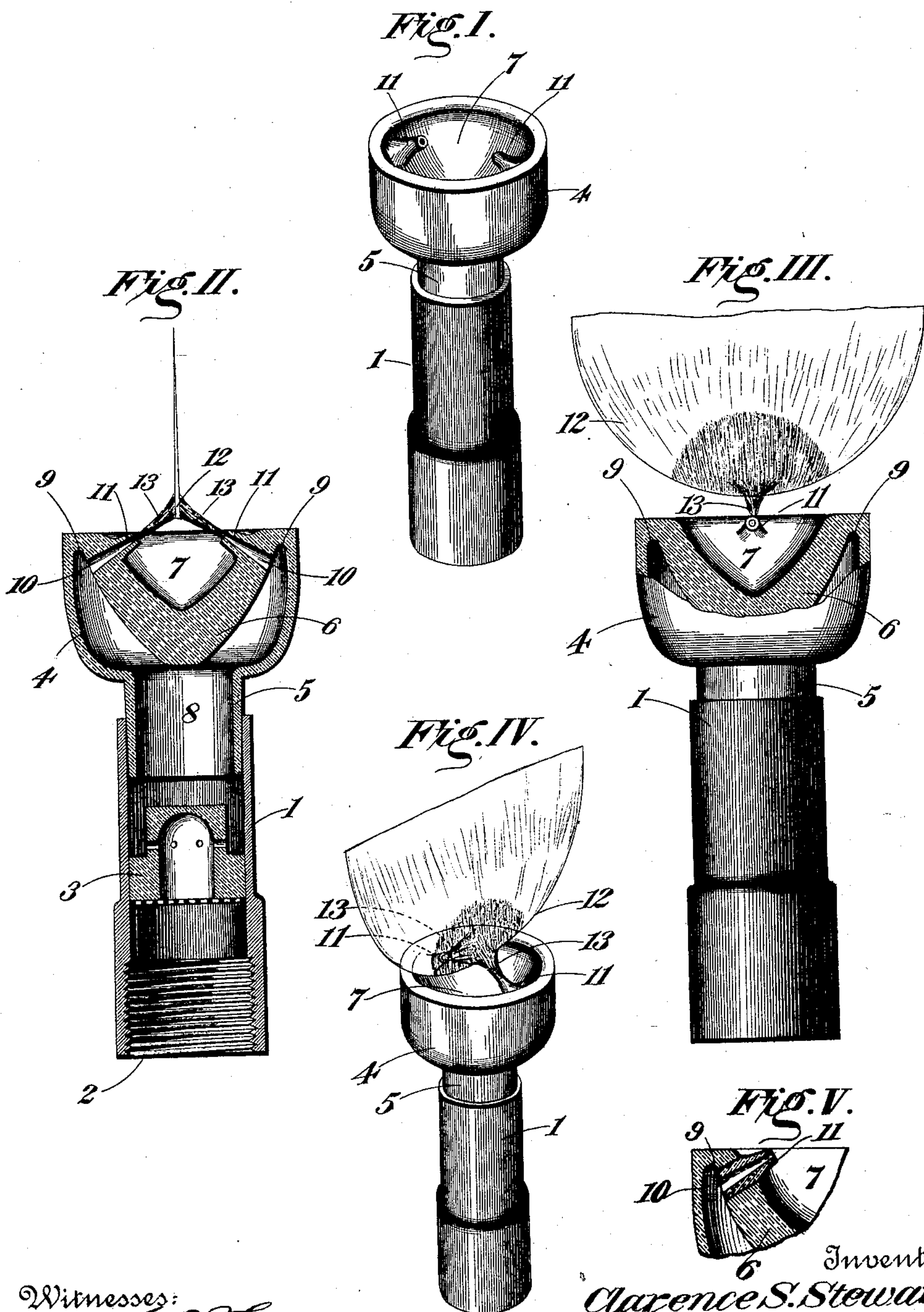


(No Model.)

C. S. STEWARD.
GAS BURNER.

No. 603,613.

Patented May 3, 1898.



Witnesses:

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UNITED STATES PATENT OFFICE.

CLARENCE S. STEWARD, OF CHATTANOOGA, TENNESSEE.

GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 603,613, dated May 3, 1898.

Application filed February 8, 1897. Serial No. 622,424. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE S. STEWARD, of Chattanooga, in the county of Hamilton, State of Tennessee, have invented certain new and useful Improvements in Gas-Burners, of which the following is a complete specification, reference being had to the accompanying drawings.

The object of my invention is to produce an improved burner for use in connection with gases that are rich in carbon—for example, acetylene gas. In the use of acetylene gas, for example, it is found that if the flame from the gas impinges at any point, as at its base, against the burner or burner-tip it will at that point create a deposit of carbon, which in a very short time will choke the burner and destroy or impair the efficiency of the flame as a means of illumination. A burner having two branches with oppositely-discharging tips has long been well known in the art, but owing to the contractility and expansibility of metal and the necessity of causing the tips to discharge directly and accurately against each other at a fixed angle such burners have been found to be impracticable.

My invention consists in producing a burner having isolated oppositely-discharging tips, the parts subjected to heat being composed entirely of steatite, which, being insusceptible to contraction and expansion under changes of temperature, is well adapted for the purpose.

In the accompanying drawings, Figure I is a perspective view of my burner complete. Fig. II is a central vertical section thereof, showing an edge view of the flame as in use. Fig. III is a side elevation of my burner, with the upper part in section and the flame in side elevation. Fig. IV is a view similar to Fig. I, showing the location of the flame upon the burner when lighted. Fig. V is a fragmental sectional view of a portion of the subject-matter of Fig. I, showing one of the adjustable tips secured in position upon the burner.

Referring to the figures on the drawings, 1 indicates the barrel of a burner, of any ordinary and suitable construction, provided with interior screw-threads 2, as usual, for attach-

ing it to a gas-pipe. It may be provided in its interior with an ordinary strainer 3.

The parts above described being of ordinary construction are illustrated only for the purpose of more fully explaining my present invention.

4 indicates the outer shell or bulb of my burner, which may be of any suitable shape, size, and dimensions, the scale upon which the drawing is made being somewhat greater than that upon which the parts are constructed in actual use.

The bulb 4 is provided with a depending neck 5, that fits snugly within the barrel 1, as illustrated in Fig. II, after the manner of the ordinary burner-tip.

Within the bulb 4 is provided a bowl 6, having an interior concavity 7. Between the outer wall of the bowl 6 and the inner wall of the bulb 4 the interior cavity 8 of the burner extends up, as indicated at 9, nearly to the top of the burner. I prefer to make the neck 5, the bulb 4, and the bowl 6 of a single piece of steatite.

I form the cavity 8, extending as far as the point 9, for example, by the use of a suitable tool designed for the purpose, the cavity being formed, of course, before the steatite is hardened.

Projecting from opposite walls of the bowl 6 within its concavity 7 I provide orifices 10, defined, as to their exterior, as by isolated tips 11. By "isolated tips" I mean tips whose discharge ends are separated from the wall from which they project, so that a flame 12 formed midway between them by the impinging or separate jets 13 of gas shall be elevated in mid-air, the concavity 7 of the bowl 6 constituting a free open space underneath the flame, within which any carbon that may be deposited from the flame will be collected, but which will prevent the deposit of the carbon upon any part of the burner contiguous to the tips 11.

The tips 11 may be made of one piece with the burner, as illustrated in Fig. II, or they may be made separately and adjustably, as indicated in Fig. I, and secured in place, as by a plastic cement composed of steatite.

The cavity 8, extending within the bulb 4 around the bowl 6, is closed at its upper end

by the meeting of the walls of the shell or bulb and of the bowl, and constitutes a regenerating-chamber, within which the contained gas is subjected to great heat through
5 contact with the walls of the burner, heated by the flame which it sustains.

While for reasons already specified I prefer to use steatite or so-called "lava," I do not propose under all conditions to use that material
10 exclusively, but may employ porcelain or any other vitreous heat-resisting material or even metal.

What I claim is—

1. A gas-burner comprising an outer shell,
15 a bowl within the shell, a gas-cavity between the walls of the shell and the bowl, closed at the top by the meeting of such walls, and oppositely-discharging orifices extending from the cavity through the wall of the bowl, and de-
20 fined by isolated tips projecting from the wall of the bowl, substantially as set forth.

2. A gas-burner comprising an outer shell, a bowl within the shell, a gas-cavity between the walls of the shell and of the bowl closed
25 at the top by the meeting of the said walls, and isolated, adjustable burner-tips projecting toward each other from the wall of the bowl, the orifices through the tips communicating with the gas-cavity, substantially as
30 set forth.

3. A gas-burner comprising an outer shell,

a bowl within the shell, a gas-cavity between the walls of the shell and of the bowl, closed at the top by the meeting of such walls, and oppositely-discharging gas-orifices from the
3 said gas-cavity, extending through the wall of the bowl and discharging above the bottom of its concavity, whereby there is a free open space below the flame, and any carbon which may be deposited from the flame will
4 collect in the bowl, substantially as set forth.

4. A gas-burner composed entirely of steatite, comprising an outer shell, a bowl contained therein, a gas-cavity between the shell and the bowl, closed at its upper end by the
4 meeting of the walls of the bowl and the shell, and means for egress of the gas through the wall of the bowl, substantially as set forth.

5. A gas-burner composed entirely of steatite, comprising an outer shell, a bowl with-
5 in the shell, a gas-cavity between the shell and the bowl, closed at its upper end by the meeting of the walls of the bowl and the shell, and oppositely-discharging orifices for the gas, defined by isolated tips projecting from
5 the wall of the bowl, substantially as set forth.

In testimony of all which I have hereunto subscribed my name.

CLARENCE S. STEWARD.

Witnesses:

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