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SHOWER BATH SPRAY HEAD

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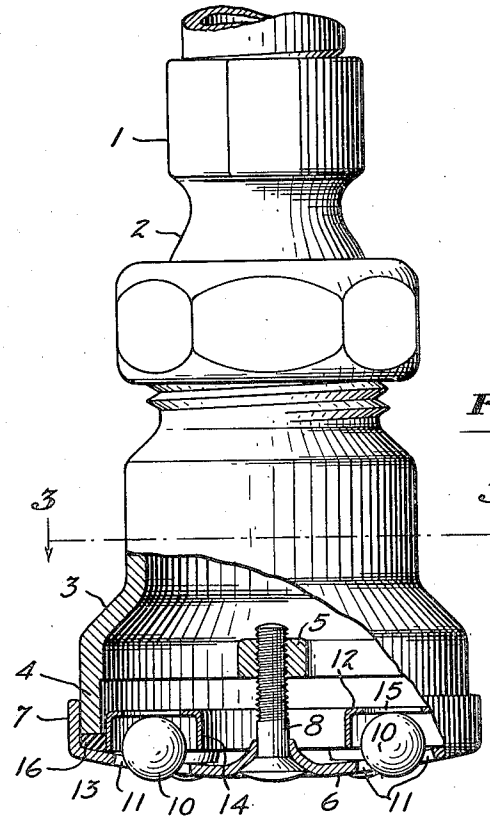


Fig. 1

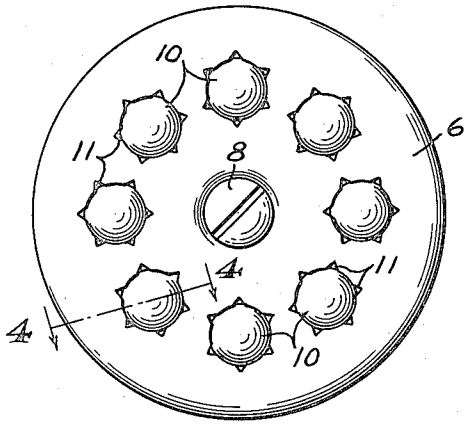


Fig. 2

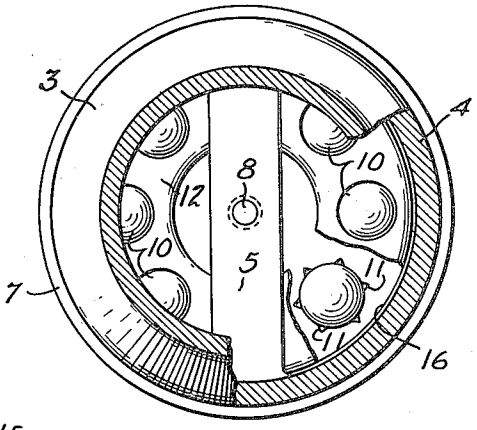


Fig. 3

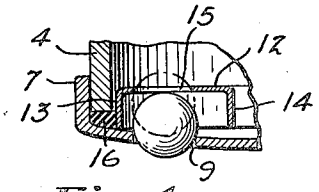


Fig. 4

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SHOWER BATH SPRAY HEAD

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6 Claims. (Cl. 299—141)

This invention relates to shower bath spray heads and has for its object to provide a simple and inexpensive construction by means of which the small jet orifices may be quickly and easily cleared of any solid material obstructing them.

In the use of the ordinary spray head provided with a closure plate having fine perforations the small jet orifices become obstructed by particles of scale, rust, sand, or other solid material, making it necessary to frequently remove and clean the spray plate. To avoid this difficulty various spray devices have been devised in which the outlet closure containing the jet orifices consists of parts which are mounted for relative adjustment to increase the size of the jet openings for the purpose of flushing out any particles obstructing the openings.

The present invention has for an object to provide an extremely simple, self-cleaning spray head which is inexpensive to manufacture and which may be instantly cleaned by simply passing a finger over the exterior surface of the spray plate while water is discharging through the spray.

With the above and other objects in view the invention may be said to comprise the device as illustrated in the accompanying drawing, hereinafter described, and particularly set forth in the appended claims, together with such variations and modifications thereof as will be apparent to one skilled in the art to which the invention appertains.

Reference should be had to the accompanying drawing forming a part of this specification, in which

Figure 1 is a part of a spray head embodying the invention, a portion of the discharge end of the head being broken away and shown in section;

Fig. 2 is a bottom plan view of the spray head;

Fig. 3 is a section taken on the line indicated at 3—3 in Fig. 1; and

Fig. 4 is a fragmentary section taken on the line indicated at 4—4 in Fig. 2.

In the accompanying drawing the device of the present invention is shown applied to a spray head of conventional design which consists of an inlet section 1 adapted to be screwed to the water pipe and connected by a ball joint 2 to a beli shaped section 3 which forms the body portion of the head. The body portion 3 has an enlarged cylindrical open end 4 and is provided a short distance inwardly of the open end with an integral cross bar 5. To the discharge end of the head there is secured a spray plate 6 which is in the form of a cup shaped stamping having a marginal flange 7 of cylindrical form which fits upon the cylindrical end 4 of the body portion of the head. The spray plate is secured to the body portion by means of a screw 8 which passes through a central opening in the spray plate 6 and threads into an opening at the center of the cross bar 5. The spray plate 6 is provided with a number of noncircular openings 9, these openings being preferably of polygonal form, being shown in the drawing hexagonal. A number of jet orifices are provided at the margin of each of the openings and by means of a movable valve member seated in the opening by water pressure and closing the opening, except for restricted marginal apertures which form the jet orifices. As shown in the drawing, the valve members are in the form of balls 10 which seat upon the openings, 9. The balls 10 are of a size such that they will not pass through the openings 9 but will seat upon the sides of the openings intermediate the corners or apices. When seated the balls close the openings 9 except for small apertures 11 at the apices of the openings. These apertures form the jet orifices through which the jets of the spray are discharged.

As shown in Figs. 1 and 2, the balls 10, when seated on the openings 9, protrude past the outer surface of the spray plate 6. If, when the water is directed into the spray head, it is found that some of the jet orifices are obstructed, it is only necessary to pass a finger over the surface of the spray plate engaging the protruding surfaces of the balls and pushing them successively away from their seats. This inward movement of a ball opens up the entire hexagonal opening and the rush of water through the openings as they are successively opened washes out any foreign matter that may be lodged at the margins of the openings.

Means is provided for retaining the balls which permits each ball to have a limited movement away from its opening. As herein illustrated, the ball-retaining means is in the form of an annular sheet metal stamping, the external diameter of which is somewhat less than the internal diameter of the flange 7 of the spray plate. The retaining plate 12 has an external flange 13 which is adapted to engage the interior of the spray plate outwardly of the openings 9 and an inner flange 13 which is adjacent the inner edges of the openings 9 and prevents the balls 10 from moving laterally away from the openings.

The plate 12 is provided with a row of open-

ings 15 which are adapted to be registered with the openings 9 of the spray plate. The flanges 13 space the body of the retaining plate 12 at a distance from the spray plate such that the balls 10, when moved inwardly away from the openings 9, enter the openings 15 of the retaining plate, the openings 15 being of a size to retain the balls while permitting the balls to have sufficient inward movement to completely uncover the openings 9. The inner flanges 14 of the retaining plate are spaced inwardly from the spray plate 6, which is slightly convex, so that there is always a free flow of water to the discharge openings. The retaining plate 12 is held in place within the spray plate 7 by a washer 16, which has a close fit within the flange 7 of the spray plate, and upon the exterior of the flange 13 of the retaining plate. The washer 16 also serves as packing, engaging the edge of the body of the spray head when the spray plate is secured in place by means of the screw 8.

It will be apparent that the device of the present invention provides a very simple and inexpensive spray device which can be instantly cleared of any foreign matter clogging the jet orifices.

Although a single embodiment of the invention has been herein shown and described, it will be understood that various modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What we claim is:

1. A spray head having outlet openings of substantially polygonal form, movable valve members within the head, one at each opening, each valve member being movable outwardly toward and inwardly away from the opening and formed to seat interiorly upon the sides of the opening intermediate the apices thereof and to close the opening except for restricted apertures at the apices thereof, and means for limiting the inward movements of the valve members.

2. A spray head having outlet openings of substantially polygonal form, movable valve members within the head, one at each opening, each valve member being formed to seat upon the sides of the opening intermediate the apices thereof and to close the opening except for restricted apertures at the apices thereof, each valve member, when seated, having a portion protruding through the opening, retaining means for the valve members permitting them to have a limited free movement toward and away from the openings whereby the valve members are normally held seated by the water pressure within the head but may be unseated by pressure exerted against the protruding portions thereof.

3. A spray head having outlet openings of noncircular form, balls within the head, one at each opening, the balls seating upon the margins of the openings and closing the openings except for restricted marginal apertures, and retaining means for the balls permitting each ball to have a limited inward movement.

4. A spray head outlet comprising a spray plate having openings of substantially polygonal form, a ball mounted upon each of said openings, such ball being of a diameter to seat upon the margin of its opening and to protrude through the opening, a retaining plate secured to the spray plate and spaced inwardly therefrom a distance less than the diameter of the balls, said retaining plate having openings registering with the openings of the spray plate whereby the balls are retained in alinement with the polygonal openings but may have a limited movement away from said openings.

5. A spray head comprising a casing, a spray plate having a marginal flange adapted to fit over the outlet end of the casing, said plate having apertures of substantially polygonal form, a washer fitting within the said flange and adapted to seat against the end of the casing, a retaining plate having a marginal flange fitting within the washer, said retaining plate having openings alined with the openings of the spray plate, balls retained between the alined openings of the plates, the openings being of a size to retain the balls but permit the same to move into and out of engagement with the openings of the spray plate, and means for detachably securing the spray plate to the casing.

6. A spray head having outlet openings, valve members within the head, one at each opening, each valve member having a convex face which seats upon the margin of an opening and protrudes through the opening, the valve members and openings being formed to provide restricted jet apertures at the margins of the openings when the valve members are seated, retaining means for the valve members inwardly thereof spaced from said openings to permit each valve member to have a limited movement inwardly away from its opening, whereby the valve members are normally held seated by water pressure but may be unseated by pressure against their protruding faces.

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