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PATENTED APR. 9, 1907.

V. H. HUGHES & D. C. EVANS.

WATERING TROUGH.

APPLICATION FILED AUG. 14, 1906.

Fig. 1,

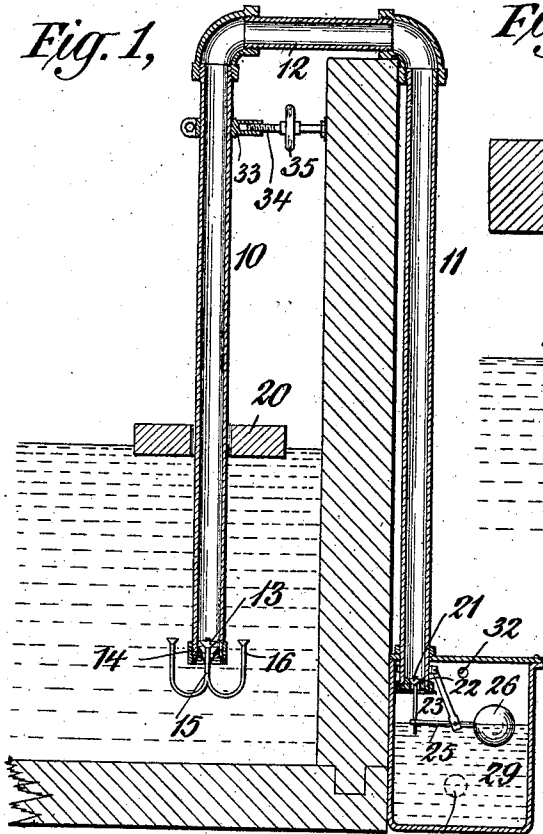


Fig. 2,

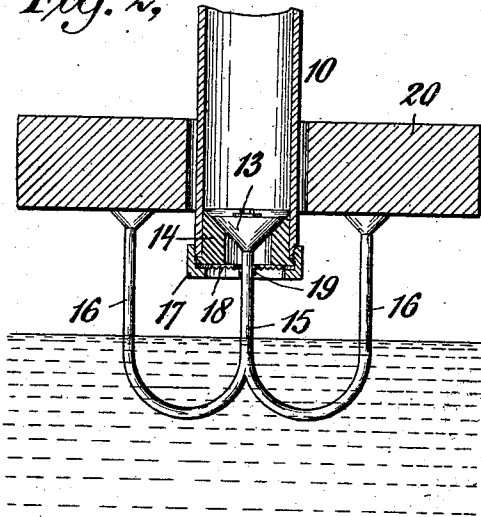


Fig. 3,

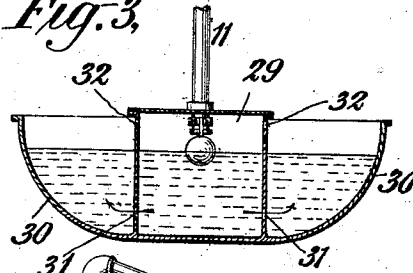


Fig. 4,

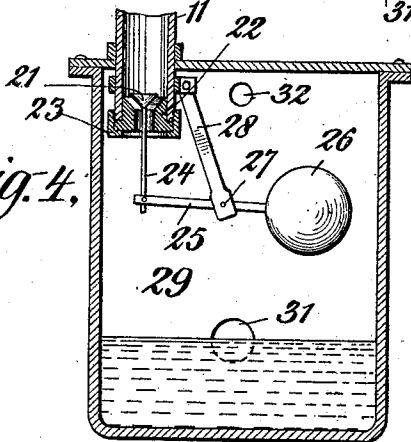
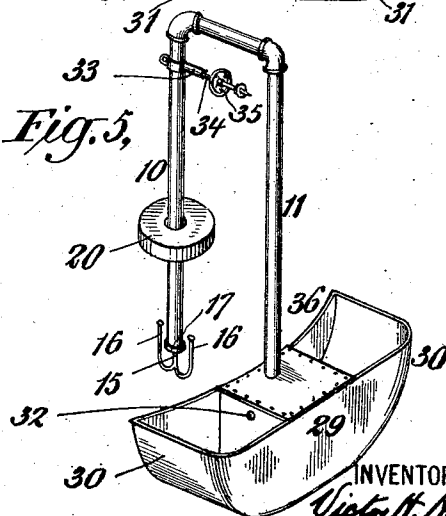


Fig. 5,



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WATERING-TROUGH.

No. 849,843.

Specification of Letters Patent.

Patented April 9, 1907.

Application filed August 14, 1906. Serial No. 330,543.

To all whom it may concern:

Be it known that we, VICTOR H. HUGHES, a citizen of the United States of America, and a resident of Sabetha, county of Nemaha, State of Kansas, and DAVID C. EVANS, a citizen of the United States of America, and a resident of Hiawatha, county of Brown, State of Kansas, have invented certain new and useful Improvements in Watering-Troughs, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

Our invention relates to watering-troughs, and particularly to troughs suitable for watering hogs.

Our invention comprises a device adapted to be removably connected to a tank, and that without the employment of special tools or skilled labor. Further, the device is constructed so as to be attached without damaging the tank in any way, as by boring holes through the walls thereof.

The device comprises a siphon-tube with valves at both ends thereof and a trough or troughs secured to the discharge end of the tube. The valve at each end is controlled by a float.

In order that our invention may be fully understood, we will describe an embodiment thereof in detail, having reference to the accompanying drawings, illustrating same, and will then point out the novel features in claims.

In the drawings, Figure 1 is a view in central vertical section through the watering-trough, showing the same secured in position to the wall of a tank. Fig. 2 is an enlarged view of the inlet end of the siphon-tube, showing the inlet-valve and certain means employed for operating same. Fig. 3 is a detail view in vertical longitudinal section, on a reduced scale, through the trough portions at the discharge end of the suction-pipe. Fig. 4 is a central vertical transverse section, on a much enlarged scale of the same, showing the parts in a different position from that shown in Fig. 1. Fig. 5 is a detail perspective view, on a much reduced scale, of the entire device removed from the tank.

Referring to the drawings by reference

characters, 10 11 designate the siphon-tube, 10 being the shorter or inlet leg, and 11, the longer or discharge leg. The pipe-sections which form the legs 10 and 11 are united at their upper ends by a transverse pipe-section 12.

At the foot of the shorter leg 10 is an inlet-valve comprising a valve-plug 13 and a valve-seat 14. The valve-plug 13 has a stem 15, the ends of which are bifurcated and upturned, as at 16. The valve-seat is set into the end of the pipe-section 10 and secured thereto in any convenient manner. In the present instance it is shown as confined in position by means of a retaining-nut 17, which nut also serves to retain a screen 18 in position below the valve-seat. The stem 15 of the valve 13 passes freely through the screen 18, a central button 19 serving to act as a guide for the valve-stem, by which the valve may be kept properly centered.

Strung loosely upon the pipe-section 10 above the valve just described is a cylindrical float 20. This float is arranged, when nothing prevents it, to rest upon the upper ends of the bifurcated portions 16 of the valve-stem 15 to force the valve 13 to its seat. In this position it is shown in Fig. 2. When, however, the valve and lower part of the member 10 of the siphon are immersed in water, the float 20 will be raised by the water and will leave the valve 13 free to open. The parts are shown in such position in Fig. 1 of the drawings. At the discharge end of the leg 11 of the siphon there is arranged a discharge-valve comprising a plug 21 and a valve-seat 22. The valve-seat 22 is secured in position in any suitable manner, as by means of a retaining-nut 23, similar to the retaining-nut 17 at the end of the leg 10.

The valve 21 has a stem 24, which is engaged by the lever 25 of a float device 26, pivoted at 27 to an arm 28 which is supported by the siphon-tube 11. The discharge end of the siphon-tube 11, together with the valve and float device just described, is contained within a small reservoir 29. This reservoir is closed at the top, bottom, and sides, but at each side has secured thereto trough portions 30, which communi-

cate with the interior of the reservoir 29 by means of openings 31 and 32. The openings 31 permit water to pass from the reservoir 29 to the trough portions 30, while the openings 5 32 permit the circulation of air. The reservoir 29 with the trough portions 30 is rigidly secured to the discharge end of the pipe 11, so that all the parts hitherto described form a unitary structure, such as is shown in Fig. 5, 10 whereby the same may be an article of commerce *per se*, and is adapted to be employed with different tanks without any special fitting.

In order that the device may be secured in 15 position, I have provided the same with a screw-clamp device comprising a nut portion 33, secured to the leg 10 of the siphon, and a screw-threaded extension-rod 34, fitted thereto, having a part 35, by which it may be conveniently turned by hand. Thus to fit one 20 of the devices in place it is merely necessary to hook same over the wall of a tank and then turn the part 35 of the rod 34 until the device is securely clamped in place to the wall of the 25 tank. Before initially placing the device in position the siphon would have to be primed; but it will be noticed that by reason of the fact that there are valves at both the inlet and discharge ends of the siphon the device 30 will not need to be primed again, for the charge of water therein need never be lost. When placed in position in the tank, the float 20 will rise, as shown in Fig. 1, and water will flow freely up the leg 10 and down the leg 11 35 into the reservoir 29. The water will also circulate from the reservoir 29 into the trough portions 30 until the same rises to such a level as to raise the float 26 and thereby close the discharge-valve 21. Water ceasing to flow, 40 the valve 13 at the inlet end will settle to its seat 14; but directly the float 26 falls by reason of the level of the water lowering in the trough portions 30 and reservoir 29 the discharge-valve 21 will open and water will again 45 commence to flow through the siphon, the valve 13 being opened automatically by the inflow of water. Should, however, the water become so low in the tank that the level thereof is at about the level of the valve 13 and 50 just before the inlet end of the leg 10 is uncovered, the float 20 will fall upon the up-turned bifurcated portions 16 of the valve-stem 15, and the valve 13 will be closed. Thus should the water continue to fall, as by 55 evaporation or by being drawn off elsewhere, the siphon will not lose its charge, and hence will be primed and ready to operate directly water is replenished in the tank. Moreover, if it is desired to remove the siphon for any 60 purpose the clamp may be disengaged from the wall of the tank and the device lifted from position, the float 20 falling during this

operation to positively close the foot-valve, so as to retain the charge.

From the foregoing it will be seen that we 65 have provided an extremely simple device, which may be readily attached to almost any form of tank and as readily removed when desired. The device does not require any expert fitting to the tank, nor will the tank be 70 damaged thereby, because there is no necessity of boring any holes through the side wall of the tank, as is usually necessary when providing means for drawing off water. It can be readily removed and stored in an out-of- 75 the-way place when not in use. If water in the pipe freezes, the whole device can be quickly detached and taken to a convenient place to be thawed. It contains no parts such as are likely to get out of order, and 80 should any part thereof become clogged up it can easily be removed and cleaned without having to call in the services of a plumber. The only wearable parts are the valves and their seats at the ends of the pipe-sections 10 85 and 11. We have provided for the ready removal of these, so that they can be quickly removed and replaced.

As a matter of convenience we have preferably made the inner side of the reservoir 90 29 and trough portions 30 convex, as shown at 36 in the drawings, so that the same may approximately fit the ordinary round tank. The various parts of the device may be made of any suitable material, and the valves 13 95 and 21 or their seats, or both, may conveniently be of a good quality of soft durable rubber, though, of course, other materials may be employed, if preferred.

What we claim is— 100

1. An article of manufacture comprising a siphon-tube, float-controlled inlet and discharge valves at the inlet and discharge ends thereof, a reservoir secured to the discharge 105 end of the siphon-tube, and trough portions connected to the reservoir.

2. An article of manufacture comprising a siphon-tube, float-controlled inlet and discharge valves at the inlet and discharge ends thereof, a reservoir secured to the discharge 110 end of the siphon-tube, trough portions connected to the reservoir, and means for removably securing the siphon-tube to the wall of a tank.

3. An article of manufacture, comprising 115 a siphon-tube, an inwardly-opening valve arranged at the inlet end thereof, a float loosely fitted upon the inlet-leg of the siphon-tube, arranged in one position to engage the valve to close same, valve means at the 120 discharge end of the tube controlled by the level of the water discharged therefrom, and a reservoir secured to the said discharge end of the tube for receiving the water so discharged.

4. A device of the character described,
comprising a siphon-tube having inlet and
discharge legs 10 and 11, a valve 13 fitted to
the end of the inlet-leg 10, a float 20 loosely
5 fitted upon the inlet-leg 10 of the siphon-
tube and arranged to engage portions 16
connected with the said valve 13, a reservoir
29 secured to the lower end of the discharge-
leg 11, trough portions 30 branching there-
10 from, a valve 29 fitted to the discharge end

of the leg 11, and a float 26 for controlling the
said valve, substantially as set forth.

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