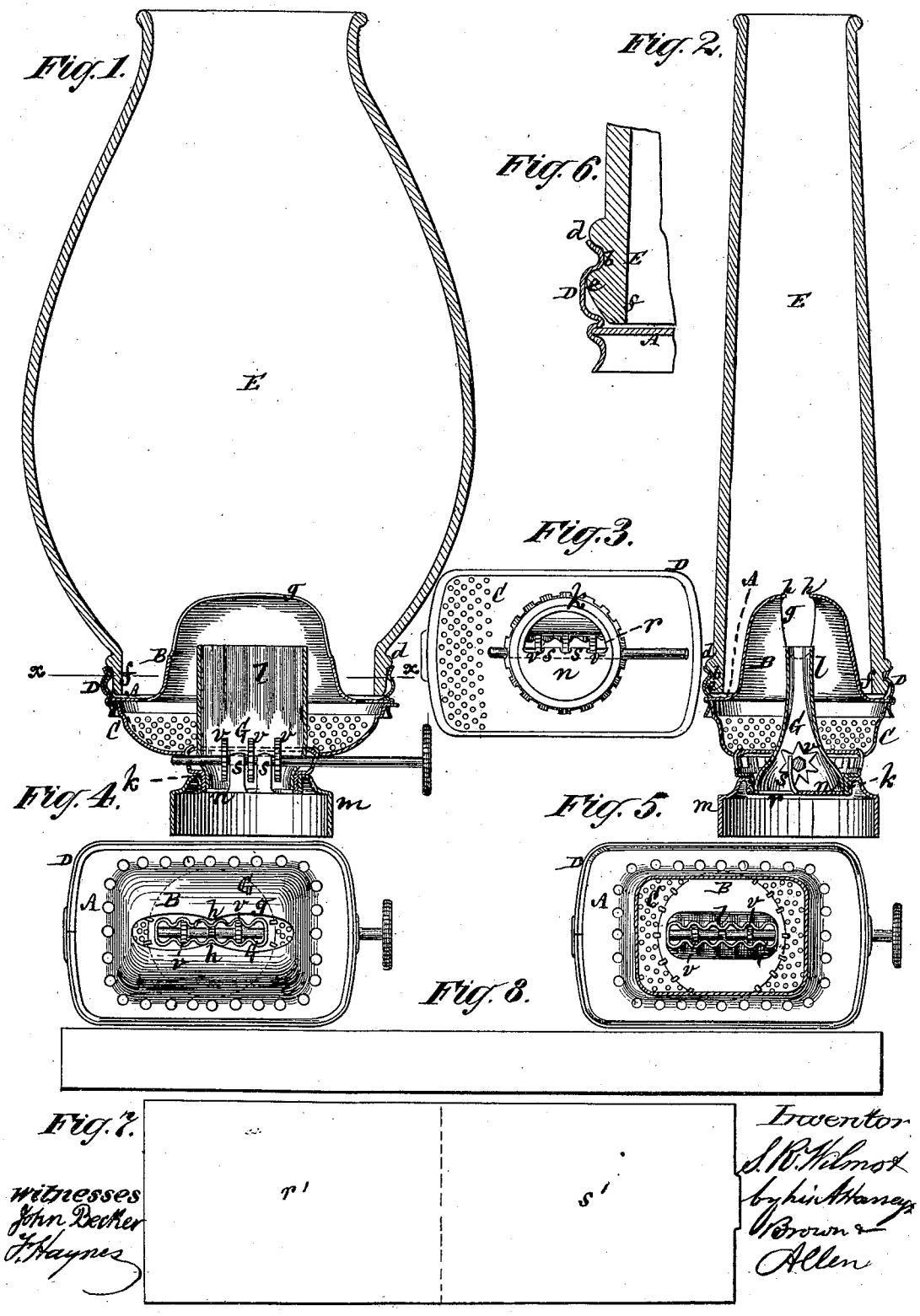
S. R. WILMOT.

LAMP-BURNERS.

No. 195,241. Patented Sept. 18, 1877.



UNITED STATES PATENT OFFICE.

SAMUEL R. WILMOT, OF BRIDGEPORT, CONNECTICUT.

IMPROVEMENT IN LAMP-BURNERS.

Specification forming part of Letters Patent No. **195,241**, dated September 18, 1877; application filed October 19, 1876.

To all whom it may concern:

Be it known that I, SAMUEL R. WILMOT, of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Lamp-Burners; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

This invention consists in various peculiar constructions and novel combinations of the parts or details of a lamp-burner, whereby several important advantages are obtained.

Thus, the invention includes a combination of the cone base of the burner, of oblong or approximately square form externally, with an attached cone of like configuration internally, and an air-distributer of a corresponding configuration with the cone base, whereby, while provision is made for the use of a wide or extended flat wick, combustion is improved, and metal saved in the manufacture of the burner. The invention also includes a novel construction of the screw-bottom of the burner, to keep the wick-operating ratchets and their actuating wire from moving laterally; also, a combination, with the cone base, of a marginal band of novel construction, for the purpose of locking the cone to the air-distributer, also the chimney to the burner.

Furthermore, the invention comprises a novel combination of a lamp-burner of oblong or approximately square form with a lamp-chimney of peculiar construction; likewise, a novel construction of the band around the burner for holding the chimney.

Figures 1 and 2 are sectional elevations, in planes at right angles with each other, of a burner constructed in accordance with my invention, and having the chimney attached. Fig. 3 is an inverted plan or under view of the burner. Fig. 4 is a top view of the same, and Fig. 5 a horizontal section thereof on the line *x x*. Fig. 6 is a partial vertical section upon a larger scale, showing the attachment of the chimney to the burner. Figs. 7 and 8 are longitudinal views of strips or pieces of sheet metal of or from which the cone, the base of the latter, the air-distributer, and band surrounding the cone base are made.

A is the perforated base of the cone, and B the cone or deflector mounted thereon, and of the same piece of sheet metal as the base. Said base is of square or oblong form horizontally, and the cone B made to conform internally to the external form of its base. C is the air-distributing base, which is also of a square or oblong form, horizontally corresponding with the figure of the base of the cone.

D is a band arranged to surround the cone base A, and to project both above and below the latter. This marginal band serves the double purpose of locking the cone base A to the air-distributing base C by means of a snap-lock at its ends underneath the base A, and of holding the chimney E by said band springing or snapping above the cone base A into a crease, *b*, in the chimney. This crease may be formed of an upper projecting shoulder, *d*, and lower barbs *e* on the exterior of the base *f* of the chimney, (see Fig. 6,) said base being of a square or oblong form, corresponding with the figure of the cone base and that of the band D, which surrounds it. A ridge on the chimney-base, arranged in the same relation as the crease, may be substituted for the latter, and the band D be grooved to lock with or over said ridge. The chimney E, being made the subject of a separate application for Letters Patent by me, needs no further description here, with the exception that it is not only made with a square or oblong base, but also with its body of greater width in one direction than in a direction transverse thereto.

The slit or opening *g* in the cone is of a form which adapts the burner to the use of a flat wick, but it is slightly contracted in its center, on the upper portion of its edges, as at *h h*, whereby the flame is restrained from rising in the center above the height attained by it at other portions.

G is the wick-tube, which is round at its bottom and flat at its top or upper portion, and will be hereinafter more minutely described.

By the employment of a lamp-burner of a square or oblong form, as hereinbefore specified, there are many advantages. Thus, it is well known by manufacturers of flat-wick lamp-burners that the smaller sizes of round lamp-burners are much more efficient than the

larger sizes, owing to the relative distance of the sides of the deflector from the burning wick, the same being much more correct for perfect combustion in the smaller than in the larger sizes. In the smaller sizes of such burners, the up current of air striking the sides of the cone or deflector is quick and active in its impingement on the flame, and while hot from immediate contact with the adjacent hot sharp inclined top of the deflector; whereas in the larger sizes of said burners the sides of the deflector are further removed from the flame, and its top is necessarily much flatter by reason of the greater diameter of such deflector; consequently the up current of air is slower, and not so highly heated by contact with the sides of the deflector, and its angle of impingement on the flame is less perfect. Ordinarily, with flat-wick burners, if the same are made for a wick of double a given width, the cone is also doubled in diameter, and must of necessity be much less perfect, for the reasons above given, as regards the supply of air to the flame. Furthermore, by doubling the diameter of the cone, its cross-sectional area is increased fourfold, while the wick is only doubled, and the amount of air passing up also only about doubled, thereby producing a slow or sluggish current. These difficulties a square or oblong burner, as shown in the drawing, obviates. Thus, when doubling the wick in width, I need only increase the cone to the same extent in line with the width of the wick, but in no other way or direction. A like rule applies to the construction of the air-distributing base and of the chimney.

Another important advantage incidental to the square or oblong form of burner is the saving of metal in its manufacture. Thus, the cone base A, with its attached cone B, as also the air-distributing base C, may be cut or stamped and formed from sections r' s' of a strip or plate, Fig. 7, without any waste of consequence; and in making a number of such parts from the same plate the amount of material saved, when making burners in large quantities, will produce a most important economy as compared with the manufacture of an equal number of round burners. The band D of the burner is also made from a strip (see Fig. 8) without waste, said band being simply cut of a length to surround the cone base and stamped into form and soldered or tacked together at its ends.

As hereinbefore specified, the wick-tube G is flat at its top, *l*, and round at its bottom, which is of contracted dimensions relatively to the width of said top, and the wick being introduced in a partly circular form through the round bottom, enables me to use a wide flat wick within a burner, the screw-bottom *k* of which, that screws into the lamp top or collar *m*, need only be of diameter sufficient to receive a much narrower flat wick as flat-wick tubes are generally constructed, and the wick, in its passage up through the tube G, is converted from a partly circular one into one of a flat shape. To effect this the lower plate or portion *n* of the screw-bottom *k* of the wick-tube is cut away for a large portion of its area, as at *r*, and the interior of the tube is gradually curved till it merges into the flat upper portion *l*. In cutting away the lower portion *n* of the screw-bottom *k* there are left one or more tongues or lips, *s*, which are turned up to enter between the ratchets *v v* of the wick-adjuster, and so hold the latter in position and keep the ratchets in place on the wick, or from moving laterally, as also the wire or spindle of the ratchets. Furthermore, the ratchets *s s* are arranged to act upon the curve of the wick, thereby bringing the flame nearer to the oil in the lamp, which is important as regards perfect combustion.

The flat portion *l* of the wick-tube is corrugated in direction of the length of the wick. This allows of a free upward passage of the gases generated in the lamp or its hot wick, and at the same time brings but a trifling amount of metal of the wick-tube in contact with the wick, thereby doing away with that scorching and charring of the wick which takes place in ordinary or plain tubes, and which destroy or seriously interfere with the capillary capacity of the wick, and necessitates a large exposure of the wick to the flame, and causes such exposed part to be so charred within a short time as to produce much dirt, waste, and involve frequent trimming. All this is obviated by corrugating the wick-tube, as described.

The wick-tube G is constructed in halves longitudinally, the dividing-line being parallel with the flattened sides of the top of the tube, and said halves loosely placed or put together after the wick raising and lowering ratchets have been inserted to their places with the wire or spindle of said ratchets occupying a central position within the tube in line with the divided construction of the tube. Said halves of the wick-tube, put together as described, are ultimately secured by the air-distributer and screw-bottom of the burner. This forms a simple mode of constructing the wick-tube, and facilitates the insertion centrally, as described, of the ratchets.

There is still another advantage incidental to a burner of square or oblong form and chimney to match, which is this, viz: In round burners and chimneys of lamps using flat wicks there is a great tendency of the currents of air within them to eddy, which makes said lamps very sensitive and unsteady as regards their flame, whereas a square or oblong burner and correspondingly shaped chimney do not give the currents of air the same chance to eddy, and so produce steadiness of flame.

I claim—

1. The combination of the cone base A, of oblong or approximately square form externally, with its attached cone B of like configu-

ration internally, and the air-distributer C of a corresponding configuration with the cone base, substantially as shown and described.

2. The screw-bottom *k*, pierced or cut to form tongues or lips *s*, and said tongues or lips bent to enter up in between the ratchets *v* to keep the latter and their operating wire from moving laterally, substantially as specified.

3. The combination, with the cone bottom or base A, of the marginal band D, constructed to extend both above and below said base and to lock the cone to the air-distributer, also the chimney to the burner, substantially as specified.

4. A lamp-burner having its cone, cone-base, and air-distributer of an oblong or approximately square form, as described, in combination with a lamp-chimney of a correspondingly oblong or approximately square form at its base, and with its body of a greater width in one direction than in a direction transverse thereto, essentially as described.

5. The band D, having its upper edge or portion constructed to form a spring or snap, for the purpose of catching and holding or locking the chimney when the latter is entered at its base down within said band, substantially as specified.

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Witnesses:
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