

W. A. KINNEY.
BURNER.

APPLICATION FILED AUG. 29, 1916.

1,289,812.

Patented Dec. 31, 1918.

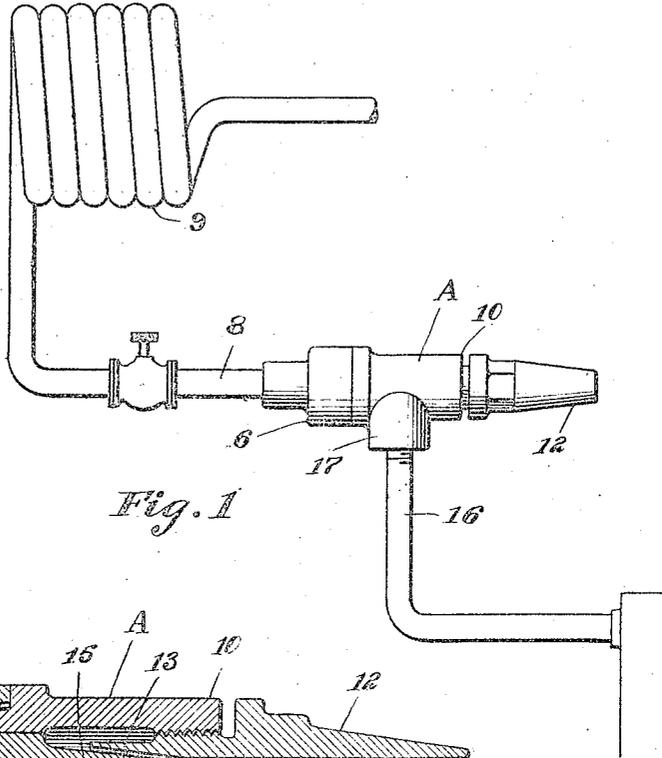


Fig. 1

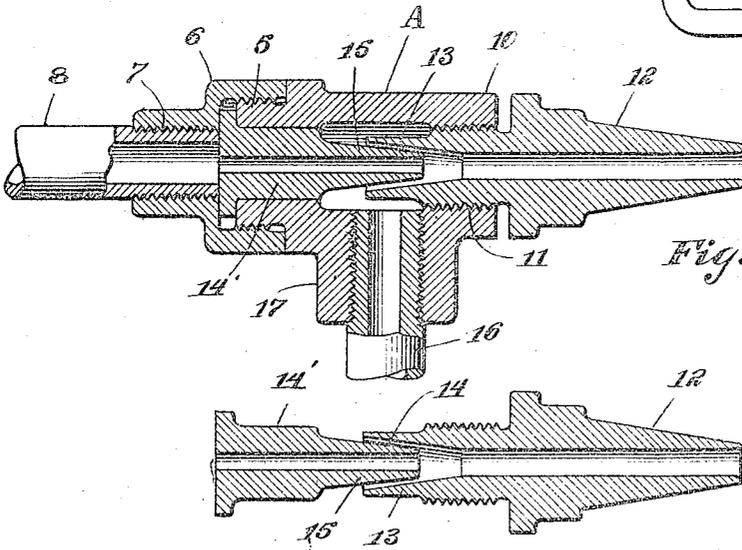


Fig. 2

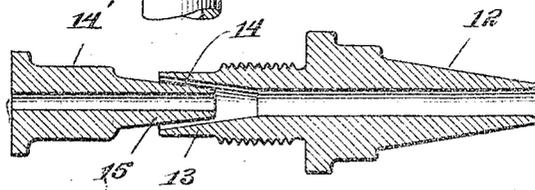


Fig. 3

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BURNER.

1,289,812.

Specification of Letters Patent. Patented Dec. 31, 1919.

Application filed August 29, 1916. Serial No. 117,532.

To all whom it may concern:

Be it known that I, WILLIAM A. KINNEY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Burners, of which the following is a specification.

The invention relates to a burner, and more particularly to the class of oil or hydrocarbon burners.

The primary object of the invention is the provision of a burner of this character wherein the construction thereof siphons the oil from a reservoir or tank without the presence of pressure within the latter, the intensity of the flame of the burner being governed by valves arranged therein.

Another object of the invention is the provision of a burner of this character wherein the oil ejected therefrom is broken up into a fine spray and is forced into the furnace with great velocity.

A still further object of the invention is the provision of a burner of this character which is extremely simple in construction, thoroughly reliable and efficient in its operation, strong, durable and inexpensive in manufacture.

Other objects will be in part obvious and in part hereinafter set forth.

The invention accordingly consists in the features of construction, combination of elements and arrangement of parts which will be exemplified in the construction hereinafter described, and the scope of the application of which will be indicated in the appended claim.

In the accompanying drawings:

Figure 1 is a side elevation of a burner constructed in accordance with the invention, showing the oil lead and the air lead with a heating coil therein;

Fig. 2 is a vertical longitudinal sectional view through the burner;

Fig. 3 is a vertical longitudinal sectional view showing the burner nozzle and the valve in their relative positions.

Similar reference characters indicate corresponding parts throughout the several views of the drawing.

Referring to the drawing in detail, the burner comprises a body A which is preferably in the form of a T-shaped union provided with an externally threaded end 5 on

which is detachably mounted a cap 6, the same being formed with a reduced internally threaded portion 7 in which is engaged or tapped the air supply lead 8 provided with a heating member 9 adapted to heat the air supplied prior to its entrance into the burner; this heating member 9, for the purpose of illustration being shown as in coil form, and I desire to have it understood that I do not limit myself to this particular coil construction as it is necessary in some cases to use a straight section or heating member.

The body A at the end 10 opposite the end 5 is formed with internal threads 11 for the adjustable and detachable engagement of an outwardly tapered nozzle 12 with said body, the inner end portion of the nozzle 12 being formed with a nipple 13 which has formed interiorly thereof a tapered valve seat 14, while located within the body is a removable nozzle 14', the same being held in such body by the cap 6, and this nozzle directs the air to the nozzle 12 which forms the tip of the burner; the nozzle 14' being provided with a tapering valve end 15 which engages in the valve seat 14 in the nipple end 13 of said nozzle 12, the latter being adjustable in the body A to regulate the feed of oil from the burner, which oil is admitted to the body A through a lead 16 which is tapped into the internally threaded end 17 of said body A of the burner.

In the operation of the burner, air is admitted thereto from the lead 8, which air is preheated in the member 9 and is delivered from any suitable source. The entrance of air into the body A of the burner effects a vacuum therein so that the oil is lifted from the lead 16 into the body A and is mixed with the air, which forces the same outwardly through the nozzle 12 with great velocity and at this nozzle 14 the oil is ignited. The density of the oil is governed by the adjustment of the nozzle 12, which regulates the relation of the nipple 13 with the valve end 15 of the inner nozzle 14', as will be clearly apparent.

From the foregoing description, taken in connection with the accompanying drawing, the construction and operation of the herein described burner will be readily apparent and, therefore, a more extended explanation has been omitted.

Having thus described my invention, I claim:

The combination of a body having an interiorly located cylindrical chamber, there being an oil port leading into the chamber at the side thereof and at a point between the ends thereof, a forward nozzle attached to one end of the body and having an annular flange extending into the chamber, the exterior surface of the flange being cylindrical and spaced throughout its length from and parallel with the side wall of the chamber, said flange extending completely across the oil port and spaced therefrom, the interior surface of the flange being conical, said nozzle having at its outer portion a bore the inner end of which merges into the inner wall surface of the flange, a second nozzle attached to the opposite end of the body and provided at its inner end with a nipple which extends into the chamber and enters within and extends rearwardly of the flange of the first mentioned nozzle to rest

in lapped relation to said nozzle opposite the full diameter of the oil port, said nipple having an exterior conical surface which is parallel with and spaced from the interior conical surface of the flange, the exterior surface of the nipple being conical throughout the length of the nipple, there being provided in the second mentioned nozzle a longitudinally disposed bore which is in alignment with the center of the bore in the first mentioned nozzle, the diameter of the bore in the first mentioned nozzle being greater than that of the bore in the second mentioned nozzle, whereby a stream of air passing from one nozzle to the other at great velocity will draw a volume of oil into the chamber of the body against the force of gravity and effect a mixture of the air and oil within the forward nozzle whereby the mixture when ignited at the end of the forward nozzle will produce a solid pencil of flame.

In testimony whereof I affix my signature.
WILLIAM A. KINNEY.