A display rack comprising a horizontally movable trolley mounted on a track and a rotatable shelf mounted to the movable trolley. The track is mounted between a plurality of upright posts in such a manner that the trolley is horizontally movable between the posts. The track may be oriented so that the trolley moves either from side to side or between the back and front of the display. The shelf is mounted is secured to the trolley so that it is rotatable about a vertical axis that is disposed substantially at right angles to the direction of travel of the trolley. The shelf may be positioned either above or below the trolley and, depending upon the shelf’s position, the product is displayed on the upper or lower surface of the shelf. The display shelf may therefore be moved horizontally relative to the upright posts and/or rotated to allow for easier access to the products displayed thereon.
**SPINNER DISPLAY RACK**

**BACKGROUND OF THE INVENTION**

**[0001]** Technical Field

**[0002]** This invention generally relates to display systems for retail products. Specifically, the invention relates to a spinner display rack that is mounted on a sliding carriage which allows the display to be moved horizontally from one position to another and that further is rotatable to allow consumers to easily access the products displayed thereon.

**[0003]** Background Information

**[0004]** Retailers are always seeking ways to maximize the display space that they have available. When setting up a display system, the retailer has to consider the shape and size of any particular product to be displayed and whether a large number of different types of the same product need to be made available to the consumer. Electric outlets, for example, are purely functional in nature and fairly small and, apart from their functionality, they are basically identical. A consumer will therefore only need to select which of the different types of outlets they need, e.g., an outlet for a two-bladed plug versus an outlet for a three-bladed grounded plug. After that decision, the selection of the actual individual outlet for purchase is substantially irrelevant. The retailer can therefore display one example of each of the different types of electrical outlets side by side on a display board and simply keep boxes of the various styles of outlets in close proximity to the display.

**[0005]** Other products, however, present far more of a challenge because the basis for their selection is aesthetic appeal. Consequently, the consumer will wish to examine a large variety of examples of the same type of product before making a decision to purchase. An example of this type of product is lamps shades. A lampshade is a decorative article and, as such, a consumer will wish to look at a wide range of styles, colors and sizes of lampshades in order to find that one particular shade that fits their needs. Consequently, the retailer has to display an entire line of products in a manner that is easy for the consumer to look at, yet at the same time does not take up a lot of display space. If this type of product is simply positioned side-by-side on a display rack, then a lot of valuable display space is taken up. If, the retailer attempts to conserve display space and stack the products one behind-the-other on the shelf, then the consumer may not see those of the products which are placed further inwardly on the shelf. Additionally, consumers will tend to rearrange and redistribute the products as they attempt to reach more buried versions of the product.

**[0006]** There is therefore a need in the art for a display rack that enables a consumer to quickly and easily access the products displayed thereon, but which also capitalizes on the amount of valuable display space.

**SUMMARY OF THE INVENTION**

**[0007]** The device of the present invention is a display rack that includes a horizontally movable trolley mounted on a track and a rotatable shelf mounted to the movable trolley. The track comprises a pair of rails that mounted spaced apart pairs of upright posts. The trolley is slidably engageable along the rails. Depending on the orientation of the track, the trolley can slide horizontally from one side of a display rack to another, or the trolley can slide between the front and back of the display and may even be able to extend partially into the aisle. The shelf is mounted on the trolley in such a manner that it is able to rotate about a vertical axis that is disposed at right angles to the direction of horizontal motion of the trolley. The shelf includes an upper surface onto which the products are placed. Alternatively, the shelf may include a plurality of hooks on a lower surface that allow product to be suspended therefrom. The shelf can therefore be simultaneously rotated and moved horizontally so that the consumer can more easily access the products displayed thereon.

**BRIEF DESCRIPTION OF THE DRAWINGS**

**[0008]** The preferred embodiments of the invention, illustrative of the best mode in which applicant has contemplated applying the principles, are set forth in the following description and are shown in the drawings and are particularly and distinctly pointed out and set forth in the appended claims.

**[0009]** FIG. 1 is a perspective view of the spinner display in accordance with the present invention;

**[0010]** FIG. 2 is an exploded perspective view of the spinner display;

**[0011]** FIG. 3 is top view of the spinner display mounted on a carriage connected between two shelving units;

**[0012]** FIG. 4 is a side elevational view of the spinner display of the present invention;

**[0013]** FIG. 5 is a front elevational view of the spinner display of the present invention;

**[0014]** FIG. 6 is a side elevational view of the connection between the spinner display and the carriage through line 6-6 of FIG. 4;

**[0015]** FIG. 7 is a front elevational view of the connection between the carriage and the shelving unit through line 7-7 of FIG. 3;

**[0016]** FIG. 8 is side elevational view of the connection point of the carriage through line 8-8 of FIG. 3;

**[0017]** FIG. 9 is a side elevational view of the connection between the display rack and the carriage through line 9-9 of FIG. 4;

**[0018]** FIG. 10 is a top view of the spinner rack moved over the carriage toward the second shelving unit;

**[0019]** FIG. 11 is a front elevational view of the spinner display rack moved to the second end of the carriage and display product thereon;

**[0020]** FIG. 12 shows a second embodiment of the spinner display rack in accordance with the present invention;

**[0021]** FIG. 13 is an exploded view of the spinner display rack of FIG. 12;

**[0022]** FIG. 14 is a side elevational view of the spinner display rack of FIG. 12;

**[0023]** FIG. 15 is a front elevational view of the spinner display of FIG. 12; and

**[0024]** FIG. 16 is a side elevational view of the connection between the spinner display rack and the carriage through line 16-16 of FIG. 14.

**DETAILED DESCRIPTION OF THE INVENTION**

**[0025]** Referring to FIGS. 1-9, there is shown a display rack in accordance with the present invention and generally indicated at 10. Rack 10 is designed to be mounted between four upright metal shelving posts 12 which are typically used in large home-improvement type stores. Display rack
10 includes a pair of spaced apart tracks 20 that are secured to posts 12, a horizontal trolley 14 mounted for slidable horizontal movement along said tracks 20, and a spinner shelf 16 mounted on the trolley 14. Spinner shelf 16 may be disposed above or below trolley 14 and is mounted for rotational motion about an axis disposed at substantially at right angles to direction of travel of trolley 14 on tracks 20. Shelf 16 is adapted to display products thereon.

[0026] Tracks 20 are secured to posts 12 in such an orientation as to ensure the desired direction of motion of the trolley 14 is achieved. So, if trolley 14 is to slide from side to side within the display rack 10, then tracks 20 are secured so as to be oriented substantially parallel to the front and back of the display rack. If trolley 14 is to slide between the front and back of the display rack 10, then tracks 20 are secured so that they are disposed at right angles to the front and back of the rack 10. FIG. 1 illustrates a display rack 10 where the trolley 14 is to slide from side to side within rack 10. Thus, a pair of L-shaped brackets 18 extend between a front and a rear upright shelving post 12 on either side of the display. The right-hand front and rear posts have been removed to simplify the drawing. (If the trolley 14 was to move between the front and back of the display, then the bracket 18a would extend between the two front posts 12 and the bracket 18b would extend between the two back posts 12.)

[0027] The pair of parallel, spaced apart tracks 20 are mounted between brackets 18a, 18b. Tracks 20 can be mounted to brackets 18 in any suitable manner, such as by way of S-shaped hangers 21 that run at least partially along the length bracket 18 or by more permanent means such as fasteners (not shown). Each track 20 includes a generally C-shaped guide channel 22 and each guide channel 22 has a metal strengthening rod 23 disposed therein.

[0028] The trolley 14 is a generally H-shaped and includes a pair of parallel spaced-apart supports 24 which extend between the spaced-apart tracks 20 and are connected to each other by a crossbar 28. Each end of each support 24 is provided with a roller 26 that is received within one of the opposing guide channels 22 in tracks 20. Rollers 26 mounted on the end of supports 24 are introduced into guide channels 22 through aligned apertures 36 in tracks 20. Rods 23, which are spaced apart between channels 22 actuate rollers 26 by substantially preventing bolts 27 from scraping along the interior surface 20a of track 20. Trolley 14 has a longitudinal axis of travel A-A (FIG. 1) which is substantially parallel to tracks 20 and trolley is therefore reciprocally movable along the tracks 20 toward and away from brackets 18 and parallel to the axis of travel A-A. Trolley 14 also includes at least one stop 34, disposed on one of supports 24 to cushion any impact trolley 14 may have on brackets 18. Supports 24a, 24b and crossbar 28 therefore provide a movable unit that may be reciprocally moved along longitudinal axis A-A between brackets 18a and 18b.

[0029] In accordance with another feature of the present invention, trolley 14 is provided with a sleeve 30 that extends outwardly away from central support 24a (FIGS. 4 & 6) and is disposed substantially at right angles thereto. Sleeve 30 is connected to central support 24a and crossbar 28 by a plurality of gussets 32 and preferably is substantially cylindrical in shape. Sleeve 30 also defines an axial bore 30a therein.

[0030] Shelf 16 is connected to trolley 14 by way of a central post 38 which is slidable received within bore 30a of sleeve 30. A first end 40 of post 38 is inserted through an aperture 42 in shelf 16 and then into bore 30a of sleeve 30. First end 40 is secured within bore 30a by a spring-biased detent 44 received through an aperture 46 in sleeve 30 and by a nut and bolt 48. Post 38 further includes a second end 50 having a bearing 52 thereon. When display rack 10 is assembled, bearing 52 is disposed below the lower surface 16b of shelf 16 and shelf 16 is therefore essentially suspended from trolley 14. Shelf 15 is rotatable on bearing 52 and about the post’s vertical axis B-B. As seen from FIG. 5, the vertical axis B-B of post 38 lies substantially at right angles to the longitudinal axis A-A of trolley 14. More than one spring biased detent 44 may be provided on post 38 and thus the length of post 38 and the distance between shelf 16 and trolley 14 is adjustable.

[0031] FIGS. 10 & 11 show how trolley 14 and shelf 16 mounted thereon can move horizontally between bracket 18a and bracket 18b along the trolley’s longitudinal axis A-A. This movement is accomplished by grasping shelf 16 or central post 38 and sliding the same along tracks 20 either toward bracket 18a or toward bracket 18b. When trolley 14 is moved in a first direction, as indicated by arrow “C” in FIGS. 10 & 11, trolley 14 moves from proximate bracket 18a toward bracket 18b. Movement in this direction is arrested when stop 34 engages bracket 18b. Trolley 14 may be moved in the opposite direction to arrow “C”, thereby moving from proximate bracket 18a toward bracket 18a.

Movement in this direction is substantially arrested when rollers 26a and support 24a encounter bracket 18a. The horizontal sliding motion allows the consumer or the store assistant to slide shelf 16 from one side of a display to another.

[0032] It will be understood that tracks 20 may be mounted to posts in such a manner as to allow shelf 16 to slide partially into and out of a store aisle. This orientation is not shown in the drawings. However, this movement permits the shelf 16 to be moved at least partially into the aisle so that products 56 displayed on the shelf 16 may be more easily accessed by the consumer.

[0033] FIG. 11 illustrates that shelf 16 may also be rotated through 360° about the vertical axis B-B of post 38. This motion allows the consumer to rotate shelf 16 to access products 56 that may initially be held on that part of shelf 16 remote from the consumer. Shelf 16 can therefore be moved horizontally along the longitudinal axis A-A of trolley 14 and/or may be rotated about the vertical axis B-B of post 38 so as to position shelf 16 in a manner that allows the consumer to more easily gain access to products 56 thereon.

[0034] Because the shelf 16 is circular in shape, the shelf occupies a horizontal display space generally equivalent to the diameter of the shelf 16. However, the actual space available on shelf 16 for display of products 56 is equivalent to the circular area of the shelf. This is a considerably larger display space than the horizontal distance that the shelf 16 occupies. Furthermore, because shelf 16 is suspended, it is possible for the store to display other products on a fixed shelf disposed beneath the shelf 16, thereby maximizing the display space.

[0035] It will be understood that more than one shelf can be secured to the movable trolley 16 and that if two or more shelves are so secured, that each shelf could be individually rotatable.

[0036] Referring to FIGS. 12-16 there is shown a second embodiment of a display rack in accordance with the present
invention and generally indicated at 110. In rack 110, the L-brackets 118 are secured to a display surface (not shown) and trolley 114 again includes rollers 126 which engage tracks 120 and that enable trolley 114 to slide horizontally along the longitudinal axis D-D of rack 110. Shelf 116 is mounted so as to be disposed above trolley 114 with post 138 being inserted through aperture 142 in collar 154 (Ex. 16). Bearing 152 allows shelf 116 to rotate about the vertical axis E-E of post 138. Products (not shown) are placed on the upper surface 116a of shelf 116. Shelf 116 can therefore be horizontally moved along the longitudinal axis of travel D-D of trolley 114 and/or can be rotated about the vertical axis E-E of post 138 to make the products on shelf 116 more accessible to the consumer. The consumer can move shelf 116 either from side to side, or into and out of the aisle in order to access products on the shelf. Furthermore, they can rotate the shelf to gain access to products that are located toward the rear of the display. The horizontal sliding motion and the rotational motion can occur simultaneously.

[0037] It will be understood that while the shelves 16, 116 are shown as formed as a series of concentric metallic rings, the shelves can alternatively be formed with a substantially solid upper or lower surface. Furthermore, it will be understood that while rollers are provided to allow the trolley to slide back and forth along the tracks, any other suitable mechanism can be provided for this purpose.

[0038] It will also be understood that while the trolley is shown as mounted on a pair of spaced apart parallel tracks, it may alternatively be mounted for slidable movement along only a single track without departing from the spirit of the present invention. Furthermore, while the bearing is shown as received within the aperture within the shelf, it will be understood that the bearing may alternatively be disposed on the trolley end of the central post.

[0039] It will further be understood that while the preferred embodiment of the invention discloses that products are displayed on an upper surface of the shelf, the shelf may be connected to the trolley in such a manner that it is positioned beneath the same. The lower surface of the shelf may then be provided with hooks or other connectors upon which the products to be sold may be suspended. Furthermore, the shelf may be secured in such a manner that it can be used to display products on both the upper and lower surfaces thereof.

[0040] In the foregoing description, certain terms have been used for brevity, clearness, and understanding. No unnecessary limitations are to be implied therefrom beyond the requirement of the prior art because such terms are used for descriptive purposes and are intended to be broadly construed.

[0041] Moreover, the description and illustration of the invention are an example and the invention is not limited to the exact details shown or described.

1. A rack for displaying retail products; said rack comprising:
   a track adapted to be mounted to a retail display;
   a trolley horizontally movable along the track; and
   a shelf rotatably mounted on the trolley, said shelf being adapted to support a plurality of articles to be displayed thereon.

2. The display rack as defined in claim 1, wherein the track comprises:
   a first and a second bracket, each of said brackets being adapted to be secured between a pair of upright posts of the retail display;
   a first and a second rail, each of said rails extending between the first and second brackets and being disposed substantially at right angles thereto.

3. The display rack as defined in claim 2, wherein the track further includes a first and second hanger, and said first hanger secures the first rail to the first bracket; and said second hanger secures the second rail to the second bracket.

4. The display rack as defined in claim 3, wherein both of the first and second brackets are L-shaped in cross-section; and both of the first and second hangers are substantially S-shaped in cross-section.

5. The display rack as defined in claim 2, wherein each of said first and second rails is substantially C-shaped and includes an interior channel, and wherein said channels open upward toward each other.

6. The display rack as defined in claim 5, wherein said trolley is operationally engageable in the channels of said rails and is reciprocally movable therealong.

7. The display rack as defined in claim 6, wherein the trolley comprises:
   a first and a second support; each of the first and second supports having opposing ends;
   a crossbar connected between the first and second supports; and
   a roller mounted on each of said ends of the first and second supports; and wherein the rollers are sized to be rotatably received within the channels in the first and second rails of the track; whereby the trolley is reciprocally slidable along the track.

8. The display rack as defined in claim 6, wherein the trolley further includes a stop mounted to one or both of said first and second supports, said stop being adapted to engage one of said first and second brackets and to thereby limit movement of said trolley on the track.

9. The display rack as defined in claim 1, wherein the shelf is mounted to one of an upper and a lower surface of the trolley.

10. The display rack as defined in claim 7, further comprising a vertical post extending between the trolley and the shelf; and wherein the post includes a vertically disposed axis therethrough and wherein the shelf is rotatable around the vertical axis.

11. The display rack as defined in claim 10, wherein the trolley is slidable along the tracks in a direction substantially at right angles to the vertical axis of the post.

12. The display rack as defined in claim 10, wherein the vertical post comprises a first section that extends outwardly away from the trolley and a second section that extends outwardly away from the shelf; and wherein the first and second sections are adjustably connected together.

13. The display rack as defined in claim 11, wherein the first section of the vertical post is mounted at right angles to the crossbar; and the second section of the vertical post is mounted at right angles to an upper surface of the shelf.

14. The display rack as defined in claim 11, wherein the second section of the vertical post includes a bearing disposed between the shelf and the second section of the vertical post.

15. The display rack as defined in claim 11, wherein the shelf is substantially circular in shape.
14. The display rack as defined in claim 1, wherein the shelf is simultaneously horizontally slidable and rotatable about a vertical axis.

15. A display rack for displaying products thereon; said rack including a horizontal shelf adapted to support a plurality of products thereon for display; said shelf being reciprocally rotatable in said rack about a vertical axis and further being reciprocally movable in said rack along a horizontal axis.

16. The display rack as defined in claim 15, wherein said rack has a front, a back and opposing sides; and wherein said shelf is reciprocally movable between the opposing sides of the rack.

17. The display rack as defined in claim 15, wherein said rack has a front, a back and opposing sides; and wherein said shelf is reciprocally movable along an axis that extends between said front and back of the rack; and wherein said shelf is slidable to a point where at least a portion thereof is disposed in front of the front of the rack.

18. The display rack as defined in claim 15, wherein the shelf is simultaneously slidable along the horizontal axis and rotatable about the vertical axis.

19. The display rack as defined in claim 15, wherein the shelf is circular in shape.

20. The display rack as defined in claim 13, wherein the shelf includes an upper and lower surface and wherein the shelf is adapted to display products on one or both of the upper and lower surfaces thereof.