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 SPRAYER FOR SHOWER BATH

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Fig. 1

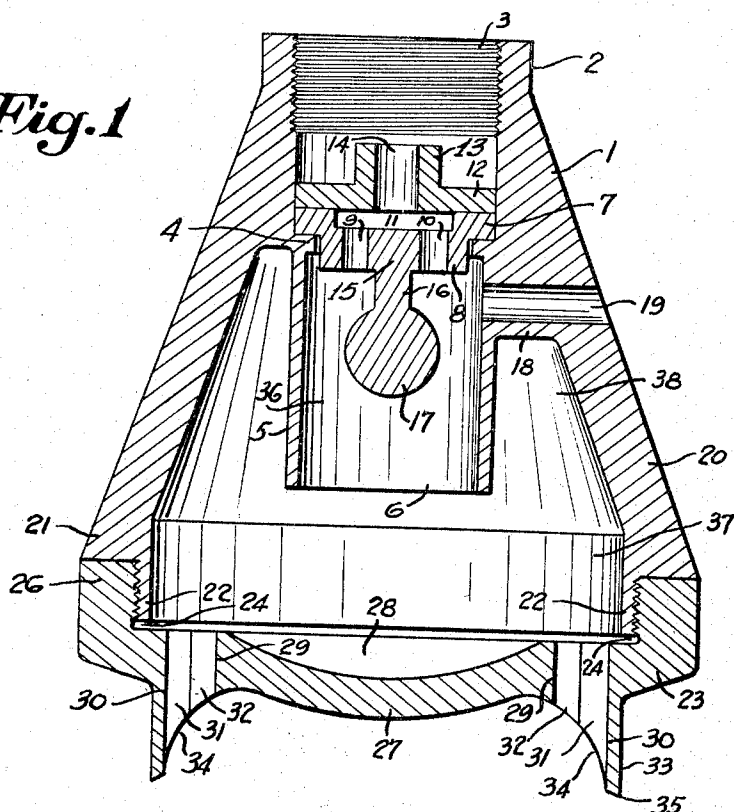
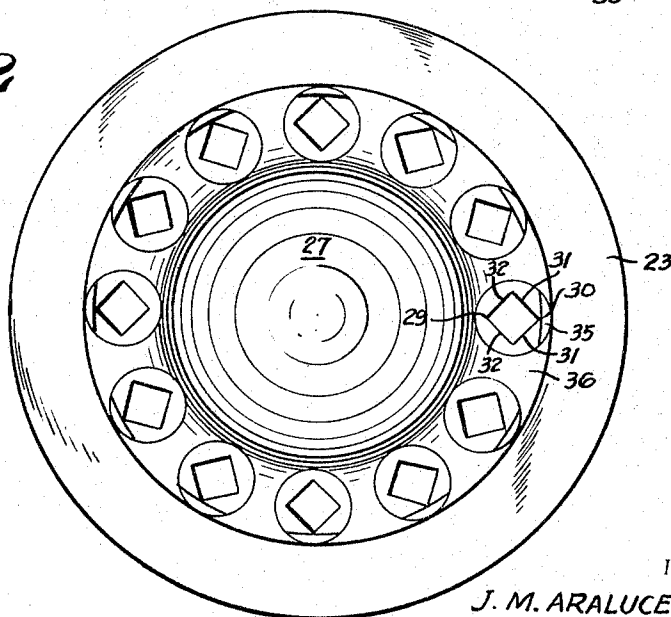


Fig. 2



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SPRAYER FOR SHOWER BATH

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This invention concerns a sprayer for shower baths to be used mainly in bath and lavatory rooms, the purpose of which is to provide a more efficient shower not causing any splashing.

A sprayer for a shower bath now consists of an empty part which admits at its top pressurized water, its bottom side presenting a plurality of holes to cause the water outflow in the form of multiple small jets of water under pressure, and the latter when they hit the body of the person under the shower fall splashing out of the basin. In addition, on account of the high pressure and the speed with which the small jets are sent out the person under the shower is greatly inconvenienced.

It must be also considered that when the pressurized water inlet valve is hardly opened, i.e. when just a small flow of water goes into the sprayer, it is not sent out in the form of small jets, but they slip over the lower face and concentrate becoming just only one jet, which drops under no pressure, splashes even more than the small jets, resulting therefore in an even more uncomfortable and inefficient shower.

It is likewise another fact that although the water inlet in the sprayer may be suitably adjusted, the small jets never bathe completely the body of the person under the shower, because the water does not fall in a regular way over the body.

Being aware of those facts, the inventor has studied the way of overcoming those inconveniences and has obtained by means of his invention, a sprayer for shower bath which provides the water outflow in the form of small jets guided in a vertical sense without causing any splashes. On the other hand even if a small quantity of water is supplied to the sprayer the outflow in multiple jets may be maintained and the concentration in only one jet is prevented. Further, the water of those jets falls over the body of the person under the shower in a more regular way and is better spread than with the sprayers known up to the present.

Therefore an object of the invention is to provide a spraying device inside of which a mixture of the water circulating therein with atmospherical air takes place, so that when water is sent out in multiple jets, the latter may contain air bubbles which prevent any splashing on account of the characteristic resiliency of said bubbles.

Another object of the invention is to provide the outflow of the multiple jets in a vertical direction, preventing them from forming just one jet, by means of polygonal sectioned nozzles placed at each discharge hole to guide the jets.

Yet another object of the invention is to obtain the combination of water with air, causing the opening of the water jet when it goes into the sprayer body, through the arrangement of a part fastened inside the tubular extension of the inlet conduit, which is a component of the sprayer and wherein a free air intake takes place in a position a little before that part which opens the jet in accordance with the water circulating sense.

Still another object of the invention is to reduce the pressure of the water circulating inside the sprayer body, making the latter with a greater diameter and volume than those of the already mentioned tubular extension. This crosses only partially the sprayer body and does not reach its lower face where the outflow holes with their respective nozzles are located.

Another object of the invention is to cause the outflow

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of the multiple jets only at the peripheral zone in the lower face of the sprayer, said peripheral zone being out of the vertical projection of the said tubular extension.

The above and other objects of the invention appear more clearly in the description of the attached drawing sheet.

FIGURE 1 represents a sprayer in an axially sectioned plane and FIGURE 2 shows the sprayer seen from below, i.e., at its lower face where the outflow holes are located together with their nozzles.

In said drawings 1 is the sprayer body, which has the water intake mouth 2 inner threaded at 3 to be coupled with the conduit in the shower bath in accordance with the known art. The water inlet 2 has an inner flange 4 and a tubular extension 5 ending at 6. Disk-shaped part 7 is placed inside mouth 2 resting on flange 4 and it has a lower extension 8 with a smaller diameter than the disk 7 so as not to meet flange 4. Crossing the central zone of said part 7 are perforations 9 and 10 and over the upper face in the same part 7, there is a recessed zone 11 where perforations 9 and 10 start. Over part 7 another disk-shaped part 12 is placed which has a higher extension 13 with the central hole 14 facing the recessed zone 11 of part 7. This part 7 with perforations 9 and 10 has the central core 15 from which extends the small shank 16 ending in sphere 17. It is of a smaller diameter than the tubular extension 5 and it remains within that extension but without reaching the end 6. Hole 19 extends through the sprayer body 1 at 18 and reaches the inside of tubular extension 5 at a place lower than the position of flange 4 and higher than the position of sphere 17, the body of the sprayer being extended along the tapered wall 20 axially aligned with tubular extension 5 and with intake mouth 2, ending at 21 in the cylindrical edge 22 to which is coupled by means of threading, bayonet-attachment or any other means, a lower piece 23 with interposition of joint 24.

This lower part 23 has in its peripheral zone 26 a plurality of holes and its central area 27 has no hole at all, being concave-shaped at its inner face 28. The holes are regularly distributed all over peripheral zone 26 and are of tetragonal section, whereby opposite ribs 29 and 30 of each hole belong to a radial plane in the sprayer body, inner faces 31 and 32 forming wide holes to allow the water outflow in multiple jets. Each hole is extended over the lower face in part 23, through nozzles 33 which are all chamfered in a slightly curved way at 34 up to the edges 35, the chamfer 34 extending towards the axis or center of the sprayer body.

In use, when the sprayer is coupled to the conventional conduit in the shower bath and the pressurized water inlet is opened, the water is compelled to go through passage 14. Since this part 14 is of a smaller diameter than that of intake 2, the circulating water increases its speed and passes to the cut down zone 11 and from this through perforations 9 and 10 to the inside 36 of tubular extension 5, where water meets sphere 17 causing the opening of the flow. When this takes place a depression is produced at zone 36 and atmospherical air goes into passage 19. Since water, when it flows through passages 9 and 10, and when it strikes against sphere 17 stirs turbulently, the liquid becomes mixed with the air passing through passage 19, and air is incorporated in the water in the form of small bubbles. In this condition water passes to the end 6 of tubular extension 5, and then to the lower chamber 37, which reduces the pressure of the water mixed with the air on account of having a greater diameter than tubular extension 5, and thus the liquid is softly projected over the central concave zone 28 and is sent out finally through the holes in the peripheral zone 26.

Since the inner chamber 37 is extended upwards surrounding the said tubular extension, the upper zone 38

operates as a chamber which absorbs the possible increase of volume regulating the outflow speed through the holes. Due to the polygonal shape of these holes as well as to the chamfered nozzles the jets sent out through each of them, are expelled in a vertical direction. On the other hand as the water composing those jets is mixed with small air bubbles, it causes no splashing when it hits the body of the person under the shower, because air bubbles impart a certain resiliency to the water which absorbs the collision and prevents any splashing. Finally on account of the arrangement of the holes, the size and shape adopted by them, and also of the nozzles, although a very small amount of water circulates through the sprayer, the liquid is evenly distributed all over the holes and the nozzles prevent it from forming just one jet, as happens in the sprayers known up to the present.

Although the embodiment of the invention such as here disclosed is one of the preferred forms, it should be understood that other forms may be adopted, provided that they are comprised within the scope of the claims hereunder.

Therefore what I wish to claim and to protect under Letters Patent is:

1. Sprayer for shower bath comprising a conduit, an intake mouth, said conduit being axially aligned with the intake mouth, a hollow casing, said conduit extending up to the inside of the casing forming the surface of the sprayer, the said conduit having an inner rim in its upper half, a disk-shaped part resting on said rim and having transverse perforations, a shank in the center of its lower face and a sphere at the end of the shank, said sphere remaining inside the conduit without reaching its lower end, another similar part located upon said disk-shaped part and having a central hole facing the perforations in the first disk-shaped part, said sprayer body having a hole reaching and contacting the tubular extension in a place comprised between the inner rim and the sphere, a convex-

shaped plate closing the lower side of the sprayer body and having holes of tetragonal section located in the peripheral zone of the plate.

2. Sprayer for shower bath according to claim 1 wherein the tetragonal holes in the base have a diametral plane of quadrangular shape concurrent with a radial plan of the sprayer body.

3. Sprayer for shower bath in accordance with claim 1 wherein each quadrangular hole in the base has a chamfered exterior nozzle, the longer side of said nozzle extending towards the periphery of said plate.

4. Sprayer for shower bath according to claim 1 wherein the central area of the base has a concave-shaped face remaining inside the sprayer body, this central area having a greater diameter than the tubular extension.

5. Sprayer for shower bath according to claim 2, wherein the quadrangular holes are made only in the peripheral zone comprised between the central concave area and the inner peripheral flange of the casing.

6. Sprayer for shower bath in accordance with claim 5, wherein the tetragonal holes are regularly distributed all over the said peripheral zone.

7. Sprayer for shower bath according to claim 1 wherein the air intake hole allows the inner tubular extension to be connected to the atmosphere, the remaining inner cavity at the top in the sprayer body, not being connected with such a hole.

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