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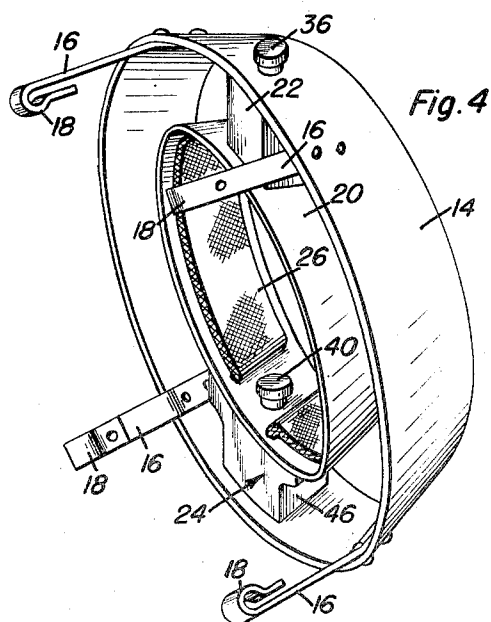
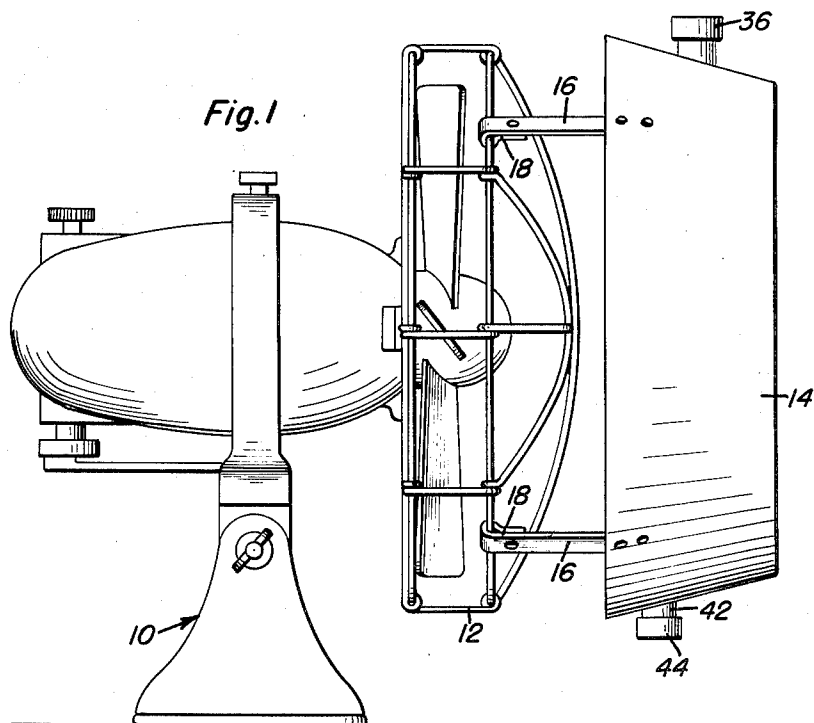
E. K. FROST

2,653,017

COOLING ATTACHMENT FOR FANS

Filed Nov. 7, 1950

2 Sheets-Sheet 1



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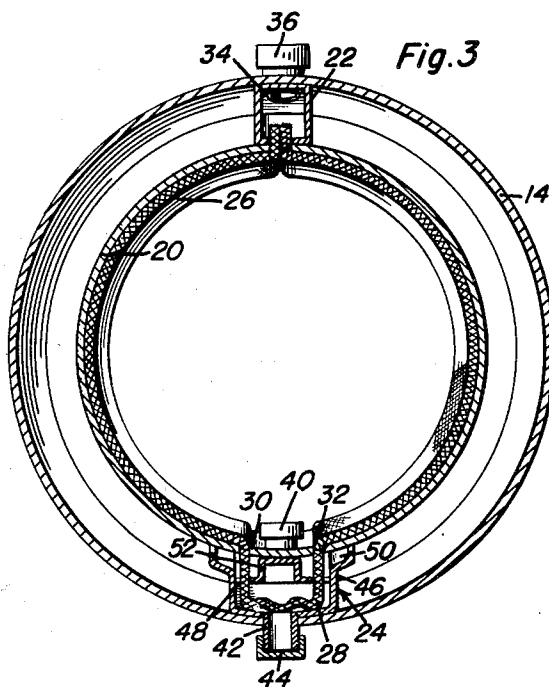
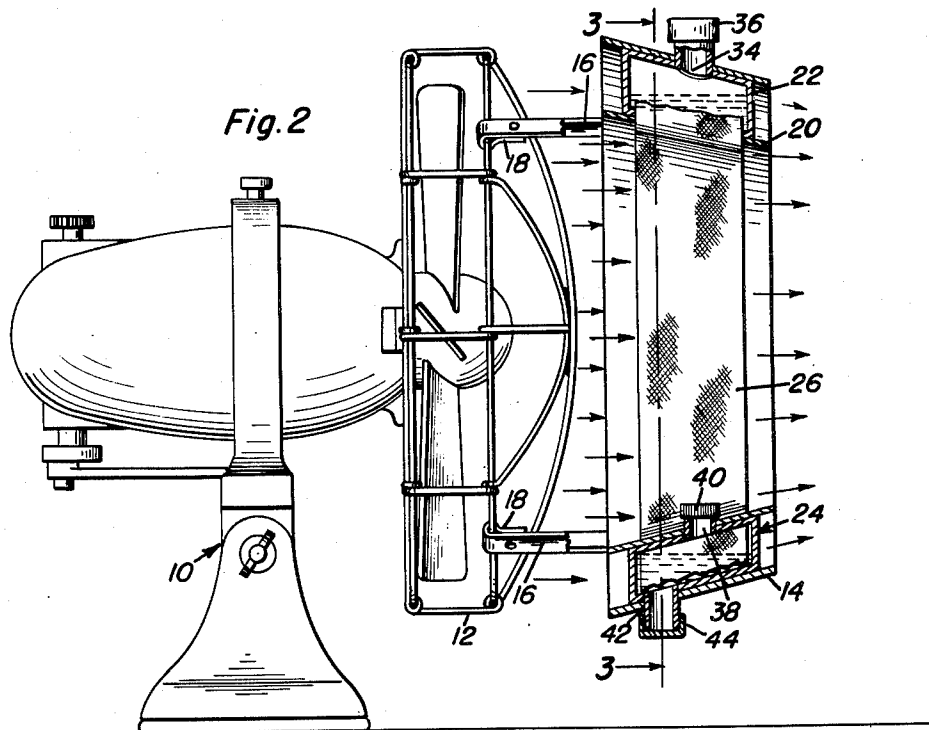
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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COOLING ATTACHMENT FOR FANS

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6 Claims. (Cl. 261-72)

1

This invention relates to improvements in evaporative coolers.

An object of this invention is to provide an attachment for a standard electric fan which is capable of easily and conveniently attaching thereto and which is characterized by an improved structural assembly involving a wick mounted on a drum, which drum is held suspended in a mounting collar and improved means of supplying the wick with moisture.

Ancillary objects and features of importance will become apparent in following the description of the illustrated form of the invention.

In the drawings:

Figure 1 is an elevational view of the device;

Figure 2 is an elevational view of the device, portions broken away in section to illustrate internal detail;

Figure 3 is a sectional view taken substantially on the line 3-3 of Figure 2 and in the direction of the arrows; and

Figure 4 is a perspective view of the attachments separated from the standard fan illustrated in Figures 1 and 2.

In carrying out this invention there is illustrated by way of environment only one type of standard electric fan generally indicated at 10. This fan is of the oscillating type; however it is quite apparent that a fan of the fixed type may be substituted. The fan 10 is provided with a blade guard 12 to which the attachment is connected.

As shown in Figure 4 there is a collar 14 shaped as a frustum of a cone, the collar having a number of straps 16 extending therefrom. Each of the straps is provided with a loop 18 at its outer end, this loop being apertured to accommodate a rivet, screw or the like. Inspection of Figures 1 and 2 show that the loops are adapted to engage one of the wire members of the guard 12 to thereby hold the collar 14 suspended.

A drum 20 is mounted concentrically in the collar 14 and this drum is preferably in the shape of a frustum of a cone.

A liquid container 22 is fixed, as by soldering or spot welding, to the upper outer surface of the drum 20 and to the upper inner surface of the collar 14. There is a container 24 disposed between the lower part of the collar 14 and drum 20, being suitably attached to each. The containers 22 and 24, collar 14 and straps 16 constitute a means of supporting drum 20 so that it is in the line or path of air flow from the fan blade. The frusto-conical shape of the drum 20 enhances the evaporative cooling by presenting

2

a rather large area of the wick 26 to the air-flow. This wick is suitably attached, as by gluing to the inside surface of the drum 20 and has its ends passed through aligned openings in the bottom wall of the container 22 and in the drum 20. The wick 26 is looped as at 28 intermediate its ends and the loop passes through spaced slots 30 and 32 in the drum 20 for disposition in the container 24. Accordingly liquid which is placed in the container 22 through the opening 34 which is filled by the plug 36, wets the ends of the wick 26. The wick is also wet intermediate its ends inasmuch as the loop 28 is disposed in the liquid container 24 which is adapted to be filled through the inlet 38 which is releasably closed by the cap 40. In order to drain the container 24, a drain outlet sleeve 42 is connected to the lower wall of the container 24 and has a drain cap 44 removably disposed thereon.

The container 24 is provided with side walls 46 and 48, the upper edges of which are spaced slightly from the outer surface of the drum 20 so that moisture which condenses on the outer surface of the drum and be collected in the tray 50 which is formed by spreading the upper end portions of the walls 46 and 48 outwardly. Therefore, the receptacle or container 24 serves three purposes. The first is to assist in holding the collar 14 and drum 20 assembled through the action of the support 52 in the container. The second is to act as a condensation collector and the third is to provide a reservoir for liquid so as to wet the wick. In operation the attachment is connected to the fan either permanently or removably. After the containers 22 and 24 have been supplied with liquid the wick 26 becomes damp, whereby the air blast from the fan causes the device to function as an evaporative cooler. Condensation which collects on the outer surface of the drum 20 will be received in the tray 50 which forms a part of the receptacle 24.

Due to the frusto-conical shape of the drum 20 a large area of wick is presented to the air blast for increased evaporation and hence increased cooling.

Having described the invention, what is claimed as new is:

1. An evaporative cooler attachment for a standard fan having a fan blade guard, said cooler comprising a substantially frusto-conical collar and drum concentrically spaced from one another, means disposed between said collar

3

and said drum for storing a supply of liquid and for holding said drum in a fixed spaced relationship with respect to said collar, a wick disposed on the inner surface of said drum and having a portion arranged in communication with said liquid storing means, said liquid storing means including a receptacle having side walls, the upper edges of said side walls being spaced from said drum to thereby provide passage ways for liquid condensate on the outer surface of said drum, and said container being located between opposed lower portions of said drum and said collar.

2. The combination of claim 1 and said drum holding means also including a second liquid container, said drum having an opening therein, and said wick having ends passed through said opening and in communication with the interior of said second container.

3. A cooling attachment for a fan having a fan guard, comprising a pair of concentrically spaced outer and inner rims, means interconnecting said rims and maintaining them in spaced relation to one another, said means comprising a plurality of liquid containers, one of said rims having slots therein communicating with said containers, and at least one wick following the configuration of said one of said rims and having its ends extending into one of said containers through said slots, and fingers spaced around one of the rims and projecting rearwardly therefrom for securing the attachment to the fan guard.

4. An evaporative cooling attachment for a fan having a fan guard comprising a pair of concentrically spaced outer and inner annular rims, a plurality of circumferentially spaced liquid containers disposed between said rims and securing the same in spaced relation to one another, the inner rim having slots therein opening into said containers, at least one wick disposed on and following the configuration of said inner rim, the ends of said wick extending through said slots into one of said containers, circumferentially spaced fingers mounted on one of said rims and projecting rearwardly therefrom for securing the attachment to the fan guard.

5. An evaporative cooling attachment for a fan having a fan guard comprising a pair of con-

4

centrically spaced outer and inner annular rims, a plurality of circumferentially spaced liquid containers disposed between said rims and securing the same in spaced relation to one another, the inner rim having slots therein opening into said containers, at least one wick disposed on and following the configuration of said inner rim, the ends of said wick extending through said slots into one of said containers, circumferentially spaced fingers mounted on one of said rims and projecting rearwardly therefrom for securing the attachment to the fan guard, said rims being frusto-conical in shape and converging forwardly from the fan guard.

6. An evaporative cooling attachment for a fan having a fan guard, including a pair of concentrically spaced outer and inner annular rims, a pair of diametrically opposed liquid receptacles disposed between said rims and maintaining the same in concentrically spaced relation, said receptacles and said inner rim having aligned openings therein, a wick member lying against the inner surface of said inner rim and having its ends projecting through one set of said aligned openings into one of said receptacles and having its central portion projecting through other aligned openings into the other of said receptacles, and circumferentially spaced fingers projecting from one edge of said outer rim for securing the attachment to a fan guard.

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References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
587,371	Miranda	Aug. 3, 1897
1,007,026	Forbes et al.	Oct. 24, 1911
1,134,495	Walker	Apr. 6, 1915
1,434,368	Chaufouraux	Nov. 7, 1922
1,464,401	Bennett	Aug. 7, 1923
1,982,465	Crafton	Nov. 27, 1934
2,396,741	McCombs	Mar. 19, 1946

FOREIGN PATENTS

Number	Country	Date
18,332	Great Britain	Aug. 12, 1913
98,048	Switzerland	Mar. 1, 1923