

(No Model.)

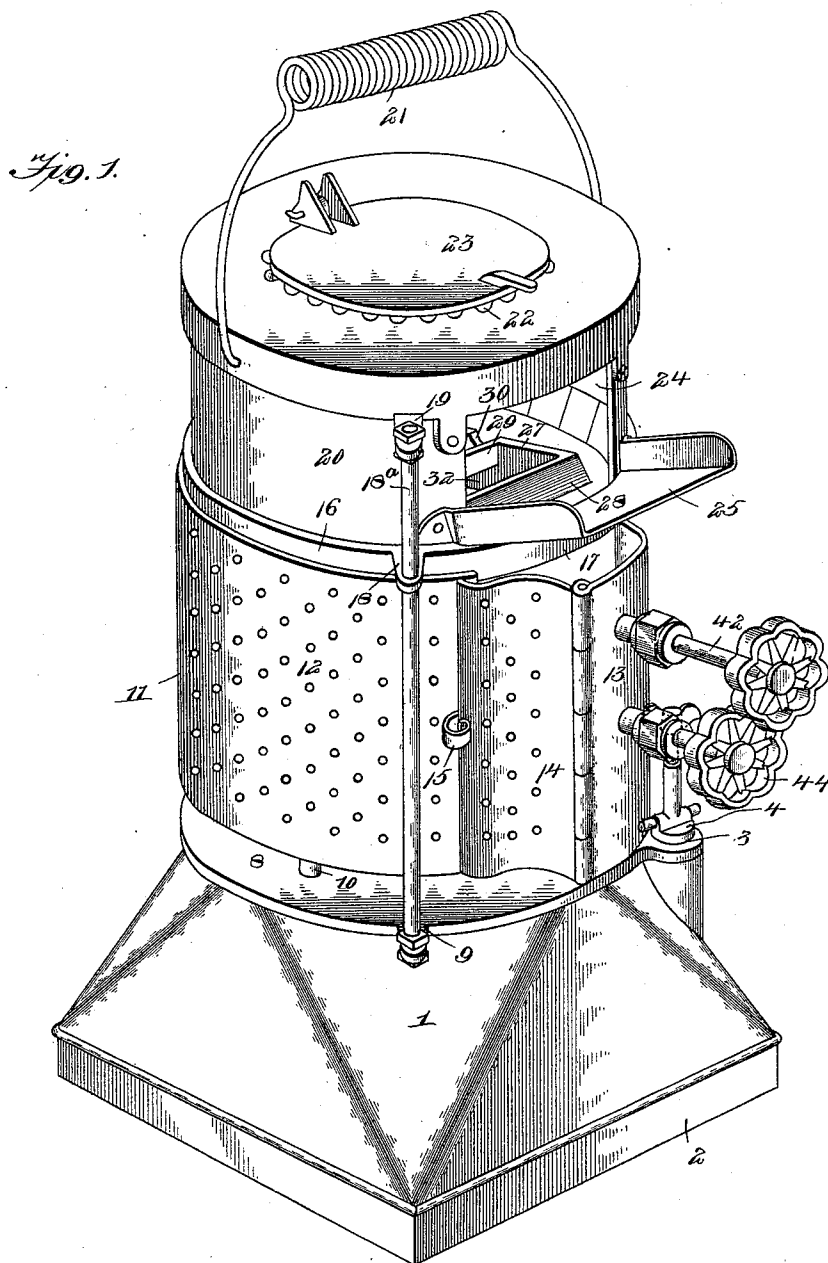
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C. H. SEAMAN.

PORTABLE FURNACE FOR PLUMBERS AND TINNERS.

No. 538,704.

Patented May 7, 1895.



Inventor

Chas. H. Seaman,

Witnesses

John C. Shaw
D. P. McLaughlin

By his Attorneys.

C. A. Snow & Co.

(No Model.)

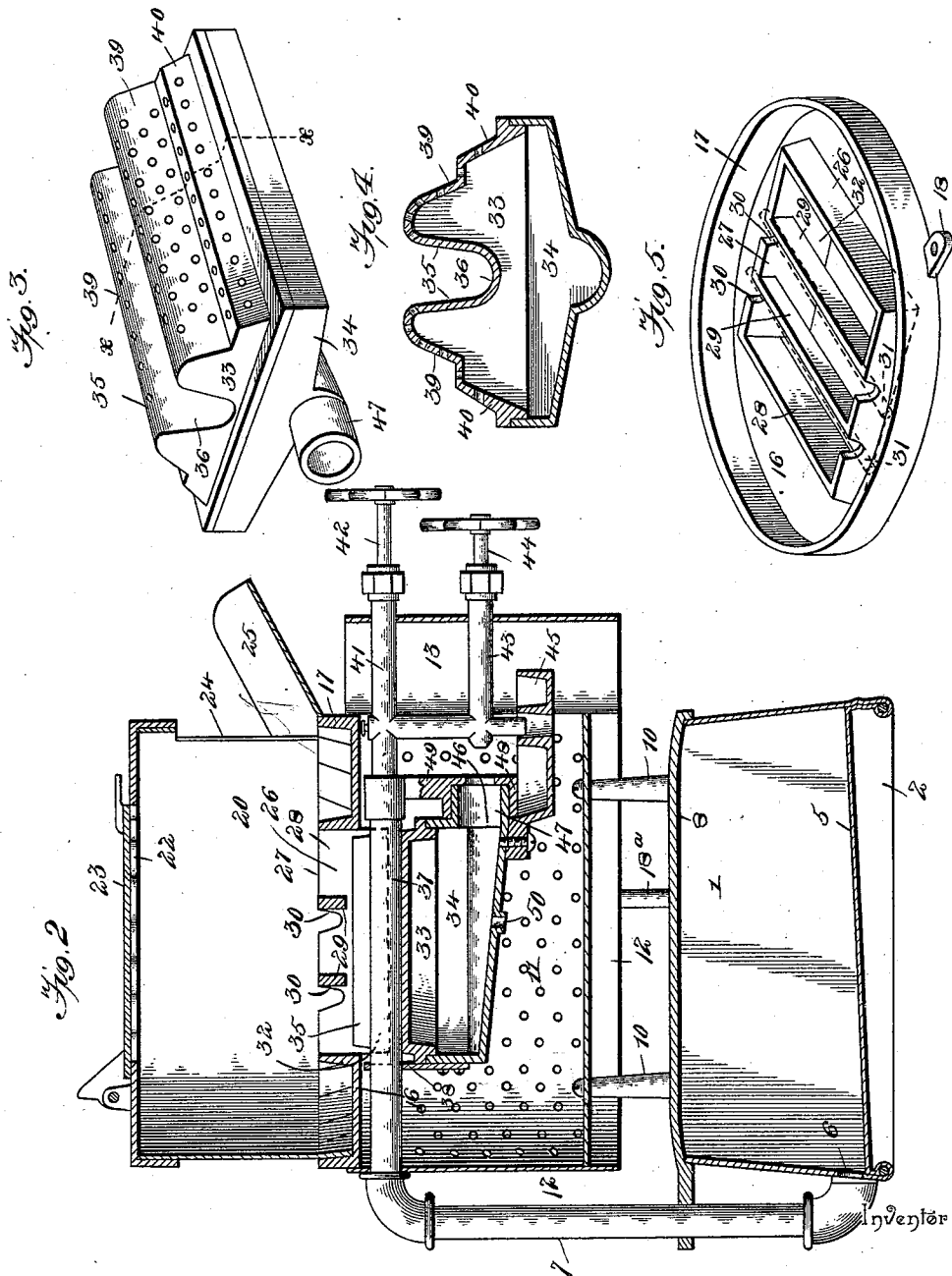
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Witnesses

John C. Shaw
L. P. Hollenback

By *W. S. Attorneys.*

Chas. H. Seaman,

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UNITED STATES PATENT OFFICE.

CHARLES H. SEAMAN, OF ST. JOSEPH, MISSOURI.

PORTABLE FURNACE FOR PLUMBERS AND TINNERS.

SPECIFICATION forming part of Letters Patent No. 538,704, dated May 7, 1895.

Application filed July 25, 1894. Serial No. 518,557. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SEAMAN, a citizen of the United States, residing at St. Joseph, in the county of Buchanan and State of Missouri, have invented a new and useful Portable Furnace for Plumbers and Tinnerns, of which the following is a specification.

This invention relates to portable furnaces for plumbers and tinnerns and is especially designed for use as a soldering iron heater.

To this end the main and primary object of the present invention is to construct a furnace or heater of the class described that shall possess exceptional facilities for the generation of an intense heat, while at the same time being easily handled and manipulated for the work required of it.

With these and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings, Figure 1 is a perspective view of a portable furnace constructed in accordance with this invention. Fig. 2 is a central vertical sectional view thereof. Fig. 3 is a detail in perspective of the vapor-burner. Fig. 4 is a detail sectional view on the line *x x* of Fig. 3. Fig. 5 is a detail in perspective of the grate-plate separated from the furnace, showing in dotted lines the separate grate rods or wires in position.

Referring to the accompanying drawings, 1 designates a gasoline or other suitable hydrocarbon oil tank that contains the necessary supply of oil for the burner of the furnace, and the said oil tank 1, is provided at its bottom with the squared peripheral rest flange 2, which provides means for holding the furnace steady in angular places, such as in the gulleys or valleys of roofs and the like, where ordinarily it is very difficult to properly position the ordinary tinnerns' furnaces having round bases. The said oil tank 1, is filled with oil through a top filling opening 3, that is inclosed by the screw vent plug 4, and the said tank is further provided with an inclined bottom 5, that declines toward one side of the tank in which

is formed the bottom outlet opening 6, to which is connected the upright oil feed pipe 7, for the burner of the furnace, and by reason of the inclined disposition of the bottom of the tank it will be understood that all the oil in said tank will be forced to flow out through the bottom outlet opening and into the oil feed pipe so that all the oil that is placed in the tank will be burned.

The plug 4 is of an ordinary construction, and also provides means for allowing air to be forced therethrough into the tank to provide for maintaining a sufficient pressure or compression of air in the tank to insure the forcing of the oil therefrom into and through the pipe 7.

The oil tank 1, is inclosed at the top by the imperforate top plate 8, that is provided at intervals with off-standing perforated lugs 9, and secured on said top plate and arising therefrom are a series of short supporting legs or posts 10, that detachably connect with the imperforate bottom of and support in position above the top of the tank the fire-pot 11. The fire-pot 11, is cylindrical in shape, and is inclosed at the sides by a perforated jacket 12, that admits the necessary air into the fire-pot for the purpose of supplying the requisite draft while at the same time preventing the wind from blowing out or extinguishing the flames from or cooling the generator and burner that is placed within the said fire-pot as will be presently described. The short supporting legs or posts 10, hold the fire-pot above the top of the oil tank and allow a free circulation of cool air between these two parts of the furnace, and said fire-pot is provided at one side with the off-standing door flange 13, within which is fitted a perforated door 14, that is securely closed by a suitable catch 15, and provides access to the interior of the fire-pot for the purpose of adjusting any parts of the furnace when necessary.

The cylindrical perforated fire-pot 11, is surmounted by a grate plate 16, provided with a circumferential upturned flange 17, and a series of off-standing perforated lugs 18, through which pass the side tie rods 18^a, the lower ends of which are bolted in the perforated lugs 9, at the top of the oil tank, and the upper ends

of said tie rods 18^a, are bolted to the perforated lugs 19, projected outwardly from the upper end of a cylindrical heating pot 20, the lower end of which is fitted onto the grate plate 16, inside of the flange 17, thereof. The tie rods 18^a, therefore serve to clamp the grate plate in position at the top of the fire-pot and the heating pot onto the grate plates so that these several parts of the furnace can be readily set up and be taken apart. The said heating pot 20, has pivotally connected thereto the swinging handle bail 21, by means of which the furnace is readily carried about, and in its top the said heating pot is provided with a top opening 22, having a notched edge and over which works a hinged stove lid 23, that subserves the usual function to allow a vessel or object to be placed on the top of the heater either with the top opening covered or uncovered, and the said heating pot 20, is further provided in one side with the side opening 24, beyond which is extended upwardly at an angle the flanged inclined iron shelf 25, secured to one side of the heating pot and serving as a support for the soldering irons that are thrust through the opening 24, into the heating pot to be heated.

The grate plate 16, forms the bottom of the heating pot 20, and also a support for the heads of the soldering irons that are introduced into the heating pot, and the said plate is provided with a squared grate opening 26, which is covered by the heating grate 27, on which the irons to be heated are placed. The heating grate 27, essentially comprises the rectangular grate flange 28, arising from the plate 16 at the edges of the opening therein and the transverse grate bars 29, connecting directly opposite side portions of the flange 28. The side portions of the flange 28, that are connected by the grate bars 29, are provided in their upper edges with the notches 30, in which are adapted to be placed the grate rods or bars 31, shown in dotted lines, in the event of the grate bars burning out, so that the plumber or tinner can always easily repair and maintain the heating grate for the support of the tools to be heated.

The grate plate 16, is further provided with the depending side flanges 32, that are extended from the lower side thereof at opposite sides of the grate opening 27, and said flanges 32, are adapted to embrace and combine therebetween the vapor burner 33, that is supported within the fire-pot 11, directly under the grate at the bottom of the heating pot secured in position thereover. The vapor burner 33, essentially comprises a hollow substantially rectangular body 34, onto which is fitted a flanged burner cap 35. The said burner cap 35 is provided with a central longitudinal pipe groove 36, formed in the top thereof for the reception of the horizontally arranged oil pipe 37, that is extended at one end outside of the fire-pot, and is connected to the upper end of the oil feed pipe 7, which leads from the oil tank, and a suitable bracket plate 38, is se-

cured to one end of the vapor burner 33, and is connected to the pipe 37, to assist in the support of the burner in its proper horizontal position, although other suitable means of support may be substituted for these means.

At both sides of the central longitudinal pipe groove 36 the cap 35 of the burner is provided with the longitudinal perforated jet ribs 39, that are semi-circular or rounded, and in a plane below the ribs 39 and at the outer side thereof the cap is further provided with angular perforated longitudinal jet ribs 40, the ribs 39 and 40 providing for the issuance of the vapor jets which are ignited at the perforations or openings in said ribs, and by reason of the specific construction and arrangement of these ribs, it will be noted that the flame does not come in contact with any part of the cap but is all directed up through the grate of the heating-pot to produce an intense heat, and the cap of the burner is thereby rendered very durable and is prevented from easily burning out, while at the same time the said cap is provided with a greater amount of space for jet openings or perforations than flat top or similar vapor burners.

The horizontally arranged oil pipe 37, that forms a support for the vapor burner 33, has connected to one end thereof directly adjacent to one end of the burner the generator pipe 41, that is provided with the usual controlling valve 42, and has connected therewith and supported therebelow the jet pipe 43, provided with the usual needle valve 44, and arranged directly over the oil pan 45, that is adapted to receive oil which is lighted for the purpose of heating the generator and subserves the same function as similar pans in other vapor burners. The said jet pipe 43 is arranged in direct alignment with the end inlet opening 46, of the vapor burner to jet thereinto, and the said inlet opening 46, has projected therefrom a neck 47 that fits in the ring 48, formed at the lower end of the bracket arm 49, depending from the pipe 41, and serving to assist in the support of the vapor burner.

The arrangement of pipes just described for feeding the vapor burner is substantially similar to the corresponding pipes in other vapor burners and are intended to operate in substantially the same manner, and in the present invention the projecting ends of the generator and jet pipes that carry the valve stems extend to the front of the fire-pot where the valves can be easily controlled.

The vapor burner is preferably provided with a bottom drain opening 50, to allow any drippings of unconsumed oil to pass out of the same.

From the above it is thought that the construction, operation and many advantages of the herein described furnace will be readily apparent to those skilled in the art, and it will be understood that changes in the form, proportion and the minor details of construc-

tion may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a portable furnace of the class described, the combination with a bottom oil tank provided at the top with side perforated lugs; of a cylindrical fire pot arranged above the oil tank and having a perforated jacket and an imperforate bottom, said imperforate bottom of the fire pot being disposed sufficiently above the top of the oil tank to leave a cool air circulating space above the oil tank, short supporting legs or posts arising from the top of the oil tank and detachably connecting with the imperforate bottom of the fire pot, a separate flanged grate plate removably fitted in the open upper end of the fire pot and provided with a series of offstanding perforated lugs, a separate cylindrical heating pot fitted at its lower end within the flange of the grate plate and also provided at its upper end with perforated lugs aligned with those of the grate plate and of the oil tank, tie rods passed through said perforated lugs and bolted at their upper and lower ends respectively to the uppermost and lowermost of said lugs to detachably clamp the lower parts of the furnace together, and the burner arranged within the fire pot, substantially as set forth.

2. In a portable furnace, the combination of the fire pot, a burner arranged within the fire pot, and a heating pot fitted on the fire pot and provided in the bottom thereof with a grate opening and a heating grate arranged over the opening, said heating grate comprising a continuous grate flange arising from the edges of the grate opening and provided in its upper edge at diametrically opposite sides

with notches adapted to receive rods or bars, and transverse grate bars integrally connecting directly opposite side portions of said grate flange, substantially as set forth.

3. In a furnace of the class described, the combination with the bottom oil tank and the fire pot supported thereabove; of the upright oil feed pipe connected at its lower end to said oil tank, a horizontally arranged oil pipe connected to the upper end of said oil feed pipe and arranged within said fire pot, a vapor burner provided in the top with a longitudinal pipe groove to receive said horizontal oil pipe and at one end with an inlet neck or collar, the generator and jet pipes connected to one end of said horizontal oil pipe, the bracket arm depending from the generator pipe and provided at its lower end with a ring fitting over the inlet neck or collar of the burner, and a bracket plate secured to one end of the vapor burner and connected to the horizontal oil pipe, substantially as set forth.

4. The combination with a horizontal oil feed pipe; of a vapor burner comprising a hollow rectangular body and a flanged burner cap fitted thereon, said burner cap being provided with a central longitudinal pipe groove to receive said oil pipe and at both sides of said pipe groove with rounded perforated jet ribs and angular perforated jet ribs extending longitudinally of the cap, said angular ribs being disposed in a plane below and at the outer side of the rounded ribs, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES H. SEAMAN.

Witnesses:

H. M. KREITZ,

CHAS. J. SCHRAUCK, Jr.