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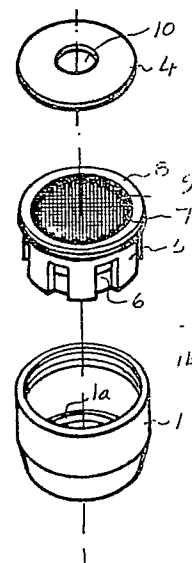
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(54) A device in splash preventers.

(57) To restrict the flow of water through a splash preventer (5) fixed to the outlet spout of a water tap and to maintain this flow substantially constant, independent of the water pressure, an elastomeric plate (4) provided with a hole (10) is placed on an upper surface (9) on the splash preventer at right angles to the flow of water. Channels for the passage of water between the hole and channels (7) communicating with the outlet of the splash preventer are formed on said surface (9) of the splash preventer in a preferred embodiment of the invention. For increasing water pressure against the upper surface of the plate, portions of the bottom surface of the plate are partially pressed into said channels for the passage of water to reduce their through-flow area.

Fig. 2



TITLE

A device in splash preventers

DESCRIPTIONTechnical field

The present invention relates to a device in a splash preventer fixed to the outlet spout of a water tap, and provided with channels letting through water and air.

Background art

Splash preventers of the kind described above are known in a great variety of embodiments. Many of these have one or more drawbacks.

For example, they have a complicated and expensive structure, they do not limit the flow of water to the desired extent and neither do they smooth out pressure variations in this flow.

Disclosure of invention

The object of the present invention is to provide a device in a splash preventer by means of which the above-mentioned drawbacks are removed.

This object is achieved by the invention being given the characterizing features disclosed in the claims.

The foremost advantages of the device in accordance with the invention is that the flow through the splash preventer is reduced to a predetermined level, and that this flow is substantially constant independent of pressure variations in the flow of water supplied to the splash preventer at a pressure which, especially in the water supply of a multi-storey building, can vary considerably between the taps in the lowest and highest apartments. Other advantages are that the device has a simple and therefore cheap structure, it is simple to install, and that it eliminates the shrieking noise sometimes occurring in flow-restricting means of a conventional kind.

Description of figures

Fig. 1 is an exploded perspective view of one embodiment of a device in a splash preventer according to the invention, and

Fig. 2 is an exploded perspective view of an alternative embodiment of the device in accordance with the invention.

Preferred embodiments

The device shown in Figs. 1 and 2 are each intended to be fitted to the outlet spout (not shown) of a water tap. The device illustrated in Fig. 1 includes four main parts, namely a sleeve 1 provided with an internal thread 1b, an air and water blender 2, a gauze 3 and a rubber ring 4, while the device illustrated in Fig. 2 includes three main parts, namely a sleeve identical with the sleeve 1, also denoted by the numeral 1, an air and water blender 5 and a ring identical with the ring 4, and also denoted by the numeral 4.

The blender 2 illustrated in Fig. 1 is intended to be inserted into the sleeve 1 with its lower edge engaging against an inwardly directed flange 1a thereon. The blender 2 is provided with channels 6 around its periphery, connecting the interior of the blender with the air outside of it, there also being a large plurality of substantially axial channels 7 defined between an annular outer portion 8 of the blender and triangular recesses in a central insert 9, these channels distributing and leading water to the interior of the blender for blending with air and for further passage out through the lower central outlet of the blender. The gauze 3, which is provided with meshes overlapping each other at the intersection points, is intended to be laid above the upper flat surface of the insert 9 and to be kept there by the portion 8 projecting slightly over this surface. The rubber ring 4, which is flat and provided with a central hole 10, is intended to be placed on top of the gauze 3, and it then also covers the upper surface of the annular portion 8. The parts 2, 3 and 4 are kept in place inside the sleeve 1 by the inner thread 1b on the latter being screwed onto the outer thread of the outlet spout of a water tap, until the lower circumferential edge of this spout sealingly presses the ring 4 against the portion 8.

When the tap provided with the device according to Fig. 1 is opened, water flows through the hole 10 into the ring 4, the amount of water coming into the blender 2 being limited to an extent dependent on the hole diameter. Since the ring 4 is made from rubber, this limitation of the flow does not cause any

shrieking noise, which otherwise occurs in conventional flow restriction. After passage through the hole 10, the water flow is distributed equally over the surface of the insert 9 by means of the gauze 3 and continues through the channels 7 into the blender 2, where the water jets are blended with air flowing in through the channels 6, thereafter to stream out for use.

If the water pressure against the upper surface of the ring 4 is low, the under surface of the ring will engage against the upper side of the gauze with a relatively low pressure, and the water can flow radially outwards relatively unencumbered to the channels 7 via the meshes in the gauze 3. If the water pressure is high, however, the ring 4 will be pressed relatively tightly against the gauze 3 and portions of the underside of the ring will be elastically pressed into the meshes of the gauze, whereby the through-flow area between the hole 10 and the channels 7 is reduced, and thereby the flow of water to said channels. The size of said through-flow area thus varies in response to the water pressure against the ring, and therefore the amount of water taken out from the splash preventer will be substantially constant, irrespective of the water pressure.

The blender 5 shown in Fig. 2 is intended to be inserted into, and retained by the sleeve 1 in a mode similar to that in Fig. 1, and is identical with the blender 2, excepting that the upper surface of the insert 9 is knurled or otherwise provided with projections and/or depressions forming a given pattern which form shallow channels. These replace the channels formed by the meshes in the gauze 3 in Fig. 1. In the embodiment according to Fig. 2, the lower surface of the rubber ring 4 thus rests not only against the annular portion 8 but also directly on the upper surface of the insert 9, which is provided with channels, and in response to the water pressure acting on the upper surface of the ring 4, the upper surface thereof will be more or less pressed into these channels, thereby keeping the amount of water passing through the splash preventer

substantially constant. The unit comprising parts 1, 5 and 4 is assembled and screwed onto the outlet spout of a water tap in a mode similar to the one in which the unit comprising parts 1, 2 and 4 in Fig. 1 is fitted and screwed on.

5 Even if only two embodiments of the invention have been illustrated and described, it should be understood that the invention is not limited to these embodiments. For example, instead of the gauze 3 in Fig. 1 or the upper surface of the insert 9 being provided with ridges and/or recesses in Fig. 2,
10 the bottom surface of the ring 4 can be provided with ridges and/or recesses forming channels between the hole 10 of the ring 4 and the channels 7. Furthermore, the ring 4 can, for example, be replaced by a plate with several smaller orifices distributed over it. The invention is thus only limited by what
15 is disclosed in the claims.

CLAIMS

1. A device in a splash preventer fixed to the outlet spout of a water tap, and provided with channels letting through water and air, characterized by a water flow obturating means (4) which, independent of the water pressure, always assumes the same angle relative the flow direction and which is provided with at least one hole (10) through which the water flows, with first and second surfaces facing away from, and towards the flow direction, the first surface being directly or indirectly subjected to the pressure of the water and the second surface being elastomerically compressible for coaction with a surface (9) on the splash preventer, said surface forming an angle to the flow direction, whereby for increasing water pressure against the first surface the second surface elastically presses against said surface on the splash preventer in the flow direction, thereby reducing the size of channels between the latter surface and the second surface, said channels leading water from said hole (10) to channels (7) communicating with the outlet of the splash preventer.
2. A device as claimed in claim 1, characterized in that the obturating means constitutes a circular plate (4) of elastomeric material with said hole (10) made substantially centrally therein.
3. A device as claimed in claim 1 or 2, characterized in that said channels for the passage of water are defined between the second surface of the means (4) and projections and/or recesses formed in said surface (9) on the splash preventer.
4. A device as claimed in claim 1 or 2, characterized in that said channels for the passage of water are formed by the interstices in a gauze or netting (3) inserted between the second surface of the means (4) and said surface (9) of the splash preventer.
5. A device as claimed in any one of claims 1 - 4, characterized in that the inlets for the channels (7) communicating with the outlet of the splash preventer are arranged annularly round said surface (9) on the splash preventer.

Fig. 1

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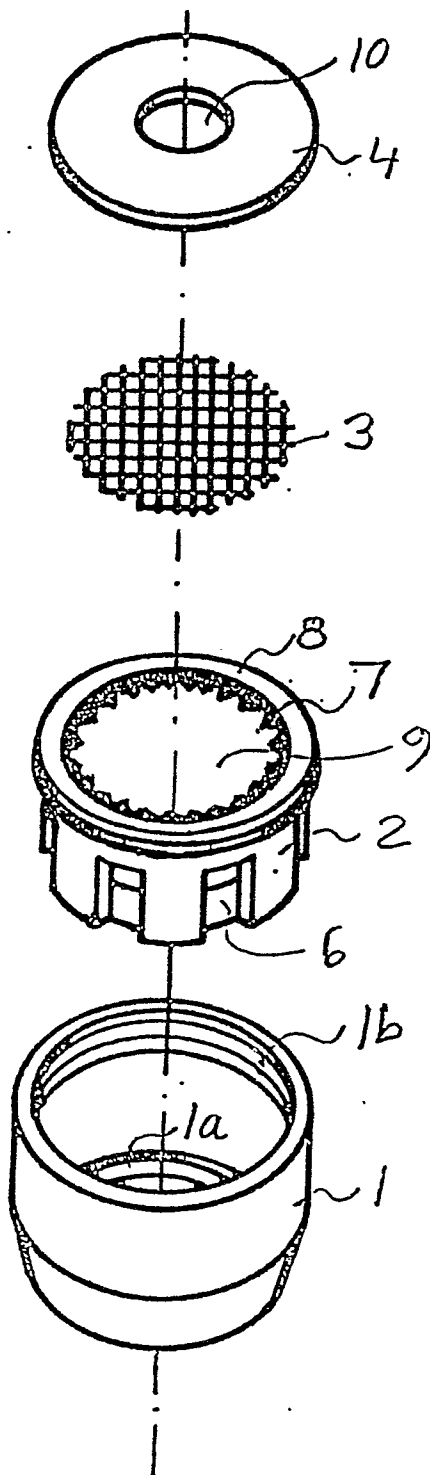
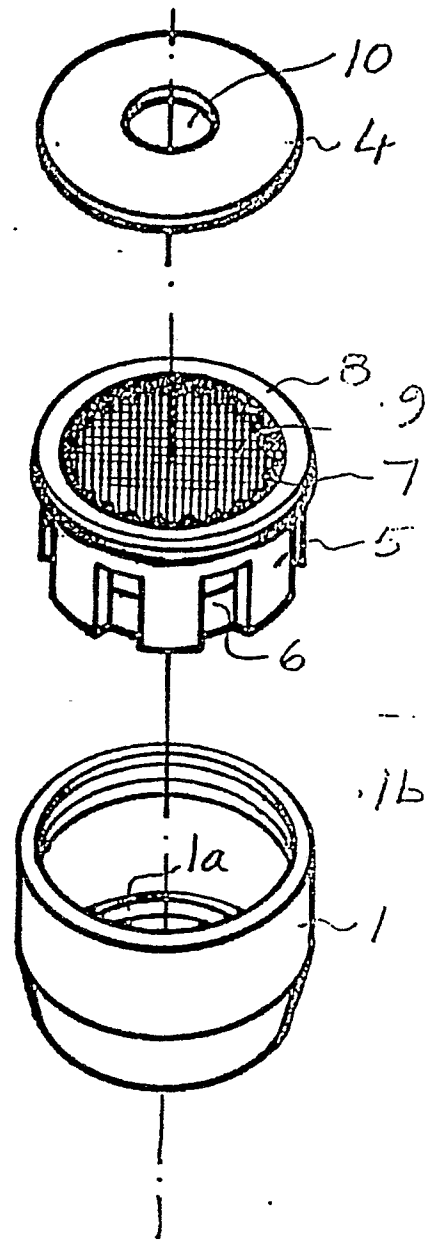


Fig. 2





European Patent
Office

EUROPEAN SEARCH REPORT

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Application number

EP 81 85 0141.3

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	<u>DE - B2 - 2 637 252</u> (HANSA METALLWERKE AG) * complete document * ---	1-3,5	E 03 C 1/084
X	<u>DE - U - 7 725 861</u> (HANSA METALLWERKE AG) * complete document * ---	1-3,5	
X	<u>US - A - 4 000 857</u> (MOEN) * column 5, lines 2 to 50 * ---	1,2	TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
A	<u>DE - B2 - 2 050 749</u> (AMERICAN STANDARD INC.) & US - A - 3 630 455 ---		E 03 C 1/00
A	<u>US - A - 3 697 002</u> (PARKISON) ---		
			CATEGORY OF CITED DOCUMENTS
			X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons
X The present search report has been drawn up for all claims			&: member of the same patent family, corresponding document
Place of search		Date of completion of the search	Examiner
Berlin		20-11-1981	PAETZEL