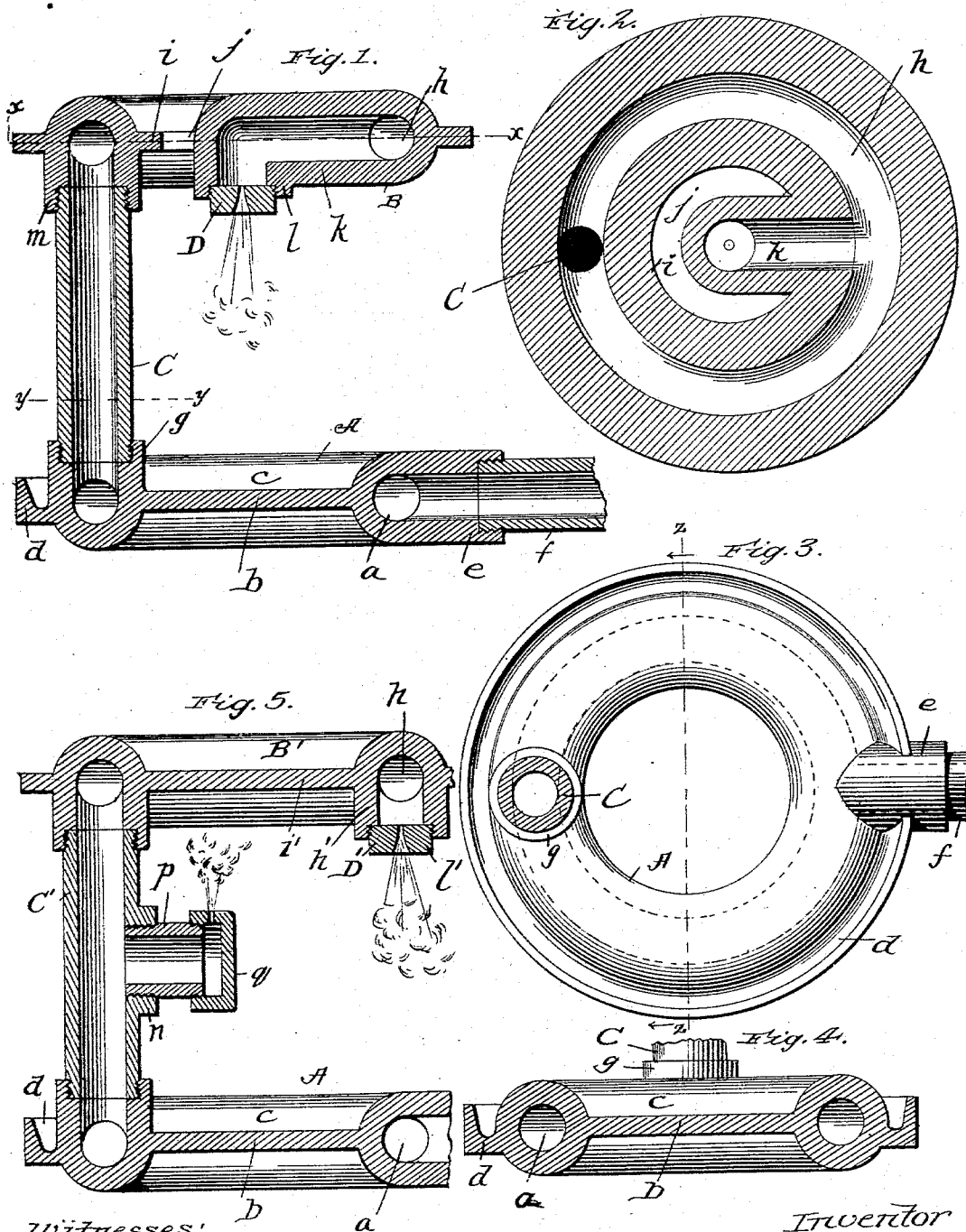


(No Model.)

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RETORT VAPORIZER AND BURNER.

No. 533,779.

Patented Feb. 5, 1895.



Witnesses:

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RETORT VAPORIZER AND BURNER.

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To all whom it may concern:

Be it known that I, PHILANDER BETTS, Jr., a citizen of the United States, residing at Hackensack, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Retort Vaporizers and Burners; and I do 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 retort vaporizers and burners; and it has for its general object to provide such a device of a very simple, cheap and compact construction and one which may be readily taken apart when it is necessary to clean or repair it, and which is adapted to convert the oil into a highly inflammable gas or vapor before it reaches the burner so as to obtain an intense heat with the consumption of but a minimum amount of oil.

Other objects and advantages of the invention will be fully understood from the following description and claim when taken in connection with the annexed drawings, in which—

Figure 1, is a diametrical section of my improved vaporizer and burner. Fig. 2, is a horizontal section taken in the plane indicated by the dotted line *x, x*, of Fig. 1. Fig. 3, is a similar view taken in the plane indicated by the line *y, y*, of Fig. 1. Fig. 4, is a detail, diametrical section taken in the plane indicated by the line *z, z*, of Fig. 3, and Fig. 5, is a vertical, diametrical section of a modification.

Referring by letter to the said drawings and more particularly to Figs. 1, to 4, thereof:—A, indicates the retort or gas generator of my improved device, which also serves as a base for the same.

B, indicates the superheating chamber which is arranged above the retort or generator, and C, indicates the tube or pipe which connects the retort and chamber B, and also serves to support the chamber above the retort as illustrated.

The retort, or generator A, is preferably of a circular form in plan as shown in Fig. 3, and it is cast or otherwise formed in one piece and comprises the hollow portion *a*, which is pref-

erably of a circular form in cross section and is designed to receive the oil to be generated into gas, and the central horizontal wall *b*, which is designed to serve in conjunction with the hollow portion *a*, to form a receptacle *c*, for a purpose presently to be described. The said hollow portion *a*, of the retort is provided on its outer side with a gutter flange *d*, designed to catch any oil that may overflow it, and it is also provided with the internally threaded socket *e*, to receive the pipe *f*, which leads from a source of oil supply, and with the vertically-disposed, internally-threaded socket *g*, to receive the externally-threaded lower end of the connecting tube or pipe C.

The chamber B, of my device is similar in general form to the retort or generator A, and it comprises the hollow portion *h*, which is preferably of a circular form in cross section and is designed to receive the vapor or gas generated in the retort, the central horizontal wall *i*, which is preferably provided with an opening *j*, to permit the heat and flame to pass upwardly, and the inwardly-extending branch pipe *k*, which terminates at a point above the center of the retort in a vertically-disposed, internally-threaded socket *l*, to receive the externally-threaded burner D. The said chamber B, is also provided with an internally-threaded socket *m*, which communicates with the hollow portion *a*, and is designed to receive the upper end of the tube C, whereby it is evident that the chamber B, may be readily disconnected from the tube when desired for any purpose.

In operating my improved vaporizer and burner, oil is permitted to flow through the supply pipe *f*, to the retort A, from whence it rises through the pipe C, to the chamber B, and drops through the burner D, into the receptacle *c*, formed by the wall *b*, and hollow portion *a*, of the retort A. When a sufficient amount of oil has collected in the receptacle *c*, it is ignited so as to heat and convert the oil in the retort, the pipe C, and the chamber B, into a highly inflammable gas or vapor. This gas or vapor is ignited as it reaches the burner D, and being discharged downwardly the flame spreads over and highly heats the retort or generator so as to convert the oil therein into vapor or gas, and also heats the

pipe C, and the chamber B, so as to super-heat, as it were, the gas or vapor within the same.

In Fig. 5, of the drawings, I have illustrated
5 a modification of my device which embodies two burners, one burner being designed to discharge the flame downwardly so as to highly heat the retort or vaporizer while the other is
10 designed to discharge the flame upwardly against the superheating chamber so as to better super-heat the gas or vapor therein and render the same more volatile. This modified construction embodies a retort A, similar to that shown in Figs. 1 to 4, but the tube or pipe
15 C', differs from the pipe C, in that it is provided with a threaded socket n, to receive the lateral branch pipe p, which carries a burner q, at its outer end, while the chamber B', differs from the chamber B, in that it has no
20 opening in its horizontal wall i', and has its burner D', arranged in a socket l', depending from the hollow portion h', instead of a socket at the end of a branch pipe. By reason of the burners D', and q, being arranged as just
25 stated, it will be seen that the burner D', will discharge the flame down upon the retort and will highly heat the same for the purpose of vaporizing the oil, while the burner q, will discharge the flame upwardly against the center
30 of the chamber B', so as to highly heat the same and superheat the gas or vapor therein. It will be seen from the foregoing that

while my improved device is designed to convert oil into a very volatile gas so as to give out an intense heat with the consumption of 35 but a minimum amount of oil, it is very cheap, simple and compact and its parts may be readily disconnected by unskilled labor to clean it or for any other purpose.

Having described my invention, what I 40 claim is—

The herein described oil vaporizer and burner comprising the retort or generator formed in one piece and adapted to serve as a base and having the hollow portion a, the wall b, 45 arranged within the hollow portion and the gutter flange d, upon the outside of the hollow portion, the tube or pipe detachably connected to and rising from the hollow portion a, of the retort or generator, the superheating 50 chamber formed in one piece and arranged above the retort or generator and having the hollow portion detachably connected to the upper end of the tube or pipe, and a burner carried by the superheating chamber and 55 adapted to discharge flame downwardly, substantially as and for the purpose set forth.

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

PHILANDER BETTS, JR.

Witnesses:

NILE CRIST,

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