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(54) **VERTICALLY ACTUATED WRINGER**

(57) The invention relates to a vertically actuated wringer formed by a wringer cone (1) and a base (2) comprising a flat surface with a hole from which projects a skirt (10) that ends in an inward-facing support ring (11) for attaching the wringer cone (1), which cone in turn comprises a series of extensions (4) along the length of a ring (3) and which end in rounded vertices (5), prolongations (6) being joined to the extensions by means of

said vertices (5), thereby forming an angle, and to a circular base (8) having an elevation toward the body defined by the prolongations (6), the extensions (4) and the prolongations (6) being elastically deformable, and the vertices (5) having a thickening (7) that increases the possibility of applying larger forces, by means of a mop, to the circular base (8).

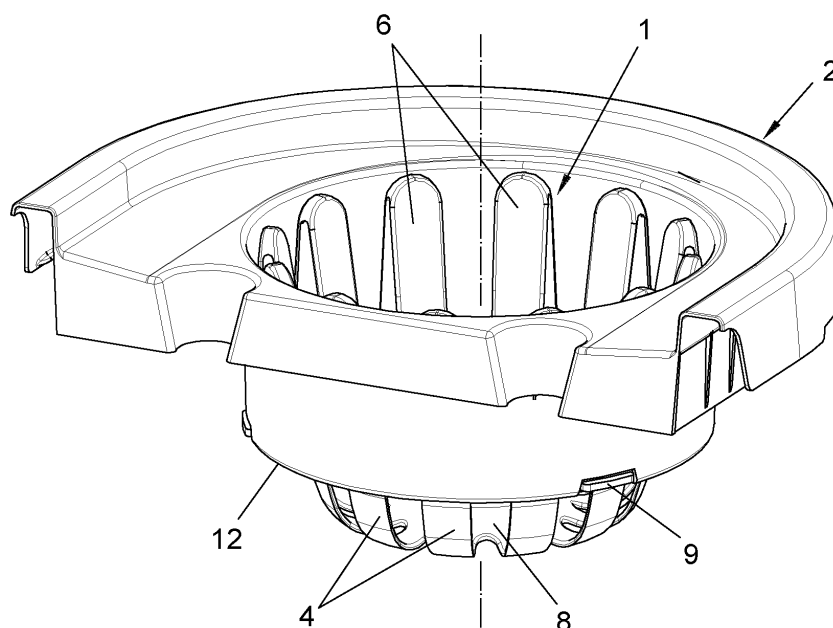


FIG. 1

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a wringer for mop buckets the purpose of which is to improve mop wringing such that it is facilitated without having to perform any rotational movement on the mop when wringing. In this manner, in order to wring the mop, it is simply pressed downwards against the structure of the wringer, which will press on the head of the mop.

[0002] The present invention is particularly applicable in the field of the industry of home cleaning articles.

TECHNICAL PROBLEM TO BE RESOLVED AND BACKGROUND OF THE

INVENTION

[0003] Mop wringers for mop buckets that are adapted to the opening of the buckets and have a structure including an inverted frustoconical-shaped cavity having holes in the bottom and side walls are available today, such that in order to wring the mop, the head is introduced therein, pressing and rotating the mop for the wringing thereof. Document ES-283439 describes a mop wringer of this type.

[0004] Other wringers comprise a structure including a frame for being attached to the mouth of the bucket and a structure incorporating flexible downwardly-converging elements that are joined in correspondence with a perforated lower base, such that when the mop is pressed downwards, those elements press on the head so as to wring it, such that when the mop is no longer pushed downwards, those elements recover their stand-by position.

[0005] These wringers are disclosed, among others, in invention patent numbers US2002/0066152 and EP-489237.

[0006] Document US2002/0066152 basically comprises a set of narrow flexible sheets which determine a frustoconical-shaped space, while such sheets converge downwards to form a circular base.

[0007] In contrast, document EP-489237 comprises two symmetrical groups of narrow flexible sheets converging towards the bottom and ending in an approximately rectangular base.

[0008] However, none of these methods has successfully solved the problem of these cleaning buckets which consist of the wringer being the weakest part and the first to break as a result of the vertical force exerted on said buckets, the entire assembly needing to be replaced.

[0009] Document ES-2360220-T3 presents an alternative focusing on this problem. It consists of a wringer which is adapted to a cleaning bucket formed by two parts. One of the parts is a base which is adapted to the bucket. The other part is what acts as a wringer. It is formed by two more symmetrical parts which are an-

chored to the support in the outer area, while converging in the inner area, creating a concave shape with openings intended to receive a mop or the like to be wrung. By means of downward pressure, the two symmetrical parts press on the head of the mop and excess water falls through the openings.

[0010] However, this invention has a drawback in terms of the wringing capacity of the mop, which is limited to the bending of the concave parts which act as a wringer that is very limited due to the configuration of the assembly.

[0011] The present invention solves these problems by means of a mop bucket incorporating a wringer which, on one hand, incorporates a configuration with which the wringing of the head of the mop is facilitated, without having to exert a large force, and on the other hand, is formed by two detachable parts which enable only the wringing area to be replaced in case of breakage.

DESCRIPTION OF THE INVENTION

[0012] To achieve the objectives and to prevent the drawbacks mentioned above, the present invention describes a vertically actuated wringer formed by a wringer cone and a base which are assembled in a reversible manner.

[0013] The base comprises a flat surface with a hole from which a skirt projects which ends in an inward-facing support ring and in an outward-facing attachment rib.

[0014] The wringer cone incorporates extensions uniformly separated from one another along the entire length of a ring joining the extensions through one of the ends. The other end of the extensions ends in a rounded vertex, each of the extensions being joined to a prolongation by means of said vertex, forming an angle. At the other end, the prolongations are joined to a circular base having an elevation towards the volume defined by the prolongations.

[0015] The base may incorporate a safety crosspiece joined to the free edge of the skirt and formed by two pairs of perpendicular arms, each pair of arms having a U-shaped transversal cross section, the two pairs of arms providing a volume for housing the wringer cone.

[0016] Both the extensions and the prolongations are made to be elastically deformable, preferably being manufactured from a thermoplastic material.

[0017] The vertices present an accumulation of material by way of a thickening, such that it increases the possibility of applying larger forces by means of a mop to the circular base without the wringer having any breakage problems.

BRIEF DESCRIPTION OF THE FIGURES

[0018] To complete the description of the invention, and for the purpose of helping to make the features thereof more readily understandable, according to a preferred exemplary embodiment thereof, a set of drawings is in-

cluded where, by way of illustration and not limitation, the following figures have been represented:

- Figure 1 depicts a top perspective view of the vertically actuated wringer of the invention.
- Figure 2 depicts a bottom perspective view of the vertically actuated wringer depicted in figure 1.
- Figure 3 depicts a plan view of the wringer depicted in figure 1.
- Figure 4 depicts a side view of the wringer depicted in figure 1.
- Figure 5 depicts a side view of the wringer, perpendicular to the one depicted in figure 4.
- Figure 6 depicts a top perspective view of the base part of the wringer of the invention.
- Figure 7 depicts a top perspective view of the support part of the wringer of the invention.
- Figure 8 depicts a base in a second embodiment.
- Figure 9 depicts a side view of the vertically actuated wringer incorporating the base of figure 8.
- Figure 10 depicts a perspective view of the wringer shown in figure 9.

[0019] A list of the references used in the figures is provided below:

1. Wringer cone.
2. Base.
3. Ring.
4. Extensions.
5. Vertices.
6. Prolongations.
7. Thicknessing.
8. Circular base.
9. Anchoring.
10. Skirt.
11. Support ring.
12. Attachment rib.
13. Projection.
14. Safety crosspiece.

DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION

[0020] Taking into consideration the reference numbers used in the figures, the wringer of the present invention is formed by two parts, i.e., a wringer cone (1) and a base (2), that can be assembled together.

[0021] Figures 1 to 5 depict the wringer with the two parts (1, 2) assembled together, wherein the different components can be seen, said components making up the wringer and being specified particularly in figures 6 and 7 which depict, respectively, the wringer cone (1) and the base (2), and will be used to provide a detailed description of each of the components making up the wringer, as they can all be seen with greater clarity.

[0022] The wringer cone (1) is formed by a ring (3) from which a series of extensions (4) project, in a considerably

perpendicular direction, uniformly separated from one another along the entire length of the ring (3). The extensions (4) end in rounded vertices (5) by which they are joined to prolongations (6) forming an angle. The vertices (5) show an accumulation of material by way of a thickening (7). The prolongations (6) are joined to one another by means of a circular base (8) having an elevation towards the volume defined by the prolongations (6), having a convex configuration once the wringer is assembled in a bucket. Both the extensions (4) and the prolongations (6) have a high capacity for elastic deformation. To that end, they are preferably manufactured from a thermoplastic material.

[0023] The base (2) is configured to be attached to a bucket and to hold the wringer cone (1). To that end, it comprises a flat surface with a peripheral border having a U-shaped transversal cross-section in order to be placed on the edge of the bucket and an edge-free area, which faces the inside of the bucket when the base (2) is attached to the bucket, wherein at least one support is provided for attaching the handle of the mop when it is not being used.

[0024] Arranged on the flat surface of the base (2) there is a hole from which a skirt (10) projects which ends in an end with protuberances towards the two sides, towards the inside, forming a support ring (11), and towards the outside, forming an attachment rib (12). The support ring (11) is intended to act as a support for the ring (3) of the wringer cone (1). For the axial attachment of the wringer cone (1) to the base (2), the wringer cone (1) comprises an anchoring (9) configured as a tab protruding from the circular base (8) the end of which has an arrowhead-shaped cross section in order to be anchored to the attachment rib (12). The radial attachment of the wringer cone (1) on the base (2) is carried out by means of attachment means consisting of a projection (13) located in the support ring (11) whereon there a recess is coupled, not depicted in the figures, located in the ring (3) of the wringer cone (1).

[0025] Figure 8 depicts a base (2) in a second embodiment, wherein it incorporates a safety crosspiece (14), joined to the free end of the skirt (10) and configured in the form of two perpendicular arms, each pair having a U-shaped transversal cross section, such that the wringer cone (1) can be housed in the space configured by the two pairs of arms without making any contact. The function of this crosspiece (14) is to prevent, by acting as a limiting stop, the wringer cone from being able to get over the support ring (11) and come off due to excessive pressure, or even breaking due to excessive elastic deformation of the material.

[0026] Figures 9 and 10 clearly show the position of the wringer cone (1) with respect to the crosspiece (14) of the base (2).

[0027] The operation is described below after having described the device. With the vertically actuated wringer attached to a bucket, a mop with the wet head is introduced until it rests on the circular base (8). Pushing the

head of the mop vertically downwards on the circular base (8) causes the prolongations (6) to close towards the inside, pressing on the head and then wringing it. The openings between the prolongations (6) are intended to drain the water from the head of the mop. Moreover, the convex shape of the circular base (8) has two functions. On one hand, it prevents the water wrung from the head from being stored at the bottom of the wringer, rather said water falls into the bucket. On the other hand, it causes pressure to be applied to the inner strips of the head, improving the removal of water.

[0028] The angle at which the prolongations (6) are joined to extensions (4) can be variable, taking into account that the larger the angle, the smaller the inner space in the wringer and the more effective the removal of water will be.

[0029] The thickening (7) makes it so that the force applied to the mop can be fairly high, enabling the elastic deformation of the extensions (4), so that the prolongations (6) press on the head with a high force as well.

[0030] It must be noted that the present invention must not be limited to the embodiment described herein. Other configurations may be carried out by those skilled in the art based on the present description. Accordingly, the scope of the invention is defined by the following claims.

Claims

1. A vertically actuated wringer formed by a wringer cone (1) and a base (2) which are assembled in a reversible manner, **characterised in that** the base (2) comprises a flat surface with a hole from which a skirt (10) projects which ends in an inward-facing support ring (11) and in an outward-facing attachment rib (12), and the wringer cone (1) comprises:
 - a series of extensions (4) uniformly separated from one another along the entire length of a ring (3) and which end in rounded vertices (5),
 - prolongations (6) which are joined to the extensions (4) by means of the vertices (5), forming an angle, and to a circular base (8) having an elevation towards the volume defined by the prolongations (6) wherein,
 - both the extensions (4) and the prolongations (6) are made to be elastically deformable, and
 - the vertices (5) show an accumulation of material by way of a thickening (7),
 such that it increases the possibility of applying larger forces by means of a mop to the circular base (8).
2. The vertically actuated wringer according to claim 1, **characterised in that** the base (2) incorporates a safety crosspiece (14) joined to the free edge of the skirt (10) and formed by two pairs of perpendicular arms, each pair of arms having a U-shaped trans-

versal cross-section, providing a volume for housing the wringer cone (1).

3. The vertically actuated wringer according to claim 1 or 2, **characterised in that** both the extensions (4) and the prolongations (6) are manufactured from a thermoplastic material.

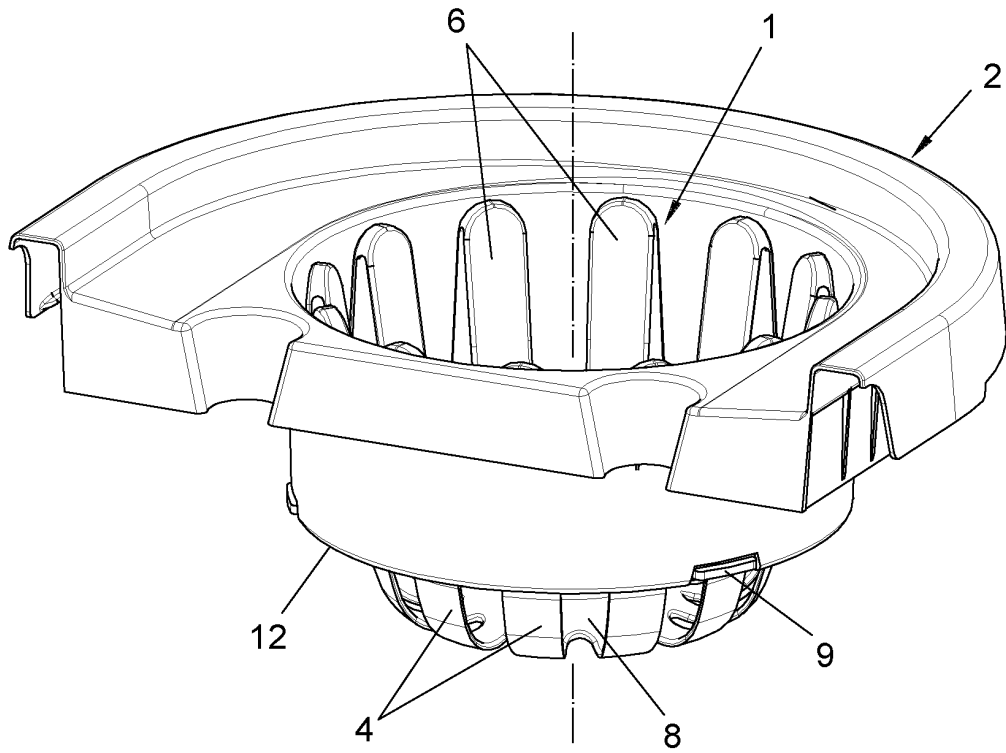


FIG. 1

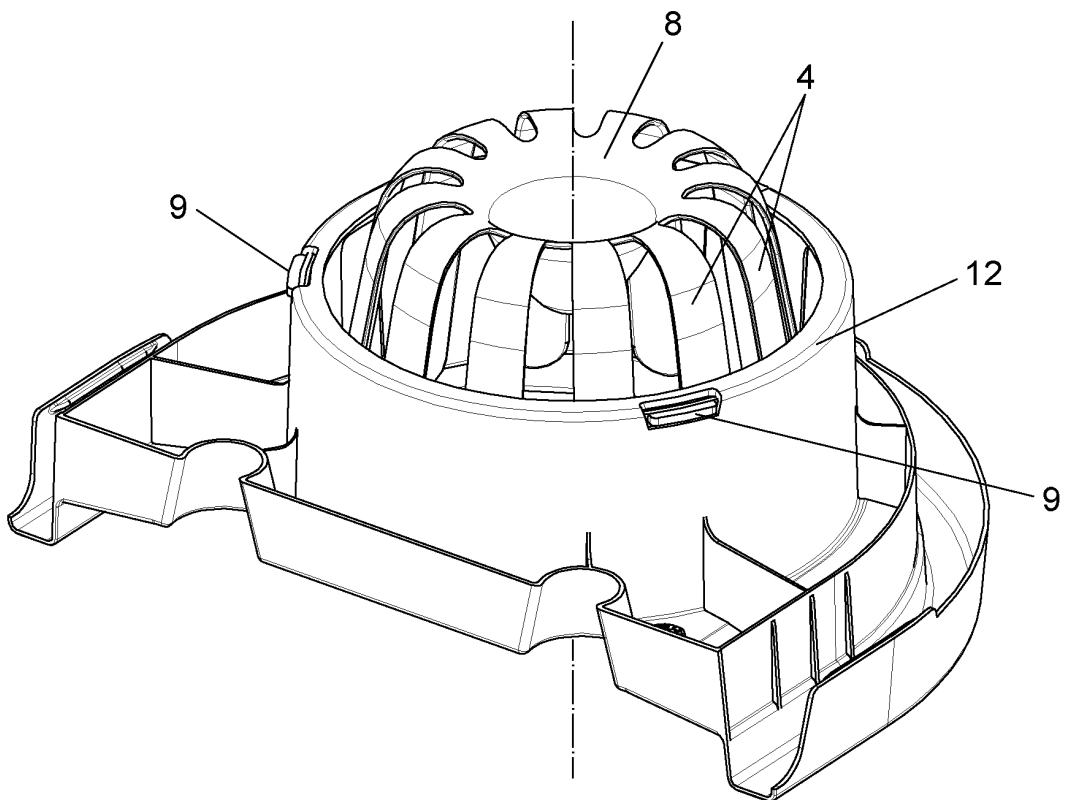


FIG. 2

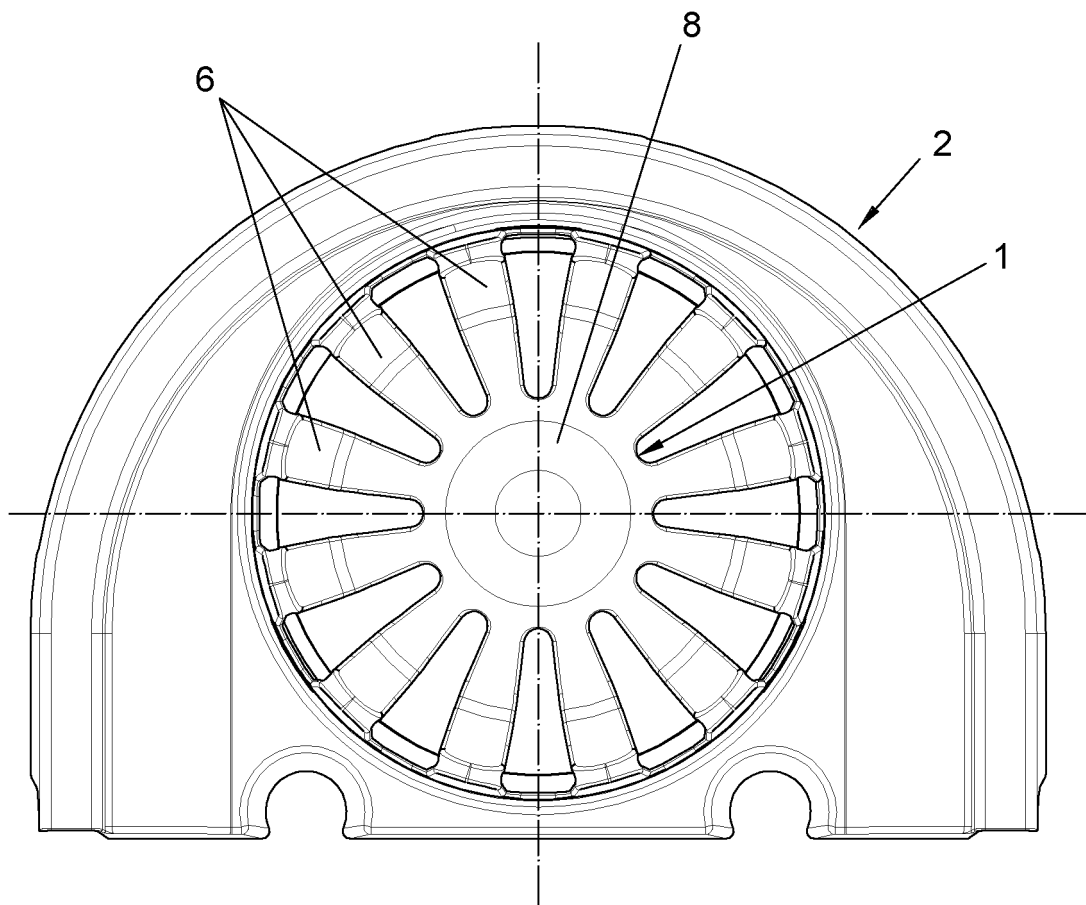


FIG. 3

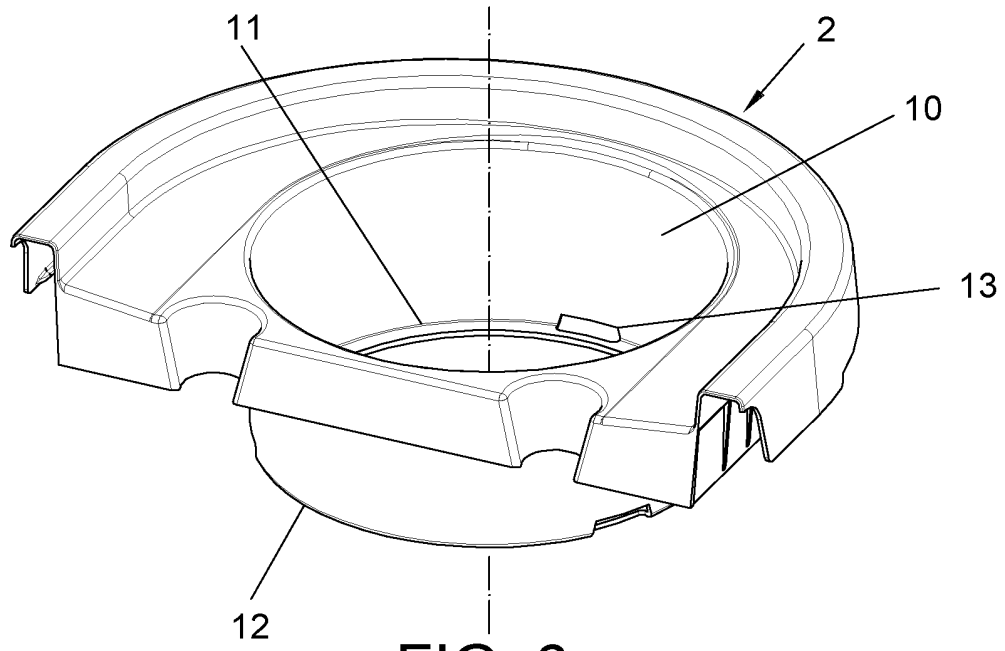


FIG. 6

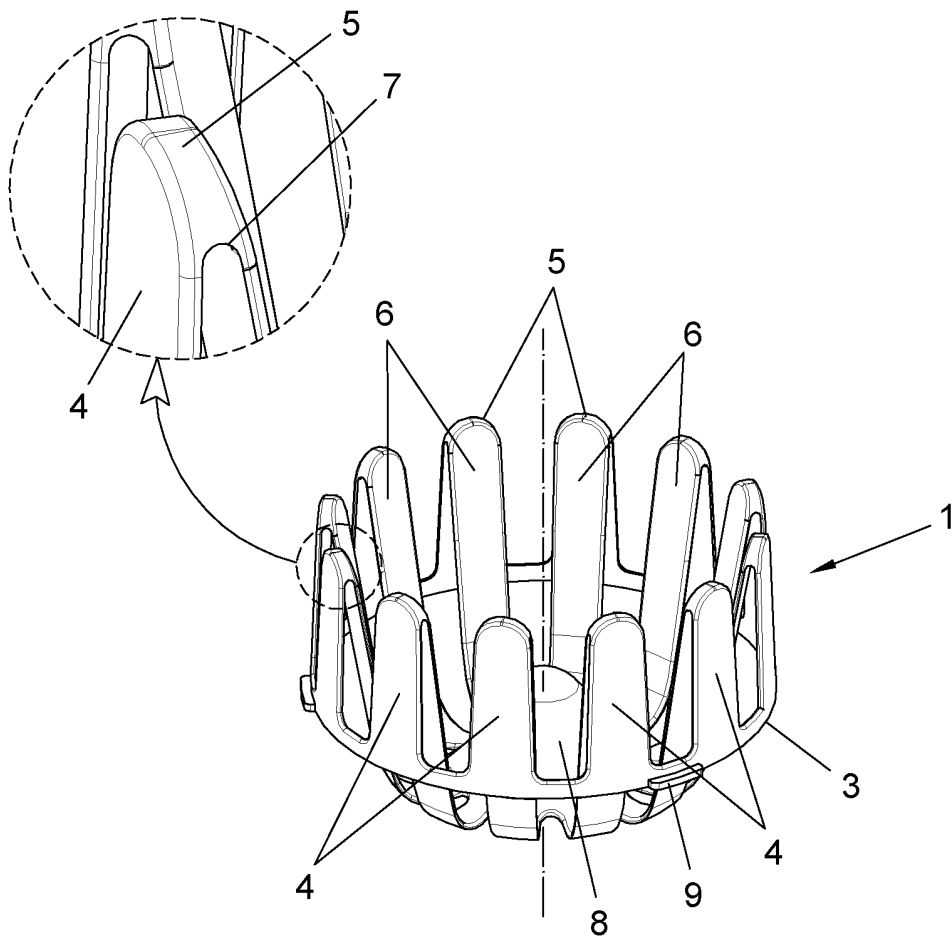
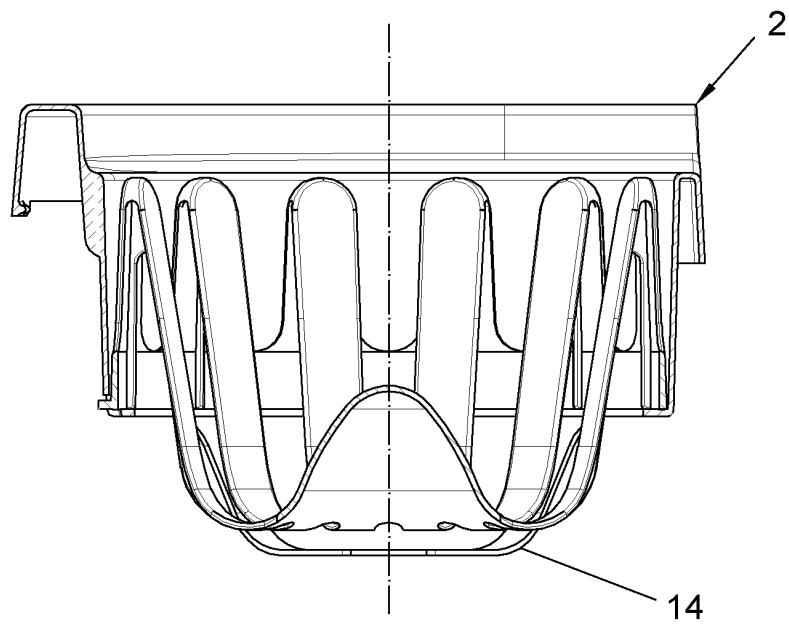
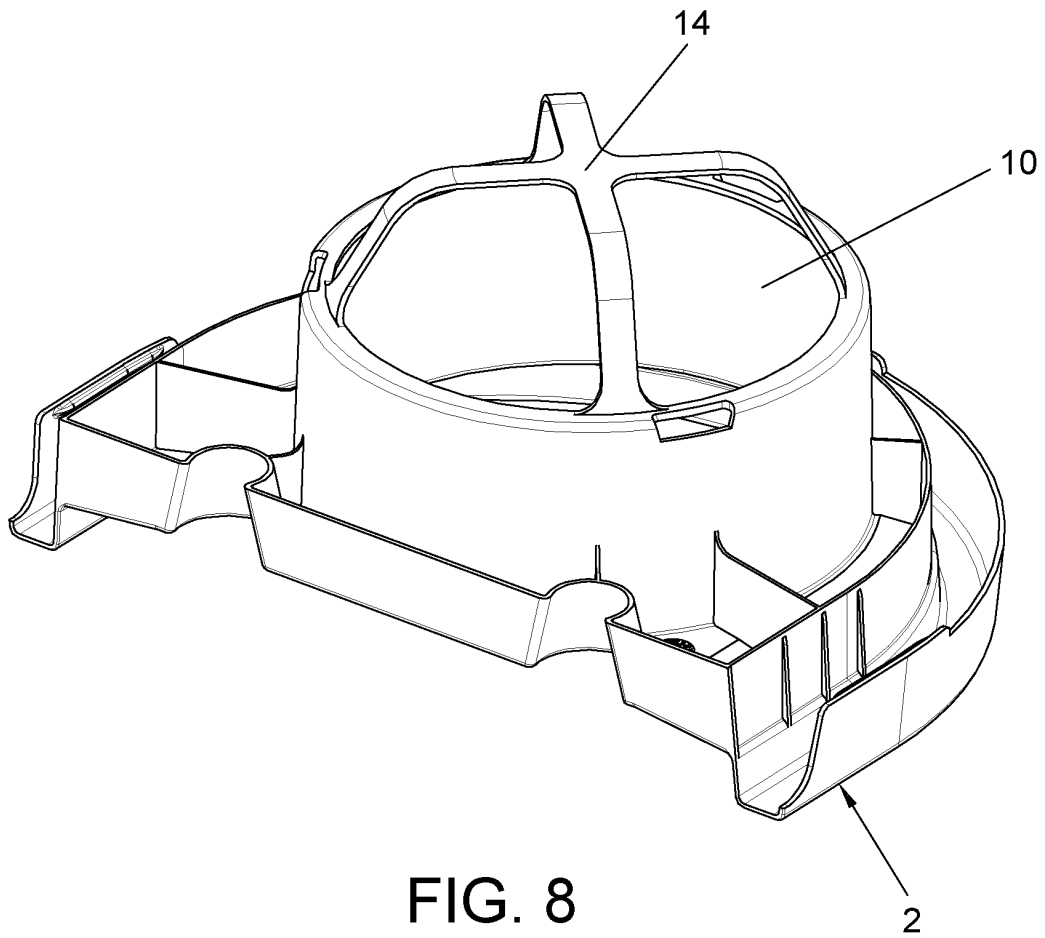


FIG. 7



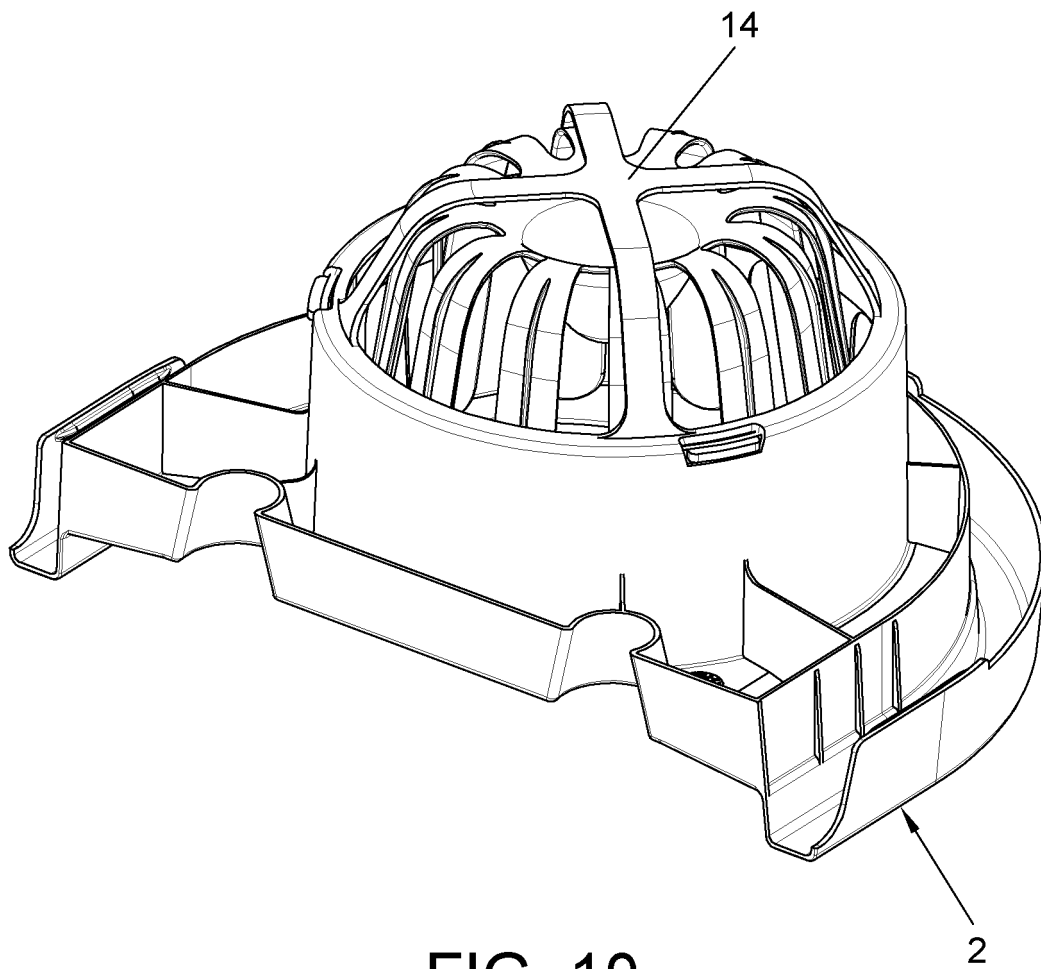


FIG. 10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2019/070077

A. CLASSIFICATION OF SUBJECT MATTER

A47L13/58 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A47L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ES 1129630U U (VONDOM S L U) 21/10/2014, Page 2, lines 27 - 35; page 3, line 35; page 4, lines 1-15; figures 1 - 3.	1-3
A	US 2015282689 A1 (NGAN FRANKIE ET AL.) 08/10/2015, page 2, paragraph 40, paragraphs [48 - 52]; page 3, paragraphs [52 - 53]; figures 1, 5 - 13.	1-3
A	ES 1041890U U (MONSALVE REALES ROSA) 01/08/1999, column 2, line 56 - column 4, line 27; figures 1 - 9.	1-3
A	CN 2759372Y Y (SHANGHAI MEIJIA IND CO LTD) 22/02/2006, the whole document.	1-3

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance.	
"E" earlier document but published on or after the international filing date	
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"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2019/070077

Information on patent family members

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REFERENCES CITED IN THE DESCRIPTION

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- US 20020066152 A [0005] [0006]
- EP 489237 A [0005] [0007]
- ES 2360220 T3 [0009]