Nov. 19, 1940. G. B. NYSTROM 2,222,465

SPRAY HEAD

Filed April 5, 1940

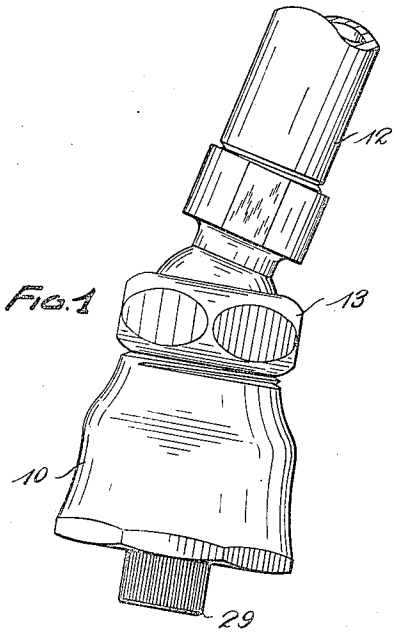


Fig. 1

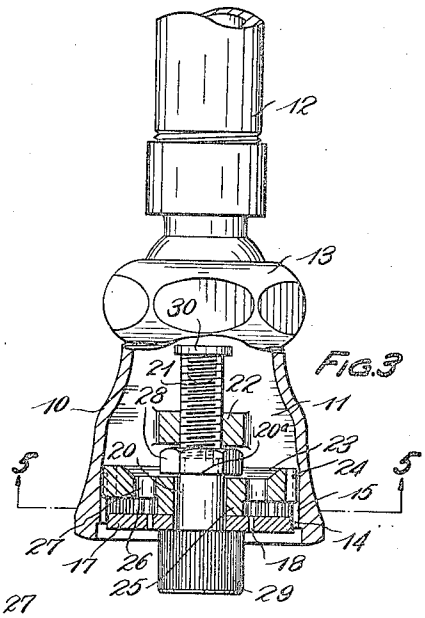


Fig. 3

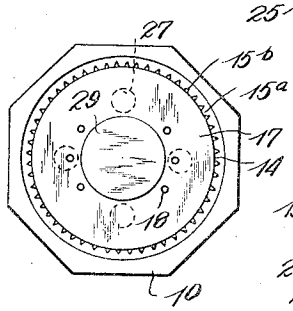


Fig. 2

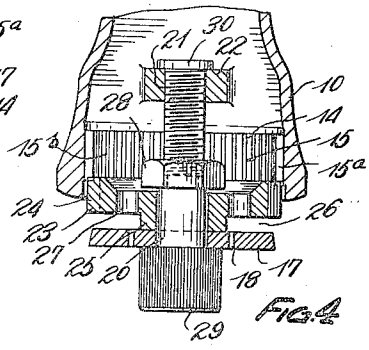


Fig. 4

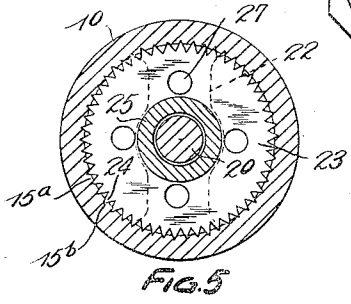


Fig. 5

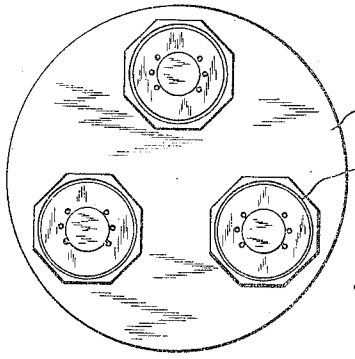


Fig. 6

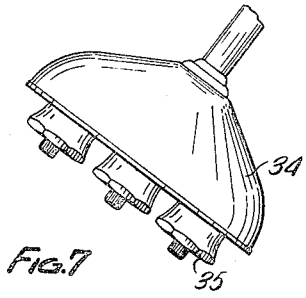


Fig. 7

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SPRAY HEAD

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9 Claims. (Cl. 299—59)

This invention relates to spray heads for shower baths or other uses, and more particularly to an improved spray device or shower head of the self-cleaning type.

An object of my invention is to provide an improved self-cleaning spray head which can be very economically manufactured and in which the cleaning of the fluid passages can be very quickly and easily accomplished.

Another object of my invention is to provide an improved construction for self-cleaning spray heads, in which the grooves of a serrated portion of the device form delivery passages for the fluid and a gear-like member having teeth engaging in such grooves is shiftable so as to move the teeth thereof along the grooves for cleaning the same.

My invention may be further briefly summarized as consisting in certain novel combinations and arrangements of parts hereinafter described and particularly set out in the appended claims.

In the accompanying sheet of drawings,

Fig. 1 is a side elevation of a shower head embodying my invention;

Fig. 2 is a view of the discharge end of the shower head;

Fig. 3 is another elevation of my improved shower head with a substantial portion thereof shown in longitudinal section;

Fig. 4 is another partial longitudinal sectional view, but showing certain parts of the device in the position to which they are moved during the cleaning operation;

Fig. 5 is a transverse sectional view taken through the device as indicated by line 5—5 of Fig. 3;

Fig. 6 is an end view of a shower bath fitting carrying a multiple arrangement of shower heads of my improved construction; and

Fig. 7 is a side view showing another multiple arrangement for my self-cleaning shower head.

Further reference will now be made to the accompanying drawing for the purpose of describing the construction and operation of my self-cleaning shower head and although the illustrated embodiment is described in considerable detail, it will be understood, of course, that the invention is not limited to the particular device or construction herein disclosed, but may be embodied in numerous other spray heads and like devices.

As shown in the drawing, my improved self-cleaning shower head may comprise a body 10 having a recess or fluid passage 11 therein and adapted to be swivelly connected with a fluid supply pipe 12 by means of a swivel coupling 13 with the recess or passage 11 forming a continuation of the passage of the supply pipe 12.

The passage 11 extends through the lower end of the body 10 as an opening 14 which is defined or surrounded by an internally serrated annular rim or shoulder 15. This rim or shoulder may be formed integral with the body 10 and the teeth or serrations 15*a* thereof may have substantially flat tops defining the circular opening 14. The intervening grooves 15*b* of the serrated shoulder 15 may be of V-like shape and may be of a depth suitable to form passages for delivering a plurality of streams of fluid, as will be presently explained. These grooves 15*b* may extend axially or longitudinally of the passage 11 and may be formed in any appropriate manner, such as by a broaching operation.

A transverse disk member or plate 17 may be provided in or adjacent the opening 14 to restrict this opening so that the grooves 15*b* will form passages for delivering a plurality of streams of fluid from the device as is desirable in shower heads of this character. The disk member 17 may be of circular form and of a size to extend into, or part way into, the opening 14 so that its rim or periphery extends adjacent or seats against the flat tops of the teeth 15*a*, as shown in Figs. 2 and 3. The outer end portions of the grooves 15*b* which are thus spanned by the outer edge or peripheral face of the disk member 17 form an annular series of discharge passages. In addition to the passages thus formed by the grooves 15*b*, I may provide additional fluid delivery passages by forming one or more openings 18 through the disk member 17.

The disk member 17 may be carried by a stem 20 extending axially of the recess or passage 11 and which is rotatable and axially movable for a purpose to be presently explained. This stem may be connected with the body 10 by means of a screw portion 21 projecting through a threaded opening of an arm or rib 22 which extends transversely of the body interiorly thereof.

During the use of this shower head, the passages extending past the periphery of the disk member 17 and formed by the grooves 15*b* may become clogged with rust or other impurities carried by the water being supplied by the pipe 12. For cleaning these passages and dislodging therefrom the rust or other impurities accumulating therein, I provide a cleaning member 23 in the form of a serrated disk or gear-like member having teeth 24 engaging in the grooves 15*b*. The

teeth 24 have the same shape and pitch as the grooves 15b and hence, in this instance, are of V-like shape.

This serrated disk or gear-like member 23 is disposed inwardly of the disk member 17 and may also be carried by the stem 20. The disk member 23 may have a sleeve portion 25 engageable with the disk 17 so as to maintain a space 26 therebetween to which fluid may be supplied through the openings 27. A nut 28 provided on the threaded portion 21 of the stem 20 engages a shoulder 20a thereon and cooperates with the knurled head 29 of the stem for holding the disk members 17 and 23 adjacent each other and causing them to shift with the stem during axial movement thereof. The stem 20 is rotatable in the sleeve portion 25 of the disk member 23 and may also be rotatable in the disk member 17.

To make use of the disk member 23 in cleaning the passages formed by the grooves 15b, the stem 20 is rotated by means of the knurled head 29 thereof in a direction tending to unscrew the stem portion 21 from the threaded opening of the arm 22. This will cause outward axial shifting of the stem 20 by which the disk members 17 and 23 will be shifted to the position shown in Fig. 4, that is to say, the disk member 17 will be shifted outwardly of the opening 14 to a position with its rim spaced from the grooved or serrated portion 15 of the body 10 and the disk member 23 will be shifted outwardly to cause its teeth 24 to travel along in the grooves 15b. This movement of the teeth of the disk member 23 in the grooves will cause all rust or other foreign matter which has accumulated in these grooves to be scraped or pushed therefrom.

I may provide means for limiting such outward shifting of the disk members 17 and 23 so as to prevent complete separation of the same from the body 10. This limiting means may be in the form of a head 30 provided on the inner end of the stem 20 and formed either by a peened portion thereof or by a screw or other means applied thereto.

As shown in Figs. 3 and 4, the teeth 15a and the grooves 15b preferably are of a length considerably greater than the thickness of the disk member 17 so that when this disk member is in its closed position shown in Fig. 3, the teeth of the disk member 23 may be in mesh with the grooves 15b. Likewise, it is desirable that the threaded stem portion 21 be of a length such that the limiting head 30 will engage the arm 22 before the teeth of the disk member 23 become disengaged from the grooves 15b when the disk member 17 has been shifted to its open position, as shown in Fig. 4.

From the accompanying drawing and the foregoing description, it will now be readily seen that I have provided a self-cleaning shower head of very simple and inexpensive construction. It will also be seen that when the discharge passages of the device become clogged, it is only necessary for the user to grasp the knurled head 29 and rotate the same first in a counterclockwise direction to shift the disk members 17 and 23 to their open position, and then in a clockwise direction to return the disk members to their closed position. This operation can be carried out while the shower head is in use and the rust or other accumulated matter which is scraped from the grooves by the teeth of the gear member 23 will be carried away by the fluid flowing through the shower head.

My improved self-cleaning shower head can be used singly, as shown in Fig. 1, or if preferred, can be used in various multiple arrangements including those illustrated in Figs. 6 and 7. Fig. 6 shows a hollow fitting or carrier 32 having three of my improved self-cleaning shower heads 33 mounted in circumferentially spaced relation thereon. Fig. 7 shows a carrier or fitting 34 also having three of my improved self-cleaning shower heads 35 mounted thereon but with the shower heads arranged in a substantially straight line.

While I have illustrated and described my improved self-cleaning spray device or shower head in a more or less detailed manner, it will be understood, of course, that I do not wish to be limited to the precise construction and arrangements herein disclosed, but regard my invention as including such changes and modifications as do not constitute a departure from the spirit of the invention and the scope of the appended claims.

Having thus described my invention, I claim:

1. A self-cleaning spray head comprising a body having therein a fluid passage and a plurality of grooves adjacent the delivery end of said passage, means arranged to restrict said passage to enable said grooves to discharge a plurality of streams, and a member having a plurality of teeth engaging in said grooves and being movable to cause said teeth to travel along the grooves to clean the same.

2. A self-cleaning spray head comprising a body having a fluid passage and an annular series of grooves at the delivery end of such passage, and a gear-like member having teeth engaging in said grooves and being movable to cause said teeth to travel along the grooves to clean the same.

3. A spray head comprising a body having an opening therein and serrations on the wall of said opening, means restricting said opening so that the grooves between the serrations form a plurality of discharge passages, a serrated member having the teeth thereof engaging in said grooves, and means for shifting said serrated member in a direction to move the teeth thereof along said grooves to clean the same.

4. A spray head comprising a body having an opening therein and an annular series of grooves formed in the body portion surrounding such opening, a member disposed adjacent the grooved portion of said body and restricting said opening so that said grooves form discharge passages, and a second member inwardly of the first member and having peripheral teeth engaging in said grooves, said second member being shiftable in a direction to move said teeth along said grooves to clean the same.

5. A spray head comprising a body having an opening therein and an annular series of grooves formed in the body portion surrounding such opening, a stem mounted in said body and extending substantially axially of said opening, a disk member restricting said opening and normally supported on said stem with its rim adjacent the grooved body portion but being movable to space said rim from said grooved body portion, and a second disk member supported on said stem inwardly of the first disk member and having peripheral teeth engaging in said grooves and being shiftable to move said teeth along said grooves.

6. A shower head comprising a body having an opening therein and an annular series of grooves formed in the body portion surrounding such opening, a threaded stem extending substantially axially of said opening and adapted upon rotation

thereof to be moved inwardly or outwardly of said opening, a disk member on said stem and normally in a position restricting said opening with its rim adjacent the grooved body portion but movable with the stem to space said rim from said grooved body portion, and a second disk member inwardly of the first disk member and having an opening in which said stem is rotatable, said second disk member having peripheral teeth engaging in said grooves and being shiftable with the stem to move said teeth along the grooves.

7. A shower head comprising a body having an opening therein and an annular series of grooves formed in the body portion surrounding such opening, a threaded stem extending substantially axially of said opening and adapted upon rotation thereof to be moved inwardly or outwardly of said opening, a disk member on said stem and normally in a position restricting said opening with its rim adjacent the grooved body portion but movable with the stem to space said rim from said grooved body portion, a second disk member inwardly of the first disk member and having an opening in which said stem is rotatable, said second disk member having peripheral teeth engaging in said grooves and being shiftable with the stem to move said teeth along the grooves, and means limiting the outward movement of said stem to prevent disengagement of said teeth from said grooves.

8. A spray head comprising a body having an opening and an internal annular series of grooves in the body portion surrounding said opening, and a stem shiftable axially of said opening and having thereon a pair of axially spaced disk members which are shiftable therewith, the outer disk member being of a size to seat in said opening with its rim spanning said grooves and the inner disk member having peripheral teeth engaging in said grooves.

9. A shower head comprising a hollow body having an annular series of substantially flat topped teeth defining an opening therein with grooves between the adjacent teeth, and a stem shiftable axially of said opening and having thereon a pair of axially spaced disk members which are shiftable therewith, the outer disk member having a peripheral portion seating against the tops of said teeth and spanning said grooves and the inner disk member having peripheral teeth engaging in the grooves and of substantially the same cross-sectional shape as the grooves.

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