Sept. 6, 1927. 1,641,540

G. A. R. LEWINGTON ET AL

ORCHARD HEATER

Filed Nov. 27, 1926

Fig. 1

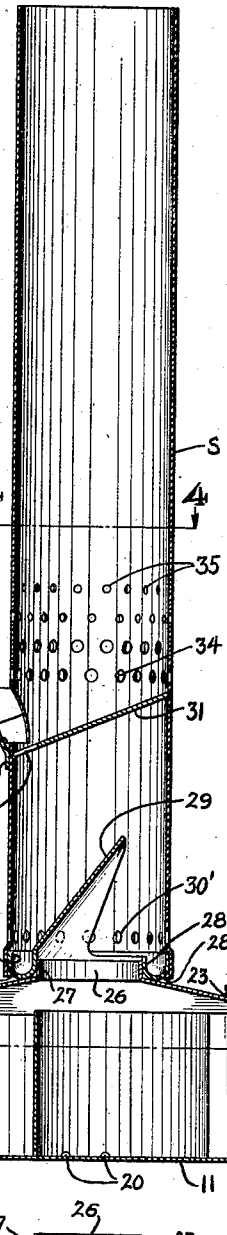


Fig. 6

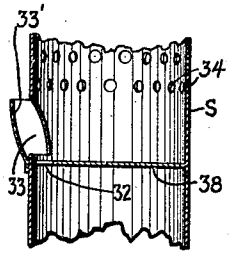


Fig. 8

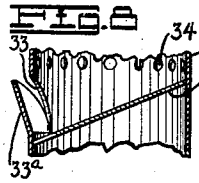


Fig. 3

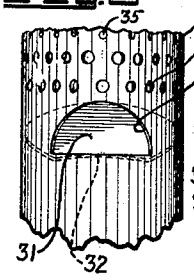


Fig. 4

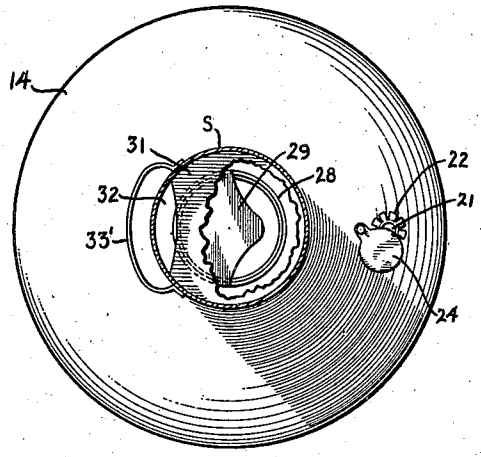


Fig. 2

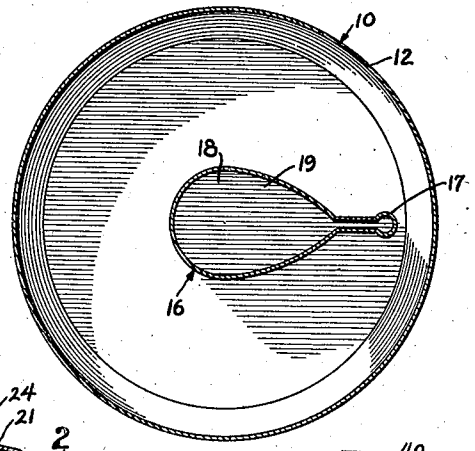


Fig. 7

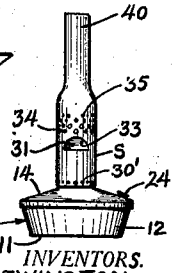
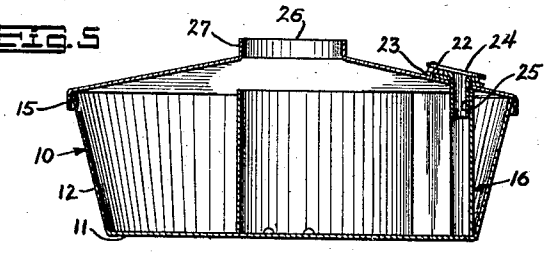


Fig. 5



INVENTORS.
GUY A.R. LEWINGTON
GEORGE A. SMITH

BY B. J. Craig.

ATTORNEY:

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UNITED STATES PATENT OFFICE.

GUY A. R. LEWINGTON AND GEORGE A. SMITH, OF LOS ANGELES, CALIFORNIA.

ORCHARD HEATER.

Application filed November 27, 1926. Serial No. 151,049.

This invention relates to orchard heaters.

This application contains the same subject matter as United States application Serial No. 85,152, filed February 1, 1926, for orchard heater, by Guy A. R. Lewington, one of the joint inventors herein.

The general object of the invention is to provide an improved orchard heater which will burn a low grade of oil efficiently and without producing smoke.

One of the specific objects of the invention is to provide an improved stack for use for orchard heaters wherein the stack is provided with means enabling complete combustion.

Another object of the invention is to provide a combined orchard heater and chimney or stack wherein novel means is provided for supplying air to the stack at different points throughout its length.

Another object of the invention is to provide an improved stack for orchard heaters wherein this stack is provided with an interior baffle and with an air vent adjacent to the baffle.

An additional object of the invention is to provide an improved draft device for orchard heaters.

A further object of the invention is to provide an improved rain shield for orchard heaters.

Other objects of the invention will be apparent from the following description taken in connection with the acompanying drawings, wherein:

Fig. 1 is a central sectional view of an orchard heater embodying the features of our invention.

Fig. 2 is a transverse section on line 2—2 of Fig. 1.

Fig. 3 is a fragmentary elevation of the chimney or stack with the outer flue removed.

Fig. 4 is a top plan view.

Fig. 5 is a central sectional view of a modified form of draft regulator.

Fig. 6 is a sectional view showing a modified arrangement of baffle.

Fig. 7 is an elevation of a modified form of stack, and

Fig. 8 is a view similar to Fig. 6 showing a modification.

Referring to the drawing by reference characters, we have shown an orchard heater generally at 10. This heater comprises a bottom portion 11 having a flange 12 thereon. The heater is provided with a removable cover 14 which has a flange 15 secured thereto. The top of the cover preferably slopes downwardly toward the edges and is provided with a depending draft producing and flame confining device 16. This device is preferably made from a single piece of metal bent to the shape shown in Fig. 2. The device includes a substantially cylindrical draft portion 17 at one end and an enlarged flame confining portion at the other end. This construction provides a chamber 19 which at all times extends above the fluid level in the draft regulating device and confines the gas generating flames within this chamber. Suitable apertures 20 at the bottom of the device allow oil to flow into the chamber.

A draft portion 17 is extended as at 21 through the cover and the ends are bent over as at 22. These bent over portions 22 are arranged on a washer 23 so that moisture may not enter through the portion 17.

A pivoted closure member 24 is mounted over the aperture in the member 17 and this pivoted closure member may be moved to regulate the draft.

In Fig. 5 we show a slight modification of the draft producing and regulating device 16 wherein the regulating portion comprises a separately formed member 25 which is slipped into the cylindrical portion 17 when the heater is being assembled.

The cover 14 is provided with a central aperture 26 and with a flange 27 surrounding this aperture. Secured to this flange we show an annular channel member 28 which is provided with an upwardly extending inclined portion 29 which forms a water shield and directs water into the channel in the member 28 whence it passes through apertures 28′ on the cover and on to the sides of the orchard heater.

We show a stack at S. This stack is shown as arranged upon the outer wall 30 of the channel member 28. The stack as well as the orchard heater is preferably made of a suitable weight of metal or other material. The stack is provided adjacent the bottom thereof with a plurality of holes 30′ which are arranged circumferentially and which allow entrance of air which mingles with the unburned vapor passing through the opening 26.

Intermediate the length of the stack we provide a baffle 31. This baffle is preferably

in tight engagement with the interior wall of the stack and is inclined with respect to the axis of the stack as shown in Fig. 1.

One edge of the baffle is removed as at 32 to provide a passageway for the mixed unburned gases and air. Adjacent this passageway and preferably slightly above the same we provide an air vent 33 which may be of the configuration shown in the drawing. This air vent, it will be noted, is arranged just above the opening 32. The construction is such that the unburned gas passes through the opening 32 and mingles with the air coming in through the opening 33 to thus properly dilute the gases for efficient burning.

In front of the opening 33 we arrange an outer flue member 33′ which has a lower part 33″ engaging the outer surface of the stack slightly below the opening 33 to provide a pocket 33‴ in which gasoline may be placed for starting the heater. The gasoline in the pocket 33‴ after being ignited will fall down to and within the channel 28 when the stack S is struck and the heat of flaming gasoline in the channel 28 will raise the temperature of the oil to evaporate some of the same and the gas produced by this evaporation will be ignited and will flash back into the part 18.

The member 33′ provides a drum draft which is quite desirable. Immediately above the air opening 33, we arrange rows of apertures 34, and above these apertures 34 we arrange smaller apertures 35. The particular size and arrangement of the apertures 34 and 35 may be varied without departing from the spirit of our invention. The aperture 32 is arranged above the water shield 29 so that moisture will not pass into the receptacle.

In Fig. 6 we show a modification of our invention wherein the baffle is shown at 38 as substantially horizontal. This baffle 38 is slightly below the bottom of the opening 33 previously described.

In Fig. 7 we show a stack having an upper portion 40 of reduced diameter for purpose of controlling the burning of vapors.

In Fig. 8 the outer flue member 33ª is made by bending the material from the opening 33 as shown.

With our invention the droplets of liquid fuel in the vapor passing through the stack are "cracked" or broken down while passing through the stack. The baffle 31 becomes very hot and acts as a "hot plate" thus cracking the particles and giving a completely combustible product which burns without smoke.

What we claim is:

1. A smudge pot comprising a receptacle, said receptacle having a cover removably mounted thereon, said cover having an opening therein, said cover having a draft regulating device associated therewith, said receptacle having a flame confining member arranged therein, said member being closed on all sides and having the top portion thereof arranged to communicate with the opening in said cover.

2. An orchard heater comprising a receptacle having an apertured cover thereon, and a flame confining device arranged within said receptacle, said device including an air admitting portion in communication with the aperture in said cover and a flame confining portion closed on all sides and arranged adjacent the aperture in said cover.

3. An orchard heater comprising a receptacle, said receptacle having a cover removably fitted thereon, said cover having a flanged aperture therein, an annular ring secured to said flange, said ring having a water shield thereon, a stack mounted on said receptacle and engaging said ring, said cover having an air opening therein.

4. An orchard heater comprising a receptacle, a cover for said receptacle, said cover having an aperture therein, a stack mounted on said cover adjacent said aperture, and water deflecting means extending over said aperture, said water deflecting means being arranged within said stack.

5. An orchard heater comprising a receptacle having a flanged cover thereon, an annular ring engaging the flange on said cover, said annular ring having an upwardly directed cavity therein, a stack secured to the outer portion of said annular ring and a water shield secured to the inner portion of said annular ring, said water shield extending partly over said aperture, said stack having a baffle therein, said baffle having an aperture therein arranged over said water shield.

6. In an orchard heater, a receptacle for oil, a cover for said receptacle, said cover having an air vent therein and having a discharge opening, a stack mounted on said cover, said stack having a plurality of air admitting apertures near the bottom thereof and having a baffle intermediate its length, said baffle having an aperture thereon adjacent one edge thereof, the remainder of said baffle being in tight engagement with the wall of said stack and means to admit air to the stack from above the baffle, said means comprising a semicylindrical aperture in the wall of said stack, said aperture being located a slight distance above the bottom of said baffle, said baffle being inclined and said stack having a plurality of small apertures arranged above the baffle.

7. In an orchard heater, a covered receptacle for oil, a stack mounted on said cover, said stack having an apertured baf-

fle plate therein, the wall of said stack having a hole therein, said hole being adjacent to the baffle, and an outer flue forming member arranged adjacent to the hole in said stack.

8. In an orchard heater, a receptacle for oil, a cover for said receptacle, said cover having an air vent therein and having a discharge opening, a stack mounted on said cover, said stack having a plurality of air admitting apertures near the bottom thereof, and having an apertured baffle intermediate its length, said baffle having an aperture thereon adjacent one edge thereof, the remainder of said baffle being in tight engagement with the wall of said stack, said stack having an aperture therein adjacent to said baffle, an outer flue plate engaging said stack adjacent to the aperture therein, said plate forming a down draft.

In testimony whereof, we hereunto affix our signatures.

GUY A. R. LEWINGTON.
GEORGE A. SMITH.