

No. 761,820.

PATENTED JUNE 7, 1904.

T. E. CHARLTON.
GAS BURNER.

APPLICATION FILED SEPT. 26, 1903.

NO MODEL.

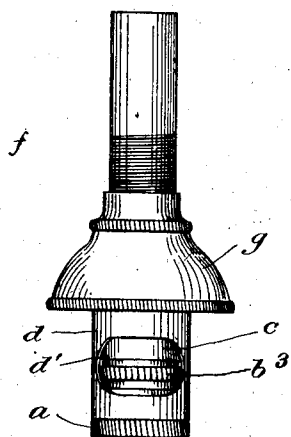


FIG. I.

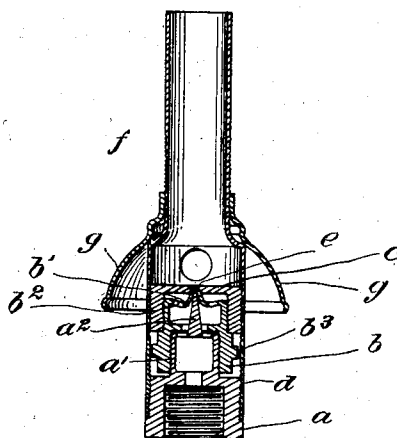


FIG. II.

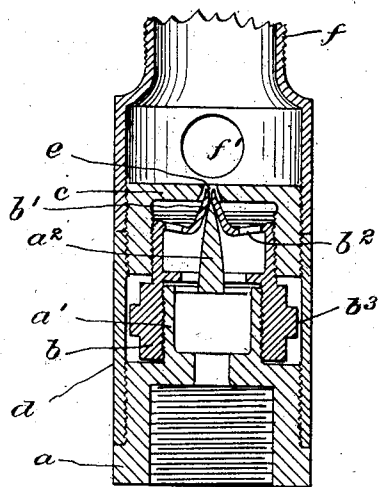


FIG. IV.

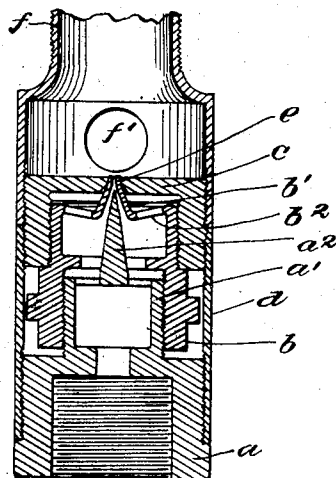


FIG. III.

Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS E. CHARLTON, OF CLEVELAND, OHIO.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 761,820, dated June 7, 1904.

Application filed September 26, 1903. Serial No. 174,757. (No model.)

To all whom it may concern:

Be it known that I, THOMAS E. CHARLTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates particularly to Bunsen burners used for incandescent lights, and is designed to provide an improved adjustable burner particularly characterized by the fact that it is suitable for either natural or artificial gas.

It is known that artificial gas requires a burner in which the gas is permitted to rise from the check or orifice in a more or less diffused form, so that it will be thoroughly mixed with the air, and this result is usually effected by making a number of small holes, through which the gas escapes; but natural gas requires a burner that will permit the gas to rise from the orifice more in a body, and the distance from the orifice to the mantle or gauze must generally be greater than with artificial gas, so as to allow it to combine with the air in the proper proportions. Of course the correct distance in either case varies in proportion to the pressure; but, other things being equal, the distance with natural gas should be greater. A small single orifice is perfectly suited to natural gas, but will not prove satisfactory with artificial gas, which requires to be spread or diffused to a greater degree.

By the invention hereinafter described a burner is provided in which a separate orifice may be used for natural and artificial gas, respectively, which includes a double needle-valve, the inner or smaller of which may be closed when artificial gas is used and the outer and larger of which may be closed when the natural gas is used, or both orifices may be used if found advisable or necessary.

In the accompanying drawings, Figure 1 is a side elevation of the burner. Fig. 2 is a vertical section thereof; and Figs. 3 and 4 are

similar sections, on a larger scale, with the valves in different positions.

Referring specifically to the drawings, *a* indicates the cap or base screwed to the nipple of the gas-pipe, and this cap terminates in a reduced nipple *a'*, which carries a centrally-projecting needle *a''*, which governs the inner or smaller valve. Openings are provided around the base of the needle to permit the flow of gas from within the nipple. The nipple *a'* is exteriorly screw-threaded to receive an adjustable tube *b*, which at its upper end is reduced and screw-threaded to engage within the check-plate or cap *c*. This tube carries at its upper end a hollow conical needle or valve *b'*, which fits over the point of the needle *a''* and also within the orifice *e* in the check-plate. Openings (indicated at *b''*) are provided around the hollow needle *b'* to allow the passage of the gas outside the said needle and through the orifice *e* when said valve is open, as indicated in Fig. 4. The tube also carries an exterior milled rim *b'''*, whereby it may be grasped by the fingers and turned to adjustment, as hereinafter described. The needle *a''* fits the hollow in the needle *b'* and is adapted to open and close the orifice therein, according to the manipulation of the tube.

At *f* the Bunsen tube is indicated, having air-holes *f'*, and this tube is exteriorly threaded to receive the bell-regulator *g*, which provides an adjustable rest for the mantle-support and other parts of the burner when the fitting is assembled. The tube *f* is threaded onto the check-plate *c*. At *d* a supplemental or outer tube is indicated having threaded engagement at the upper end with the plate *c* and at the lower end with the base *a*. Manipulation of this tube *d* permits an adjustment of the plate *c* to vary the distance thereof from the needle *a''*, since the said needle is fixedly carried by the base *a*, and the tube *d*, carrying the plate *c*, is removable with respect thereto. Furthermore, the adjustment of the bell *g* on the tube *f* varies the distance of the mantle from the orifice in said plate. The tube *d* has openings *d'* in the side, whereby the milled portion of the tube *b* may be grasped and turned.

In operation with the above construction it is possible by manipulation of the tube *b* to open either the large annular orifice *e* and close

the small circular orifice through the needle *b'* or to open the latter and close the former or to open both partially. When the tube is screwed upwardly or outwardly, its needle *b'* closes the major or outer portion of the orifice *e* and opens the small passage around the needle *a'*. When said tube is screwed down, the needle *a'* closes the passage in the needle *b'* and the orifice *e* is opened. In the former case the gas passes directly through the tube *b* and its needle *b'*. In the latter case it passes out of the tube through the openings *b''* and thence through the orifice *e*. The former adjustment is particularly useful with natural gas and the latter with artificial gas. By setting the tube in an intermediate position gas may be allowed to escape through both orifices, which will be found advantageous under some conditions. The play of the tube *b* and its valve may be varied or regulated by adjusting the relative positions of the base *a* and plate *c*. This adjustment is effected by means of the tube *d*. By unscrewing said tube the check-plate *c* is raised accordingly, permitting a correspondingly larger escape of the gas at *e* when the tube *b* is lowered. Also the distance of the mantle from the orifice may be regulated by adjustment of the bell *g*, as hereinbefore indicated.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a gas-burner, the combination with a member having a gas-orifice therein, of a valve for the orifice having a gas-passage there-through, and another valve controlling said passage, and a single supply-pipe communicating with both valves.

2. In a gas-burner, the combination with a single supply-tube, and a check-plate therein having a gas-orifice, of a needle-valve opposite the orifice, and a tapering tube working between the orifice and the needle, and having openings therethrough, as and for the purpose specified.

3. In a gas-burner, the combination with the tube, of a check-plate therein having a gas-orifice, a tapering tube-valve having openings through the side thereof and the end of which is movable into or out of the orifice to contract or enlarge the same, and a needle-valve fitting the tube and acting to close the same when the tube is moved out of the orifice.

4. In a gas-burner, the combination with a tube having a nipple therein carrying a central needle-valve, and a check-plate across the tube having an orifice opposite the needle, of an intermediate adjusting-tube threaded onto the nipple and having a hollow tapered point working between the needle and orifice, and a single gas-supply to both the inside and outside of the adjusting-tube, as and for the purpose stated.

5. In a gas-burner, the combination with an outer tube having therein a check-plate with a gas-orifice, and a nipple having a needle opposite the orifice, the check-plate and needle being relatively adjustable to vary the distance of the latter from the orifice, of a perforated inner tube threaded on the nipple and having a tapered portion at one end adjustable between the needle and the orifice.

6. In a gas-burner, the combination with a base having a nipple and needle projecting centrally therefrom, with gas-passages around the needle, an outer tube screwed on the base and having finger-openings, a check-plate in the tube, having an orifice opposite the needle, and a perforated adjusting-tube on the nipple accessible through the openings and having a tapered end adjustable between the needle and orifice.

In testimony whereof I do affix my signature in presence of two witnesses.

THOMAS E. CHARLTON.

Witnesses:

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