April 23, 1940. G. V. CURTIS 2,197,886

WINDOW VENTILATOR

Filed June 22, 1938 3 Sheets-Sheet 1

Fig. 1.

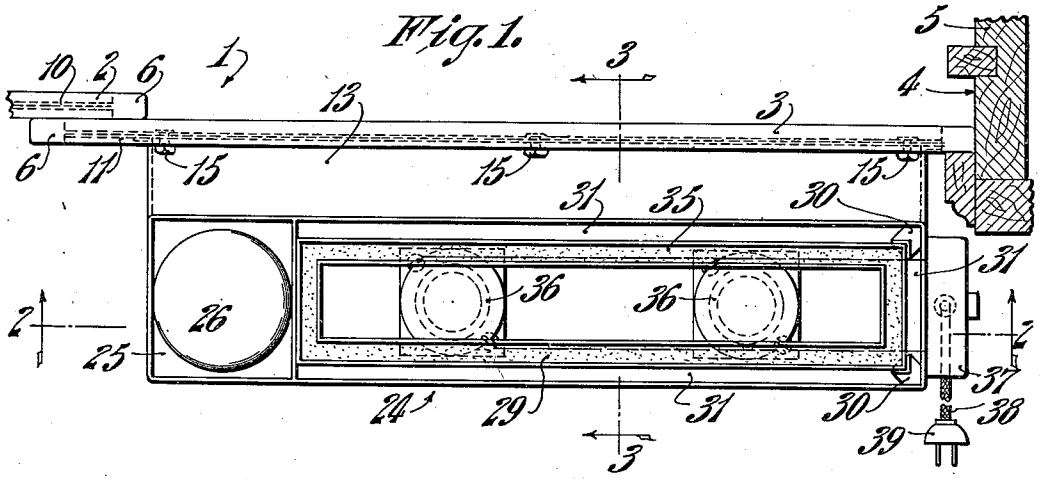

Fig. 2.

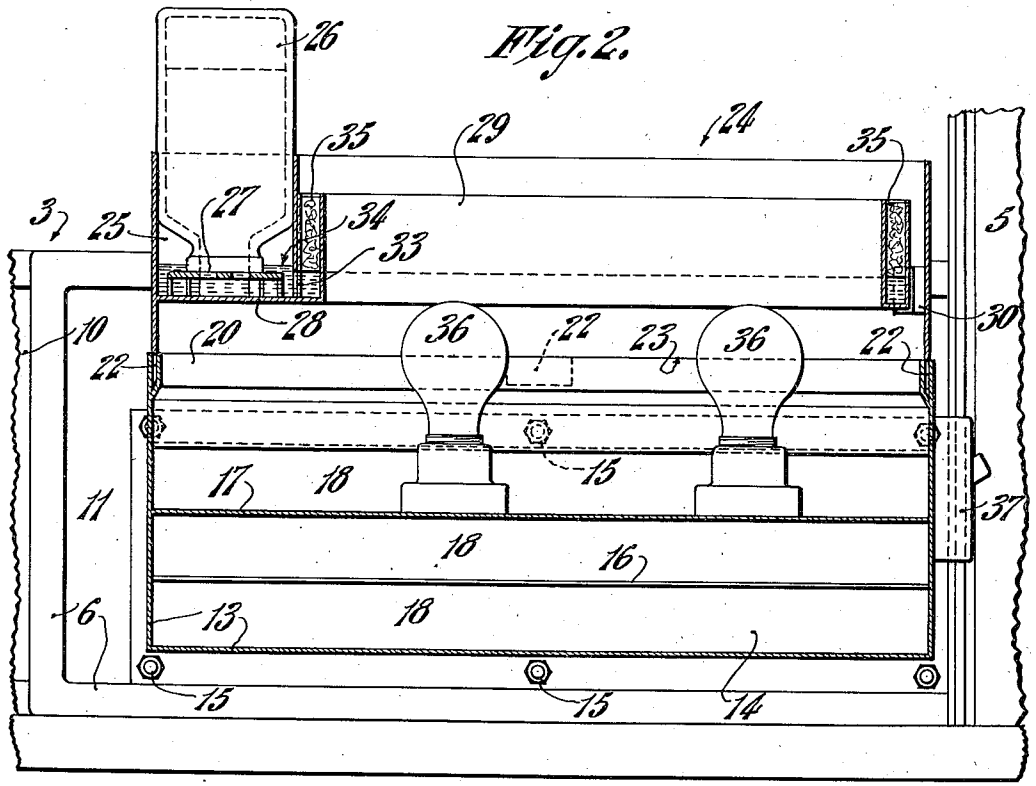

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Fig. 3.

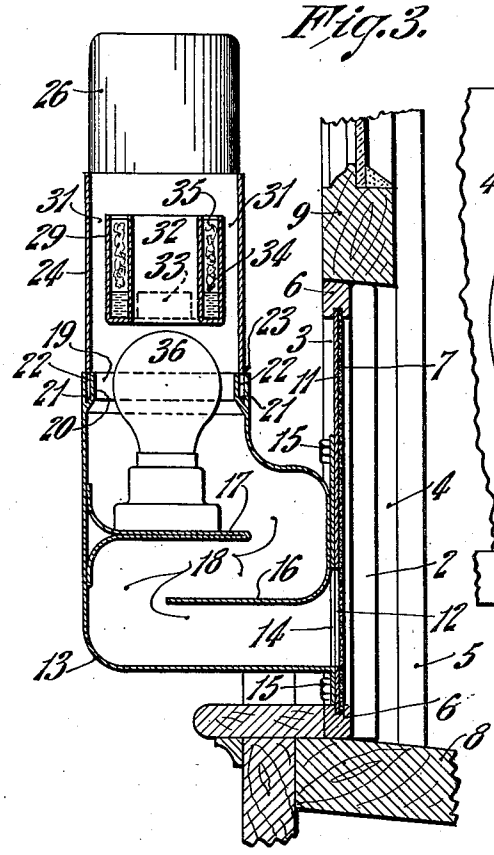

Fig. 5.

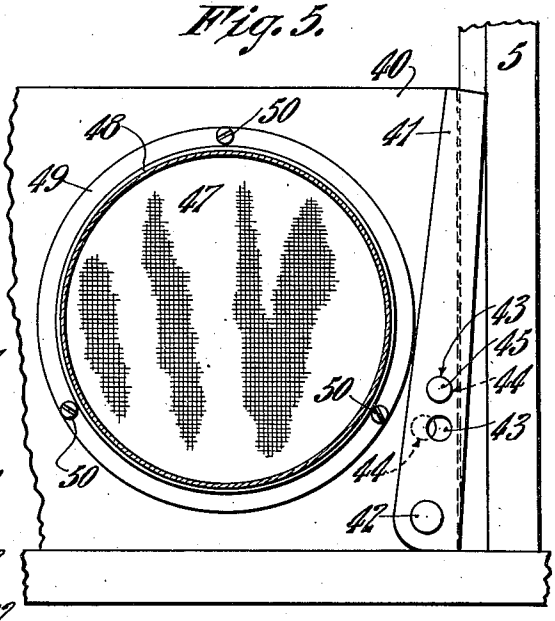

Fig. 4.

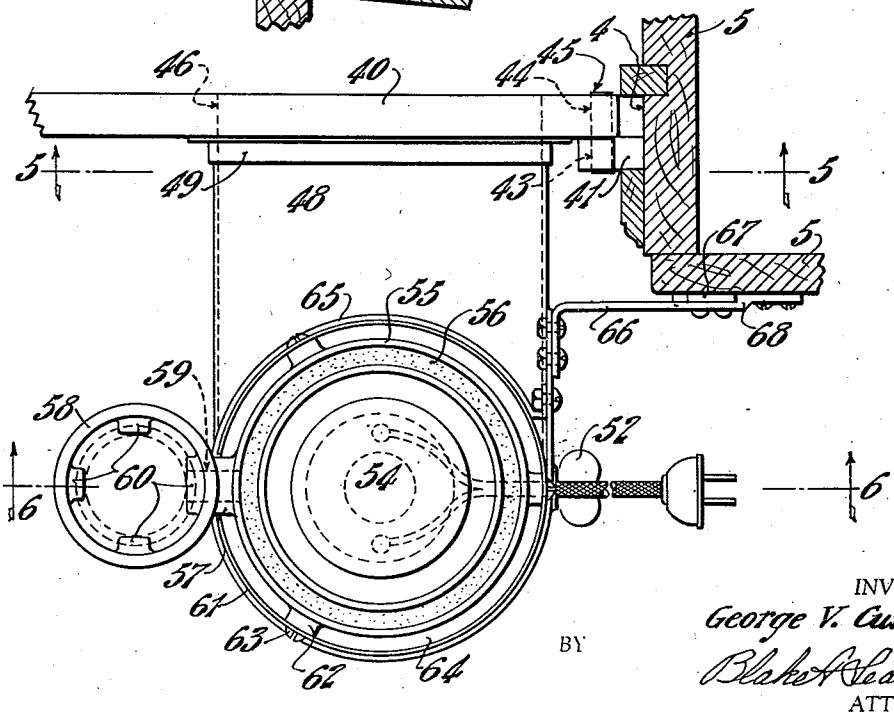

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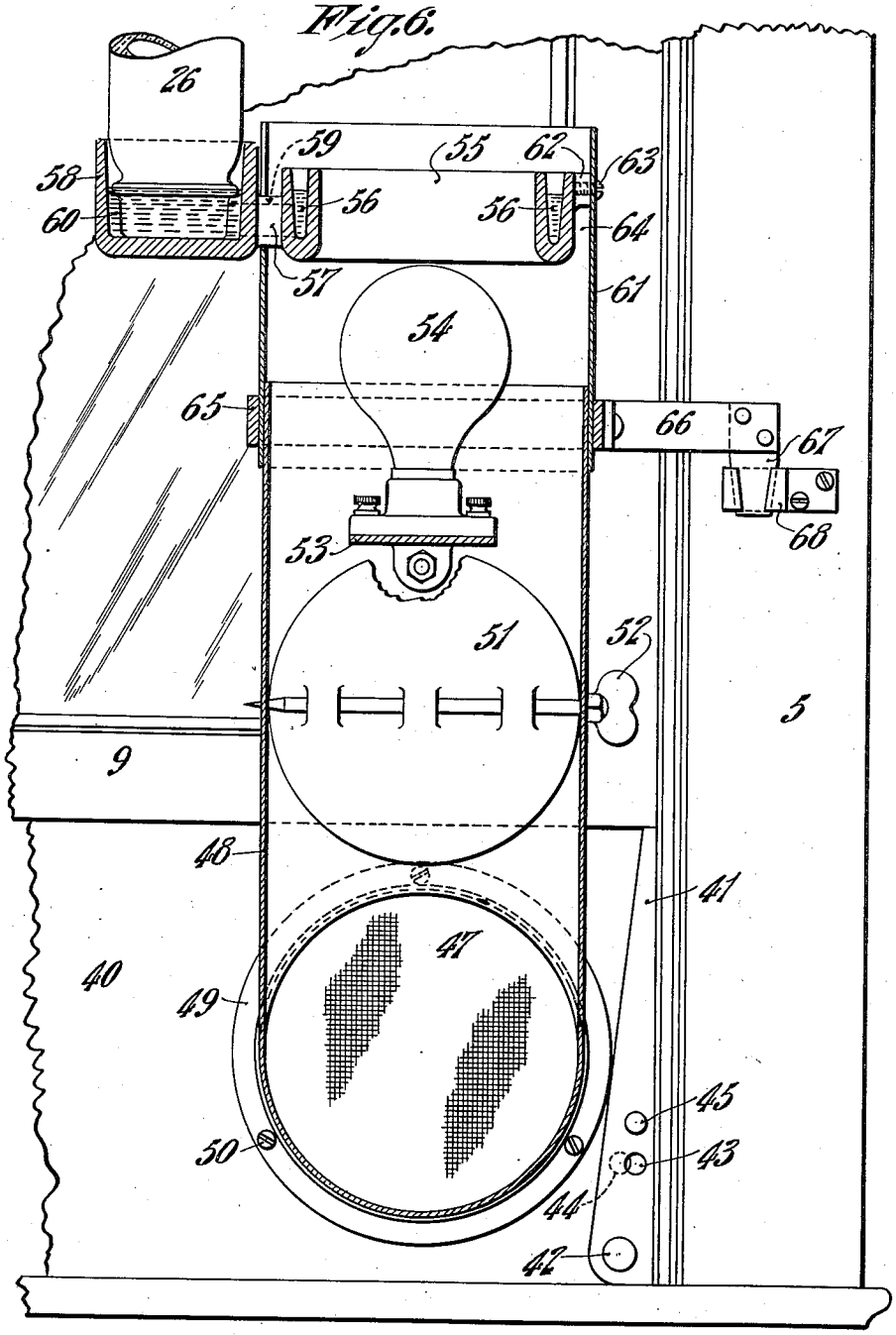
Fig. 6.



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Patented Apr. 23, 1940

2,197,886

UNITED STATES PATENT OFFICE

2,197,886

WINDOW VENTILATOR

George V. Curtis, West Springfield, Mass.

Application June 22, 1938, Serial No. 215,108

8 Claims. (Cl. 98—100)

This invention relates to improvements in window ventilators.

An object of this invention is to provide, in a single unit of simple and economical construction, a window ventilator which may be removably secured in a window sash opening, between the sash and the stool of the window, and by means of which fresh air from the exterior of the building may be induced to enter the building through the ventilator, and, in its passage through the ventilator, will be subjected to the presence of water in such a manner as to promote efficient absorption of moisture to provide a proper degree of humidity in the air entering the room.

A further object of this invention is to provide, in a window ventilator, a removable humidifying unit which may be readily attached and detached from the ventilating unit, whereby the ventilating unit may be used either with, or without the humidifying unit.

Another object of this invention is to provide a window ventilator incorporating means for baffling the air entering a room through the ventilator to prevent a drafty condition within the room.

An important object of this invention is to provide, in a window ventilator of the class described, simple and efficient means for inducing or creating a natural draft whereby, under all normal relative conditions of atmospheric pressure between the outside air and the air within the room, fresh air will be induced to enter the room from outside, through the ventilator.

These, and other objects and advantages of this invention will be more completely disclosed and described in the following specification, the accompanying drawings, and the appended claims.

Broadly, this invention comprises a supporting member for removable insertion in a window frame, a screen in the supporting member, a chamber connected to the supporting member and communicating with the screen, a baffle or baffles within the chamber, a heating element in the chamber, a second chamber removably supported on the first chamber, means in the second chamber for receiving and holding a supply of water and exposing the surface of the water, and means in the second chamber for directing the passage of air around the water holding means, whereby the air, as it passes by the water, will absorb sufficient water to provide a satisfactory degree of humidity.

Preferred forms or embodiments of this invention are illustrated in the accompanying drawings, in which:

Fig. 1 is a plan view of one form of the invention,

Fig. 2 is a longitudinal sectional view taken on the line 2—2 of Fig. 1,

Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 1,

Fig. 4 is a plan view, similar to Fig. 1, of a modified form of construction,

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4, and

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 4.

Referring now to the drawings in detail, in which like numerals refer to like parts throughout—

A standard window screen 1, having the usual sections 2 and 3 slidable upon each other for adjustment to fit in a sash run 4 of a window jam 5, is formed in the usual manner with frames 6 and cloth or wire screens 7. The screen 1 is removably installed in the sash run 4 and resting on the sill 8, with the lower sash 9 resting on the top of the screen frame 6, as best shown in Fig. 3.

In the present invention, the screens 7 are blanked or blocked by means of metal plates 10 and 11, secured in the frames 2 and 3 in any suitable manner, as soldering. The plate 11 is provided with an opening 12, and a casing or chamber 13, having an opening 14, is secured on the plate 11 by any suitable means, such as bolts 15, with the opening 14 registering with the opening 12. The chamber 13 is provided with baffling partitions or divisions 16 and 17 which form a circuitous passage 18 for air entering the chamber 13 through the openings 12 and 14. The top of the chamber 13 is open, at 19, and is provided with an auxiliary flange 20 forming an annular channel 21 for removably receiving legs 22 on the bottom edge 23 of a humidifying casing 24.

The casing 24 is provided at one end with a compartment 25 for receiving and supporting a water bottle 26 in inverted position, as illustrated in Fig. 2. A spacer member 27 in the compartment 25 supports the bottle 26 above the bottom 28. A rectangular water trough 29, channel-shaped in cross-section, is secured at one end to the compartment 25 and supported at the opposite end by lugs 30 on the casing 24. The trough 29 is spaced from the side and end walls of the casing 24 to provide air passages 31, and is open in the center 32 for passage of air. An opening 33

communicates with the compartment 25, thus permitting water from the bottle 26 to enter the trough 29 and maintain a level 34. If desired, a wick 35 may be inserted in the trough 29, as indicated in Figs. 1, 2, and 3. One or more heating units, preferably electric lamps 36, are supported and secured on the partition 17 and wired to a switch 37, which may be connected to any suitable source of electricity by means of a cord 38 and plug 39.

In operation, the heating units 36 induce or create a natural draft which causes fresh air from the exterior to be drawn through the screen 7 and openings 12 and 14, through the passages 18, upwardly by the heating units 36, and through the passages 31 and 32 in the humidifying unit 24. In passing through the humidifying unit 24 and by the water trough 29, the air will pick up sufficient moisture from the trough 29 to provide a desirable degree of humidity in the air entering the room. If a wind should be blowing directly toward the window in which the ventilator is installed, the tortuous passage of the air through the units 13 and 24, and the change of direction of the air from horizontal to vertical, will eliminate any undesirable drafts. The ventilating device may be used, when desired, without the humidifying unit, simply by lifting the unit 29 off of the unit 13.

Figs. 4, 5, and 6 illustrate a modified and simplified form or embodiment of the invention, illustrated in Figs. 1, 2, and 3. A board 40 is substituted for the screen 4, and is locked in place in the sash run 4 by means of locking levers 41 at each end of the board 40. The levers 41 are pivoted at 42, and provided with openings 43 which align, when the lever is in locking position and releasing position, with openings 44 in the board 40. A locking pin 45 serves to secure the lever 41 in the desired position. The board 40 is formed with an opening 46 which is covered by a screen 47, and a pipe elbow 48 is secured on the board in registration with the opening 46 by means of a flange 49 and screws 50. The elbow 48 is provided with a standard damper 51, operated by a thumb piece 52, and, above the damper 51 a bar 53 is secured in the elbow 48 for supporting a heating element 54.

A circular water trough 55, provided with an annular channel 56 for receiving water, is connected by an extension 57 to a compartment 58 for supporting the water bottle 26, and the extension 57 is provided with an opening 59 communicating between the compartment 58 and channel 56. Lugs 60, in the compartment 58, support the bottle 26 in spaced relation to the bottom of the compartment 58 to provide a water level in the channel 56. The trough 55 is supported in and secured to a pipe sleeve 61 which has a slide fit over the top of the elbow 48, as best illustrated in Fig. 6, and the trough 55 is spaced from the wall of the sleeve 61 by cooperation of bosses 62 on the trough 55 and screws 63, thus providing an annular channel 64 for the passage of air between the trough 55 and sleeve 61.

The sleeve 61 is supported independently of the elbow 48 by means of an encircling band 65 having an extending bar 66 terminating in a wedge-shaped tongue 67 which is removably engaged in a bracket 68 secured on the window frame 5.

The operation of the construction illustrated in Figs. 4, 5 and 6 is similar to that described for the construction illustrated in Figs. 1, 2, and 3. A natural draft is induced by the lamp 54, causing air from the exterior of the window to enter the elbow 48 through the screen 47, pass upwardly by the damper 51, which may be adjusted to control the flow of air, then around the lamp 54, thence upwardly through the center of the trough 55 and through the annular passage 64, into the room, absorbing moisture from the trough 55 as it passes upwardly around and through it.

What I claim is:

1. A window ventilator comprising a supporting plate for removable insertion in a window frame and provided with a screened opening, a chamber secured on said supporting plate and having an open top, said chamber being formed with a tortuous air passage communicating with said screened opening and said open top, a second chamber provided with a vertical air passage and removably supported on the top of the first chamber, an open topped container for liquids supported in said second chamber and spaced from the walls of said second chamber, said container being formed with a vertical air passage opening into the air passage of said second chamber at top and bottom, whereby air in passing through said second chamber will pass both through and around said container.

2. A window ventilator comprising a supporting plate for removable and adjustable insertion in a window frame, said plate being provided with a screened opening, a duct secured on said supporting plate and formed with a tortuous passage registering at one end with said screened opening and terminating at the opposite end in a horizontal plane, an open topped water container having a centrally disposed vertical air passage and removably supported on the top of said duct, a housing surrounding said container and spaced therefrom for directing the flow of air around and through said water container.

3. A window ventilator comprising an adjustable supporting plate for insertion in a window frame, said plate being provided with a screened opening, an air duct secured on said supporting plate and arranged to direct a flow of air from said screened opening vertically, a baffle element in said duct, a heating element supported on said baffle element, a housing removably supported on the top of said duct, an open-topped water container secured in said housing and spaced from the side walls of said housing, said container being formed with a relatively large, centrally disposed opening, whereby air may pass through said opening and between said container and the side walls of said housing.

4. A window ventilator comprising a two-part telescoping frame for insertion in a window frame, one of the parts of said frame being provided with a screened opening, an air duct, rectangular in cross section, secured on said frame in registration with said screened opening, staggered baffle partitions in said air duct, a plurality of heating elements supported on one of said baffle partitions, said air duct being L-shaped and open at the top, a rectangular housing, open at top and bottom, removably supported on the top of said air duct, a rectangular water container secured in said housing and spaced from the side walls of said housing, said container being formed with a central vertical air passage communicating at top and bottom with said housing, means for supplying water to said container.

5. A window ventilator comprising a two-part

telescoping frame for insertion in a window frame, one of the parts of said frame being provided with a screened opening, an air duct, rectangular in cross section, secured on said frame in registration with said screened opening, staggered baffle partitions in said air duct, a plurality of heating elements supported on one of said baffle partitions, said air duct being L-shaped and open at the top, a rectangular housing, open at top and bottom, removably supported on the top of said air duct, a rectangular hollow, water container secured in said housing and spaced from the side walls of said housing, means for supplying water to said container comprising a compartment in said housing, a support in said compartment spaced from the bottom of said compartment for supporting an inverted water bottle, said compartment being provided with an opening communicating with said water container.

6. A window ventilator comprising a two-part telescoping frame for insertion in a window frame, one of the parts of said frame being provided with a rectangular screened opening, an L-shaped air duct, rectangular in cross section, secured on said frame in registration with said screened opening, horizontal partitions arranged in said duct in opposed and staggered relation, a plurality of electric lamps secured on one of said partitions, means for connecting said lamps to a source of electric current, said air duct being open at the top, a rectangular housing removably supported on the top of said air duct, a compartment in one end of said housing for supporting an inverted water bottle, a rectangular, hollow, water container formed with side walls which are channel-shaped in cross section, said water container being supported in said housing and spaced from the side walls thereof, whereby air from said duct may pass upwardly through and around the outside of said water container, communicating means between said compartment and said water container.

7. A window ventilator comprising a supporting plate for removable insertion in a window frame, means for locking said plate in the sash runs of said window frame, said plate being provided with a screened opening, a pipe elbow secured on said plate in registration with said screened opening, an adjustable damper in said pipe elbow, a baffle secured across said elbow above said damper, a heating element supported on said baffle, a sleeve member slidably supported over the upper end of said elbow, a ring member formed with an annular channel secured in said sleeve member and spaced from the wall of said sleeve member to form an annular air passage, means for introducing water into the annular channel of said ring member and maintaining a uniform water level in said channel.

8. A window ventilator comprising a supporting plate for removable insertion in a window frame, means for locking said plate in the sash runs of said window frame, said plate being provided with a screened opening, a pipe elbow secured on said plate in registration with said screened opening, an adjustable damper in said pipe elbow, a baffle secured across said elbow above said damper, a heating element supported on said baffle, a sleeve member slidably supported over the upper end of said elbow, means for removably securing and supporting said sleeve member on said window frame, a ring member formed with an annular channel secured in said sleeve member and spaced from the walls of said sleeve member to form an annular air passage, means for introducing water into the annular channel of said ring member and maintaining a uniform water level in said channel.

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