

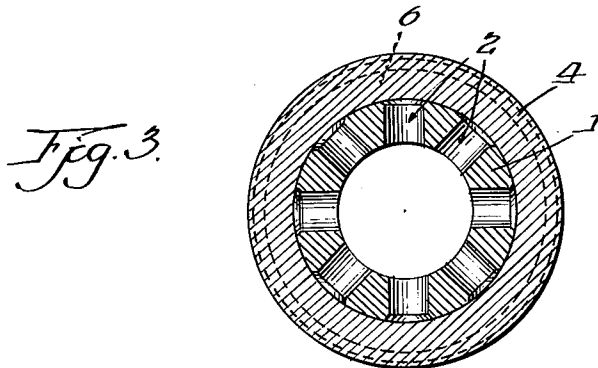
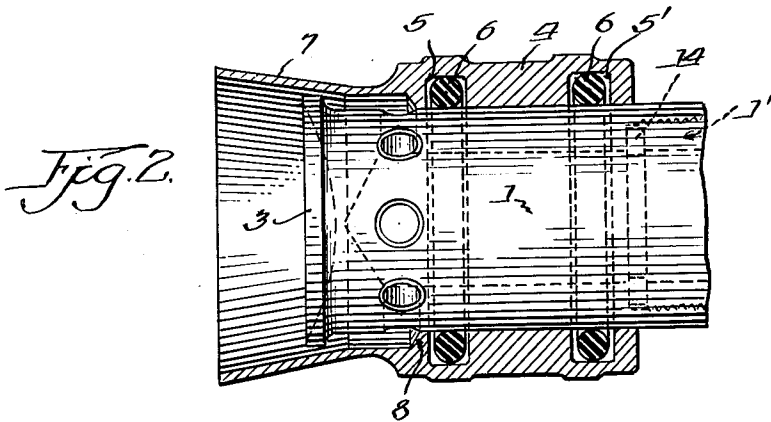
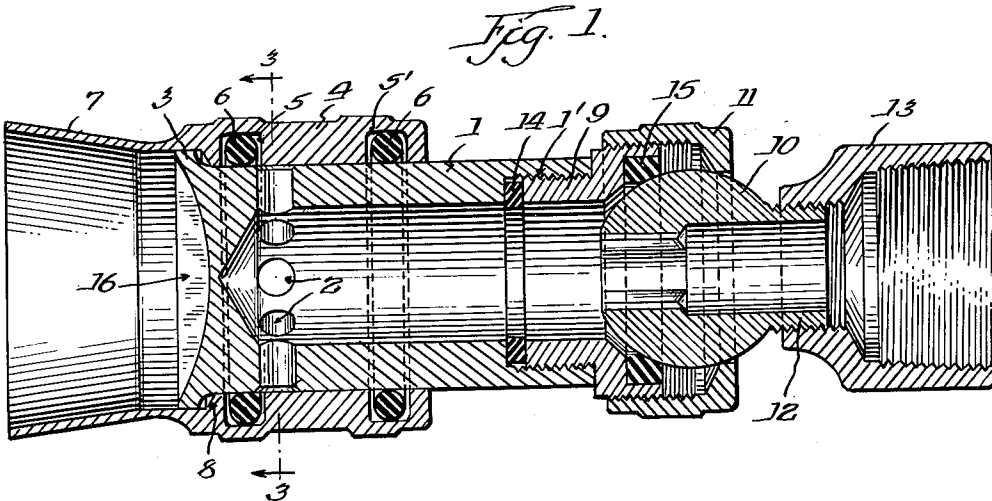
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SHOWER HEAD

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SHOWER HEAD

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This invention relates to improvements in shower head sprays, particularly, to a shower head so constructed that the discharge of water from the same may be conveniently, quickly and, as desired, accurately modulated in spray character or fineness; may be discontinued, or may be streamingly effected, all as wanted by a user thereof.

An object of the invention is to provide a shower head wherein adjustment, minute or coarse, of its nozzle to modulate, vary or control the discharge of water therefrom is manually effectable by either push or pull movement thereof—this in contradistinction to those forms of kindred devices in which a screw or rotary valve adjustment for like purpose is required, such oftentimes being difficult of accomplishment by a user and in some instances, even dangerous, as where or when a quick control of excessively hot water discharge is wanted or should the character of the spray be excessively pressure harsh for body contact.

It is also an object of the invention to provide a shower head in which the construction of the components thereof is such that they can be conveniently and quickly assembled and the assembly assured of long and satisfactory usage potential, plus being capable of convenient and rapid disassembly for parts inspection, repairs, replacement, etc.

Yet another and important object of the invention is to provide a device of the stated character whose nozzle assembly is self-cleaning when in use, and when in "shut-off" position will be positive to the extent of eliminating water drip therefrom.

The foregoing, as well as other objects, advantages and meritorious teachings of our invention, will be in part obvious and in part pointed out in the following detailed disclosure thereof, when taken in conjunction with the accompanying drawings, it being understood that the form of the invention presented herein is precise and what is now considered to be the best mode of embodying its principles, but that other modifications and changes may be made in specific embodiments without departing from its essential features.

In the drawings:

Figure 1 is a longitudinal section through the improved shower head showing it connected to or mounted on a swivel head fitting and coupling with the liquid flow control valve in closed or "shut-off" position.

Figure 2 is a fragmental longitudinal section through the shower head assembly wherein the liquid flow control valve is shown in an open position, and,

Figure 3 is a transverse section taken on the line 3—3 of Figure 1, looking in the direction in which the arrows point.

Referring in detail to the drawings, the invention comprises a hollow cylindrical body 1 internally screw-threaded and shouldered at its normally inner end, as at 1', and closed at its opposite end. Relatively spaced radial and circumferentially disposed ports or ways 2 are formed in and through that portion of the body 1 adjacent its closed end and serve to permit the dis-

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charge of liquid (water) flowed therethrough over and along a portion of its periphery. The outer end of the body is annularly headed or outwardly flanged, as at 3, and serves as a deflector for liquid flowed from the body via the ports 2.

A barrel-like nozzle body 4 having an even and smooth inner periphery or bore is provided to and slidably mounted on the cylindrical body 1. Because the bore is of shape and size substantially corresponding to the outer periphery of the nozzle body, it will be seen that a snug relationship results. Inwardly opening channels 5 and 5' are formed in and about the nozzle body and receive sealing V-rings 6 therein which by contacting the outer periphery of said cylindrical body effect a seal therebetween to prevent the flow (seeping or otherwise) of liquid thereby, yet permit frictionally restrained sliding of the nozzle body.

It will be noted that the sealing rings provided channels 5—5' are so spaced that when the nozzle is in its closed or "shut-off" position, as shown in Figure 1, they will be positioned in straddling relation to the circumferentially disposed ports 2 in the body 1 and that when it is in its open position (see Figure 2) said ports will be positioned inwardly of and beyond these ports, hence, permitting discharge flow of liquid through and from the same. Obviously, the amount or extent of the liquid discharge flow may be modulated or regulated, as desired, by sliding the nozzle body in a direction to bring it into different clearance or spacing relationships to the annular flange 3 on the outer end of the hollow cylindrical body 1. Thus, a solid liquid stream or high or low velocity jets may be effected.

The outer end of the nozzle body 1 is formed or otherwise provided with a flaring annular sleeve or skirt 7 and is internally shouldered, as at 8, at or adjacent its point of jointure with said body. Therefore, with outward sliding of the nozzle body on the cylindrical body, the head or annular flange 3 on the former can, at times, be seated or juxtapositioned with relation to the internal shoulder 8. In so doing, a liquid discharge cut-off or stoppage will be effected, since the barrel-like nozzle body will have been positioned in the manner shown in Figure 1 of the drawings where the sealing V-rings in the channels 5—5' will straddle the cylindrical body liquid discharge ports 2.

With inward sliding of the nozzle body, the shoulder 8 will be moved away from the head or annular flange 3 and because of the flaring formation of the annular sleeve 7 and its increased inner diameter, a liquid discharge way will be effected between it and the cylindrical body annular flange. Furthermore, because of the flaring formation of said sleeve and its outwardly increasing inner diameter, as and when the nozzle body 4 is progressively slid inwardly on the cylindrical body 1, the size of said liquid discharge way will be correspondingly increased. Thereby, the character of liquid discharge from the shower head can be selectively modulated or varied, i.e., it may be made fine or coarse—a solid stream or divided into high or low velocity jets.

In order that the shower head may be connected to conventional or usual shower bath plumbing fixtures, we may and preferably do engage a gasket or packing equipped swivel adaptor fitting 9 in the internally threaded open end 1' of the cylindrical body 1 and engage a ported swivel ball 10 therein, retaining said ball in seated and communicating relation to the cylindrical body by a swivel nut 11 engaging the adaptor fitting 9. A screw-threaded nipple 12 extends from the outer side of the swivel ball and is engaged by a suitable coupling 13 which, in turn, is threadedly engaged with and connected to a shower bath liquid supply pipe (not shown).

As is usual, a gasket or packing ring 14 is interposed

between the internally shouldered inner end of the cylindrical body 1 and the inner end of the adaptor fitting 9; also, a gasket or packing ring 15 is seated in the cupped outer end of said adaptor fitting and is engaged by adjacent portions of the swivel ball 10 whereby to provide a certain degree of frictional restraint thereof during its swiveling movement and to prevent leakage of liquid thereby.

To facilitate the threaded engagement of the adaptor fitting 9 and the swivel nut 11 in the manner above described, we may and preferably do form a kerf 16 in the outer face of the closed end of the cylindrical body 1.

It is believed that the operation or usage of our improved shower head will be understood by workers skilled in the art. However, assuming that it has been connected to a liquid supply pipe or other plumbing fixture, a user, to effect a solid stream discharge therefrom, will grasp the barrel-like nozzle body 4 and thrust it inwardly on the cylindrical body 1 to the position shown in Figure 2 of the drawings. Thus, the ports 2 in the cylindrical body will be opened to their full or maximum extents, permitting liquid flow thereby in a solid stream for impingement on adjacent portions of the flaring skirt 7 and its solid stream discharge from the nozzle head. Should the user desire to effect discharge of high velocity jets from the shower head, he grasps and moves the nozzle body 4 outwardly with respect to the cylindrical body 1, moving the annular flange into proximity or closely spaced relation to the internal shoulder or seat 8. The pressure of the discharging stream of liquid is thus increased and with its impingement on adjacent portions of the flaring skirt 7, the desired high velocity jet discharge will be effected. Intermediate characters of liquid discharge from the shower head, as for example, low velocity jets, may be effected by sliding the nozzle body to a position or positions where the annular flange 3 will be opened to extents greater than that which produces high velocity jets. The pressure of the discharging liquid stream being thus decreased, obviously, will provide a low velocity jet discharge of liquid from the flaring skirt 7 of the shower head.

To discontinue or "shut-off" a discharge of liquid from the shower head, it will be understood that the shower nozzle barrel-like body 4 is grasped and moved outwardly to the position shown in Figure 1 of the drawings, thereby bringing the sealing V-rings 6 in the channels 5-5' into their aforesaid closed positions.

Whereas we have hereinbefore described with some degree of particularity our improved shower head as being provided with one form of means for operatively connecting it to a conventional type of plumbing fixture or fixtures, it is to be understood that other and suitable forms of such connecting fixtures may be employed without in any manner limiting the scope or the spirit of our invention.

If desired, the outer surface of the barrel-like nozzle body 4, or portions thereof, may be treated so as to facilitate secure hand engagement thereof during its usage, as for example, the outer surface or portions of the outer surface of said nozzle body may be knurled or otherwise treated in other well known manners.

It will be understood and appreciated that the device will be self-cleaning—this because of the wiping action of the V-rings 6 across or over the ports 2 in the hollow cylindrical body 1 and their effectiveness in removing adjacent foreign deposits and outflowing the same via said ports 2.

We claim:

1. A shower head, comprising a hollow cylindrical body having its inner end open and its outer end closed

and a plurality of relatively spaced circumferentially disposed ports therein in proximity to said closed outer end, an outwardly disposed flange on the cylindrical body adjacent its closed outer end, a barrel-like body snugly engaged about and slidable on the first body, the inner surface of the barrel-like body being even and smooth throughout its length and having a pair of relatively spaced inwardly opening circumferentially disposed channels therein, the spacing between the channels being greater than the cross-sectional areas of said ports, rings in each of the channels frictionally and sealingly engaging portions of the adjacent surfaces of the first body and maintaining such engagement throughout the entire extent of sliding movement of the barrel-like body on and over the first body, said barrel-like body being slidable inwardly on the first body whereby to position the ports therein between said rings, and slidable outwardly at other times whereby to position said ports outwardly beyond or partially beyond the outermost of said rings, and an outwardly flared and opening sleeve on and extended from the outer end of the barrel-like body receiving therein a portion of said first body and the outwardly disposed flange thereon and having its inner surfaces spaced from and at times communicable with said ports and its inner end internally shouldered for abutting engagement with said flange on the first body whereby to limit the extent of outward sliding movement of the barrel-like body thereon and to at all times maintain said rings in frictional and sealing engagement with the first body.

2. A shower head, comprising a hollow cylindrical body having its inner end open and its outer end closed and a plurality of relatively spaced circumferentially disposed ports therein in proximity to said closed end, an outwardly disposed flange on the cylindrical body adjacent its closed outer end, a barrel-like body snugly engaged about and slidable on the first body, the inner surface of the barrel-like body being even and smooth throughout its length, means carried internally of said barrel-like body in longitudinally spaced relation frictionally and sealingly engaging portions of the adjacent surfaces of the first body and maintaining such engagement throughout the entire extent of sliding movement of the barrel-like body on and over the first body, said barrel-like body being slidable inwardly on the first body whereby to position the ports therein between said frictional and sealingly engaging means and slidable outwardly at other times whereby to position said ports outwardly beyond or partially beyond the outermost of said means, and an outwardly flared and opening sleeve on and extended from the outer end of the barrel-like body receiving therein a portion of said first body and the outwardly disposed flange thereon and having its inner surfaces spaced from and, at times, communicable with said ports and its inner end internally shouldered for abutting engagement with said flange on the first body whereby to limit the extent of outward sliding movement of the barrel-like body thereon and to at all times maintain said means in frictional and sealing engagement with the first body.

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