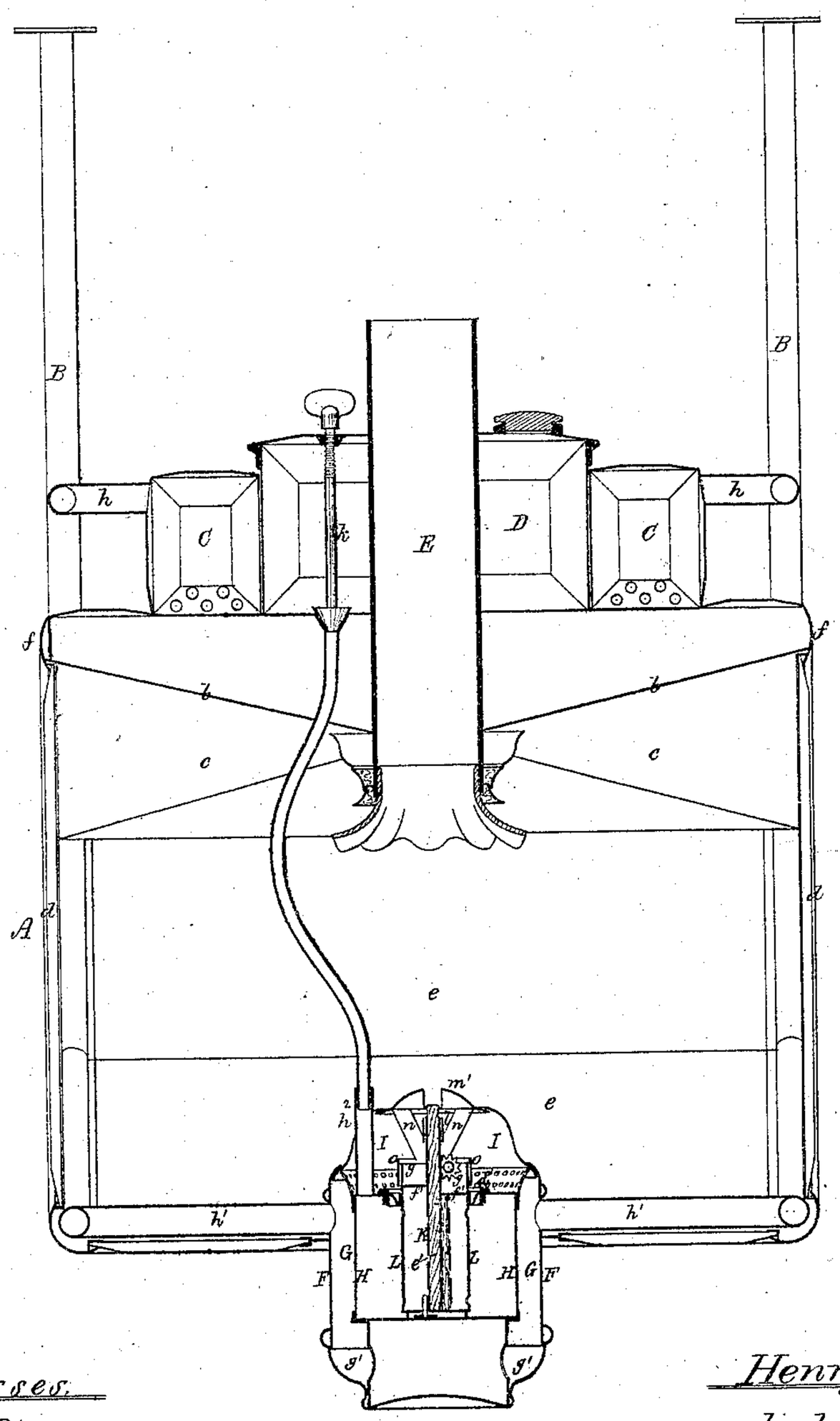
H. RYDER.

Paraffine Lamps.

No. 138,441. Patented April 29, 1873.



Witnesses.
S. N. Piper
L. N. Miller

Henry Ryder,
by his attorney.
H. N. Eddy

UNITED STATES PATENT OFFICE.

HENRY RYDER, OF SOMERVILLE, MASSACHUSETTS.

IMPROVEMENT IN PARAFFINE-LAMPS.

Specification forming part of Letters Patent No. **138,441**, dated April 29, 1873; application filed October 2, 1872.

To all whom it may concern:

Be it known that I, HENRY RYDER, of Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Apparatus for Obtaining Light from the Combustion of Paraffine or various other analogous substances; and I do hereby declare the same to be fully described in the following specification and represented in the accompanying drawing, which is a longitudinal section of the apparatus hereinafter described.

In the form shown in such drawing, the apparatus is designed for illuminating a railway carriage or a chamber or place liable to have strong aerial currents passing through it, the apparatus causing them to exercise little or no influence on the flame of the wick to induce such flame to often flicker, smoke, or be unsteady. Furthermore, the apparatus admits of paraffine being burned in it without the necessity of any glass chimney to project up from the burner or wick-tube, the chimney used not extending down to the burner, but being entirely above such, with a space between the two. Such chimney is not only for the dissipation of the volatile products of combustion, but to heat or convey heat from them into a reservoir encompassing the chimney, and containing or to contain a quantity of the paraffine to be rendered fluid by such heat.

In the drawing, A denotes a lantern-case, prismatic in shape, and provided with tubular curved arms B B B B projecting up from it for the purpose of fixing it to the ceiling or roof of a car. The three upper sides of the frame *f* of the case I provide on their inner surfaces with reflectors *a b c*, the other sides, as well as the two ends being composed of or furnished with panes of glass *d d e* for the dispersion of the light. The ends of the frame are to be tubular, and to open into the arms B, which, by suitable conduits *h*, are to communicate with one or two air-receiving chambers, C C, arranged in the top of case A, there being between such chambers, or against each, a reservoir, D, for holding paraffine. The chimney E extends vertically through the reservoir D and below the top of the lantern-case in manner as represented. Each air-receiving chamber C has a series of holes or inducts in the lower part of it. Furthermore, there is arranged in the bottom of the lantern-case, so as to project both above and below it, a tube, F, to constitute the outer boundary of an air-receiving space or chamber, G, extending around and arranged concentrically with an auxiliary reservoir or lamp-body, H. The bottom *g'* of the air-chamber G is affixed to the reservoir A, and should be separate from the tube F, the two being provided with a bayonet connection. Tubes *h'*, extending from the air-chamber G, to and opening into the tubular ends of the lantern-case, serve, with such parts, to convey air from the chambers C into the chamber G, the air so conveyed being heated more or less, and serving to supply the wick with oxygen for the support of combustion. A conical or tapering hood or cap, I, foraminous at the top of the chamber G, fits upon and surmounts the reservoir H, and constitutes the top or cover of the chamber G, the cap fitting tightly to the reservoir H, and being separate from the tube F. Furthermore, there is to the reservoir H a wick-tube, K, which extends into a cylindrical metallic cup or guard, L, projecting into the reservoir, and also above its cap *d'*. There should be one or more holes through the guard, so as to allow the liquid of the reservoir to flow freely into the guard and to the wick *e'*. In the upper part of the guard are horizontal partitions *f' f'*, which connect it with the guard and wick-tube, small cups or spaces *g g*, each being to hold paraffine, and a small mass of asbestus, (to serve as a wick,) in order to burn the paraffine against the wick-tube and in the guard, for the purpose of rendering fluid the paraffine on the wick at the time it may be desirable to inflame the lamp. The guard L serves not only to conduct heat down into the mass of paraffine that may be in the reservoir H, but it protects the wick so as to prevent it from being drawn out of the wick-tube while the latter may be in the act of being extracted from the reservoir. A short pipe, h^2, leading up from the reservoir H, fits into a longer pipe, *i*, extending down from the reservoir D. A plug, *k*, screwed into the top of the reservoir D, serves to regulate the flowage of the liquid from said reservoir. Furthermore, there is to the wick-tube a slotted cone or air-deflector, *m'*, supported by standards *n n* erected on a ring or short tube, *o*, which encompasses and

fits upon the upper part of the wick-tube guard L, the diameter of the deflector corresponding with or being a little greater than that of the opening in the top of the foraminous cap I.

The deflector *m'*, the standards *n*, and ring *o*, besides answering to deflect air to the wick, serve to convey heat from the flame to the guard L.

To put the apparatus in operation, if we suppose the reservoirs to be charged with solid paraffine, a person has only to put a small quantity of such material in one of the cups or spaces *g*, and to inflame the asbestus therein, which, melting and absorbing the paraffine, will burn the latter, and thereby heat the wick-tube and guard, and, as a consequence, the wick will be inflamed and heat will be conducted down into the paraffine in the lower reservoir. The heat of the flame of the wick, on passing through the chimney, will raise the temperature of and render fluid the mass of paraffine in the upper reservoir, which, as may be required, will flow down into the lower reservoir and keep such filled or supplied. Air for maintenance of combustion will flow into the chamber or receptacles on the top of the case, and, being warmed by heat radiated from the upper reservoir, will pass down into the chamber G, from whence it will escape through the perforated top of such chamber and into the bell or cap over such, and thence will pass to the deflector and the wick at the point of combustion. The wick will burn with a steady and, generally speaking, smokeless flame; the rays of light from which will be deflected by the deflectors and radiated through the glass sides and ends of the lantern-case.

To distinguish the apparatus in question from others analogous thereto, I term it a chandelume.

In it I now make no claim to the lantern-case in part or parts situated over the lamp or burner at the lower part of the case; but in said apparatus—

I claim as my invention the following, viz:

1. The combination of the lighting cup or cups *g* with the wick-tube K, wick-guard L, and reservoir H, all being arranged as set forth.

2. The air-deflector *m'*, the wick-tube K, and the wick-guard L, arranged and connected as represented.

HENRY RYDER.

Witnesses:
R. H. EDDY,
J. R. SNOW.