

# GAS BURNER.

Patented Jan. 21, 1913.

FIG. 2.

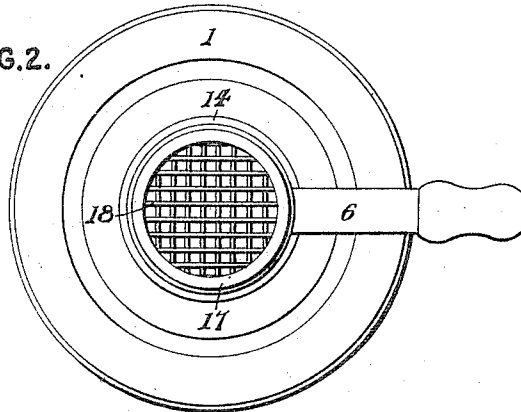


FIG. 3.

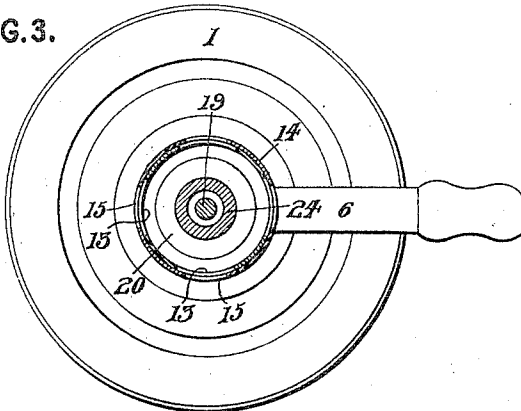


FIG.4.

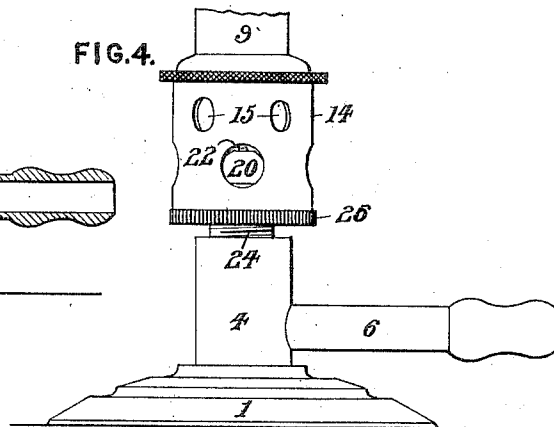
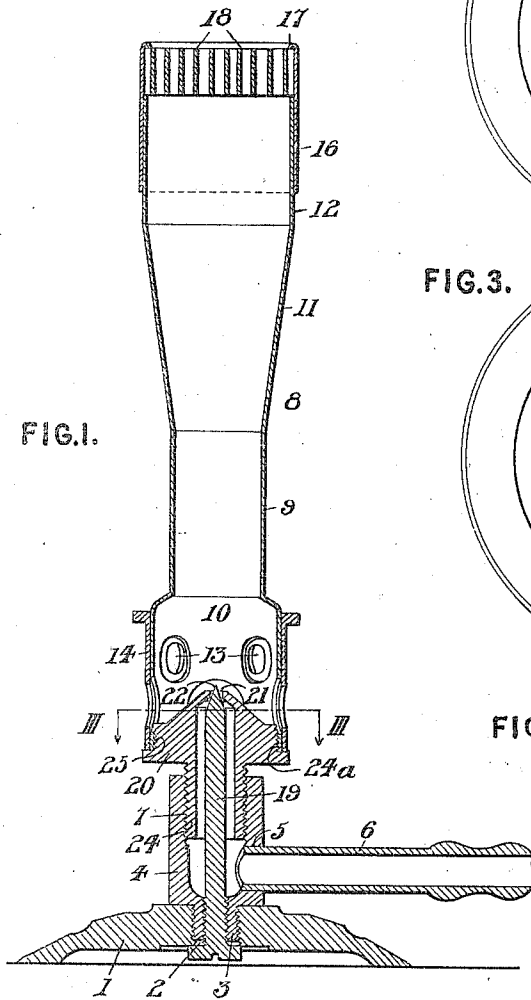


FIG. 1.



**WITNESSES**

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**INVENTOR**

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# UNITED STATES PATENT OFFICE.

EDWIN H. FISHER, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO SCIENTIFIC MATERIALS COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

GAS-BURNER.

1,051,367.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, EDWIN H. FISHER, of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

An object of my invention is to provide a new and improved gas burner designed to produce a very hot and uniform flame and capable of use with artificial, natural, or gasolene gas.

In the accompanying drawing, which illustrates an application of my invention, Figure 1 is a central vertical sectional view of a burner embodying my invention; Fig. 2, a top plan; Fig. 3, a part plan and a part sectional view, the section being taken on line III—III of Fig. 1; and Fig. 4, a side elevational view of the lower portion of the burner embodying my invention.

Referring to the drawing, 1 designates a base on which the burner is mounted. The base 1, as illustrated and as preferred, is formed with a centrally disposed opening 2 adapted to receive a threaded projection 3 of a tubular member 4 constituting a gas inlet chamber. Member 4 is provided with an opening 5 adapted to receive a gas supply pipe 6, and, in addition thereto, is provided with an internally threaded portion 7.

8 designates a hollow member constituting the mixing chamber of the burner. I have illustrated a preferred form of mixing chamber, but the form shown may be varied so long as it is such a construction that will produce a rapid flow of the mixture through the hollow member. As illustrated, the hollow member 8 comprises a straight cylindrical portion 9, an enlarged portion 10 located at the bottom thereof, and a tapering portion 11 merging into a cylindrical enlarged portion 12.

The enlarged bottom portion 10 is provided with a series of air inlet openings 13. Mounted on and surrounding the enlarged portion 10, I provide an air regulating ring 14 having a series of air inlet openings 15 adapted to register or partially register with the openings 13 of the portion 10.

Located at the upper end of hollow member 8 is a ring member 16 having a slightly inturred flange 17. Disposed within the ring member 16 and interposed be-

tween the upper end of member 8 and the flange 17 of member 16, I provide means for preventing back-firing of the flame. The means for accomplishing this end, as illustrated and preferred, comprise a metallic grid 18 having comparatively large openings for the flow of gas therethrough and also being of considerable depth.

Interposed between the member 4 and the lower end of member 8, I provide adjustable gas supply means comprising, in the form illustrated, a needle valve device. The needle valve, as illustrated, comprises a fixed needle member 19 and a revoluble member 20, the latter having a centrally disposed orifice 21 into which orifice the point 22 of the needle member is adapted to be entered. Needle member 19 is secured to and projects upwardly through member 4, and member 20 of the valve is adjustably mounted on member 4. Member 20 is provided with an externally threaded downwardly projecting portion 24 adapted to engage the internally threaded portion 7 of member 4.

The hollow member 8, constituting the mixing chamber, is mounted on and secured to member 20 of the valve device by means of an internally threaded portion 24<sup>a</sup> on the lower end thereof, said portion 24<sup>a</sup> being adapted to engage a threaded portion 25 of member 20. Member 20 is formed with an annular serrated flange 26, which is designed to support the apertured ring member 14.

The needle valve construction, controlling the flow of gas, together with the air regulating ring make it possible to so adjust the parts as to give a perfect mixture, using different kinds of gas under different conditions.

What I claim is:

1. In a gas burner, the combination with a tubular member formed with a gas inlet opening, a revoluble centrally orificed member supported by the tubular member, a fixed needle valve projecting through the tubular member and having its point entered in the centrally orificed member, a hollow elongated member constituting a mixing chamber mounted on the centrally orificed member, said elongated hollow member having enlarged upper and lower integral end portions, and a contracted intermediate portion, a grid located at the upper end of the hollow

member, a series of air openings in the enlarged lower end, and an air regulating ring surrounding the said openings.

2. In a gas burner, the combination with  
 5 a base, of a tubular member having a threaded portion entered in the base, said tubular member formed with a gas inlet opening and  
 10 an internally threaded portion, a centrally orificed member having a downwardly extending threaded portion entered in the  
 15 tubular member, a fixed needle valve projecting through the tubular member and having its point entered in the centrally orificed member, a hollow elongated member con-  
 20 stituting a mixing chamber mounted on the centrally orificed member, a grid located at the upper end of the hollow member, said mixing chamber formed at its lower end  
 with a series of air openings, and an air  
 25 regulating ring having a series of air inlet openings surrounding the lower portion of the mixing chamber.

3. In a gas burner, the combination with  
 a separable base having a central opening,  
 25 of a tubular member having a threaded por-

tion entered in the opening of the base, said tubular member formed with a gas inlet opening and an internally threaded portion, a hollow elongated member constituting a  
 30 mixing chamber, a grid located at the upper end of the hollow member, means for controlling the quantity of gas admitted to the  
 35 mixing chamber comprising a centrally orificed member having a downwardly extending threaded portion entered in the tubular  
 member and a fixed needle valve projecting  
 40 through the tubular member and having its point entered in the centrally orificed member, said mixing chamber formed at its lower  
 end with a series of openings and secured to  
 45 the centrally orificed member, and an air regulating ring having a series of air inlet openings surrounding the lower portion of the air mixing chamber.

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

EDWIN H. FISHER.

Witnesses:

A. H. McNAMEE,  
 W. G. DOOLITTLE.