

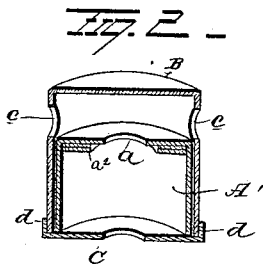
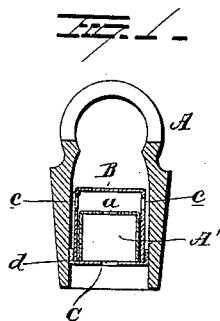
(No Model.)

W. M. JACKSON.

BURNER TIP.

No. 381,379.

Patented Apr. 17, 1888.



Witnesses,  
*G. F. Downing*  
*J. C. Jones*

Inventor,  
*Walter M. Jackson*

By his Attorney,  
*H. A. Symonds*

# UNITED STATES PATENT OFFICE.

WALTER MARSH JACKSON, OF NEW YORK, N. Y., ASSIGNOR TO THE GAS CONSUMERS BENEFIT COMPANY OF THE UNITED STATES, OF SAME PLACE.

## BURNER-TIP.

SPECIFICATION forming part of Letters Patent No. 381,379, dated April 17, 1888.

Application filed November 1, 1886. Serial No. 217,653. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER MARSH JACKSON, of New York, in the county of New York and State of New York, have invented certain  
5 new and useful Improvements in Burner-Tips; 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  
10 same.

My invention relates to an improvement in burner-tips, the object of the same being to provide a burner-tip with a gas-regulating device therein, whereby the regulator can be applied to a gas-burner without removing the  
15 pillar from the fixture.

With this end in view my invention consists in the parts and combinations of parts, as will be more fully described, and pointed out  
20 in the claim.

In the accompanying drawings, Figure 1 is a view in section of an ordinary burner-tip embodying my invention, and Fig. 2 is an enlarged view of the regulator detached.

25 In the construction represented in Fig. 1, A represents a gas-tip of the ordinary construction; and B is the regulator, consisting, essentially, of the hollow cylinder A', open at one end and closed at the other, the cylinder B,  
30 also open at one end and closed at the other, and the base or disk C, which is preferably flat and provided at its periphery with an upwardly-turned flange within which the open end of cylinder B snugly fits, forming a gas-  
35 tight joint.

The cylinder A', while it can be made of thin metal covered with paper, is preferably constructed wholly out of smooth hard paper, and is provided with an opening, *a*, formed at or  
40 approximately at the center of said closed end. This opening *a* is of a size sufficient to pass the desired or predetermined quantity of gas to be consumed under the lowest pressure established as a standard of commencement of regulation—say, four-tenths of an inch water-pressure.  
45 Under such conditions the hole *a* would be about one-sixteenth of an inch in diameter for five feet of gas of about six hundred specific gravity—large holes for more gas and  
50 smaller holes for less gas.

The cylinder B, which, as before stated, is closed at one end and open at the other, is also constructed of paper or of metal lined with paper, and is provided at a point near its upper or closed end with one or more (preferably a  
55 series) holes or openings, *c*, the gas-delivering capacity of which is greater than the hole *a* in cylinder A'. Thus if cylinder A' has a hole one-sixteenth of an inch in diameter, cylinder B will have a single hole larger, or  
60 two holes the aggregate capacities of which will be greater than the hole *a*; or the holes *c* may be made in the side of cylinder B near its top.

The base or disk C is preferably flat and provided at its outer edge with an upwardly-turned flange, *d*. This disk is also provided with a centrally-located opening of a size sufficient to pass any quantity of gas desired under the low standard of pressure.  
70

The three parts above described constitute the regulator, and are assembled as follows: The cylinder A' is placed within the cylinder B and is locked to disk C by forcing the open end of cylinder B down within the flange *d*,  
75 forming a gas-tight joint. The cylinder A' is shorter than cylinder B and of less diameter, and when the cylinder A', which is free to rise and fall, is resting on the disk C the upper end thereof reaches the bottom or lower edge of  
80 the holes when in the side of cylinder B and falls short of the holes *a* when located in the top.

The device as thus constructed is placed within a common burner-tip, fitting the tip  
85 gas-tight at the point of contact with the flange *d*. The tip is now ready to be inserted in the pillar. As the gas rushes into the pillar, it cannot pass by the flange *d*, but is forced to enter through the hole in disk C, where it comes  
90 in contact with cylinder A'. The gas then passes through the hole in the closed head thereof and escapes through the holes in the side or top of cylinder B. If the gas-pressure be, say, four-tenths of an inch, just five cubic  
95 feet will pass per hour. If the pressure rises above this, it exerts its force against the cylinder A', which is extremely light and lifts same until the upper end of it rises above the lower edges of the side holes or near to holes *a* in the  
100

top, and consequently diminishes the quantity of gas escaping from the cylinder B by decreasing the size of the escape-openings in said cylinder. This rise and fall of the cylinder A' 5 regulates the flow of gas with great precision.

It will be seen that, inasmuch as the area of cylinder A' is increased or diminished by the size of its delivering-hole, the low point of pressure at which it commences to regulate 10 would constantly change unless some provision were made by which the dynamic condition would be unchanged. For this purpose I make the cylinder A' so that I can increase or diminish its weight at will by placing in- 15 side any suitable weight,  $a^2$ . The more gas required to be consumed the lighter the cylinder or disk A' and the less gas the heavier.

Having fully described my invention, what I claim as new, and desire to secure by Letters 20 Patent, is—

As a new article of manufacture, a regulator for gas-burners consisting of a base having an opening therein, a cylinder secured to said base and having gas-escape openings at its side, an inner cylinder open at its lower end 25 and having a gas-escape opening in its upper closed end, the latter being of less capacity than the escape-openings in the outer cylinder, and weights placed within said inner cylinder, for the purpose herein set forth. 30

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WALTER MARSH JACKSON.

Witnesses:

WILLIAM C. ADAMS,  
GEO. T. GADEN.