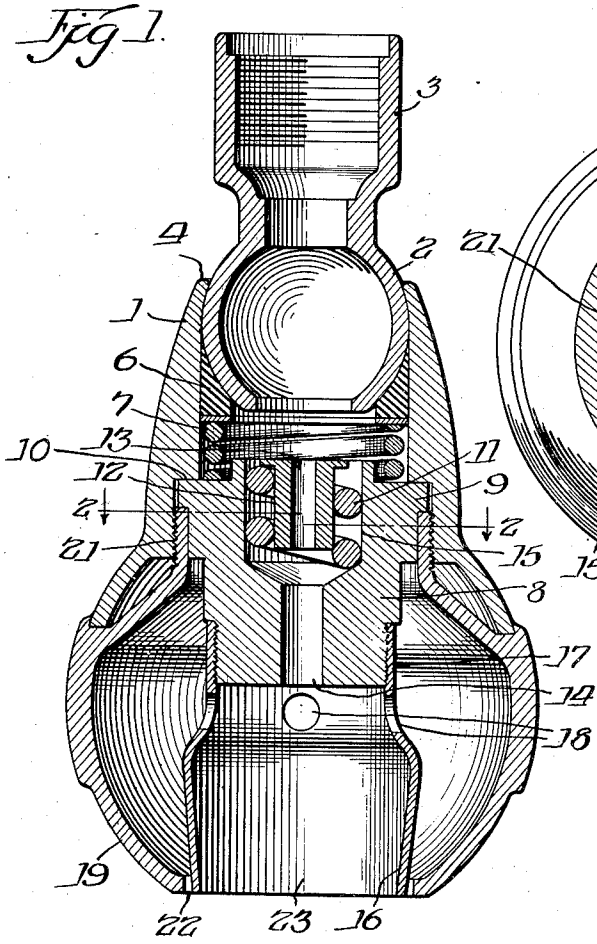
April 6, 1943. J. R. TUREK ET AL 2,316,135

SHOWER HEAD

Filed Jan. 29, 1942

Fig. 1.



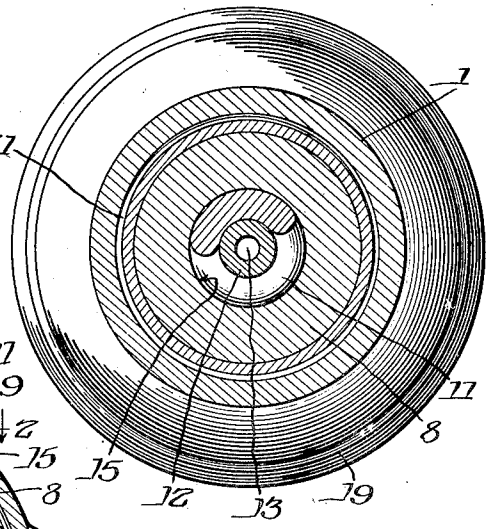
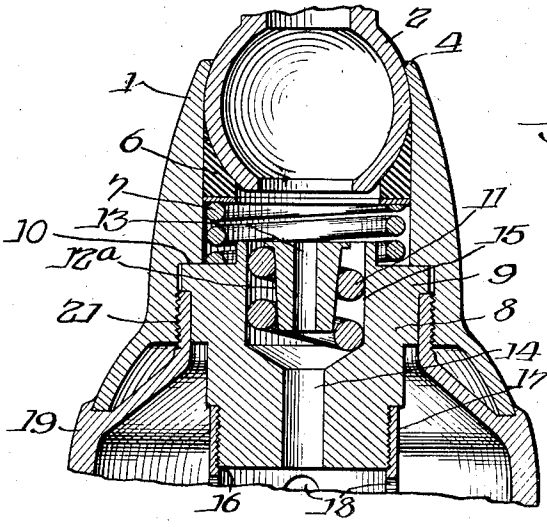


Fig. 2.

Fig. 3.



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SHOWER HEAD

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4 Claims. (Cl. 261—116)

This invention relates to a new and improved shower head and has for one of its principal objects the provision of a simple spiral coil member, as for example, a spring member which directs the stream of water in such manner as to form a satisfactory spray for shower purposes or the like.

An important object of this invention is to provide a renewable centerpiece or core member for shower heads or the like which acts to discharge a stream of water substantially conical in form.

Another important object of this invention is the provision of a shower head which comprises, in combination with the spring-like member, a central core or centerpiece which effects a swirling motion to the fluid flowing therethrough and when so swirling air is drawn in to be mixed therewith, the result being a fine mist-like spray desirable in certain shower use.

Another and further important object of this invention is to provide a shower head employing a coil spring or similarly spirally wound piece of wire, or rod, and adapted to be set within a recess in the head, with a center plug for the purpose of compressing and expanding the spirally wound coil of wire so that a fluid-sealing annular engagement of the wire with the walls of the recess and the tapered plug member is conveniently obtained.

Other and further important objects will become apparent from the disclosures in the following specification and the accompanying drawing, in which

Fig. 1 is a side elevation of the shower head of this invention, parts being broken away so as to show the interior.

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

Fig. 3 is a modified form of our invention.

Directing attention to Fig. 1, the reference numeral 1 indicates generally the housing within which the spray-forming interior parts of the shower head are mounted. A ball 2 forming part of the inlet coupling 3 cooperates with the upper portion 4 of the casing 1 to form a universal ball and socket joint, although obviously any form of joint may be used without affecting the application of our invention. A packing gasket 6 is positioned beneath the ball 2 and within the housing 1 and is maintained therebetween by the coil spring 7 which acts on the underside of the gasket 6 to compress the latter member to form a fluid-tight joint. The centerpiece or core 8 has an outwardly extending annular flange 9 abutting an offset shoulder internally positioned in the housing 1 as shown at 10. The core member 8 has a central bore 14 enlarged at its upper end as shown at 15. The spirally wound coil of wire 11 is fitted snugly within the enlarged bore 15 of the core 8. A plug member 12 is press-fitted centrally of the wire helix 11, as indicated. The diameter of the plug is such that when it is forced downwardly the coil of wire 11 is firmly compressed between the walls of the bore 15 and the plug 12. As shown in the modified form in Fig. 3, the plug 12a may be tapered slightly in order to increase the effectiveness of the driving fit to create a fluid-tight seal. The preferred construction provides that the spirally wound coil of wire does not shift but remains in a fixed position. As indicated, the passage 13 is arranged longitudinally through the center of the plug 12. A shroud or skirted member 16 is threadedly or otherwise suitably attached to the lower end of the center piece 8, as shown at 17. The skirted member 16 is provided with apertures 18 spaced around the periphery thereof. An outer hood 19 is threadedly attached to the housing 1 as at 21. The upper end of the hood 19 abuts against the outwardly extending annular flange 9 of the centerpiece 8 to hold the latter member in fixed nonrotatable position relative to the housing 1. The hood 19 extends inwardly at its lower end to allow a predetermined clearance 22 around the skirt 16 for reasons hereinafter explained.

In operation, the shower head of this invention is attached in the customary manner by the inlet coupling 3 to the usual source of liquid supply. The housing 1 and its associated elements may be universally pivoted around the ball 2 which is an integral part of the inlet 3 of the shower head, to allow for easy positioning of the head so that the spray may be directed to the desired location. The water or other fluid passes through the inlet 3, into the chamber of the ball 2 and past the spring 7 whereupon it encounters the upper end portion of the centerpiece 8. At this stage, there are two passages provided for the flow of fluid, namely the central passage 13 which proceeds directly through the centerpiece shower head and the spiral passage provided between the coils of the wire helix 11. The latter mentioned passage causes the flowing liquid to swirl and to acquire an eddying effect. It will be noted that these fluid passages converge at the lower portion of the ported plug 12 within the centerpiece 8, the combined swirling flow continuing downwardly through the vertical passage 14. Due to the swirling flow of the liquid when the water leaves the passage 14 it expands outwardly

within the chamber 23 of the skirted member 16. While in the chamber 23 the air is admixed with the swirling fluid by means of the apertures 18 which are supplied with air through the annular clearance 22 provided between the outer hood and the inner skirt member 19 and 16 respectively. It will be apparent that because of the restriction provided by the passage 14 of the swirling liquid will acquire increased velocity and upon discharging from the passage 14 to the air-mixing chamber 23 will expand to permit an admixture of air with the finely divided particles in stream of swirling water to produce a mist-like shower spray.

Heretofore, the prior devices have produced similar effects by the more expensive use of fluted diaphragm structures and the like, no one apparently realizing that a far less expensive arrangement could be provided by the simple use of a close fitting coil spring and an apertured plug centrally positioned therewithin.

The mixing of air with the flowing liquid permits the use of substantially less water, for example, for the same length of shower, and from that standpoint is desirably economical.

It is apparent that the pitch of the spirally wound coil of wire may be either increased or decreased, depending upon the amount of flow desired. It is readily understandable that if the pitch were decreased, a smaller amount of water would be permitted to flow between the coils, and vice versa. Inasmuch as the wire helix may be removed for ready replacement at any time, it is also evident that a coil of wire having a different pitch may easily be inserted dependent upon the desire of the user as to the volume of water required. The spirally wound coil of wire 11 is shown circular in cross-section; however, it is apparent that a square or other polygonal shaped wire may be employed to equal advantage. It is therefore not the desire to be limited to the use of round wire for the spiral coil spring member. Further under certain conditions, it may be desirable to use a plug member 12 that does not have a central passage 13 as shown in the tapered plug which press fits the spiral coil in position within the core member 8.

Numerous changes may be made in the details of construction and it is therefore our desire only to be limited by the scope of the appended claims:

We claim:

1. A shower head comprising a housing, inlet coupling means for the said housing, a centerpiece mounted within the said housing having a passageway therethrough with the upper end portion thereof substantially enlarged, a wire helix of approximately the same diameter as the enlarged upper end of the said centerpiece passageway and positioned therewithin, a plug fitted within said wire helix, the said centerpiece having a depending skirt with apertured means communicating with the atmosphere, whereby water flowing therethrough is given a swirling motion with air admixed therein to produce a mist-like spray.

2. A shower head comprising a housing, inlet coupling means therefor, a centerpiece mounted within said housing having a passageway therethrough with the upper end portion thereof substantially enlarged, a wire helix having approximately the same diameter as the enlarged upper end of the said centerpiece passageway and positioned therewithin, a plug fitted within said wire helix, the said plug having a relatively small central passage, an annular skirt depending from the said centerpiece with air communicating means, the said latter means consisting of passages communicating with the atmosphere, whereby water flowing therethrough is given a swirling motion with air drawn in from the atmosphere through the said passages to effect a mist-like spray.

3. A shower head comprising a housing, inlet coupling means for the said housing, a centerpiece mounted within said housing having a passageway therethrough with the upper end thereof enlarged, a wire helix having substantially the same diameter as the enlarged upper end of the said centerpiece passageway and positioned therewithin, a plug press-fitted within said wire helix, an annular skirt member depending from the said centerpiece and having apertures therearound, an outer hood-like member surrounding the said skirt member, the said hood-like member providing for an annular passage communicating with the atmosphere between said skirt member and said hood-like member, whereby water flowing therethrough is given a swirling motion accompanied with an air admixture to effect a mist-like spray.

4. A shower head comprising a housing having a socket therein, an inlet connection therefor, a core member having a passage therethrough and enlarged at its upper end, a spirally wound coil of wire positioned in said enlarged portion of the core member passage, a tapered plug having a central passage therethrough press-fitted within the said spirally wound coil of wire, an apertured skirt for said core member, the said skirt having an air mixing chamber, a hood covering the skirt and attached to said housing, whereby water flowing through the said core member passes through the spiral passage formed between the several loops of the spirally wound coil of wire and thereby acquires a swirling action, the said hood cooperating with the said apertured skirt to provide means for communicating with the atmosphere whereby the water is subsequently expanded to the air mixing chamber to allow air entering around the apertures of the said skirt to become admixed with the swirling spray of water.

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