

(No Model.)

G. AXDORFER.
GAS FURNACE.

No. 520,404.

Patented May 29, 1894.

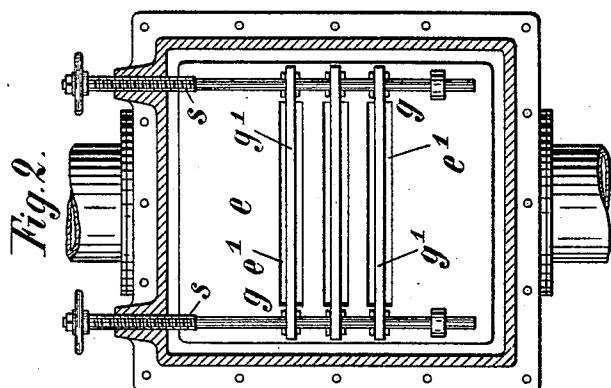
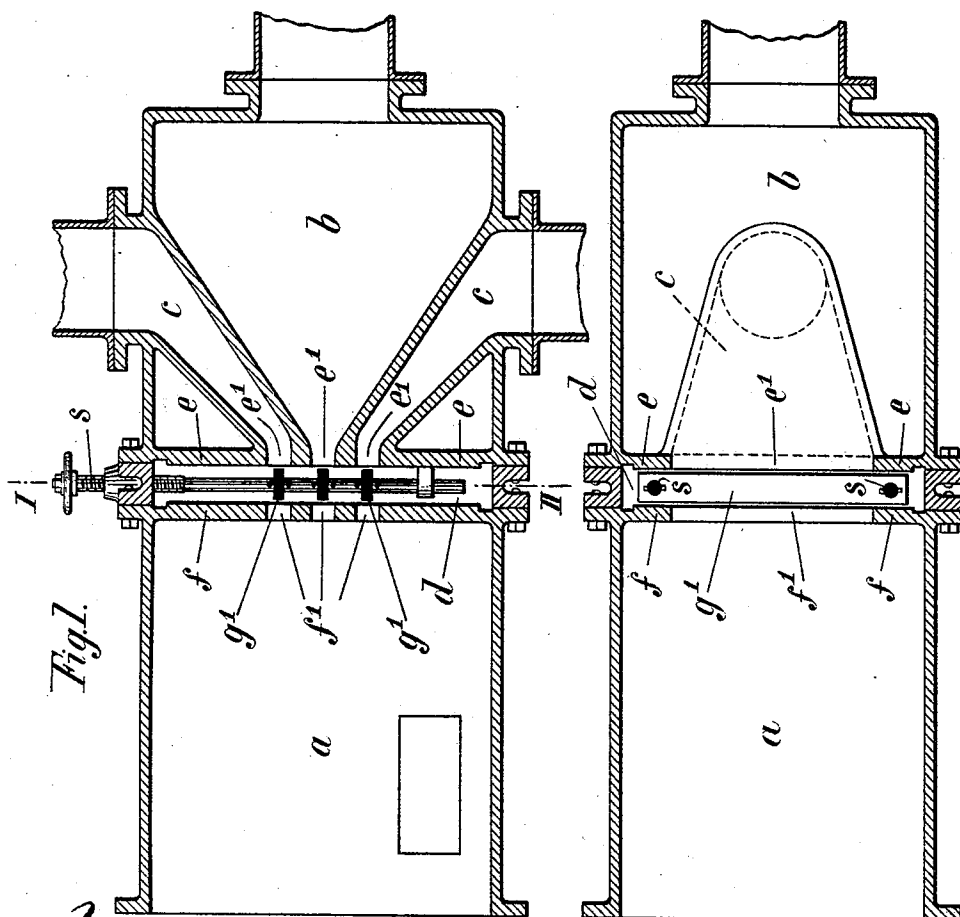


Fig. 3.



Witnesses:
H. G. Nieperich
Henry O. [unclear]

Inventor:
Gottfried Adorfer;
by Henry M. B. Atty

UNITED STATES PATENT OFFICE.

GOTTFRIED AXDORFER, OF HAMBURG, GERMANY, ASSIGNOR OF ONE-HALF
TO CHRISTIAN HEINRICH FRIEDRICH SASS, OF SAME PLACE.

GAS-FURNACE.

SPECIFICATION forming part of Letters Patent No. 520,404, dated May 29, 1894.

Application filed December 8, 1893. Serial No. 493,078. (No model.)

To all whom it may concern:

Be it known that I, GOTTFRIED AXDORFER, a subject of the Emperor of Austria-Hungary, residing at Hamburg, in the German Empire, have invented certain new and useful Improvements in Gas-Furnaces, of which the following is a specification.

My invention relates to improvements in gas-furnaces and more particularly to the apparatus for mixing gas and air in gas-furnaces.

The object of my invention is however to afford a more rapid and intimate mixing of such gas and air than with the devices heretofore employed. By reason of the uniform mixing of gas and air not only the occurrence of pointed (blow-pipe) flames is completely obviated but also a smokeless combustion insured. I attain the said object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1, is a sectional side elevation of my improved gas and air mixing apparatus; Fig. 2, a horizontal section of the same, and Fig. 3, a cross section on the line I—II, Fig. 1.

Similar letters refer to similar parts throughout the several views.

The improved apparatus comprises a mixing chamber *d* arranged between the combustion or igniting chamber *a* and the gas and air supply forming nozzles *b* and *c* respectively. The lateral walls *e* and *f* of the mixing chamber are provided with slots *e'* and *f'* respectively, which correspond to the orifices of the said gas and air inlet nozzles, which have also the form of slots. I arrange in the mixing chamber *d* a grate slide *g* adapted to be adjusted by means of screws *s* and having bars *g'* which cover the slots in the aforesaid walls *e* and *f*, more or less according to the adjustment, in order to regulate the quantity of gas and air which passes out for combustion. As the gas and air on leaving the nozzles impinge against the bars *g'* of the slide and against the opposite wall *f* of the mixing chamber *d* strong whirling movements are produced in the latter so that the gas and air serving for the combustion will become intimately mixed. The mixture then passes through the slots *f'* in the wall *f* of the mixing chamber into the combustion chamber *a*, which for instance in the case of steam boilers may form the front

part of the furnace, the heating flames spreading from the combustion chamber freely in the furnace. The mixture of gas and air may be ignited in any suitable manner.

Owing to the uniform mixing of the gas and air and to the adjustment of the slide covering a portion of the slots I obtain a very extensive and uniform spreading of the flame produced, thereby obviating the injurious pointed or blow pipe flames and effecting a complete utilization of the fuel, so that smoke will be entirely absent from the products of combustion which finally escape and a considerable saving of fuel will be realized. The preliminary heating of the air used for the combustion may be effected according to circumstances.

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

1. In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to the combustion chamber and with separate gas and air inlet ports in its opposite wall, said inlet ports arranged diametrically opposite the outlet ports, and interceptors as bars, interposed between the respective ports, for the purpose set forth.

2. In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to the combustion chamber and with separate gas and air inlet ports in its opposite wall, said inlet ports arranged diametrically opposite said outlet ports, and interceptors, as bars interposed between and of less width than that of said inlet and outlet ports, for the purpose set forth.

3. In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to the combustion chamber and with separate gas and air inlet ports in its opposite wall, said inlet ports arranged diametrically opposite said outlet ports, and interceptor bars interposed between and adjustable relatively to said inlet and outlet ports, for the purpose set forth.

4. In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to said combustion chamber and with separate gas and air inlet ports in its opposite wall, said inlet ports arranged

diametrically opposite said outlet ports, an interceptor consisting of a grate having bars of less width than that of the inlet and outlet ports, interposed between said ports, for the purpose set forth.

5 In combination, a combustion chamber, a mixing chamber provided with outlet ports in its wall proximate to said combustion chamber and with separate gas and air inlet ports
10 in its opposite wall said inlet ports arranged diametrically opposite said outlet ports, an interceptor consisting of an adjustable grate having bars of less width than that of the inlet and outlet ports, interposed between said
15 ports, for the purpose set forth.

6. In combination, a combustion chamber, a narrow mixing chamber provided with out-

let ports in its wall proximate to said combustion chamber, and with separate gas and air inlet ports in its opposite wall, said ports
20 arranged diametrically opposite each other and having the form of long slots or slits, and an adjustable grate having bars of less width than that of the inlet and outlet ports interposed between said ports, for the purpose set
25 forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 24th day of November, 1893.

GOTTFRIED AXDORFER.

Witnesses:

ALEXANDER SPECHT,
HARRY F. W. GRETHE.