W. C. SCHEU.

ORCHARD HEATER.

APPLICATION FILED SEPT. 23, 1913.

1,100,101. Patented June 16, 1914.

Fig. 1

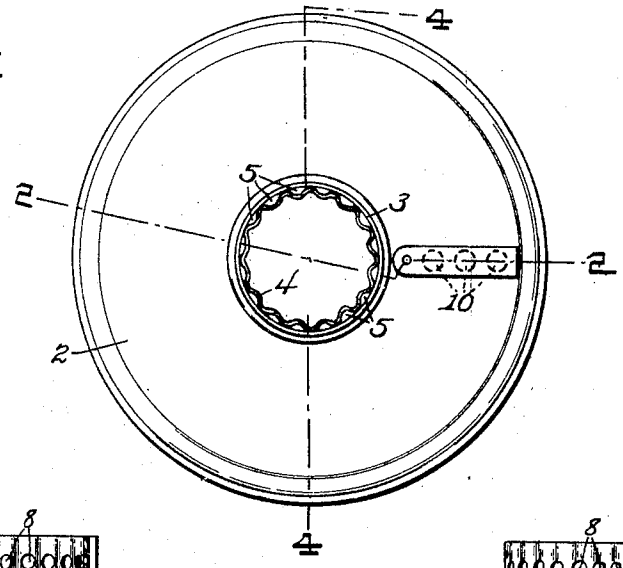


Fig. 2

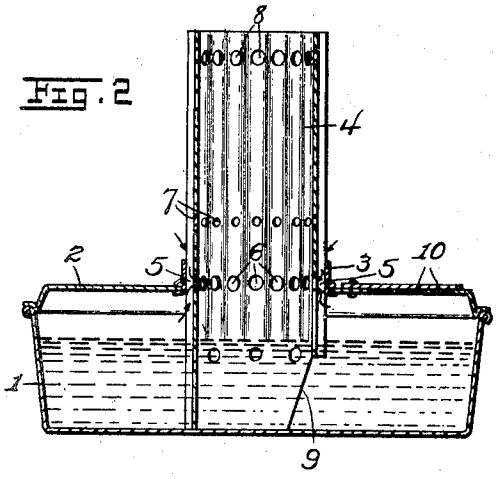


Fig. 4

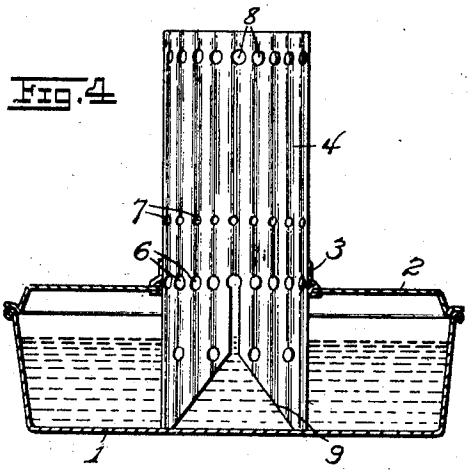
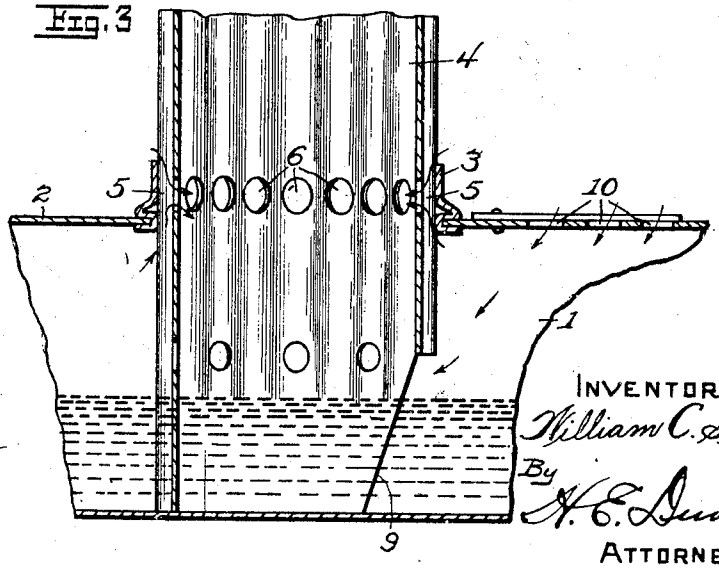


Fig. 3



Witnesses:
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UNITED STATES PATENT OFFICE.

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ORCHARD-HEATER.

1,100,101. Specification of Letters Patent. Patented June 16, 1914.

Application filed September 23, 1913. Serial No. 791,421.

To all whom it may concern:

Be it known that I, WILLIAM C. SCHEU, a citizen of the United States of America, and resident of Grand Junction, county of Mesa, and State of Colorado, have invented certain new and useful Improvements in Orchard-Heaters, of which the following is a specification.

This invention relates broadly to oil-burning orchard heaters, and specifically to an improved stack for such heaters.

The primary object of the invention is to provide an orchard heater of the oil-burning type, having means for facilitating the entrance to the interior of the stack of the vapor or volatile gases arising from the oil in the container outside the stack, together with air, for producing combustion of relatively high efficiency.

A further object is to provide, in connection with an oil container, or receptacle, a stack which is so constructed that the gas arising from the receptacle outside the stack and air from without the device are together admitted thereto for producing combustion. And a still further object within the contemplation of the invention is to provide a stack having its lower end so formed as to admit thereto a strong draft of air directed over the surface of the oil in the receptacle when said oil has burned down to a point where the less volatile portion remains.

With these and other objects in view, the invention resides in certain novel features of construction, the arrangement of parts and combinations of elements which will hereinafter be described, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a top plan view of an orchard heater embodying the invention; Fig. 2 is a central vertical section taken on the line 2—2, Fig. 1; Fig. 3 is an enlarged detail section of a portion of the device, said section being taken on said line 2—2, Fig. 1; and Fig. 4 is a section on the line 4—4, Fig. 1, showing the stack in side elevation.

Referring to said drawings, 1 designates an oil receptacle, or container, herein shown as circular in form, but which may be of any other preferred form; and 2 indicates a cover therefor, the same having an opening therethrough about which is disposed a circular ring or collar 3 which preferably extends upward a short distance above the surface or top of said cover. Fitted within said collar and having its lower end resting upon the bottom of the container is a stack 4. Said stack is formed of sheet metal which is corrugated longitudinally, or which is otherwise irregularly shaped to afford a plurality of upright passages 5 between the stack and the collar; and a plurality of apertures 6 are provided in the stack adjacent to the opening in the cover 2, preferably at the bottoms of the concave portions of the corrugations and in a horizontal line located between the top and bottom edges of said collar, as shown.

In practice, the heat generated by the oil burning within the stack creates a suction which simultaneously acts through said apertures 6 to draw upward along the passages 5 gases generated within the container outside the stack and to draw downward along said passages air from without the container, said gas and air together entering the stack through said apertures to produce a mixture in which they are more or less thoroughly commingled. Additional apertures, as 7 and 8, may be provided in the stack at suitable points above the cover for admitting air for further facilitating combustion, as may be found desirable.

As hereinbefore stated, the stack is preferably formed of more or less deeply corrugated, grooved, or fluted, sheet metal; but it is obvious that any irregular formation may be employed which affords the passages for down-drafts of air and up-drafts of gas, with the apertures for both air and gas located in close proximity to the opening in the cover whereby drafts from both directions are induced in said passages. Provided in the lower end of the stack is a draft opening 9 of inverted V-shape formed by cutting away sections of the metal of which the stack is composed, as shown in Figs. 2, 3 and 4, said draft opening being adapted, as the fuel in the container burns down, to be gradually uncovered to progressively increase the inlet draft space to the stack from the damper-controlled openings 10 commonly provided in the cover.

Where low grade, or asphaltum, oils are used, as is the common practice, the heavier, less volatile portion of the oil is contained at the bottom of the container, while the richer oil lies on the surface; consequently, vaporization and the maintenance of perfect

combustion becomes more difficult as the bottom of the container is approached. This, therefore, renders the provision of the opening 9 for coöperation with the damper-controlled openings 10 particularly advantageous, since a strong and increasing draft is thereby induced to play over the surface of the low-burning oil in the container for effecting the necessary vaporization, resulting in vigorous combustion being maintained until all the oil is consumed.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an orchard heater, the combination with an oil container and a cover, the latter having an opening therein, of a stack fitted within and extending above and below said opening, the walls of said stack being irregular in form to afford passages which open at opposite ends to the atmosphere and to the interior of the container without the stack, and apertures in said walls in close proximity to the cover opening, whereby drafts of air and gas are simultaneously introduced within the stack through said apertures.

2. In an orchard heater, the combination with an oil container and a cover, the latter having an opening therein, of a stack fitted within and extending above and below said opening, the walls of said stack being irregular in form to afford passages which open at opposite ends to the atmosphere and to the interior of the container without the stack, and apertures in said walls at the bottoms of said passages through which a suction is exerted for simultaneously inducing down-drafts of air and up-drafts of gas which together enter the stack through said apertures.

3. In an orchard heater, the combination with an oil container and a cover, the latter having an opening therein, of a collar encircling said opening, a stack fitted within and extending above and below said collar, the walls of said stack being irregular in form to afford passages which open at opposite ends to the atmosphere and to the interior of the container outside the stack, and apertures in said walls in close proximity to said collar through which a suction is exerted for simultaneously inducing down-drafts of air and up-drafts of gas along said passages and introducing the same within the stack.

4. In an orchard heater, the combination with an oil container and a cover, the latter having an opening therein, of a collar encircling said opening, a stack fitted within said collar and resting upon the bottom of the container, the walls of said stack being irregular in form to afford passages which open at opposite ends to the atmosphere and to the interior of the container outside the stack, and apertures in said walls through which down-drafts of air and up-drafts of gas are together drawn into the stack.

5. In an orchard heater, the combination with an oil container and a cover, the latter having an opening therein, of a collar encircling said opening, a stack fitted within said collar and resting upon the bottom of the container, the walls of said stack being irregular in form to afford passages which open at opposite ends to the atmosphere and to the interior of the container outside the stack, apertures in said walls through which down-drafts of air and up-drafts of gas are together drawn into the stack, and an irregular opening in the lower end of said stack adapted to be gradually uncovered to progressively increase its capacity for admitting to the stack drafts introduced over the surface of the fuel in the container.

6. In an orchard heater, the combination with an oil container and a cover, the latter having an opening therein, of a collar encircling said opening, a stack fitted within said collar and resting upon the bottom of the container, the walls of said stack being irregular in form to afford passages which open at opposite ends to the atmosphere and to the interior of the container outside the stack, apertures in said walls through which down-drafts of air and up-drafts of gas are together drawn into the stack, and an inverted V-shaped opening in the lower end of said stack adapted to be gradually uncovered to progressively increase its capacity for admitting to the stack drafts introduced over the surface of the oil in the container.

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

WILLIAM C. SCHEU.

Witnesses:
H. E. DUNLAP,
L. D. MORRIS.