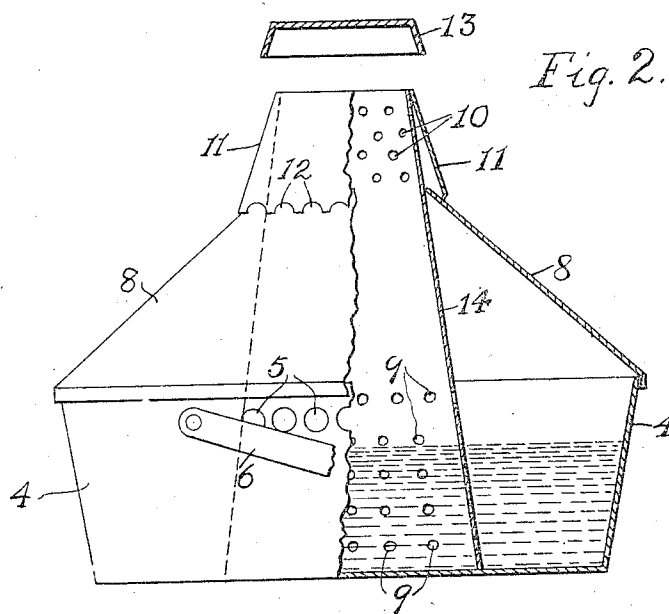
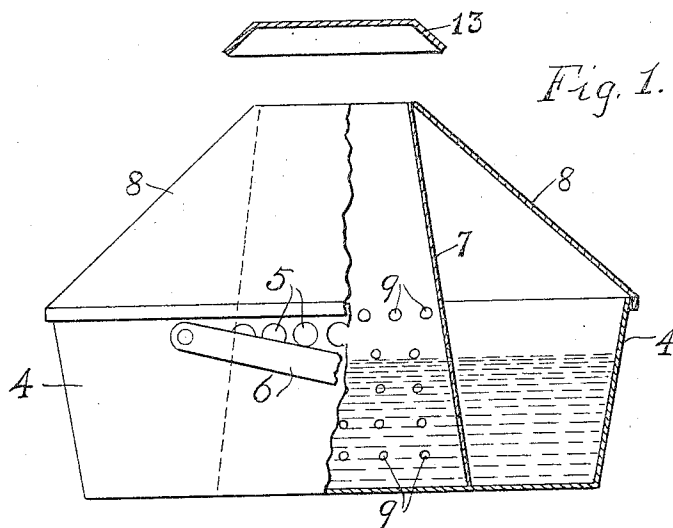


J. L. HAMILTON.
ORCHARD HEATER.
APPLICATION FILED JAN. 31, 1912.

1,045,547.

Patented Nov. 26, 1912.



WITNESSES

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UNITED STATES PATENT OFFICE.

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ORCHARD-HEATER.

1,045,547.

Specification of Letters Patent.

Patented Nov. 26, 1912.

Application filed January 31, 1912. Serial No. 674,531.

To all whom it may concern:

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

My invention relates to improvements in orchard heaters, and the object of my improvement is to provide a heater of simple and compact construction adapted to burn heavy fuel oils such as are produced from petroleum in certain sections of the country. Fuel oils of this nature have a heavy semi-liquid base and it has been found that with orchard heaters as heretofore usually constructed, the surface combustion of the fuel in the receptacle or reservoir burns out the more volatile constituents first and as the surface level of the fuel is thereby lowered the supply of air to the fire is not sufficient for the efficient combustion of the heavy fuel residue so that the temperature is considerably reduced and frequently the fire dies out entirely.

My improved heater is so constructed that additional draft openings are automatically uncovered as the surface level of the oil in the reservoir is lowered by combustion, thereby admitting an additional supply of air as the oil becomes heavier and insuring the complete combustion of all of the oil in the reservoir at substantially a uniform rate.

My improved heater is shown in the accompanying sheet of drawings, in which:

Figure 1 is a view partly in section showing the heater in its simpler form. Fig. 2 is a similar view partly in section showing the heater arranged to burn with little or no smoke.

Similar reference characters refer to similar parts in each of the views.

The fuel receptacle or reservoir 4 is made tapering as shown, the bottom being the smaller. Draft openings 5 are provided near the upper rim of the fuel receptacle. These draft openings are preferably grouped together as shown and each group of the openings is provided with a pivoted damper 6 for the purpose of controlling the admission of air to the reservoir and thereby regulating the rate of combustion of the fuel as desired. A tapering draft

tube or chimney 7 is centrally located within the fuel receptacle. The larger end of this chimney rests on the bottom of the fuel reservoir and it extends a considerable distance above the top of the reservoir as shown. That part of the chimney below the top of the reservoir is provided with numerous perforations 9 which extend to the bottom and serve to admit air and combustible gases into the chimney. It will be evident that as the surface level of the fuel is lowered by combustion additional perforations will be uncovered thereby admitting more air into the chimney, and such additional air will be drawn in at or near the surface level of the fuel in the reservoir. A hood 8 is provided, the lower part resting on the upper rim of the fuel reservoir while the smaller upper end fits closely around the chimney.

In the simpler form of the heater, shown in Fig. 1, the chimney 7 extends only to the top of the hood 8, while in the heater shown in Fig. 2, the chimney 14 projects a short distance above the hood. The projecting part of the chimney is provided with numerous perforations 10 and has a second hood 11 fitted over it. The smaller upper end of this hood fits closely around the upper end of the chimney, while its lower end which is notched or scalloped at 12 rests on the hood 8. This construction allows the draft of the chimney to draw within the hood 11 an ample supply of air which is drawn thence directly into the chimney through the numerous perforations 10 in such a manner as to become intimately mixed with the flame whereby the free carbon is substantially all consumed thus practically eliminating smoke and generating a maximum amount of heat from the fuel.

A cover 13 is provided for closing the upper end of the chimney when the heater is not in use, thereby effectually preventing rain or snow from getting into the fuel reservoir.

The tapering construction of the several parts comprising the heater is desirable as it permits of their being "nested" or compactly stacked together for storage or shipment.

The heaters may be made of any desired size the preferred size being such that it will hold sufficient of liquid fuel to burn at least 10 to 15 hours in order that it will never be

necessary to refill the heaters during the night.

When the heaters are to be used for frost protection a suitable number of them are properly distributed throughout the orchard or other crop it may be desired to protect from frost. The heater reservoirs 4 are then filled with suitable oil to within a short distance of the lower edge of the draft openings 5, and the covers put in place to prevent rain or snow from entering the reservoirs. When the temperature of the air falls to or near the danger point the covers are removed and the surface of the oil within the chimney is lighted, which may be done quickly and with certainty by injecting a small amount of gasoline into the reservoir and immediately igniting it by means of a suitable torch. The combustion of the gasoline will generate sufficient heat to ignite the heavy fuel oil when the combustion will proceed, the rate of the combustion and the heat thereby generated being controlled by the pivoted dampers 6 whereby more or less air may be admitted as desired.

As the level of the oil is lowered by its combustion more of the perforations 9 are uncovered, thereby continually admitting more air into the chimney at the surface level of the fuel and thus maintaining an efficient combustion of the oil entirely to the bottom of the reservoir.

By entirely closing the dampers 6 the supply of air to the reservoir will be cut off and the fire thereupon extinguished.

What I claim as my invention is:

1. An orchard heater comprising a liquid fuel reservoir having a plurality of draft openings arranged in a group near the top

thereof, a pivoted damper for opening and closing the group of said draft openings, a perforated draft chimney centrally located within said reservoir, and a hood having its lower edge closely fitting the top of the fuel reservoir and its top fitted closely around the draft chimney.

2. An orchard heater comprising a liquid fuel reservoir having draft openings near the top thereof, a pivoted damper for opening and closing said draft openings, a centrally located draft chimney provided with perforations below the top of the fuel reservoir, and a hood having its lower edge closely fitting the top of the fuel reservoir and its top fitted closely around the draft chimney substantially as shown.

3. An orchard heater comprising a liquid fuel reservoir having draft openings near the top thereof, a pivoted damper for opening and closing said openings, a centrally located draft chimney provided with perforations some located below the top of the fuel reservoir and others near the top of said chimney, a hood having its lower edge closely fitting the top of the fuel reservoir and its top fitted closely around the draft chimney below the upper perforations, and a second hood having its top closely fitted around the top of the draft chimney and its base notched and resting on the first hood, substantially as shown.

Signed at Grand Junction in the county of Mesa and State of Colorado this seventeenth day of January A. D. 1912.

JAMES L. HAMILTON.

Witnesses:

MAME HALDERMAN,
ANTHONY FIDEL, Jr.