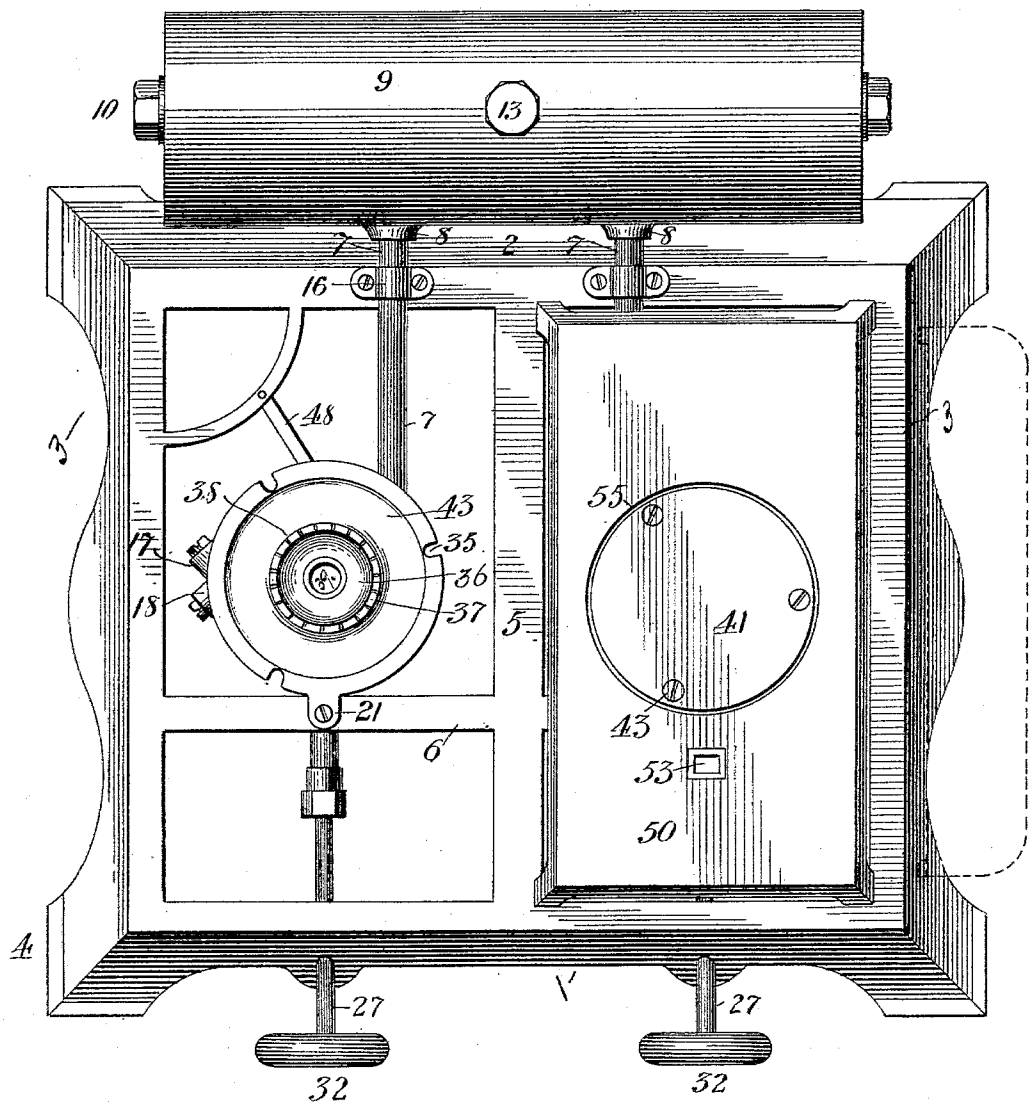
(No Model.) 2 Sheets—Sheet 1.

A. A. CASLER.

VAPOR STOVE.

No. 566,710. Patented Aug. 25, 1896.

Fig. 1.



Witnesses:
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C. F. Duvall

Inventor.
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By W. S. Duvall
his attorney

(No Model.) 2 Sheets—Sheet 2.

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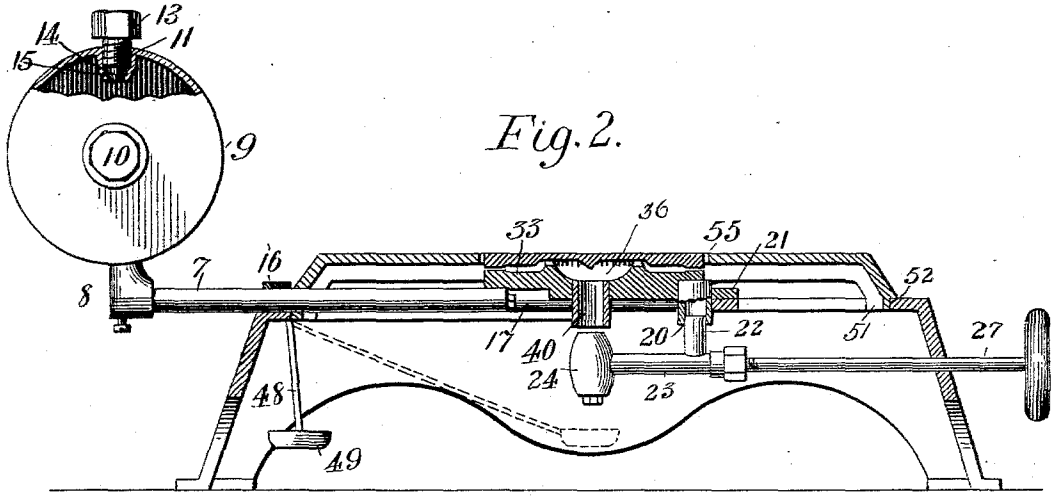


Fig. 2.

Fig. 3.

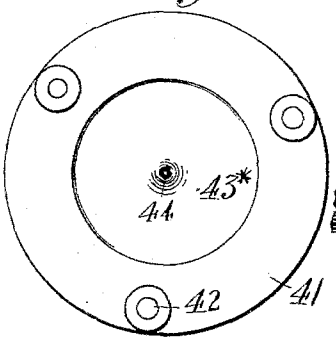


Fig. 4.

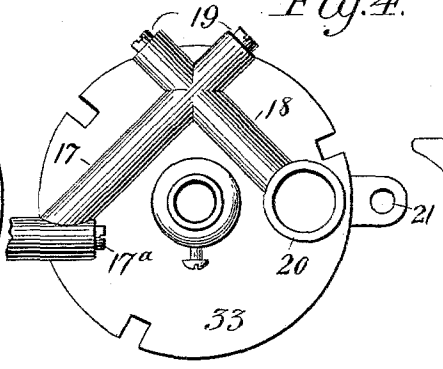


Fig. 5.

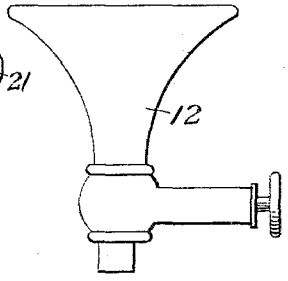
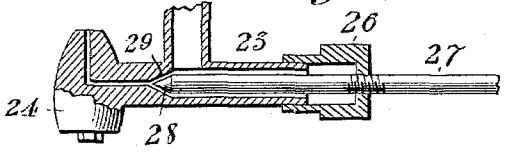


Fig. 6.



Witnesses.
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Inventor:
Alonzo A. Casler
By W. S. Duvall
his attorney.

UNITED STATES PATENT OFFICE.

ALONZO A. CASLER, OF DUBOIS, PENNSYLVANIA.

VAPOR-STOVE.

SPECIFICATION forming part of Letters Patent No. 566,710, dated August 25, 1896.

Application filed August 12, 1895. Serial No. 559,022. (No model.)

To all whom it may concern:

Be it known that I, ALONZO A. CASLER, a citizen of the United States, residing at Dubois, in the county of Clearfield and State of Pennsylvania, have invented certain new and useful Improvements in Vapor-Stoves; 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.

My invention relates to improvements in gasolene or alcohol stoves or heaters, and the objects in view are to simplify and cheapen the construction of the stove or heater as a whole by a reduction in its number of parts; to adapt the same for producing a maximum amount of heat from a minimum amount of gasolene, thus effecting a saving in the fuel; to avoid obnoxious odors as a result of its use, and, finally, to adapt the heater for heating sad-irons, as well as for general cooking purposes, such a heater being especially useful in the sick-room and elsewhere, where light cooking, heating of water, &c., is desirable, without the generation and radiation of such heat to the room.

Various other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a plan view of a heater embodying my invention, the griddle-plate and burner-cap being removed at one side thereof for the purpose of illustration. Fig. 2 is a vertical longitudinal sectional view through one of the burners. Fig. 3 is an inverted plan of one of the burner-caps. Fig. 4 is a similar view of the burner. Fig. 5 is a detail of the funnel preferably employed in filling the tank. Fig. 6 is a longitudinal sectional view through the needle-valve or jet-nozzle.

In practicing my invention I employ a cast-metal rectangular frame, the same consisting of the front and rear bars 1 and 2, respectively, and the opposite side connecting-bars 3, the whole being supported upon and cast integral with suitable flaring supporting feet or legs 4. The front and rear bars 1 and 2 are connected at their middles by a center bar 5, and it in turn is connected in advance of its middle with the side bars 3 by a transverse rest-bar 6. This completes the frame or base of the heater, and the same may be readily cast in a single piece and finished in any preferable manner.

Seated in shallow recesses formed in the back bar 2 of the frame is a pair of supply-pipes 7, whose ends extend in front and rear of the back bar, the latter ends entering discharge-nozzles 8, formed on the under side of a cylindrical and transversely-disposed gasolene tank or reservoir 9. This tank 9, it will be seen, is supported by the supply-pipes 7, immediately in rear of the base or frame. The opposite ends or heads of the tank are provided with openings into which are threaded plugs 10, such openings being for the purpose of facilitating a thorough cleansing of the tank should necessity occasion it. The upper side of the tank is provided with a filling-opening 11, designed to receive a valved funnel 12, but which is ordinarily closed by a threaded plug 13, whose lower end, it will be seen, below its threads is made conical, as at 14, for the purpose of closing a similar seat 15, formed in the lower end of the opening in the tank. For the purpose of retaining the supply-pipes in their recesses or seats clips 16 may be employed, the same embracing the upper sides of the pipes, and at their opposite ends secured by screws to the back bar 2 of the frame.

The end of each supply-pipe is fitted with a threaded plug 17^a, so that the supply-pipes may be cleaned. Each supply-pipe has a continuous branch 17 near its front end, and said branch, like the pipe 7, is bored clean through. The branch 17 is provided with a right-angularly-disposed branch 18, which is also bored clean through, and the two branches have their outer ends provided with removable threaded plugs 19. It will be seen that although the supply-pipes as a whole are irregular, tortuous, or zigzag, yet they are readily accessible for cleaning purposes. The branch 18 finally terminates substantially opposite the pipe 7 in a downwardly-disposed internally-threaded opening 20, and from this portion there extends forwardly a lug 21, which rests upon the rest-bar 6 and is bolted thereto.

Threaded in the opening 20 is a short con-

necting-pipe 22, and the same connects to the central vertical branch of the T-shaped jet-nozzle 23, which terminates at its inner end in the tip 24, which is vertically disposed and therefore at an angle to the jet-nozzle. The vertical tip has its bore extending entirely therethrough, and a threaded plug is located in the lower end of said bore, so that access to the interior of the tip is possible. The outer end of the jet-nozzle has fitted thereover in a removable manner a gland-nut 26, and through the same is threaded a needle-valve rod 27. The inner end of the valve-rod is reduced to form the needle-point 28, and is therefore adapted to close against the conical seat 29. Outside of the jet-nozzle the valve-rod is supported rotatably in the front cross-bar 1 of the base or frame, and beyond the same is provided with a knob 32, by which the rod may be rotated and thus the needle-point forced to or from its seat in order to close and open the valve.

Preferably cast integral with the branches 17 and 18 of the supply-pipe is the burner-plate 33, the same being disk-like in shape and having formed in its upper side an annular groove 34, outside of which the periphery of the plate is provided with notches 35. The central portion of the plate is concaved to form a cavity 36, the same having an annular wall 37, which projects above the common plane of the plate and is provided at intervals with saw-kerfs 38, which form burner-slots. From the central opening 39 of the cavity 36 there depends a pipe 40, the same being directly above and in vertical alinement with the burner. The mechanism thus described, it will be understood, is duplicated at each side of the frame, as shown, or, if preferred, it may be employed in a single-burner heater.

For ordinary heating purposes, as for light cooking, heating water, &c., I employ the burner-cap 41, and it will be seen that it is of disk shape and about the same in diameter as the burner-plate. This cap is provided near its periphery and upon its under side with perforated threaded lugs or feet 42, through which pass headed bolts, the lower ends of which take through and below the notches 35, formed in the periphery of the burner-plate. These lower ends are provided with nuts, as shown, and therefore serve to snugly bind in a removable manner the cap in position on the burner-plate. By the provision of the aforesaid lugs, which, it will be seen, rest upon the burner-plate outside of the annular groove 34, the said cap is supported in a slightly-elevated manner above the burner-plate. At its center the under side of the cap has formed therein an annular cavity 43*, which is directly over and about conforms to the diameter of the cavity 36 of the burner-plate. Depending from the bottom of the cavity 33 of the cap is a cone 44, the same being concentric with the vapor-pipe 40. It will be seen from the foregoing that that portion of the supply-pipe 7 designated as the branches 17 and 18, together with the burner-plate and vapor-pipe 40, constitute the retort of the heater, and although, as herein shown, these parts are formed integral, yet it will be understood that the aforesaid plate may be distinctly and separately formed, seated thereon, and secured thereto in any desirable manner.

Swiveled in any suitable part of the frame is a depending arm 48, and the same carries the usual pan 49. By swiveling this arm it will be obvious the pan may be swung to one side when its presence is unnecessary, as when after the retort is heated to that degree necessary for a vaporization of the gasolene.

Surmounting the opposite openings formed in the frame by the presence of the cross-bar 5 are the griddle-plates 50. These plates are preferably cast and each provided upon its under side with the legs 51, the same being notched at their outer edges, as indicated at 52, for the purpose of engaging in a removable manner with the edges of their respective openings. Each plate is further provided near its front end with an opening 53, designed to receive the tenoned or reduced end of an ordinary lid or plate lifter. Each plate is furthermore provided with a central annular opening 55, the same being designed to receive and conform to the location and diameter of the retort, which it surmounts. A three-sided hood 54 may surmount one or both plates and be secured in position thereupon through the aid of screws 55, which pass downwardly through perforated extensions at the front end of the hood and into the griddle-plate. This hood is provided at its lower edge and in its back and side walls with openings 56 for the circulation of air, while its front is left entirely open for the reception of the soldering-irons. This completes the construction of the device, and it will be obvious that all of its parts are readily accessible for cleansing, repair, and other purposes.

Although the operation is perhaps obvious from the foregoing description, I will, however, detail the same as follows: The tank being filled and closed, we will say that it is desirable to light one of the burners. To do this, the needle-valve is first rotated so as to withdraw it from its seat, which permits of a flow of the gasolene or alcohol through the pipe 7 into the branches 17 and 18, from whence it proceeds into the burner-pipe and burner, overflowing through the small perforation therein into the pan below. This pan is then lighted, the needle-valve having been previously closed, and the heat from the pan causes the retort to become heated to such a degree as to vaporize the gasolene within the pipes 17 and 18, and a subsequent withdrawal of the needle-valve permits this vapor to escape through the fine opening in the burner, from which it passes up through the pipe 40, commingling at the same time with the air, whereby its flame is increased in intensity. The flame meets with the apex of the depending cone formed on the under side of the

burner-cap and is thus accurately and evenly divided, and, following the curvature of the concavity 33, passes laterally through the kerfs and from thence escapes in the usual manner out the side of the cavity. In order to start the initial flame in the pan, instead of opening the needle-valve, it will be understood that a small quantity of gasolene or other inflammable liquid may be poured into the pan. It will be understood that the positions of the burner-caps may be changed or either one of the two varieties employed. I may also employ an extra side shelf (see dotted lines, Fig. 1) to support irons, when desired. From this it will be seen that I have provided and am able to manufacture in a convenient manner and at a slight cost a light portable heater, capable of generating a very intense flame and at the same time expending but a small proportion of fuel and commingling therewith a large proportion of air.

I do not limit my invention to the precise details of construction herein referred to, but hold that I may vary the same to a degree and extent that is within the knowledge and province of the skilled mechanic without departing from the spirit of my invention or sacrificing its advantages.

Having thus described my invention, what I claim is—

1. The combination with a burner-plate having a central cavity provided with a central opening and surrounded by an annular wall or flange having a series of openings, said wall or flange and openings extending above the outer edge of the plate, of heating pipes or chambers under and integral with the plate, a supply-pipe leading to one end thereof, a burner-pipe depending from the opposite end thereof and having a jet-nozzle alining with the opening in the burner-plate, a valve for the burner-pipe and a burner-cap arranged upon the plate, said cap upon its under side having a cavity and a central, depending cone, substantially as specified.

2. The combination with the frame having a transverse, rest-bar 6, of the tank, the supply-pipe leading from the tank, the vaporizing-pipes leading from the supply-pipe, the burner supported thereby, the lug at the front end of the vaporizing-pipe and overlapping the rest-bar 6, a bolt through the same and the bar, means for retaining the supply-pipe upon the frame, and the valved jet-nozzle below the vaporizing-pipes, substantially as specified.

3. The combination with the rectangular frame, a vapor-burner arranged therein and supported thereby, of a griddle-plate having an opening to receive the vapor-burner and provided at its edges with depending legs adapted to rest upon the frame and notched at their edges to engage or interlock therewith, substantially as specified.

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

ALONZO A. CASLER.

Witnesses:
H. A. MOORE,
DORSEY LITZ.