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(54) **CEILING FAN ASSEMBLY PROVIDED WITH A VIBRATION IMPEDING UNIT**

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(57) **ABSTRACT**

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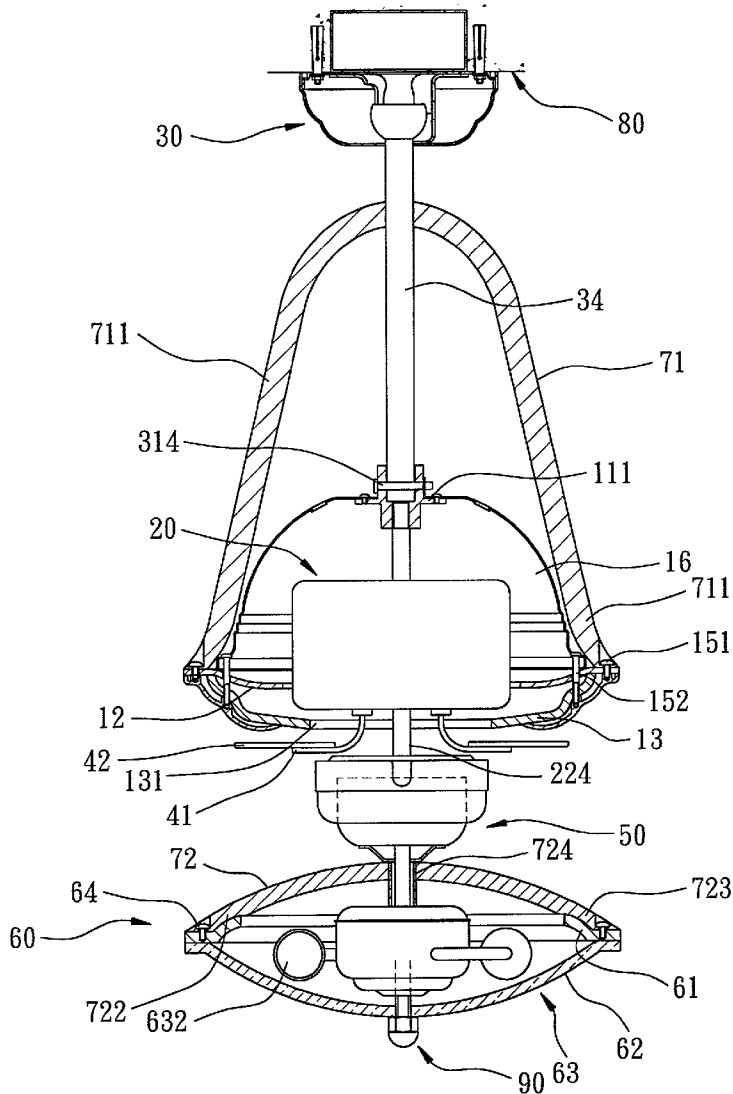
A ceiling fan assembly includes a motor shell with top and bottom flanges, a motor unit disposed in the motor shell, and a suspension rod extending into the motor shell and coupled securely to the top flange. A motor is disposed in the motor shell. A plurality of fan blades are mounted on a rotor of the motor for co-rotation therewith. A vibration impeding unit is disposed above the motor shell, and includes a bracket having opposite parts that are connected securely to the bottom flange at two diametric positions relative to the suspension rod and that extend from the bottom flange to connect with the suspension rod so that vibration resulting from rotation of the rotor is impeded cooperatively by the opposite parts and the suspension rod.

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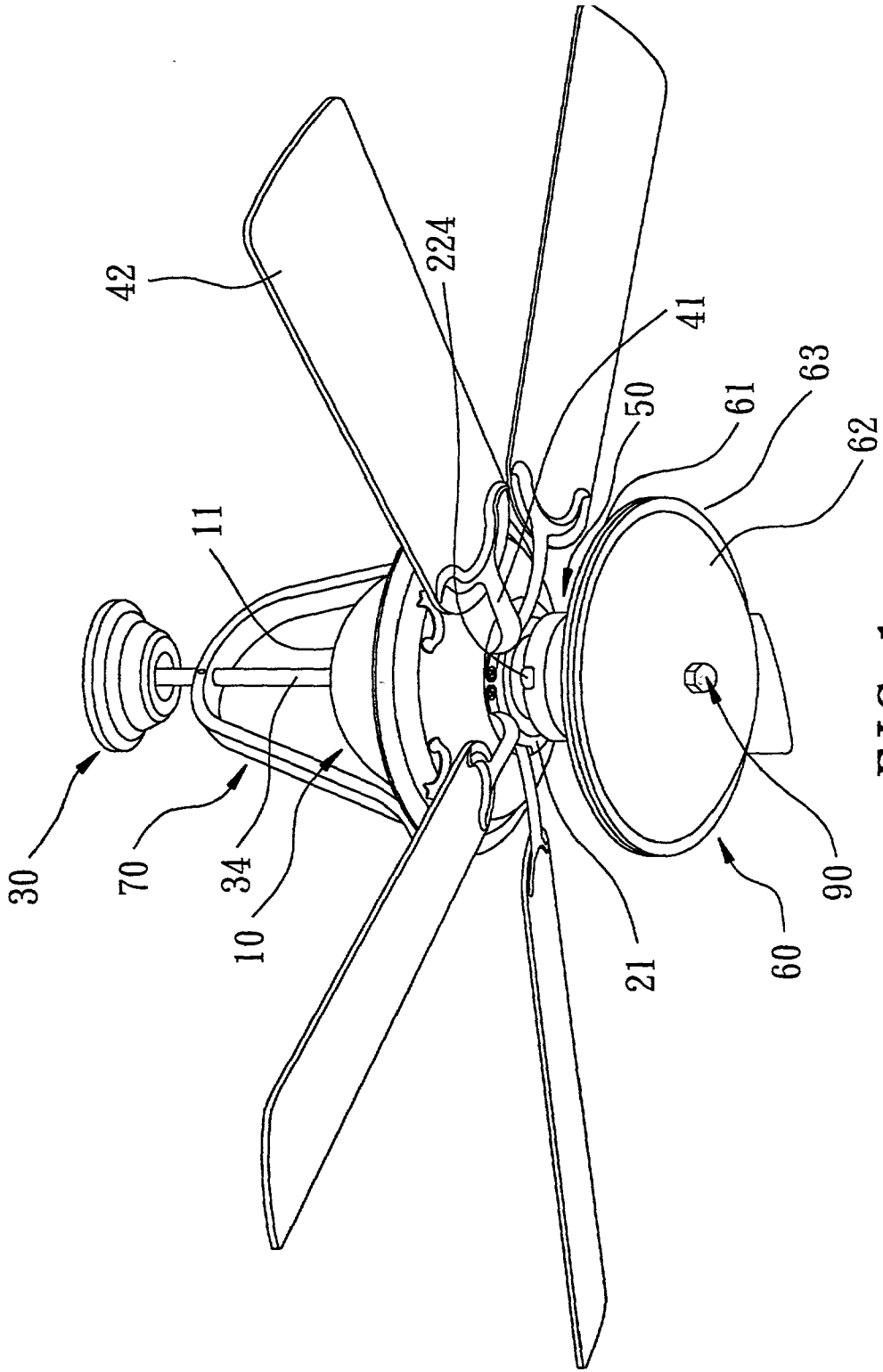


FIG. 1  
PRIOR ART

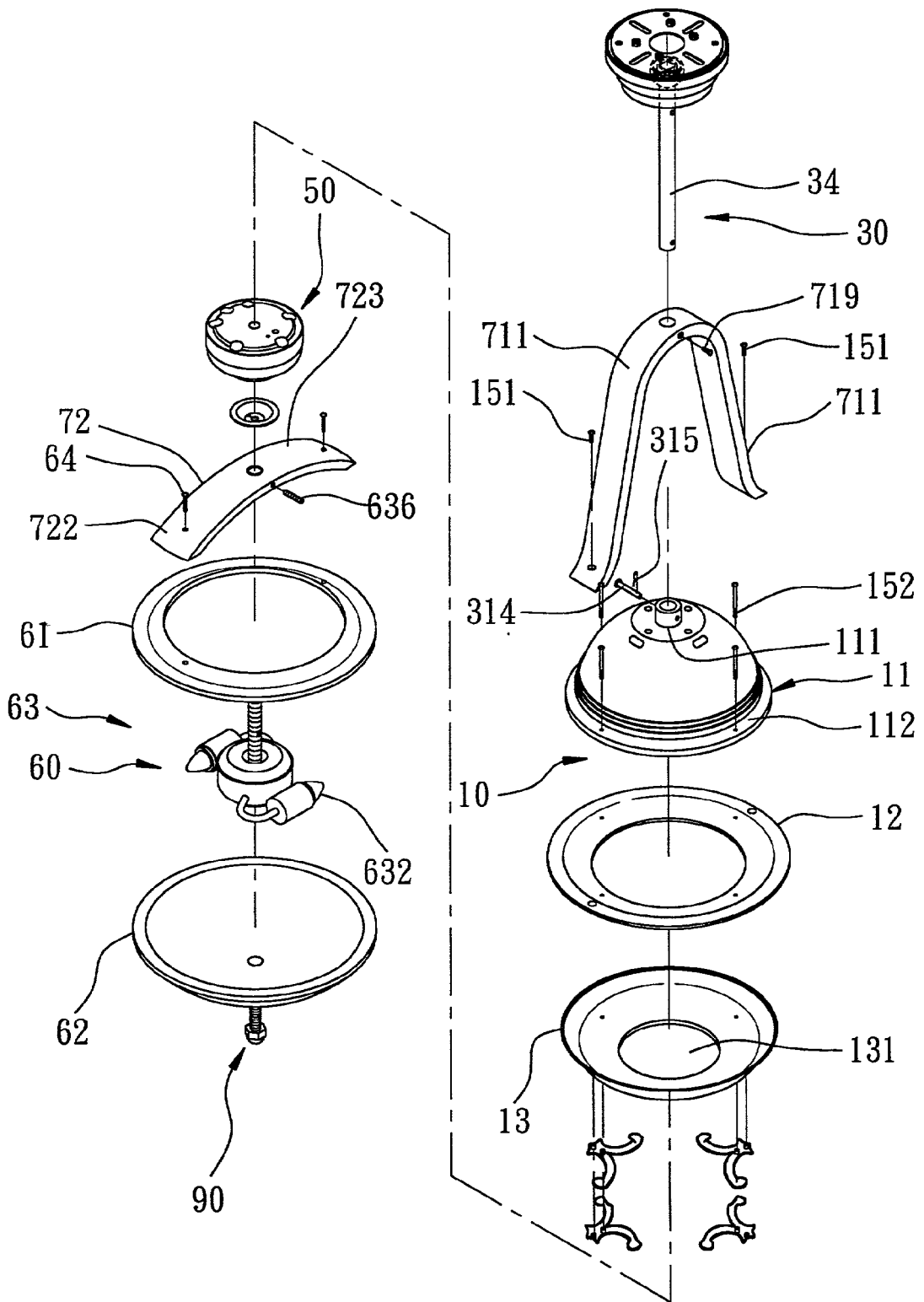


FIG. 2

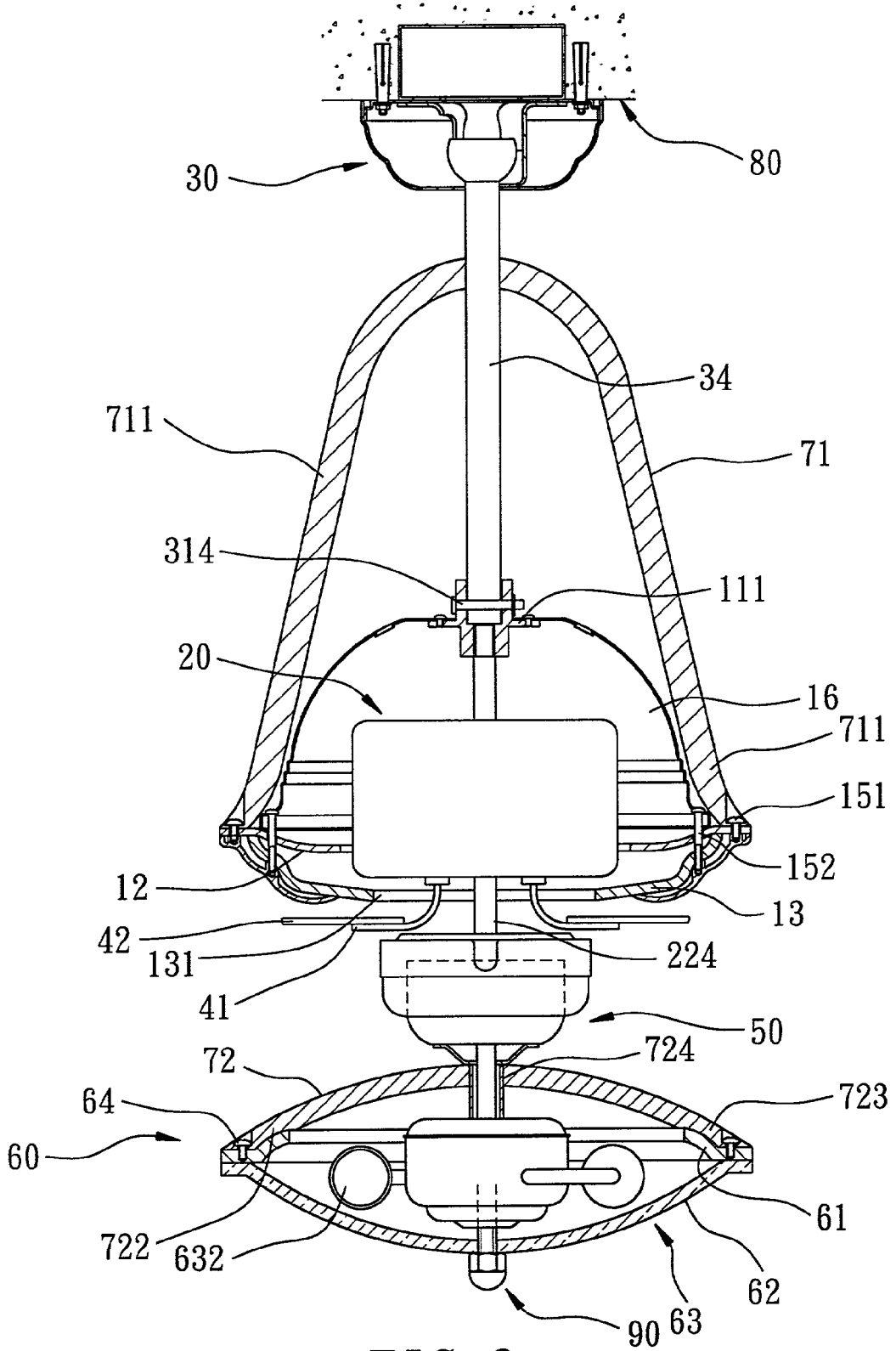


FIG. 3

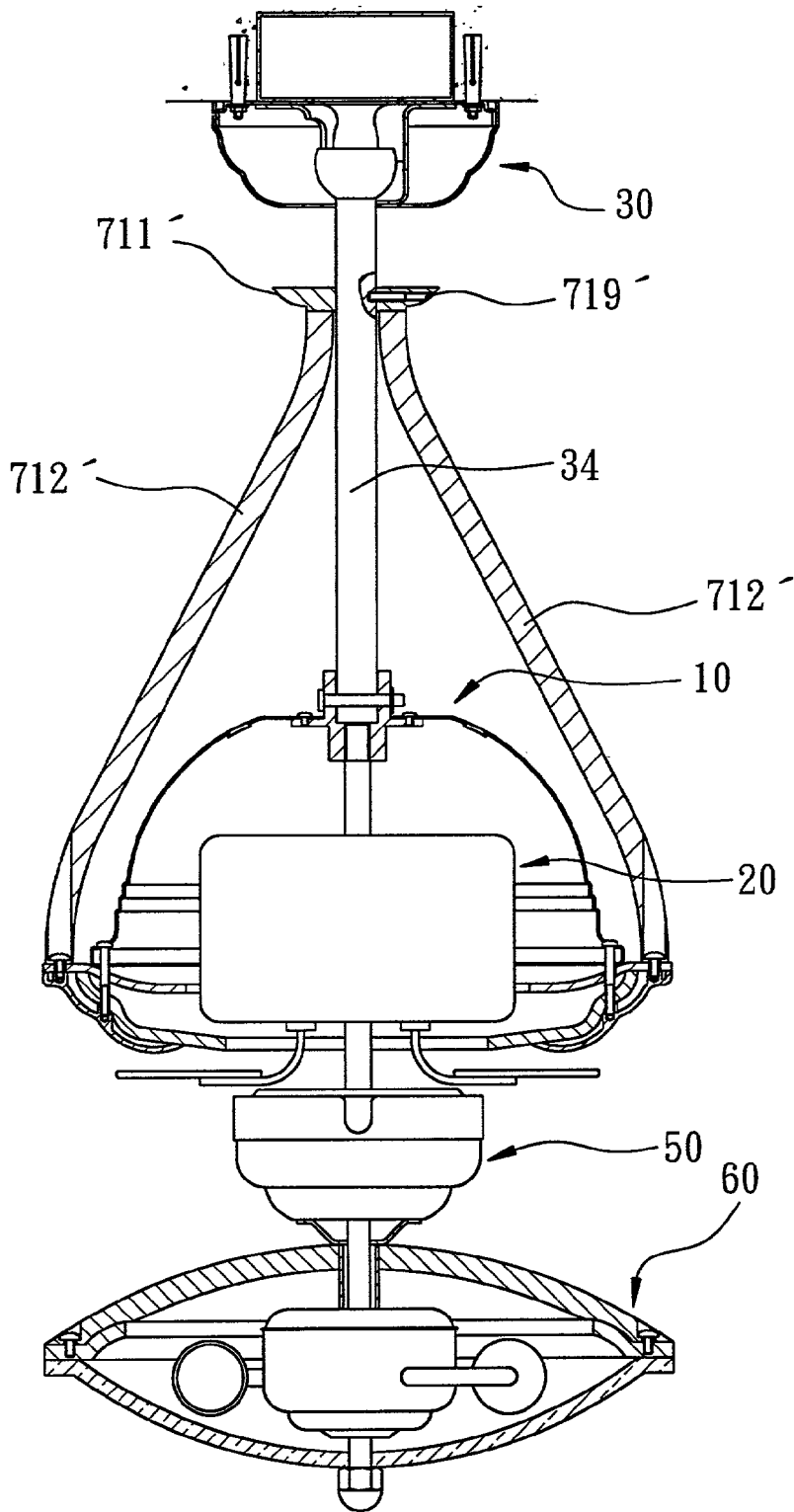


FIG. 4

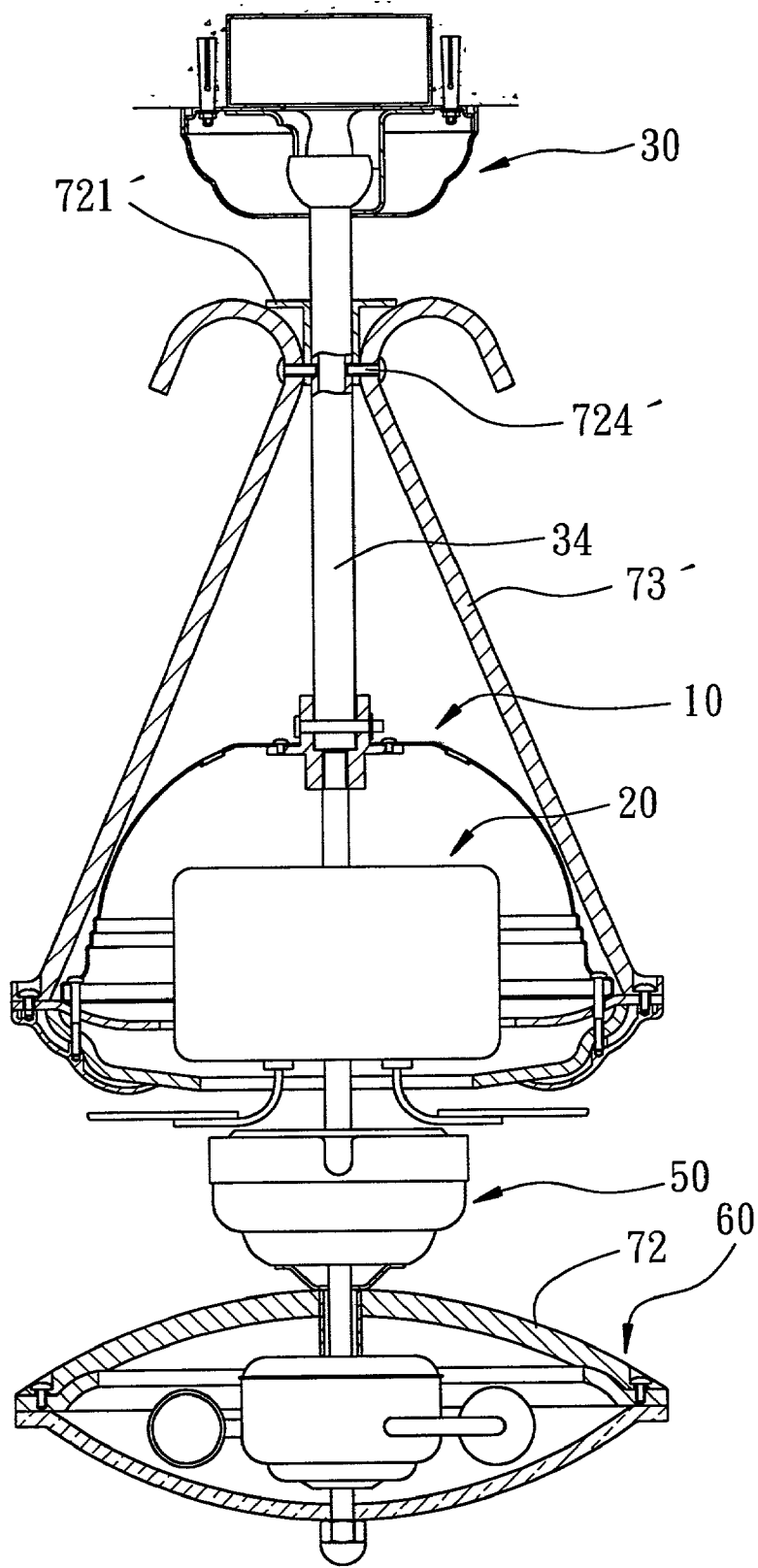


FIG. 5

## CEILING FAN ASSEMBLY PROVIDED WITH A VIBRATION IMPEDING UNIT

### BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] This invention relates to a ceiling fan assembly, more particularly to a ceiling fan assembly that is provided with a vibration impeding unit.

[0003] 2. Description of the Related Art

[0004] A conventional ceiling fan assembly includes a vertical suspension rod adapted to be connected to a ceiling, a dome-shaped motor shell having a top portion that permits extension of the suspension rod and fastening of the motor shell on the suspension rod, and a motor unit enclosed within the motor shell. The motor unit has a rotating shaft exposed outwardly from the motor shell. A plurality of fan blades are mounted on the rotating shaft in such a manner that the fan blades extend radially and outwardly from the motor shell. A control switch is provided for controlling activation of the motor unit.

[0005] The aforesaid conventional ceiling fan assembly is disadvantageous in that the motor shell wobbles relative to the suspension rod due to rotation of the fan blades when the motor unit is activated.

### SUMMARY OF THE INVENTION

[0006] The object of this invention is to provide a ceiling fan assembly having a vibration impeding unit so as to overcome the aforesaid drawback encountered during use of the conventional ceiling fan assembly.

[0007] Accordingly, a ceiling fan assembly of the present invention includes a vertical suspension rod, a dome-shaped motor shell, a motor unit, a plurality of fan blades, and a vibration impeding unit. The vertical suspension rod is adapted to be fastened to a ceiling. The dome-shaped motor shell has top and bottom ends, a top flange fixed on the top end, and a bottom flange extending radially and outwardly from a periphery of the bottom end. The suspension rod extends through the top flange and into the motor shell, and is fastened securely to the top flange. The motor unit is enclosed within the motor shell, and includes a rotor exposed outwardly from the motor shell. The fan blades are mounted on the rotor in such a manner that the fan blades extend radially and outwardly from the motor shell. The vibration impeding unit is disposed above the motor shell, and includes a bracket having two opposite parts connected securely to the bottom flange at two diametric positions relative to the suspension rod. The opposite parts extend from the bottom flange to connect with the suspension rod so that securing of the motor shell to the suspension rod is enhanced and so that vibration resulting from rotation of the rotating shaft in the motor shell is impeded cooperatively by the opposite parts and the suspension rod.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0008] These and other features and advantages of this invention will become apparent in the following detailed description of the preferred embodiments of this invention, with reference to the accompanying drawings, of which:

[0009] FIG. 1 is a perspective view of a first preferred embodiment of a ceiling fan assembly according to the present invention;

[0010] FIG. 2 is an exploded perspective view showing parts of the first preferred embodiment;

[0011] FIG. 3 is a partly sectional view of the first preferred embodiment shown;

[0012] FIG. 4 is a partly sectional view of a second preferred embodiment of the present invention; and

[0013] FIG. 5 is a partly sectional view of a third preferred embodiment of the present invention.

### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0014] Referring to FIGS. 1, 2 and 3, the first preferred embodiment of a ceiling fan assembly according to the present invention is shown to include a vertical suspension rod 34, a dome-shaped motor shell 10, a motor unit 20, a plurality of fan blades 42, and a vibration impeding unit 70.

[0015] As illustrated, the vertical suspension rod 34 is adapted to be fastened to a ceiling 80 via a mounting fixture 30.

[0016] The dome-shaped motor shell 10 includes upper and lower parts 11, 13 which are coupled together by screws 152 to define a motor-receiving space therebetween. A top flange 111 is fixed on a top end of the upper part 11. An annular disc 12 is sandwiched between the upper and lower parts 11, 13, and has an annular peripheral flange exposed from the motor shell 10 so as to serve as a bottom flange 112 such that the bottom flange 112 extends radially and outwardly from a periphery of the bottom end of the upper part 11. The suspension rod 34 extends through the top flange 111 and into the upper part 11 of the motor shell 10, and is fastened securely to the top flange 111 via a pin-and-clip unit 314, 315.

[0017] The motor unit 20 is enclosed within the motor receiving space of the motor shell 10, and includes a rotor 21 which is provided with a plurality of blade-mounting ribs 41 in such a manner that the ribs 41 are exposed outwardly from a bottom opening 131 in the lower part 13 of the motor shell 10. Since the main feature of the present invention does not reside in the particular structure of the motor unit 20, a detailed description of the same is omitted herein for the sake of brevity.

[0018] The fan blades 42 are mounted on the rotor 21 via the blade-mounting ribs 41 in such a manner that the fan blades 42 extend radially and outwardly from the motor shell 10.

[0019] The vibration impeding unit 70 is disposed above the motor shell 10, and includes a bracket 71 having two opposite parts 711 which are connected securely to the bottom flange 112 by two screws 151 at two diametric positions relative to the suspension rod 34, and which extend from the bottom flange 112 to connect with the suspension rod 34 so that securing of the motor shell 10 to the suspension rod 34 is enhanced and so that vibration resulting from rotation of the rotor 21 and the fan blades 42 is impeded cooperatively by the opposite parts 711 and the suspension rod 34.

[0020] Preferably, the opposite parts 711 are integrally formed with one another at top ends thereof such that the bracket 71 is generally inverted U-shaped, and extend upwardly and convergingly from the bottom flange 112 to connect with the suspension rod 34 via a screw 719 at a position above the top flange 111.

[0021] The first preferred embodiment further includes a light unit **60** and an auxiliary suspension rod unit. The light unit **60** is disposed below the fan blades **42**, and includes a socket shell **63** with an annular ring **61**, a lamp shade **62** fastened to the annular ring **61** via locking bolt **90**, and a plurality of bulbs **632** mounted in the socket shell. The auxiliary suspension rod unit includes first and second auxiliary suspension rods **224**, **724** which are vertically disposed between and which interconnect the socket shell **63** and the motor shell **10**.

[0022] A control switch **50** is mounted on the first and second auxiliary suspension rods **224**, **724** in a known manner between the motor shell **10** and the light unit **60** for selectively and simultaneously operating the motor unit **20** and the bulbs **632**.

[0023] The vibration impeding unit **70** further includes a second bracket **72** disposed above the socket shell **63**. The bracket **72** has two opposite parts **722**, **723** which are connected securely to the socket shell **63** at two diametric positions relative to the second auxiliary suspension rod **724** by two screws **64**, and which extend from the socket shell **63** to connect with the second auxiliary suspension rod **724** via a screw **636** at a position above the socket shell **63** so that securing of the socket shell **63** to the second auxiliary suspension rod **724** is enhanced and so that vibration resulting from rotation of the rotor **21** in the motor shell **10** is impeded cooperatively by the opposite parts **722**, **723** of the bracket **72** and the first and second auxiliary suspension rods **224**, **724**.

[0024] Preferably, the opposite parts **722**, **723** are integrally formed with each other so that the second bracket **72** is shaped as a curved plate.

[0025] Referring to FIG. 4, a second preferred embodiment of the present invention is shown to have a structure similar to that of the previous preferred embodiment. The main difference resides in that the opposite parts **712'** are separately formed from each other and are coupled securely to an annular sleeve **711'**, which in turn is mounted on the suspension rod **34** via a fastener bolt **719'**.

[0026] Referring to FIG. 5, a third preferred embodiment of the present invention is shown to have a structure similar to that of the first preferred embodiment. The main difference resides in that the opposite parts **73'** are separately formed from each other and are coupled securely to a tubular sleeve **721'**, which is mounted on the suspension rod **34** via two fastener screws **724'**.

[0027] With this invention thus explained, it is apparent that numerous modifications and variations can be made without departing from the scope and spirit of this invention. It is therefore intended that this invention be limited only as indicated by the appended claims.

I claim:

1. A ceiling fan assembly comprising:

- a vertical suspension rod adapted to be fastened to a ceiling;
- a dome-shaped motor shell having top and bottom ends, a top flange fixed on said top end, and a bottom flange extending radially and outwardly from a periphery of said bottom end, said suspension rod extending through

said top flange and into said motor shell and being fastened securely to said top flange;

a motor unit enclosed within said motor shell, and including a rotor exposed outwardly from said motor shell;

a plurality of fan blades mounted on said rotor in such a manner that said fan blades extend radially and outwardly from said motor shell; and

a vibration impeding unit disposed above said motor shell, and including a bracket having two opposite parts that are connected securely to said bottom flange at two diametric positions relative to said suspension rod and that extend from said bottom flange to connect with said suspension rod so that securing of said motor shell to said suspension rod is enhanced and so that vibration resulting from rotation of said rotor in said motor shell is impeded cooperatively by said opposite parts and said suspension rod.

2. The ceiling fan assembly as defined in claim 1, wherein said opposite parts are integrally formed with one another such that said bracket is generally inverted U-shaped and extends upwardly and convergently from said bottom flange to connect with said suspension rod at a position above said top flange.

3. The ceiling fan assembly as defined in claim 2, further comprising:

a light unit disposed below said fan blades and including a socket shell; and

an auxiliary suspension rod vertically disposed between and interconnecting said socket shell and said motor shell;

said vibration impeding unit further including a second bracket disposed above said socket shell, and having two opposite parts that are connected securely to said socket shell at two diametric positions relative to said auxiliary suspension rod and that extend from said socket shell to connect with said auxiliary suspension rod at a position above said socket shell so that securing of said socket shell to said auxiliary suspension rod is enhanced and so that vibration resulting from rotation of said rotor in said motor shell is impeded cooperatively by said opposite parts of said second bracket and said auxiliary suspension rod.

4. A ceiling fan assembly comprising:

a vertical suspension rod adapted to be fastened to a ceiling;

a dome-shaped motor shell having a top flange, said suspension rod extending through said top flange and into said motor shell and being fastened securely to said top flange;

a motor unit enclosed within said motor shell, and including a rotor exposed outwardly from said motor shell;

a plurality of fan blades mounted on said rotor in such a manner that said fan blades extend radially and outwardly from said motor shell;

a light unit disposed below said fan blades and including a socket shell;

an auxiliary suspension rod vertically disposed between and interconnecting said socket shell and said motor shell; and



a vibration impeding unit including a bracket harp disposed above said socket shell, and having two opposite parts that are connected securely to said socket shell at two diametric positions relative to said auxiliary suspension rod and that extend from said socket shell to connect with said auxiliary suspension rod at a position above said socket shell so that securing of said socket

shell relative to said auxiliary suspension rod is enhanced and so that vibration resulting from rotation of said rotor in said motor shell is impeded cooperatively by said opposite parts of said bracket and said auxiliary suspension rod.

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