

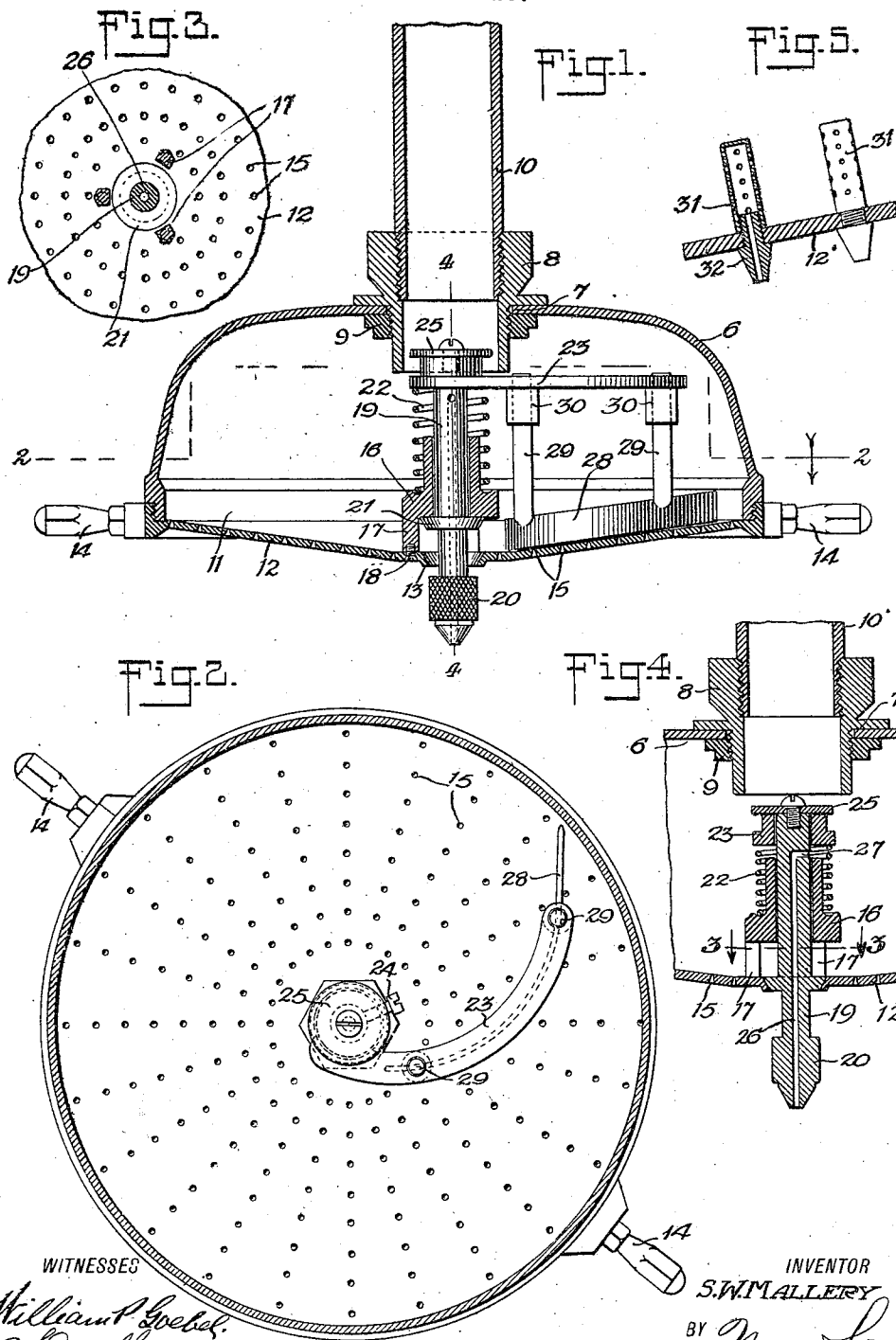
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S. W. MALLERY

SHOWER HEAD

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SHOWER HEAD.

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To all whom it may concern:

Be it known that I, SHERMAN W. MALLERY, a citizen of the United States, and a resident of Ridgefield Park, in the county of Bergen and State of New Jersey, have invented a new and Improved Shower Head, of which the following is a full, clear, and exact description.

This invention relates to improvements in bath appliances and has particular reference to a shower head.

An object of the invention is to utilize the pressure of water entering the shower head to close the drain thereof which is automatically opened when said pressure is discontinued.

Another object is to so construct the shower head that access may be readily had to the interior thereof for making repairs and the like.

A further object is to provide an improved construction by means of which the interior of the head may be quickly and thoroughly cleansed without the necessity of disassembling the same.

A still further object is to avoid the usual prolonged dripping of water from the head after the flow has been discontinued by the provision of means which will expedite the complete emptying of water from the head immediately following the shutting off of the flow thereof.

The above and other objects will appear more clearly from the following detail description, when taken in connection with the accompanying drawing, which illustrates preferred embodiments of the inventive idea.

In the drawing—

Figure 1 is a vertical longitudinal section of the shower head constructed in accordance with the invention;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is a section on the line 3—3 of Figure 4;

Figure 4 is a section on the line 4—4 of Figure 1; and

Figure 5 is a fragmentary view, partly in section, illustrating a slightly different construction of the bottom plate of the head.

Referring more particularly to Figures 1 to 4, which illustrate a preferred embodiment of the invention, the shower head is shown as comprising a body 6 having an inlet opening 7 in the top thereof in which a

coupling member 8 is mounted and held in position by the nut 9. The inner end of the coupling 8 projects into the interior of the body and the exterior end of said coupling is internally screw threaded to receive one end of the supply pipe 10 through which water enters the head.

The lower edge of the body 6 is provided with an externally threaded flange 11 for receiving the bottom plate 12 which is of substantially inverted frusto-conical formation and which is provided in its lowermost and central portion with a drain opening 13 in the form of a valve seat, which is preferably in alignment with the supply pipe 10 and through which water and sediment in the head may be drained, as will later be described. The bottom plate 12 is provided at diametrically opposite points with the handles 14 utilized to attach and detach the plate from the body 6 whenever it is desired to obtain access to the interior of the body. The plate 12 is further provided with a plurality of circular rows of apertures 15 arranged concentrically with respect to the drain opening 13 and said apertures are preferably flared outwardly, as indicated in Figure 1, to insure the passage of sediment through the plate after the sediment enters the inner ends of said apertures. It has also been found in practice that the openings tapered in this manner cause the water to fall in drops instead of a constant stream.

Carried by the plate 12 and positioned interiorly of the body in direct alignment with the drain opening 13 is a guide member 16 having spaced extensions 17 at its lower end which receive screws or other fasteners 18 for securing the guide member in position. A valve stem 19 is rotatably and slidably mounted in the guide member 16 and has its lower end projecting through the drain opening 13 and provided with a knurled portion 20 to facilitate the turning of the valve stem, for a purpose which will presently appear. Formed upon the valve stem 19 adjacent its lower end is a valve 21 which is movable between the lower end of the guide member 16 and the drain opening 13. The valve 21 is normally maintained in its open position by means of a coil spring 22, the lower end of which is seated on a portion of the guide member 16, while the upper end engages the inner end of a guide arm 23 secured to the upper end of the valve stem 19 by means of a set

screw, or other suitable fastening device 24. The upper extremity of the valve stem 19 has fixed thereto a pressure head in the form of a disk or plate 25 of a diameter slightly less than that of the interior of the lower end of the coupling 8, said disk or plate being normally positioned within said lower end of the coupling, as shown in Figure 1.

From the foregoing description, it will be obvious that water entering the head through the supply pipe 10 will strike the plate 25 and exert a pressure thereon which is sufficient to overcome the tension of the spring 22 and thus force the valve stem 19, together with the valve 21 and arm 23 downwardly until the valve 21 is seated in the drain opening 13 thus closing the same, thereby causing the water in the body 6 to flow through the apertures 15 in the bottom plate 12 while the device is in operation. Immediately upon the discontinuance of the flow of water through the pipe 10 into the body 6 the spring 22 operates to force the valve stem 19 and valve 21 upwardly to their normal positions thus opening the drain opening 13 to permit of the accumulated water in the head 6 to readily and quickly flow therefrom. In order to further facilitate the emptying of the body after the supply of water has been shut off the valve stem 19 is provided with a longitudinal passage 26 extending from the lower end thereof to a point adjacent the upper end where said passage communicates with a lateral port 27. The provision of this passage and port permits of air entering through the valve stem into the body 6 after the level of the water has receded below the port 27 and this air entering the body will aid in causing the water to flow rapidly from the head instead of dripping therefrom, as in the ordinary construction of shower heads.

The invention further contemplates means for cleaning the interior surface of the bottom plate 12 of any accumulation of sediment and to this end a scraper member or blade 28 of arcuate formation is supported upon the plate 12 and extends from a point adjacent the drain opening 13 to the outer periphery of the interior surface of said bottom plate so that when the scraper member is rotated in a counter-clockwise direction, as viewed in Figure 2, the same will effectively remove any accumulation of sediment upon the interior face of the bottom plate and direct such sediment toward the drain opening 13.

To rotate the scraper member 28 the same is preferably provided with vertically disposed rods 29 one adjacent each end thereof, the upper ends of said rods being slidable in bearings 30 depending from the guide arm 23 which extends laterally from the upper end of the valve stem 19. By thus

slidably connecting the scraper blade 28 with the valve stem 19, it will be apparent that any vertical or sliding movement of the latter member will be relative to the scraper member 28 so that this member will be unaffected by the opening and closing movements of the valve 21 when the supply of water to the head is turned off and on. To rotate the scraper member 28 it is only necessary to grasp the lower knurled end 20 of the valve stem 19 and rotate the same in the proper direction. In the cleaning operation a small quantity of water may be permitted to flow into the head before rotating the scraper member so that the sediment removed from the bottom plate by said member will more readily be conveyed to the drain opening.

In Figure 5, a slightly different form of the invention is disclosed, in which the use of the scraper member 28 and its associated parts are dispensed with, the sediment collecting in the body 6 being prevented from obstructing the openings in the plate 12 through which the water flows by means of small perforated tubular members 31 which are threaded upon the inner ends of nozzles 32, the latter being in turn threaded into suitable openings formed in the bottom plate 12'.

What is claimed is:

1. In a shower head, a body having an inlet, a perforated bottom for said body having a drain opening, a valve guide carried by said bottom, a valve movable in said guide and operable to close and open said drain opening, means for normally maintaining said valve in open position, and means normally projecting into said inlet and actuated by the pressure of fluid entering said body for operating said valve to close said drain opening.

2. In a shower head, a body, a perforated bottom therefor having a drain opening, a rotatable member extending through said bottom, and a scraper movable with said member when the same is rotated and engageable with the inner surface of said bottom to direct sediment thereon toward said drain opening.

3. In a shower head, a body, a perforated bottom therefor having a drain opening, a member slidably and rotatably mounted within said body, a valve carried by said member for closing said drain opening when a sliding movement is imparted to said member, and a scraper connected to said member and actuated to scrape the bottom of said body only when said member is rotated.

4. In a shower head, a body, a perforated bottom therefor having a drain opening, a member extending into said body and having sliding and rotary movements therein, a scraper movable in said body, means carried by said member for supporting said scraper in operative position and for moving the

same only when said member is rotated, and a valve carried by said member for closing said drain opening when a sliding movement is imparted to said member.

5 5. In a shower head, a body having an inlet, a perforated bottom for said body having a drain opening, a member extending through said body and in alignment with said inlet, a valve carried by said member
10 for closing said drain opening, and a plate also carried by said member contiguous to said inlet whereby the flow of a fluid entering said inlet will exert a pressure on said plate to move said valve to its closing position.
15 tion.

6. In a shower head, a body having an inlet, a perforated bottom for said body having a drain opening, a member extending through said body and in alignment with
20 said inlet, a valve carried by said member for closing said drain opening, a plate also

carried by said member contiguous to said inlet whereby the flow of a fluid entering said inlet will exert a pressure on said plate to move said valve to its closing position, 25 and a spring interposed between said valve and plate for restoring the former to its normal position when the flow of fluid through said inlet is stopped.

7. In a shower head, a body having an inlet, a perforated bottom detachably connected to said body and having a drain opening, a guide member carried by said bottom, a valve stem movable in said guide member and having a valve for closing said drain
30 opening, and means carried by said valve stem and projecting into said inlet and actuated by the pressure of a fluid entering said body to move said valve to its closing position.
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