

(No Model.)

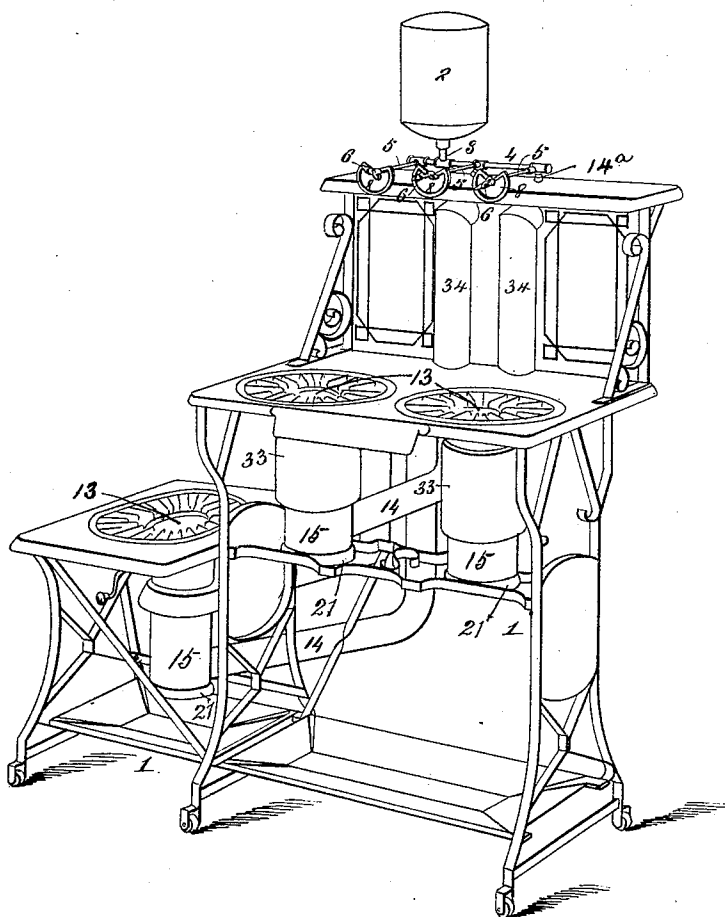
2 Sheets—Sheet 1.

L. STOCKSTROM.
VAPOR STOVE.

No. 479,315.

Patented July 19, 1892.

Fig. I.



Attest:
S. H. Knight
M. E. Curand

Inventor,
Louis Stockstrom
By Knight Bros.
Atty's

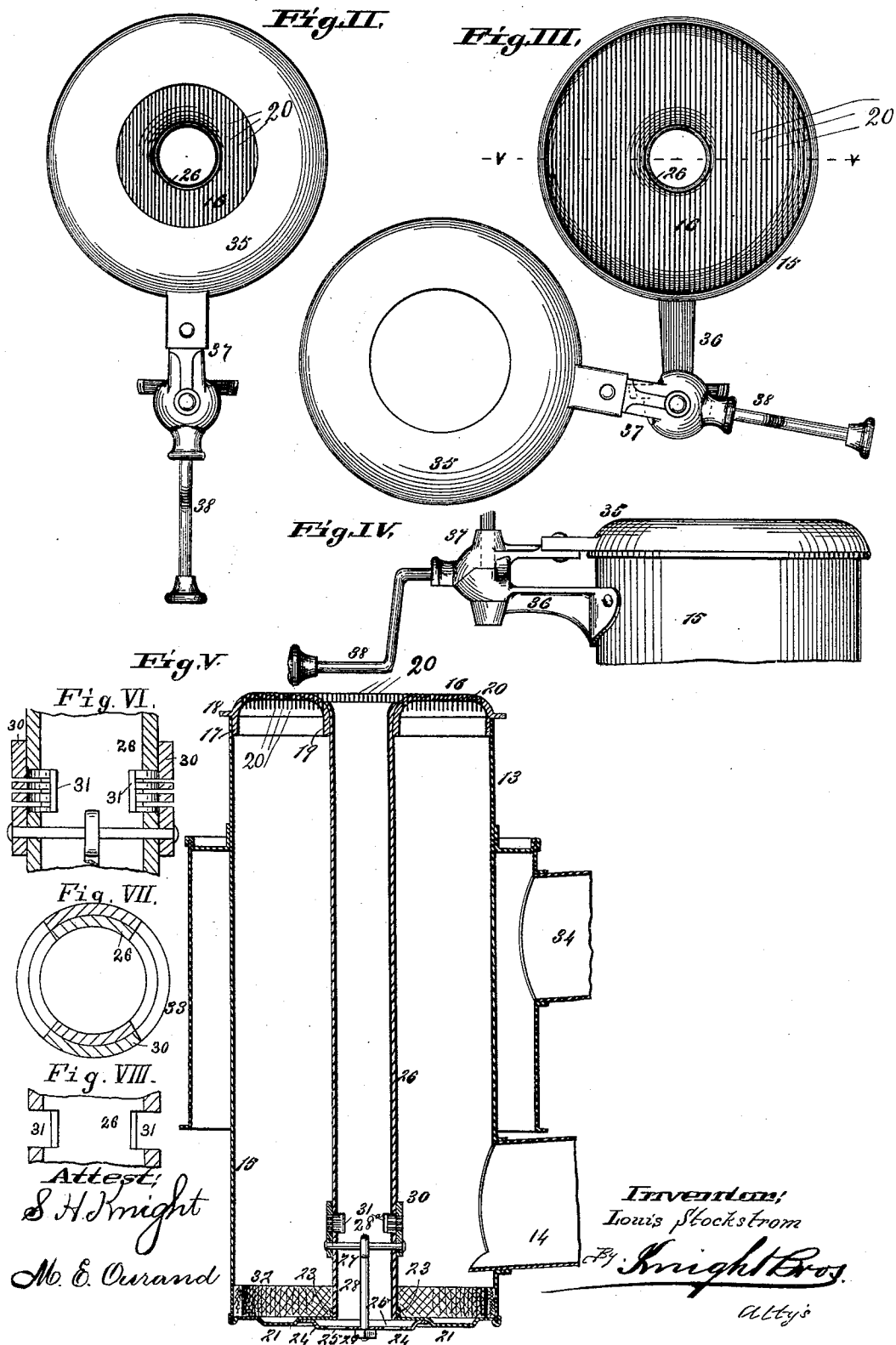
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UNITED STATES PATENT OFFICE.

LOUIS STOCKSTROM, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
CHARLES A. STOCKSTROM, OF SAME PLACE.

VAPOR-STOVE.

SPECIFICATION forming part of Letters Patent No. 479,315, dated July 19, 1892.

Application filed May 9, 1891. Serial No. 392,175. (No model.)

To all whom it may concern:

Be it known that I, LOUIS STOCKSTROM, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Vapor-Stoves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to certain improvements in that class of vapor-stoves wherein gasoline is used as a fuel and which is conveyed from a tank through a vaporizing-chamber, from which the carbureted air is conveyed to a burner, where it is ignited.

My invention consists in features of novelty hereinafter fully described, and pointed out in the claims.

Figure I is a perspective view of my improved stove. Fig. II is a top or plan view of one of the burners, showing the concentrating-cap in its using position. Fig. III is a similar view with the cap turned from over the burner. Fig. IV is a detail view showing the upper part of the burner and cap in elevation. Fig. V is a vertical section taken on line V V, Fig. III. Fig. VI is a vertical section of the central tube and sub-burner. Fig. VII is a transverse section of the same. Fig. VIII is a vertical section of the central tube adjacent to the sub-burner.

Referring to the drawings, 1 represents the frame of a stove.

2 represents the oil-reservoir, from which extends a vertical pipe 3, communicating with a horizontal pipe 4, through which the passage of the oil is controlled by means of valves having stems 5. On the outer ends of the stems 5 are fingers 6.

8 represents dial-plates, in connection with which the fingers may be used, the words "Open" and "Closed" (not shown) being marked upon the plates, as usual, so that when the fingers are pointed toward these words they will indicate that the valves are opened or closed and will indicate the direction in which the fingers are to be moved to open or close the valves.

13 represents the burners, to which the commingled gas and air is conveyed through suitable tubes 14, as usual. The horizontal pipe 4 is connected with the upper ends of

the tubes 14 by means of nipples 14^a. My invention relates, in part, to the construction of these burners, which I will now describe. The burners are all alike, so that I will describe but one of them, and will do so by referring to Fig. V, where the construction and arrangement are clearly shown.

15 represents a cylinder, with which the pipe 14 communicates.

16 represents a burner-cap located on top of the cylinder 15, with a vertical flange 17 fitting within the cylinder and a horizontal flange 18 resting on top of the cylinder. The burner-cap has a central opening the wall of which forms a downwardly-extending neck 19, which flares outwardly at its upper end. The cap has a number of saw kerfs or slits 20, through which the commingled gas and air escapes from the cylinder 15. The cylinder has a bottom 21 with a central opening, around which is a vertical flange or neck 23. The central portion of the bottom is preferably raised, as shown, to form the seat of a washer or disk 24, having openings or perforations 25. The object of this washer or disk, which is located under the center pipe, is to provide means for regulating the amount of air passing up through the pipe. If the draft toward and through the center pipe is too strong, it may extinguish the flame of the sub-burner. The washer or disk will also prevent any draft or wind to which the stove may be exposed from interfering with the burning of the flame of the sub-burner.

26 represents a pipe passing through the cylinder 15 with its upper flared end fitting in the flared neck 19 of the burner-cap and with its lower end fitting in the neck or flange 23 of the bottom 21. The burner-cap is held in place by this tube, and the tube and disk 24 are held in place by a pin 27, passing transversely through the pipe, and by a vertical pin 28, having an eye 28^a, fitting on the pin 27 at its upper end, and at its lower end passing through the disk 24, beneath which it is provided with a nut 29. It will thus be seen that the single bolt 28 and pin 27 are utilized to hold the burner-cap 16, the pipe 26, the bottom 21, and the disk 24 all in place to the cylinder. By simply removing the nut 29 and the disk 24 and the bottom 21 the

cap 16, together with tube 26, may be quickly lifted out for the purpose of inspecting the inside of the burner-cylinder.

In this class of stoves it is desirable to have what is known as a "sub-burner," which acts to induce the circulation of the carbureted air to the burner, and as a cheap and effective way of producing this sub-burner I form saw-kerfs or drill-holes in an annular collar 30, fitted or sleeved over the pipe 26 opposite openings 31 made in the pipe. The advantage of such a collar is apparent, as it can be made of a kind and thickness of metal particularly suited to form the burner, and also it can be renewed when worn out. The collar is held in place by the pin 27, as shown. A portion of the carbureted air passes from the cylinder 15 through these slits into the pipe 26, where it is ignited, and the openings 25 in the disk 24 afford the necessary draft. This sub-flame induces a current of the carbureted air through the pipe 14 by heating the burner, and a construction of this kind to form a sub-burner is cheap, durable, and effective. The gas is burned as it issues through the saw cuts or slots in the collar 30, and therefore the collar is exposed to the direct action of the heat. The collar is removed by simply cutting and taking out the pin 27, which allows it to be slipped off over the lower end of the tube, it being understood that the disk 21 is not fastened to the tube 26, but is simply held in place by the bolt 28 and the washer 24. This collar is an important feature, as it admits of the burner being very readily repaired, for if the saw cuts or slots of the collar become clogged or burned out too large or warp a new collar can be readily supplied. If the ribs, which are formed by the slots in the collar, should warp so that one of the slots would become larger and of course the other one narrower, such would require the renewal of the collar, inasmuch as the slots must not exceed a certain width in order to prevent the flame burning out of these slots, and in the center of the collar from lighting through the slots into the drum surrounding the collar, and thereby exploding the mixture of gas and air therein. The sub-burner is ignited on the inside and is ignited automatically from the main burner. When the gas is turned on, a portion of it enters through the sub-burner and rising in the tube 26 is ignited back from the main burner to the sub-burner, the main burner having been ignited by a match applied to the gas that goes to it direct from the inlet-pipe.

In this form of stoves it not unfrequently happens, especially when the stove is first lighted, that a small amount of liquid gas or of the unvaporized oil enters the burner through the pipe 14, and to provide for the taking up of this oil and retaining it in a condition in which it can be easily vaporized when the burner becomes heated I provide at the lower end of the cylinder 15 an ab-

sorbent 32, arranged, preferably, in the form of a ring, and consisting, preferably, of asbestos. This absorbent takes up any liquid that may issue from the pipe 14, and gives it off in the form of vapor when the burner has become thoroughly heated. The action of the sub-burner upon the absorbent is to heat it and cause the evaporation of the liquid which accumulates in the absorbent.

33 represents a flue surrounding the cylinder 15 and open at its lower end. From this flue to the vaporizing-chamber of the stove (which is not shown, but which is now well known in this class of stoves, and which may be of any desired construction) extends an air-pipe 34, which furnishes heated air to the vaporizer.

It is sometimes desired to concentrate the flame of the burner, and to afford a convenient means for doing this I provide a centrally-perforated cover or annulus 35, joined to the cylinder 15 by a hinge 37, the part 36 of the hinge being secured to the cylinder 15 or other support and the part 37 to the cover 35. The hinge may be of any desired form, and I make no claim *per se* to the form I have shown, and the member 37 is provided with a handle 38, by which the cover 35 may be turned away from over the burner, as shown in Fig. III, or turned over the burner, as shown in Fig. II, and thus by simply taking hold of the handle 38 the cover may be manipulated, and will always be ready to be placed in either position it may be desired to place it.

I claim as my invention—

1. The combination of a gravity-carburetor, a main burner arranged below the level of the carburetor, having a cylinder provided with a cap, a pipe by which the carburetor is connected with the cylinder, a pipe passing through the cylinder, having openings located near its lower end, and a collar sleeved or fitted onto the pipe, having holes adapted to register with the openings in the pipe, substantially as and for the purpose set forth.

2. In a vapor-stove, a burner consisting of the combination of a cylinder having a bottom 21, a burner-cap fitting on the cylinder and having a central flared neck, a pipe located within the cylinder and having a flared upper end fitting in the neck of the burner-cap, a washer fitting against the bottom of the cylinder, a pin passing transversely through the pipe, and a bolt extending from the pin through said washer and having a nut on its lower end, substantially as and for the purpose set forth.

3. In a vapor-stove, a burner consisting of the combination of a cylinder having a bottom, a burner-cap fitting on top of the cylinder and having a flared neck, and a pipe located within the cylinder and having a flared upper end fitting in the neck of the burner-cap and its lower end connected to the bottom of the cylinder.

4. In a vapor-stove, a burner consisting of the combination of a cylinder, a burner-cap

fitting on top of the cylinder, a pipe located within the cylinder and secured to the cap at the upper end, a washer resting against the bottom of the cylinder, a pin passing transversely through the pipe, and a bolt extending from the pin through said washer and having a nut at its lower end, substantially as and for the purpose described.

5. The combination of the cylinder, the burner-cap formed with a central opening, with a vertical flange fitting within the cylinder, with a horizontal flange resting on the top of the cylinder, and with an outwardly-flared and downwardly-extending neck, a bottom to the cylinder, formed with a central opening, with a neck around the opening and with a raised portion, a central pipe formed with a flared upper end fitting the flared neck of the cap and its lower end fitting the neck of the bottom, a perforated disk fitting the raised portion of the bottom, a pin extending transversely of the pipe near its lower end, and an

eye-pin and nut by which the disk is secured to the transverse pin, substantially as and for the purpose set forth.

6. The combination of the cylinder, the burner-cap formed with a central opening, with a vertical flange fitting within the opening, with a horizontal flange resting on the top of the cylinder, and with a downwardly-extending neck, a bottom to the cylinder, formed with a central opening and with a neck around the opening, a central pipe fitting the neck of the cap and the neck of the bottom, having small holes near its lower end, a perforated disk, a pin extending transversely of the pipe near its lower end, and an eye-pin and nut by which the disk is secured to the transverse pin, substantially as and for the purpose set forth.

LOUIS STOCKSTROM.

In presence of—

E. S. KNIGHT,

J. M. MAROT.