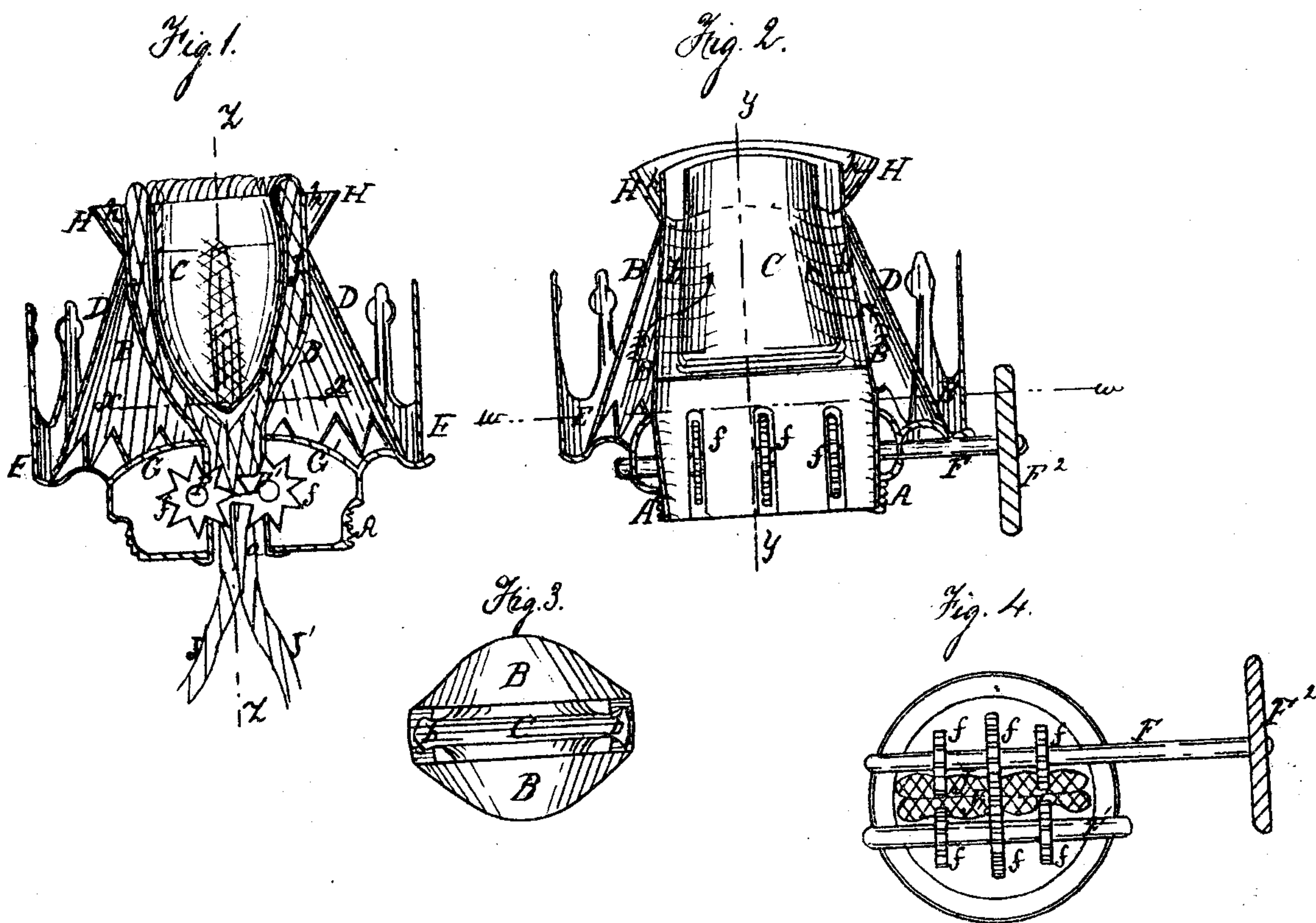


A. W. Brown
Lamp Burner
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No. 74793



Witnesses.
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ARTHUR W. BROWNE, OF BROOKLYN, NEW YORK.

Letters Patent No. 74,793, dated February 25, 1868.

IMPROVEMENT IN LAMP-BURNERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, ARTHUR W. BROWNE, of Brooklyn, in the county of Kings, and State of New York, have invented a new and useful Improvement in Lamp-Burners; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made part of this specification.

In this lamp two flat wicks, or the two ends of a single flat wick, are introduced into the lower portion of the wick-tube, which at bottom is in the form of a single rectangular aperture, but which, as it rises, merges into a cylindrical form, and is divided into two compartments by a mitre-shaped wick-deflecting cone, and these compartments conjointly form at top an annular orifice round a hollow cylinder, through which air is admitted from below. The double flat wick being elevated into this annular orifice, burns upon the argand principle, the flame having an internal as well as an external supply of air. A flaring flange or lip placed around the outside of the annular orifice serves to deflect the external draught outward, and thus spread the flame. The openings for the admission of the internal draught to the flame are guarded with wire gauze, which not only prevents communication of fire to the oil in the reservoir, but effects a steady and equal supply of air to the inside of the flame.

In order that others skilled in the art to which my invention appertains may be enabled to fully understand and use the same, I will proceed to describe its construction and operation.

Figure 1 is a vertical section of a lamp-burner, illustrating my invention, the plane of section being indicated by the line *y y*, fig. 2.

Figure 2 is a similar view, the section being in the plane indicated by the line *z z*, fig. 1.

Figure 3 is an under side view of the two tubular metallic shells forming the wick-tube, this view being the same as a horizontal section at *x x*, looking upward.

Figure 4 is a horizontal section on the line *w w*.

In the drawings, A represents the lower screw-threaded part of the lamp-burner, which is to be screwed into the cap or top of the reservoir of an ordinary lamp. The part A is slotted, as shown clearly at *a*, fig. 1, to receive the lower end of a tube, B, which may be fastened to said part A by bending the slit portions of said tube under the edges of the slot *a*, as shown. The form of the tube B will be understood by reference to fig. 1. The lower end of said tube B is oblong, and rectangular in its horizontal section. Proceeding upward, the tube B gradually flares outward, and terminates at its upper end in the form of a cylinder. C is a tube, placed within the upper portion of the tube B. The two opposite sides of the tube C, at its lower end, are made to converge toward the bottom, thus giving the lower end of the tube a form analogous to a wedge, while the upper portion of said tube C is cylindrical, and concentric with the cylindrical portion of the tube B. The top of the tube C is flush, or nearly so, with the tube B, and the tube C is held in position by means of the vertical stays *b b*. The stays *b b* are hollow, and corresponding slots being cut in the tubes B and C, the external air is permitted to pass into C, as indicated by the arrows in fig. 2. D is a conical jacket, constituting the outer shell of the burner, and made fast at top to the tube B. E is a lamp-chimney supporter, secured to the lower part A of the burner. F F' are shafts, bearing each a set of toothed wheels, *fff*. The toothed wheels on one shaft mesh or gear with those on the other. A milled disk, F², on the shaft F, enables all the wheels *f* to be put in motion simultaneously. The openings which conduct air through the hollow stays *b b* are covered with wire gauze, as shown at G, so as to prevent the communication of fire or flame in C to the gases or vaporized oil which may be diffused in the space between the jacket D and tube B, and thus avoid danger of exploding the oil in the reservoir. In like manner, in order to prevent the communication of fire by the spontaneous ignition of the diffused gases to the gas or vaporized oil in the chambered part A, and thence to the oil in the reservoir through the slots for the ratchet-wheels *f*, the chambers of said part A are covered with gauze, as shown at G'.

In operation, the two wicks J J' are introduced into the lower flattened portion of the tube B, and both being caught between the wheels *f* are elevated simultaneously by the rotation of the latter. The upper ends of the wicks striking the wedge-shaped lower end of the tube C, are deflected so as to rise at the opposite sides

of said tube, in doing which they are spread and curved till they ultimately assume a circular form in the annular orifice between the upper part of B and C. The wicks being projected sufficiently above the wick-tubes, and lighted, produce a round, hollow flame, to the internal surface of which air is applied through C, as above explained. Suitable openings in the lamp chimney supporter, and at the lower end of the jacket D, afford free upward draught for the supply of air to the external surface of the flame.

The wire gauze G not only serves as a guard against explosion, but prevents sudden rushing of the air upon the flame during atmospheric vibrations or undue draughts. Each of the tubes B and C is shaped or swaged out of a sheet-metal cylinder.

H is a flange, secured to and extending round the upper part of the tube B, so as to deflect the air externally supplied in an outward direction. This outward deflection of the air has a tendency to create a vacuum within the groove h, and the consequent effort of the flame to fill the same causes it to spread and assume enlarged proportions.

My object has been to produce a burner whose wick shall afford a round, bright, and highly-illuminating flame, and which shall be applicable to lamps in general.

I do not claim novelty in the double-elevating wheels *ff* irrespectively of their combination with means for guiding and deflecting the pair of flat wicks. I am aware that such double-elevating wheels have before been used upon both sides of a single wick, so as to compress the said wick between them.

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

1. The combination of the tube B and tube or wick-deflector C, constructed and arranged as herein described, and adapted for the employment of two flat wicks, which are thereby spread and curved, and made to produce a circular flame, substantially as set forth.
2. In combination with the elements covered by the first clause, I further claim the shafts F F', toothed wheels *f*, and disk or operating-device F², arranged and employed substantially as and for the purpose set forth.
3. The gauze G, in combination with the slotted wick-deflector or tube C, as and for the purposes set forth.

A. W. BROWNE.

Witnesses:

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