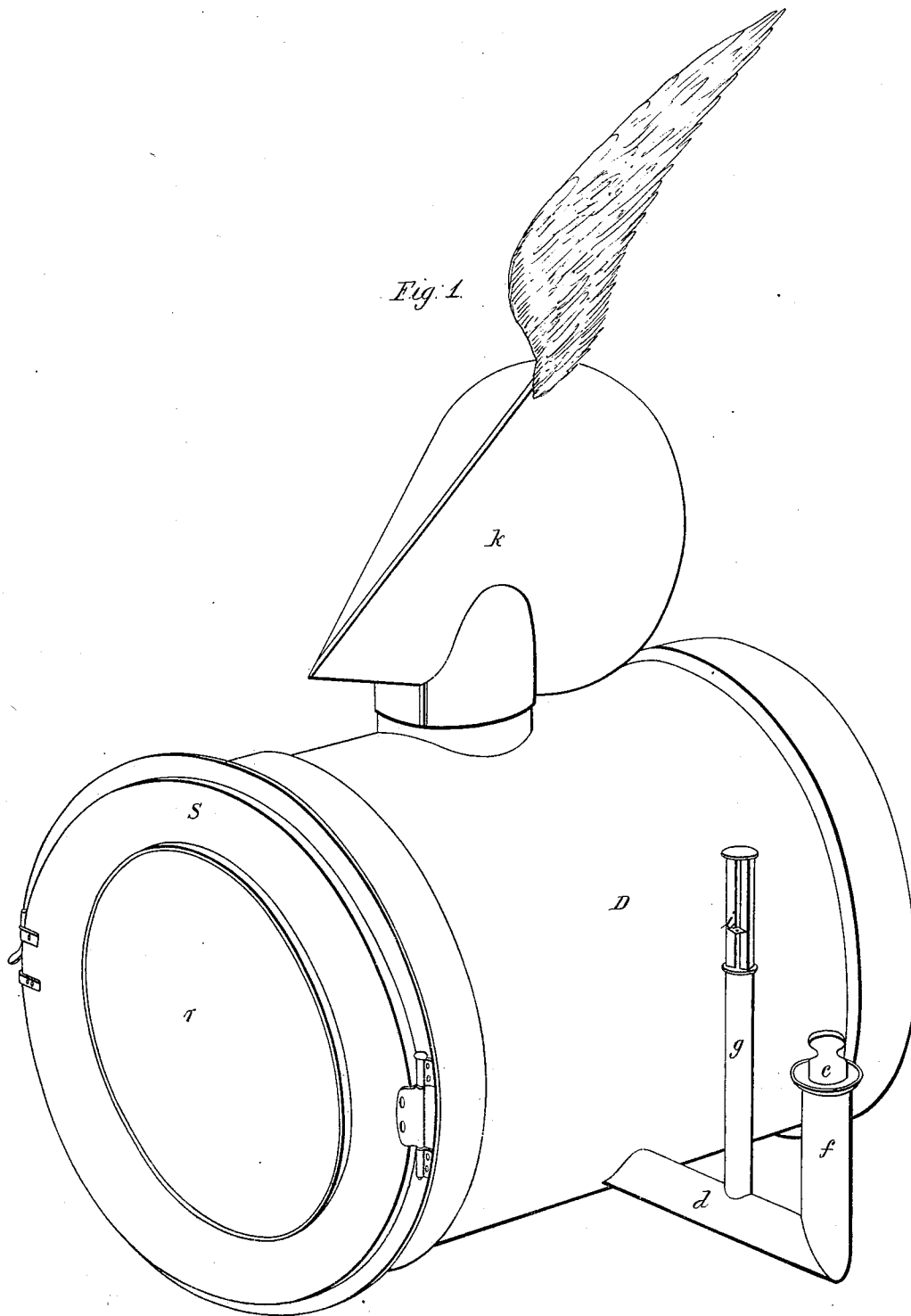


J. H. PEASE.
REFLECTOR LAMP.

No. 9,001.

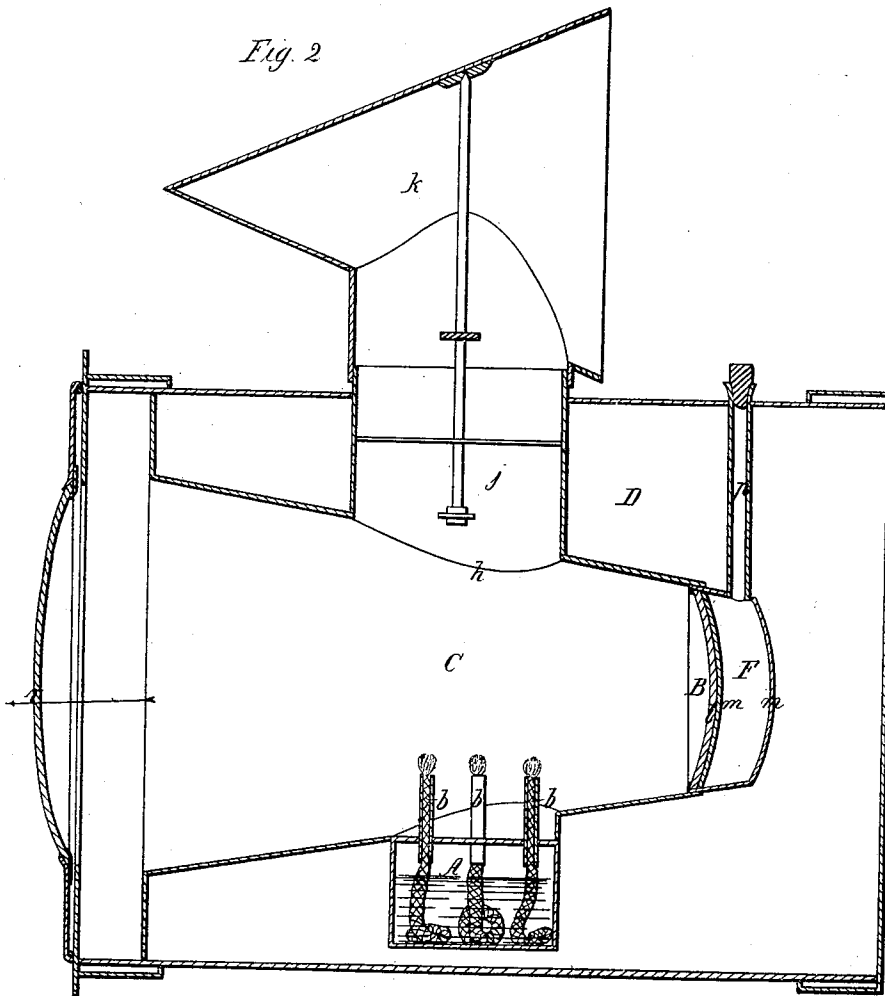
Patented June 8, 1852.



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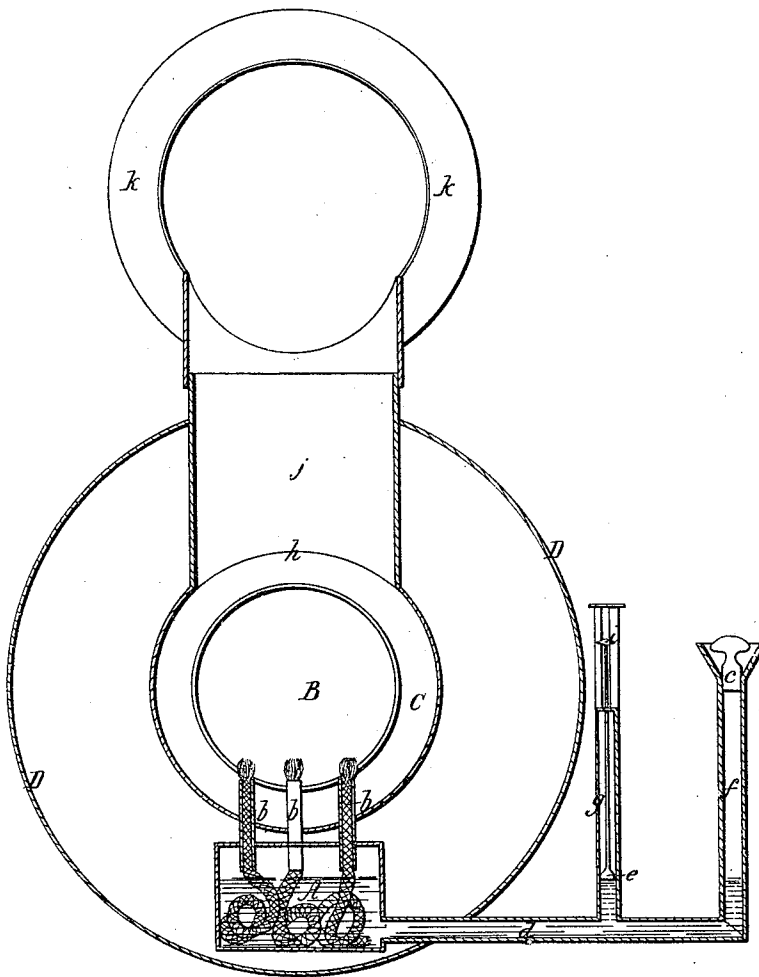


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Fig. 3.



UNITED STATES PATENT OFFICE.

JAMES H. PEASE, OF READING, PENNSYLVANIA.

REFLECTOR-LAMP.

Specification of Letters Patent No. 9,001, dated June 8, 1852.

To all whom it may concern:

Be it known that I, JAMES H. PEASE, of Reading, in the county of Berks and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Reflector-Lamps for Locomotive-Engines and for other Purposes; and I do hereby declare that the following is a full, clear, and exact description of my said invention, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a view in perspective of my improved locomotive lamp, Fig. 2 is a vertical longitudinal section thereof, and Fig. 3 is a transverse section of the same.

In all reflector lamps used on locomotive engines, with which I am acquainted, for producing a powerful light to illuminate the track in advance of the engine, a reflector composed wholly of a solid metal is employed, as the great heat engendered by the burning of oil or other material used for producing light has hitherto rendered the employment of a silvered glass reflector impossible, for the amalgam of mercury or quicksilver on which the reflector depends for its power is speedily destroyed by the vaporization of the mercury, and consequently the reflector is dimmed and rendered inoperative.

The object of my invention is to obviate this difficulty and it consists in supporting what is ordinarily termed a glass mirror, or a glass plate covered with a reflecting coating of quicksilver or mercury and tin, by a vessel or holder containing water or other fluid by whose cooling action the mirror is prevented from attaining a temperature sufficiently high to affect it.

The nature of this invention will appear more fully on inspecting the accompanying drawings which represent a locomotive lamp constructed according to the principles of my invention.

This lamp consists mainly of a vessel A with suitable wick tubes *b b* for containing and burning oil or other illuminating liquid; of a reflector B; of an inner casing C to prevent the lateral divergence of the light; and of the outer casing D in which the other parts are contained.

The oil vessel A may be of any convenient form and proportions, but it should be large enough to hold a sufficient quantity of oil or spirit-gas to give light for a number of

hours without requiring replenishing. This vessel is fitted with a series of wick tubes *b, b*, whose number will depend upon the intensity of light required. It is also fitted with a horizontal tube *d*, which extends transversely through the outer casing and has two upright tubes *f, g*, projecting from it. One of these tubes (*f*) is fitted with a stopper *e*, which is withdrawn to admit of the introduction of the burning fluid. The other tube (*g*) is fitted with a float *e*, whose stem extends upward through an aperture in the cap of the tube and has an index *i* secured to it, by inspecting which the quantity of liquid in the vessel is shown, so that the locomotive driver can see when it needs replenishing, and when he has poured in a sufficient quantity of fresh liquid.

The inner casing C is of conical form, it is pierced at its lower side to admit the wick tubes *b b*; it has also an aperture *h* at its upper side to permit the passage of smoke which escapes through a funnel *j* and ventilator *k* of the ordinary construction. The hinder end of this inner casing is closed by the mirror or reflector proper B. This mirror consists of a concave plate of glass *l* silvered in the usual manner on its hinder face; it is supported by a double backed frame or case F whose heads *m, m*, are separated by a space to receive water or other cooling medium. This double backed case is fitted in the present example with a single tube *p* which serves for both the introduction of the water and the escape of vapor that may be generated by the heat. The parts thus far described are enveloped in the outer casing or barrel D, whose front has a glass *r* inserted in it to permit the light to be thrown forward by the reflector, and also to prevent drafts of air or wind from flaring the flame of the wicks within. The back of this case is fitted with ears or other devices to facilitate its attachment to the locomotive, it has also a door, *s*, in it, through which the reflector and its frame can be withdrawn and reinserted.

I prefer to attach this lamp to the chimney of the locomotive as it then throws a better light upon the track, I also prefer to use the article generally known as spirit-gas or burning-fluid for my lamp as it gives a good light, and the wicks will burn for a number of hours without requiring trimming. When the lamp is to be lighted the double backed frame of the mirror is first

filled with water, which when the lamp is
burning becomes heated and vaporizes
through the escape tube. As the mirror and
its frame are in intimate contact with the
5 water they can never attain a higher tem-
perature than the latter which cannot ex-
ceed its boiling point, for the heat is then
carried off, as fast as it is received, in the
form of steam. As the boiling point of
10 water is far below the vaporizing point of
mercury the latter is kept comparatively
cool and its reflecting power is not affected.
When this lamp is applied to locomotives I
propose to connect the double backed mirror
15 frame by a tube or small pipe with the feed
pump of the boiler and by another pipe
with the tender, so that a constant current
of cold water is forced by the pump into
the mirror frame from which it escapes by
20 the second pipe to the tender. The mirror
will therefore be kept constantly cool, and as
the pump supplies water constantly, no care
is required to replenish the double frame
with water.
25 A lamp of this construction has been in
constant use upon a locomotive engine for
the greater part of the past year, and expe-

rience has proved that it fully answers the
ends for which it was invented, for it throws
a brilliant light to a great distance upon the 30
track and its efficiency has not been de-
teriorated by use. If the lamp smokes by
reason of a defective trimming the wicks the
soot collects on the cooled surfaces but is not
burnt into the glass mirror as it is when de- 35
positing upon a naked uncooled metal re-
flector; it is therefore readily removed by
wiping with a cloth and the efficiency of the
lamp is thus restored, which cannot be done
with reflectors of the usual kind which in 40
such cases can only be restored by repolish-
ing.

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

A reflector lamp constructed substantially 45
as herein set forth with a case to contain a
cooling liquid for the protection of the re-
flector from injury as herein described.

In testimony whereof I have hereunto sub-
scribed my name.

JAMES H. PEASE.

Witnesses:

MATTHIAS MENGEL,
THOMAS HILL.