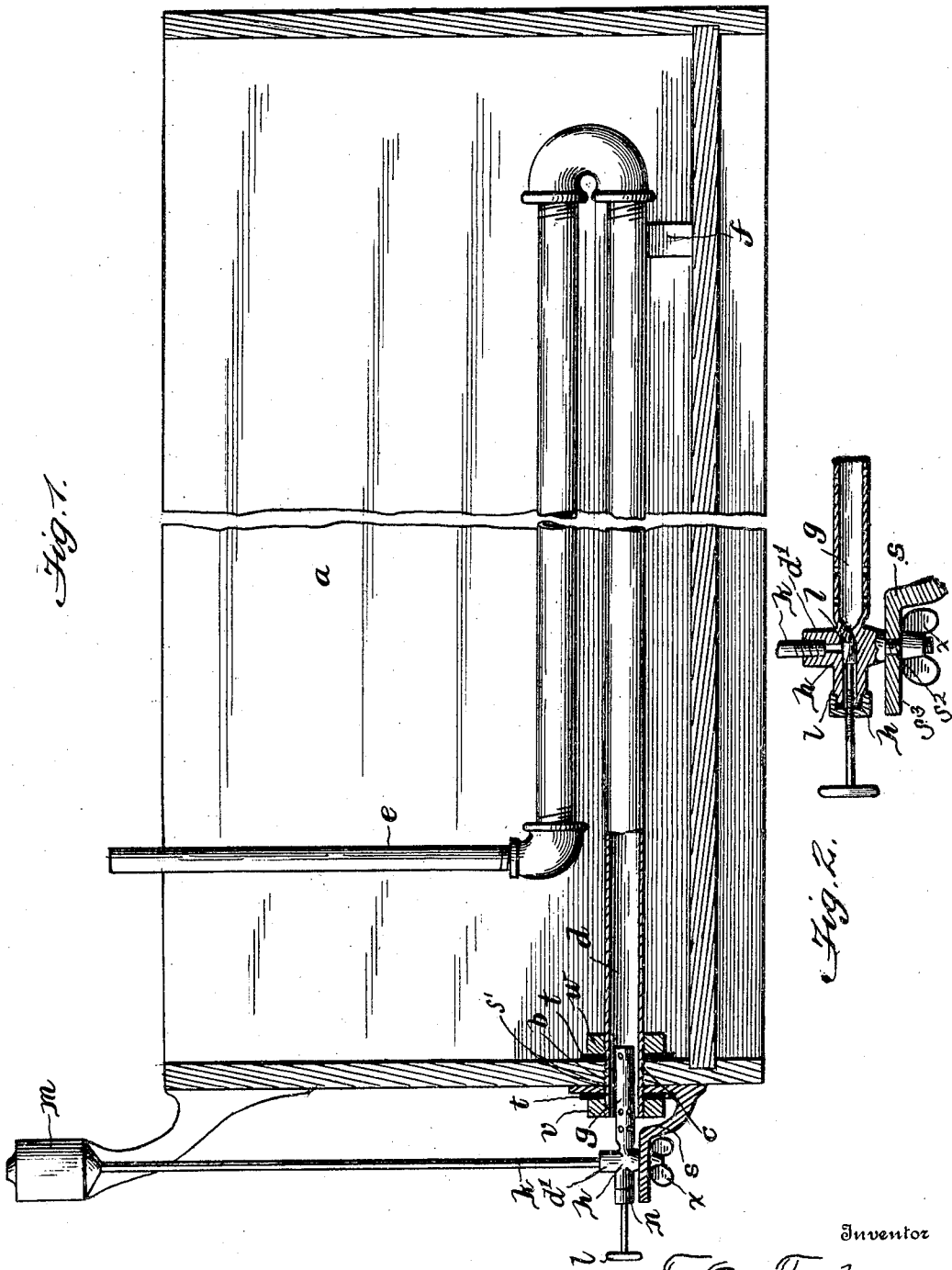


No. 793,472.

PATENTED JUNE 27, 1905.

T. O. THORBUS.
STOCK WATERING TANK HEATER.
APPLICATION FILED MAY 3, 1904.



Witnesses

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UNITED STATES PATENT OFFICE.

TIMOTHY O. THORBUS, OF SPARTA, WISCONSIN.

STOCK-WATERING-TANK HEATER.

SPECIFICATION forming part of Letters Patent No. 793,472, dated June 27, 1905.

Application filed May 3, 1904. Serial No. 206,121.

To all whom it may concern:

Be it known that I, TIMOTHY O. THORBUS, a citizen of the United States, and a resident of Sparta, in the county of Monroe and State of Wisconsin, have made a certain new and useful Invention in Stock-Watering-Tank Heaters; and I declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the invention, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Figure 1 is a longitudinal sectional view illustrating the invention. Fig. 2 is a sectional detail view of the burner and its supports.

The object of the invention is to provide means for warming water in stock-watering tanks; and the invention consists in the novel construction and combinations of parts, as hereinafter set forth.

In the accompanying drawings the letter *a* designates a watering-tank having an opening *b* through its wall near the bottom for the reception of the threaded end *c* of a heating-pipe *d*. This heating-pipe *d* is of comparatively large diameter and is designed to extend horizontally within the tank nearly the length of the latter and consists of one long section or branch *d'* and a short reversing section or branch *d''*, also extending along the tank below the water-line. This pipe is of strong construction and usually consists of straight sections and returns. The shorter terminal branch of this pipe is provided with an upright pipe *e* for the exit of the products of combustion. The pipe is braced in the tank, as at *f*.

Into the entrance end or mouth of the pipe *d* extends the burner-cylinder *g*, which is of less diameter than the pipe *d*, so that there is free admission of air around it. The burner-casting is cruciform, having its inner horizontal arm forming the burner proper and extending into the pipe *d*. The upper vertical arm *d'* of this casting connects with the oil-supply pipe *h*, which extends upward to the oil-tank *m*. The regulating-valve is

shown at *l* and engages the outer horizontal arm of said burner-casting, the stem of said valve passing through a packing-nut at *n*. The entrance end or mouth of the pipe *d* is threaded for engagement with the securing-nuts *w* and *v*, one on the inside and the other on the outside of the tank-wall. Suitable packing-gaskets *t* are placed between said securing-nuts and the wall of the tank to prevent leakage. Below the burner-casting is an angle bracket or support *s*, which has an opening *s'* in its vertical arm engaging the outer end of the pipe *d*, the securing-nut *w* serving to secure this bracket in place. This bracket has also an opening *s''* in its horizontal arm *s'*, which opening is engaged by the lower vertical threaded arm of the cruciform burner-casting, a thumb-nut *x* being employed to secure said lower vertical arm and bracket together. In this manner it is designed to hold the burner firmly in position in the mouth of the heating-pipe *d*.

The form of the heating-pipe can be varied to suit the water-tank; but it should extend below the water-line in order to economize heat and secure a maximum efficiency.

In this heating apparatus the heating-surface is almost entirely submerged and under water. The flames of the burner extend inside the heating-surface, and the heated products of combustion are carried through the same to the end of the trough and back and in the lower portion thereof, so that the water is kept warm by the upward circulation. The use of oil under pressure is of advantage in providing a source of combustion, the apparatus for which is readily arranged and is not liable to be injured or put out of order by stock.

Having described the invention, what I claim, and desire to secure by Letters Patent, is—

1. An attachment for stock-watering tanks comprising an angle-form bracket having a vertical arm provided with a pipe-opening and a horizontal arm, a return-bend open-end flue-pipe having a short branch provided with a vertical exit-pipe and a long branch having a threaded open-end portion engaging the pipe-opening of said bracket and adapted to en-

gage an opening in the vertical wall of the tank, securing-nuts engaging the threaded end of said pipe, a fuel-feed pipe, and a cruciform burner having an inner horizontal arm
5 extending within the open end of said pipe, a lower vertical arm having a removable connection with the horizontal arm of the burner-bracket, an outer horizontal arm provided
10 with a valve-seat, an upper vertical arm connected with said feed-pipe, and a valve engaging the valve-seat of said burner, substantially as specified.

2. A stock-watering tank having a single opening in its vertical wall, and an exterior
15 angle-form bracket having a vertical arm provided with an opening axially alined with respect to the wall-opening, and a horizontal arm provided with an aperture therein, a return-bend open-end flue-pipe having a short
20 branch provided with a vertical exit-pipe within the tank, and a long branch having a

threaded open-end portion engaging the alined openings of the tank-wall and bracket, exterior and interior pipe-nuts engaging the
threaded end of said pipe, a fuel-feed pipe, 25
and a cruciform burner having an inner horizontal arm extending within the open end of said pipe, a lower vertical arm engaging the opening in the horizontal arm of the burner-
30 bracket and having a removable thumb-screw connected therewith, an outer horizontal arm provided with a valve-seat, an upper vertical arm connected with said feed-pipe, and a valve
engaging the valve-seat of said burner, substantially as specified. 35

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

TIMOTHY O. THORBUS.

Witnesses:

LOUIS T. HILL,
A. W. BARNEY.