



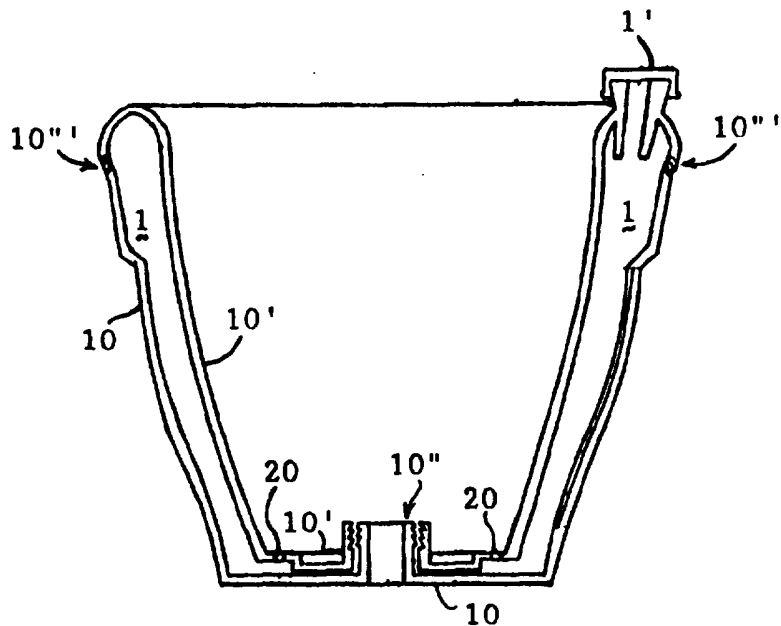
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<p>(21) International Application Number: PCT/IT96/00060 (22) International Filing Date: 26 March 1996 (26.03.96) (30) Priority Data: PE95A000012 7 April 1995 (07.04.95) IT (71)(72) Applicant and Inventor: CACCIATORE, Benito [IT/IT]; Via Brandizio, 12, I-65100 Pescara (IT). (74) Agent: GRISTINA, Giorgio; Studio Giorgio Gristina, Via delle Quattro Fontane, 29, I-00184 Roma (IT).</p>		<p>(81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>With international search report.</i></p>

(54) Title: A SELF-IRRIGATING POT

(57) Abstract

A self-irrigating pot characterized by being equipped with a tank for water and air, built in or built out of the pot itself, which automatically irrigates the pot itself by the pressure-depressure caused by the expansion/contraction of the air and the tank itself by effect of the temperature variation.



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- 1 -

DescriptionA Self-Irrigating PotTechnical Field

The present invention relates to the field of  
5 the irrigation of plants, such as for instance for  
nurseries and for domestic plants.

More specifically, the present invention  
relates to a pot fitted with a self-irrigation system.

Background of the Invention

10 It is known that the cultivation of plants in  
a pot requires a frequent watering of the same, which is  
a problem of time engagement for instance for  
housewives.

Systems are in use at the present day that  
15 allow the automatic irrigation, realized electrically or  
electronically or that exploit the pressure of water  
itself. However, systems are dealt with external to the  
pot, which require a substantial energy consumption and  
anyhow cannot dispense with a human outer almost daily  
20 maintenance.

Such present day self-irrigation systems  
besides a high technological content, which requires  
skilled personnel, need for high initial capital  
investments and for high management expenses, all to  
25 damage for the medium-small nursery and of the domestic  
use, without taking the already mentioned maintenance  
expenses, intended as work force, drive force, into  
account.

The present invention has the object to  
30 provide a self-irrigating pot that overcomes the  
drawbacks of the present day self-irrigation systems.

- 2 -

To this object to produce the self-watering of pot cultivations, the pressure-depressure caused by the temperature variation between night and day is exploited.

5           The finding of the present invention, contrarily to the pots existing at the present day, which in their various shapes serve anyhow exclusively as containers for mould and the cultivation, has the peculiar feature of being a container and a completely  
10 automatic irrigation system at a time, exploiting the pressure-depressure caused by the expansion/contraction of the air and the tank itself by effect of the temperature variation.

          Therefore, the subject of the present  
15 invention is a self-irrigating pot characterized by being equipped with a tank for water and air, built in or built out of the pot itself, which automatically irrigates the pot itself by the pressure-depressure caused by the expansion/contraction of the air and the  
20 tank itself by effect of the temperature variation.

          Preferred embodiments of the invention are set forth in the subclaims.

          The pot according to the present invention turns out to be completely autonomous, in the sense that  
25 the only necessary care to be taken is that of the filling of the tank each fifteenth-forty-fifth day, proportionally to the thermal change.

          The advantages of the pot of the present invention are that the irrigation of the pot is  
30 substantially reduced, reducing to a minimum the risk of making a plant to die for a lack of water; that the

- 3 -

irrigation takes place in the first hours of the morning at an ideal temperature; that the roots of the plant are not at direct contact with the outer wall of the pot so as not to undergo temperature changes; that in adverse atmospheric conditions (rain and cold) the pot doesn't release water to the plant; that the water quantity is decided by the pot proportionally to the thermal change of the environment; that the pot can be constructed for irrigation quantities in proportion to the types of cultivation that one wants to execute; that it is possible to irrigate with treated or manured water; that in the nursery cultivation stage it is possible to feed the pots directly from the existing net eliminating the problems of the drop plants; that the temperature of the irrigation water is equal or slightly higher than the temperature of the roots; that the level of the water can be controlled from outside so as to be able to programme the eventual filling, and that the greater the temperature, the greater the evaporation, with a fresh effect for the plant.

The present invention will be understood at the best based upon the following disclosure of its preferred embodiment, given only as a matter of example, absolutely not of restriction, with reference to the annexed drawings, wherein:

- FIGURE 1 is longitudinal section view, and
- FIGURE 2 is a top plant view of a pot according to the present invention.

As illustrated in the FIGURES, a pot according to the teaching of the present invention has the side and bottom wall, made up as an air space 1. Such an air

- 4 -

space can be put into connection with the outside through a tight seal plug 1'.

According to an execution, the pot is realized through the connection of an outer wall member 10 and an inner wall member 10' on the bottom through a locking device 10", laterally through welding or hermetic seal joint 10'''.

On the inner wall on the bottom of the pot capillary through holes 20, having a diameter of  $\frac{1}{2}$ -1,2 mm, which connect the water tank made up of the air space 1 with the inner concavity of the pot; these holes make up as many channels for the automatic irrigation, that is to say the self-irrigation of the mould.

Such capillary channels are provided with a slant to the top to prevent the water from exiting continuously.

In the air space 1 besides water there will be an air bubble. This one expands any time the temperature rises, while contracts itself any time the temperature decreases.

The water output will be restricted by the fact that the irrigation channels 20 are slanting to the top, whereby the drops to exit have to overcome the force of gravity. This will be only possible in the hours of the day, when the inner temperature of the air space is such as to increase the pressure exerted by the air on the liquid. In the night, on the contrary, the irrigation is not possible in that the reduced temperature will cause the contraction of the air, decreasing the pressure, so as to prevent the irrigation. In the meanwhile, such a concentration of

- 5 -

the air will allow an air sucking equal to the volume of the liquid got out in the preceding day.

So there will be watering only when it is necessary, that is when the high temperature on a side makes thirsty the plants and on the other side will increase the pressure of air allowing the reexiting of the water itself.

The present invention has been disclosed and depicted with reference to a specific embodiment thereof, but it is to be expressly understood that variations, additions and/or omissions can be made, without so departing from the original presented teaching, the protection scope whereof is only defined by the appended claims.

For instance, as a fluid communication means between the air space and the inside of the pot capillary through holes have been described. Anyhow, they could be substituted in their functionality by a permeable wall on the bottom fit for the passage of water for its delivering to the mould and of air for its drawing, as a function of temperature.

- 6 -

Claims

1. A self-irrigating pot characterized by being equipped with a tank for water and air, built in or built out of the pot itself, which automatically  
5 irrigates the pot itself by the pressure-depressure caused by the expansion/contraction of the air and the tank itself by effect of the temperature variation.
2. A self-irrigating pot according to claim 1 wherein the lateral and bottom wall is made up with an  
10 air space (1), making up said tank, and comprising means for communicating water and air (20) between said air space and the inside of the pot itself.
3. A self-irrigating pot according to claim 2, wherein said means for communicating water and air are  
15 made up of holes (20) arranged at the bottom.
4. A self-irrigating pot according to claim 2, wherein said means for communicating water and air are integrated in the wall toward the inside of the pot of said air space, by being this wall fabricated in a  
20 permeable material on the bottom.

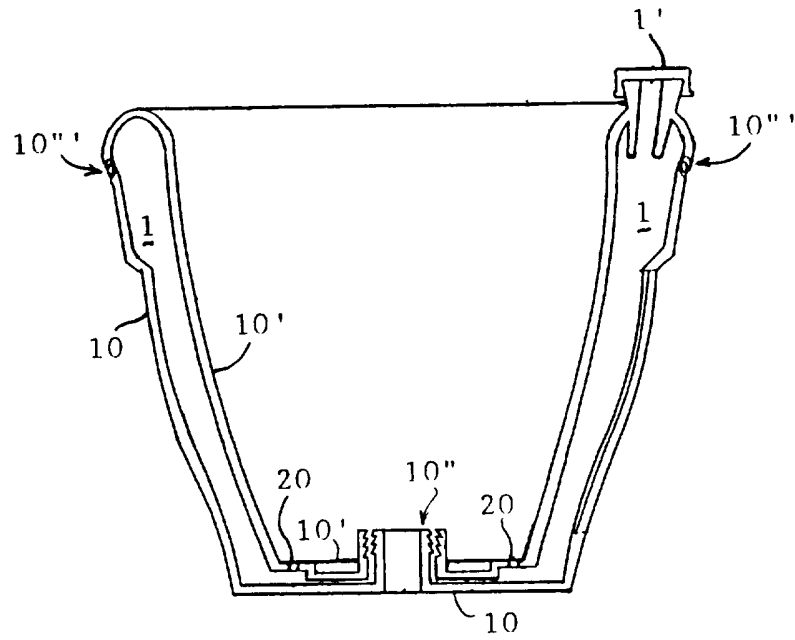


FIG. 1

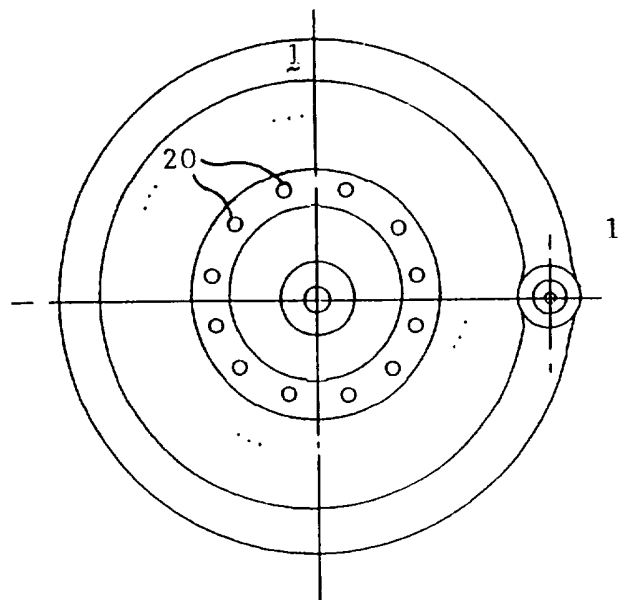


FIG. 2

# INTERNATIONAL SEARCH REPORT

International Application No  
**PCT/IT 96/00060**

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 6 A01G27/02

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)  
IPC 6 A01G

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 practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB,A,2 250 171 (HEE) 3 June 1992 see figures 1-3; examples ---	1-4
X	CH,A,667 972 (WILD) 30 November 1988 see page 3, left-hand column, line 20 - page 4, left-hand column, line 68; figures 1-3	1-3
A	---	4
X	DE,A,14 82 269 (LINDNER) 11 December 1969 see the whole document ---	1-3
X	FR,A,1 446 275 (BRASSEUR ET AL.) 7 October 1966 see the whole document ---	1-3
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Patent family members are listed in annex.

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Date of the actual completion of the international search

2 July 1996

Date of mailing of the international search report

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB,A,1 513 876 (PAULUSSEN ET AL.) 14 June 1978	1
A	see page 1, line 44 - line 84; figures  -----	3

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IT 96/00060

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FR-A-1446275	07-10-66	NONE	
DE-B-1045712		NONE	
GB-A-1513876	14-06-78	NONE	