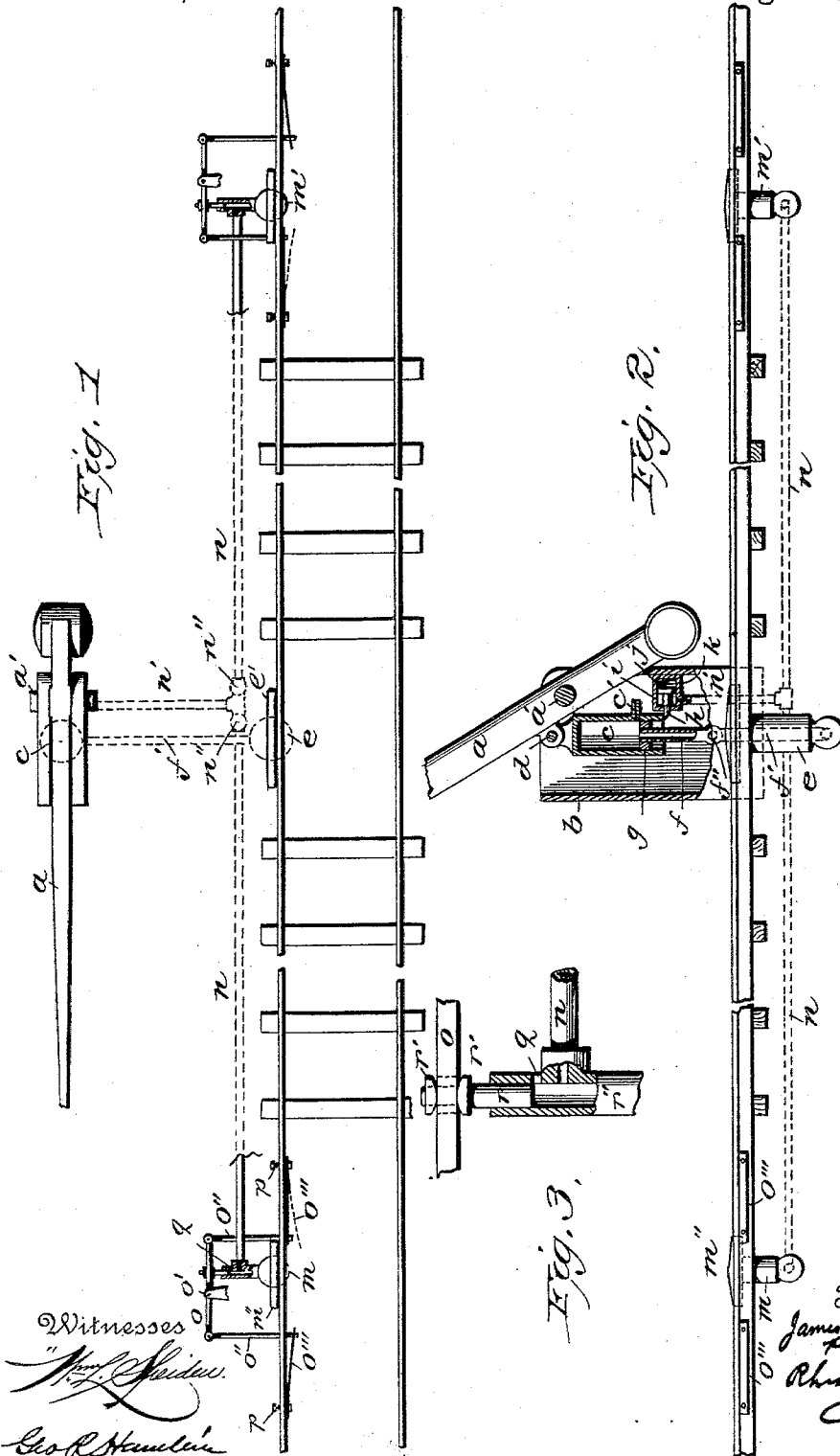


(No Model.)

J. H. FITZGERALD.
RAILWAY GATE.

No. 566,569.

Patented Aug. 25, 1896.



Witnesses
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JAMES H. FITZGERALD, OF NEAPOLIS, VIRGINIA.

RAILWAY-GATE.

SPECIFICATION forming part of Letters Patent No. 566,569, dated August 25, 1896.

Application filed October 14, 1895. Serial No. 565,644. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. FITZGERALD, a citizen of the United States, residing at Neapolis, in the county of Pittsylvania and State of Virginia, have invented certain new and useful Improvements in Railway-Gates; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This device relates particularly to that class of railway-gates in which the gate is actuated by air automatically pumped by the passing train.

The purpose of my invention is to provide superior mechanism for automatically controlling the rise and fall of the gate arm or mast; and this mechanism consists of certain improved lifting and dropping devices located within the mast-stand, together with a peculiar kind of automatic pump and releasing mechanism disposed at suitable distances upon either side of the gate, and arranged to actuate the dropping mechanism when the train is approaching, but not operable by the action of the departing train, all of which will be more fully described hereinafter and pointed out in the claims.

In the accompanying drawings, Figure 1 denotes a plan of my complete invention; Fig. 2, a side elevation thereof, in which the parts immediately connected with the gate are shown partly in section to better disclose the interior; and Fig. 3, an enlarged detail view, partly in section, of an automatic vent opening and closing valve to render the catch-operating pump operative and inoperative.

The mast or gate is represented by the letter *a*, and is pivoted at *a'* in a suitable stand *b*. A cylinder *c* is suspended from the lower side of the mast by a hinge *d*, located between the pivot and free end of the long arm of the mast near the pivot, and is raised and lowered with the mast by an air-pump *e*, disposed directly opposite the gate. This pump connects with the cylinder by an upwardly-extending pipe *f*, provided with a piston *g*, fit-

ting snugly within the cylinder and fixed to a stationary pipe *f'*, so as to be immovable endwise, but to rock at the joint *f''*, in order to allow the cylinder to move laterally during its up and down movements. The lower end of the cylinder is open, and the latter moves up and down over the piston *g* in contradistinction to those cylinders in which the cylinder is fixed and the piston movable. The gate and cylinder are sustained in elevated position by a laterally-movable catch *h*, withdrawn by an air-piston *i* and thrown out by a spring *j*, located within an air-cylinder *k*. The lifting-cylinder *c* is provided with a vent *c'*, so disposed as to allow the air to escape when the sustaining-catch snaps beneath the cylinder. The lifting-pump *e* is operated by the usual tread-bar *e'*, placed alongside the track.

The gate-lowering mechanism consists of pneumatic pumps *m* and *m'* for releasing the catch which holds up the gate. These pumps are located at suitable distances upon opposite sides of the gate and are of the usual construction, each having a tread-bar *m''* like that of the gate-pump. Air is forced from the pumps to actuate the catch *h* through main pipes *n* and branch *n'*, suitable check-valves *n''* being provided upon opposite sides of the latter to prevent it from passing the gate and going on to the opposite pumps *m m'*.

Each catch-releasing pump is provided with a valve-controlled vent *q* to render it inoperative by the departing train and operative by the approaching train for obvious reasons. This vent is controlled by a horizontal rocking-lever *o*, lying normally parallel with the track and fulcrumed at *o'*. To the opposite ends of this lever are hinged duplicate rods *o''*, which pass through the adjoining rail at points upon opposite sides of the pump, where they are connected with the inner ends of duplicate compressible plates *o'''*, adapted to be flattened down against the rail by the flange of the passing car-wheel when approaching the pump, but to be left open when leaving it. The inner end of each is attached to the rail by a spring-bolt *p*, which permits the departing wheel to split between the inner end of the plate and the rail against the action of the spring-bolt. *r* represents

the valve for controlling the vent *q*. This valve is connected to the rocking lever *o* between lugs *r'* and is movable back and forth in the branch pipe *r''*.

5 When thus constructed, the operation can be summed briefly as follows: If the train is approaching the gate from the left, the flange of the first wheel will engage and press in the plate *o'''*, rock the lever *o*, push valve *r* 10 over the vent *q*, and place the pump *m* in condition to operate. The wheel now passes over the tread-bar, operates the pump which forces air into the air-cylinder *i*, moves the piston and catch *h* back, and allows the gate 15 to drop by its own gravity. From the tread-bar *m''* the wheel passes on between the open end of the succeeding compressible plate *o'''*, spreads it away from the rail, and goes on to the gate-pump, which forces air into the 20 cylinder *c* and lifts the cylinder and gate up far enough to allow the catch to be thrust beneath it to hold it up. Leaving the gate raised, the departing train passes on to the third pump *m'*, where it compresses the first 25 plate *o'''* and opens the vent-valve *r* immediately before the wheels strike the pump, so that the latter is rendered inoperative and has no effect upon the catch which supports the gate and leaves the latter standing. As 30 the pumps *m* and *m'* are exactly alike, a

train approaching the gate from either direction will produce the same effect.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with a gate-lifting cylinder, pump and catch, of a pneumatic pump for actuating the catch, said pump being provided with a vent, a valve for controlling the vent, and automatic device actuated by the train, whereby the vent is opened and the pump rendered inoperative by the departing 40 train and whereby the vent is closed to produce a contrary effect by an approaching train, substantially as described.

2. In an air-operated railway-gate, a gate-releasing device consisting of an air-operated 45 sustaining-catch, air-pumps located upon opposite sides of the gate and in air connection with the catch, a valve-controlled vent for each pump, and train-operated plates disposed upon opposite sides thereof, and so 50 connected with the valve as to open the vent upon the approach of a departing train, substantially as described.

In witness whereof I affix my signature in 55 presence of two witnesses.

JAMES H. FITZGERALD.

Witnesses:

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