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2,562,589

PORTABLE AIR COOLER

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FIG. 1.

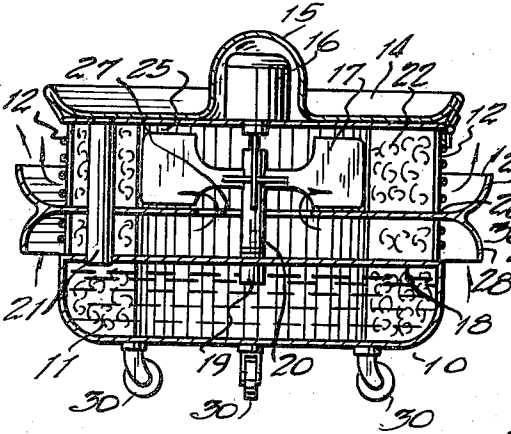


FIG. 3.

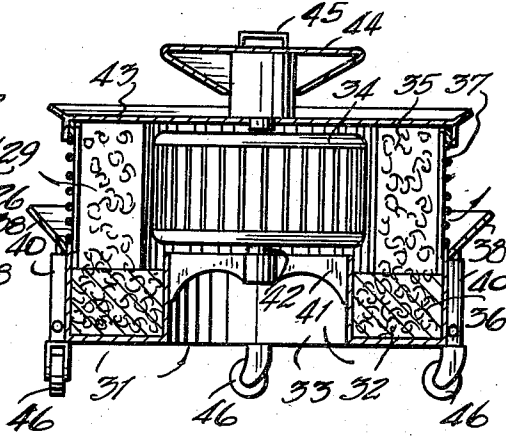


FIG. 2.

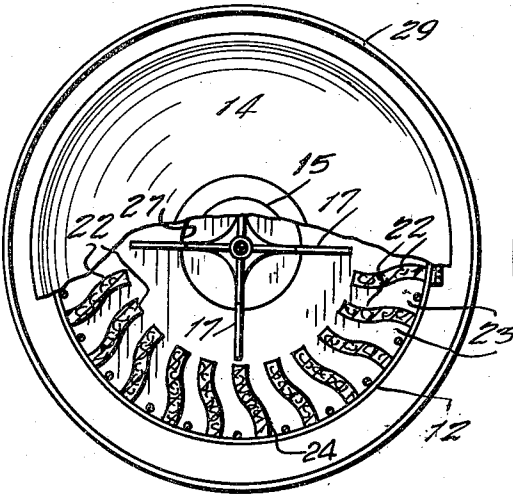


FIG. 4.

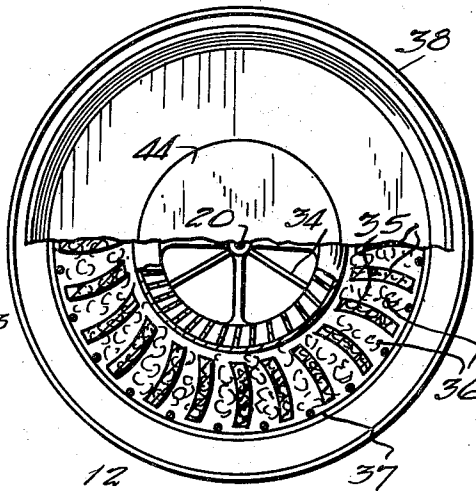
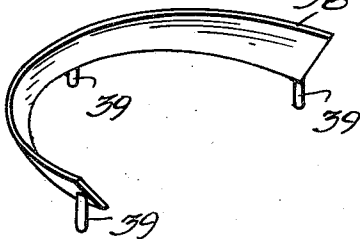


FIG. 5.



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PORTABLE AIR COOLER

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3 Claims. (Cl. 261—30)

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This invention relates to air cooling and conditioning devices, and it has particular reference to portable apparatus especially adapted for use in offices, residences, and the like, and its principal object resides in the provision of a compact and attractive assembly in which is embodied a fan for impelling air therethrough which is circulated over the surfaces of moisture-laden fins or pads, portions of which project into a water reservoir carried by the assembly, so that moisture is raised by capillary attraction into the path of air circulating through the device.

A further object of the invention is that of providing a light structure arranged on casters rendering the assembly capable of being readily ported from one location to another and conveniently arranged about a room to insure the most effective circulation of air and provide the maximum of efficiency in directing air currents about the enclosure in which the device is employed.

Broadly, the invention contemplates the provision of an economical air conditioning and cooling device which, by reason of its unique design and construction, cleanses as well as cools the atmosphere so that clean fresh air may be provided at all times and at a minimum of cost.

While the foregoing objects are paramount, other and lesser objects will become manifest as the description proceeds, taken in connection with the appended drawings wherein:

Figure 1 is a transverse cross-sectional view of one form of the invention showing the portable housing in which is installed a fan and reservoir, and illustrating the unique arrangement of baffles surrounding the housing.

Figure 2 is a plan view of the device illustrated in Figure 1, showing a portion of the top cut away to illustrate the fan and the arrangement of radially disposed absorption pads.

Figure 3 is a transverse cross-sectional view of another form of the invention, showing a squirrel-cage type of fan and illustrating an annular reservoir in the lower portion of the housing, and depicting another form of annular baffle.

Figure 4 is a plan view of the device shown in Figure 3, illustrating a portion of the top removed to show the arrangement of the fan and the radial arrangement of absorbent pads, and

Figure 5 is a perspective view of one section of the baffle employed in the device shown in Figure 3.

Accordingly, the invention, as illustrated in Figure 1, comprises a housing 10 having a reser-

voir 11 formed in its lower portion and a grilled section 12 supported above the reservoir 11 and upon which is arranged the top 13. A flanged cover 14 is disposed upon the top 13 and has a central dome structure 15 which serves as a cover for the motor 16 of the fan 17. The cover provides an attractive finish for the assembly and may be utilized, if desired, for supporting objects of bric-a-brac, potted plants, or the like, to enhance the appearance of the device. The reservoir 11 has a cover 18 which supports the lower bearing 19 for the fan shaft 20. A filler pipe 21 is provided by which water is deposited in the reservoir 11 after removing the cover 14 which serves as a closure for the filler tube 21.

A radial arrangement of pads or fins 22 is arranged about and within the housing 10, as apparent in Figures 1 and 2, and these are spaced apart providing air channels 23 therebetween so that air, circulated by the fan 17, passes out between the members 22 and through the grilled enclosure of the upper section 12 of the housing, as indicated by the arrows in Figure 1. The pads 22 are preferably of a cellulose material, having a characteristic highly capable of raising moisture from the reservoir 11 by capillary attraction. The members 22 are vertically arranged and extend downwardly into the reservoir 11 through slots 24 preferably curved, as shown in Figure 2, to provide serpentine channels 23 whereby air circulated therethrough will contact the maximum surfaces of the member 22.

It will be noted that the arrangement of fins 22 is circular and surrounds the fan 17 which operates in a cylindrical chamber 25. An annular baffle plate 26 is arranged in the upper section 12 of the housing 10 and has a circular opening 27 centrally thereof surrounding the fan shaft 20. The baffle plate 26 has a pair of oppositely arranged curved baffles 28 and 29 which direct the air upwardly into the housing 10 thence through the central opening 27 in the plate 26 and outwardly and upwardly around the section 12 of the housing in the manner illustrated by the arrows in Figure 1. It is apparent, therefore, that all air drawn through the assembly must pass over and around the pads 22 as it enters the housing 10, as well as in passing therefrom, and in such passage much of the impurities of the air are picked up by the pads 22 while the air is cooled by the moisture contained in the latter members.

The device is rendered capable of ready portability by an arrangement of casters 30 secured to the bottom of the housing 10 and may be

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moved about the premises in any desirable manner, changing the location of the assembly according to its required usefulness.

In Figure 3 is illustrated a modified form of the invention in which a circular housing 31 is provided, the lower portion of which defines an annular reservoir 32 in which a circular opening 33 is formed through which air can enter the housing under the influence of the squirrel-cage type of fan 34 arranged therein and thence outwardly between a series of spaced pads 35, similar to the pads 22 shown in Figures 1 and 2, but which are formed integrally with an annular pad 36 of the same material arranged in the annular reservoir 32. The upper section 37 of the housing 31 has a grilled enclosure surrounding the pads 35 and at the bottom of the grilled section 37 is a removable baffle 38 which flares outwardly and upwardly to direct the air circulated through the assembly upwardly as it flows from the housing 37 under the influence of the fan 34, as indicated by the arrows.

The baffle 38 is preferably arranged in two sections, one of which is shown in perspective in Figure 5, and each section has a plurality of dowels 39 extending from its lower edge which are projected into sockets 40 arranged about the lower section of the housing 31 so that the baffle can be removed when desired. A bearing support 41 is arranged within the circular chamber 33 to support the lower end of the fan shaft 42. The cover 43 of the housing 31 is removable as well as the motor cover 44 arranged thereabove which has a convenient handle 45. A plurality of casters 46 are provided for convenient portability.

Manifestly, the construction herein shown and described is capable of considerable modification, from time to time, by persons skilled in the art without departing from the spirit and intent of the invention or the scope of the appended claims.

What is claimed is:

1. In a portable air cooling device having casters adapting the same to be moved about, in combination with a cylindrical housing having a circular base portion forming a water reservoir, a circular grilled section above said base portion having an annular horizontal baffle plate therein defining an air inlet chamber below and an air outlet chamber above, a series of wicks arranged vertically about said chambers through said baffle plate and spaced horizontally providing a series of radial air channels therebetween in both chambers, a cover for said reservoir isolating said chambers from said reservoir and having a series of conforming openings therein to receive said wicks and support their lower ends in said reservoir, and a circulating fan in said outlet chamber for conducting air through said air channels into said inlet chamber and through said hous-

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ing through said annular baffle into said outlet chamber and the air channels therearound.

2. In a portable device for cooling air, in combination with a cylindrical housing having a base portion defining a water reservoir and a plurality of casters on said base movably supporting said housing, a grilled circular chamber arranged above said reservoir and separated therefrom by a horizontal partition, a series of radially disposed wicks arranged vertically about said chamber, the said wicks being horizontally spaced to define vertical air channels around said chamber and having their lower ends extending through the said partition into said reservoir whereby to raise water therefrom by capillary attraction, an annular baffle plate in said chamber separating the upper and lower portions thereof and having a central opening, a fan operatively arranged in said grilled chamber above said baffle plate and adapted to conduct air into said lower portion and through said upper chamber and said channels, and means arranged about said baffle plate exteriorly of said grilled chamber for deflecting air into and out of said chamber under the influence of said fan.

3. In a portable air cooling device, in combination with a cylindrical housing having a water reservoir formed in its base portion, a grilled section above said reservoir having a horizontal partition separating the same from the latter, a baffle plate having a central opening therein dividing said grilled section into upper and lower portions, a series of wicks arranged vertically through said baffle plate about and within said grilled section and spaced horizontally providing vertical air passages in said upper and lower portions, the lower ends of said wicks extending into said reservoir and absorbing moisture therefrom by capillary attraction, a circulating fan operating within said upper portion of said grilled section, and means embracing said grilled section and forming part of said baffle plate for directing air into said lower portion through said vertical passages and said central opening in said baffle plate into said upper portion, and out of said upper portion under the influence of said fan.

WILLIAM A. UTTZ.

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