A. DRESSELL.

LOCOMOTIVE SIGNAL HEAD-LIGHT.

No. 191,574. Patented June 5, 1877.

Fig. 1.

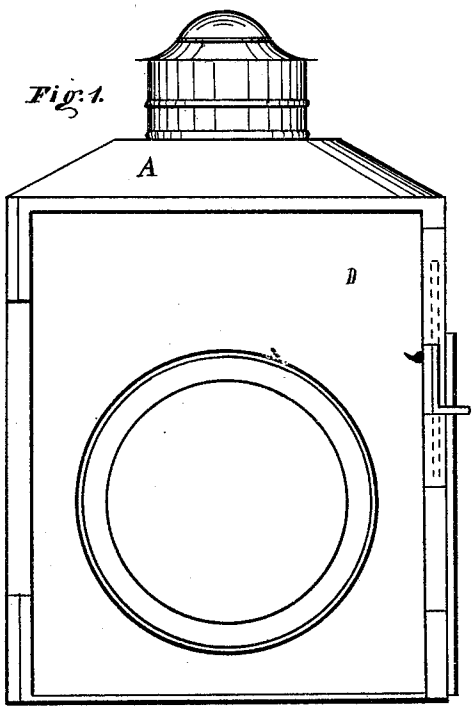


Fig. 2.

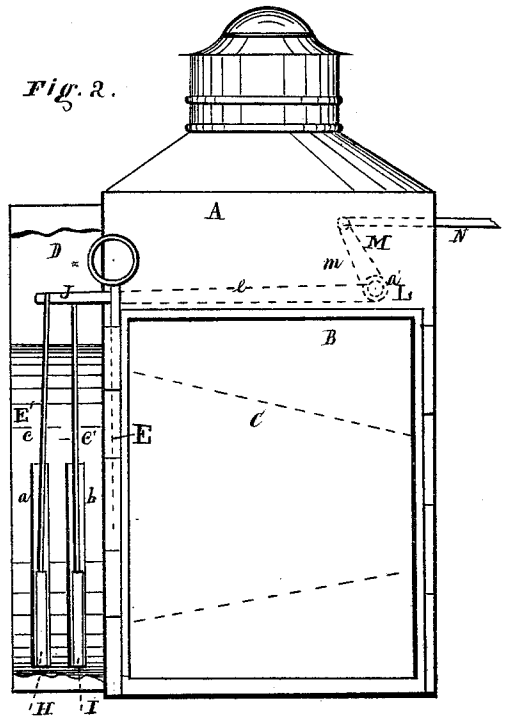


Fig. 3.

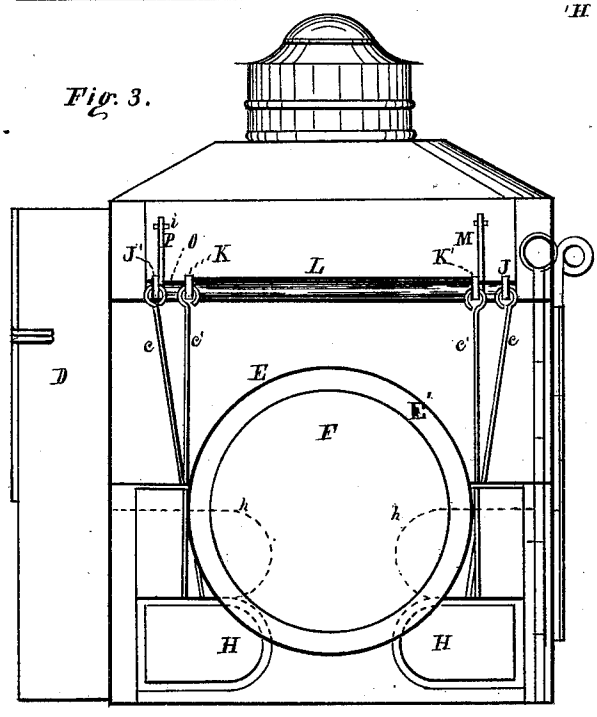


Fig. 4.

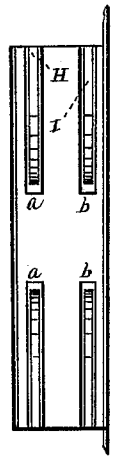


Fig. 5.

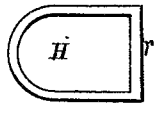
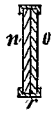


Fig. 6.



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UNITED STATES PATENT OFFICE.

ANDREW DRESSELL, OF CLEVELAND, OHIO.

IMPROVEMENT IN LOCOMOTIVE SIGNAL HEAD-LIGHTS.

Specification forming part of Letters Patent No. **191,574**, dated June 5, 1877; application filed February 26, 1877.

To all whom it may concern:

Be it known that I, ANDREW DRESSELL, of Cleveland, in the county of Cuyahoga, and State of Ohio, have invented a certain new and Improved Locomotive Signal Head-Light; and I do hereby declare that the following is a full, clear, and complete description thereof, reference being had to the accompanying drawings, making part of the same.

Figure 1 is a front view of the head-lights referred to. Fig. 2 is a side view. Fig. 3 is a front view with the door open. Fig. 4 is an under side view of a detached section. Figs. 5 and 6 are detached sections.

Like letters of reference refer to like parts in the several views.

The nature of the improvement referred to relates to a head-light for railway-engines, and the object of the same is to combine in one head-light or lantern the three colored lights, viz., white, red, and green, that are usually employed on locomotives as track and signal lights, for which three separate lanterns are generally used, one for each color. Also, the improvement consists in the construction of the frame or body of the lantern so that it is rendered more accessible to the inside for arranging and cleaning the same than those in ordinary use, it being an improvement of a head-light for which a patent was granted to me July 4, 1876.

The special purpose of this light is not only to illuminate the track and give notice of the approach of the train to which it is attached, but also by combining in the same case of the lantern certain transparencies of preconcerted colors, such as green, red, &c., whereby signals can be made from the head-light, and the lanterns usually employed on the end of the engine and each side of it may be dispensed with, and the engineer have full control to change, as circumstances may require, without stopping the train, as will be hereinafter more fully described.

In the drawings, A represents the body of the lantern or head-light, and B a side door whereby access is had to the lamp, of which the dotted lines C, Fig. 2, indicate the reflector, all of which are or may be like head-lights in common use.

To the front of the lantern is hinged a hollow door, D, which, as will be seen in Figs. 2 and 3, is of considerable depth, so that it may inclose an inner door, E, Fig. 3, which constitutes one side of the lantern, and is hinged thereto for a purpose which will be more fully explained hereinafter. The outer door D is shown as being open, in order that the inner one E may be seen. On the door E is set the glass or eye F of the lantern, in a short tube, E. An edge view of said door is shown in Fig. 2. A view of the lower edge of the same is shown in Fig. 4. Within the tube E, on each side of the opening for the glass or eye, are made two longitudinal openings, *a* and *b*, Figs. 2 and 4, in which are fitted, respectively, so that they may slide therein, glass slides H and I. The slides H are of red glass, and the rear slides I are of green glass. Each of said slides consists of two plates of glass, as shown in Fig. 6, the purpose of which will presently be shown. The several slides are operated vertically by rods *c c'*. The rods *c* are attached to the front red slides H, and the rods *c'* to the green slides, directly behind them, as will be seen in Fig. 2. The upper ends of the rods *c* are secured, respectively, to the extreme ends of the arms J J', whereas the rods *c'* of the green slides are connected, respectively, to the ends of the arms K K'. The inner ends of said arms K K' are secured to a hollow shaft, L, Fig. 3, also indicated by the dotted lines at *a'* in Fig. 2, in which is also indicated, by dotted lines at *e*, the arm J. To said hollow shaft is secured an arm, M, Fig. 3, also indicated by the dotted lines at *m* in Fig. 2. To the upper end of said arm M is attached a rod, N, Fig. 2, whereby the arm is actuated for operating the arm K for lifting the green-glass slide I connected thereto by the rods *c'*, as above said.

Loosely fitted in the hollow shaft L referred to is a shaft, O, Fig. 3, to the extreme ends of which are secured, respectively, the arms J J'. To said shaft O is secured an arm, P, Fig. 3, for operating the arms J J', whereby the red-glass slides H are operated, which, as above said, are attached thereto by the rods *c*. To the upper end of the arm P is also attached a rod, *i*, corresponding to the rod N,

so that the shaft O may be vibrated from the outside for actuating the slides practically, and for the purposes as follows:

The head-light, as shown in Figs. 1 and 3, is such as when the white light only is in use. In the event the train is to be followed immediately by another, this fact is made known by a red light. To this end the slides H are raised from their place shown in Fig. 3 to that indicated by the dotted lines *h*. This changed position of the two red slides brings them partially in front of the eye F of the head-light.

The light, on passing through the glass of the slides, becomes colored red, which will be seen on either side of the eye F, instead of two red lanterns ordinarily used in front of the engine to give warning that another train is following closely behind.

Should a green light be required for signaling, instead of a red one, the red slides are lowered and the green slides raised in place of them, which in like manner will be seen on either side of the head-light, as were the red lights, thereby giving the desired information respecting the movements of the trains, which is given in the ordinary way by two green lamps or lanterns. Other colored lights may be used in the place of the abovesaid green and red without changing the nature and purpose of this invention.

It will be obvious that by this means one lamp only is used for the threefold purpose, viz., lighting the track and indicating the movements of the trains by the signal side lights, which ordinarily requires three lights or lamps.

In my patented head-light, of which this is an improvement, the several glass slides were operated by a system of devices consisting of levers, connecting-rods, wheels, &c., requiring to be manipulated with care and by the immediate application of the hands. To avoid said devices, and to place the operative management of the slides directly with the engineer, is the special purpose of substituting the present simpler devices for those in my former head-light. By the arms J and K the slides can be adjusted by the engineer without being near the lantern. The rods N, above referred to, of which one only is shown in Fig. 2, are to extend to the cab of the engine, and within reach of the engineer, who, by pulling the proper rod, can raise the red or green slides, as may be needed. Thus, on pulling on the rod N, Fig. 2, the green slide will be raised into position for being seen, or thereby can be lowered, as the case may be; and so, on pulling on the rod *i*, Fig. 3, the red slides will come into position to be seen. The two green lights are operated by the arms attached to the sleeve or hollow shaft L, and the red slides are actuated by the arms attached to the shaft O, inserted in the hollow one. By this means the adjustment of the slides is placed directly in the hands of the engineer, who can manipulate them from his cab.

In my patented head-light access is had to the inside of the lantern by means of a side door; hence, in order to clean the glass or eye of the lantern, it is necessary to extend the arm therein through said door to the glass, which is attended with much trouble and exertion; therefore, in having the front, E, of the lantern open, as above described, access is had directly to the glass; hence the work of cleaning the same is facilitated.

The slides in my former head-light contained but a single plate of glass in each. The light, as it passed through this single plate, became too faint in color to be seen afar off, the color being lost in some degree in the glass of the white light. In order to maintain the color of the slides in this lantern, I supply two plates of glass in each slide, secured in a frame, as shown in Figs. 5 and 6. *n o* are the plates of glass and *r* the frame. One of the two plates of glass is ground, and rendered thereby partially transparent, the effect of which is to maintain the integrity of the color of the glass, so that, notwithstanding the glare of the light, the color will be distinctly seen a long distance away. Instead of two glasses, (one colored and one plain, and ground or frosted,) one glass only may be used, and one side of it must be ground or frosted, which will produce the same result as in the case where the two are employed. In the place of a ground plate of glass being used in connection with an unground one, any other suitable transparent material may be used with similar result; glass, however, is preferable.

I do not confine myself to the application of the above-described devices to locomotives specially, as it is applicable to all purposes for which signal, colored, and interchangeable lights are needed.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The glass slides H, consisting of two plates of glass, *n o*, one being colored and the other being uncolored and semi-transparent or its equivalent, substantially as set forth and for the purpose specified.

2. A lantern, having one side, E, hinged, to which is attached a tube, E′, provided with a glass, F, and having slits therein for the reception and adjustment of sliding frames with colored glasses, substantially as and for the purpose described.

ANDREW DRESSELL.

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