Dec. 23, 1952 J. C. SARBU 2,622,927

REVOLVING SHOWER HEAD

Filed Aug. 20, 1949

Fig. 1.

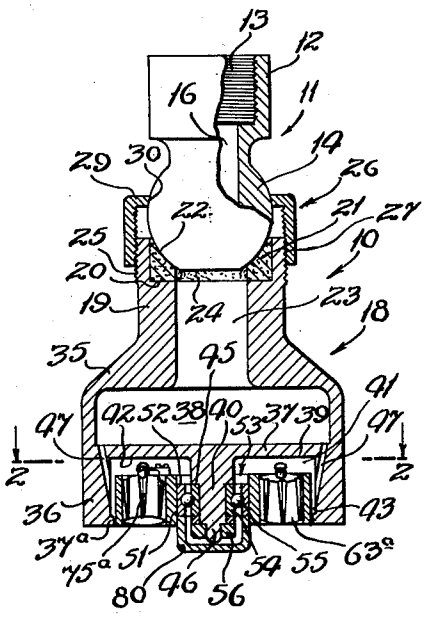


Fig. 2.

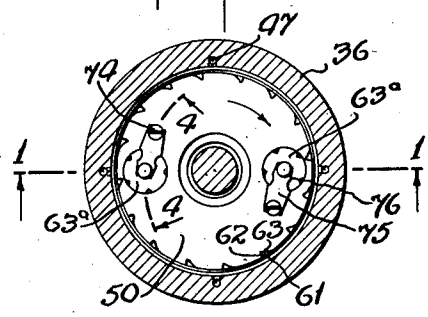


Fig. 3.

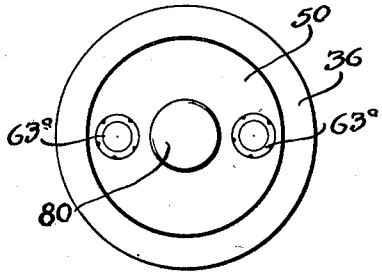


Fig. 4.

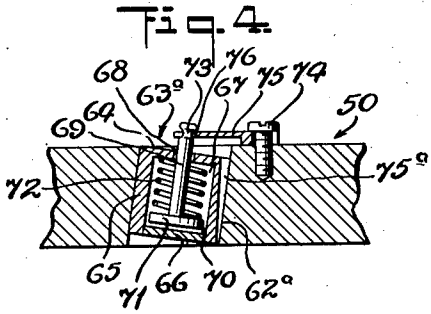
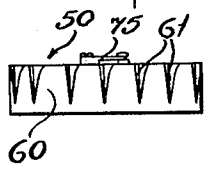


Fig. 5.



INVENTOR.
JOHN C. SARBU

BY
J. B. Felolini
ATTORNEY

Patented Dec. 23, 1952

2,622,927

UNITED STATES PATENT OFFICE

2,622,927

REVOLVING SHOWER HEAD

John C. Sarbu, New York, N. Y.

Application August 20, 1949, Serial No. 111,397

6 Claims. (Cl. 299—69)

1

This invention relates to a revolving shower head.

An object of this invention is to provide a shower head of the character described comprising a casing receiving water under pressure, a revolving disk at the front end of the casing, means to cause water from the casing to rotate the disk, and spring compressed plungers on said disk formed with longitudinal grooves through which water is sprayed, the arrangement being such that as pressure increases behind the disk, the plungers are pressed forwardly against the pressure of the springs which serve to return the plungers to normal position when the water of the shower head is turned off.

Another object of this invention is to provide a shower head of the character described, provided with a revolving member on which are slidably mounted spring compressed plungers formed with spray grooves through which water passes, said grooves increasing in cross section toward the rear ends of the plungers so that as the water pressure increases the plungers advance to increase the spray.

Yet another object of this invention is to provide a shower head comprising a casing having an inlet opening and a chamber communicating with the inlet opening and said casing being provided with a transverse wall, and a recess at its outer side to receive a rotary disk, said casing being formed with openings through which water passes from the chamber to the edge of the disk, said disk being formed at its edge with vaned grooves against which water impinges for rotating the disk.

A still further object of this invention is to provide a strong, rugged and durable shower head of the character described which shall be relatively inexpensive to manufacture, and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown various illustrative embodiments of this invention,

Fig. 1 is a cross sectional view taken on line 1—1 of Fig. 2 and illustrating a shower head embodying the invention;

Fig. 2 is a cross sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a front end view of the shower head;

Fig. 4 is an enlarged cross sectional view taken on line 4—4 of Fig. 2; and

Fig. 5 is a side edge view of the rotating disk.

2

Referring now in detail to the drawing, 10 designates a shower head embodying the invention. The same comprises a fitting 11 which may be attached to any suitable pipe to receive water under pressure. The fitting 11 has a socket 12 at its rear end formed with internal screw threads 13. Extending from the socket 12 is a ball head 14. The fitting is formed with a through opening 16 extending entirely through the fitting.

Attached to the head 14 for universal movement is a casing 18. Said casing 18 has a tubular portion 19 countersunk as at 20, at its rear end. Received within the countersunk socket 19 is a packing 21 having a part-spherical inner surface 22. The tube 19 has a through opening 23. The packing 21 has a central opening 24 communicating with the opening 23.

The head 14 fits into the part-spherical surface 22 of the packing 21 and corresponds in diameter thereto. The tubular portion 19 has an outer threaded portion 25. Screwed thereto is a coupling 26. The coupling 26 has an outer internally threaded, skirted portion 27 screwed to the threads 25. The coupling 26 also has a top or end wall or flange 29 formed with a part-spherical edge 30, likewise engaging the outer spherical head 14 of the fitting 11.

Upon tightening the coupling 26 on the threaded portion 25, the head 14 is pressed against the packing 21 to effect a universal joint connection between the casing 18 and the fitting 11.

Extending from the tubular portion 19 is an annular outwardly flaring shoulder 35 from which extends a cylindrical wall 36, greater in diameter than said tubular portion. The casing is also formed with a transverse wall 37 forming with the shoulders 35, a chamber 38 communicating with the opening 23. The cylindrical wall 36 extends beyond the wall 37. The front end of the casing is thus recessed or countersunk, as as 39. Extending forwardly from wall 37 is a central stem or shaft 40. There is thus formed at the front of the casing a ring shaped recess 41 having a bottom surface 42 and an outer cylindrical surface 43. At the inner side of the forward end of said cylindrical wall 37 is an internal bead or flange 37a.

The stem 40 may be formed with an annular shoulder 45 if desired. Said stem 40 is also formed at its front end with an external screw threaded stud 46. The casing is formed with a plurality of rearwardly and outwardly inclined drilled openings 47 interconnecting the recess 41 with the chamber 38. Thus water passing through the fitting 11, under pressure, will move through opening 23, chamber 38 and openings 47. The forward ends of the drilled openings 47 are substantially at the middle of the cylindrical interior surface 43.

Rotatably mounted within the recess 41 is an annular disk 50. The annular disk 50 is formed with a central opening 51. Fixed within the through opening 51 is an outer race 52 of a ball bearing member 53. Fixed to the front end of the stem 40 is an inner race 54 of said ball bearing member. Between the races 52 and 54 are the ball bearing balls 55. Screwed to the stud 46 is a nut 56 which serves to keep the ball bearing member against coming out. The outer diameter of the disk 50 is only slightly smaller than the inner diameter of the recessed surface 43. Bead 37a extends to the outer end of the outer edge of the disk. The disk 50 has an outer surface 60. The outer surface 60 is formed with a plurality of notches 61. Each notch 61 has a substantially radial surface 62 and an inclined surface 63. Said notches terminate short of the outer end of the disk and increase in cross section toward the rear. Water passing through the openings 57 will impinge upon the radial surface 62 and serves to rotate the disk in the direction of the arrow in Fig. 4. Rotation of the disk is facilitated by reason of the fact that it is mounted on a ball bearing member 53. Some water will pass out between the outer edge of the disk and the bead 37a. However, water pressure will also be built up in back of the disk.

The disk 50 is formed with a pair of diametrically opposed drilled through openings 62a which may be somewhat inclined to the front and rear surfaces of the disk. Slidably mounted in each opening 62a is a plunger 63a. Each plunger 63a has a rear wall 64 and a cylindrical wall 65 and a front wall 66. The front wall 66 may be formed with a plug force fitted into the front end of the plunger. The plunger thus has an interior chamber 67. The rear wall 64 has a central through opening 68. Extending through said openings 68 is a stem 69 of a piston 70. On the front end of the stem 69 is a piston head 71. Between the piston head 71 and the rear wall 64 of the plunger is a coil compression spring 72. Each stem 69 is formed adjacent its rear end with an annular groove 73. Screwed to the inner surface of the disk, adjacent each stem, is a screw 74. The head of the screw serves to clamp to the rear surface of the disk a bracket 75, formed with a notch 76 at its front end, received within the groove 73 of the stem 69.

Each plunger 63a is formed at its outer surface with a plurality of longitudinal grooves 72a, increasing in width toward the rear. It will now be understod that water passing through openings 47 will build up pressure at the rear of the disk and force the plungers 63a outwardly, compressing the springs 72. It will be observed that water may pass through the grooves 75a and form a spray as the disk 50 rotates. The thickness of the spray streams will increase as the plunger moves outwardly beyond the front surface of the disk.

It will be observed that movement of the plungers will not only increase the spray but will keep the grooves 75a clean, thus the spray will be self-regulated and the spray openings will be constantly cleaned and will not become stopped up.

A cap 80 may be mounted within the outer end of the opening 51 so as to cover the nut and to prevent water from passing through the ball bearing.

It will thus be seen that there is provided a device in which the several objects of this invention

are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understod that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

Having thus described my invention I claim as new and desire to secure by Letters Patent:

1. A shower head comprising a casing, a disk mounted for rotation within the casing with the disk's outer peripheral surface rotating adjacent the inner surface of the casing, said disk having notches in its outer periphery, said casing having means to receive water under pressure and being formed with openings to pass water under pressure to said notches for rotating said disk, said disk being formed with a longitudinal through opening, a hollow plunger within said opening, a flanged stem within said plunger, a compression spring between the flanged stem and the bottom of said plunger and means to attach said flanged stem to said disk.

2. A shower head comprising a casing, a disk mounted for rotation within the casing with the disk's outer peripheral surface rotating adjacent the inner surface of the casing, said disk having notches in its outer periphery, said casing having means to receive water under pressure and being formed with openings to pass water under pressure to said notches for rotating said disk, said disk being formed with a longitudinal through opening, a hollow plunger within said opening, a flanged stem within said plunger, a compression spring between the flanged stem and the bottom of said plunger and means to attach said flanged stem to said disk, said opening being at an angle to the axis of said disk.

3. A shower head comprising a casing, a disk mounted for rotation within the casing with the disk's outer peripheral surface rotating adjacent the inner surface of the casing, said disk having notches in its outer periphery, said casing having means to receive water under pressure and being formed with openings to pass water under pressure to said notches for rotating said disk, said disk being formed with a longitudinal through opening, a hollow plunger within said opening, a flanged stem within said plunger, a compression spring between the flanged stem and the bottom of said plunger and means to attach said flanged stem to said disk, said opening being at an angle to the axis of said disk, said plunger having longitudinal grooves in its outer periphery.

4. A shower head comprising a casing, a disk mounted for rotation within the casing with the disk's outer peripheral surface rotating adjacent the inner surface of the casing, said disk having notches in its outer periphery, said casing having means to receive water under pressure and being formed with openings to pass water under pressure to said notches for rotating said disk, said disk being formed with a longitudinal through opening, a hollow plunger within said opening, a flanged stem within said plunger, a compression spring between the flanged stem and the bottom of said plunger and means to attach said flanged stem to said disk, said opening being at an angle to the axis of said disk, said plunger having longitudinal grooves in its outer periphery, said grooves increasing in size from front to rear.

5. A shower head comprising a casing having a tubular portion, an annular shoulder extend-

ing from said portion, a cylindrical wall extending from said annular shoulder, said casing being formed with a transverse wall spaced from the outer end of said cylindrical wall, said transverse wall being formed with a central stem, an annular disk rotatably mounted on said stem by means of a ball bearing, said casing being formed with a chamber disposed between said transverse wall and said shoulder, and being formed with openings upwardly and outwardly inclined with respect to said cylindrical wall and extending from the chamber to the interior of said cylindrical wall and outwardly of said transverse wall, said disk being formed at its periphery with vaned notches, each notch having substantially a radial surface and an inclined surface whereby water under pressure fed into said chamber will pass to the periphery of said disk and impinge upon said vaned notches for rotating said disk, said disk being formed with a plurality of diametrically opposed through openings, a plunger in each opening, a flanged stem within each plunger, a spring interposed between each flanged stem and its plunger, means to attach each flanged stem to said disk and each plunger being formed at its periphery with longitudinal notches.

6. A shower head comprising a casing having a tubular portion, an annular shoulder extending from said portion, a cylindrical wall extending from said annular shoulder, said casing being formed with a transverse wall spaced from the outer end of said cylindrical wall, said transverse wall being formed with a central stem, an annular

disk rotatably mounted on said stem by means of a ball bearing, said casing being formed with a chamber disposed between said transverse wall and said shoulder, and being formed with openings extending from the chamber to the interior of said cylindrical wall and outwardly of said transverse wall, said disk being formed at its periphery with vaned notches, each notch having substantially a radial surface and an inclined surface whereby water under pressure fed into said chamber will pass to the periphery of said disk and impinge upon said vaned notches for rotating said disk, said disk being formed with a plurality of diametrically opposed through openings, a plunger in each opening, a flanged stem within each plunger, a spring interposed between each flanged stem and its plunger, means to attach each flanged stem to said disk and each plunger being formed at its periphery with longitudinal notches, said notches increasing in cross sectional area from front to rear.

JOHN C. SARBU.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
567,925	Shoots	Sept. 15, 1896
588,262	Boekel	Aug. 17, 1897
1,454,280	Hendrikson	May 8, 1923