Dec. 20, 1927. 1,653,525

O. C. WHITE

AUTOMATIC DRINKING FOUNTAIN

Filed Oct. 11, 1924

Fig. 1.

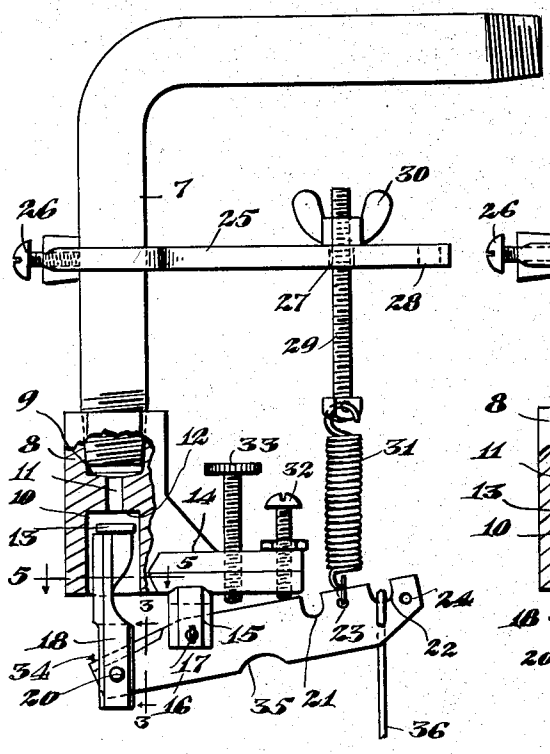


Fig. 2.

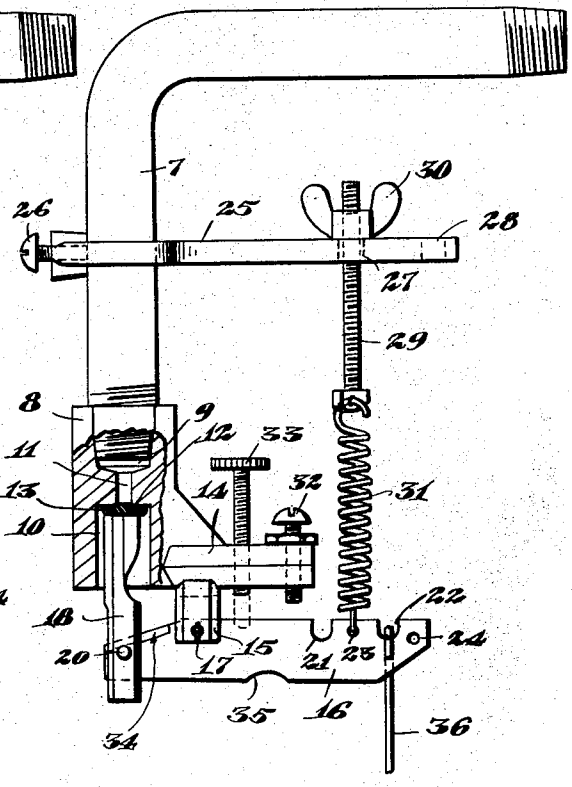


Fig. 3.

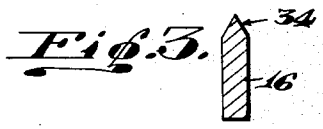


Fig. 5.

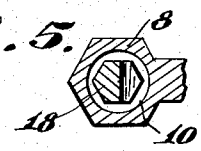
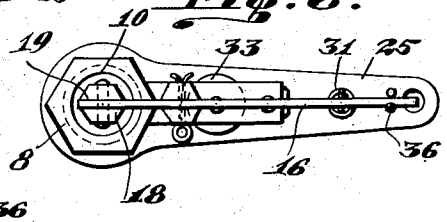


Fig. 4.

Fig. 6.



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UNITED STATES PATENT OFFICE.

OLIVER C. WHITE, OF GARDENA, CALIFORNIA.

AUTOMATIC DRINKING FOUNTAIN.

Application filed October 11, 1924. Serial No. 743,083.

This invention relates to an automatic fountain which is especially adapted for use as a drinking fountain for animals and poultry, and particularly pertains to a valve control for regulating the discharge of water from the fountain.

It is the object of this invention to provide a fountain embodying a regulating valve which is adapted to be automatically operated to maintain a substantially uniform volume of water in a receptacle.

Another object is to provide apparatus of the above character which is durable and not liable to get out of order and which embodies a self seating valve which will effectively cut off the water supply when closed, permit a free flow of water when open, and which is not apt to wear excessively and cause leakage.

Another object is to provide means for operating a normally open valve so that it will close under a load and adjustable to close under various predetermined loads, and a further object is to provide means whereby the valve may be fastened in a closed position when occasion requires.

Other objects will appear hereinafter.

The invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a view in side elevation partly in vertical section of the valve and valve control mechanism of my drinking fountain showing the valve in its open position;

Figure 2 is a view of the structure shown in Figure 1 showing the valve in its closed position;

Figure 3 is a vertical section taken through the valve operating lever at a point beneath the outlet of the valve casing;

Figure 4 is a side elevation of my drinking fountain complete;

Figure 5 is a detail in section as seen on the line 5—5 of Figure 1;

Figure 6 is an inverted plan view of the valve and its operating mechanism.

More specifically, 7 indicates a downwardly extending water pipe which is connected to any suitable source of water supply, the lower end of which is screwed into the upper end of a valve casing 8 to support said casing; the end of said pipe being threaded to engage a threaded recess 9 in the upper end of said casing. The casing 8 is preferably hexagonal in shape to receive a wrench whereby it may be screwed onto the end of the pipe and is provided with a bore 10 extending upwardly from its lower end and has a valve opening 11 connecting the recess 9 to the upper end of the bore. The upper end of the bore forms a seat 12 to receive an elastic disk valve 13 which freely fits in the upper end of the bore with its periphery spaced from the sides of the bore to afford a passage for water around the margin of the disk valve.

A bracket 14 extends horizontally from the lower portion of the valve casing and a yoke 15 depends vertically from the bracket, in which yoke is mounted a lever 16 which is pivoted in said yoke by means of a pivot pin 17. A plunger 18, preferably hexagonal in cross section, extends into the bore 10 on the upper end of which seats the valve 13. The disc valve 13 is loose and merely rides on the upper end of the plunger thus obviating screws or other fastenings therefor. The plunger is provided with a slot 19 extending longitudinally from the lower end thereof, into which slot one end of the lever 16 extends and the lever and plunger are pivotally connected together by a pivot pin 20. The lever 16 is provided with notches 21 and 22 in its upper edge on the side of the pivot pin 17 opposite to the side of said pivot to which the lever is pivoted to the plunger and the lever is provided with apertures 23 and 24, the aperture 23 being located at the side of the notch 22 opposite the side at which the aperture 23 is located. A bracket is adjustably mounted on the pipe 7 above the bracket 14 on the valve casing in suitable spaced relation thereto; the bracket being formed at one end with an aperture to receive the pipe 7 and having a set screw 26 adapted to engage the pipe 7 to rigidly hold the bracket in position thereon. The outer end portion of the bracket is formed with openings 27 and 28 in either of which is positioned a threaded stem 29 fitted with a thumb nut 30 which seats on the upper face of the bracket. A coil spring 31 is connected at its upper end to the lower end of the threaded stem 29 and is connected at its lower end to the lever 16 through either aperture 23 or 24, according to the opening 27 or 28 in the bracket 25 in which the threaded stem may be located. When the threaded stem is positioned in the opening 27 the lower end of the spring 31 is connected to the lever 16 through the aperture 23, and when

said threaded stem is located in the opening 28 the lower end of the spring is connected to the lever through the aperture 24.

A screw 32 extends vertically through the outer end portion of the bracket 14; the lower end of the screw being adapted to extend beneath the bracket 14 to form a stop or abutment for the lever 16 to limit the upward movement of the outer end portion of the latter under action of the spring 31. The screw serves as a means for limiting the extent of opening of the valve and affords means whereby opening of the valve may be adjusted and the discharge of water therethrough may be regulated according to the pressure of the water in the particular water feed pipe to which the device is applied. The valve must be set, by means of screw 32, to open a less distance for heavy water pressures than for lighter pressures.

A supplemental screw 33 is threaded in the bracket 14 with its end arranged above the lever 16, which screw is provided for the purpose of affording means whereby the valve may be fastened in a closed position in opposition to the spring 31 when so desired and which is accomplished by advancing the screw 33 so as to cause it to depress the outer end portion of the lever 16 sufficiently to cause the lever to move the plunger upwardly and seat the valve 13 on the valve seat 12. This closing of the valve, however, can be effected by means of the screw 32, but by providing the supplemental screw 33 for this purpose, the adjustment of the screw 32 need not be disturbed, as would be the case if it were employed to hold the valve closed. The upper edge of the lever 16 at the inner end portion thereof connecting with the plunger 18 is tapered as indicated at 34 to form a knife edge on the portion of the lever extending beneath the bore 10 so as to direct water discharged fom the bore in a downward direction, thereby minimizing the spread of the water occasioned by its striking lever 16; and formed on the lower edge of the lever 16 intermediate its ends is a notch 35 adapted to cause water tending to flow along the length of the under side of the lever to drop at the notch.

Engaged with either of the notches 21 and 22 is a hanger 36 the lower end of which is attached to one end of a pan 37 constituting a water receptacle, the opposite end of which pan is connected by a hinge 38 to a base 39; the pan being thus supported for vertical movement clear of the ground beneath the valve.

In the operation of the invention the spring 31 acts on the lever 16 to normally maintain the plunger 18 in its lower-most position whereby the valve is normally held open as shown in Figure 1 so that water will discharge from the pipe 7 and be delivered to the pan 37; the extent of opening of the valve being governed by the regulating screw 32. The weight of the pan and its water content exerts a downward pull on the lever 16 and when this load is sufficient to overcome the tension of the spring 31 the lever 16 will be rocked in opposition to the spring so as to cause the valve to move to its closed position, so as to cut off the supply of water to the pan when a predetermined volume of water has been delivered to and is contained by the latter. When the water in the pan is diminished sufficiently so that the spring 31 will lift the outer end of the lever 16 in opposition to the load of the pan and its contents the valve will be automatically opened so as to deliver the supply of water to the pan to replenish the supply and thereby maintain a substantially uniform volume of water in the pan. The volume of water to be contained in the pan may be varied by adjusting the tension of the spring 31 which is effected by means of the thumb screw 30.

By providing the lever 16 with the pair of notches 21—22 and a pair of apertures 23 and 24, and also providing the brackets 25 with the openings 27 and 28 the device is adapted for use with water receptacles of various sizes, and also affords a means of quick adjustment for varying the load necessary to close the valve in opposition to the spring 31. For example, by engaging the hanger 36 with the innermost notch 21, which is closer to the fulcrum of the lever than the notch 22, a greater load will be required to actuate the lever in opposition to the spring 31; and in like manner, by placing the threaded stem in the outermost opening 28 on the bracket 25 with the spring 31 engaged with the outermost opening on the lever 24 on the lever 16, a still greater load will be required to effect operation of the lever to close the valve.

The device is adapted to be applied to the depending vertical pipe 7, with the lever 16 and brackets 14 and 25 extending radially therefrom in any desired direction, as both the valve casing 8 and the bracket 25 may be turned to various positions around the circumference of the pipe.

What I claim is:—

1. In a valve of the class described a casing having an inlet, an outlet and a bore of lesser diameter than the outlet, between the inlet and outlet, a valve operating lever, a valve plunger pivotally supported by the lever and having its upper end extended into the outlet of the casing, said upper end having a sectional contour differing from the contour of the outlet to provide continuously open passages therearound and a valve disc loosely rested on the upper end of the plunger.

2. A valve of the class described compris-

ing a casing having an integral laterally extending bracket, a valve operating lever pivotally secured to the bracket, a water receptacle suspended from the operating lever, a counterbalance for said receptacle, said counterbalance acting to hold the operating lever normally in valve opening position, a flow control device for limiting the movement of the operating lever in a valve opening direction, and means carried by said bracket independent of the flow control device for moving and holding the operating lever to valve closing position.

3. An automatic drinking fountain comprising, in combination with a supply pipe, a casing attached to said pipe and having a laterally extending bracket, a valve operating lever pivotally secured to said bracket at a distance from the outer end thereof, a water drinking receptacle suspended from said bracket, a spring acting in opposition to the weight of said receptacle and its contents to hold said lever normally in valve opening position, and a pair of screws located on said bracket between the pivot of said lever and the outer end of said bracket to control the position and movement of said lever, one of said screws limiting the normal opening movement of the valve, and the other screw being adapted to move the valve to completely closed position.

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