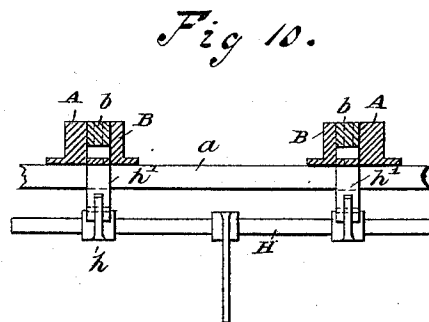
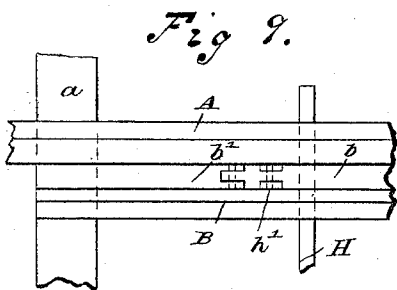
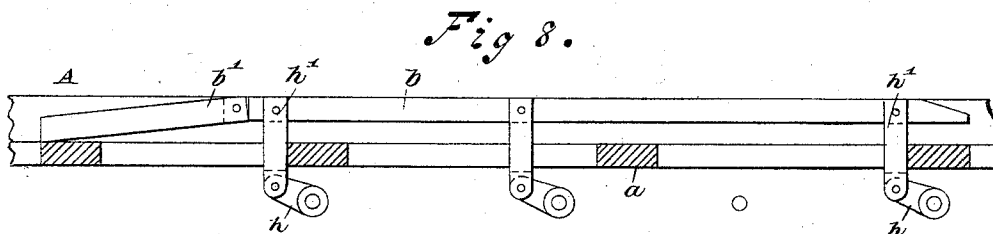
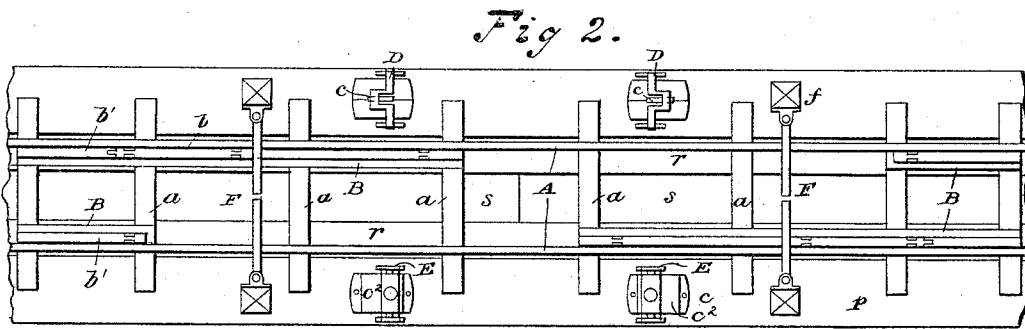
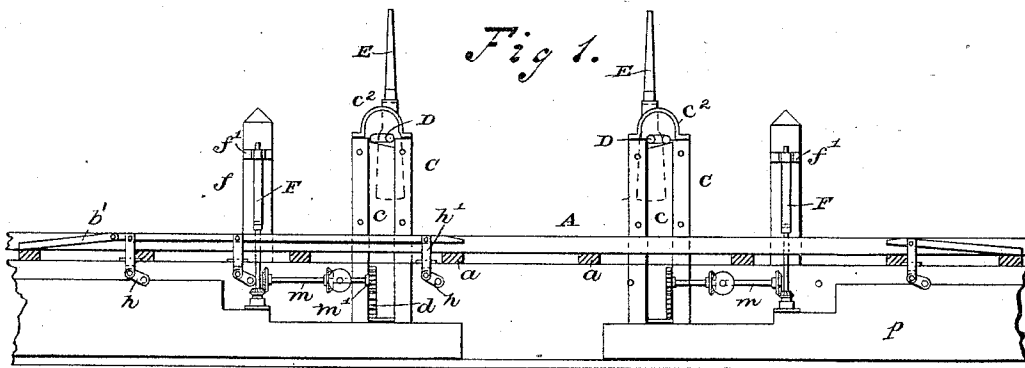


J. CHRISTOPHRESON.
RAILROAD GATE.

No. 537,438.

Patented Apr. 16, 1895.



Witnesses.
Caw. S. Duwall Jr
Wm L Boyden

Inventor.
John Christopherson
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(No Model.)

2 Sheets—Sheet 2.

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Fig 3.

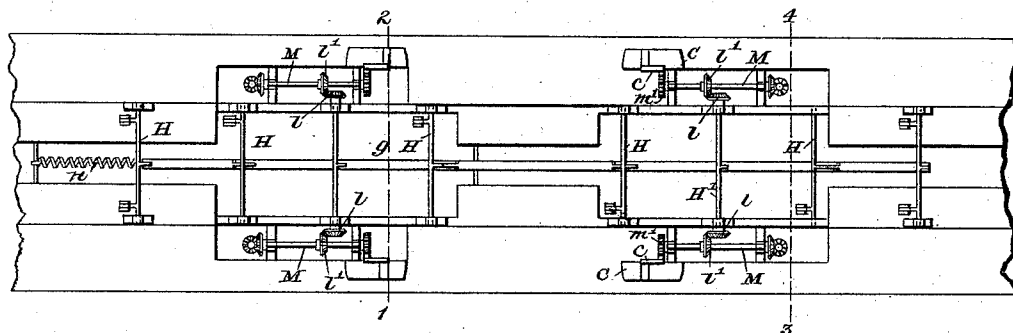
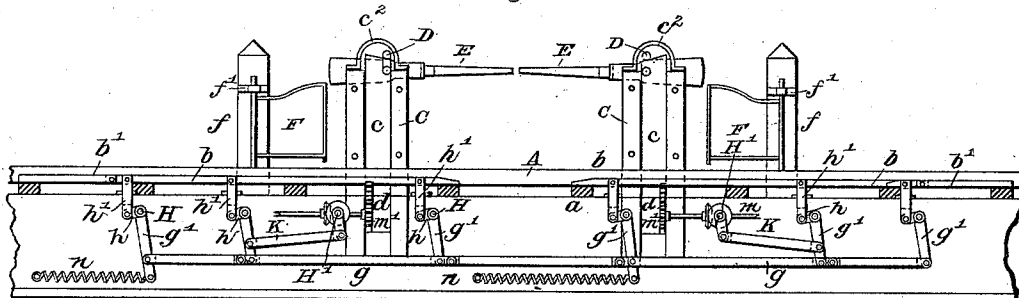


Fig 4.

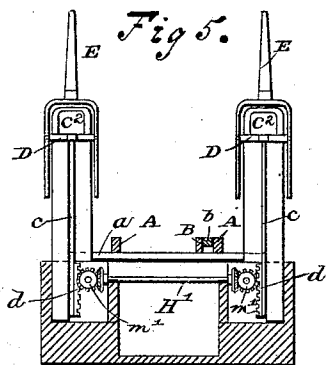


Fig 5.

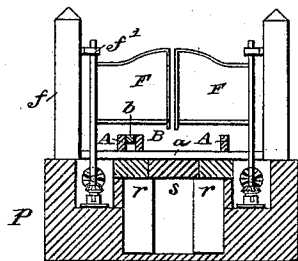
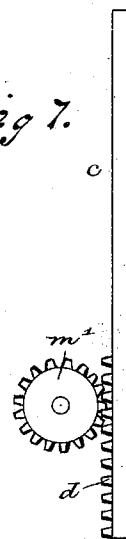


Fig 6.

Fig 7.



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UNITED STATES PATENT OFFICE.

JOHN CHRISTOPHRESON, OF NORTH MUSKEGON, MICHIGAN.

RAILROAD-GATE.

SPECIFICATION forming part of Letters Patent No. 537,438, dated April 16, 1895.

Application filed October 31, 1893. Renewed January 16, 1895. Serial No. 535,166. (No model.)

To all whom it may concern:

Be it known that I, JOHN CHRISTOPHRESON, a citizen of the United States, residing at North Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Railroad-Gates; 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 an improvement in railway gates, the object being to so construct an automatically-operating mechanism for opening and closing railway gates at a point where the railway is crossed by a road or by another railway, that such mechanism may be simple in construction, durable and positive in its operation and yet inexpensive, easily controlled and readily applied at any desired point.

The invention therefore consists essentially in the construction, arrangement and combination of parts substantially as will be hereinafter described and claimed.

In the accompanying drawings illustrating my invention, Figure 1 is a sectional side elevation of my improved railway gate. Fig. 2 is a plan view of the same with the caps of two of the standards removed. Fig. 3 is a sectional elevation with the roadway gates closed, and the line gates open. Fig. 4 is a plan view of the mechanism for operating the gates, with the gates themselves and the inside halves of the supporting standards removed. Fig. 5 is a cross sectional elevation on the line 1—2 of Fig. 4. Fig. 6 is another cross sectional elevation on the line 3—4 of Fig. 4. Fig. 7 is an enlarged side elevation of the ratchet slide and wheel for operating same. Fig. 8 is an enlarged side elevation of the railway rail and bar for operating devices. Fig. 9 is a plan view of part of the same. Fig. 10 is a cross sectional elevation showing both rails, their operating bars and connections.

Similar letters of reference designate corresponding parts throughout the several views.

A A designate the railway rails of a line of railway, which are fastened to the cross-ties or sleepers *a a*. Alongside of the rails A A are the longitudinal T-plates B B, likewise

fastened to the sleepers and used for the purpose of allowing the operating bars *b b* to work easily between them and the rails A. These T-plates B as well as the bars *b* which are supported therein are of unequal lengths as shown, one T-plate on each side of the transverse roadway having a considerable length while its companion is much shorter and the adjacent ends of the two longer T-plates coming into close proximity to each other, all as is clearly represented in the drawings.

C C designate four standards which are split vertically in the middle and are slotted to receive the vertically movable beveled or inclined top slides *c c*. One side of the basal portion of each of these standards, as shown in Fig. 4, is securely fastened at the bottom, while the other side is securely fastened to the first side after the vertical slide has been located in place therein. These standards C are provided with caps *c'*, hollowed out in the center to allow the cranks D D to work from a horizontal to a vertical position. The slides *c*, as will be seen by referring to the drawings, are beveled or inclined at the upper end, while they are provided at their lower ends with a vertical rack bar *d*, which rack bars are engaged by the gear wheels or pinions *m'*. See Fig. 7.

E E designate pole bars, which together constitute the gate and are adapted to be transferred from a vertical to a horizontal position and vice versa during the operations of the gate. To these pole bars E E are securely fastened the cranks D D which are in contact with the beveled upper ends of the vertically movable slides *c*. As these slides *c* move up and down, their upper ends by contact with the cranks D D serve to lift or lower the pole bars E E and thus open or close the gate of the roadway which crosses transversely over the railway line. The pole bars E E are made heavier at their ends nearest the standards C C in order that the extra weight may serve to assist in raising the pole end when the gate to the roadway is being opened. These pole bars may be of any suitable form and shape and may be hung in a different way from that which I have already explained, although this mode of hanging and supporting them in connection with the beveled up-

per ends of the vertically movable slides is a preferable and efficient one and in actual practice is found to operate with success.

F F designate the gates which operate transversely across the railway track and are for the purpose of opening or closing access to said track in one direction or the other from the roadway and from different parts of the main line. When open, of course a train can pass without obstruction along the main line. When closed they are very valuable for the purpose of keeping cattle, dogs and other animals and even persons from wandering on to the railroad track where they would be liable to cause accidents. These gates F F oscillate in boxes or bearings f' which are fastened to the uprights or posts f near the upper ends thereof, while the lower ends of the gate spindles rest in step boxes or bearings supported in the lower framework as is clearly shown in Fig. 6, said step boxes thereby serving to carry the weight of the gates.

The lower framework which carries the step boxes is designated by the reference letter p . g denotes a horizontal rod located underneath the railway track and extending for some considerable distance not only below but beyond the gate. To this connecting rod g are pivoted the several arms g' , which arms are secured to the several horizontal shafts H. To these shafts H, are also secured the arms h , which are pivotally attached to the lower ends of the upright links h' which are attached at their upper ends fixedly to the horizontal bars b . Any pressure downward upon these horizontal bars b which we have seen are located alongside the railway rails, must result through the various connections already described, in lifting the lower horizontal bar g and consequently in lifting the arms g' . Those ends of the bars b which are farthest from the transverse roadway and are consequently nearest to the approaching train, are provided with hinged sections b' which lie in an inclined position with their extreme ends resting on the sleeper thereby forming inclines so that the locomotive wheels will not strike the ends of the bars abruptly, but gradually and gently, and as the train progresses, the wheels obviously by acting upon these horizontal bars b will depress them and this will result in lifting the bar g and thereby operating the gates.

K K denote connecting links pivoted at one end to certain of the arms g' , as is clearly shown in Fig. 3 and at their other ends pivoted to arms secured to shafts H'. On each end of the shafts H' is a bevel pinion l which meshes into another bevel pinion l' on the shaft M which is located at right angles to the transverse shafts H'. One end of each of the shafts M is provided with a ratchet wheel or gear m' , which meshes into the rack bars d on the slides c as is clearly seen in Figs. 5 and 7. The other end of each of the shafts M is provided with a bevel pinion which meshes into a similar pinion fastened on the lower end of

the spindles of the gates F F, the lower ends of which spindles as we have already seen rest in step bearings supported in the foundation p .

Obviously through the several mechanisms already specified, when the horizontal bar g is lifted in consequence of the depressions of the bars b , the links K K will be lifted and will cause the transverse shaft H' to oscillate and this will rotate the shafts M M and their rotation will operate the vertically movable slides c and open or close the pole bars as the case may be, and simultaneously with this operation of the pole bars, the gearing on the ends of the shafts M M will operate the line gates F F and open or close them, as the case may be, and consequently by the passage of the train over the track depressing as it will in its passage the horizontal bars located adjacent to the rails, the gates F F will be opened to permit of the passage of the train, and the pole bars E E will be closed to prevent the passage of any person or vehicle along the roadway which transversely crosses the track and after the train has crossed said roadway, the operation on the bars b will cause the gates F to be closed and the line consequently to be closed, while the gates E E will be opened and the road across the track therefore opened to permit free passage thereover.

n n designate springs which are attached to the lower ends of certain of the arms g' and are powerful enough to reverse the mechanism after the train has passed over it and thereby replace the horizontal bar b in position to be operated upon the next time a train passes.

The various horizontal shafts H and H' are journaled in bearings O, as shown. All the mechanism which thus automatically operates is substantially inclosed within the foundation framework p which has already been mentioned. The ties are fastened to the stringers r and the intermediate strips s are put in place between the stringers r so as to cover up the entire mechanism of the apparatus below the sleepers.

Many changes may be made in the exact construction, arrangement and operation of the various parts of my improved automatic gate. It will be found to be strictly automatic in its working. The passage of a train in one direction or the other will by depressing the horizontal bars which are laid close to the edge of the rails and substantially on a level with the upper face of said rail, operate to automatically open one set of gates and close the other set, and after the train has passed, it will reverse the operation, closing one set and opening the other, so that when there is no train passing the gates to the roadway which crosses the track will be open, thereby permitting free passage in one direction or the other, and at the same time the gates across the track itself will be closed, thereby preventing persons and animals from wandering improperly upon the track. The

distance between the ends of the opposite long bars *b* is such that before the last wheel of the locomotive is clear of the one bar, the front wheel will be operating on the opposite bar.

5 After the wheel has passed the last gate and the rear wheel left the end of the bar, the springs *n n* operate to cause all the parts to resume their normal and original positions and consequently the inclined sections *b'* will
10 be lifted again into place.

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

1. The combination of the roadway gates, 15 consisting of weighted bars and vertical slides for operating them, the railway gates having spindles on which they swing, substantially as described, the horizontal bars placed alongside of the rails and the intermediate system 20 of levers, springs and gearing, connecting said horizontal bars with all the gates so that the passing of a train may automatically open and close the latter, substantially in the manner and for the purpose specified.

25 2. The combination of the gates across the track, having spindles on which they swing, the roadway gates consisting of weighted bars, the bevel top slides for operating said bars, the horizontal pieces adjacent to the track to 30 be acted upon by the wheels, transverse shafts actuated by the depression of said horizontal pieces, shafts at right angles to the transverse shafts and geared thereto and gearing connection between these latter shafts and the 35 spindles of the gates, whereby the latter are automatically opened and closed, substantially as described.

3. The combination with the end-weighted pole bars, the standards in which they are 40 supported and the bevel top vertically movable slides, together with the horizontal bars placed alongside the rails of the track, and intermediate mechanism between said bars and

the bevel top slides for operating the latter, substantially as described. 45

4. The combination of the weighted bars, the slotted standards, the bevel top slides operating said bars, the horizontal bars adjacent to the rails to be acted upon by the wheels and the connections whereby said horizontal 50 bars operate the aforesaid slides, substantially as described.

5. The combination of the pole bars having cranks, the bevel top slides operating said pole bars and the leverage and gearing connections for operating said slides, substantially as specified. 55

6. The combination of the pole bars, the vertical slides for operating them, the gates across the railway, the horizontal pieces adjacent to the rails to be acted upon by the 60 wheels, the transverse shafts rotated by the depression of said pieces and the links and gearing connections with the spindles of the railway gates and the vertical slides of the 65 roadway gates, all arranged for joint operation to automatically open and close the gates, substantially in the manner and for the purpose specified.

7. The combination of the slotted standard, 70 the vertically movable slides provided at their lower ends with rack bars, the weighted pole bars *E E* constituting the gate, said bars having cranks *D D* which are in contact with the beveled upper ends of the slides, the horizontal 75 bars adjacent to the rails to be acted upon by the wheels and the levers, gears and springs whereby said horizontal bars operate the vertically movable slides, substantially as described. 80

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

JOHN CHRISTOPHRESON.

Witnesses:

ROBERT WEIR,
ADOLPH ARNTZ.