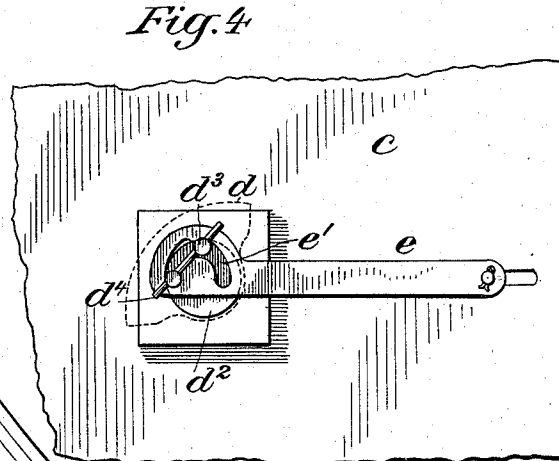
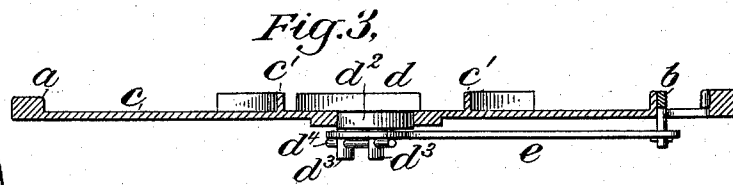
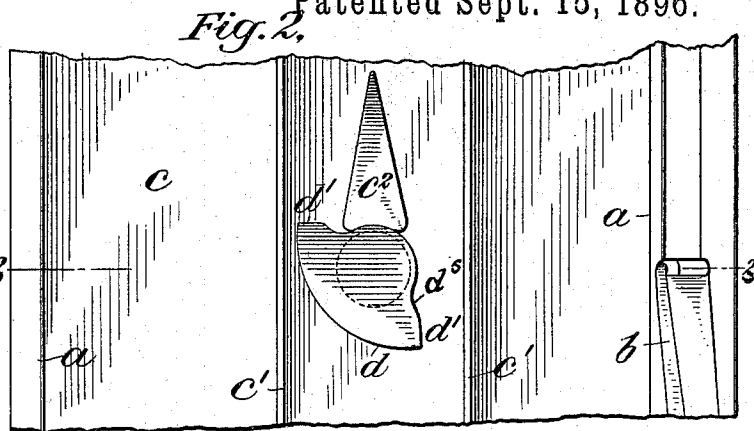
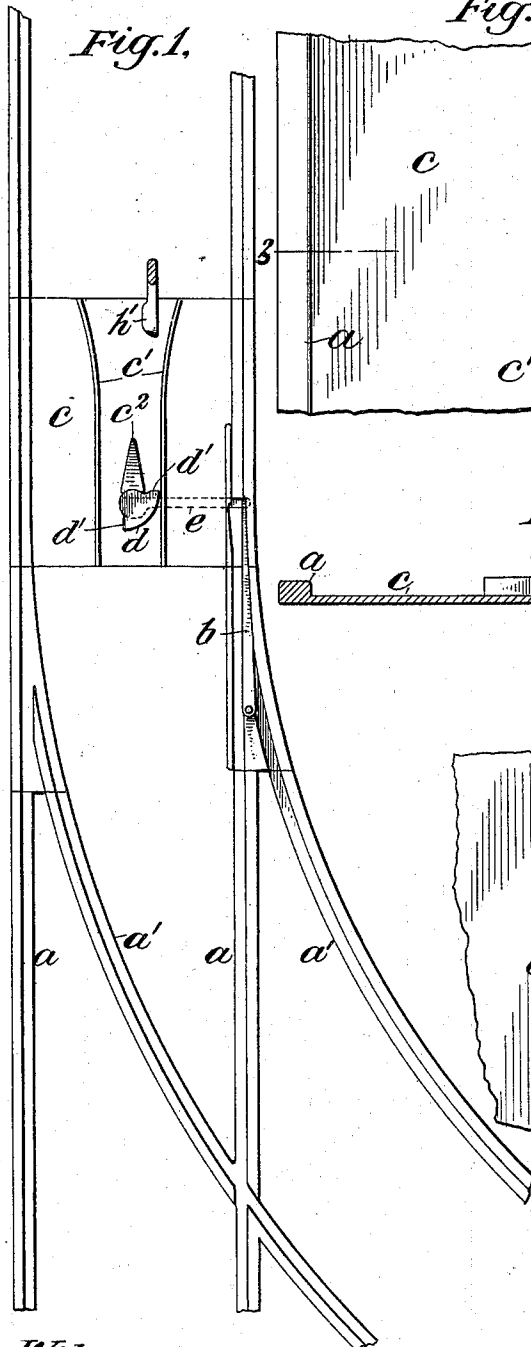


C. HOERL.  
RAILWAY SWITCH.

No. 567,645.

Patented Sept. 15, 1896.



Witnesses:-

*B. H. Hayworth*  
*A. L. Hayes.*

Inventor:-

*Conrad Hoerl*  
*By Chas. T. Dane*  
*his atty.*

(No Model.)

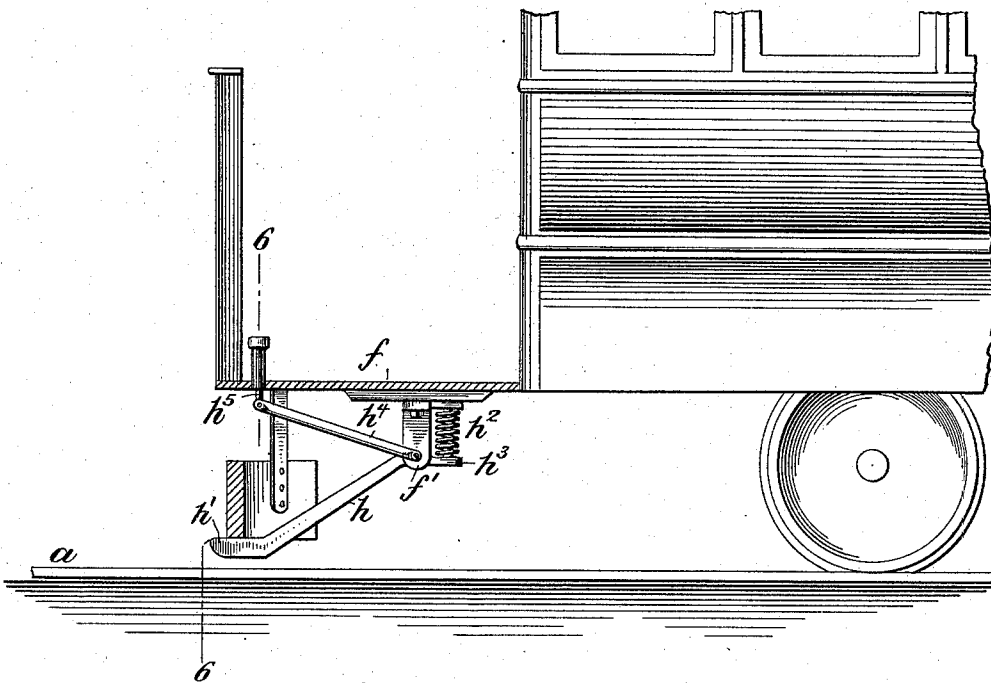
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C. HOERL.  
RAILWAY SWITCH.

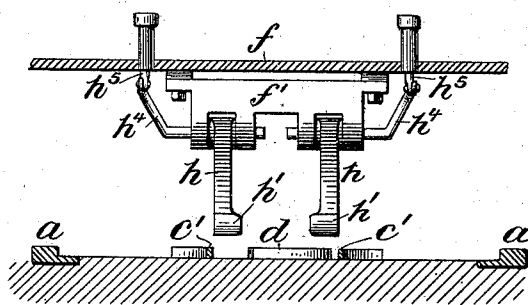
No. 567,645.

Patented Sept. 15, 1896.

*Fig. 5,*



*Fig. 6,*



*Witnesses:-*

*W. H. Hayworth*  
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*Conrad Hoerl*  
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# UNITED STATES PATENT OFFICE.

CONRAD HOERL, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF TO  
STEPHEN J. MEEKER, OF SAME PLACE.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 567,645, dated September 15, 1896.

Application filed May 28, 1895. Serial No. 550,915. (No model.)

*To all whom it may concern:*

Be it known that I, CONRAD HOERL, a citizen of the United States, and a resident of Newark, Essex county, and State of New Jersey, have invented new and useful Improvements in Railway-Switches, of which the following description, taken in connection with the drawings herewith accompanying, is a specification.

- 10 This invention relates to the switch-operating mechanism and more particularly to that class which is arranged and adapted to be operated from the car by the driver, motorman, or other car-operator, through the medium of  
15 suitable devices supported on the car, in a manner to impart such motion to the switch-tongue as to direct the car upon a branch track or continue the same upon the main track, as may be desired.
- 20 The object of my present invention is, in part, to provide a simple, effective, and inexpensive device or mechanism for connection with the switch-tongue whereby the same may be moved or operated from the car in the manner as above referred to, and be automatically locked in position after being so operated. This object I secure by means of the construction and combination of parts herein-  
25 after referred to, and pointed out in the claims.
- 30 Referring to the accompanying drawings, Figure 1 represents a plan view of a portion of a railway-track at the switch-point, showing my improved device in connection therewith. Fig. 2 is an enlarged plan view of a  
35 portion of the track containing the switch-tongue and its operating device shown in Fig. 1. Fig. 3 is a sectional view through line 3 3 of Fig. 2. Fig. 4 is a bottom view of the construction as shown in Fig. 2. Fig. 5 is a side  
40 elevation of one end of a car partly in section, showing a preferred form of attachment or appliance for connection with the car to operate the switch-connecting device; and Fig. 6 is a front or end view of the same taken  
45 through line 6 6 of Fig. 5.

To explain in detail, *a* represents the main-track rails of a railway, *a'* the branch-track rails, and *b* the pivoted switch-tongue for connecting said main and branch rails.

- 50 In the present instance shown I have provided a plate *c*, upon and to which certain of

the parts forming the switch-operating mechanism are adapted to be formed or connected, and which is adapted to be firmly seated in the road-bed at a point adjacent to the switch-tongue, as shown in Fig. 1. On this plate at  
55 a point about central between the rails and opposite the end of the switch-tongue is located a horizontally-movable pivoted plate or head *d*, termed the "switching-head," which  
60 has connection on its under side with a rod or lever *e*, connected with the switch-tongue, and forms the part which is adapted to be engaged by the switch-operating attachment on the  
65 car to shift the switch in a manner as will be described.

The head *d*, in the present instance shown, is of substantially a triangular form and pivoted at one of its angles, in order to present  
70 two edges or surfaces *d'* *d''*, arranged at an angle to each other in such manner that when one side or edge is engaged to be moved to throw the connecting switch, the opposite edge is  
75 thereby moved into operative position to be engaged to return the switch.

Two longitudinal ribs or guides *c'* *c''*, arranged parallel with each other and to the line of the track and flaring at one end to form an enlarged mouth or receiving end between the same, are located upon the plate *c*  
80 at opposite sides of the switching-head and serve, in combination with a wedge-shaped plate or projection *c'*, located on the plate *c*, adjacent to the pivotal angle of the switching-head, to guide the switch-operating  
85 attachments when lowered into operative position from an approaching car to insure their proper engagement with the switching-head, as will be obvious.

The switching-head is provided with a circular plate or projection *d'* on its under side, which is seated and operates within a corresponding seat or opening in the plate *c*, which forms the pivotal bearing for the said head. This pivot-plate *d'* is provided with two  
90 eccentrically-arranged pins or projections *d'* *d''* on its underside, which extend through a cam-groove *e'* in the switch-connecting rod or lever  
95 *e*, as more clearly shown in Fig. 4, and are adapted, when the pivot-plate is oscillated in  
100 its bearing by the shifting of the head *d*, to operate within said groove and move the con-

necting rod or lever *e* longitudinally and thereby shift the switch-tongue, and also, when the latter has been so shifted, to positively lock the same from movement, except  
 5 as operated from the switching-head, by holding the cam-lever from longitudinal movement, this latter feature being secured by reason of one of the pins being moved and located in that part or end of the groove which  
 10 extends in a direction substantially at right angles to the length or line of movement of the lever, as clearly shown.

The lever or rod *e* is held in operative connection with the head *d* or part thereof, in  
 15 the present instance shown, by means of a pin *d*<sup>4</sup>, which passes through the pins *d*<sup>3</sup> and supports the lever *e* from its under side. Any suitable means other than shown may be employed for the purpose, however, without departing from the spirit of my invention.

Referring more particularly to Figs. 5 and 6, in which I have shown a preferred form of attachment or device adapted to be carried by the car for operating the switching-head  
 25 *d*, *h* represent two levers which are pivotally supported in a hanger or bracket *f*<sup>1</sup> on the under side of the car-platform *f*, with one end projecting forward and terminating in a horizontally-arranged foot *h*<sup>1</sup>, which latter  
 30 are movably held in a normal position sufficiently high above the road-bed to avoid any obstacles by means of a spring *h*<sup>2</sup>, acting on a rear arm or extension *h*<sup>3</sup> of the lever, but which, when the car approaches the switching-head *d* in the road-bed, are adapted to be  
 35 depressed to contact with the plate *c* and be properly guided thereon to engage with the said switching-head and operate the same in a manner as before described. These levers  
 40 are each provided with an arm or extension *h*<sup>4</sup>, which extends upwardly to a point adjacent to the platform, at which point they are pivotally connected with short rods *h*<sup>5</sup>, which latter extend upward through suitable open-  
 45 ings in the platform in a convenient position where the driver or motorman may press upon the same with his foot to depress the feet *h*<sup>1</sup> in operative position to engage with the switching-head *d*, the said feet *h*<sup>1</sup> being auto-  
 50 matically returned to their normal position, after the motorman removes his foot from the part *h*<sup>5</sup>, by means of the springs *h*<sup>2</sup>.

The switching-head *d*, as herein illustrated, is formed with the edges *d*<sup>1</sup>, having inwardly-  
 55 curved or cut-away portions *d*<sup>5</sup> *d*<sup>5</sup> in order to allow for the free operation or movement of the feet *h*<sup>1</sup> of the operating attachment between such head and the guide-rib *c*<sup>1</sup>, and prevent locking or binding of such foot be-  
 60 tween said rib and the pivotal center of the

switching-head, as would be liable if not provided against by the construction set forth.

Having thus set forth my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a switch-operating mechanism, the combination with a movable switch, of a pivoted switching-head, and a rod or lever connecting said switch and head, having a cam-groove therein which receives a projection on  
 70 said switching-head whereby the switch may be operated and automatically locked, substantially as described and for the purpose set forth.

2. In a switch-operating mechanism, the combination with the movable switch, of a supporting plate or casting seated in the road-bed between the rails, a switching-head pivotally supported on said plate, and a rod or lever connecting at one end with the switch  
 80 and at its opposite end having a double cam-groove therein which receives a projection on said switching-head, substantially as described and for the purpose set forth.

3. In a switch-operating mechanism, the combination with the movable switch, of a switching-head having two sides or edges arranged substantially at right angles to each other and pivotally supported at its point of angle, and a rod or lever connecting said  
 90 switch and switching-head and having a double cam-groove therein which receives a projection on said switching-head, substantially as described and for the purpose set forth.

4. In a switch-operating mechanism, the combination with the movable switch, of a pivoted switching-head provided with two pins or projections on its under side, a rod or lever having a cam-groove therein in which  
 95 said pins or projections extend and operate, and having connection with the said switch, substantially as described and for the purpose set forth.

5. In a switch-operating mechanism, the combination with the movable switch, of a supporting plate or casting seated in the road-bed between the rails and provided with a switching-head supported thereon, and with means for guiding an operating device with relation to said switching-head, and a rod or  
 105 lever connecting said switch and switching-head and having a double cam-groove therein which receives a projection on said switching-head, substantially as described and for the purpose set forth.

CONRAD HOERL.

Witnesses:

CHAS. F. DANE,  
 A. L. HAYES.