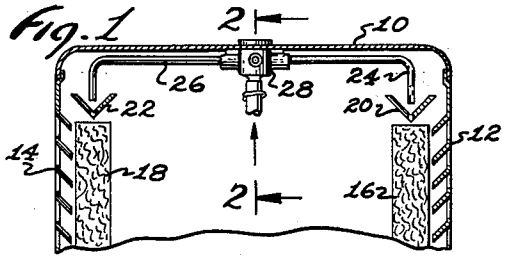
June 29, 1965 G. GOETTL 3,191,915

CHEMICALS DISPENSER FOR EVAPORATIVE COOLERS

Original Filed Oct. 5, 1959

Fig. 1



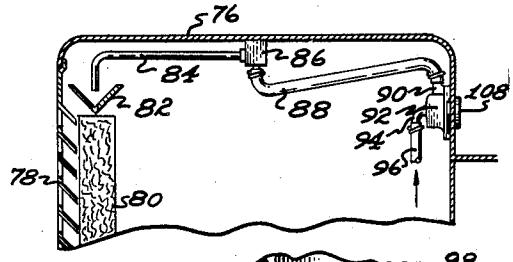


Fig. 4

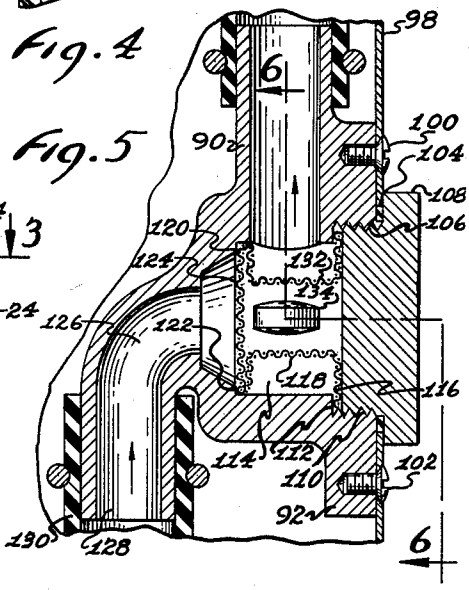


Fig. 2

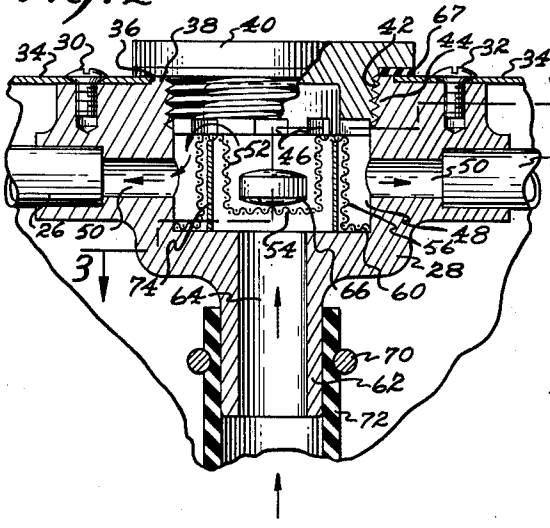


Fig. 5

Fig. 3

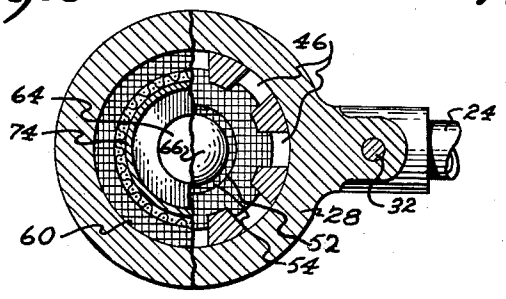
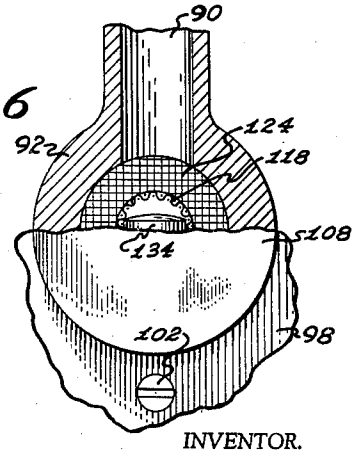


Fig. 6



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CHEMICALS DISPENSER FOR EVAPORATIVE COOLERS

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Continuation of application Ser. No. 844,231, Oct. 5, 1959. This application May 15, 1964, Ser. No. 367,851
3 Claims. (Cl. 261—97)

This application is a continuation of application Serial No. 844,231, filed October 5, 1959.

This invention relates to a chemicals dispenser for evaporative coolers and more particularly to a chemicals dispenser which is disposed in the water supply system which delivers water to the evaporative cooler pads of an evaporative cooler.

Some of the most desirable materials useful for the elements of evaporative cooler pads include various wood excelsiors which have certain natural resins therein and which are not readily receptive to complete wetting by water delivered thereto by the water delivery system of an evaporative cooler. It is also known that the elements of evaporative cooler pads must be completely wet in order to attain optimum cooling operation of an evaporative cooler employing such materials. It has been found that the usual wood excelsior pad requires a considerable length of time to become fully wet. It has also been discovered that detergent material when placed in the water delivery system of evaporative cooler acts upon the resins and other materials of the wood excelsior fibers in the evaporative cooler pads thereby quickly wetting these elements and causing optimum cooling operation in the pads at the earliest possible moment after installation thereof.

The requirements for various chemical additives to water delivered to evaporative cooler pads have been recognized. For example, germicides, fungicides and deodorizers have been employed in the water circulated through evaporator cooler pads in order to sterilize these pads, to inhibit fungus, including other growing organisms, and to deodorize the pads so that air delivered by evaporative cooler is sanitary and pleasant. Additionally, chemical additives in the water circulated through the evaporative cooler pads may be utilized to inhibit deteriorating effects of other chemicals or minerals in water whereby maintenance of the cooler is minimized.

Chemical additives when induced in the water circulating system of the evaporative cooler progressively pass downwardly through the pads and into the sump of the cooler whereupon a recirculating pump again recirculates the water through the pads. Thus, such chemical additives may effectively remain in the evaporative cooler water circulating system for some time.

In the construction of conventional evaporative coolers the pad frames are generally removable so that at least one side of the evaporative cooler may be opened to expose the sump of the cooler. This has been the usual access to the sump and access provided for the addition of various chemicals to the water circulating system of the evaporative cooler. Such removal of the side of the cooler to place chemicals therein is inconvenient, time consuming and generally unsatisfactory.

Accordingly, it is an object of the invention to provide a chemicals dispenser for evaporative coolers which is readily accessible from the outside of the evaporative cooler and which directly places chemicals in the water circulating system of an evaporative cooler so that such chemicals will be delivered directly to the evaporative cooler pads of the cooler.

Another object of the invention is to provide a chemicals dispenser for evaporative coolers which is adapted to employ solid chemicals such as those in pellet form whereby the chemicals may be delivered to the water circulating system at a predetermined rate in accordance with the rate at which the materials dissolve in water passing through the system.

Another object of the invention is to provide a chemicals dispenser for evaporative coolers which comprises a foraminous basket interposed in the water circulating system of an evaporative cooler whereby water flows through the basket and through and around chemicals contained therein during passage of the water to evaporative cooler pads.

Another object of the invention is to provide a chemicals dispenser for evaporative coolers which is useful to dispense chemicals at a controlled rate to the evaporative cooler pads in either coolers equipped with recirculating pumps, or a direct water supply which drains away from the evaporative cooler.

Another object of the invention is to provide a chemicals dispenser for evaporative coolers which serves as a foraminous basket to contain solid chemicals and to serve as a filter for water passing through the circulating system of an evaporative cooler.

Another object of the invention is to provide a chemicals dispenser for evaporative coolers having a screw threaded cap disposed at the outside of the cooler and communicating directly with the interior of the water circulating system of the cooler whereby various chemicals may be deposited or poured into the water circulating system of evaporative coolers.

Further objects and advantages of the invention may be apparent from the following specification, appended claims and accompanying drawings in which:

FIG. 1 is a fragmentary vertical sectional view of the evaporative cooler showing the chemicals dispenser for evaporative coolers of the present invention in connection therewith:

FIG. 2 is an enlarged fragmentary sectional view taken from the line 2—2 of FIG. 1;

FIG. 3 is a fragmentary sectional view taken from the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary sectional view of an evaporative cooler showing a modification of the chemicals dispenser for evaporative coolers in accordance with the present invention;

FIG. 5 is a fragmentary vertical sectional view of the modified form of the invention; and

FIG. 6 is a fragmentary sectional view taken from the line 6—6 of FIG. 5.

As shown in FIG. 1 of the drawings, a conventional evaporative cooler 10 is provided with louvered side walls 12 and 14 adjacent to which evaporative cooler pads 16 and 18 are disposed. Troughs 20 and 22 above the pads 16 and 18 receive water from delivery tubes 24 and 26 which communicate with the water distributor housing 28 of the invention.

This housing 28, as shown in FIG. 2 of the drawings, is secured by screws 30 and 32 to the top 34 of the cooler 10. The top 34 is provided with an opening 36 through which an annular portion 38 of the housing 28 extends. A cap 40 is disposed externally of the top 34 of the cooler and is provided with an externally screw threaded portion 42 which is screw threadably connected in an internally screw threaded bore 44 of the housing 28. The lower annular edge of the cap 40 is provided with passage notches 46 which extend radially therethrough, as will be hereinafter described in detail. Communicating with the internally screw threaded bore 44 is a coaxial bore 48 having radially directed passages 50 communicating therewith. These passages 50 are arranged to deliver water to the delivery tubes 24 and 26. Disposed in the bore 48 is a screen 52 which is provided with a central cup shaped portion 54 having a side wall

with its upper annular portion adjacent to the lower annular portion of the cap 40 and its radial passages 46. Integral with and surrounding the cup shaped portion 54 and screen 52 is an annular screen wall 56 which is spaced from the side wall of the bore 48 and the passages 50. It will be seen that the radial passages 46 in the lower annular edge of the cap 40 intercommunicate with the interior of the cup 54 and the outside of the annular wall 56 so that water may flow over the upper edge of the cup portion 54 through the radial passage 46 and into an annulus between the bore 48 and the annular wall 56 of the screen 52. Integral with the annular wall 56 is a flange 60 of the screen which rests internally of the housing 28 at the end of the bore 48.

The housing is provided with a conduit portion 62 which is concentric with the bore 48 and which is provided with a passage 64 considerably smaller in diameter than the bore 48. This passage 64 communicates directly with the cup shaped portion 52 of the screen wherein a pellet of chemical material 66 may be disposed in the path of water flowing into the bore 48 via the passage 64.

Water under pressure in the bore 48 is prevented from leaking outwardly around the threaded bore 44 by means of a gasket 67 which is interposed between the flange of the cap 40 and the end of the annular portion 38 of the housing 28.

Connected to the conduit portion 62 by means of a clamp element 70 is a flexible water conduit 72 which communicates with a recirculating pump or a fluid pressure supply, as desired.

Disposed between the cup shade screen portion 52 and the annular wall 56 is an annular imperforate sheet metal wall 74 which may optionally be used as follows. When the annular wall 74 is in the position as shown in FIG. 2 of the drawings, it forces water to pass upwardly through the foraminous cup shaped screen 52 and through the radial passages 46 to the annulus between the annular screen 56 and the bore 48 in the housing 28. In this manner a high rate of dissolving action may be accomplished relative to the pellet 66 as the water passes through the housing 28.

When the imperforate annular wall 74 is removed, water may concurrently pass through the cup shaped screen 52 and the annular screen wall 56 directly to the passages 50 whereby the pellet 66 is dissolved at a relatively low rate.

In operation water passing into the housing 28 via the passage 64 dissolves the chemical pellet 66 and carries the dissolved chemicals into the passages 50 and through the water delivery tubes 24, and 26, to the evaporative cooler pads 18. The pellets 66 may contain a detergent material designed to wet the materials of the pads, or may contain any suitable germicidal chemical or the pellet may contain a fungicide, or it may contain a deodorizing agent. In addition, this chemical pellet may contain corrosion inhibiting material designed to prevent corrosion of the various parts of the evaporative cooler in areas where water contains corrosive elements.

As shown in FIG. 2 of the drawings, it will be seen that the cup 40 may be screw threadably removed from the housing 28 and that the pellets 66 may readily be inserted or dropped into the cup shaped foraminous screen 52. Additionally, this cup 40 provides access to the water circulating system so that liquid chemicals may also be poured thereinto, if desired. In some instances it may be desired initially to obtain rapid chemical action by pouring liquid chemicals into the housing 22 whereupon a pellet deposited in the cup shaped screen 52 may continue to provide chemical additives to the water circulated throughout the system of the evaporative cooler.

When new pads are installed in an evaporative cooler the pellet 66 may contain a detergent material which tends to fully wet all of the fibrous material and/or excelsior of the evaporative cooler pads so that optimum cooling function of the evaporative cooler may be obtained at the earliest possible moment.

As shown in FIG. 4 an evaporative cooler 76 is provided with a conventional louver side wall 78 and a conventional evaporative cooler pad 80 adjacent thereto. This pad is fed water by a trough 82 thereabove which receives the water from a delivery tube 84 communicating with a conventional distributor housing 86 which receives water via a tube 88. This tube 88 communicates with the outlet 90 of a chemicals dispenser housing 92 having an inlet 94 coupled to a conduit 96 which receives water under pressure.

As shown in FIG. 5, the housing 92 is secured to the side wall 98 of the evaporative cooler by means of screws 100 and 102.

The side wall 98 is provided with an annular opening 104 through which an externally screw threaded portion 105 of a cap 108 extends. This annular screw threaded portion 106 is screw threadably engaged in an internally screw threaded bore 110 of the housing 92. Adjacent this screw threaded bore 110 is an annular ledge 112 disposed between the screw threaded bore 110 and a reduced diameter bore 114 concentric therewith. Disposed on the ledge 112 is an annular flange 116 of a substantially cylindrical foraminous container 118. This container is preferably made of wire screen and the flange 116 is clamped between the cap 108 and the ledge 112. At the opposite end of the cylindrical screen 118 from its flange 116 it is provided with a folded annular flange 120 which has its periphery engaged with an annular ledge 122 in the housing 92. The folded flange 120 is provided with an integral disc shaped screen portion 124 which provides an inlet screen communicating with a passage 126 in an inlet conduit 128 coupled to a flexible conduit 130 which communicates with a supply of fluid under pressure. The cylindrical screen 118 is provided with a cylindrical annular wall 132 which is considerably smaller in diameter than the bore 114, thereby providing an annulus between the cylindrical screen portion 132 and bore 114.

Communicating with this annulus is the fluid outlet 90 of the housing 92.

In operation water flows into the housing 92 via the conduit 128 and passes through the cylindrical screen portion 124. Part of the water is permitted to pass through the folded flange 120 which consists of two layers of foraminous material which is preferably screen wire. Water also flows directly through a single wall centrally of the foraminous disc 124 and inwardly around a chemical pellet 134 disposed in the cylindrical screen portion 118. Water which flows around the pellet 134 via the foraminous disc shaped portion 124 outwardly through the annular wall 132 and into the passage 90. Thus, water which finally arrives in the passage 90 must flow through two layers of foraminous screen.

The disc portion 124 acts as a filter and also as one side wall for the pellet container which holds the chemical pellet 134. This pellet 134 as hereinbefore described may be of a great variety of materials and is readily inserted into the chemicals dispenser of the present invention by removing the cap 108 and placing the pellet 134 directly in the cylindrical portion 132 of the cylindrical screen 118.

It will be apparent to those skilled in the art that various modifications of the present invention may be resorted to in a manner limited only by a just interpretation of the following claims.

I claim:

1. In a chemicals dispenser for evaporative cooler pads the combination of: an evaporative cooler housing; evaporative cooler pads within said evaporative cooler housing and supported thereby; conduit means inside said evaporative cooler housing and disposed to deliver water to said evaporative cooler pads; a hollow second housing forming a part of said conduit means and having a filler opening in one side wall thereof; said second housing connected to said evaporative cooler housing; removable closure means extending through a side wall of said evaporative cooler housing and into said filler opening to close

the same; said removable closure means disposed at the outside of said evaporative cooler housing, whereby access from the outside of said evaporative cooler housing may be had to the interior of said hollow second housing for depositing chemicals therein to mix with water passing through said conduit means.

2. In a chemicals dispenser for evaporative cooler pads the combination of: an evaporative cooler housing; evaporative cooler pads within said evaporative cooler housing and supported thereby; conduit means inside said evaporative cooler housing and disposed to deliver water to said evaporative cooler pads; a hollow second housing forming a part of said conduit means and having a filler opening in one side wall thereof; said second housing connected to said evaporative cooler housing; removable closure means extending through a side wall of said evaporative cooler housing and into said filler opening to close the same; said removable closure means disposed at the outside of said evaporative cooler housing whereby access from the outside of said evaporative cooler housing may be had to the interior of said hollow second housing for depositing chemicals therein to mix with water passing through said conduit means; and a container in said second housing disposed to contain said chemicals, said container being foraminous and permitting water to flow therethrough on its way to said evaporative cooler pads whereby pelletized chemicals may be held in said foraminous container and gradually dissolved by water passing therethrough.

3. In a chemicals dispenser for evaporative coolers the combination of: an evaporative cooler housing; evaporative cooler pads supported therein; a dispenser housing within said evaporative cooler housing and connected thereto, said dispenser housing having a cavity therein; a foraminous container in said cavity adapted to hold a chemical pellet therein; said dispenser housing having water inlet passage means communicating with said foraminous container; an outlet passage means for said dispenser housing communicating said foraminous container

with said evaporative cooler pads; said foraminous container comprising a centrally disposed foraminous cup having a side wall; an annular foraminous wall surrounding said foraminous cup and substantially parallel to the side wall of said foraminous cup, said side wall of said foraminous cup and said annular foraminous wall connected to one another at the upper portion of said annular foraminous wall and the upper portion of said side wall; an annular imperforate baffle member surrounding said foraminous cup, and disposed between said outlet passage means and said foraminous cup, and disposed between said side wall of said foraminous cup and said annular foraminous wall; means removably supporting said annular imperforate baffle member in said housing; said annular imperforate baffle member supporting said foraminous container; said dispenser housing and said evaporative cooler housing having a common opening; removable closure means in said opening to allow access to said foraminous container and said removable imperforate baffle member.

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