J. L. QUINN.

THERMOSTATIC HEATER.

APPLICATION FILED FEB. 3, 1914.

1,157,255. Patented Oct. 19, 1915.

Fig. 1.

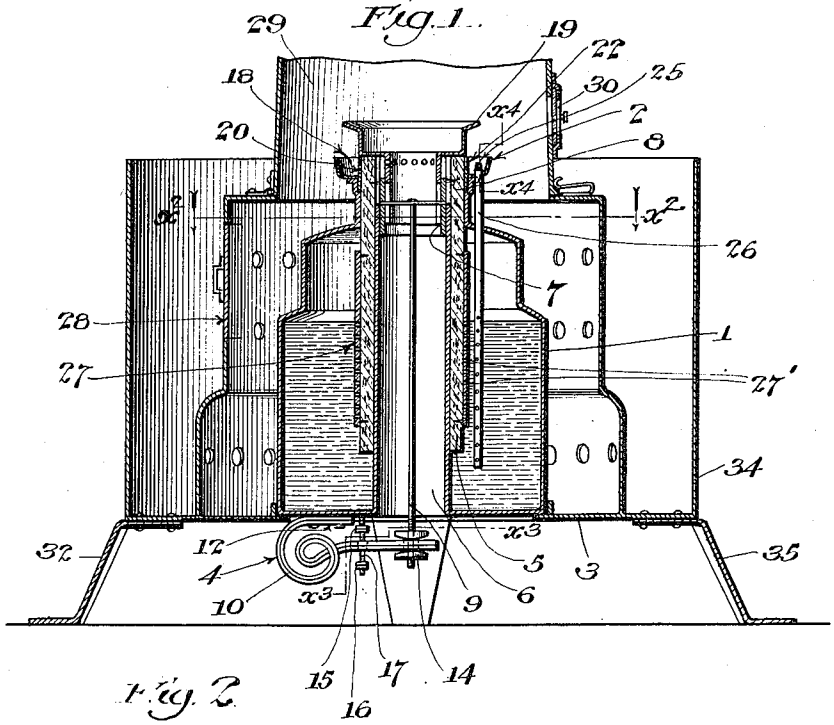


Fig. 2.

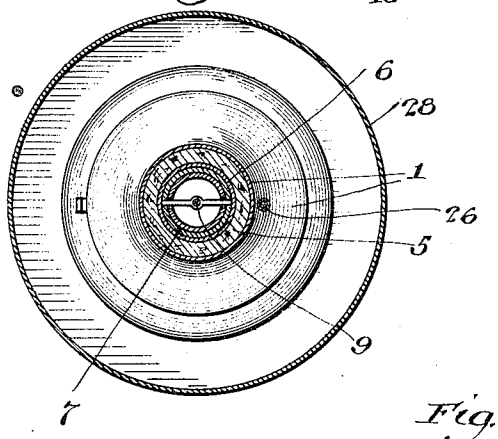


Fig. 3.

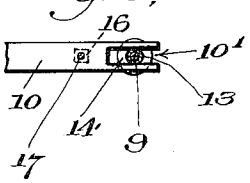
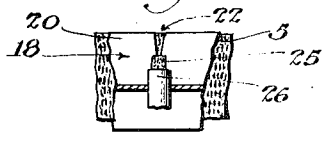


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN L. QUINN, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO STANDARD OIL COMPANY OF CALIFORNIA, OF SAN FRANCISCO, CALIFORNIA, A CORPORATION OF CALIFORNIA.

THERMOSTATIC HEATER.

1,157,255. Specification of Letters Patent. Patented Oct. 19, 1915.

Application filed February 3, 1914. Serial No. 816,278.

To all whom it may concern:

Be it known that I, JOHN L. QUINN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Thermostatic Heater, of which the following is a specification.

The main object of the present invention is to provide a heater which will be automatically turned on and off on variation of temperature, so as to become lighted when the temperature falls below a certain degree, and to be again turned off when the temperature arises.

The invention is particularly applicable in connection with orchard heaters, as it provides for igniting orchard heaters automatically when the temperature in the orchard falls to the point requiring the operation of the heaters to prevent injury to the orchard.

Another object of the invention is to provide a thermostatic heater comprising an auxiliary wick for a pilot flame, and so arranged as to prevent burning of the main wick on undue enlargement of the main frame by the pilot flame in proximity thereto.

Other objects of the invention will appear hereinafter.

The accompanying drawings illustrate an embodiment of the invention, and referring thereto: Figure 1 is a vertical section of the heater. Fig. 2 is a horizontal section on line x^2—x^2 in Fig. 1. Fig. 3 is a section on line x^3—x^3 in Fig. 1. Fig. 4 is a section on line x^4—x^4 in Fig. 1.

The heater comprises a casing or vessel 1 for containing the oil or fuel to be burned, and provided with a burner 2, a suitable support 3 on which said oil receptacle rests, and a thermostatic device 4 connected to the wick 5 to raise and lower it according to changes of temperature. The wick 5 is slidably mounted on the vertical tube 6 extending within the oil receptacle 1, and open at its upper and lower ends for passage of air therethrough. A wick carrier consisting of a ring or sleeve 7 is slidably mounted in the tube 6 and engages the wick by projections 8, said carrier being connected with a rod 9 which extends downwardly within the tube 6 and is connected at its lower end to the thermostat 4. The thermostat 4 is of any usual or suitable construction consisting, for example, of a strip or member 10 composed of two metals secured together so as to bend with changes of temperature therein, one end of said strip being fastened as shown at 12 to the bottom of the casing or oil receptacle 1, and the other end of the strip being forked as shown at 10′ to engage in a neck 13 in a collar or nut 14 screwing on the lower end portion of rod 9. Stop means are preferably provided for the thermostatic device 4 to limit its upward and downward movement, said stop means consisting, for example, of nuts 15 and 16 on a screw 17 extending downward from the bottom of the casing or oil receptacle 1. The burner 2 may also be provided with the usual fixed deflector 18 and with a movable deflector 19 resting on top of the wick in the usual manner. A circular flange 20 extends upwardly from the bottom of the cup shaped fixed deflector 18 around the main wick 5 and is slitted or notched at one side as shown at 22, to permit the vapor from the main wick to be ignited by the pilot flame produced by a wick 25 extending through a tube 26 into the body of the liquid fuel in the oil receptacle 1, and extending at its upper end into the cup shaped deflector 18 adjacent to the said slit or notch 22. A sleeve or tube 27 is preferably provided around the lower portion of the main wick 5 to facilitate its operation, said tube or sleeve being perforated as shown at 27′.

The heater above described, when used for orchard heating purposes, is preferably inclosed in an outer casing 28 extending upwardly from the base or support 3 and provided with a stack or chimney 29 at its upper end, said stack or chimney having a movable door 30 for access to the pilot wick. The support or base 3 rests on legs 32 which raise it from the ground sufficiently to permit the thermostatic device 10 to clear the ground. A wind shield 34 rests on the support 3 and extends up around the casing 28. Said casing 28 is provided with perforations 28′ for passage of air to the interior of the casing.

The operation is as follows: Normally the main wick 5 stands at or below the level of the top of the wick tube 6, so that the deflector 19 and wick tube inclose said wick. When the heater has been set up in the orchard or other place to be heated, the pilot wick 25 is lighted, but it does not light the

main wick on account of the inclosure of the latter by the wick tube 6 and deflector 19. When the temperature in the vicinity of the heater becomes lowered to a certain point, the thermostat 10 operates to raise the main wick 5 and expose the upper portion thereof to the air and the main wick is then ignited by the pilot flame which ignites the vapor coming from the main wick through the slit 22, the flame then traveling up the body of the main wick where it is exposed above the wick tube 6. The main wick then continues to burn as long as the temperature remains below the danger point and the elevation of the wick and the intensity of the flame increase as the temperature lowers. If the temperature rises to or above the danger point, either by reason of the operation of the heater or from other causes, the thermostat 10 operates automatically to lower the main wick 5 so as to put out the main flame.

What I claim is:

1. A thermostatic heater, comprising a fuel receptacle, a main wick in said receptacle, and adapted to be projected above the same, a central air tube within the wick and extending above the oil receptacle, a burner mounted on the top of the receptacle and surrounding the wick in an engagement therewith, said burner extending flush with the top of the air tube and having a notch cut in its upper edge, a pilot flame opposite said notch and thermostatic means for projecting the wick above the burner and air tube by which time it is ignited by the pilot flame.

2. In a heater the combination with a wick support and a wick adjustably mounted upon the support, of a pilot flame located near the wick and thermostatically operated means for moving the wick upwardly to cause it to be initially lighted by the pilot flame.

3. In a heater the combination of a wick support and a vertically adjustable wick mounted upon the support, of a pilot flame, means to shield the wick from the pilot flame and thermostatically operated means for moving the shielding means in unshielding position and the wick in position to be lighted initially by the pilot, said means also operating to move the shielding means into shielding position at a predetermined time.

4. In a heater the combination with a movable wick, of a pilot flame, means to automatically move the wick into position whereby it will be lighted initially by the pilot flame when the atmospheric temperature drops below a predetermined point, and means operated by said last mentioned means when the atmospheric temperature passes above a predetermined point to extinguish the flame of the wick and shield the wick from the flame.

In testimony whereof, I have hereunto set my hand at Los Angeles, California this 29th day of January, 1914.

JOHN L. QUINN.

In presence of—
ARTHUR P. KNIGHT,
LOWAINE E. DURROW.