

B. S. KOLL.
VAPOR HEATING STOVE.

No. 520,686.

Patented May 29, 1894.

Fig. I.

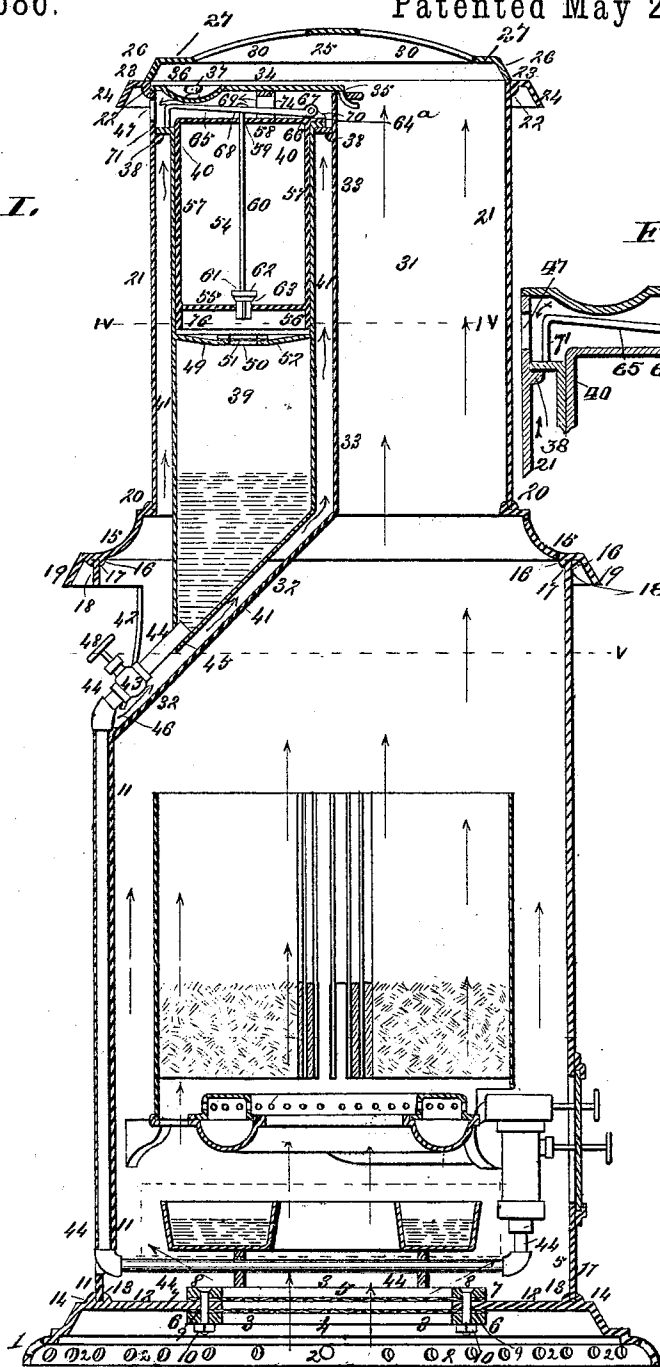
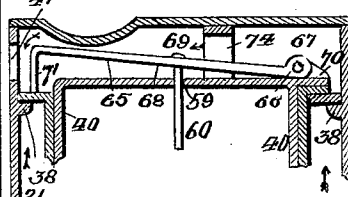


Fig. I^a



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Geo. E. Cruise

Inventor:
Benjamin S. Koll.
By Knight Bros.
Atty's.

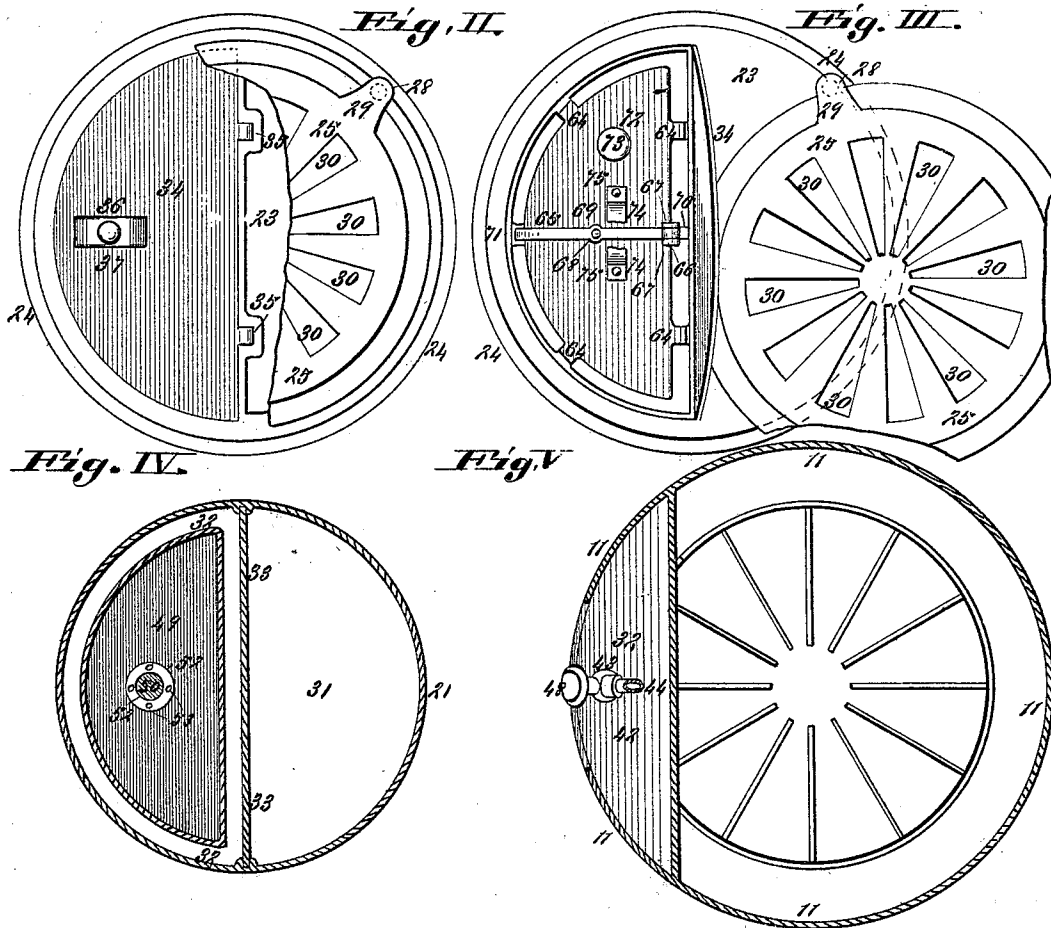
(No Model.)

2 Sheets—Sheet 2.

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UNITED STATES PATENT OFFICE.

BENJAMIN S. KOLL, OF ST. LOUIS, MISSOURI.

VAPOR HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 520,686, dated May 29, 1894.

Application filed September 1, 1892. Serial No. 444,764. (No model.)

To all whom it may concern:

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

10 This invention relates to a vapor heating stove for parlor use, in which a double compartment gasoline reservoir is used, the upper compartment of said reservoir, which contains the refiller tank, (removable for filling,) and said upper compartment having no direct communication with the generator, so as to avoid danger of explosions while filling, and a piston valve communication between said tank and the lower compartment, that alone automatically opens when said portable tank is seated in its position, out of danger of effecting explosions; said double compartment reservoir being located within an elevated, cold, live air, non-conductor compartment, which constitutes a live draft chamber in the rear portion of the stove, separate both from the furnace and from the surmounting hot air chamber. I have shown and described my reservoir in the rear portion of the stove, as stated, but I do not confine myself to that position, for it is evident that said reservoir, may be placed in the front portion of said stove, or on either side, without any departure from the essential features of the invention, which consists in useful features of novelty hereinafter fully described and pointed out in the claims.

Figure I is a vertical axial section of my vapor heating stoves showing the elevated, isolated, double compartment tank. Fig. I^a is a detail view on a larger scale. Fig. II is a top view of the heater and shows its pivoted vent cap closed with part broken away to show the hinged lid that surmounts the gasoline-reservoir closed. Fig. III is also a top view of the heater, and shows the vent cap turned partly around open on its pivot bolt, and the surmounting lid raised, disclosing the hinged lever that carries the pendent drop or plunger valve that, when pressed down by said surmounting lid closes the discharge port of the gasoline-tank. Fig. IV is a hori-

zontal section, taken on line IV—IV, Fig. I, and shows the interior of the hot air chamber, the annular chamber around the gasoline reservoir, the intermediate concave floor between the tank, and the lower compartment of the reservoir, and the screen discharge port through said floor into said lower compartment. Fig. V is a horizontal section, taken on line V—V, Fig. I, and shows the main cylinder, the radiator cylinder furnace, a portion of its surmounting bevel inclosure, and the gasoline valve tap that opens the discharge from the reservoir.

Referring to the drawings:—1 represents the platform, 2 are the aerating holes in said platform, 3 is the large, circular, air-supply vent in the center of said platform, 4 is a lower gauze dust arrester screen beneath said supply vent, that under laps the base plate, around said aperture, and 5 is a like, upper screen, whose periphery surmounts said base plate around said aperture.

6 is a perforate, clamping ring that underlies the lower screen, and 7 is a like perforate ring that surmounts the upper screen. 8 represent screw-bolts that pass through the perforations 9 in said rings and in the platform, and 10 are screw nuts that are seated on the ends of said bolts and securely attach said rings and dust arrester gauze nets around said aerating opening 3. The said dust arrester preventing the entrance of dust into the stove, and the consequent prolific formation of smoke, for this stove has and needs no vent pipe or connection with the chimney, being a non-smoke producing, perfect combustion stove.

11 represents the main, outer cylinder casing of the stove, whose base 12 rests within the circle groove 13 between the circle lugs 14, that are integral with and surmount the platform.

15 represents a concave flange collar that surmounts said main casing, the said collar having pendent, integral, circle lugs 16, in the circle groove 17 between which the summit 18 of said cylinder is securely seated. 19 represents a pendent flange collar, that descends and projects from said concave collar 15.

20 represent integral circle lugs that surmount and project from the upper edges of the concave flange collar 15, and in the recesses be-

tween and inside said lugs, the foot of the surmounting cylinder rests. The pendent circle lug 22 of the top plate 23 fits around, and is secured to the head of said surmounting cylinder 21, and the flange collar 24 of said top plate hangs pendent therefrom. 25 represents the surmounting dome-cap, the pendent edge 26 of whose flat, peripheral rim 27 fits and works on said top plate 23, to which it is pivotally secured by the bolt 28, which passes through the perforate bearer lug 29, that surmounts the rim of said dome cap, and through said top plate 23, to which it is secured. Fan shaped, radial openings 30 provide free vents for the diffusion of the hot air from the hot air chamber 31, in the cylinder 21.

32 represents an inclined top partition plate that extends from the top of the main cylinder at its rear to the base of the vertical partition plate 33, which latter plate extends upward to within a short distance of the said top plate 23 of the surmounting cylinder. 34 represents a cap, that is attached to the summit of said partition plate 33 by the hinges 35, and the front edge of which, when closed, rests on the top edge of the aforesaid surmounting cylinder. 36 represents a recess in said cap, that allows room for the location of a lifting pin 37, by which said cap is elevated. 38 represent lugs that project inward respectively from the said partition plate 33, and the cylinder 21, from a short distance from the top thereof.

39 represents the double compartment gasoline reservoir, the top projecting flange lugs 40, of which rest on the lugs 38, to enable said reservoir to hang pendent within the cold air chamber which cold air chamber is formed between the rear hemisphere of the surmounting cylinder and the middle partition plate 33.

42 represents a concavity in the rear of the main cylinder above its inclined partition plate 32, in which concavity is secured the valve 43, the supply pipe 44 from which connects with the pendent foot 45 of said gasoline reservoir 39. The said concavity 42 provides ample room for working the disk 48, of said valve. 46 represents an air draft hole in the base of said concave recess 42 in said cylinder plate, and said aperture allows the free entrance of a cold air current at the base of the cold air chamber, and said cold air passes freely under the pendent gasoline reservoir, and all around the same, and over its top, and eventually finds vent through the discharge aperture 47 near the top of the surmounting cylinder. The reservoir is thereby located in a cool medium, which is of great importance in the right disposition of gasoline oil.

49 represents the intermediate concave floor, that surmounts the lower compartment of the gasoline reservoir, 50 is a port through the concave center of said floor, and 51 is a screen that is securely attached over said port by the perforate ring washer 52, which is se-

cured to its seat on said concave floor by the bolts or rivets 53.

54 represents the refiller tank, which has an elevated bottom 55, a base section 56 of the sides 57 of said tank projecting below said bottom, and said tank has a close cover 58, except for its perforate center 59, in which works the vertical stem 60, from which hangs pendent the plunger valve 61. The said valve has a convex head 62, that closes the valve-port 63 in the center of said floor of the tank, when said plunger is depressed. 64 represent suspension lugs that project laterally from the top of said tank, and rest on the top flanges 40 of the pendent reservoir, and thus said tank hangs safely within the reservoir inclosure, and its contents are thus safe to be discharged into the reservoir.

65 represents the automatic, perforate, fulcrum lever that controls the plunger valve 61. The fulcrum pivot pin 66, passes through the perforation of said lever, and through the perforate lugs 67, that surmount the top of the tank. The top of the aforesaid, vertical plunger valve stem 60 is passed through the central perforation 68 in said fulcrum lever, and is there securely held by the head 69 that is formed upon it.

70 represents an extension arm on the rear end of the fulcrum lever, back of its pivot joint.

71 is a pendent, operative arm that hangs integral from the front of the fulcrum lever.

72 is the supply port through the top of the gasoline tank, through which said tank is refilled; and 73 is the stopper that closes said port after said tank has been replenished. A bracket handle 74 is secured by rivets 75 to the top of the tank, and said handle facilitates the insertion of said full tank into the upper compartment 76 of the reservoir 39, and its subsequent lifting therefrom when it requires replenishing.

The hot air chamber 31 occupies one moiety of the surmounting cylinder, and inclosed in the other moiety of said cylinder and tightly separated from the same by the partition plates 32 and 33, is the cool air chamber 41. Hanging pendent within said cool air chamber, is the reservoir 39. The said reservoir is safely protected both from outside interference and dangers, and also it is surrounded on all sides and bottom and top by not only a cool air chamber, but a cool air draft which enters at the draft hole at the bottom of said cooling chamber and ascends upward and is discharged through the aperture 47 at its top; therefore said reservoir is located in a cool draft medium apart from contact with any of the surrounding cylinder and partition plates, in fact in a live draft chamber.

The tank 54 has a plunger valve 61, whose central stem 60 rises through the perforate center of the tank top, and is secured to the automatic fulcrum lever 65, the said fulcrum lever having an extension arm 70 beyond its

pivoted connection, that presses on a projection 64^a on that side of the top of the tank, so as normally to force said fulcrum lever against said tank top and consequently force the
 5 plunger valve into close engagement in its seat in the tank bottom; so that the tank is secure to hold the gasoline oil when it is filled through its supply port 72 on top. When said tank is lifted by its bracket handle 74 and
 10 inserted in the upper compartment of the reservoir, the pendent operative arm 71 comes in contact with one of the flange lugs 40 that support the pendent reservoir, which trips up the fulcrum lever 65, and consequently the
 15 plunger valve 61, that said lever governs and the oil passes through the screen 51 in the port 50 in the intermediate partition between the compartments of the reservoir.

I claim as my invention—

20 1. In a vapor heating stove, the combination of the gasoline reservoir 39 having an intermediate concave floor, and an open port 50 in said floor, the screen 51 that surmounts said port, and the re-filler tank having the
 25 plunger valve 61, and located in the upper compartment of said reservoir; substantially as described.

2. In a vapor heating stove, the combina-

tion of the gasoline reservoir 39, the intermediate screen floor attached in said reservoir, the re-filler tank in the upper compartment of said reservoir, provided with the valve port 63 in its bottom, the plunger valve 61 that works in said port, the automatic fulcrum lever 65, from which said plunger valve hangs
 35 pendent, the said lever being hinged at 67 and having the governor extension arm 70 and the pendent operative trip arm 71; substantially as described.

3. The combination of the cylinder 21, the
 40 partition plates 32 and 33, that respectively separate the combustion chamber and the hot air chamber 31 from the cold air chamber 41, the respective draft and exit ports 46, and 47, and the gasoline reservoir and re-filler tank; 45 substantially as described.

4. The combination of the gasoline reservoir having lower and upper compartments, and intermediate floor formed with a port, and the refiller tank supported within the upper
 50 compartment; substantially as described.

BENJAMIN S. KOLL.

In presence of—

BENJN. A. KNIGHT,
 ED. S. KNIGHT.