

No. 686,157.

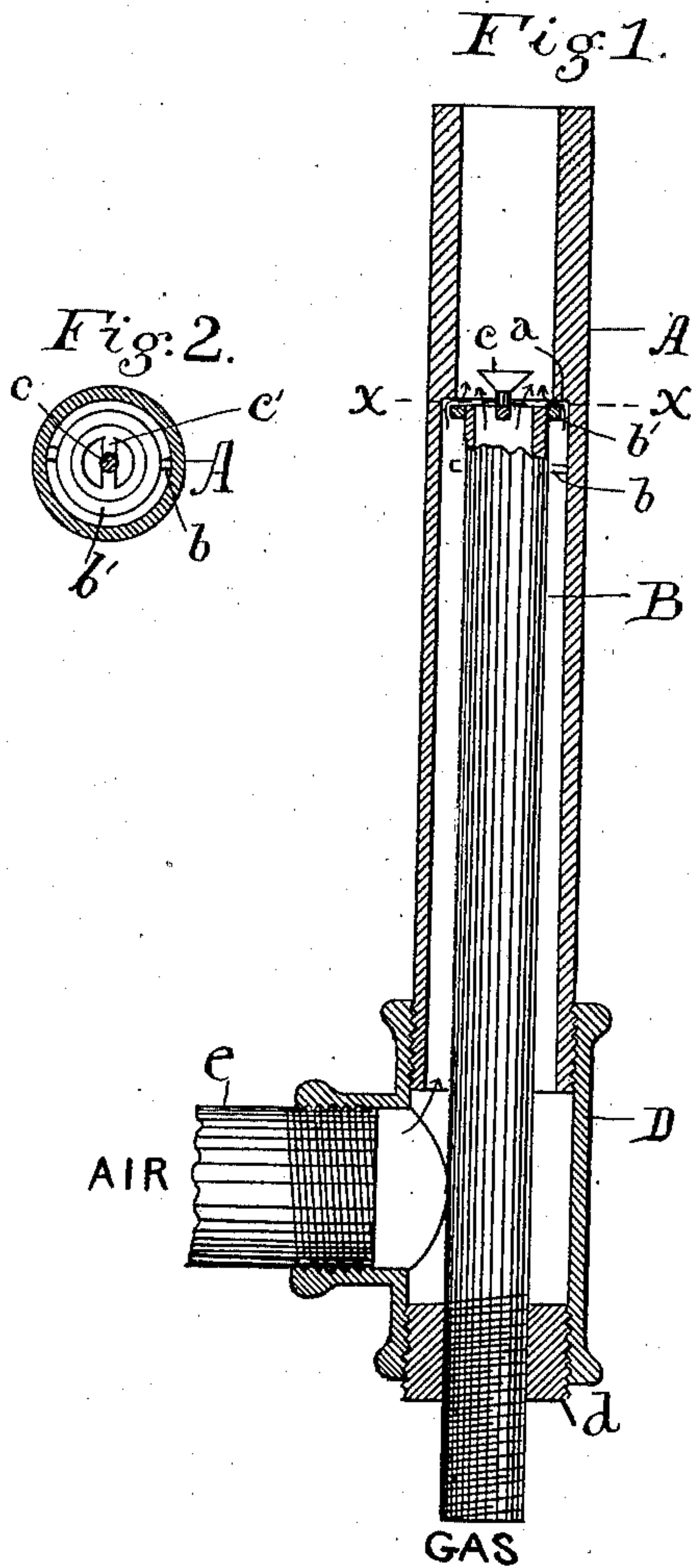
Patented Nov. 5, 1901.

A. G. SPINNEY.

GAS BURNER.

(Application filed Mar. 5, 1901.)

(No Model.)



Witnesses:  
Benj. G. Hard  
Harry B. Russ

Inventor.  
Andrew G. Spinney  
by S. W. Bates  
his Atty.

# UNITED STATES PATENT OFFICE.

ANDREW G. SPINNEY, OF PORTLAND, MAINE, ASSIGNOR OF ONE-HALF TO  
EUGENE H. YORKE, OF PORTLAND, MAINE.

## GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 686,157, dated November 5, 1901.

Application filed March 5, 1901. Serial No. 49,665. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW G. SPINNEY, a citizen of the United States of America, and a resident of Portland, Cumberland county, State of Maine, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

My invention relates to a burner for burning a gas-and-air mixture to produce a heating-flame; and the object of the invention is to produce a burner of this class which will produce an intimate mixture of the gas and air before it reaches the point where combustion takes place and one in which the relative quantity of air may be easily governed without affecting the velocity with which it comes in contact with the gas.

I illustrate my invention by means of the accompanying drawings, in which—

Figure 1 is a vertical section through my burner in the form in which I prefer to construct it, and Fig. 2 is a cross-section on the line  $x x$  of Fig. 1.

A represents the air-tube, and B is the gas-tube within the air-tube, with an annular space around it for the passage of air in sufficient quantities. These two tubes are supported in a suitable pipe coupling or connection to hold them in their proper relative position, and for this purpose I make use of a T connection D, in the branch opening of which is screwed an air-supply pipe  $e$ . The air-tube A is screwed into one of the straight openings, and in the other opening is a plug  $d$ , through which passes the gas-pipe B, which is considerably smaller than the inner diameter of the air-pipe. The upper end of the air-tube A is contracted to form a shoulder  $a$ , and the inner diameter from the shoulder up to the upper end forming a mixing-chamber, and is preferably made uniform and of course smaller than the inner diameter from the shoulder down, although this is not absolutely essential. The upper end of the gas-tube is normally adjacent to the shoulder  $a$ , so that an annular air-port is formed, through which the air flows to mix

with the gas as it flows from the upper end of the gas-tube. As here shown, the upper end of the gas-tube is expanded to form a ring  $b'$ , which is somewhat smaller in diameter than the inside of the air-tube and which comes normally just below the shoulder  $a$ . It will be seen that the size of the annular air-port may be increased or diminished by screwing the tube A up or down, and hence a ready way of adjusting the gas-and-air mixture is provided.

A spreader is provided above the upper end of the gas-tube to throw the gas outward to mix with the annular stream of air which comes in through the air-port. As here shown, the spreader  $c$  is secured to a cross-bar  $c'$  on the upper end of the gas-tube, leaving a space on each side of the bar for the passage of gas.

Means are provided, as guides  $b$ , for holding the upper end of the gas-tube in position.

The annular stream of air coming inward from the air-port at a high velocity meeting the spreading stream of gas thrown outward by the deflector form a very intimate mixture, which burns at the top with perfect combustion.

It will be understood that the gas and air pipes are both connected with a suitable source of supply under pressure.

I claim—

The herein-described gas-burner consisting of an air-tube having its upper portion contracted to form an elongated mixing-chamber with a shoulder at the lower end thereof, a connection or coupling into which said air-tube screws, a gas-tube inside of said air-tube having its upper end adjacent to and below said shoulder, and a spreader above the upper end of said gas-tube and within said mixing-chamber.

Signed at Portland, Maine, this 1st day of March, 1901.

ANDREW G. SPINNEY.

Witnesses:

S. W. BATES,  
L. M. GODFREY.