them when moved by the lever H. When the device J is freed from the rod F, the rod can be moved inward toward the rails, so that its end will pass into the socket far enough to engage with the locking device L without moving the rails.

Pivoted to one side of the inner end of the socket is the slotted locking device L, which has a catch or projection upon its inner end to pass through an opening in the side of the socket E and engage with the notch K' in the

switch-rod F. This slotted locking device L serves to lock the switch-rod F to the socket E in such a manner that when the switch-lever G is turned the free ends of the switch-rails C will be moved from the main to the side track. When this device L engages with the rod F, the rod is forced into the socket to its full extent, so that the notch K' in the rod F is brought just opposite the opening in the socket through which the projection on the locking device L passes. This locking device L is operated entirely by the cranked lever M, which is provided with a projection, N, which passes up through the slot in the device L, for the purpose of moving the inner end of the device L in or out in relation to the socket. When the lever M is moved so that the projection N on its outer end disengages the locking device from the rod F, the spring D instantly shifts the switch-rails from the side to the main track. Applied to this cranked lever M is a spring, O, which keeps it in such a position that the projection N upon one end is held pressed toward the socket, and thus holds the locking device L in position. When the lever M is moved so as to operate the locking device L, the spring O returns the lever M to position again just as soon as it is left free to move.

Connected to the shorter end of the lever M is the operating-rod P, which extends across under the switch-rails C and is connected at its other end to the two L-shaped levers Q, pivoted upon the other side of the track. Each of these levers Q has a slot formed in its inner shorter end, so as to engage with the rod P, as shown. When these levers Q are moved, this rod P is moved endwise, so as to draw the shorter end of the cranked lever M over toward the levers Q, and thus operate the locking device L. To the outer end of each of these levers Q is fastened an operating-rod, R, which extends along parallel with the rails of the main track for any suitable distance, and which rods R are connected at their outer ends to the L-shaped levers S, pivoted upon suitable supports placed alongside of the rails of the main track. These levers S are operated by means of the vertically-pivoted levers T, which extend upward a suitable distance above the top of the main track, and which levers T are provided with grooved or bent plates at their upper ends, so as to be struck and operated by any suitable device placed upon either the locomotive or the cars. When these levers T are moved outward by the passage of a train in either direction, the inner ends of the levers S are forced outward, thus causing the rods R to move endwise, so as to turn the L-shaped levers Q upon their pivots, and thus operate the rod P, lever M, and locking device L.

In case a train is advancing along the main track from either direction and the switch is placed for the side track, the lever T is struck, the locking device L is operated, and the spring D instantly shifts the free ends of the switch-rails from the side to the main track.

If the switch-rails are set for the side track, and a train is advancing along the side track toward the main one, the device placed upon the locomotive will be so moved as not to operate the lever T, placed along side the main track and beyond the switch until the last car has passed the switch, when a device upon the caboose, corresponding to the one upon the locomotive, will be moved, and thus operate the lever T so as to shift the free ends of the switch-rails from the side to the main track, thus leaving the switch in position for the next train that is passing along the main track from either direction. By this construction all necessity for the train having to stop, so that a man can go back and shift the switch, is entirely done away with. When the catch L is tripped, the spring instantly moves the socket on the rod F, which is rigidly held by the switch-lever, and then the catch J engages with the rod F, and thus locks the rails in position. When the rails are again moved, it must be done through the switch-lever H.

The spring D is here shown as applied to the opposite side of the switch-rails from the switch-operating mechanism; but this location is not necessary. This spring may be placed upon the switch-rod F, and have one end bear against the inner end of the socket and the other end against the switch-lever G, if so preferred. It will operate the same in either position. The rods R are intended to be inclosed in tubes for their protection, and the other operating parts of the switch will be covered over in such a manner as to protect them from sleet, snow, ice, or from having any obstruction placed between them so that they will not operate.

Having thus described my invention, I claim—

1. The combination, with the rails of the main, side track, and switch, of the vertical levers T, which are placed beside the rails of the main track beyond the switch, the L-shaped levers operated by the vertical ones, the connecting-rods, the L-shaped levers connected to the inner ends of the rods, the operating-rod P, the spring-actuated cranked lever M, provided with the stud or projection N, the locking device L, which is operated by the lever M, the socket, the switch-rod, and the switch-lever, substantially as shown.

2. The combination of the switch-rails, the socket connected thereto, the notched switch-rod, which extends into the socket, the locking device J, the switch-lever, a locking device, L, a mechanism for operating it, and the spring D, for moving the free ends of the switch-rails from the side to the main track, substantially as described.

3. The combination of the rails of the main and side track, the switch-rails, the spring D, applied to the free ends of the switch-rails, with the socket applied to the free ends of the switch, and socket provided with openings for the locking devices J L, the locking de-

vices J, the slotted locking device L, the end-wise-moving notched switch-rod F, the switch-lever, the spring-actuated lever M, for operating the locking device L, and devices, substantially as shown, which are operated by the passing trains, whereby the locking device L is disengaged from the switch-rods, substantially as set forth.

4. In an automatic switch, the combination of the switch-rails, a spring applied to the free ends thereof, and a switch-rod and lever applied to the free ends of the switch-rails upon the opposite side from the spring, a socket provided with two locking devices, one of which locks the switch-rails in position, so

that they cannot be moved, and the other which locks the switch-rod and socket together, so that the free ends of the switch-rails can be shifted from the main to the side track, and an automatically-operating mechanism for releasing the switch-rod from the socket, so that the spring can shift the switch-rails, substantially as specified.

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

ALBERT P. ODELL.

Witnesses:

WARREN C. STONE,
R. S. WIDDICOMBE.