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UNITED STATES PATENT OFFICE.

GUS A. PETERSON AND JESSE L. LACKETT, OF CLARKSBURG, WEST VIRGINIA.

GAS AND AIR MIXER FOR BURNERS.

959,593.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, GUS A. PETERSON and JESSE L. LACKETT, citizens of the United States, residing at Clarksburg, in the county of Harrison and State of West Virginia, have invented certain new and useful Improvements in Gas and Air Mixers for Burners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to improvements in gas and air mixers, and the object thereof is the production of a mixer for air and gas, so as to get as complete combustion as possible, and, therefore, consume the minimum amount of gas.

Another object of this invention is the production of an air and gas mixer, which is simple in construction and consists of a comparatively small number of parts.

With these and other objects in view this invention consists of certain novel constructions, combinations, and arrangements of parts as will be hereinafter fully described and claimed.

In the drawings: Figure 1 is a perspective view of the device; Fig. 2 is a longitudinal section of the same; Fig. 3 is a transverse section taken on line 3—3 of Fig. 2 looking in the direction of the arrow.

Referring to the drawings by numerals, 1 designates a primary chamber, which is provided, at its outer end, with a cap or collar 2, through which is adapted to fit a nozzle 3 for admitting gas into the primary chamber. The cap 2 and the chamber 1 are provided with apertures 4 for admitting air into the primary chamber 1. The nozzle 3 is provided with a reduced discharge end 5, which end extends longitudinally of the primary chamber 1, thereby allowing the gas to discharge therefrom about midway between the ends of the primary chamber. The nozzle 3 is also provided, at its outer end, with an enlarged end 6, which is screw-threaded upon the inside thereof and is adapted to be secured to a gas inlet. The primary chamber 1 is provided with a plurality of diverging arms 7, which are integrally connected thereto and are also integrally connected to an auxiliary chamber 8. By having the connection between the two chambers as described, it will be obvious that air can be readily admitted between the primary and auxiliary chambers and allow gas to more freely mix with the air. The auxiliary

chamber 8 is provided, on the outer surface thereof, with a longitudinally-extending slot 9 in which is adapted to fit a projection, which is formed upon a sleeve 11, which sleeve is adapted to slide upon the auxiliary chamber 8 and partly close the opening between the primary and auxiliary chambers. It will also be obvious that the pin 10 working in the groove 9 will limit the movement of said sleeve 11.

Secured within the auxiliary casing 8 intermediate the ends thereof, is a fan supporting shaft 12, which is screw-threaded, at its ends 13 upon which ends are adapted to be threaded nuts 14 for firmly securing the shaft 12 to the chamber 8. The shaft 12 is provided with an angle extension 15, which angle extension is provided intermediate its ends with an enlarged portion 16. Upon the outer end of the extension 15 is positioned a fan 17, which is held upon said outer end by means of a nut 18 threaded upon the threaded extension 19 of the integral angle extension. It will, therefore, be obvious that the fan will be securely held from displacement from the extension 15 between the nut 18 and the enlarged portion 16.

It will be noted that the present invention provides for a fan supporting means, which can be easily and quickly positioned within the auxiliary chamber 8. The nut 18 can be readily removed from the extension 19 and one of the nuts 14 can be removed from the ends 13 and when the fan 17 is removed from the angle extension 15, the whole shaft 12 can be easily removed from the casing. By a similar operation the fan and shaft can also be readily placed within the auxiliary chamber 8.

From the foregoing description, it will be readily seen that when the gas is admitted into the nozzle 6 and from there into the primary chamber 1, the gas will mix with the air, which is drawn through the apertures 4 and be forced into the auxiliary chamber 8, which will rotate the fan 17 thereby causing a better mixture in the auxiliary chamber of the gas, and the air which is drawn through the burner between the primary and auxiliary chambers.

What we claim is:

1. A gas and air mixer comprising a primary mixing chamber and an auxiliary mixing chamber, a nozzle having one end positioned in said primary chamber and extending longitudinally thereof for admit-

ting gas thereto, said primary chamber provided with means for admitting air therein, diverging arms integrally connected to said chambers for connecting the same thereby
5 forming an opening between said chambers, a sleeve slidably mounted upon said auxiliary chamber and adapted to slide thereon and partly close said opening, and a fan carried by said auxiliary chamber and
10 adapted to facilitate the mixing of the gas and air.

2. A gas and air mixer comprising a primary mixing chamber and an auxiliary mixing chamber, means secured to said primary
15 chamber for admitting gas thereto, means for admitting air to both of said chambers, a transverse rod secured in said auxiliary chamber and provided with an angle extension, said angle extension provided with an
20 enlarged portion intermediate its ends, a fan positioned upon said angle portion and engaging the outer face of said enlarged portion, and means positioned upon the outer
end of said angle portion for holding the
25 fan upon said angle portion between said enlarged portion and said last-mentioned means.

3. In a gas and air mixer the combination

with a primary and an auxiliary chamber, means for admitting gas secured thereto, 30
said chambers provided with means for admitting air therein, of a rod passing transversely through said auxiliary chamber, an extension carried by said rod, and a fan mounted upon said extension for facilitating the mixing of the gas and air in the auxiliary chamber. 35

4. A device of the class described the combination with a primary and an auxiliary chamber, a rod passing transversely through 40
said auxiliary chamber and provided with screw-threaded ends, said ends passing through the casing of said chamber, nuts threaded upon said ends for securing said rods in a set position within said chamber, 45
an integral angle extension formed upon said rod, and a fan loosely mounted upon said angle extension.

In testimony whereof we hereunto affix our signatures in presence of two witnesses. 50

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Witnesses:

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