

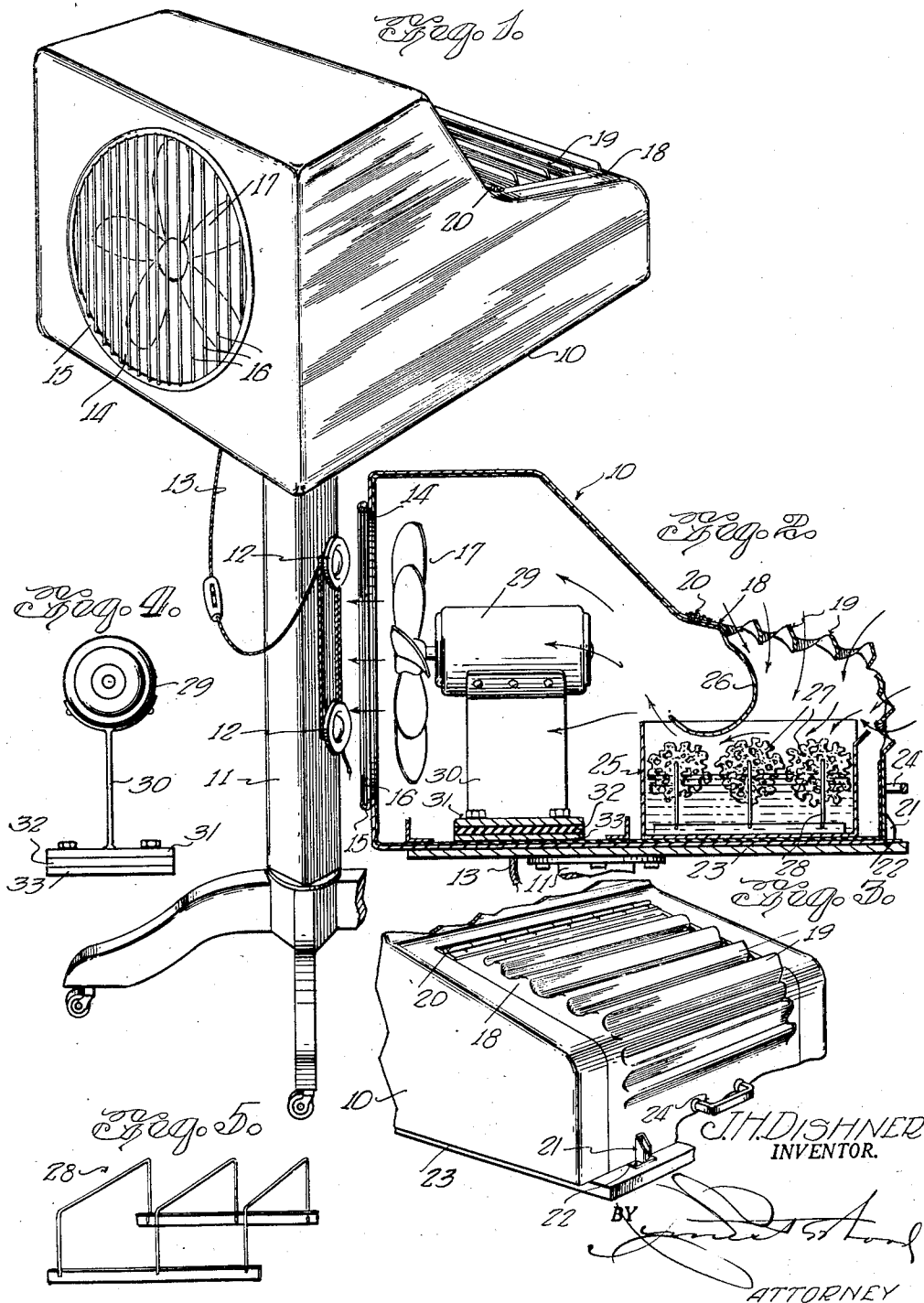
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EVAPORATIVE COOLING UNIT

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EVAPORATIVE COOLING UNIT

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1 Claim. (Cl. 261-99)

This invention relates to air conditioning machines and equipment and it has particular reference to evaporative cooling units.

The principal object of the invention is to provide an air washing and cooling unit of the evaporative type, using as a capillary medium, common sponges suspended in a water reservoir. However, chief among the important characteristics of the invention is a novel form of cabinet whose peculiar construction produces a Venturi effect at the inlet, restricting the inflowing air to the exposed, moistened areas of the sponges and, although there is a modifying effect on the velocity of discharge, more complete evaporation obtains which consequently produces a more satisfactory cooling effect without the discomfort of a high velocity air stream.

Another object of the invention is to provide a cabinet constructed as set forth, whose interior wall surfaces are covered or coated with a substance known to possess sound insulating qualities and which minimizes vibration and noises originating within the cabinet.

Another object of the invention is to provide a cabinet of pleasing external appearance and a unit as a whole which is inexpensive, economical to operate and requires little attention in operation and maintenance.

With the foregoing objects as paramount, the invention has further reference to certain features of accomplishment which will become apparent as the description proceeds, taken in connection with the accompanying drawing wherein:

Figure 1 is a perspective view of an evaporative cooling unit constructed according to the present invention.

Figure 2 is a vertical sectional view along the longitudinal axis of the cabinet.

Figure 3 is a detail perspective view of a rack for supporting the sponges or other capillary medium.

Figure 4 is a front elevational view of the fan motor and mounting, per se, and

Figure 5 is a fragmentary detail view of the louvered rear portion of the cabinet.

Continuing with a more detailed description of the drawing, reference is primarily made to Figure 1 in which numeral 10 denotes a cabinet, which, although shown as being mounted upon a caster supported pedestal 11, may obviously be mounted in any manner most suited to the conditions under which it is intended to operate. The pedestal affords a convenient mounting inasmuch as it can be quickly and easily moved

in relation to windows where it is desired to dispose the unit so that outside air will be drawn into a room. Moreover, the pedestal is provided with a pair of relatively spaced knobs 12, about which is wound the service cord 13 to the fan motor during inoperative periods of the machine or when a surplus length thereof is to be placed out of the way.

The particular design of the cabinet 10 is the effective medium by which is brought about the results desired. Primarily, the front of the cabinet is square or rectangular and has an air discharge opening 14 therein. A rim or ring 15 of plastic or other suitable material embraces the edge of this opening and serves as an anchorage for the ends of a plurality of relatively spaced and parallel rods 16 which overlie the opening and serve as a guard for the fan 17 disposed immediately behind the opening.

The cabinet is so designed that the forepart is of greater cubic content than the rear portion thereof which latter is defined by the sloping formation of the top of the cabinet from a point spaced from the front thereof to the back of the cabinet. The degree of inclination of the cabinet top is modified at a point approximately midway between the high and low points and a cover 18, having louvers 19 is hinged at 20 along the break in the inclined plane of the top. The hinged cover 18 is turned downwardly at the rear and is provided with spring latches 21, interlockable with projections 22, mounted on the extended end of the base 23 of the cabinet. A handle 24 is afforded for raising and lowering the cover 18.

It will be particularly noted especially in Figure 2 that the angular positions of the louvers 19 are such as to direct air drawn therethrough towards the center of the rear compartment of the cabinet, in which is disposed a receptacle 25, containing water. To further insure that the air thus entering the cabinet is constrained to move across the surface of the water in the receptacle 25, a curved baffle 26 is affixed along one edge to the undersurface of the cover 18 in the vicinity of the hinge thereof and extends entirely across the compartment. As the air impinges this baffle it is forced downwardly towards the surface of the water and is drawn under the baffle 26 in its course through the cabinet. In this manner more intimate contact with moisture laden sponges 27 is effected, hence more satisfactory cooling of the air is brought about without undue entrainment of moisture.

The sponges 27 are suspended by means of a

wire frame 28, shown in detail in Figure 5 and portions thereof are permitted to extend above the level of water in the receptacle 25. The frame 28 is removable from the receptacle 25 and the latter, in turn, is removable from the cabinet 10 for replenishing the water supply or for replacing or cleaning the sponges 27 of foreign matter collected from the air stream passing through the cabinet.

The fan 17 is operated by a motor 29, supported upon a standard consisting of a metal plate 30 disposed perpendicularly to a base plate 31. The plate 30 has a limited degree of resiliency to dissipate vibration of the motor in operation and as a means to further reduce vibration and resulting noise, a mat 32 of rubber or like material is interposed between the base plate 31 and a supporting block 33, resting on the floor of the cabinet.

It is evident from the foregoing that during operative periods of the motor 17, irrespective of the speed thereof, air constrained thereby to enter the cabinet 10 through the louvered cover 18 will do so at high velocity by virtue of the Venturi effect created by the reduced rear portion of the cabinet, but will emerge at the front thereof with considerably less velocity. This is highly desirable in an air cooling unit of the evaporator type and the comparatively large discharge opening permits the pre-cooled air discharged from the cabinet to expand in the room or enclosure in which the machine is operating at a moderate rate to avoid too rapid increase in temperature as would be the case if discharged

at high velocity. Moreover, restrictions at the intake compelling the air towards the water and into close contact with the absorptive elements 27, result in the removal from the air entrained dust particles and foreign matter before it is expelled into the room.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed to fall within the scope and meaning of the appended claim is also considered to be within the spirit and intent of the invention.

What is claimed is:

In an evaporative cooling unit, the combination comprising an interiorly insulated and portable cabinet having a top portion provided with a downwardly and rearwardly sloping area originating at a point spaced from the front thereof, a fan in the front portion of said cabinet, a hinged cover for the rear portion of said cabinet having parallel slots defined by deflectors arranged at a variety of relative angles for directing separate streams of air towards the center of said rear portion, a grilled opening in the front of said cabinet, a liquid reservoir removably disposed in said rear portion, capillary means in said reservoir for elevating water into the influence of air passing through said parallel slots and a curved baffle for constraining air entering through said slots to flow in intimate contact with said capillary means in its course through said cabinet.

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