

(No Model.)

2 Sheets—Sheet 1.

J. W. SHAFER.
CAR SIGNAL.

No. 570,510.

Patented Nov. 3, 1896.

Fig. 1.

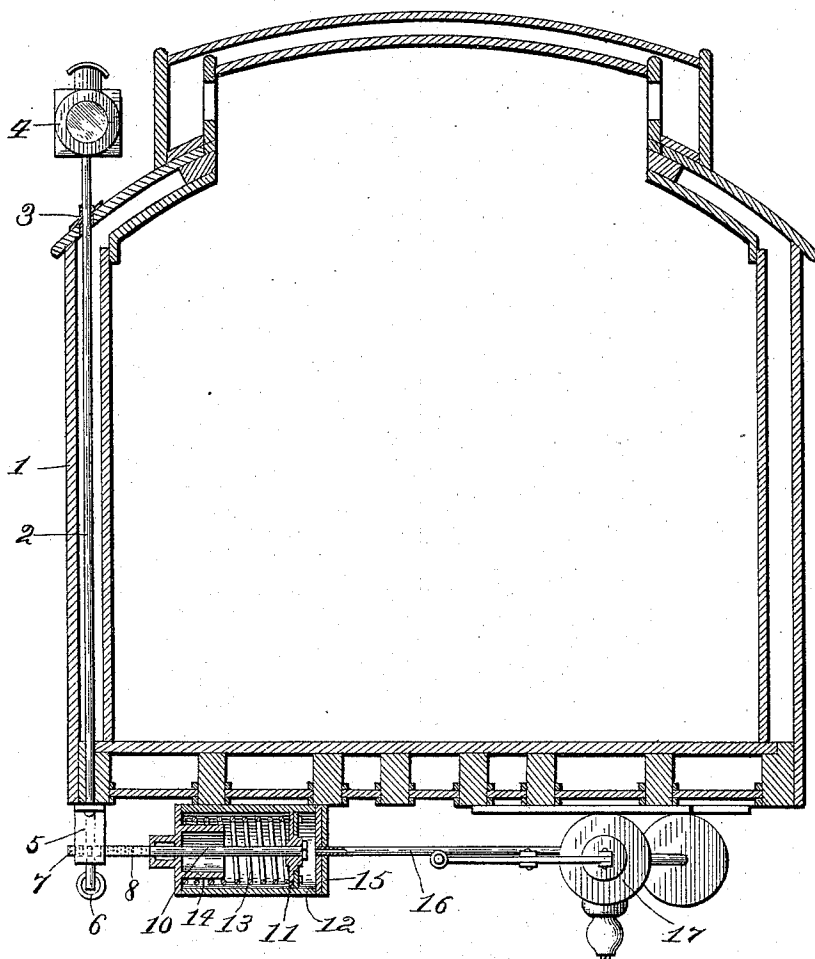
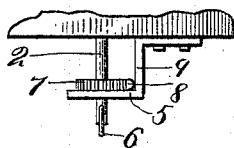


Fig. 2.



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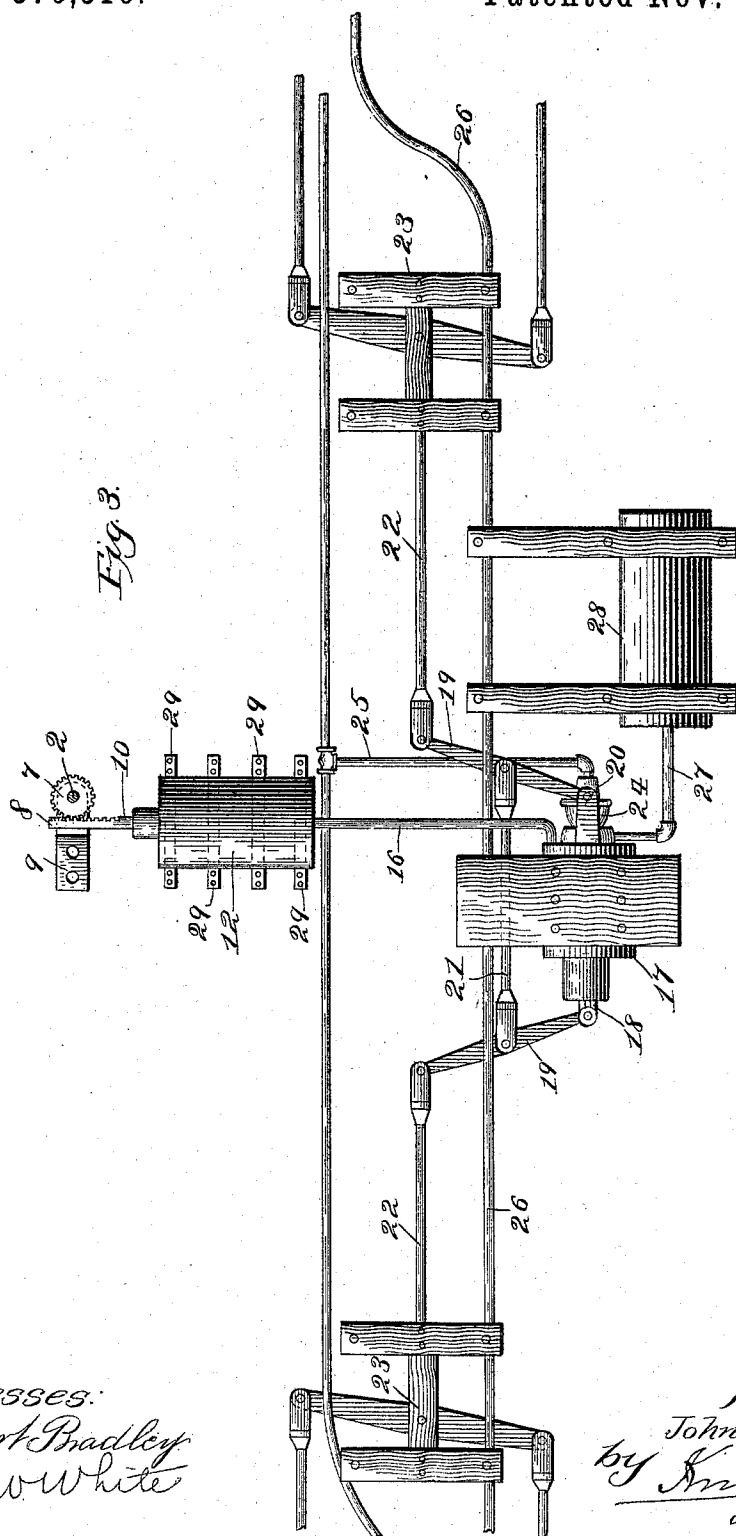
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2 Sheets—Sheet 2.

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No. 570,510.

Patented Nov. 3, 1896.



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UNITED STATES PATENT OFFICE.

JOHN W. SHAFER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
CARY P. PATTERSON, OF SAME PLACE.

CAR-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 570,510, dated November 3, 1896.

Application filed December 19, 1895. Serial No. 572,707. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. SHAFER, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Automatic Air-Brake Car-Signals, of which the following is a specification.

My invention relates to an improvement in those car-signals which are controlled by a piston connected with a brake-cylinder; and my invention consists in novel features of construction hereinafter described and claimed.

My invention will be fully understood upon reference to the accompanying drawings, in which—

Figure 1 is a transverse sectional view of any ordinary car having my improved signal applied thereto. Fig. 2 is a detail view of the manner of mounting the lower end of the lamp post or shaft. Fig. 3 is a top plan view of the operative parts of a common form of air-brake, in connection with which my invention is shown.

1 represents a section of a railway-car of any well-known construction.

2 is a vertical shaft or turning post, which passes through a collar or thimble 3 in the roof of the car and is surmounted by a four-light lantern 4 at its upper end, while its lower end projects below the bottom of the car into a bracket 5, from which it is prevented from being withdrawn by a ring 6, and carries a horizontal pinion 7, which is under control of a reciprocating rack 8, located transversely of the car. The rack is confined against the wheel 7 by means of an offset 9 in the bracket 5, and said rack is carried by the rod 10 of a piston 11, which works in cylinder 12 and is held normally inward by means of a spring 13. The cylinder is arranged in a horizontal position beneath the car-bottom and is provided with an inwardly-projecting neck 14, around which the spring is seated and which forms a stop for the outward movement of the piston. The neck 14 and piston-head 15 determine the limits of the outward and inward movement of the piston 11 and the relative length of this movement, and the gearing between the rack

8 and pinion 7 is such as to give a revolution of ninety degrees to the post or shaft 2, so that when the brakes are off a white light will be directed forward and rearward and thus indicate to the engineer and a following train a signal of "brakes off," or when the piston is forced outward by the pressure of air which is communicated from the pressure side of the brake-piston a red light will be given to the engineer to indicate that the brakes are on and also to the following train a signal to the effect that the train is stopping or at a state of rest. As is obvious, the engineer is thus enabled to ascertain at all times whether the brakes are properly responding on each car to his manipulation of the controlling-valve.

16 represents a pipe which communicates to one side of the piston 11 pressure which is applied to the pressure side of the brake-piston in the brake-cylinder 17. The relation of my improved device to an ordinary air-brake system will be understood upon reference to Fig. 3, which shows a representative form of air-brake on a single car.

18 represents a brake-piston, and 19 are levers fulcrumed, respectively, in said piston and in bracket 20, said levers being connected by a yoke 21 at their intermediate points and at their outer extremities by draw-rods 22 with brake mechanism 23.

24 represents the triple valve, which is under control of pressure in the branch 25 of the train-pipe 26, and also controls the communication of such pressure through pipe 27 to auxiliary reservoir 28, or the communication of direct pressure to the brake-cylinder 17, or communication of pressure to said cylinder 17 from the auxiliary reservoir 28. These parts are of ordinary construction and will be fully understood in their operation. It will be seen that, by reason of the location of pipe 16 which enters the pressure end of the brake-cylinder 17, from whatever cause pressure is developed in said cylinder 17 said pressure will be communicated to the signal-cylinder 12, and thus the signal will indicate at all times the condition of the brakes. This is very important, as it often happens by reason of sluggishness in the movement of the triple valve that pressure will gradually

leak into the brake-cylinder from the auxiliary reservoir and without the knowledge of the engineer cause the application of brakes when running at full speed, which would result in flattening of the wheels or other destructive wear. By being informed of the conditions of the brakes the engineer can usually by variations in the pressure in the train-pipe rectify any inaccuracy in movement in the triple valve, or, if this becomes impossible, can correct the evil in other ways.

While I have referred to red and white lights in the signal-lamps, it will be understood that this lamp is constructed with suitable indicating-faces for use by day in addition to the glass which determines the color of light transmitted by night. It will also be understood that this lantern may be an ordinary four-light lantern of any other suitable construction.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. An automatic air-brake car-signal comprising a horizontal cylinder located transversely beneath the car-body, a piston located within the cylinder and having a rod, a spring

located within the cylinder between the outer cylinder-head and the piston for pressing the latter normally inward, a bracket having an offset and secured to the car-body, a shaft extending vertically of the car-body, provided with a visible signal, and supported on the bracket, means whereby the lower end of the shaft is operatively connected with the piston-rod, and a pipe connecting the cylinder with a brake-cylinder; substantially as described.

2. An automatic air-brake car-signal comprising a horizontal cylinder located beneath the car-bottom, a piston located within the cylinder and having a rod provided with a rack, a spring located in the cylinder between the cylinder-head and the piston, a vertical shaft extending vertically of the car-body and provided with a visible signal, a bracket secured to the car-body, a pinion secured to the lower end of the shaft and meshed by the rack, and a pipe connecting the cylinder with a brake-cylinder; substantially as described.

JOHN W. SHAFER.

Witnesses:

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