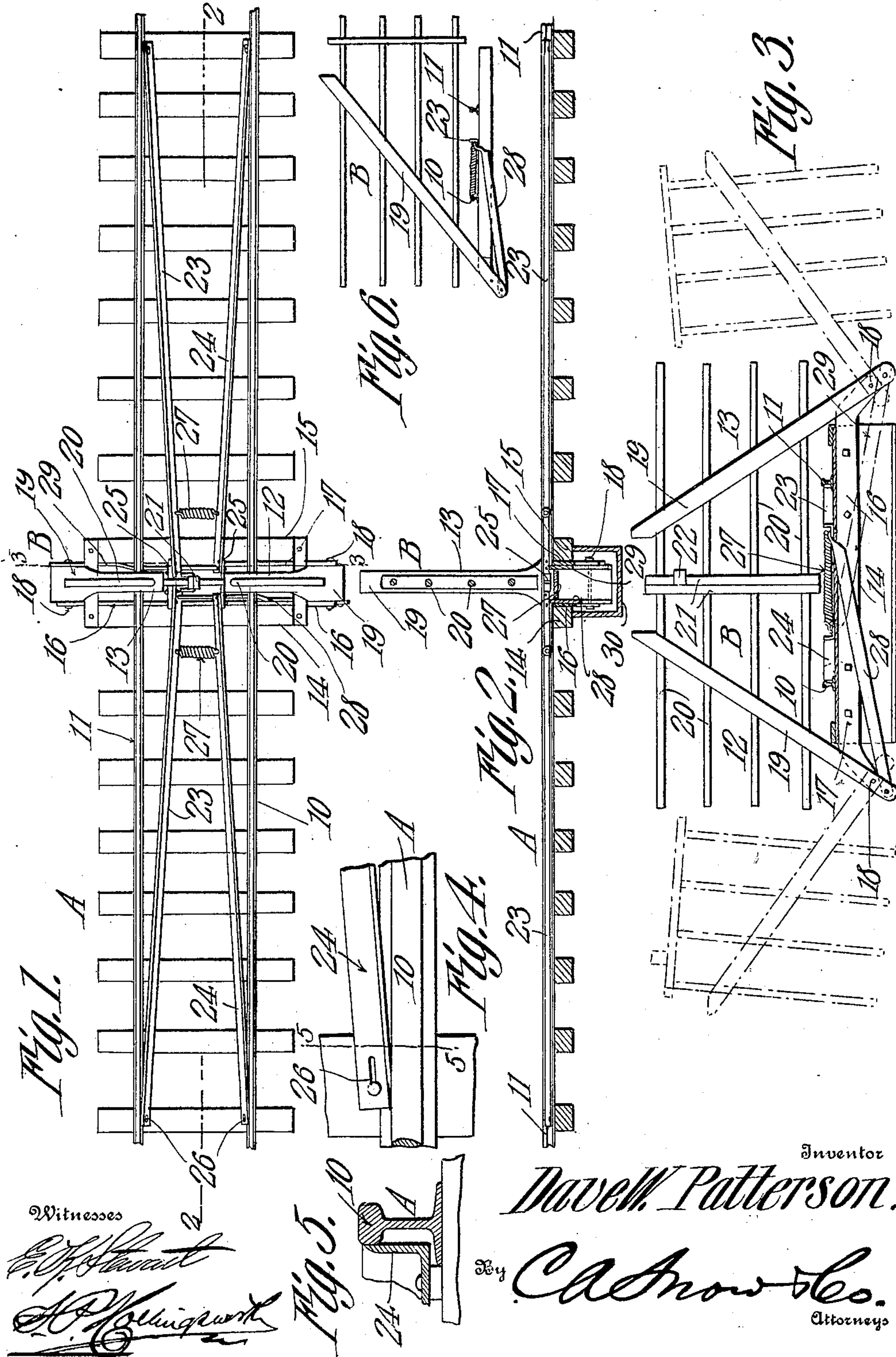


D. W. PATTERSON.
 AUTOMATIC GATE OPERATING MECHANISM.
 APPLICATION FILED SEPT. 28, 1908.

914,505.

Patented Mar. 9, 1909.



UNITED STATES PATENT OFFICE.

DAVE W. PATTERSON, OF HELENA, MONTANA, ASSIGNOR OF ONE-THIRD TO JOS. ROBINSON
AND ONE-THIRD TO LEE HUGHES, OF HELENA, MONTANA.

AUTOMATIC GATE-OPERATING MECHANISM.

No. 914,505.

Specification of Letters Patent.

Patented March 9, 1909.

Application filed September 28, 1908. Serial No. 454,976.

To all whom it may concern:

Be it known that I, DAVE W. PATTERSON, a citizen of the United States, residing at Helena, in the county of Lewis and Clark and State of Montana, have invented a new and useful Automatic Gate-Operating Mechanism, of which the following is a specification.

This invention relates to automatic mechanisms for operating gates; and has for its object to provide a simple and positive means for opening a gate or a pair of gates normally closing a roadway, by the wheels of a passing vehicle, the gate or gates closing automatically after the vehicle has passed beyond the same. The construction of the mechanism is such that it may be used on railways as a cattle guard or on highways and other roads to prevent animals from wandering and for various other purposes.

With these and other objects in view the invention consists of the novel construction, combination and arrangement of parts hereinafter described and claimed and illustrated in the accompanying drawing, in which—

Figure 1 is a plan view of the improved gate and its operating mechanism applied to a railroad track. Fig. 2 a central longitudinal sectional view on the line 2—2 of Fig. 1; Fig. 3, a cross sectional view of the same on the line 3—3; Fig. 4, a detail plan view of the pivoted end of an angle bar; Fig. 5 a sectional view of the same on the line 5—5, and Fig. 6 a modified form of the gate.

Similar reference characters are used for the same parts in all the figures.

In the drawing wherein the invention is shown, for the sake of illustration, in connection with a railroad and serving as a cattle guard therefor, 10 and 11 indicate the two rails of a railway track A crossed by an automatically opened and closed gate B composed of two leaves 12 and 13 adapted to swing in a common vertical plane transverse the track on pivots below the road bed supported by the cross ties.

Firmly bolted to adjacent cross ties 14 and 15 on their facing sides are plates 16 and 17, respectively, that project beyond the ends of said ties and are bent downwardly a short distance, as shown in Fig. 3. These

plates 16 and 17 are perforated at their ends to receive horizontal pivot pins 18 on which the leaves 12 and 13 of the gate are hinged.

The gate leaves 12 and 13 are preferably, but not necessarily, constructed in the manner shown in the drawing, and as there represented each leaf has a main central post 19 pivoted on a pin 18 and extending upwardly therefrom as high as necessary with an inclination toward the opposite post when closed across the track. Horizontal rails or rods 20 pass through the inclined ports from the track to the upper ends of said posts. The inner ends of said rails 20 on each leaf are fastened to a vertically disposed board 21 which boards abut when the gate is closed. The outer ends of the rails 20 extend beyond the roadbed of the track to form an effective guard on the outer side thereof. A catch 22 of any approved type is fastened to one of the boards 21 in position to receive the other board when the gate is closed to prevent lateral movement of the two leaves 12 and 13. The gate posts 19 extend a short distance below the pivot pins 18 for a purpose hereinafter described.

Between the rails of the railroad A and extending from the gate B in either direction for a suitable distance are horizontal bars 23 and 24, preferably made of angle iron. These angle bars 23 and 24 are disposed with their sides next the rails in vertical position and their other sides on the bottom a short distance above the base flanges of the track rails. Two angle bars 23 are joined together on one side of the track A below the gate by a hinge 25, while the other two angle bars 24 are similarly joined on the other side of said track, each pair of bars forming a toggle lever. The outer ends of the several angle bars are pivoted to cross ties or attached in any other suitable way to keep their vertical sides in contact with the adjacent rails, said angle bar ends having longitudinal slots 26 for the pivots and to permit said bars moving endwise for a short distance. Between the hinged angle bars or toggle levers 23 and 24 on both sides of the gate and near thereto are springs 27 which tend to draw the toggle levers 23 and 24 together, but are limited in their move-

ment by the leaves of the gate B abutting as previously described.

From the above it will be noted that when the gate is closed, the members of the toggle levers 23 and 24 lie at equal angles to the track rails and nearer each other just under said gate at their hinged connections, being drawn to this position by the springs 27.

The posts 19 of the gate leaves 12 and 13 extend a short distance below their pivot pins 18 to afford attachment for links 28 and 29 to the respective toggle levers 23 and 24. If desired the gate may consist of a single leaf and operating mechanism on one side of the track only as represented in Fig. 6.

The toggle levers 23 and 24 are placed so that the top edges of their vertical sides are on the same plane as the top of the track rails, and the other or horizontal side sufficiently high above the base flange of the track rail as to permit dirt and dust to fall between them and prevent clogging, and therefore, inoperativeness of the mechanism. The links 28 and 29, and the pivots of the posts 19 are also protected from dirt, dust and stones by a boxing 30 in the usual manner.

Constructed and applied as above described, the gate is operated by the wheels of a train or car approaching in either direction. The flanges of the wheels pass on the inner sides of the toggle levers 23 and 24 at their pivoted points and spread said levers apart so that they lie close to or in contact with the track rails. This straightening of the toggle levers lengthens them, hence the necessity of the end slots 26. The movement of the toggles puts the springs 27 under tension and through the connecting links 28 and 29, the leaves of the gate B swing outwardly to the position shown in dotted lines Fig. 3. The gates will be held open until the last car of a train passes and its wheels leave the toggles, then, under the tension of the springs, the leaves close automatically and the other parts return to their normal state.

When the gate is used on a highway, road, or as an entrance gate for vehicles other than those running on rails, the rails may be dispensed with and wood strips substituted. The vehicle wheels, in this application of the device, will run on the horizontal sides of the angle bars of the toggle levers 23 and 24 and bear against their vertical sides to spread the toggles and open the gate as before described.

What is claimed is:—

1. An apparatus of the class described comprising a pivotally supported, vertically swinging gate adapted to extend across a roadway, horizontal bars hinged together below said gate and extending in opposite directions therefrom, said bars normally

trending inwardly from their outer pivoted ends, and a link connecting said gate below its point of support to said bars at their hinged junction and arranged to pull open said gate when said bars are moved outwardly by the wheels of a passing vehicle.

2. An apparatus of the class described comprising a gate having two leaves adapted to swing in opposite directions in a vertical plane across a railroad track, a toggle lever bearing at its extreme ends against the inner side of each track rail the hinge connections of said toggles being below the gate, a link connecting each toggle lever to the gate leaf pivoted at the opposite side of the track for raising said gate leaf when said toggle levers are straightened by the wheels of a vehicle acting thereon, and means for restoring the parts to normal after the vehicle has passed.

3. An apparatus of the class described comprising a gate having two leaves pivotally supported and adapted to extend across a roadway and swing in a vertical plane, two horizontal angle bars hinged together below said gate, on each side of its center, and extending in opposite directions therefrom, their outer ends being pivoted in the roadway, said bars normally trending at a slight angle from their outer ends toward the center of the gate, a link connecting each of said gate leaves below its point of support to the hinged angle bars on the opposite side at their hinged junction and arranged to pull said leaves into an open position when said angle bars are pressed outwardly by the wheels of a passing vehicle, and means for returning the parts to their normal position after the wheels have left the angle bars.

4. An apparatus of the class described comprising a vertically swinging two leaved gate extending normally across a railroad track and meeting in the center thereof, two angle bars hinged together below the gate on the inner side of each track rail and normally separated therefrom, said bars extending in opposite directions from their hinged ends outwardly toward the rails which they touch at their outer ends, said bars being longitudinally slotted near their outer ends to receive slidably track engaging means, a connecting link joining each gate leaf with the hinged bars on the opposite side of the track to raise said gate when the bars are pressed toward the rails, and means for returning the parts to normal position after the pressure has been removed.

5. An apparatus of the class described comprising a gate having two leaves pivoted to adjacent cross ties and adapted to swing vertically in the same plane across a railroad track, a toggle lever at the inner side of each track rail, having their hinged ends lying below the gate, said toggle levers being

longitudinally slotted to receive slidably
track engaging means, a link connecting
each gate leaf to the toggle lever adjacent
the opposite rail, and resilient means for
5 normally holding the gate closed and the
hinged connections of the toggle levers away
from the rails.

In testimony that I claim the foregoing
as my own, I have hereto affixed my signa-
ture in the presence of two witnesses.

DAVE W. PATTERSON.

Witnesses:

JOSEPH ROBINSON,
GEORGE TERRY WOOD.