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W. P. WIEMANN.
GAS BURNER.

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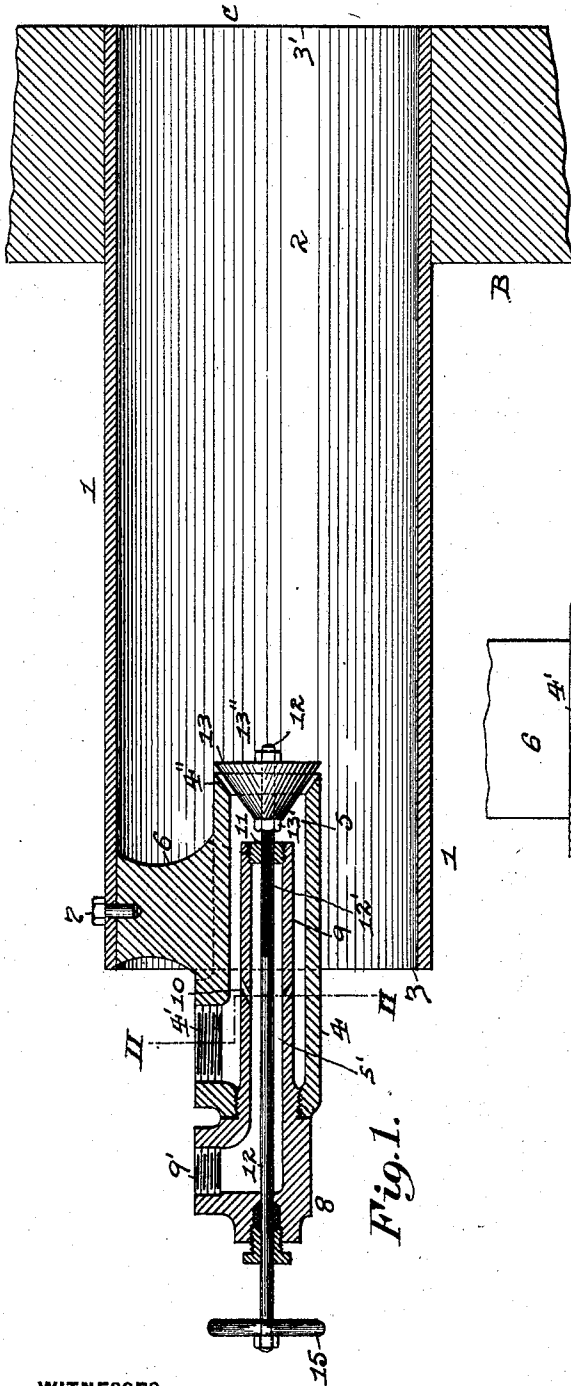


Fig. 1.

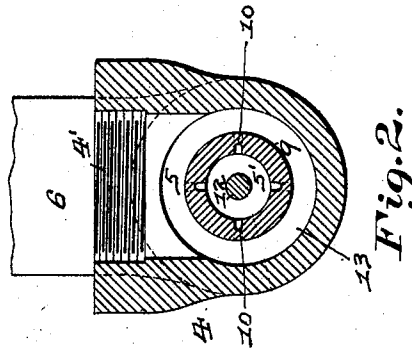


Fig. 2.

WITNESSES

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WILLIAM P. WIEMANN, OF ALLEGHENY, PENNSYLVANIA, ASSIGNOR TO
EMPIRE MACHINE COMPANY, OF PITTSBURG, PENNSYLVANIA, A COR-
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GAS-BURNER.

No. 823,836.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM P. WIEMANN, a resident of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Gas-Burners; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to gas-burners, and has special reference to gas-burners for use in connection with boilers, furnaces, kilns, &c.; and the object of the invention is to provide a cheap, simple, effective, and reliable form of such burner.

In the accompanying drawings, Figure 1 is a longitudinal central section of the burner, and Fig. 2 is an enlarged cross-section of the same on the line II II of Fig. 1.

As illustrated in the drawings, 1 is a casing for forming a mixing-chamber 2, which is provided with an open outer end 3 and an open inner end 3', supported within the front wall of a furnace B and leading into the fire-chamber *c* of said furnace. Supported within the chamber 2 is a casing 4, having a gas-inlet 4' and a gas-chamber 5, the casing 4 being suspended from the outer casing 1 by means of a projection 6 and screw-bolt 7. Screwed into the outer end of the casing 4 is a connection 8, which is provided with a steam-inlet 9' and a hollow projecting portion 9 extending into the gas-chamber 5 and having a closed inner end. The portion 9 extends into the gas-chamber 5 beyond the gas-port 4' and is provided with ports or orifices 10, leading from the steam-chamber 5' therein, which slits or ports are inclined upwardly and inwardly, as shown. A screw-plug 11 engages the inner end of the portion 9, and extending through an opening in this plug is a rod 12, having a threaded portion 12' screwing into said plug, which rod passes through the steam-chamber and is provided at its inner end with the conical valve 13 and at the outer end with an adjusting-wheel 15. This valve 13 is adapted to be adjusted within the outwardly-flaring end 4'' of the casing 4 to form the burner-opening. The valve 13 is secured to the rod 12 by nuts 13' 13''.

The operation of my improved gas-burner is as follows: The gas enters the gas-chamber 5 through the inlet-opening 4' and passes through said chamber and out through the

burner-opening at the end thereof around the valve 13, where it meets the air entering the mixing-chamber 2, the gas and air being thoroughly mixed in this chamber before passing to the combustion-chamber of the furnace. When it is desired to increase the quantity of the gas, as in the case of forcing the fire or when the gas-pressure becomes so low that sufficient gas is not delivered to the furnace, steam is caused to enter the steam-chamber 5' through the inlet 9' and from said steam-chamber is injected into the gas-chamber 5 through the inclined ports 10, where it will siphon or draw the gas entering through the opening 4', and so increase the quantity of the gas regardless of the pressure of the gas itself, which will tend to keep the quantity normal when the gas-supply is at low pressure and abnormal when it is desired to force the fire.

The flaring of the burner-opening enables the gas to be ejected at an angle to the walls of the mixing-chamber 2, and so to be more thoroughly mixed with the air in this chamber, and in addition thereto causes a siphoning action on the air.

My improved gas-burner is composed of very few parts and is so arranged as to be capable of being quickly set up in a furnace for use, while the parts can be readily adjusted or taken apart for cleaning or repairs. The burner parts are easily manufactured and do not require any special form of machinery.

It will be understood that air or any other desired fluid under pressure may be employed instead of steam.

I claim—

1. A gas-burner comprising a casing having an inlet for gas at its outer end and a valved outlet at its inner end an air-chamber around said casing having an opening at its outer end for entrance of air for mixing with the gas and steam issuing from said valved outlet, a second casing having a closed inner end and an inlet for steam at its outer end, said second casing extending longitudinally within the first casing so as to provide a gas-chamber between the walls of the two casings and being provided with ports leading through its side into the gas-chamber beyond the gas-inlet port, said ports being inclined so as to direct the steam against the gas in the direction of the travel of the gas through the

gas-chamber from the gas-inlet to the valved outlet; substantially as described.

2. A gas-burner comprising a casing having an inlet for gas at its outer end and a
5 valved outlet at its inner end an air-chamber around said casing having an opening at its outer end for entrance of air for mixing with the gas and steam issuing from said valved
outlet, a second casing having a closed inner
10 end and an inlet for steam at its outer end, said second casing extending longitudinally within the first casing so as to provide a gas-chamber between the walls of the two casings and being provided with ports leading

through its side into the gas-chamber be- 15
yond the gas-inlet port, said ports being located some distance from the inner closed end of the steam-chamber and being inclined so as to direct the steam against the gas in the direction of the travel of the gas through the 20
gas-chamber from the gas-inlet to the valved outlet, substantially as described.

In testimony whereof I, the said WILLIAM P. WIEMANN, have hereunto set my hand.

WILLIAM P. WIEMANN

Witnesses:

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