



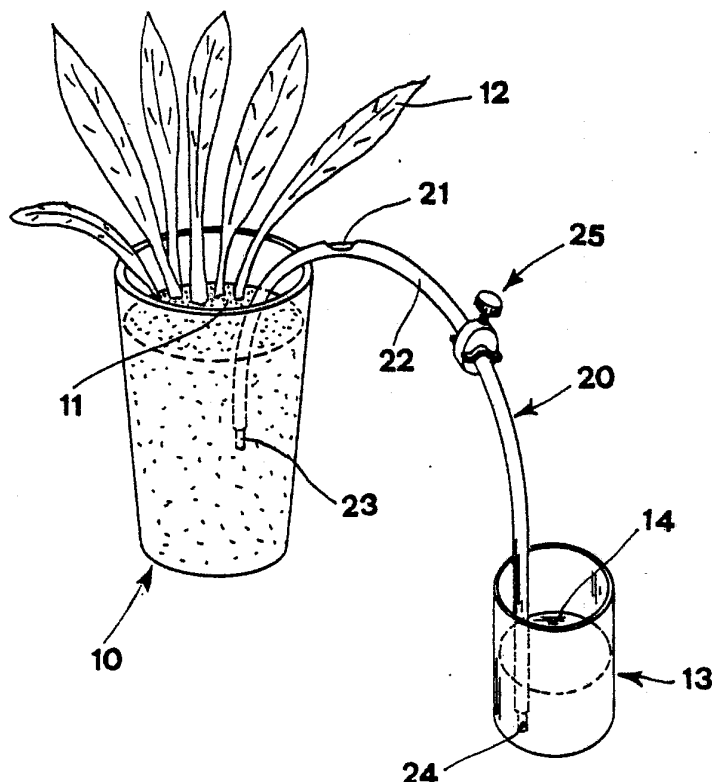
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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**(54) Title:** AUTOMATIC WATERING SYSTEM FOR PLANTS IN POTS OR IN OPEN GROUND

**(57) Abstract**

The system comprises an automatic device (20), (50), (76) for transfer of water, oblong in shape, made from a water absorbing means (21), (54), (80) preferably of synthetic material, inserted inside a waterproof and watertight means (22), (55), (81), the two ends (23) and (24), (56) and (57), (82) and (83) of said device being exposed for a sufficient length and being respectively and completely introduced, the one (23), (56), (82) into the earth (11), (58), (72) in the pot (10), (40), (41), (42), (70) holding the plant (12), (39), (73) and the other in the reserve of water (14), (60), (74) contained in the receptacle (13), (44), (71) or in a well, the surface of said water (14), (60), (74) being at a lower level than the exposed end (23), (56), (82) of the device (20), (50), (76) buried in the earth (11), (58), (72), thus bringing about in the device (20), (50), (76), due to capillarity and to lack of evaporation, a slow but continuous transfer of water (14), (60), (74) from the reserve of water to the earth (11), (58), (72) to keep it suitably moist.



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# AUTOMATIC WATERING SYSTEM FOR PLANTS IN POTS OR IN OPEN GROUND

Various well known systems exist for watering plants especially potted plants.

- 5 Automatic systems based on a reserve quantity of water, and suchlike are, according to the type concerned, inadequately self sufficient, likely to spill water around and waste it, or else are complex and too expensive.

10 The above invention avoids these drawbacks at the same time offering considerable advantages as will be explained below.

Subject of the invention is an automatic watering system for plants in pots or in open ground comprising an oblong device for automatically transferring the water, consisting of a water absorbing means threaded through a waterproof  
15 and watertight means.

An adequate length of one of the two free ends of the device is completely buried in the earth round the plant and the other free end is placed well below the surface of the water in a receptacle or in a well.

- 20 The surface of the water lies at a lower level than the end of the device pressed down into the earth.

By means of the phenomenon of capillarity and since there is no evaporation, a small but steady quantity of water is carried through the device from the reserve of water into  
25 the earth to keep it sufficiently moist.

The absorbing means is a length of wick, cord or the like or an evenly disposed mass of substances, preferably of synthetic material for greater strength and longer life.

- 30 The waterproof means is a tube or a coating of film preferably plastic.

In one type of execution these automatic means for carrying water to one or more flower pots are connected to a single pipe or to more than one pipe connected with the receptacle referred to above.

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In one type of execution an automatic cock with float valve, connected to the water mains, keeps the water in the receptacle at a constant level.

5 In one type of execution the receptacle takes the form of a pot placed underneath that containing the plant.

The automatic water carrying device is placed inside the two pots passing through the bottom of the pot containing the plant and from there raised to a suitable height.

The two pots may be fitted one inside the other.

10 In the lower pot there is preferably a hole through which the water level can be re-established.

The base of the pot holding the plant may contain holes through which water can drain away in the event of the earth becoming too wet due to direct watering from above.

15 A means for regulating water flow is provided which, to a greater or lesser degree, compresses the automatic, water carrying device. Said regulating means consists of a screw clamp or of a ring enclosing the water carrying device, said ring being adjustable by a screw or other similar means.

20 Characteristics and purposes of the device will be made even clearer by the following examples of its execution illustrated by drawings.

Fig. 1. The system subject of the invention applied to an ordinary pot containing a plant, seen in perspective.  
25

Fig. 2. Detail of the capillarity operated device, in perspective.

Fig. 3. Detail of the flow regulator, in perspective.

Fig. 4. A row of pots watered by the system subject of the invention, by means of a single receptacle, in perspective.  
30

Fig. 5. Two pots one above the other, the upper one for the plant, the lower one for the water, in perspective.

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Alongside an ordinary pot (10) containing earth (11) for the plant (12) there is a receptacle (13) containing a reserve of water (14).

5 A device (20) (see also Figs. 2 and 3) for transferring water, comprises a wick (21) made of water absorbing substances, passing along a waterproof tube (22) of sufficient length to leave the two ends (23), (24) of the wick free.

A clamp (25) is mounted on the device, said clamp comprising a ring (26) with an enlarged part (27).

10 The screw (29) with head (30) is inserted in the threaded hole (28).

The bracket (31) can move along the axis of the screw guided by its two forked ends (32) (33) sliding on the ring (26).

15 By tightening the screw more or less, the bracket squeezes as required the tube (22) and therefore the wick (21) thus enabling water flow to be regulated.

20 The extremity (23) is buried under the earth (11) so that its bare end is completely covered with earth (11). The surface of the water (14) is lower than the level of the beginning (35) of the bare part (23) of the device (20), placed in the earth in the pot.

Therefore, due to the phenomenon of capillarity, a small quantity of water moves continuously from the receptacle  
25 (13) into the earth (11).

Fig. 4 shows a row of pots (40), (41), (42) containing plants (39) automatically watered by means of a single pipe (43) connected to the receptacle (44) served by an automatic float cock (45), with float (46) connected to the tap (47) on the  
30 water main (48).

capillarity operated devices (50), (51), (52) similar to the device (20) already described, connect the piping (43) to the pots by means of the joints (53).

The devices include the wick (54) and outer tube from which  
35 the exposed ends (56) and (57) emerge.

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The end (56) of each device is buried to a sufficient depth in the earth (58) contained in the pots.

The other end (57) is inserted inside the joints (53) in contact with the water (60) flowing from the receptacle (44).

The water carrying devices function in the same was as that already described for Fig. 1.

As the water (60) is automatically taken out of the receptacle (44), the float (46) automatically re-establishes it at the initial level.

By means of the clamps (61) and (62) similar to clamp (25) already described, delivery of water can be regulated both overall and pot by pot.

Fig. 5 shows a pair (69) of two plastic pots (70), (71) substantially the same, one placed inside the other.

The upper pot (70) contains the earth (72) for the plant (73) while the lower pot (71) contains the water (74) which can be filled up through the opening (75).

The water carrying device (76), substantially similar to the one (20) already described, stands upright between the two pots so as to pass through the bottom (77) of the upper pot by means of the hole (78) fitted with a collar (79).

This device presents the wick (80) with waterproof coating (81) and exposed ends (82) and (83).

The screw (87) of a regulating clamp (86), similar to the clamp (25) already described, can be made to pass through the hole (85) in the side of the pot (71). The end (82) must be situated at a suitable level, above what is roughly half way up the pot, to avoid an excess of water at the roots of the plant.

#### Advantages

Plants in pots and in open ground can be automatically and continuously watered, even for several months, and delivery of water can be regulated as desired.

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The earth can be moistened to the extent required by each different plant, taking water down to the roots in a simple and effective manner at practically negligible cost. The use of synthetic material for both the absorbing and water-  
5 proofing parts ensures a long life for the device, another factor in keeping down costs and simplifying maintenance.

As the applications of the invention have been described as examples only, not limited to these, it is understood that every equivalent application of the inventive concepts  
10 explained and any product executed and/or in operation according to the characteristics of the invention will be covered by its field of protection.

CLAIMS

1. System for automatically watering plants in pots or in open ground characterized in that it comprises an oblong device (20), (50), (76) for automatic transfer of water  
5 obtained by a water-absorbing means (21), (54), (80), preferably of synthetic material, inserted within a waterproof and watertight means (22), (55), (81), the two ends (23 and 24), (56 and 57), (82 and 83) of said device being exposed for a sufficient length and being respectively and complete  
10 ly introduced, the one (23), (56), (82) into the earth (11), (58), (72) in the pot (10), (40), (41), (42), (70) holding the plant (12), (39), (73) and the other in the reserve of water (14), (60), (74) contained in a receptacle (13), (44), (71) or in a well, the surface of said water (14), (60),  
15 (74) being at a lower level than the exposed end (23), (56), (82) of the device (20), (50), (76) buried in the earth (11), (58), (72), there taking place in the device (20), (50), (76), due to capillarity and to lack of evaporation, a slow but continuous transfer of water (14), (60), (74) from the  
20 reserve of water to the earth (11), (58), (72) to maintain it in a suitably moist condition.

2. Watering system as in claim 1, characterized in that the absorbing means is a wick (25), (54), (80), or a cord or the like.

25 3. Watering system as in claim 1, characterized in that the absorbing means is a mass of evenly disposed substances.

4. Watering system as in claim 1, characterized in that the waterproof means (25), (55), (81) is a tube or a coating of film preferably of plastic material.

5. Watering system as in claim 1 characterized in that the  
30 automatic devices (50) for transferring water to one or more pots (40), (41), (42) are connected to a single pipe (43) or to more than one pipe communicating with the receptacle (44).

6. Watering system as in claim 5 characterized in that the



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automatic cock (45) with float valve (46), connected to the water main (48), keeps the water (60) in the receptacle (44) always at the same level.

5 7. Watering system as in claim 1 characterized in that the receptacle consists of a second pot (71) underneath the pot (70) containing the plant (73), the automatic device (76) for transfer of water (74) placed inside said pair (69) of pots (70), (71) by passing through the base of the pot (70) with the plant (73) and raised up to a suitable  
10 height, it being possible to connect the two pots (70) and (71) by fitting one into the other, there possibly being an opening (75) in the lower pot (71) through which to fill it up, the base (77) of the pot (70) containing the plant (73) possibly containing holes (88) to drain off any excess  
15 water due to the plant (73) having been watered direct from above.

8. Watering system as in claim 1 characterized in that there is a means (25) for regulating delivery of water which more or less reduces the cross section of the device (20), (50)  
20 (76) for automatic transfer of water.

9. Watering system as in claim 8 characterized in that the regulating means (25) consists of a clamp (25) with screw (30) or a ring which surrounds the water transferring device whose amplitude can be adjusted by a screw or by any  
25 other similar means.

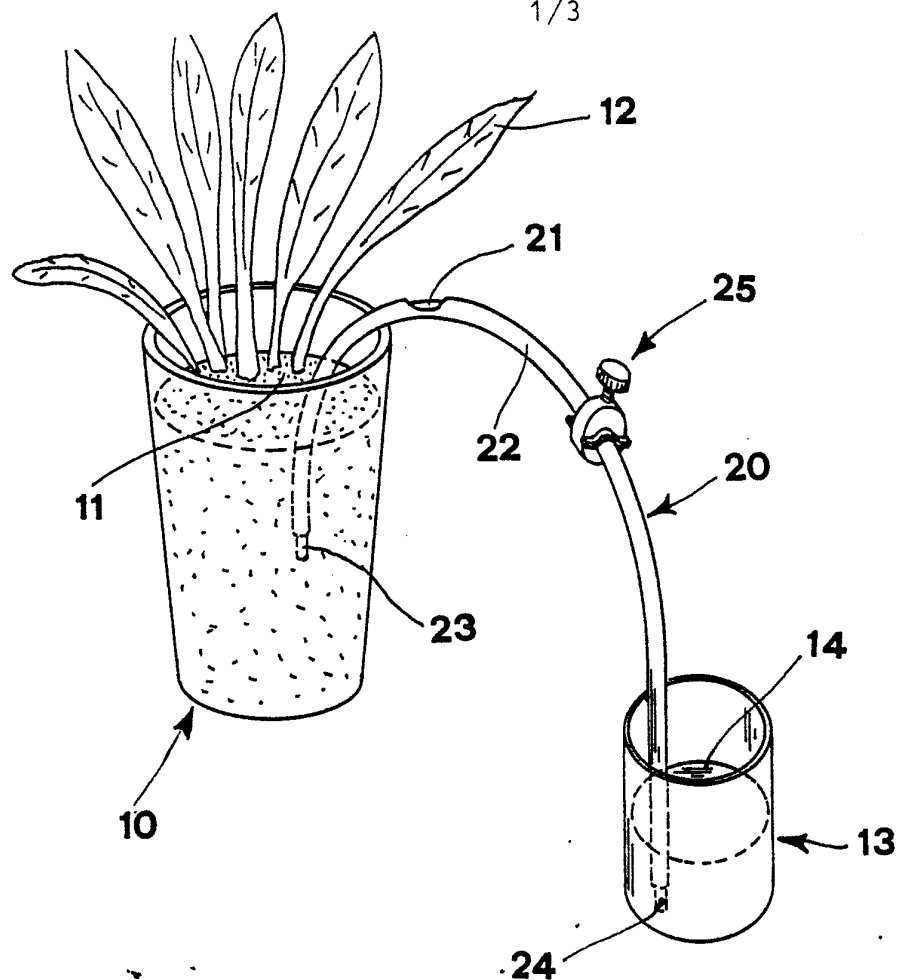


fig. 1

fig. 2

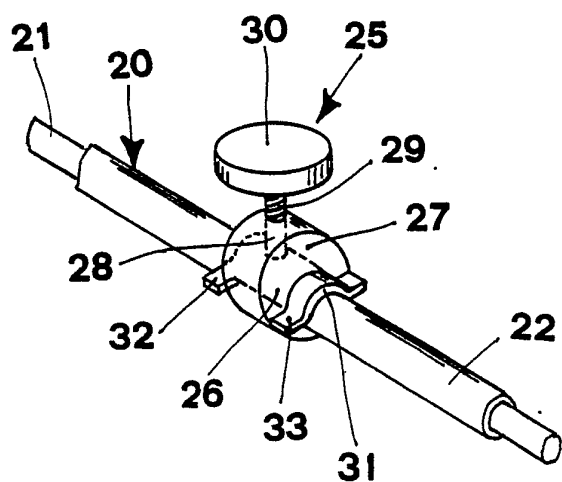
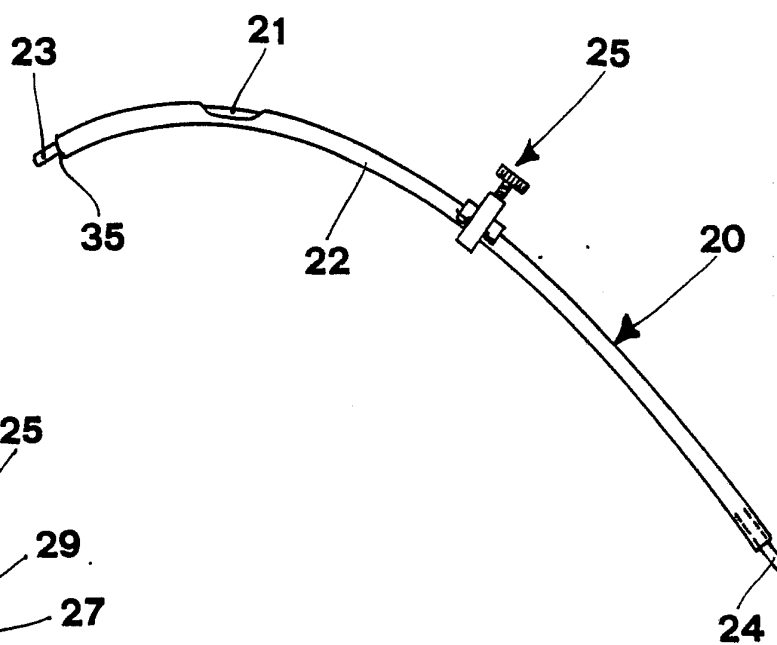


fig. 3

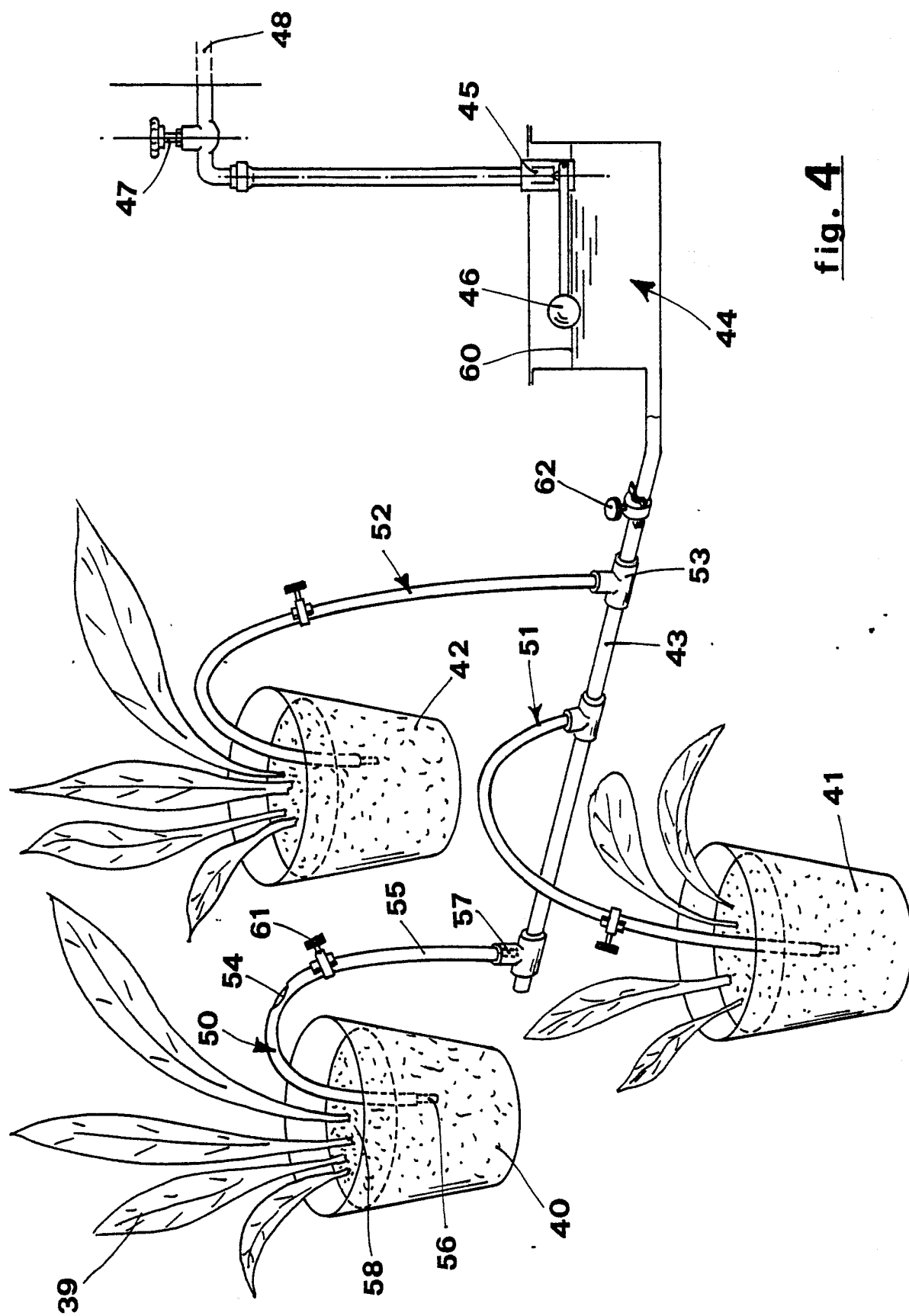
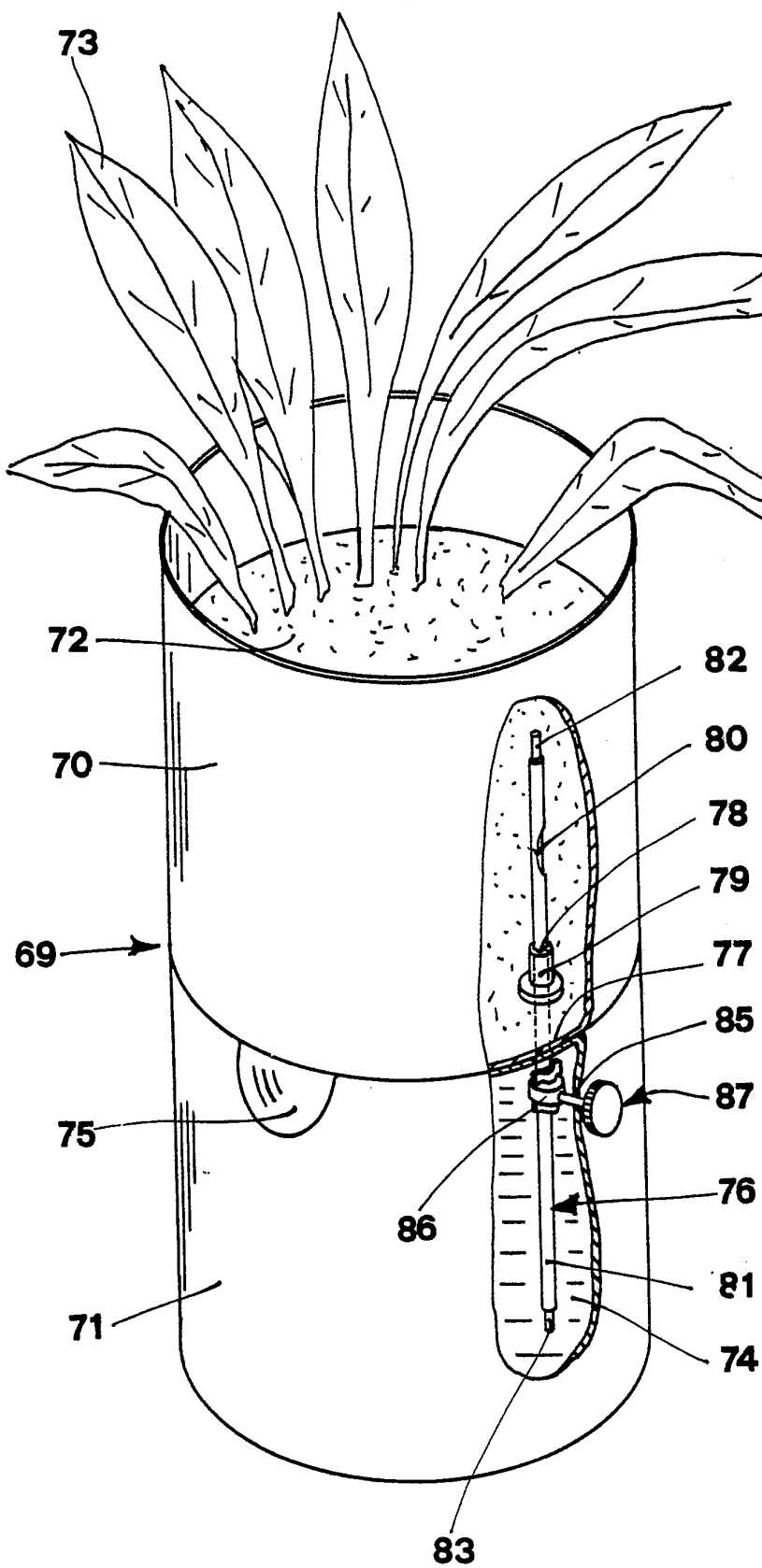


fig. 4

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**fig. 5**