

(Model.)

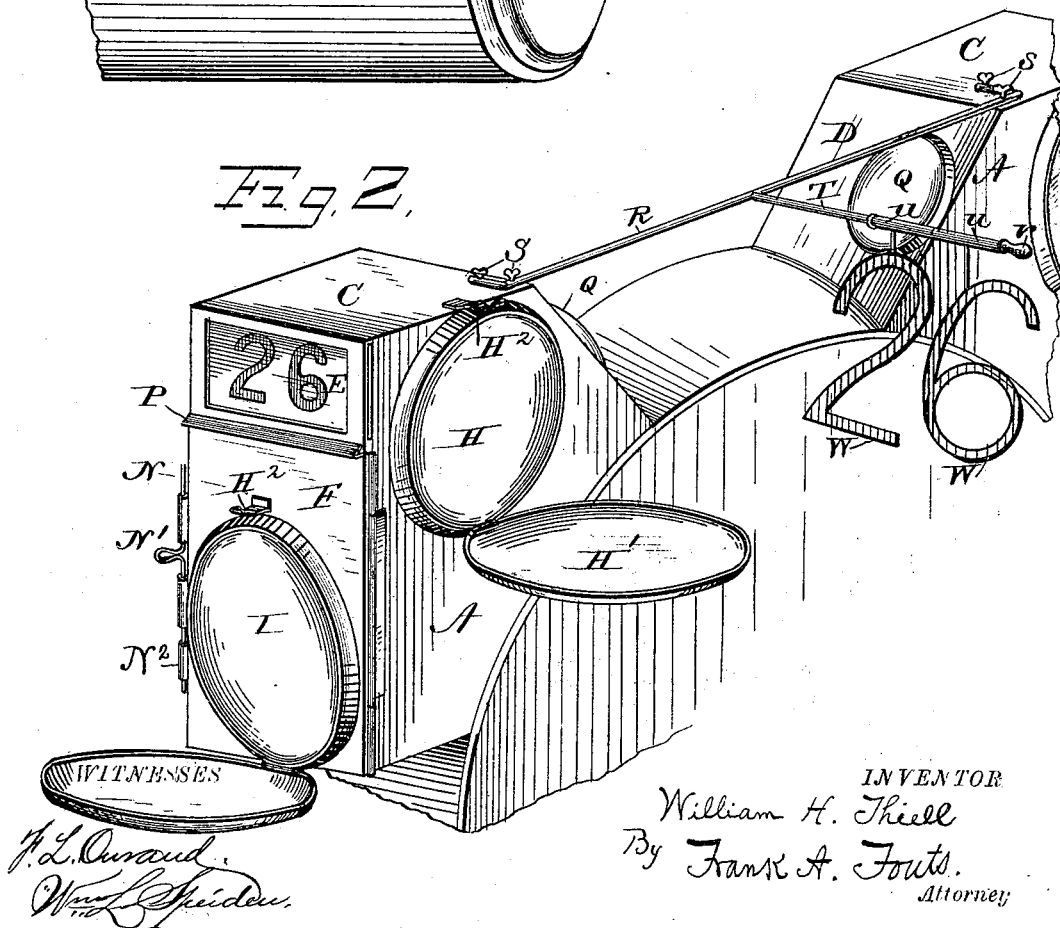
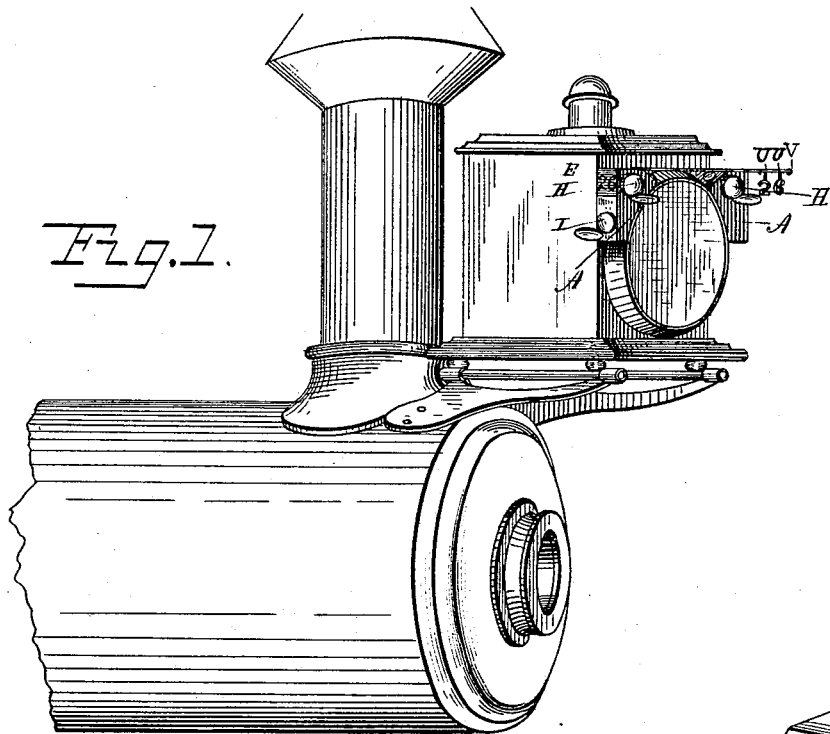
3 Sheets—Sheet 1.

W. H. THIELL.

# SIGNAL ATTACHMENT FOR LOCOMOTIVE HEADLIGHTS.

No. 262,506.

Patented Aug. 8, 1882.



(Model.)

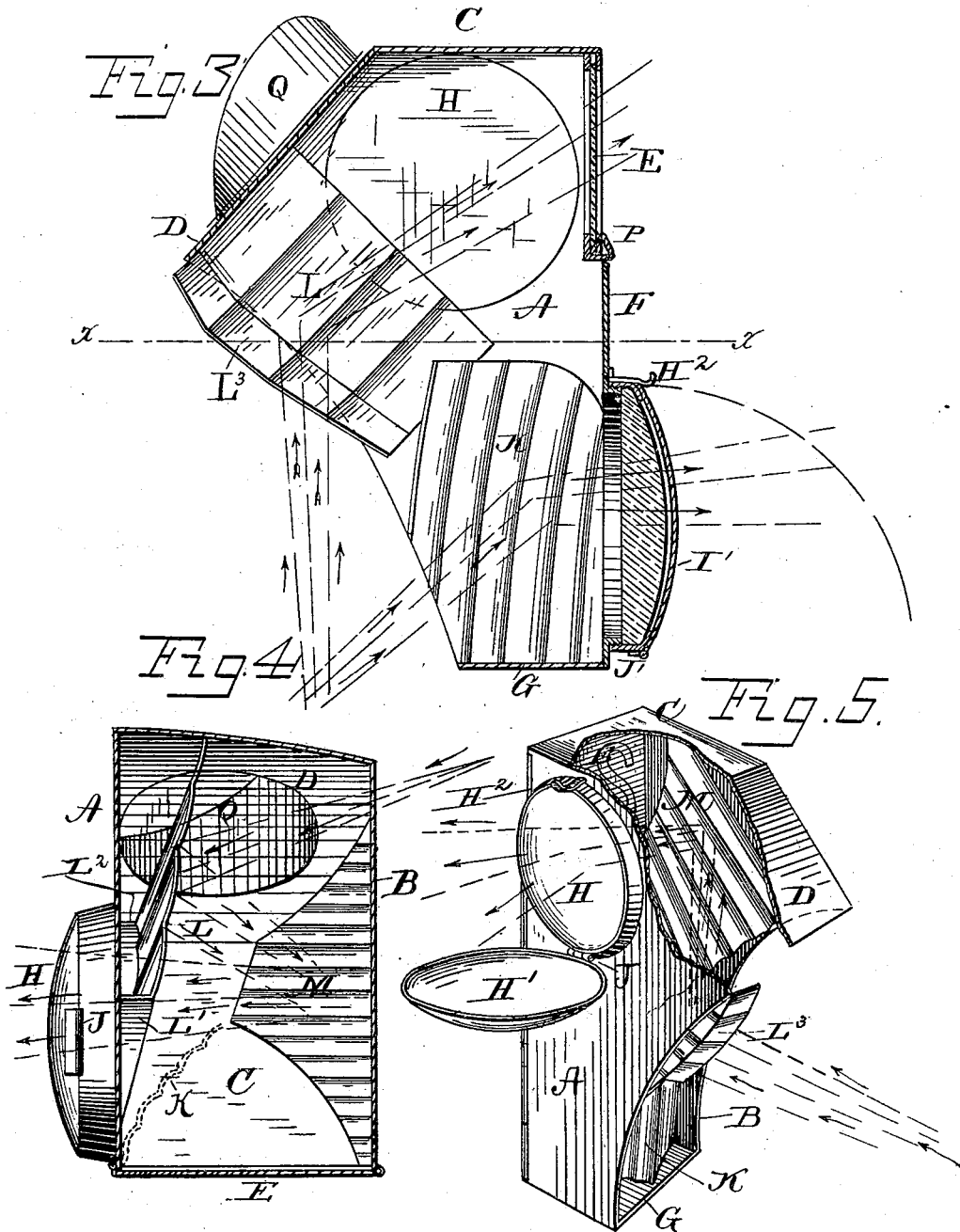
3 Sheets—Sheet 2.

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WITNESSES  
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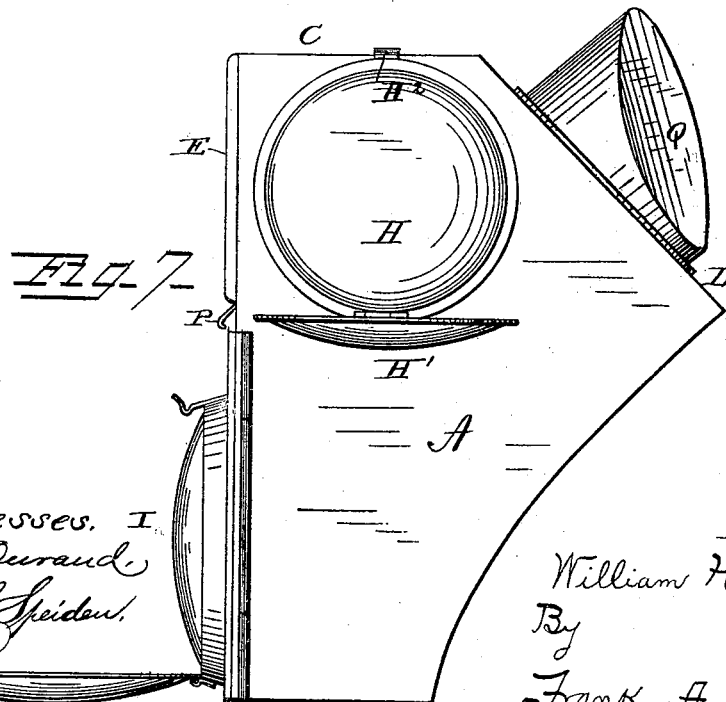
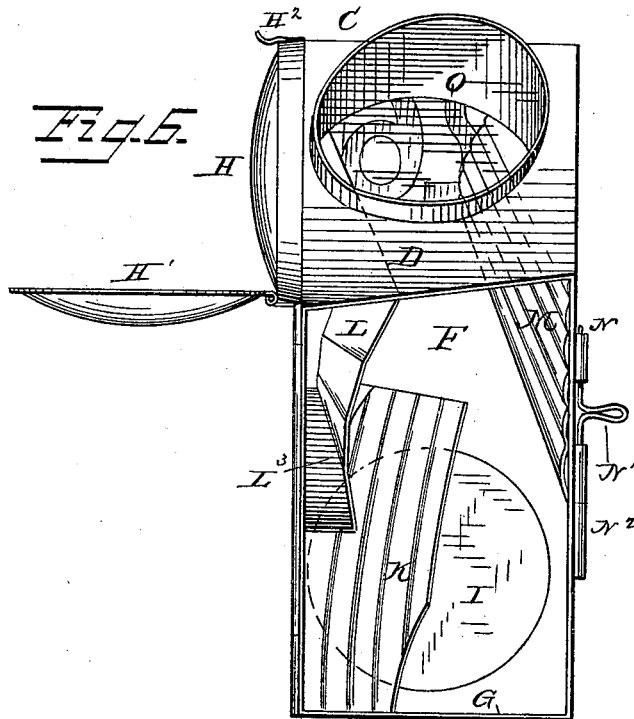
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W. H. THIELL.

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# UNITED STATES PATENT OFFICE.

WILLIAM H. THIELL, OF BLOOMINGTON, ILLINOIS.

## SIGNAL ATTACHMENT FOR LOCOMOTIVE HEAD-LIGHTS.

SPECIFICATION forming part of Letters Patent No. 262,506, dated August 8, 1882.

Application filed May 12, 1882. (Model.)

*To all whom it may concern:*

Be it known that I, WILLIAM H. THIELL, a citizen of the United States, residing at Bloomington, in the county of McLean and State of Illinois, have invented certain new and useful Improvements in Signal Attachments for Locomotive Head-Lights, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to locomotive head-lights. It consists in a case provided with a series of reflectors and colored glasses, and it is designed to be attached to the upper part of the projecting rim of the head-light which secures the white glass.

It consists, further, in a removable glass with the number of the locomotive marked thereon, also in a cross-rod with a front central right-angled projection, from which are appended figures indicating the number of the locomotive. These figures by night are illuminated by rays from an independent glass in my signal attachment, all of which will be more fully hereinafter described, and pointed out in the claims.

It is the custom and rule on railways where trains are run in sections to have one or more colored lanterns by night and one or more colored flags by day displayed on the front of each locomotive excepting the last. By this means it can be readily seen by the appearance of the front of a locomotive whether or not a train is following. The last train of the section will be known by reason of no signal being displayed. The right of a train or trains to proceed (on single track) after meeting sections is regulated by the displayed colored signals. If, by inadvertence or inclement weather, a signal at night had gone out on the front of a locomotive, which was being carried to indicate a following train, the men in charge of a train meeting such locomotive would have a right to assume that it was the last section and proceed accordingly, and a collision would probably ensue. It must therefore be apparent that it is essential to the well-being and safety of railway travelers and employees that a reliable system of signals to indicate convoy trains should be employed.

The object of my invention is to remedy this defect and insure that each train shall be prop-

erly signaled and protected by the section which immediately precedes it.

The lights formerly carried, as previously indicated, were on the style of an ordinary lantern, and consequently frail, and, being directly exposed to the weather and the resistance of air encountered by the speed of the train, were liable to be extinguished at any moment and required constant watching and attention, and were consequently liable to fail at the very instant when they ought to be conspicuous to give warning. My signal being firmly attached to the head-light and receiving its rays directly from the lamp in said head-light, no additional lamp or lantern is required, and I therefore save oil as well as insure safety, the lamp in the head-light serving the double purpose of throwing the required and full light upon the rails in front and supplying my reflectors with rays which are forcibly thrown upon the glass with which my device is provided. By the arrangement of the numbered glass in the side of my signal and appended figures above the head-light, which are supported by a rod and illuminated from a window in the beveled side of my device, I am enabled to display the number of the locomotive at night so that it can be easily seen. Where the number is painted on the side of the sand-box or tender it is a difficult matter at night to determine what it is, and can only be ascertained by careful scrutiny, aided by a light.

In the accompanying drawings, Figure 1 shows the front end of a locomotive to which is attached a head-light, the head-light being provided with two of my signal attachments and appended numbers. Fig. 2 is an enlarged view of the rim of the head-light provided with my signals, also showing the means of attaching and illuminating the appended numbers. Fig. 3 is a central vertical section, the back casing and its reflector being removed. The lower dotted lines in this view show the course of the rays from the lamp in the head-light to the bottom reflector and thence out the side glass. Fig. 4 is a section through the line *xx*, Fig. 3. In this view the bottom or lower half is removed. It shows in dotted lines, invertedly, the Z-shaped course of the rays which form the front light of the signal. Fig. 5 is a perspective view of the device with a part of

the front, top, and beveled casing broken away. Fig. 6 is an inner side elevation, and Fig. 7 a front elevation.

In the accompanying drawings, A represents the front piece of the casing containing my reflectors. B is the back piece; C, the top; D, the diagonal piece slanting from the top. E is the side upper glass having the number painted thereon. F is a door on the side, through which access is had to the reflectors, and through which a hand can be inserted to clean them. G is the bottom of the case. H is the front convexed glass; H', the cover for glass H. H<sup>2</sup> is a horizontal metallic strip having a V-shaped depression, which serves to hold the cover for the glass when it is desired that the face of said glass shall be obscured. This strip is soldered at one end to the top piece, C. I is the glass in the side door. I' is the cover for the same. The covers H' and I' work on hinges. Said hinges are secured to the projecting rims J and J', respectively, which secure the glasses. K is the bottom reflector. L is the middle reflector, and M the top reflector. L<sup>1</sup> and L<sup>2</sup> are right-angled projections, by means of which the reflector L is soldered to the inside casing, A. L<sup>3</sup> is a wing on reflector L, which aids the reflective power of said reflector. N is a vertical sliding rod fixed to the side door, F. This rod is provided with a thumb-piece, N', by means of which the bottom of the rod is forced in and out of a small vertical tubular receptacle or socket, N<sup>2</sup>, which is soldered to the back piece, B. P is a narrow strip fixed immediately above the side door, F. It prevents the water from passing into the case. Q is a glass set in the beveled casing D. R is a cross-rod united by screws S S to the top casing of the signals. T is a rod rigidly united to and projecting forward at right angles from rod R. *u u* are pipes or tubes into which rod T is inserted. W W are figures appended to tubes *u*. V is a nut on the end of rod T, to secure the said tubes.

The reflectors herein shown and described are of corrugated tin.

My device, as herein stated, is a signal attachment for a locomotive head-light. I do not lay claim to any novelty in the means by which they may be united. It is necessary, however, that a small part of the front casing of the head-light or its rim should be broken away, so as to admit the rays of light from the lamp into my invention.

The lower reflector and side glass are merely incidental features. They are employed to enable a person, by a side view of a locomotive, to determine whether or not a train is following.

In the accompanying drawings I have shown my invention attached to the rim on the front part of a head-light, one signal in the upper left-hand and another in the upper right-hand corner of the casing. I do not wish to confine myself to that part of the head-light, as it must be apparent that the signals, if desired, can be placed on the lower corners of the casing.

Some railways require one signal and others two to indicate a following train. I therefore mount two of my signals on the rim of the head-light, so that one or both can be used, as desired. It must further appear that any number of these signals can be arranged around the rim, if required.

I have shown and described the reflectors in my device as metallic, (tin.) It must be obvious, however, that glass can be used in the same connection. I therefore do not confine myself to any particular material for said reflectors; and, further, the reflectors are corrugated, which feature is not new; neither is it essential to the successful working of my invention. It is plain that said reflectors can be made concave, convex, or flat, just so the reflective relations of the respective surfaces are maintained and the rays thrown upon the colored glasses. Likewise in the manufacture or use of said colored glasses, which are described and shown as convexed outwardly. They can be made flat or otherwise. Neither do I wish to confine myself to a front and side glass separate and independent of each other. It must be apparent that a solid curved piece of glass can be fixed to my frame so as to receive the rays from the top and bottom reflectors, respectively, and produce the effect attained by the separate glasses. A solid piece of glass curved at the corner, with a flat front face to receive the rays, and having a right-angled projection for the side reflector, is conceived to be an equivalent for the glasses shown and described.

The round glasses in my device are held in the outer edge of a circular threaded rim, which projects backward. The rim is turned over the outer edge of the glass about one-quarter of an inch, (see Fig. 3,) to secure the glass more firmly. The thread is on the inside and screws onto a threaded rim projecting from the casing. The cover is hinged to the outer rim, which secures the glass.

By means of the arrangement of the reflectors herein set forth and described I am enabled to throw a stronger light through my signal-glasses than could be done were the rays from the lamp in the head-light to fall directly on the glasses. The polished surfaces of the reflectors intensify the light.

I am aware that it is not new to fix transparencies in the sides of a head-light proper and illuminate the same by means of reflectors placed on the inside of the front casing. I therefore do not claim such; but

What I do claim, and desire to secure by Letters Patent, is—

1. In a signal attachment for a locomotive head-light, as herein set forth and described, the reflectors L and M and front glass, H, all arranged in the manner and for the purposes specified.

2. In a signal attachment for a locomotive head-light, the reflector K and glass I in side door, F, substantially as described, and for the purposes set forth.

3. In a signal attachment for a locomotive head-light, the door F, having a circular outside threaded rim, to which is secured a threaded cap provided with a glass, I, and cover I',  
5 the door being hinged to the front casing, A, and provided with a vertical sliding rod to secure said door to a tubular receptacle, N<sup>2</sup>, on the back B, substantially as described.

4. In a signal attachment for a locomotive  
10 head-light, the reflector L and lettered side glass, E, substantially as described, and for the purposes set forth.

5. The rod R, secured to the top of casing C, and having the right-angled projection T, to  
15 which are appended and secured the figures W

W by means of the tubes *u u* and nut V, the figures W W being illuminated by the light from the window Q, substantially as described, and for the purposes set forth.

6. In a signal attachment for a locomotive 20 head-light, the reflectors L and M, in combination with the glass Q, secured in a rim, in the manner and for the purposes specified.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM H. THIELL.

Witnesses:

W. J. LAWRENCE,  
KATE D. LAWRENCE.