No. 883,196. PATENTED MAR. 31, 1908.

H. A. B. HELANDER.

GAS BURNER.

APPLICATION FILED JULY 10, 1907.

Fig. 1.

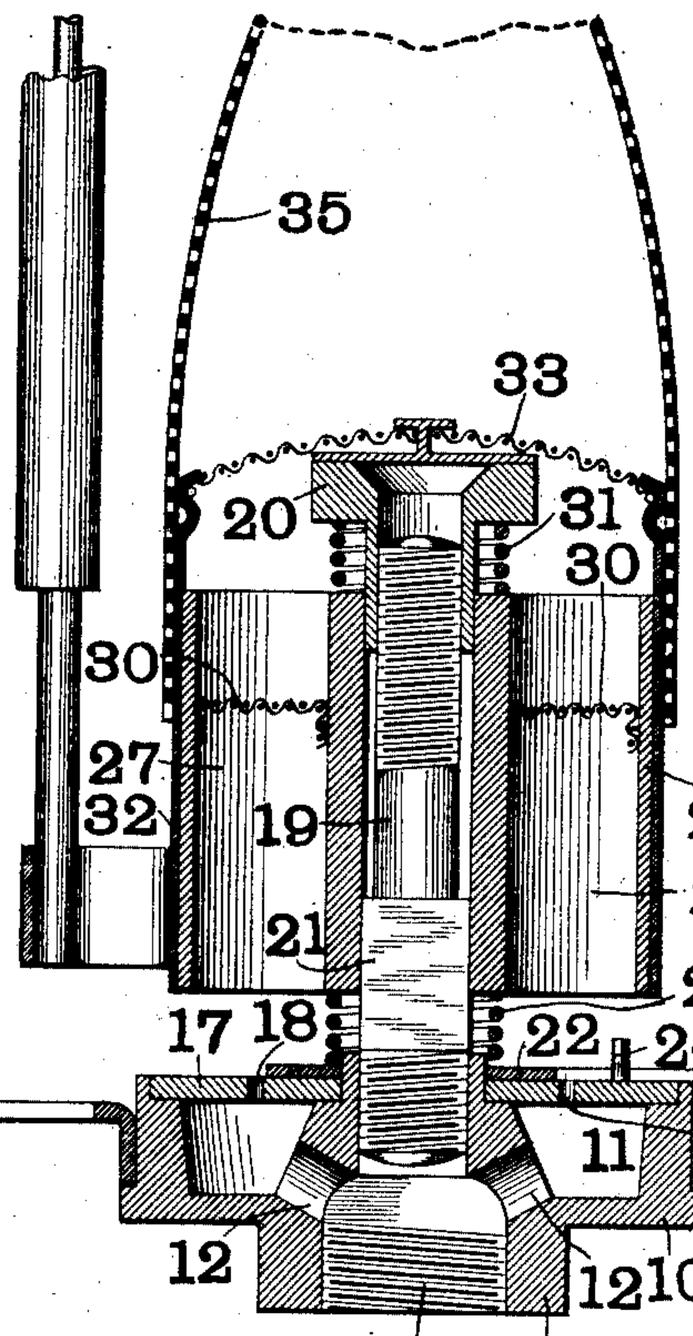


Fig. 2.

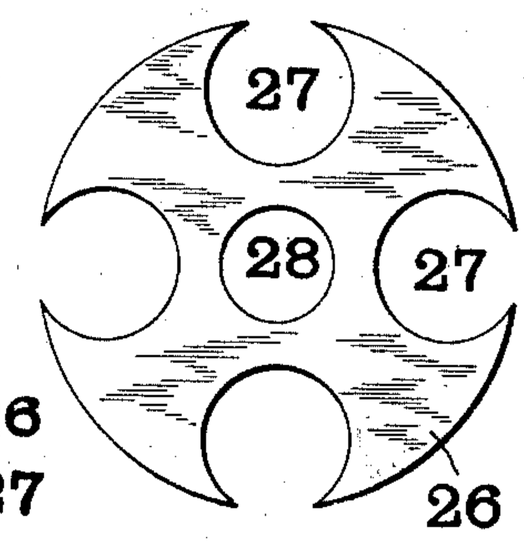


Fig. 3.

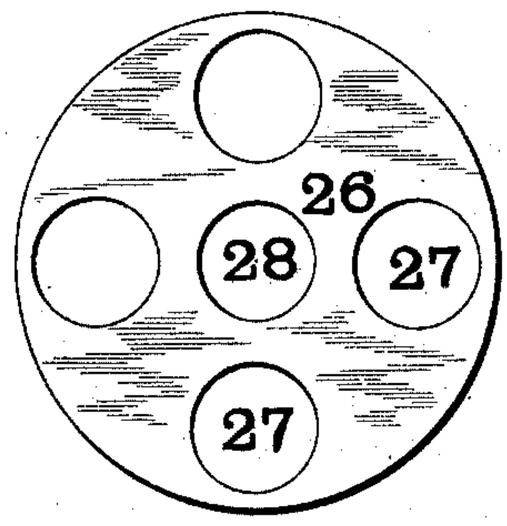


Fig. 4.

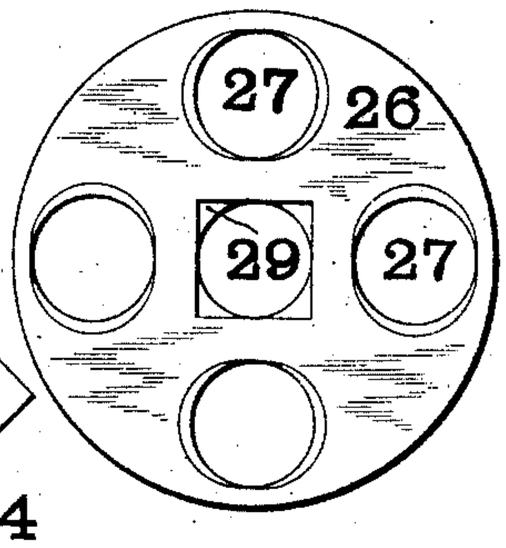
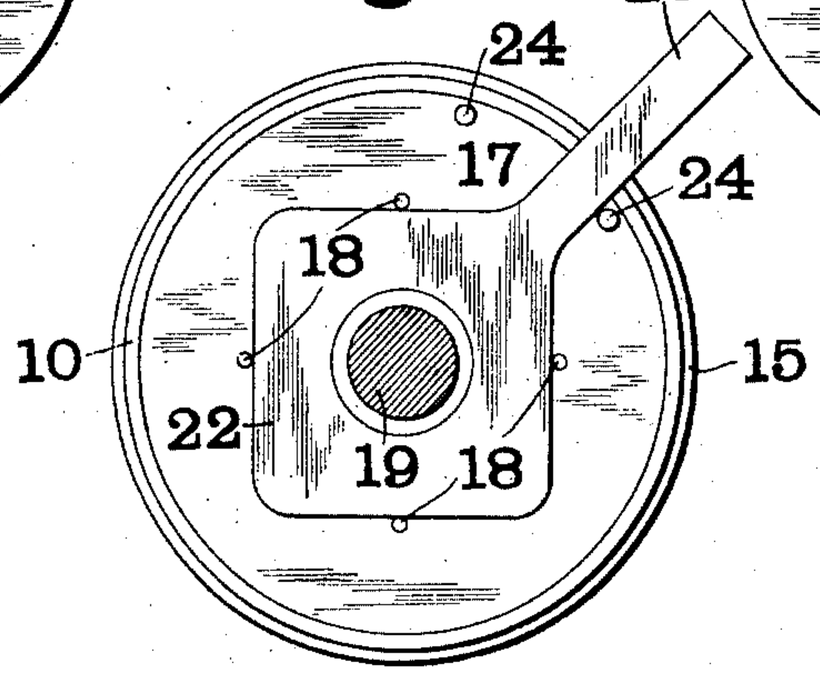


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY A. B. HELANDER, OF ST. LOUIS, MISSOURI.

GAS-BURNER.

No. 883,196. Specification of Letters Patent. Patented March 31, 1908.

Application filed July 10, 1907. Serial No. 382,981.

To all whom it may concern:

Be it known that I, HENRY A. B. HELANDER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Gas-Burner, of which the following is such a full, clear, and exact description as will enable any one skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a gas burner, and more particularly to one adapted for use in connection with an incandescent mantle for lighting purposes. It may, however, be used for various other purposes.

The object of my invention is to provide a gas burner which will be as short and compact in construction as possible and which, at the same time, will insure a thorough mixing of the air and gas so as to secure complete combustion of the gas.

In the accompanying drawings, which illustrate one form of burner made in accordance with my invention, together with a slight modification thereof, Figure 1 is a vertical central section; Fig. 2 is a top view of the member containing the mixing chambers showing a slight modification; Figs. 3 and 4 are a top and bottom view respectively of the member containing the mixing chambers and Fig. 5 is a top plan view of the base of the burner.

Like marks of reference refer to similar parts in the several views of the drawings.

10 represents the base of the burner. The base 10 is in the form of a short cylinder and has formed in it a chamber 11 which I term the distributing chamber. This chamber 11 communicates, by means of passages 12 with an opening 13 formed in a short downward extension 14. This opening 13 is internally threaded to provide means for engaging the burner with the gas pipe. The base 10 is preferably provided with a flange 15 for supporting a holder 16 for the usual shade. The top of the distributing chamber 11 is closed by means of a disk 17. This disk 17 is provided with a number of gas outlets 18. In the form of burner shown in the drawings, these outlets 18 are four in number.

19 is a stem, the lower end of which is threaded into the base 10. The upper end of the stem 19 is also threaded to engage with a nut 20, and near the lower end the stem is provided with a squared portion 21, the purpose of both of which features will be hereinafter described. Surrounding the stem 19 and bearing against the disk 17 is a regulator 22 provided with a finger piece 23. By moving the finger piece 23 the regulator 22 may be caused to partially close the openings 18 and thus reduce the flow of gas. The movement of the finger piece 23 is limited by stop pins 24 carried in the disk 17.

25 is a coil spring which surrounds the stem 19 and bears upon the regulator 22 so as to hold the said regulator firmly in contact with the disk 17.

Bearing against the upper end of the spring 25 is a member 26 in which are formed mixing chambers 27 corresponding in number and position with the gas outlets 18 hereinbefore described. The member 26 is provided with a central passage 28 through which the stem 19 extends. The lower end of this passage 28 is enlarged to form a squared portion 29 adapted to receive the squared portion 21 of the stem 19. This prevents the rotation of the member 26 and insures the proper positioning of the mixing chambers over the gas outlets 18. In each of the mixing chambers 27 is a gauze partition 30 adapted to facilitate the mixing of air and gas in the chambers 27. Bearing on the upper end of the member 26 is a coil spring 31, the upper end of which is engaged by the nut 20 hereinbefore referred to. The member 26 is thus held around the stem 19 between the coil springs 25 and 31 and consequently any jar or shock which is received by the base will be relieved by the springs and the mantle will thus be protected against breakage. 32 is the usual thimble on the mantle carrier. This thimble surrounds the member 26 and is provided at its upper end with a gauze cover 33. The thimble 32 is provided with the usual wire upright 34 carrying the mantle 35.

In Fig. 2 I have shown a slight modification which may be used when it is desired to cast the member 26. In this modification the mixing chambers 27 are only partially formed in the member 26. The thimble 32 however, will complete the formation of the walls of the mixing chambers and when assembled the structure will not materially differ from that shown in Fig. 1.

In the operation of my device, the gas passes up from the distributing chamber 11 through the openings 18 centrally into the mixing chambers 27. As the mixing cham-

ber is supported entirely from the center, there is no obstruction to the passage of air to the mixing chamber. This together with the gauze partitions 30 causes a very complete mixture of the gas and air notwithstanding the extreme shortness of the distance between the base and the top of the burner. The gas is burned above the gauze top 33 in the usual manner. As has been hereinbefore described, the spring mounting of the member 26 lessens any shock or jar communicated from the base and consequently preserves the life of the mantle 35.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In a gas burner, the combination with a base provided with a plurality of gas outlets, of a central stem carried by said base, a member provided with a plurality of mixing chambers and a central opening for said stem, and a mantle supported from said member and receiving the gas and air discharged from said mixing chambers.

2. In a gas burner, the combination with a base provided with a plurality of gas outlets, of a member centrally supported over said base and provided with a plurality of mixing chambers, a mantle arranged to receive the gas and air discharged from said mixing chambers, and means situated between said base and member for controlling the supply of gas.

3. In a gas burner, the combination with a base provided with a distributing chamber and a plurality of gas outlets, of a member provided with a plurality of mixing chambers and centrally supported above said base to leave an unobstructed peripheral air passage, a perforate partition in said mixing chambers, and a common perforate cover for all of said mixing chambers.

4. In a gas burner, the combination with a base having a plurality of gas outlets, of a member provided with a plurality of mixing chambers and a central opening, a stem carried by said base and passing through said central opening, a coil spring surrounding said stem at each end of said member, and locking means engaging the upper end of said stem.

5. In a gas burner, the combination with a base having a plurality of gas outlets, of a stem carried by said base, a controlling device for said outlets surrounding said stem, a spring surrounding said stem and resting on said controlling device, and a member provided with a plurality of mixing chambers, said member surrounding said stem and bearing on said spring.

6. In a gas burner, the combination with a base having a plurality of gas outlets, of a stem carried by said base, a controlling device for said outlets surrounding said stem, a spring surrounding said stem and bearing on said controlling device, a member provided with a plurality of mixing chambers, said member surrounding said stem and bearing on said spring, a second spring surrounding said stem and bearing on said member, and a nut on said stem for compressing said springs.

In testimony whereof, I have hereunto set my hand and affixed my seal in the presence of the two subscribing witnesses.

HENRY A. B. HELANDER. [L. S.]

Witnesses:
W. A. ALEXANDER,
MARY T. RAMSEY.