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PATENTED NOV. 13, 1906.

G. HOCHSTRASSER.
HYDROCARBON BURNER.
APPLICATION FILED APR. 9, 1902.

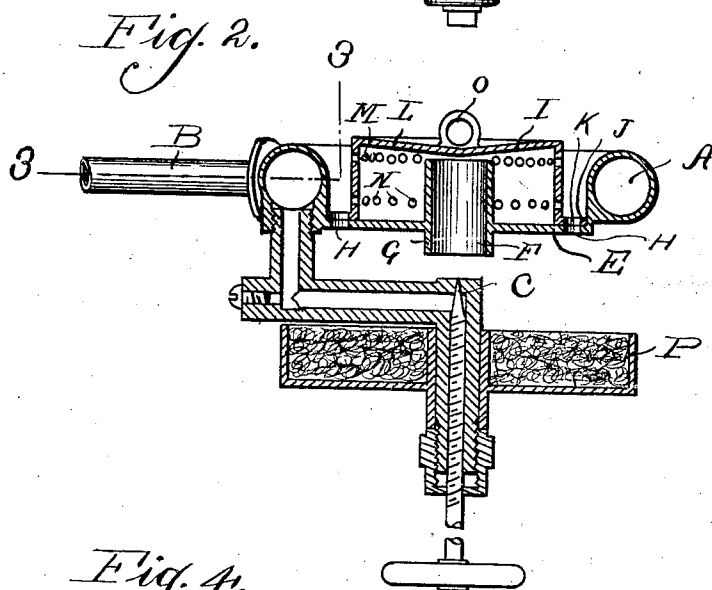
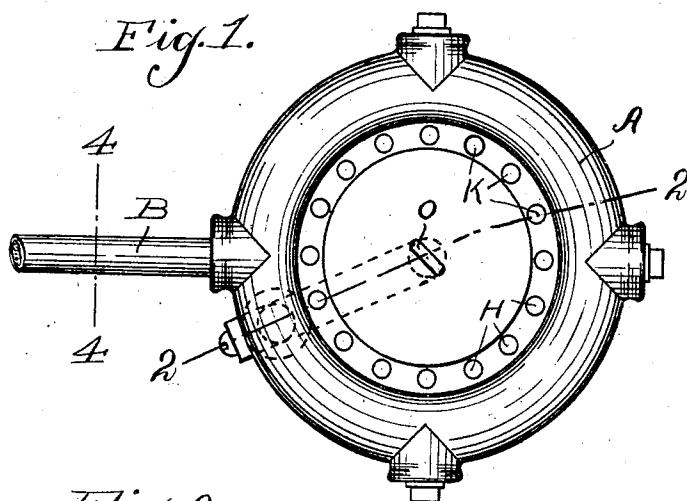


Fig. 4.

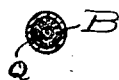
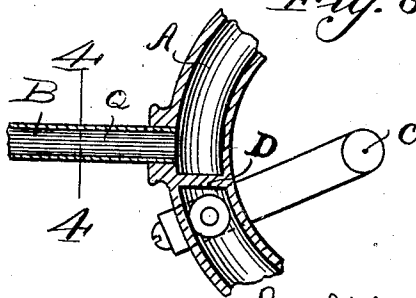


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

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HYDROCARBON-BURNER.

No. 835,683.

Specification of Letters Patent.

Patented Nov. 13, 1906.

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To all whom it may concern:

Be it known that I, GOTTLIEB HOCHSTRASSER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hydrocarbon-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 a novel construction in a hydrocarbon-burner, the object being to provide a burner which will give perfect combustion, and hence will be smokeless and odorless, and which will produce a uniform flame unaccompanied by the roaring so general in burners of this character.

In the accompanying drawings, illustrating my invention, Figure 1 is a top plan view of a burner constructed in accordance with my invention. Fig. 2 is a section of same on the line 2 2 of Fig. 1. Fig. 3 is a fragmentary detail section of same on the line 3 3 of Fig. 2. Fig. 4 is a transverse section of the feed-pipe on the line 4 4 of Fig. 1.

Referring now to said drawings, A indicates a ring-shaped generator in which the oil is transformed into gas, said generator being fed by a pipe B and communicating with a pin-valve C, a partition-wall D being interposed in said generator adjacent its inlet, so as to cause the oil or gas to pass the entire length of the generator before entering the passage leading to said pin-valve C. Cast integral with or secured to said annular generator A is a flat plate E, provided with a central opening F, surrounded by annular flanges G, extending above and below said plate E. Said plate E is also provided adjacent the generator with an annular row of openings H. Resting loosely on said plate E is a hollow cylindrical cap I, provided with an annular flange J, having openings K adapted to register with said openings H in said plate E. The said cap I is provided with an inverted-cone-shaped top wall L, the apex of said cone being in axial alinement with said central opening F in plate E and with the opening in said pin-valve C, so that the gas issuing from the latter will be radially deflected as it impinges against said top wall. The said annular flanges G form a sleeve through which the gas passes into said cap, drawing air with it, which mixes with said gas to produce per-

fect combustion. The mixed gas and air passes out of the annular rows of openings M and N in the cylindrical wall of said cap I and ignites, the flames shooting from the openings N impinging directly against the generator A and maintaining the latter constantly at a red heat. The flames shooting from the openings M are directed to just brush over the top of the generator, thus aiding in maintaining the high temperature of the latter. The air admitted through the openings H and K further promotes perfect combustion, and by turning said cap the said openings may obviously be contracted to adjust the flame. I provide an eye O on the cap I, by means of which same can be turned.

On the casing of the pin-valve C a receptacle P is supported which is filled with asbestos or mineral absorbent which is soaked with oil and ignited to primarily heat the generator. When the latter is heated to a sufficient extent, the pin-valve is opened slightly, the generated gas passing into the cap and being ignited as it issues from the openings M and N.

The flow of oil to the generator must naturally be limited, as if too large it acts to cool the latter and prevent generation. Rapid reflux of the oil, due to increase in pressure caused by generation, must also be prevented, as otherwise the flame will be very unsteady, being similar to that produced in a plumber's gasoline-stove—that is, intermittently flaring. To overcome these objections, I insert in the feed-pipe B a piece of loosely-woven wire cable Q, which obviously greatly hinders the flow of oil and causes same to enter the generator slowly in a finely-divided state, so that it is immediately transformed into gas without materially affecting the temperature of the generator. As such oil must be introduced under pressure, the wire cable acts as a resisting agent to prevent variations in pressure from being communicated from the generator to the supply-tank, and vice versa. As a result the flame is absolutely uniform.

My said burner is more particularly suited for the consumption of refined and crude petroleum and produces a maximum temperature with minimum consumption.

It will be obvious that the general shape of the burner may be changed to suit various requirements without departing from the spirit of my invention.

I claim as my invention—

1. A hydrocarbon-burner comprising an annular generating-chamber communicating at one end with a source of hydrocarbon liquid under pressure and terminating at its other end adjacent said inlet, a discharge-valve communicating with said generating-chamber at said last-named end, a plate supported by said generating-chamber and provided with an annular row of perforations disposed concentric with said generating-chamber and provided with a central opening surrounded by an annular flange projecting above said plate, a combustion-chamber revolvably supported on said plate, an annular flange thereon provided with perforations corresponding in number and location with said perforations in said plate, said combustion-chamber being provided with a centrally-depressed upper wall against which the generated gas is adapted to impinge, there being a plurality of annular rows of perforations in the annular wall of said combustion-chamber one of which is adapted to direct the flame against the generating-chamber, said discharge-valve being so disposed as to direct the generated gas through said central opening in said plate.
2. In a hydrocarbon-burner, the combination with an annular generating - chamber having a partition-wall interposed therein, and having an inlet at one side of said wall, a duct leading from the other side of said wall to a valve-controlled outlet disposed below said annular generating-chamber and in vertical alinement with the center thereof, a plate supported by said generating-chamber, a vertical tube disposed in the center of said plate, a revolvable cap resting on said plate and provided with radial openings, said cap forming a mixing-chamber for gas and air and

said openings being so disposed as to cause a number of jets of flame to impinge against said generating - chamber, and an annular flange on said cap provided with openings, there being openings in said plate adapted to register with the openings in said flange and be controlled by said flange to regulate the feed of air between the outer wall of said cap and the inner wall of said generating-chamber.

3. A hydrocarbon-burner comprising an annular generating - chamber, a plate supported thereby having a central flanged opening, there being an annular series of perforations in said plate adjacent said generating-chamber, connection between said generating-chamber and a source of supply of oil, connection between said generating-chamber and a valve, said valve being located below said opening in said plate and in axial alinement therewith, a cylindrical cap movably supported on said plate and having the inner face of its top wall tapered to form an inverted cone, an annular flange on said cap having perforations adapted to register with the perforations in said plate, and there being a plurality of series of perforations in the cylindrical wall of said cap at which the hydrocarbon fluid is adapted to ignite, one of said series of perforations being adapted to direct the flames against said generating-chamber, said fluid being adapted to impinge against the tapered face of said cap and be deflected thereby toward said series of perforations.

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

GOTTLIEB HOCHSTRASSER.

Witnesses:

RUDOLPH WM. LOTZ,
JOHN SNOWHOOK.