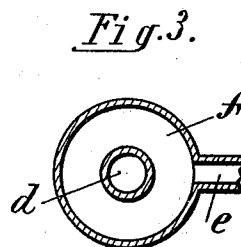
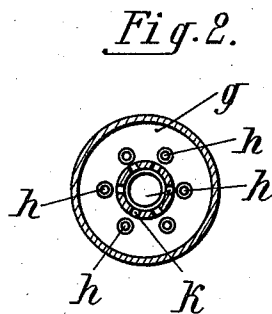
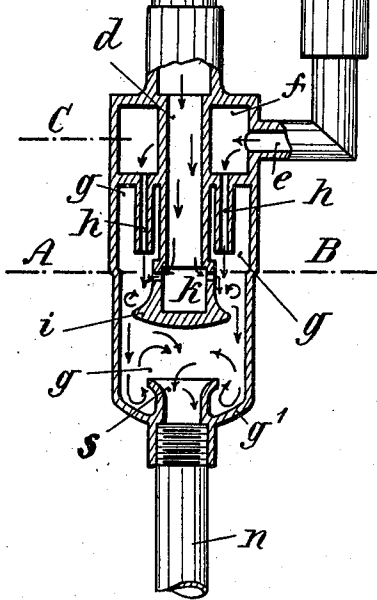
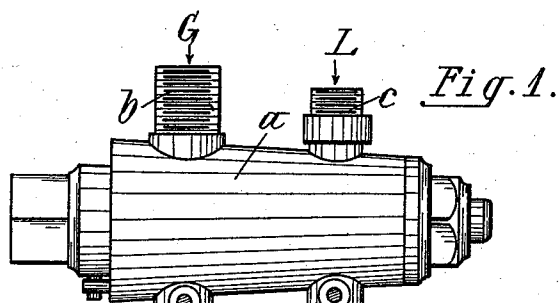


K. EBERLE.
MIXING DEVICE FOR GAS BURNERS.
APPLICATION FILED JAN. 19, 1911.

1,000,385.

Patented Aug. 15, 1911.



Witnesses:
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UNITED STATES PATENT OFFICE.

KARL EBERLE, OF FRIEDENAU, NEAR BERLIN, GERMANY.

MIXING DEVICE FOR GAS-BURNERS.

1,000,385.

Specification of Letters Patent. Patented Aug. 15, 1911.

Application filed January 19, 1911. Serial No. 603,523.

To all whom it may concern:

Be it known that I, KARL EBERLE, a subject of the German Emperor, and residing at Friedenau, near Berlin, Germany, have invented certain new and useful Improvements in Mixing Devices for Gas-Burners, of which the following is a specification.

My invention relates to gas-burners, for gas and compressed air, in which the currents of gas and compressed air cross in a chamber in front of the burner tube and then flow rectilinearly in the latter.

A primary object of my invention is to cause the crossing currents of gas and compressed air in a burner of this type to eddy in various directions after they have met, for the purpose of intimately mixing them, before the mixture of gas and air flows to the burner tube; the arrangement may be such that each jet of gas is met by a jet of compressed air.

One illustrative embodiment of my invention is represented by way of example in the accompanying drawing, wherein:—

Figure 1 is an elevation, partly in section, Fig. 2 a section in the plane A—B in Fig. 1, and Fig. 3 a section in the plane C in Fig. 1.

Referring to the drawing, gas is supplied through the branch *b* and compressed air through the branch *c* to a known cock *a*. The gas flows into a tube *d* which is closed at its bottom end and has an enlarged head or other suitable deflector *i*. A plurality of laterally directed outlets *h* is arranged above or, if preferred, beside or below, the head *i* in the tube *d*. The tube *d* is surrounded at a suitable place by a chamber *f* separated from the mixing chamber *g*, the compressed air being supplied by way of the tube *e* from the cock *a* to the chamber *f*. This chamber has several air-outlets or tubes *h* extending into the mixing chamber *g* in such manner that the mouth of each air-outlet or tube *h* is located beside or over a gas-outlet *h*. The mouth of each tube or outlet *h* is so shaped that the compressed air issues in a broad stream which meets the stream of gas at a suitable angle and exercises a suction or pressure action on the latter. A tube *n* leading to the burner-head is connected to the chamber *g* surrounding the tube *h* and part of the tube *d* or the head or deflector *i*; a splayed deflector *s* is so arranged in the chamber *g* in front of the inlet to the tube *n* that the current of com-

pressed air and gas driven forward in the space between the deflector *i* and the wall of the chamber *g* toward the tube *n* cannot pass directly into the inlet to the tube *n* but is first deflected outward away from it before flowing into the same.

My device operates as follows: When the stop cock *a* is opened the passage for the gas is first liberated and then that for the compressed air, whereupon the gas supplied at ordinary pressure to the tube *d* issues from the lateral apertures *h* into the chamber *g*; the compressed air flows through the tube *e* into the chamber *f* and through the outlets or tubes *h* into the chamber *g*. The current of air crossing the current of gas at a suitable angle carries the gas along with it; the mixture then impacts on the head or deflector *i*, is deflected outward by the same and is caused to eddy or rotate in a direction from the inside toward the outside before it flows through the space between the head or deflector *i* and the wall of the chamber *g*. In order to perfect the already intimate mixture thus obtained, I arrange at a suitable distance from the head or deflector *i* and from the mouth of the tube *n* a deflector *s*, by which the direction of flow of the mixture of gas and air is changed by its being caused to eddy or rotate in a direction from the outside toward the inside. The current of air and gas then flows into the tube *n* and along this more or less long and fairly narrow passage to the enlarged burner-head *x* only when it has been intimately mixed in various directions at two or more places.

I claim:—

In a mixing device for gas-burners, the combination, with a burner tube, of a mixing chamber connected therewith, a gas-supply pipe entering into the chamber, carrying an outwardly-curved deflector, and having lateral orifices above the latter, means for supplying compressed air past said orifices toward the deflector, and a second outwardly-curved deflector in the chamber mounted at the mouth of the burner tube.

In testimony whereof I have signed my name to this specification in the presence of two witnesses.

KARL EBERLE.

Witnesses:

HENRY HASPER,
WOLDEMAR HAUPT.