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(54) **EVAPORATIVE COOLER APPARATUS WITH
A MEDIA PAD COOLER PAD FOR
EFFICIENT HEAT EXCHANGE COOLING**

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(57) **ABSTRACT**

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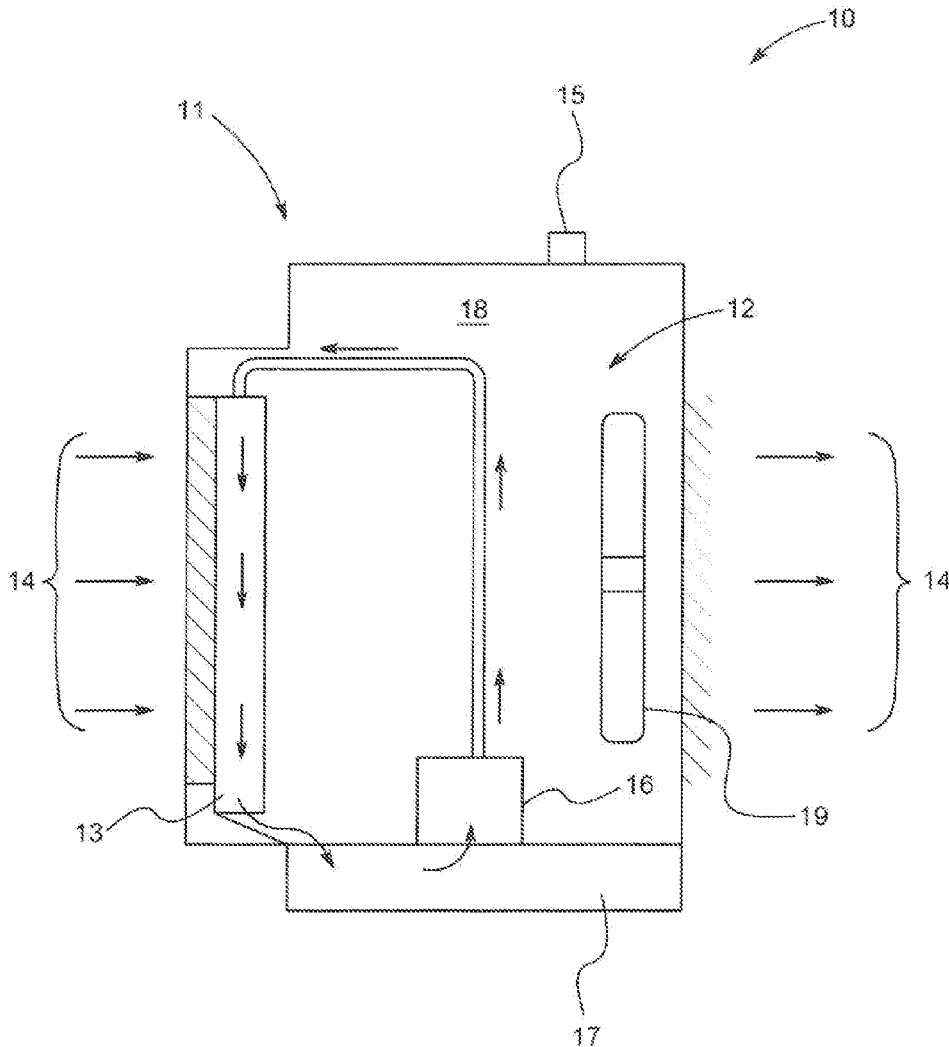
An evaporative cooler apparatus includes a vented housing, a wet air cooler mechanism contained in the vented housing, and at least one cooler pad of media pad material disposed in the vented housing across a path of air inflow into the vented housing to the wet air cooler mechanism and from and back to an environment of an adjacent venue surrounding the vented housing. The media pad material of the cooler pad has a structure that enables expanded heat exchange interactivity at an interface of water flow within, and air inflow through, the cooler pad. Also, a thermostat is mounted on the vented housing and connected to the wet air cooler mechanism to control operation of the wet air cooler mechanism.

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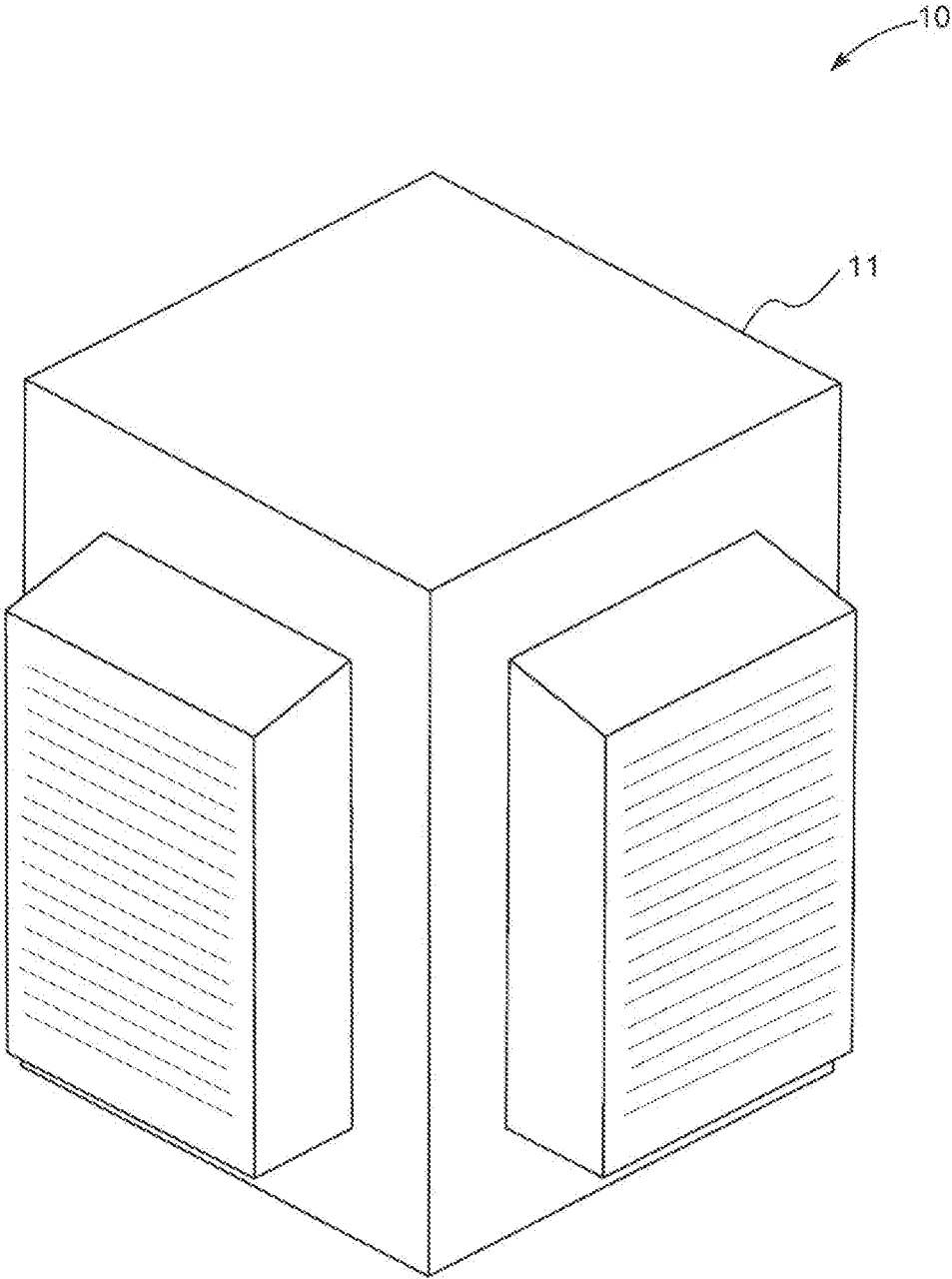


FIG. 1

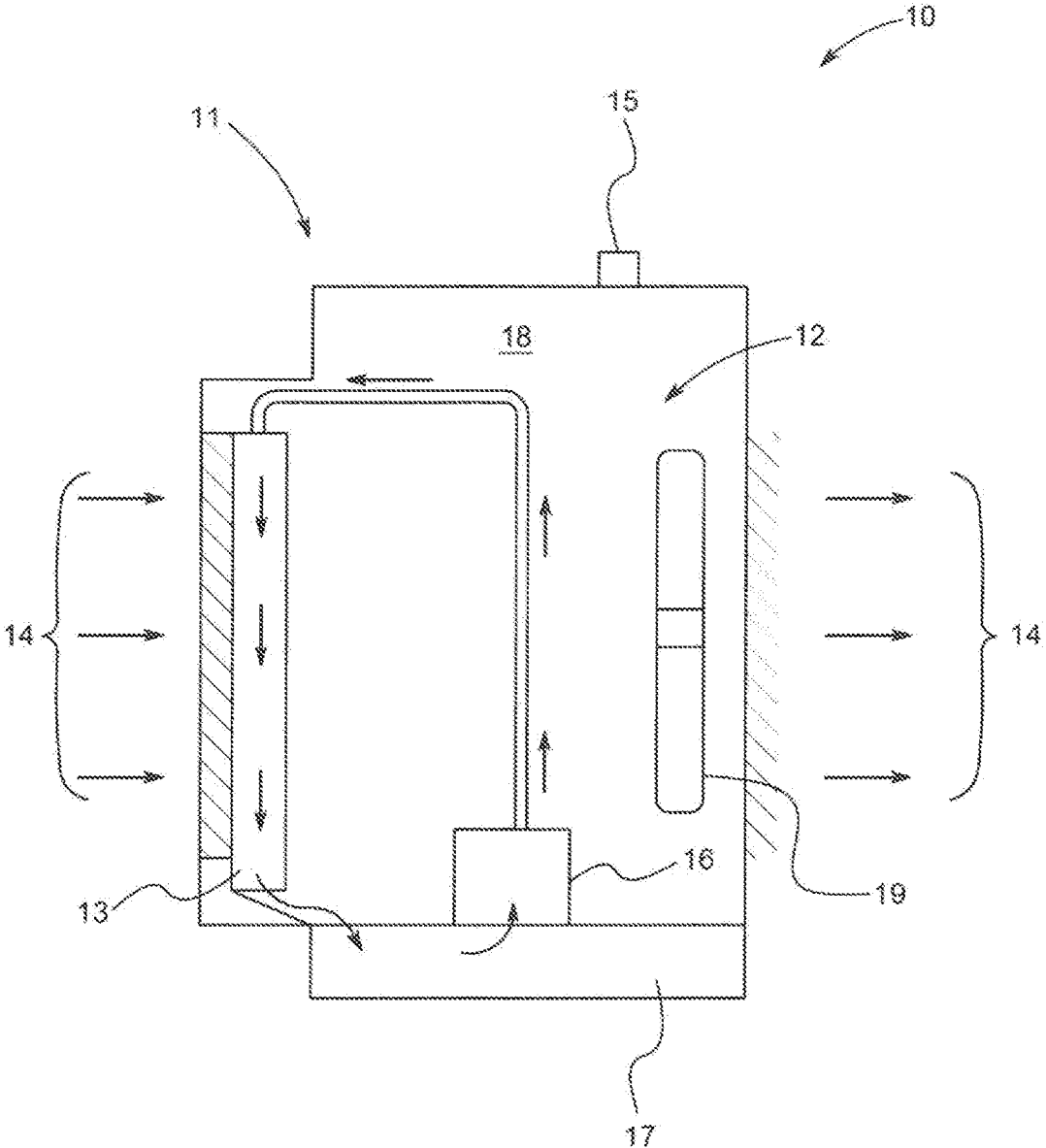


FIG. 2

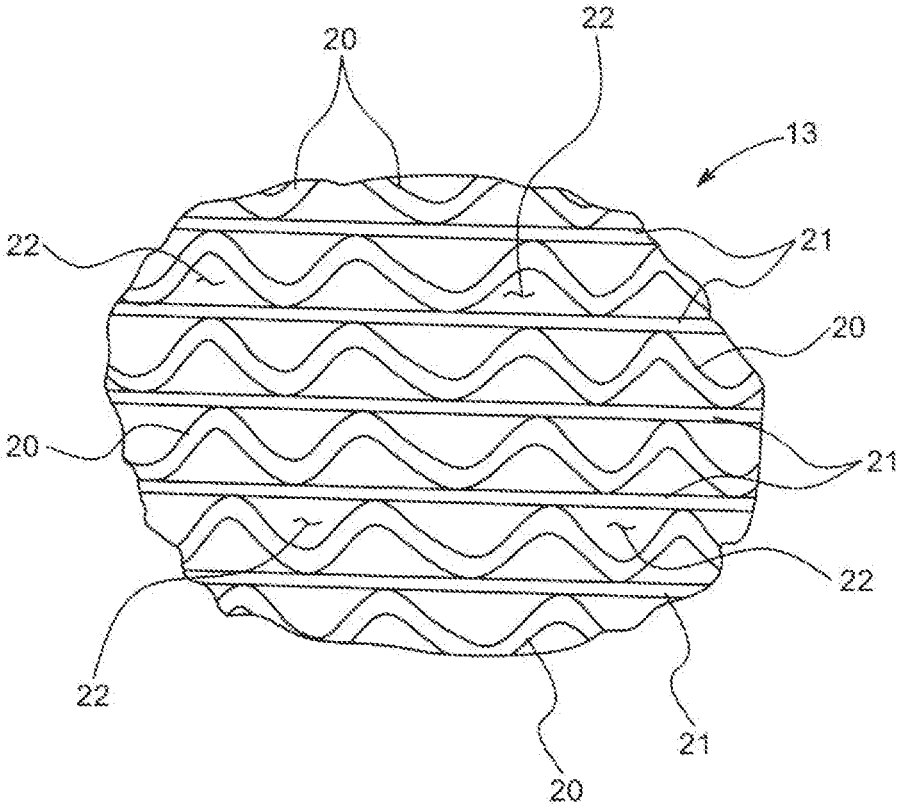


FIG. 3

EVAPORATIVE COOLER APPARATUS WITH A MEDIA PAD COOLER PAD FOR EFFICIENT HEAT EXCHANGE COOLING

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present general inventive concept relates generally to devices utilized to cool the temperature of a given venue and, more particularly, to an evaporative cooler apparatus with a media pad cooler pad for efficient heat exchange cooling.

2. Description of the Related Art

[0002] Traditional evaporative coolers, also called wet air coolers or swamp coolers, are devices commonly utilized to cool the temperature of a given venue by evaporating water found in the surrounding air. These devices conventionally utilize cooling pads which function to draw 'stale' air from the surrounding venue and rejuvenate the air by reducing its temperature to make it refreshing. A problem which still exists, however, is that the cooling pads employed in these devices are typically small in size, causing the process of reducing the temperature of the surrounding venue to take an inordinate amount of time. Thus, there remains a need for an alternative device that is more efficient relative to traditional evaporative coolers. It would be desirable if such efficient alternative device could reduce the amount of time taken to reduce the temperature of the surrounding venue by accelerating the heat exchange activity of the evaporation process.

[0003] The present general inventive concept described herein provides for an evaporative cooler apparatus providing efficient cooling by accelerating heat exchange interactivity in the evaporation process. The primary component in Applicant's evaporative cooler apparatus is at least one cooler pad of media pad material disposed across the path of air inflow into a vented housing from a venue surrounding the housing to a wet air cooler mechanism contained in the housing. When in operation, the media pad material and structure of the cooler pad enables more efficient heat exchange interactivity with the inflow of air. As a result, many of the limitations imposed by the prior art are removed.

SUMMARY

[0004] The present general inventive concept provides an evaporative cooler apparatus with a media pad cooler pad for efficient heat exchange cooling.

[0005] Additional features and utilities of the present general inventive concept will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the general inventive concept.

[0006] The foregoing and/or other features and utilities of the present general inventive concept may be achieved by providing an evaporative cooler apparatus, including a vented housing, a wet air cooler mechanism contained in the vented housing, and at least one cooler pad of media pad material disposed in the vented housing across a path of air inflow into the vented housing to the wet air cooler mechanism from and back to an environment of an adjacent venue surrounding the vented housing. The media pad material of

the cooler pad may have a structure that enables expanded heat exchange interactivity at an interface of water flow within, and air inflow through, the cooler pad.

[0007] The structure of the media pad material of the cooler pad may have multiple layers of undulating media pad strips.

[0008] The structure of the media pad material of the cooler pad may have multiple layers of planar media pad strips.

[0009] The structure of the media pad material of the cooler pad may have multiple layers of undulating media pad strips interspersed between and adhered to multiple layers of planar media pad strips.

[0010] The structure of the media pad material of the cooler pad may define multiple parallel passageways through the cooling pad.

[0011] The evaporative cooler apparatus may also include a thermostat mounted on the vented housing and connected to the wet air cooler mechanism to control operation of the wet air cooler mechanism.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a front perspective view of an evaporative cooler apparatus built in accordance with the present general inventive concept.

[0013] FIG. 2 is a schematic view of the components of the evaporative cooler apparatus as seen along line 2-2 in FIG. 1.

[0014] FIG. 3 is an enlarged fragmentary plan view of an exemplary embodiment of a structure of the media pad material of a cooler pad component of the evaporative cooler apparatus.

DETAILED DESCRIPTION OF THE INVENTION

[0015] Referring now to FIGS. 1 and 2 of the drawings, an evaporative cooler apparatus 10 is illustrated having a vented housing 11, a wet air cooler mechanism 12 contained in the vented housing, and at least one cooler pad 13 of media pad material being disposed across a path of air inflow into the vented housing 11 to the wet air cooler mechanism 12 from and back to an environment of an adjacent venue 14 surrounding the vented housing 11. The media pad material of the cooler pad 13 may have a structure that enables efficient heat exchange interactivity at an interface of the water flow within, and the air inflow through, the cooler pad 13. The evaporative cooler apparatus 10 may also incorporate a thermostat 15 to control the operation of the wet air cooler mechanism 12.

[0016] Referring now to FIG. 2, the evaporative cooler apparatus 10 is shown in a schematic form. The wet air cooler mechanism 12 typically includes a water distribution network delivering water flow from a pump 16 in communication with a water reservoir 17 to a location above the cooler pad 13, then downward through the media pad material structure of the cooler pad 13 and back to the water reservoir 17. As the water disperses through the media pad material structure of the cooler pad 13, head exchange interactivity occurs at the interface of the water flow within, and the air inflow through, the cooler pad 13, causing cooling of the air flow drawn into and blown out of the interior hollow compartment 18 of the vented housing 11 by a blower/fan 19.

[0017] Referring now to FIG. 3, there is illustrated in an enlarged fragmentary form an exemplary embodiment of the structure of the media pad material of the cooler pad 13. The structure of the media pad material of the cooler pad 13 may include multiple layers of undulating media pad strips 20. Also, the structure of the media pad material of the cooler pad 13 may include multiple layers of planar media pad strips 21. Further, in the structure of the media pad material of the cooler pad 13 the multiple layers of undulating media pad strips 20 are interspersed between and adhered to the multiple layers of planar media pad strips 21. Additionally, the interspersed and adhered layered structure of the undulating and planar media pad strips 20, 21 of the cooler pad 13 defines multiple parallel air flow passageways 22 through the cooling pad 13.

[0018] In light of the foregoing description, it will be readily understood that a primary purpose of the evaporative cooler apparatus 10 is to provide an efficient alternative to a traditional wet air cooler or swamp cooler commonly utilized to cool temperatures by evaporating water found in the air using a conventional cooling pad which are typically small such that a greater amount of time is taken to cool the air. The general inventive concept herein involves expanding the heat transfer interactivity in an existing wet air cooler using the aforementioned cooler pad 13 being made of a media pad material having the aforementioned efficient structure. The cooler pad 13 provides more cooling power in the sense that the cooler pad now cools the environment of the surrounding venue more quickly, thus providing invigorating cool temperatures in less time, by expanding and thus accelerating the heat transfer interactivity for improved efficiency in order to expedite the cooling process.

[0019] Also, the addition of the thermostat 15 enables users to request a specific temperature they desire. Thus, the addition of thermostat control saves energy and reduces maintenance and enables users to directly monitor the temperature thereby controlling power posts as well as the overall environment.

[0020] By way of example but not of limitation, a cooler pad embodying the general inventive concept may be manufactured using conventional techniques that involve: first, stacking multiple panels one above the other wherein each panel has a layer of a planar media pad sheet and an undulating media pad sheet placed upon the planar media pad sheet; second, adhering top portions the undulating media pad sheet to the bottom of the planar media pad sheet immediately above; and, third, vertically slicing the stacked

and adhered stack of multiple panels into individual cooler pads. Each individual cooler pad now has the structure of multiple layers of undulating media pad strips interspersed between and adhered to multiple layers of planar media pad strips so as to define multiple parallel air flow passageways through the cooling pad.

[0021] Although a few embodiments of the present general inventive concept have been shown and described, it will be appreciated by those skilled in the art that changes may be made in these embodiments without departing from the principles and spirit of the general inventive concept, the scope of which is defined in the appended claims and their equivalents.

What is claimed is:

1. An evaporative cooler apparatus, comprising:
 - a vented housing;
 - a wet air cooler mechanism contained in the vented housing; and
 - at least one cooler pad of media pad material disposed in the vented housing across a path of air inflow into the vented housing to the wet air cooler mechanism from and back to an environment of an adjacent venue surround the vented housing;
 wherein the media pad material of the cooler pad has a structure that enables expanded heat exchange interactivity at an interface of water flow within, and the air inflow through, the cooler pad.
2. The apparatus of claim 1, wherein the structure of the media pad material of the cooler pad is comprised of multiple layers of undulating media pad strips.
3. The apparatus of claim 1, wherein the structure of the media pad material of the cooler pad is comprised of multiple layers of planar media pad strips.
4. The apparatus of claim 1, wherein the structure of the media pad material of the cooler pad is comprised of multiple layers of undulating media pad strips interspersed between and adhered with multiple layers of planar media pad strips.
5. The apparatus of claim 1, wherein the structure of the media pad material of the cooler pad is comprised of multiple parallel passageways through the cooling pad.
6. The apparatus of claim 1, further comprising:
 - a thermostat mounted on the vented housing and connected to the wet air cooler mechanism to control operation of the wet air cooler mechanism.

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