

Jan. 13, 1942.

R. E. BLETCHER ET AL

2,269,901

SHOWER HEAD

Filed Oct. 1, 1937

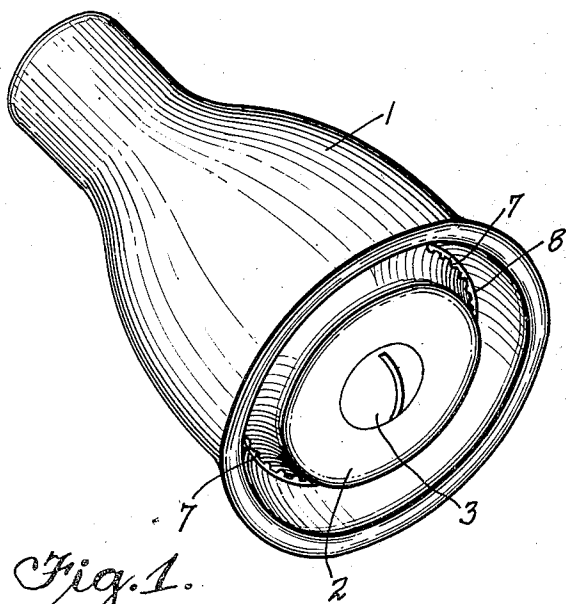


Fig. 1.

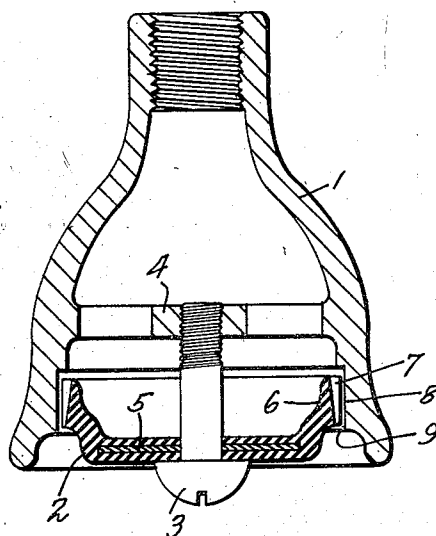


Fig. 2.

Fig. 4.

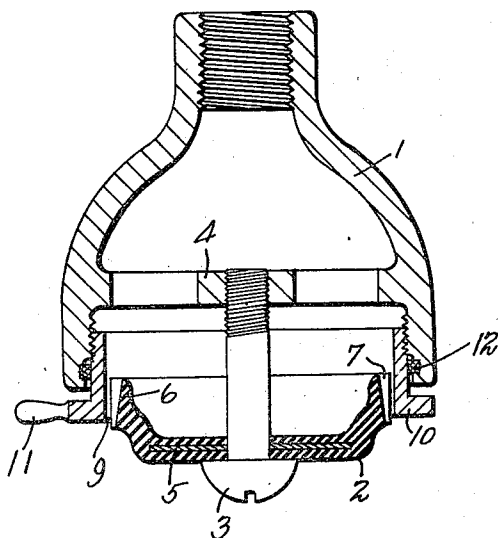
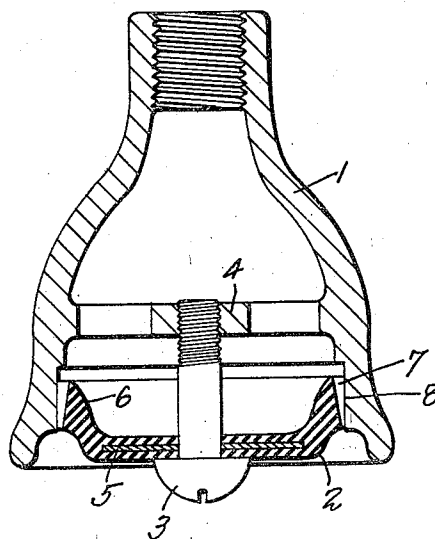


Fig. 3.



Inventors
Ralph E. Blecher
Ernest H. Bucknell

By Lyon & Lyon

Attorneys

UNITED STATES PATENT OFFICE

2,269,901

SHOWER HEAD

Ralph E. Bletcher and Ernest H. Bucknell,
Los Angeles, Calif.

Application October 1, 1937, Serial No. 166,806

6 Claims. (Cl. 299—59)

This invention relates to shower heads, and more particularly to a shower head which is of simple construction, including a minimum of parts, and which is self-cleaning.

It is an object of our invention to provide a shower head which includes a metal shell and a flexible water controlling member which is so formed as to provide for the required distribution of the water from the shower head.

Another object of our invention is to provide a shower head including a container and a flexible material controlling element which is grooved at its periphery to provide a multiplicity of water sprays so formed as to provide for the proper water distribution and which is provided with a flexible rim which, under pressure of the water, is held in position with relation to the container to provide a multiplicity of water passages between the container and the flexible member.

Another object of our invention is to provide a shower head including a control element having a flexible pressure sensitive controlling rim and a means whereby the flow of water through said head may be easily and effectively adjusted.

Other objects and advantages of this invention it is believed will be apparent from the following detailed description of a preferred embodiment thereof as illustrated in the accompanying drawing.

In the drawing:

Figure 1 is a perspective view of a shower head embodying our invention.

Figure 2 is a sectional elevation of a shower head embodying our invention.

Figure 3 is a view of our shower head similar to Figure 2 but illustrating the same with its flexible rim expanded under the influence of water under pressure.

Figure 4 is a similar sectional view of a modified form thereof wherein the structure of shower head of Figures 1 and 3 is adjustable to control the volume of water issuing from the head.

We have illustrated our invention in the accompanying drawing in two forms it may take, as obviously it is susceptible of great modification. The showings made are entirely illustrative and are not intended to in any way limit our invention to the particulars as therein shown.

We consider our invention to be primary in character, particularly in the provision of a self-cleaning shower head which includes a member having a flexible rim so grooved and positioned within a carrying member that the pressure of the water against said rim will act to hold the rim in such position as to maintain the flow of

water through the grooves and when the pressure of the water is dissipated, the rim will retract from such position, increasing the size of the opening at the edge of the rim so as to prevent clogging of the passages from the deposit of material from or as carried by the water.

In the form of our invention illustrated in the drawing there is provided a container or shell 1 which may be of any suitable or desirable construction or material, and as illustrated is preferably nonflexible under water pressure.

A disc 2 is mounted within the shell 1 and held in position by a screw 3 which is threaded to a cross-piece 4 of the shell 1. The cross-piece 4 may be of any form such as a rod extended across the interior of the shell 1 or a perforated disc, according to the desire of the manufacturer or material used for the shell 1.

The screw 3 permits the removal or replacement of the disc 2 should it be desired for any reason. The disc 2 is preferably formed of relatively soft flexible vulcanized rubber, and is molded of the shape desired and to include a reinforcing disc 5 within its interior to stiffen the same to enable it to resist the pressure of the water from within the shell 1.

We provide the disc 2 with a circumferential wall in contact with the liquid flowing through the head and capable of expanding under the liquid pressure, and contracting again when the pressure ceases. To this end, at its edge the disc 2 has the flexible rim 6 which may be approximately cylindrical and may be thicker to enable the formation of water grooves 7 on its outer periphery. The grooves are formed in any desired manner and may be tapered as illustrated. The grooves may be formed at divergent angles from, or may be parallel to, the longitudinal axis of the shell 1, depending upon the water distribution desired.

The shell 1 is formed at its lower end with a cut-away recess 8 into which the rim 6 extends. The rim 6 is of a diameter less than the inner diameter of the shell 1 within the recess 8, thus leaving an open passage 9 (Figure 1) when the rim 6 is not expanded under water pressure. This passage 9 is closed, as illustrated in Figure 2, when water under pressure acts to expand the rim 6 against the wall of the recess 8, thereby confining the flow of water to the grooves 7. When the water is first turned on, and when the flow of water to the shell 1 is stopped, the water remaining flushes out the passage 9 and grooves 7, preventing the deposit of foreign material to clog said grooves. The head is thus self-cleaning.

While it may be more desirable to construct the entire disc 2 of flexible vulcanized rubber as illustrated because of the added flexibility and retracting power for the rim 6 of the entire disc radially from the center thereof, it is obvious that this is not essential to our invention. The disc 2 could obviously be constructed of any other material which will not flex outwardly under the pressure of the water so long as the rim 6 thereof is constructed so as to be flexible and to control the flow of water under the pressure of said water.

In the form of our invention illustrated in Figure 4, the same parts are included and are designated with the same reference numerals. This illustration adds to that of Figures 1 to 3, inclusive, the feature of water volume control. This is accomplished in a simple manner by threading to the interior of the shell 1 a volume control member 10 which is provided with a handle 11 for ease of operation.

In order to prevent dripping of water it may be desirable to provide packing between the control member 10 and shell 1 as illustrated at 12. This packing, however, can easily be dispensed with as a leak at this point would be ordinarily immaterial with water issuing from the head proper.

The operation of this volume control member 10 is simple. As the grooves 7 are tapered and as the rim 6 is forced into engagement with the inner periphery of the member 10 under pressure of the water within the shell 1, the size of the openings from which the water emerges will be dependent upon the point of engagement of the rim 6 with the member 10. As the member 10 is rotated to position the same at the lower end of the grooves 7, the water flow will be greatly restricted either completely shutting off the water, or restricting the same to a "needle spray" depending upon the depth of the grooves 7 at their lower ends. As the member 10 is threaded into the shell 1, the depth of the grooves increases, thereby permitting a freer and coarser spray to issue from the head.

In shower heads constructed with the rim 6 made of rubber there is an inherent quality in the rubber which in large measure prevents the undesirable formation and deposit of lime salts in the shower head. It is, therefore, apparent that many of the objects of the present invention are obtained by snugly fitting a rim of rubber without the passage 9. It will be obvious that it is within the scope of this invention to position the grooves 7 in the wall 8 rather than in the rim 6.

It is obvious that many other means of adjustment may be provided and the use of the control member so positioned is intended merely as illustrative and not as a restriction of our invention.

Having fully described our invention, it is to be understood that we do not wish to be limited to the details herein set forth, but our invention is of the full scope of the appended claims.

We claim:

1. A shower head comprising an outer shell, a flexible rubber rim fitting within said shell at the periphery of the rim, and grooves in the periphery of the rubber rim and defining spray channels with the outer shell for directing sprays of water from within the shell.

2. In a shower head, a shell to confine water under pressure having a water passage therein, a closure member at the outlet of the shell having a flexible rim positioned within said passage and having the periphery of the rim spaced from the shell wall, the flexible rim having peripheral water passage grooves formed therein, said rim having an inner face adjacent said periphery exposed to the water pressure and acting under pressure to expand the periphery of the rim against said wall to confine the flow of water to said peripheral grooves whereby upon dissipation of water pressure the rim will contract to open said passage to flush the same and said grooves, and the grooves being formed in the periphery of the said rim to direct the water and a water control member adjustably secured to said shell to move longitudinally of said passage to control the flow of water therefrom.

3. In a shower head for spraying water under pressure to form a shower, the combination of two members having adjacent faces forming a passage for the water, one of said members being a closure member for the passage and formed of rubber and there being formed between the periphery of the rubber member and the other member a multiplicity of grooves defining spray channels forming a part of said passage, and the rubber member having an expansible flange adjacent said grooves and within the water passage, and so positioned as to be operable under pressure of the water within said shower head to effect a relative movement of the rubber member closure to the other member to confine the flow of water to said spray channels.

4. In a shower head for spraying water to form a shower, the combination of a shell having a circumferential face, a rubber closure disc mounted in said shell and having a flexible grooved periphery mounted to contact the periphery of the shell from within the water passage defined in the shell, and said disc having a circumferential expansible wall adjacent its grooved periphery and lying within the water passage within the shell, and said disc member having its inner face carrying said expansible wall in contact with the water within the shell so that the pressure of water in the shell operates to expand the expansible wall to confine the flow of water to the spray channels defined between the periphery of the disc and the inner periphery of the shell.

5. A shower head comprising an outer shell, a flexible rubber rim having a peripheral flange fitting within the shell at the periphery of the flange, the said flange extending inwardly of the shell, and channels formed through the flange defining spray channels for directing sprays of water to form a shower spray.

6. A shower head comprising a shell to confine water under pressure and having a water passage therein, a closure member at the outlet of the shell including a flexible rubber rim having a peripheral flange fitting within said passage at the periphery of the flange, the said flange extending inwardly of the shell, and a multiplicity of water channels formed through the flange at angles from the longitudinal axis of the shell for directing water from within the shell to form a shower spray.

RALPH E. BLETCHER.
ERNEST H. BUCKNELL.