

W. TINKER.
TANK HEATER.
APPLICATION FILED FEB. 6, 1911.

1,017,481.

Patented Feb. 13, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

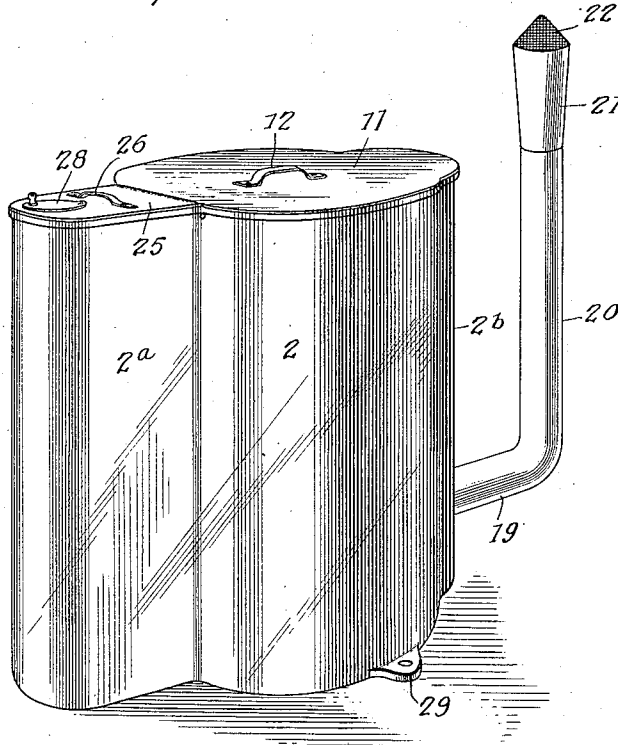


Fig. 3.

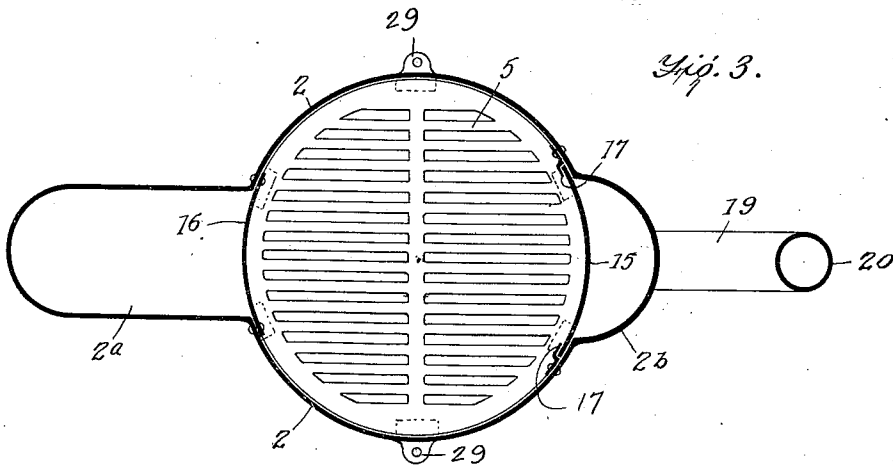
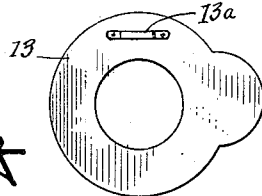


Fig. 4.



WITNESSES:

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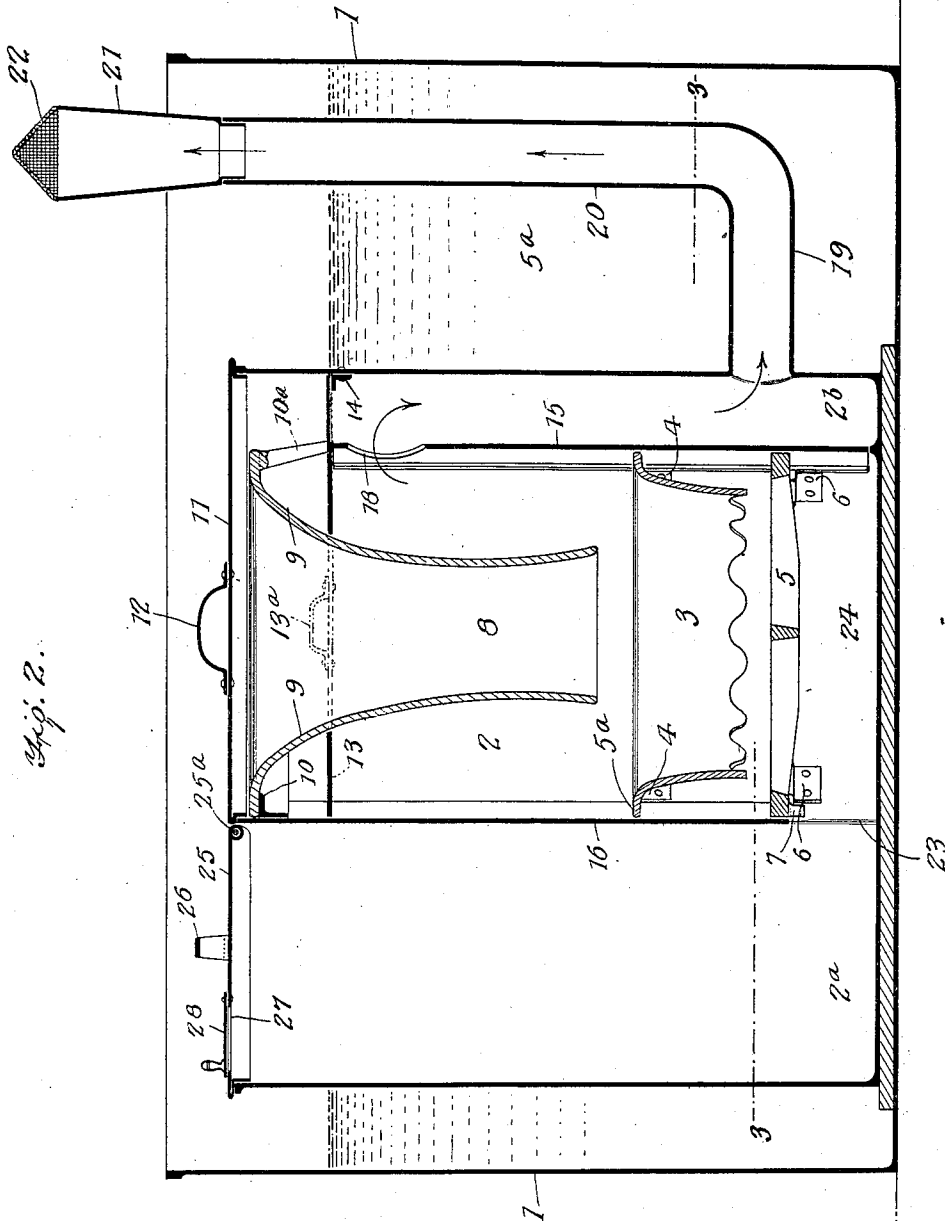
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ATTORNEYS

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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILKIE TINKER, OF ANAMOOSE, NORTH DAKOTA.

TANK-HEATER.

1,017,481.

Specification of Letters Patent.

Patented Feb. 13, 1912.

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To all whom it may concern:

Be it known that I, WILKIE TINKER, a citizen of the United States, and a resident of Anamoose, county of McHenry, and State

of North Dakota, have invented certain new and useful Improvements 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 simple, efficient and economical heater of the character specified, for use in preventing the freezing of water in tanks, which may be submerged in the tank, and which while submerged may be supplied with fuel.

Referring to the drawings forming a part hereof, Figure 1 is a perspective view of the heater, Fig. 2 is a vertical longitudinal section, Fig. 3 is a section on the line 3—3 of Fig. 2, and Fig. 4 is a plan view of the baffle plate.

The present embodiment of the invention is arranged in a tank 1, and comprises a casing of sheet material consisting of three portions or compartments 2, 2^a and 2^b. The central or main portion 2 is the heater proper, and is substantially circular in cross section. A fire pot or box 3 in the shape of a ring is supported in the said main portion, by means of ledges 4 secured to partitions to be described, and engaged by lateral lugs or flanges 5^a on the pot.

A grate 5 is arranged below the fire pot, and is supported on lugs 6, secured to the partitions before mentioned, and extending laterally inward, the grate resting on the lugs. The grate is spaced slightly below the lower edge of the ring to permit free escape of cinders and ash, between the edges of the grate and the ring, and a perforated lug 7 is provided on the under face of the grate for the engagement of a tool for shaking the same.

The axis of the perforation of the lug 7 is radial to the grate, and the handle of an ordinary fire shovel or stove poker may be inserted in the perforation of the lug and vibrated to shake the same. A hopper 8 is arranged above the fire pot. The upper end of the hopper is flaring as shown at 9, and lugs 10 are secured to the wall of the compartment 2 for engaging the flaring edge

to support one side of the hopper. The other side is supported by a leg 10^a which rests upon the upper end of a partition 15 to be described.

The outlet of the hopper is above the center of the grate, and directs the fuel to the central portion of the fire. The compartment top is open, and a cover 11 is provided for closing the said open top. The cover is provided with a handle 12 for convenience in lifting the same. By removing the cover, access is had to the interior of the compartment, and the hopper, fire pot and grate may be lifted out, if necessary for any purpose.

A baffle plate 13 is arranged within the casing intermediate the ends of the hopper, the said ring having a handle 13^a and having an opening through which the hopper extends. The said plate extends into the smoke chamber and closes the space between the hopper and the casing wall. The plate is supported on lugs 14 secured to the casing and on top of the partition 15, to be described, and may be lifted out after the hopper has been removed. The ring is also provided with a handle 13^a.

The central compartment 2 is separated from the smoke chamber 2^b and inlet chamber 2^a by means of partitions 15 and 16 respectively. It will be noticed that the portions or compartments 2^a and 2^b are substantially semi-elliptical, and at the junction of the side edges of the smoke compartment with the main or central compartment, a guideway 17 is formed for receiving the partition 15, and the partition 16 is bolted fast to the outer wall.

The partition 15 is slidable vertically and may be removed from the guideways, by lifting it upwardly out of the guideways. The partition 15 extends from the bottom of the casing to a point below the baffle plate, and supports the same, and an opening 18 is provided near the upper end of the said partition, for the exit of the products of combustion from the main compartment into the smoke chamber.

A smoke stack is provided, composed of a horizontal portion 19, leading laterally from the smoke chamber, and a vertical portion 20, leading from the outer end of the horizontal portion to approximately the level of the top of the casing. A spark ar-

rester comprising a pipe 21 and a screen 22 on the top thereof is connected with the upper end of the vertical portion, the pipe 21 seating over the end of the vertical portion.

The partition 16 extends from the top of the casing to approximately the bottom of the grate, leaving an opening 23 for the entrance of air, and for the removal of ashes or cinders from the ash pit 24 below the grate. The inlet chamber 2^a is also provided with a cover 25, and the cover is provided with a handle 26. A draft opening 27 is arranged in the cover, and a door 28 is slidable over the opening for controlling the draft. The cover is preferably hinged to the partition 16 as indicated at 25^a in Fig. 2.

In operation, the improvement is partially submerged in the tank, with the upper portion of the casing out of the water. Lugs 29 are provided for securing the casing in place on a wooden base on the tank bottom. The products of combustion pass upwardly in the central compartment, but are deflected by the baffle plate, through the opening 18 into the smoke chamber. The said products then pass downwardly in the smoke chamber to the horizontal portion of the stack, and out through the said stack. The spark arrester prevents the escape of sparks, a valuable feature, since the device is generally used near a barn. It will be noticed that the stack leaves the casing near the bottom thereof, so that the heated products of combustion must travel for a maximum of time beneath the water, thus giving up the greater part of their heat before leaving the tank.

Sufficient fuel may be placed in the hopper to keep fire during the night, and the fire may be cleaned, and ashes removed through the chamber 2^a. The said compartment or chamber is of sufficient length in its long axis to permit the use of a shovel. The heater may be cheaply constructed, and will retain the water at a temperature above the freezing point. The cover of the

central compartment extends over the extension 2^b also.

To remove the ashes, the cover 25 is lifted by means of the handle 26, and turned back upon the central compartment. A shovel is now made use of, being passed down through the compartment 2^a, which, as before stated, is of sufficient length in its long axis to permit the use of the shovel beneath the grate. The lug 7 is merely a perforated lug, through which one end of a rod or poker may be inserted to oscillate the grate to shake down the ashes.

I claim:

A tank heater comprising a casing having oppositely arranged extensions, a partition secured to the casing between one of the extensions and the central portion of the casing, said partition being spaced apart from the bottom of the casing to form an air inlet opening, the extension adjacent to the said partition forming an air inlet chamber, said casing having a guideway at the junction of the other extension with the said casing, a partition slidable in the guideway and having an opening at its upper end for the products of combustion, the extension adjacent to the said slidable partition forming a smoke chamber, and the casing having a smoke pipe leading therefrom and extending above the top of the casing, a fire pot removably supported in the central portion of the casing, a grate mounted for rotating movement below the fire pot, a hopper removably supported above the fire pot, an annular baffle plate supported above the fire pot and encircling the hopper, a cover for the central portion of the casing, said cover having an extension covering the smoke chamber, a cover for the air inlet chamber, said cover having a draft opening, and a door for controlling the said opening.

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Witnesses:

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