Aug. 5, 1924. 1,504,000

L. SIMMONS

SPRAY HEAD FOR SHOWER BATHS

Filed Nov. 11, 1922

Fig. 1.

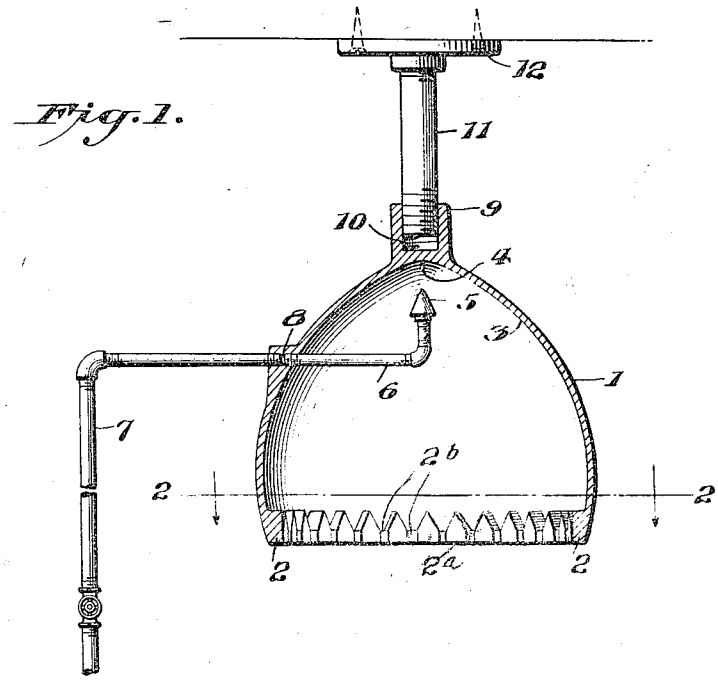
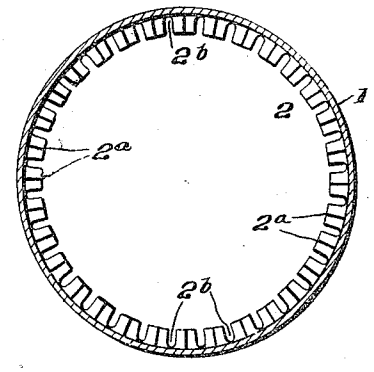


Fig. 2.



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UNITED STATES PATENT OFFICE.

LEO SIMMONS, OF WASHINGTON, DISTRICT OF COLUMBIA.

SPRAY HEAD FOR SHOWER BATHS.

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To all whom it may concern:

Be it known that I, LEO SIMMONS, a citizen of the United States of America, and a resident of Washington, District of Columbia, have invented certain new and useful Improvements in and Relating to Spray Heads for Shower Baths, of which the following is a specification.

This invention relates to certain improvements in spray heads for shower baths and other purposes; and the objects and nature of the invention will be readily understood by those skilled in the art in the light of the following explanation of the accompanying drawings that illustrate what I now believe to be the preferred mechanical expression or embodiment of my invention from among other forms, constructions and arrangements within the spirit and scope thereof.

An object of the invention is to provide an exceedingly simple and effective device for producing a water shower for shower bath purposes that will overcome certain disadvantages incidental to the use of the perforated face plate or so-called rose heads, now generally employed for spray head shower baths, and that will utilize means to form a water curtain and then break up such curtain to form streams or attain the desired spray all without the use of a closed hollow head having its outlet side closed by a perforated face plate or wall.

With this and other objects in view my invention consists in certain novel features in construction and in formations and arrangements of features, as more fully and particularly hereinafter explained and specified.

Referring to the accompanying drawings, forming part hereof:

Fig. 1 is a vertical section of a shower bath spray device embodying my invention.

Fig. 2 is a section on line 2—2 of Fig. 1.

My invention embodies a cavity of preferably substantial depth or length, closed except at its large open outlet end, and providing an unbroken annular approximately conoidal wall curving inwardly and longitudinally of the cavity from an annular or circular water curtain breaking-up rim surrounding the open end of the cavity, to the depressed center of the closed end of the cavity constituting the approximate apex of the wall. The interior surface of this cavity, exclusive of said rim, is preferably smooth and formed to cause the water from a jet discharged under pressure along the longitudinal axis of the cavity and against said center or apex, to longitudinally flow on and follow the surface of the cavity in the form of an annular unbroken water curtain or layer toward said rim which is designed to break up the hollow annular water curtain into the form desired to discharge from the large open end of the cavity, for shower bath purposes.

In the particular example illustrated by the accompanying drawings, I show an embodiment of my invention formed and arranged to spray the water downwardly and constitute an overhead spray head, that embodies a depending hollow head or bell 1 of approximate conoidal shape and open at its comparatively large end.

The lower circular or annular edge portion of this hollow head that surrounds the large bottom opening, is formed at its annular inner surface to provide a toothed or irregular water separating or breaking up annular rim 2, as more fully described hereinafter.

The preferably smooth unbroken annular interior surface 3 of the head curves and contracts or converges upwardly longitudinally of the head, from the rim 2 to the apex or center 4 which is alined with the longitudinal axis and center of the open bottom of the head and located at the extreme inner end or top of the interior of the head.

The water, under head or pressure, is introduced from a point within the head in the form of a centrally arranged upwardly directed single stream or jet directed against the closed center or apex 4 in the line of the longitudinal axis of the head. The interior surfaces 3, 4, are intended and designed to cause the jet of water to spread evenly over and cover the surface 3 and descend along said surface in the form of an unbroken annular stream or curtain until the rim 2 is encountered. This rim 2 is designed to separate this (what is then a hollow cylindrical) curtain into an annular series of parallel separate streams that will fall from the lower edge of the head to perform shower bath functions.

The interior surfaces 3, 4, are so designed as to reduce to the minimum, possiblity of the water jet being so sprayed or otherwise broken up by engagement with the center 4 as to drop vertically from the upper end of the head through the open bottom of the

head. On the contrary, the interior surface formation of the head is designed to cause the water to spread approximately uniformly radially from the apex 4 as a center and closely follow the surface 3 downwardly in a smooth stream completely covering said surface without substantial dripping or dropping therefrom until the rim 2 is reached.

In the example illustrated, the water is discharged under pressure upwardly and centrally against the apex 4, in the form of a jet, from a vertical nozzle 5 centrally arranged within the head and spaced a short distance from said apex. This nozzle 5, can be carried by an angle supply pipe 6, located within the head and carried thereby and extending radially from and secured to the shell or wall thereof.

The pipe 6 can be connected with and supplied from the water supply system of the building, through the medium of water supply pipe 7, screwed into a tapped water supply duct 8 extending radially through the shell or wall of the head to supply pipe 6.

The spray head 1 can be mounted or supported so as to depend at the desired distance above the floor, in any suitable manner or by any suitable means. For instance, I show the head formed with a central exterior top boss 9, having a tapped socket 10, receiving post 11 depending from base 12 secured to the ceiling or other overhead support.

In the particular embodiment illustrated as an example, the bottom or outlet end of the head is entirely open and unobstructed except for the internal rim 2, although I do not wish to so limit all features of my invention.

Also, in this example, the lower end of the head is internally slightly contracted in diameter to more or less confine and prevent undue spreading of the water shower descending therefrom, and also the water breaking up rim embodies an annular series of similar uniformly spaced radial projections 2^a forming an annular series within the head and radially intersecting the path of the descending annular water curtain, to provide an annular series of intervening uniformly spaced notches forming vertical water passages 2^b.

The function of the projections 2^a is to sub-divide the annular water current into separate streams that pass down through the water passages 2^b.

This water curtain breaking-up rim 2, can be variously formed to provide the annular series of water passages, whether or not provided for by the particular radial internal projections 2^a, which in this instance are in the form of radially wedge-shaped, beveled or tapered teeth that are vertically wedge-shape at their top ends or upwardly beveled to divide the descending water and concentrate the same in the vertical water passages.

It is evident that various changes, modifications and variations might be resorted to without departing from the spirit and scope of my invention and hence I do not wish to limit myself to the exact disclosures hereof.

What I claim is:

1. A spray head for shower baths comprising a hollow head open at one end and closed at the opposite end to constitute an elongated approximately conoidal water-curtain-forming wall and provided with an internal circular water curtain breaking-up rim around its open end, and means arranged to discharge a water jet within the head and centrally against the closed end thereof.

2. A water spraying device comprising a hollow head closed at one end and open at the opposite end for discharge of water in streams for shower bath purposes, and means for discharging a jet of water under pressure, centrally and longitudinally within the head and against the interior surface of the closed end thereof, the interior surface of said head being formed to cause the water from said jet to spread over said surface and travel toward said discharge end, said head being formed at said discharge end to divide the water into such streams.

3. A hollow head closed at one end and formed at the opposite end for water discharge in an annular series of sprays in combination with a nozzle arranged to discharge a water jet longitudinally within the head and centrally against the inner surface of the closed end thereof.

4. A hollow head closed at one end and open at its opposite water discharge end, the annular internal surface of the head being approximately conoidal from the center of said closed end toward the discharge end, a nozzle arranged to direct a jet of water under pressure centrally against said closed end, means being provided to cause the water to discharge from the head in spraying streams.

5. A hollow head having a closed end and an opposite discharge end provided with water curtain breaking-up means, the annular interior surface of the head curving and flaring from said closed end toward said discharge end for outward longitudinal flow of an annular curtain of water, and means for discharging a central longitudinal stream of water within the head and against the inner surface of the closed end thereof.

6. A hollow head closed at one end and at the opposite end provided with a surrounding rim of longitudinal separate water discharge passages, the annular inner surface of the head being smooth for flow of

water, and a water pipe carried by the head and adapted to be connected with a building water supply and provided with a water discharge arranged to direct a jet of water centrally and longitudinally within the head against the interior surface thereof to form an unbroken annular water curtain moving longitudinally along the inner surface of the head to said discharge passages to be thereby broken up and discharged as spray streams.

7. A hollow head closed at its upper end and open at its lower end and exteriorly formed to be attached to and depend from a support, and a water supply pipe having an upwardly directed discharge arranged to discharge a stream of water longitudinally within the head and centrally against the inner surface of the closed end thereof, the lower end of said head provided with an internal circle of radial inwardly projecting teeth forming intervening longitudinal water passages with the curved annular inner surface of the head leading thereto.

8. A shower bath water spraying device presenting an approximately conoidal cavity having a discharge end with a surrounding water curtain breaking-up rim, and means to discharge water into the opposite end of the cavity to form a water curtain moving toward said discharge end.

9. A hollow head having an open discharge end formed to provide a water curtain breaking-up rim, and means to discharge water into the opposite end of the head to form a water curtain therein moving toward said rim.

Signed at Washington, D. C., this 10th day of November, 1922.

LEO SIMMONS.