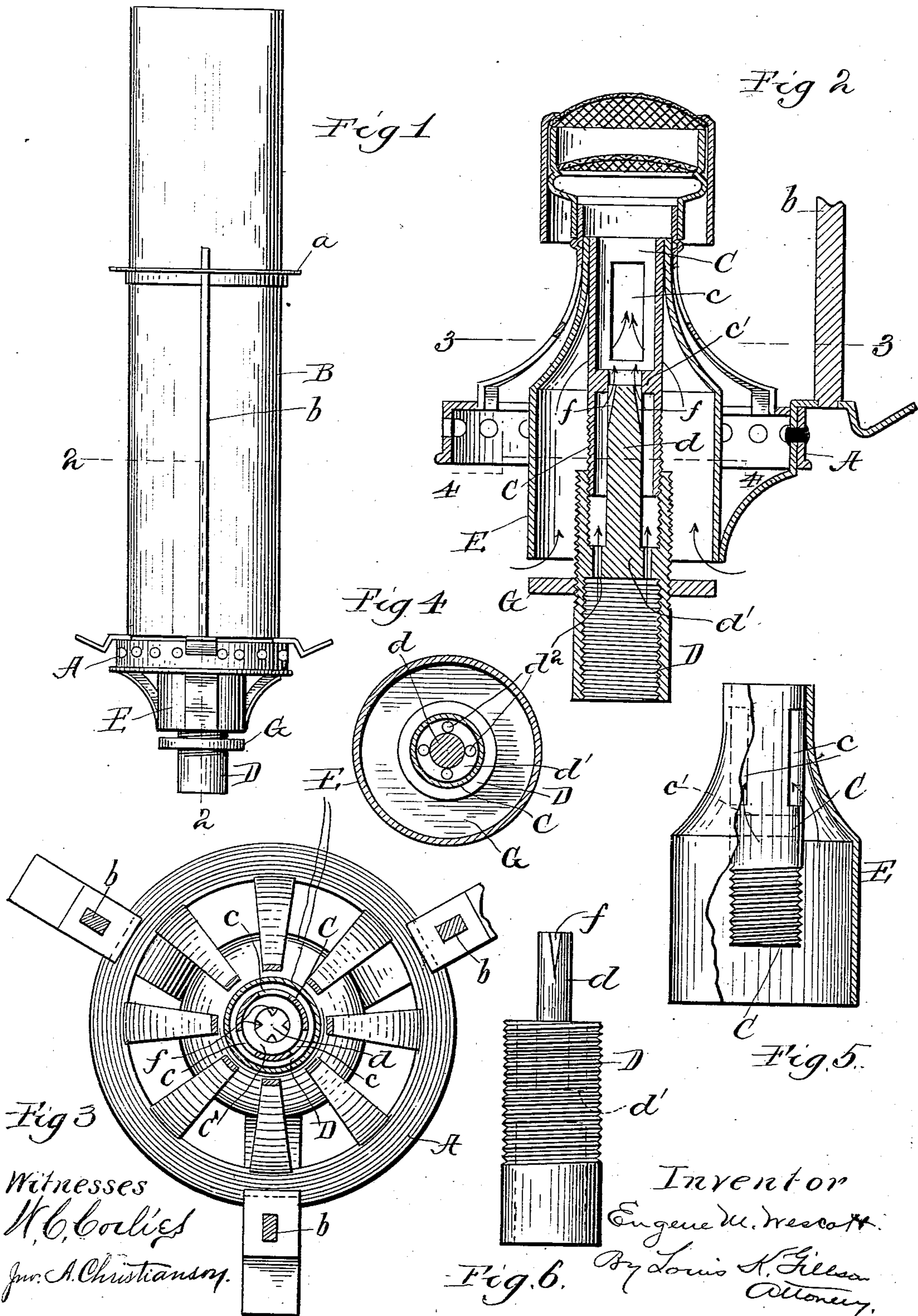


(No Model.)

E. M. WESCOTT.  
GAS BURNER.

No. 555,141.

Patented Feb. 25, 1896.





# UNITED STATES PATENT OFFICE.

EUGENE M. WESCOTT, OF CHICAGO, ILLINOIS.

## GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 555,141, dated February 25, 1896.

Application filed September 3, 1895. Serial No. 561,382. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE M. WESCOTT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Burners; and I do 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 the letters of reference marked thereon, which form a part of this specification.

The invention relates more particularly to the application of the Bunsen burner to gas-lamps, especially of the class known as the "Welsbach incandescent gas-lamp," in which the flame is located within a non-combustible mantle which is rendered incandescent.

The object of the invention is to adapt such burner for the use of hydrocarbon gas, as well as to increase its efficiency when gas of greater buoyancy is used.

The invention consists in forming the mixing-chamber in the upper end of the Bunsen tube so that it is not necessary to raise a heavy gas any considerable distance after it is freed from the direct pressure within the service-pipes.

It consists further in a peculiar form of regulating-valve for controlling the delivery of the gas into the mixing-chamber of the Bunsen tube, whereby the advantage is secured of discharging the gas in a number of fine jets, and consequently with very considerable velocity, the discharge-apertures being of such form that their area may be varied at pleasure.

It consists further of means for varying the air-supply as the flow of gas is varied.

In illustrating my invention I show in Figure 1 an elevation of the burner complete and ready for use; Fig. 2, a central vertical section on the line 2 2 of Fig. 1; Fig. 3, a plan section on the line 3 3 of Fig. 2; Fig. 4, a plan section on the line 4 4 of Fig. 2; Fig. 5, a detail of the burner, partly in section; Fig. 6, a detail of the governing-valve.

In burners of this character it is necessary that the gas be discharged into the mixing-chamber with considerable velocity to produce the necessary suction to draw in the air.

In order to secure this velocity it has been the practice to introduce the gas in one or more jets, using a tube with a closed end and puncturing the end to admit the required quantity of gas. If the quantity of gas was found to be too small more was secured either by increasing the size or number of the holes. If the quantity proved to be too great it was reduced by plugging one or more of the holes or reducing their area.

In my improved burner I secure the requisite velocity and provide means for complete control of the quantity of gas by the use of a plug-valve having ports in the form of grooves running back from its end and diminishing in area until they run to the surface. By withdrawing this valve from its seat these ports are gradually opened.

It has been found impracticable to use hydrocarbon gas in a burner of this kind except under great pressure, for the reason that this gas is too heavy to rise in the tube and must be forced out. By placing the mixing-chamber in the upper end of the tube I avoid forming this long column of free gas and throw the jets beyond the mouth of the tube.

The outer frame of my burner may be of the usual construction, as shown at A, and carry a chimney B and a shade-support *a*. At *b* I show the rod used in burners of this type for supporting the non-combustible mantle. The upper end of the Bunsen tube C is secured within the frame of the lamp, and its air-ports *c* are located adjacent to such end, the air being conducted to these ports by a tubular casing E extending downwardly and open at its lower end. A transverse partition *c'* is located within the tube C immediately below the ports *c* and is centrally apertured. The lower end of the tube C is externally screw-threaded, as shown.

A nipple D, internally screw-threaded from both ends to adapt it to the tube C and for attachment to the gas-fixture, has a partition *d'* crossing it intermediate of its ends, which carries a stem *d* projecting beyond the upper end of the nipple and adapted to enter the aperture in the partition *c'* in the tube C and form therewith a gas-tight joint. The stem *d* is of less diameter than the interior of the tube D, and around it the partition *d'* is perforated, as indicated at *d''*, for the free pas-



sage of the gas. A plurality of small grooves are cut in the sides of the stem *d*, starting from its upper end and tapering downwardly until they run out or disappear.

5 The nipple D should be secured firmly to the gas-fixture, so that when the burner is turned the tube C will turn within this nipple, thus raising and lowering the partition *c'* with reference to the end of the stem *d*.  
10 By turning the tube C down into the nipple D from the position shown in Fig. 2 the grooves *f* are closed, and in this manner the quantity of gas delivered can be accurately and easily regulated.

15 A collar G is fitted upon the nipple D, preferably screw-threaded thereon, for convenience of vertical adjustment, and has an external diameter equal to that of the casing E. The collar may be so adjusted upon the nipple D that as the tube C is turned down the casing E will approach it sufficiently to cut  
20 off or materially reduce the air entering it. By this means both the air and gas supply can be regulated by simply turning the burner  
25 around.

I claim as my invention—

1. In an incandescent gas-lamp the combination with a frame, a transparent chimney,  
30 a non-combustible mantle within the chimney, and a gauze burner within the mantle, of a Bunsen tube discharging immediately below the gauze burner and having its gas and air induct. ports exclusively at its upper end, substantially as described and for  
35 the purpose specified.

2. In an incandescent gas-lamp the combination with an attaching-nipple and a Bunsen tube screwed into the nipple and having a centrally-apertured transverse partition, of a plug-valve, having side ports tapering back  
40 from its end, set centrally in the nipple and adapted to close the aperture in the Bunsen-tube partition, a casing secured to the tube and inclosing its air-ports and having its lower end open, and a collar mounted upon the nipple  
45 and adapted to close the open end of the casing when the tube is turned down into the nipple, the several parts being so proportioned that when the ports of the plug-valve are fully open the casing is sufficiently re-  
50 moved from the collar to admit a full supply of air, substantially as described and for the purpose specified.

3. In a Bunsen burner the combination with an attaching-nipple having a centrally-  
55 projecting stem with longitudinal tapering groove-ports extending backwardly from its end, of a Bunsen tube having a transverse partition with a central aperture adapted to the end of the stem, said tube being in screw-  
60 threaded engagement with the nipple, substantially as described and for the purpose specified.

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

EUGENE M. WESCOTT.

Witnesses:

LOUIS K. GILLSON,  
MILO B. GILLSON.