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(54) Title: WATERING APPARATUS, TRAY AND/OR SYSTEM

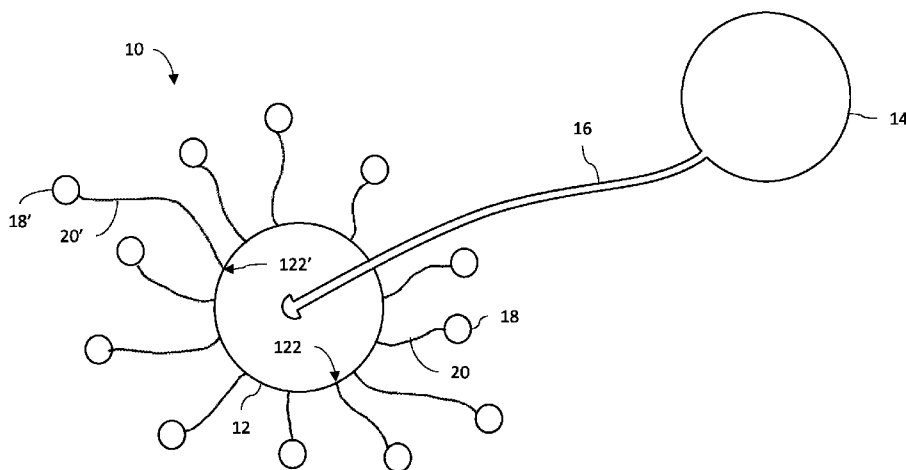


FIGURE 1

(57) Abstract: A plant watering apparatus and/or water tray. The apparatus includes a supply of water, a water distribution reservoir, a plurality of watering trays and a plurality of watering lines for carrying water from the distribution reservoir to respective ones of the watering trays. Water levels are regulated via a valve at the reservoir or tray. In some examples the reservoir includes a valve regulating the supply of water to the water distribution reservoir. The valve is controlled by a float positioned within a hydrostatic enclosure. The valve remains closed until a water level in the reservoir falls below a hydrostatic release level of the hydrostatic enclosure.



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LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE,
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Watering Apparatus, Tray and/or SystemField of the technology

In some examples the present technology relates watering apparatus for potted plants. In some examples it relates to a watering tray for potted plants. In some examples the present technology relates to a watering system for potted plants.

Background to the technology

A plant watering apparatus, device or system is designed to supply water to plants in a controlled and efficient manner, ensuring that they receive the necessary moisture for healthy growth. There are various types of plant watering systems available, ranging from simple manual methods to more advanced automated systems.

Object of the technology

It is one object of the technology to provide a watering apparatus that provides the public with a useful alternative to watering apparatus already known.

It is an alternative object of the technology to provide a watering tray that provides the public with a useful alternative to watering trays already known.

It is another alternative object of the technology to provide a watering system that provides the public with a useful alternative to watering systems already known.

Summary of the technology

A plant watering apparatus and/or water tray. The apparatus includes a supply of water, a water distribution reservoir, a plurality of watering trays and a plurality of watering lines for carrying water from

the distribution reservoir to respective ones of the watering trays. Water levels are regulated via a valve at the reservoir or tray. In some examples the reservoir includes a valve regulating the supply of water to the water distribution reservoir. The valve is controlled by a float positioned within a hydrostatic enclosure. The valve remains closed until a water level in the reservoir falls below a hydrostatic release level of the hydrostatic enclosure.

According to one example of the technology there is provided a plant watering apparatus comprising:

- a water reservoir,
- a distribution tray,
- a water supply line, for supplying water from the reservoir to the distribution tray,
- a plurality of watering trays,
- a plurality of watering lines for carrying water from the distribution tray to respective ones of the watering trays,
- a valve regulating the supply of water from the reservoir to the distribution tray, and wherein
- the plurality of watering lines permits unrestricted water flow between the distribution tray and respective ones of the plurality of watering trays, and wherein
- the distribution tray being arranged, in use, to maintain a substantially constant level of water in the plurality of watering trays.

In some examples the water reservoir is elevated above the distribution tray.

In some examples the valve regulates the water level in the distribution tray. In some examples the valve is a floating ball valve or a float valve or a bell siphon.

In some examples the distribution tray includes a base and a continuous perimeter wall extending upwardly from the base. A plurality of distribution water outlets are distributed about the perimeter wall, each of the distribution water outlets configured to connect with respective ones of the plurality of watering lines.

In some examples the distribution tray includes an inverted cone- or pyramid-shaped lid, whose tip includes a water inlet configured to connect with the water supply line. A floatable ball is located within the distribution tray, and is configured, in use, to rise with a water level and close the water inlet when the distribution tray is fully charged with water and configured to open the water inlet when a water level in the distribution tray falls.

In some examples the distribution tray includes other than an inverted cone- or pyramid-shaped lid, and a float valve located within the distribution tray. The float valve fluidly connected with a water inlet of the distribution tray and configured, in use, to close the water inlet when the distribution tray is fully charged with water and configured to open the water inlet when a water level in the distribution tray falls.

In some examples the plurality of watering trays are distributed horizontally with the distribution tray such that a water level in the watering trays is substantially co-planer with a water level in the distribution tray. The water level in the watering trays being regulated only by way of gravity between the distribution tray and watering trays.

In some examples the water trays are supported by a stand. In some examples it is a “tripod” type stand. In some examples the stand height is adjustable to, in use, adjust the height of the watering trays to positions substantially horizontally with the distribution tray and thereby set a water height within the watering trays.

According to another example of the technology there is provided a plant watering apparatus comprising:

- a water reservoir,
- a plurality of watering trays,
- a plurality of watering lines for carrying water from the water reservoir to respective ones of the watering trays,
- a valve regulating the supply of water from the reservoir to the watering trays, and wherein
- a valve is located in each watering tray.

According to yet another example of the technology there is provided a plant watering tray, the tray configured, in use, to receive a potted plant, the tray comprising:

- a base and a continuous perimeter wall extending upwardly from the base,
- a plurality of rib extending along the base,
- interconnected water channels between the ribs,
- a water inlet for connection with a water supply line, and
- a resiliently flexible lip extending about an upper edge of the continuous perimeter wall.

In some examples the watering tray also includes a float valve fluidly connected with a water inlet of the tray and configured, in use, to close the water inlet when the tray is fully charged with water and configured to open the water inlet when a water level in the tray falls.

In some examples the tray includes a water inlet in the perimeter wall, the water inlet spaced apart from the base by a first distance X , and a water out in the perimeter wall, the water outlet spaced apart from the base by a second distance y , wherein the second distance y is smaller than the first distance X .

In some examples the tray includes a water inlet in the perimeter wall, the water inlet spaced apart from the base by a first distance X , and a water out in the perimeter wall, the water outlet adjacent the base.

In some examples the base includes a slope towards the water outlet.

According to yet another example of the technology there is provided a plant watering apparatus comprising:

- a supply of water,
- a water distribution reservoir,
- a plurality of watering trays,
- a plurality of watering lines for carrying water from the distribution reservoir to respective ones of the watering trays,
- a valve regulating the supply of water to the water distribution reservoir,
- a float controlling the valve, and wherein

the float is positioned within a hydrostatic enclosure such that the valve remains closed until a water level in the reservoir falls below a hydrostatic release level of the hydrostatic enclosure.

In some examples the plurality of watering trays include a tray as defined in any example above.

Further examples of the technology, which should be considered in all its novel examples, will become apparent to those skilled in the art upon reading of the following description which provides at least one example of a practical application of the technology.

Brief Description of the Drawings

One or more examples of the technology will be described below by way of example only, and without intending to be limiting, with reference to the following drawings, in which:

Figure 1 is a plan schematic view of a watering apparatus according to one example the technology,

Figure 2 is an elevation schematic view of the watering apparatus according to the example of figure 1,

Figure 3 is a schematic perspective illustration of a watering tray according to one example of the technology,

Figure 4 is an elevation schematic view of the watering tray,

Figure 5 is a schematic perspective illustration of the watering tray and stand,

Figure 6 is an elevation schematic view of the watering tray and stand,

Figure 7 is an elevation schematic view of the watering apparatus according to another example of the technology,

Figures 8 to 10 illustrate a hydrostatic watering apparatus according to another example of the technology, and

Figures 11 and 12 illustrate another watering tray according to another example of the technology.

Description of the preferred examples

In the accompanying drawings there is shown one example of a plant watering apparatus according to the present technology. The apparatus includes a water reservoir 14, a water distribution tray 12, and a plurality of watering trays 18. In some examples the water reservoir 18 is elevated above the distribution tray 12. A water supply line 16 supplies water from the reservoir 14 to the distribution tray 12. A plurality of watering lines 20 carry water from the distribution tray 12 to respective ones of the watering trays 18. In one example, a valve 128 is provided within the distribution tray to regulate the supply of water from the reservoir 14 to the distribution tray. In this example the plurality of watering lines 20 permit unrestricted water flow between the distribution tray 12 and respective ones of the plurality of watering trays 18. The distribution tray 12 is arranged, in use, to maintain a substantially constant level of water in the plurality of watering trays 18.

In some examples the valve 128 regulates the water level in the distribution tray 12. In some examples the valve is a floating ball valve 130 or a float valve 129 or a bell siphon. In some examples the bell siphon is of an inverted bell siphon.

In some examples the distribution tray 12 includes a base 112 and a continuous perimeter wall 212 extending upwardly from the base. A plurality of distribution water outlets are distributed about the perimeter wall 212. Each of the distribution water outlets is configured to connect with respective ones of the plurality of watering lines 20.

In some examples the distribution tray 12 includes a floating ball valve 130. An inverted cone- or pyramid-shaped lid 312 whose tip includes a water inlet is configured to connect with the water supply line 16. A floatable ball 130 is located within the distribution tray 12, and is configured, in use, to rise with a water

level and close the water inlet when the distribution tray 12 is fully charged with water, and configured to open the water inlet when a water level in the distribution tray 12 falls.

In other examples the distribution tray 12 includes a float valve 129. In these examples the distribution tray 12 includes other than an inverted cone- or pyramid-shaped lid, and a float valve 129 located within the distribution tray 12. The float valve 129 is fluidly connected with a water inlet of the distribution tray lid and configured, in use, to close the water inlet when the distribution tray 12 is fully charged with water and configured to open the water inlet when a water level in the distribution tray 12 falls.

In some examples the plurality of watering trays 18 are distributed horizontally with the distribution tray 12 such that a water level (202) in the watering trays 18 is substantially co-planer with a water level (A-A) in the distribution tray 12. The water level in the watering trays 18 is regulated only by way of gravity between the distribution tray 12 and watering trays 18.

In some examples the water trays 18 are supported by a stand 30. In some examples the stand 30 is a “tripod” type stand having a supporting platform 301, and legs 302, 304, 306. In some examples the stand height is adjustable to, in use, adjust the height of the watering trays 18 to positions substantially horizontally with the distribution tray 12 and thereby set a water height within the watering trays 18.

In some examples a stand 30 elevates a tray to allow water to flow (by gravity) back to the reservoir or distribution tray (which may be at a lower elevation) – see for example the tray of figures 11 and 12. In some examples the reservoir or distribution tray may be elevated to gravity feed water to the watering trays 12 / fig 11, 12 as required by the system setup. It is anticipated that the skilled person could arrange the height of the reservoir and/or distribution tray and/or watering trays as required to facilitate a flow of water through the system by gravity. In some examples a pump or pumps may also be used to ‘lift’ water in portions of the system where it is not practical or possible for gravity to be used as a means to facilitate transport of water between the reservoir and/or distribution tray and/or watering trays as required.

Figure 7 illustrates another example of the technology in which the plant watering apparatus includes a water reservoir 14 connected directly with a plurality of watering trays 18 by way of the plurality of watering lines 16/20 for carrying water from the water reservoir 14 directly to respective ones of the watering trays 18. Each watering tray 18 includes a valve 128 regulating the supply of water from the reservoir to the watering trays. In some examples the valve is a float valve 129 located with each watering tray 18.

According to yet another example of the technology there is provided a plant watering tray 18 configured, in use, to receive a potted plant 200/201. The tray includes a base 182 and a continuous perimeter wall 184 extending upwardly from the base 182. An upper side of the base 182 includes a plurality of ribs 188 extending along the base. Between the ribs 188 are a plurality of interconnected water channels. The ribs 188 do not extend along the base 182 all the way to wall 184 to provide an interconnecting perimeter water channel 190. The ribs 188 support a plant pot 200 above the base 182 for improved water ingress to the pot 200. A water inlet 189 is provided in the wall 184 for connection with a water supply line 20. A resiliently flexible lip 186 extends about an upper edge of the continuous perimeter wall 186. The resiliently deformable lip 186, in use, seals the wall of the tray with a plant pot 200 and thereby preventing water evaporation from within the tray. In some examples a plurality of tray 12 sizes is configured to a plurality of pot 200 sizes.

In some examples the watering tray 12 also includes a float valve fluidly connected with a water inlet 189 of the tray and configured, in use, to close the water inlet when the tray is fully charged with water and configured to open the water inlet when a water level in the tray falls.

In some examples of the technology a float valve 129 is used to regulate the water level in the distribution tray. In other examples of the technology a float valve 129 is used to regulate the water level directly in the watering trays 18. A float valve is a type of valve commonly used in plumbing systems to control the water level in tanks or reservoirs or trays. It operates based on the buoyancy principle of a floating object. A float valve typically consists of a valve body, a float, and a lever mechanism. The valve body is connected to the water supply line, and the float is attached to the lever mechanism inside the valve body. The float is buoyant and will float on the surface of the water. When the water level in the tray(s) drops below a

certain point, the float descends with it. As the float drops, it pulls down the lever mechanism, which is connected to the valve. This downward motion of the lever mechanism causes the valve to open. This allows water to flow into the tray and refill it. As the water level rises the float, being buoyant, also rises with the water level. As the float rises, it lifts the lever mechanism, which in turn closes the valve shutting off the water supply to the tray(s). By utilizing the buoyancy of the float, a float valve can automatically control the water level in the trays. This mechanism ensures that the water level is maintained within a desired range, preventing overflow or depletion.

Referring to figures 8 through 10 there is illustrated another example of a watering system according to one example of the technology. The system includes a reservoir container 820 illustrated in Figure 9 which includes four walls and a base. Adjacent the base are water outlets 822 which connect with water lines 16/20 for delivering water to watering trays 18. The container 820 includes an opening 824 adjacent a top edge of one end wall for receiving a water inlet 828 for connection with a supply of water. A hydrostatic enclosure or bell 810 is disposed within the container 820 and includes feet 816 spacing the bottom edge of the bell from the floor or base of the container 820. In the top of the bell 810 is a one-way valve 812 such as a duck valve which allows air to escape from the bell but not enter the bell. In an end wall is an opening 814 which, in situ, corresponds with container opening 824 receiving a water inlet 828. Water inlet 828 passes through openings 824 and 814 and is connected with a float valve 818 located within the bell 810. The bell 810 and float valve 818 are arranged to periodically replenish water in the reservoir container 820 from the supply of water. At the beginning of a watering cycle the container 820 is empty. Float valve 818 is open and begins to fill the container at 820. Air is allowed to escape the bell 810 via one way valve 812 allowing the bell to also fill with water until the float valve 818 rises and shuts off the water inlet 828. Water flows out of the container 820 via water outlets 822 to the watering trays. One way valve 812 prevents air from entering the bell 810 maintaining a hydrostatic head within the bell 810 which keeps valve 818 closed. Once the water level in the container 820 falls below the level of the bottom edge of the bell 810 air enters the bell releasing the hydrostatic head and allowing water to flow out of the bell. This in turn causing the float valve 818 to open and again begin filling the container 820. The cycle repeats.

Referring to figures 11 and 12 there is shown a second example of a watering tray. Like reference numerals represent like features. The tray includes a circumferential wall 184 with an upper opening created by edge 186. Plant pots are received through the opening 186. Water flows into the tray via water inlet 189 from watering lines 16/20 for delivering water to the watering tray. The water inlet spaced apart from the base by a first distance X. The tray also includes a water outlet 1189. In some examples that water outlet spaced apart from the base by a second distance y which is smaller than the first distance X. In other examples the water outlet adjacent the base. In some examples the second example tray includes a sloping base 1182 which slopes from the water inlet 189 downwards towards a water outlet 1189. Water entering the inlet 189 trickles down the sloping base 1182 to the outlet 1189 and can be returned to the watering reservoir. In some examples with a plurality of such watering trays the outlets 1189 may be connected to a collection tray with a pump which returns water to the reservoir. In other examples the outlet 1189 may be connected to downstream watering trays such that a plurality of watering trays maybe daisy-chained together. Inlet(s) 189 being connected with an outlet(s) 1189 of an upstream tray(s) and outlet(s) 1189 being connected with an inlet(s) 189 of a downstream tray(s).

Reference to any prior art in this specification is not, and should not be taken as, an acknowledgement or any form of suggestion that that prior art forms part of the common general knowledge in the field of endeavour in any country in the world.

The technology may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, in any or all combinations of two or more of said parts, elements or features.

Where in the foregoing description reference has been made to integers or components having known equivalents thereof, those integers are herein incorporated as if individually set forth.

It should be noted that various changes and modifications to the presently preferred examples described herein will be apparent to those skilled in the art. Such changes and modifications may be made without departing from the spirit and scope of the technology and without diminishing its attendant advantages. It is therefore intended that such changes and modifications be included within the present technology.

Claims:

1. A plant watering apparatus comprising:
 - a water reservoir,
 - a distribution tray,
 - a water supply line, for supplying water from the reservoir to the distribution tray,
 - a plurality of watering trays,
 - a plurality of watering lines for carrying water from the distribution tray to respective ones of the watering trays,
 - a valve regulating the supply of water from the reservoir to the distribution tray, and wherein the plurality of watering lines permits unrestricted water flow between the distribution tray and respective ones of the plurality of watering trays, and wherein the distribution tray being arranged, in use, to maintain a substantially constant level of water in the plurality of watering trays.
2. The plant watering apparatus of claim 1 wherein the water reservoir is elevated above the distribution tray.
3. The plant watering apparatus of claim 1 or 2 wherein the valve regulates the water level in the distribution tray. In some examples the valve is a floating ball valve or a float valve or a bell siphon.
4. The plant watering apparatus of any one of claims 1 to 3 wherein the distribution tray includes a base and a continuous perimeter wall extending upwardly from the base. A plurality of distribution water outlets are distributed about the perimeter wall, each of the distribution water outlets configured to connect with respective ones of the plurality of watering lines.
5. The plant watering apparatus of any preceding claim wherein the distribution tray includes an inverted cone- or pyramid-shaped lid, whose tip includes a water inlet configured to connect with the water supply line. A floatable ball is located within the distribution tray, and is configured, in use, to rise

with a water level and close the water inlet when the distribution tray is fully charged with water and configured to open the water inlet when a water level in the distribution tray falls.

6. The plant watering apparatus of any preceding claim wherein the distribution tray includes other than an inverted cone- or pyramid-shaped lid, and a float valve located within the distribution tray. The float valve fluidly connected with a water inlet of the distribution tray and configured, in use, to close the water inlet when the distribution tray is fully charged with water and configured to open the water inlet when a water level in the distribution tray falls.

7. The plant watering apparatus of any preceding claim wherein the plurality of watering trays are distributed horizontally with the distribution tray such that a water level in the watering trays is substantially co-planer with a water level in the distribution tray. The water level in the watering trays being regulated only by way of gravity between the distribution tray and watering trays.

8. The plant watering apparatus of any preceding claim wherein the water trays are supported by a stand. In some examples it is a “tripod” type stand. In some examples the stand height is adjustable to, in use, adjust the height of the watering trays to positions substantially horizontally with the distribution tray and thereby set a water height within the watering trays.

9. A plant watering apparatus comprising:
a water reservoir,
a plurality of watering trays,
a plurality of watering lines for carrying water from the water reservoir to respective ones of the watering trays,
a valve regulating the supply of water from the reservoir to the watering trays, and wherein
a valve is located in each watering tray.

10. A plant watering tray, the tray configured, in use, to receive a potted plant, the tray comprising:
a base and a continuous perimeter wall extending upwardly from the base,
a plurality of ribs extending along the base,

interconnected water channels between the ribs,
a water inlet for connection with a water supply line, and
a resiliently flexible lip extending about an upper edge of the continuous perimeter wall.

11. The plant watering tray of claim 10 including a float valve fluidly connected with a water inlet of the tray and configured, in use, to close the water inlet when the tray is fully charged with water, and configured to open the water inlet when a water level in the tray falls.

12. The plant watering tray of claim 10 including a water inlet in the perimeter wall, the water inlet spaced apart from the base by a first distance X , and a water out in the perimeter wall, the water outlet spaced apart from the base by a second distance y , wherein the second distance y is smaller than the first distance X .

13. The plant watering tray of claim 10 including a water inlet in the perimeter wall, the water inlet spaced apart from the base by a first distance X , and a water out in the perimeter wall, the water outlet adjacent the base.

14. The plant water tray of claims 11 or 12 wherein the base includes a slope towards the water outlet.

15. A plant watering apparatus comprising:
a supply of water,
a water distribution reservoir,
a plurality of watering trays,
a plurality of watering lines for carrying water from the distribution reservoir to respective ones of the watering trays,
a valve regulating the supply of water to the water distribution reservoir,
a float controlling the valve, and wherein
the float is positioned within a hydrostatic enclosure such that the valve remains closed until a water level in the reservoir falls below a hydrostatic release level of the hydrostatic enclosure.

16. The plant watering apparatus of claim 14 wherein the plurality of watering trays include a tray according to any one of claims 10 to 13.

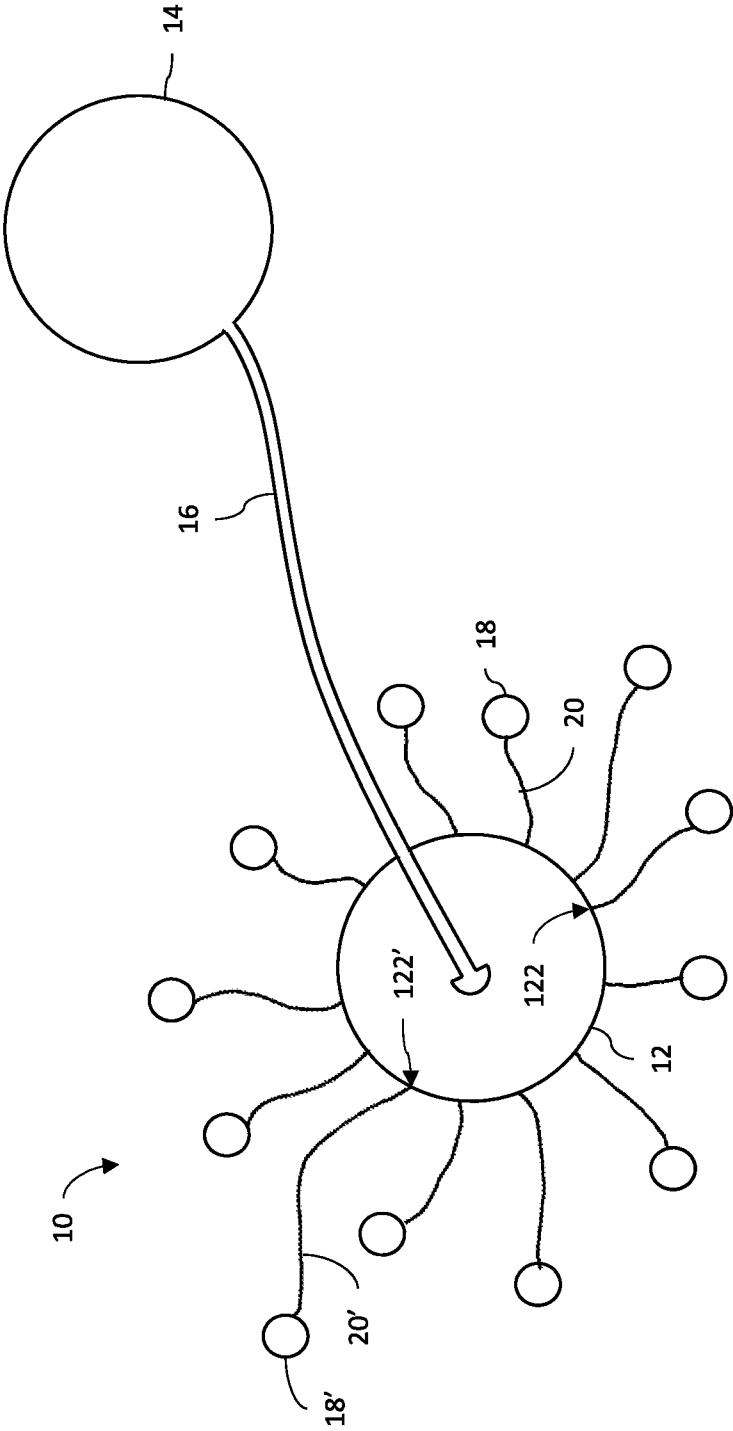
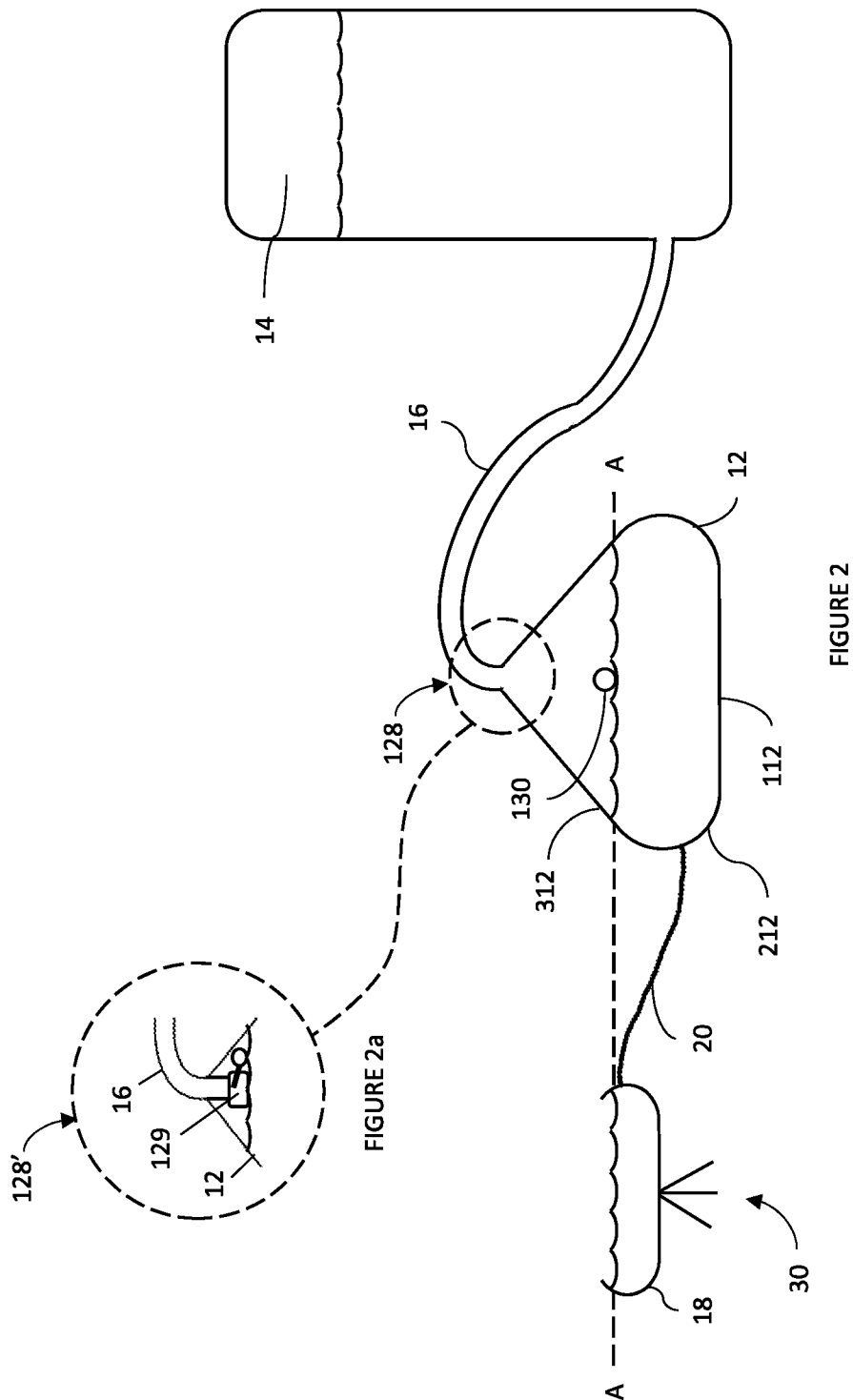


FIGURE 1



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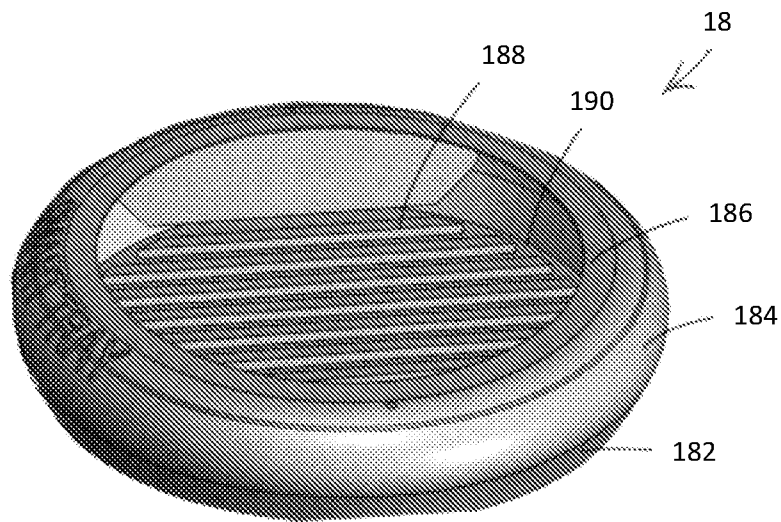


FIGURE 3

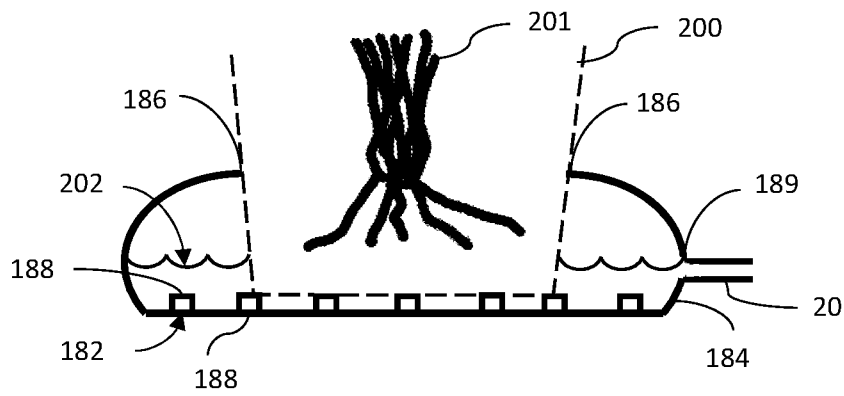


FIGURE 4

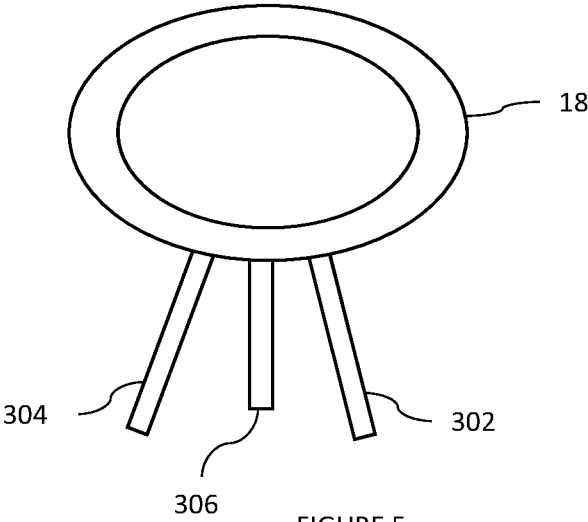


FIGURE 5

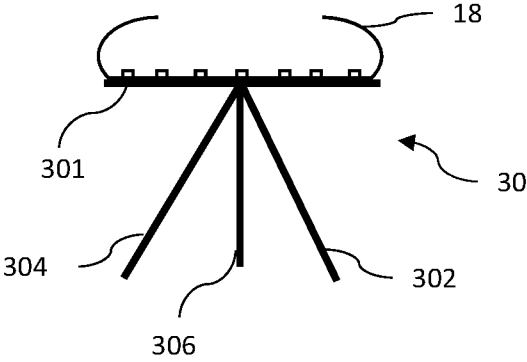
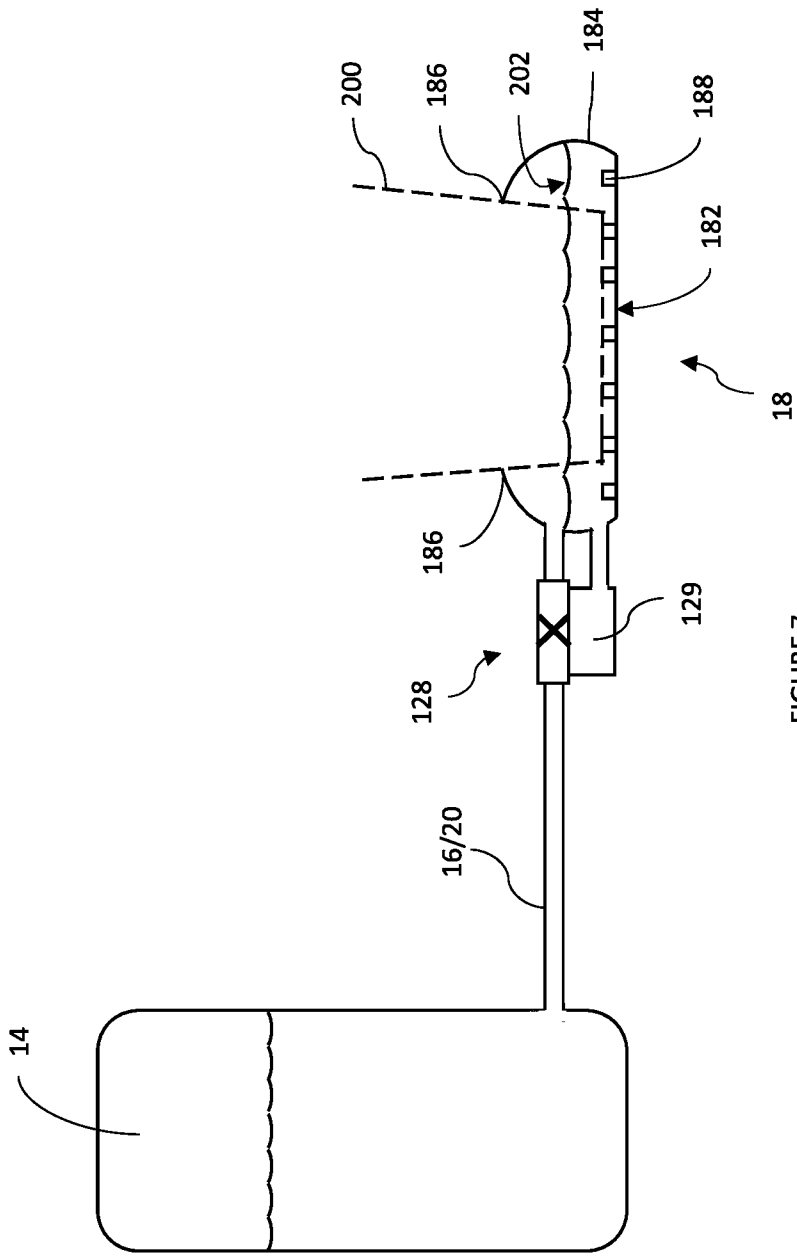


FIGURE 6



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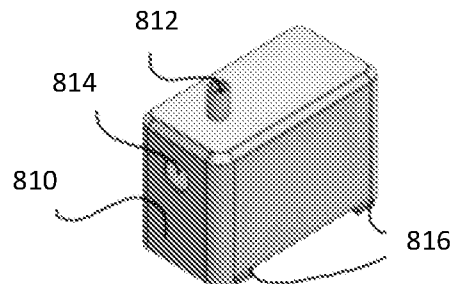


FIGURE 8

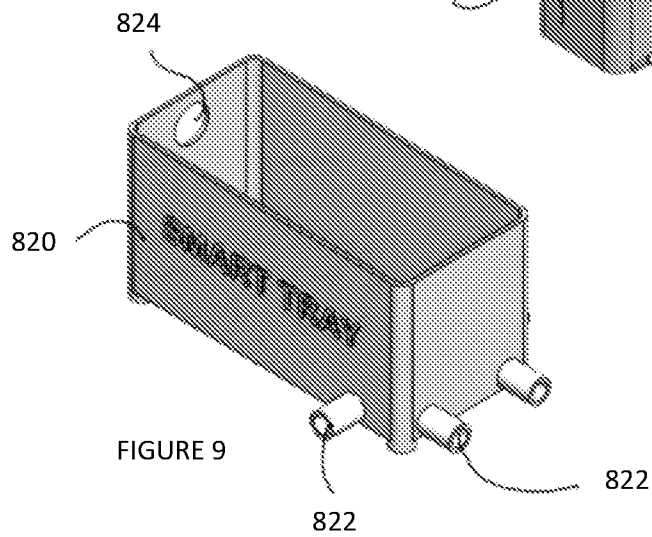


FIGURE 9

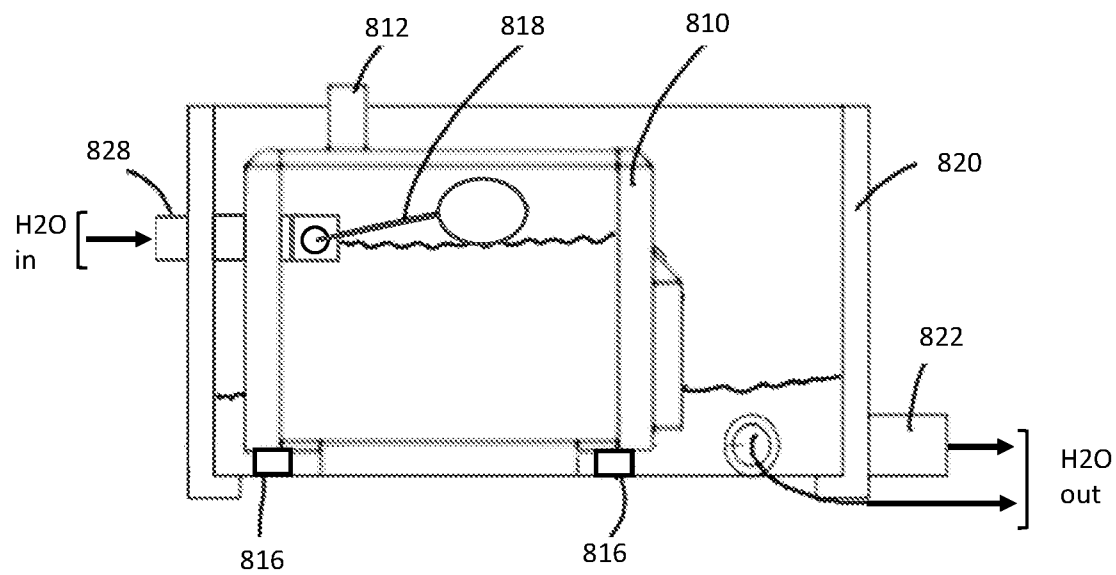


FIGURE 10

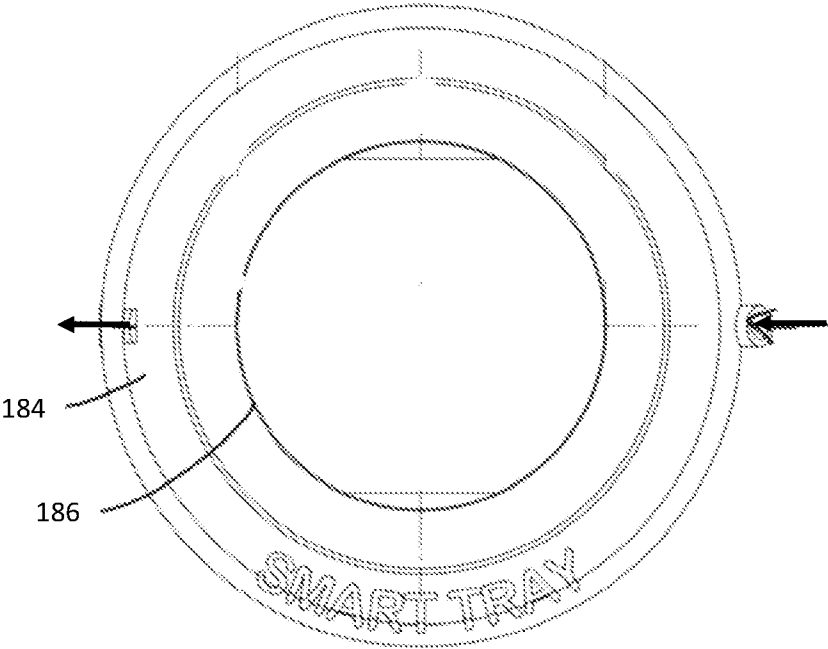


FIGURE 11

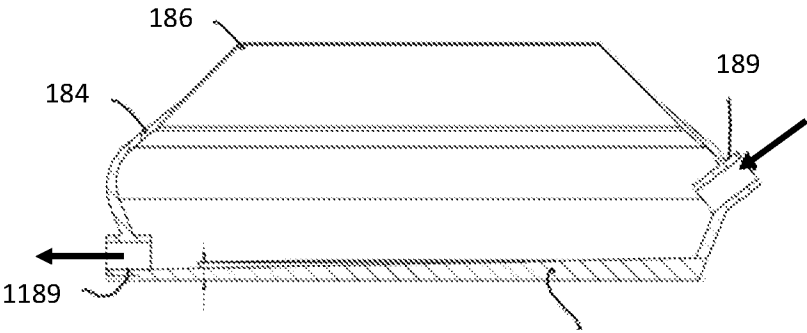


FIGURE 12

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2024/050066

A. CLASSIFICATION OF SUBJECT MATTER

A01G 27/00 (2006.01) A01G 9/24 (2006.01) A01G 25/16 (2006.01) A01G 27/02 (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)

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)

Database (PATENW): IPCs, CPCs: A01G9/02, A01G27/001, A01G27/003, A01G27/008, A01G27/005, A01G27/006, A01G27/02, A01G9/247, A01G25/16, A01G27/-, A01G31/-. Keywords (water, reservoir, valve, tray, uniform, level, hydrostatic, plurality, lines, pot) and like terms., Espacenet (Worldwide), AusPat & Internal Databases provided by IP Australia: Applicant and inventor name search. Google Patents: (self-water, plant, reservoir, valve, tray, uniform, level, hydrostatic, plurality, lines, pot,) and like terms. Cited and citing prior art for relevant documents.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	



Further documents are listed in the continuation of Box C



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"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"D" document cited by the applicant in the international application	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
18 September 2024

Date of mailing of the international search report
18 September 2024

Name and mailing address of the ISA/AU

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INTERNATIONAL SEARCH REPORT C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		International application No. PCT/NZ2024/050066
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2021/0161087 A1 (AGRICULTURAL CORPORATION GYERYONGCHIU AGRICULTURAL CO., LTD) 03 June 2021 Figures 1-8; Paragraphs [0052-0053]	1-8
X	JP 2005102523 A (SEIKOEN KK) 21 April 2005 Figures 1-8; Paragraphs [0012, 0014-0020]	9
X A	US 5425198 A (COY) 20 June 1995 Figures 4, 5; Page 4 line 65 – Page 5, lines 4; Page 5, lines 7-20 Figure 7	10, 11 11
A	KR 102523215 B1 (REPUBLIC OF KOREA(MANAGEMENT : RURAL DEVELOPMENT ADMINISTRATION)) 29 April 2022 Figure 2	11
A	CN 209234559 U (SICHUAN UNIVERSITY) 13 August 2019 Figures 1-4; Machine Translation	1-16
A	GB 2324018 A (JOHN HOWARD PLATT) 14 October 1998 Figures 1-5; Page 2, line 3-Page 4, line 5	1-16
A	KR 20210124859 A (LEE, HUN JAE) 15 October 2021 Figures 1-5; Machine Translation	1-16
A	US 2009/0151246 A1 (WATSON et al.) 18 June 2009 Figures 1-2; Paragraphs [0008, 0024-0029]	15
A	US 2014/0130412 A1 (ORMAZABAL OCHOA DE CHINCHETRU IGNACIO) 15 May 2014 Figures 1-13; Paragraphs [0046-0083]	15
Form PCT/ISA/210 (fifth sheet) (July 2019)		

INTERNATIONAL SEARCH REPORT

International application No.
PCT/NZ2024/050066**Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
the subject matter listed in Rule 39 on which, under Article 17(2)(a)(i), an international search is not required to be carried out, including
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See Supplemental Box for Details

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

Supplemental Box

Continuation of: Box III

This International Application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept.

This Authority has found that there are different inventions based on the following features that separate the claims into distinct groups:

- Claims 1-8 are directed to a plant watering apparatus. The feature of “*the distribution tray being arranged, in use, to maintain a substantially constant level of watering in trays*” is specific to this group of claims.
- Claim 9 is directed to a plant watering apparatus. The feature of “*a valve regulating the supply of water from the reservoir to the watering trays, and wherein a valve is located in each watering tray*” is specific to this group of claims.
- Claims 10-14 are directed to a plant watering tray. The feature of plurality of “*ribs extending along the base, interconnected water channels between the ribs and a resiliently flexible lip extending about an upper edge of the continuous perimeter wall*” is specific to this group of claims.
- Claims 15-16 are directed to a plant watering apparatus. The feature of “*a valve regulating the supply of water to the water distribution reservoir, a float controlling the valve, and wherein the float is positioned within a hydrostatic enclosure such that the valve remains closed until a water level in the reservoir falls below a hydrostatic release level of the hydrostatic enclosure*” is specific to this group of claims.

PCT Rule 13.2, first sentence, states that unity of invention is only fulfilled when there is a technical relationship among the claimed inventions involving one or more of the same or corresponding special technical features. PCT Rule 13.2, second sentence, defines a special technical feature as a feature which makes a contribution over the prior art.

When there is no special technical feature common to all the claimed inventions there is no unity of invention.

In the above groups of claims, the identified features may have the potential to make a contribution over the prior art but are not common to all the claimed inventions and therefore cannot provide the required technical relationship. Therefore there is no special technical feature common to all the claimed inventions and the requirements for unity of invention are consequently not satisfied *a priori*.

INTERNATIONAL SEARCH REPORT		International application No.	
Information on patent family members		PCT/NZ2024/050066	
This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.			
Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
US 2021/0161087 A1	03 June 2021	US 2021161087 A1	03 Jun 2021
		JP 2021531830 A	25 Nov 2021
		KR 20200011805 A	04 Feb 2020
		KR 102175972 B1	11 Nov 2020
		WO 2020022763 A1	30 Jan 2020
JP 2005102523 A	21 April 2005	JP 2005102523 A	21 Apr 2005
		JP 4977306 B2	18 Jul 2012
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		KR 102523215 B1	24 Apr 2023
CN 209234559 U	13 August 2019		
GB 2324018 A	14 October 1998	GB 2324018 A	14 Oct 1998
		GB 2324018 B	08 Aug 2001
KR 20210124859 A	15 October 2021	KR 20210124859 A	15 Oct 2021
		KR 102403332 B1	27 May 2022
US 2009/0151246 A1	18 June 2009	US 2009151246 A1	18 Jun 2009
		US 7703240 B2	27 Apr 2010
US 2014/0130412 A1	15 May 2014	US 2014130412 A1	15 May 2014
		EP 2540155 A1	02 Jan 2013
		EP 2540155 B1	09 Apr 2014
		WO 2013004614 A1	10 Jan 2013
End of Annex			
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.			