L. M. TREMPER.

ORCHARD HEATER.

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1,038,028.

Patented Sept. 10, 1912.

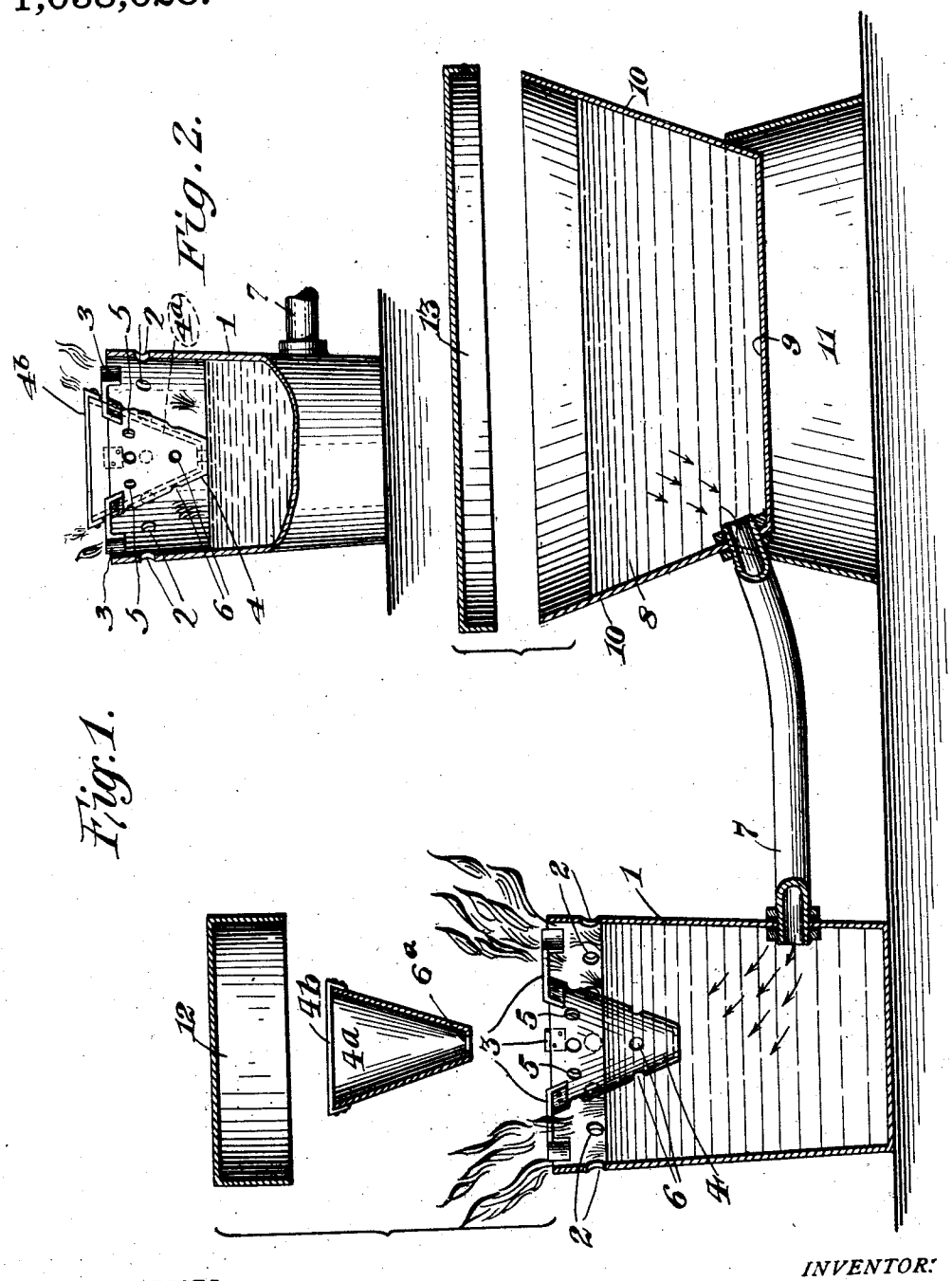

Fig. 2.

Fig. 1.

WITNESSES:

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LOUISE M. TREMPER, OF ST. LOUIS, MISSOURI.

ORCHARD-HEATER.

1,038,028. Specification of Letters Patent. Patented Sept. 10, 1912.

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To all whom it may concern:

Be it known that I, LOUISE M. TREMPER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Orchard-Heaters, of which the following is a specification.

This invention relates to improvements in those devices commonly placed in orchards and gardens to prevent injury to fruit or flowers by frost through the generation of heat which is confined beneath a blanket of smoke.

An object of the invention is the provision of a simple, inexpensive and practical heater consisting of a smudge-pot connected with a detached fuel reservoir, these members being so constructed and arranged as to maintain the fuel for a long period at a high level in the pot.

A further object is the provision of a heater comprising devices for effecting the combustion of the heavy residuum which gathers in the bottom of the smudge-pot.

A further object is the provision of a heater whose principal parts can be nested to effect economy of space during shipment and storage.

Other objects and advantages will be apparent from a consideration of the following parts of this specification and shall be particularly pointed out in the appended claims.

In the accompanying drawing, in which like numerals refer to like parts throughout the several views, Figure 1 is a sectional elevation serving to illustrate the orchard heater of my invention, the covers of its two receptacles and a damper used in one thereof being shown in raised position that the structure of the several elements may be more easily comprehended. Fig. 2 is substantially a copy of an element of Fig. 1 and depicts the use of a damper to check the consumption of fuel.

In practice I provide a smudge-pot 1 whose sides are slightly inclined and perforated as at 2. Detachably suspended in the mouth of said pot by means of suitable hangers 3 is a member 4 having the form of the frustum of a cone, the bottom and top of said member being open and its walls provided with an upper series of perforations 5 and a lower series 6.

Provided in the outer wall of pot 1 at a point substantially above its bottom is an aperture of a size adapted to receive a threaded extremity of a pipe 7, said pipe being upwardly inclined and its opposite extremity secured within a fuel reservoir 8. Said reservoir consists of a receptacle having a less depth but much greater fuel capacity than the smudge-pot and whose upper edge shall be substantially on a level with the upper edge of said pot. To this end I prefer a reservoir of the form illustrated, the same comprising a floor or bottom 9, and flaring walls 10. The lower margin of the reservoir is sustained within the upper portion of a separable base 11 whose lower edge, normally disposed upon the ground, has a decidedly greater circumference than its upper edge, as shown. Both the pot and reservoir may be provided with suitable flanged covers 12 and 13 which may be secured in place to stop the burning of the oil and prevent the entrance of foreign substances into either vessel.

In devices of this character the efficiency of the heater depends upon the level of the oil in the pot, *i. e.*, the lower the level of the burning oil, the less satisfactory are the results obtained. In practice, the reservoir shown will contain about five (5) gallons of fuel oil and the pot about two (2) gallons. Obviously, the flow along the pipe 7 being unobstructed, the level of the fuel in the two receptacles will correspond, and the diameter of the reservoir being substantially twice that of the pot it follows that the flame will be long maintained at a high level. When the flame comes opposite the point of attachment of pipe 7 the reservoir has been drained and the curved formation of said pipe acts to prevent the passage of the burning fluid from the pot to the reservoir. After the flame has passed below the entrance of pipe 7 into the pot said pipe takes on an added useful function in that it conveys a current of air, as indicated by the arrows, over the surface of the heavy residuum, ordinarily hard to burn in a confined space, and brings about complete combustion thereof.

Reverting to member 4, it should be pointed out that its sides being at an acute angle to the natural course of the flame serve to hold the same in check and reduce the amount of soot and smoke, while the draft created through its upper perforations 5 not only aids combustion but serves to spread the flame outwardly from the mouth of the receptacle. The lower perforations 6 of

member 4 and the aperture 6^a in the lower end thereof come into use only as the level of the oil is lowered and act to supplement the action of perforations 5 in securing proper combustion of the fuel.

Where only a light frost is anticipated a damper 4^a provided with a handle 4^b may be employed, the same being open only above and below and, therefore, adapted to close perforations 5 and 6 when disposed within member 4 which results in a decided diminution of the draft and a consequent reduction in the quantity of fuel consumed.

What I claim as new and desire to secure by Letters Patent is:—

1. An orchard heater comprising a fuel-reservoir, a fire-pot, a fuel-supply pipe spacing apart and connecting said reservoir and pot, and devices adapted to facilitate combustion, the bottom of said reservoir being disposed in a plane substantially above the bottom of said pot, the upper edges of said pot and reservoir being disposed in substantially the same horizontal plane, and said pipe communicating with said pot at a point substantially above its bottom and oppositely communicating with said reservoir at substantially the bottom thereof.

2. An orchard heater comprising a fuel-reservoir, a fire-pot, a fuel-supply pipe spacing apart and connecting said reservoir and pot, and devices adapted to facilitate combustion, the bottom of said reservoir being disposed in a plane substantially above the bottom of said pot, the upper edges of said pot and reservoir being disposed in substantially the same horizontal plane, and said pipe communicating with said reservoir at substantially the bottom thereof and oppositely communicating with said pot at a point substantially below the plane of the bottom of said reservoir.

LOUISE M. TREMPER.

Witnesses:
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."