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A. C. SMITH.
VAPOR BURNER.
APPLICATION FILED MAY 6, 1909.

Patented Apr. 5, 1910.

3 SHEETS—SHEET 1.

Fig. 1.

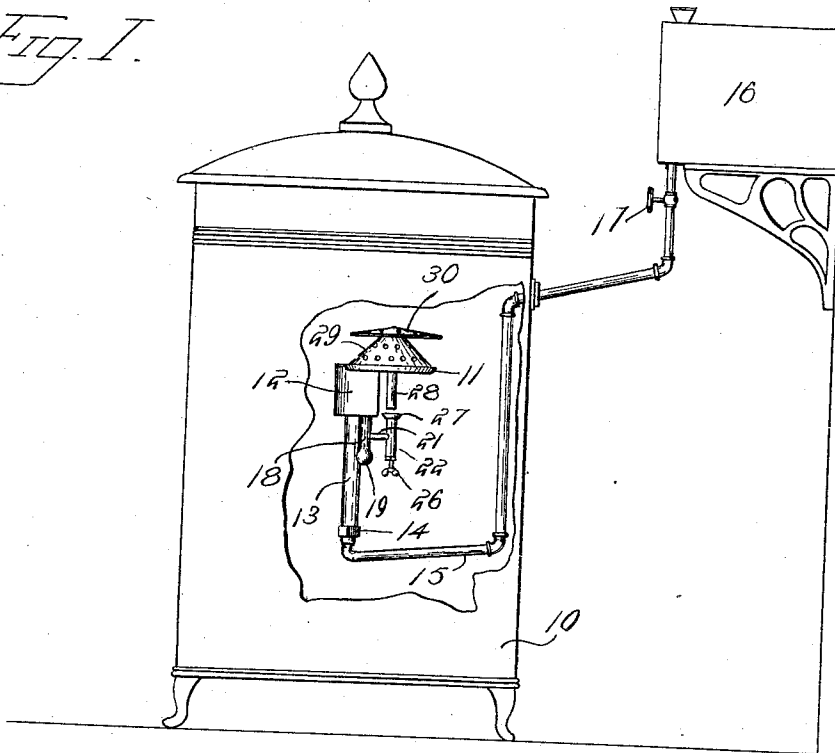
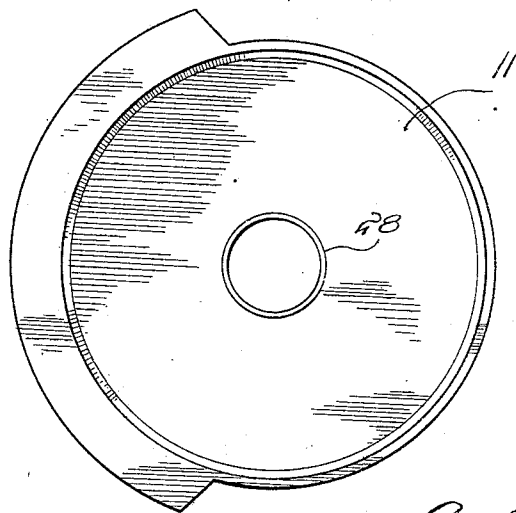


Fig. 4.



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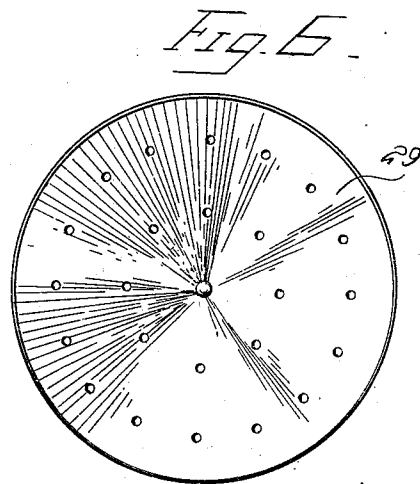
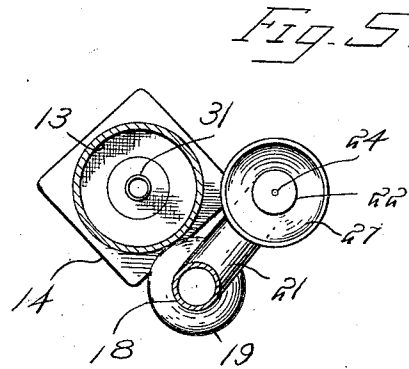
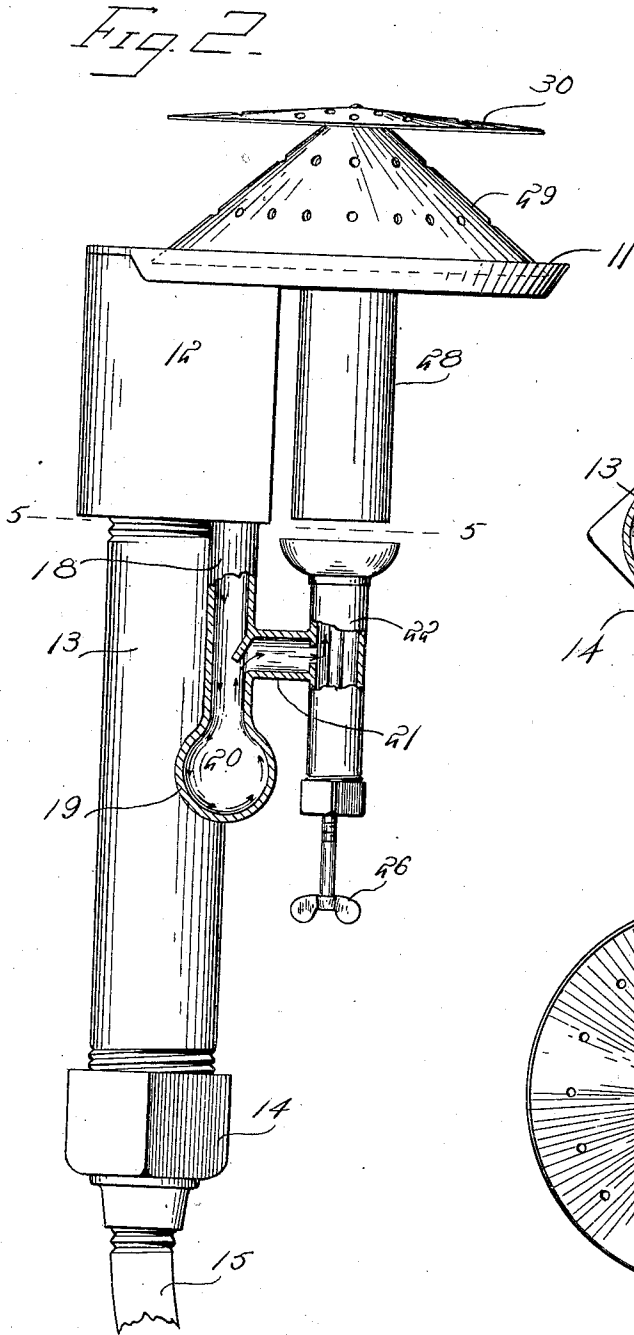
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

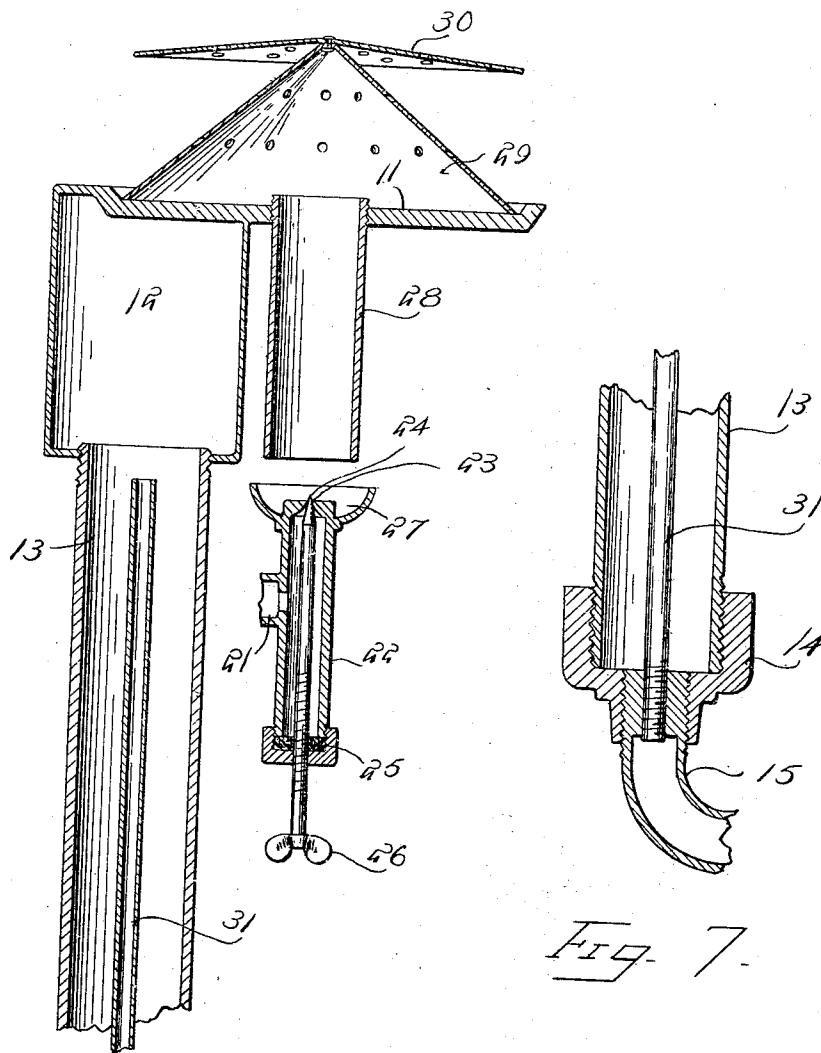


Fig. 3

Fig. 7

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UNITED STATES PATENT OFFICE.

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VAPOR-BURNER.

953,978.

Specification of Letters Patent.

Patented Apr. 5, 1910.

Application filed May 6, 1909. Serial No. 494,293.

To all whom it may concern:

Be it known that I, ARTHUR C. SMITH, a citizen of the United States, residing at Sunnyside, in the county of Wichita, State of Kansas, 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.

The invention relates to burners and more particularly to the class of vapor burners for use in oil stoves.

The primary object of the invention is the provision of a vapor burner in which the oil from the supply pipe is fed to a retort chamber and from thence to a needle-valve controlled outlet of a vaporizer tube having an initial heating cup or receiver to effect the generation of gas from the oil which is subsequently delivered to a burner head where it is consumed in the ordinary manner, and the said vapor tube is provided with a sediment cell or cavity to relieve the oil fed from the retort of the heavy or gummy carbonaceous substance prior to its entrance into the vapor tube of the burner.

Another object of the invention is the provision of a vapor burner of this character in which the area of the flame will be uniformly spread throughout the burner head and which flame will be of a more even and constant character.

Another object of the invention is the provision of an oil burner which is simple in construction, thoroughly efficient in the operation and inexpensive in the manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings, which disclose the preferred form of embodiment of the invention, to enable those skilled in the art to carry the invention into practice, and as brought out in the claims hereunto appended. However, it is to be understood that minor changes, variations and modifi-

cations may be made, such as come properly within the scope of the appended claims, without departing from the spirit of or sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a side elevation of a stove with the invention applied thereto and the same being partly broken away. Fig. 2 is a side elevation of the burner the same being on an enlarged scale. Fig. 3 is a longitudinal sectional view through the same. Fig. 4 is a top plan view of the burner with the perforated cone removed. Fig. 5 is a sectional view on the line 5—5 of Fig. 2. Fig. 6 is a bottom plan view of the cone. Fig. 7 is a fragmentary view in section of the coupling for the connection of the feed pipe with the entrance tube to the retort.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

In the drawings, the numeral 10 designates generally a stove body or shell which may be of any well known or approved construction and is merely shown for the sake of illustration as to the manner of the mounting of the vapor burner which latter forms the subject matter of the invention, as will be hereinafter described.

Within the stove 10 is mounted a vertical burner which comprises a casting forming a circular burner head or platform 11, integral therewith and depending from the same is an oil retort or hollow chamber 12, with which latter communicates an oil supply pipe 13, the same connected by a coupling 14, with a feed pipe 15, the latter in communication with an oil supply tank 16, elevated a considerable distance above the burner and supported in any suitable manner. The feed pipe 15 is provided with the usual regulating valve 17, so as to regulate the supply of oil from the tank to the burner.

In communication with and leading from the retort or chamber 12, is an oil delivery pipe 18, the latter formed with an enlarged terminal 19, providing a cell or cavity 20, to receive sediment or carbonaceous substance

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contained in the oil as it is fed through the delivery pipe to the vapor tube. Intermediate the retort and the enlarged terminal 19, of the delivery pipe 18, is a right angular branch tube or pipe 21, the latter having
5 connected thereto a vapor tube 22, which is arranged in parallelism with the delivery pipe and has communication therewith through the said branch pipe.

10 The upper end of the vapor tube 22, is formed with a jet orifice 23, which latter is controlled by a needle valve 24 threaded through a packing gland 25, secured to the lower end of the vapor tube, and which
15 needle valve has formed at its outer end a thumb head 26, to permit the adjustment of the needle valve within the vapor tube. Surrounding the upper discharge end of the vapor tube 22, is an initial heating cup 27,
20 which latter is for the purpose of effecting the generation of gas to be supplied to the burner head or platform. Directly above the vapor tube 22, and extending centrally through the head or platform 11, is a conduit pipe 28, which latter conducts the vapor or gas from the vapor tube to the burner
25 head or platform, and which gas is mixed with the necessary amount of air as it passes through the conduit pipe to the burner. Mounted upon the burner head or platform
30 is a perforated cone 29, which latter has mounted exteriorly at its apex a spreader disk 30, the same acting upon the flame issuing exteriorly about the perforated cone
35 29, to spread the same in a uniform manner.

In operation of the burner and when it is desired to light a flame or ignite the vapor issuing from the burner the needle valve 24, is turned so as to allow a small quantity
40 of oil to pass through the orifice 23, into the heating cup 27, where it is ignited for the purpose of initially heating the burner. As soon as the oil begins to vaporize the vapor tube is opened and the gas is discharged
45 through the jet orifice thereof up through the conduit pipe 28, where it is mixed with air, into the cone 29, of the burner proper where the gas may be lighted and utilized as desired. It is obvious that the cone 29,
50 will spray the gas in a uniform manner at the point where it is ignited and the spreader disk will serve to evenly distribute the flame to increase its area.

It will be apparent that the cell 20, in the
55 delivery pipe 18, will catch heavy matter as well as carbonaceous substance during the flow of the oil so as to permit the light and pure gas to pass to the vapor tube and subsequently to the burner without any possibility of the heavy or carbonaceous substance
60 clogging the vapor tube.

From the foregoing description the construction and operation of the invention it is

thought will be clearly apparent, therefore a more extended explanation is deemed unnecessary and has been omitted. 65

Rising with the feed pipe and terminating near the upper extremity thereof is a tube 31 the latter supported by the coupling 14, and of the same size as its center inlet opening forming communication between the
70 said supply and feed pipes and this tube 31 conveys cool oil from the supply pipe through the hot body of oil within the feed pipe so as to effect a quicker generation due
75 to the fact that the cool oil is acted upon by the heated oil whereby the said cool oil will become heated more readily and quickly in this particular manner thus arriving at a quicker generation by the oil. 80

What is claimed is:—

1. In a burner of the class described, a burner head, an oil retort depending therefrom, a cooling tube located centrally within the retort, an oil supply pipe communicating with the cooling tube, a delivery tube in communication with said retort and having a bulged terminal forming a sediment chamber, a vapor tube having communication with said delivery tube above the bulged
85 terminal and a conduit pipe located centrally of the burner head and terminating directly above the vapor tube. 90

2. In a burner of the class described, a burner head, an oil retort depending therefrom, a cooling tube arranged within the retort, a delivery tube in communication with said retort and having a bulged terminal forming a sediment chamber, a vapor tube having communication with said delivery tube above the bulged terminal, a conduit pipe located centrally of the burner head and terminating directly above the vapor tube, and oil supply means in communication with the cooling tube. 105

3. In a burner of the class described, a burner head, an oil retort depending therefrom, a tube rising centrally within said retort, a delivery tube in communication with said retort and having a bulged terminal forming a sediment chamber, a vapor tube having communication with said delivery tube above the bulged terminal, a conduit pipe located centrally of the burner head and terminating directly above the vapor tube, oil supply means in communication with the first named tube, and a needle valve controlling the egress of fluid from the vapor tube. 110

4. In a burner of the class described, a burner head, an oil retort depending therefrom, a delivery tube in communication with said retort and having a bulged terminal forming a sediment chamber, a vapor tube having communication with said delivery
115 tube above the bulged terminal, a conduit 120

pipe located centrally of the burner head
and terminating directly above the vapor
tube, oil supply means in communication
with the retort, a needle valve controlling
5 the egress of fluid from the vapor tube, an
initial heating cup concentrically arranged
about the upper end of the vapor tube, a
perforated cone supported upon the burner

head, and a spreader disk mounted upon
said cone. 10

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

ARTHUR C. SMITH.

Witnesses:

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