(No Model.)

B. G. DEVOE.

HYDROCARBON GENERATOR AND BURNER.

No. 568,748. Patented Oct. 6, 1896.

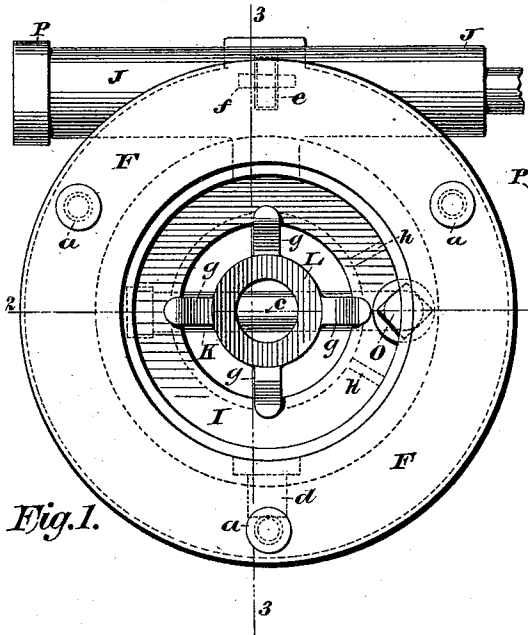

Fig. 1.

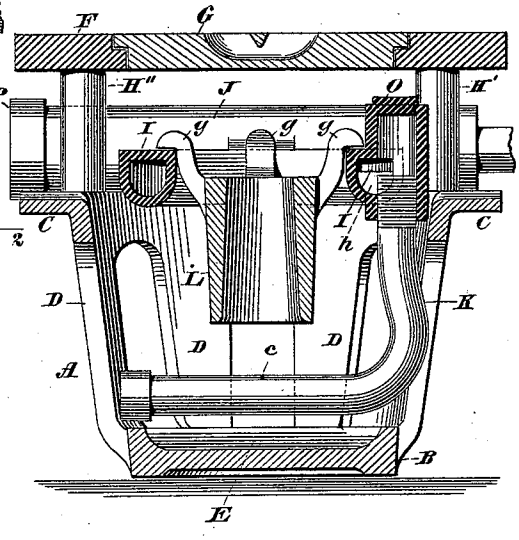

Fig. 2.

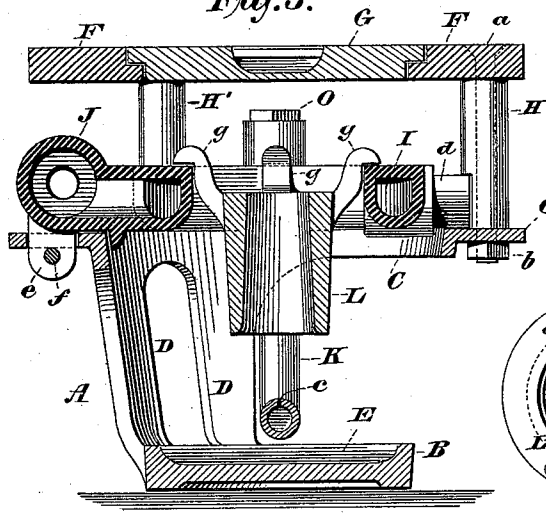

Fig. 3.

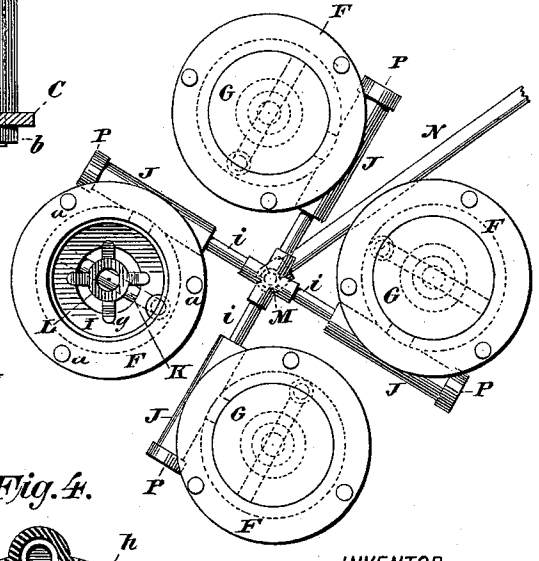

Fig. 5.

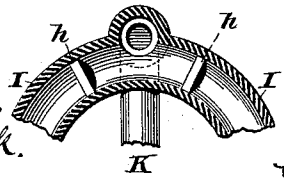

Fig. 4.

WITNESSES:
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BY
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UNITED STATES PATENT OFFICE.

BENJAMIN G. DEVOE, OF LIMA, OHIO.

HYDROCARBON GENERATOR AND BURNER.

SPECIFICATION forming part of Letters Patent No. 568,748, dated October 6, 1896.

Application filed April 20, 1895. Serial No. 546,468. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN G. DEVOE, a citizen of the United States, residing at Lima, Allen county, in the State of Ohio, have invented certain new and useful Improvements in Hydrocarbon Generators and Burners, of which the following is a full, clear, and exact description.

My invention has for its object to produce a hydrocarbon generator and burner of the smallest number of parts possible, and one which may, according to the intensity of the heat desired, be increased by connecting a number of said generators together, either in series or group form, and feeding the same from a common source of oil supply.

The invention has for its further object certain improvements in the form of vaporizing retort and mixer.

The particular nature of the invention, together with the details of construction of the apparatus, will be hereinafter more fully set forth.

In the accompanying drawings, forming part of this specification, wherein like letters of reference indicate like parts, Figure 1 is a top or plan view of a single generator and burner. Fig. 2 is a section thereof taken on the line 2 2. Fig. 3 is a similar view taken on the line 3 3. Fig. 4 is a detail sectional view of a portion of the vaporizing-chamber, showing the partitions therein; and Fig. 5 is a view illustrating the manner in which four generators and burners may be connected in group form and fed from a common source of oil supply.

In the drawings, A designates a frame consisting of a base B and a platform C, supported above said base by means of standards D, integral with said base and platform. The base B is recessed so as to form a pan E, and the platform C is provided with a circular aperture.

F is a deflecting-plate supported above the platform C upon tubular standards H H′ H″, and held in position by means of bolts *a*, passing through said plate F, standards H H′ H″ and platform C, beneath which they are secured by nuts *b*. In the center of the deflecting-plate F is a circular aperture into which is fitted a lid G.

I is an annular vaporizing-chamber having an oil-receptacle J communicating therewith, and a vapor-delivery pipe K, having a vapor-outlet *c* therein, connected to said vapor-chamber, said vapor-delivery pipe extending from below into the annular vaporizing-chamber. The vaporizing-retort is supported upon the platform C and held securely in position by means of the lug *d* at the front of the vaporizing-chamber, which fits into the recessed portion of the standard H, and the depending lug *e* on the under side of the oil-receptacle, which extends through a slot in the platform C, beneath which it is locked by means of a pin *f*.

Within the open central portion of the vaporizing-chamber is a cylindrical vapor-shell L, having a conical passage therein and supported in such a way by the radial arms *g*, which are adapted to rest upon the top of the vaporizing-chamber I, that top of the shell L shall be about on a level with the under side of the vaporizing-chamber I.

The vapor-shell L is made smaller in diameter than the open central portion of the surrounding vaporizing-chamber, and consequently leaves an annular passage between the two through which the air is drawn when the apparatus is in operation, and thus forms a mixer. As the vaporizing-chamber of the retort is disposed in direct presence of the fire the same becomes intensely hot, and as the air which is drawn into the passage between it and the shell L becomes superheated thereby it will render the combustion more perfect as it mixes with the vapor issuing from the contracted mouth of the shell L. In this connection it is to be observed that a feature of the retort is the making of the base of the oil-receptacle on a level with the vaporizing-chamber, the object in so constructing the same being to cause the small quantity of oil admitted to the oil-receptacle to be fed very slowly into the vaporizing-chamber. To prevent a sudden rush of oil in the vaporizing-chamber entering the vapor-delivery pipe, the same is made to extend a short distance therein, and to each side of said pipe, within the vaporizing-chamber, is a partition *h*, which almost reaches the top, leaving only a small passage above the same for the vapor.

In the upper side of the vaporizing-chamber I, directly above the place where the pipe

K enters the same, is an aperture provided with a screw-plug O.

In Fig. 5 I have shown four generators and burners connected in group form, the oil-receptacles J being connected by short pipes *i* to a suitable joint M, to which is also connected a pipe N, leading to the oil-container.

Where a greater number of burners than is here shown is required, it simply becomes necessary to remove the caps P of the oil-receptacles and connect to said ends, by means of short sections of pipe, the opposite ends of the oil-receptacles of the additional generators and burners.

The operation of the apparatus is as follows: A small quantity of asbestos is placed in the pan E, and after saturating the same it is then ignited. Thereupon a small quantity of oil is admitted to the receptacle J, from whence it passes slowly into the vaporizing-chamber, which, being in direct presence of the fire, rapidly vaporizes the oil. This vapor is then conducted through the vapor-delivery pipe K to a point beneath the vaporizing-chamber I and the shell L, where it issues from a small aperture *c* in said pipe K and is driven into the conical passage of the shell L, above which it is mixed with the air which is superheated in its passage between the said shell L and the annular vaporizing-chamber I. By removing the lid G in the deflecting-plate the fire will be enabled to reach the objects on the stove to be heated.

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

A hydrocarbon generator and burner comprising a tubular oil-receptacle, an annular vaporizing-chamber having an aperture in the under side thereof, and partitions within said vaporizing-chamber to each side of said aperture extending almost to the top of said vaporizing-chamber, a hollow connecting-section uniting the oil-receptacle and the vaporizing-chamber and forming a passage for the oil between the oil-receptacle and the vaporizing-chamber, a removable, cylindrical vapor-shell having a contracted mouth and radially-projecting arms at the top thereof adapted for contact with the upper side of the vaporizing-chamber to support the vapor-shell loosely within the open central portion of the vaporizing-chamber beneath the top thereof, and a vapor-delivery pipe having one end thereof secured to the vaporizing-chamber between the partitions aforesaid, and its other end free and extending downwardly beneath the vapor-shell and provided with a vapor-outlet in the upper side thereof in line with the central passage of the vapor-shell, substantially as specified.

Signed at the city of New York, in the county and State of New York, this 18th day of April, 1895.

BENJAMIN G. DEVOE.

Witnesses:
GUSTAVE DIETERICH,
JOHN KEHLENBECK.