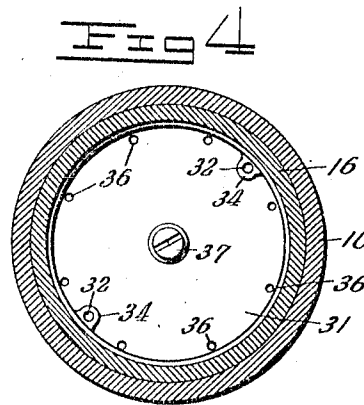
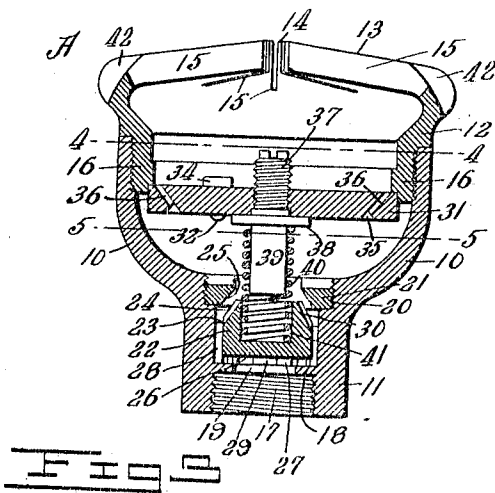
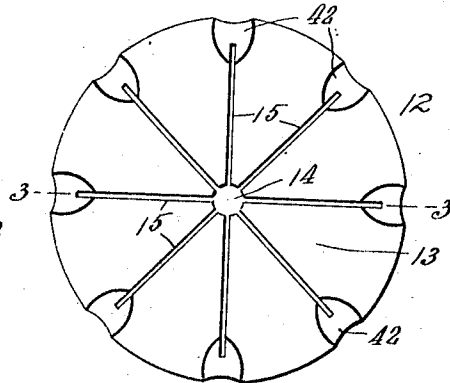
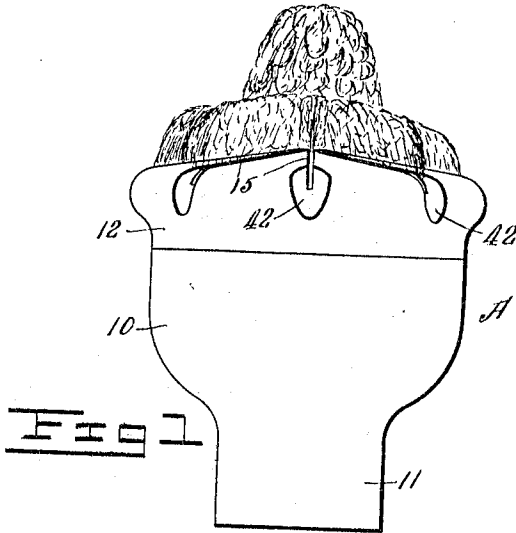


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DRINKING FOUNTAIN.

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1,054,306.

Patented Feb. 25, 1913.



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DRINKING-FOUNTAIN.

1,054,306.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, PHILIP MUELLER and ANTON C. SCHUERMAN, citizens of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented new and useful Improvements in Drinking-Fountains, of which the following is a specification.

This invention relates to drinking fountains, and has for its primary object to provide a thoroughly sanitary nozzle to be used with drinking fountains designed for installation in public places, and of that type wherein drinking cups are not employed, the drinker placing his mouth directly over the upwardly flowing or bubbling stream of water when he desires to assuage his thirst. The nozzle is so constructed that a person drinking therefrom cannot contaminate the same by placing his lips or any part of his face in contact therewith without having his face and nose filled with water. To attain this end, the nozzle of the present invention has an outlet end of relative large diameter, the upper surface of which is preferably slightly conical in shape, through the apex of which is an opening for the main drinking stream. Radiating from said opening are narrow slots extending toward the periphery of the nozzle through which flow upwardly thin but broad protecting streams directed edgewise toward the main or drinking stream with which they commingle, said protecting streams flowing into the face of the user should he attempt to touch the nozzle with his lips. The main and protecting streams uniting, produce a bubbling effect and supply at the top of the stream of water in sufficient quantity to satisfy the most thirsty.

Another object of the invention is to produce a nozzle from which flows upwardly a gentle bubbling stream to which the mouth is directly applied and thus avoid the use of a cupped or bowl shaped receptacle from which to drink and in which filth accumulates, or is maliciously thrown. This nozzle is made self-cleaning by tapering outwardly and downwardly like a flattened cone, the outlet end or top of the nozzle, so that if any disease germs or bacteria of any communicable diseases should fall thereon, the large flow of water issuing from the nozzle and falling back thereon would quickly wash

them from the nozzle into the waste receptacle provided for the overflow.

With these and other objects in view the invention consists of the novel construction, combination and arrangement of parts hereinafter described in detail, and illustrated in the accompanying drawing, in which—

Figure 1 is an elevation of the improved drinking fountain nozzle. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical central section on the line 3—3, Fig. 2. Fig. 4 is a horizontal sectional view on the line 4—4, Fig. 3.

In the drawings, wherein like reference characters are used to designate the same parts in all the figures, A indicates a drinking nozzle, the body 10 of which is made, preferably, in the shape of a cup, open at the top and provided with an extension or neck 11 on its lower end. The mouth of the cup or body 10 is interiorly screw threaded for the attachment of a hollow cap 12, preferably circular in shape and of relatively large diameter, the exposed top surface 13 of which inclines downwardly and outwardly from a central orifice 14 for the main drinking stream. Through the dome or face of the cap 12, a plurality of slots 15 extend from the orifice 14 in a radial direction nearly or quite to the periphery of the cap. In the instance shown these slots open into the orifice 14. Through the slots flow thin, broad streams of water in substantially the same direction as the flow of the drinking stream, when the fountain is in use, that intermingle with the main drinking stream and produce a gentle, upwardly bubbling flow of water, from which a person can drink with great ease and comfort. A cylindrical rim 16 projects downwardly from the bottom of the cap and is exteriorly screw threaded to engage the complementary screw thread in the mouth of the body 10.

Through the neck 11 is a central bore 17 communicating with the bottom of the body 10, and divided by a horizontal diaphragm 18 having a central opening 19. Below the diaphragm 18 the bore 17 is screw threaded for attaching the nozzle A to an inlet pipe; the upper end of said bore is counter-bored from within the body, or otherwise enlarged downwardly at 20, for a suitable distance and interiorly screw threaded for the reception of a removable annular valve seat 21

having an exterior peripheral screw thread, as represented in Fig. 3.

Within the bore 17 between the perforated diaphragm 18 and the valve seat 21 is placed a regulating valve 22 of such diameter and length as to fit snugly within said bore and move freely therein for a limited distance in an axial direction. The regulating valve 22 is cylindrical from its lower end nearly to its upper end where it is reduced in diameter for a short distance, making a shoulder 23 and then tapers inwardly to form a frusto-conical end 24 which, when the valve is raised, contacts with a similarly shaped surface 25 on the valve seat 21. The bottom of the valve is recessed at 26 to form a flange 27 that bears on the diaphragm 18 when no water is flowing through the nozzle. A number of parallel longitudinal grooves 28 are cut in the outer periphery of the valve body from its bottom to the shoulder 23 said grooves extending through the bottom flange 27, and forming a series of notches 29 therein. The frusto-conical upper end 24 is also grooved at 30 in line with and forming continuations of the grooves 28, but are narrower and shallower than the latter grooves, the purpose of the grooves being described hereinafter.

To prevent a too rapid flow of water through the nozzle, a baffle plate 31 is placed across the hollow body 10. This plate is in the form of a disk preferably seated on and closing the bottom of the hollow cap 12 and fastened thereto by screws 32 passing through holes near the periphery of the baffle plate and into lugs 34 projecting from the sides of the rim 16 of the cap, or by other suitable means. A groove or channel 35, concentric with the axis of the baffle plate, is made in the underside of said plate from which channel a number of small outwardly diverging perforations 36 are bored through the plate so as to project the water flowing therethrough against the side wall of the cap or its rim 16. The perforations 36 are positioned not immediately below the slots 15, but somewhere between two of said slots and thus avoid all chance of water from the perforations spurting up through the slots.

In the center of the baffle plate 31, below the outlet 14, a hole is bored and screw threaded to receive an adjusting or regulating screw 37, provided on its lower end below the baffle plate, with a disk or collar 38 and having its upper end notched so that a screw driver inserted in the outlet 14 may turn the screw. Projecting downwardly from the disk or collar 38 is a pin 39 surrounded by a compression spring 40, one end of which bears against said collar 38, the other end being seated in a recess 41 in the top of the regulating valve 22.

In many forms of drinking fountain noz-

zles, boys and other mischievous persons often place a finger over the outlet and deflect the drinking stream out of its proper course and over their companions. To prevent this a depression 42 is made in the edge of the cap 12 at the outer end of each slot 15, intersecting the same and providing a lateral exit for the water from said slots should the entire top of the nozzle be covered by the hand or other means; a difficult operation under any circumstances, because of the size of the cap and the radial position and extension of the slots.

With the nozzle in place and the water turned on, the stream will bubble up from the nozzle as shown in Fig. 1. Water entering through the bore 17 strikes the bottom of the regulating valve 22 and raises it, more or less depending on the water pressure, against the resistance of spring 40 which can be increased or diminished by turning the screw 37. All water entering the drinking nozzle passes through the notches 29 in the flange 27 of said valve, thence up along the grooves 28 and 30 to and through the valve seat 21 into the body 10 of the nozzle. Here the force of the water is retarded by the baffle plate 31, but passing through the divergent perforations 36 in said plate the water strikes against the sides of the cap rim 16, filling said cap and escaping through the outlet 14 and slots 15. Under ordinary low pressure, the valve 22 is raised only a short distance above the diaphragm 18, not sufficient to cause the valve to contact with its seat 21, hence there is no impediment to the flow of such water as passes through the grooves 28 around the valve. Should, however, the pressure be greatly increased, the force of the spring 40 would be overcome and the valve closed against its seat, preventing any water from passing to the nozzle except through the narrow and shallow grooves 30 in the frusto-conical top of the valve, but this amount under the greater pressure is sufficient to keep the drinking stream at its normal height. With a water pressure intermediate the extremes the valve, under the action of the spring 40, will be forced from its seat a distance proportional to the water pressure, thereby regulating the volume of water passing through the nozzle outlets to the pressure.

From the above it will be apparent that under high pressure conditions the area of the water passage around the valve is decreased, while under low pressure conditions this area is increased, so that practically the same amount of water will flow from the nozzle under all conditions, the position of the valve with relation to its seat being automatically regulated by two opposing forces, that of the spring and the pressure of the water. The tension of the spring is adjusted by the screw 37 to regulate the movement of

the valve, and is determined by the pressure of the water under normal and extreme conditions. The spring is tensioned to regulate the quantity of water necessary to form a suitable drinking stream under normal conditions, and as the pressure increases or decreases, either gradually or quickly, the valve will respond to the change of pressure and reduce or increase the flow of water passing the valve.

The cap 12 may be made of metal, porcelain, glass or other suitable material, preferably smooth and polished so that no impediment, however slight, shall appear on the surface to prevent thorough washing of the same by the falling water of the drinking stream.

A nozzle for drinking fountains, constructed as described is both simple and practical and thoroughly sanitary. The device is shown in its preferred form, but it is to be understood that various changes and modifications may be made therein without departing from the spirit of the invention, as set forth in the appended claims.

Having fully described our invention, we claim:

1. A nozzle for drinking fountains comprising a hollow body having an exposed, relatively broad closure covering its outlet end through which is formed a central orifice for emission of a drinking stream, and a plurality of radiating water passages also formed through said closure and surrounding said central orifice for the emission of a nozzle-protecting water curtain, both said central orifice and said radiating water passages arranged to discharge water in substantially the same direction.

2. A nozzle for drinking fountains comprising a hollow body having an exposed, relatively broad closure covering its outlet end through which is formed a central orifice for emission of a drinking stream, and a plurality of narrow slots communicating with and radiating from said central orifice, both said central orifice and said slots arranged to discharge water in substantially the same direction.

3. A nozzle for drinking fountains comprising a hollow body having an exposed, relatively broad, smooth-faced closure covering its outlet end through which is formed a central orifice for emission of a drinking stream, and a plurality of radiating water passages also opening through the face of said closure surrounding said orifice and intersecting the same for emission of a nozzle-protecting water curtain.

4. A nozzle for drinking fountains comprising a hollow body having a relatively broad, smooth-faced closure covering its outlet end through which is formed a central orifice, and a plurality of narrow radiating slots surrounding said orifice and intersect-

ing the same, said slots extending to about the periphery of the closure and there opening outwardly below the face of the closure.

5. A nozzle for drinking fountains comprising a hollow body having an exposed, relatively broad closure of flattened conical shape through the apex of which is formed an orifice for the emission of a drinking stream, and a plurality of radiating water passages surrounding said central orifice for emission of a nozzle-protecting water curtain, both said drinking stream orifice and said radiating water passages arranged to discharge water in substantially the same direction.

6. A nozzle for drinking fountains comprising a hollow body and an exposed, broad-faced hollow cap having a central orifice therethrough for emission of a drinking stream, and a plurality of radiating water passages surrounding said central orifice, both said central orifice and said radiating water passages arranged to discharge water in substantially the same direction.

7. A nozzle for drinking fountains comprising a hollow body and an exposed hollow cap having a broad end of flattened conical shape through the apex of which is formed an orifice for the emission of a drinking stream, and a plurality of narrow radiating water passages surrounding said drinking stream orifice, both said orifice and said water passages arranged to discharge water in substantially the same direction.

8. A nozzle for drinking fountains comprising a hollow body, and an exposed broad faced cap having a central orifice in the face thereof for a drinking stream and a plurality of long narrow slots surrounding the orifice for the emission of thin sheets of water, both said central orifice and said narrow slots arranged to discharge water in substantially the same direction.

9. A nozzle for drinking fountains comprising a hollow body, and an exposed broad faced cap having a central orifice through the face thereof for a drinking stream, and a plurality of long narrow slots radiating from the central orifice and communicating therewith, through which slots water emerges in thin sheets, both said central orifice and said narrow slots arranged to discharge water in substantially the same direction.

10. A nozzle for drinking fountains comprising a hollow body and a hollow cap having a broad end of flattened conical shape through the apex of which is formed an orifice, a plurality of radiating water passages surrounding said orifice, and depressions in the periphery of said cap intersecting the outer ends of the water passages to permit water to pass outwardly from said passages.

11. A nozzle for drinking fountains com-

prising a hollow body, a broad faced-hollow cap having a central orifice and a plurality of radiating water passages surrounding said orifice formed through the end thereof, and a baffle plate having outwardly radiating perforations therethrough covering the inner end of said cap.

12. A nozzle for drinking fountains comprising a hollow body, a broad faced hollow cap having a central orifice through the end thereof, a plurality of radiating water passages surrounding said orifice, and a baffle plate removably secured to the inner end of said cap with a circular groove in its under side and diverging perforations formed through the baffle plate from said groove.

13. A nozzle for drinking fountains comprising a hollow body having an inlet opening at one end, a hollow cap covering the other end of said body and provided with outlet openings, a fixed baffle plate in said body, a valve seat, a valve within said inlet movable toward the valve seat by the pressure of the incoming water, and resilient means for actuating the valve in the opposite direction against the force of said water, said valve and its seat being so constructed that when the valve is seated a space of reduced area remains between them for the continued flow of water therebetween.

14. A nozzle for drinking fountains comprising a hollow body having an inlet at one end, a hollow cap covering the other end of said body and provided with outlet openings, a stationary removable baffle plate in said body having divergent perforations therethrough, a valve seat, a valve within said inlet movable toward the valve seat by the pressure of the incoming water and having a plurality of longitudinal peripheral grooves, resilient means between said baffle plate and the valve for moving the valve in the opposite direction, and means mounted on the baffle plate for changing the force exerted by said resilient means.

said longitudinal peripheral grooves forming passageways for the water around the valve when the latter is seated.

15. A nozzle for drinking fountains comprising a hollow body having an inlet at one end, a perforated diaphragm within said inlet, a hollow cap covering the other end of said body and provided with outlet openings, a baffle plate connected to the inner end of said cap and provided with divergent perforations extending therethrough, a valve within the inlet having a depending flange or skirt adapted to bear on the perforated diaphragm, and provided with notches to prevent closure by said valve of the perforation in the diaphragm, said valve having a plurality of superficial longitudinal grooves surrounding the same, a valve seat for said valve, resilient means tending to hold the valve in contact with said diaphragm, and adjustable means carried by the baffle plate for changing the tension of said resilient means.

16. A nozzle for drinking fountains comprising a hollow body having an inlet at one end, a perforated diaphragm in said inlet, a valve within the inlet having a notched flange or skirt on its lower end adapted to normally rest on said diaphragm, a frusto-conical upper end and a plurality of parallel longitudinal grooves in the side walls and frusto-conical end of the valve in line with the notches in the skirt for the passage of water therethrough, a valve seat above said valve adapted to partly close the grooves when the valve is forced against it by the pressure of water, and tensing means for forcing the valve against the water pressure.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

PHILIP MUELLER.

ANTON C. SCHUERMANN.

Witnesses:

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