

943,566.

H. J. RICHENDRFER.
RAILWAY CROSSING GATE.
APPLICATION FILED JUNE 29, 1909.

Patented Dec. 14, 1909.

2 SHEETS—SHEET 1.

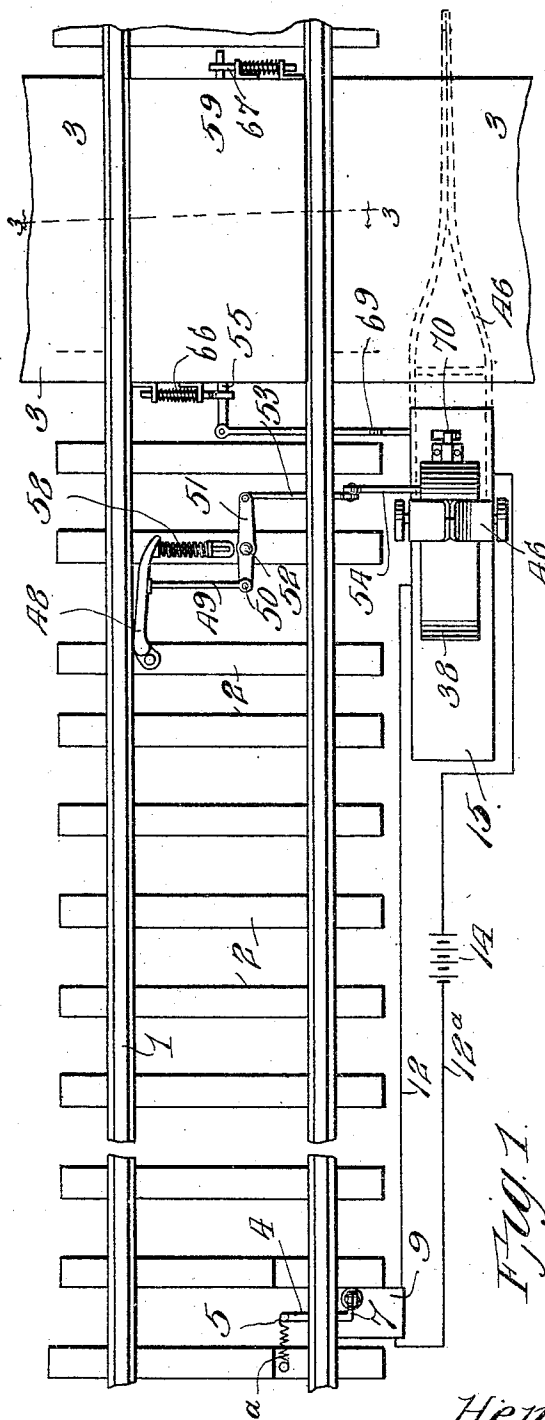


Fig. 1.

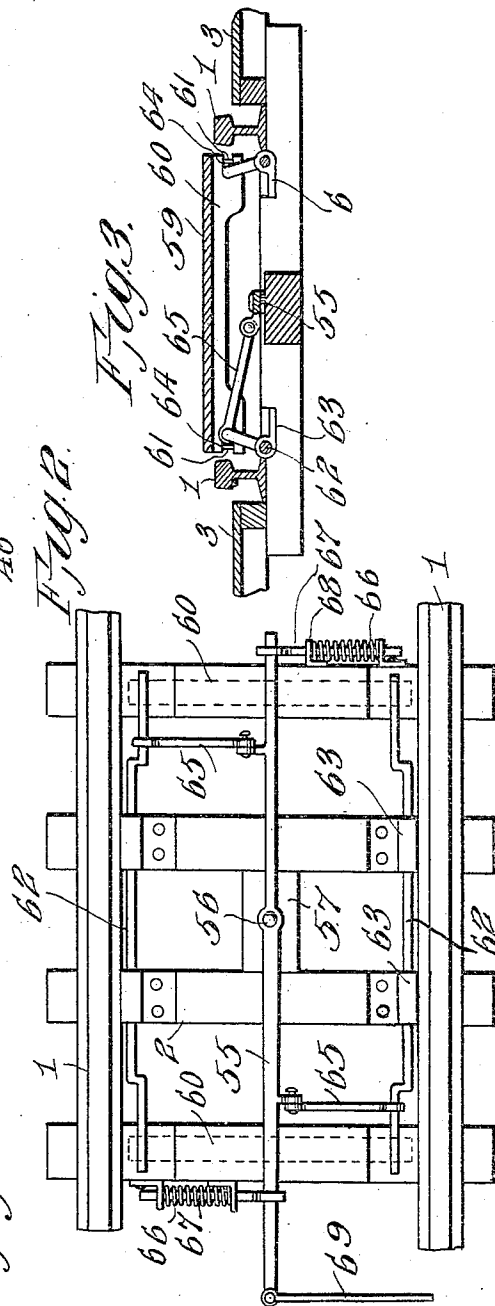


Fig. 2.

Fig. 3.

Witnesses

Frank Hough

W. P. Bump

Henry J. Richendrfer

By Victor J. Evans

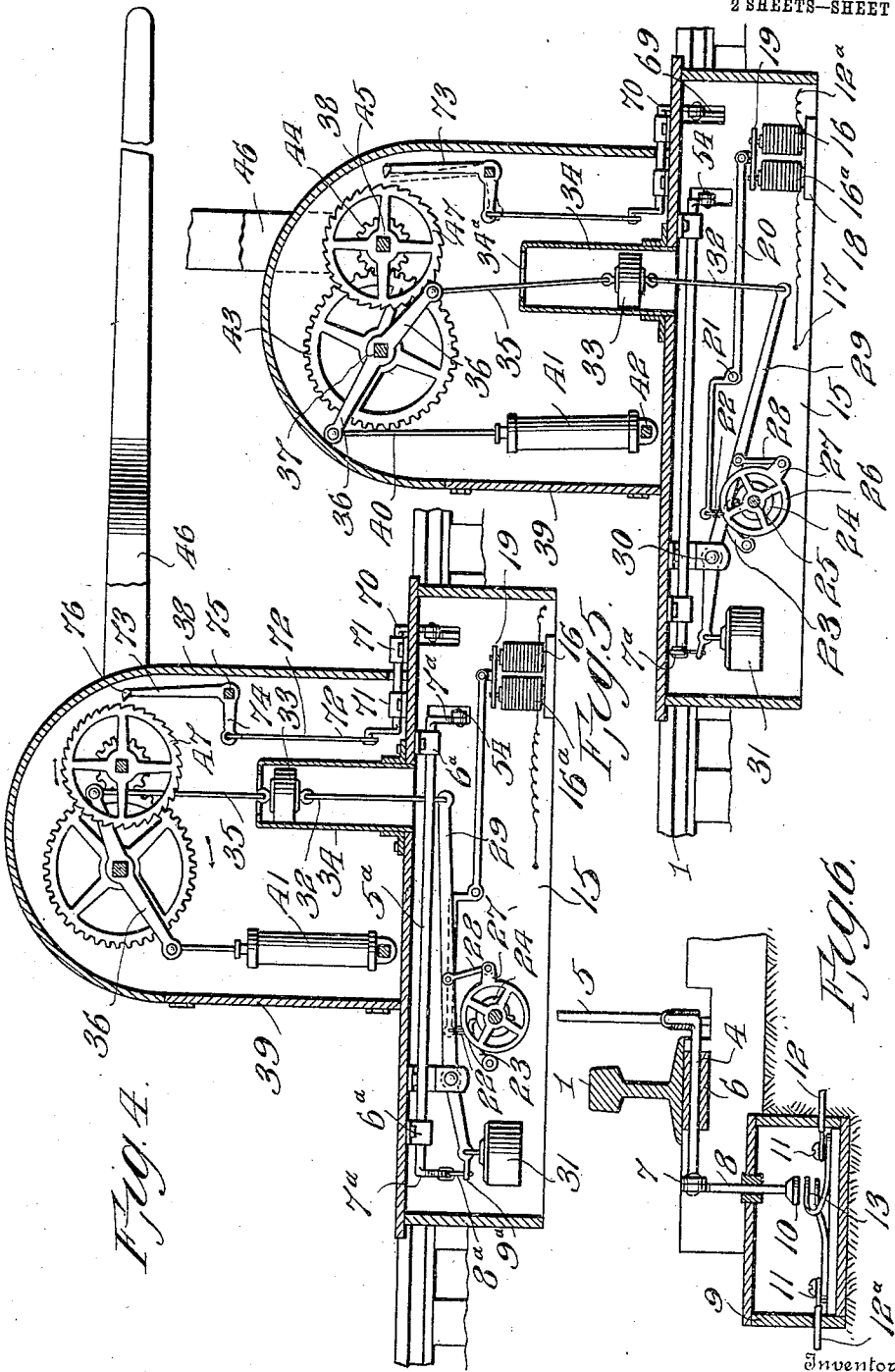
Attorney

943,566.

H. J. RICHENDRFER.
RAILWAY CROSSING GATE.
APPLICATION FILED JUNE 29, 1909.

Patented Dec. 14, 1909.

2 SHEETS—SHEET 2.



Witnesses
Frank Hough
C. P. Bunker.

Henry J. Richendrfer,

by Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

HENRY J. RICHENDRFER, OF LIME RIDGE, PENNSYLVANIA.

RAILWAY-CROSSING GATE.

943,566.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed June 29, 1909. Serial No. 505,019.

To all whom it may concern:

Be it known that I, HENRY J. RICHENDRFER, a citizen of the United States, residing at Lime Ridge, in the county of Columbia and State of Pennsylvania, have invented new and useful Improvements in and Relating to Railway-Crossing Gates, of which the following is a specification.

This invention relates to railway crossing gates, and one of the principal objects of the same is to provide reliable and efficient means for closing the gate, said means being rendered operative by the wheels of the locomotive or cars and means being provided for raising the gate after the train has passed over the crossing.

Another object of the invention is to provide a counterbalanced gate and means operated by the passing train for lowering said gate and raising the same after the train has passed.

Still another object of the invention is to provide a counterbalanced weight and means for operating the same by the movement of the train, said gate being cushioned in its movement by a dash-pot.

Another object of the invention is to provide a counterbalanced weight having means for raising and lowering the same operated by the passing train and a platform in line with the crossing, said platform being mounted on levers which are moved when a person steps upon the platform to stop the movement of the gate, said platform being thrown back to its initial position by springs after the person has stepped off the platform to permit the gate to fall.

These and other objects may be attained by means of the construction illustrated in the accompanying drawings, in which,—

Figure 1 is a plan view of a railway crossing gate and mechanism for operating the same made in accordance with my invention. Fig. 2 is a top plan view of the mechanism for operating the platform, the latter being removed. Fig. 3 is a transverse sectional view of the platform taken on the line 3—3 of Fig. 1, looking in the direction indicated by the arrow. Fig. 4 is a sectional view of the housing for the operative mechanism, the gate being shown in closed position. Fig. 5 is a similar view, showing the gate in open position. Fig. 6 is a sectional view, showing the trigger, the lever and the contact point, the latter within a box at the side of the track, said box containing the

terminals of the conductors which lead to the electro-magnets for releasing the mechanism to permit the gate to drop.

Referring to the drawings, the numeral 1 60 designates the track rails; 2, the ties on which said rails are mounted, and 3, the crossing. A lever 4 provided with an upstanding arm 5 is pivotally mounted in a sleeve 6 underneath one of the track rails 1 65 at some distance to one side of the crossing 3. The lever 4 has an outwardly projecting arm 7, and pivoted to the outer end of said arm 7 is a stem 8 which extends through a box or casing 9 and is provided on its lower 70 end with a contact shoe 10. The box 9 is preferably placed under the ground or with its top projecting slightly above the surface of the ground. Binding posts 11 hold conductors 12 and 12^a in contact with a coil 13 75 disposed underneath the contact shoe 10. The conductors 12 and 12^a are led out through the box 9, said conductor 12^a leading to a battery 14 and from thence into a housing 15 at a point near one side of the 80 crossing where it is connected to an electro-magnet 16. The other conductor 12 is led through the housing 17 and leads to the electro-magnet 16^a. The electro-magnets are supported upon an insulated base 18 in the 85 housing 15. An armature 19 is pivotally connected upon the end of a lever 20, said lever being pivoted at 21 in the housing, and connected to said lever 21 is a chain or link 22 attached to a pawl 23 pivoted to the hous- 90 ing. The pawl 23 normally engages a notched disk or cam 24 mounted on a shaft 25 pivoted in the housing 15. Carried by the shaft 25 is a wheel 26 having a crank arm 27 projecting therefrom. Pivotally 95 connected to the arm 27 is a link 28, said link being pivoted at its opposite end to a weight lever 29, said weight lever being pivoted at 30 to a bracket suspended from the inner wall of the housing and said lever 29 100 carrying a counterweight 31 near one end. The opposite end of the lever 29 has connected to it a link 32, and a weight 33 is connected to the upper end of said link, said weight being mounted in a casing 34 secured 105 to the housing 15 immediately above an opening in the top of said housing. Pivoted to the upper side of the weight 33 is a connecting rod 35, the upper end of said connecting rod being pivoted to a two armed 110 lever 36, said lever being mounted upon a squared shaft 37 journaled in a metal dome

or hood 38 provided with a hinged door 39 to permit access to said dome. Pivottally connected to the opposite end of the lever 36 is a plunger rod 40 carrying a piston head at its lower end, said piston head working in a dash pot or cylinder 41 partially filled with oil or other cushioning material, said cylinder being connected to a shaft 42 pivoted in the dome 38. The connecting rod 35 extends through a slot 34^a in the casing.

Mounted on the shaft 37 is a large gear wheel 43 which meshes with a pinion 44 on a shaft 45 journaled in the head or dome. Fixed on the shaft 45 is a gate 46, and secured to the shaft 45 is a ratchet wheel 47.

Pivottally mounted on one of the ties 2 at the side of one of the track rails 1 is a curved bar 48 adapted to be operated by the passing train, and connected to said bar is a rod 49 pivoted at 50 to a two-armed lever 51 pivoted at 52 on one of the ties. Connected to the lever 51 is a rod 53, and pivottally connected to the rod 53 is a member 54 leading into the housing and pivottally connected to its inner end to a lever 5^a journaled in hangers 6^a, said lever having crank portions 7^a at its opposite ends, one of said crank portions being connected to the member 54, and connected to the crank at the opposite end is a link 8^a, said link engaging a finger 9^a on the end of the lever 29.

The lever 55 is pivoted at nearly a central point, as at 56, to a block 57 secured between two of the ties 2. A spring 58 secured to the tie at one end and connected to the bar 48 at the other end exerts its tension to throw the bar toward the rail and to return the parts to their initial position after it has been operated by the wheels of the passing train. A platform 59 extending between the tracks at the crossing 3 is provided with integral ribs 60 underneath the same, said ribs being slotted at 61 at their outer ends. Crank members 62 are mounted in bearings 63 secured to the ties 2, and the end cranks of the members 62 are passed through the slots 61 in the ribs 60, said crank portions being held in place by means of pins 64. Pivottally connected to the lever 55 at opposite sides of its pivotal point are the arms 65, said arms being connected at their outer ends to the crank members 62, as shown more particularly in Fig. 2 of the drawing. For returning the lever 55 to its original position after operation, springs 66 are provided, said springs surrounding the bars 67, said bars extending through suitable brackets 68 secured to the ties, and said springs being disposed between said brackets. Connected to one end of the lever 55 is a rod 69, said rod extending through the casing and connected at its inner end to a double crank 70 mounted in bearings 71. Connected to one of the arms of the crank 70 is a rod 72, the upper end of which is attached to a pawl

73 having an angular arm 74, said pawl being mounted on a shaft 75 pivoted in the dome. The upper end of the pawl 73 is provided with a beveled finger 76 which engages the ratchet 47 when the platform 59 is depressed.

The operation of my invention may be briefly described as follows:—When a train is coming from the left in Fig. 1, one of the wheels strikes the member 5 which throws the contact shoe 10 down upon the upper spring coil 13 to press it into contact with the lower coil to close the circuit, thus energizing the magnets 16, 16^a and attracting the armature 19, and thus lifting the pawl 23 and permitting the weight 31 to drop and the counterbalanced gate 46 to drop to its lowermost position. As the cars pass over the bar 48 the lever 54 is operated to move the crank shaft 5^a to lift the weight 31 and to restore the parts to their initial position, a spring *a* serving to return the arm 5 to its original position to lift the shoe 10 from contact with the coil 13 and thus break the circuit. During the time that the gate is falling to a horizontal position should any person or a team start to cross and get upon the platform 59, the weight on the platform would operate the crank shaft 62 and the lever 55, and through said lever 55 and the rod 69, the pawl 73 will be thrown against the ratchet wheel 47 to stop the progress of movement of the gate until after the weight is removed from the platform 59.

From the foregoing it will be obvious that a gate operated by mechanism substantially as described will be automatic in action, reliable in use and not liable to get out of order.

I claim:—

1. In a railway crossing gate, the combination of a pivoted gate, means for holding said gate in vertical position, electrical means for releasing said holding means, a platform mounted at the crossing between the tracks, and means operated by said platform to stop the movement of the gate when weight is placed thereon.

2. A railway crossing gate comprising a housing, a dome mounted on the housing, a gate pivoted in the dome, gearing in the dome actuated by the movements of the gate, a two armed lever actuated by the movements of the gate, a rod connected to one arm of said lever for actuating a plunger mounted in a dash-pot, a rod connected to the other arm of said lever, a weight connected to said rod, a lever mounted in the housing and connected to said weight, a counterweight connected to said lever, and means operated by the passing train for raising said counterweight and restoring the mechanism to its initial position.

3. A railway crossing gate comprising a pivoted gate, means for counterbalancing

said gate, means for locking said gate in a vertical position, electrical means actuated by the passing train for releasing the means for holding the gate in vertical position, a platform mounted between the tracks at the crossing, and means actuated by the platform when depressed for stopping the movement of the gate during its descent.

4. A railway crossing gate comprising a counterbalanced gate, means for holding said gate in vertical position, electrical means adapted to be actuated by a passing train for releasing said means, a platform mounted between the tracks at the crossing, and connections between said platform and gate, whereby the latter is stopped during its descent when the platform is depressed.

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

HENRY J. RICHENDRFER.

Witnesses:

EUGENE SWEENEY,
JOHN H. KAHLEY.