March 6, 1956 R. L. RATLIFF 2,736,914

FOUNTAIN BRUSH

Filed April 27, 1953

Fig. 1

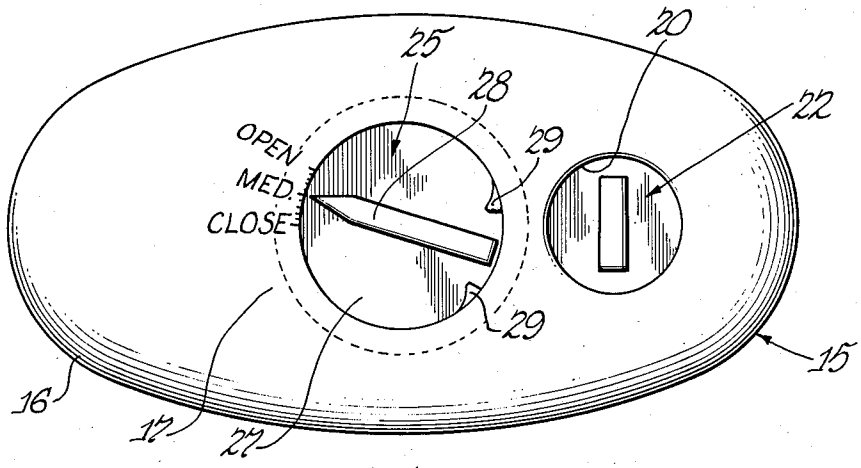


Fig. 2

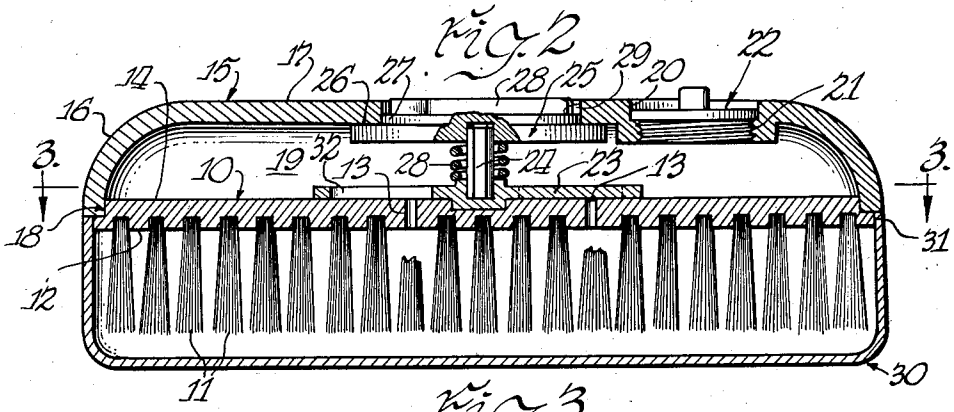
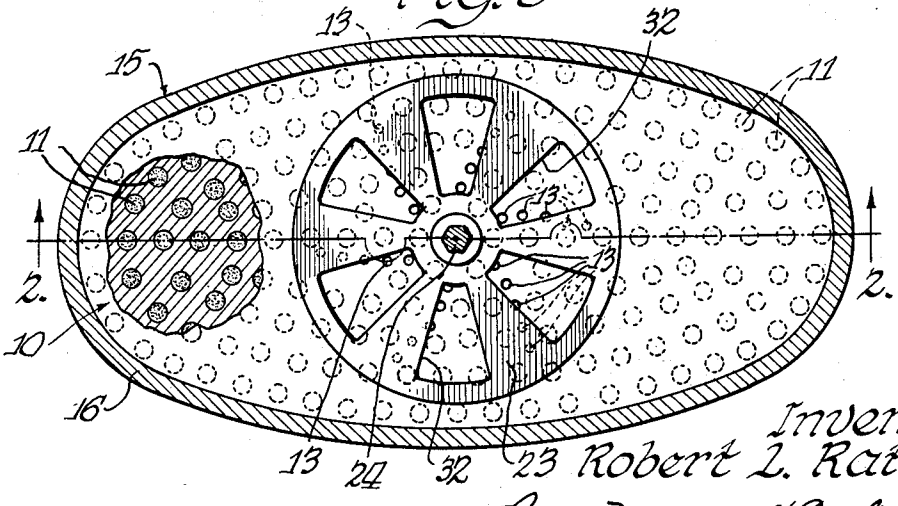


Fig. 3



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United States Patent Office

2,736,914

Patented Mar. 6, 1956

2,736,914

FOUNTAIN BRUSH

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Application April 27, 1953, Serial No. 351,455

1 Claim. (Cl. 15—138)

This invention relates generally to improvements in brushes and brush attachments, and relates more particularly to improvements in the construction and operation of fountain brushes of the type adapted for use in washing and other cleansing operations.

One object of the invention is to provide an improved fountain brush of non-corrosive material which is simple in construction, compact in size, and efficient in use.

Another object is to provide a fountain brush of the character disclosed which is designed so that it can be molded of plastic material, and is therefore adapted to low cost manufacture in large quantities.

A further object is to provide a simple and reliable control valve for a fountain brush of the character disclosed which permits an efficient regulation of the flow of such liquid as soaps, detergents, shampoos, oils, dyes, bleaches, cleaning fluids and the like, in an easy and readily controllable manner.

Another object is to provide a simple and reliable control valve construction for a fountain brush of the character disclosed which comprises two rotatable disks operatively connected by a shaft means and held in seated and oppositely disposed relation to each other to act as a valve closure and control means therefor, and the assembly of these several separable parts into an integral valve unit being effected by a spring means acting to seat the rotatable disks in operative position.

Still another object is to provide a simple and easily removable bristle protective cover of simplified design adapted to low cost manufacture, and capable of quick adjustment and ready use.

With these and other objects in view, my invention consists in the construction, arrangement, and combination of the various parts of my fountain brush, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claim, and illustrated in the accompanying drawings, wherein:

Figure 1 is a top plan view of a fountain brush constructed in accordance with my invention.

Figure 2 is a vertical sectional view through the brush taken along the line 2—2 of Figure 3, and shows both an open passage communicating through the control valve from the bristles to the liquid reservoir, and a closed passage separated from communication with the reservoir by means of the control valve.

Figure 3 is a horizontal sectional view on the line 3—3 of Figure 2, partially broken away to show the bristles, and illustrating the manner in which the valve registers with the passages to regulate the flow of fluid to the bristles.

On the accompanying drawing I have used the reference numeral 10 to indicate an elongated substantially flat brush plate, having bristles 11 projecting from the lower face 12 thereof. The brush plate is provided with a series of passages 13 extending through the plate from the bristle face 12 to the upper face 14 of the brush plate 10. The passages 13 are arranged in groups disposed

curvilinearly outward from the center of the brush plate, as shown in Figure 3.

A housing or enclosure 15, having a side wall 16 and a top wall 17, is positioned over the upper face 14 of the brush plate 10, and is integrally attached thereto along its periphery by cementing or other suitable means, as at 18, to form a liquid reservoir 19 over the brush plate 10. The housing 15 is provided with a filling opening 20, suitably screw threaded as at 21 to receive a removable closure cap or plug 22.

I have provided a valve for regulating the flow of liquids from the reservoir to the bristles comprising a rotatable closure disk 23 disposed above the flow passages 13 in sliding oscillatable contact with the upper face 14 of the brush plate 10 and having an other-than-round hole or recess at the center thereof, a mounting shaft 24 slidably but non-rotatably fitting at its lower end into the recess in disk 23 and terminating at its upper end in an other-than-round recess in a control disk 25. As shown, I have used a shaft of hexagonal cross section fitting into hexagonal disk recesses. The disk 25 is flanged at 26 to extend in part upwardly through a central opening 27 in the upper wall 17 of the housing 15. A spring 28 is positioned around the shaft 24 between the disks 23 and 25, biased in compression to maintain the disks in oppositely disposed position relative to each other and to retain the flanged disk 25 in seated position in the opening 27.

A combined indicator and manual gripping means 28, integral with the control disk 25, is provided both as a means for positioning the rotatable valve and for indicating the position of the valve. Stop means 29 are positioned along the circumference of the opening 27 to restrict the rotation of the closure disk 23 to operative positions between the limits of full close and full open so that one using the device can easily position the valve to obtain the desired flow without visually examining the indicator, as is desirable in the case where the device is adapted for use in shampooing one's own head.

A removable bristle protective cover 30 is provided for use when the brush is stored or otherwise not employed. The cover is designed to seat frictionally, as at 31, on the peripheral ledge formed by the outer edge of the brush plate 10 and the lower rim of the side wall 16 of the housing 15, and is capable of being quickly removed or replaced.

As shown in Figure 3, the closure disk 23 contains a series of openings 32, each having the shape of a sector of a hollow circle and positioned between the continuous rim and the central hub of the disk. The groups of passages 13 and the openings 32 are so positioned relative to each other that the openings 32 may be positioned wholly above the non-apertured portions of the brush plate 10 between adjacent groups of passages 13. As the closure disk 23 is rotated by means of the control disk 25 in a clockwise direction, the radial edges of the openings 32 uncover a progressively larger number of the passages 13, and, when rotated to a limiting position, the openings 32 each fully register with an entire group of passages 13 permitting a full and unobstructed flow of liquid from the reservoir 19 to the bristle face 12. Intermediate positions of the closure disk between the limits of full open and full close will provide varying amounts of flow.

Some changes may be made in the construction and arrangement of the parts of my fountain brush without departing from the real spirit and purpose of my invention, and it is my intention to cover by my claim any modified forms of structure or use of mechanical equivalents which may be reasonably included within its scope.

I claim as my invention:

In a fountain brush of the character described, a brush plate provided with a series of passages extending therethrough and having bristles projecting from one face

thereof, said passages being arranged outwardly from the center of said brush plate in a plurality of circumferentially spaced curvilinearly disposed groups, a housing cooperating with said brush plate to form a liquid reservoir remote from said bristle face, valve means for regulating flow from said reservoir through said passages to the bristle face, said valve means comprising a rotatable closure disk disposed above said passages in oscillatable sliding contact with said brush plate, said disk having an other-than-round recess at the center thereof, a shaft of other-than-round cross-section slidably but non-rotatably fitting at its one end in said closure disk recess, a flanged control disk rotatable in an opening in said housing and having an other-than-round recess at the center thereof, said shaft slidably but non-rotatably fitting at its other end in said control disk recess, spring means between said closure and control disks to maintain said disks in oppositely disposed position relative to each other and to retain said flanged control disk seated in said opening, said disk having a plurality of circumferentially spaced openings therein each registering with one of said groups of passages when

rotated to a full open position, each of said disk openings having the shape of a sector of a hollow circle, whereby the portions of said disk between the openings provide means cooperating with said curvilinearly disposed groups of brush plate passages to serve as a closure means for progressively covering the individual passages of each group when rotated to a full close position, and stop means to restrict the rotation of said closure disk between operative positions from full close to full open.

References Cited in the file of this patent

UNITED STATES PATENTS

199,896	Burger	Feb. 5, 1878
1,175,705	Ciai	Mar. 14, 1916
1,464,457	Wendel	Aug. 7, 1923
1,506,305	Kelly	Aug. 26, 1924
2,577,872	Berndsen	Dec. 11, 1951

FOREIGN PATENTS

24,042	Great Britain	Dec. 2, 1899
24,969	Great Britain	Dec. 16, 1899