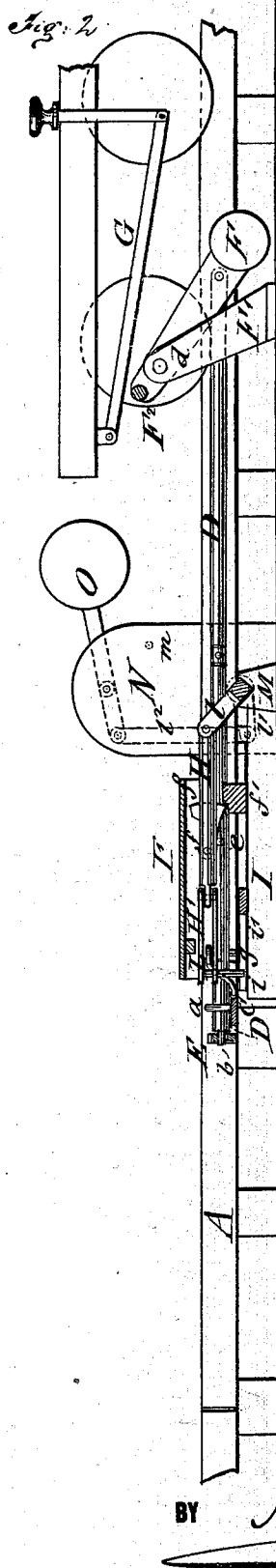
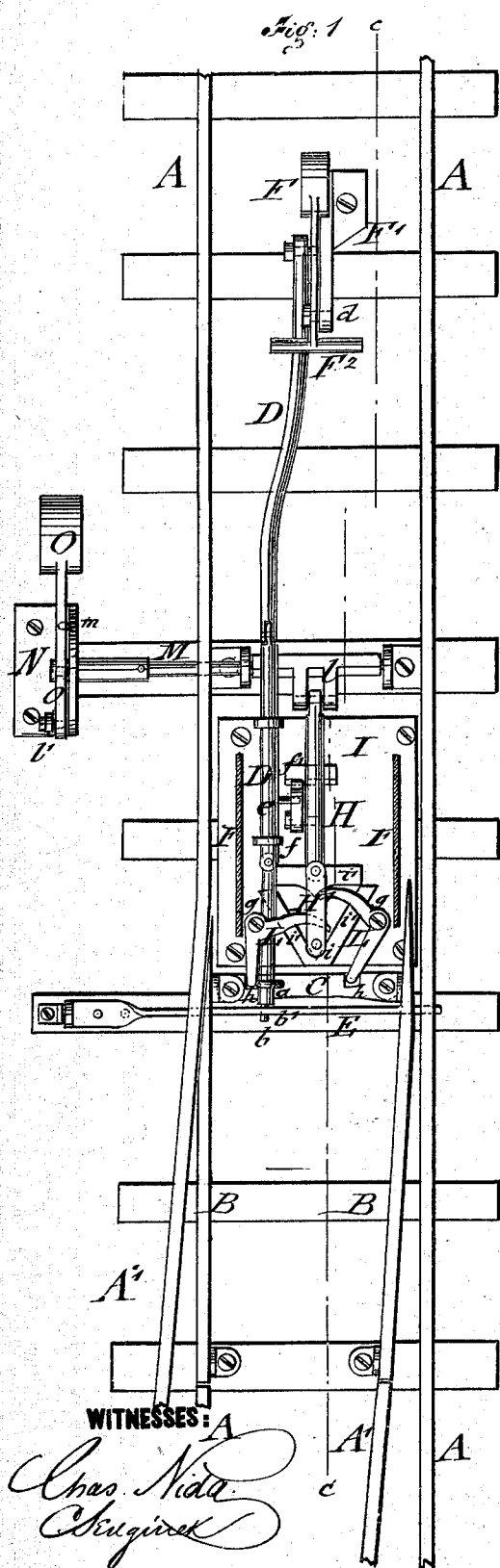


C. NAUCKE, Jr.
Railway Switches.

No. 146,606.

Patented Jan. 20, 1874.



UNITED STATES PATENT OFFICE.

CARL NAUCKE, JR., OF MAGDEBURG, GERMANY.

IMPROVEMENT IN RAILWAY-SWITCHES.

Specification forming part of Letters Patent No. **146,606**, dated January 20, 1874; application filed November 8, 1873.

To all whom it may concern:

Be it known that I, CARL NAUCKE, JR., of Magdeburg, Prussia, Germany, have invented a new and Improved Railroad-Switch, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a plan view of my improved safety railroad-switch with the covering casing taken off to show the connection of parts below; and Fig. 2 is a vertical longitudinal section of the same on the line *c c*, Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of my invention is to provide a switch mechanism, in connection with the common railroad-signal switch, by which the correct position of the switch-rail may be obtained by the locomotive-engineer, even if the switch is wrongly set by accident or mistake, permitting thereby a full control of the switches by the same without slackening speed, and increased safety against accidents arising from misplaced switches. My invention consists in providing the pivoted switch-rails with an attachment-plate, which connects by bell-crank levers with a link-shaped pivoted rod, operated and guided in such manner that the attachment-plate and switch-rails are moved whenever a latch-connection of the link-shaped rod with a longitudinal lever-rod, which locks into the sliding switch-bar, is released by the action of an inclined lever of the locomotive on the roller of a weighted crank of the locking-lever rod, so that the detaching of the same from the sliding bar is produced, and the switch-rails are thereby carried into position for the train.

In the drawing, A represents the rails of the main track; A', the side track, to which the outer rails of both the main and side tracks are connected. B are the pivoted switch-rails, which are placed between the outer rails, and form the communicating rails for main or side track, as required. The pointed ends of the switch-rails B are laterally connected by a fixed attachment plate or bar, C, which guides in a staple, *a*, the pivoted front end of the longitudinal lever-rod D, so that the forward-projecting tongue or pin *b* of the same locks into a perforation, *b'*, of the switch-bar E, which is set in the usual manner by suitable lever-con-

nections by the attendant, and provided with the customary signal devices, by which the position of the switch may be ascertained.

My safety-switch is based on a system of signal-switches by which the engineer can recognize during the day and night the exact state of the switch.

For the purpose of enabling the locomotive-engineer to pass any switch at full speed without danger, even if the switch should be wrongly placed for the train, I provide a mechanism by which the locking-lever D may be disconnected from the switch-bar E, and also a sliding mechanism connected therewith, by which the switch-rails are brought automatically into correct position for the passage of the train. The detaching mechanism consists of the locking-lever D, which is arranged in longitudinal direction between the rails of the main track, extending to a distance of about three rail-lengths from the switch, being guided in suitable staples on the cross-ties, if required, and attached with its pivoted rear part to the lower part of a weighted lever, F. Lever F is fulcrumed at *d* to a strong standard or support, F¹, and provided at its shorter upper arm with a round cross bar or roller, F², of suitable width and diameter, which roller F² is acted upon by an inclined lever-rod, G, which is pivoted at the bottom of the front part of the locomotive, and whose rear end is lowered by a suitable lever-connection from the engine-room. In its normal position lever-rod G is raised at such a height above roller F² that the engine may pass without striking the same; but whenever the switch requires changing the lever-rod G is brought down by the engineer, pressing thereby roller F² down, carrying lever D backward, and releasing thereby its front tongue from switch-bar E. The roller F² is placed at such height above the track that the train may freely pass without coming in contact with the same. The mechanism for sliding the switch-rails is operated simultaneously with the release of the locking-lever D by the action of a tongue or lug, *e*, which projects vertically from the same, engaging the weighted latch *f* of the main rod H of the sliding mechanism. The main rod H passes over a base-plate, I, which is arranged near the pointed ends of the switch-rails B between the

main track A. The bell-crank levers L are pivoted to vertical bolts *g* of plate I, so as to extend with their curved front arms into recesses *h* of attachment-plate C, and with their rear arms into the link-shaped pivoted part of H' of main rod H. Front part H' has a downward-projecting tongue, *i*, and is guided by the rails *i'* of plate I, by which the link part H' is alternately thrown into position to engage the bell-crank levers L. The guide-rails *i'* are arranged in the shape of an equilateral triangle, having the apex toward the switch-rails between the supporting-bolts *g*. The weighted latch *f* is pivoted to the side of rod H, and locks into a grooved seat, *f'*, of plate I. The tongue *e* of lever D passes along its lower side, and raises it from the seat *f'* when lever D is carried back. A metallic casing, I', is attached to base-plate I, and protects not only the bell-crank levers and the connecting parts against the influences of the weather and impurities, but secures also the regular working of the latch *f* and main rod H, as it keeps them confined in position for the regular performance of their movements. The rear end of main rod H is pivoted between the short arms *l* of lever-rod M, which passes side-wise under main track A to a vertical standard, N, where it connects by arm *h* and link *h'* with a weighted lever, O. When latch *f* is locked to seat *f'* lever O is raised, but as soon as latch *f* is released by tongue *e* the lever O drops till arrested by stop-pin *m*, carrying thereby main rod H back, which engages with its link-head H one of the bell-crank levers L, and moves thereby the switch-rails from one track to the other. Switch-bar E is then locked again to tongue *b* of lever D, latch *f* reseated by raising weighted lever O, which brings the link-head H' in position to engage the other bell-crank lever L, and the switch mechanism is ready for action. The mechanism is only thrown into operation when the switch is wrongly set for the train, in which case the engineer, by pressing the inclined lever down, strikes the roller, unlocks the connecting lever-rod and thereby the sliding mechanism, carrying the switch-rails instantly into posi-

tion for the train before the locomotive-wheels reach the switch-rails.

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

1. The combination of sliding switch-bar E with lever D, provided with tongue *b* at front end, and pivoted to weighted lever F with top roller F², for releasing the switch-rails, as specified.

2. The pivoted switch-rails B connected by attachment-plate C, in combination with bell-crank levers L, link-shaped head H', main head H, lever-rod M, and weighted lever O, arranged in the manner described, for sliding the switch-rails B from one track to the other, as specified.

3. The combination of lever-rod D having side-wise-projecting tongue, in combination with weighted latch *f* of main rod M, to produce the simultaneous action of the sliding and locking mechanisms, as set forth.

4. The combination of weighted latch *f* and main rod H, with seat *f'* and casing I', to secure the resetting and effective working of the sliding mechanism, as described.

5. The link-shaped head H' of main rod H having downward-projecting tongue *i*, in combination with triangular guide-pieces *i'* of plate I, for securing the alternate action of the link-shaped head H' and levers L, substantially as specified.

6. The attachment of plate C of switch-rails B, provided with recesses *h* for the connecting-arms of bell-crank levers L, as described.

7. A common signal-switch, arranged with the sliding and locking mechanisms described, in combination with the inclined lever of the locomotive, for operating the same when in a wrong position, and causing thus the unobstructed passage of the train, substantially as and for the purpose described.

The above specification of my invention signed by me this 12th day of August, 1873.

CARL NAUCKE, JR.

Witnesses:

HERMANN KRIESMANN,
ALEXANDER LANGE.