(No Model.) 2 Sheets—Sheet 1.

R. M. SANFORD.

STOCK WATERING DEVICE.

No. 526,911. Patented Oct. 2, 1894.

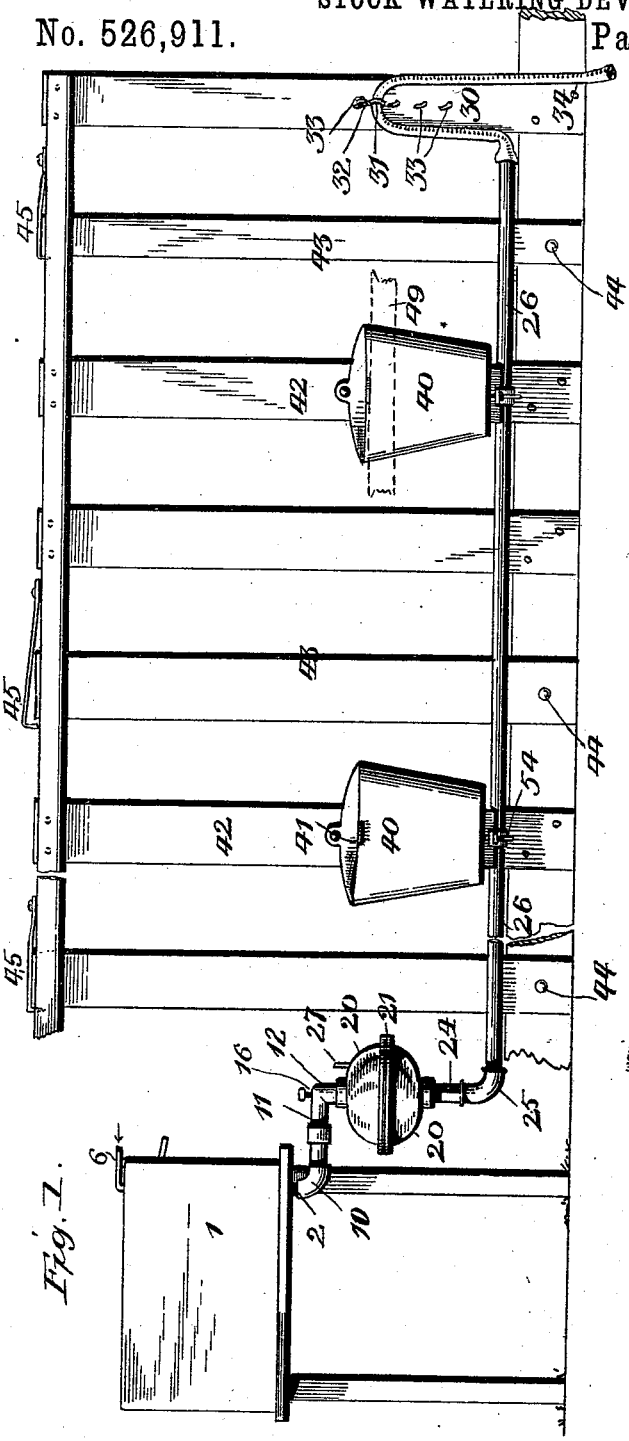

Fig. 1.

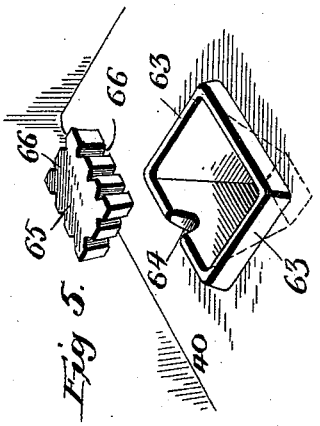

Fig. 5.

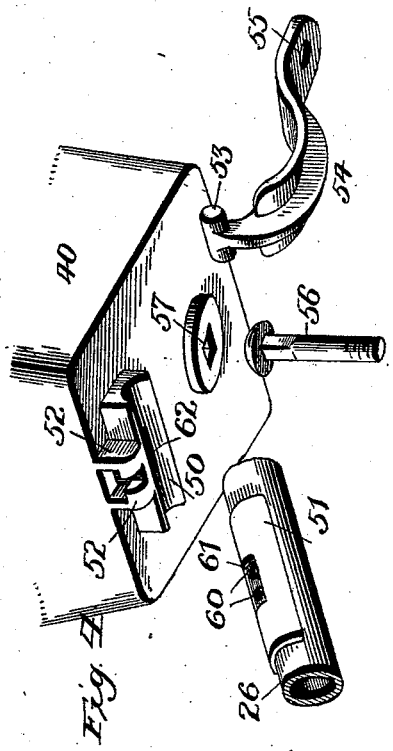

Fig. 4.

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(No Model.) 2 Sheets—Sheet 2.

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STOCK WATERING DEVICE.

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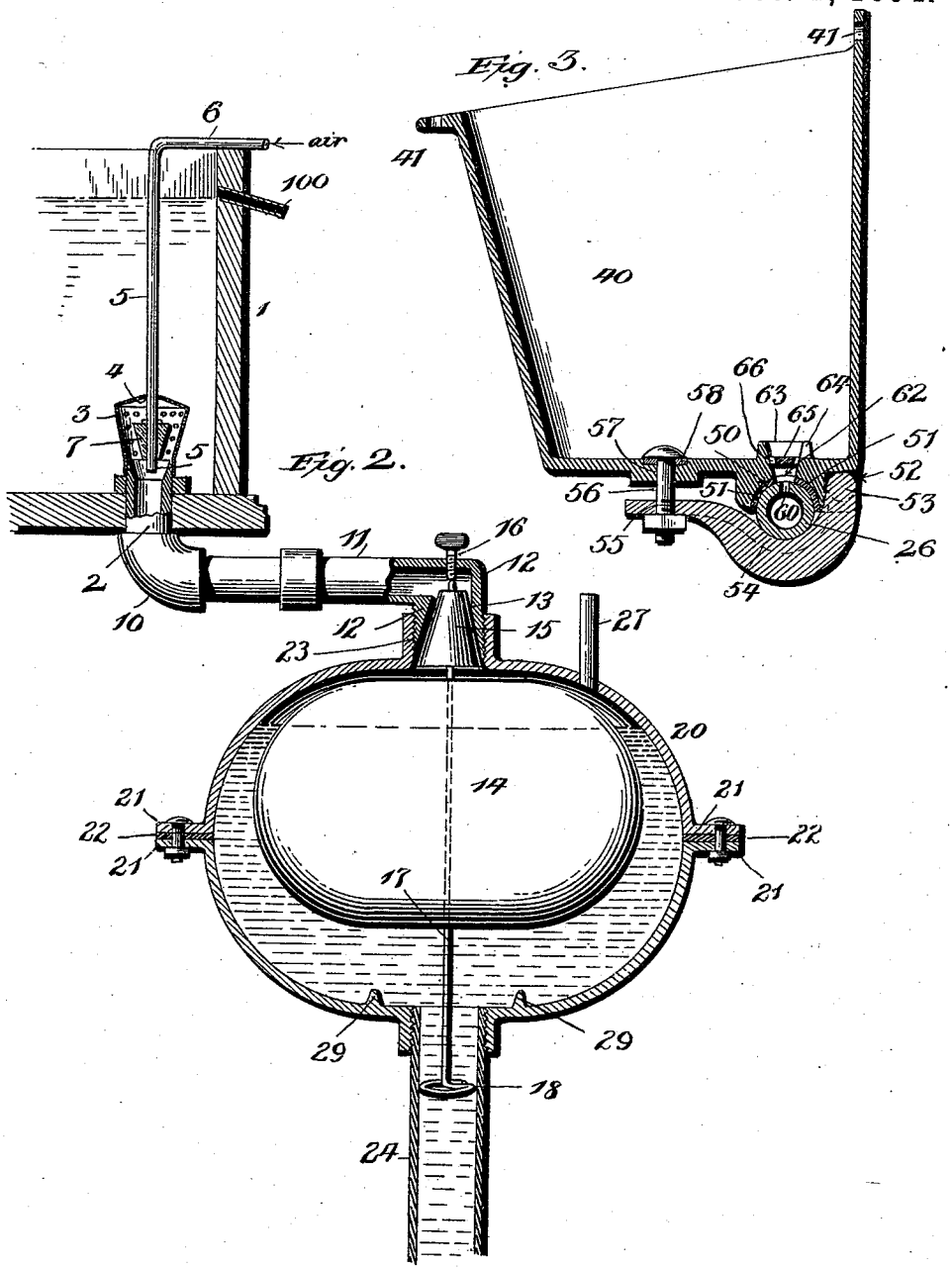

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UNITED STATES PATENT OFFICE.

ROSS M. SANFORD, OF HOBART, NEW YORK, ASSIGNOR OF ONE-HALF TO THOMAS RICH, OF SAME PLACE.

STOCK WATERING DEVICE.

SPECIFICATION forming part of Letters Patent No. 526,911, dated October 2, 1894.

Application filed March 3, 1894. Serial No. 502,223. (No model.)

To all whom it may concern:

Be it known that I, ROSS M. SANFORD, a citizen of the United States, and a resident of Hobart, Delaware county, State of New York, have invented certain new and useful Improvements in Stock Watering Devices; and my preferred manner of carrying out the invention is set forth in the following full, clear, and and exact description, terminating with claims particularly specifying the novelty.

This invention relates to the care of live stock, and more especially to devices intended to supply water to horses, cows, or other stock while housed in a suitable building; and the object of the same is to effect certain improvements in a device of this character.

To this end the invention consists in the specific construction of the float valve, the drinking cups, and the connection of the drinking cups with the feed pipe, and in other details—all as hereinafter more fully described, and as illustrated in the accompanying drawings, wherein—

Figure 1 is an elevation showing the general arrangement of the various parts of this watering device. Fig. 2 is an enlarged vertical section of the inlet valve and the float valve. Fig. 3 is an enlarged central vertical section through one of the cups and across the feed pipe. Fig. 4 is a perspective detail showing the bottom of the cup, the packing, a section of the feed pipe, and the locking clamp and bolt, all slightly separated. Fig. 5 is a perspective detail on a considerably enlarged scale showing the curbing within the cup and the strainer therefor.

Referring to the said drawings, the numeral 1 designates a tank of any suitable construction and adapted to be kept nearly full of water by any means, as from a spring, an Artesian well, or a pump driven by a wind mill or other suitable power. The tank is of a proper size and construction according to the number of drinking cups employed, and through its bottom is passed an outlet pipe 2 whereon within the tank is screwed a strainer 3, globe-shaped, with a hole 4 through its top.

5 is an L-shaped piece of pipe whose horizontal arm 6 is adapted to rest on the edge of the tank or upon a suitable support, and whose vertical arm passes through the hole 4 and carries a rubber plug 7 which may be a short piece of thick hose fastened securely around the pipe 5 near its lower end within the strainer 3. The location of this plug is such that when the horizontal arm 6 rests on the edge of the tank as seen in Fig. 2, the outlet pipe 2 is open, but when this arm 6 is turned and dropped down into the tank the plug falls into the upper end of the pipe 2 and prevents the further egress of water although air is still admitted down the pipe 5.

Below the tank an elbow 10 is connected with the outlet pipe 2 which is thence continued into a horizontal pipe 11, and at the outer end the latter is bent downward as at 12 and provided at its lower end with a downwardly flaring valve seat 13.

14 is an air-tight float which carries at its upper side a conical valve 15 adapted to close against the seat 13, and 16 is a set screw taking through the top of the horizontal pipe 11 at a point to impinge upon the apex of the conical valve 15.

20 is a casing, preferably made in two members with flanges 21 bolted together at the sides of the casing and having packing 22 between, and the upper end of this casing is screwed as at 23 around the lower end of the downturned portion 12 of the horizontal pipe 11.

To the bottom of the casing is connected a pipe 24 which extends first downward, then turns in an elbow 25, and then forms the approximately horizontal feed pipe 26 described below.

In the top of the casing at one side of the connection 23 is a suitable air vent 27 by which air is admitted to prevent the float from sticking in the casing undesirably. Without an air vent this float will not at all times drop when the water is drawn from under it. It seems that compressed air in the casing holds the float up and checks all water from flowing in, but with the air vent it works very nicely. The reason that this air vent is extended upward with a small piece of pipe is that when the set screw is holding the valve well open the water has a tendency to rise in the casing. From the bot-

tom of said float depends a wire 17 which at its lower end is turned into an eye or ring 18 sliding loosely and vertically within the pipe 24 so as to properly guide the float in its movements and cause the valve 15 to pass always into the seat 13 when it rises. In the bottom of said casing I form two or three small studs or supports 29, the object of which is to prevent the float from being sucked down and closing the outlet, which on some occasions it will do, and these studs rise so high that they prevent the tip of the valve from falling out of the valve seat 13.

The feed pipe 26 is led along within a stable, barn, shed, or other suitable housing for stock at a slight distance above the floor; and at its farther end a piece of hose 30 is attached thereto as shown in Fig. 1.

31 is a wire linked around the hose and having an eye 32 at its top which is adapted to be hooked over one of a vertical series of nails, pegs, or hooks 33 driven into a suitable support. The farther end, 34, of the hose 30 hangs over a waste pipe, trough, barrel, or drain.

The numeral 40 is applied to each of my improved drinking cups, and the same is of practically the shape shown and of a size to permit the ready entrance of the nose of a horse or cow. It is preferably made of casting with ears 41 at one side and at its top, one of which may be fastened to an upright 42 in the stable, and this upright may be a stanchion adjacent to the feed trough for the stock. Another upright 43 may stand adjacent, which can be pivoted as at 44 at its lower end and adapted to be engaged at its upper end by a catch 45 so that the head of the animal can be locked between the two uprights and adjacent to the feed trough and drinking cup as is well known in the art and forms no part of the present invention. All these uprights may be omitted or may be of any suitable construction. The other ear 41 is fastened to another suitable support 49 as shown in dotted lines at the right of Fig. 1.

At the bottom of each cup is a deep groove 50 of a size and shape to fit over the feed-pipe 26 with an interposed packing 51 of leather or other suitable material. At one side of said groove is a pair of ears 52 adapted to be removably engaged by a T-head 53 at one extremity of a curved clamp 54 whose body is of a shape to pass under the feed pipe and whose other end has a hole 55 for the reception of a bolt 56 which passes down through a suitable hole 57 in the bottom of the drinking cup and has a washer or other suitable packing 58 under its head within the cup so as to prevent the leakage of water through the bolt hole.

To remove a cup from the feed pipe as for repair, the nut is taken off of the bolt, when the clamp 54 can be turned around its T-head 53 away from under the feed pipe 26 and the head can be disengaged from the ears 52. The screws or bolts which take through the lips at the top of the cup into the supports, are then withdrawn, and a new cup can be readily applied as will be clear.

In the feed pipe 26 at a proper point is an opening 60 (which may be several small holes). In the packing 51 is another opening 61 registering with that in the feed pipe, and through the bottom of the cup 40 within the groove 50 is an opening 62 preferably rectangular in shape and surrounded on the interior of the cup by an upright curbing 63 having preferably a single notch 64 through one side which extends into the curbing down to the line of the interior bottom of the cup. The hole through the curbing and through the bottom of the cup tapers from the upper end of the curbing downward, and within this hole is seated a strainer 65 which may be of cast iron and provided with notches 66 in its edges. By this construction it will be seen that the sediment within the cup is prevented by the curbing from flowing out this hole, and all exit is strained by the strainer; but when the water is very low within the cup it can flow out of the notch 64 in the curbing. At the same time, if the outlet becomes clogged, the strainer 65 can be removed so as to open a hole of considerable size, but it is usually wedged in this tapering hole in such a manner that it will be rather tight therein.

All parts of this device are of the desired sizes, shapes, and materials, and considerable change in the specific details of construction may be made without departing from the principle of my invention.

Water is maintained in the supply tank 1 at a suitable level by any proper means, and may be prevented from rising above that level by an overflow 100. The angle pipe 5 being raised as shown in Fig. 2 and its horizontal end 6 hooked over the edge of the tank, water flows through the strainer 3, the pipe 2, the elbow 10, the horizontal pipe 11, and strikes upon the conical valve 15. By the force of the inflow, the valve is unseated and the water pouring on top of the float 14 further holds the valve open, while both float and valve are guided by the link or eye 18. Water flows down the pipe 24, through the elbow 25, along the feed pipe 26, and up the hose 30; but as the latter is engaged over a proper hook 33, before the water will flow out at 34 it will rise in the cups to the level of said hook. Passing through the hole 60 in the feed pipe, through the hole 61 in the packing 51, and up through the hole in the bottom of the cup, the water rises in the latter to the height indicated in Fig. 1; and when it has reached this height in all the cups it flows over the hook 33 and out at 34. At this time, however, it sets back in the feed pipe 26 and raises the float 14 so as to close the valve 15 against its seat 13, which thus prevents further inflow of water. If it is desired to maintain a constant flow of water as in cold weather when it is liable to freeze,

the hose is engaged with a hook 33 a little lower down which of course prevents the automatic closing of the valve 15 and causes a constant flow of water out of the exit 34. When an animal drinks from any cup 40, the water in the remaining cups and in the casing 20 falls to correspond, and this opens the valve 15 and permits the further inflow of water to again fill the cup. When it is desired that the valve 15 shall not close or shall not completely close, the set screw 16 is adjusted, as will be clear. When it is desired that no water shall flow out of the tank 1, the plug 7 is dropped into the pipe 2 to close it, but even then air can enter through the pipe 5 and will permit the complete emptying of the pipe 10 and casing 20.

What is claimed as new is—

1. The combination with a supply pipe having a valve seat, a casing below said seat, and an outlet pipe extending vertically from the bottom of the casing; of a float and valve within the casing, and a wire depending from the float and having an eye at its lower end sliding loosely within said outlet pipe, as and for the purpose set forth.

2. The combination with a supply pipe having a valve seat at its lower end, a casing connected with said lower end, and an air vent in the top of the casing at one side of said connection; of an exit pipe for the casing, and a float and valve within the casing, as and for the purpose set forth.

3. In a stock watering device, the combination with a substantially horizontal feed pipe having a hole in its upper side; of a drinking cup having a groove in its bottom fitting over said pipe, a packing between the bottom of the groove and top of the pipe, a hole through the bottom of the cup and through the packing registering with that in the pipe, and a clamp substantially as described detachably connecting the cup with the pipe, as and for the purpose set forth.

4. In a stock watering device, the combination with a substantially horizontal feed pipe having a hole in its upper side; of a drinking cup having a groove in its bottom fitting over said pipe, a packing between the bottom of the groove and top of the pipe, a hole through the bottom of the cup and through the packing registering with that in the pipe, a pair of ears at one side of the groove, a clamp having a T-head at one end removably engaging said ears, and a curved body passing under the pipe, and means for adjustably connecting the other end of the clamp with the bottom of the cup, as and for the purpose set forth.

5. In a stock watering device, the combination with a substantially horizontal feed pipe having a hole in its upper side; of a drinking cup having a groove in its bottom fitting over said pipe, a hole through the bottom of the cup registering with that in the pipe, a pair of ears at one side of the groove, a clamp having a T-head at one end removably engaging said ears, and a curved body passing under the pipe, a bolt passing downward through the bottom of the cup and through a hole in the other end of the clamp, and a water tight washer under the head of the bolt within the cup, as and for the purpose set forth.

6. In a stock watering device, the combination with a substantially horizontal feed pipe; of a drinking cup having a groove in its bottom resting on said pipe, means for clamping the cup on the pipe, registering holes through the pipe and the bottom of the cup, and a curbing within the cup rising from its bottom around the hole therein, as and for the purpose set forth.

7. In a stock watering device, the combination with a substantially horizontal feed pipe; of a drinking cup having a groove in its bottom resting on said pipe, means for clamping the cup on the pipe, registering holes through the pipe and the bottom of the cup, a curbing within the cup rising from its bottom around the hole therein and having a notch at one side extending from the upper edge of the curb to a point even with the bottom of the cup, as and for the purpose set forth.

8. In a stock watering device, the combination with a substantially horizontal feed pipe; of a drinking cup having a groove in its bottom resting on said pipe, means for clamping the cup on the pipe, a tapering hole through the bottom of the cup registering with another hole in the pipe, and a metal strainer removably wedged in said tapering hole and having notches in its edges, as and for the purpose set forth.

9. In a stock watering device, the combination with a substantially horizontal feed pipe; of a drinking cup having a groove in its bottom resting on said pipe, means for clamping the cup on the pipe, a tapering hole through the bottom of the cup registering with another hole in the pipe, a raised curbing around said hole within the cup, and a metal strainer removably wedged in the hole and having notches in its edges, as and for the purpose set forth.

10. In a stock watering device, the combination with a substantially horizontal feed pipe; of a drinking cup having a groove in its bottom resting on said pipe, means for clamping the cup on the pipe, a tapering hole through the bottom of the cup registering with another hole in the pipe, a raised curbing around said hole within the cup and having a notch in one side, and a removable and notched metal strainer wedged in said hole, as and for the purpose set forth.

In testimony whereof I have hereunto subscribed my signature on this the 28th day of February, A. D. 1894.

ROSS M. SANFORD.

Witnesses:
J. R. COWAN,
J. A. SCOTT.