J. E. CRUZAN.

TANK HEATER.

APPLICATION FILED SEPT. 9, 1910.

1,050,349. Patented Jan. 14, 1913.

FIG. 1.

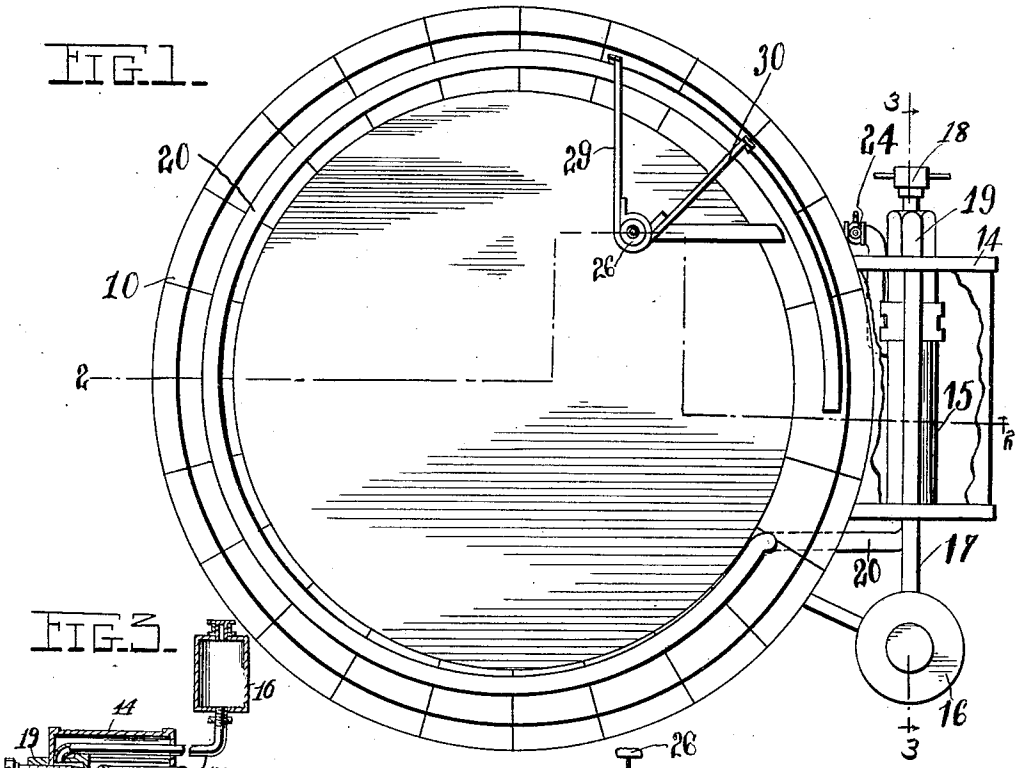
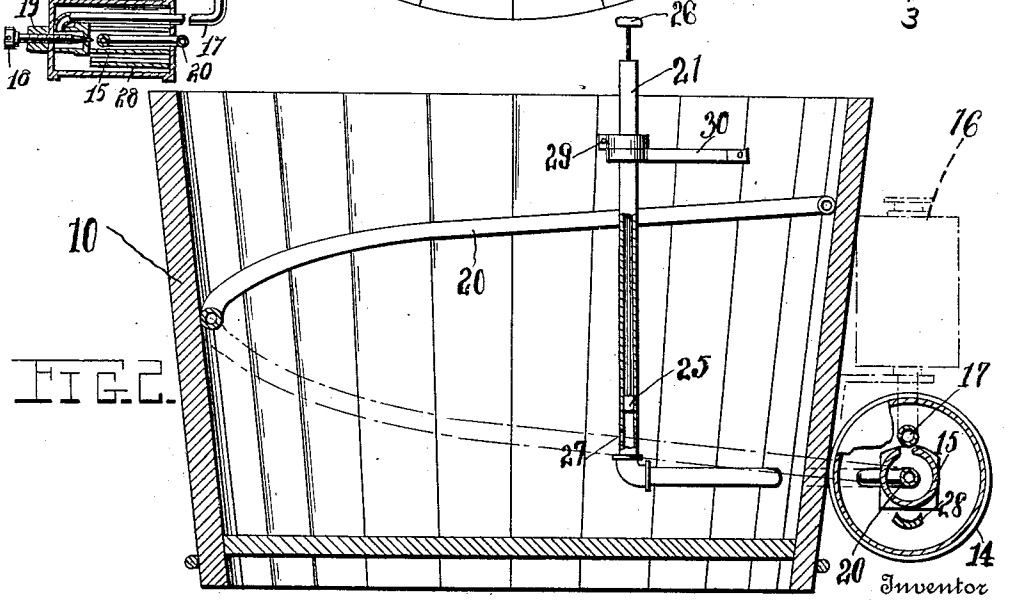


FIG. 3.

FIG. 2.



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JOHN E. CRUZAN, OF ELDORA, IOWA.

TANK-HEATER.

1,050,349. Specification of Letters Patent. Patented Jan. 14, 1913.

Application filed September 9, 1910. Serial No. 581,237.

To all whom it may concern:

Be it known that I, JOHN E. CRUZAN, a citizen of the United States, residing at Eldora, in the county of Hardin, State of Iowa, have invented certain new and useful Improvements in Tank-Heaters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to tank heaters and is particularly adapted for use in connection with tanks employed in watering stock.

The object of the invention resides in providing means for heating the water in a drinking tank so as to obviate the freezing thereof in extremely cold weather.

With this and other objects in view the invention consists in the details of construction and in the combination and arrangement of parts as will be hereinafter more fully described and particularly pointed out in the appended claim.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views; and in which,

Figure 1 is a plan view of a stock watering tank having the improved heater associated therewith, the latter being shown partly in section; Fig. 2, a section on the line 2—2 of Fig. 1, and Fig. 3 is a longitudinal section through the burner and adjacent parts.

Referring to the drawings, 10 indicates the tank which may be of any suitable material particularly adapted for use in tanks of this character. Supported exteriorly of the tank 10 in any suitable manner is a casing 14 in which is disposed a liquid fuel burner 15. Supported adjacent the casing 14 is a fuel supply receptacle 16, and a pipe 17 connecting the receptacle and the burner 15 serves to convey fuel to said burner, said supply of fuel being controlled by a valve 18 in the bore of the tubular member 19 and with which bore the pipe 17 communicates. It will be here noted that the pipe 17 is disposed above the burner 15 so as to directly receive the heat of the latter for the purpose of gas generation, while the bore of the tubular member 19 is in alinement with the longitudinal axis of the burner whereby fuel from the tubular member is discharged directly into the burner.

Extending longitudinally through the burner 15 so as to be enveloped by the heat within the casing 14 is a pipe 20, one end of which is extended into the tank 10 and coiled around the inner wall thereof, said coil terminating near the top of the tank. The other end of the pipe 20 is extended horizontally into the tank 10, near the bottom of the latter and terminates in a vertical portion 21. This vertical portion has its upper end disposed above the top of the tank and a plunger 25 is mounted in said vertical portion and adapted for reciprocation by means of a handle 26 connected thereto. The office of this plunger 25 is to cover and uncover an opening 27 in the lower end of the vertical portion 21.

Mounted in the pipe 20 between the vertical portion and the casing 14 is a faucet 24 through the instrumentality of which the pipe 20 may be completely drained by closing the opening 27 with the plunger 25 which latter is provided with a suitable longitudinal passage therethrough to admit air against water in the pipe 20 between the faucet 24 and the vertical portion 21 whereby the water is free to discharge by way of said faucet. It will of course be understood that the draining of the pipe 20 will be had by covering the opening 27 with the piston 25 and then opening the faucet 24, and as said faucet is situated at the lowermost point in said pipe it will of course effect the proper drainage and obviate the freezing within the pipe 20 when the device is not in use in extremely cold weather. When the opening 27 is uncovered and the faucet 24 closed, a circulation of water is maintained through said opening and through the pipe 20, as will be apparent, such circulation serving to facilitate the heating of the water within the tank.

A pan 28 is mounted in the casing 14 beneath the burner 15 and in this pan is adapted to be discharged a limited amount of fuel to be ignited for the purpose of instituting the generation of the vapor.

The vertical portion 21 of the pipe 20 is held against movement in the tank by means of brackets 29 and 30 which are secured at one end to the inner face of the wall of the tank and suitably connected at their other end to the pipe 21.

What is claimed is:

In a device of the character described, the combination with a tank; of a heating device disposed exteriorly thereof, a pipe passing through said heating device and having its end portions extended into the tank, one of said end portions being coiled around the inner wall of the tank and terminating near the top thereof, and the other end portion being disposed transversely of the tank and terminating in a vertical portion, the upper end of which is located above the upper edge of the tank, said vertical portion having an opening through its wall near the bottom thereof, a plunger mounted in said vertical portion for covering and uncovering said opening, said plunger having a longitudinal passage therethrough, and a drain faucet in the transversely disposed portion of said pipe between the heating device and tank.

In testimony whereof, I affix my signature, in presence of two witnesses.

JOHN E. CRUZAN.

Witnesses:
JAS. F. HARDIN,
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