

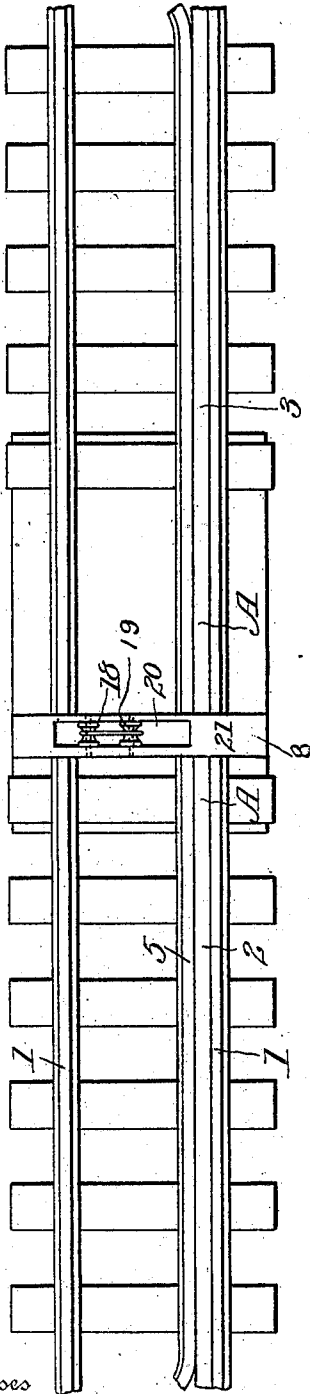
W. A. QUEARY.
RAILROAD GATE OPERATING MECHANISM.
APPLICATION FILED JAN. 10, 1910.

980,672.

Patented Jan. 3, 1911.

3 SHEETS-SHEET 1.

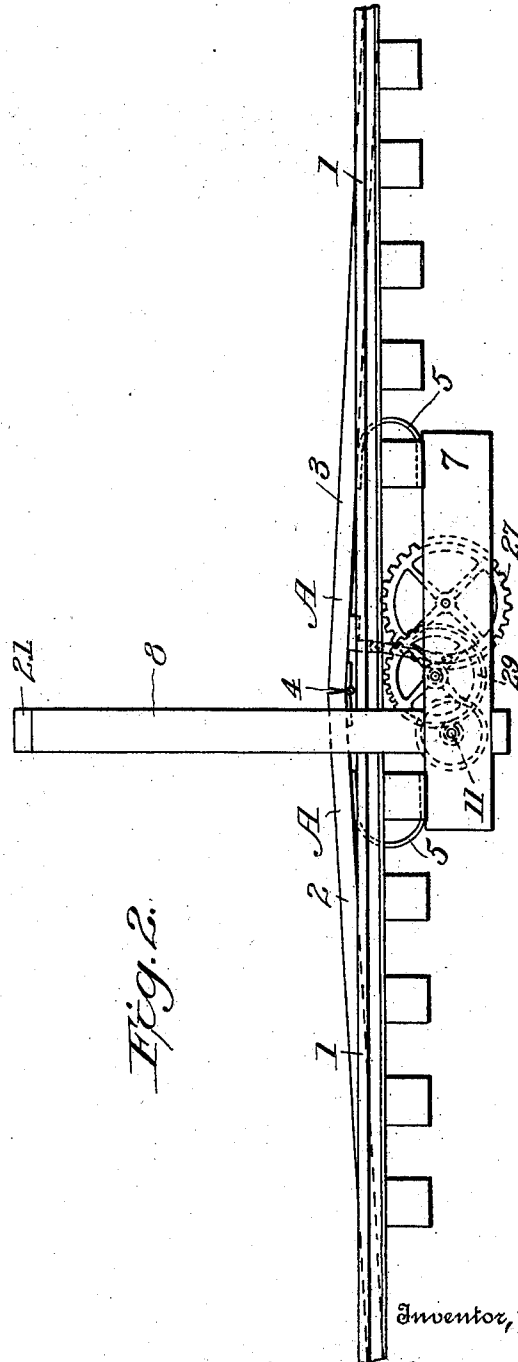
Fig. 1.



Witnesses

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Fig. 2.



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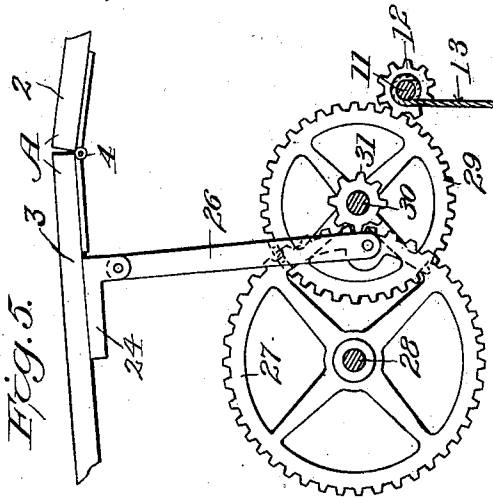


Fig. 4.

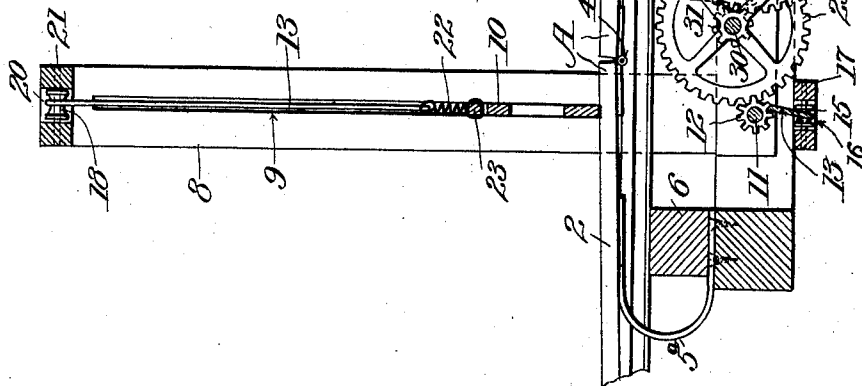
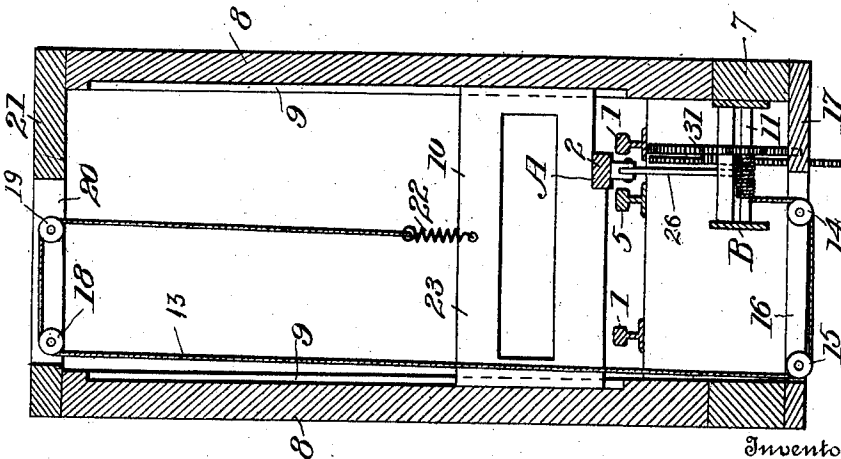


Fig. 3.



Witnesses

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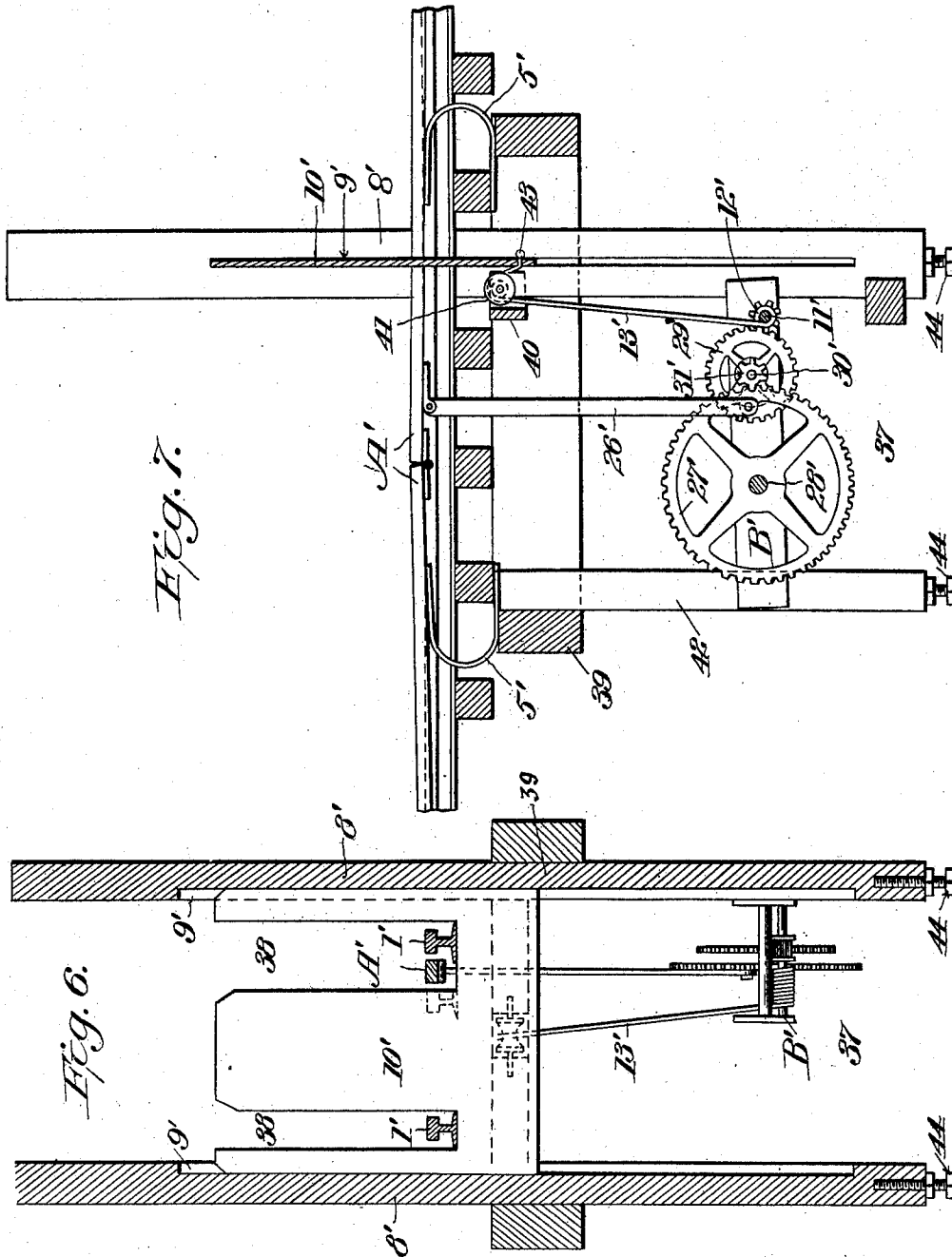
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3 SHEETS—SHEET 3.



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RAILROAD-GATE-OPERATING MECHANISM.

980,672.

Specification of Letters Patent.

Patented Jan. 3, 1911.

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To all whom it may concern:

Be it known that I, WILLIAM A. QUEARY, a citizen of the United States, residing at Add, in the county of Laurel and State of Kentucky, have invented certain new and useful Improvements in Railroad-Gate-Operating Mechanism, of which the following is a specification.

This invention relates to cattle guards.

One object of the invention is to provide a cattle guard embodying such characteristics that cattle cannot pass over railway tracks from one field to another, and so constructed and operable that the gate over the tracks may be raised and lowered automatically by the trains passing over the tracks.

Another object of the invention resides in the provision of an automatically operating gate, operable through the instrumentality of passing trains to open and close the gate, the structure being simple, inexpensive, durable and efficient in operation.

With the above and other objects in view, the present invention consists in the combination and arrangement of parts herein-after more fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes may be made in the form, proportion, size and minor details without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a plan view of my invention. Fig. 2 is a side elevation. Fig. 3 is a transverse sectional view. Fig. 4 is a longitudinal sectional view. Fig. 5 is an enlarged detail view of a part of the door operating mechanism. Fig. 6 is a transverse sectional view of a modified form of the invention. Fig. 7 is a longitudinal sectional view of the modified form.

Referring now more particularly to the accompanying drawings, the reference character 1 indicates the usual railway track rails and A a flanged or depressible rail consisting of parts 2 and 3 hingedly connected together at 4, there being a guard rail 5 between which and one of the rails 1 the depressible rail A is disposed. The depressible rail A is forced normally upward from its hinge 4 to its ends by means of the U-shaped springs 5^a each secured in any suitable manner between the underside of the

tie 6 and the top of the frame 7, as clearly shown in Fig. 4.

Mounted upon the frame 7 is a gate frame 8, each side of the gate frame having a groove 9 forming a guideway for the slidable gate 10, which is adapted to slide up and down between the sides or posts 8 upon depression of the depressible rail A, as and for the purposes hereinbefore set forth.

Secured within the frame 7 is another frame B in which latter is journaled a shaft 11 provided with a gear 12 and to which shaft adjacent the gear 12 is secured a cable 13 which is wrapped around the shaft 11 and which passes downwardly and over the sheaves 14 and 15 journaled in the slot 16 of the strip 17 secured to the bottom of the frame 7. The cable 13 continues upwardly from the sheave 15 to and over the sheaves 18 and 19 journaled in the slot 20 in the top piece 21 of the gate frame and downwardly and connected to a spring 22 secured in any suitable manner to the top 23 of the gate 10.

A hanger 24 is secured to the underside of the depressible rail section 3 and has pivotally secured to it a pitman 26 which is secured to the periphery of the gear wheel 27 journaled on the shaft 28 of the frame B, there being a gear wheel 29 meshing with the aforesaid gear 12 journaled on the shaft 30 of the frame B and which gear 29 has a spur wheel 31 with which the gear 27 meshes so that upon depression of the rail section 3 by the wheels of a train (not shown) the pitman causes rotation of the gear 27 which imparts motion to the gear 29 through the medium of the spur gear 31, and as the gear 29 meshes with the gear 12, the shaft 11 is caused to rotate, which results in a winding of the cable 13 on the shaft 11 and a consequent pulling action upon the cable, which results in a raising of the gate 10 automatically prior to the time that the train or other vehicle reaches the gateway. As soon as the train or other vehicle passes through the gateway, and downwardly over the track section 2 and off of the latter, the gate then falls by gravity to its normal position across the tracks to prevent cattle from passing from one field to another over the tracks. The spring 22 between the cable 13 and the gate 10 relieves the cable of strain and jar at the time the gate is lowered.

My invention is applicable for purposes

other than that herein set forth. It may be used in front of gates or doors operable upon depression by a person's weight or the weight of cattle, but as applied to railway rolling stock, the depressible rail A and the parts connected between it and the gate are such as not to effect operation of the gate upon the weight of an ordinary person or cattle brought to bear thereupon. The parts may be modified to permit of opening of the gate by a person's weight or the weight of the cattle without departing from the spirit of the invention. It will therefore be understood that the invention is applicable to other purposes than the purposes herein set forth within the spirit of the invention and the scope of the appended claims.

In Figs. 6 and 7 I illustrate a modified form of invention in which the gate drops down into a vault 37 beneath the tracks 1' on the approach of the train (not shown) and which springs upwardly as the train passes beyond the gate. In this modified form the gate is indicated at 10' and has two slots 38 which are adapted to embrace the rails 1' and also the depressible element A'. The gate 10' operates in the guide-way 9' in the posts 8', said posts 8' being mounted in a frame 39, there being a cross piece 40 connecting the posts beneath the tracks, in which cross piece 40 is mounted a pulley 41 for a purpose presently explained. Secured to one of the posts 8' and to one of the supporting legs 42 of the frame 39 is a second frame B' in which latter is a shaft 28' carrying a gear wheel 27' with which meshes a gear wheel 31' on the shaft 30', on which latter is another gear wheel 29' meshing with a gear 12' on a rotatable shaft 11'. A cable connection 13' is fixedly connected at one end to said shaft 11' adjacent the gear wheel 12' and is adapted to wrap thereupon and have its opposite end passed over the pulley 41 and connected to the gate 10' at 43 so that when the depressible rail sections A' are depressed under the weight of a passing train against the action of the springs 5', disposed beneath the depressible rail sections, the pitman 26' connected to one of the rail sections A' and to the aforesaid gear 27' causes operation of said gears to rotate the shaft 11' and cause a wrapping and unwrapping of the cable 13' on the shaft 11' to raise and lower the gate 10'. The two posts 8' and two supporting legs 42 of the frame 39 have screw bolts 44 whereby proper adjustment may be made for properly positioning the framework of the structure in the vault, said adjusting bolt 44 resting preferably upon the bottom of the vault.

The operation of the modified form of the invention is as follows:—As the train or other vehicle approaches the gate 10', the wheels thereof engage the depressible rail

element A', which, by reason of the pitman 26', connecting it and the gear wheel 27' on the shaft 28' causes the gear wheel 27' to rotate. The gear wheel 27' meshing with the spur gear 31' on the shaft 30' causes the gear 29 also on the latter shaft to rotate and in its rotation cause the gear 12' on the shaft 11' to also rotate. The gate 10' is connected with the shaft 11' by the cable 13' which is adapted to be wound and unwound on the shaft 11' when the latter rotates. Thus, when the sectional rail element A' is depressed the gate 10' is lowered, the cable unwinding and as soon as the rail element A' is relieved of pressure the springs 5' return the rail element A' to its normal position and in doing so causing the aforesaid gears to rotate in a reverse direction and consequently provide for a winding up of the cable 13' to permit the gate to move upwardly.

In the preferred form of invention the gate is raised upon depression of the rail sections A, and lowered as the train leaves the rail sections. In the modified form, the gate is lowered when the train depresses the depressible sections A' and is raised when the train leaves the depressible sections A'. Except for the peculiar connections between the gear mechanism and the gate, which are made different in order to provide for the different sliding movements of the two types of devices, both forms of the invention are substantially the same, both of them in any event embodying the same principle.

What is claimed is:—

1. In a cattle guard, a frame, a gate slidable in the frame, a second frame, a shaft journaled in the second frame, a train of gears journaled in the second frame and having connection with said shaft, a depressible rail disposed over said gear train, a link connection between said depressible rail and one of the gears of said train, and a connection between said shaft and the gate to effect a raising and lowering of the gate upon operation of said depressible rail.

2. In a cattle guard, a frame, a gate slidable in the frame, a second frame disposed within the aforesaid frame, a shaft journaled in the second frame, a train of gears journaled in the second frame and having operative connection with said shaft, a cable connection between the gate and the shaft, a spring controlled, depressible, sectional rail element, the sections of which are hingedly connected together, and a single link connection between one of the gears of said frame and one of the sections of said rail element, whereby the gate may be raised and lowered upon operation of said rail element.

3. In a cattle guard, a gate frame, a gate slidable in the frame, a second frame, a shaft journaled in the second frame, a train

of gears journaled in the second frame and having connection with said shaft, a third frame, a strip secured to the bottom of the third frame and provided with a slot, sheaves journaled in the slots of said strip, the top of the gate frame having a slot, sheaves in the last mentioned slot, a cable connection between said shaft which passes over all of said sheaves and which has connection with the gate, a depressible rail, a connection between the depressible rail and the aforesaid train of gears to effect a raising of the gate upon depression of the depressible rail, and springs beneath the depressible rail to hold the latter normally in operative position.

4. In a cattle guard, a gate frame, a gate slidable in the frame, a second frame, a shaft journaled in the second frame, a train of gears journaled in the second frame, and having connection with said shaft, a third frame, a strip secured to the bottom of the third frame and provided with a slot, sheaves journaled in the slots of said strip, the top of the gate frame having a slot, sheaves in the last mentioned slot, a cable connection between said shaft which passes over all of said sheaves and which has connection with the gate, a depressible rail, and a connection between the depressible rail and the aforesaid train of gears to effect a raising of the gate upon depression of the depressible rail.

5. In a cattle guard, a gate frame, a gate slidable in the frame, a second frame, a shaft journaled in the second frame, a train of gears journaled in the second frame and having connection with said shaft, a third frame, a strip secured to the bottom of the third frame and provided with a slot, sheaves journaled in the slots of said strip, the top of the gate frame having a slot, sheaves in the last men-

tioned slot, a cable connection between said shaft which passes over all of said sheaves and which has connection with the gate, a depressible sectional rail, a connection between the depressible sectional rail and the aforesaid train of gears to effect a raising of the gate upon depression of the depressible sectional rail, and springs beneath the depressible sectional rail to hold the latter normally in operative position.

6. In a cattle guard, a gateway, a gate slidably mounted in the gateway, a spring having connection with the gate, a rotatable shaft, a cable connection between the shaft and said spring, means whereby the shaft may be rotated, and a depressible element having operative connection with said means to set the latter into operation and automatically raise and lower the gate.

7. In a cattle guard, a gate frame, a gate slidable in the frame, a second frame, a shaft journaled in the second frame, a train of gears journaled in the second frame and having connection with said shaft, the top of the gate frame having a slot, sheaves in the last mentioned slot, a cable connection with said shaft which passes over said sheaves and which has connection with the gate, means whereby said train of gears may operate to raise and lower said gate automatically, a connection between the depressible sectional rail and the aforesaid train of gears to effect a raising of the gate upon depression of the depressible sectional rail, and springs beneath the sectional rail to hold the latter normally in operative position.

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

WILLIAM A. QUEARY.

Witnesses:

H. LYONS,

W. E. BEGLEY.