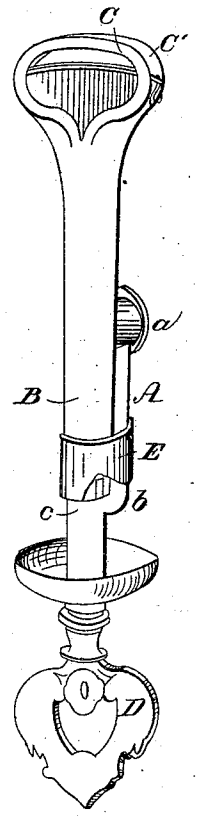
DE MAHY & CROSS.

Vapor Burner.

No. 88,854. Patented April 13, 1869.



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JOSEPH R. DE MAHY AND JAMES P. CROSS, OF NEW ORLEANS, LOUISIANA.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **88,854**, dated April 13, 1869.

To all whom it may concern:

Be it known that we, JOSEPH R. DE MAHY and JAMES P. CROSS, of the city of New Orleans, parish of Orleans, and State of Louisiana, have jointly invented a certain new and useful Improvement in Petroleum-Gas Burners; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawing, making a part of this specification, whereon it is shown by a perspective view.

Our invention is of a very simple nature, and its object is to control and regulate the quantum of atmospheric air that is admitted into the burner and intermingled with the petroleum gas, and furthermore, to give steadiness to the flame, or, in other words, to prevent the flickering thereof, and hence to improve or more perfectly to adapt the light to the uses of reading, writing, sewing, and the like.

Mechanically considered, our invention consists of making a generating-section in the oil conduit, pipe, or tube, and the placing of the same in close contact with the section into which the gas flows and from which it directly issues; also, in an extension of the height of the latter section, and providing it with a vertically-elongated aperture at its lower extremity for the admission of atmospheric air, and covering said aperture with a movable sleeve, so as to regulate its size, and consequently the quantity of atmospheric air that passes through it and is combined or intermingled with the petroleum gas; and, finally, in placing in proper position two elliptical or arched-bar heat-conductors, of greatly reduced orbits as compared with any of like character and form now in use.

But our invention will be better understood by reference to the drawing, which clearly exhibits it in perhaps the simplest form in which it can be constructed.

On the drawing, A is a section of the oil-tube leading from the reservoir, the connection of the same with the section (not shown) being at *a*. In this section A the gas is generated, for it will be observed that from the point *a* it extends perpendicularly downward to its point of connection at *b* with the tube B, which, in close contiguity to the former, the two being soldered or brazed together, extends vertically above the point *a* about the length of A, and is expanded in one direction and flattened in the other, at its upper extremity, in such manner as to form a proper nipple for the issue of the gas in a thin wide jet or sheet, which experience has shown to be the best for illuminating purposes.

C C′ are two elliptic or arched heat-conductors, which, being united to the section B just below the lowest part of the issue cleft or slit, and of very reduced size and orbit as compared with such appliances as now usually made, do not carry the heat any considerable distance down the said tube B, and hence never produce too active or rapid an evolution of gas in section A, nor consequently that ebullition of the same which is the chief cause of the flickering that characterizes the flame of existing gas-burners, nor yet, finally, ever heat the key D sufficiently to prevent its being turned with the fingers without intermediate agent or appliances, as is the case with every burner hitherto devised.

At the lower extremity of the section B a narrow elongated aperture, *c*, is made, over which is fitted the sliding sleeve E in such manner as that it embraces both A and B, as shown. A part of this sleeve E is broken away to show its relation to the aperture *c*. The embrace of this sleeve around the tubes A B is sufficiently close to maintain it at whatever point it may be placed, but yet not too close to prevent it from being moved up or down with ease. There being a slight reduction in the diameter of the tube B at the point at which this aperture is made, which is at the connection of the two tubes, or just above that point, a complete envelopment of the said aperture by the said sleeve will yet leave space enough for the admission of atmospheric air in sufficient volume to maintain a very small flame.

The advantages resulting from the positive contact of the two sections A and B for the whole length of the former is that a sufficient degree of heat is thereby imparted to tube A to produce in it a prompt vaporization of the oil as soon as it passes beyond the point *a*.

The prevention of the flickering of the flame when combustion is going on in the burner, or rather in the gas, at the point of its escape from the burner, is the joint and combined ef-

fect that results from the extension of the height of the section B and the reduction of the size and orbits of the heat-conductors C C′, while the control and regulation of the flame or light are secured by and through the agency of the aperture *c* and sleeve E, because thereby a greater or less quantum of atmospheric air, or, more accurately, of the oxygen of which it is partly composed, may always, at pleasure, be admitted and infused into the petroleum gas before it reaches its point of ignition and combustion.

It will be observed that our improvement is of cheap form, and that it may be manufactured with great facility in consequence of the absence of everything of a complicated nature within or without it.

We do not claim, in any separate sense, the two tube-sections, the sliding sleeve, the heat-conductors, nor any of the other parts that are herein described as making up our invention; but,

Having thus described our improvement, what we claim, and desire to secure by Letters Patent, is—

The improved burner herein described, consisting of the two tube-sections A and B, when the latter is provided with the reduced heat-conductors C and C′, and an aperture, *c*, that is increased or diminished by means of the sliding sleeve E, and all these enumerated parts are constructed and combined substantially in the manner herein described.

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Witnesses:

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