

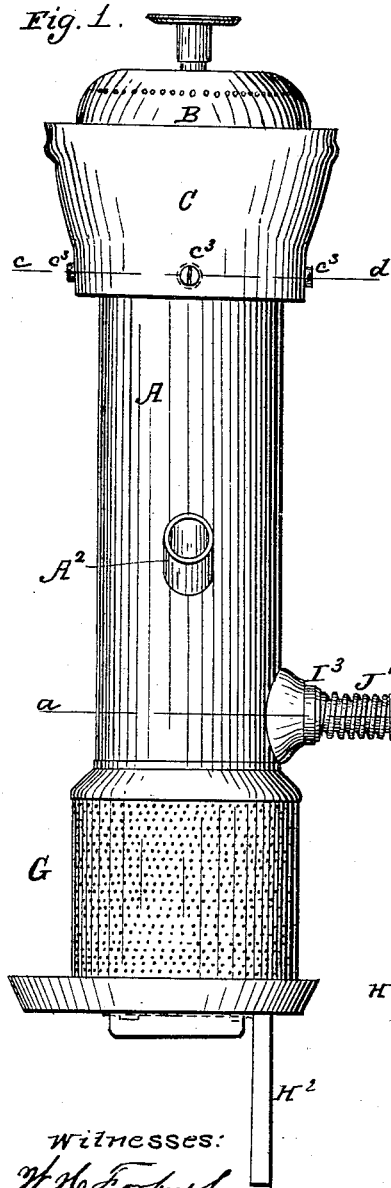
RAY & CLEVELAND.

Locomotive Headlight.

No. 51,351.

Patented Dec. 5, 1865.

Fig. 1.



Witnesses:
W. H. Forbush
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Fig. 3.

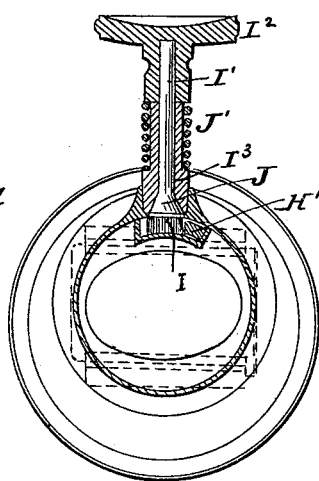
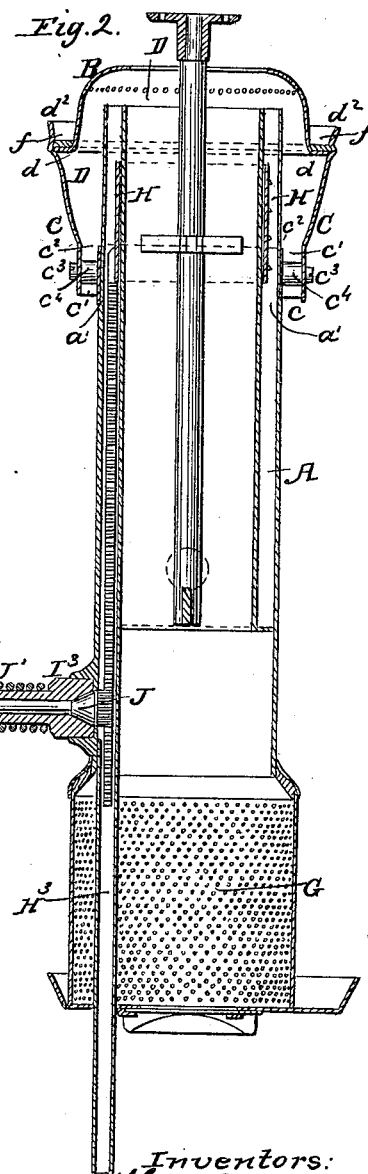
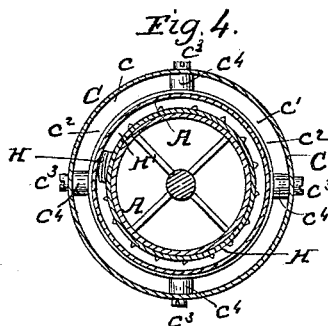


Fig. 2.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN LOCOMOTIVE HEAD-LIGHTS.

Specification forming part of Letters Patent No. 51,351, dated December 5, 1865.

To all whom it may concern:

Be it known that we, THOMAS S. RAY and SAMUEL E. CLEVELAND, of the city of Buffalo, county of Erie, and State of New York, have invented certain new and useful Improvements in Locomotive Head-Light Lamps; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure I is an elevation. Fig. II is a vertical section. Fig. III is a cross-section on line *a b*. Fig. IV is a cross-section on line *c d*.

The nature of this invention consists, first, in a locomotive head-light lamp having a deflector and shield, forming a combustion-chamber around and above the top of the wick-tube, so constructing said shield and connecting it with the wick-tube as to leave an annular space at the bottom of the shield and between it and the wick-tube, through which the air for combustion may enter directly into the combustion-chamber, whereby the diameter of the lamp is reduced and the wick-tube prevented from heating; secondly, applying a cushion of felt or other suitable material to the chimney-seat, to prevent the passage of air underneath the chimney when the jar of the locomotive causes the same to lift from its seat, and, further, to lessen the liability of the chimney to break from the same cause; third, in packing the spindle of the pinion by which the wick-rack is operated by means of a ground joint with seating-spring.

Letters of like name and kind refer to like parts in each of the figures.

A represents the wick-tube, consisting of two concentric cylinders, one inside of the other and of enough less diameter to leave an annular space between them for the reception of the cylindrical wick. The bottom of this annular space is closed tight, so as to retain the oil which flows into the wick-tube from the oil can or receiver through the oil-tube *A*².

B represents the deflector, and C the shield, which, combined together, form the combustion-chamber D around and above the top of the wick-tube. The deflector B at its base is considerably larger than the wick-tube, but curves inward at the top to a diameter slightly greater than that of the inside of the wick-tube.

The base of the deflector has an outward flange, *d'*, which forms the seat for the chimney.

The shield C, commencing from the base-flange of the deflector, extends downward around the wick-tube and contracts to a diameter enough greater than that of the outside of the wick-tube to leave an annular space, *c'*, between it and the wick-tube of sufficient area to admit the required quantity of air to the combustion-chamber.

The shield is secured at its bottom to a concentric ring or thimble, *c*², of a diameter equal to that of the upper end of the wick tube, at four points, more or less, in its circumference by screws *c'* and interposed washers *c*⁴. This ring slips over the end of the wick-tube down to a shoulder, *a*, formed thereon, and the shield and deflector is thereby held in its proper position concentric with the wick tube. The shield C extends above the chimney-seat *d*¹ sufficiently to form a flange, *d*², to hold the base of the chimney against lateral movement on its seat.

By this construction of the deflector and shield the diameter of the lamp where it passes through the reflector is considerably lessened, so that fewer of the rays thrown off by the deflector are intercepted by the lamp, and causing the lamp to cast a less shadow. It further prevents the wick-tube from heating by permitting the free circulation of air around it.

A ring, *f*, of felt, woolen, or other suitable and sufficiently-elastic material, is laid upon the seat *d'* and forms an elastic cushion for the chimney to rest upon, so that the jar of the locomotive will not cause the chimney to lift and admit air beneath it onto the flame and cause an unsteady light; and it also prevents the chimney from breaking by the continual jar and vibration which it would have if resting directly on the metallic seats.

G represents a cylindrical perforated shell attached to the bottom of the wick-tube, through which the air supplying the central draft through the wick-tube is strained and prevented from entering in sudden gusts and causing unsteadiness and flickering in the light.

H represents a sleeve or ring to which the wick is attached, and which slides up and down on the inner cylinder of the wick-tube to raise

or lower the wick. This ring is attached to one end of a rack, H', which extends downward through the annular space and parallel to the axis of the wick-tube and into a small extension-tube, H², projecting from the bottom of the wick tube.

I represents a pinion gearing with the rack H', its spindle I' being at right angles to the axis of the wick-tube and projecting through the outside thereof, and carrying a thumb-wheel, I², by which the pinion is rotated to move the rack and raise or lower the wick.

The spindle-bearing or box-piece I³ is soldered or otherwise fastened to the outside of the wick-tube, and is of sufficient length to afford firm support to the spindle.

A conical shoulder, J, is formed on the spindle contiguous to the pinion, and a corresponding seat at the inner end of the bearing-piece I³, the conical shoulder being drawn into its seat and tightly held by the action of a spiral spring, J', placed around the bearing-piece I³ and pressing between a shoulder thereon and the hub of the thumb-wheel I².

The cone J is nicely fitted to its seat by grinding, and, being held firmly therein by the action of the spring, the leakage of oil from the wick-tube around the spindle is wholly prevented.

Heretofore the spindle has been packed by a stuffing-box and gland which has proved a very inefficient device, often leaking and requiring constant attention and repacking. The improvement herein described avoids that difficulty.

L is a button of ordinary construction for spreading the flame.

We herein disclaim the perforated shell G, placed at the bottom of the wick-tube.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of the deflector B and shield C with a cylindrical wick-tube and button of a locomotive head-light lamp, the deflector and shield being so constructed and connected to the top of the wick-tube as to form an annular space between the wick-tube and shield for the entrance of air, and so as to form a combustion-chamber around and above the top of the wick-tube, substantially as described.

2. Placing a cushion, f, on the flange or shoulder d' and between the deflector and shield for the chimney to stand upon, substantially as set forth.

3. The combination of the spindle bearing or box-piece I³, conical shoulder J, formed on the spindle contiguous to the pinion, and spiral seating-spring J', the spindle-bearing having a conical seat formed therein corresponding to the conical shoulder J, and connected to the outside of the wick-tube, substantially as described.

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