

(No Model.)

O. P. MOON.

DEVICE FOR REGULATING THE FLOW OF GAS OR VAPOR.

No. 562,410.

Patented June 23, 1896.

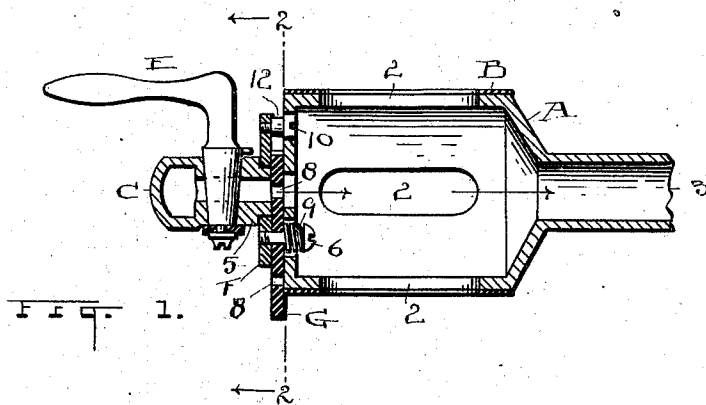


Fig. 2.

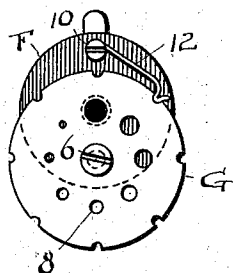


Fig. 4.

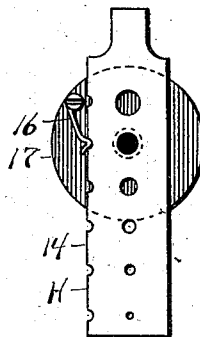
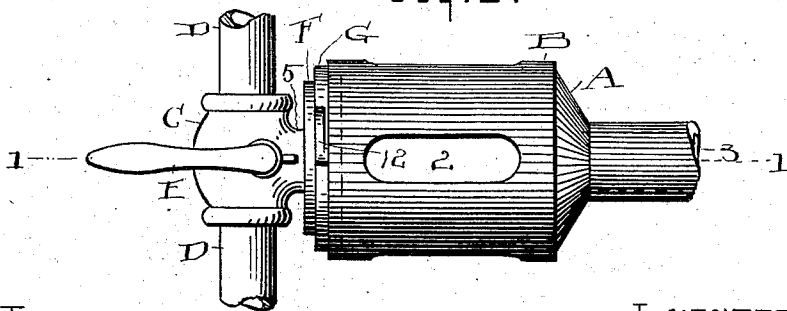


Fig. 3.



ATTEST.

W. B. Moser.
H. E. Medsall.

INVENTOR.

Orrille P. Moon

By *H. J. Fisher*

ATTY

UNITED STATES PATENT OFFICE.

ORVILLE P. MOON, OF LORAIN, OHIO.

DEVICE FOR REGULATING THE FLOW OF GAS OR VAPOR.

SPECIFICATION forming part of Letters Patent No. 562,410, dated June 23, 1896.

Application filed October 3, 1895. Serial No. 564,480. (No model.)

To all whom it may concern:

Be it known that I, ORVILLE P. MOON, a citizen of the United States, residing at Lorain, in the county of Lorain and State of Ohio, have invented certain new and useful Improvements in Devices for Regulating the Flow of Gas or Vapor, &c.; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a device for regulating the flow of gas or vapor in gas or vapor stoves, burners, and the like, and the object of the invention is to provide a device whereby the flow of gas or vapor may be limited or enlarged according to the pressure, quality, and kind of gas or vapor used.

It is well known that in any given kind of gas, as, for example, the ordinary illuminating-gas of commerce and found generally in our cities, the pressure in different cities varies, and the pressure in the same city will vary according to locality. Thus if the city be hilly, say like Cincinnati, the maximum pressure will be at the highest points in the city, and the minimum pressure at the lowest points. Material difference in operation and effect will also exist between this kind of gas and what is known as "water-gas," even under the same conditions of pressure, location, and the like. So also will there be a material difference in the case of natural gas, as compared with either of the others, and this again will vary in itself according to conditions of pressure and the like peculiar to each locality. It will be seen that under the widely dissimilar conditions thus met it is difficult to produce a gas or vapor burner of any certain fixed pattern and have it do equally well in all places and under all the varying circumstances of its use; yet, so far as I am aware, there has never been produced a device like the present one, which is calculated to enter between the burner and the gas or vapor supply and so regulate the flow as one gas or another is used or one condition or another is met that a substantially uniform effect will be obtained in the burner or stove in all places.

Heretofore it has been customary to keep

in stock stoves or burners which each had a certain size of passage or orifice, some of one size and some of another, to be sent to this or that place according as it had high or low pressure, or one kind of gas or another, always sending such stove to a given place as was supposed to have size of orifice best suited to that particular place or use; but, obviously, that was at best a poor and unsatisfactory makeshift, as each had only one size of orifice and could not be changed, and was calculated to disparage and depreciate an otherwise good stove because the stove or burner had to take the blame of any trouble or failure in operation.

My invention has for its purpose to overcome these and kindred objections, and to provide means whereby the flow of gas or vapor shall in all cases be regulated to give the best possible effect in combustion and to wholly avoid the difficulties which different gases and localities and pressures entail, as above described.

To these ends my invention consists in the construction and combination of parts substantially as shown and described, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is longitudinal sectional elevation of a mixer and a cross-section of my improved regulating or controlling device and the valve mechanism in working relation to the mixer, the view being taken on line 1 1, Fig. 3. Fig. 2 is a plain elevation of the regulating disk or plate and the supporting-disk next to it, as shown, looking to the left from line 2 2, Fig. 1. Fig. 3 is a plan view of a mixer and my improved regulating device and the valve and pipe connections as they appear when connected up with a stove, not shown. Fig. 4 is a modification as hereinafter described.

A represents a mixer, which may be of any approved kind. As shown here, it has openings 2, and a sleeve or drum B about its body, with openings corresponding to openings 2, and adapted to be rotated to control the admission of air to the mixer. The pipe 3 goes to the burner. (Not shown.)

C is the valve-seat coupling in the gas or vapor supply pipe D, which usually runs along the front of the stove, and E is the

usual or any suitable valve for turning on and shutting off the gas. On the neck 5 of the valve-seat coupling C, through which the gas flows, is firmly fixed a disk F, and the gas-regulating disk or plate G is secured to this disk by a screw 6 passing through the center of plate G, but entering disk E somewhat near to its edge. The said regulating-plate G is free to be rotated on screw 6, and has a series of through perforations or holes 8, graduated in size from large to small, successively, in proportions about as shown in Fig. 2. These holes also are in a circle equidistant from the center of plate G, and in position to register with the gas-passage through neck 5 from the valve-coupling C to the mixer. Thus a large or small volume of gas or vapor may be allowed to pass according as one hole or another of the series 8 is in registered position. A spring 9 on screw 6 bears against the plate G to keep it close upon disk F, and the head of said screw passes into the head of the mixer, as does also the head of 10, which supports the spring-catch 12, and this makes a close fit of plate 9 on the flat head of the mixer. The spring-catch 12 engages notches in the periphery of regulating-plate G, to hold the said plate in any adjusted position.

In Fig. 4 I show one of many modifications of the invention that might be suggested, in which there is a laterally-adjustable regulating-plate H with a series of graduated openings 14 in a straight line and adapted to serve the same purpose identically as the plate G. In this case the plate H would have suitable guideways to keep it in place, and a spring 16, supported in disk 17, serves to hold said plate in adjusted position.

Obviously the details of construction herein shown and described may be considerably varied without departing from or altering the character of the invention, the main and essential feature of the invention being the plate with graduated openings to regulate the flow of gas. This plate can easily be moved so as to bring one opening or another into posi-

tion, as may be needed, and all stoves are equipped therewith.

In operation the plate G rests flush against the end of the neck 5 and the disk immediately about said neck, so that there will be no leakage of gas at this point, and also flush against the head of the mixer, and the valve or cock E is turned full open, so as to let the pressure of the gas come in full force up to the opening or orifice 8, which for the time is in registered and working relation.

The words "gas" and "vapor" as used herein are understood to be convertible and interchangeable and to mean the same thing.

What I claim is—

1. The gas-controlling mechanism described, comprising the mixing-chamber having a passage for the admission of gas into the same, and a separate movable plate provided with a series of openings of different sizes arranged across the gas-passage to said chamber, in such relation as to bring one or another of said openings into line with said passage, according as more or less flow of gas is wanted, substantially as described.

2. The combination described, consisting of the mixer, the gas-supply connections leading up to the mixer, and the regulating-plate fitting closely between said connections and the head of the mixer, and having openings of different sizes for the passage of gas, substantially as described.

3. The mixer having a passage for the gas and a flat surface about said passage, a flat-faced counter-plate and a gas-regulating plate fitting closely between said mixer and counter-plate and provided with a series of openings of different sizes and movable to bring any one of said holes into service, substantially as described.

Witness my hand to the foregoing specification on this 24th day of September, 1895.

ORVILLE P. MOON.

Witnesses:

H. T. FISHER,
H. E. MUDRA.