

"Electric fan."

The present invention relates to an electric fan having a fan head comprising fan blades and an electric motor for driving the blades, the motor being mounted on a mounting which is pivotally connected to a main support for the fan head so that the fan head can be angularly adjusted about a horizontal axis to inclined positions relative to said support, and means being provided for retaining the mounting, and with it the fan head, selectively in any of a range of such positions.

The main support of such a fan may be constructed so that it will either stand on a table or can be attached to a wall. The fan can then be used either as a table fan or as a wall fan. The inclination of the fan head and thus the direction of the air stream can be adjusted by the user. At certain extreme angles of inclination the centre of gravity of the fan head is so disposed in relation to the pivotal axis of the connection between the motor mounting and the main support that the retaining means are no longer able to hold the fan head in the desired position.

According to the present invention there is provided an electric fan having a fan head comprising fan blades and an electric motor for driving the blades, the motor being mounted on a mounting which is pivotally connected to a main support for the fan head so that the fan head can be angularly adjusted about a horizontal axis to inclined positions relative to said support, and means being provided for retaining the mounting, and with it the fan head, selectively in any of a range of such positions, wherein latching means are provided for holding the mounting in predetermined positions in said range, which latching means comprise a pivotable latching member on the mounting and a groove in the main support, the latching member comprising a cylindrical first part which

is journaled in the mounting so as to be freely rotatable about its longitudinal axis, a cylindrical second part whose longitudinal axis is parallel to that of the first part and which engages in said groove in the main support and slides along the groove during angular adjustment of the mounting, and a third part interconnecting the first and second parts, the first and second parts being disposed on opposite sides of the third part, and said groove being formed with recesses in its walls for selective engagement by the second part of the latching member to define said predetermined positions and to hold the mounting in the selected position.

An electric fan according to an embodiment of the invention will now be described by way of example with reference to the accompanying diagrammatic drawings, in which

Figure 1 is a side view of the fan standing on a table with the fan head in the horizontal position, the fan being shown partly in section taken on the line I-I in Figure 2,

Figure 2 is a sectional view taken in a plane at right angles to the plane of Figure 1 and drawn to a larger scale than Figure 1, of part of the motor mounting and part of the main support, showing the retaining means and the latching means,

Figure 3 is a view similar to Figure 1 showing the electric fan standing on a table with the fan head inclined downwards,

Figure 4 is a view similar to Figure 1 showing the electric fan standing on a table with the fan head inclined upwards, and

Figure 5 is a side view of the electric fan mounted on a wall.

Referring now to the drawings, the electric fan comprises a main support in the form of a pedestal 1 which is adapted to stand on a table 2 or to be secured to a wall 3, and a mounting 4 on which is mounted a fan head 5 which comprises fan blades and an electric motor 6 for

driving the blades 7. The fan blades are surrounded by a protective wire grille 8. The mounting 4 is pivotally connected to the pedestal 1. This pivotal connection is arranged between two cheeks 9, 10 which project from the pedestal 1 and two cheeks 11, 12 which project from the mounting 4. The cheeks 11, 12 are pivotally connected to the cheeks 9, 10 by a bolt 13 to permit angular adjustment of the mounting 4 and with it the fan head 5 to inclined positions relative to the pedestal 1. For retaining the mounting and fan head selectively in any of a range of such positions there are provided retaining means which comprise an arcuate ratchet 14, which is fixed to the cheek 11 of the mounting 4, and a pawl in the form of a leaf spring 15 formed with a protrusion 16 and secured to the pedestal 1. The ratchet 14 cooperates with the protrusion 16 of the leaf spring 15 to retain the mounting 4, and with it the fan head 5, in the selected inclined position.

The electric fan may be used as a table fan or as a wall fan. For both uses there are certain inclined positions in which the location of the centre of gravity of the mounting 4 and fan head 5 combined is such that the retaining means 14, 15, 16 are no longer capable of retaining the fan head in the desired position. For holding the fan head in these positions, latching means are provided which comprise a pivotable latching member 17 which consists of cylindrical first and second parts 18, 19 interconnected by a third part 20. The cylindrical first and second parts are disposed on opposite sides of the third part with their longitudinal axes parallel to one another. The cylindrical first part 18 is journaled in the cheek 12 of the mounting 4 so as to be freely rotatable about its longitudinal axis; the cylindrical second part 19 is slidable in a groove 21 formed by a slot in a plate 22, which is mounted on the inner side of the cheek 10 of the pedestal 1. The groove 21 is curved and has two recesses 23, 24 in its side walls. The first recess 23 is situated near the middle of the groove and the second recess 24 at one end of the groove.

The operation of the retaining means 14, 15, 16 and the latching means 17, 21 is as follows: If the fan is placed on a table the inclination of the fan head and thus the direction of the airstream produced by the fan blades can be adjusted by turning the fan head upwards or downwards as desired. The pawl 15, 16 cooperates with the ratchet 14 to retain the mounting 4 and fan head 5 in the desired position.

At a certain downward inclination of the fan head (see Figure 3) the retaining means 14, 15, 16 can no longer hold the fan head, because the location of the centre of gravity 25 of the fan head 5 and mounting 4 combined is too far to the right (as viewed in the drawing) of the vertical 26 through the pivotal axis 27 of the connection between the mounting 4 and the pedestal 1. Therefore additional support is necessary to hold the fan head against further downward movement. This is provided by the second part 19 of the latching member 17 abutting the upper end 28 of the groove 21, as shown in Figure 3.

If the fan head is turned upwards to the position shown in Fig. 4, the centre of gravity 25 of the fan head 5 and mounting 4 is located so far to the left (as viewed in the drawing) of the vertical 26 through the pivotal axis 27 that it is again necessary to provide additional support for the fan head against further movement in this direction. For this the second part 19 of the latching member 17 engages with the recess 23 near the middle of the groove 21 to retain the fan head in this extreme upwardly inclined position.

If the fan is secured to a wall (Fig. 4), the location of the centre of gravity 25 of the fan head 5 and mounting 4 is inherently unfavourable for the stability of the fan head. By turning the fan head further upwards the second part 19 of the latching member 17 is moved downwards in the groove 21 and under the influence of gravity swings into engagement with the second recess 24 at the lower end of the groove. The fan head is now locked against downward movement because the second part 19 of

the latching member is hooked behind a wall portion 29 of the recess 24.

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CLAIMS:

1. An electric fan having a fan head comprising fan blades and an electric motor for driving the blades, the motor being mounted on a mounting which is pivotally connected to a main support for the fan head so that the fan head can be angularly adjusted about a horizontal axis to inclined positions relative to said support, and means being provided for retaining the mounting, and with it the fan head, selectively in any of a range of such positions, wherein latching means are provided for holding the mounting in predetermined positions in said range, which latching means comprise a pivotable latching member on the mounting and a groove in the main support, the latching member comprising a cylindrical first part which is journaled in the mounting so as to be freely rotatable about its longitudinal axis, a cylindrical second part whose longitudinal axis is parallel to that of the first part and which engages in said groove in the main support and slides along the groove during angular adjustment of the mounting, and a third part interconnecting the first and second parts, the first and second parts being disposed on opposite sides of the third part, and said groove being formed with recesses in its walls for selective engagement by the second part of the latching member to define said predetermined positions and to hold the mounting in the selected position.
2. An electric fan substantially as herein described with reference to the accompanying drawings.