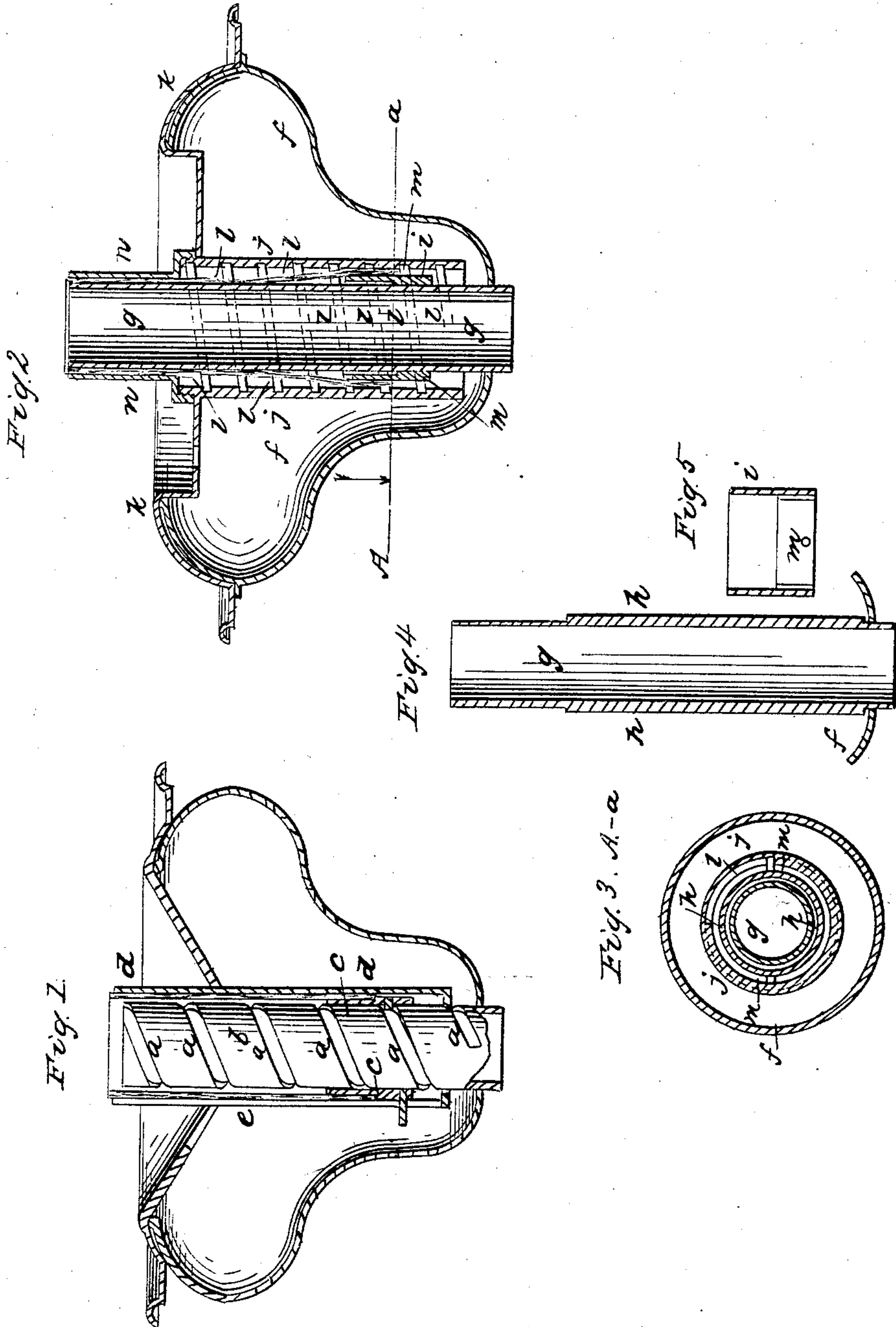


J. HASSELL.
Lamp-Wick Raiser.

No. 17,507.

Patented June 9, 1857.



Witnesses
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UNITED STATES PATENT OFFICE.

JOSEPH HASSELL, OF BROOKLYN, NEW YORK.

SOLAR LAMP.

Specification of Letters Patent No. 17,507, dated June 9, 1857.

To all whom it may concern:

Be it known that I, JOSEPH HASSELL, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Solar Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a vertical section of a solar lamp as heretofore and now extensively used; Fig. 2 a like section of my improved solar lamp; Fig. 3 a horizontal section thereof taken at the line A, *a* of Fig. 2; Fig. 4 a separate vertical section through the inner wick tube; and Fig. 5 a separate section through the wick holder.

My invention relates to an improvement in that class of lamps in which the wick is elevated and depressed by a helical groove made in the outer surface of the central tube within the wick through which air is admitted to the inside of the flame or inner surface of the outer wick tube. In all such lamps, but particularly when used to burn the heavy oils, it is desirable that the upper end of the wick, should be surrounded inside and outside by unbroken cylindrical surfaces and when moved, should remain parallel with the upper edge of the outer and inner wick tubes, but this becomes a more pressing necessity when such lamps are used to burn those oils which require the upper end of the wick to be about on a level with the upper end of the wick tubes, for in such cases if there be but a slight break in the inclosing surfaces or if one part of the wick be in the slightest degree elevated above another part the flame becomes uneven and either one part makes more than enough light or the other side does not give sufficient light and where there is a break the flame will flare and smoke. When such lamps are made, as represented in Fig. 1 with a helical groove *a* in the outer periphery of the inner or central tube *b* to receive a pin or stud projecting from the inner periphery of the wick holder *c*, the wick is elevated by turning the outer wick tube *d* which is formed with a vertical slot *e* that receives another pin or stud projecting from the outer periphery of the wick holder, so that by turning the outer wick tube the wick holder and wick are

turned on the inner wick tube, and the wick holder and wick are then elevated by the helical groove of the inner wick tube. But this presents several serious fractional difficulties. In the first place the helical groove must continue the whole length of the inner wick tube, or else the wick holder cannot be taken out of the lamp, so that the upper end of the wick tube does not and cannot present a smooth circular surface to the inside of the wick without which the combustion will be imperfect. In the second place the outer wick tube presents a break in its periphery where the slot *e* is formed which produces a defect in the combustion and consequently in the light. In the third place the wick holder and wick cannot be taken from the inner tube without turning it along the whole length of the helical groove. And lastly, and what is of the greatest importance, as the wick cannot be elevated or depressed without turning the wick with its holder on the inner wick tube, the catching of the inside of the wick on the edges of the helical groove causes the wick to twist and the upper end to lose its parallelism with the upper edge of the wick tubes which injures the combustion and consequently the light. And again when the helical groove has been made in the outer tube it (the groove) has been extended up to, and through the upper edge, and the inner tube has been made with a vertical groove also extending up to and through the upper edge thereof, so that the two surfaces inclosing the wick presented each a break or groove in the surface where the combustion was and must have been different, and produce a flaring of the flame and smoke.

All the above defects I have avoided by my invention the first part of which consists in elevating and depressing the wick holder with its wick by means of a helical groove or grooves on the inner periphery of the outer tube and preventing it from turning by a feather or feathers on the lower part of the inner wick tube to fit a groove or grooves in the inner periphery of the wick holder to prevent the wick holder from turning as it is elevated by the action of the helical groove or grooves of the outer tube on a stud or studs projecting from the outer periphery of the wick tube, so that by sim-

ply turning the outer tube the wick holder and wick are elevated or depressed without turning and in consequence the upper end of the wick always maintains its parallelism with the upper end of the wick tubes when this is combined with the making of the upper end of the inner and outer wick tubes with unbroken cylindrical surfaces to inclose the upper end of the wick. And my said invention also consists in fitting a cylindrical nozzle to the upper end of the outer tube, which may be fitted thereto by a screw thread that it can be readily put on and taken off, the inner diameter of said nozzle being of less diameter than the inner diameter of the lower part where the helical groove or grooves are cut, the said nozzle constituting the outer wick tube so that the two wick tubes present to the wick each an unbroken smooth surface. By this arrangement it will also be seen that the wick and the wick holder can be taken out of the lamp in an instant by simply removing the nozzle from the outer wick tube which is as usual attached to the globe ring.

In Figs. 2 and 3 of the accompanying drawings *f* represents the body of the lamp to contain the liquid, and *g* the central or inner wick tube attached to the bottom of the lamp, and as usual open at both ends for the passage of a current of air, as in the Argand lamp. To the outside of this tube are two parallel feathers *h, h* on opposite sides (one alone or more may be used) and extending up to within an inch and a half or two inches of the upper end of the tube. The lower part of the wick holder *i* is of greater thickness than the upper part, as usual, and of less diameter inside, and in this thick part two parallel grooves are formed to fit the two feathers *h, h* so that the said wick holder will slide freely, but without turning, on the inner wick tube. And as the wick is stretched in putting the lower end on the wick holder, it follows that the upper part will hug closely to the smooth surface of the upper part of the inner wick tube.

The outer wick tube *j* which is as usual attached to the globe ring or holder *k*, is made with its inner diameter so large as not to touch the wick. It is shorter than the inner wick tube, and formed with a helical groove *l* inside to receive one or two stud pins *m, m* that project from the outer periphery of the wick holder, and as these two pins are on opposite sides one must be lower than the other unless the groove be made like a double helix, which may be employed, as the equivalent for the single helix. And although I prefer to use two pins *m, m* it will be obvious that only one may be used. The upper end of the said outer tube is threaded on the outside to re-

ceive the lower end of a cylindrical nozzle *n* whose inner diameter is so much less as to fit the outer surface of the wick snugly. The upper end of this nozzle which constitutes the outer wick tube should be on a level with the upper end of the inner wick tube. By the above described construction and arrangement all the advantages above enumerated are obtained.

I am aware that lamps have been made with a helical groove in the wick tube surrounding the wick holder so that the wick holder with its wick can be elevated or depressed without turning, by simply turning the said outer or surrounding tube; but such lamps could not accomplish the object intended to be accomplished by my invention for the reason, that the helical groove in the inner surface of the said outer or surrounding tube was made to extend entirely up to, and through, the upper edge of the said tube, and the inner wick tube was provided with a vertical groove formed in the outer surface thereof and extending entirely up to and through the upper edge, so that the two said surfaces, one inside and the other outside of the wick, and in contact therewith, instead of presenting each an unbroken or cylindrical surface in contact with the wick presented a break or cavity. And in consequence of the want of continuity in these two surfaces, in burning the kind of oils above referred to, an imperfect combustion takes place in that part of the wick which happens to be opposite either of the said grooves of the inner and outer tubes. And therefore I wish it to be distinctly understood that I do not wish to be understood as making claim separately to the elevating or depressing of the wick holder with its wick by turning the outer surrounding tube formed with a helix to act on a pin projecting from the wick holder, the wick holder being prevented from turning by a pin projecting from its inner periphery fitting and sliding in a vertical groove formed in the outer surface of the inner wick tube.

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

1. Making the outer and turning wick tube, which surrounds the wick holder, with a helix or helices to act on a pin or stud projecting from the said wick holder, and preventing the said wick holder from turning by a feather or feathers, or equivalents therefor, on the outer surface of the inner wick tube, substantially as described, in combination with the making of the upper end of the inner and outer wick tubes cylindrical and with unbroken surfaces in contact with the wick, substantially as described, the better to keep the upper end of the wick parallel with the upper end of the said wick tubes, and for the further

purpose of having the surface of the said tubes, where they are in contact or close proximity with the wick, to present unbroken cylindrical surfaces, as set forth.

- 5 2. And I also claim in combination with the turning wick tube provided with a helix or helices, substantially as described,

the employment of a movable nozzle, substantially as described.

JOSEPH HASSELL.

Witnesses:

WM. H. BISHOP,

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