No. 792,323. PATENTED JUNE 13, 1905.

T. M. DUDGEON.

AIR MIXER.

APPLICATION FILED MAR. 23, 1905.

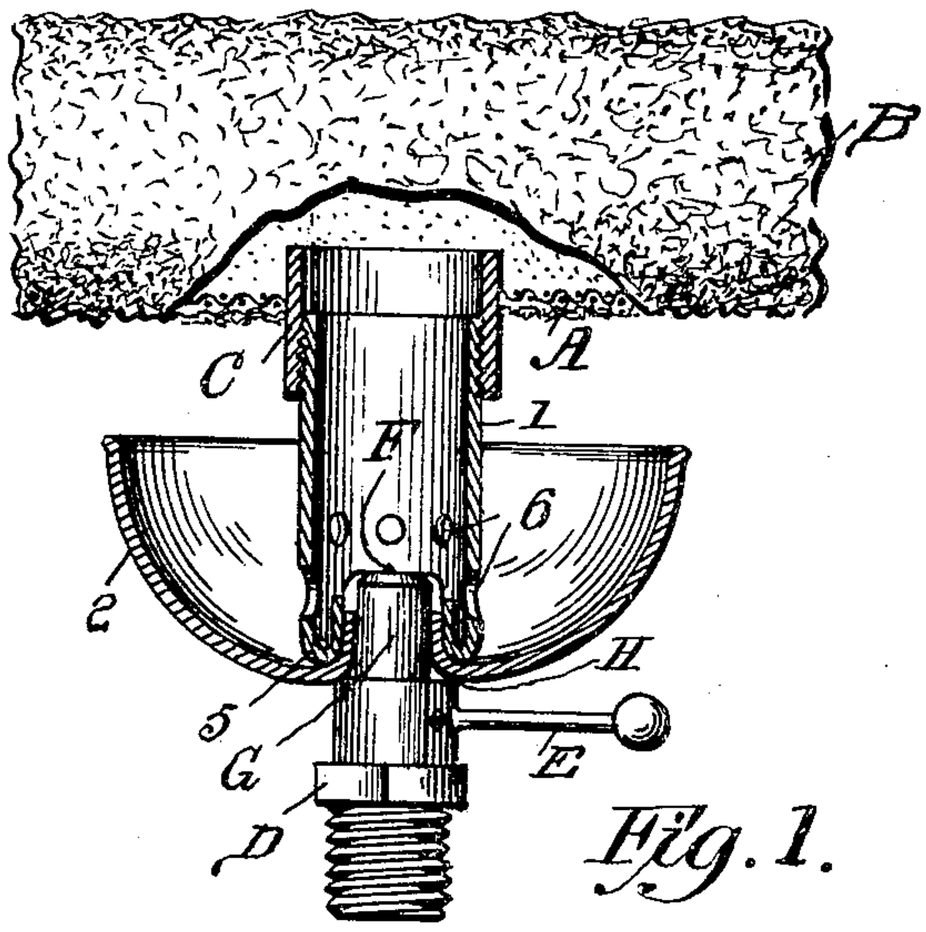

Fig. 1.

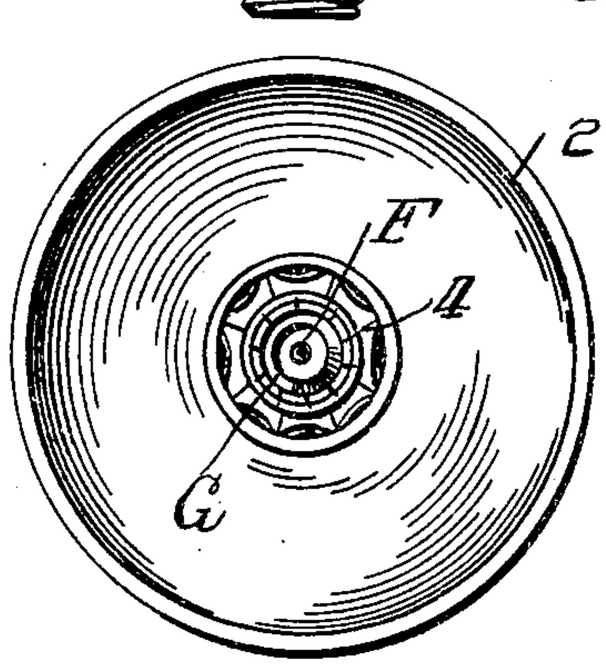

Fig. 2

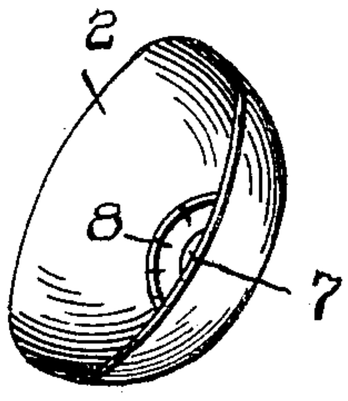

Fig. 3.

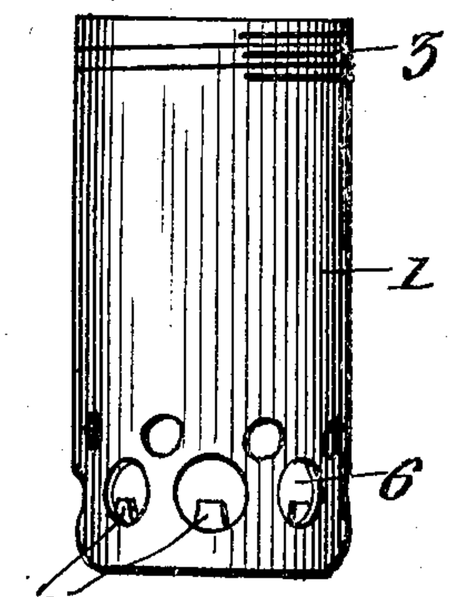

Fig. 4.

Witnesses:
C. E. Potter
N. H. Butler,

Inventor.
T. M. Dudgeon.
By A. C. Evert & Co.
Attorneys.

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UNITED STATES PATENT OFFICE.

THOMAS MILLS DUDGEON, OF AVALON, PENNSYLVANIA.

AIR-MIXER.

SPECIFICATION forming part of Letters Patent No. 792,323, dated June 13, 1905.

Application filed March 23, 1905. Serial No. 251,689.

To all whom it may concern:

Be it known that I, THOMAS MILLS DUDGEON, a citizen of the United States of America, residing at Avalon, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Air-Mixers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in air-mixers, and more particularly to a deflector adapted to be used in connection with an air-mixer.

The object of this invention is to provide a novel form of deflector which will prevent drafts or currents of air affecting the mixer, whereby the ignited gas cannot "flash back" and set fire to the gas at the mixer.

It is a well-known fact that in the majority of mixers commonly used in connection with gas-burners, gas-logs, and the like the gas being mixed is easily affected by a draft or current of air caused by opening and closing doors and windows; also, back drafts in flue striking the sides or base of the mixer with rapidity causes the ignited gas to flash back and ignite the gas at the opening in the mixer. It is for this reason that I have provided a novel form of deflector for such currents of air, and the construction entering into my invention will be hereinafter more fully described and then specifically pointed out in the claim.

Referring to the drawings accompanying this application, like reference characters designate corresponding parts throughout the several views, in which—

Figure 1 is a vertical sectional view of my improved mixer, showing the same in connection with a valve and gas-log. Fig. 2 is a top plan view of the mixer removed from the fire-log. Fig. 3 is a detail perspective view of the cup-shaped deflector used in connection with the mixer, and Fig. 4 is a side elevation of the mixer proper.

To put my invention into practice, I have illustrated the same in connection with a gas-log and a needle-valve, these parts being shown in assembled position in Fig. 1 of the drawings. The gas-log as illustrated in this view is of the ordinary and well-known type, being constructed of a wire mesh or fine gauze, as designated by the reference character A, and over this framework is placed asbestos B. An interiorly-screw-threaded sleeve C is secured in the wire mesh or framework, and into this sleeve is secured the tube 1, comprising the body portion of the mixer. The fire-log as illustrated by me is one of the ordinary form of fire-logs commonly used, and while I have herein shown the mixer in connection with a fire-log I wish it to be understood that the same may be readily employed in connection with gas-burners of different types.

In connection with the mixer I have also illustrated a needle-valve D, which is adapted to control the supply of gas admitted to the mixer, this needle-valve being controlled by a lever E, which raises or lowers the needle-point F.

My invention resides in the particular construction of the body portion 1 of the mixer and of a cup-shaped deflector 2 employed in connection therewith. The tube 1, comprising the body portion of the mixer, is threaded upon its upper end, as indicated at 3, whereby the same may be secured in the interiorly-screw-threaded sleeve C, and the lower end of the tube is sheared, as indicated at 4, this sheared portion being bent inwardly and upwardly, as designated at 5. In the lower end of the tube 1 I form two circular rows of apertures 6, the apertures in one row being staggered in relation to those in the other row, as clearly shown in Figs. 1 and 4 of the drawings.

The cup-shaped deflector 2 as constructed by me is preferably stamped or formed of light and durable sheet metal, and centrally of said cup-shaped deflector an opening 7 is provided, the sides of which are slightly sheared, as indicated at 8, and bent inwardly, forming a vertical annular flange, which is adapted to engage over the head G of the needle-valve and rest upon the annular shoulder thereof. To assemble these parts, the cup-shaped deflector 2 is placed upon the needle-valve, which is located adjacent to or directly beneath the gas log or burner upon which the mixer is used, and supported within this cup-shaped

deflector is the tube or body portion 1 of the mixer, which has its upper end, as heretofore stated, secured in the sleeve C.

By so assembling and constructing the parts, as heretofore described, the openings or apertures 6 of the tube or body portion 1 of the mixer will be protected by the cup-shaped deflector 2, which is placed upon the needle-valve D. In order for air to enter the mixer, it is necessary for the same to pass downwardly into the cup-shaped deflector 2 and into the apertures 6, which it will readily do on account of air assuming its own level. By the particular employment of this cup-shaped deflector flash-backs or explosions and the like will be prevented, owing to the fact that ignited gas will be prevented from passing back within the mixer, and while I have herein shown two rows of apertures being formed in the mixer proper I do not care to confine myself to this specific construction nor the shape and arrangement of the deflector in respect to said mixer, but may change the details thereof without departing from the spirit and scope of the invention.

What I claim, and desire to secure by Letters Patent, is—

The combination with a valve structure, of a cup-shaped deflector having a central opening in the base thereof, and having an upturned flange surrounding said opening, said flange having its free edge slitted and fitted over the upper end of the valve structure, and an air-mixer embodying a tube having its lower end turned inwardly and upwardly to form an internal annular flange which engages with and fits on the flange of the deflector, said tube provided in its lower end with air-inlet openings, as and for the purpose described.

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

THOMAS MILLS DUDGEON.

Witnesses:
ALBERT MILLER,
LAFAYETTE WILLS.