A device and method for watering flowers.

A watering device and method suitable for the display and sale of flowers. The device comprises at least one water tank and recirculating means. In a preferred embodiment the recirculating means comprises a pump or a propeller and the tanks are arranged at different heights. The device and method substantially prevents the stagnation of water thereby improving the lifetime of flowers located in the device.
Figure 2
FIELD OF THE INVENTION

This invention relates to a watering device. In particular, this invention relates to a watering device for the display and sale of flowers.

BACKGROUND OF THE INVENTION

Flowers in, for example, florist shops are usually watered to prolong their lifetime. This task is usually performed using buckets and vases filled with water. However, water in buckets and vases quickly becomes stagnant and fills with leaves and foliage. The buckets and vases have to be manually emptied and cleaned so that all bacteria is removed. The stagnant water promotes the formation of bacteria which decreases the lifetime of the flowers.

The removal of water from buckets and vases is an unpleasant job due to the water being smelly, especially in the summer. There is also the danger of a person performing this task slipping on any spilled water.

The removal of water from buckets and vases is therefore a labour intensive task requiring buckets to be emptied, refilled and then taken back to where the flowers are being sold. Significant cost, effort and manpower is therefore spent in performing this task.
It is amongst the objects of at least one aspect of the present invention to obviate or mitigate at least one or more of the aforementioned problems.

It is a further object of the present invention to provide a water supply for flowers which prevents water stagnation thereby extending the lifetime of the flowers.

**SUMMARY OF THE INVENTION**

According to a first aspect of the present invention there is provided a device for watering flowers comprising:

- at least one water tank; and
- recirculating means;

wherein the recirculating means recirculates water around the at least one tank thereby preventing water stagnation.

The recirculating means may be any means that causes water movement such as a pump, a driven propeller or the like. The recirculating means may be located any position in the device such as in the bottom of the least one water tank.

The recirculating water helps to prevent the formation of bacteria and prolongs the life of the flowers. This helps to keep the flowers healthy prior to sale.

Typically, the tanks may be arranged in a step-wise fashion with the tanks at different heights. The tanks
are preferably plastic troughs which are connected to the tanks above and below using a series of pipes. Alternatively, the tanks may be of a moulded construction which may have at least one or a plurality of channels moulded therein between the different tanks.

Alternatively, the tanks may be arranged so as to overlap with each other so that water may cascade in a waterfall fashion from one tank to another.

The tanks may also comprise control means, which control the water level in each tank. This may be simple overflow means or a floating ball valve system.

Each of the tanks may comprise an inlet in the form of a small hole through which water may be fed. This may provide a facility to control the flow of water. In these types of embodiments, interconnecting pipes may be eliminated with the inlets performing the same function. The inlets may be formed in the moulding of the tanks and may be located at an overlapping area between the tanks, one stacked above the other. The inlet may therefore be located at the bottom of one tank and at the top of another tank, thereby allowing water to flow from the upper tank to the lower tank.

Conveniently, the pipes may have a sufficiently large diameter to prevent against blockage from foliage and leaves. Typically, the pipes may have a diameter of at least 32mm.
The tanks may also comprise overflow protection means to prevent the tanks from overflowing if the pipes become blocked. The pipes may also comprise mesh and/or leaf guards to collect any foliage and/or leaves. The mesh and/or leaf guards may be removed for cleaning purposes.

The recirculating means may be situated in a bottom tank. The bottom tank may have an inlet valve connected to a water supply which may be used to provide the water to be recirculated.

Conveniently, in one embodiment, water is pumped to an outlet means at the top of the device such as a substantially horizontally mounted tube. The outlet means may comprise a series of perforations wherein pumped water may exit. Different arrangements of perforations may be used to provide different water effects. The water may fall directly into a tank underneath or may run down, for example, a surface such as a flat sheet. The flat sheet may, for example, be stainless steel. The surface which the water runs down may contain advertising material, descriptions relating to flowers and their prices, relevant shop information such as opening times etc.

Alternatively, water may be pumped straight into the top tank.

The tanks may also comprise lids which are adapted to receive the flowers. The lids may comprise openings
in the form of, for example, substantially circular cut-outs or an internal grid through which flowers may be inserted. The tanks may also comprise a secondary support structure enabling different heights of flowers to be received in different tanks. The lids on the tanks may be exchanged for different types of lids so that different flower arrangements may be presented on different days.

The pump may be any suitable recirculation pump and is preferably of low maintenance.

The device may also comprise a series of overhead sprinklers which may be switched on periodically throughout a day to further enhance the longevity of the flowers.

The device may also comprise means to add flower crystals which further enhance the longevity of the flowers. Automatic means may be built into any of the tanks to release a controlled amount of crystals.

Conveniently, the tanks comprise drainage plugs which enables the water from the device to be quickly emptied allowing easy cleaning and maintenance.

The device may be of a modular form enabling multiple units to be joined together. The length of the device can therefore be adapted for different uses.

The device may be formed from a frame of any suitable material such as wood, plastics, welded steel or aluminium. The frame may support the tanks. The device
may also comprise braked castors which enables the device to be easily manoeuvred for cleaning, access and maintenance.

The outside surface of the device may also be clad in any suitable material to match its surrounding environment such as, for example, in a florist shop. Suitable cladding may, for example, be wood, stone or polished metal.

The device may be adapted to recirculate different amounts of water depending on the length of the unit and the depth of water required. Usually about 120 litres may be recirculated. Conveniently, the water remains relatively clean and may, for example, be changed every 48 hours.

The outside surface of the device may also comprise digital display means for displaying advertising material and the prices of the flowers.

The device may be used in florist shops, supermarkets, petrol stations, indoor markets, retail/wholesale environments or the like.

The device may also be contained within a refrigeration unit which may be cooled to, for example, 4 to 8°C. The refrigeration unit may comprise sliding doors to allow easy access to the flowers.

According to a second aspect of the present invention there is provided a method of watering flowers comprising:
providing at least one tank and filling this tank with water; and
providing means to recirculate the water
wherein the recirculating means is used to recirculate the water thereby preventing water stagnation.

BRIEF DESCRIPTION OF THE DRAWINGS

Embodiments of the present invention will now be described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a sectional side-view of a watering device according to an embodiment of the present invention;

Figure 2 is a front view of the watering device shown in Figure 1; and

Figure 3 is a top view of the watering device shown in Figures 1 and 2.

DETAILED DESCRIPTION

Shown in Figures 1 to 3 there is a watering device, generally designated 10, for watering flowers according to an embodiment of the present invention.

As shown in Figure 1, the watering device 10 comprises a series of tanks 12, 14, 16, 18. The tanks 12, 14, 16, 18 are single-piece injection moulded plastic articles having a width of about 600mm. The tanks 12,
14, 16, 18 are arranged in a step-wise fashion and are therefore above one another. Although not shown the tanks 12, 14, 16, 18 are supported on a framework.

The tanks, as shown in Figure 3, have a series of lids 20, 22, 24, 26 which have a series of cut-outs 20a, 22a, 24a, 26a for placing flowers into. The lids 20, 22, 24, 26 are securely fixed to the tanks 12, 14, 16, 18. An additional support (not shown) is also fitted approximately 50mm from the bottom of the tanks 12, 14, 16, 18 to provide an additional secondary support for the stems of the flowers. The additional support allows different heights of flowers to be stored and prevents the stems from breaking.

A recirculating pump 28 is situated in the bottom of the lower tank 18. The water flow from the pump 28 is variable and is set to achieve an adequate water flow. The pump 28 is connected via a pipe 30 to a horizontally mounted top pipe 32. The pipe 30 is about 32mm in diameter and includes a mesh/leaf guard (not shown) to protect against unwanted foliage entering the watering system.

The horizontally mounted top pipe 32 has a series of perforations through which water exits. The perforations create a 'fanning-out' effect and a continuous sheet of flowing water.

The longitudinal mounted top pipe 32 is mounted on a metal sheet 34 which is at an angle to the perpendicular.
Water exiting the perforations in the pipe 32 runs down the metal sheet 34. The metal sheet 34 comprises advertising information such as the type of flowers being sold and their respective prices.

The tanks 12, 14, 16, 18 are connected via a series of pipes 36, 38, 40 which enables water to fully flow around the system.

The device also comprises braked castors which enables the device to be easily manoeuvred for cleaning, access and maintenance.

The outside surface of the device is also clad in a material to match its surrounding environment which may, for example, be wood, stone or finished metal.

In use, the tank 18 is filled by opening an inlet valve connected to the water mains. The pump 28 is then switched on which initially pumps water along pipe 30 up to the horizontally mounted top pipe 32. The water exits through perforations of the horizontally mounted top pipe 32 and runs down the metal sheet 34 into tank 12.

The flowing water fills water tank 12 until a water level of 75mm is reached and an overflow system in tank 12 then feeds water to tank 14 below via pipe 36. Tank 14 then fills up until a water level of 75mm is reached and then an overflow system feeds water to tank 16 below wherein the same process occurs with water finally being returned back to tank 18 via pipe 40.
Each of the tanks 12, 14, 16, 18 contains a full overflow system in case there is a blockage and the water in any of tanks 12, 14, 16, 18 reaches more than 125mm.

The water level in tank 18 is monitored using a floating ball valve system which allows additional water to be fed into tank 18 due to loss from evaporation, flower consumption, spillage and any overflow problems.

The flowing water created in the device provides an attractive appearance to a customer and the noise created by the running water creates a relaxing environment in which to select and purchase flowers.

To empty water form the system, pump 28 is switched off and drain plugs (not shown) in each of the tanks 12, 14, 16, 18 are removed in sequence. This allows the water to be drained out allowing full access for cleaning and any required maintenance.

Various modifications may be made to the embodiment hereinbefore described. For example, water from the bottom tank may be fed directly to a top tank. The device may also be constructed in a modular fashion so that units may be connected together to form a required length.

The device may also comprise digital displays for advertising and displaying prices.

The device may also comprise an overhead sprinkler for watering the flowers at periodic times throughout a
day and therefore further prolong the life of the flowers.

The tanks in the device may also be connected so that water cascades in a waterfall fashion from one tank to another eliminating the need for connecting pipes.

Further modifications may also be made to the cut-outs in the lids so that the device may be adapted for different types of flowers.

The device may also be used in locations other than that of a florist shop such as a supermarket, a petrol station, indoor markets, retail/wholesale environments or the like.
CLAIMS

1. A device for watering flowers comprising:
at least one water tank; and
recirculating means;
wherein the recirculating means recirculates water
around the at least one tank thereby preventing water
stagnation.

2. A device for watering flowers according to claim 1,
wherein the recirculating means comprises a pump or a
driven propeller.

3. A device for watering flowers according to any of
claims 1 or 2, wherein recirculating water helps to
prevent the formation of bacteria and prolongs the life
of flowers.

4. A device for watering flowers according to any
preceding claim, wherein there is a plurality of water
tanks.

5. A device for watering flowers according to any
preceding claim, wherein there is a plurality of tanks
arranged in a step-wise fashion with the tanks at
different heights.
6. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks which are plastic troughs connected to tanks above and below using a series of pipes.

7. A device for watering flowers according to any of preceding claims 1 to 5, wherein a plurality of tanks are of a moulded construction wherein there is a plurality of interconnecting channels between the plurality of tanks formed in a moulding process.

8. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks arranged so as to overlap with each other so that water cascades in a waterfall fashion from one tank to another.

9. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks which comprise a water control means which control the water level in each tank.

10. A device for watering flowers according to claim 9, wherein the water control means comprises a floating ball valve system.

11. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks
which comprise an inlet in each of the tanks to form a small hole through which water is fed.

12. A device for watering flowers according to claim 11, wherein the inlets are formed in an overlapping area between different tanks.

13. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks with interconnecting pipes wherein the pipes are of a sufficiently large diameter to prevent blockage from foliage and leaves.

14. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks which comprise overflow protection means to prevent the tanks from overflowing in the event of blockage from foliage and leaves.

15. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks with interconnecting pipes which comprise mesh and/or leaf guards to collect any foliage and/or leaves.

16. A device for watering flowers according to any preceding claim, wherein the recirculating means is situated in a tank located in the bottom of the device.
17. A device for watering flowers according to any of
claims 1 to 15, wherein the recirculating means is
located in a bottom water tank.

18. A device for watering flowers according to any
preceeding claim, wherein water is pumped to an outlet
means at the top of the device.

19. A device for watering flowers according to claim 18,
wherein the top of the device comprises a substantially
horizontally mounted tube which comprises a series of
perforations wherein pumped water exits.

20. A device for watering flowers according to claim 19,
wherein the perforations in the horizontally mounted tube
are adapted to provide different water effects.

21. A device for watering flowers according to any
preceeding claim, wherein the device comprises a flat
sheet-like member located at the top of the device upon
which water runs down.

22. A device for watering flowers according to claim 21,
wherein the flat sheet comprises advertising material,
descriptions relating to flowers and their prices, or
relevant shop information such as opening times.
23. A device for watering flowers according to any preceding claim, wherein water is pumped straight into a tank located at the top of the device.

24. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks which comprise lids adapted to receive flowers.

25. A device for watering flowers according to claim 24, wherein the lids comprise openings in the form of substantially circular cut-outs or an internal grid through which flowers are inserted.

26. A device for watering flowers according to any preceding claim, wherein there is a plurality of tanks which comprise a secondary support structure enabling different heights of flowers to be received in different tanks.

27. A device for watering flowers according to any preceding claim, wherein a plurality of tanks comprise lids which may be exchanged for different types of lids so that different flower arrangements may be presented on different days.

28. A device for watering flowers according to any preceding claim, wherein the device comprises a series of
overhead sprinklers which are switched on periodically throughout a day to further enhance the longevity of the flowers.

29. A device for watering flowers according to any preceding claim, wherein the device comprises means to add flower crystals which further enhance the longevity of the flowers.

30. A device for watering flowers according to claim 29, wherein there is automatic means built into the tank to release a controlled amount of the flower crystals.

31. A device according to any preceding claim, wherein there is a plurality of tanks which comprise drainage plugs which enables water from the device to be quickly emptied allowing easy cleaning and maintenance.

32. A device for watering flowers according to any preceding claim, wherein the device is of a modular form enabling multiple units to be joined together.

33. A device for watering flowers according to any preceding claim, wherein the device comprises braked castors enabling the device to be easily manoeuvred for cleaning, access and maintenance.
34. A device for watering flowers according to any preceding claim, wherein the outside surface of the device is clad in a suitable material to match its surrounding environment such as in a florist shop.

35. A device for watering flowers according to any preceding claim, wherein the device is adapted to recirculate different amounts of water depending on the length of the unit and the depth of water required.

36. A device for watering flowers according to any preceding claim, wherein the outside surface of the device comprises digital display means for displaying advertising material and the prices of flowers.

37. A device for watering flowers according to any preceding claim, wherein the device is used in florist shops, supermarkets, petrol stations, indoor markets or retail/wholesale environments.

38. A device for watering flowers according to any preceding claim, wherein the device is contained within a refrigeration unit.

39. A method of watering flowers comprising:

   providing at least one tank and filling this tank with water; and
providing means to recirculate the water;
wherein the recirculating means is used to recirculate the water thereby preventing water stagnation.

40. A device for watering flowers as hereinbefore described and with reference to the drawings.

41. A method of watering flowers as hereinbefore described and with reference to the accompanying drawings.
Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

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<td>X</td>
<td>1-39</td>
<td>US4884364 A (FERRIS), see column 1, line 9-19, column 7, line 3 to column 10, line 24.</td>
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<td>US5367823 A (FERRIS), see fig. 4 and 5, and column 3, line 67 to column 6, line 42.</td>
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<td>US6499249 B1 (LUJKXX), see column 3, line 36 to line 55 and column 4, line 35 to line 38.</td>
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<td>US5146709 A (ISEKI), see whole document.</td>
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<td>US4056899 A (CLOSE), see column 2, line 62-63.</td>
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<td>US5826375 A (BLACK), see whole document.</td>
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<td>US780627 A (UMBEHEND), see page 1, line 80-91.</td>
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Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC X:
| Worldwide search of patent documents classified in the following areas of the IPC |
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| The following online and other databases have been used in the preparation of this search report |
| EPODOC, WPI |