H. A. SMOCK.

COMBINED KEROSENE CONVERTER AND GAS BURNER.

APPLICATION FILED AUG. 26, 1918.

1,293,226. Patented Feb. 4, 1919.

Fig. 1.

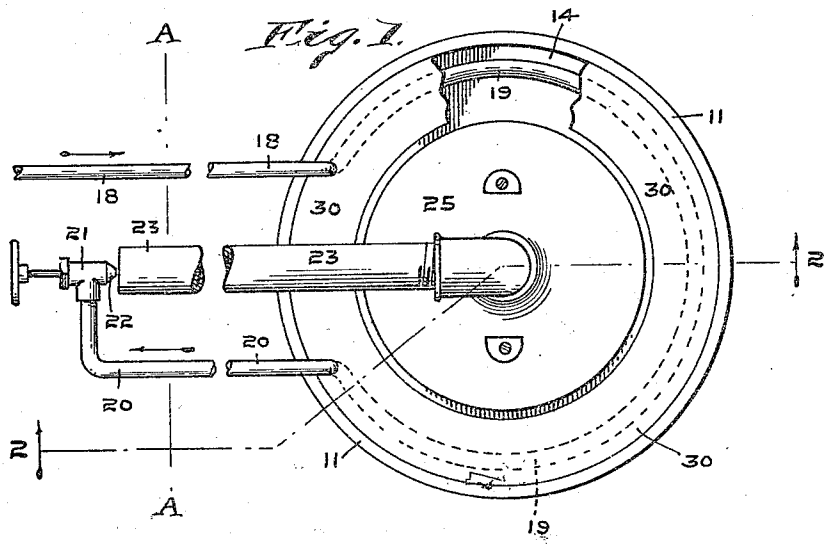


Fig. 2.

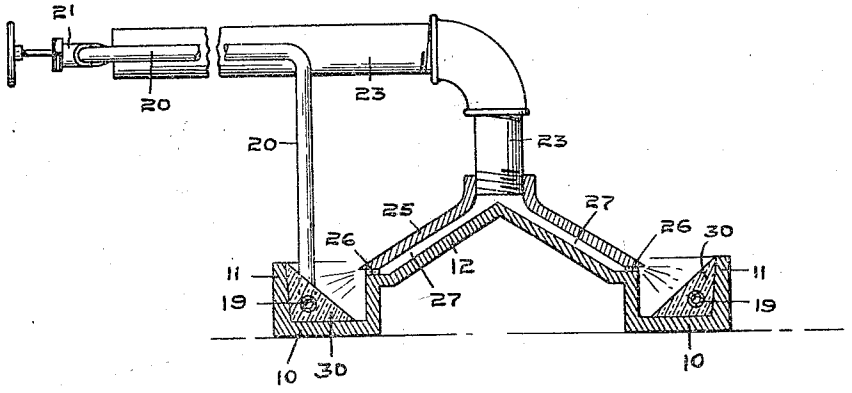
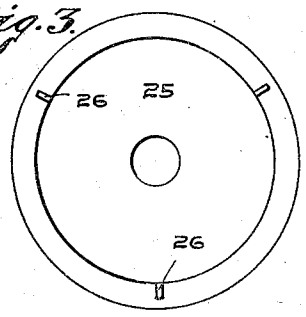


Fig. 3.



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UNITED STATES PATENT OFFICE.

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COMBINED KEROSENE-CONVERTER AND GAS-BURNER.

1,293,226. Specification of Letters Patent. Patented Feb. 4, 1919.

Application filed August 26, 1918. Serial No. 251,488.

To all whom it may concern:

Be it known that I, HOWARD A. SMOCK, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Combined Kerosene-Converters and Gas-Burners, of which the following is a specification.

This invention relates to a device for converting kerosene into gas and for burning the gas for heat producing purposes; and one of the objects of the invention consists in the provision of a device of the above character wherein the oil is fed around the point of combustion and where it is subjected to a steady heat produced thereby, so that the kerosene will be readily converted into a gas which is carried outside of the stove, furnace or boiler and where it is discharged into a mixer for adding the proper amount of air to support proper combustion, the mixture being returned and uniformly distributed around the burner for producing a highly efficient combustion at a minimum consumption of kerosene.

A further object of the invention consists in the provision of a device for converting kerosene into gas and for burning the gas for heat producing purposes, which is extremely simple in construction, efficient in its operation, and which is easily installed or removed when repairs are necessary.

I accomplish the above objects of the invention, and such others as may appear from a perusal of the following specification and claims, by means of the construction illustrated in the accompanying drawings, forming a part hereof in which—

Figure 1 is a top or plan view of my improved device for converting kerosene into gas and for burning the gas for heat producing purposes. Fig. 2 is a transverse sectional view, on the line 2—2 in Fig. 1. Fig. 3 is an underside plan view of the cone-disk.

Referring to the drawings, the device for converting kerosene into gas and for burning the gas so converted comprises, preferably, a circular base 10 having an integrally formed vertically disposed flange 11 which extends around the outer marginal edge of the base, and formed centrally within base 10 is an upwardly disposed inverted cone 12, the object of which will be hereinafter described. The location of inverted cone 12 on base 10 provides an intervening annular recess or channel 14 between said cone 12 and flange 11, the channel 14 being utilized in performing several of the important functions of the device as will hereinafter appear.

The kerosene is conducted to the device through a conductor pipe 18 which passes through a suitable opening in the wall of the stove, furnace or boiler, the approximate location of said wall being indicated by the line A—A in Fig. 1. Conductor pipe 18 after entering the combustion chamber extends downwardly into annular channel 14 of the device and is formed into a coiled portion 19 which extends around the major circumference of said channel and upwardly in a portion 20 and again out through the wall of the stove, boiler or furnace where the free end of the pipe is provided with a suitable gas regulating valve 21 for controlling the discharge of gas from pipe portion 20. The nozzle end 22 of valve 21 is disposed so as to discharge the gas into the open end of a pipe 23 through which the gas is returned to the burner. The diameter of pipe 23 is considerably larger than pipe 20 so that the enlarged orifice in the free end of the pipe 23 acts as a mixer in admitting air for promoting proper combustion of the gas. Pipe 23 communicates with a cone-shaped disk 25 which is arranged over the top of inverted cone 12 of base 10, and cone-disk 25 is maintained a uniform distance above the surface of the top of cone 12 by means of integral lugs 26, whereby a narrow intervening gas discharge passageway 27 is provided and which extends around the entire circumference of the cones 12 and 25. The gas discharged from pipe 23 is directed upon the apex of inverted cone 12, and the conical formation of said cone uniformly distributes the gas over the entire surface area of cone 12, thereby causing the gas to be uniformly discharged around the circumference of cones 12 and 25 through intervening passageway 27. As the diameter of cone-disk 25 is slightly in excess of the diameter of inverted cone 12 the overhanging edge of the former will cause the flames to be directed downwardly into annular channel 14 in which the circular coil 19 of conductor pipe 18 is located. To prevent premature deterioration of the coiled portion 19 of conductor pipe 18 in annular channel 14, and to prevent too rapid radiation of heat, I embed the coiled portion 19

of conductor pipe 18 in a layer of fire-clay 30, as clearly shown in Fig. 2 of the drawing. Fire-clay 30 is so placed in channel 14 as to leave an annular trough to form a reservoir for receiving the kerosene initially employed for raising the temperature of the burner to a point to convert the kerosene in the coiled portion 19 of conductor pipe 18 into gas. After the burner is in operation, the annular flame of combustion emerging from intervening gas passageway 27 is constantly directed against fire-clay 30 so as to maintain the latter constantly in a state of incandescence.

The device is so simple that further description is deemed unnecessary, and the burner has met all requirements imposed in numerous prolonged tests.

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

1. A device for converting kerosene into gas and for burning the gas comprising a base, an inverted gas distributer cone arranged centrally on said base, a flange arranged around the outer periphery of the base to provide a channel between the flange and cone, a cone-shaped disk arranged over the top of the inverted cone with an intervening gas discharging passageway, a conductor pipe for conducting the kerosene from outside the device and around in said channel of the device and again outside the device, a valve on the free end of said conductor pipe for controlling the discharge of gas, and a pipe for receiving the gas discharged from the valve and conveying it to and discharging it upon the apex of the gas distributer cone.

2. A device for converting kerosene into gas and for burning the gas comprising a circular base, a circular gas distributer cone arranged centrally on said base, a flange extending around the outer marginal edge of the base to form an annular channel between said flange and cone, a cap arranged sufficiently above the gas distributer cone to provide an intervening gas discharge passageway over the entire surface of said distributer cone, a kerosene conductor pipe arranged around and in the annular channel in the base and extending outside the device, a valve for controlling the discharge of gas from the conductor pipe, a pipe for receiving the gas discharged from said valve and discharging it back into the gas discharge passageway between the cone and cap, and a layer of fire-clay arranged within said annular channel and covering said conductor pipe for retarding the radiation of heat.

3. A device for converting kerosene into gas and for burning the gas comprising a circular base, a circular gas distributer cone arranged centrally on said base, a flange extending around the outer marginal edge of the base to form an annular channel between said flange and cone, a cap arranged over the gas distributer cone, means for holding the cap a uniform distance away from the distributer cone to provide an intervening gas discharge passageway over the entire surface of said distributer cone, a kerosene conductor pipe arranged around and in the annular channel in the base and extending outside the device, a valve for controlling the discharge of gas from the conductor pipe, a pipe for receiving the gas discharged from said valve and discharging it back into the gas discharge passageway between the cone and cap, and a layer of fire-clay arranged within said annular channel and covering said conductor pipe for retarding the radiation of heat.

In witness whereof, I, have hereunto set my hand and seal at Indianapolis, Indiana, this 22nd day of August, A. D. one thousand nine hundred and eighteen.

HOWARD A. SMOCK. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."