(No Model.)

C. H. CHILDS.

VAPOR BURNER.

No. 523,303. Patented July 17, 1894.

Fig. 1.

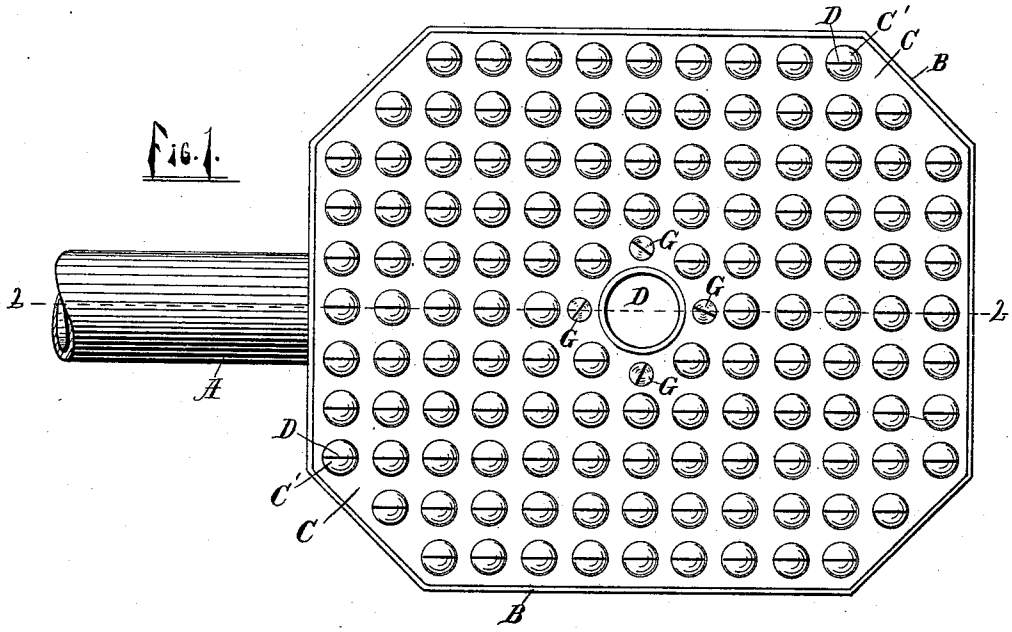


Fig. 2.

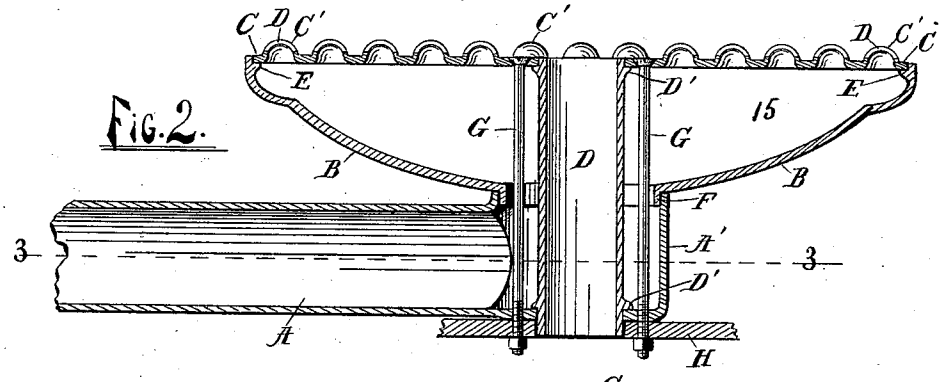
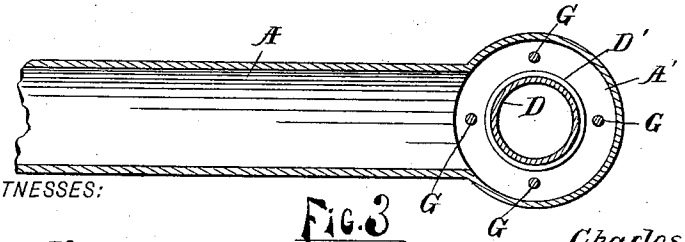


Fig. 3



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES H. CHILDS, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THOMAS FRIANT, T. STEWART WHITE, THOMAS M. PECK, FELIX RANIVILLE, DANIEL McCOY, McGEORGE BUNDY, JOSEPH J. TUCKER, AND LOIS A. GIDDINGS, OF SAME PLACE.

VAPOR-BURNER.

SPECIFICATION forming part of Letters Patent No. 523,303, dated July 17, 1894.

Application filed March 13, 1893. Serial No. 465,715. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. CHILDS, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Vapor-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in vapor burners for stoves, and its object is to provide the same with certain new and useful features, hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of a device embodying my invention; Fig. 2 a vertical section of the same on the line 2—2 of Fig. 1, and Fig. 3 is a horizontal section on the line 3—3 of Fig. 2.

Like letters refer to like parts in all of the figures.

A is the tube leading from the gas-jet, in which tube the mixture of gas or other combustible vapor and air flows toward the burner. Said tube terminates in a cylindrical head A′, having its axis vertical and at right angles to the tube A, and provided with an upper opening the entire size of the interior of said head, in which is inserted a downwardly projecting flange F, surrounding an opening in the bottom of a substantially funnel shaped, or inverted truncated conical chamber 15, which chamber is provided with an inwardly projecting flange E, which supports a top plate C, which plate is provided at regular intervals throughout its entire surface (except a small central portion) with hemi-spherical tips C′, which tips are hollow and connect with the interior of the chamber B. Said tips are arranged in rows and are provided with slits D, through which the combustible mixture escapes, thus distributing the flame over the entire surface of said top plate in a series of thin sheets with air spaces between the same. To furnish a further supply of air to the flame, a tube D is inserted in the axis of the head A′, which tube at each end passes through openings in the bottom of said head and in the center of the top plate C, and is provided with flanges D′ D′ near each end, engaging the inner surfaces of the head A′, and the top plate C to hold said tube in place. Said tube is of less diameter than the interior of the head A′, thus leaving an annular space around the same for the escape of the combustible mixture.

Suitable bolts G extend vertically through the top plate, chamber B and head A′, and are provided with screw threads, which engage threaded openings in the bottom of said head. There bolts serve to hold the various parts in place, and are extended below the chamber A′ to pass through the plate H, and are provided with nuts at their lower ends, whereby said bolts also serve to secure the burner to the said plate. By providing the screw threaded openings in the head A as described, and extending the bolts, I am able to detach the burner from the plate H by removing the nuts, without detaching the parts comprising the burner, from each other. By discharging the mixture from the tube A, against the tube D in the head A′, and thence through the annular opening around the same, and thence into the funnel shaped chamber B, I am able to secure a more perfect mixture of gas and air, and a more even distribution to the tips. I am also able to supply a quantity of air to the center of the fire through the vertical tube D, which renders the combustion more perfect.

It will be observed that the hollow tips rise upward from the top surface of the flat plate, and that they are entirely separated from each other, longitudinally and transversely, by the flat surface of said plate. This is of the greatest importance, because each tip thereby opens separately into the chamber, 15, and its receiving end is separated from the receiving end of every other tip and entirely surrounded by parts of the flat under surface of the top plate, whereby each tip will measure the quantity of gas it uses and will not rob any other tip of the supply it should have in order to produce a steady, uniform flame throughout the entire surface of the burner, instead of a flame surging back

and forth by jumping from one issue opening to another, such steady, uniform flame being thereby produced without the aid of an "equalizing or distributing plate" within the burner.

What I claim is—

1. In a vapor burner, a top plate having openings at regular intervals for the escape of vapor, and a central opening, a funnel shaped or inverted truncated conical chamber, having an inwardly projecting flange supporting said plate, and a downwardly projecting flange at the bottom, a cylindrical head surrounding said bottom flange, said head having a lateral inlet pipe and a bottom opening, a pipe extending through said openings in said top plate and head, and having flanges engaging the inner surfaces of the same, and bolts extending through said plate, chamber and head, substantially as described.

2. In a vapor burner, in combination with a plate having tips an inverted truncated conical chamber, a head detachably connected to the bottom of said chamber, having a lateral inlet pipe, and a tube passing through openings in the bottom of said head and in said top plate, bolts extending through said plate chamber and head, and screw threads on said bolts engaging threaded openings in the bottom of said head, said bolts also extended below said head and provided with nuts, substantially as described.

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

CHARLES H. CHILDS.

Witnesses:
LOIS MOULTON,
LUTHER V. MOULTON.