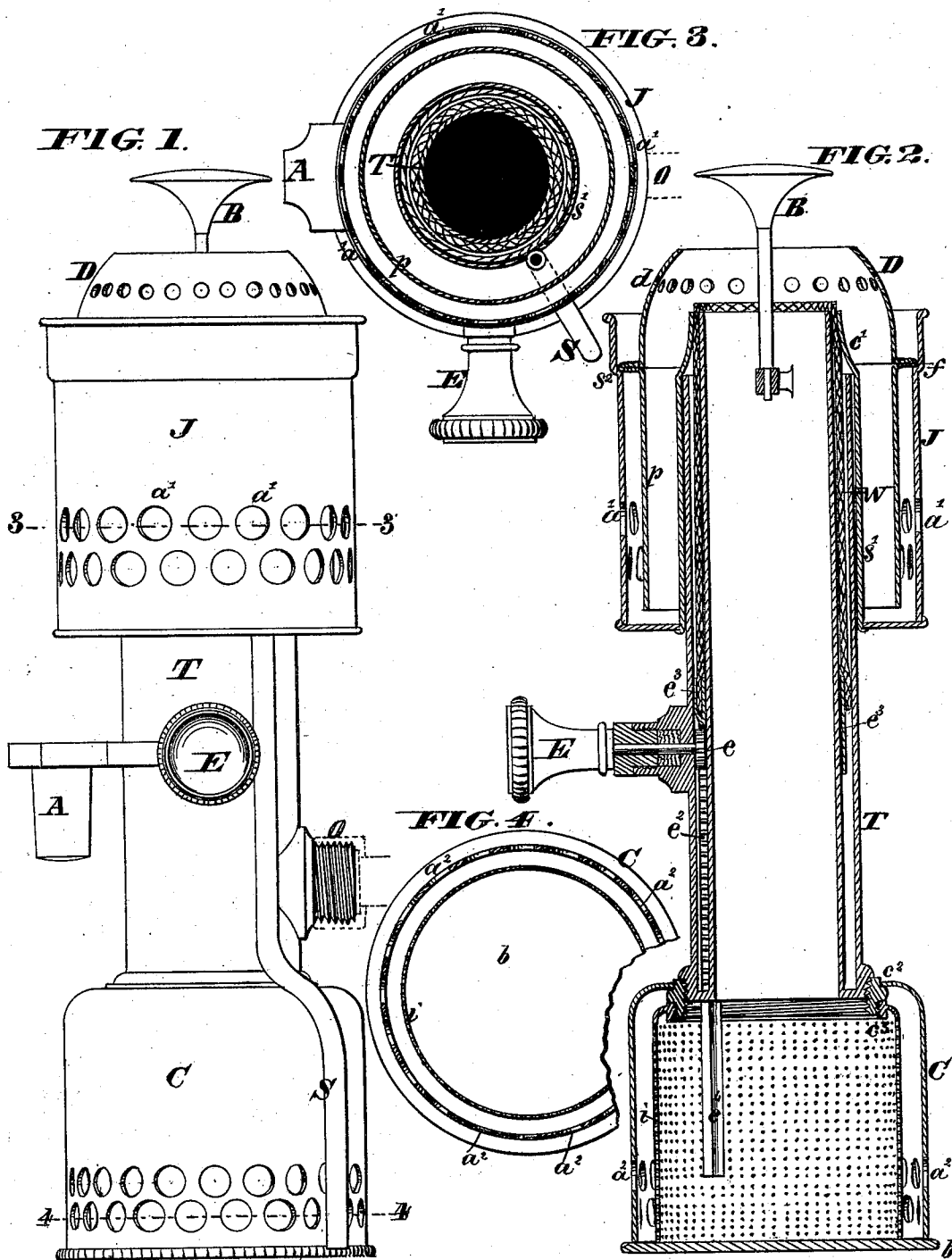


J. FUNCK.

BURNERS FOR LIGHT-HOUSE LAMPS.

No. 177,825.

Patented May 23, 1876.



WITNESSES
Chas. Hoock
A. H. Salt

INVENTOR
Joseph Funck
By Knight & Co. Attorneys

UNITED STATES PATENT OFFICE.

JOSEPH FUNCK, OF TOMPKINSVILLE, NEW YORK.

IMPROVEMENT IN BURNERS FOR LIGHT-HOUSE LAMPS.

Specification forming part of Letters Patent No. **177,825**, dated May 23, 1876; application filed March 22, 1876.

To all whom it may concern:

Be it known that I, JOSEPH FUNCK, of Tompkinsville, Staten Island, in the county of Richmond and State of New York, have invented a new and useful Improvement in Argand Burners for Light-House Lamps, of which the following is a specification:

This improved Argand burner is designed primarily for Funck's hydraulic float-lamp for light-houses, but is not confined in its applicability to this particular lamp.

The present invention has for its objects a thin even flame of superior steadiness and intensity, and a simple and efficient burner, which is adapted to be readily taken apart, so as to be kept perfectly clean.

The first part of the invention relates to the wick-tube or oil-feeding devices; and consists in peculiar means for contracting the upper end of the wick, so as to lessen the charring thereof, and to improve its capillary action, and also to render the flame thinner and more even at the wick.

The second part of the invention relates to the arrangement of air-supply orifices; and consists in a perforated chimney-flange, by which air is admitted immediately within the chimney at its base, so as to furnish fresh air for the outside of the flame above the deflector-dome, and to reduce the degree of heat to which the chimney is subjected.

The third part of the invention relates to the construction of air-inlets and deflectors with reference to facility for thoroughly cleaning the parts, and the avoidance of unnecessary complication; and this part of the invention consists in a deflector made removable from within the upper air-jacket, and a separable cap or guard at the bottom of the burner for admitting air to the interior of the flame, as hereinafter more fully set forth.

Figure 1 is an elevation of this improved burner. Fig. 2 is a vertical longitudinal section on the line 2 2, Fig. 1. Fig. 3 is a horizontal section through the upper air-inlets on the line 3 3, Fig. 1. Fig. 4 is a horizontal section through the lower air-inlets on the line 4 4, Fig. 1.

Like letters of reference indicate corresponding parts in the several figures.

T represents the annular wick-tube; E e^1

e^2 , the parts of an ordinary wick-elevator; W, the wick; O, the lateral oil-inlet; S, a safety-tube leading from an orifice near the upper end of the outer wall of the wick-tube to prevent overflow; B, the flame-expanding button; D, the external "deflector"; J, the air-jacket for the upper end of the wick-tube; C, the cap for the lower end of the burner; and A a pivotal supporting-arm.

In constructing a wick-tube for a given size of wick, capacity must be provided not only for the wick itself, but also for the carrying-ring e^3 of the wick-elevator, with some additional margin to facilitate introducing the wick. This renders the upper end of the wick quite loose in an ordinary tube, permitting it to swell and fray, and, consequently, to burn freely itself, whereas the object is to confine the combustion as exclusively as possible to the exuded oil. To remedy this defect the outer wall of the wick-tube is made shorter than the inner wall, and the space thus exposed at the upper end of the tube is occupied by a contracting-collar, e^4 , as clearly shown in Fig. 2. The construction of the tube proper, besides its primary effect, serves to afford additional facility for readily renewing the wick. The wick-contractor having been removed, the attaching-jaws of the elevated carrying-ring e^3 spring apart above the low top of the outer wall of the wick-tube, and release the old wick. The new wick is placed around the projecting upper end of the inner wall of the tube, and within the jaws of the carrying-ring, and the wick is then drawn in by lowering the ring. The contracting-collar is formed at the upper end of a sleeve, S^1 , which slides tightly onto the wick-tube. The jacket J is attached to this sleeve, and is removable therewith.

The main air-inlets a^1 a^2 of the improved burner consist of a sufficient number of moderately large perforations, in circumferential rows, formed in the otherwise imperforate outer walls of the jacket J and cap C, as shown in all the figures.

The inlets a^2 admit air to the interior of the flame through the center of the wick-tube. Air admitted at the inlets a^1 strikes the outside of the flame immediately above the wick, beneath the dome d of the deflector, and a

small portion of that which reaches this point escapes unconsumed through orifices in the dome.

To provide a more ample and fresh supply of oxygen to the exterior of the flame above the dome of the deflector, a perforated chimney-flange, *f*, has been provided in this burner. The perforations extend entirely around the dome, and close thereto. Air is thus admitted immediately within the base of the chimney from the main inlets *a*¹ direct, and serves to cool the chimney, while it renders the combustion much more perfect and materially increases the brilliancy of the flame.

The deflector *D*, in addition to its ordinary perforated dome and the chimney-flange *f*, which is formed thereon, has, below the latter, an apron or drop-partition, *p*, extending down below the air-inlets *a*¹, to divide and equalize the entering air, and to cause the main portion to pass in contact with the sleeve *s*¹ throughout its length, so as to absorb heat from the wick-tube. The jacket *J* is formed with a shoulder, *s*², to form a seat for the flange *f*, and the deflector is thus supported within the jacket, so as to be readily removable, to facilitate cleaning it, and to give convenient access to the interior of the jacket for the same purpose.

The walls of the cap *C* are double, a concentric inner wall, *i*, of perforated sheet metal, having minute orifices, being employed to divide up and regulate the force of the entering air. The cap is removable from the wick-tube, being attached by a screw-collar, *c*², embracing a threaded neck at the lower end of the tube. To render the cap separable, the screw-collar *c*² is extended, and provided externally with a collar and threaded portion within the cap. The latter receives another screw-collar, *c*³, soldered within the upper end of the inner annular wall *i*. The outer wall is soldered to the main collar *c*². The bottom disk *b* of the cap is imperforate, and is attached to the inner wall *i*, and finished with a milled edge. By turning this the outer collar *c*³ is unscrewed, and the bottom disk and inner wall are released. When they are in position the bottom disk fits tightly against the lower edge of the outer wall. The ordinary extension-tube *e*¹, to accommodate the rack *e*² of the wick-elevator, is inclosed within the cap *C*, as in other burners.

The burner is supported within its reflector by the arm *A*, and is supplied with oil through a pipe, *O*. An ordinary chimney upon the chimney-flange *f* completes the outfit.

When a new wick is to be introduced the jacket *J* and its contents can be removed together, while for trimming the wick the deflector *D* alone need be removed besides the chimney.

The style of the air-inlets *a*¹ *a*² renders them free from liability to become clogged, and facilitates cleaning and polishing the outer sur-

faces of the burner, and the construction of the jacket *J* and cap *C*, as above described, gives easy access to the inclosed parts which require cleaning.

I do not claim, broadly, any device for holding the wick of an Argand burner around the upper end of a relatively extended inner wall or central draft-tube. I am aware of such a burner having a "wick-assembling shell," in combination with two or more short wick-tubes, conducting separate wicks, which are assembled around the inner wall or draft-tube by said shell. This shell is a fixture, and the wicks are necessarily inserted at the bottom of the burner. This device could not, therefore, be used in a lamp of the description to which this invention relates. My wick-contractor is movable, and is applicable exclusively to an annular wick-tube, which receives the wick at top. After the wick is inserted the contractor is applied, and forms an extension of the outer annular wall.

I am also aware of the common Argand burner, in which a rotary wick-carrying tube is employed, and the upper part of the outer wall of the annular wick-tube is omitted. I do not claim any such device. Neither do I claim, broadly, a removable deflector, as I am aware that the simple dome employed in some Argand burners has been made removable.

The following is claimed as new and of this invention, namely:

1. In combination with an annular wick-tube, adapted to receive the wick at top, and constructed with a fixed outer wall, terminating a short distance below the upper extremity of the inner wall, the wick-contractor *c*¹, adapted to be applied after the wick is inserted, and to form a contracted extension of the outer wall of the wick-tube independent of the wick-elevator, substantially as herein shown and described.

2. The combination of the wick-contractor *c*¹, formed at the end of the sleeve *s*¹, and the jacket *J*, attached to the lower end of said sleeve, the same being adapted to be applied to and removed from the wick-tube together, substantially as set forth.

3. The perforated chimney-flange *f*, in combination with the jacket *J*, drop portion *p*, and dome *d*, for the purposes set forth.

4. The removable deflector *D*, consisting of the dome *d*, chimney-flange *f*, and drop-partition *p*, in combination with the jacket *J*, having the shoulder *s*², to support the same in position, substantially as shown and described.

5. The removable and separable cap *C*, having concentric annular walls, a bottom disk, *b*, and screw-collars *c*² *c*³, combined substantially as herein described, for the purposes set forth.

JOSEPH FUNCK.

Witnesses:

JAS. L. EWIN,
ABNER C. THOMAS.