

P. H. TROUTMAN.
ORCHARD HEATER.
APPLICATION FILED JAN. 14, 1911.

1,009,027.

Patented Nov. 14, 1911.

2 SHEETS-SHEET 1.

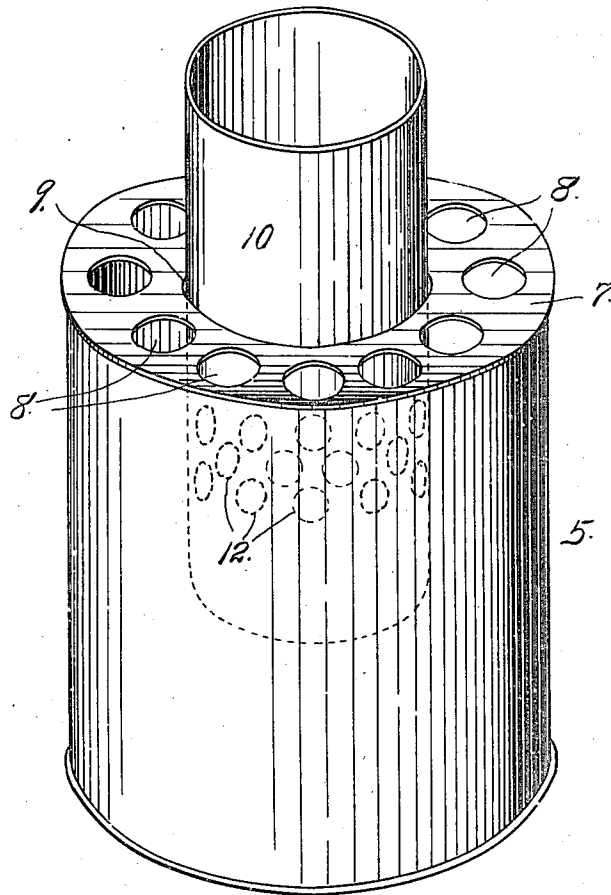


Fig. 1.

Witnesses

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C. H. Rossoner

Inventor

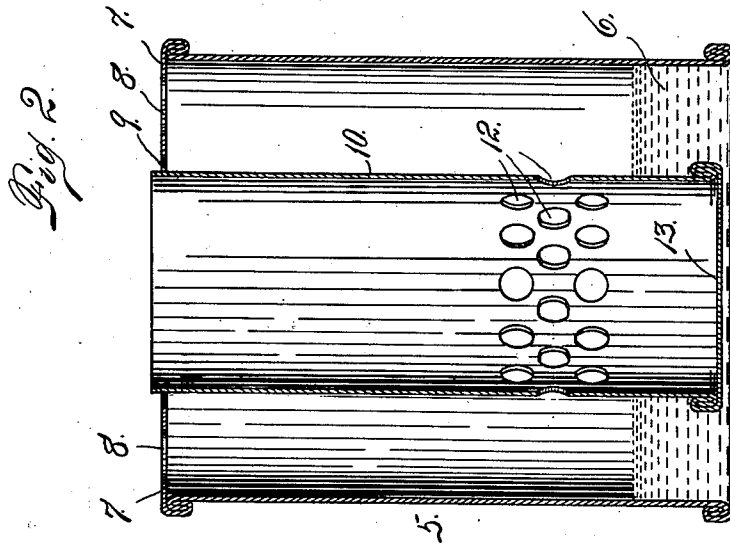
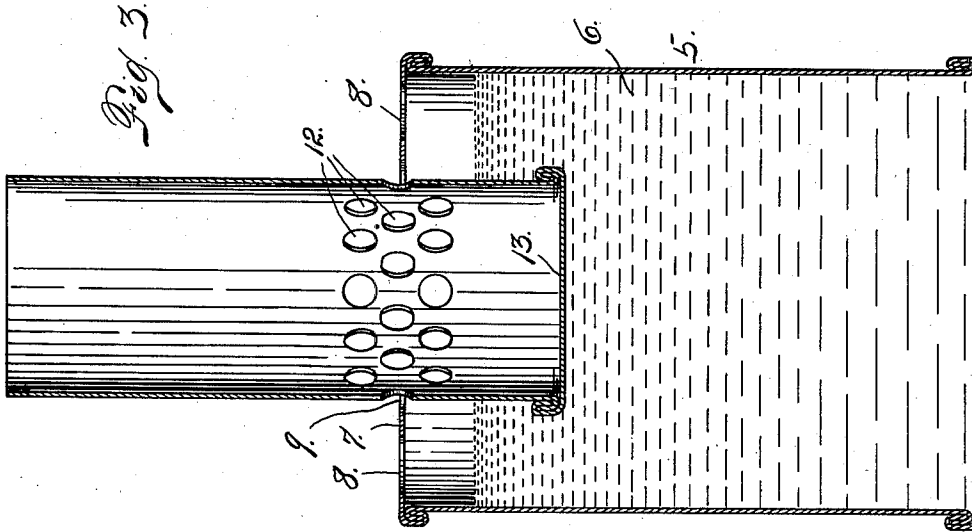
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ORCHARD-HEATER.

1,009,027.

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To all whom it may concern:

Be it known that I, PERCIVAL HAMMER TROUTMAN, a citizen of the United States, residing at Canon City, county of Fremont, and State of Colorado, have invented certain new and useful Improvements in Orchard-Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in orchard heaters, my object being to provide a device of this class which shall be exceedingly simple in construction and therefore economical in cost, and which shall efficiently perform the required function.

In my improvement I employ a sort of chimney centrally located and guided, the said chimney being arranged and constructed for the escape of the products of combustion which enter from the combustion chamber of the liquid fuel receptacle in which the chimney is located. This chimney is closed at the bottom and while perforated above the level of the liquid for the escape of the products of combustion, the perforations are always above the level of the liquid, the chimney rising and falling with the liquid as its level fluctuates in the receptacle. As illustrated in the drawing the top of the liquid fuel receptacle is provided with an inwardly projecting flange forming a guide for the chimney as it rises and falls. This flange is perforated to allow the air to enter freely for purposes of combustion. The air entering these perforations passes into the combustion chamber surrounding the chimney and forms with the oil or other liquid fuel, a combustible mixture. This chimney by virtue of the perforations therein produces a relatively strong draft, whereby the flame and products of combustion are drawn thereinto and pass out through the top thereof. Thus there is a downward circulation of air within the combustion chamber and an upward circulation of the products of combustion in the chimney.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the ac-

companying drawing in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a perspective view of my improved device showing the chimney protruding above the top of the liquid fuel receptacle about half of its length. Fig. 2 is a vertical section taken through the device showing the chimney at approximately its downward limit of movement. Fig. 3 is a similar view showing the chimney at approximately its upward limit of movement.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate a liquid fuel receptacle which may be of any suitable size and constructed in any desired manner for the reception of liquid fuel 6. To the top of this receptacle is applied an inwardly protruding flange 7 having perforations 8 for the entrance of air. This flange surrounds an opening 9 through which the floatable chimney 10 protrudes, when the device is in use. A portion of this chimney is provided with perforations 12 which are so arranged that they are all during the greater portion of the time below the top of the fuel receptacle, since it is desirable that the portion of the chimney above the top of the receptacle shall produce as great a draft as practicable, and it is not desirable to interrupt this draft by perforations, which would have a tendency to check the draft as will be readily understood.

The area of the perforations may be regulated as desired and may be determined by experiment. They should, of course, be sufficient for the escape of the products of combustion, and the greater the quantity of fuel consumed the greater should be the area of the perforations in the aggregate. The chimney is closed at the bottom as shown at 13, and while it will be normally slightly submerged in the liquid fuel, it will rise and fall as the level of the fuel fluctuates, thus maintaining the perforations 12 constantly in the same relative position to the level of the liquid fuel or the location where combustion is greatest. By virtue of this fact it becomes practicable to maintain approximately steady and uniform combustion during the entire period of the consumption of the liquid fuel within the receptacle.

The area of the openings 8 within the flange 7 of the receptacle must of course be

sufficient to supply the necessary air for purposes of combustion, and a suitable relation should be maintained between the aggregate area of the openings 8 and the aggregate area of the openings 12 in the chimney 10.

From the foregoing description the use and operation of my improved construction will be readily understood.

In Fig. 3 I have illustrated the fuel receptacle containing a full charge of liquid fuel, that is to say, with this fuel at a level near the top of the receptacle. In this event the floatable chimney protrudes to its greatest height above the top of the receptacle and some of the perforations 12 are exposed above the top of the latter. However, as the liquid fuel is consumed the chimney falls therewith and within a comparatively short time the perforations 12 are all below the top of the liquid fuel receptacle and the portion of the chimney above the top thereof will then produce the maximum draft, whereby the products of combustion are drawn into the chimney through the openings 12 and are thence carried upwardly out of the chimney.

When the device is in use the air circulates downwardly into the receptacle and unites with the liquid fuel, forming a combustible mixture, the combustion taking place in the mixing chamber around the chimney, the flame and products of combustion passing through the perforations, into the chimney and upwardly therein as heretofore explained.

Having thus described my invention, what I claim is:

1. A heater of the character described, comprising a liquid fuel-containing receptacle, a floatable chimney located therein and having perforations near its bottom so arranged that some of them at least are constantly below the top of the fuel receptacle

and all of them constantly above the surface of the liquid fuel, the chimney being adapted to move downwardly into the receptacle as the fuel is consumed to maintain its perforations in proximity to the location of combustion, the receptacle being open around the chimney for the entrance of air, for the purpose set forth.

2. The combination with a liquid fuel-containing receptacle, of a floatable chimney located therein and adapted to be held at its upward limit of movement by the liquid fuel, the chimney being open below the top of the fuel receptacle for the escape of the products of combustion, the chimney being adapted to move downwardly as the fuel is consumed to maintain the opening in proximity to the location of combustion, the said opening being constantly above the surface of the liquid fuel, the receptacle being equipped with means for guiding the chimney during its vertical movement, and the fuel receptacle being open at the top around the chimney for the entrance of air for combustion purposes, substantially as described.

3. A heater of the class described, comprising a liquid fuel receptacle, a chimney floatable therein and provided with an opening near its bottom constantly above the surface of the liquid fuel, the chimney being adapted to move downwardly as the liquid fuel is consumed for maintaining the opening in the chimney in proximity to the location of combustion, the lower extremity of the chimney being closed, and means for supplying air to the said opening.

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

PERCIVAL HAMMER TROUTMAN.

Witnesses:

HAROLD FRANCIS,
AMY W. TROUTMAN.