

No. 851,346.

PATENTED APR. 23, 1907.

H. A. DARLING.

GAS BURNER.

APPLICATION FILED JAN. 25, 1907.

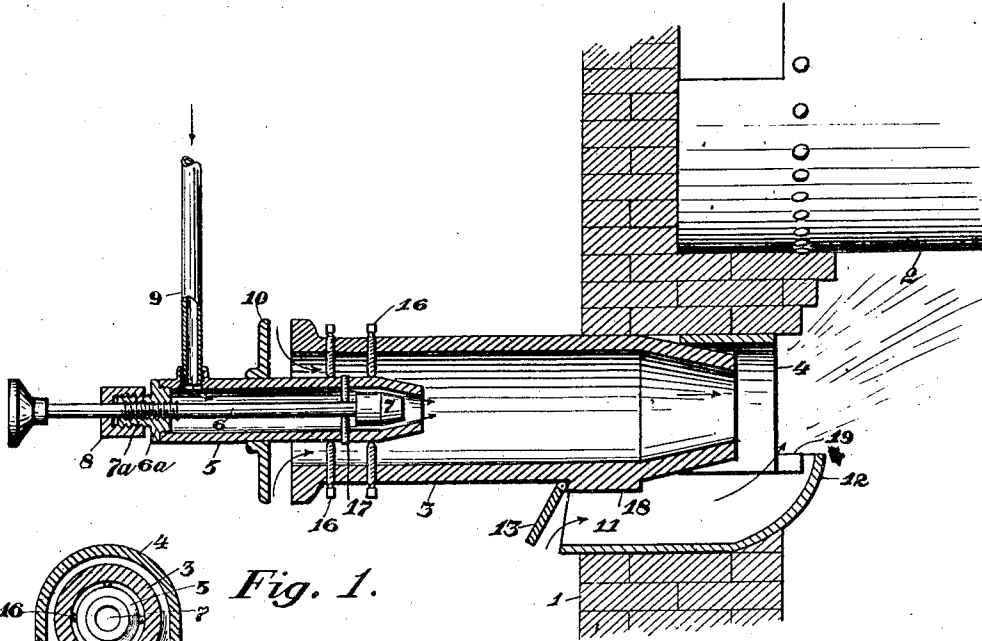


Fig. 1.

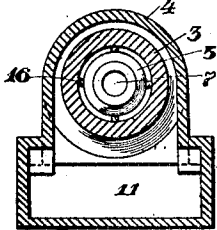


Fig. 4.

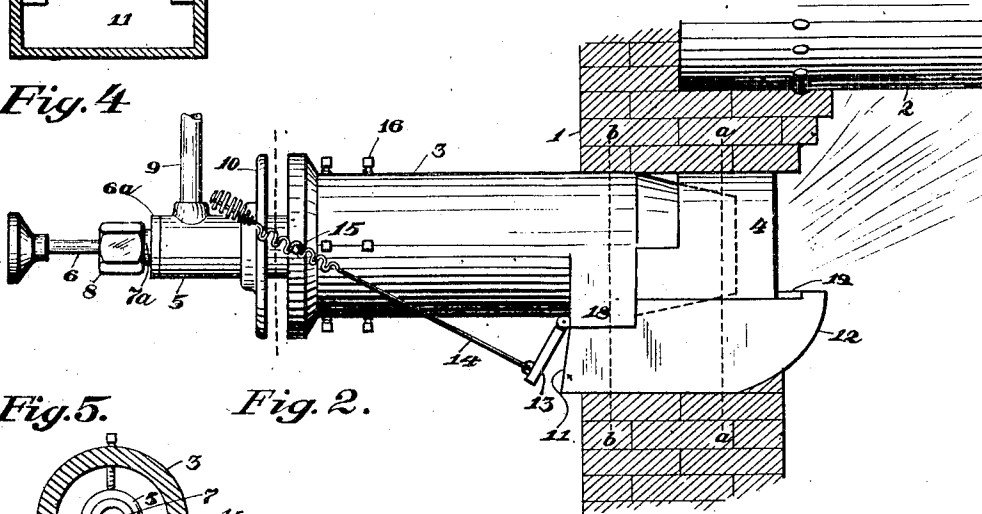


Fig. 2.

Fig. 5.

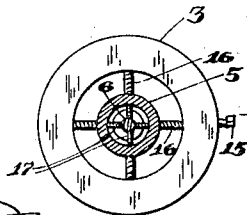
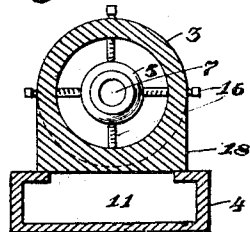


Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

HARVEY A. DARLING, OF COSHOCTON, OHIO.

GAS-BURNER.

No. 851,346.

Specification of Letters Patent.

Patented April 23, 1907.

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To all whom it may concern:

Be it known that I, HARVEY A. DARLING, a citizen of the United States, residing at Coshocton, in the county of Coshocton and State of Ohio, have invented certain new and useful Improvements in Gas-Burners; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, and the numerals and figures of reference marked thereon, in which—

Figure 1 is a horizontal section of the burner showing the same connected to a boiler furnace, also showing a portion of the boiler. Fig. 2 is a side elevation of the burner. Fig. 3 is a transverse section taken on line 2—2, Fig. 2, looking toward the right hand end of the burner. Fig. 4 is a transverse section on line a—a Fig. 1. Fig. 5 is a transverse section on line b—b Fig. 1.

The present invention has relation to gas burners, especially designed for furnaces and more particularly for steam boiler furnaces and it consists in the novel arrangement hereinafter described and particularly pointed out in the claims.

Similar numerals of reference indicate corresponding parts in all the figures of the drawing.

In the accompanying drawing, 1 represents the furnace wall which is simply shown conventional and 2 represents a portion of a boiler in proper relationship with reference to the furnace wall. The gas mixing or vaporizing cylinder 3 is set into the furnace wall which as illustrated in the drawings has its inner end tapered for the purpose hereinafter described. At the delivery end of the cylinder 3 and extended a short distance beyond the delivery end thereof, is located the housing and flame deflector 4 which is also built into the furnace wall. To the intake end of the cylinder 3 is attached the supply pipe 5, which supply pipe is extended a short distance into the cylinder 3 as illustrated in Fig. 1 and its inner end is tapered for the purpose hereinafter described. Within the supply pipe 5 is located the valve rod 6, which valve rod is provided with the valve head 7, said valve head being tapered to correspond with the taper of the inner surface of the supply pipe 5. The supply pipe 5 is provided with the nut 6^a, which nut is provided with a screw threaded aperture, which screw threaded aperture and the exteriorly screw thread-

ed flange 7^a, upon which screw threaded flange is located an ordinary packing nut 8, these parts are common and need no detailed description.

It of course will be understood that the valve-rod 6 is to be screw threaded where it passes through the screw threaded aperture so that the valve can be opened and closed by rotating the valve-rod.

To the supply pipe 5 is attached the feed pipe 9, which feed pipe leads to any source of supply. The air intake end of the cylinder 3 is open and upon the supply pipe 5 is adjustably located the air regulating disk 10, which regulating disk is for the purpose of either cutting off the entire supply of air at the intake end of the cylinder 3 or regulating the amount of air to be admitted into the intake end of the cylinder 3.

It will be understood that after the gas passes to the cylinder 3 it will be mingled with the air during the time it is passing from the delivery end of the supply pipe 5 to the delivery or burner end of the cylinder 3, thereby producing the proper mixture of gas and air and regulating the proportions by the adjustment of the disk 10. The gas is designed to be ignited at the burner or delivery end of the cylinder 3 and for the purpose of aiding combustion a second air passage 11 is provided, by which arrangement a quantity of atmospheric air is supplied at the place of combustion, by which arrangement greater heat is produced owing to the fact that before the gas is ignited it has been mingled with air.

For the purpose of shooting the flame upward the curved plate 12 is provided and the air is given an upward current, as it passes between the tapered end of the cylinder 3 and the curved plate 12.

For the purpose of regulating the quantity of air to be delivered at the point of combustion the damper plate 13 is provided, which damper plate is hinged to the under side of the cylinder 3 as illustrated in Figs. 1 and 2.

For the purpose of holding the damper plate 13 at any desired point of adjustment the damper rod 14 is provided, which damper rod extends rearward and its notched or corrugated end arranged to engage a retaining pin 15.

For the purpose of holding the supply pipe 5 in proper relationship with reference to the cylinder 3 a series of set screws 16 are provided.

For the purpose of guiding the inner end of the valve rod 6 the pins 17 are provided. The cylinder 3 is provided with the integral supporting flanges 18, which are for the purpose of supporting the cylinder 3 in proper position with reference to the housing 4 and the curved plate 12.

For the purpose of assisting in directing the air passing through the air passage 11 the top or upper end of the curved plate is provided with the inward extended flange 19.

It will be understood that by tapering the exit end of the cylinder 3 and feeding the gas and air into said cylinder its escape will be to an extent retarded thereby providing for the better mixing of the air and the gas.

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

In a gas burner, the combination of a cylinder provided with a tapered burner end, and supporting flanges, a supply pipe partially located within the cylinder, said supply

pipe provided with a tapered tip, a valve-head adapted to close the tip, a housing located at the burner end of the cylinder, said housing provided with a curved plate located below and forward of the tapered end of the cylinder, a damper blade located forward of the delivery end of the supply pipe and adapted to control the supply of air to said housing, an air regulating disk located back of the delivery end of the supply pipe, said disk regulating the supply of air to the cylinder proper, and means for holding the supply pipe in fixed adjustment with reference to the cylinder, substantially as and for the purpose specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

HARVEY A. DARLING.

Witnesses:

J. A. JEFFERS,
F. W. BOND.