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(54) **HOLDER FOR A TREE, SUCH AS A CHRISTMAS TREE**

(57) The invention relates to a holder for a tree, such as a Christmas tree, comprising:
- a base (2), comprising a support surface (3) and a ball socket (4), connected to the support surface (3); and
- a hollow ball-shaped insert (5), locked inside the ball socket (4), the insert (5) provided with at least one opening (7), for receiving and locking the stem of a tree inside the insert (5) through the opening (7).

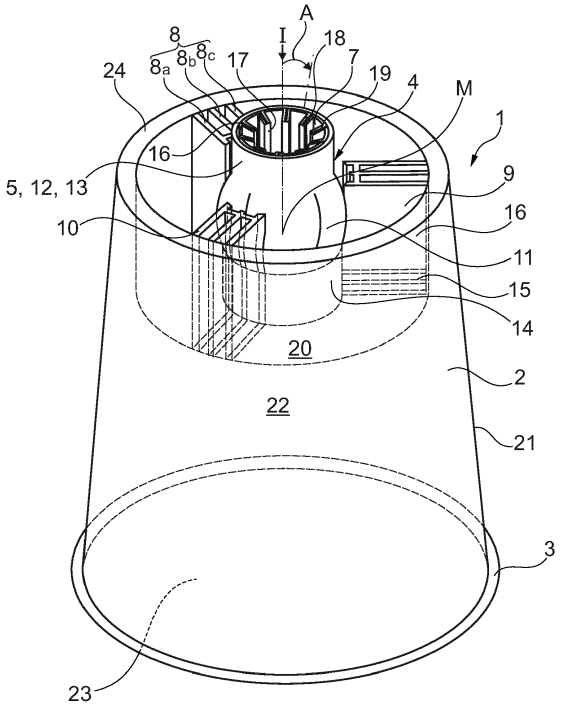


Fig. 1

EP 3 167 773 A1

## Description

**[0001]** The invention relates to a holder for a tree, such as a Christmas tree.

**[0002]** In the celebration of Christmas, many people place a Christmas tree (e.g. a species of the family Pinaceae, such as spruce, pine or fir) inside their house, and decorate the tree with lights and other kinds of Christmas tree adornment.

**[0003]** To do so, the roots are most often removed. After this step, in a first known solution, an X-shaped cross is attached as a holder to the bottom of the stem, to allow easy and stable fixation on a floor, and to increase the ease of transportation. However, the perforation of the stem of the tree by the means used for attaching the cross to the stem diminishes the life expectancy of the tree and thereby increases the chance of early needle loss. In addition, the process in which the roots are removed from the tree is often performed relatively quickly, very often resulting in a cut performed such that the tree stands askew, with no means for easy adaption of its stance. Furthermore, the use of a cross is often not preferred for aesthetical reasons, in particular since the cross extends relatively far from the stem of the tree.

**[0004]** In a second known solution, the tree is sold without a holder after removal of the roots. In such a situation, a separate holder is used, provided with a number of grippers, disposed along the circumference of the stem, which are moveable towards the stem of the tree with a screw in order to fix the tree in the holder. The grippers may be mounted in a water reservoir, thereby allowing administration of water. Such a process requires the presence of more than one person, since one person needs to hold the tree halfway the stem, while the other person tightens the grippers. The person adjusting the screw is in an uncomfortable position under the tree, while the person holding the tree may not be able to see properly the position of the person that is tightening the grippers, which may lead to accidents. In order to achieve a straight stance, repeated and careful adjustment of the position of the grippers and the position of the tree is most often furthermore required. The tree is most often relatively heavy and people do not like to touch repeatedly because of the presence of needles. This altogether makes it a very cumbersome and lengthy process to achieve a straight stance or even any stance at all using such a holder, which also most often leads to people accepting an askew stance instead.

**[0005]** In either way, it is also necessary to store Christmas tree adornment separately.

**[0006]** It is now an object of the invention to provide a holder wherein the above stated drawbacks are reduced or even obviated.

**[0007]** This object is achieved with a holder for a tree, such as a Christmas tree, comprising:

- a base, comprising a support surface and a ball socket, connected to the support surface; and
- a hollow ball-shaped insert, locked inside the ball socket, the insert provided with at least one opening, for receiving and locking the stem of a tree inside the insert through the opening.

**[0008]** The ball socket is disposed along the support surface. The ball socket is provided with an insertion opening, arranged with the opening facing away from the support surface, preferably parallel to the support surface, allowing a ball-shaped insert to be mounted through the insertion opening inside the holder. The support surface is generally considered parallel to the floor the base is mounted on. The insertion may be performed easily by just one person, even with a Christmas tree already provided within the insert. The insertion opening is preferably circular to increase the versatility in ways of insertion of the insert into the socket. In order to enhance the locking of the insert in the base, the surfaces of the ball socket used for connection may adjoin the surface of the insert.

**[0009]** To enhance the locking of the insert in the base, the surfaces of ball socket or the insert adjoining each other may also or alternatively be provided with a friction surface for the same purpose. Such a friction surface may be in the form of a first coupling element and a second coupling element, mating the first coupling element in at least one orientation of the insert in the socket. Such a first and/or second coupling element preferably extends along the adjoining circumference of one of the insert and the ball socket in a direction substantially parallel to the support surface. It may be in the form of a rib and a coupling element, mating the rib. Such a rib extending in such a direction enhances the stability of the insert in the base, especially over time, since it requires the insert even more to be snapped into the socket.

**[0010]** The ball-shaped insert may be provided with the stem of a tree, such as a Christmas tree, which is inserted through the opening in the hollow space within the insert. The opening is preferably circular and adjusted to the size of the stem, however the stem may also be adjusted to such a shape, e.g. by milling. A circular opening in the insert is preferred because such a shape typically adjoins the stem of a tree more easily and since it increases the versatility in ways of insertion of the stem into the insert. Preferably, the Christmas tree is provided inside the insert prior to insertion of the insert into the ball socket, to enhance the ease of insertion.

**[0011]** While the holder may be sold without a Christmas tree, the insert may also be sold as a kit with a Christmas tree, with the Christmas tree preferably already inserted in the insert. This allows one to install the holder more easily. If the base is sold separately, repeated use of the same holder is encouraged, saving material costs.

**[0012]** Preferably, one or both of the ball socket and the insert, and more preferably the insert, is/are made of a material which is rigid but which allows temporary flection under the pushing pressure exerted by a person pressing the insert with a Christmas tree into the ball-

shaped insert. This allows for easy insertion of the insert, while obtaining a tight fit when inserted. In the same fashion, the material is preferably chosen such that the insert may be uncoupled and removed from the socket easily under a pulling pressure. The insert may for instance be made of acrylonitrile butadiene styrene (ABS) or polypropylene (PP), e.g. an insert made of ABS, and a base of PP.

**[0013]** It may however also be preferred if one or both of the base and the insert is/are made of a material which is biodegradable, since it reduces the waste stream if people want to dispose the holder or parts of the holder after use without storing them for next year.

**[0014]** The support surface is dimensioned such that it can be used to support the holder on the ground. The ball socket may be either fixed directly to the support surface, but may also be fixed to other parts of the holder, which are in connection with the support surface.

**[0015]** The outer surface of the surface is preferably cylindrical or conical, to allow a printing to be applied to the outer surface relatively easy. However, if required, the outer surface may alternatively have other shapes, such as for instance a star shape or a polyangular such as triangular, rectangular, or square shape.

**[0016]** The socket may be built such that the movement of the insert is restricted once inserted into the ball socket. However, in a preferred embodiment of the holder according to the invention, the insert is tiltable inside the ball socket, preferably in at least two directions perpendicular to each other.

**[0017]** When the insert is tiltable inside the ball socket, it allows for adjustment of the position of the ball-shaped part of the insert inside the socket after insertion. This allows for easy and precise adjustment of the stance of the tree, which may be done by just one person. In order to achieve a large adjustability, the insert is tiltable in at least two directions perpendicular to each other, which directions are preferably both parallel to the support surface.

**[0018]** Preferably, the tiltability is in each of the directions in which the insert is tiltable no more than 20° in total (10° in both directions from a position in which the opening in the insert is parallel to the insertion opening in the socket). In this way, the stability of the position is increased. Either the socket or the insert may be modified such to limit the tiltability, e.g. by blocking means such as notches, or by one of the solutions in one of the other embodiments.

**[0019]** In another preferred embodiment of the holder according to the invention, the ball socket comprises at least two, and preferably at least three socket arms, extending substantially perpendicular to the support surface, arranged radially around the insert at a distance from each other, preferably equally spaced around the circumference of the ball-shaped part of the insert.

**[0020]** While the socket may be continuous around the circumference of the ball-shaped part, thus fully enclosing the insert from all directions, it is preferred if the ball socket is instead built of at least two or preferably at least three socket arms, which extend perpendicular to the support surface and/or are upright with respect to the support surface and which are spaced from each other radially with respect to the insert. Equal spacing increases the stability, and ensures a stable connection compared to a situation with unequal spacing, especially compared to such a unequally spaced situation in which the arms would be arranged mainly on one side of the insert.

**[0021]** The arms thus form a discontinuous surface along the surface of the insert. Such an embodiment saves in material costs and provides better flection compared to a socket with a continuous surface.

**[0022]** The number of at least three is preferred over the number of at least two, since at least three increases the stability significantly over at least two.

**[0023]** In yet another preferred embodiment of the holder according to the invention, the insert further comprises at least one straight tube, extending outwardly from the surface of the ball-shaped part of the insert, with the center line of the tube extending through the center of the ball-shaped part of the insert.

**[0024]** While the provision of an opening in the insert is sufficient for insertion of the stem of a tree, it may be preferred to provide a tube, which extends from the external surface of the ball-shaped part of the insert. The center line of the tube extends through the center of the ball-shaped part or, in other words, the tube is arranged pointing straight outwards from the surface of the ball-shaped part of the insert.

**[0025]** The tube may either point upwards, i.e. from the ball-shaped part, away from the support surface, to create an additional support for the stem, which adjoins the tube. The tube is in such a case preferably cylindrical, since such a shape typically adjoins the stem of a tree more easily, and increases the versatility in ways of insertion of the stem in the insert.

**[0026]** Alternatively or additionally, the tube may point downwards, i.e. from the ball-shaped part, towards the support surface, which is especially advantageous if the base comprises a water reservoir. In such a way, the stem is in contact with the water through the tube reservoir, lowering the required water level in the reservoir and reducing the chance of spilling water.The tube may in either way, e.g. pointing upwards or downwards, also be used to block the tiltability of the insert inside the socket, when the socket is provided with blocking means defining the window of rotation of the tube inside the socket.

**[0027]** In a further preferred embodiment of the holder according to the invention, the tube extends through opposing sides of the surface of the ball-shaped part of the insert.

**[0028]** While it is possible to provide a tube part which points upwards or downwards, it is advantageous if the tube part points both upwards and both downwards to achieve both the advantages. The tube may extend through the hollow part of the ball-shaped part, but may

also comprise two tube parts, which are in line with each other, emerging from opposing sides of the surface of the ball-shaped part. The shape or diameter of the tube parts may be different as required, but it is preferred if the shape or diameter in both directions of the insert is equal, to allow both tube parts to be swapped in use, enhancing the ease of insertion.

**[0029]** In another preferred embodiment of the holder according to the invention, the ball socket comprises at least one substantially tube-shaped connecting wall, extending outwardly from the ball-shaped surface of the ball socket with the center line of the tube through the center of the ball-shaped part of the insert.

**[0030]** It is preferred if the ball socket comprises, in addition to the curved surface which adjoins the ball-shaped part of the insert, a substantially tube-shaped connecting wall, which extends outwardly of the ball shaped surface, with the center line through the center of the ball-shaped part of the insert, or, in other words, which wall stands up straight from the supporting surface.

**[0031]** By substantially tube shaped, it is also envisaged that the tube shape may be partially formed by a real connecting wall, and partially by a virtual wall. For example, in a situation in which the socket comprises socket arms instead of one socket enclosing the ball-shaped part of the insert from all directions, the tube-shaped part may only extend along the surface of the socket arms, while the tube may be absent along the remaining circumference of the insert.

**[0032]** In again another preferred embodiment of the holder according to the invention, the tube-shaped connecting wall is at a distance from the tube of the insert.

**[0033]** When arranging the connecting wall at a distance of the tube of the insert, the tube of the insert may tilt within the window defined by the connecting wall. The connecting wall is thus a preferred embodiment of the previously mentioned blocking means.

**[0034]** In even another preferred embodiment of the holder according to the invention, the ball socket is connected with only a part of the curved surface of the ball-shaped part of the insert in the height direction, preferably no more than 80%.

**[0035]** When the outer surface of the ball-shaped part is only partially covered by the ball socket, and for the other part left free of contact with the ball socket, the degree of freedom in rotation is increased. Preferably, the part of the surface left free is the part close to any openings provided in the surface of the ball-shaped part.

**[0036]** It has been shown that with a maximum coverage of 80%, in particular when the coverage is continuous, the tiltability is not impaired.

**[0037]** In yet another preferred embodiment of the holder according to the invention, at least one rib is arranged on the ball socket, facing the ball-shaped part of the insert, for supporting the insert in the ball socket.

**[0038]** The clamping tightness of the insert inside the socket may be increased if the ball socket is provided on the inner surface with at least one rib protruding towards the ball-shaped part. The rib preferably extends with its length along the socket. Preferably, the number of ribs is larger than one and the ribs are equally spaced along the circumference of the insert. In this situation, the part of the ball socket between two ribs is also considered to cover the ball-shaped part.

**[0039]** Additionally or alternatively, any connecting wall extending from the part of the socket adjoining the insert may also be provided with such a rib or ribs for the same purpose.

**[0040]** In again another preferred embodiment of the holder according to the invention, at least one rib is arranged on the inner surface of the insert, the rib directed inwardly, preferably substantially parallel to the insertion direction of the stem of a tree through the opening, for supporting the stem of a tree in the insert.

**[0041]** The clamping tightness of the stem of the tree inside the insert may be increased if the ball-shaped part of the insert is provided on the inner surface with at least one rib which faces the stem, i.e. which is directed inwardly. The rib preferably extends with its length along the insertion direction of the stem of the tree through the opening. Preferably, the number of ribs is larger than one and the ribs are equally spaced along the circumference of the stem.

**[0042]** The ribs may be provided with one or more protrusions, extending from the ribs towards the stem, increasing the tightness of the connection between the rib and the insert.

**[0043]** The dimensions and material of the ribs are preferably chosen such that these will not break off the inner surface of the insert upon the insertion of the stem.

**[0044]** Additionally or alternatively, any tube extending from the ball-shaped part of the insert may also be provided with such a rib or ribs for the same purpose.

**[0045]** In another preferred embodiment of the holder according to the invention, the holder further comprises an intermediate surface, substantially parallel to the support surface, disposed between and at a distance from the ball socket and the support surface, and a circumferential storage compartment wall extending from the intermediate surface to the support surface.

**[0046]** The intermediate surface, disposed between the ball socket and the support surface, divides the base of the holder substantially in a stem insertion part, in which the stem of a tree is inserted into the socket, and a storage compartment, in which Christmas tree adornment may be stored. Access to the storage compartment is preferably provided by an opening which interrupts the support surface, to increase the ease of construction of the base. The opening may be closed off by a foil, which may for instance be sealed to the support surface.

**[0047]** The storage compartment may also be used to partly enclose an additional base according to the invention, allowing the bases to be transported in a nested way, especially when the support surface of the base is wider than the intermediate surface and preferably enlarges gradually towards the support surface.

**[0048]** In yet another preferred embodiment of the holder according to the invention, the holder further comprises a circumferential wall, extending from the ball-shaped part towards the support surface, enclosing a water reservoir.

**[0049]** The circumferential wall extends from the ball-shaped part of the insert towards the support surface, and is directed towards the support surface, and connected to this support surface or may also be connected to any other surface in between, such as, when applicable, the intermediate surface. In such a way, a water reservoir is defined.

**[0050]** The ball-shaped part of the insert may have a water administration opening opposing the insertion opening, to diminish the water level required for administration of water through the opening for insertion of the stem of the tree, reducing the chance of spilling.

**[0051]** The circumferential wall extends preferably from the level in the ball-shaped part closest to the support surface in which water can be administered to the stem of the tree, with preferably an additional upright edge to decrease the chance of spilling. The upright edge preferably extends up to the top part of the insert, to completely cover the insert and the socket when a tree is inserted inside the holder.

**[0052]** These and other features of the invention will be elucidated in conjunction with the accompanying figures.

Figure 1 shows a perspective view of a holder according to the invention.

Figure 2 shows a transection of a holder according to figure 1.

Figure 3 shows a top view of a holder according to figure 1.

Figure 4 shows a detail of figure 1 in transection.

**[0053]** Figures 1 to 4 show a holder 1 according to the invention. The holder 1 comprises a base 2 with a support surface 3 mounted on a floor F and a ball socket 4 connected to the support surface 3. A hollow ball-shaped insert 5 adjoins and is locked inside the ball socket 4 through a circular opening 6. The stem of a tree, such as a Christmas tree (not shown) may be inserted with the bottom of the stem through opening 7 in the insert. The ball socket 4 is tiltable in direction A and the direction in the plane of the support surface 3 perpendicular to direction A, which allows an adjustment of the angle of 20° in total in direction A and the direction perpendicular.

**[0054]** The ball socket 4 comprises three ball socket arms 8, 9, 10, extending perpendicular to the support surface 3, arranged radially around the insert 5, equally spaced around the circumference of the ball-shaped part 11 of the insert 5. The circular tube shape is thus partially formed by a real connecting wall along ball socket arms 8, 9, 10, and partially by a virtual wall. Each ball socket arm 8, 9, 10 comprises three ribs (shown as 8a, 8b, 8c for ball socket arm 8 in figures 1 and 3) facing the ball-shaped part 11 of the insert 5, for supporting the insert 5 in the ball socket 4.

**[0055]** The insert 5 comprises at least one straight tube 12, extending outwardly from the surface of the ball-shaped part 11 of the insert 5, with the center line of the tube extending through the center M of the ball-shaped part 11 of the insert 5. The tube 12 comprises two segments 13, 14, extending through opposing sides of the surface of the ball-shaped part 11 of the insert 5.

**[0056]** The ball socket 4 comprises a tube-shaped connecting wall 15 (shown as the lower part of ball socket arm 9 in figure 1), extending outwardly from the ball-shaped surface 16 (shown as the upper part of the ball socket arm 9 in figure 1) of the ball socket 4 with the center line of the tube 15 through the center M of the ball-shaped part 11 of the insert 5. The tube 15 is at a distance D from the tube 14 of the insert 5. The ball socket 4 is connected with only a part B of the curved surface C of the ball-shaped part 11 of the insert 5 in the height direction, preferably no more than 80% (see figure 4).

**[0057]** The inner surface of the insert 5 comprises inwardly directed ribs equally spaced around the circumference of the inner surface of the insert 5, of which ribs 16, 17, 18, 19 are shown in figure 1, substantially parallel to the insertion direction I of the stem of a tree through the opening 7, for supporting the stem of a tree in the insert 5.

**[0058]** The base 2 of holder 1 comprises an intermediate surface 20, parallel to the support surface 3, disposed between and at a distance from the ball socket 4 and the support surface 3, through which intermediate surface 20 ball socket 4 is connected to support surface 3 via a circumferential storage compartment wall 21 extending from the intermediate surface 20 to the support surface 3. The storage compartment wall 21 defines a storage compartment 22 for storing Christmas adornment, accessible through an opening 23 in the support surface 3, which is however also suitable for partly enclosing the top of a further base 2 according to the invention, with the water reservoir 25 of the further base 2 being enclosed by the storage compartment wall or outer wall 21.

**[0059]** The base 2 of the holder 1 also comprises a circumferential wall 24, extending from the ball-shaped part 11 towards the support surface 3 or, in other words, to the intermediate surface 20, enclosing a water reservoir 25. The water reservoir 25 allows a water level to be realized which is in connection with the stem of a tree inserted in the opening 7 in the insert. Water may be administered to the tree through opening 14 in the ball shaped part 5.

## Claims

1. Holder for a tree, such as a Christmas tree, comprising:

- a base, comprising a support surface and a ball socket, connected to the support surface; and
- a hollow ball-shaped insert, locked inside the ball socket, the insert provided with at least one opening, for receiving and locking the stem of a tree inside the insert through the opening.

**2.** Holder according to claim 1, wherein the insert is tiltable inside the ball socket, preferably in at least two directions perpendicular to each other.

**3.** Holder according to claim 1 or 2, wherein the ball socket comprises at least two, and preferably at least three socket arms, extending substantially perpendicular to the support surface, arranged radially around the insert at a distance from each other, preferably equally spaced around the circumference of the ball-shaped part of the insert.

**4.** Holder according to claim 1, 2 or 3, wherein the insert further comprises at least one straight tube, extending outwardly from the surface of the ball-shaped part of the insert, with the center line of the tube extending through the center of the ball-shaped part of the insert.

**5.** Holder according to claim 4, wherein the tube extends through opposing sides of the surface of the ball-shaped part of the insert.

**6.** Holder according to any of the preceding claims, wherein the ball socket comprises at least one substantially tube-shaped connecting wall, extending outwardly from the ball-shaped surface of the ball socket with the center line of the tube through the center of the ball-shaped part of the insert.

**7.** Holder according to claim 4 or 5, and claim 6, wherein the tube-shaped connecting wall is at a distance from the tube of the insert.

**8.** Holder according to any of the preceding claims, wherein the ball socket is connected with only a part of the curved surface of the ball-shaped part of the insert in the height direction, preferably no more than 80%.

**9.** Holder according to any of the preceding claims, wherein at least one rib is arranged on the ball socket, facing the ball-shaped part of the insert, for supporting the insert in the ball socket.

**10.** Holder according to any of the preceding claims, wherein at least one rib is arranged on the inner surface of the insert, the rib directed inwardly, preferably substantially parallel to the insertion direction of the stem of a tree through the opening, for supporting the stem of a tree in the insert.

**11.** Holder according to any of the preceding claims, further comprising an intermediate surface, substantially parallel to the support surface, disposed between and at a distance from the ball socket and the support surface, and a circumferential storage compartment wall extending from the intermediate surface to the support surface.

**12.** Holder according to any of the preceding claims, further comprising a circumferential wall, extending from the ball-shaped part towards the support surface, enclosing a water reservoir.

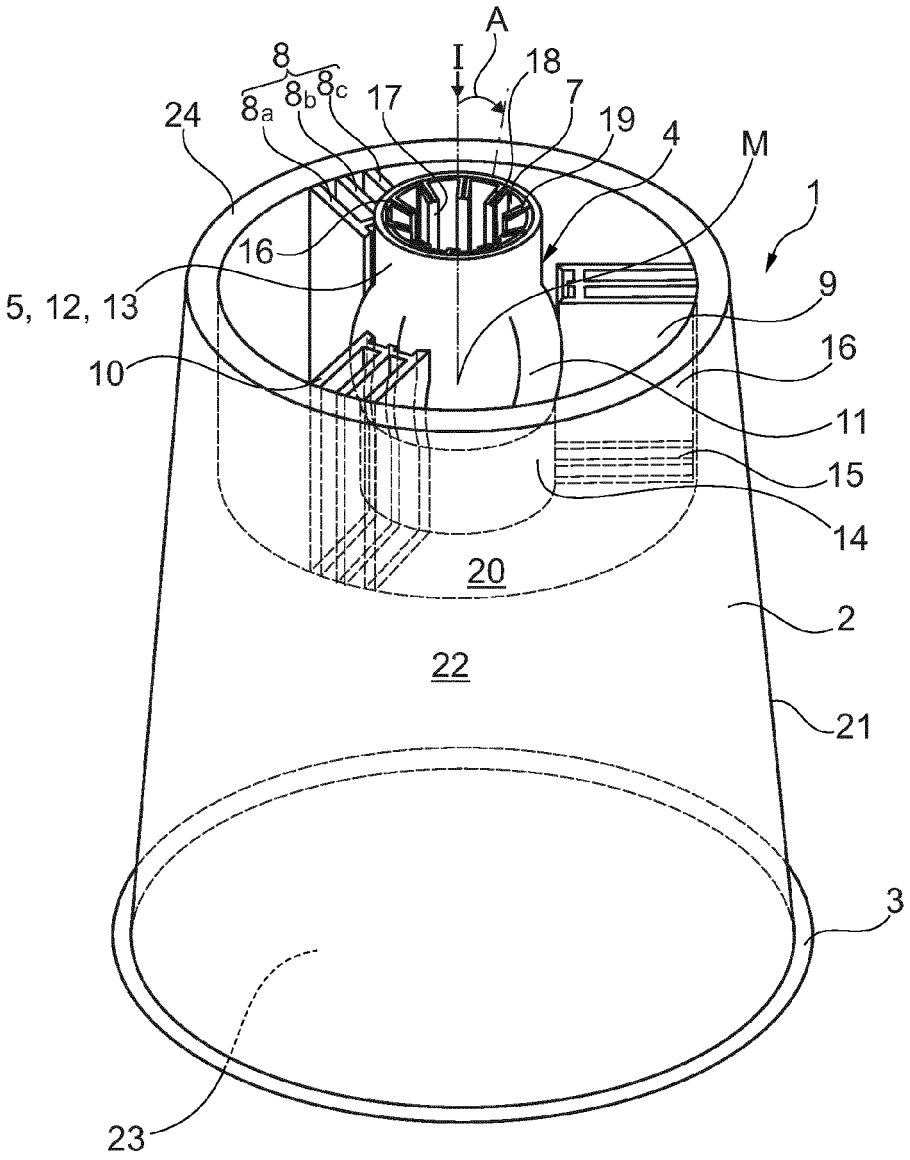


Fig. 1

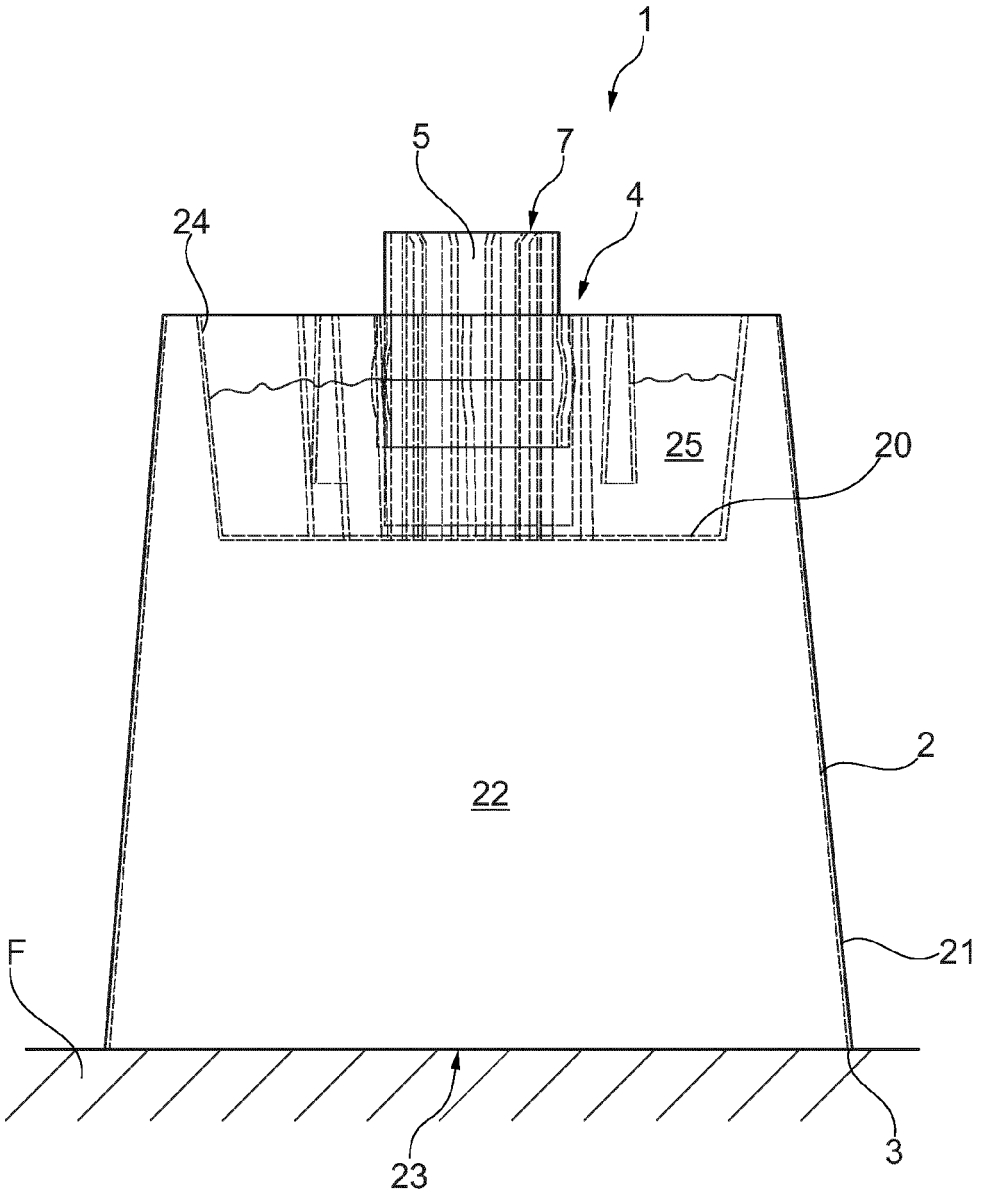


Fig. 2

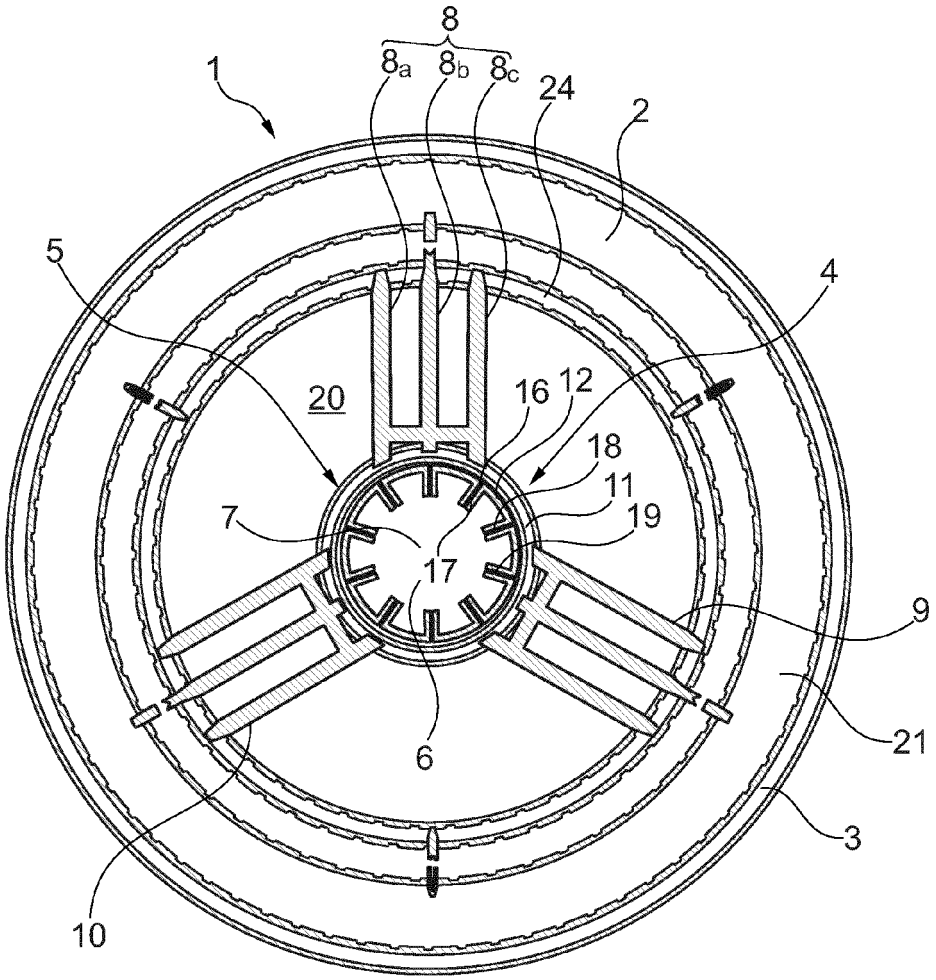
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Fig. 3

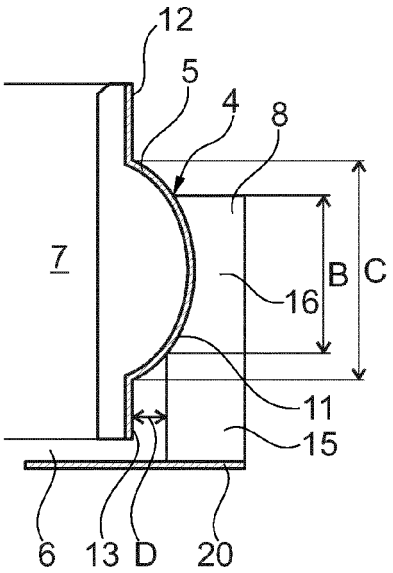
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Fig. 4

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# EUROPEAN SEARCH REPORT

Application Number
EP 15 19 4054

## DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (IPC) |
|---|---|---|---|
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The present search report has been drawn up for all claims

| Place of search | Date of completion of the search | Examiner |
|---|---|---|
| The Hague | 19 April 2016 | Beugeling, Leo |

CATEGORY OF CITED DOCUMENTS

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## ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 15 19 4054

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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19-04-2016

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82