

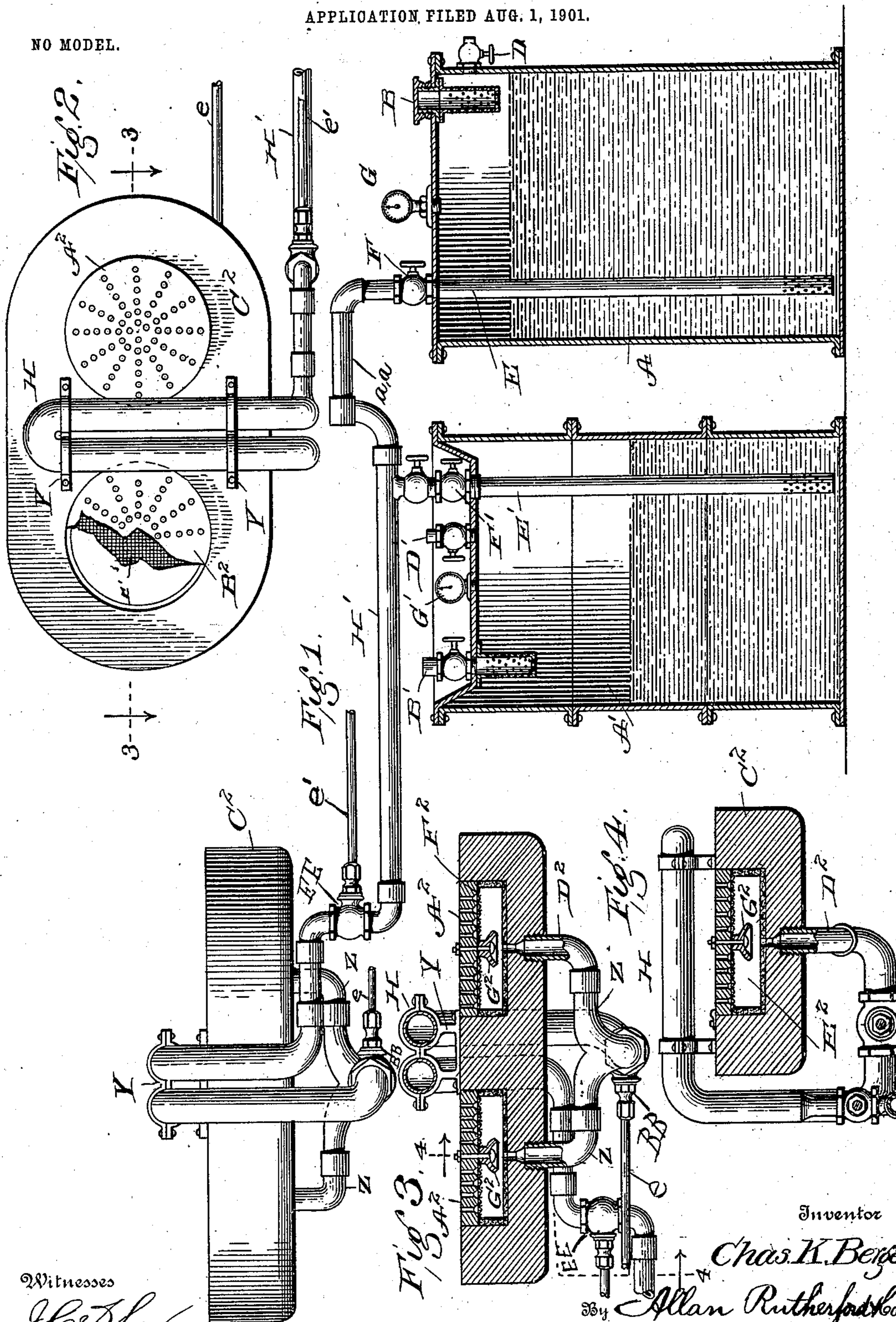
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C. K. BERGÉ.
OIL BURNER.

APPLICATION FILED AUG. 1, 1901.

NO MODEL.



Witnesses
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UNITED STATES PATENT OFFICE.

CHARLES K. BERGE, OF MOBILE, ALABAMA.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 724,247, dated March 31, 1903.

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To all whom it may concern:

Be it known that I, CHARLES K. BERGE, a citizen of the United States, residing at Mobile, in the county of Mobile and State of Alabama, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a burner and generator for the burning of from one hundred and fifty to one hundred and seventy-five fire-test oil and crude oil and has special relation to crude and heavy oils.

The object of my invention is to provide a means by which crude and other heavy oils are converted into gas for the purpose of using the same to produce steam-making power. To accomplish this object, I have provided by preference a tank designed to contain oil and air under pressure, a hydrocarbon-burner, a generator, and a connecting-pipe through which the oil is forced by the compressed air to the generator, where it is vaporized for supply to the burner. The burner in practice is placed in the fire-box of a furnace or like part and the air passing through the draft-openings of the furnace will aid in supporting combustion of the gas.

My invention further consists of details hereinafter shown and described.

Referring to the drawings, Figure 1 is a side view of my improved burner connected directly with two supply-tanks, said tanks being shown in section for better illustration. Fig. 2 is a top plan view of same. Fig. 3 is a section on the line 3 3 of Fig. 2 looking in the direction of the arrow. Fig. 4 is a transverse section on the line 4 4 of Fig. 3.

A of Fig. 1 is a supply-tank of cylindrical form composed of any suitable metal.

B is an oil-inlet valve covered at its lower end with wire-gauze or other perforated metal to serve as a strainer.

D is a detachable air-inlet valve situated to the side of and below the oil-inlet valve B.

E is a small pipe entering from the top of the tank A and descending to within one-half inch of the bottom of said tank and provided at its lower end with gauze-wire or other perforated metal to serve as a strainer and provided at its upper end at its entrance into the tank A with a detachable valve F for the

purpose of shutting off or regulating the flow of oil. G is an air-pressure gage to indicate the quantity of air-pressure.

A' of Fig. 1 is a supply-tank, also of cylindrical form and of the same material as tank A, with its top formed below the top of and interiorly of its walls, so as to form a cavity, said cavity having walls ascending from its base to meet the top of the walls of A'. Said tank A' is also provided at its top with a detachable inlet-valve B', provided at its lower end with a gauze-wire or perforated metallic covering to serve as a strainer, with a detachable air-valve D', with a small pipe E' descending from said top to within one-half inch of the bottom of said tank A', and provided at its lower end with a gauze-wire or other perforated metal covering to serve as a strainer, and provided at its upper end at its entrance into tank A' with a detachable valve F' for the purpose of shutting off or regulating the flow of oil. G' is an air-pressure gage to indicate the quantity of air-pressure, the same as G on tank A.

A² represents the burners, preferably circular in form, each provided with a gas chamber or reservoir E², formed in a body C², of brass or other suitable material, and covered by an apertured wall arranged by preference flush with the upper surface of the body. Said apertured wall is preferably formed by a foraminated metallic disk B², attached to the body, and a wire-gauze disk F², disposed below the disk B², as shown. A pipe D², connected to the body C² below the chamber or reservoir E², is connected with said reservoir by a port or opening, as shown. Directly over the opening formed by the entrance of the pipe D² in the reservoir E² and projecting from the under surface of the foraminated brass disk B² is a bell-shaped member, of brass or other suitable metal G², Figs. 3 and 4, attached to said foraminated disk B², and serves to flare the gas arising from D², making when the gas is ignited a broad round flame. Said reservoir E² is preferably provided on its walls and upper surface of its bottom with asbestos.

Interposed between the burners A² and crossing partly over and between the foraminated disks B² is a generator H, of tubular form, arising around and over one of the

sides of the said brass body C^2 , being continued from a service-pipe H' . Said generator H crosses said body C^2 on its top surface between said burners A^2 and over the inner edge of the upper surface of body C^2 . Said generator H is curved or bent upon itself when it reaches to nearly the opposite edge of the brass body C^2 and is returned to form two horizontal parallel tubes between said burners A^2 , and continuing is carried over the side of the body C^2 to below its under surface, connecting with two pipes $Z Z$, going in opposite directions, said pipes $Z Z$ connecting with the pipes D^2 , which open into the reservoirs E^2 . Said generator H is attached to the upper surface of the brass body C^2 by means of brackets $Y Y$.

The service-pipe H' is connected near its outer end with the upper end of the pipe E' , which it will be seen is equipped with valves F' , located below said service-pipe, the short section of pipe $a a$ being connected with the outer end of said service-pipe and having a depending branch connected with the upper end of the pipe E . By means of these valves each tank can be cut off from the service-pipe without disturbing the other, so that when a tank is thus cut off the same can be supplied with oil and hydrocarbon without extinguishing the flame at the burner. It will be evident that the pipes E and E' constitute in effect branches of the service-pipe H' .

$B B$ of Fig. 1 is a shut-off valve to regulate the flow of gas from the generator H to the pipe D^2 and the reservoirs E^2 .

$E E$ is a valve serving to regulate the flow of oil from the supply-tanks A and A' to the generator H .

The stem of the valve $B B$ is denoted by e , while that for the valve $E E$ is denoted by e' , and these stems are each adapted to be connected with an actuating member by which the said valves can be operated.

The supply-tanks A and A' are, as shown, detachable and can be disconnected one from the other and from the generator and burners, and the device can be operated with one supply-tank or with both at the one time, thereby enabling one tank to be replenished with oil and air while the other is in operation.

To facilitate the moving of supply-tank A' and to prevent the interference of any of the adjacent machinery with its valves and attachments, its top, with said valves and attachments, is depressed, as shown.

To operate my improved oil-burner, the tanks A and A' are supplied with oil through the inlet-valves B and B' to about two-thirds their capacity, and the oil in passing through the gauze-wire or perforated metal strainers at the lower ends of valves B and B' is freed of all solid matter. By means of an air-pump or other suitable means attached to the valves D and D' of said tanks air is forced into said

tanks to the required amount, which amount can be gaged by the air-gages G and G' . The valves F and F' are then opened, and the oil is forced out of the supply-tanks through the detachable piping $a a$ and the service-pipe H' to valve $E E$, where its flow into the generator H is regulated. When a sufficient quantity of oil has flowed into the generator H , said generator is heated by means of a torch, waste saturated in oil, or other suitable means applied to it, which heat applied to the generator H creates a gas formed therein, and said gas thus created passing from the said generator H is conveyed by the manipulation of the valve $B B$ to the pipe D^2 , and thence to the reservoir E^2 , where it strikes against the bell-shaped member G^2 and is flared, and thus spreading outwardly ascends through the foramina of the disks B^2 and the gauze-wire covering F^2 and is ignited. By reason of its position between the burners A^2 and over portions of the foraminated disks B^2 the generator H is kept constantly heated by the flame from said burners A^2 when they are ignited, and when so heated and with oil contained therein said generator H is continuously generating gas to be consumed in said burners A^2 .

It will be readily appreciated from the foregoing that my improved oil-burner is adapted for use in all lines of manufacture, commerce, or trade requiring the use of steam, and it is simple and can be operated at a trifling expense.

I have entered into a detailed description of the construction and relative arrangement of parts embraced in this embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claims.

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

1. An oil-burner comprising a body having cavities or reservoirs in its upper side at a suitable distance apart, open-work walls covering said cavities or reservoirs and arranged flush with the upper side of the body, vapor-spreading devices at the under sides of the open-work walls, a generator disposed above the body and in a plane between the cavities or reservoirs, and formed of a tube bent upon itself, with its portions resting in the same horizontal plane, conduits connected to one end of the generator and leading into the cavities or reservoirs of the body at points below the vapor-spreading devices, and suitable means for connecting the other end of the generator and a source of fuel-supply.

2. An oil-burner comprising a body having cavities in its upper side, open-work walls covering said cavities, vapor-spreading devices

5 at the under sides of the open-work walls, a generator disposed above the body and in a plane between said cavities, and consisting of a tube bent upon itself, conduits connected to the generator and also with said cavities below said vapor-spreading devices, means adapted to connect said generator with a source of fuel-supply, linings of asbestos for said cavities, and reticulated material in the

respective concavities below said open-work to coverings.

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

CHAS. K. BERGÉ.

Witnesses:

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