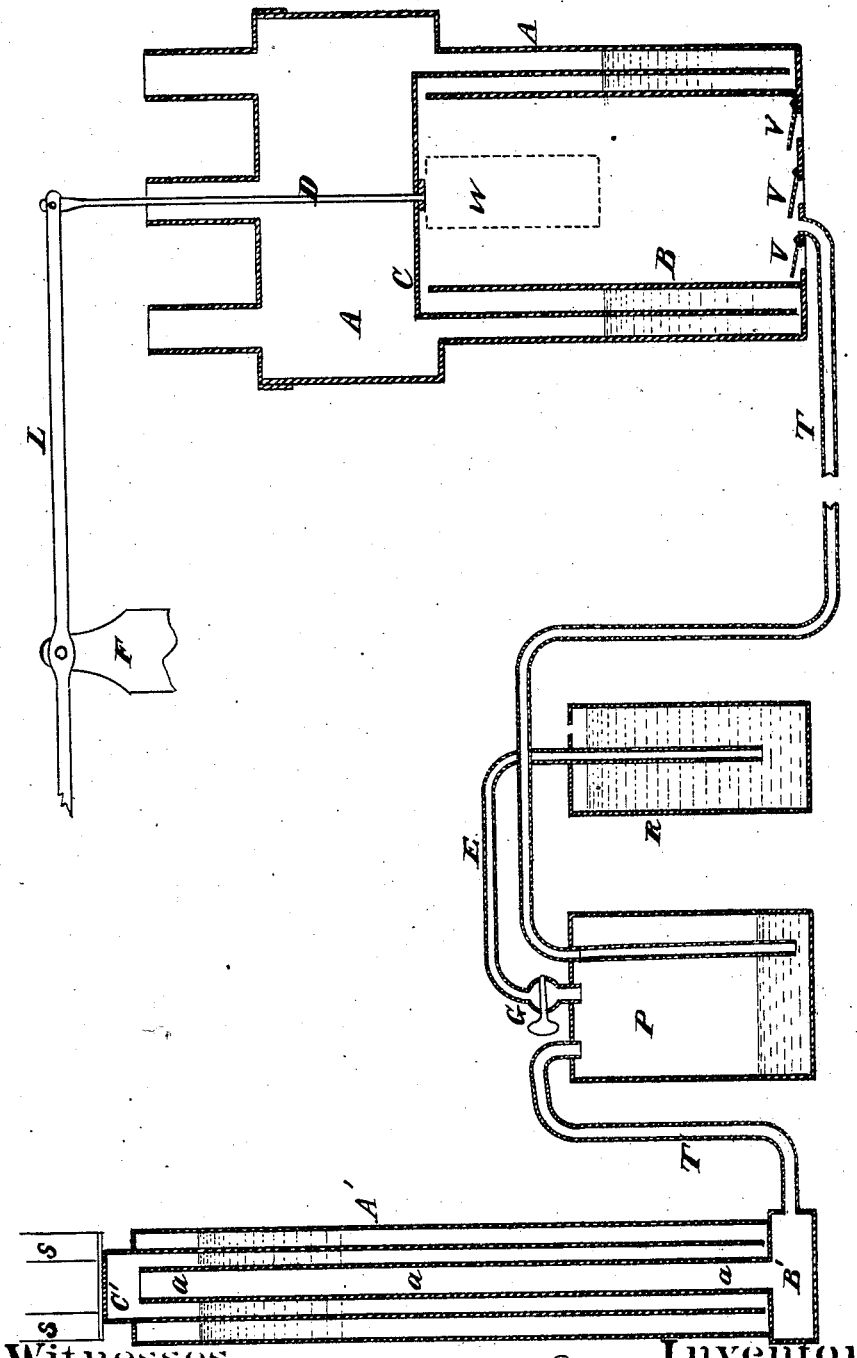
J. GORDON.

Railroad Signal.

No. 162,376. Patented April 20, 1875.




Witnesses

John L. Boone

E. M. Richardson

Inventor

James Gordon

by Dewey & Co

attys

# UNITED STATES PATENT OFFICE.

JAMES GORDON, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN RAILROAD-SIGNALS.

Specification forming part of Letters Patent No. **162,376**, dated April 20, 1875; application filed October 15, 1874.

*To all whom it may concern:*

Be it known that I, JAMES GORDON, of San Francisco city and county, State of California, have invented an Automatic Railroad-Signaling Device; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

My invention relates to an improved device, which is intended to signal the approach of trains upon railroad-lines; and it consists in the use of a series of tanks filled with water, and having floats which will operate by means of air, which is compressed or caused to move in pipes connecting the point where the train may be with the signal-station.

Referring to the accompanying drawings for a more complete explanation of my invention, the figure is a sectional elevation of my device.

A is an exterior vessel, which is made of metal or other suitable material, and is partially filled with liquid. B is an air-chamber occupying the center portion of the vessel A. C is a movable cylinder, closed at the top, and open at the bottom, and sufficiently large to move up and down freely outside of the air-chamber. W (shown by a dotted line) is a weight, which, if the cylinder C be made sufficiently heavy, may be dispensed with. D is a rod secured to the top of the cylinder C, and, passing up through a hole or orifice in the cover of the vessel A, has its other end attached to a lever, L. L is a lever or similar device, which, being acted upon by a passing locomotive or carriage, raises the rod, and with it the cylinder C. *v v v* are valves, of which there may be one or more in the bottom of the air-chamber B. T is a tube or pipe leading from the air-chamber B to the air-chamber B′ of the signaling apparatus. F is the fulcrum of the lever L.

My signaling apparatus is described as follows: A is a vessel nearly filled with liquid. *a a a* is a pipe passing up in the center from the air-chamber B′ to the top, or nearly so, of the vessel A′. C′ is a gasometric cylinder, which is closed at the top and open at the bottom, and is immersed with the open end in liquid contained in the vessel A′. P is a pneumatic bottle, (similar to Wolfe's,) and is made of metal, and is placed near the signaling apparatus. S S are signals, which may be of any kind, and are attached to the top of the cylinder C′, so that they are raised and exhibited, or withdrawn from view, by the raising or lowering of the cylinder. R is a vessel containing liquid, into which the escape-pipe E, coming from P, is immersed. G is a gas-cock attached to E, and E is an escape-pipe.

The operation will be as follows: A train passing the point where the vessel A is located will depress the lever, and this will raise the gasometer C, thus drawing air into the vessel B through the valves. As soon as the train has passed the weight of the gasometer will press upon the body of air just admitted, and this will drive the air out through the pipe. The vessel P serves as a check, and prevents the air from flowing back when the gasometer C is lifted, and the valves V opened. The pressure from the pipe T is communicated to the vessel P, and from thence to the base B′ and pipe *a a a*. This air then acts upon the second gasometer C′, which surrounds the pipe *a* within the vessel A′, and will raise it with any attached signal S, the operation being very delicate and instantaneous.

By the intervention of the vessels R and P I am enabled to always preserve a certain amount of pressure, so as to balance my signal, and thus hold it in readiness to be acted upon by the slightest additional pressure.

A valve in the pneumatic bottle allows the air to escape from the vessel P, so that the signal will gradually descend after the train has passed; and, by regulating the size of the escape-orifice, the length of time which the signal occupies in descending can be controlled.

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

1. In combination with the vessels A and A′, constructed as described, and connected by the pipe T, the check-vessel P and escape-pipe E, provided with the cock G, substantially as and for the purpose set forth.

2. In combination with the vessels A and A′, constructed as described, and connected by the pipe T, the check-vessel P, escape-pipe E, and auxiliary check R, substantially as and for the purpose described.

JAMES GORDON.

Witnesses:

JOHN L. BOONE,

C. M. RICHARDSON.