Feb. 27, 1923. 1,446,493.

A. BELDEN.

WATERING DEVICE.

FILED MAR. 6, 1922.

Fig. 1.

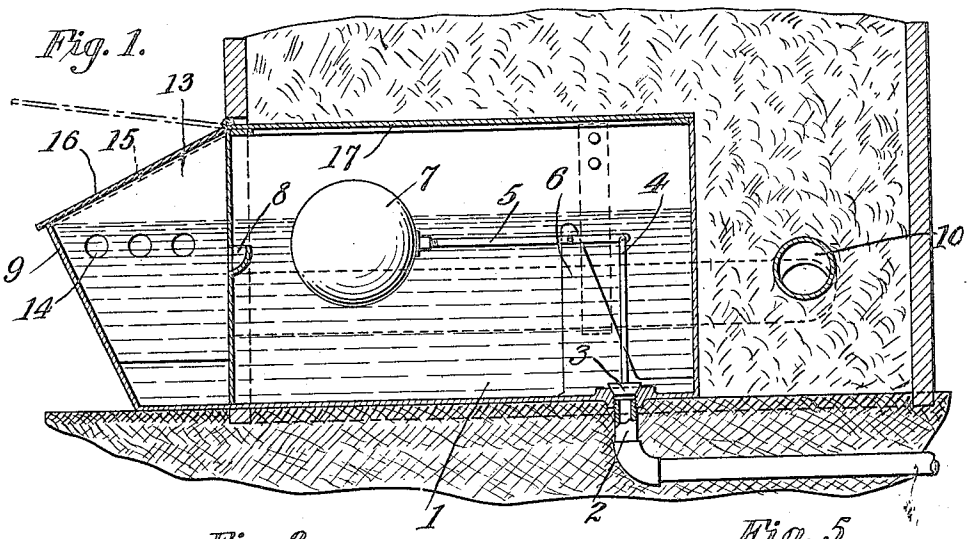


Fig. 2.

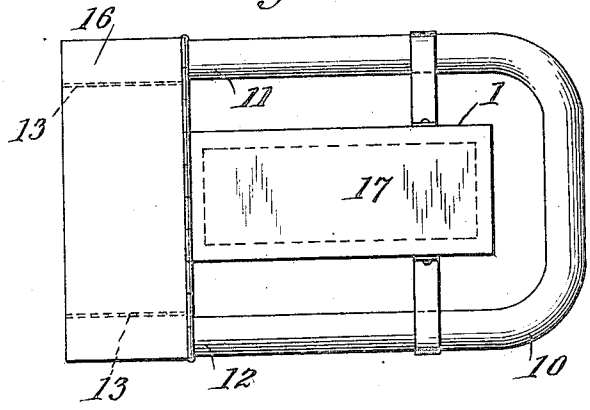


Fig. 5.

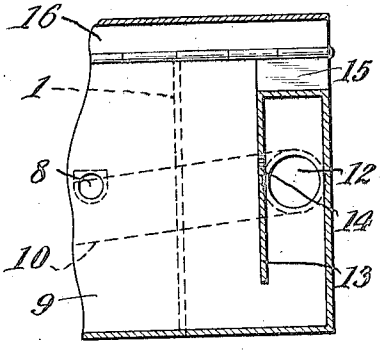
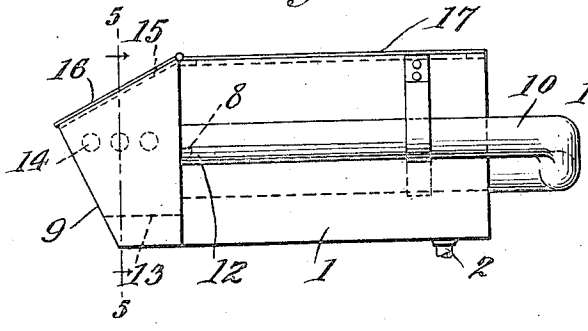
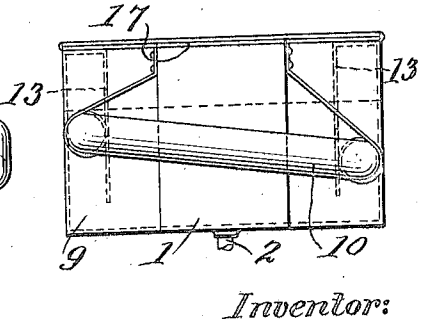


Fig. 3.

Fig. 4.





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Attys.

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UNITED STATES PATENT OFFICE.

ARTHUR BELDEN, OF HARVARD, NEBRASKA.

WATERING DEVICE.

Application filed March 6, 1922. Serial No. 541,396.

To all whom it may concern:

Be it known that I, ARTHUR BELDEN, a citizen of the United States, and a resident of Harvard, Nebraska, have invented certain new and useful Improvements in Watering Devices, of which the following is a specification.

This invention relates to a stock watering trough and has for its primary object to produce a device of such a construction that the water therein will not freeze during severe weather and will automatically maintain a constant level in the drinking portion of the trough.

Another object is to provide means to prevent the water in the device from becoming contaminated with mud, refuse, sticks or the like, which usually takes place whenever an open trough is allowed to remain as such in a barn-yard for any length of time.

Other objects and advantages will appear as the description proceeds.

To this end my invention consists in providing a main reservoir into which the water enters, being regulated by any suitable automatic means. This supply is preferably located in a manner to reduce freezing danger to a minimum, such as by entering from the lower side thereof, which utilizes the natural heat of the earth. Communicating with this reservoir is a drinking trough of suitable construction, which trough is provided with a circulation system which will keep the temperature of the water therein above the freezing temperature. Additional means are provided to prevent the circulation system from clogging which will be more specifically described hereinafter.

In the drawings I have illustrated one embodiment of the portion of my invention which has been chosen for illustration only as required by law, but it is understood that I do not wish to be limited to the construction, combination or arrangement of parts shown, as obviously various changes and modifications will occur to those skilled in the art and still fall within the scope of the claim.

In these drawings:

Fig. 1 is a sectional elevation showing the relation of the parts to the frost preventing medium.

Fig. 2 is a plan of one form of my device.

Fig. 3 is a side elevation of Fig. 2.

Fig. 4 is an end elevation of Fig. 2.

Fig. 5 is a detail of the drinking portion of the device.

In the embodiment illustrated I provide a reservoir having a water supply pipe entering at the bottom preferably passing underground below the frost penetration line to the source of supply. Suitable means are provided to automatically regulate the flow of water to the reservoir as by means of a float valve operating in the usual manner.

A drinking trough is located adjacent to and communicating with the reservoir, said communicating opening being below the water level in order that floating refuse will not be conducted into the drinking portion. This drinking portion is also provided with a circulation system which may introduce a coil of pipes or the like having its trough-attached ends at different levels. If a system of this character is used, it has been found satisfactory to extend such pipes around the reservoir, the whole to be packed to a suitable depth with fresh stable manure which will warm the water in the circulation system, which because of the known principles of the thermo siphon will keep the water in the drinking portion above the freezing temperature. Obviously the water in the reservoir will also be warmed to a certain extent by the direct contact of the heating medium to the walls thereof and also because of the communication between the water in the drinking portion and that in the reservoir, but it is imperative that the heated water from the circulation system should flow first with the drinking portion of the device. It has been found desirable to construct baffle plates over the opening in the drinking portion leading to the circulation system in order to prevent refuse from clogging the circulation system.

If found desirable the drinking portion may be provided with a suitably arranged covering and the reservoir may be provided with up-standing means to retain the manure in the place desired.

Referring now more particularly to the drawings, I have shown a reservoir, 1, having a water supply pipe 2, entering at the bottom thereof, the entrance to the reservoir being covered by a suitable valve 3, connected by links 4 to lever 5, which is pivoted on a fulcrum 6, the lever being supplied with a float 7, in the usual manner to regulate

the water supply according to the desired level of the water.

An opening 8, is provided in the reservoir intermediate the normal level of water and the bottom of the trough for the purpose above stated, said opening communicating with a drinking portion 9, of the trough located adjacent thereto. This portion may be of any desired shape, which will undoubtedly vary according to circumstances, but I have shown it to be of an elongated configuration.

The circulation system as illustrated has been found to be satisfactory and includes a hollow member 10, extending backwardly from the drinking portion on each side of the reservoir and behind the latter. The inlet end 11, of this system is located below the outlet 12, in order that the convection currents of the heated fluid may rise and pass outwardly through the opening 12, into the trough, the cooler fluid passing through opening 11, into the system and the cycle of heating repeated. Obviously this circulation system may be greatly varied and I have illustrated this form merely because of its simplicity.

I have shown baffles 13, located between the front and rear walls of the drinking portion of the trough, preferably extending nearly to the bottom of the trough and at least below the normal level of the liquid and the openings 11—12, said baffles being provided with a series of perforations 14, if found desirable. Coverings 15, extending between the end portions of the drinking portion and the baffles will prevent refuse from falling into this portion of the trough. I have shown a cover 16, hingedly connected to the rear wall of the drinking portion, but any suitable means of attachment may be substituted therefor, or if found desirable the cover may be eliminated. I have likewise illustrated a removable cover 17, on the reservoir portion, but likewise other arrangement of these parts may be found desirable.

In the simple form of the circulation system illustrated, the hollow members 10, are shown supported from the reservoir, although this is a detail illustrated merely to form an operative device and is not to be construed in a limiting sense.

What I claim is:

A receptacle adapted to receive water, including a main reservoir portion, a drinking tank fed from but exterior to said reservoir portion, a circulation system for the water in said drinking tank spaced from and surrounding said reservoir, and embedded in means to heat the same, said drinking tank having end walls and perforated partitions in proximity to said end walls, said circulation system having its water entry and exit between the partitions and end walls.

In testimony whereof I affix my signature.

ARTHUR BELDEN.