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REVOLVING GROCERY COUNTER

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2 Sheets-Sheet 1

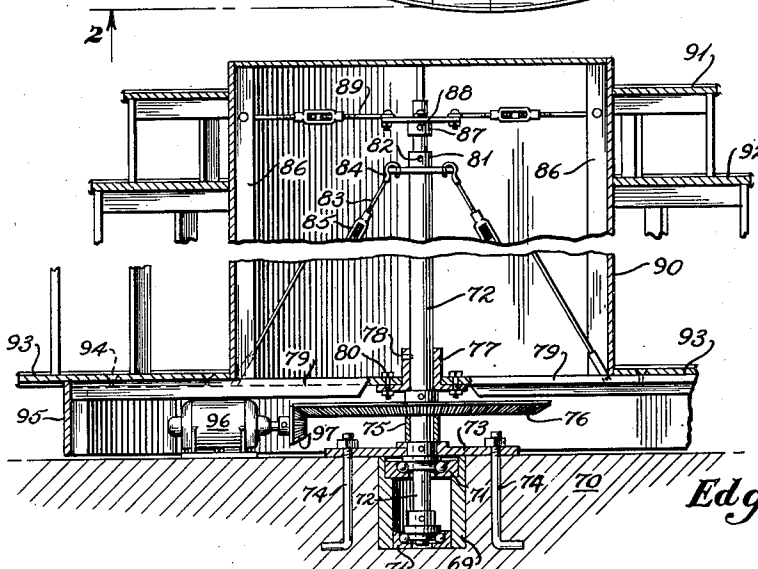
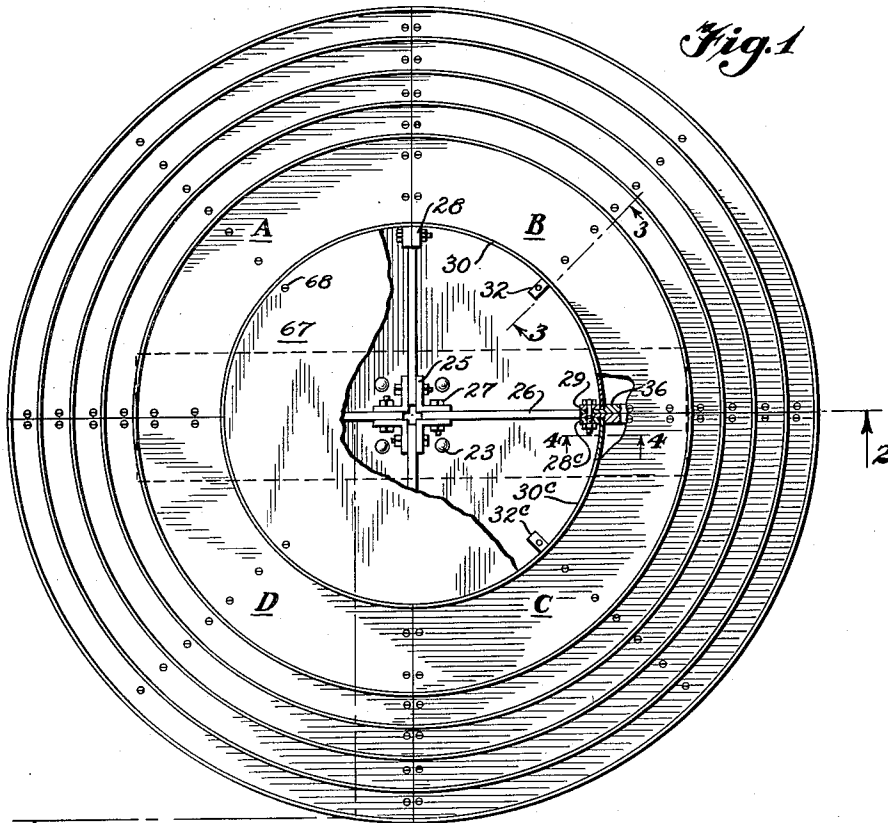


Fig. 6

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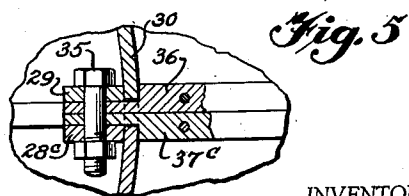
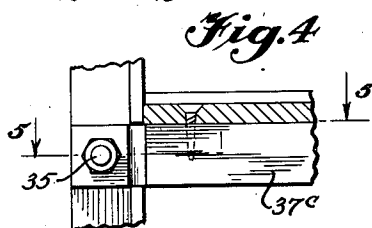
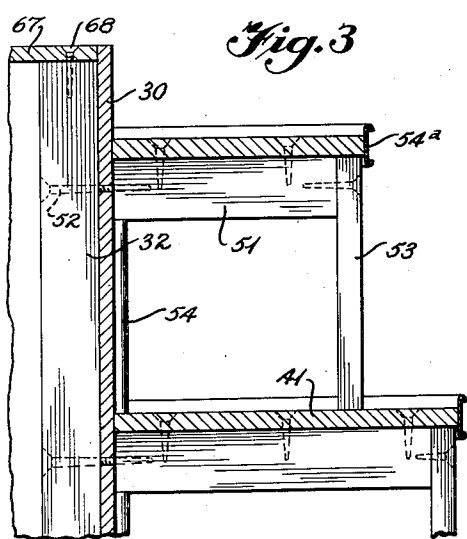
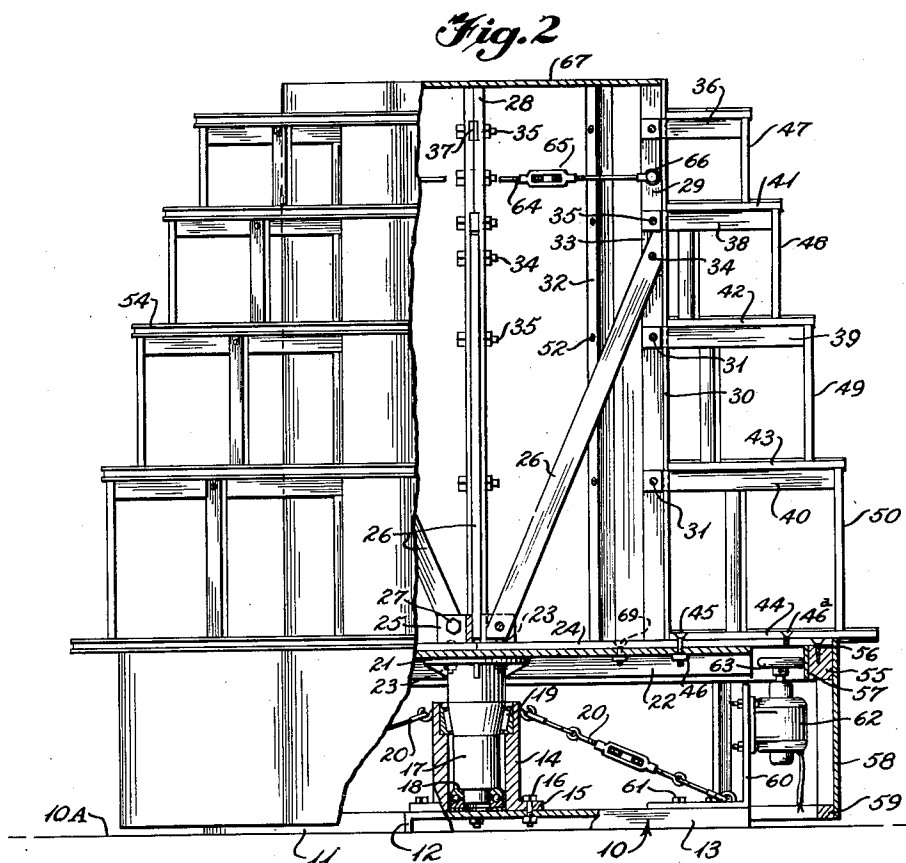
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REVOLVING GROCERY COUNTER

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5 Claims. (Cl. 211-1.6)

The present invention relates to shelving and more particularly to shelving mounted for rotation for supporting goods for display and sale.

It has been customary to provide shelves of the various types for display and storage of goods in stores and the like, but these shelves have not been entirely satisfactory since they frequently have sharp corners with which the customers may come in contact and injure themselves or the displayed articles may be displaced. Further, the old type of shelves have usually been stationary, making it necessary for the customer to make an extensive trip around the store to obtain the desired merchandise and unless the customer moved from place to place, he could not see the various products on sale. Particularly in the self-service type of stores, the previously used type of shelves have not satisfied the needs of the general public.

An object of the present invention is to overcome the disadvantages of existing types of shelves and particularly to effectively display goods so that the customers may be apprised of the complete stock in the store.

Another object of the invention is to provide a sectional set of shelves which may be shipped in disassembled relation and be readily assembled at the store in which the shelves are to be used.

A further object is to provide a circular set of shelves mounted for rotation about a vertical axis, with means to rotate the shelves so that a customer in one position may inspect the entire supply of goods on the shelves without requiring the customer to move from place to place.

A further object of the invention is to provide shelves of attractive appearance on which various articles may be positioned for maximum effective display, with the shelves movable to permit inspection of the entire stock displayed thereon.

Briefly, the present invention relates to a shelf assembly including a plurality of circular shelves arranged in terraced relation, with the shelves mounted for rotation about a vertical axis on suitable bearings, so that the entire shelf assembly may be rotated either manually or by means of a motor to carry the goods supported on the shelf past a given point. The shelf assembly is made in sections which can be readily assembled at the place of use permitting factory manufacture of the shelf-sections with the consequent lower cost and uniform quality. The assembly of the shelf sections at the store or other location where the shelves are to be used greatly simplifies shipping.

Further objects and advantages will be apparent from the following description taken in conjunction with the drawings therein:

Fig. 1 is a plan view with parts broken away of a set of shelves made in accordance with one form of the invention;

Fig. 2, an elevational view with parts broken away and parts in section taken substantially on line 2-2 of Fig. 1;

Fig. 3, a fragmentary section taken on line 3-3 of Fig. 1, showing an intermediate support for the shelves;

Fig. 4, a fragmentary section taken substantially on

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line 4-4 of Fig. 1, showing one way in which the terminal shelf supports may be constructed and assembled;

Fig. 5, a section taken substantially on line 5-5 of Fig. 4;

Fig. 6, transverse sectional view with parts broken away of a modified form of the invention.

Referring more particularly to the drawings, wherein like reference numerals refer to like parts throughout, a base 10 is adapted to rest upon a supporting surface such as a floor 10A and the base 10 may include side-wardly extending channel shaped radiating arms 11 and 13, a forwardly extending arm 12, and a rearwardly extending arm (not shown). The base is therefore composed of diverging channel members diverging outwardly from the center at which such members cross. Upon the base is mounted a sleeve 14 having a flange 15 through which securing bolts 16 pass and such securing bolts pass into the base 10 and are secured by suitable nuts. A vertically disposed shaft 17 is rotatably supported in anti-friction bearings 18 and 19 in sleeve 14 for rotation about a vertical axis. Tension members in the form of adjustable turnbuckle means 20 extend from the upper end of the sleeve to the outer ends of the arms of the base for accurately adjusting the sleeve 14 and the shaft 17 into a true vertical position. Upon the upper end of the shaft 17 is a flange 21 supporting a channel member 22 with the flanges of the channel member extending downwardly and such channel member is secured to the flange 21 by means of bolts 23 passing therethrough.

Upon channel member 22 are radiating members 24 which may be segmental plates, rods, or other strut members and such members are also secured by means of bolts 23 to the channel member 22 and the flange 21 of the shaft 17. Projecting upwardly from the shaft 17 are a plurality of angle lug members 25 and such angle members are preferably integral with shaft 17 but may be attached thereto or to the channel member 22 by any suitable means. Between each pair of adjacent flanges of the angle members 25, one end of a strut member 26 projecting upwardly and outwardly is mounted and is secured by means of bolt 27 or the like.

The circular shelf is made of arcuate sections A, B, C, and D with each section similar to the other sections so that a description of one should suffice. Referring to section B, uprights 28 and 29 project upwardly from a strut plate 24 and are joined together by an arcuately shaped strip of sheet material such as plywood 30 bent to the proper shape and secured at its upright edges to the strips 28 and 29 by any suitable means, such as screws or the like 31. One or more intermediate uprights 32 are provided between end uprights 28 and 29 and are secured by suitable screws to the arcuate shaped member 30. Similar uprights are provided for the section C and one end upright being 28C and an intermediate upright being 32C. The arcuate shaped sheet 30C is connected to the uprights by suitable screws. Uprights 29 and 28C are recessed at 33 to receive the upper end of strut members 26 and a bolt 34 passes through uprights 29 and 28C as well as the end of strut 26 serving to maintain the parts in assembled relation. The bolt 34 also connects the adjacent shelf sections together and other bolts 35 perform a similar function.

Outwardly extending shelf supports 36, 37C have their inner ends reduced (Fig. 5) and fit into notches or recesses formed in uprights 29, 28C and the bolts 35 passing through the uprights and the reduced portions of shelf-supports 36 and 37C serve to maintain the parts in assembled relation. Other shelf supports 38, 39 and 40 serve to support the intermediate shelves 41, 42 and 43, while the lower shelf 44 is supported on plate 24 or the equivalent strut member to which it is secured by

suitable fastening means such as screws 45 which may pass through the channel member 22 and be secured thereto by nuts 46. Other fastening means such as screws 46a may additionally serve to maintain the shelf 44 on the plates 24.

For bracing the outer ends of the shelf supports 36, 38, 39 and 40 suitable uprights 47, 48, 49 and 50 may be provided having their lower ends resting on the shelf therebelow and the upper ends secured to the outer ends of the shelf supports. Similar shelf supports and uprights are provided for supporting the shelves of each section.

Referring to Fig. 3 intermediate shelf supports are provided for each of the shelves and include a horizontal shelf support 51 having its inner end secured in abutting relation to sheet 30 by means of a screw 52 passing through the intermediate upright 32 and into the adjacent end of the shelf support 51 while a suitable upright support 53 has its upper end secured to the outer end of the shelf support 51 and its lower end resting on the shelf 41 therebelow. The inner end of the shelf support 51 may be supported upon a half round strip 54 extending between the shelf 41 therebelow and abutting the lower edge of the shelf support 51 thereabove. A suitable price tags holding means such as a molding 54a of channel shape with the flanges thereof bent inwardly may be secured to the outer edge of the shelves for supporting the price tags and such strip may extend above the shelf a slight amount to serve as a retaining flange for articles on the shelf.

The structure above described may be used by manually rotating the shelves in their assembled relation, but it is desirable to provide for power rotation of the shelves so that the customer will not have to use manual effort to turn the same and such power rotation may produce a constant speed of rotation thereby avoiding any danger of inertia forces tipping the articles supported on the shelves from their original positions. For this purpose a strip of material 55 may be secured to the underside of the shelf sections by means of screws or other fastening means 56 passing through members 24 and such strip 55 may be made in sections if desired and a strip of friction material 57 may be secured to the inner surface of such strip while an apron member 58 may be secured to the outer edge of the strip 55 and extend downwardly substantially to the supporting surface and spaced lightly thereabove to mask the supporting structure. If desired a reinforcing strip 59 may be secured to the lower edge of the apron 58. A bracket 60 is secured by means of bolts 61 to the arm 13 of the base and such bracket includes an upright portion on which a motor 62 is mounted for any necessary adjustment and such adjustment may be accomplished by providing slots in the bracket 60 through which bolts pass to permit vertical and horizontal adjustment of the motor 62. A friction wheel 63 is secured to the motor shaft and engages the friction strip 57 to cause rotation of the shelves.

If desired, braces 64 having turnbuckle 65 may be secured at their ends around a bolt 66 passing through the uprights 29 and 28C and/or uprights 32 and such braces 64 may extend completely across to the diametrically opposite uprights for preventing the separation of the upper ends thereof. A cover 67 may be secured by the screws 68 to the intermediate uprights 32 thereby completely closing the structure.

It will be evident that the shelf structure described may be made in sections and assembled at the store in which it is to be used. The base may be mounted on the supporting surface, the shaft arranged in its upright position within the sleeve 14 and the channel iron properly positioned with the plates 24 located and secured to the channel iron by any suitable means. Additional bolts 69 may be used as desired. Thereafter the shelf sections of arcuate shape and strut members 26 may be placed in position and the parts secured together by means of the bolts 27, 34, and 35 and the lower shelf may be

secured by means of bolts 45 and 46. The strip 55 and the apron 58 may be secured to the plate 24 prior to the location of the shelves thereon or the strip 55 or the apron 58 may be secured thereafter by passing screws 56 through the bottom shelf as well as through the plate 24 and then into the strip 55. Also it will be apparent that instead of plate 24, a plurality of radiating arms may be used thereby producing a skeleton construction similar to that described in the modification hereinafter described.

With reference to shaft 17 shown in Fig. 2 and the flange 21, it is contemplated that the shaft may be made considerably longer placing the lower shelf at a higher elevation and suitable diagonal braces may extend from the shaft upwardly and outwardly to the plates 24 or other supporting structure.

Referring to Fig. 6, a modified form of the invention is shown in which a supporting sleeve 69a is imbedded in a floor 70 of concrete and suitable thrust bearings 71 of the anti-friction type serve to support a vertical shaft 72 by means of the usual inner race members mounted on the shaft and the upper inner race member may be maintained in position to prevent vertical removal thereof by means of a plate 73 secured by anchor bolts 74 to the floor. If desired, a spacing sleeve 75 may be mounted on the shaft 72 between the upper inner race member and a ring gear 76 affixed to the shaft and maintained in space relation by such sleeve 75. A first hub 77 may abut the boss of the ring gear and be fixed to the shaft by means of a set screw 78. A plurality of radiating angle members 79 are secured at one end to the flange of the hub by means of bolts 80.

A second hub 81 is similarly fixed to a preferably reduced portion of the shaft 72 by means of a set screw 82. A plurality of adjustable brace members 83 which may be tension rods with hooks 84 at the ends thereof, and turnbuckles 85 provide adjustment with the upper end of the brace secured to the hub 81 and the lower end secured to a corresponding angle member 79 by any suitable means such as hooks similar to hooks 84 passing through an opening in the web of the angle member 79.

A plurality of uprights 86 are provided to correspond with the number of radiating angle members 79 and project upwardly therefrom. Such uprights may be of wood or may be angle members if desired.

A third hub 87 is mounted at the upper end of the shaft 72 and fixed thereto by any suitable means such as a set screw 88. A plurality of turnbuckle braces 89 extend from the hub 87 to the upright 86 and prevent outward displacement of such uprights.

A circular wall 90 surrounds the uprights 86 and the shelves 91, 92 and 93 are mounted on suitable supports similar to that described above, but the lower shelf may be mounted directly upon the radiating angle members 79 by means of screws 94 and a suitable apron 95 may extend downwardly from the bottom shelf 93 toward the floor and such apron may be secured to the lower shelf and/or to the angle member 79 by any suitable means. In some constructions it may be desirable to have the skirt 95 mounted stationarily on the floor and extend upwardly toward the bottom shelf.

In this form of the invention the shelves may be rotated manually if desired, but a suitable motor 96 having a bevelled gear 97 is provided so the bevelled gear may mesh with the ring gear 76 to produce rotation of the shelves at a desired speed.

It will be apparent that in the modification of Fig. 6 the shelves may be made in arcuate sections similar to that described above and shown in Figs. 1 to 5 so that the equipment may be shipped in knocked-down condition and assembled at the place of use. Also, it is contemplated that a suitable base may be used for supporting the sleeve 69 so that the shelves may be supported on the top of the floor, thereby reducing the cost of installation.

It will be apparent that the invention may be used without having the shelves rotatable with the shelves

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supported in a stationary fashion. The sections may be used as a circular set of shelves or may be used with only one section placed in a corner, two sections placed against a flat wall or three sections making an angle of 270 degrees used to embrace a projecting corner of a room. The attractive appearance of the shelves serves to improve the effectiveness of the display.

It will be obvious to those skilled in the art that various changes may be made in the invention without departing from the spirit and scope thereof, and therefore the invention is not limited by that which is shown in the drawings and described in the specification but only as indicated in the appended claims.

What is claimed is:

1. A storage and display rack comprising a base including a plurality of radial members for support on a floor, a tube mounted centrally of said radial members, a first series of adjustable guy wires extending from the top of said tube to the ends of the radial members, bearings in the tube, a shaft projecting upwardly from the tube and rotatably mounted in the bearings, a plurality of radially extending struts projecting from said shaft, uprights extending from said struts parallel to said shaft, a central strut attached to said shaft, a second series of guy wires extending from an upper portion of said central strut to the upper ends of said uprights, a panel surrounding said uprights for masking said central strut and uprights from view, shelves projecting outwardly from said panel, a skirt extending from the bottom shelf toward the floor for masking the base and tube, and means for driving said shaft whereby the display rack is continuously rotated at a speed sufficient to attract attention while permitting customers to remove the desired articles therefrom.

2. A rotary display rack comprising a base, an upstanding sleeve mounted on said base, an upstanding shaft within said sleeve and projecting upwardly therefrom, bearings in said sleeve rotatably mounting said shaft for supporting heavy endwise loads on said shaft, turnbuckle braces extending from said base to said sleeve and adjustable to position said sleeve in vertical position, a channel mounted on said shaft in substantially horizontal position and fixed thereto, lugs extending upwardly from said channel member adjacent the shaft, a strut mounted at one end in each pair of lugs and extending radially outwardly and upwardly from said shaft, segmental shelf sections positioned outwardly from said shaft and above said base and supported in part at least on said channel member, said shelf sections providing a closed periphery and continuous shelves thereon, means for securing the shelf sections together, the other end of each strut mounted on said shelf sections, tension members extending inwardly from the upper portions of said shelf sections and preventing undesired spreading of the upper portion of said shelves, a skirt fixed to the bottom of said shelf sections and extending toward and spaced from the supporting surface, and means for rotating said shaft within said skirt and hidden from view thereby.

3. A rotating rack comprising a sleeve for mounting in a fixed support, bearings in said sleeve, a shaft mounted at one end in said sleeve and rotatably supported by said

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bearings, a gear mounted on said shaft, and coaxing motor and gear means for driving said gear, a hub mounted on said shaft above said gear, a plurality of stringers mounted on said hub and radiating outwardly therefrom, a second hub mounted on said shaft above said first hub, an adjustable member extending from said second hub to each stringer and connected to said stringer at a point intermediate the ends of the latter, an upright extending from each of said stringers, a wall surrounding said uprights and secured thereto, a plurality of shelves outwardly of said wall and supported by said stringers, uprights and wall, a third hub above said second hub and mounted on said shaft, and adjustable means extending from said third hub to each of said uprights for preventing spreading of said uprights.

4. Shelf construction comprising a plurality of sections, each section comprising a plurality of uprights, a plurality of shelf supports projecting outwardly from said uprights, each shelf support being provided with a recess for snugly receiving its upright, a panel mounted in front of the uprights and having its edges received in said recesses, at least one upright at each end of a shelf section, shelves mounted on said shelf supports, and clamping means passing through said uprights and shelf supports for connecting the shelf section together whereby a shelf of large dimensions may be formed from relatively small shelf sections.

5. A rotary storage and display rack comprising vertically disposed bearing structure adapted to be mounted in a fixed upright portion, a vertically positioned shaft rotatably mounted in said upright bearing, a plurality of radiating elements fixed at their inner ends on said shaft, a plurality of shelf sections, each section including an upright at each end thereof, a plurality of horizontally extending supports projecting outwardly from each upright and fixed on its upright, means to secure shelf sections in abutting relation with the abutting ends resting upon the radiating members extending from said vertical shaft, diagonal members extending between said vertical shaft and the uprights of said shelf sections for securing said shelf sections in fixed relation to said shaft, and tension members extending between the uprights of said shelf sections adjacent the upper ends of said uprights for preventing outward displacement of the upper portions of said shelf sections, and means to positively secure the shelf sections in fixed relation to one another and to said radiating members.

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