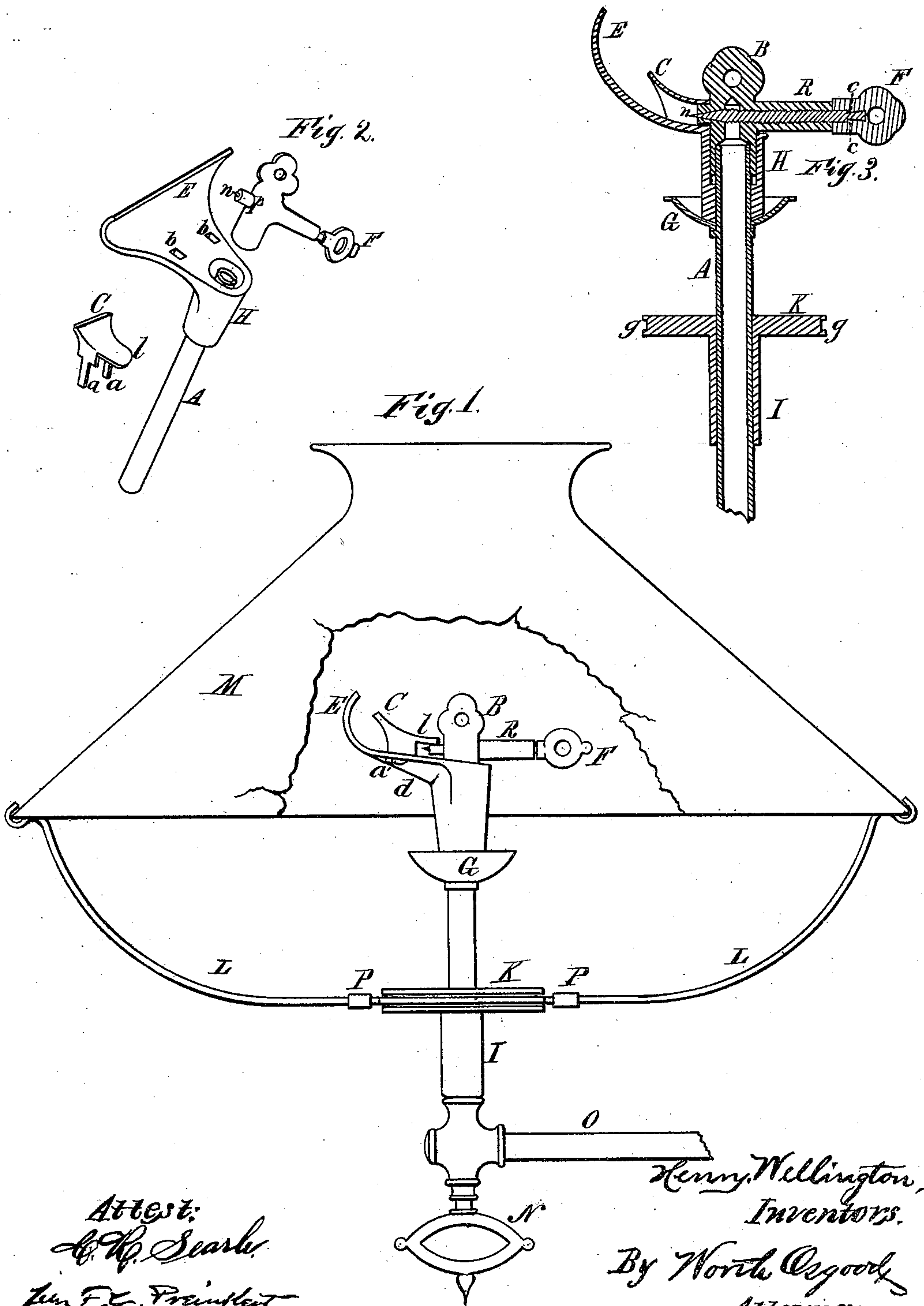


H. WELLINGTON.
VAPOR BURNERS.

No. 195,240.

Patented Sept. 18, 1877



Attest:
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN VAPOR-BURNERS.

Specification forming part of Letters Patent No. **195,240**, dated September 18, 1877; application filed March 24, 1877.

To all whom it may concern:

Be it known that I, HENRY WELLINGTON, of Brooklyn, E. D., county of Kings and State of New York, have invented certain new and useful Improvements in Vapor-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Figure 1 is an elevation of my improved burner, showing the several parts assembled for use, a portion of the shade being broken away to exhibit the location of the burner within. Fig. 2 is a perspective view, showing the nipple and lateral detached from the connected plate and packing-tube. Fig. 3 is an axial section of the burner, illustrating the several parts thereof in detail and the method of applying the shade-holder.

Like letters of reference in all the figures indicate corresponding parts.

My present invention consists in certain improvements upon the burner shown in my Patent No. 107,741, dated September 27, 1870, and in a means of attaching a shade or reflector to burners of a similar character, all of which will be first fully described, and then pointed out in the claims.

E is a curved deflector or plate serving to spread the flame, and having a socket, H, cast therewith. This socket receives the ordinary packing-tube A from below, and the nipple-block B from above, the two passing each other within the socket, as shown in the sectional view, Fig. 3.

The plate C, which serves to form a passage within which the air and gas are mingled, is usually denominated the "lateral." It is made separate from the plate E, and secured thereto by means of the projecting legs *a a*, entering corresponding openings *b b* cut in said plate E. It is essential that the lateral be very firmly secured to the deflector, for the reason that it operates to hold the nipple-block B, as hereinafter explained, and it is found that a simple battering down of the legs after they are inserted in the openings *b b* will not accomplish the desired result in a satisfactory manner. I therefore twist the legs *a a*, by use of a pair of pliers or other suitable means, giving them about a quarter-turn, more or less,

and then press them closely up against the under side of the deflector, as plainly indicated at *a*, Fig. 1. By this simple expedient the lateral and deflector are quite firmly attached.

The packing-tube A is crowded or jammed into the lower end of the socket H, and occupies about the position indicated in Figs. 2 and 3. Around the upper end of the tube A a chamber is formed for the reception of the lowermost portion of the nipple-block B, which, being drilled out, fits also over the upper end of said packing-tube. This nipple-block carries the screw-socket R, the needle-valve *n*, and the projecting nipple *p*, in which is the valve-seat, and it (the said block) is placed in its proper position, and there held by the nipple *p*, which bears against the under side of the projecting portion *l* of the lateral C. This method of holding the nipple-block in place is advantageous for several reasons. The joint or connection between the block and the other portions of the burner is very simple and easy to make. The bearing of the nipple under the lateral prevents the block from being blown out by too great a pressure of gas within the burner when in operation. The joint between the nipple-block and its socket being smooth, the said block may be turned therein, and the jet of gas directed toward the proper point on the plate E, so that the flame may produce its maximum results. This latter consideration is one of considerable importance in the manufacture of the burner, as well as in its use, for were the nipple-block fixed in its seat, and not capable of the adjustment explained, the proper location of the nipple *p* with reference to the plate E would have to be determined by the manufacturer, thereby causing an expenditure of considerable time.

The burner, when constructed in accordance with the several improvements herein set forth, is, as is found by practical experience, very little liable to damage or disarrangement of its parts; but should the valve or valve-seat become damaged by any accident, it is obvious that, by reason of the construction already described, the nipple-block can be readily replaced by a new one without the necessity of discarding the whole burner.

For the purpose of turning the nipple-block in its seat it is perforated at its upper extremity, as shown in each of the figures, and through this perforation a nail or other convenient implement may be inserted, forming a lever, by which the necessary adjustments may be readily and easily made.

The valve-stem socket R is screw-threaded throughout its length to properly receive and hold the screw-threaded stem of the needle-point *n*. It is important that some means be provided which will effectually prevent the needle-point from being crowded too tightly against its seat, thereby enlarging and otherwise damaging the same. The head F is located upon the valve-stem in such position that it shall abut against the end of the socket R when the valve *u* is properly located in its seat, and thus prevent said valve from being forced farther forward, which construction obviates the objection named in a very simple and thoroughly practical manner.

To connect the head F with the needle-valve stem, the latter is cut away or indented, as at *c c*, Fig. 3, and the material of the head F is then sufficiently compressed as that it shall enter these indentations, whereby the two parts are very firmly secured together.

Previous to this invention it has been customary, in instances where a separate head or key and valve-stem have been employed, to attach said head by means of a pin running therethrough, and through the valve-stem as well.

The means illustrated are obviously more advantageous than this old form of connection, particularly in a situation like the present, wherein an accurate adjustment of the head with respect to the needle-point is desired.

The valve may, under ordinary circumstances, be manipulated by simply applying the thumb and forefinger to the head F; but, in case this becomes overheated, a nail or other implement may be inserted through the perforation provided, the same as in the nipple-block.

G is the drip-cup, wherein the initiatory supply of oil is burned. It is attached to the packing-tube A by crowding it thereon, or by allowing it to rest upon a narrow projection and beneath the socket H.

The burner is operated substantially as follows: The plug N, which controls the passage of oil from the supply pipe O, is opened, and the packing-tube allowed to fill. The needle-valve *u* is then retracted from its seat until a sufficient quantity of oil has run down into the drip-cup G to nearly fill the same, when it is returned to its closed position. The lighted match is applied to the oil in the drip-cup, and when the burner is sufficiently heated to generate the necessary gas the needle-valve is gradually opened until the flame assumes the proper or desirable size. The flame should be regulated by use of the needle-valve; and to shut off the gas entirely this

valve should be closed first, and the valve N shortly after, or when the burner has become cooled a little.

In this class of burners, known to the trade as "plate-burners," much difficulty has been experienced from the bending of the plate E, which, of course, destroys the shape of the flame, and thus the efficacy of the burner itself.

To obviate this difficulty, I cast a re-enforcement (shown at *d*, Fig. 1) beneath the lowermost portion of the plate, and this is found to thoroughly prevent the damage alluded to, under ordinary circumstances of using and handling.

It is found to be almost essential that the plate E, against which the flame impinges, should be made of cast metal, (preferably brass,) that the burner should produce the maximum results of which it is capable from the nature of its construction and arrangement of parts. This is due to the superior heat-conducting power of the cast metal over that of the stamped or sheet metal, of which some burners have heretofore been constructed.

The light afforded by this burner is found to be very brilliant, steady, and sufficiently intense for all manner of indoor or domestic illumination.

The several elements of which the device is composed are easy of construction, and not in the least difficult to be understood and operated by ordinary persons, or those not otherwise well acquainted with the art.

A shade or reflector attachment for vapor-burners has come to be a desideratum, since, by the use of such shade or reflector, the light may be the better directed downwardly toward a table or other point, and thus more economically and advantageously used.

It is found that the globe ordinarily placed over gas-burners will not operate successfully in connection with burners of this class. To supply the want specified I have designed the following simple means of supporting the shade or reflector M: Around the packing-tube A, I place a loose spool, I, having the projecting rim or flange K, with circumferential groove *g*. This may occupy any desirable position upon the tube A, and, under ordinary circumstances, is allowed to rest upon the upper surface of the elbow-joint. (Shown in Fig. 1.)

The shade-holder arms L L spring from an adjustable ring, which is placed in the circumferential groove *g*, and there held by the sliding clasps P P, in the manner sometimes adopted in connection with kerosene-lamps. The arms L L support the shade M above and around the burner, as shown.

In case a portion of the shade be darkened, or it be replaced by a reflector, the looseness of the spool upon the tube A will readily admit of the arms and shade or reflector being revolved about the light until brought into the desired location.

The attachment of the shade-holder, being about the central burner-supporting tube,

gives a symmetrical exterior appearance to the whole device, while the little distance which the flame is removed from the axis of the shade is found in no way to detract from the value or quality of the light.

The holder-spool may be made with horizontal or vertical sockets to receive the arms of the holder directly; or it may be otherwise modified without departing from the spirit of the invention, so long as it be attached to the supply-tube of the burner, or to some part adjacent thereto.

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

1. The combination of the curved deflector-plate E, the separate packing and supporting tube A, and the removable nipple-block, substantially as shown and described.

2. In a vapor-burner, the removable and adjustable nipple-block held to its seat by the lateral C attached to the deflector, the several parts being arranged substantially as shown.

3. In a vapor-burner having a curved deflector, and in which the flow of gas is regulated by a needle-valve, the combination, with

such deflector, of an adjustable nipple or valve seat, whereby the flow of gas may be directed toward any point of said deflector, for the purposes explained.

4. In combination with a needle-valve the stem of which is indented, as explained, a head or thumb-piece attached thereto by compression, in the manner set forth.

5. In combination with a vapor-burner, a loose spool applied about the supporting-tube thereof, and adapted to sustain the shade or reflector sustaining arms, substantially in the manner set forth.

6. In combination with the main tube A, leading to a vapor-burner above, the spool I, having the flange K, with circumferential groove g, constructed and arranged as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

HENRY WELLINGTON.

Witnesses:

GEO. F. GRAHAM,
CHAS. R. SEARLE.