J. W. PERCIVAL.

Railroad-Signal.

No. 211,423. Patented Jan. 14, 1879.

Fig. 1.

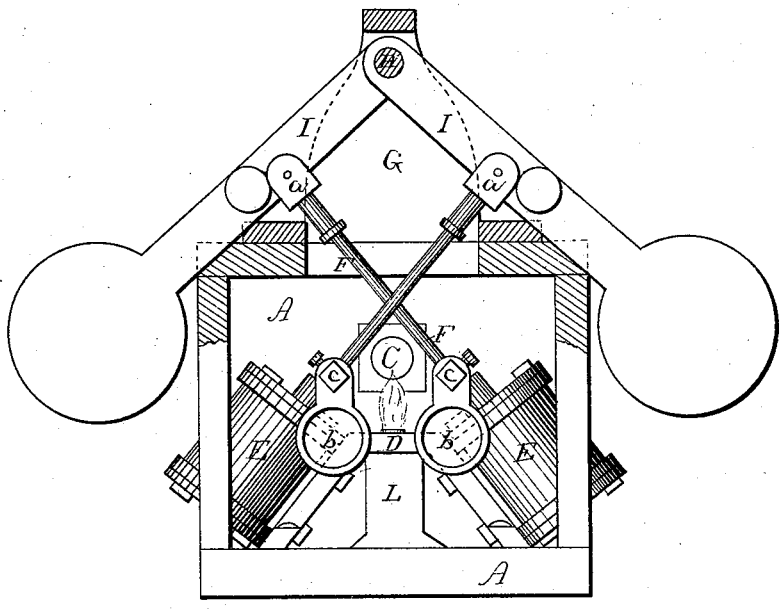
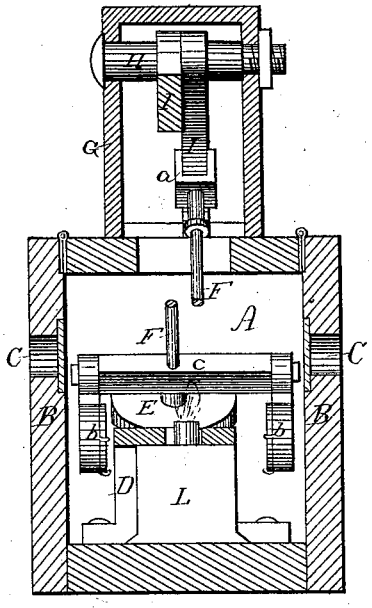


Fig. 2.



Witnesses:

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per

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UNITED STATES PATENT OFFICE.

JOHN W. PERCIVAL, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN RAILROAD-SIGNALS.

Specification forming part of Letters Patent No. **211,423**, dated January 14, 1879; application filed October 31, 1878.

To all whom it may concern:

Be it known that I, JOHN W. PERCIVAL, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Signals; and I do hereby 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in railroad-signals; and it consists in a combination of devices whereby signals can be made, visible by day and night, from stations at any distance from localities where, owing to curves in the road or other obstacles, the engineer cannot see far enough ahead to avoid danger, should there be any, without being warned by signals.

The accompanying drawings represent my invention.

The letter A represents a square box, with doors B at front and rear, the doors being hinged at the top. At or near the centers of the doors, and opposite to each other, are openings C, covered with glass.

In the box A is a frame, D, for the support of two cylinders, E, entering the box from opposite sides and inclining toward each other. The piston-rods F of the cylinders extend diagonally upward through the top of the box, crossing one another, and terminate in cross-heads *a*.

On top of the box A is a frame, G, in the upper part of which the shaft H movably supports the signal-levers I, to which levers, in their oblique descent, the cross-heads *a* are attached, so that any motion of the piston-rods is directly communicated to the signal-levers I.

The levers I, when not engaged in signaling, rest upon the upper edges of the box, but when in use are raised by the piston-rods, and extend laterally. They are painted in distinctly-differing colors, and corresponding with these are lights or glasses *b*, attached to both ends of the rods *c*, which latter are fastened to the piston-rods, and extend nearly from one door to the other inside the box.

The lights *b*, with their rods *c*, are so adjusted that when the piston-rod of either cylinder is raised the lights bearing the color of the moving signals outside cover the openings C in both doors, and again uncover them when the piston descends.

Under the frame D is placed a lamp, L, that when lighted at night shows the colors of either of the signals, and when no signals are made a white light shows through the openings C, indicating that there is no danger.

Pipes are introduced into the under end of the cylinders for either compressed air or steam, by which the pistons are raised, so that an operator, at any distance from the signal-box, by simply turning a lever, may give the required signals.

The signal-boxes are to be elevated or placed where they can be readily seen by engineers on passing trains, and by the instantaneous action of the signal-levers a warning may be given at any moment to an approaching train.

I am aware that a collapsible bellows having a rod attached to its upper end has been used to operate the colored lights, the bellows or operating device being located below the box in which the light is placed, and not within it. My invention consists in the use of metallic cylinders, which are not affected by damp and moisture, and which are placed in the box with the light for the purpose of making the apparatus more compact.

Having thus described my invention, I claim—

1. In a signal-box, the two cylinders E, placed at right angles to each other, the piston-rods F of which operate the colored glasses *b*, substantially as shown.

2. The combination of the cylinders E, rods F, colored glasses *b*, and weighted rods I, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of October, 1878.

JOHN WM. PERCIVAL.

Witnesses:
ALEX. C. HERRON,
T. F. LEHMANN.