(No Model.) 2 Sheets—Sheet 1.

O. G. STOWELL

HEATER FOR STOCK WATERING TANKS.

No. 428,702. Patented May 27, 1890.

Fig. 1.

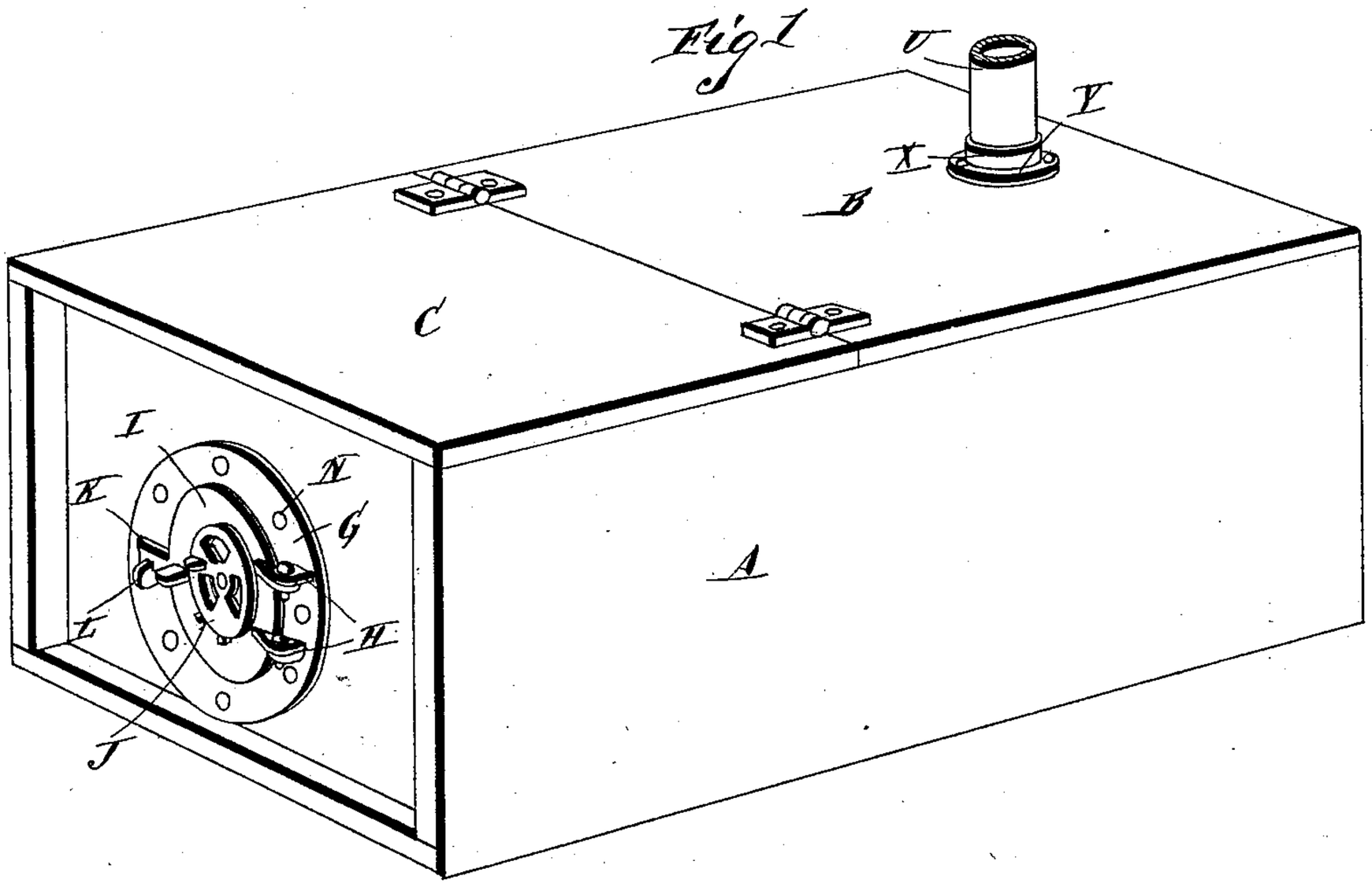
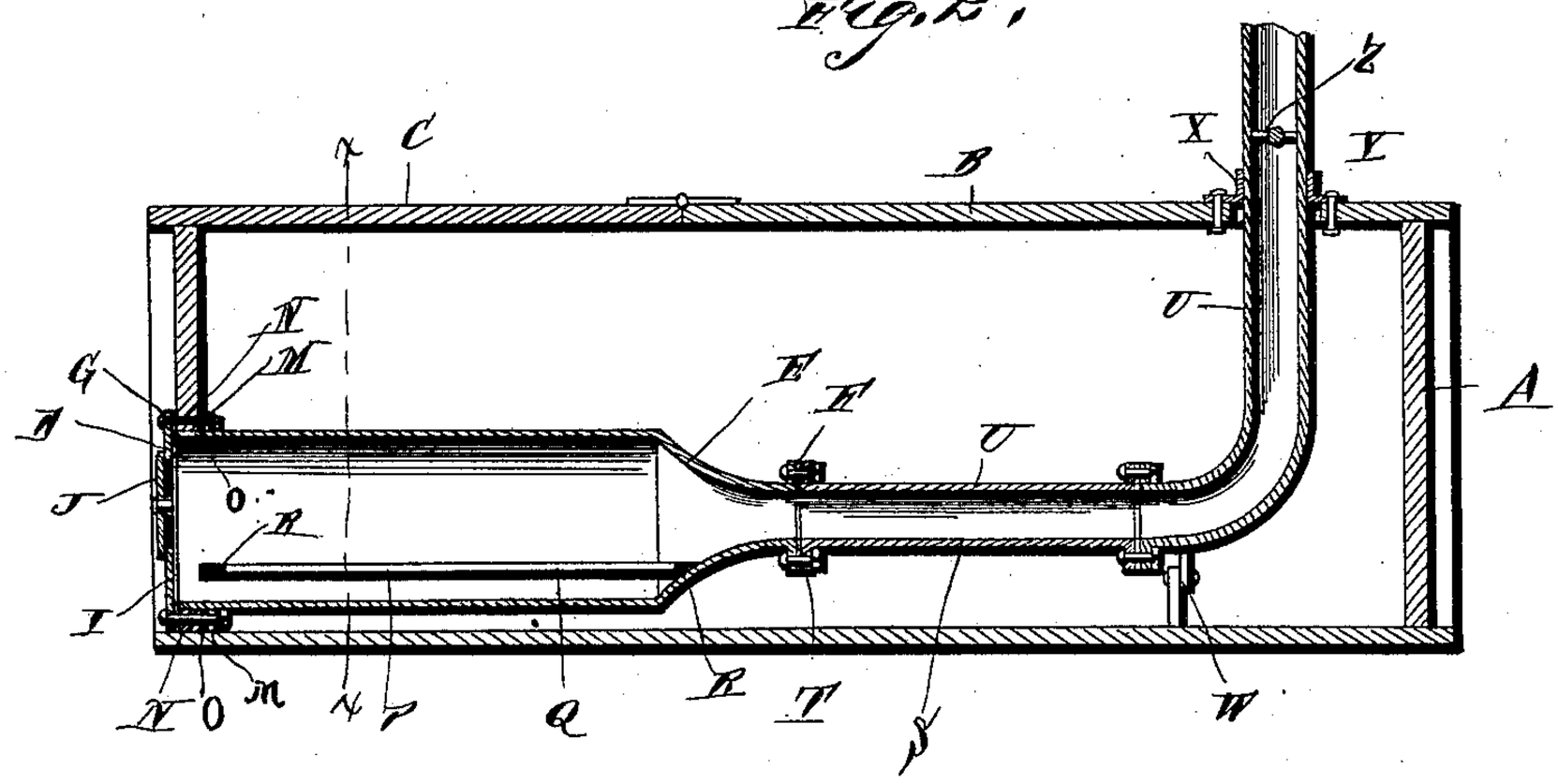


Fig. 2.



Witnesses
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R. H. Bishop,

Inventor
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(No Model.) 2 Sheets—Sheet 2.

O. G. STOWELL.

HEATER FOR STOCK WATERING TANKS.

No. 428,702. Patented May 27, 1890.

Fig. 3.

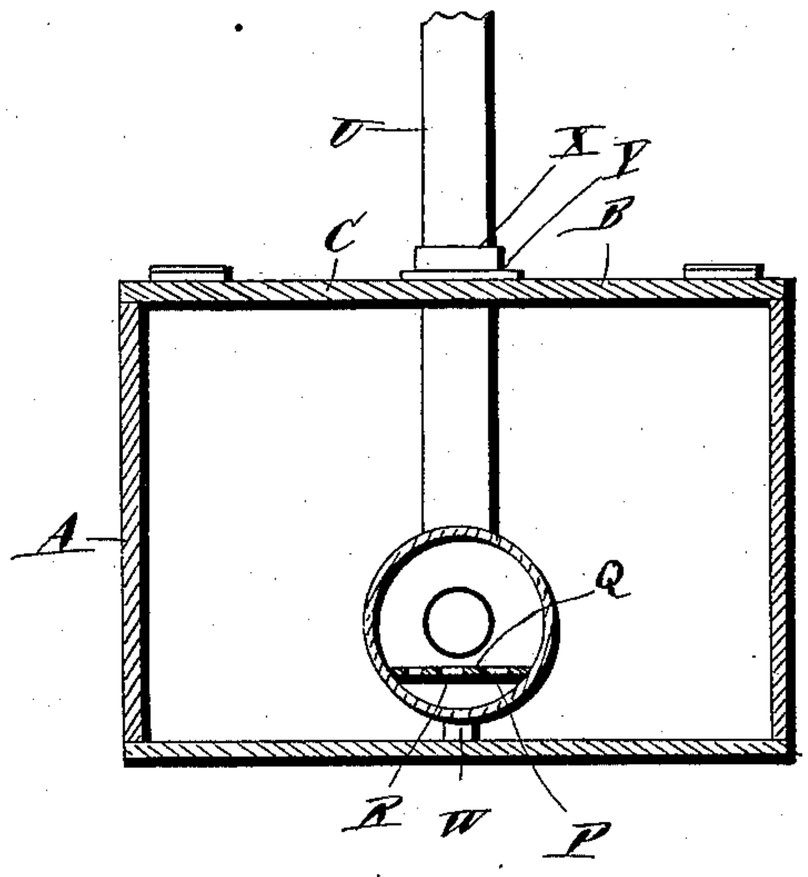


Fig. 4.

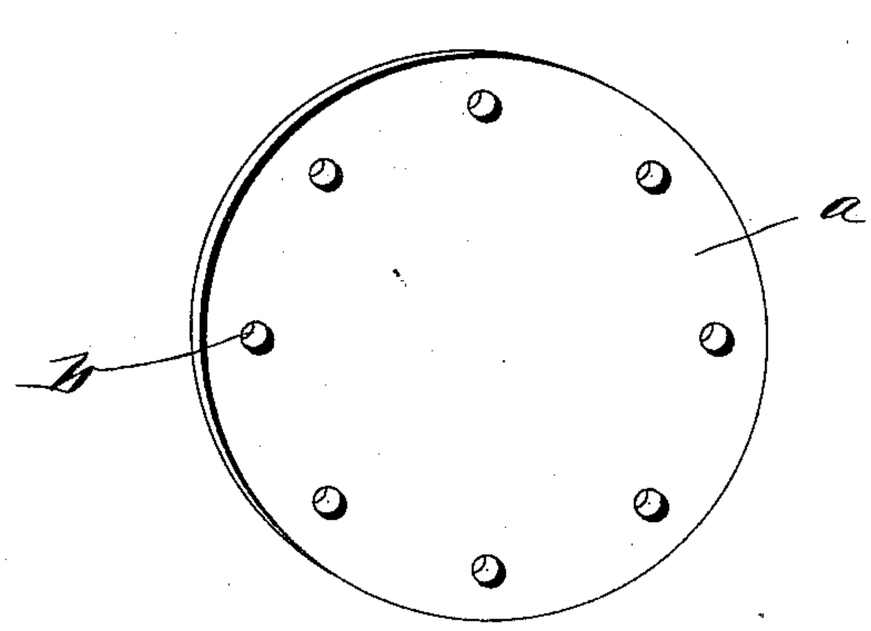
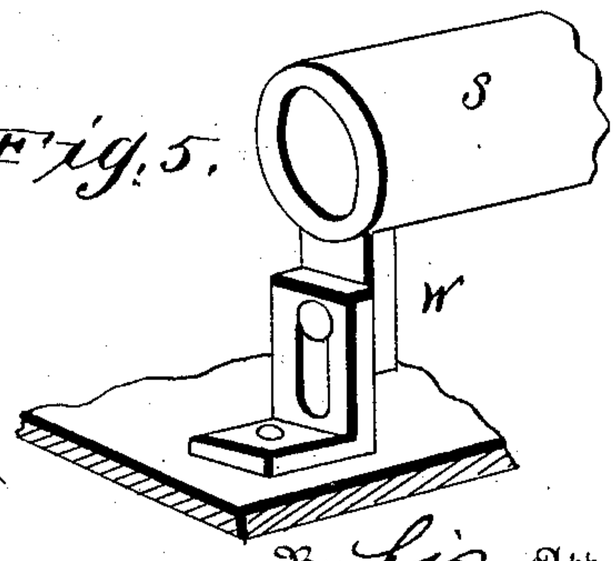


Fig. 5.



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UNITED STATES PATENT OFFICE.

OLIVER GUY STOWELL, OF DELAVAN, WISCONSIN.

HEATER FOR STOCK-WATERING TANKS.

SPECIFICATION forming part of Letters Patent No. 428,702, dated May 27, 1890.

Application filed September 28, 1888. Serial No. 286,685. (No model.)

To all whom it may concern:

Be it known that I, OLIVER GUY STOWELL, a citizen of the United States, residing at Delavan, in the county of Walworth and State of Wisconsin, have invented a new and useful Improvement in Heaters for Stock-Watering Tanks, of which the following is a specification.

My invention relates to improvements in heaters for stock-watering tanks, the object being to provide a simple and inexpensive device by the use of which the water in the tank may be maintained at a uniform temperature and prevented from freezing in cold weather, so that there will always be a supply of water for the stock having the proper temperature. This object I accomplish by the use of the device shown in the accompanying drawings; and the invention consists in certain novel features of the same, to be hereinafter first fully described, and then pointed out in the claim.

In the drawings referred to, Figure 1 is a perspective view of a tank provided with my improvements. Fig. 2 is a vertical longitudinal section of the heater. Fig. 3 is a transverse vertical section on the line *x x* of Fig. 2. Fig. 4 is a detail view showing the detachable head-plate. Fig. 5 is a detail perspective view of the adjustable knee or standard.

Referring to the drawings by letter, A designates a water-tank of any desired size and shape, preferably, however, of an oblong rectangular form, and provided with a cover B, having a door C. The cover may, if desired, be dispensed with; but I prefer to use it, as the water is thereby kept free from impurities, while at the same time the stock have ready access to it through the door C, which can be opened for that purpose. The front end of the tank is provided with an opening D, through which one end of the heater projects, as clearly shown. The said heater consists of a cylindrical casting, as shown, having its rear end provided with a tapered extension E, having an annular flange F at its extremity. The front end of the casting is provided with an annular flange G, which is adapted to rest against the front end of the tank, as shown. On the outer side or face of this flange I form a pair of lugs H, to which is pivoted a door I, provided with a damper J, and having a projection K, forming a latch adapted to engage a hook L projecting from the flange G.

On the inner side of the front end of the tank I provide a ring M, through which and the flange G, I insert the securing-bolts N, a packing O, of asbestus or similar material, being arranged between the flange and the end of the tank to form a water-tight joint.

P designates the grate, consisting of a casting having a series of parallel longitudinal bars Q, connected at their ends by the cross-bars R. The outer sides of the outer longitudinal bars are curved, as shown in Fig. 3, to correspond with the inner convex surface of the heater, against which they impinge, so that the grate will be supported without the use of bolts, feet, or other devices, as will be readily understood upon reference to Fig. 3.

To the tapered extension at the rear end of the heater I secure the end of the smoke and heat flue S, which extends longitudinally through the tank to near the rear end of the same, where it is given an upward turn and extends through the roof or cover of the tank, as shown. The front end of the smoke and heat flue is provided with an annular flange T, through which and the annular flange on the rear end of the heater I pass securing-bolts, as shown, to secure the flue to the heater, packing being arranged between the flanges to form a water-tight joint. The smoke and heat flue is made in sections U, connected together by means of the bolts passed through flanges on the ends of the sections, as shown, the said flue being thus made readily adjustable to the size of the tank. If so desired, the sections may be secured together by screw-thread connections instead of the flanges and bolt, as will be readily understood.

At the rear end of the heat and smoke flue, just beneath the vertical branch V thereof, I provide a standard or knee W, which is composed of two members adjustably secured together by means of a slot-and-bolt connection, the upper member being rigidly secured to the flue and the lower member being rigidly secured to the floor or bottom of the tank.

By this construction I am enabled to quickly adjust the rear end of the flue to the height of the heater, so as to secure the most perfect draft.

At a proper point of the height of the vertical branch of the heater and smoke-flue I provide the same with a collar X, having an annular flange Y, through which and the cover of the tank fastening-bolts are passed to secure the flue firmly in place. Near the upper end of the vertical branch of the flue I provide a tilting damper or valve Z, by means of which the draft can be regulated.

a designates a removable head-plate of the same diameter as the flange G, and having a series of perforations *b* near its edge.

In practice the heater will be removed from the tank in warm weather, and this header-plate is secured over the opening in the tank, thus permitting the tank to be filled with water and at the same time preventing the excessive and injurious rusting of the heater. The heater can be easily removed from the tank, as there are no projections on its outer surface, and its front edge extends through the opening in the front end of the tank, the flange G resting against the outer side of the end of the tank, so that the heater can be drawn through the said opening.

In practice the tank is filled with water and a fire kindled on the grate in the heater in the usual manner, the draft being regulated by the dampers in the door and the rear end of the heat and smoke flue. The fire raises the temperature of the heater, which in turn radiates the heat through the water, keeping the same at a uniform temperature. The heat and products of combustion pass from the heater through the flue leading therefrom, raising the temperature of the same, which in turn radiates heat through the water, so that the entire body of water will be warmed.

It will be seen from the foregoing description that I have provided a very simple and efficient device by the use of which a constant supply of water will be provided for the stock and maintained at a proper temperature to be drunk in quantities without any deleterious effect.

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

The combination, with a stock-watering tank having a permanent cover and a hinged lid and provided with an opening at its front end, of a removable heating device comprising a cylindrical casing tapering or contracted at its rear end and having an annular flange at its front end, an annular ring encircling said cylindrical casing and bearing against the inner side of the front end of the tank through the opening in which the heater-casing is inserted, bolts connecting said ring detachably with the flange of the heater-casing and extending through the wall of the tank or trough, a door hinged to the flange at the front end of the heater-casing, and a smoke-flue composed of sections connected detachably together and to the tapering rear end of the heater-casing and extending upwardly through the permanent cover of the tank, substantially as set forth.

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

OLIVER GUY STOWELL.

Witnesses:
A. H. KENDRICK,
CHAS. W. HOLMES.