May 10, 1932. W. C. MARSH 1,857,467

FOUNTAIN MARKER

Filed Dec. 21, 1931

Fig. 1.

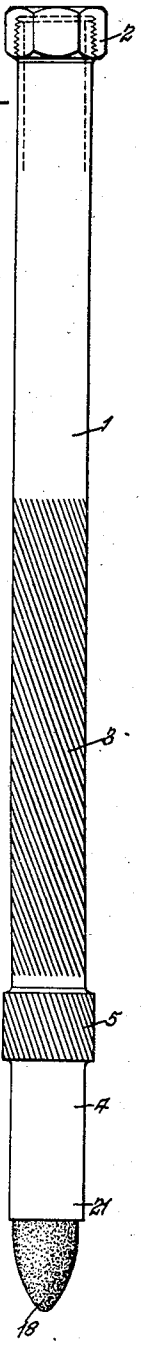


Fig. 2.

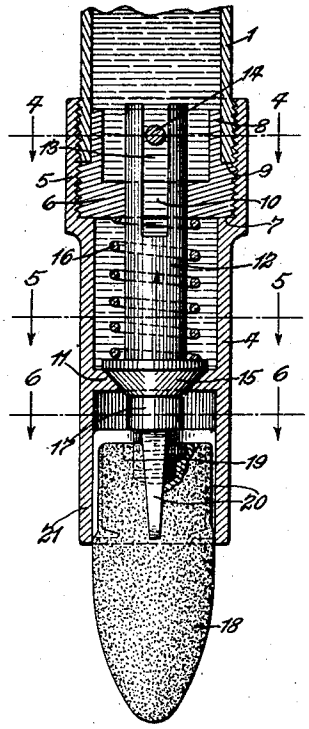


Fig. 4.

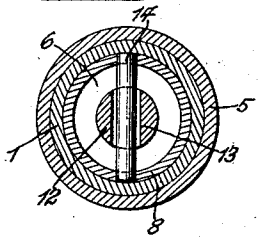


Fig. 3.

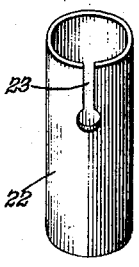


Fig. 5.

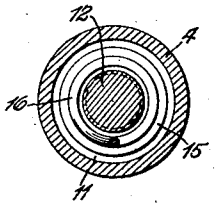
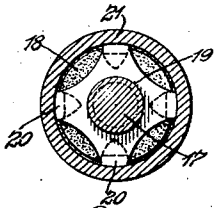


Fig. 6.



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UNITED STATES PATENT OFFICE

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FOUNTAIN MARKER

Application filed December 21, 1931. Serial No. 582,277.

This invention relates to fountain markers.

An object of the invention is to provide an improved fountain marker including a main reservoir for the fluid having a passage opening into an auxiliary reservoir in connection with the tip for applying the fluid, in combination with an improved valve device attached to the tip and operative thereby to close the passage from the reservoir and to eject the fluid from the auxiliary reservoir.

Another object of the invention is to provide an improved fountain marker including a reservoir and an applicator tip for applying the fluid supplied thereto from the reservoir, in combination with a combined valve and ejector device controlling the flow of the fluid from the reservoir and acting as an ejector to eject the fluid from the reservoir to the applicator tip.

Another object of the invention is to provide an improved fountain marker embodying the novel features of construction and cooperative elements for obtaining the desirable results and advantages made apparent from the following description, reference being made to the annexed drawings, in which—

Fig. 1 is a side elevation of my improved fountain marker.

Fig. 2 is an enlarged sectional view of the lower end of the marker showing most of the features of the invention.

Fig. 3 is a perspective view of the cap used as an enclosure for the applicator tip when the marker is not in use.

Fig. 4 is a cross sectional view on the line 4—4 of Fig. 2 showing the guide element for the valve and ejector device that is operated by the applicator tip.

Fig. 5 is a cross sectional view on the line 5—5 of Fig. 2.

Fig. 6 is a cross sectional view on the line 6—6 of Fig. 2.

The reservoir 1 has a capacity sufficient to contain a considerable quantity of marking fluid and is equipped on its upper end with a removable and replaceable closure cap 2. The lower peripheral portion of the reservoir 1 is provided with grooves or a roughened surface 3, which may be readily grasped and held by the hand during operations of the marker.

An auxiliary reservoir comprises a lower tubular portion 4 and an enlarged upper tubular portion 5 that is interiorly threaded. A piston wall element 6 is screwed into the threaded portion 5 and seats closely against and forms an impervious joint upon a shoulder 7 at the union of the reservoir portions 4 and 5. This piston wall element is removable and replaceable and has on its upper end a tubular extension 8 of reduced diameter that will extend or telescope into the lower end of the reservoir 1 while the upper end portion 5 of the auxiliary reservoir is screwed onto the lower end of the reservoir 1. Thus, the lower end of said reservoir 1 is enclosed within the annular space between the circular parts 5 and 8 and the lower end of the reservoir 1 abuts closely against and forms an impervious joint with a circumferential shoulder 9 at the union of the parts 6 and 8. These members are associated and arranged in such a relationship that an impervious connection is obtained, so that the fluid contained in the reservoir 1 cannot leak through the joints.

The piston wall element 6 has a hole 10 through which the fluid may flow from the reservoir 1 into the auxiliary reservoir. The auxiliary reservoir is formed with an inner wall 11 having an opening therethrough for the passage of fluid. A valve stem 12 extends through the hole 10 and has in its upper end a slot 13 through which extends a pin 14 rigid with the part 8. This pin 14 prevents the valve stem 12 from turning and, at the same time, permits longitudinal movements of said stem. A valve 15 is formed in connection with the lower portion of the valve stem 12 and seats against the wall 6 to close the opening through said wall and prevent flow of fluid from the auxiliary reservoir. A spring 16 encircles the stem 12 within the auxiliary reservoir 4 having its lower end seating against the valve 15 and its upper end against the piston wall element 6. The power of this spring is utilized to press the valve 15 to closed position but said spring will yield to pressure and permit the valve

15 to be raised from its seat against the wall 11 and permit fluid to flow through the hole in said wall 11. When the valve 15 is opened to a sufficient extent, the lower end of the slot 13 is within the passage 10, thus closing said passage 10 and preventing flow of fluid from the reservoir 1 to the auxiliary reservoir. The valve 15 also serves as an ejector to force the fluid through the opening in the wall 6 when the valve is opened, due to the fact that the stem 12 closes the passage 10 and prevents the fluid from being forced back into the reservoir 1.

A reduced portion 17 of the valve stem 12 extends downwardly beyond the wall 6 and is exteriorly threaded.

An applicator tip 18, preferably characterized by some degree of absorbent quality such as impregnated felt, has an internally threaded socket 19 embedded in its upper end. The socket 19 is firmly secured to the applicator tip 18 by a number of arms 20 extending laterally and downwardly from the socket 19 and having their lower ends embedded in the body of the applicator tip 18. Thus, the applicator tip and socket 19 are held from relative turning. The applicator tip extends upwardly into a tubular guide 21, which is an elongation of the auxiliary reservoir 4, and is thereby guided and held in proper operative position.

An enclosure cap 22 is fastened and adapted to telescope onto the auxiliary reservoir and the elongation 21 thereof and enclose the protruding end of the applicator tip 18, which always extends below the end of the guide portion 21. This enclosure cap 22 clamps closely onto the auxiliary reservoir and is formed in its upper end with a slot 23 to permit the cap to expand and to utilize the resiliency thereof to retain its position on the auxiliary reservoir.

The construction and assembly and relationship of the elements constituting the present invention have now been shown and explained. When the marker is used, the part 3 is engaged by the hand of the user and the end of the applicator tip 18 is pressed against the surface to which the fluid is to be applied. This pressure of the applicator tip against the surface to be marked forces the applicator tip upwardly into the guide 21 and forces the valve 15 from its seat and moves the stem 12 upwardly to an extent to close the passage 10. When the passage 10 is closed, it is impossible for the fluid to flow from the auxiliary reservoir 4 through said passage into the main reservoir 1. Consequently, the wall element 6 functions as a piston wall element and movement of the valve 15 toward said piston wall element ejects fluid from the auxiliary reservoir 4 onto the applicator tip 18. Because the upper end of the applicator tip 18 is enclosed within the tubular guide 21, the fluid that is ejected from the auxiliary reservoir 4 is guided and forced downwardly along the outer surface of the applicator tip. The fluid retains its connection with the applicator tip by capillary attraction and continues to flow along the surface of said tip and is applied to the surface along which the tip is moved. When pressure is diminished or reduced or discontinued, the spring 16 immediately closes the valve 15, preventing further flow of the fluid to the applicator tip and permitting the fluid to flow from the reservoir 1 to fill the auxiliary reservoir 4.

It is now clear that the parts of the invention are removable and replaceable, so that when any part thereof becomes damaged or ruined, it may be removed and a new part substituted without discarding the entire instrument. Further, it is apparent that the invention obtains all of its intended objects and purposes in a highly advantageous manner and may be manufactured and sold at a comparatively low cost. The construction and arrangement of the parts may be varied within the scope of equivalent limits without departure from the nature and principle of the invention. Accordingly, I do not restrict myself in unessential particulars, but what I claim and desire to secure by Letters Patent is:

1. A fountain marker comprising a main reservoir adapted to contain fluid, an end wall for said reservoir having an opening therethrough, an auxiliary reservoir arranged to receive fluid through said opening and having a discharge outlet, a valve for opening and closing said discharge outlet, a stem in connection with said valve extending through said opening, means admitting fluid from said main reservoir to said auxiliary reservoir when said valve is closed and for preventing flow of fluid from said main reservoir to said auxiliary reservoir when said valve is in an open position, a spring for holding said valve closed, and an applicator tip attached to said valve.

2. A fountain marker comprising a main reservoir adapted to contain fluid, an auxiliary reservoir in communication with and arranged to receive fluid from said main reservoir and having a discharge outlet, a valve device for opening and closing said discharge outlet and being movable in one direction to open said discharge outlet and to close communication from said main reservoir to said auxiliary reservoir, and an applicator tip attached to said valve device.

3. A fountain marker comprising a main reservoir adapted to contain fluid, an auxiliary reservoir in communication with and arranged to receive fluid from said main reservoir, a valve device controlling discharge of fluid from said auxiliary reservoir and also controlling the passage of fluid from said main reservoir into said auxiliary reservoir,

and an applicator tip attached to said valve device for moving said valve device to position to discharge fluid from said auxiliary reservoir and to close communication from said main reservoir to said auxiliary reservoir.

4. A fountain marker comprising a main reservoir adapted to contain fluid, an auxiliary reservoir in communication with and arranged to receive fluid from said main reservoir, a valve device controlling discharge of fluid from said auxiliary reservoir and also controlling the passage of fluid from said main reservoir into said auxiliary reservoir, an applicator tip attached to said valve device for moving said valve device to position to discharge fluid from said auxiliary reservoir and to close communication from said main reservoir to said auxiliary reservoir, and a piston wall element whereby fluid is ejected from said auxiliary reservoir when said valve device is moved to open position.

5. A fountain marker comprising a main reservoir adapted to contain fluid, an auxiliary reservoir in communication with and arranged to receive fluid from said main reservoir, an applicator tip, and a combined ejector and valve device movable by said applicator tip to discharge fluid from said auxiliary reservoir and to close communication between said auxiliary and main reservoirs.

6. A fountain marker comprising a main reservoir adapted to contain fluid, an auxiliary reservoir in communication with and arranged to receive fluid from said main reservoir, an applicator tip, a combined ejector and valve device movable by said applicator tip to position to close communication from said main reservoir to said auxiliary reservoir and to discharge fluid from said auxiliary reservoir onto said applicator tip, and detachable means for securing said applicator tip in connection with said ejector and valve device.

7. A fountain marker comprising a main reservoir adapted to contain fluid, an auxiliary reservoir in communication with and arranged to receive fluid from said main reservoir, an applicator tip, a combined ejector and valve device movable by said applicator tip to position to close communication from said main reservoir to said auxiliary reservoir and to discharge fluid from said auxiliary reservoir onto said applicator tip, a threaded connection securing said applicator tip to said ejector and valve device, and means for holding said ejector and valve device from turning when said applicator tip is screwed thereon or therefrom.

8. A fountain marker comprising a main reservoir adapted to contain fluid, an auxiliary reservoir in communication with and arranged to receive fluid from said main reservoir, an applicator tip, a combined ejector and valve device operative by said applicator tip to discharge fluid from said auxiliary reservoir and to close communication from said main reservoir to said auxiliary reservoir, and means for requiring the fluid discharged from said auxiliary reservoir to pass onto said applicator tip.

WALTON C. MARSH.