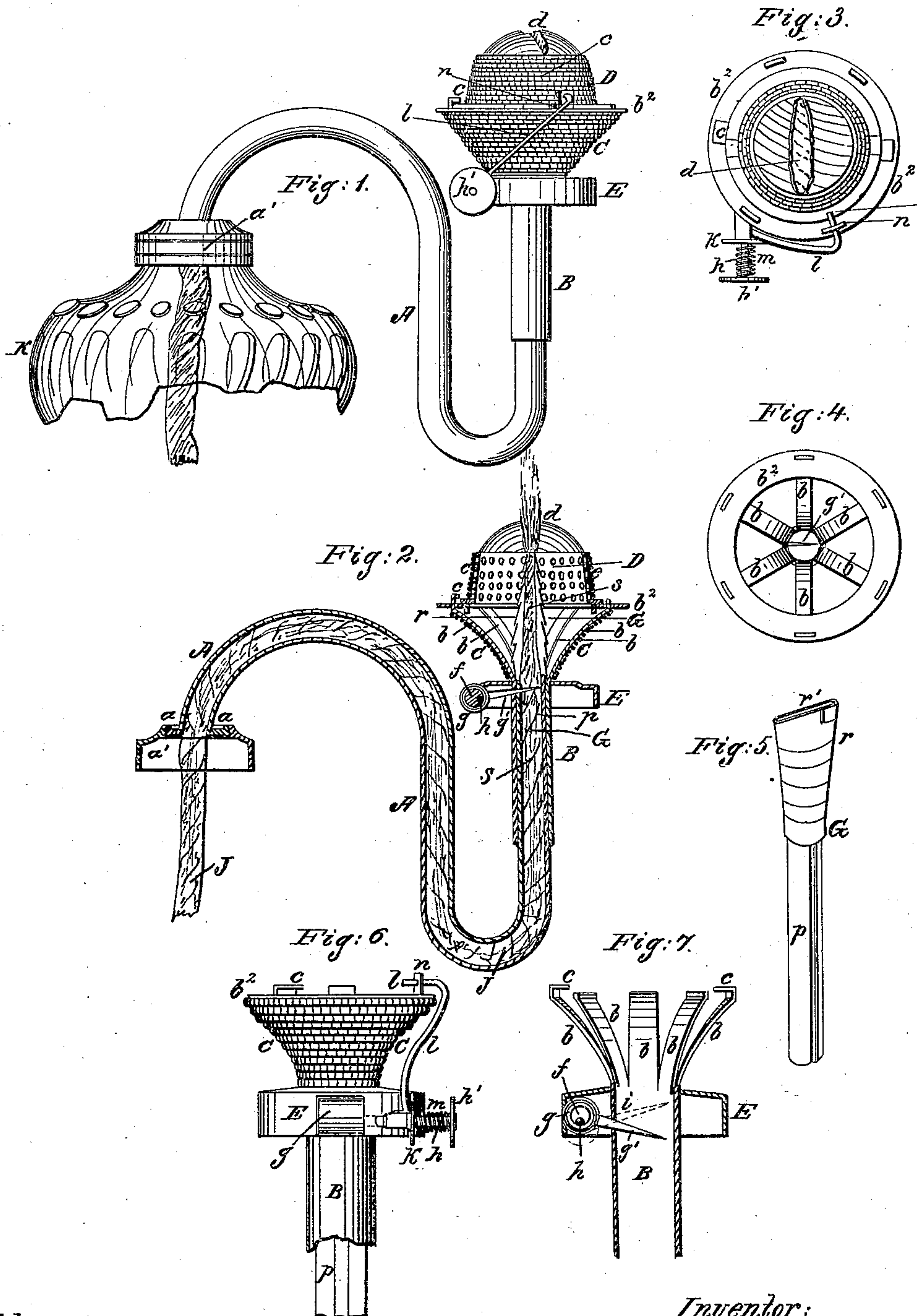


J. ADAIR.

Lamp.

No. 40,222.

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UNITED STATES PATENT OFFICE.

JAMES ADAIR, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN LAMPS.

Specification forming part of Letters Patent No. 40,222, dated October 13, 1863.

To all whom it may concern:

Be it known that I, JAMES ADAIR, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Lamps; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a view representing my invention and the manner of applying the same to the body of a lamp. Fig. 2 is a diametrical section through Fig. 1 without the lamp-body. Fig. 3 is a top view of the lamp-cap, showing the corrugated cone on the same. Fig. 4 is a top view of the flaring end of the wick-holding tube with the circular base ring secured in place. Fig. 5 is a perspective view of the removable wick-tube. Fig. 6 is an enlarged side view showing the chimney-holder and eccentric ring which carries the wick-raiser. Fig. 7 is a diametrical section showing the top of the split wick-holding tube, and also the wick-raising spur.

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

My invention relates to that class of lamps intended for the use of coal or petroleum oils, and has for its objects the more complete combustion of the oil; the isolation of the heat produced to the burner and the obtaining of the advantages of what is known as a "fountain-reservoir lamp" at the same time; the ability to burn light-gravity oils, incident upon isolating the burner; the diminishing of the amount of heat conducted down the wick-tube from the flame; the reducing of the size of the opening into the oil-chamber for the purpose of saving brass, and improving the appearance; a neater mode of making a chimney-holder and operating the same; a simpler mode of making a skeleton burner shell or cone and chimney holder or supporter; a new mode of adjusting a cylindrical wick; the utilizing of more of the light than usual, and, finally, the ornamentation of the burner.

To enable others skilled in the art to understand my invention, I will proceed to describe its construction and operation.

In the accompanying drawings, A represents a curved or S-formed tube, furnished on one end with a male screw, *a*, by which to se-

cure this end of the tube to a lamp-cap, *a'*, as shown in Fig. 2. The opposite end or vertical portion of this tube has secured to it by a tight joint a tube, B, of a somewhat larger diameter, which forms an enlarged continuation of the tube A. This latter tube, B, being of a suitable length for receiving the wick-tube and lamp-wick, its upper end is split several times in a direction with its length, forming the narrow strips *b b b b*, which, on being bent outward form the radial supports for the chimney, and give increased diameter to the tube B at a point surrounding the flame. By this construction of the tube B a skeleton frame is formed, which receives a flat ring, *b²*, on the upper ends of the strips *b*, as shown in Fig. 4, and this ring being properly secured to the strips *b*, it serves as a brace for these strips, and also as a support for the chimney and cone; and by turning the projecting ends of these strips inward, as shown at *c*, Fig. 7, they will form a part of the chimney-fastening also. The skeleton or open frame thus formed is surrounded by a jacket of beads, (represented in Figs. 1, 2, and 6,) which may be of different colors. This porous glass jacket C will, when illuminated by the light contained within it, appear very pretty, and at the same time it will allow air to pass through it, and also form a neat and handsome cover for the strips *b b b b*. Instead of beads, the jacket may be made of any other material which will give the same result—such, for instance, as perforated, glazed, and colored paper, &c.

The cone D, which is supported by or upon this frame, consists of a perforated conical body and a convex top having the usual opening, *d*, through it. The perforations through the side of cone D are made much larger than common, and surrounding the cone covering the perforations is a jacket, *e*, which may be made of glass beads or of any other suitable material. The convex top of this cone is corrugated, as shown in Figs. 1 and 3, and the corrugations or waves run obliquely to the flame or edges of the opening *d*, and all run in the same lines. Now, it will be seen that by corrugating the cone top I bring into a very small compass a large amount of surface, and in this way I increase the amount of air impinging upon the flame. The effect of making

the corrugations in lines running obliquely to the flame is as follows: The flame pressing into or toward these corrugations, its area and its combustion are increased, and as the air passes upward it is guided and directed by the oblique corrugations against the flame vertically in a converging direction, but laterally in one diverging, as shown by the course of the arrows in Fig. 3. The flame is in this manner spread outward, and its area is very much increased. Below the inverted conical frame formed by the ribs *b b b b* is a cylindrical box or plate, *E*, which is soldered fast to the tube *B*, as shown in Figs. 1, 2, 6, and 7. An opening is made in the circumference of this cylinder or box *E* for the reception of an eccentric, *f*, surrounding which is a ring or strap, *g*, to which a spur, *g'*, is fixed. The shaft or stem *h* of the eccentric *f* has its bearings in the portion *E*, and this stem projects out a short distance from this portion, and carries on its outer end a milled button, *h'*. The spur *g'* projects through a large hole, *i*, which is made through the tube *B*, and receives from the eccentric *f*, when its stem *h* is turned, a sliding and a vibrating movement. This motion of the spur *g'* is such as to cause it to thrust the wick upward a certain distance at each turn of the stem *h* in one direction, and to thrust the wick downward when the stem *h* is turned reversely. The spur *g'* is pointed on its thrusting end in order that it may penetrate the wick at each thrust, and to allow it to leave the wick readily. I combine with this wick-adjusting device the spring-catch, which confines the chimney (not shown in the drawings) down on the top of ring *b*². This is done in the following manner: The thumb-piece *k*, by which the latch *l* is operated, is connected to the stem *h* in such a manner that it is allowed to slide back and forth on this stem; and between the thumb-piece *k* and the button *h'* a spring, *m*, is interposed, as shown in Figs. 3 and 6, which by its recoil keeps the piece *k* up against the side of the portion *E*, or against a stop which may be formed on the stem *h*. The latch *l* is secured at its lower end to the spring thumb-piece *k*, and its upper end is bent, forming a hook which projects through a stationary ear, *n*, toward the axis of the ring *b*², as clearly shown in Figs. 3 and 6. The latch-rod *l* is curved inward, so that it will be out of the way; and the operation of this latch is as follows: To remove the chimney the thumb is placed against the button *h'*, and with the index-finger the piece *k* is pressed toward the thumb, thus drawing back the hook of the latch-rod *l*, and allowing the chimney to be removed from the burner. Within the enlarged tube *B* is a removable wick-tube, *G*, which I have shown in Fig. 5 removed from the burner. This wick-tube consists of a slotted cylindrical portion, *p*, open at its lower end, and furnished on its upper end with a flattened portion, *r*, which

is made up of a thin narrow strip of metal wound in a spiral form around a rod—the edges of the metal strip overlapping each other—and soldered at suitable points to preserve the required form. The cylinder thus formed is soldered or otherwise secured to the upper end of the split tube *p*, and the upper end is now flattened so as to form an oblong opening, *r'*, equal in length to the width of the wick. The object of a tube thus formed is, first, to prevent to a great degree the heat of the flame from being conducted down the tube and volatilizing the oil therein too rapidly. The spiral strip performs this office, as the heat must pass round and round the tube portion *r* instead of straight down its sides, hence the lower part of the tube will not get so hot as it would if it were made of one solid piece of metal in the usual manner; second, the tube being flat at one end and round or cylindrical at the other, the flat wick *s* fitting it assumes a similar form, and hence can be passed into the opening of an oil-chamber of a diameter which is less than the width of the wick, permitting thereby the use of a smaller opening in an oil-chamber, and allowing the wick-tube to be fitted into such a chamber without the interposition of a supporting-cap or other such device.

The wick-tube *G* is introduced into the wick-tube holder *B*, and secured therein in such a manner that it may be removed at pleasure. The lower end of this wick-tube extends down nearly, if not quite, to the bottom of tube *B*, and at this point the wick *J*, which supplies the oil from reservoir *K* to the burner, terminates. The oil is supplied to the burner by the capillary attraction of the substance which is confined within the curved tube *A*, and it will thus be seen that the burner may be elevated above the level of the oil in the fountain-reservoir and still be supplied with oil from this reservoir.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The manner of supplying a flame with oil at one side of a lamp by carrying the oil up through the top of a lamp and down over its side through a pipe or its equivalent, which is supplied with a wick, substantially as set forth.

2. The flaring skeleton frame or support for the cone, formed by splitting the upper end of the wick-tube holder, substantially as described.

3. Covering the cone *D* and the skeleton frame *b* with beads, substantially as described.

4. While not claiming, broadly, a corrugated cone, I do claim waving or corrugating spirally or obliquely the upper part of a lamp-cone, substantially as and for the purposes set forth.

5. Making the upper portion or the whole of a wick-tube of metal wound in a spiral form, substantially as and for the purpose set forth.

6. The removable bracket or feed-tube A J, in combination with a lamp-top, *a'*, substantially as described.

7. The combination of the removable wick *s* with the removable tubular bracket A and feed-wick J, substantially as described.

8. The sliding and vibrating spur *g'*, operating in the manner substantially as described.

9. While not claiming the construction of

the spring-catch *l* described, I do claim arranging it so as to be operated from the spindle or stem of a wick-adjuster, substantially as described.

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Witnesses:

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