

SPECIFICATION

Watering-trough for chickens and like fowl

- 5 This invention relates to a watering-trough for chickens and like fowl, which can either be hung up or placed to rest on the ground.

- From the U.S. Patent Specification No 3 590 782 a chicken watering-trough is known, which comprises
10 a tray intended to hold the water for the chickens, a valve for controlling the inflow of water to the tray, a rod for hanging the tray and resilient means for connecting the rod to the tray so as to permit an axial ascending motion of the tray relative to the rod as
15 soon as the water in the tray falls below a determined level for causing the opening of the valve and the inflow of more water into the tray.

- In order to stabilize the watering-trough and to dampen its oscillation as when the chickens drink the water of the hung tray, a ballast is provided,
20 which is fastened to the hanging rod independently of the resilient connection and springing means of the tray so as not detrimentally to affect the sensitivity of the control means for the water-feeding valve.

- 25 This watering-trough has the shortcoming that it cannot be placed resting on the ground since in this case the tray would be lifted relative to the suspension rod so that the valve which feeds the tray would be constantly open. Thus, the watering-trough cannot be used for small fowl, such as chicks, since
30 these latter could not drink from a tray held above the ground.

- It has been suggested (such as in US Patent Specification 3 685 495) to arrange the ballast rigidly
35 connected to the suspension rod so as to protrude downwards relative to the tray bottom wall and to act also as a supporting baseplate for the watering trough. By so doing, it has been provided for a trough which, consistently with the requirements,
40 can be either hung or, indifferently, placed on the ground.

- These conventional watering troughs have, all in common, the defect of being both intricate and unreliable in use. The axial shift of the tray relative to
45 the suspension rod against the bias of the resilient connection means requires an intricate guiding assembly with the inherent risk of jamming and thus of a continuous seeping of water through the feeding valve since the latter is easily opened for any
50 movement whatsoever of the watering trough. In addition, such a valve has narrow passage ways and in the flow path a filter is usually provided, so that there is the risk of clogging by the agency of impurities entrained by the water. The suspension
55 and guiding system for the tray comprises a number of component parts which do not allow for simple manufacture and which require a cumbersome assemblage work in addition to frequent servicing.

- An object of the present invention is to provide a
60 watering trough to be hung or placed straight on the ground and which, even while retaining the favorable features of the conventional makes, permits a simplified production and assemblage along with a reduced number of component parts while ensuring
65 a more reliable operation without requiring con-

tinuous attendance.

- According to the invention there is provided a watering trough for fowl comprising ballast means by means of which the watering trough can be stood
70 on the ground, a rod upstanding from the ballast means by means of which rod the watering trough can be suspended, a water tray arranged such that the ballast means projects below the tray, a support attached to the ballast means for pivotally supporting the tray eccentrically thereof for pivotal move-
75 ment about a substantially horizontal axis, resilient means acting to urge the tray to pivot about the said axis in response to a change in the level of water in the tray, the centre of the tray being lifted when the
80 water level falls, a valve for feeding water to the tray, the valve having a nozzle incorporated in the rod and a plug disposed opposite the valve and connected to the tray, the plug being moved away from the nozzle to open the valve when the tray is pivoted by the
85 resilient means in response to a fall in water level below a certain level, and the plug abutting the nozzle to close the valve and limit return pivoting of the tray against the bias of the resilient means when the water level in the tray rises to a second level, and
90 an abutment to limit the pivotal movement of the tray under the bias of the resilient means when the water level falls.

- When the tray is rotated about the horizontal axis towards the abutment, the valve is thus opened and
95 allows water to flow into the tray. The weight of the water collected in the tray thus causes the pivotal motion of the latter against the bias of the resilient means and, as the second preselected level of water in the tray is attained, the pivot angle becomes such
100 that the plug shuts the valve and the water inflow is discontinued: under these conditions, the tray is in a substantially horizontal trim with its bottom wall parallel to the bottom surface of the ballast means.

- As the chickens gradually drink the water of the
105 tray, the weight of the water in the latter is decreased so that the tray, under the bias of the resilient means, is caused to pivot and the plug is withdrawn from the nozzle and the water-feeding valve is opened to restore the water level in the tray.

- 110 The sensitivity of such angular shift of the tray can be adjusted by regulating the pre-load of the resilient means.

- The tray may have an annular shape and can be arranged with advantage, conventionally, at the
115 lower edge of a bell-shaped member, the latter being freely slipped on the suspension rod and surrounds the ballast fastened to the bottom end of such rod.

- According to a preferred embodiment of the invention, the bell-shaped member carries at the top
120 an annular hollow body having a closed bottom wall and which is possibly fitted with a lid. The body surrounds the nozzle incorporated in the suspension rod, the hollow body carrying the plug intended to cooperate with the nozzle and having at least one
125 opening for the feed of water, the latter flowing over the outer surface of the bell-shaped member and so reaching the annular tray. The resilient means acts between the hollow body and the suspension rod.

- To help understanding of the invention a specific
130 embodiment thereof will now be described by way

of example and with reference to the accompanying drawings, of which the single figure shows a watering trough according to the invention in an axial cross-sectional view.

- 5 As viewed in the drawing, the watering trough has a bell-shaped member 10, which at its bottom edge carries an annular tray 11. On top, the bell-shaped member 10 carries a hollow body 12 of annular shape closed by a bottom wall 13 and with an
10 internal wall 14 at a lower level than the outer wall 15. The outer wall 15 of such annular hollow body 12 has immediately above the bottom wall 13 at least one port 16.

The assembly composed by the bell member 10
15 with tray 11 and hollow body 12 is freely slipped onto a rod 17 which passes through the assembly in axial direction. For convenience of assemblage, the rod 17 consists of a top barrel 18 and a bottom barrel 19, the latter having a sleeve 20 into which the top
20 barrel 18 is screwably fastened.

To the bottom end of the bottom barrel 19 there is fastened, between a washer 21 and a nut 22, an annular container 23 which can be closed by a lid 24 and is intended to hold ballast material, such as
25 water. The bottom wall of the container 23 serves also to support the watering trough when resting on the ground.

On a side (at the left, as viewed on the drawing) the ballast holder 23 carries a supporting bracket 25
30 which can be screwed onto the holder wall and which has two ribs 26 between which is inserted, with a certain clearance, a bottom projection 27 of the tray 11. The supporting bracket 25 is thus an eccentric support for the tray 11 and its ribs 26 with
35 the projection 27 provide a pivot with horizontal axis about which the tray 11 can pivot within a certain angular range.

The bottom barrel 19 of the rod 17 has, slightly beneath the sleeve 20, a nozzle 28 which juts into the
40 hollow body 12 of annular shape in the same direction as that in which the supporting bracket 25 juts from the ballast holder 23. Slightly beneath the nozzle 28, the lower barrel 19 is closed by a transverse diaphragm 29.

45 On the internal surface of the outer wall 15 of the hollow annular body 12 at a point confronting the nozzle 28, there is a plug 30, for example of rubber, intended to stop the nozzle exit port by contacting same.

50 The top end of the top barrel 18 of the rod 17 carries, screwed thereon, a member 31 which can be used for suspending the trough. The member 31 has, integral therewith, a fitting 32 for a water hose (not shown), which opens into the interior of the barrel
55 18.

Water entering the barrel 18 then reaches the nozzle 28 (it cannot go beyond in the barrel 19 since there is the transverse diaphragm 29) and if the nozzle is open, water fills the annular hollow chamber 12 and flows through the ports 16 and, by
60 flowing over the outer surface of the bell member 10, reaches the annular tray 11.

It has been stated that the assembly composed by the bell member 10 and the hollow chamber 12 can
65 be pivotally moved about the pivot point formed by

the engagement of the projection 27 between the ribs 26 of the supporting bracket 25.

Between the central stud 17 and the outer wall of the body 12, a spring 33 is positioned which urges
70 the assembly to pivot in the direction to move the plug 30 away from the nozzle 28. In more detail, the spring 33 is arranged above the nozzle 28 and acts between the sleeve 20 connecting the barrels 18 and 19 and a seat 34 formed on the wall 15 of the body
75 12. An adjusting screw 35 permits presetting of the bias of the spring 33. Under the bias of the spring 33, the hollow body 12 is tilted relative to the central rod 17 (towards the left, as viewed in the drawing) and such bias keeps also the tray 11 resting against the
80 supporting bracket 25. The displacement caused by the bias of the spring 33, which corresponds to pivoting of the assembly bell 10, body 12 and tray 11 about the horizontal axis passing through the pivot point aforementioned, is restrained by the abutment
85 of the edge of the inner wall 14 of the body 12 against an abutment bead 36 integral with the nozzle 28 (as shown in the drawing). Under these conditions, the bell, body and tray assembly takes a slightly tilted trim when resting against the support-
90 ing bracket 25.

If, under these circumstances, water is fed through the fitting 32, such water will find the nozzle 28 open and will flow along the path already described into the tray 11, to be collected therein: as the water level
95 is raised in the tray 11, the water load counterbalances the bias of the spring 33 and causes the bell, body and tray assembly to lean so that the plug 30 approaches the nozzle 28 until stopping the latter and cutting off the water feed to the tray 11 as soon
100 as a preselected water level has been established in it. The bell, body and tray assembly is then maintained substantially horizontal by abutment of the plug 30 against the nozzle 28.

It is apparent that by varying the preload of the
105 adjusting spring 33 by manipulating the setting screw 35, it is possible to vary the point at which the plug 30 cuts off the water feed through the nozzle 28, so that the level in the tray 11 can be regulated.

As the chickens drink the water in the tray 11, the
110 water level in it goes down so that the bell, body and tray assembly, under the bias of the spring 33, begins to be tilted back withdrawing the plug 30 from the nozzle 28 and allowing the water feed to occur until the level in the tray 11 has been restored
115 to its original position.

As can be seen from the foregoing description, the above described watering trough according to the invention is distinguished from prior troughs by its
120 constructional and operational simplicity, the reduced number of component parts which can be predominantly manufactured as moulded plastic pieces, the ease of assemblage and the great sensitivity of adjustment of the water level in the tray.

125 The annular chamber 12 overlying the bell 10 and which houses the spring 33 and the nozzle 28 can be appropriately closed by a protection lid 37 which can be fastened to the rod 17 while leaving free sufficient lateral clearance to permit the lateral pivotal move-
130 ment of the body 12.

A special advantage is the simplicity of the water feed valve which is reduced to a simple nozzle to be stopped by a plug and which is thus exempt from easy clogging.

5 Also the risk of jamming is virtually nonexistent since the assembly of bell, body and tray freely pivots without requiring any guideway or suchlike.

It is to be noted, lastly, that cleaning out of the watering trough can be easily performed without
10 disassembling the component parts of the device. When the bell 10 with the tray 11 are positioned in their tilted trim, the dirt possibly contained in the tray tends to collect in the bottom portion above the pivot point so that the opposite side of the tray will
15 always stay clean.

The watering trough can be hung, or placed resting on the ground as preferred and will always be fairly stable.

20 CLAIMS

1. A watering trough for fowl comprising ballast means by means of which the watering trough can be stood on the ground, a rod upstanding from the
25 ballast means by means of which rod the watering trough can be suspended, a water tray arranged such that the ballast means projects below the tray, a support attached to the ballast means for pivotally supporting the tray eccentrically thereof for pivotal
30 movement about a substantially horizontal axis, resilient means acting to urge the tray to pivot about the said axis in response to a change in the level of water in the tray, the centre of the tray being lifted when the water level falls, a valve for feeding water
35 to the tray, the valve having a nozzle incorporated in the rod and a plug disposed opposite the valve and connected to the tray, the plug being moved away from the nozzle to open the valve when the tray is pivoted by the resilient means in response to a fall in
40 water level below a certain level and the plug abutting the nozzle to close the valve and limit return pivoting of the tray against the bias of the resilient means when the water level in the tray rises to a second level, and an abutment to limit the pivotal
45 movement of the tray under the bias of the resilient means when the water level falls.

2. A watering trough as claimed in claim 1, wherein the resilient means can be adjusted.

3. A watering trough as claimed in claim 1 or
50 claim 2 wherein the tray has an annular form and is arranged at the bottom edge of a bell member which carries at its top an annular hollow body with a closed bottom wall and at least one side port, the annular hollow body is arranged around the nozzle
55 and carries the plug, and the resilient means acts between the rod and the hollow body.

4. A watering trough as claimed in claim 3, wherein the resilient means is arranged above the nozzle and lies substantially on the same radial plane
60 relative to the rod which also contains the nozzle and the support for the tray.

5. A watering trough as claimed in either of claims 3 or 4 when appendant to claim 2, wherein the annular hollow body has an outer wall which
65 carries the nozzle and in which a seat is formed for a

screw which adjusts the resilient means.

6. A watering trough as claimed in claim 3, claim 4 or claim 5 wherein the abutment is formed
70 between the edge of an inner wall of the annular hollow body and a member integral with the nozzle.

7. A watering trough as claimed in any one of claims 3 to 6, wherein the annular hollow body is closed by a protection lid.

8. A watering trough substantially as hereinbefore described with reference to the accompanying
75 drawing.

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