W. R. CRAWFORD.

SMOKELESS ORCHARD HEATER.

APPLICATION FILED MAY 19, 1919.

1,353,636. Patented Sept. 21, 1920.

FIG. 1.

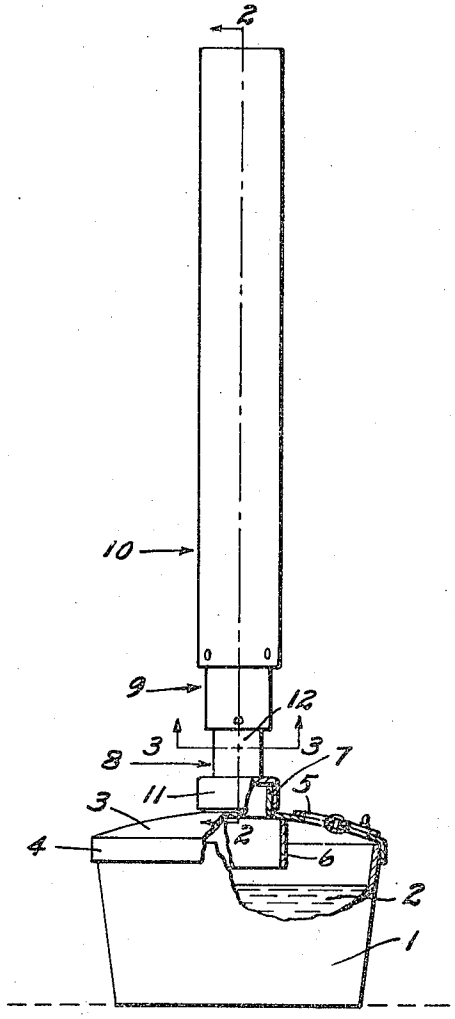


FIG. 2.

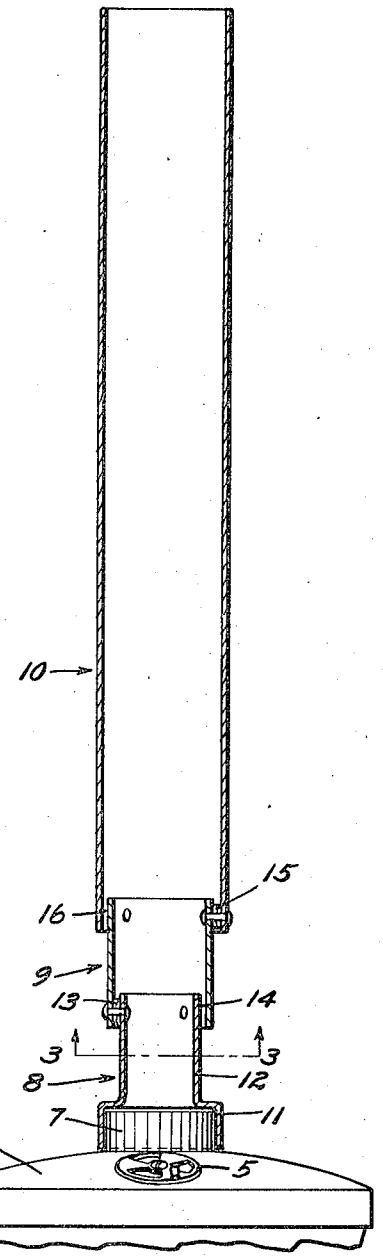
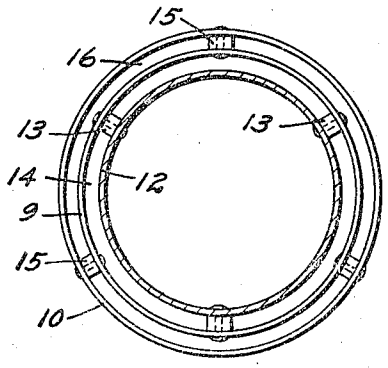


FIG. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM ROY CRAWFORD, OF POMONA, CALIFORNIA.

SMOKELESS ORCHARD-HEATER.

1,353,636. Specification of Letters Patent. Patented Sept. 21, 1920.

Application filed May 19, 1919. Serial No. 298,271.

To all whom it may concern:

Be it known that I, WILLIAM ROY CRAWFORD, a citizen of the United States, residing at Pomona, in the county of Los Angeles and State of California, have invented new and useful Improvements in Smokeless Orchard-Heaters, of which the following is a specification.

My object is to make a smokeless orchard heater, and my invention consists of the novel features herein shown, described and claimed.

Primarily the smudge pot used as an orchard heater is a smoke producer and the specific object of my invention is to consume the smoke and convert it into heat and do away with the nuisance of the soot falling around the orchard.

Figure 1 is a side elevation of a smokeless orchard heater embodying the principles of my invention, parts being broken away and shown in section.

Fig. 2 is an enlarged fragmentary sectional detail upon a plane parallel with Fig. 1.

Fig. 3 is an enlarged horizontal sectional detail on the lines 3—3 of Figs. 1 and 2, and looking upwardly as indicated by the arrows.

The tub 1 is adapted to be somewhat more than half filled with oil 2 and the cover 3 has a flange 4 fitting the tub 1 like a cap, an air regulator 5 is mounted upon the cover 3, and a baffle 6 extends downwardly from the cover 3 between the air regulator 5 and the outlet nipple 7. The outlet nipple 7 is constructed upon the cover 3 to receive the smoke stack.

The smoke stack comprises the lower section 8, the intermediate section 9 and the upper section 10. The lower section 8 consists of an enlargement 11 adapted to fit the nipple 7 and the neck 12 extending upwardly from the enlargement 11, the neck 12 being somewhat smaller than the opening through the nipple 7. The section 9 is larger in cross section than the neck 12 and the section 10 is larger in cross section than the section 9. Spacers 13 are fixed between the periphery of the upper end of the neck 12 and the inner face of the lower end of the section 9 to form an air opening 14 between the neck 12 and the section 9.

In a like manner, spacers 15 are fixed between the periphery of the upper end of the section 9 and the inner face of the lower end of the section 10 to form an air opening 16 between the section 9 and the section 10. The neck 12 extends upwardly into the section 9 a considerable distance, and the section 9 extends upwardly into the section 10 a considerable distance, so that there will be a strong draft upwardly through the openings 14 and 16, and so that the wind blowing crosswise will not blow the smoke or fire outwardly through the opposite side from which the wind strikes as is the case where the perforations, or air inlets, are horizontal and in substantial horizontal alinement.

In the practical operation the tubs 1 are filled with oil 2 substantially to their limits, and when the time comes to start the heating operation any sort of kindling may be inserted through the air regulator 5 and lighted, and the fire from the kindling will pass downwardly under the baffle 6 into contact with the surface of the oil 2, and the smoke will pass upwardly through the nipple 7 and through the neck 12 and on upwardly, and fresh air will pass inwardly through the openings 14 and 16 and unite with the smoke and produce a fierce fire in the smoke stack which will burn the smoke stack clean of soot and burn the soot and discharge the heat and carbon dioxid to heat the orchard without distributing soot all over the orchard.

The lower section 8, the intermediate section 9 and the upper section 10 may be oval in cross section instead of round, and the oval form is preferable especially in large heaters because it will reduce the cross sectional area of the central smoke outlet openings in proportion to the fresh air inlet openings.

Various changes may be made without departing from the spirit of my invention as claimed.

I claim:

1. A smokeless orchard heater comprising, in combination with a smudge pot, a short pipe section forming a neck for the smudge pot, an outlet nipple extending from said smudge pot, a second pipe fitted over said nipple section of larger diameter than the first fitting over the top of the first pipe section and extending upwardly therefrom and providing an annular draft opening between the two sections, and a third pipe section of larger diameter than the second pipe section fitted about the top and extend-

ing upwardly therefrom providing a second annular draft opening between the second and third sections.

2. In a smokeless orchard heater, a stack comprising a pipe section, a second pipe section mounted around the upper end of the first pipe section and spaced therefrom forming an up draft opening, and a third pipe section mounted around the upper end of the second pipe section and spaced therefrom forming a second up draft opening, the first and second pipe sections being comparatively short and the third pipe section being of considerable length and size.

In testimony whereof I have signed my name to this specification.

WILLIAM ROY CRAWFORD.