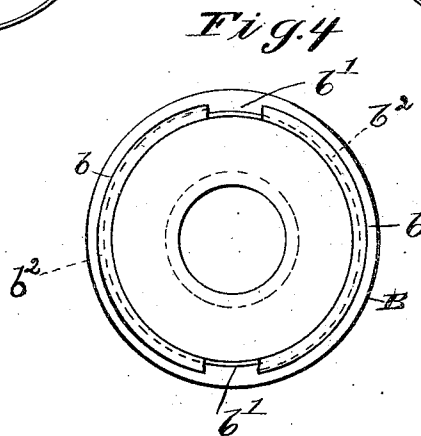
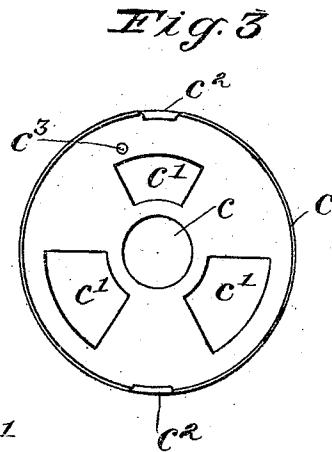
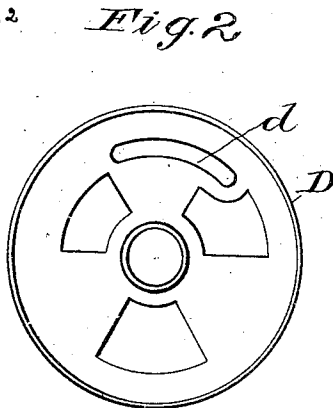
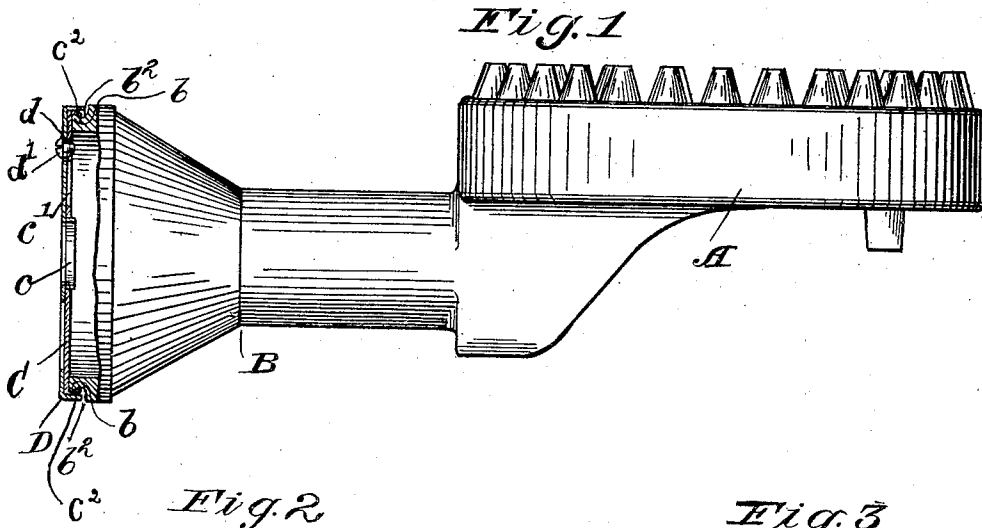


B. A. GEURINK.
MIXER FOR GAS BURNERS.
APPLICATION FILED SEPT. 23, 1909.

946,345.

Patented Jan. 11, 1910.



Witnesses:
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UNITED STATES PATENT OFFICE.

BERNARD A. GEURINK, OF EAST CLEVELAND, OHIO, ASSIGNOR TO THE TRENKAMP STOVE & MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

MIXER FOR GAS-BURNERS.

946,345.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed September 23, 1909. Serial No. 519,279.

To all whom it may concern:

Be it known that I, BERNARD A. GEURINK, a citizen of the United States, and a resident of East Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Mixers for Gas-Burners, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

My invention relates to gas burners in general, and has for a particular purpose the provision of a simpler and more economically manufactured mixing chamber.

In mixing chambers now in general use, the chamber is of tubular form and comprises a casting, in the outer end of which is a spider cast integrally with the tubular body of the chamber. A stamped plate formed with apertures adapted to register with the apertures in the spider is attached to the outer end of the chamber and is rotatable with reference to the spider. Through the center of the plate and spider are alined openings for a gas supply pipe, while the registering openings control the air supply. The difficulties in this method of construction are obvious, for to cast the body with the integral spider is a comparatively difficult piece of work, and is productive of varying results.

It is, then, the object of this invention to overcome the various difficulties attendant upon the prevailing mode of construction.

To the accomplishment of these and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the following claims.

The annexed drawing and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—Figure 1 is a side elevation, partly in section, of my improved mixing chamber connected with a burner; Fig. 2 is a plan view of the inside face of a plate entering into the construction; Fig. 3 is a plan view of the inside face of another plate entering into the construction; and Fig. 4 is an end view of the chamber alone.

The chamber, to be connected with a burner A, comprises in general a casing B which is cast without the usual spider, the outer end of the casing being open. At this end, however, is formed a raised rim *b* which is broken at diametrically opposite points *b'*, and hereafter the two spaced parts of the rim will be referred to as separate rims. Under each rim is formed a groove *b*², and these grooves are formed on circles eccentric to those of the rims, so that their depth decreases in one direction. Designed to be affixed to this open end of the chamber B, is a stamped sheet metal plate *C* which is formed with a central opening *c* for the insertion of a gas supply pipe, and with radiating apertures *c'* for the passage of air. This plate *C* is formed at its rim with two diametrically opposite inwardly bent flanges *c*². In its face near the outer edge, is a threaded hole *c*³. Designed to be attached to this plate *c* in the assembled condition of the parts is a second stamped metal plate *D* formed with apertures designed to register with the several apertures of the first plate, and with a slot *d* designed to register with the threaded hole *c*³ in the face of the first plate.

From this brief description of the parts entering into the construction of my improved mixing chamber, an understanding of the method of assembling these parts and of their mode of operation may be readily had. The first plate is attached to the chamber by placing it over the rims formed thereon, the inwardly turned flanges on the plate fitting in the openings between the spaced rims. By turning the plate in the direction of the decreasing depth of the grooves under the rims, the plate is securely locked in position. The second plate is then placed against the face of the first plate, and a screw *d'* is inserted through the slot and threaded hole. It is apparent, then, that the outer plate is attached to, but capable of limited rotation with respect to, the first plate so that the radiating apertures in the two plates may be made to register or not, or may be made to partially do so. The various advantages of my invention over the usual manner of constructing this chamber should be obvious. The chamber proper may be cast more cheaply and more uniformly because it is formed with an open end instead of with a spider. The stamping of the

first plate is a very simple and a very economical matter when compared with the cast spider, whose function it performs. It is also to be noted that the screw which is designed to limit the rotation of the second plate is now inserted through a hole which is stamped in the first plate, and then threaded, whereas in the old construction this hole had to be formed in the casting of the spider and then threaded. It is apparent, then, that by stamping both of the apertured plates from sheet metal and eliminating the necessity of a spider cast with the chamber, I obtain a better and more uniform product and yet do so more economically than it was possible to produce the former article.

Other modes of applying the principle of my invention may be used instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a device of the character described, the combination of a chamber provided with an open end and with grooves adjacent to such opening, an apertured plate covering said end and engaging said grooves, and a second apertured plate attached to the first plate and movable relatively to the first plate in a plane parallel therewith.

2. In a device of the character described, the combination of a chamber provided with an open end and with oppositely disposed grooves formed on the arcs of circles around the opening, an apertured plate covering said end and engaging said grooves, and a second apertured plate attached to the first plate and rotatable relatively thereto.

3. In a device of the character described, the combination of a chamber provided with an open end and with two oppositely dis-

posed rims formed on arcs of circles around the opening and having grooves under said rims, said grooves being eccentric to their rims, an apertured plate covering said end and provided with flanges respectively engaging said grooves, and a second apertured plate attached to the first plate and rotatable relatively thereto.

4. In a device of the character described, the combination of a chamber provided with an open end and with two oppositely disposed rims formed on arcs of circles around the opening, the ends of one rim being spaced from the ends of the other, the chamber having grooves under said rims and said grooves being eccentric to their rims, an apertured plate covering said end and provided with flanges respectively engaging said grooves, said flanges being of less length than the spaces between the ends of the rims, and a second apertured plate attached to the first plate and rotatable relatively thereto.

5. In a device of the character described, the combination of a chamber provided with an open end and with two oppositely disposed rims formed on arcs of circles around the opening, the ends of one rim being spaced from the ends of the other, the chamber having grooves under the rims and said grooves being eccentric to their rims, an apertured plate covering said end and provided with flanges respectively engaging said grooves, said flanges being of less length than the spaces between the ends of said rims, and a second apertured plate attached to the first plate and capable of limited rotation relatively thereto.

Signed by me this 18th day of September, 1909.

BERNARD A. GEURINK.

Attested by—

CHRISTINE E. ARUS,
JNO. F. OBERLIN.