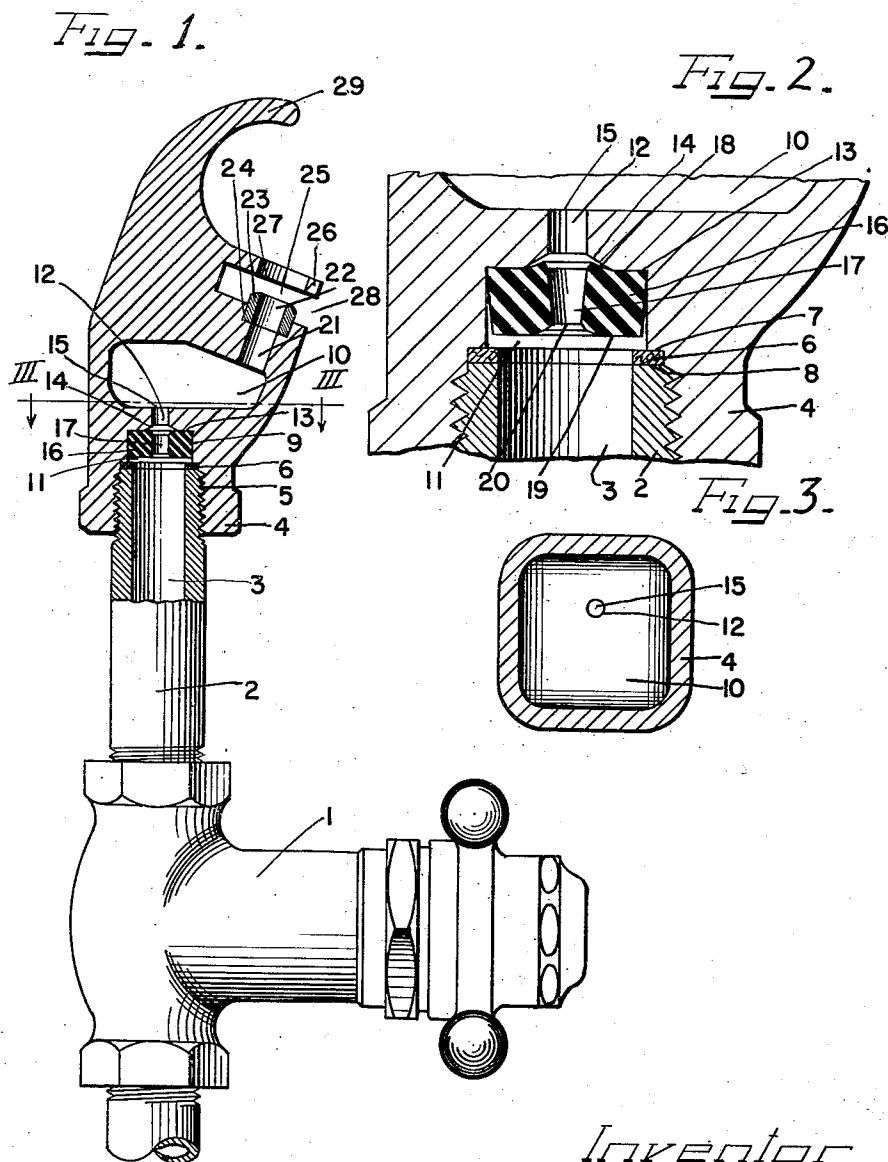


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DRINKING FOUNTAIN APPARATUS

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DRINKING FOUNTAIN APPARATUS

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1 Claim. (Cl. 299—15)

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This invention relates to a drinking fountain apparatus and more particularly to a bubbler head and associated parts.

One of the principal features and objects of the present invention is to provide a bubbler head for automatically maintaining a substantially constant rate of fluid flow to the bubbler head, irrespective of variations in inlet or outlet pressures.

Another object of the invention is to provide a novel drinking fountain apparatus which is so constructed that any attempt to interfere with the issuance of a stream of liquid from the discharge opening will cause the liquid to bypass the opening and flow into the fountain bowl without splashing.

Another object of this invention is to provide within the above-described apparatus a pressure head chamber so that a smooth and even stream of liquid will be discharged from the discharge orifice.

Still another object of this invention is to provide in a bubbler head for the discharge of a stream of liquid at an angle so that excess liquid will not fall back on the discharge orifice, thus creating an unsanitary condition.

Another and further object of this invention is to provide a novel bubbler-head construction such that when the drinking apparatus is used, the person so using will not put his lips against the discharge orifice.

In accordance with the features of the present invention, there is provided a drinking fountain apparatus with a novel flow control device including a resilient annular member having an orifice of novel shape therein through which fluid is arranged to pass and by which a constant flow of fluid will be supplied to the bubbler-head irrespective of pressures in the inlet pipe.

The novel features which I believe to be characteristic of my invention are set forth with particularity in the appended claim. My invention itself, however, both as to its manner of construction and method of operation, together with other and further objects and advantages, may best be understood by reference to the following description, taken in connection with the accompanying drawings, in which:

Figure 1 is a side view of a drinking fountain apparatus partially in elevation and partially in vertical cross section, embodying the instant invention;

Figure 2 is a fragmentary vertical section of the bubbler-head and a vertical sectional view of the flow control device in the position it occupies when fluid is passing through the device; and

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Figure 3 is a horizontal sectional view of the device as seen along the line III—III of Figure 1.

It will, of course, be understood that like numerals refer to like parts throughout the several figures of the drawings.

Referring now to the drawings, wherein I have shown one form of drinking fountain apparatus embodying the invention, the construction illustrated has a shut-off valve 1 which may be of any suitable known or approved construction. Threadedly connected to said shut-off valve is an inlet pipe 2 having a passageway 3 therethrough for carrying water to the bubbler-head 4 from the shut-off valve. The opposite end of the inlet pipe is threadedly engaged at 5 to the bubbler-head 4. A washer 6 is bottomed on a shoulder 7 (Figure 2) and is kept in position by means of the inlet pipe 2 bearing against its surface at 8. The washer acts as a seal to prevent leakage between the threads of the inlet pipe and bubbler-head.

Within the bubbler-head 4 (Figure 2) is a flow-control passageway 9 connecting the inlet pipe with a pressure head chamber 10. The flow control passageway 9 is formed in two sections, an enlarged inlet section 11 and a reduced outlet section 12. A shoulder 13 is formed where the two sections connect. The reduced outlet section 12 has a slightly flared or counterbored surface 14 which merges into the flat shoulder 13. The opposite end of the reduced outlet section 12 opens into the pressure head chamber at 15.

Located within the enlarged section 11 of the passageway 9 and resting upon the shoulder 13 is a resilient or elastic annular member 16 generally in the shape of a washer or flat disk formed of elastic material, such as rubber or of some known substitute for rubber. The member 16 has a central opening 17 extending therethrough which is smaller in cross sectional area than the flared section of the passageway at 14. By having this opening 17 smaller than the flared section 14 of the passageway 9 there is provided a projecting portion 18 of the member 16 which extends inwardly beyond the flared surface of the reduced section 12. The outside diameter of the resilient annular member 16 is such as to permit the member to fit snugly within the enlarged section 11 against the shoulder 13.

As shown in Figure 2, when fluid is passed through the device the pressure of the fluid upon the underface or side 19 of the member 16 causes the elastic material around the opening 17 to be distorted, a portion of the material being pressed into the counterbored portion 14 of the passageway 12. This distortion of the material of the member 16 causes the portion 20 of the opening

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17 in the face of said member upon which the pressure of the fluid is applied to be reduced in size or cross sectional area. As shown in Figure 2, the central opening 17 of the ring 16 assumes substantially a frusto-conical-like shape with the restricted throat facing the inlet passage 3. This reduction in size of the ring opening increases as the pressure of the fluid on the surface of the member increases, and decreases in size as the pressure of the fluid on the surface of the member decreases. By this means the effective opening through the member 16 is thus automatically varied by the pressure of the fluid delivered to the fountain so as to maintain a constant rate of flow through the device irrespective of the pressure of the fluid delivered to the fountain from the inlet pipe 2.

The opening 15 of the flow control passageway opens into the enlarged chamber 10 which acts as a pressure head to regulate the flow from the flow control device. When the pressure in the inlet pipe is high, the opening 20 will be reduced in size and the liquid coming from the flow control device will be in a very fine stream and issuing at high velocity. If this stream were allowed to emerge directly into the atmosphere at this point, it would be difficult to drink from the fountain. Therefore, in order to control the height and amount of flow to be discharged into the atmosphere, the chamber 10 is located intermediate the opening 15 and an outlet passageway 21 (Figure 1). The cross-sectional area of the chamber 10 is directly proportional to the opening 15 of the flow control device, so that the liquid forced out by pressure of the incoming liquid at 15 will be of regulated height and amount.

The discharge passageway 21 extends in obliquely disposed relation to the axis of inlet pipe 2, so that the stream from the discharge outlet will not fall back upon the bubbler head. At the outlet end 22 of the passageway 21 a hollow bushing 23 is inserted into a recess 24 of the outlet passageway 21 and secured by any suitable means, such as by a press fit. This bushing 23 extends upwardly into a bypass 25. The purpose of bushing 23 is to cooperate with the guard in preventing anyone from inserting a finger between the ring guard and the outlet to cause the liquid to spurt in all directions.

The ring guard 26 is a projection of the head member 4, annular in form at its outer end with an opening 27 extending therethrough to allow the liquid to reach the atmosphere from discharge opening 22. The ring guard 26 forms with the head 4 a bypass 25 in angular relation to the ring guard. If someone puts his finger over the opening in the ring guard, thus closing the opening, the liquid will flow into the bypass and out of the bypass opening 28. It will thus be clear that squirting of liquid from the outlet is effectively prevented.

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A projection 29 of the head extends in a curve upwardly and over the recess for drinking and in spaced relation to the ring guard, so that a person taking a drink cannot put his lips on the ring guard surface.

The use and operation of my invention is as follows:

In assembling the apparatus the member 16 is placed in the enlarged portion of the flow control passageway within the bubbler-head. The liquid supply pipe is attached to the shut-off valve. The shut-off valve is threadedly engaged at one end of the inlet pipe 2 and the bubbler-head threadedly engaged at the other end, with the washer 6 sealing the threads of the pipe and head. When the shut-off valve is opened liquid under pressure will enter the flow control passageway. The flow control device will regulate the rate of flow. Liquid enters the pressure-head chamber which regulates the amount and height of the stream issuing into atmosphere. The by-pass, insert and ring guard prevents any attempt to squirt liquid from the fountain.

It will, of course, be understood that various details of construction may be varied through a wide range without departing from the principles of this invention, and it is therefore not the purpose to limit the patent granted hereon otherwise than necessitated by the scope of the appended claim.

I claim as my invention:

In a bubbler fountain including a body having an inlet, a generally upwardly directed discharge orifice and a fluid pressure expansion chamber between the inlet and discharge orifices, said body having a portion adjoining said chamber recessed in a direction away from said chamber and defining a centrally apertured shoulder communicating with said chamber, a pressure responsive annular flow control rubber between the inlet and pressure chamber seated on said shoulder in said recessed portion in juxta-opposed relation to said chamber to control automatically, in response to the pressure of the incoming fluid, the flow of fluid into said chamber and upwardly out of said orifice, said rubber being deflectable upwardly at its center in the aperture of the shoulder toward and adjacent to said chamber.

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