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(54) **Supporting and guiding device for an extractable shower**

Vorrichtung zur Halterung und Führung einer ausziehbaren Handbrause

Dispositif de support et de guidage pour pomme de douche

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Description

This invention refers to a supporting and guiding device for an extractable shower, and in particular to a support for installing extractable showers of the type having a flexible pipe which in its concealed position is housed in a compartment beneath the installation area.

This area can be formed for example by an edge of a bath tub, wash basin, or the like. In the known technique, use has long been made of extractable showers which have a flexible pipe that is unwound through a hole in the bearing surface. One problem consists of water seeping through the hole when the shower is in operation in its extracted position. In fact, between the flexible pipe and the walls of the hole there is always a certain amount of clearance, necessary to avoid friction which would prevent the pipe from sliding smoothly through the hole, in general simply by gravity, when the shower is replaced.

A solution most widely used consists in providing means for collecting the water after it has penetrated through the passage of the pipe. For example, it has been suggested to use internal pockets which receive the rolled up pipe and which at the same time collect the water that has seeped through. These solutions, which are merely palliatives, are generally complicated, expensive and do not eliminate the problems caused by the water stagnating in the collecting elements.

The general scope of this invention is to obviate the aforementioned problems by providing a supporting and guiding element for an extractable shower with a flexible pipe which inexpensively prevents infiltration of water from the hole through which the pipe passes.

This scope is achieved, according to the invention, by providing a device, to be fitted through a hole in a wall, comprising a through housing to support a shower delivery head on the outer side of the wall and to slidably guide through the hole in the wall a flexible pipe supplying water to the head, characterized in that the through housing comprises a lip seal with a central passage having an edge tightly adhering to the walls of the flexible hose, disposed before and after said lip seal in the through housing are a first and a second guide surface maintaining the pipe in a substantially rectilinear configuration so as to have an outer wall substantially perpendicular to the plane of the lip seal in the area of the pipe traversing the lip seal.

The innovative principles of this invention and its advantages with respect to the known technique will be more clearly evident from the following description of a possible exemplificative and non-restrictive embodiment applying such principles, with reference to the sole accompanying drawing.

The figure shows a cross-sectional view of a device 10, which is fitted through a hole 11 in a wall 13 to define a through housing 24 to support a delivery head or shower 14 (only partially shown, since it can be of any known type) and to slidably receive through the wall a

flexible pipe 15 supplying water to the shower. The wall can for example be that of the edge of a bath tub, a wash basin, or the like.

The device 10 has a casing 16 having a hollow shank 17 extending rearwardly through the hole 11 and defining a housing 24 for passage of the pipe 15 through the hole 11.

The shank is advantageously fitted, on both sides of the wall 13, with two adapting elements 19, 20 with slanted surfaces which rest against the wall 13 in order to provide the desired degree of inclination of the shank with respect to the wall 13. Said elements 19, 20 can advantageously be made identical in order to reduce their manufacturing cost. The upper adapting element 19 is disposed between a radial protrusion 21 of the shank and the upper surface of the wall 13. The lower adapting element 20 is disposed between the lower surface of the wall 13 and a washer 23 which is secured with a ring nut 18, screwed onto the shank 17 to lock the device in place.

In order to prevent water seeping in from the outside, the adaptor 21 can be provided with a seat for a gasket 22 in contact with the wall 13.

The portion 25 of the passage 24 close to the upper mouthpiece has a lateral configuration complementary to a shank 26 forming the portion connecting the shower 14 to the pipe 15. In this way, the shower is supported by the device 10 by fitting the shank 26 in the housing 25. If required, the shank 26 may also be provided with a housing for a circumferential O-ring 30, which forms a watertight mechanical seal when the shower is fitted in the housing.

Disposed crosswise to the passage 24 is an annular lip seal 27, with a central hole of such diameter as to come into close contact with the wall of the hose. The lip seal can be flexible enough as to permit the pipe to slide smoothly, so as not to hinder the re-entry of the pipe through the device, also simply by gravity. In order to prevent the edge of the lip seal 27 from becoming distorted by the movements of the pipe when the shower is in the position extracted from the housing 25, the passage 24 is provided with internal surfaces 28, 29 forming a guide for the pipe on both sides of the seal 27, so that the pipe is maintained rectilinear and perpendicular to the seal in a section close to the seal itself.

The guide surfaces 28 and 29 are advantageously made with guide bushes 31, 32, respectively. The upper bush 31 is in the shape of a discoidal element having a continuous surface 28 curving upwards to form a short sliding duct for the pipe close to the upper face of the lip seal 27.

The lower bush 32 is made in the form of an elongated sleeve housed within the shank 17 and having an internal wall bearing longitudinally directed ribs 33 at intervals around its circumference to define with their crests the sliding surface 29. The configuration of the upper guide surface 28 protects the seal 27 against direct impact of jets of water which could cause it to buckle

and no longer be watertight. However, passages 35, 36 ensure that any water, which would otherwise accumulate in the housing 25, is discharged to the outside. The discontinuous "ribbed" configuration of the lower guide surface 29 ensures that the pipe remains rectilinear in correspondence with the lip seal but at the same time without creating excessive sliding friction, which would prevent re-entry of the pipe simply by gravity.

Although the ribbed bush 32 and the shank 17 can be made in one piece, it is advantageous for them to be made in two pieces so that the most suitable materials can be chosen for the two elements. For example, the shank can be made from a material which is strong enough for securing the ring nut and the ribbed bush can be made from a low friction material with good resistance to abrasion.

As can be clearly seen in the figure, the casing 16 is made with an upper cap 34 which is axially perforated to create the housing 25 and screwed onto the upper end of the shank 17 to secure in place, by packing them, the lower bush 32, lip seal 27 and upper bush 31.

At this point it will be clear that the intended scopes are achieved by providing a device for supporting and extracting a shower with a flexible pipe which prevents water from penetrating into the hole through which the pipe is extracted. In use, when the pipe slides through the passage the lip seal bends in the sliding direction, as shown by the broken line in the figure, while continuing to adhere perfectly to the wall of the pipe which is kept perpendicular to the plane of the seal by the guide surfaces.

On examining the figure, it is clear that the various elements of the device can be advantageously moulded from plastic materials chosen from among those with the most suitable characteristics for each element, as will be obvious to the expert in the art. This does not prevent various parts from being made of metal. For example, the shank 17 and ring nut 18 can be made as a metal casting. The foregoing description of an embodiment applying the innovative principles of this invention is obviously given by way of example in order to illustrate such innovative principles and should not therefore be understood as a limitation to the sphere of the invention claimed herein. For example, the precise configuration of the various parts and their respective proportions may vary according to particular practical requirements.

Claims

1. A device (10), to be fitted through a hole (11) in a wall (13), comprising a through housing (24) to support a shower delivery head (14) on the outer side of the wall and to slidably guide through the hole in the wall a flexible pipe (15) supplying water to the head (14), characterized in that the through housing (24) comprises a lip seal (27) with a central passage having an edge tightly adhering to the walls of the

flexible pipe (15), disposed before and after said lip seal (27) in the through housing (24) are a first (28) and a second (29) guide surface maintaining the pipe (15) in a substantially rectilinear configuration so as to have an outer wall substantially perpendicular to the plane of the lip seal (27) in the area of the pipe traversing the lip seal.

2. Device as claimed in claim 1, characterized in that the first guide surface (28) is disposed on the side of the lip seal (27) towards the delivery head and comprises a surface (28) curved towards the delivery head to form a short sliding duct for the pipe which is disposed close to the upper face of the lip seal (27).

3. Device as claimed in claim 1, characterized in that the second guide surface (29) is disposed on the side of the lip seal opposite the side towards the delivery head and comprises ribs (33) circumferentially spaced apart and lying parallel to the pipe in the housing to define with their crests the second guide surface (29).

4. Device as claimed in claim 1, characterized by a casing (16) having a hollow shank (17) extending rearwardly to traverse the hole (11) and internally define said through housing (24), the shank being secured to the hole by means of a threaded ring nut (18) screwed onto it from the inner side of the wall (13).

5. Device as claimed in claims 3 and 4, characterized in that the ribs (33) are made in one piece on an internal wall of a hollow sleeve (32) which is axially housed in the hollow shank (17).

6. Device as claimed in claim 4, characterized in that screwed onto the casing (16) is an upper cap (34) which is axially perforated to create an extension (25) of the through housing (24), the extension (25) being shaped to receive a shank (26) forming the portion connecting the head (14) to the pipe (15), thereby supporting the head on the device.

7. Device as claimed in claim 2, characterized in that the curved surface (28) is formed on a discoidal bush (31) generically disposed parallel to the lip seal (27).

8. Device as claimed in claims 5, 6 and 7, characterized in that the cap (34) secures in place, by packing them, the sleeve (32), the lip seal (27) and the discoidal bush (31).

9. Device as claimed in claim 4, characterized in that fitted on the shank (17), on opposing sides of the wall (13), are two adapting elements (19, 20) with

slanted surfaces which rest against the wall in order to provide the desired degree of inclination of the through housing (24) with respect to the perpendicular of the wall (13).

Patentansprüche

1. Vorrichtung (10) zur Anbringung durch eine Öffnung (11) in einer Wand (13), umfassend: ein Durchgangsgehäuse (24), um einen Brauseabgabekopf (14) auf der Außenseite der Wand zu halten und um ein biegsames Rohr (15), das dem Kopf (14) Wasser zuführt, verschiebbar durch die Öffnung in der Wand zu führen, dadurch gekennzeichnet, daß das Durchgangsgehäuse (24) umfaßt: eine Lippendichtung (27) mit einem mittigen Durchlaß mit einem Rand, der dicht an den Wänden des biegsamen Rohres (15) anhaftet, wobei sich vor und hinter der Lippendichtung (27) in dem Durchgangsgehäuse (24) eine erste (28) und eine zweite (29) Führungsfläche befinden, die das Rohr (15) in einer im wesentlichen geradlinigen Anordnung halten, so daß es eine Außenwand aufweist, die in dem Bereich, in dem das Rohr die Lippendichtung durchsetzt, im wesentlichen senkrecht zur Ebene der Lippendichtung (27) ist.
2. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die erste Führungsfläche (28) auf der dem Abgabekopf zugewandten Seite der Lippendichtung (27) angeordnet ist und eine Fläche (28) umfaßt, die zum Abgabekopf hin gekrümmt ist, so daß sie einen kurzen Gleitkanal für das Rohr bildet, der nahe der Oberseite der Lippendichtung (27) angeordnet ist.
3. Vorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die zweite Führungsfläche (29) auf der Seite der Lippendichtung angeordnet ist, die der Seite zum Abgabekopf entgegengesetzt ist, und Rippen (33) umfaßt, die in Umfangsrichtung im Abstand angeordnet sind und parallel zum Rohr im Gehäuse liegen, um mit ihren Scheiteln die zweite Führungsfläche (29) zu definieren.
4. Vorrichtung nach Anspruch 1, gekennzeichnet durch einen Mantel (16) mit einem hohlen Schaft (17), der sich nach hinten erstreckt, um die Öffnung (11) zu durchsetzen und im Inneren das Durchgangsgehäuse (24) zu begrenzen, wobei der Schaft mittels einer Gewinderingmutter (18), die von der Innenseite der Wand (13) her auf ihn aufgeschraubt ist, an der Öffnung befestigt ist.
5. Vorrichtung nach den Ansprüchen 3 und 4, dadurch gekennzeichnet, daß die Rippen (33) in einem Stück auf einer Innenwand einer hohlen Hülse (32)

gefertigt sind, die axial in dem hohlen Schaft (17) untergebracht ist.

6. Vorrichtung nach Anspruch 4, dadurch gekennzeichnet, daß auf den Mantel (16) eine obere Kappe (34) aufgeschraubt ist, die in axialer Richtung durchbohrt ist, um eine Verlängerung (25) des Durchgangsgehäuses (24) zu erzeugen, wobei die Verlängerung (25) geformt ist, um einen Schaft (26) aufzunehmen, der denjenigen Teil bildet, welcher den Kopf (14) mit dem Rohr (15) verbindet, wodurch der Kopf auf der Vorrichtung gehalten wird.
7. Vorrichtung nach Anspruch 2, dadurch gekennzeichnet, daß die gekrümmte Fläche (28) auf einer scheibenförmigen Buchse (31) ausgebildet ist, die allgemein parallel zur Lippendichtung (27) angeordnet ist.
8. Vorrichtung nach den Ansprüchen 5, 6 und 7, dadurch gekennzeichnet, daß die Kappe (34) die Hülse (32), die Lippendichtung (27) und die scheibenförmige Buchse (31) festhält, indem sie sie zusammenpreßt.
9. Vorrichtung nach Anspruch 4, dadurch gekennzeichnet, daß auf entgegengesetzten Seiten der Wand (13) auf dem Schaft (17) zwei Adapterelemente (19, 20) mit schrägen Flächen angebracht sind, die gegen die Wand anliegen, um für den gewünschten Neigungsgrad des Durchgangsgehäuses (24) in Bezug zur Senkrechten der Wand (13) zu sorgen.

Revendications

1. Dispositif (10) destiné à être ajusté dans un trou (11) pratiqué dans une cloison (13), comprenant un boîtier traversant (24) permettant de supporter une pomme de douche (14) du côté extérieur de la cloison et de guider de façon coulissante à travers le trou dans la cloison un tuyau souple (15) fournissant de l'eau à la tête (14), caractérisé en ce que le boîtier traversant (24) comprend un joint à lèvres (27) ayant un passage central présentant un bord qui adhère hermétiquement aux parois du tuyau souple (15), l'agencement comportant, avant et après ledit joint à lèvres (27) dans le boîtier traversant (24), une première (28) et une deuxième (29) surfaces de guidage maintenant le tuyau (15) dans une configuration sensiblement rectiligne de façon à présenter une paroi extérieure sensiblement perpendiculaire au plan du joint à lèvres (27) dans la zone du tuyau traversant le joint à lèvres.
2. Dispositif selon la revendication 1, caractérisé en ce que la première surface de guidage (28) est dis-

posée sur le côté du joint à lèvres (27) qui est tourné vers la pomme de douche, et comprend une surface (28) incurvée vers la pomme de douche pour former une canalisation coulissante courte pour le tuyau qui est disposé près de la face supérieure du joint à lèvres (27). 5

3. Dispositif selon la revendication 1, caractérisé en ce que la deuxième surface de guidage (29) est disposée sur le côté du joint à lèvres qui est opposé au côté dirigé vers la pomme de douche, et comprend des nervures (33) espacées l'une de l'autre, sur la circonférence du et parallèles au tuyau contenu dans le boîtier pour définir avec leurs sommets la deuxième surface de guidage (29). 10 15
4. Dispositif selon la revendication 1, caractérisé par une enveloppe (16) ayant une tige creuse (17) s'étendant vers l'arrière pour traverser le trou (11) et définir à l'intérieur ledit boîtier traversant (24), la tige étant fixée au trou au moyen d'un écrou à oeillet taraudé (18) vissé sur celui-ci à partir du côté interne de la cloison (13). 20
5. Dispositif selon les revendications 3 et 4, caractérisé en ce que les nervures (33) sont d'une seule pièce avec une paroi interne d'un manchon creux (32) qui est logé axialement dans la tige creuse (17). 25
6. Dispositif selon la revendication 4, caractérisé en ce que sur l'enveloppe (16) est vissé un chapeau supérieur (34) qui est perforé dans le sens axial pour créer un prolongement (25) du boîtier traversant (24), ledit prolongement (25) présentant une forme lui permettant de recevoir une tige (26) formant la partie reliant la tête (14) au tuyau (15), afin de supporter la tête sur le dispositif. 30 35
7. Dispositif selon la revendication 2, caractérisé en ce que la surface incurvée (28) est formée sur une garniture en forme de disque (31) disposée essentiellement parallèlement au joint à lèvres (27). 40
8. Dispositif selon les revendications 5, 6 et 7, caractérisé en ce que la chapeau (34) maintient en place, en les condensant, le manchon (32), le joint à lèvres (27) et la garniture en forme de disque (31). 45
9. Dispositif selon la revendication 4, caractérisé en ce que, sur la tige (17), sur les côtés opposés de la cloison (13), sont fixés deux éléments d'adaptation (19, 20) ayant des surfaces pentues qui reposent sur la cloison (13), afin de fournir le degré d'inclinaison souhaité du boîtier traversant (24) par rapport à une perpendiculaire à la cloison (13). 50 55

