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(54) **Hair trap intended for wash and shower basins provided with a fixed screen**

Haarsammler für Waschbecken und Duschwannen mit fester Siebplatte

Collectionneur de cheveux pour lavabos et bacs à douche comportant une grille fixe

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Description

[0001] The invention relates to a hair trap or catcher intended for wash and shower basins provided with a fixed screen or drain basket, comprising

- an elongated body, having a first end and a second end;
- a suspension and lift element at the first end of the body; and
- bristles, attached over a section of the body's length starting from the second end of the body.

[0002] This type of hair catcher is known from patent publication US-1,935,128. This prior described hair catcher does not lend itself to the type of wash and shower basins, which are provided with a fixed screen or drain basket commonly secured with a central screw surrounded by holes of the basket or screen. A symmetric design and a spiral bristle section of the prior known hair catcher prevent its use through the hole of a fixed screen. An embodiment of the prior known solution, wherein a separate screen or basket is secured to the hair catcher's top end, prevents the use of a drain plug.

[0003] Patent publication FI-112968 discloses a hair trap or catcher, according to the preamble of claim 1, which can be placed from above without tools in wash and shower basins equipped with a fixed screen or drain basket. The obstruction problem of a drain and water seal is solved with this prior known hair trap or catcher in such a way that the catcher, resembling a bifurcate bottle brush, is pushed into a drain pipe through holes located on the opposite sides of a screen or basket. A trap or catcher in the form of a bifurcate brush is demanding in terms of manufacturing technology. However, the article is required to have a simple design because, both for hygienic reasons and the stickiness of hairs, the hair trap is disposable in character and its maximum service life is no more than a few months. Another drawback is a relatively great length of the bristles throughout the bristle segment, which, together with a bifurcate symmetric design, makes installation and removal of the catcher more difficult. In addition, the bristles have a length distribution which changes consistently throughout the bristle segment, which is not the best possible length distribution in view of retaining hairs in the trap or catcher as the bristles are pulled up through screen holes.

[0004] It is an object of the invention to provide a hair trap or catcher of the above type, which is capable of solving the foregoing problems of prior known hair catchers.

[0005] This object is accomplished on the basis of the characterizing features set forth in the appended claim 1. Preferred embodiments of the invention are disclosed in the dependent claims.

[0006] The invention takes advantage of a combination, which includes on the one hand short bristles and on the other hand asymmetrically arranged long bristles.

The asymmetrically disposed long bristles extend in the body's direction only over a short stretch of length, yet are distributed sufficiently over the cross-sectional area of a drain pipe and constitute the actual trap or catcher. As the hair trap is pulled out through a hole in the screen or basket, the long bristles deflect against the short bristles, to which hairs are stuck by being clamped between the bristle members to enable pulling the same out through a hole in the screen or basket. This requires a major difference in the lengths of short and long bristles and a clear division for segments of short and long bristles, such that a sufficiently lengthy segment of short bristles is located beneath a comparatively short segment of long bristles.

[0007] Since the suspension and lift element extends at a right angle relative to the trap body and lies on the same side of the body as a longer dimension of the long bristles resulting from asymmetry, the trap will be easy to use and the asymmetry of bristles can be arranged correctly in a drain pipe, enabling also the use of a stopper or plug on top of the screen or drain basket.

[0008] One exemplary embodiment of the invention will now be described in more detail with reference to the accompanying drawings, in which

Fig. 1 shows a hair trap of the invention in an operating position, fitted in a drain pipe through a screen or basket;

Fig. 2 shows the trap in a side view, depicting the asymmetry of its design; and

Fig. 3 shows the trap in a plan view, depicting an asymmetric pattern created by longer bristles relative to the body.

[0009] The trap has an elongated body 1, having its top end deflected to a right angle for a suspension and lift element 2, 5. The trap is most conveniently implemented as a bottle brush, by twining bristles 3, 4 between two wires. The intertwined wires constitute the body 1, having its continuous extension 2 and a wire ring 5 at its end make up a suspension and lift element. Other materials, e.g. plastics, may also be acceptable, in which case the bristles 3, 4 and the body 1 may consist of the same material.

[0010] Commencing from the body's 1 bottom end, the bristles 3, 4 are only attached over a section of the body's 1 length. Commencing from the body's 1 bottom end, there is first a segment formed by short bristles 4, which is followed by a segment of longer bristles 3 arranged asymmetrically relative to the body 1, wherein the bristles 3 have a length which is multiple compared to that of the short bristles 4. Between the segments of short and long bristles is a sharp transition phase, which is shorter than the length of the bristle segment 4, preferably shorter than the length of the bristle segment 3 or, most preferably, the transition from short to long bristles occurs the

way of a direct jump. In the body's 1 direction, the segment of short bristles 4 is at least twice, preferably at least three times longer than the segment of long bristles 3. The long bristles 3 have a length which is at least three times that of the short bristles. Typically, the sizing of bristles is implemented in such a way that the short bristles 4 have a length of 6-10 mm, preferably about 7-8 mm, and the long bristles 3 have a length of 20-35 mm, preferably about 25-30 mm. Traps can be manufactured in various sizes for various applications.

[0011] What is accomplished by this sizing of bristles is that long bristles can be readily pressed through a comparatively small hole in the screen or basket while the length of short bristles is less than the diameter of a typical screen hole. Once installed, the long bristles cover the cross-sectional area of a drain pipe over a section sufficiently large for hairs to stick and accumulate on the long bristles. As the trap is then pulled out of the pipe through a screen hole, the long bristles deflect and turn against the short bristles, whereby hairs adhere to the short bristles and remain clamped between the long and the short bristles, and can be thereby pulled through a screen hole together with the trap.

[0012] Using the trap is essentially facilitated by the fact that the suspension and lift element 2, 5 extends asymmetrically in the same direction sideways from the body 1 as a longer dimension of the long bristles 3 resulting from the asymmetry of the bristles 3. Thus, the suspension and lift element 2, 5 sort of compels the trap to be positioned in a way which is correct in view of the asymmetry. In a normal condition, the ring member 5 will be in alignment with a screen fastening screw in the middle of the screen or slightly beyond it to the opposite side of the screen.

[0013] Between the bristle section 3, 4 and the suspension and lift element 2, 5 should be a bristle-free section extending to below the screen or basket, so that the bristles and the screen together would not compose a unit which causes obstruction. The body 1 is dimensioned in such a way that the bristles 3, 4 do not commence until below the screen attachment point. Hence, the body 1 has a bristle-free length which is at least equal to greater than the length of a screen fastening screw. The segment of asymmetric long bristles 3 must also be sufficiently short, since the length of this segment is not a factor to substantially enhance a hair trapping performance, but an abundant amount of long bristles would hamper the installation and lifting of a trap through a screen hole. The long bristles 3 need not extend all the way from wall to wall in a drain pipe, since long hairs do not travel linearly. A spacious design also ensures an effortless flow of water. The sequence of short bristles 4 has a length which is at least in the same order as the asymmetric dimension of long bristles 3 from the body on one side thereof. The asymmetry of long bristles 3 relative to the body 1 in at least some of the bristles is at least 1:3, preferably at least 1:4. This ratio indicates which part of the bristles' length lies on the opposite sides of

the body 1. A circle drawn by the tips of the long bristles 3 covers most of the cross-sectional area of a drain pipe. The short bristles 4 can be disposed symmetrically relative to the body 1. Viewed in the direction of the body 1 (fig. 3), the ring 5 places itself in the central area of this circle and makes sure that the trap does not slip into the drain and can be effortlessly withdrawn.

[0014] In case the design of a drain pipe is exceptional, such as in a shower tub, in which the water seal can be located further away and the drain pipe deflects sideways immediately underneath the screen or drain basket, the wire-constructed body 1 can be deflected at a point closer to the bristles 3, and the end, which will be excessively long, can be deflected along with its ring 5 a second time and pushed through an opposite screen hole. Thus, the bristles will be closer to the screen. As a result, the trap extends to a lesser extent into a drain pipe and fits in a drain that has its section directed downwards from the screen shorter than usual. By virtue of its single-stem asymmetric design, the trap is generally installable also in a basin provided with a lever-operated stopper or plug, if necessary by reshaping the lift ring 5.

Claims

1. A hair trap intended for wash and shower basins provided with a fixed screen, the hair trap comprising

- an elongated body (1), having a first end and a second end;
- a suspension and lift element (2, 5) at the first end of the body; and
- bristles (3, 4), attached over a section of the body's length starting from the second end of the body (1),

wherein:

- the suspension and lift element (2, 5) extends asymmetrically from the body (1) sideways, and
- from the second end of the body commences a segment of short bristles (4), which is followed by a segment of long bristles (3) positioned asymmetrically relative to the body, and wherein the long bristles (3) have a length which is multiple compared to that of the short bristles (4),

characterized in that between the segment of short bristles (4) and the segment of long bristles (3) is a sharp transition phase that occurs the way of a direct jump and that the segment of the short bristles (4) has a length in the direction of the body (1) which is at least twice that of the segment of the long bristles (3).

2. A hair trap as set forth in claim 1, **characterized in that** the suspension and lift element (2, 5) extends

in the same direction from the body (1) as a longer dimension of the bristles (3) resulting from the asymmetry of the long bristles (3).

3. A hair trap as set forth in claim 2, **characterized in that** the suspension and lift element (2, 5) is a continuous extension of the body (1), which is bent to a right angle relative to the body (1) and which terminates in a ringshaped lift element (5).
4. A hair trap as set forth in any of claim 1-3, **characterized in that** the long bristles (3) have a length which is at least three times that of the short bristles.
5. A hair trap as set forth in any of claim 1-4, **characterized in that** the long bristles (3) have an asymmetry relative to the body (1), which in at least some of the bristles is at least 1:3, preferably at least 1:4.
6. A hair trap as set forth in any of claim 1-5, **characterized in that** the short bristles have a length of 6-10 mm, preferably about 7-8 mm, and the long bristles have a length of 20-35 mm, preferably about 25-30 mm.
7. A hair trap as set forth in any of claim 1-6, **characterized in that** the short bristles (4) are disposed symmetrically relative to the body (1).

Patentansprüche

1. Haarsammler für Wasch- und Duschbecken, die mit einem festen Sieb ausgestattet sind, wobei der Haarsammler aufweist:
 - einen länglichen Körper (1) mit einem ersten Ende und einem zweiten Ende;
 - ein Aufhängungs- und Hebeelement (2, 5) am ersten Ende des Körpers; und
 - Borsten (3, 4), die über einen vom zweiten Ende des Körpers (1) beginnenden Abschnitt der Länge des Körpers angebracht sind; wobei:
 - sich das Aufhängungs- und Hebeelement (2, 5) asymmetrisch von dem Körper (1) seitwärts weg erstreckt; und
 - vom zweiten Ende des Körpers ein Abschnitt aus kurzen Borsten (4) beginnt, auf den ein Abschnitt aus langen Borsten (4) folgt, die bezüglich des Körpers (1) asymmetrisch angeordnet sind, und wobei die langen Borsten (3) eine Länge haben, die ein vielfaches im Vergleich zur Länge der kurzen Borsten (4) ist,
- dadurch gekennzeichnet, dass** zwischen dem Abschnitt aus kurzen Borsten (4) und dem Abschnitt aus langen Borsten (3) ein scharfer Übergang vorhanden ist, der sich als unmittelbarer Sprung zeigt,

und dass der Abschnitt aus den kurzen Borsten (4) eine Länge in der Richtung des Körpers (1) hat, die mindestens doppelt so groß wie diejenige des Abschnitts aus den langen Borsten (3) ist.

2. Haarsammler nach Anspruch 1, **dadurch gekennzeichnet, dass** sich das Aufhängungs- und Hebeelement (2, 5) in der gleichen Richtung von dem Körper (1) aus erstreckt wie eine sich aus der Asymmetrie der langen Borsten (3) ergebende längere Abmessung der Borsten (3).
3. Haarsammler nach Anspruch 2, **dadurch gekennzeichnet, dass** das Aufhängungs- und Hebeelement (2, 5) eine kontinuierliche Verlängerung des Körpers (1) ist, die bezüglich des Körpers (1) rechtwinklig abgebogen ist und in einem ringförmigen Hebeelement (5) endet.
4. Haarsammler nach einem der Ansprüche 1-3, **dadurch gekennzeichnet, dass** die langen Borsten (3) eine Länge haben, die mindestens dreimal so groß wie diejenige der kurzen Borsten (4) ist.
5. Haarsammler nach einem der Ansprüche 1-4, **dadurch gekennzeichnet, dass** die langen Borsten (3) eine Asymmetrie bezüglich des Körpers (1) haben, die bei mindestens einigen der Borsten mindestens 1:3, vorzugsweise 1:4 beträgt.
6. Haarsammler nach einem der Ansprüche 1-5, **dadurch gekennzeichnet, dass** die kurzen Borsten eine Länge von 6-10mm, vorzugsweise von etwa 7-8mm haben, und dass die langen Borsten eine Länge von 20-35mm, vorzugsweise von etwa 25-30mm haben.
7. Haarsammler nach einem der Ansprüche 1-6, **dadurch gekennzeichnet, dass** die kurzen Borsten (4) bezüglich des Körpers (1) symmetrisch angeordnet sind.

Revendications

1. Collecteur de cheveux prévu pour les lavabos et les bacs à douche dotés d'une grille fixe, le collecteur de cheveux comprenant :
 - un corps allongé (1) ayant une première extrémité et une seconde extrémité ;
 - un élément de suspension et de levage (2, 5) au niveau de la première extrémité du corps ; et
 - des poils (3, 4) fixés sur une section de la longueur du corps commençant à partir de la seconde extrémité du corps (1),

dans lequel :

- l'élément de suspension et de levage (2, 5) s'étend de manière asymétrique à partir du corps (1) latéralement, et à partir de la seconde extrémité du corps, commence un segment de poils courts (4), qui est suivi par un segment de poils longs (3) positionnés de manière asymétrique par rapport au corps, et dans lequel les poils longs (3) ont une longueur qui est multiple par rapport à celle des poils courts (4), **caractérisé en ce qu'**entre le segment de poils courts (4) et le segment de poils longs (3), on trouve une phase de transition nette qui a lieu à la manière d'un saut direct, et **en ce que** le segment de poils courts (4) a une longueur dans la direction du corps (1) qui représente au moins deux fois celle du segment de poils longs (3).
2. Collecteur de cheveux selon la revendication 1, **caractérisé en ce que** l'élément de suspension et de levage (2, 5) s'étend dans la même direction à partir du corps (1) étant donné qu'une dimension plus longue des poils (3) provient de l'asymétrie des poils longs (3).
3. Collecteur de cheveux selon la revendication 2, **caractérisé en ce que** l'élément de suspension et de levage (2, 5) est une extension continue du corps (1), qui est pliée selon un angle droit par rapport au corps (1) et qui se termine par un élément de levage en forme d'anneau (5).
4. Collecteur de cheveux selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** les poils longs (3) ont une longueur qui représente au moins trois fois celle des poils courts.
5. Collecteur de cheveux selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** les poils longs (3) ont une asymétrie par rapport au corps (1) qui, dans au moins certains des poils, représente au moins 1:3, de préférence au moins 1:4.
6. Collecteur de cheveux selon l'une quelconque des revendications 1 à 5, **caractérisé en ce que** les poils courts ont une longueur de 6-10 mm, de préférence environ 7-8 mm, et les poils longs ont une longueur de 20-35 mm, de préférence environ 25-30 mm.
7. Collecteur de cheveux selon l'une quelconque des revendications 1 à 6, **caractérisé en ce que** les poils courts (4) sont disposés de manière symétrique par rapport au corps (1).

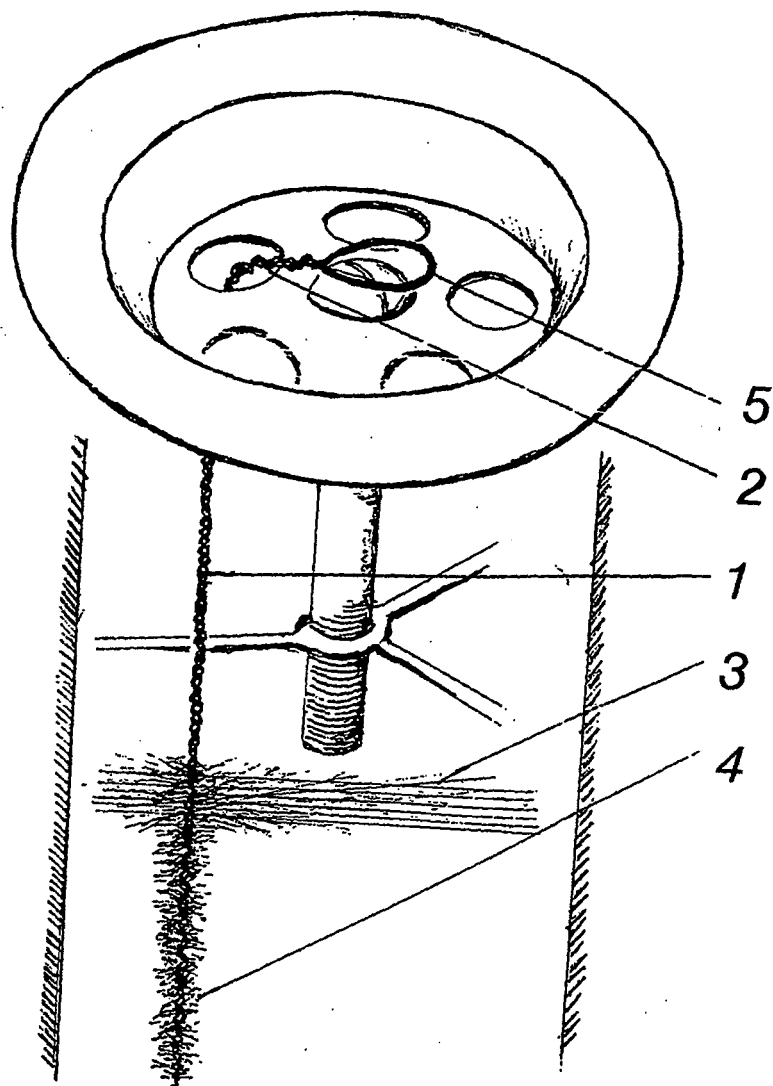


Fig. 1

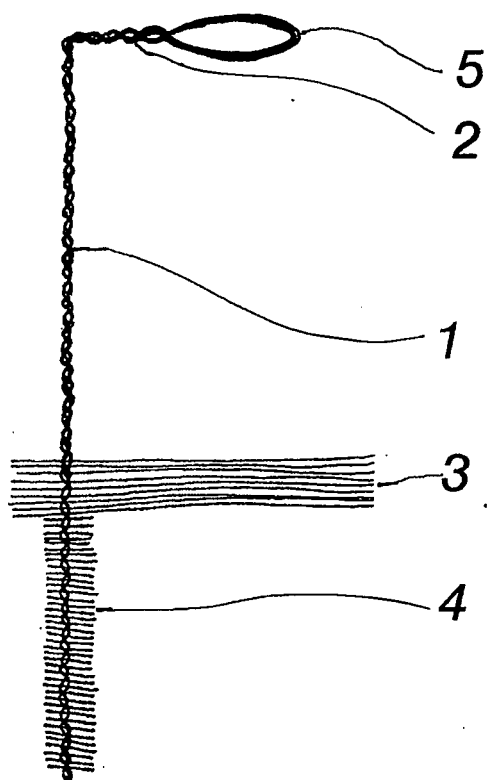


Fig. 2

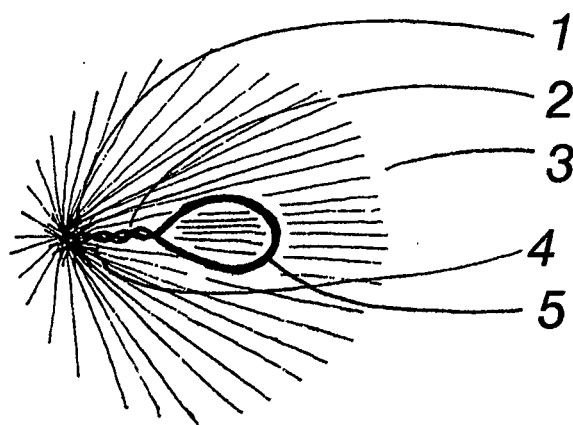


Fig. 3

REFERENCES CITED IN THE DESCRIPTION

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