C. S. BROWN & J. C. HOXIE.

HEATER.

APPLICATION FILED AUG. 9, 1909.

1,013,271. Patented Jan. 2, 1912.

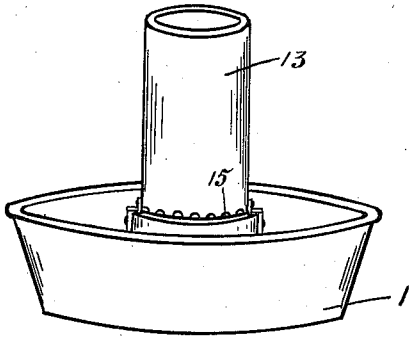

Fig. 1

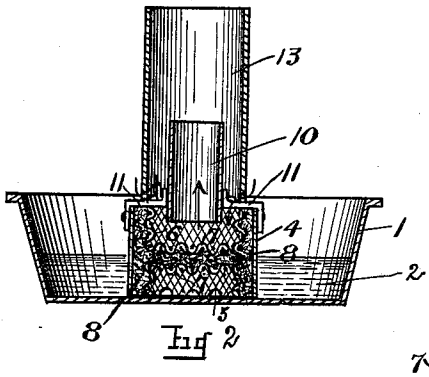

Fig 2

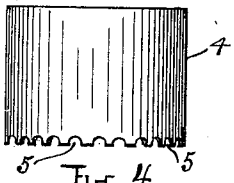

Fig. 4

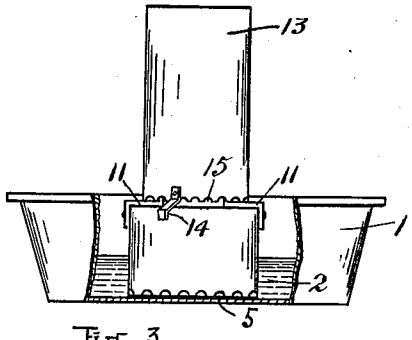

Fig. 3

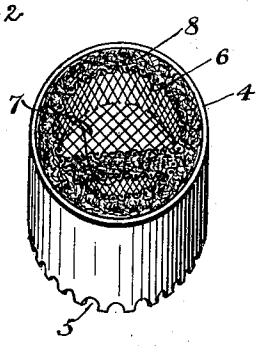

Fig. 5.

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HEATER.

1,013,271. Specification of Letters Patent. Patented Jan. 2, 1912.

Application filed August 9, 1909. Serial No. 511,911.

To all whom it may concern:

Be it known that we, CHARLES S. BROWN and JOHN C. HOXIE, citizens of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in Heaters, of which the following is a specification, reference being had therein to the accompanying drawing.

Our invention relates to an improved heater, and we declare the following is a full, clear, concise and exact description thereof sufficient to enable one skilled in the art to make and use the same, reference being had to the accompanying drawings in which like reference characters refer to like parts throughout.

The invention is an improvement upon a device designed primarily for use in heating orchards or the like, one form of which has been shown in the Patent, Number 803,662, granted November 7, 1905, to Charles S. Brown and another. There are several features of improvement, among which is the construction of the wick-member, and the construction and arrangement of draft-members.

In the drawings Figure 1 is a perspective view of the device. Fig. 2 is a vertical sectional view through the middle of it, and Fig. 3 is a front view, part of the outer member or pan being broken away. Fig. 4 is an enlarged detail view of the wick-member. Fig. 5 is a perspective view of the wick-member, partially fragmentary.

In the drawings 1 represents a pan of suitable shape and of a size to contain a sufficient quantity of liquid fuel, shown by 2.

3 represents the wick-member. This is made of an outer tube 4, which may, or need not, be impervious to the fuel. If not so, the wall will allow the fuel to be more readily taken up by the feed; if impervious the feed of the fuel is through openings in the wall, shown at 5. These openings may be used even if the wall 4 is not impervious. The inner wall, 6, is made so as to allow passage of the fuel, especially below the top of the cross-plate, 7, to be described and may, therefore, be made of a sheet pierced with holes or, as shown, of a netting, which is shown as composing the entire inner wall, both above and below the cross-plate. The cross-plate 7 is shown as having two perforated walls, as of netting or the like. The space between the outer tube and the inner wall or tube is filled by a suitable wick material, 8, such as asbestos or mineral wool, capable, by force of capillarity, of drawing the fuel to the fire surface. This material also fills the space between the walls of the cross-plate. The fire surface is principally the upper face of the cross-plate, though the adjacent surface of the inner tube or wall acts as such to an extent under certain conditions, as there is an abundance of fuel and a high degree of capillarity in the wick. It will be thus seen that the wick-member is adapted to supply fuel to the fire surface, by force of capillarity, drawing the fuel through the wicking which receives the fuel through the openings in the walls of the wick-member, on the inside, or outside, or both, through openings provided in the walls, or at the bottom of such member where the wick is exposed to the fuel, being held in only by such means as may be necessary for that end.

A tube 10 is set into the top of the wick-member, as seen and held there by brackets 11, the arrangement being such that a small air passage is left between the tube and the wick-member. The tube is of a suitable length and depends a suitable distance into the wick-member, a function being to act as a draft-member and protect the flame from disturbance, thereby increasing the volume of flame and heat by a very large percentage. Outside of this is a larger tube 13, of greater or less length, but whose diameter is such that it rests on top of the wick-member, being supported slightly above the top, to allow an air passage at the bottom, by resting on the brackets 11. It may, however, be supported by brackets 14. To allow sufficient access of air, openings 15 may be provided. This outer tube acts as a draft-flue, of itself, but is especially effective in coöperation with the inner flue. It also prevents disturbance of the flame by the wind and creates an upward-passing column of heat which makes the device much more efficient for certain uses. The flame creates a suction and the air passes in through the spaces left at the bottom of pipe 13, through the space between the wick-member and the inner tube 10 and upward through that tube, and the outer one, in which it spreads somewhat, but in a column of hot air, passes outward in a directness of current not otherwise attainable. The outer tube also acts as a radiator of the heat created by the

flame passing upward through the draft-tubes.

It will be observed that we do not specify the proportions of the several parts of the device as that is a matter subject to some modification, as is also the construction and arrangement of the parts, without departing from the spirit and scope of the invention.

Having described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a heater of the character described, the combination of a wick-member comprising an outer wall with openings for the passage of liquid fuel, an inner wall composed of netting and a cross-plate comprising two parallel walls made of netting disposed above the bottom of said wick-member, a wick for conducting the liquid fuel to the zone of vaporization, with a draft tube held concentrically in said wick-member by brackets, substantially as described.

2. In a heater, the combination of a pan containing a wick-member comprising an outer wall with openings for the passage of fuel, an inner wall pervious to fuel, a cross-plate disposed transverse to said inner wall and in elevation from its bottom, a wick for conducting the liquid fuel to the zone of vaporization, with a draft member comprising a tube held in a concentric manner within said wick-member by brackets, and a tube disposed outside of and concentric with said draft tube, substantially as described.

3. In a heater of the character described, the combination of a pan containing a wick-member comprising an outer wall with openings for the passage of fuel, an inner wall and a cross-plate adapted for the passage of fuel, and supported in elevated position with reference to a draft-member, a wick for conducting the liquid fuel to the zone of vaporization, and a draft tube disposed in a depending manner concentrically in said wick-member and surrounded by an outer tube adapted to form a flue whereby to radiate the heat, substantially as described.

4. In a heater, the combination of a pan containing a wick-member comprising an outer wall with openings, an inner pervious wall, a cross-plate supported in central elevated position with reference to said inner wall, a wick for conducting the liquid fuel to the zone of vaporization, a draft tube suspended by brackets concentrically within said wick-member, a tube of greater diameter than said draft tube disposed concentrically of said draft-tube, and having openings adjacent its lower end for the passage of air.

5. In a heater of the character described, the combination of a pan for holding liquid fuel, a wick member disposed within said pan and comprising an outer wall impervious to said liquid fuel, said wall having openings adjacent its bottom for the passage of said fuel, an inner wall pervious to said fuel, a wall arranged transversely to said inner wall, a wick for conducting the liquid fuel to the zone of vaporization, a draft tube suspended in a concentric manner within said wick-member by brackets, a larger tube adapted to surround said inner tube whereby to radiate the heat, and said larger tube having openings for the passage of air, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

CHARLES S. BROWN.
JOHN C. HOXIE.

Witnesses:
T. L. WILDER,
ELEANOR T. DE GIORGI.