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AN APPARATUS AND METHOD FOR ASSEMBLING A VERTICAL ARRANGEMENT OF PLANTS ON A WALL

FIELD OF INVENTION

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The present invention relates to an apparatus and method for assembling a vertical arrangement of plants on a wall.

BACKGROUND

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Urbanisation around the world has led to a growing shortage of greenery in built-up areas in many countries. This shortage of greenery is detrimental to the general public for several reasons such as, for example, increase in air pollution, loss of organic shady areas, build up of heat in built-up areas and so forth.

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One way of addressing the shortage of greenery is by growing plants on walls of buildings. This is a commonly employed solution to the problem of the shortage of greenery. Furthermore, growing plants on walls of buildings provides benefits such as, for example, improvement in air quality, provision of organic shady areas, lowering of temperatures in built-up areas, improving aesthetics of the buildings and so forth.

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However, there are problems associated with current techniques of growing plants on walls of buildings. In one of the solutions where plants are grown in pouches of a sheet of textile draped on a wall, it is difficult to prevent damage to the wall because of continual contact with water which soaks through the textile. Furthermore, it is difficult to replace the sheet of textile should the need arise.

SUMMARY

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In a first aspect, there is provided a containment apparatus able to be mounted onto a wall, whereby the containment apparatus is for placement of plant



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growing medium. The plant growing medium is selected from, for example, soil, soil replacement mixes, coconut husk, rockwool and the like.

5 The containment apparatus includes a base wall, a first wall at a first edge of the base wall, the first wall having a first plurality of slots, the first plurality of slots being configured for passage of water, and a second wall at a second edge of the base wall. Preferably, the first edge and the second edge of the base wall are on opposite ends of the base wall. The second wall includes at least one length-wise indentation at a first face of the second wall, the at least
10 one indentation being advantageously configured for diverting water passing through the second plurality of slots. The second wall may also include a second plurality of slots.

The containment apparatus also includes at least one mounting fixture and at
15 least one removable restraining structure for keeping the plant growing medium within the containment apparatus. The at least one removable restraining structure is preferably configured to be removable by manipulating at least one end of the at least one removable restraining structure. The at least one mounting fixture is either integrated with the apparatus or affixed to the
20 apparatus.

It is preferable that the passage of water via the plurality of slots in the first wall is in a form of water droplets.

25 It is preferable that the second wall is positioned at an incline to the base wall such that the water passing through the second plurality of slots flows towards the base wall when the containment apparatus is mounted onto a wall.

In a second aspect, there is provided a method for assembling a vertical
30 arrangement of plants on a wall. The method includes mounting at least one containment apparatus onto the wall, providing water to the first end of the at least one containment apparatus having a first plurality of slots, and diverting

water at a first face of a second wall of the at least one containment apparatus with at least one length-wise indentation at the first face of the second wall.

Preferably, the water passes through the first plurality of slots in a form of water droplets.

DESCRIPTION OF FIGURES

In order that the present invention may be fully understood and readily put into practical effect, there shall now be described by way of non-limitative example only preferred embodiments of the present invention, the description being with reference to the accompanying illustrative figures.

Figure 1 shows a perspective view of a preferred embodiment of a containment apparatus.

Figure 2 shows a perspective view of the containment apparatus of Figure 1 when in use.

Figure 3 shows a side view of Figure 2.

Figure 4 shows a perspective view of a removable restraining structure used in the containment apparatus of Figure 1.

Figure 5 shows a perspective view of a mount used with the containment apparatus of Figure 1.

Figure 6 shows a process flow of a preferred embodiment of a method of the present invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

There is provided an apparatus and method for arranging a vertical arrangement of plants on a wall. In general terms, the apparatus is used to contain plants and is mounted onto a wall. The construction of the apparatus allows the plants growing in the apparatus to be hydrated without allowing the water used to hydrate the plants to come into contact with the wall which the

apparatus is mounted on. In general terms, the method uses at least one of the
aforementioned apparatus, and allows the vertical arrangement of plants on a
wall to be carried out. The method allows plants contained within each
apparatus to be hydrated without letting the water used for hydrating the plants
5 to come into contact with the wall which the apparatus is mounted on.

Referring to Figure 1, there is shown a perspective view of a preferred
embodiment of a containment apparatus 20 able to be mounted onto a wall.
The containment apparatus 20 is used for the placement of plant growing
10 medium and is made from an impact resistant plastic such as, for example,
acrylonitrile butadiene styrene (ABS), polycarbonate, polystyrene, poly vinyl
chloride, any combination thereof and so forth. UV stabilizers may also be
added to the impact resistant plastic to enhance a durability of the containment
apparatus 20 when used in outdoor environments. The containment apparatus
15 20 is either formed as a single item or assembled from separate pieces. The
plant growing medium includes, for example, soil, soil replacement mixes,
coconut husk, rockwool and the like.

The containment apparatus 20 includes a base wall 22. The base wall 22 is in
20 close proximity to a wall which the containment apparatus 20 is mounted on. It
should be appreciated that close proximity includes the base wall 22 being both
in contact with and not in contact with the mounting wall. The containment
apparatus 20 also includes a first wall 24 at a first edge 26 of the base wall 22.
The first wall 24 has a first plurality of slots 28, the first plurality of slots 28 being
25 configured for passage of water. While the first plurality of slots 28 is shown to
be distributed around a substantial portion of the first wall 24, this is merely
illustrative and the first plurality of slots 28 need not be distributed in such a
manner. The first plurality of slots 28 is configured in a manner where water
which passes through each slot drips through each slot. It is appreciated that
30 the first plurality of slots 28 prevents water from accumulating at the first wall 24.

Furthermore, the containment apparatus 20 includes a second wall 30 at a second edge 32 of the base wall 22. It should be appreciated that the first edge 26 and the second edge 32 of the base wall 22 are on opposite ends of the base wall 22. The first edge 26 and the second edge 32 are not adjacent to each other. The second wall 30 has a second plurality of slots 34, and at least one length-wise indentation 36 at a first face 38 of the second wall 30. The second plurality of slots 34 is configured for the passage of water in the form of water droplets. Similarly, while the second plurality of slots 34 is shown to be distributed around a partial portion of the second wall 30, this is merely illustrative and the second plurality of slots 34 need not be distributed in such a manner. The second wall 30 is positioned at an incline to the base wall 22 such that the water passing through the second plurality of slots 34 flows towards the second edge 32 of the base wall 22 when the containment apparatus 20 is mounted onto a wall.

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The at least one indentation 36 is configured for diverting water flowing along the first face 38 of the second wall 30. The water flowing along the first face 38 may have passed through the second plurality of slots 34 before flowing along the first face 38 due to water stiction. The at least one indentation 36 is able to momentarily trap the water flowing along the first face 38 and subsequently diverts the water flowing towards the second edge 32 of the base wall 22. As such, the at least one indentation 36 is able to divert water flowing towards the base wall 22.

25 The containment apparatus 20 further includes at least one removable restraining structure 40 for keeping the plant growing medium (and plants in the medium) within the containment apparatus 20. A perspective view of a preferred embodiment of the at least one removable restraining structure 40 is shown in Figure 4. The at least one removable restraining structure 40 may be made from the same material as the containment apparatus 20. The at least one removable restraining structure 40 is configured to be removable from the containment apparatus 20 by manipulating at least one end 42, 44 of the at

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least one removable restraining structure 40. The ends 42, 44 of the at least one removable restraining structure 40 are able to latch onto a catch 46 of the containment apparatus 20. When the ends 42, 44 are latched onto the catches 46, any force applied to a central stem 48 of the structure 40 will not remove the structure 40 from the containment apparatus 20. Removal of the structure 40 is only possible by manipulating at least one end 42, 44 to ensure that the at least one end 42, 44 dis-engages from the catch 46.

The containment apparatus 20 can also include at least one mounting fixture 50. The at least one mounting fixture 50 is either integrated with the apparatus 20 (as shown) or affixed to the apparatus 20. When the mounting fixture 50 is integrated with the apparatus 20, the mounting fixture 50 may span any length of the base wall 22 of the containment apparatus 20. The mounting fixture 50 enables the apparatus 20 to be hung from a mount 70, 72 as shown in Figure 5. Two mount sizes 70, 72 are shown. However, the mount sizes are not limited to these two sizes. The mounts 70, 72 are affixed to the wall prior to mounting of the containment apparatus 20. It is appreciated that the different sized mounts 70, 72 are able to be used together. The mount may also be of a fixed length and join-able together to form a required length. For example, each mount can be a length of 2.4m or any desired length. Each mount 70, 72 is made from aluminum and does not rust. As such, each mount 70, 72 will not be adversely affected by rust.

Referring to Figures 2 and 3, there is shown perspective and side views respectively of two of the containment apparatus 20 when in use. It should be appreciated that not all parts have been labeled in Figures 2 and 3 so as to avoid clutter. However, the essential parts have been labeled to enhance clarity of the description.

Two of the containment apparatus 20(a), 20(b) are shown mounted one on top of the other on a wall. It should be appreciated that when water is introduced at a first wall 24(a) of the first containment apparatus 20(a), water enters into the

first containment apparatus 20(a) in a form of droplets after passing through a first plurality of slots 28(a) of the first wall 24(a). Excess water which results when plant growing medium in the first containment apparatus 20(a) is saturated drips through a second plurality of slots 34(a) of a second wall 30(a) of the first containment apparatus 20(a). As described earlier, water passing through the second plurality of slots 34(a) of the second wall 30(a) is diverted from the wall due to the at least one indentation 36 (not shown). Thus, the water passing through the second plurality of slots 34(a) and the diverted water flow to a first wall 24(b) of the second containment apparatus 20(b). The flow of water is then as per what was described for the first containment apparatus 20(a). It should be appreciated that a water source is not required to be provided for every containment apparatus 20. Every containment apparatus 20 in a row is able to share one source of water.

Referring to Figure 6, there is also provided a method 100 for assembling a vertical arrangement of plants on a wall. The method 100 should use the containment apparatus 20 described in the preceding paragraphs. The method 100 includes mounting at least one containment apparatus 20 onto the wall (102).

Subsequently, the method 100 includes providing water to the first end 24 of the at least one containment apparatus 20 having a first plurality of slots 28 (104). The first plurality of slots 28 is configured in a manner where water which passes through each slot drips through each slot.

The method then includes diverting water at the first face 38 of the second wall 30 of the at least one containment apparatus 20 (106). The water at the first face 38 may have flowed through the second plurality of slots 34 of the second wall 30. Water is diverted from the second wall 30 due to the at least one length-wise indentation 36 of the second wall 30.

It should be appreciated that the containment apparatus 20 and the method 100 enables the assembly of a vertical arrangement of plants on a wall, without allowing water to contact the wall and correspondingly damage the wall. Furthermore, each containment apparatus 20 can be removed and replaced
5 individually from the wall, and this is useful when either modifying the arrangement of plants on the wall or replacing plants which are not growing in a desirable manner. In addition, each containment apparatus 20 is of a manageable weight and able to be carried even when filled with plant growing medium/plants. Thus, replacement of the containment apparatus 20 does not
10 involve the use of additional lifting equipment.

Whilst there has been described in the foregoing description preferred embodiments of the present invention, it will be understood by those skilled in the technology concerned that many variations or modifications in details of
15 design or construction may be made without departing from the present invention.

CLAIMS

1. A containment apparatus able to be mounted onto a wall, the containment apparatus being for placement of plant growing medium, the
5 containment apparatus including:
a base wall;
a first wall at a first edge of the base wall, the first wall having a first plurality of slots, the first plurality of slots being configured for passage of water;
and
10 a second wall at a second edge of the base wall, the second wall including at least one length-wise indentation at a first face of the second wall, the at least one indentation being configured for diverting water traversing along the first face of the second wall.
- 15 2. The containment apparatus as claimed in claim 1, further including at least one removable restraining structure for keeping the plant growing medium within the containment apparatus, the at least one removable restraining structure being configured to be removable by manipulating at least one end of the at least one removable restraining structure.
- 20 3. The containment apparatus as claimed in either claim 1 or 2, further including at least one mounting fixture.
4. The containment apparatus as claimed in claim 3, wherein the at least
25 one mounting fixture is either integrated with the apparatus or affixed to the apparatus.
5. The containment apparatus as claimed in any one of claims 1 to 4, wherein the passage of water via the plurality of slots in the first wall is in a form
30 of water droplets.

6. The containment apparatus as claimed in any one of claims 1 to 5, wherein the first edge and the second edge of the base wall are on opposite ends of the base wall.
- 5 7. The containment apparatus as claimed in any one of claims 1 to 6, wherein the second wall is positioned at an incline to the base wall such that the water passing through the second plurality of slots flows towards the base wall when the containment apparatus is mounted onto a wall.
- 10 8. The containment apparatus as claimed in any one of claims 1 to 7, wherein the plant growing medium is selected from a group consisting of: soil, soil replacement mixes, coconut husk and rockwool.
9. The containment apparatus as claimed in any one of claims 1 to 8,
15 further including a second plurality of slots in the second wall.
10. A method for assembling a vertical arrangement of plants on a wall, the method including:
 mounting at least one containment apparatus onto the wall;
20 providing water to the first end of the at least one containment apparatus having a first plurality of slots; and
 diverting water at a first face of a second wall of the at least one containment apparatus with at least one length-wise indentation at the first face of the second wall.
- 25 11. The method as claimed in claim 10, wherein the water passes through the first plurality of slots in a form of water droplets.