J. NEEDHAM.

GAS MIXER.

APPLICATION FILED JAN. 8, 1921.

1,399,788. Patented Dec. 13, 1921.

FIG. 1.

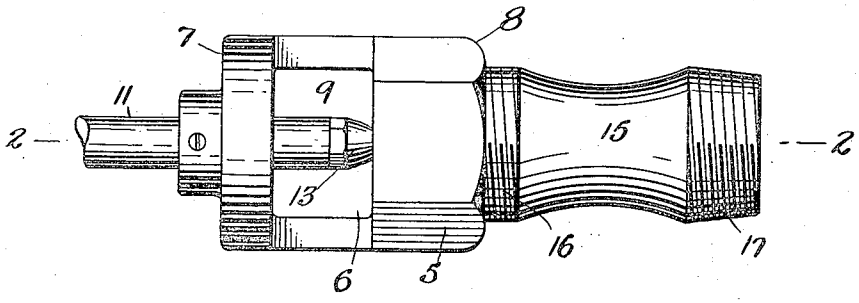
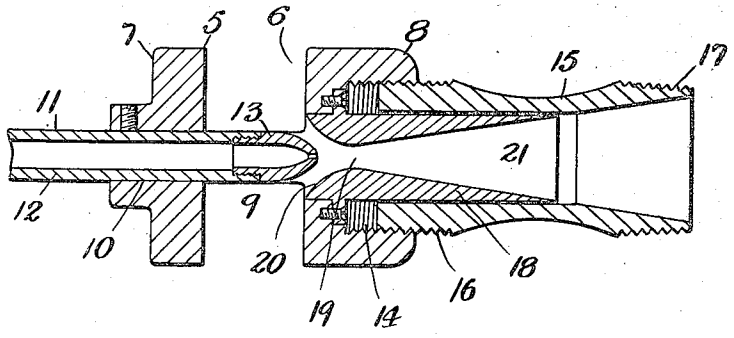


FIG. 2.



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UNITED STATES PATENT OFFICE.

JOSEPH NEEDHAM, OF PASSAIC, NEW JERSEY.

GAS-MIXER.

1,399,788. Specification of Letters Patent. Patented Dec. 13, 1921.

Application filed January 8, 1921. Serial No. 435,825.

To all whom it may concern:

Be it known that I, JOSEPH NEEDHAM, a subject of the King of Great Britain, and residing at Passaic, in the county of Passaic and State of New Jersey, have invented certain new and useful Improvements in Gas-Mixers, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to gas mixers and particularly to devices of this class for use in connection with fuel gas burners, furnaces and the like, and the object of the invention is to provide a device of the class specified with a high pressure fuel discharge device upon which a body portion is adjustable, whereby a tubular member having an outwardly flaring throat may be moved toward and from said fuel discharge device to control the entrainment of air through said throat whereby the most efficient combustible mixture may be readily obtained for any given purpose; and with this and other objects in view the invention consists in a device of the class specified which is simple in construction and operation, and efficient in use, and which is constructed as hereinafter described and claimed.

The invention described and claimed herein is an improvement on that described and claimed in a prior patent granted to me October 19, 1920, No. 1,355,998, and is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:—

Figure 1 is a plan view of my improved gas mixing device; and,

Fig. 2 a section on the line 2—2 of Fig. 1.

In the drawing I have shown at 5 the main body portion of my improved gas mixing device which is apertured as shown at 6 to form between the ends 7 and 8 thereof an air chamber 9.

The end 7 of the body portion is provided with a bore 10 through which a fuel supply device 11 is adapted to pass, said fuel supply device comprising a tube 12 at the free end of which is a detachable nozzle 13.

The end 8 of the body portion is preferably hexagonal in form in cross section and is provided with a threaded aperture 14 and a supplemental tubular body portion 15 is threaded as shown at 16 to permit of the adjustment of the main body portion on one end thereof, the other end of said supplemental body portion being threaded as shown at 17 to permit of its attachment with a furnace or like appliance.

The tubular member 18 is detachably mounted in connection with the end 8 of the main body portion 5 and extends into the supplemental body portion 15, said member being provided with a throat 19 which flares outwardly as shown at 20 and inwardly of the throat 19 is a tapered or flaring mixing chamber 21, which is partially formed by the supplemental tubular body portion 15, as clearly illustrated in Fig. 2 of the drawing.

It will be apparent that the fuel supply device 11 and supplemental tubular body portion 15 are held stationary in suitable supports, while the main body portion 5 is adjustable upon the supplemental body portion 15 and thus movable longitudinally of the fuel supply device 11, whereby the position of the throat 19 in the tubular member 18, which is carried by the main body portion 5, relatively to the nozzle 13 of the fuel supply device, may be regulated at all times to control the entrainment of air through the throat 19 in the passage of high pressure fuel gases through the discharge nozzle 13.

From the foregoing it will be apparent that I produce a very simple and yet effective gas mixture device of the class and for the purpose specified, and it will be noted that the tubular member 18 may be detached from the main body portion and a new member substituted therefor of the same dimensions, or of different dimensions, if desired, in the various uses of the mixing device, and while I have shown certain details of construction for carrying my invention into effect, it will be understood that I am not necessarily limited to these details, and various changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

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

1. A device of the class described comprising a main apertured body portion, a supplemental tubular body portion, means whereby the main body portion may be adjusted longitudinally of the supplemental

body portion, a fuel supply device extending into the main body portion and upon which the same is movable, and a tubular member in the main body portion and adapted to extend into the supplemental body portion and provided with an outwardly flaring throat in connection with which said fuel supply device is adapted to operate to control the entrainment of air through said throat.

2. A device of the class described comprising a main apertured body portion, a supplemental tubular body portion, means whereby the main body portion may be adjusted longitudinally of the supplemental body portion, a fuel supply device extending into the main body portion and upon which the same is movable, and a tubular member in the main body portion and adapted to extend into the supplemental body portion and provided with an outwardly flaring throat in connection with which said fuel supply device is adapted to operate to control the entrainment of air through said throat, and said tubular member being also provided with an outwardly flared mixing chamber.

3. A device of the class described comprising a main body portion, a supplemental tubular body portion, a fuel supply tube extending into the main body portion, said main body portion being apertured to form an air chamber therein, said main and supplemental body portions being provided with a mixing chamber having a reduced and outwardly flaring throat in connection with which said fuel supply device is adapted to coöperate to control the entrainment of air through said throat, and means whereby the main body portion may be moved longitudinally of said supplemental body portion and said fuel supply device.

4. A device of the class described comprising a main body portion, a supplemental tubular body portion, a fuel supply tube extending into the main body portion and communicating with an air chamber formed therein, a tubular member detachably mounted in connection with the main body portion and provided with a mixing chamber having an outwardly flaring throat which communicates with the air chamber of said main body portion, and means whereby the main body portion may be adjusted longitudinally of the supplemental body portion and said fuel supply device for regulating the position of said throat relatively to the discharge end of said fuel supply device to control the entrainment of air through said throat.

5. A device of the class described comprising a main apertured body portion, a supplemental tubular body portion, means whereby the main body portion may be adjusted longitudinally of the supplemental body portion, a fuel supply device extending into the main body portion and upon which the same is movable, and a tubular member in the main body portion and adapted to extend into the supplemental body portion and forming a mixing chamber in connection with which said fuel supply device is adapted to operate to control the entrainment of air into said mixing chamber.

6. A gas mixing device of the class described comprising a tubular body portion, a fuel supply device, a member mounted on said body portion and fuel supply device and movable longitudinally thereof, and a tubular member carried by said first named member and forming a mixing chamber which communicates with said tubular body portion, said first named member and said tubular member being movable toward and from said fuel supply device to control the entrainment of air into said mixing chamber.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 5th day of January 1921.

JOSEPH NEEDHAM.

Witnesses:
C. E. MULREANY,
H. E. THOMPSON.