(No Model.) 2 Sheets—Sheet 1.

# J. J. FLIPPIN.

## RAILROAD GATE.

No. 576,959. Patented Feb. 9, 1897.

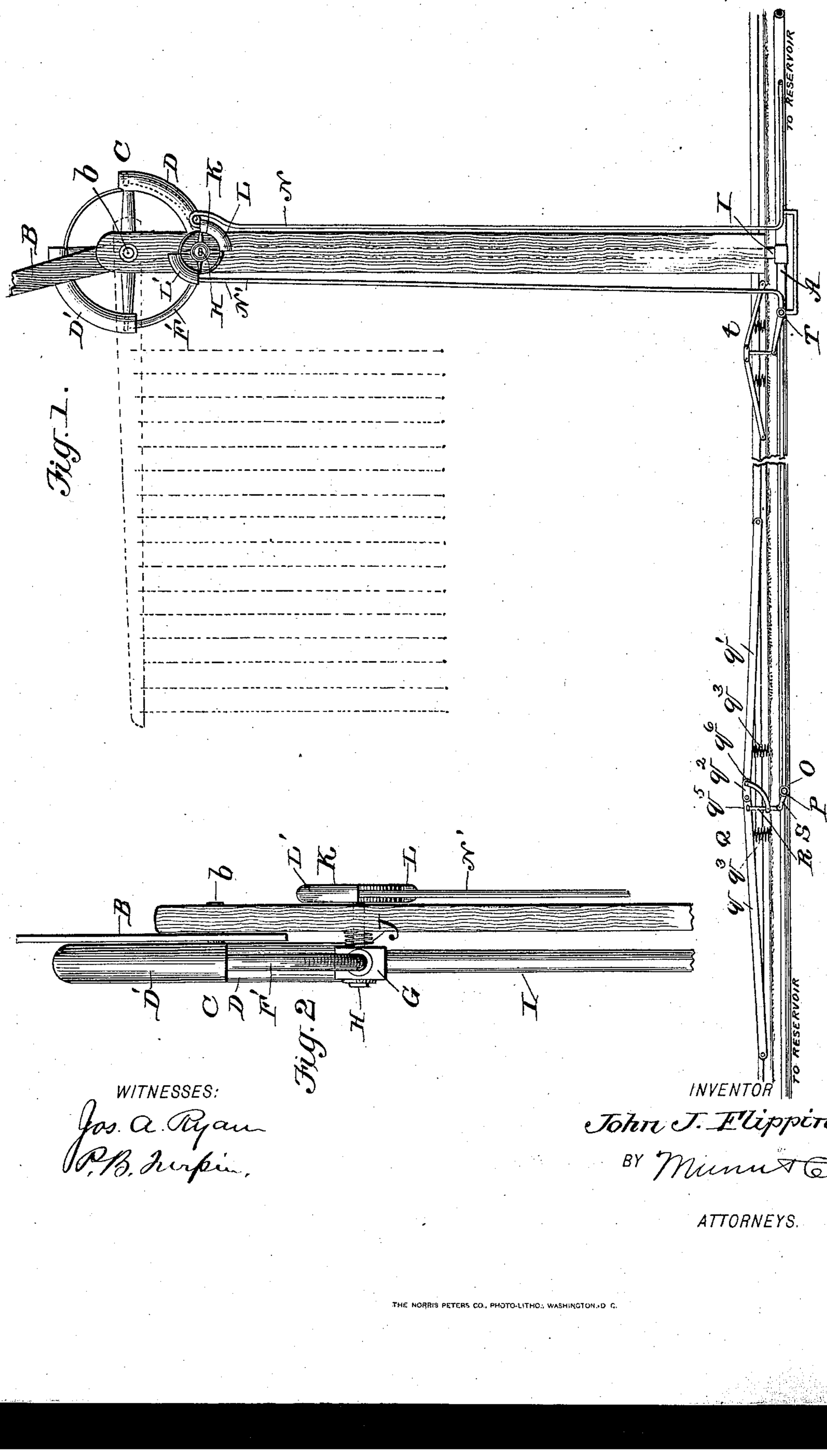


Fig. 1.




Fig. 2.

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(No Model.)

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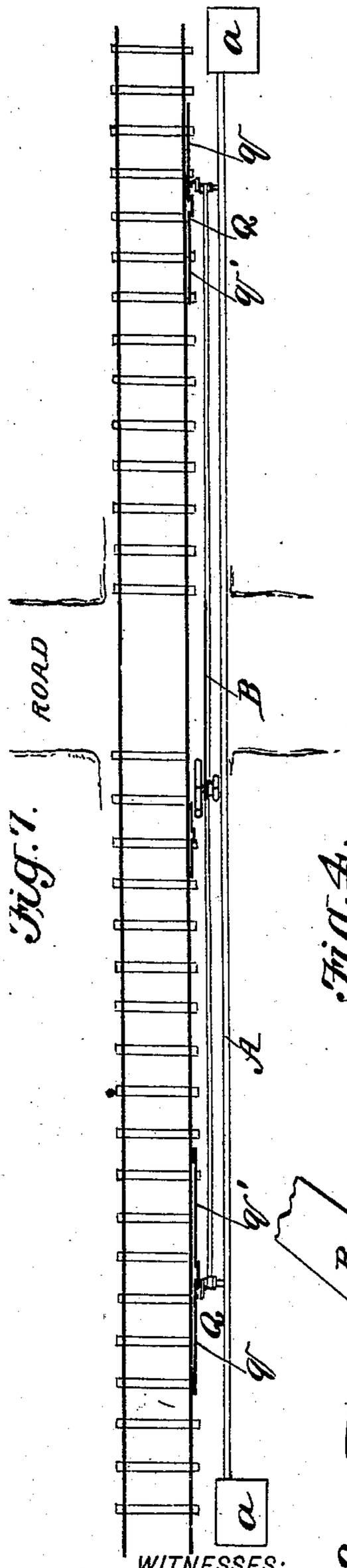


Fig. 1.




Fig. 4.

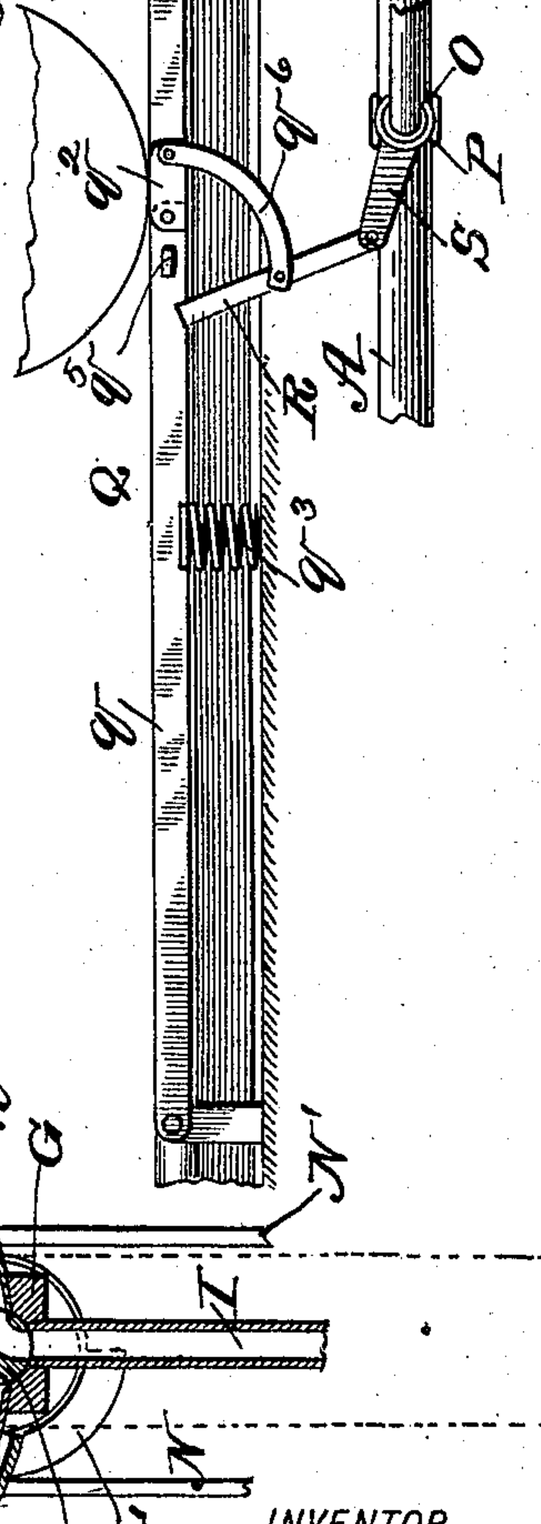


Fig. 5.

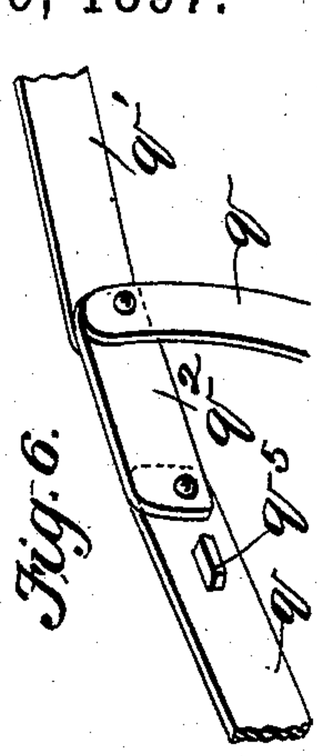


Fig. 6.

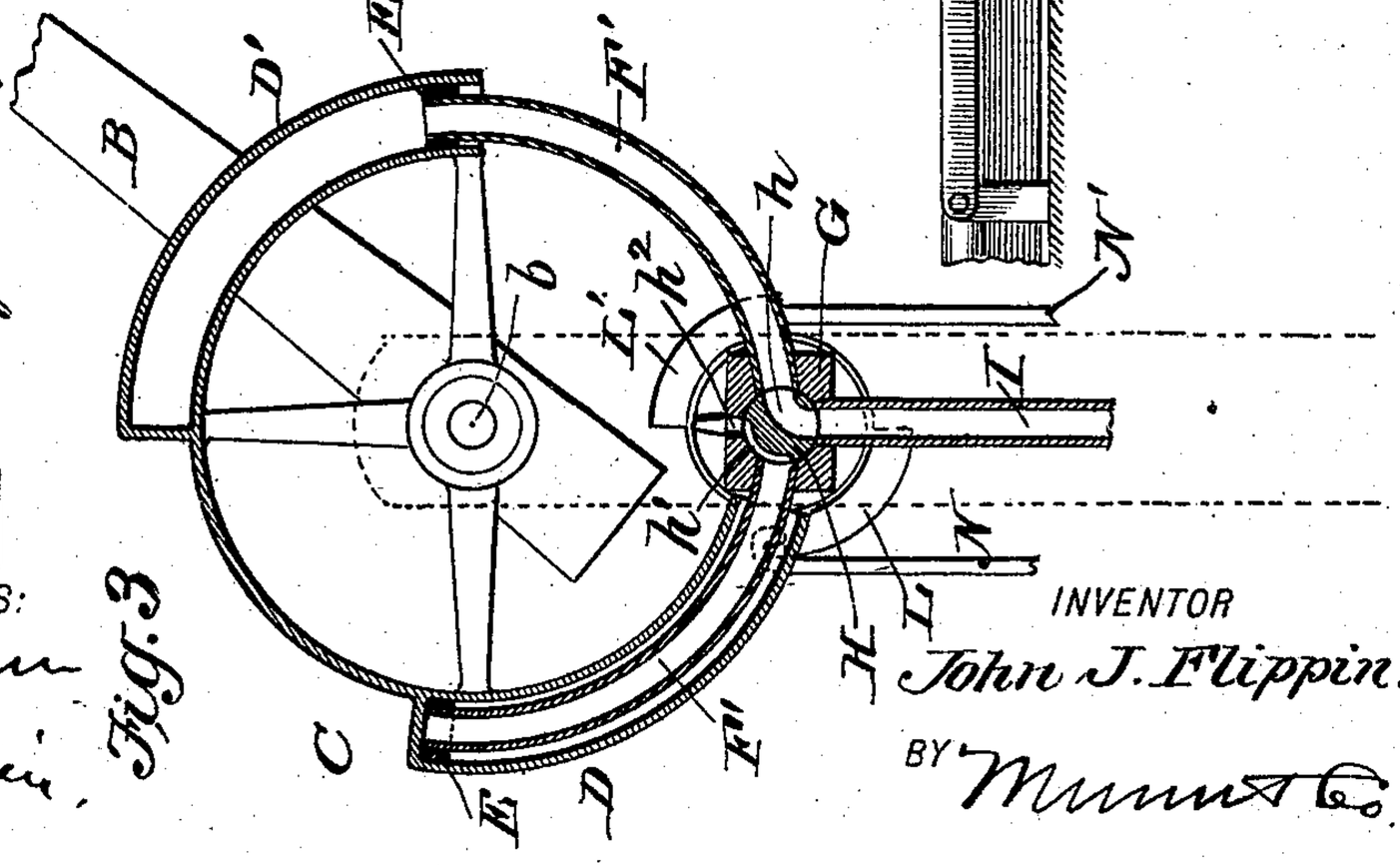


Fig. 3.

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# UNITED STATES PATENT OFFICE.

JOHN J. FLIPPIN, OF NEAPOLIS, VIRGINIA, ASSIGNOR OF ONE-SIXTH TO GEORGE C. CORBIN, OF SAME PLACE.

## RAILROAD-GATE.

SPECIFICATION forming part of Letters Patent No. 576,959, dated February 9, 1897.

Application filed September 25, 1895. Serial No. 563,639. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. FLIPPIN, residing at Neapolis, in the county of Pittsylvania and State of Virginia, have invented a new and useful Improvement in Railroad-Gates, of which the following is a specification.

My invention is an improvement in automatic railroad-gates, and has for an object to provide a simple, positively-operating construction which by the action of compressed air will positively operate the gates; and the invention consists in certain novel constructions, combinations, and arrangements of parts, as will be hereinafter described, and pointed out in the claims.

In the drawings, Figure 1 is a side view of a gate constructed according to my invention. Fig. 2 is an edge view of the upper part of the gate. Fig. 3 is a detail sectional view of the gate-wheel and the valve controlling admission of air to the different cylinders. Fig. 4 is a detail section of the valve-wheel. Figs. 5 and 6 are detail views of the tripper for operating the valve which supplies air to the valve-wheel, and Fig. 7 is a diagrammatic view representing the improvements.

In my improved railroad-gate I extend along the track a main pipe A, which I keep charged with compressed air, which may be effected in any suitable manner, as by storing air in one or more large receivers *a* and distributing directly to the main pipe or to smaller receivers along the track, and thence to the main pipe. The air may be compressed by means of an air-pump attached to a stationary engine or shifting-engine, or by means of pumps operated through the aid of suitable levers by the flange of a passing locomotive, so the supply of compressed air will be maintained at all times. It should be understood that in my invention I do not depend upon the compression of air at the time needed, but maintain it in store at all times, so it is ready to operate when directed in the manner presently described.

Referring to Fig. 1 it will be seen that the gate B, shown as a bar having depending strips or streamers, is pivoted, and has fixed to its shaft *b* a wheel C, which for convenience of reference I term the "gate-wheel." This wheel has two cylinders D D', extending in opposite directions, and to which are fitted heads or pistons E E', connected by pipes F F' with a valve-casing G, in which is fitted a valve H, by which air supplied through pipe I may be directed to either of cylinders D D'.

The pipe I is a branch pipe leading from the main pipe A and is in constant communication with said pipe, so the pressure in the main pipe is exerted at all times in the branch I.

While the gate might be spring or weight actuated in one direction and one of the cylinders and accompanying parts be omitted, it is preferred to employ both cylinders, as shown.

The valve H has a port *h* and may be turned to cause such port to connect the pipe I with either pipe F or F', and when turned to register with either of said pipes F or F' it opens by port *h'* the other pipe to a whistle-opening $h^2$, out through which the exhaust occurs, sounding the whistle as the exhaust escapes from either of the pipes F F'.

It is preferred to operate the valve H in one direction by a spring J and in the other direction by the valve-wheel K, fixed to the stem of the valve and provided with cylinders L and L', in which are fitted pistons M M', to which are connected pipes N N', connected at O with the main pipe and controlled by valve P, operated through the aid of tread devices Q, operated by the flange of the wheel, so that as the tread device is operated by the wheel of the train coming in one direction the valve P will be opened and permit the air to pass into the pipe N or N', while if the train is coming in the other direction it will not operate the valve. This will be best understood from Figs. 1, 5, and 6, in which it will be seen the tread device Q comprises two levers *q q'*, connected at their meeting ends by a link $q^2$, pivoted to both the levers *q q'*, such levers being pivoted at their outer ends and elevated normally at their meeting ends by springs $q^3$. The lever *q* has an abutment or portion $q^5$, arranged above the free end of a pitman R, connected with a crank-arm S of the valve P, so that if the lever *q* be depressed before the lever *q'* the pitman R and the crank-arm S will be depressed to open the valve P, but if the train be approaching from the opposite direction and strikes the lever *q'* first

such lever by its arm $q^6$ will swing the pitman R out of the path of abutment $q^5$ before the lever $q$ is depressed, as will be understood from Fig. 5. Thus if the train approaches in the direction indicated by the arrow No. 1 in Fig. 5 the lever $q'$ will be first depressed and the valve P will not be opened. It should be understood that I employ two of these tripping devices Q for each gate, one on each side, as shown in Fig. 7, and these are arranged so the train approaching the gate from the right-hand side (see Fig. 1) will depress the lever $q$ first, while the train approaching from the opposite side will also strike the lever $q$ first before it reaches the gate. Thus the air will be admitted to the valve H and lower the gate whether the train approaches from one direction or the other, while after it passes the gate it will first strike the lever $q'$. By this construction the train as it approaches the gate will operate the devices to lower the gate, while after it passes the gate it does not operate the valve P on the other side.

To relieve the pressure in pipes N N′ when the train reaches the gate, I provide a relief-valve T at or near the gate and a tripping device $t$ to operate the same, as will be understood from Fig. 1. The opening of this valve relieves the pressure in both pipes N N′ and permits the spring J to readjust the valve to cause the pressure to operate in the cylinder D′ and so raise the gate to open position. (See Fig. 3.)

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

1. The combination of the gate, the gate-wheel having air-cylinders and pistons, pipes by which to supply air to said cylinders, a valve controlling the supply of air, a wheel fixed to said valve and provided with cylinders and pistons, and means by which pressure may be admitted to said cylinders substantially as set forth.

2. The combination of the air-main, the gate, pneumatically-operated devices for actuating the gate, a valve controlling the passage of air to said devices oppositely-disposed cylinders connected to and movable with said valve and the pistons and pipes connected therewith and extended in opposite directions substantially as shown and described.

3. The combination of the air-main, the gate, the gate-wheel having cylinders and pistons, pipes for conducting air to said cylinders, the valve controlling the passage of air to said cylinders, the valve-wheel having a cylinder or cylinders and coöperating pistons and pipes connecting the same with the air-main and a valve and tripping devices substantially as set forth.

4. In an apparatus substantially as described, a tripping device comprising two levers pivoted at their outer ends and linked together at their adjacent ends, a pitman arranged for engagement by one of said levers and a connection between said pitman and the other lever whereby if the latter be depressed before the other lever it will set the pitman out of position for engagement by the subsequently-depressed lever, substantially as set forth.

5. In a tripping device, substantially as described, the combination of the track, two levers arranged one after the other along said track and pivoted at their outer ends, a pitman arranged for engagement by one of said levers and a connection between said pitman and the other lever, substantially as set forth.

6. The combination with the valve and the pitman of the lever having a portion arranged to engage said pitman a second lever and a connection between said second lever and the pitman, substantially as set forth.

7. The combination of the air-main, the gate, the gate-wheel, the valve controlling the passage of air to said wheel, the valve-wheel, the pipes connecting the valve-wheel with the air-main, valve devices controlling the passage of air from the main to said connecting-pipes, a relief-valve for said connecting-pipes and a tripping device by which to operate said relief-valve, all substantially as set forth.

8. The combination of the gate, the pneumatic devices for moving such gate, the valve controlling the passage of air to said devices, and pneumatic devices mounted upon the stem of said valve by which to operate the same substantially as set forth.

9. The combination of the air-main, the gate, the gate-wheel, having cylinders and pistons, a valve-casing, pipes connecting such casing with the air-main, the valve in such casing the valve-wheel connected with said valve and having as part thereof pneumatic devices whereby the valve-wheel is operated in one direction, a spring by which to operate it in the opposite direction, pipes connecting such valve-wheel with the air-main, valves controlling said pipes and tripping devices by which to operate said controlling-valves substantially as set forth.

JOHN J. FLIPPIN.

Witnesses:
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B. L. JONES.