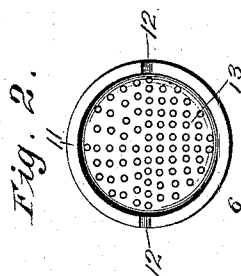
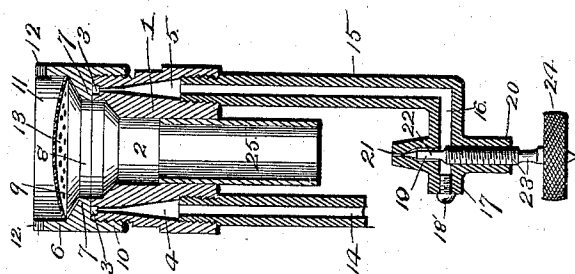
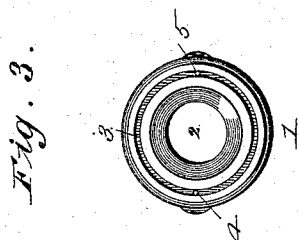
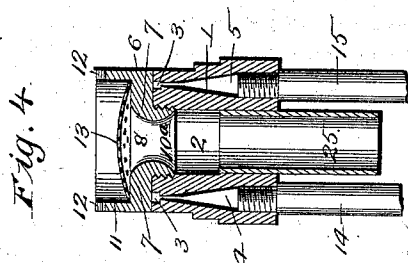


(No Model.)

C. E. WHITE.
HYDROCARBON BURNER.

No. 540,376.

Patented June 4, 1895.



Witnesses:

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UNITED STATES PATENT OFFICE.

CHARLES E. WHITE, OF KANSAS CITY, MISSOURI.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 540,376, dated June 4, 1895.

Application filed March 5, 1895. Serial No. 540,657. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. WHITE, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to hydro-carbon burners, and more particularly to that class known as the Bunsen type, which embodies a mixing chamber wherein the gas or vapor generated is discharged and draws unto itself in said chamber sufficient air to properly support combustion at the burner-cap, and the object of my invention is to provide a burner of this character, which is simple, durable, inexpensive of manufacture and easily controlled.

To this end the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed.

In order that the invention may be fully understood, I will proceed to describe it, with reference to the accompanying drawings, in which—

Figure 1 represents a vertical central section of a burner embodying my invention. Fig. 2 is top plan view of said burner. Fig. 3 is a top plan view of said burner with the collar and cap removed. Fig. 4 is a vertical sectional view of a part of the burner and a collar of slightly-modified construction.

In the said drawings, 1 designates a cylindrical body-portion of the burner, and 2 designates the longitudinal bore or passage thereof.

3 designates the annular vaporizing groove or channel in the upper end of said body-portion; said groove or channel extending concentrically around the center bore or passage 2. At diametric opposite points said body-portion is provided with the upwardly converging passages 4 and 5, and said passages at their upper ends communicate with the vaporizing groove or channel 3. The lower ends of said passages are screw-threaded as shown.

6 designates a cylindrical collar corresponding in external diameter preferably with the body-portion of the burner. Said collar is provided at its middle with an internal annular flange or shoulder 7, which rests upon the

upper end of the body-portion of the burner, and forms a top wall for the vaporizing groove or channel. Said annular flange or shoulder forms the center passage 8, which registers with the upper end of the passage 2, and the upper side of said flange or shoulder is inclined downwardly toward the center so that said passage 8 shall flare at its upper end, as shown at 9. The object of this construction will be presently explained. The said collar continues outward below said flange or shoulder 7, in the form of the internally threaded flange, 10, which engages the external threads at the upper end of the body-portion. Said collar also continues upwardly above said internal flange or shoulder, as shown at 11, and said flange 11, is provided in its upper edge with the oppositely disposed notches 12, for engagement with a suitable wrench for screwing the collar upon the body-portion of the burner and also for removing said collar.

Fitting snugly within the annular flange 11 of the collar and resting upon the flange or shoulder 7 is an arched burner-top 13, of perforated or any other suitable foraminous construction.

14 designates a stand or supply-pipe for introducing liquid hydro-carbon to the burner. The upper externally threaded end of said pipe engages the threads of the passage 4. A second pipe, 15, has its externally threaded end engaging the threads of the passage 5, and at its lower end communicates with the passage 16, of an arm 17, extending laterally and centrally below the passage 2 of the body-portion. Said passage 17 is closed at its outer end by a screw-plug 18, and at a point vertically beneath the center of the passage 2, is intersected by a vertical passage 19 of a nozzle-tube 20, which at its upper end terminates in a needle-valve opening 21, which is controlled by a needle-valve 22, provided with a threaded stem 23 and hand wheel 24, by which it is operated.

25 designates a mixing chamber, which is formed by depending from the passage 2 a vertical tube open at each end and having its lower end contiguous to the discharge-nozzle for the gas or vapor.

Referring now to Fig. 4, it will be noticed that the depending flange of the collar 6 marginally surrounds the upwardly flaring pas-

sage 8 instead of depending in the plane of the flange 11. Therefore it is obvious that said depending flange, numbered 10^a, in this instance cannot externally embrace the body-
 5 portion. Instead said flange is externally threaded, and engages internal threads of said body-portion.

In operation the oil passes up through the pipe 14, and passage 4, to the vaporizing
 10 groove or channel, and thence escapes to the discharge-nozzle by way of passage 5, pipes 15 and 17, when the device is put in operation in the usual manner, and the flame appears contiguous to the upper side of the foraminous
 15 burner-cap 13. Owing to the fact that said burner-cap is arched and that the passage 8 is flared immediately below said arch, the rising vapor and air tend to spread laterally and a part of the ensuing flame will be directed
 20 against the vertical flange 11, and the heat therefrom be communicated quickly to that portion of the burner surrounding the vaporizing passage 3, so that the oil passing through may be quickly and thoroughly vaporized, and
 25 continue on through the passage 5 to the discharge-nozzle in the form of gas or vapor. From said nozzle it is discharged upwardly through the chamber 25, where it mingles with the air in the customary manner and passes
 30 to the burner-cap where it is ignited.

It will be noticed that this burner possesses advantages over the majority of hydro-carbon burners from the fact that it can be manufactured much cheaper, cleaned more easily,
 35 and is more durable, as I obviate any necessity for drilling or boring numerous passages and the consequent employment of screw-plugs to close the same.

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

1. A hydrocarbon burner comprising a body portion having a passage through it forming a mixing chamber, an annular cap forming
 45 with the body portion a vaporizing channel

and having an upwardly extending flange, a perforated screen carried by the cap beneath the top of the flange, the perforations of which are directed toward the flange, an inlet pipe connected with the vaporizing channel and an outlet pipe extending beneath and adapted to discharge into the mixing chamber, substantially as described.

2. A hydrocarbon burner comprising a body portion having a groove in its top and having a passage through it forming a mixing chamber, an annular cap having screw threads adapted to engage screw threads on the body portion, and fitting over the groove in the body portion so as to make a vaporizing channel the cap being provided with an upwardly projecting flange, a perforated screen carried by the cap beneath the top of the flange having its perforations directed toward the flange, an inlet pipe connected with the vaporizing channel, an outlet pipe extending beneath and adapted to discharge into the mixing chamber, substantially as described.

3. A hydrocarbon burner comprising a body portion having a groove in its top and having a passage through it forming a mixing chamber, an annular cap having screw threads adapted to engage screw threads on the body portion, having an upwardly projecting flange an inwardly projecting shoulder beneath the top of flange adapted to cover the groove in the body portion and so form a vaporizing channel, the upper surface of said shoulder being inclined downwardly toward the center and supporting a perforated screen, an inlet pipe connecting with the vaporizing channel, an outlet pipe extending beneath and adapted to discharge into the mixing chamber, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES E. WHITE.

Witnesses:

M. R. REMLEY,
 G. Y. THORPE.