F. A. SEAVER.

GAS-BURNER.

No. 181,485. Patented Aug. 22, 1876.

Fig. 1.

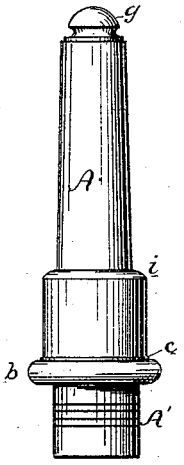


Fig. 2.

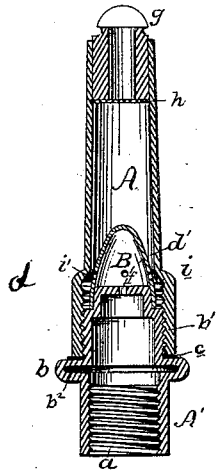
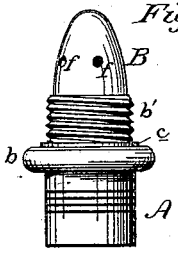


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERICK A. SEAVER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN GAS-BURNERS.

Specification forming part of Letters Patent No. **181,485**, dated August 22, 1876; application filed August 16, 1876.

To all whom it may concern:

Be it known that I, FREDERICK A. SEAVER, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Gas-Burners; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object I have in view is an improvement in the gas-burner for which Letters Patent of the United States, numbered 177,285, were granted to Silas C. Salisbury, May 9, 1876, with a view to make the same cheaper at first cost, simpler in construction, and less liable to get out of order in transportation and in use; and my invention therein consists, mainly, in dispensing with the wire described in such Letters Patent, which served as a guide and stop in the movements of the cap-valve, and also in slight modifications of construction rendered essential by the removal of the wire before named. I have found, after a large use of the burner as described in the Letters Patent referred to, that in the jarring and rough handling of the burners in transportation, and in placing them in position, and in actual use, when the flow of gas was occasionally under excessive pressure, the valve would sometimes jam or stick fast, and cease to act effectively, as was intended. I have also found, after full experiment and trial, that the above disadvantages may be overcome without loss of effectiveness in the burner, and at a cheaper cost of manufacture, by dispensing with the wire above referred to, and by some modifications of construction, which will be hereinafter described.

To enable others skilled in the art to manufacture my device, I describe the same in connection with the drawings, in which—

Figure 1 is a side elevation of the burner; Fig. 2, a central vertical section of the same; and Fig. 3 a separate view of the lower part of the burner, a part of the valve being broken away to show the course of the gas.

Like letters denote corresponding parts in each figure.

The shell of the burner is constructed in two parts, upper and lower, A A′. The lower part A′ has the ordinary open screw-threaded end *a*, to be attached to the end of the proper pipe. This lower part is provided with an outwardly-projecting ring, forming a shoulder, *b*, above which the part is screw-threaded, as shown by b^1. The inner side of this shoulder forms an expansion-chamber, b^2. The lower end of the upper part A of the burner engages with the screw-thread b^1, a small packing-ring, *c*, of paper or other material, being placed on the shoulder *b* to make a gas-tight joint. Above the screw-thread b^1 the part A′ is contracted at *d*, and closes the hollow interior. One or more holes, *d′*, are made centrally through the top of the contracted end *d*. Over this contracted end *d* loosely rests a conical-shaped cap-valve, B. The cap-valve is provided with a series of holes, *f*, in its sides, and is closed at its top. The upper end of the part A is tipped in any ordinary manner, it being shown as provided with a lava tip, *g*. Below the tip, inside the part A, is placed a wire-gauze diaphragm, *h*, to prevent dust from entering and clogging up the cap-valve, and also to check the current of the ascending gas. The part A, a short distance above the screw-threaded lower end, and nearly opposite the holes *f* in the valve when in position, is contracted to form on its inner side a shoulder, *i*, lessening the bore of the part A at that point. Below this shoulder *i* is an annular recess, *i′*. The valve in its extreme upward movement closes this space, its lower rim being a little greater in diameter than the interior diameter of the part A at the shoulders *i i*.

The operation of my device is as follows: The burner being placed on a lamp, the gas is turned on, and flows freely through the holes *d′ f* to the wire gauze through the same, and out of the burner. When the pressure is increased the valve B is raised, and gradually closes the extent of the space between the valve and the shoulder *i*, thus presenting the gas in a steady stream to the burner, which result is assisted by the expansion-chamber b^2.

It will be noticed that the holes in the cap-valve are pretty near the bottom of the same, and upon the same horizontal plane, and arranged opposite to each other. It follows then that the flow of gas out of the central orifice in the top of the part A impinges against the

inner top of the cap-valve, and exerts its greatest pressure at the center thereof, by means of which this valve is held balanced, the gas escaping out of the holes *f* in opposite directions assisting to maintain such balance. The result of the construction is that the flow of gas is checked, and automatically regulated by the cap-valve; then passing to the wire screen the current is entirely checked by the same. Passing through this wire screen the gas ascends through the lava tip, with no greater rapidity than is due to its being of less weight than atmospheric air, and passing out of the tip without velocity it makes a perfect union with the light-giving elements of the air, and is wholly consumed. By these means the blowing of the gas under heavy pressure, and the consequent loss of unconsumed gas, are entirely avoided, and the brilliancy of the light largely increased.

Having thus fully described my burner, and explained some of its advantages, what I claim as new therein, and desire to secure by Letters Patent, is—

The gas-burner described, having, in combination, the perforated valve B, the expansion-chamber b^2, and the wire gauze *h*, substantially as and for the purposes described.

This specification signed and witnessed this 15th day of August, 1876.

FREDERICK A. SEAVER.

Witnesses:

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SETH C. WALKER.