J. RADLEY.

Locomotive Lamp.

No. 55,904.

Patented June 26, 1866.

Fig: 1.

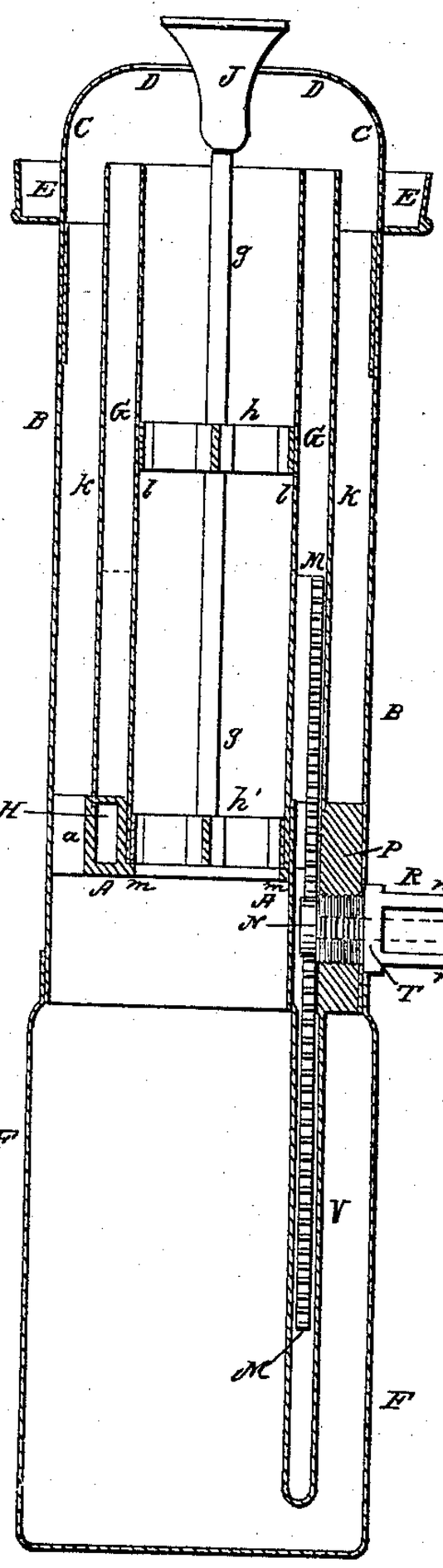


Fig: 2.

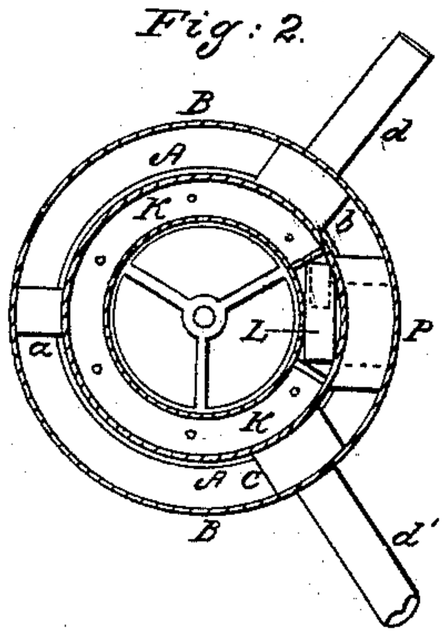
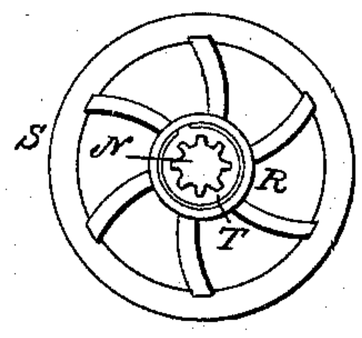


Fig: 3.



Witnesses:

John Cochrane

A B Malcomson Jr.

Inventor:

Jas. Radley

N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

JAMES RADLEY, OF NEW YORK, N. Y.

IMPROVEMENT IN ENGINE HEAD-LIGHTS.

Specification forming part of Letters Patent No. **55,904**, dated June 26, 1866.

To all whom it may concern:

Be it known that I, JAMES RADLEY, of the city and county of New York, and State of New York, have invented a new and useful Improvement in the Construction of Lamps, especially intended for the lamps of locomotive head-lights; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the figures and letters marked thereon, and in which—

Figure 1 is a vertical section of the lamp, and Fig. 2 a top view or plan.

In both figures the same parts are indicated by the same letters.

The use of kerosene-oil for illuminating purposes is attended with great danger by reason of its inflammable nature and the high temperature it sometimes attains in the lamp, causing the soldering of the joints of the lamp to give way, thereby allowing the oil to escape, and which, being highly heated, immediately bursts into flame, destroying not only the whole head-light, but also all that is combustible within its reach.

The nature of my invention consists in so constructing the lamp that it cannot be melted apart by any degree of heat to which it may be subjected while in use, either from the heat of the oil within it or in consequence of leakage.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and the manner in which its several joinings are made and secured.

In the construction of my improved lamp I use a brass foundation-piece, A A. (Shown in section in Fig. 1 and in plan in Fig. 2.) On the outside of this foundation-piece I form three projections, *a b c*, to serve as carriers for the external or inclosing tube, B B, to which carriers it is securely brazed. This inclosing-tube is furnished with the usual movable top piece, C C, which is contracted at D D to embrace the flame of the lamp, and it has a projecting carrier, E E, around it to sustain the glass chimney. This inclosing-tube has also a detachable bottom piece, F F, made of finely-perforated metal, through which perforations the air passes to supply the flame, a portion passing up between the inclosing-tube B B and the foundation-piece A A to the exterior of the flame, while another portion passes up through the center of the foundation-piece and within the wick-tube G to the interior of the flame. The foundation-piece A A has a deep recess formed in it from the top downward, as shown in section at H, Fig. 1, into which recess is fitted an annular-shaped piece of metal, K K, Fig. 2, having its ends turned downward to the bottom of the recess, so as to form a space, L, Fig. 2, for the wick-rack M M and its pinion N. The fluid or oil to support the flame of the lamp enters the recess H through the projections *b* and *c* upon the foundation-piece A A, which connects with the oil-tank by means of the tubes *d* and *d'*, and passes upward from thence to the wick-tube G through a number of small holes made in the annular covering-plate K K, as shown in Fig. 2. In the center of the wick-tube or lamp is the spreader J, Fig. 1, supported by a small rod, *g g*, and sustained in place by the rims *h* and *h'*. This spreader causes the air passing upward through the center of the wick-tube to impinge the interior surface of the flame.

The wick-tube G is composed of two concentric tubes, *k k* and *l l*, having an annular space between them for the wick and oil. The exterior portion, *k k*, of the wick-tube G fits into a rabbet formed in the top of the foundation-piece A A, as shown in Fig. 1, thus giving it a truly central and vertical position in the lamp, in which position it is securely fixed by brazing. In like manner the interior portion, *l l*, of said wick-tube G is fitted and secured in place, except that I prefer to run it down in the foundation-piece A A till it touches the bottom ledge, *m m*, upon which lower rim, *h'*, of the spreader J is made to rest.

Upon the foundation-piece A A and between the oil-tubes *d* and *d'* is a wide projection, P, having in it a vertical slot or opening for the wick-rack M M to pass through, and in which also there is a small chamber, L, for the pinion N to work in. This pinion is introduced to the chamber L by means of a circular opening from the outside, of somewhat larger size, made in the projection P, into which circular opening is screwed the stuffing-box R, having a passage through its axis for the spindle N, as shown by dotted lines in Fig. 1, and upon the outer end of said spindle is the hand-wheel S, by which the pinion N is rotated, so as to ele-

vate or depress the rack M M, as may be required in adjusting the height of the wick in the tube G. In Fig. 3 the pinion N is shown upon the face of the screwed shank T of the stuffing-box R, and from which it will be seen that the pinion N can be removed from or placed in the chamber L, on removing or inserting the stuffing-box R, by means of the screw T, formed upon its inner end, and for greater convenience in this respect the stuffing-box R is furnished on its outside with cants or squares *n n n*, to which the wrench may be applied in turning it. Heretofore the stuffing-box was soldered to the wick-tube inside of the inclosing-tube, and previous to closing the parts the pinion N was placed inside, with the spindle turned outward, in consequence of which mode of construction it was extremely difficult to repair any of the parts connected with the stuffing-box, and when the pinion had to be repaired or removed the lamp had to be opened up for that purpose, making a troublesome and expensive job; but by my improved mode of construction, as described, the making of repairs or renewals of the parts is easily and quickly accomplished, and at the same time, owing to the solidity of the parts, being formed of brass-castings, they are less liable to get out of order than formerly.

Where the rack M M passes down through the foundation-piece A A, I attach the flattened tube V to the part P by brazing it thereto. The lower end of this tube is hermetically closed, so as to retain the fluid, as shown in Fig 1.

By the mode of construction herein described the several parts of the lamp are accurately and quickly put together and so easily and securely held in place that all the joinings can be thoroughly brazed at the same time or at the same heat, and by means of such brazing making the lamp completely proof against the action of the heat arising from the use of kerosene-oil.

This improved mode of construction is of particular value and importance when applied to the lamps of locomotive head-lights, as the security from destruction which it possesses would materially contribute to the successful working of railroads. It is entirely by means of the head-light the engineer of a moving train is enabled at night to see the condition of the track before him. The destruction of the head-light is accordingly a most serious disaster to such a train, rendering its farther progress extremely hazardous to all on board of it; but by the use of my improved mode of construction such an occurrence could not arise from the causes that have heretofore led to its production.

Having thus described my improvements in the construction of lamps, I do not claim the ratchet and pinion, the foraminous shell, nor the various other parts of the lamp taken separately; but

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

1. The foundation-piece, with its recess and covering-plate, in combination with the inclosing-tube and the wick, so arranged and constructed that the parts may be conveniently brazed together instead of being soldered, thereby rendering the lamp more safe and permanent, substantially as herein shown and described.

2. The wick-pinion and its spindle, in combination with the removable stuffiing-box, arranged and constructed substantially as described.

JAS. RADLEY.

Witnesses:
JOHN COCHRANE,
A. B. MALCOMSON, Jr.