S. M. DAVIES.

Locomotive Head Light.

No. 109,877. Patented Dec. 6, 1870.

Fig. 1

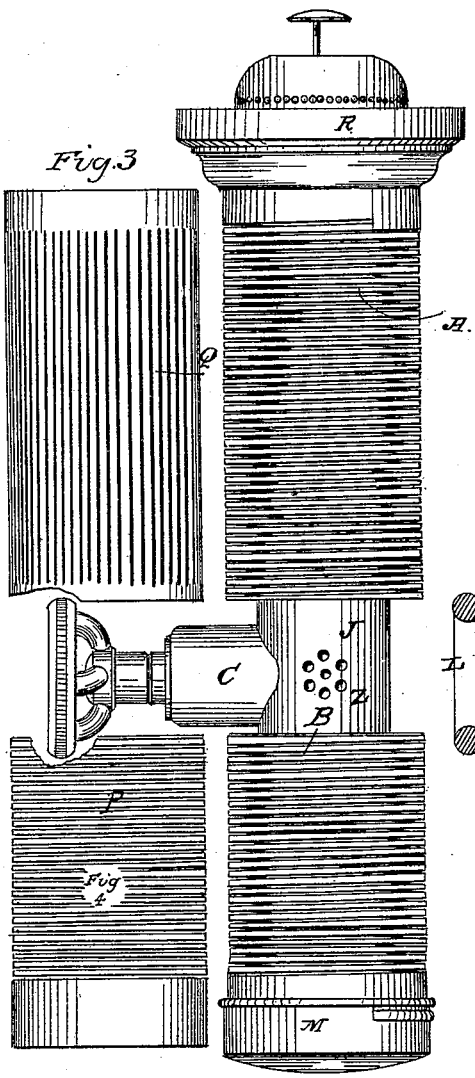


Fig. 2

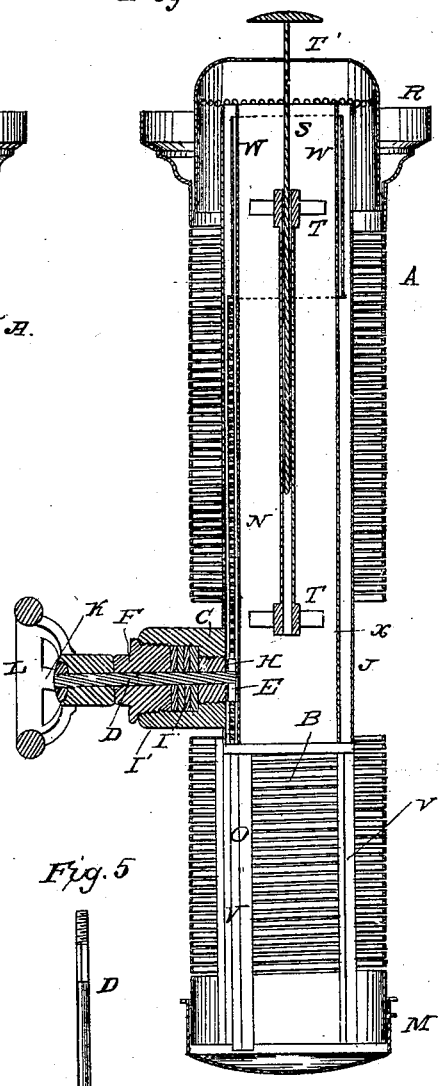
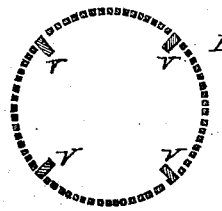


Fig. 3

Fig. 5

Fig. 6



WITNESSES

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SAMUEL M. DAVIES, OF CHICAGO, ILLINOIS.

Letters Patent No. 109,877, dated December 6, 1870; antedated November 23, 1870.

IMPROVEMENT IN LOCOMOTIVE HEAD-LIGHTS.

The Schedule referred to in these Letters Patent and making part of the same.

I, SAMUEL M. DAVIES, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Locomotive Head-Lights, of which the following is the specification.

Nature and Object of the Invention.

The nature and object of the invention is to construct a locomotive head-light that will be so firmly constructed that it will stand all the severe trials that it must necessarily undergo when in use, and also afford an ample and sufficient supply of air to the flame in regular and continuous quantities; to this end,

The invention consists—

First, in the employment of hollow slotted cylinders, with longitudinal ribs, to support the wick-tube and chimney while admitting air uniformly to the blaze; and

Secondly, in the peculiar construction and arrangement of the bearings, packing, and supporting-shell or tube, in which operates the wheel that raises and lowers the wick, as hereinafter set forth.

Description of the Accompanying Drawing.

Figure 1 an upright view.

Figure 2 is a vertical sectional view.

Figure 3 is an upright view of that part of the outside or shell which supplies the air to the outside of the flame, with the openings or slots running perpendicularly.

Figure 4 is an upright view of that part of the outside or shell which supplies the air to the inside of the flame, with the opening or slots running around each independently of the other, thus forming a series of rings.

Figure 5 is a view of the ratchet-shaft.

Figure 6 is a transverse view of the lower shell, as seen in fig. 3.

General Description.

Similar letters of reference refer to similar parts.

A is a shell or outside cylinder surrounding the cylinder J.

At equal distances apart, on the inside of the shell, are located ribs V V V V, four in number, as seen in fig. 6. Two of these ribs can be seen in fig. 2.

B is a shell like A, located at the base of the cylinder J, and having ribs the same.

These shells are made as follows: A hollow tube, with the ribs V V V V, is made of brass by casting it whole. It is then placed in a lathe and a continuous winding slot is turned in the shell, leaving and forming a thread, similar to a thread in a screw. This slot is turned clear through the shell, at all points excepting at the points where the ribs V V V V are located. The ribs serve the purpose of holding in position the threads, which are made by turning the continuous slet. Both shells A and B are made in the same way from a tube, with the ribs V V V V cast on the inside.

Fig. 3 shows this same shell, cast with the ribs circulating around on the inside, and located at right angles with the slots.

Fig. 4 shows the slots running around the shell, each independent of the other, and forming separate rings, and supported by ribs the same as in figs. 1 and 2.

Between the shell and the cylinder J there is a space the width of the ribs V V V V. Upon the top of the shell *a* fits the cap or dome R, with a flange sufficiently large to sustain the glass chimney.

Within the cylinder J is another cylinder, X, having a space between the two, into which the oil passes through the apertures Z.

Upon the top of this inner cylinder X fits the sleeve W.

To the lower end of this sleeve W is attached the ratchet N, which works in the space between the two cylinders J and X. This ratchet extends downward into the extended slot or pipe O.

E is a ratchet-wheel attached to the shaft D, and working in ratchet N.

The shaft D works in the bearing H, which screws into the case C. At the other end this shaft D works in the bearing F. This bearing F screws into the outer end of the case C. The shaft D is fastened to the handle L by means of the screw K. That part of the shaft D which passes through the handle L is made square, as shown in fig. 5.

I is the packing between the two bearings F and H.

T T are bearings on the inside of the inner tube *x*, and supported by braces extending from the cylinder X. In these bearings fit the rod T, and to the top of this rod fits the button T'.

Operation of the Invention.

The wick is attached to the sleeve W, and by turning the handle L the ratchet N descends into the tube O, which draws down the sleeve W, which in turn draws the wick over the cylinder X.

The oil passes through the apertures Z and saturates the wick, and by turning the handle L it is lowered or raised at pleasure.

The lower shell B is attached to the cylinder J, leaving no opening at the top of the shell, between it and the cylinder J, the cylinder J only extending to the shell B. The air passes through the opening made by turning the continuous groove, as afore-described, in regular and continuous supplies, which passes up through the central cylinder X and supplies the flame on the inside.

The air passes through the continuous groove in the shell A, and in at the bottom of the shell; thence up-

ward between the shell A and the cylinder J, under the cap or dome R, and thus supplies the flame from the outside.

By turning the bearing F forward or backward, the packing I is made to fit the shaft D more or less tightly. The bearing H is placed in position from the outer end of the case C, the same as is the bearing E, thus relieving the necessity of removing the case C when you wish to replair or replace the ratchet E.

The nut K is removed, when the handle L will slip off, and then the bearing F can be removed; and then, by using a slotted screw-driver, the bearing H can be removed, when the shaft D and wheel E can be taken out.

In this construction it will be seen that air is supplied to both sides of the flame at the same time.

The use of the shells, made as herein described, enables me to make a locomotive head-light much stronger, and will much longer withstand the constant shaking and jarring, than those now in use, and at the same time the openings through which the air enters to supply the flame are not as liable to be closed by dust and dirt, thus insuring a constant and uniform supply of air to the flame. I am also enabled to make the burner part of a locomotive head-light much smaller in diameter than those now in use. Thus the surface of the reflector is increased at and near the focus, where the light is the most intense and where the reflection is the most brilliant. The opening at the bottom of the shell A, which is between it and the cylinder J, can be closed, if desired.

The shells A and B could be cast without the ribs V V V V, and afterward the ribs could be brazed on, but I prefer to cast them with the shell.

Claims.

1. The shells A and B, made with a continuous winding thread, substantially as and for the purpose described.

2. The shells A and B, made with a continuous winding thread, and with ribs V V V V, substantially as shown and described.

3. The combination and arrangement of the small bearing H, large bearing F, intermediate packing I, shell C adapted to fit and support the bearings, shaft, or stem D, handle L, and ratchet-wheel E, when the several parts are constructed in the manner and employed for the purpose set forth.

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Witnesses:
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