STRUCTURE OF CIRCULATION FAN

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ABSTRACT

A fan includes a casing that is composed of a front cover and a rear cover, a base mounted under the casing, and blades rotatably mounted in the casing. The base includes support frames symmetrically mounted thereto. The front and rear covers are each composed of a plurality of circular frames of different diameters. The rear cover has a lower portion that forms slots corresponding to the support frames so that the support frames are movably received through the slots respectively. A connection bar is connected to the rear cover so that the casing may undergo vertical and horizontal rotations through the arrangement of the slots for adjusting direction of airstream generated by the fan, thereby realizing an effect of indoor air circulation. Further, due to the arrangement of the rotation structure inside the casing, the outside appearance of the fan shows a sense of completeness of aesthetics.
FIG. 1
STRUCTURE OF CIRCULATION FAN

(a) TECHNICAL FIELD OF THE INVENTION

[0001] The present invention generally relates to a structure of fan, and more particularly to a circulation fan that uses a temperature detector to automatically carry out temperature-based control for operating or shutting down the fan and to allow for vertical and horizontal rotations of the fan for adjusting direction of airstream generated by the fan to thereby realize indoor air circulation and to provide the outside appearance of the fan with a sense of completeness of aesthetics due to the arrangement of rotation structure inside a casing.

(b) DESCRIPTION OF THE PRIOR ART

[0002] An electrical fan is often allowed to undergo rotation clockwise or counterclockwise and it is also available for a fan to carry out vertical and horizontal rotations of the airstream driving surface for adjustment of direction of the airstream driving surface. However, the rotation structure of such a fan is located outside the fan. Although it is effective to realize the effect of rotation, yet this influences the completeness of the outside configuration due to the outside located structure and thus affecting the aesthetics of the outside appearance of the fan. It is thus desired to provide a structure of fan that realizes completeness of the outside configuration of fan and provides aesthetics.

SUMMARY OF THE INVENTION

[0003] The primary objective of the present invention is to provide an improved structure of circulation fan, which allows the fan to undergo vertical and horizontal rotations for adjusting the direction of airstream generated by the fan thereby realizing an effect of indoor air circulation and wherein the rotation structure is arranged inside a casing so that the outside appearance of the fan shows a sense of completeness of aesthetics.

[0004] The improved structure of circulation fan according to the present invention comprises a casing that is composed of a front cover and a rear cover, a base mounted under the casing, and blades rotatably mounted in the casing, wherein the base contains therein a control circuit and the control circuit comprises a temperature detector so that the fan can automatically adjust the rotational speed thereof according to an indoor temperature and the operation of the fan can be automatically shut down when the indoor temperature lowers to a predetermined level and the operation of the fan is automatically started when the indoor temperature rises to a predetermined level, thereby keeping the indoor space at the most comfortable temperature and realizing an effect of energy saving. Further, the base comprises support frames symmetrically mounted thereto. The front and rear covers are each composed of a plurality of circular frames of different diameters. The rear cover has a lower portion that forms slots corresponding to the support frames so that the support frames are movably received through the slots respectively. A connection bar is connected to the rear cover so that the casing may undergo vertical and horizontal rotations through the arrangement of the slots for adjusting direction of airstream generated by the fan, thereby realizing an effect of indoor air circulation. Further, due to the arrangement of the rotation structure inside the casing, the outside appearance of the fan shows a sense of completeness of aesthetics.

[0005] The improved structure of circulation fan according to the present invention comprises a temperature detector, which allows the fan to automatically adjust the rotational speed of the fan according to indoor temperature, whereby the operation of the fan can be automatically shut down when the indoor temperature lowers to a predetermined level and the operation of the fan is automatically started when the indoor temperature rises to a predetermined level, thereby keeping the indoor space at the most comfortable temperature and realizing an effect of energy saving.

[0006] The foregoing objectives and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

[0007] Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a perspective view showing a fan according to the present invention.

[0009] FIG. 2 is a perspective view of the fan according to the present invention with a front cover removed to show inside details.

[0010] FIG. 3 is a side elevational view showing the use of the fan according to the present invention.

[0011] FIG. 4 is another side elevational view showing the use of the fan according to the present invention.

[0012] FIG. 5 is another side elevational view showing the use of the fan according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] The following descriptions are exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0014] Referring to FIGS. 1 and 2, which are perspective views of a fan according to the present invention, a front cover being removed in FIG. 2 to illustrate inside details, the fan according to the present invention comprises a casing 10 that is composed of a front cover 1 and a rear cover 2, a base 3 mounted under the casing 10, and blades 4 rotatably mounted in the casing 10. The base 3 contains therein a control circuit and also comprises support frames 31 symmetrically mounted to a top surface thereof.

[0015] The control circuit comprises a temperature detector and the control circuit is electrically connected to a setting button 32 and an indicator light 33 that are mounted on a surface of the base 3 for setting of temperature.
[0016] The front and rear covers 1, 2 are each composed of a plurality of circular frames of different diameters. The rear cover 2 has a lower portion that forms slots 21 corresponding to the support frames 31 so that the support frames 31 are movably received through the slots 21 respectively. A connection bar 22 connects between opposite sides of the rear cover 2. The connection bar 22 rotatably carries the blades 4 and a motor 5 coupled to the blades 4. Thus, the casing 10 may undergo vertical and horizontal rotations through movement of the slots 21 along the support frames 31.

[0017] Through assembling of the above discussed components, a circulation fan is formed, wherein vertical and horizontal rotations of the casing 10 are selectively performed to adjust the blowing direction of airstream generated by the fan to realize an effect of indoor air circulation or an effect of drying clothes. Further, due to the arrangement of the rotation structure inside the casing 10, the outside appearance of the fan shows a sense of completeness of aesthetics.

[0018] The fan according to the present invention employs the temperature detector arranged in the base 3 to allow the blades 4 of the fan to be operated in such a way that automatic control of the rotational speed of the blades 4 is realized based on the temperature set by the setting button 32. When the indoor temperature is lowered to the set value, the operation of the fan is automatically shut down. When the indoor temperature rises to a predetermined temperature, the fan is automatically started to keep the indoor space at a most comfortable temperature and also shows an effect of energy saving.

[0019] Referring to FIG. 3, which shows the use of the fan according to the present invention, when viewed together with FIG. 2, it is appreciated that when the present invention is put into use in a normal condition, the casing 10 can be maintained in a vertical condition, where the support frames 31 of the base 3 are located at lower ends of the slots 21 of the rear cover 2, whereby airstream is generated to move in a horizontal direction and the blades 4 of the fan is operated so that the rotational speed of the blades 4 can be automatically adjusted according to the temperature level set by the setting button 32.

[0020] Referring to FIGS. 4 and 5, another way of use of the present invention is shown, when viewed together with FIG. 1, besides being set in a vertical condition to drive airstream in a horizontal direction, the casing 10 of the fan can be manipulated to have the casing 10 undergoing vertical rotation by having the slots 21 moved along the support frames 31 according to different requirements (such as being set in alignment with the direction of air conditioner or blowing air upward for drying clothes), whereby the support frames 31 of the base 3 are located at upper ends of the slots 21 of the rear cover 3 to drive airstreams upward, so that the practical value of the fan is enhanced.

[0021] In summary, the present invention provides a fan that comprises a casing forming slots to mate support frames mounted a base, whereby the fan is allowed to do vertical and horizontal rotations for changing moving directions of airstream generated by the fan for realizing indoor air circulation. Further, since the rotation structure is contained inside the casing, the outside appearance of the fan shows a sense of completeness of aesthetics.

[0022] It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

[0023] While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.

I claim:

1. A fan comprising a casing that is composed of a front cover and a rear cover, a base mounted under the casing and having a top surface comprising support frames symmetrically mounted thereto, the rear cover having a lower portion that forms slots corresponding to the support frames so that the support frames are movably received through the slots respectively, a connection bar connecting between opposite sides of the rear cover and rotatably carrying blades and a motor coupled to the blades, whereby, the casing selectively undergo vertical and horizontal rotations through movement of the slots along the support frames; wherein the fan is operable so that the vertical and horizontal rotations of the casing are selectively performed to adjust direction of airstream generated by the fan to realize an effect of indoor air circulation or an effect of drying clothes and wherein the arrangement of the rotation structure inside the casing, the outside appearance of the fan shows a sense of completeness of aesthetics.

2. The fan according to claim 1, wherein the base comprises a control circuit received therein and the control circuit comprises a temperature detector, which automatically starts operation of the fan when a surrounding temperature rises to a first predetermined level and shuts down the operation of the fan when the surrounding temperature lowers to a second predetermined level.

3. The fan according to claim 1, wherein the front and rear covers of the casing are each composed of a plurality of circular frames of different diameters.

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