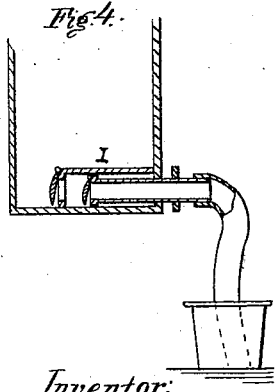
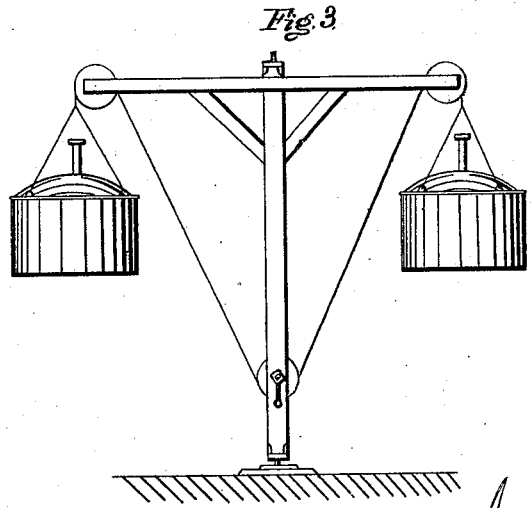
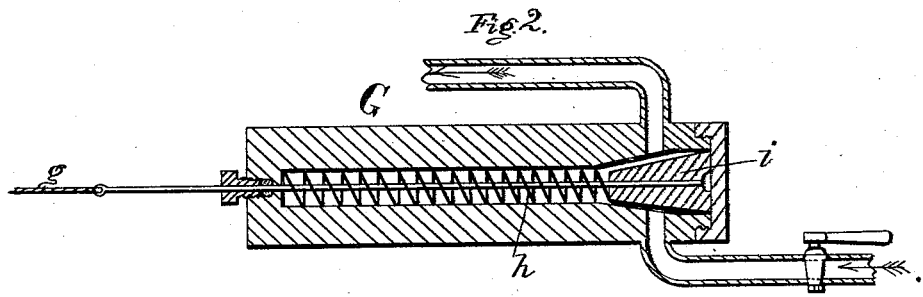
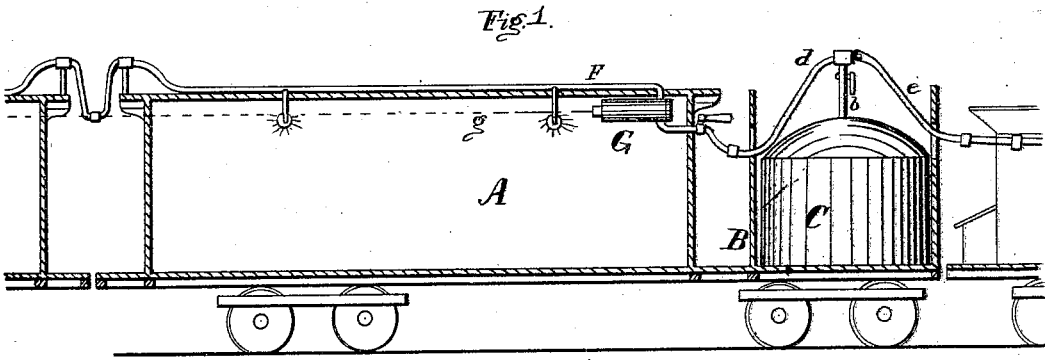


J. STORY.

Apparatus for Lighting Railway Cars.

No. 169,126.

Patented Oct. 26, 1875.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES STORY, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN APPARATUS FOR LIGHTING RAILWAY-CARS.

Specification forming part of Letters Patent No. **169,126**, dated October 26, 1875; application filed October 1, 1875.

To all whom it may concern:

Be it known that I, JAMES STORY, of the city of Washington, in the District of Columbia, have invented an Improvement in Apparatus for Lighting Railway-Cars by Means of Illuminating-Gas, of which the following is a description:

It has been customary, in lighting railway-cars by means of illuminating-gas, to have the same compressed in small receivers, one of which is placed in each car and coupled with the gas-pipes of that car only. This requires the handling of a large number of said receivers, and the attachment of a large number of couplings, and the separate adjustment and care of each of said receivers. In addition to the above is the danger of conflagration in event of an accident.

I propose to obviate the disadvantages of the system above mentioned, first, by illuminating all the cars of railway-train by gas from a single reservoir; second, in a cut-off valve under control by a cord reaching the entire length of the train, so that the flow of gas may be instantly cut off by any strain upon said cord, either designedly by the hand of a person upon the train, or accidentally upon the separation of the cars in case of an accident; third, in maintenance of the pressure by means of water forced into the gas-holder.

That others may fully understand my invention, I will particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 is a longitudinal section of my apparatus in operative position. Fig. 2 is a longitudinal section of my cut-off valve. Fig. 3 exhibits the method of transferring gas-holders. Fig. 4 is a section representing my receiver and water-pump.

A is an ordinary railway-car, having a portion at one end partitioned off and separated from the body of the car to form a chamber, B, for the reception of a gas-holder, C, from which gas is drawn for the illumination of the several cars of the train. This chamber or seat B may be arranged in the baggage-car more conveniently than elsewhere, though its location is not material, and, if desirable, it may be mounted upon its own truck, or upon the tender. The gas-holder C is simply a res-

ervoir, into which gas is forced until a proper volume and pressure are attained, so that it may be enabled to furnish the several cars with an adequate supply without reducing the pressure in the holder below the proper standard. A pipe, *b*, is inserted in the top of the holder C for an outlet, and to the outer end of said pipe the branch pipes *d e* are taken off to couple with the pipes F, by which the gas is distributed to the several burners in the cars. The necessary coupling is made by means of flexible pipes, which will not be disturbed by any irregularity in the motion of the cars. The pipe *e* leads forward, and is coupled with the necessary pipe to convey gas to the head-light of the locomotive. The pipe *b* is provided with a stop-cock, and may also be provided with any suitable automatic governor-valve to regulate the flow under a varying pressure. Between the holder C and the burners I locate the cut-off valve G, the structure of which is shown in Fig. 2, and the attached cord *g* is led therefrom through all the cars of the train, so that it is accessible to every traveler. The valve G contains a conical seat, transverse to the service-pipe F, and a plug, *i*, of similar form, fitted thereto gas-tight. A spring, *h*, keeps said plug away from its seat, and the flow of gas is then uninterrupted; but if the cord *g* is drawn, so as to compress the spring *h* and draw the plug *i* to its seat, the flow of gas will be immediately cut off, and the lights extinguished, so that in case of accident the passengers and carriages will not be in danger of conflagration.

The pipe F may be inside of the car, or may be protected from the weather and from cold in any suitable way.

The gas-holders C are designed to be charged at the terminal or other proper station, and by means of a proper crane, such as is shown in Fig. 3, the exhausted receiver and a freshly-charged one can be transposed with a single movement, and in a few minutes' time, whereas the detachment and replacement of the small receivers heretofore used occupy so much time, and involve so much labor, as to preclude the use of this method of illumination on through-trains traveling long distances. By my improvement this objection to the use of gas will be obviated.

If, for any reason, it may be desirable, the gas may be entirely expelled, and the requisite pressure maintained to the last by the presence of water in the receiver. When the pressure of gas approaches the minimum, water is pumped into the reservoir until the gas is sufficiently compressed, and this may be repeated until the reservoir is filled with water and the gas entirely expelled. For this purpose a pump, I, may be inserted in the reservoir; or a detached pump may be employed, if more convenient or desirable. The pump I, being inserted within the reservoir, is not liable to any injury in the transportation of the holders or receivers.

The water may be introduced through hollow piston-rod, or in any other proper manner, and it may be drawn from any convenient vessel by means of a piece of flexible piping attached to the outer end of the piston-rod.

Having described my invention, what I claim as new is—

1. The reservoir C, combined with its chamber or seat B and the several cars of a railway-train, each being provided with suitable service-pipes F, as and for the purpose set forth.

2. Combined with the reservoir C and service-pipes F, the cut-off valve G, provided with a cord, *g*, extending through the train, as set forth.

3. Combined with a rigid gas-holder, a pump, I, for the purpose of forcing water into said holder to restore the pressure, substantially as described.

JAS. STORY.

Witnesses:

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