M. C. WEAVER.

TANK HEATER.

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1,229,557.

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Fig. 1.

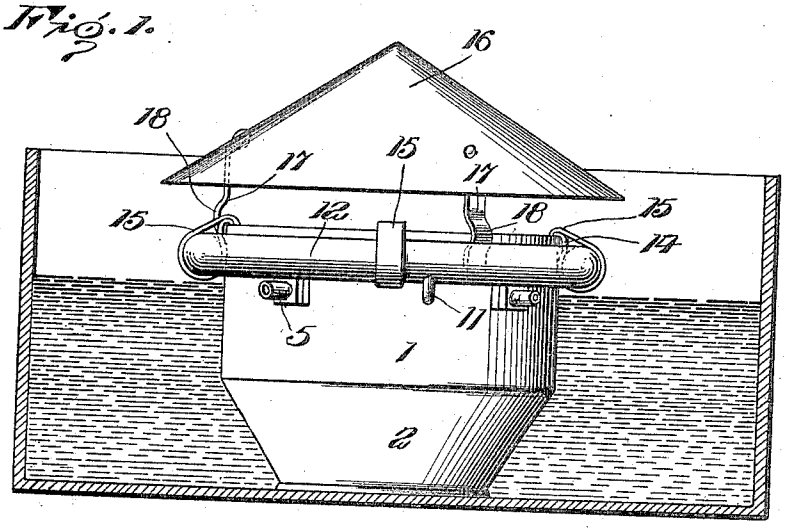
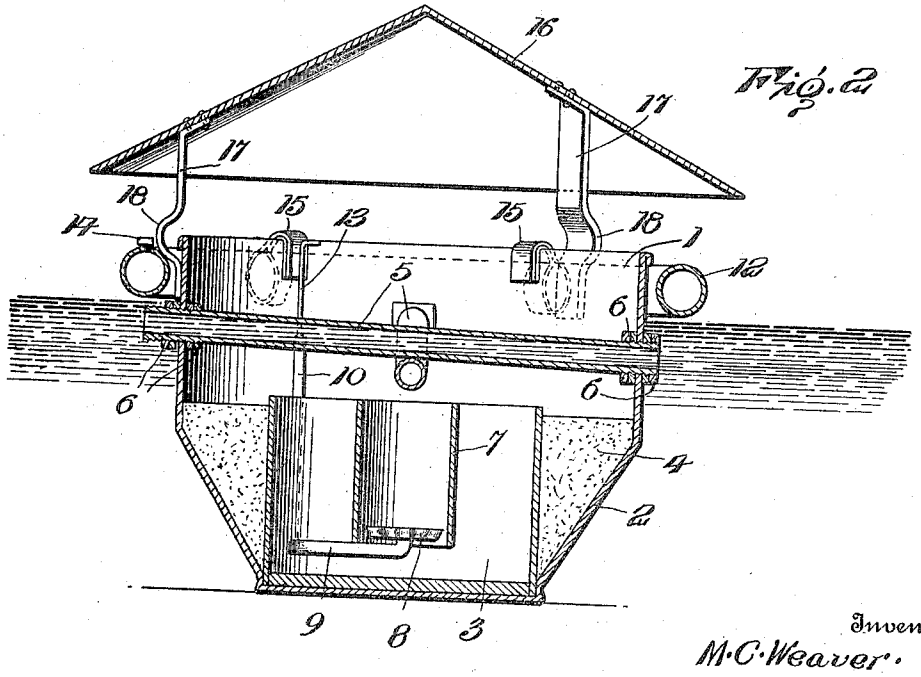


Fig. 2.



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TANK-HEATER.

1,229,557. Specification of Letters Patent. Patented June 12, 1917.

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To all whom it may concern:

Be it known that I, MARION C. WEAVER, a citizen of the United States, residing at Bushnell, in the county of McDonough and State of Illinois, have invented certain new and useful Improvements in Tank-Heaters, of which the following is a specification.

This invention relates to tank heaters and has for its object the provision of a compact device by which heat will be supplied to a body of water within a tank and the water maintained at such a temperature as to prevent freezing of the same. The invention seeks to provide a device by which a circulation of water will be set up over a flame and, consequently, heating of the entire body of water in the tank will be rendered unnecessary. The invention seeks further to provide a device which may be readily placed in position within any tank and which will be especially adapted for burning coal oil or other liquid fuel and which will be protected against sudden drafts which would tend to extinguish the flame, and also rendered stable when in position within the tank.

An embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of my improved device in position in a tank, the tank being shown in section;

Fig. 2 is a vertical section of the improved heater.

In carrying out my invention, I employ a body 1 which is preferably cylindrical and may be constructed of sheet metal or other desired material. The body of the heater may be reduced in diameter in its lower portion, as shown at 2, to avoid the use of unnecessary material and also to economize space within the tank. Secured upon the bottom of the heater, in any desired or preferred manner and rising therefrom, is a ring or annular plate 3 which serves as an inner wall to retain a body of sand or other material which may be readily placed within the heater and which serves to weight the lower end thereof so that it will not be liable to tip over while in use. The body of sand is indicated at 4 and it will be noted that it is confined between the wall or shell of the body and the inner rim or plate 3 so that it will hold the heater steady without affecting the flow of water in the tank in any way. Extending through the upper portion of the heater body are a plurality of water tubes 5 which may be of any desired number and are disposed in different horizontal planes so that they will not intersect. One end of each tube 5 is higher than the opposite end thereof so that the colder water may enter the lower end thereof and rise to and escape through the upper end thereof as it becomes heated. This position of the tubes is clearly shown in Fig. 2, and it will also be noted that the ends of the tubes are secured in position by lock nuts 6 which are mounted thereon and turned home against the inner and outer surfaces of the heater body so that the tubes will be held against movement and the use of solder, or other material which might be melted or otherwise rendered useless by the action of heat, will be avoided.

Disposed concentrically within the chamber defined by the annular plate 3 is a burner tube or sleeve 7 which serves to confine the flame from one or more burners 8 carried by the end of a fuel pipe 9, the tube or sleeve 7 being also carried by said pipe. It will be readily noted, upon reference to Fig. 2, that the tube or sleeve 7 confines the flame and directs it against the water tubes 5 so that the water in said tubes will be quickly heated and the desired circulation of water set up. This arrangement will be found advantageous inasmuch as it applies the heat to the upper portion of the body of water and it, therefore, becomes unnecessary to heat the entire body of water within the tank inasmuch as freezing will not occur as long as the surface of the water is warm. The fuel pipe 9 passes through the rim or plate 3 and is then carried upwardly, as shown at 10, after which it is carried through the wall of the heater and connected, as shown at 11, with the oil reservoir or supply pipe 12. A cut-off valve may be provided at any desired or preferred point of the fuel pipe so as to regulate the flow to the burner and thereby govern the intensity of the flame and I have indicated the stem 13 of a needle-valve located within a bend of the part 10 of the fuel pipe within the heater. A needle-valve will permit of a very fine adjustment of the flow and if it be disposed within the body of the heater, as illustrated, it will not be apt to be disturbed by chance blows against the heater. The

reservoir or oil supply pipe preferably consists of a pipe of relatively large diameter so disposed as to encircle the upper edge of the body of the heater, as shown. This pipe is supplied with a suitable filling opening and plug 14 to close the same at any desired point, and is supported upon the heater body by brackets or hangers 15 consisting of straps having their intermediate portions passed around the body of the pipe and their extremities hooked over the edge of the heater body, as clearly shown and as will be readily understood.

A cover 16 is provided to protect the flame from rain or other elements and this cover is supported by brackets or standards 17 secured to the cover and depending therefrom to fit between the body of the heater and the reservoir or supply pipe 12, the said brackets being provided near their lower ends with offset portions 18 which are adapted to rest upon the reservoir and thereby support the cover in spaced relation to the body so that air may circulate between the body and the cover and thereby supply oxygen needed to maintain the flame while, at the same time, the flame will be protected against the weather and will not be apt to be accidentally extinguished.

My device is exceedingly simple in the construction and arrangement of its parts. It may be readily placed in position within any tank and will require very little attention when in use.

Having thus described the invention, what is claimed as new is:

1. A tank heater comprising a body, hangers engaged over the upper edge of the body, a fuel reservoir externally encircling the body and supported by said hangers, a burner within the body, a fuel pipe leading from said reservoir to the burner, and water tubes extending through the body above the burner and below the fuel reservoir.

2. In a tank heater, the combination of a body, a reservoir encircling and supported from the upper end of the body, a burner within the body, a connection between the burner and the reservoir, a cover, and brackets secured to the cover and depending therefrom to engage between the body and the reservoir and having offset portions resting on the reservoir whereby to support the cover over and in spaced relation to the body.

3. A tank heater comprising a body, an internal rim rising from the bottom of the body, and a stabilizing element disposed between said rim and the wall of the body and confined by the same.

In testimony whereof I affix my signature.

MARION C. WEAVER. [L. S.]

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."