

(No Model.)

2 Sheets—Sheet 1.

A. T. BENNETT.  
GAS BURNER.

No. 493,856.

Patented Mar. 21, 1893.

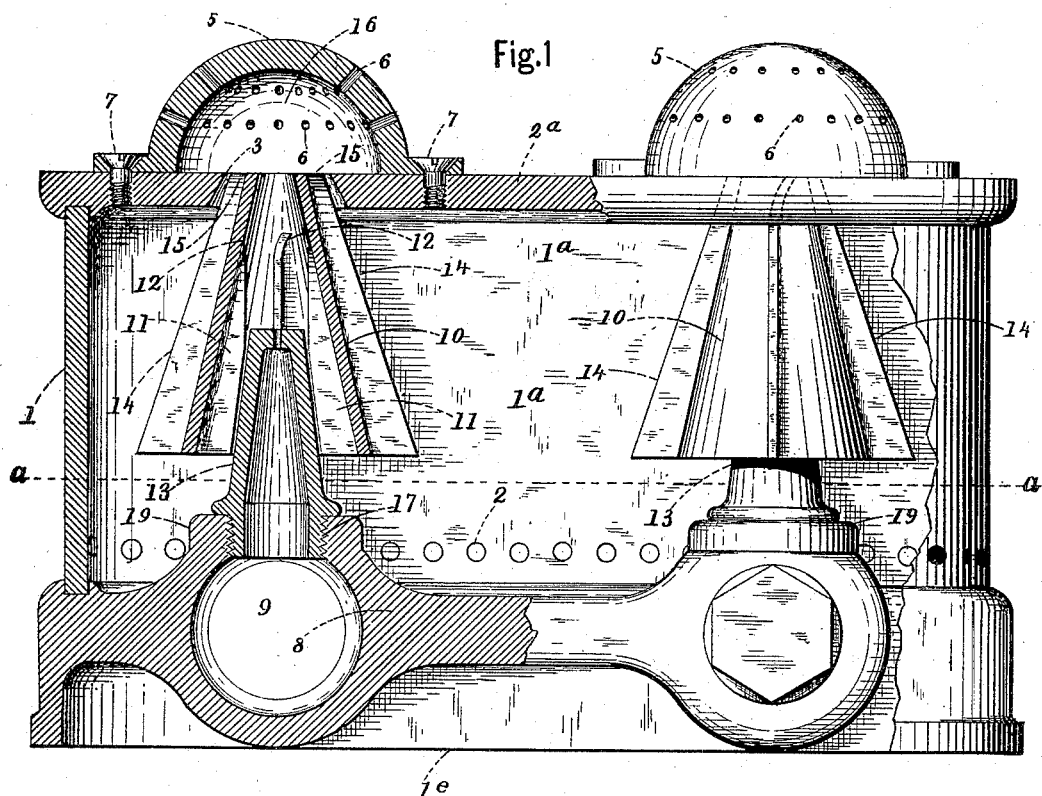


Fig.2

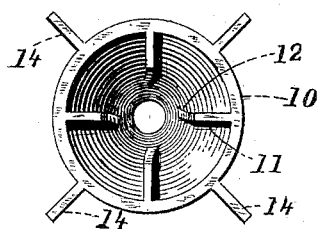
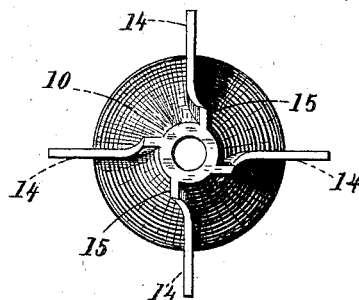


Fig.3



**Witnesses.**

Jennie M. Caldwell.  
Charles F. Sneathel.

Allan T. Bennett, Inventor.  
By James Sangster,  
Attorney.

(No Model.)

2 Sheets—Sheet 2.

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Fig.4.

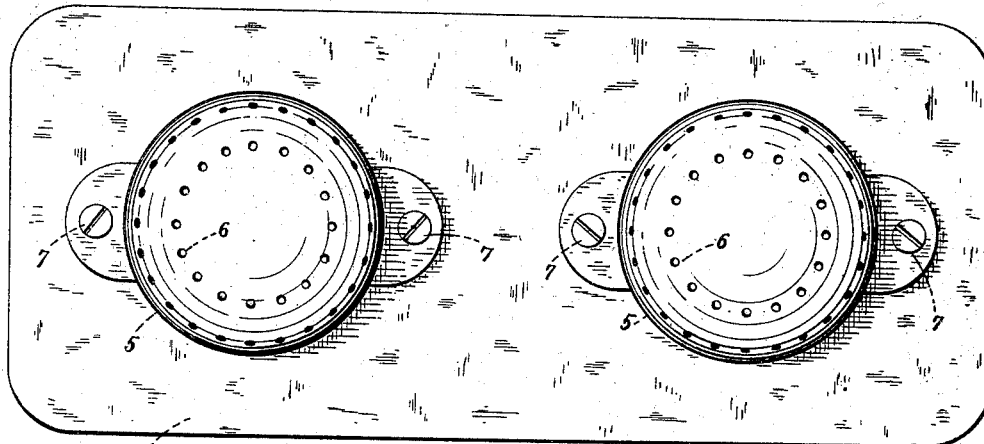


Fig.5.

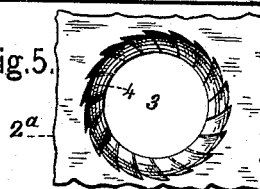
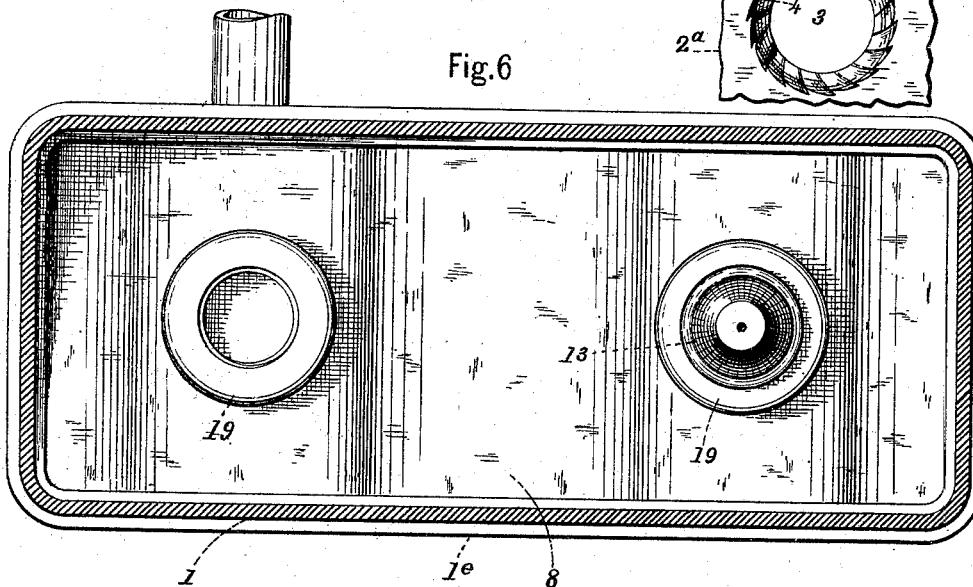


Fig.6



Witnesses.

*Jennie M. Caldwell.*  
*Charles. S. Nechtel.*

*Allan T. Bennett, Inventor.*  
*By James Sangster*  
*Attorney.*

# UNITED STATES PATENT OFFICE.

ALLAN T. BENNETT, OF CHICAGO, ILLINOIS.

## GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 493,856, dated March 21, 1893.

Application filed April 29, 1892. Serial No. 431,129. (No model.)

*To all whom it may concern:*

Be it known that I, ALLAN T. BENNETT, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gas-Burners for Heating Purposes, of which the following is a specification.

My invention relates to certain improvements in gas burners for heating purposes and will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a sectional elevation, enough being broken away in the section to show the gas chamber, a central section through one of the burners, the burner sleeve and air heating and directing devices connected with it, and also the perforated cap of the mixing chamber. Fig. 2 is a detached under side view of the burner sleeve, showing its several connecting parts. Fig. 3 is a detached top view of the said sleeve. Fig. 4 is a plan view of the burner complete. Fig. 5 is an underside view of the burner plate, showing the form of the opening through which the air passes. Fig. 6 is a horizontal section through the case in line *a a*, Fig. 1, one of the gas burners being omitted and a top view of the other being shown.

The burner inclosing case, 1, is preferably made of cast iron but may be constructed of any well known suitable material, it is provided with a series of perforations, 2, to admit air. The top or burner plate, 2<sup>a</sup>, is made easily removable and is provided with openings, 3, having inclined corrugations, 4, the object of which is to give the air a rotary motion as it passes up into the perforated burner cap, 5. The burner cap, 5, is semispherical in form and is provided with a series of perforations, 6. It is secured in place to the burner plate, 2<sup>a</sup>, by means of the screws, 7.

At the base, 1<sup>o</sup>, of the case, 1, is the gas receiver, 8, this gas receiver forms the base of the device.

The openings, 9, through which the gas is introduced to the burners, are formed in the base when it is cast by means of the well known core used in the mold for that purpose.

The hollow tapering sleeve, 10, is provided with inward projecting rib portions, 11, each of which is curved or inclined sidewise at the top as at 12, in Figs. 1 and 2. The object of this is to provide the means for causing the air and gas to rotate as they pass up through the sleeve and therefore more intimately mix the air and gas. A further object of the inside projections, 11, is to provide a suitable means for centrally attaching the tapering sleeve to the burner, 13, the inside edges of the inner projecting rib portions, or wings, being of the same taper so as to correspond with and fit the tapering sides of the burner to which it is attached. A further object of this construction is to present a greater surface for heating the air and also the products of combustion from the burner 13, as it passes up through the sleeve. On the outside of the sleeve, 10, is another series of wings, 14, which radiate outward, see Figs. 1—2 and 3. At the top, 15, these wings are each deflected or curved to one side for the purpose of causing the air as it passes up outside of the sleeve to rotate and thereby more thoroughly mingle and mix with the gas and air within the burner cap chamber 18, see Fig. 1. A further object of the wings, 14, is to extend the heating surface and thereby increase the heat of the air as it passes up from the first air chamber, 1<sup>a</sup>, into the second air and gas mixing and combustion chamber, 16. This sleeve, 10, is preferably constructed of copper or brass as it receives the heat better, but it may be made of cast iron or other suitable material. The gas burner, 13, may also be made of copper, brass or iron, it is provided with a screw portion, 17, adapted to fit the screw thread in the opening, 18, in the top 19, of the base plate.

The advantage of this construction is that the air and gas are more highly heated as it passes from the first chamber. It is also given a rotative motion so that the gas and air are more intimately mingled and mixed together, consequently the combustion being more perfect a greater amount of heat is generated by a given quantity of gas.

If it is desired that the heating surface should be increased without rotating the air

or gas, the deflecting or curved tops of the wings, either inside or outside or both, may be dispensed with or if desired the outside wings may be omitted, but I do not think the operation would be as good.

I claim as my invention—

1. In a burner for heating purposes, the combination with a burner inclosing case having an upper combustion and mixing chamber, and a lower air chamber, a gas burner located in the lower chamber, a sleeve provided with inner projecting ribs by which it is kept central on the burner and having their top ends incline over to one side for the purpose of heating and causing a rotation of the air as it issues from the sleeve, and the products of combustion from the burner, outside wings radially projecting from the sleeve and having their tops inclined to one side to heat and cause a rotation of the air as it passes up from the lower chamber, a burner plate secured to the top of the case and having a hollow perforated burner secured at the top and inclos-

ing the mixing and combustion chamber, for the purposes described.

2. A gas burner for heating purposes, having a tapering sleeve mounted thereon, a series of ribs on the inner and outer sides of said sleeve having their upper ends curved to one side, for increasing the heating surface and causing the air and products of combustion to rotate as they issue from the sleeve, in combination with a burner plate located at the top of the inclosing case, an opening through the burner plate having a corrugated opening into which the top of the sleeve projects, the corrugations inclining one way to assist in rotating the air and gas as they pass into said opening, and a hollow perforated burner secured to the top of the burner plate and inclosing a mixing and combustion chamber, substantially as described.

ALLAN T. BENNETT.

Witnesses:

JENNIE M. CALDWELL,  
CHARLES KNECHTEL.