The present invention includes a base, a functioning unit, and a lowering assembly. The functioning unit may be a light fixture or a ceiling fan. The functioning unit is movable between a first configuration adjacent the base and a second configuration separated therefrom. The lowering assembly includes a plurality of retractable cables having lower ends and extending downwardly from the base, each cable lower end being coupled to the functioning unit. The lowering assembly includes a spring reel for holding the functioning unit at the second configuration and for returning it to the first configuration upon application of a predetermined force. The lowering assembly may include a motor for automatically extending or retracting the cables. The invention includes a safety feature by which the functioning unit is disconnected from electricity when lowered and is reconnected when raised.
FIG. 3
DESCENDABLE CEILING FIXTURE

BACKGROUND OF THE INVENTION

[0001] This invention relates to ceiling fixtures and, more particularly, to a descendable ceiling fixture for attachment to a ceiling and which may be selectively raised and lowered for maintenance or repair.

[0002] Maintenance of high ceiling fans or other fixtures can be dangerous, expensive, and inconvenient. Frequently, home and business owners forego replacing light bulbs and regular dusting because of the inconvenience or fear of using tall ladders.

[0003] Various devices and custom fixtures have been proposed in the art for automatically or manually lowering fixtures from a ceiling or rod. Although assumably effective for their intended purposes, the existing devices do not provide the economical and smooth operation of a spring reel assembly and pulley system with a safety power disconnect feature.

[0004] Therefore, it would be desirable to have a descendable ceiling fixture in which a functioning unit such as a light or ceiling fan may be selectively lowered from a ceiling position for maintenance or repair. Further, it would be desirable to have a descendable ceiling fixture in which an electrical connection between a base and the functioning unit is broken when the functioning unit is lowered so as to prevent accidental electrocution. In addition, it would be desirable to have a descendable ceiling fixture that includes a spring reel such that the functioning unit may be manually lowered upon receiving a predetermined amount of force and which automatically retracts the unit.

SUMMARY OF THE INVENTION

[0005] A descendable ceiling fixture according to a preferred embodiment of the present invention includes a base, a functioning unit, and a lowering assembly. The functioning unit may be, for example, a light fixture or a ceiling fan. The functioning unit is movable between a first configuration in which the functioning unit is lowerly adjacent the base and a second configuration in which the functioning unit is separated from the base. The lowering assembly is operatively coupled to the base and to the functioning unit for selectively moving the functioning unit between the first and second configurations. The lowering assembly may include a plurality of retractable cables having lower ends and extending downwardly from the base, each cable lower end being coupled to the functioning unit. The lowering assembly may also include a motor for selectively extending or retracting the cables to move the functioning unit between the first and second configurations.

[0006] The lowering assembly may also include a spring reel coupled to a respective cable for biasing the cable to maintain the functioning unit at the first configuration, the spring reel allowing the cable to move from the retracted configuration to an extended configuration in order to move the functioning unit to the second configuration upon application of a predetermined amount of force.

[0007] Further, the base includes a first electrical contact and the functioning unit includes a second electrical contact complementary to the first electrical contact. The first and second electrical contacts are in electrical communication with one another at the first configuration (such that the functioning unit is energized) and are not in electrical communication at the second configuration (such that the functioning unit is not energized). This is a safety feature that assures that a user is not electrocuted while performing maintenance or repairs on a lowered functioning unit.

[0008] Therefore, a general object of this invention is to provide a descendable ceiling fixture for attachment to a ceiling for selectively lowering a light fixture or ceiling fan for maintenance or repair.

[0009] Another object of this invention is to provide a descendable ceiling fixture, as aforesaid, in which electrical current to the light or ceiling fan is automatically disconnected when lowered and is reconnected when fully raised.

[0010] Yet another object of this invention is to provide a descendable ceiling fixture, as aforesaid, having a spring reel for holding the functioning unit at a lowered configuration and for retracting the functioning unit when a predetermined amount of force is applied.

[0011] A further object of this invention is to provide a descendable ceiling fixture, as aforesaid, having a motor for automatically raising and lowering the functioning unit.

[0012] A still further object of this invention is to provide a descendable ceiling fixture, as aforesaid, that may be operated by remote control.

[0013] Other objects and advantages of the present invention will become apparent from the following description taken in connection with the accompanying drawings, wherein is set forth by way of illustration and example, embodiments of this invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] FIG. 1 is a perspective view of a descendable ceiling fixture according to a preferred embodiment of the present invention illustrating a ceiling mount embodiment;

[0015] FIG. 2 is a perspective view of the descendable ceiling fixture as in FIG. 1 illustrating a rod mounted embodiment;

[0016] FIG. 3 is another perspective view of the descendable ceiling fixture as in FIG. 2;

[0017] FIG. 4 is a perspective view on an enlarged scale of the descendable ceiling fixture as in FIG. 2;

[0018] FIG. 5 is a perspective view on an enlarged scale of the base as in FIG. 4;

[0019] FIG. 6 is a perspective view of a descendable ceiling fan according to another embodiment of the present invention;

[0020] FIG. 7 is a perspective view from another angle of the descendable ceiling fan as in FIG. 6; and

[0021] FIG. 8 is a perspective view from another angle of the descendable ceiling fixture as in FIG. 7.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0022] A descendable ceiling fixture 100 according to the present invention will now be described in detail with reference to FIGS. 1 through 5 of the accompanying drawings. More particularly, a descendable ceiling fixture 100 according to the current invention includes a base 110, a functioning unit 120, and a lowering assembly 130.

[0023] The base 110 may be configured to attach to a ceiling (not shown), and more particularly, an upper end 111 of the base 110 may be complementary to a ceiling. The base 110 may be a flush-mounted base (FIG. 1), or the base may include a down rod 112 and extend downwardly from the ceiling (FIG. 2).
The functioning unit 120 includes a fan 121 and/or a light 122, and the functioning unit 120 is movable between first and second configurations. When at the first (raised) configuration (not shown), the functioning unit 120 is lowerly adjacent the base 110. When at the second (lowered) configuration (FIGS. 1-4), the functioning unit 120 is separated from the base 110. As shown in FIGS. 1 through 4, the base 110 may have a configuration complementary to a configuration of the functioning unit 120 so the base 110 and the functioning unit 120 have a predetermined relationship when the functioning unit is at the raised configuration. In other words, the base 110 may have an indentation or protrusion 113, and the functioning unit 120 may have a complementary indentation or protrusion 123 to align the functioning unit 120 with the base 110.

As best shown in FIGS. 3 and 4, the base 110 may include a first electrical contact 115, and the functioning unit 120 may include a second electrical contact 125 complementary to the first electrical contact 115. The first and second electrical contacts 115, 125 may be in communication when the functioning unit 120 is at the first configuration and may be out of communication when the functioning unit 120 is at the second configuration. Because the functioning unit 120 may be actuated only when the first and second electrical contacts 115, 125 are in communication, the fan 121 and/or the light 122 may not be actuated when the functioning unit 120 is at the second (lowered) configuration. The first electrical contact 115 may be a female electrical contact and the second electrical contact 125 may be a male electrical contact (as shown) to reduce the chances of an unintended object contacting the first electrical contact 115, though this need not be the case.

The lowering assembly 130 may be operatively coupled to the base 110 and the functioning unit 120 to selectively move the functioning unit 120 between the first and second configurations. The lowering assembly 130 may include a plurality of retractable cables 132; each cable 132 may have opposed ends 132a and extend downwardly from the base 110, and at least one end 132a of each cable 132 may be coupled to the functioning unit 120. More particularly, a lower end 132a of each cable 132 or both ends 132a of each cable 132 may be coupled to the functioning unit 120.

The base 110 may have an imaginary geometric centerpoint (not shown), and the cables 132 may be spaced generally equidistantly about the centerpoint and generally equidistantly from at least two other cables 132. Such a configuration may allow forces to be spread evenly over the cables 132 and may allow the functioning unit 120 to be moved between the raised and lowered configurations without significant wobbling or angling of the functioning unit. In other words, this may allow an imaginary plane drawn through the functioning unit 120 to be moved linearly upwards and linearly downwards without significant tilting.

FIGS. 4 and 5 show an embodiment of the lowering assembly 130 that includes a motor 136 housed in the base 110. Each cable 132 is operatively coupled to the motor 136 for selectively extending and retracting the cables 132 to move the functioning unit 120 between the raised and lowered configurations. Various pulleys 138 are shown in communication with the cables 132 for altering a direction of the respective cables 132 at the respective pulleys 138. In other words, the pulleys 138 may allow the cables to extend downwardly to the functioning unit 120 and generally horizontally to communicate with the motor 136. Means for selectively actuating the motor 136, such as a switch or a wireless remote control, for example, may be included.

In use, the base 110 may be attached to a ceiling so that the base upper end 111 is flush with the ceiling. The first electrical contact 115 may be wired in electrical communication with a power supply, such as a 110 volt AC power supply. When the functioning unit 120 is at the raised configuration, the fan 121 and/or the light 122 may be actuated in a normal manner (e.g., through a wall switch, for example), as the first and second electrical contacts 115, 125 are in communication. When the user wants to lower the functioning unit 120 to change a light bulb or clean fan blades, for example, the motor 136 may be actuated as discussed above. As the motor 136 extends the cables 132, the functioning unit 120 is separated from the base end lowered to the user. When the functioning unit 120 is separated from the base 110, the fan 121 and/or the light 122 may not be actuated since there is no power supply to the second electrical contact 125. When the user wants to raise the functioning unit 120 to the first configuration, the motor 136 is again actuated. As the motor 136 retracts the cables 132, the functioning unit 120 is returned to the raised configuration. The mating of the indentations and protrusions 113, 123 may align the functioning unit 120 with the base 110, and the first and second electrical contacts 115, 125 may again be in communication.

A descendable ceiling fixture 200 according to another embodiment of the present invention is shown in FIG. 6 through FIG. 8 and includes a construction substantially similar to the construction previously described except as specifically noted below. More particularly, the lowering assembly 130 according to this embodiment includes a spring reel 236 instead of the motor 136. The spring reel 236 is coupled to a respective cable 132 for biasing the cable 132 to maintain the functioning unit 120 at the raised configuration. Upon the implementation of a predetermined amount of force, the spring reel 236 allows the cable 132 to move from a retracted configuration to an extended configuration to move the functioning unit 120 to the lowered configuration. A pole 240 may be selectively attachable to the functioning unit 120 for providing the predetermined amount of force.

The descendable ceiling fixture 200 may be used similar to the descendable ceiling fixture 100 described above. However, when the user wants to lower the functioning unit 120, the pole 240 may be coupled to the functioning unit 120 and the user may provide the predetermined amount of force to overcome the bias of the spring reel 236 and lower the functioning unit 120. When the user wants to raise the functioning unit 120 to the first configuration, the bias of the spring reel 236 may be used to retract the cables 132 and return the functioning unit 120 to the raised configuration.

It is understood that while certain forms of this invention have been illustrated and described, it is not limited thereto except insofar as such limitations are included in the following claims and allowable functional equivalents thereof.

1. A descendable ceiling fixture for attachment to a ceiling, said descendable ceiling fixture comprising:
    a base configured to attach to said ceiling;
    a functioning unit movable between a first configuration in which said functioning unit is adjacent said base and a second configuration in which said functioning unit is separated from said base, said functioning unit including at least one item selected from the group consisting of a fan and a light,
a lowering assembly housed in said base and operatively coupled to said functioning unit for selectively moving said functioning unit between said first and second configurations; and

wherein said base includes a first electrical contact and said functioning unit includes a second electrical contact complementary to said first electrical contact, said first and second electrical contacts being in communication when said functioning unit is at said first configuration and being out of communication when said functioning unit is at said second configuration, said functioning unit being actutable only when said first and second electrical contacts are in communication.

2. The descendable ceiling fixture of claim 1, wherein said base has a configuration complementary to a configuration of said functioning unit so said base and said functioning unit have a predetermined relationship when said functioning unit is at said first configuration.

3. The descendable ceiling fixture of claim 1, wherein:

said lowering assembly includes a plurality of retractable cables;
an each said cable includes opposed ends; and

at least one said end of each said cable is coupled to said functioning unit.

4. The descendable ceiling fixture of claim 3, wherein:

said lowering assembly includes a motor; and

each said cable is operatively coupled to said motor for selectively extracting and retracting said cables to move said functioning unit between said first and second configurations.

5. The descendable ceiling fixture of claim 4, further comprising means for selectively actuating said motor.

6. The descendable ceiling fixture of claim 4, wherein said lowering assembly includes at least one pulley in communication with at least one said cable for altering a direction of said at least one cable at said at least one pulley.

7. The descendable ceiling fixture of claim 3, wherein said lowering assembly includes a spring reel coupled to a respective cable for biasing said cable to maintain said functioning unit at said first configuration, said spring reel allowing said cable to move from a retracted configuration to an extended configuration to move said functioning unit to said second configuration upon implementation of a predetermined amount of force.

8. The descendable ceiling fixture of claim 7, further comprising a pole selectively attachable to said functioning unit for providing said predetermined amount of force.

9. The descendable ceiling fixture of claim 1, wherein said first electrical contact is a female electrical contact and said second electrical contact is a male electrical contact.

10. The descendable ceiling fixture of claim 1, wherein:

said base has an imaginary geometric centerpoint;
said lowering assembly includes a plurality of retractable cables extending downwardly from said base, said cables being spaced generally equidistantly about said centerpoint, each said cable being spaced generally equidistantly from at least two other said cables; and

a lower end of each said cable is coupled to said functioning unit.

11. The descendable ceiling fixture of claim 10, wherein:

said lowering assembly includes a motor; and

each said cable is operatively coupled to said motor for selectively extending and retracting said cables to move said functioning unit between said first and second configurations.

12. The descendable ceiling fixture of claim 10, wherein:

said lowering assembly includes a spring reel coupled to a respective cable for biasing said cable to maintain said functioning unit at said first configuration, said spring reel allowing said cable to move from a retracted configuration to an extended configuration to move said functioning unit to said second configuration upon implementation of a predetermined amount of force.

13. The descendable ceiling fixture of claim 12, further comprising a pole selectively attachable to said functioning unit for providing said predetermined amount of force.

14. A descendable ceiling fixture, comprising:

a base;
a functioning unit movable between a first configuration in which said functioning unit is lowerly adjacent said base and a second configuration in which said functioning unit is separated from said base, said functioning unit including at least one item selected from the group consisting of a fan and a light;
a lowering assembly operatively coupled to said base and said functioning unit for selectively moving said functioning unit between said first and second configurations; and

wherein said base includes a first electrical contact and said functioning unit includes a second electrical contact complementary to said first electrical contact, said first and second electrical contacts being in communication when said functioning unit is at said first configuration and being out of communication when said functioning unit is at said second configuration, said functioning unit being actutable only when said first and second electrical contacts are in communication.

15. The descendable ceiling fixture of claim 14, wherein:

said lowering assembly includes a plurality of retractable cables;
each said cable has opposed ends;
at least one said end of each said cable is coupled to said functioning unit;
said lowering assembly includes a motor; and

each said cable is operatively coupled to said motor for selectively extending and retracting said cables to move said functioning unit between said first and second configurations.

16. The descendable ceiling fixture of claim 14, wherein:

said lowering assembly includes a plurality of retractable cables;
each said cable has opposed ends;
at least one said end of each said cable is coupled to said functioning unit; and

each said lowering assembly includes a spring reel coupled to a respective cable for biasing said cable to maintain said functioning unit at said first configuration, said spring reel allowing said cable to move from a retracted configuration to an extended configuration to move said functioning unit to said second configuration upon implementation of a predetermined amount of force.
17. The descendable ceiling fixture of claim 16, further comprising a pole selectively attachable to said functioning unit for providing said predetermined amount of force.

18. A descendable ceiling fixture, comprising:
   a base;
   a functioning unit movable between a first configuration in which said functioning unit is lowerly adjacent said base and a second configuration in which said functioning unit is separated from said base, said functioning unit including at least one item selected from the group consisting of a fan and a light; and
   a lowering assembly operatively coupled to said base and said functioning unit for selectively moving said functioning unit between said first and second configurations, said lowering assembly including a plurality of retractable cables having lower ends and extending downwardly from said base, each said cable lower end being coupled to said functioning unit.

19. The descendable ceiling fixture of claim 18, wherein said lowering assembly includes a motor; and each said cable is operatively coupled to said motor for selectively extending and retracting said cables to move said functioning unit between said first and second configurations.

20. The descendable ceiling fixture of claim 18, wherein lowering assembly includes a spring reel coupled to a respective cable for biasing said cable to maintain said functioning unit at said first configuration, said spring reel allowing said cable to move from a retracted configuration to an extended configuration to move said functioning unit to said second configuration upon application of a predetermined amount of force.

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