

(No Model.)

M. T. LOWE.
TANK HEATER.

No. 596,892.

Patented Jan. 4, 1898.

Fig. 1.

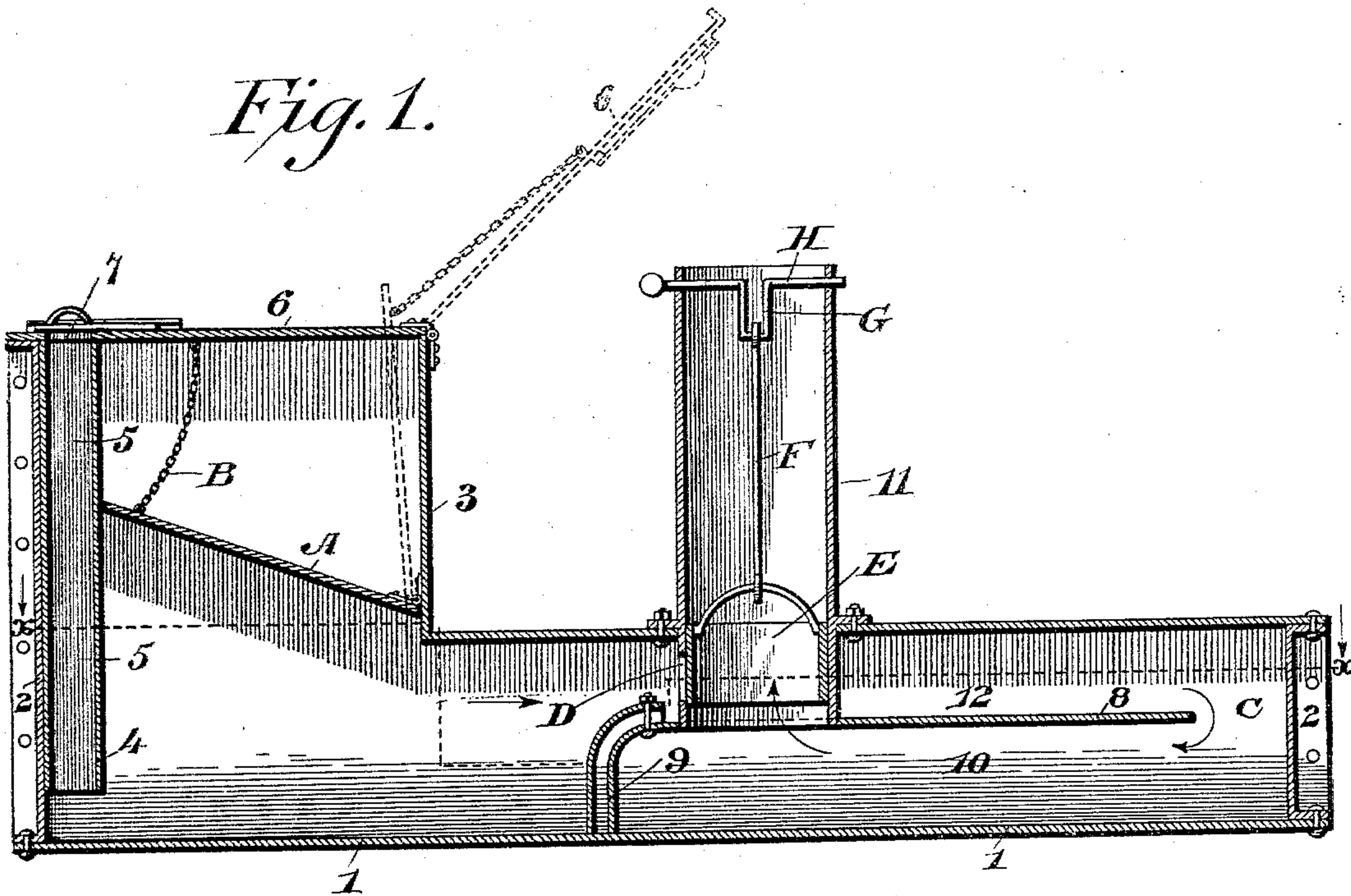
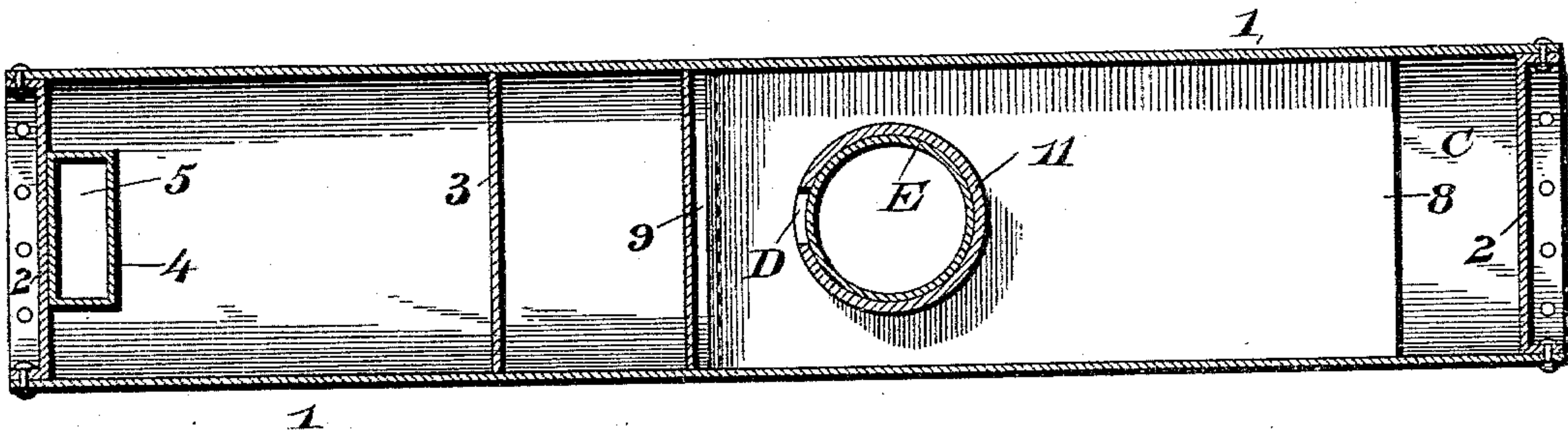


Fig. 2.



Inventor

Witnesses

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UNITED STATES PATENT OFFICE.

MOSES TEASDALE LOWE, OF MOUNT HOREB, WISCONSIN.

TANK-HEATER.

SPECIFICATION forming part of Letters Patent No. 596,892, dated January 4, 1898.

Application filed February 24, 1897. Serial No. 624,803. (No model.)

To all whom it may concern:

Be it known that I, MOSES TEASDALE LOWE, a citizen of the United States, residing at Mount Horeb, in the county of Dane and State of Wisconsin, have invented a new and useful Tank-Heater, of which the following is a specification.

This invention relates to means for heating the water in tanks, troughs, &c., usually provided for watering stock, whereby the temperature of the water can be modified and maintained at a certain degree in extreme cold weather, so as to obviate the injurious results attendant upon stock drinking water at a low temperature approximating the freezing-point.

The invention consists of a heater of oblong form to be immersed in a tank or trough containing the water to be heated and the novel combination therewith of means for supplying air to the fire, circulating the smoke and gases, and controlling the exit thereof, all as will appear more fully in the following description and subjoined claims.

For a full understanding of the merits and advantages of the invention reference is to be had to the accompanying drawings and the following description.

The improvement is susceptible of various changes in the form, proportion, and the minor details of construction without departing from the principle or sacrificing any of the advantages thereof, and to a full disclosure of the invention an adaptation thereof is shown in the accompanying drawings, in which—

Figure 1 is a longitudinal section of a heater for stock-tanks, watering-troughs, &c., embodying the essential features of this invention, the dotted lines showing the covers to the fuel-pipe thrown back. Fig. 2 is a plan section thereof on the line X X of Fig. 1.

Corresponding and like parts are referred to in the following description and indicated in the several views of the drawings by the same reference-characters.

The heater is oblong in form and is designed to be placed horizontally in the tank, trough, or receptacle containing the water for the stock, and its body 1 may have any form in cross-section and, as shown, is of circular outline, with its upper portion flattened. The body or casing 1 is closed at its ends by heads

2, which are fitted thereto so as to secure a water-tight joint. A pipe 3 is provided at one end of the heater and provides a means for supplying fuel and air thereto for maintaining the fire when the heater is in operation. A pipe 4 is located contiguous to the front or head wall of the pipe 3 and forms a draft-inlet 5, and the lower portion of this pipe projects below the plane of the flattened top of the body or case, so as to direct the air to the fire. A cover 6 is hinged to the pipe and closes it and the draft-inlet 5 and is provided with a damper-controlled opening 7 for admitting air to support combustion. A cover A is hinged to the same side of the pipe 3 as the cover 6 and is connected therewith by means of a chain or similar connection B, whereby both covers move together, as indicated by the dotted lines in Fig. 1. This cover A acts as a deflector and prevents the smoke and gases from accumulating in the upper portion of the pipe 3 and keeps them nearer the fire, whereby a greater percentage is consumed.

A horizontal partition 8 is located in the end portion of the heater, remote from the pipe 3, and is disposed about centrally thereof, and its outer end terminates a short distance from the rear head 2 to provide a passage C for the smoke and products of combustion when the heater is in service. A vertical partition 9 connects the inner end of the horizontal partition 8 with the bottom and sides of the heater and forms with the partition 8 a smoke-chamber 10, whereby a greater extent of radiating-surface for the heat is provided. This partition 9 is double-walled and curves at its top. A smoke-pipe 11 is located at or near the middle of the heater and communicates with the smoke-chamber 10 and is of a length to extend above the level of the water in the tank or reservoir with which the heater is to be used. An opening D is formed in the front side of the smoke-pipe above the partition 8 and is controlled by a damper E, so as to secure a direct draft or compel the smoke and gases to pass around the partition 8 and through the smoke-chamber 10. A rod F connects the damper E with a crank portion G of a shaft H, journaled in the sides of the smoke-pipe.

The end portion of the heater or body pro-

vided with the pipe 3 constitutes the fuel-chamber or fire-box, and the fire is built therein and is supplied with fuel through the pipe 3 and with air by means of the draft-passage 5. The smoke and products of combustion pass through the space 12, over the horizontal partition 8, thence around said partition into the smoke-chamber 10, and out through the smoke-pipe 11, the heat radiated from the surface of the body warming the water in contact therewith.

The heater is independent of the tank, trough, or other receptacle containing the water to be warmed and is immersed therein, suitable means being provided to support and secure the device in the tank at the required elevation.

Any fuel—such as wood, straw, bagasse, &c.—may be burned in the heater and is admitted thereto by means of the pipe 3 upon opening the covers 6 and A, as indicated by the dotted lines in Fig. 1. The damper 7, in addition to controlling the admission of air, may be utilized as a means for securing the cover 6 when closed. When starting the fire or desiring to cause the same to burn more briskly, the damper E is elevated, so as to disclose the opening D, thereby admitting of a direct draft being secured, and upon closing the opening D the smoke and gases pass around the partition 8 through the smoke-chamber, thence out through the smoke-pipe, thereby adding to the heat-radiating surface.

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

1. A device for heating water in tanks, troughs, &c., for stock, consisting of a closed body of oblong form to be immersed horizontally in the tank containing the water to be heated and having a fuel-chamber at one end, a vertical pipe communicating with the fuel-chamber and provided with a draft-inlet

or air-passage projecting below the inner or lower end of the said pipe, a connected horizontal and vertical partition at the opposite end of the body, forming a smoke-chamber, and a vertical smoke-pipe communicating with the smoke-chamber near the said vertical partition, substantially as and for the purpose set forth.

2. A device for heating water in tanks, troughs, &c., for stock, comprising a closed body subdivided by a connected horizontal and vertical partition to provide combustion and smoke chambers, a smoke-pipe extending through the combustion-chamber and communicating with the smoke-chamber near the vertical partition and having an opening in its side communicating directly with the combustion-chamber, and a damper for closing the lateral opening in the smoke-pipe, substantially as set forth.

3. A device for heating water in tanks, troughs, &c., for stock, comprising a closed body subdivided to provide combustion and smoke chambers, a smoke-pipe extending through the combustion-chamber and communicating with the smoke-chamber, and having an escape-opening in its side in direct communication with the combustion-chamber, a damper fitted to the inner end of the smoke-pipe for controlling the said escape-opening, and means at the outer end of the smoke-pipe to admit of the damper being controlled from a point above the water in which the heater is immersed, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

MOSES TEASDALE LOWE.

Witnesses:

J. HEISIG,
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