Feb. 13, 1951 R. S. KOFFORD 2,541,369

WATER DISPENSER FOR POULTRY

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Fig. 1.

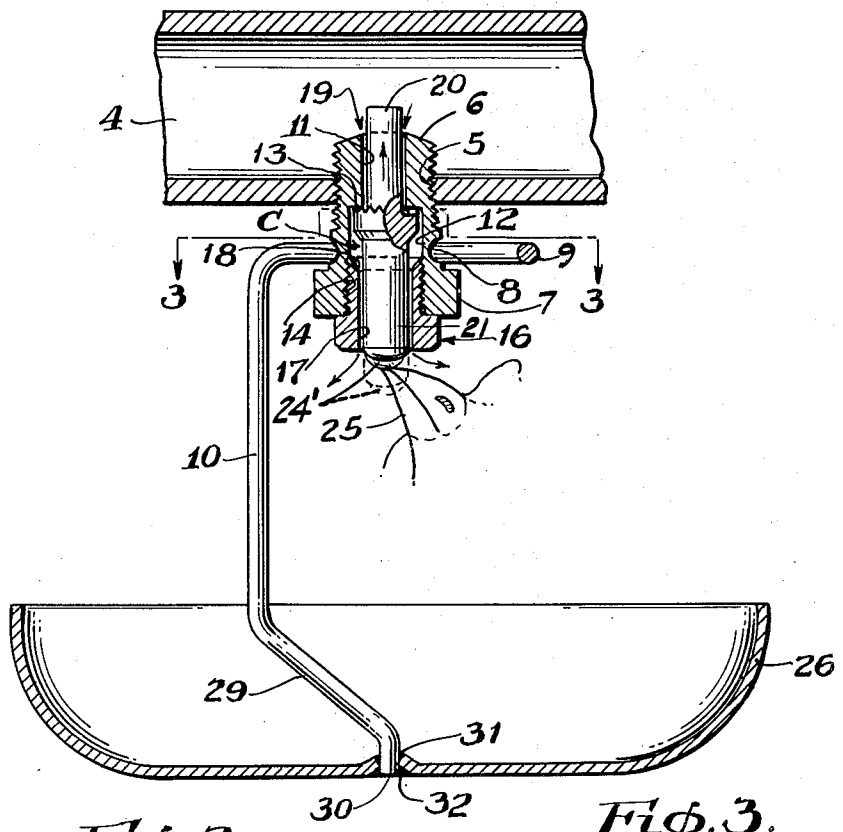


Fig. 2.

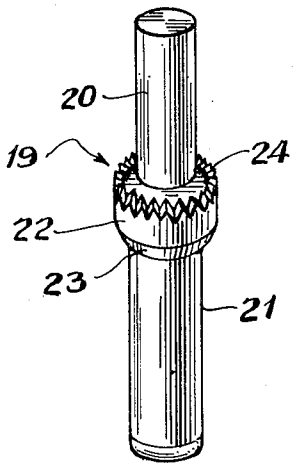
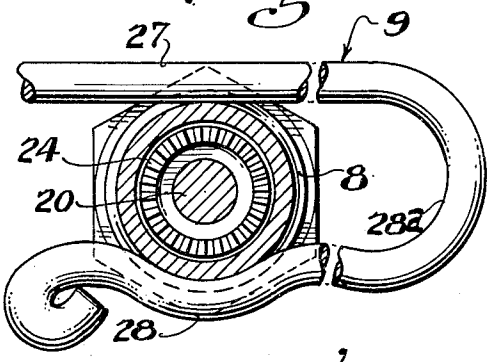


Fig. 3.



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WATER DISPENSER FOR POULTRY

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4 Claims. (Cl. 119—72.5)

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The present invention relates to a water dispenser for poultry and drip cup therefor.

More specifically the invention pertains to a water dispensing valve automatically operable by the beak of a fowl when pressed against the valve's plunger, the body portion of the valve being constructed in a peculiar manner so as to suspendingly support a drip cup therefrom.

One of the principal objects of the invention is to provide a self-cleaning water dispensing valve wherein the valve plunger's seat is located intermediate the ends of the valve.

Another object of the invention is to provide for the removal of the valve's plunger without removing the body portion from its screwed-in or attached position. The advantage therein gained is that the threads of the water conduit into which the body portion of the valve is screwed do not become ruptured and cause subsequent leaks as would be the case where the valve body had to be removed from time to time for cleaning purposes and inspection.

Another object of the invention is to provide an improved combination of gravity operable, self-closing drinking jet and detachable drip cup wherein the drip from the jet is caught in the cup and subsequently consumed by the fowl without wastage and at the same time enhancing the sanitary conditions in poultry houses and yards.

Still another object of the invention is to provide in a device of the above character, means whereby when the valve plunger is retracted to the limit of its travel water will not be impeded from its natural course of flow.

A still further object is to carry forward the aims and objects set forth in my co-pending application filed June 30, 1947, Ser. No. 758,139, which has matured into Patent Number 2,457,159.

Other objects, advantages and features of invention will hereinafter appear.

Referring to the accompanying drawing, wherein is shown a preferred embodiment of the invention,

Fig. 1 is a vertical midsection of the improvement, the complete unit being attached to an overhead supply pipe, only a fragment of which is shown. A portion of the elements in the combination are fragmentarily shown in side elevation. The flow controlling plunger is shown open in full lines and closed in dotted lines.

Fig. 2 is a perspective view of the valve plunger per se on a larger scale than that shown in Fig. 1.

Fig. 3 is a fragmentary cross section on zig-zag line 3—3 of Fig. 1 on a still further increased scale.

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Referring in detail to the drawing therein is shown a fragment of a horizontal overhead supply pipe 4 having tapped through its lower side a circular screwthreaded aperture 5 into which is screwed an elongated valve casing formed in part by a screwthreaded valve body 6 having a polygonally shaped head 7. Adjacent said head is molded or cut into the valve body a circumferential groove 8 in which is seated the looped part of the hairpin supporting portion 9 of the cup-suspending rod 10.

The valve body 6 has through it an axial passage consisting of two bores 11 and 12 of unequal diameters. The bore 11 is of lesser diameter than the bore 12 and hence where the two bores meet there is formed an annular shoulder 13.

The bore 12 is partially threaded at 14 and between this partially threaded portion and said shoulder 13 the bore 12 is plain like the bore 11.

Into said threaded portion 14 of the valve body is screwed the threaded part of an externally screw-threaded bushing 16 provided with an axial bore 17 and having formed in the end thereof opposite its polygonal head an inwardly tapering valve seat 18. Said head of said bushing underlies and abuts against the head 7 in the fully screwed-in position of the bushing.

Within the valve body 6 and bushing 16 is adjustably mounted a valve plunger 19, said plunger being provided with a circular stem portion 20 which fits loosely in the bore 11, a circular body portion 21 of greater diameter than said stem which fits loosely in the bore 17, and a circular head 22 of greater diameter than said body portion. Said head 22 fits loosely within the plain bored chamber C which lies between said seat 18 and said shoulder 13. Said head where it is joined onto said body portion 21 is tapered so as to form a valve portion 23 corresponding to the taper of the valve seat 18 and normally rests thereon except when the lower end of the body portion 21 is contacted by the beak of a fowl to raise it from dotted position to full line position as shown in Fig. 1 or to some other position wherein the head occupies a position intermediate the seat 18 and shoulder 13.

In order not to cut off the flow of water from the pipe 4 to the fowl whose beak elevates the plunger, in the event the plunger is lifted to its extreme vertical position wherein the upper face of the head abuts the shoulder 13, I knurl or otherwise mill the peripheral portion of the face of the head as indicated at 24 in Fig. 2 so as to provide V-shaped drainage depressions extending in the same direction as the axis of the

plunger, which permit the clearance space around the stem 20 to communicate at all times with the chamber C surrounding the head and in turn liquid to flow from the pipe 4 and drip from the lower end of the plunger in a stream of drops as indicated by the numeral 24' for the fowl to water upon.

The upper end of the valve body 6 when screwed into the aperture 5 of the pipe is caused to project above the lower inside face of the pipe 4 for the reason that sediment collects in the bottom of the pipe and hence otherwise might enter and thereby clog up the annular space around the upper end of the stem 20. However, if for any reason sediment might enter such space, when the fowl's beak 25 elevates the stem, such particles will be dislodged and this result establishes the self-cleaning principle of the invention.

In order to conserve water which otherwise might be directed downwardly into a sewer and wasted and to improve upon the sanitary condition in poultry houses and yards in case dripping water is permitted to fall upon the ground, there is secured to the rod 10 a drip cup or receptacle 26 wherein any unused water may collect and be subsequently consumed by the fowls.

As viewed in Fig. 3 it will be seen the looped portion 9 has an inner run 27 and an outer run 28, the latter run having an outcurved portion 28a enabling the spring-on loop to conform in a better gripping manner to the circular outline of the valve body around which it is sprung. The lower end portion of the wire 10 is shown with a deflected run 29 terminating in a downwardly directed end portion 30. Said portion 30 is secured to the center of the circular cup 26 in any suitable manner as for example by passing it through an apertured indentation 31 and filling the bottom recess created by said indentation with solder or a spot weld 32.

I claim:

1. A valve screwable upstandingly into an overhead supply means and operable by the beak of a fowl pressed against a vertically movable plunger contained in the valve to by-pass water through the valve to the fowl for drinking purposes and automatically closable by gravity when the pressure of the fowl's beak is removed; said valve comprising a valve body having an axial passage therethrough including two bores of different diameters, the bore of lesser diameter being located superjacent the bore of greater diameter and where said bores meet there being a shoulder formed which lies intermediate the ends of said valve body, a plunger mounted in said axial passage of said valve body, said plunger being insertable into and removable from the valve body from its lower open side, said plunger having a stem vertically slidable in said lesser diameter bore, a body portion vertically slidable in said greater diameter bore, and a head intermediate the stem of the plunger and its said body portion, the mouth end of said bore of greater diameter being screwthreaded, a screwthreaded tubular bushing threaded into said screwthreaded bore with the body portion of the plunger occupying the tubular portion of the bushing and with the end portion thereof normally projecting slightly through such tubular portion to be contacted by the beak of the fowl, the screwthreaded end of said bushing being provided with a taper to form a valve seat and a corresponding taper carried by the lower side of said head to cooperate with said seat to close the valve, there being a chamber space between said seat and said shoulder in which said head is vertically adjustable, there being a clearance space around said plunger so that, when the same is elevated by a fowl's beak to unseat said head from said valve seat, water flows past said plunger into the mouth of the fowl for consumption, said head contacting said shoulder to limit the plunger's upward travel, and the portion of said head which contacts said shoulder having formed therein and therearound a plurality of circumferentially spaced V-shaped drainage depressions to convey the liquid passing around said plunger stem into the chamber surrounding said head, said depressions extending in the same direction as the axis of said plunger.

2. A poultry drinking valve screwable upstandingly into an overhead water supply means, said valve comprising a valve body having an axial passage therethrough including two bores of different diameters, the bore of lesser diameter being located superjacent the bore of greater diameter, where said bores meet there being formed a shoulder which lies intermediate the ends of said valve body, a plunger mounted in said axial passage of said valve body, said plunger being insertable into and removable from the valve body from its lower side, said plunger having a stem vertically slidable in said lesser diameter bore, a body portion vertically slidable in said greater diameter bore, and a head intermediate the stem of the plunger and its said body portion, the upper side of said head contacting said shoulder at the upper limit of the plunger's travel, said upper side of said head having drainage depressions formed therein whereby when said head has been elevated to the position aforesaid to by-pass water past said plunger into a fowl's beak being applied to the lower end of said plunger, the mouth end portion of said bore of greater diameter being screwthreaded, a screwthreaded tubular bushing threaded into said screwthreaded bore with the body portion of the plunger occupying the tubular portion of the bushing and with the end portion thereof normally projecting slightly through such tubular portion to be contacted by the beak of a fowl, the screwthreaded end of said bushing being provided with a taper to form a valve seat and a corresponding taper carried by the lower side of said valve head to cooperate with said seat to close the valve, there being a chamber space between said seat and said shoulder in which said head is vertically adjustable, there being a clearance space surrounding said plunger so that, when the same is elevated by a fowl's beak to unseat said head from said valve seat, water flows past said plunger into the mouth of a fowl for consumption, said stem being detachable from the valve unit as a whole in the assembled relation of the valve and overhead water supply means by completely unscrewing said bushing.

3. In a drinking device for fowls, an elongated valve casing having through it a longitudinal passage with a diametrical enlargement between its ends, a valve plunger slidably mounted within said passage, end portions of said plunger occupying the portions of said passage at each side of said enlargement thereof, said valve casing being vertically mounted with a downwardly facing annular shoulder at the upper end of said enlargement and an annular upwardly facing valve seat at the lower end of said enlargement, said plunger having between its end portions a diametrical enlargement forming a head, the lower

side of said head having a downwardly facing annular valve seating surface seatable upon said annular upwardly facing valve seat when said valve plunger is in its normal position, to obstruct flow of liquid around said plunger through said valve casing, the upper side of said head being abuttable against said downwardly facing annular valve seat to limit the upward travel of said plunger when the latter is elevated by a fowl's bill, said head being provided in its top surface with a plurality of liquid flow passages to by-pass water past said head when the latter is elevated as aforesaid, said plunger being vertically movable and having a lower end portion that normally projects slightly below said valve casing to enable a fowl by upward pressure of its bill thereagainst to open the valve against the opposition of gravity.

4. An elongated valve body screwed upstandingly into an overhead supply means, said valve body having an axial liquid outlet passage extending therethrough which consists of two axially alined bores of different diameters, the bore of lesser diameter being located superjacent the bore of greater diameter, where said bores meet there being a shoulder formed, a plunger mounted in said axial passage of said valve body, said plunger being insertable into and removable from said valve body from its open lower side and having an axial stem slidable in said bore of

lesser diameter and a body portion slidable in said bore of greater diameter, and a head carried by said plunger intermediate its said stem and body portion, an annular valve seat within said valve body in a surrounding relation to said plunger, said plunger normally gravitating to a position wherein its said head engages said valve seat and obstructs downward flow of the liquid therepast, said plunger being constructed and arranged to afford, when in its most elevated position, outflow means between it and said valve body, said outlet means conducting liquid from said supply means to the exterior surface of the lower extremity of said plunger.

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