A rotational panel assembly secures artwork to a support surface. The rotational panel assembly comprises a frame for attaching the artwork, a bearing unit coupled to the frame and allowing the frame to rotate relative to the support surface and around an axis, and a base panel attached to the bearing unit and including a mechanism for attaching the rotational panel assembly to the support surface.
ROTATIONAL PANEL ASSEMBLY

[0001] The present patent application claims priority to U.S. Provisional Application No. 61/286,200, filed on Dec. 14, 2009, the content of which is hereby incorporated by reference.

FIELD OF THE INVENTION

[0002] The present invention relates to artwork displays and, in particular, to a rotational panel assembly for holding and displaying artwork of many varieties, including but not limited to, paintings, art prints, photographs, holographic items, murals, ceramic creations, tapestry, and other two or three dimensional artwork.

BACKGROUND

[0003] Frames are conventional devices for displaying various types of artwork. A frame generally comprises a frame body securing the artwork and can also include a clear cover protecting the artwork. These types of frames are typically mounted on a supporting surface (e.g., wall, etc) or are freestanding on a horizontal surface. However, when mounted on a wall, these existing frames allow viewing of the enclosed artwork in only one display orientation. That is, once the frame is mounted on a support surface, these existing frames allow only one pre-chosen side of the artwork to be at the top. There are many artworks that do not have a well-defined top or a bottom, or may be displayed, viewed, and enjoyed in multiple orientations.

[0004] Some existing frames have attempted to provide means for redirecting the viewing focus of an object. For example, U.S. Pat. No. 6,502,538 relates to a rotating point-of-purchase display, U.S. Pat. No. 5,463,817 discloses a picture frame leveling device, and U.S. Pat. No. 6,427,370 describes a picture frame with sound and motion means. However, none of these conventional frames provide the user with an apparatus for rotating the frame and the displayed artwork to the user's personal preference, thereby redirecting the orientation of the top of the artwork.

SUMMARY

[0005] Therefore, it is desirable to provide a rotational panel assembly for attaching artwork to a support surface that operates more efficiently than the conventional display frames and allows the artwork to be rotated relative to the support surface, thereby allowing for a different visual perception of the artwork.

[0006] In one embodiment, the invention provides a rotational panel assembly for securing artwork to a support surface. The rotational panel assembly comprises a frame for attaching the artwork, a bearing unit coupled to the frame and allowing the frame to rotate relative to the support surface and around an axis, and a base panel attached to the bearing unit and including a mechanism for attaching the rotational panel assembly to the support surface.

[0007] In another embodiment, the invention provides a rotational panel assembly with a front panel adaptable for attaching the artwork, a rear panel adaptable to be attached to the support surface, and a rotational bearing positioned between the front panel and the second panel, the rotational bearing allowing the artwork to rotate about an axis relative to the support surface.

[0008] Other aspects of the invention will become apparent by consideration of the detailed description and accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a cross-sectional view of a rotational panel assembly for securing an artwork to a support surface according to an embodiment of the present invention.

[0010] FIG. 2 is an isometric exploded view showing the component parts of the rotational panel assembly shown in FIG. 1.

[0011] FIG. 2A illustrates a mechanism for attaching the rotational panel assembly of FIG. 1 to a support surface.

[0012] FIG. 3 is a plan view of a rotational panel assembly for securing artwork to a support surface according to another embodiment of the present invention.

[0013] FIG. 4 is a plan view of the bearing unit of the rotational panel assembly shown in FIG. 3.

DETAILED DESCRIPTION

[0014] Before any embodiments of the invention are explained in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of components set forth in the following description or illustrated in the following drawings. The invention is capable of other embodiments and of being practiced or of being carried out in various ways. Also, it is to be understood that the phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting.

[0015] FIGS. 1-2 illustrate a rotational panel assembly according to an embodiment of the present invention. The rotational panel assembly can be used to secure or attach artwork (e.g., painting, photography, or any other artwork) to a support surface (e.g., wall, table, etc.). Further, the rotational panel assembly can enable adjustment or rotation of the artwork in relation to the support surface. The rotational panel assembly allows for a personalized or customized display of the artwork. Therefore, by using the rotational panel assembly a user can display, rotate, and view the attached artwork in multiple orientations.

[0016] Referring in more detail to FIGS. 1-2, the rotational panel assembly includes an artwork frame, a rotational bearing unit coupled to the frame, and a base panel attached to the rotational bearing unit and including a mechanism for attaching the rotational panel assembly to the support surface.

[0017] The frame is generally used for attaching or holding artwork to the assembly. The artwork frame can be constructed from hardboard, wood, metal, plastic, or any other suitable material and can include a clear front panel and a supportive backing panel. The clear front panel is generally positioned in front of the displayed artwork and is used to protect the front side of the artwork. The front panel is constructed from glass, plastic, or any other suitable material that allows a person to view the artwork positioned behind the panel. The backing panel is used to support and protect the artwork and to attach the frame to the bearing unit. The backing panel is inserted into the rear side of the frame and held in place by fasteners.
such as swivel clips or staples positioned at the edges of the frame. In the illustrated embodiment, the supportive backing panel 13 is constructed from tempered hardboard. In alternative embodiments, the backing panel 13 can be constructed from plastic, plywood, metal, or any other suitable material that will allow the backing panel 13 to be securely coupled to the bearing unit 14 and to the rear end of frame 12. The construction on the backing panel 13 also depends on the weight of the artwork 11.

[0018] The frame 12 illustrated in FIGS. 1 and 2 has a rectangular shape. In other embodiments, the frame 12 can have different shapes, including, but not limited to, round, square, hexagonal, or irregular. The frame can be constructed in different styles in order to properly suit any type of artwork. In addition, the dimensions of the frame 12 are generally larger than the dimensions of the front panel 10, the artwork 11, and the backing panel 13. That allows front panel 10, the artwork 11, and the backing panel 13 to be securely held and supported within the frame 12. It should be noted that the dimensions of these components will change depending upon the finished size of the selected artwork 11.

[0019] As further illustrated in FIGS. 1-2, the backing panel 13 of the rotational panel assembly 5 is attached to a rotational bearing 14. The rear portion of the backing panel 13 is concentric to the front portion of the rotational or swivel bearing 14. In the illustrated embodiment, the rotational bearing 14 is a standard flat rotational bearing of the “lazy Susan” type. In an alternative embodiment, different types of rotational mechanisms can be used. The rotational bearing allows the frame 12 to rotate relative to the support surface 7 and around an axis 28. The bearing 14 is mounted to the backing panel 13 by using fasteners such as flat head rivets 21A-D. In alternative embodiments, other types of mounting or attachment mechanisms can be used depending on the manufacturing and weight requirements of the assembly 5. These mechanisms can include, but are not limited to, rivets, welding, hot melt or standard adhesives, and staking. After the backing panel 13 is attached to the rotational bearing 14, the backing panel 13 is inserted into the rear side of the frame 12 and held in place by the fasteners 18, thereby protecting the back side of the artwork. In the illustrated embodiment, the rotational bearing 14 is positioned so that the fasteners or flat head rivets 21A-D connect the bearing 14 with the backing panel 13 and at the same time the fasteners 21A-D are not pressing or damaging the back side of the artwork.

[0020] The rotational panel assembly 5 further includes a base panel 15. The rotational bearing 14 is attached to the base panel 15 by fasteners or flat head rivets 21A-D in the manner described above. The base panel 15 can have different shapes. Further, the dimensions of the base panel 15 are such that the panel 15 is generally smaller than the frame 12 or the artwork 11 and a viewer can not see the panel 15 when viewing the assembly 5 in a direction parallel to rotational axis 28. The base panel 15 is constructed from tempered hardboard, but can also be constructed from other materials such as plastic, plywood, metal, or any other suitable material. The base panel 15 includes an aperture 19 used to access the fasteners when attaching the rotational bearing 14 to the base panel 15 and the backing panel 13.

[0021] The base panel 15 also includes a mechanism 29 for attaching the base panel 15, and consequently the rotational panel assembly 5, to the support surface 7. For that reason, a first metal plate 16 is attached to one of the edges of the rear end of the base panel 15. The metal plate 16 extends vertically from the edge of the base panel 15 and includes a first U-shaped channel 25 open in a downward direction. The metal plate 16 is attached to the base panel 15 by fasteners 21A-D. Further, rubber adhesive bumpers 23A-C are attached to the remaining three edges of the rear portion of the base panel 15. The bumpers 23A-C space the back panel 15 from the support surface 7. Further, the bumpers 23A-C are used to prevent any marring of the supportive surface of the base panel 15 and to resist movement of the rotational panel assembly 5 along the support surface 7 during rotation.

[0022] The mechanism 29 for attaching the rotational panel assembly 5 to the support surface 7 is shown in FIG. 2A. To attach the rotational panel assembly 5 to the support surface 7, a second metal plate 17 is mounted to the support surface by two screws 24. The second metal plate 17 includes a second U-shaped channel 26 open in an upward direction. The rotational panel assembly 5 is hung on the support surface 7 by engaging or interlocking the first U-shaped channel 25 of the first metal plate 16 with the second U-shaped channel 26 of the second metal plate 17. This mounting configuration allows the rotational panel assembly 5 to be securely attached to the support surface 7. In alternative embodiments the rotational panel assembly 5 can be attached to the support surface 7 by other supportive means. For example, a hanging loop assembly secured by a fastener or a nail can be used to attach the base panel 15 to the support surface 7.

[0023] Thus, the illustrated rotational panel assembly 5 allows a user to redirect the orientation of the artwork according to the user’s personal preference by rotating the panel assembly 5. This arrangement allows the artwork to be displayed in a variety of orientations and to change the orientation from time to time. Further, the panel assembly 5 allows the artwork to be rotated in various directions and angles in relation to the support surface 7 (e.g., 30°, 90°, 180°, etc.). In addition, any size of artwork can be secured and displayed on a support surface by changing the size of the frame 12 and the rotational bearing 14. In addition, two or three dimensional artwork can also be incorporated into the frame 12 of the rotational panel assembly 5. Because the bearing 14 and the panels 13 and 15 can be constructed from thin sheet materials (e.g., thin metal or tempered hardboard), these elements would add very little thickness to the overall look of the displayed artwork. Further, the entire rotational panel assembly is very light and adds very little extra weight to the artwork.

[0024] FIGS. 3-4 illustrate a rotational panel assembly 100 according to another embodiment of the invention. The rotational panel assembly 100 shown in FIGS. 3-4 is similar in many ways to the illustrated embodiment of FIGS. 1-2 described above. Accordingly, with the exception of mutually inconsistent features and elements between the embodiment of FIGS. 1-2 and the embodiment of FIGS. 3-4, reference is hereby made to the description above accompanying the embodiment of FIGS. 1-2.

[0025] The rotational panel assembly 100 of this embodiment includes a front panel 102 and a rear panel 104. In the illustrated embodiment, the panels 102 and 104 have a rectangular shape, although in alternative embodiments these panels can have different shapes, including, but not limited to, round, square, hexagonal, or irregular. The rear panel 104 is generally smaller than the front panel 102 such that the edges of the rear panel 104 do not extend beyond the edges of the front panel 102. In one embodiment, both panels can be constructed from rigid material such as pressboard. The front
panel 102 is generally adaptable for accepting the artwork 11. The rear panel 104 is adaptable to be attached to the support surface 7.

[0026] A rotational bearing unit 106 is positioned between the panels 102 and 104. For example, the rotational bearing unit 106 is a standard “lazy Susan” bearing manufactured by McMaster-Carr (Part # 6031k17). The bearing unit 106 includes a first plate 108 attached to the rear panel 104 and a second plate 110 attached to the front panel 102. The second plate 110 of the rotational bearing unit 106 includes a plurality of bearing balls (not shown) located in a circular raceway 112 of plate 110. Plate 108 is secured to panel 104 and plate 110 is secured to panel 102 with fasteners in the manner described in relation to FIGS. 1-2. As the plates are secured to each other, the attachment of the panels to the plates makes the panel 102 rotationally moveable relative to panel 104.

[0027] A mechanism 114 is attached to the panel 104 so that the entire rotational panel assembly 100 can be mounted on a support surface 7 (e.g., wall, table, etc.). The mechanism 114 is the same as mechanism 29 described above and illustrated in FIG. 2A. As previously described, by engaging or interlocking the first U-shaped channel 25 of the first metal plate 16 with the second U-shaped channel 26 of the second metal plate 17 the assembly 100 is attached to the support surface. In alternative embodiment, other attachment mechanisms can be used (e.g., a D-ring hanger).

[0028] Further, any artwork 11 can be attached to the front panel 102 so the artwork can be rotated around a horizontal axis (not shown) through the bearing unit 106 when the rotational panel assembly 100 is secured to a vertical support surface. The artwork 11 can be attached to the front panel 102 by various means that include, but are not limited to, adhesive, fasteners, brackets, etc. The rotational panel assembly 100 can also be mounted to a horizontal support surface, such as a table, with panel 104 secured thereto. This would allow the panel assembly 100 to rotate the artwork 11 about a vertical axis (not shown). Similar to the embodiment illustrated in FIGS. 1-2, bumpers 120 are located at various locations on the rear end of the panel 104 to space the panel 104 from the support plate to which the assembly 100 is mounted.

[0029] The above described embodiments of the rotational panel assembly relate to a manually rotatable assembly. In another alternative embodiment, the panel assembly can include an external source of power including, but not limited to, AC electricity or a battery source. In that alternative embodiment, the rotational bearing unit 14 or 106 can be replaced by a larger rotational unit incorporating a driving motor (e.g., stepper motor (not shown)) driven by the power source. This motor-driven rotational unit can rotate the panel assembly, and consequently the artwork, relative to the support surface by using remote controlled means.

[0030] Any of the above-described embodiments can include an indexing feature that is incorporated into the bearing to allow rotation in predetermined angular increments controlled by the motor. In some embodiment, the predetermined increments or locations on the bearing are spaced 90 degrees apart. Along with, or independent of, the motor-driven unit, a light or sound apparatus can be incorporated into the rotational panel assembly to produce a lighting sequence or music, or both, that can be synchronized to the rotation of the apparatus and can enhance the visual effect of the artwork.

[0031] Various features and advantages of the invention are set forth in the following claims.

What is claimed is:
1. A rotational panel assembly for securing artwork to a support surface, the rotational panel assembly comprising:
   a. a frame for attaching the artwork;
   b. a bearing unit coupled to the frame and allowing the frame to rotate relative to the support surface around an axis; and
   c. a base panel attached to the bearing unit and including a mechanism for attaching the rotational panel assembly to the support surface.
2. The rotational panel assembly of claim 1, wherein the frame further includes a clear panel that protects the front side of the artwork and a supportive backing panel that protects the rear side of the artwork.
3. The rotational panel assembly of claim 1, further comprising a first plate that extends vertically from an edge of the base panel and includes a first U-shaped channel, a second plate mounted to the support surface that includes a second U-shaped channel, wherein the first U-shaped channel of the first plate engages the second U-shaped channel of the second plate.
4. The rotational panel assembly of claim 1, wherein the bearing unit is a lazy Susan type unit.
5. The rotational panel assembly of claim 1, further comprising at least one fastener for securing the artwork to the frame.
6. The rotational panel assembly of claim 1, further comprising a motor that drives the bearing unit for rotation of the frame relative to the support surface.
7. A rotational panel assembly for securing artwork to a support surface, the rotational panel assembly comprising:
   a. a bearing unit between the artwork and the support surface;
   b. the bearing unit allowing the artwork to rotate relative to the support surface; and
   c. a base panel attached to the bearing unit and including a connecting mechanism for attaching the rotational panel assembly to the support surface.
8. A rotational panel assembly for attaching a artwork to a support surface, the rotational panel assembly comprising:
   a. a front panel adaptable for attaching the artwork;
   b. a rear panel adaptable to be attached to the support surface; and
   c. a rotational bearing positioned between the front panel and the rear panel, the rotational bearing allowing the front panel to rotate about an axis relative to the support surface.
9. The rotational panel assembly of claim 8, wherein the rotational bearing includes a first plate attached to the rear panel and a second plate attached to the front panel, and wherein the bearing rotationally moves the front panel relative to the rear panel.
10. The rotational panel assembly of claim 9, wherein second plate of the rotational bearing includes ball bearings located on a raceway of the second plate.
11. The rotational panel assembly of claim 8, further comprising an attachment mechanism for attaching the rotational panel assembly to the support surface.
12. The rotational panel assembly of claim 8, wherein the rotational bearing is a lazy Susan type bearing.

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