

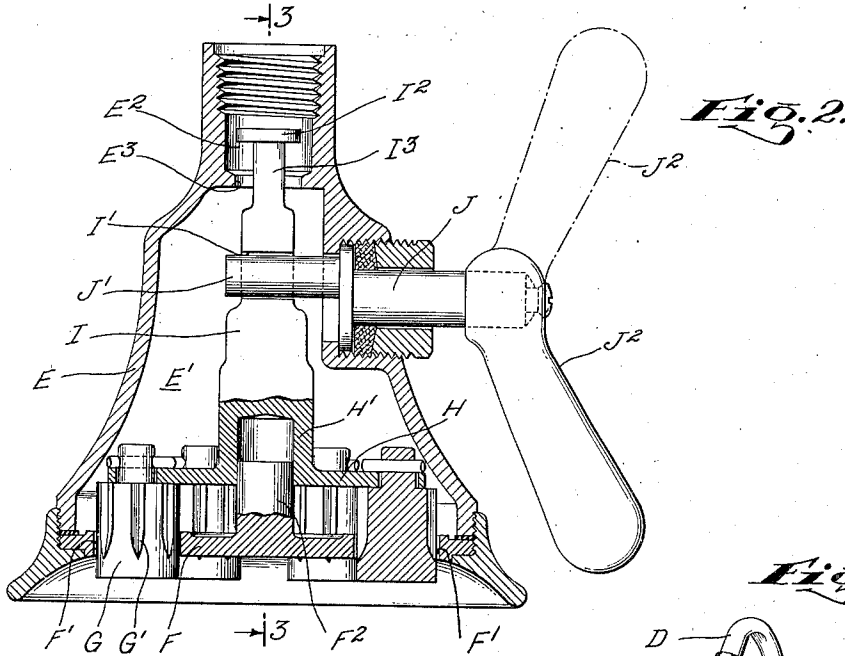
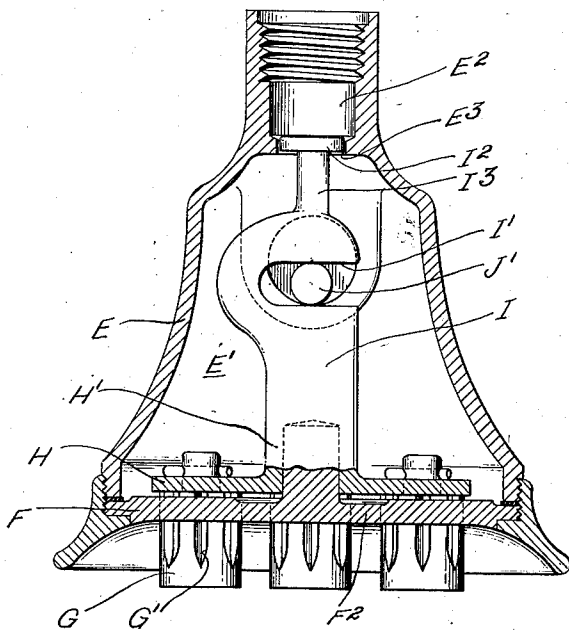
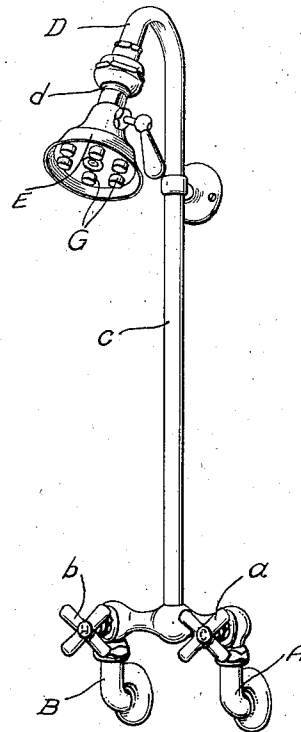
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SHOWERHEAD

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SHOWER HEAD

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The present invention relates to showerheads or spray nozzles of the type now in general use in shower baths, in which the chambered showerhead comprises wall portions which may be given relative movements to regulate the discharge jets or spray. That type of showerhead in its early form is shown in my prior Patent 1,830,694 of November 3, 1931, and is shown in a later form in my prior Patent 1,849,517 of March 15, 1932. In the first mentioned patent, a flat showerhead wall is formed with a plurality of discharge apertures and has a flow obstructing member adjustable in each aperture to vary the spray. In the form shown in Patent 1,849,517, the showerhead wall has a single discharge aperture, larger in diameter than the individual wall openings of the earlier patent, and has a single flow obstructing member of correspondingly increased diameter.

The general object of the present invention is to provide a showerhead of the above mentioned type with simple and effective means for simultaneously adjusting the discharge obstructing member or members of the showerhead into a wide open position, and simultaneously throttling the admission of water to the shower, so as to thereby produce a dribbling discharge from the showerhead. The use of the present invention with such a showerhead permits the user to adjust the valve or valves regulating the relative amounts of hot and cold water supplied to the shower, so as to maintain the bath temperature desired by the user, and to thoroughly wet the user if desired, and thereafter to throttle the water inlet of the shower while keeping the showerhead discharge apertures relatively wide open and thus maintain a small dribbling discharge during an intermediate soaping and washing stage of the bathing operation, without significantly modifying the temperature of water supplied to the showerhead then or in a subsequent rinsing stage of said operation, in which the showerhead inlet is wide open and the flow obstructing means are adjusted to give a jet or spray discharge of relatively high velocity and large volume.

The water supply means for a showerhead of the above mentioned type customarily includes separate hot and cold water supply pipes or a temperature regulating valve or valves manually adjustable by the shower bath user to proportion the amounts of hot and cold water supplied to the showerhead as required for the discharge temperature desired by the user. The use of the present invention with such a showerhead

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permits the user to maintain the temperature regulating valve adjustment giving the water discharge temperature desired by the user, while adjusting the showerhead discharge obstructors and inlet throttling device to obtain desired volume of the spray discharge through its full range or to obtain a dribbling discharge. The dribbling discharge obtainable with my improved showerhead facilitates soaping and scrubbing portions of the bathing routine considered desirable by many bath users, and also facilitates the flushing out of the showerhead from time to time to remove sand and the like which may accumulate in the showerhead in the regular use of the latter.

The various features of novelty which characterize my invention are pointed out with particularity in the claims annexed to and forming a part of this specification. For a better understanding of the invention, however, its advantages, and specific objects attained by its use, reference should be had to the accompanying drawing and descriptive matter in which I have illustrated and described preferred embodiments of the invention.

Of the drawings:

Fig. 1 is a perspective view of my improved showerhead with conventional water supply connections thereto;

Fig. 2 is a sectional elevation of the showerhead shown in Fig. 1; and

Fig. 3 is a section on the broken line 3—3 of Fig. 2.

In Fig. 1, A and B are hot and cold water supply pipes connected through manually adjustable throttle valves *a* and *b*, respectively, to one end of a pipe C, which has its other end connected through a gooseneck D and a ball and socket joint *d* to a showerhead E. As will be understood by those skilled in the art, the temperature of the water passing to the showerhead may be regulated by appropriate adjustments of the two valves *a* and *b*, or of a mixing valve which may replace those valves. One well known mixing valve suitable for such use is shown in the prior Speakman Patent 1,121,879, of December 22, 1914. Usually, and as shown, the showerhead is so mounted and adjusted that its axis is inclined somewhat to the vertical, so that the dribbling discharge is through one or two only, of the discharge openings *F'*, when there are six such openings as in the form illustrated. The showerhead E comprises a shell or casing body enclosing a chamber or space *E'* which receives water at one end from the pipe D and has at its

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other end a plate or wall portion F' formed with a plurality of discharge openings F'. Extending through each discharge opening F' is a corresponding flow obstructor or plunger G of generally cylindrical shape, except for axially extending grooves G' at its periphery. Each groove is shown tapered in cross section so that the flow through the orifices formed by the grooves is diminished and increased as the flow obstructor or plunger G is moved into and out of the chamber E'.

As shown, the inner end of each plunger G is connected to and supported by a crosshead H comprising a central cylindrical portion H' which surrounds and is movable longitudinally of a cylindrical guiding projection F². As shown the latter is an integral projection from the inner side of the stationary wall member F. The crosshead H may be adjusted longitudinally of the guiding projection F² by means of a manually adjustable element shown as comprising a rock shaft J. The latter has its axis radial to the axis of the projection F² and journaled in the shell of the shower head intermediate the inlet and discharge ends of the latter. The rock shaft J is provided at its inner end with a crank pin J' having its axis parallel to, but laterally displaced from the axis of the rock shaft J. The crank pin J' extends into a slot or guideway I' in a stem extension I of the crosshead H. The stem I is coaxial with the guide F². At its outer end, the rock shaft J carries a handle J² which may be moved through an angle of approximately 180° between a minimum discharge position shown in full lines in Fig. 2, and a position shown in full lines in Fig. 3 and in which the plungers G offer minimum obstruction to the discharge of water through the openings F'. In so far as above described, the showerhead shown in Figs. 1, 2 and 3 does not differ significantly from the disclosure of my prior Patent 1,830,694.

In the preferred form of the present invention shown in the drawings, the main chamber space E' in the showerhead communicates with an inlet space E² through a port E³ circular in cross section and coaxial with the crosshead H and the guiding projection F². When the rock shaft handle J² is turned into its dotted line position, flow through the port E³ is reduced to a small amount by the upper end portion I² of the stem I which is then within the port E³. The stem end I² is only slightly smaller in diameter than the port E³, but is substantially larger in diameter than the neck portion I³ of the stem which connects the part I² to the body of stem I. In consequence, with the part I² in the port E³, and with the maximum extension of the plungers G out of the discharge openings F' as shown in Fig. 3, the relative rates of flow into and out of the showerhead chamber E' are such that the latter contains little water. This results in a dribbling gravitational discharge from the showerhead which ordinarily is confined to an opening or openings F' in the lowermost portion of the showerhead, when the latter is in an inclined position, such as that shown in Fig. 1.

When the movable showerhead parts are adjusted from their position shown in Fig. 3 into the position shown in Fig. 2, the enlarged end or head I² of the stem I is moved out of the port E³ into the inlet space E². The passage of water from the gooseneck D through the chamber E' is then substantially unobstructed by the

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stem end I², or by the portion I³ of the stem then extending through the port E³.

With the apparatus collectively shown by Figs. 1, 2 and 3, the user may adjust the valves a and b to give proper temperature to the water mixture passing to and through the showerhead. Thereafter, without significant change in the temperature of the water discharged, the bath may vary the discharge from the showerhead in accordance with any desired bathing routine or whim, by angularly adjusting the handle J². With the plungers G in the position shown in Fig. 3, a spray of minimum fineness and volume is discharged. As the valve handle is moved away from the position shown in dotted lines in Fig. 2, the spray becomes coarser and increases in volume. The maximum volume of discharge is obtained with the handle J² in a position intermediate its full and dotted line position shown in Fig. 2. The precise position of the handle J² which gives the maximum discharge, depends upon the form of the tapered grooves G' in the plungers G and upon the extent of handle movement required to cause the stem head I² to throttle the flow through the port E³.

When such throttling occurs, the showerhead discharge volume diminishes, and when the stem end I² is within the port E³ as shown in Fig. 3, water can flow out of the showerhead through the openings F' more rapidly than it can enter the showerhead chamber E' through the port E³. In consequence, the discharge through the lowermost opening or openings F' then reduces to a trickle. The dribbling discharge then obtained obviously facilitates soaping and scrubbing operations by the user, and contributes to the gravitational movement through the lowermost outlet opening or openings F', of sand or other small solid particles which have accumulated in the showerhead. When such particles reach the lower opening or openings F', they are swept through the latter by the trickling discharge. It is possible, of course, for the user to adjust one or both of the mixing valves a or b in any stage of the bathing operation when a change in the temperature of the water discharged by the showerhead seems desirable. However, the freedom which the use of the invention gives the user to vary the discharge as described without adjustment of the temperature regulating valves, is practically desirable in many cases.

While in accordance with the provisions of the statutes, I have illustrated and described the best forms of embodiment of my invention now known to me, it will be apparent to those skilled in the art that changes may be made in the forms of the apparatus disclosed without departing from the spirit of my invention as set forth in the appended claims, and that in some cases certain features of my invention may be used to advantage without a corresponding use of other features.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a shower bath spray head, the combination with a chambered showerhead body formed with an inlet port and with one or more outlet openings, of flow obstructing means comprising a discharge obstructing member extending into each such opening and adjustable therein between one position in which it makes the unobstructed flow area through said opening relatively small and a second position in which it makes said area relatively large through interme-

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diated positions in which said flow area is increased and decreased by said member as the latter is adjusted respectively toward and away from said second position, a supply obstructing member adjustable relative to said port to vary the unobstructed flow area through said port and actuating mechanism operatively connected to each of said members for adjusting each of the latter, said obstructing means, inlet port, outlet opening or openings and mechanism being so relatively arranged that when said discharge obstructing member is in said one position and in said intermediate positions said supply obstructing member is in a position in which it makes the unobstructed flow area through said port relatively large and when said discharge obstructing member moves into and out of said second position, it abruptly decreases and increases the unobstructed flow area through said port, respectively.

2. A shower bath spray head combination as specified in claim 1, in which said actuating mechanism comprises means forming a rigid mechanical connection between said obstructing members.

3. A shower bath spray head combination as specified in claim 1, in which said actuating mechanism comprises means forming a rigid mechanical connection between each discharge obstructing member and said supply obstructing member, and comprises a manually rotatable member journaled in said body and operatively connected to and adjusting each of said obstructing members when rotated.

4. A shower bath spray head comprising in combination a chambered showerhead body

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formed with an inlet port and with one or more outlet openings, said inlet port and each of said outlet openings having parallel axes, flow obstructing means comprising a discharge obstructing member extending into each said opening and adjustable axially thereof between one position in which it makes the unobstructed flow area through said opening relatively small and a second position in which it makes said area relatively large and operative to gradually increase and decrease said area as said member is adjusted respectively into and out of said second position, and a supply obstructing member rigidly connected to the discharge obstructing member for movement in the axial direction of said inlet port when said discharge obstructing member is moved between said first and second positions and arranged to make the unobstructed flow area through said inlet port relatively large when the discharge obstructing member is away from said second position, and to abruptly decrease and increase the last mentioned flow area when the discharge obstructing member is moved into and out of said second position, respectively.

JAMES FRASER.

REFERENCES CITED

The following references are of record in the file of this patent:

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1,863,548	Bloch	June 14, 1932