J. C. LOVE.

Vapor-Burners.

No. 143,915. Patented Oct. 21, 1873.

FIG. 1.

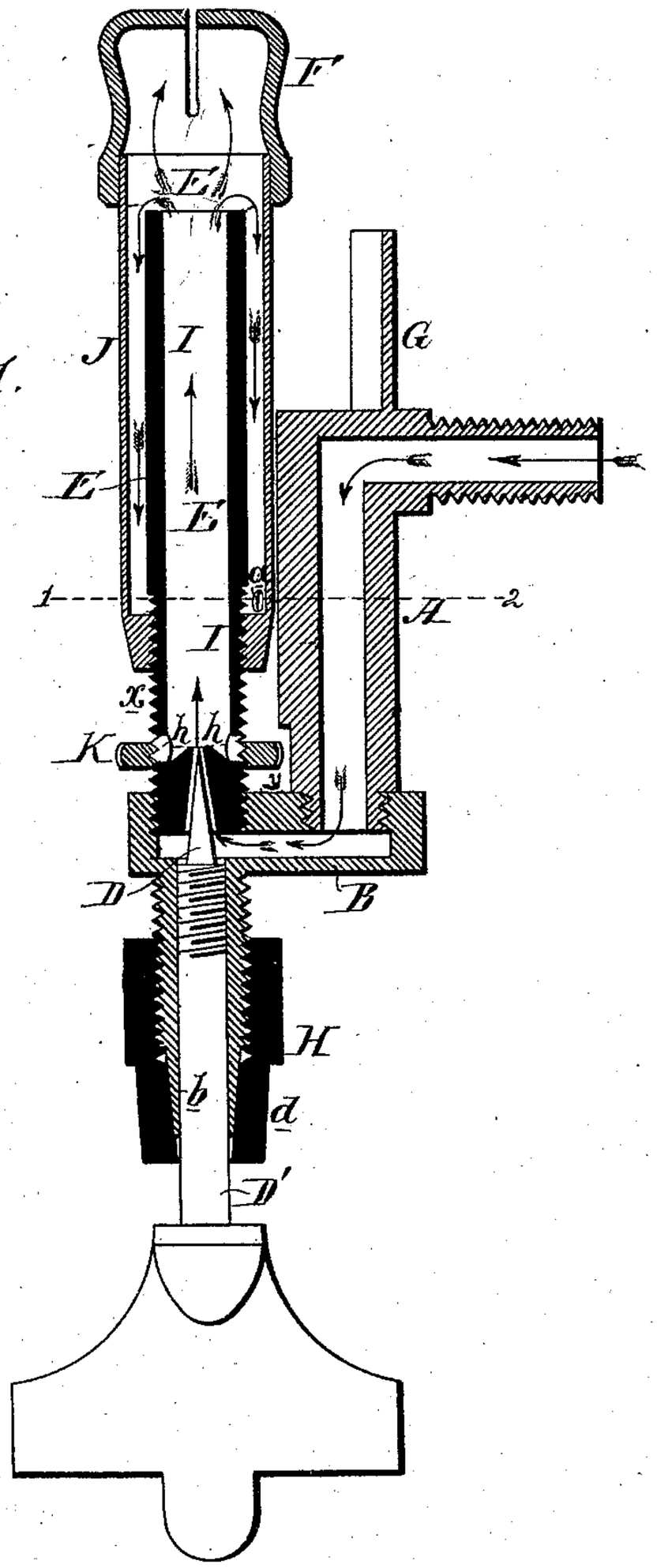
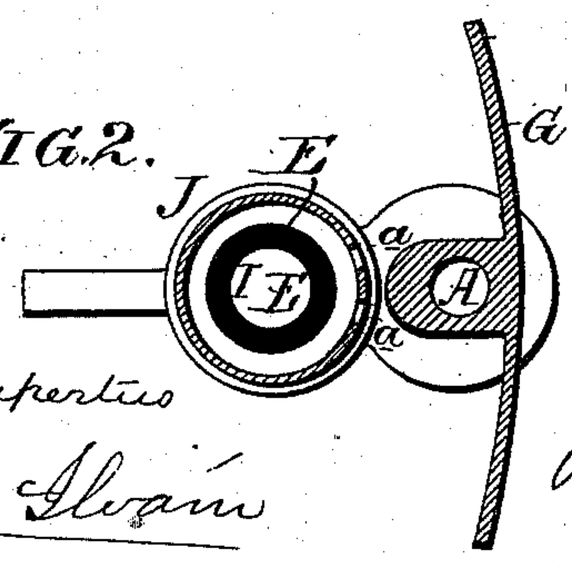


FIG. 2.



Witnesses,
John K Rupertus
Thomas McElwain

John C. Love
by his Attys.
Howson and Sons

UNITED STATES PATENT OFFICE.

JOHN C. LOVE, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **143,915**, dated October 21, 1873; application filed April 4, 1873.

To all whom it may concern:

Be it known that I, JOHN C. LOVE, of Philadelphia, Pennsylvania, have invented an Improved Gas or Vapor Burner, of which the following is a specification:

The objects of my invention are to prevent leakage around the valve-stem of a gas or vapor burner; to insure a thorough vaporization of the oil; to render the burner less bulky than usual, and to reduce the cost of the same. I attain these objects by constructing the burner in the manner which I will now proceed to describe, reference being had to the accompanying drawing, in which—

Figure 1 is an enlarged sectional elevation, and Fig. 2 a sectional plan, of the burner on the line 1 2, Fig. 1.

In its operation the burner does not differ materially from others of its class, the light oil, benzine, or other hydrocarbon under pressure passing through the supply-pipe A, casing B, and around the needle-pointed valve D, in the course indicated by the arrow, into a chamber, E, where it is mixed with air, and ignited as it passes from the tip F, the oil being vaporized in its passage by jets of flame issuing from apertures *a a* at the base of the mixing-chamber, and playing upon and heating the supply-pipe, and a wing or metal plate, G, adjacent thereto.

One of the greatest objections to burners of this class as heretofore constructed has been the difficulty of preventing leakage of oil between the casing B and valve-stem D′—an objection which I have effectually overcome, as follows: I form the lower end *b* of the casing into a tubular conical projection, the metal of which is so thin that it will yield to external pressure, and tightly embrace the valve-stem; and this pressure I obtain by means of a nut, H, adapted to an external thread on the casing, and having at its lower end a tubular conical projection, *d*, corresponding to that of the casing, and fitting snugly over the same, so that, by simply raising the said nut, it shall be caused to force the tubular projection *b* against the stem, thus forming an oil-tight joint. This part of my invention can, it will be evident, be applied as a metallic packing to valve-stems generally, for the purpose of preventing leakage between the same and their casings.

The mixing-chamber E is formed within a central tube, I, and surrounding concentric tube J; this method of construction insuring a thorough vaporization of the oil by contact with hot metallic surfaces before it can escape from the apertures *a* to form the heating-jets, which play upon the supply-pipe. The outer tube J also forms a return passage for the vapor which is to pass through the apertures *a*, and thus enables the latter to be arranged at or near the base of the mixing-chamber, instead of near the top of the same, as usual, so that the burner can be considerably reduced in length. The central tube I has a long screw-thread, *x*, cut upon its lower end, which is made to serve the threefold purpose of securing the said tube to the casing B, of receiving the nut-valve K, by raising or lowering which the size of the air-openings *h* can be regulated, and of securing the upper portion of the burner to the said tube.

The wing G, upon which, as well as upon the supply-pipe, the jets of flame from the apertures *a* are caused to play, is cast in one piece with the said pipe, as shown in Fig. 2, this effecting considerable economy of construction, and enabling the supply-pipe to be more thoroughly heated than if the said wing were separated from the same, as usual.

The lower portion of the supply-pipe is cut away, as shown at *y*, in order to permit the operation of the nut-valve, and to enable the said supply-pipe to be brought as closely as possible to the mixing-chamber.

I claim as my invention—

1. The within-described metallic packing for valve-stems for gas-burners, consisting of a conical tubular projection, *b*, of the valve-casing, embracing the said stem, and arranged to be tightened upon the same by the corresponding conical projections *d* of a nut, H, adapted to the threaded exterior of the casing.

2. The tube I, so combined with the other portions of the burner that its single screw-thread *x* shall serve the threefold purpose of securing the same to the valve-casing, of re-

ceiving the nut-valve K, and of securing the upper portion of the burner to the said tube, all substantially as specified.

3. The combination, substantially as described, of the nut-valve K with the supply-pipe A, recessed at *y* to permit the operation of the said nut-valve.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN C. LOVE.

Witnesses:

THOMAS MCILVAIN,

HUBERT HOWSON.