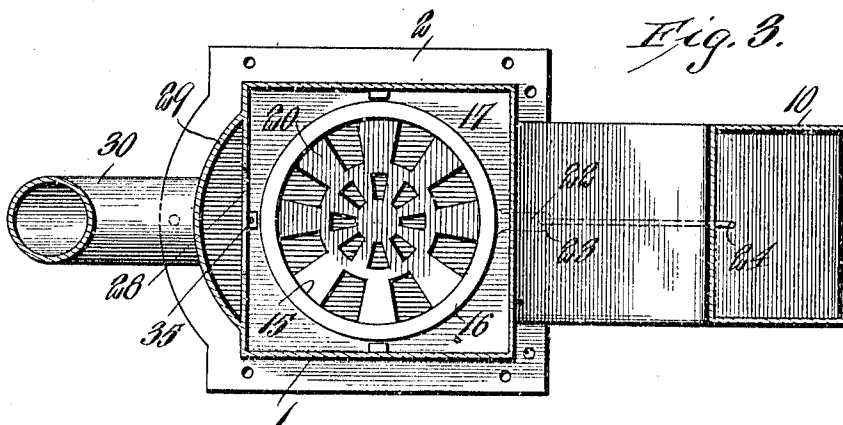
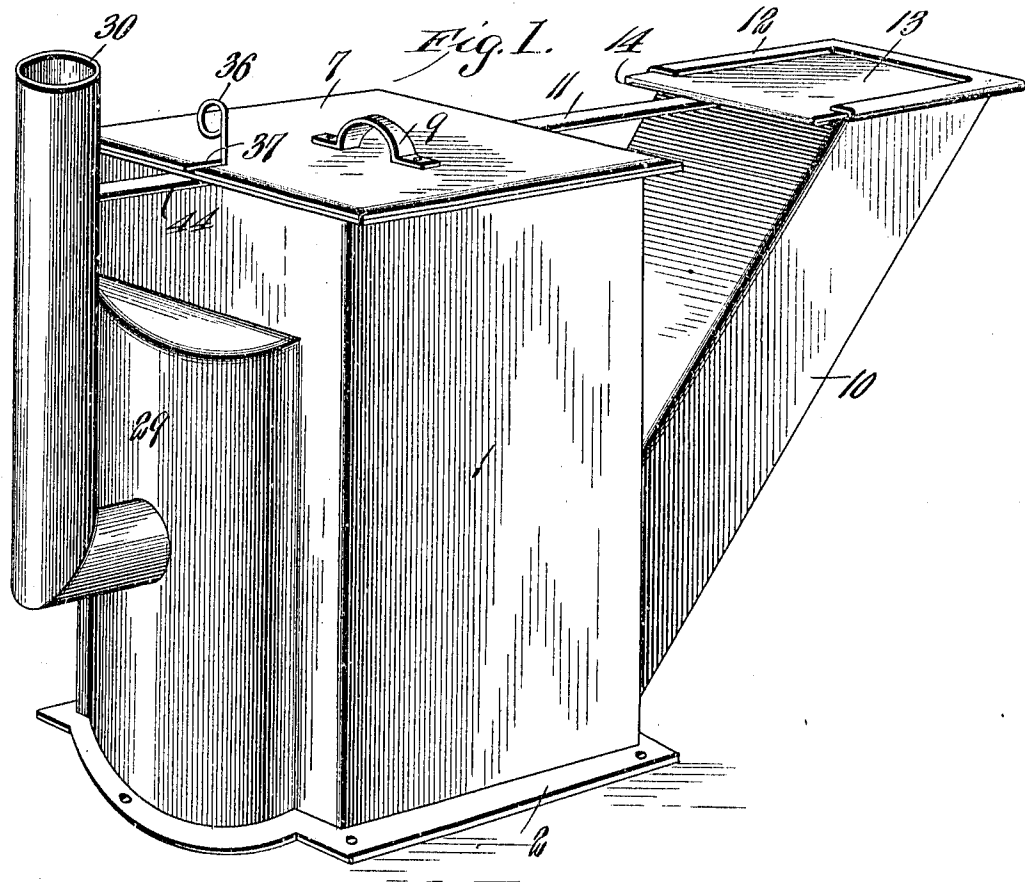


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TANK HEATER.
APPLICATION FILED APR. 12, 1909.

Patented Feb. 22, 1910.
2 SHEETS—SHEET 1.



WITNESSES
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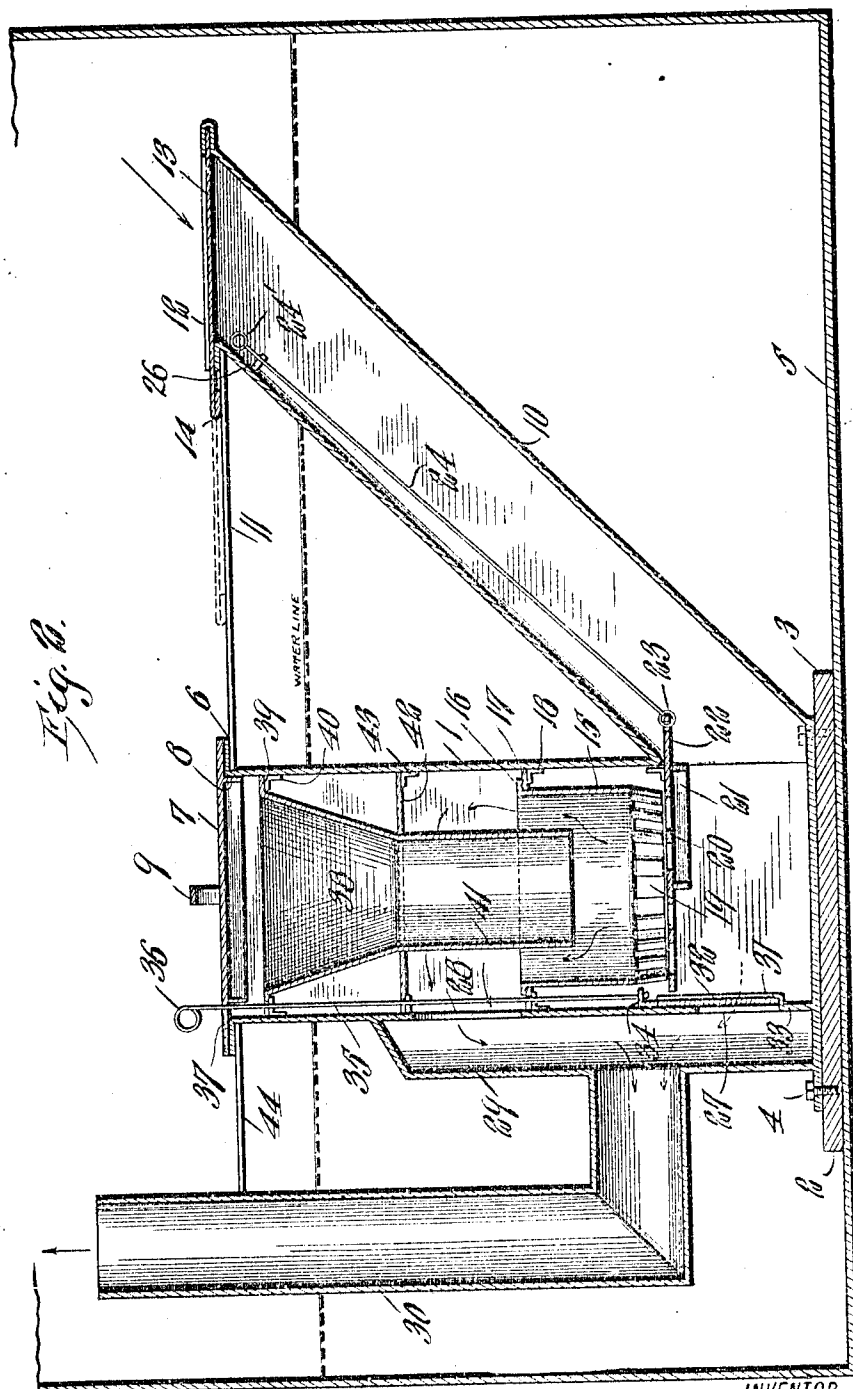


Fig. 6.

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UNITED STATES PATENT OFFICE.

WILKIE TINKER, OF ANAMOOSE, NORTH DAKOTA.

TANK-HEATER.

950,418.

Specification of Letters Patent.

Patented Feb. 22, 1910.

Application filed April 12, 1909. Serial No. 489,432.

To all whom it may concern:

Be it known that I, WILKIE TINKER, a citizen of the United States, residing at Anamoose, in the county of McHenry and State of North Dakota, have invented a new and useful Improvement in Tank-Heaters, of which the following is a specification.

My invention is an improvement in tank heaters, and consists in certain novel constructions and combinations of parts hereinafter described and claimed.

The object of the invention is to provide a means for heating the water in a tank or reservoir, the heater to be partially submerged in the water, and having means for supplying fuel, and for permitting the removal of ashes, and the entrance of sufficient air to properly consume the fuel.

Referring to the drawings forming a part hereof, Figure 1 is a perspective view of the improvement. Fig. 2 is a longitudinal section, and Fig. 3 is a horizontal section.

The present embodiment of the invention, comprises a casing 1, rectangular in cross section, and provided at its bottom with a lateral flange 2, which may be secured to a base 3, by means of bolts 4, the base resting upon the bottom of the tank 5. The casing is provided with an open top having a lateral flange 6, and is closed by a cover 7 having a flange 8 fitting within the open top, and a handle 9, for convenience in manipulating the same. At its lower end, and on one side the casing is provided with an inlet pipe 10, also rectangular in cross section, and inclined with respect to the casing, the pipe being braced by means of a bar 11 connected with the pipe and the casing. The inlet pipe communicates with the casing near its bottom and is provided at its free end with overlying flanges 12, which form guideways for a sliding door 13, the door having its free edge beaded as at 14, to form a handle for moving the door.

A fire box 15 is arranged within the casing, the box being provided with a lateral flange 16 resting upon a ledge 17, secured to the inner surface of the casing by brackets 18. The lower edge of the fire box is slotted as at 19, for the entrance of air, and a grate 20 of circular form closes the bottom of the fire box, the grate being rotatable, on a support 21, connected with the casing. The grate is provided with an extended lug 22, having an opening therethrough in which engages a ring 23 on a rod 24, whose free

end extends up the inlet pipe to a point adjacent to the door 13 and is provided with a ring 24', for convenience in handling. By the proper manipulation of the rod, the grate may be oscillated to shake out ashes and the like, and when not in use a hook 26 is provided on the inner surface of the pipe for engaging the rod as shown in Fig. 2.

It will be understood that the grade divides the lower half of the casing into the fire box proper, and an ash chamber, with which the inlet pipe 10 communicates, and in the opposite wall from the opening of the inlet pipe, is provided an opening 27, and above the upper edge of the fire box, in the same wall, is another opening 28, both openings communicating with a smoke chamber 29. The smoke chamber is shown as semi-circular in cross section, and about midway between the openings 27, and 28, a smoke stack or pipe 30, leads outwardly and then upwardly from the smoke chamber. The opening 27 is provided upon each side with a guideway 31, and a damper 32 is slidable in the guideways, the lower edge of the opening being provided with a stop 33, against which the lower edge of the damper rests, when in lowermost position. The upper edge of the damper is provided with a lug 34, having an opening therethrough, through which passes a rod 35, whose lower end is headed to prevent its passage through the opening of the lug, and whose upper end is provided with a ring 36, for convenience in handling, the rod traversing a slot 37 in the cover. It will be evident that by opening the damper more or less the draft through the fire box may be more or less diminished, while by closing the door 13 more or less the inlet of air may also be regulated.

A hopper 38 is supported within the upper part of the casing, the upper edge of the hopper having an annular flange 39, engaged by brackets 40, on the inner face of the casing. A chute 41 extends from the lower end of the hopper to a point below the level of the upper edge of the fire box. A diaphragm 42 is supported within the casing at the junction of the hopper with the chute by means of brackets 43, secured to the inner face of the casing, and the diaphragm shuts off the upper part of the casing outside of the hopper from lower part.

In operation, the heater is placed in the tank or reservoir, and resting upon the bottom thereof, with the water line as shown by

dotted lines in Fig. 2. The fire is kindled within the fire box, the door 13 being open, and the damper 32 being closed. Fuel is supplied through the hopper 38, the chute being normally closed by the fuel therein. The products of combustion pass upwardly around the chute and through the opening 28 to the smoke chamber, and from thence to the stack. After the fire is burning well and the water sufficiently heated, the damper 32 is closed more or less to reduce combustion, and retain the temperature approximately constant. The cinders and ashes may be removed from the ash pit, by means of a suitable instrument introduced through the inlet pipe 10, which is large enough and is inclined for this purpose, and the fire may be cleaned by shaking the grate, and may be started through the hopper. The smoke stack is braced to the casing by a brace 44 as shown in Figs. 1 and 2.

It will be observed that the flange of the fire box, the flange of the hopper, and the diaphragm which is secured to the chute rest upon the brackets, and may be all removed from the casing, by lifting them out through the open top.

I claim—

1. A tank heater, comprising a casing having an open top, a cover for the top, a fire box supported within the casing, a grate below the fire box, an inclined inlet pipe communicating with the casing below the grate, a door for closing said pipe, a rod within the pipe and connected with the grate for shaking the same, the free end of the rod extending to a point adjacent to the door, a smoke chamber on the opposite side

of the casing from the inlet pipe, said casing having openings above and below the fire box leading to the smoke chamber, a damper for closing the lower opening, means outside the casing for operating the damper, a smoke stack leading from the smoke chamber, a hopper within the casing and having a chute extending into the fire box, and a diaphragm at the junction of the hopper and casing and closing the space between the outer wall of the chute and the inner wall of the casing.

2. A tank heater, comprising a casing, a fire box within the casing, a grate below the fire box, an inlet pipe communicating with the casing below the grate and inclined to permit the entrance of a tool, means extending through said pipe for manipulating the grate, a smoke stack on the opposite side from the inlet pipe, and opening into the casing above and below the fire box, a damper for the lower opening, means extending outside the casing for operating the damper, and a hopper delivering to the fire box.

3. A tank heater, comprising a casing, a fire box within the casing, an inclined inlet pipe opening into the casing below the fire box, a smoke stack communicating with the casing above and below the fire box, a damper controlling the lower communication, means for supplying fuel to the fire box, and a door at the outer end of the inlet pipe.

WILKIE TINKER.

Witnesses:

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