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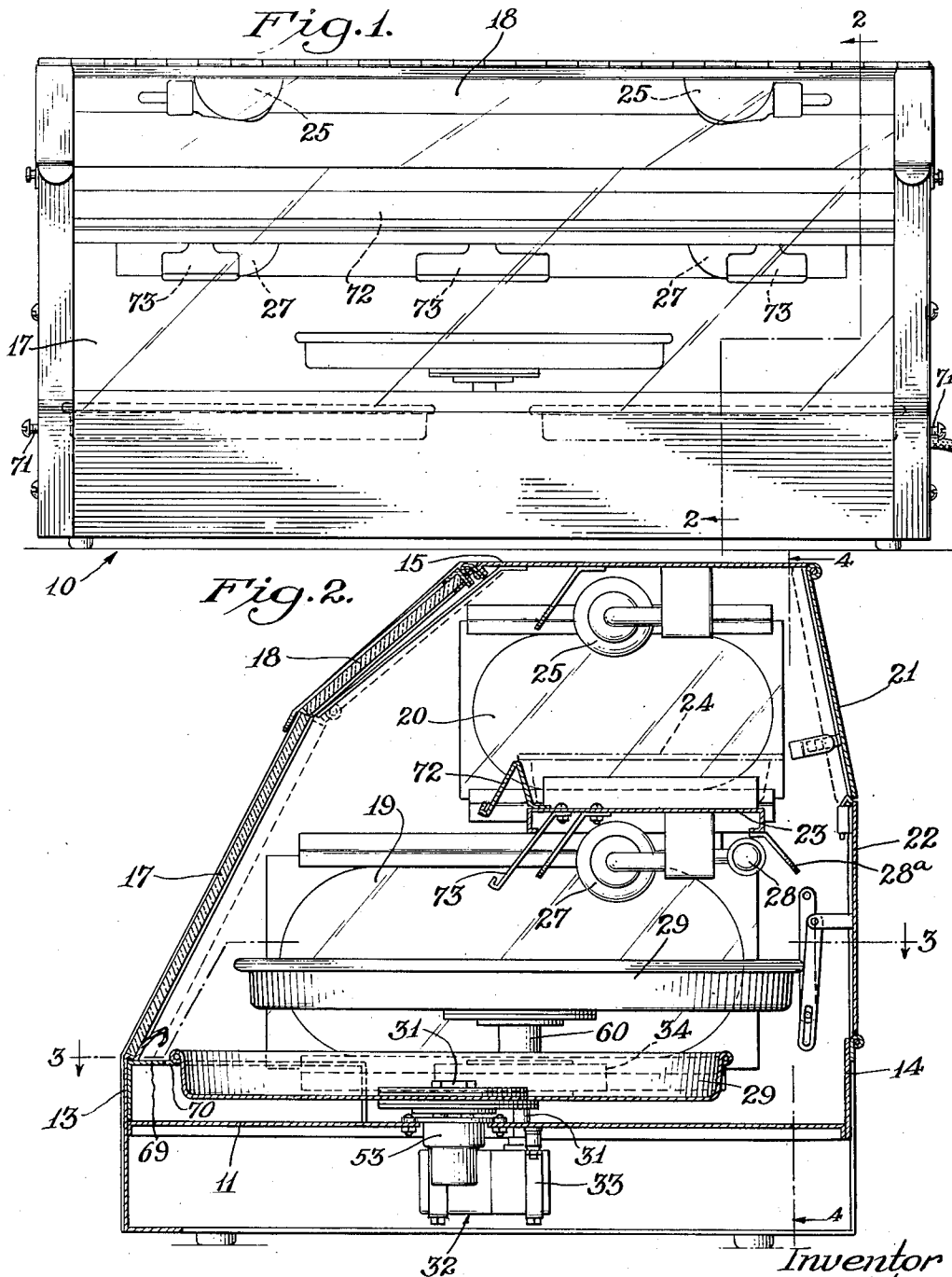
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MERCHANDISE DISPLAY ARRANGEMENT

Filed Feb. 3, 1940

3 Sheets-Sheet 1



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Fig. 4.

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Fig. 5.

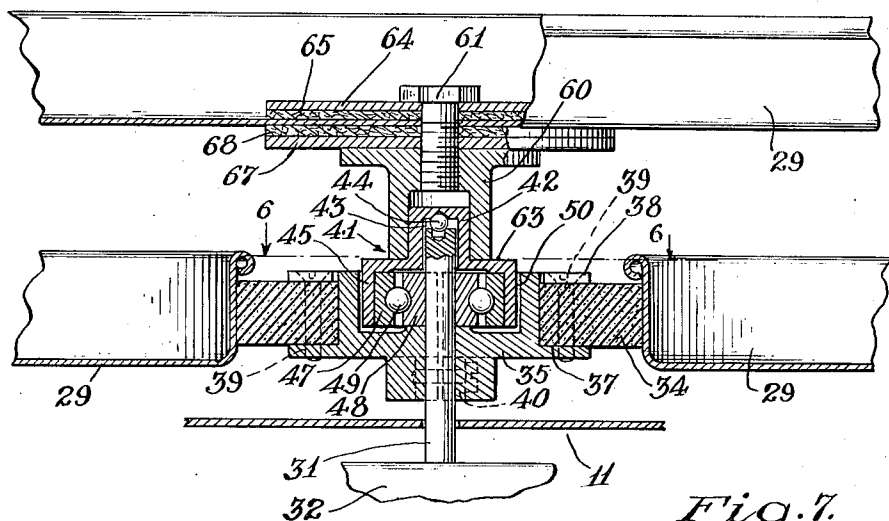


Fig. 6.

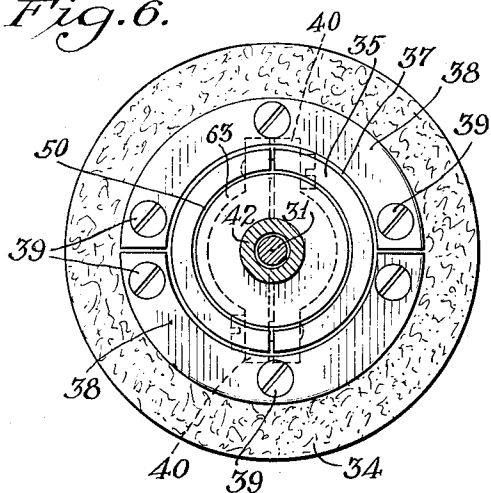
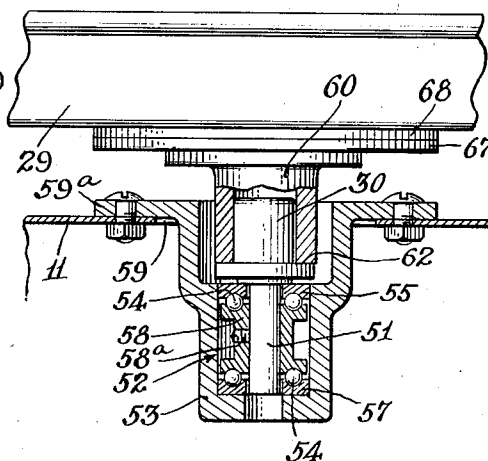


Fig. 7.



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UNITED STATES PATENT OFFICE

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MERCHANDISE DISPLAY ARRANGEMENT

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3 Claims. (Cl. 211-1.6)

This invention relates to merchandise display arrangements and more particularly concerns means for effecting a movable display of edible merchandise such as toasted nuts.

A general object of the invention is to provide a merchandise display arrangement comprising a plurality of supporting members or merchandise carriers of relatively large area and capacity associated in a compact order requiring a minimum of counter space and rotated about separate axes simultaneously for the purpose of attracting consumer attention, improving perceptibility of the displayed merchandise and facilitating accessibility to any part of such merchandise.

Another object is to provide a display arrangement for bulk merchandise in which a plurality of turntable members such as pans are rotatably supported in a space-saving grouped relationship and are rotated simultaneously by common driving means adapted to enable any pan of the group to be temporarily stopped selectively for access to any portion of the merchandise therein without interfering with the continued rotation of the other pans.

A further object of the invention is to provide improved driving means for a display arrangement of the foregoing general character.

Another object is to provide a display arrangement including a plurality of simultaneously driven rotatable receptacles and improved adjustable guard means associated with certain of the receptacles to improve the appearance of the display and to avoid dropping of spilled merchandise into difficultly accessible places about the receptacles.

Other objects and advantages will become apparent in the following description and from the accompanying drawings, in which:

Figure 1 is a front elevational view of a display case embodying the invention.

Fig. 2 is a transverse vertical sectional view through the case taken substantially along the line 2-2 of Fig. 1 but on a slightly larger scale.

Fig. 3 is a sectional plan view through the case taken substantially along line 3-3 of Fig. 2 but on a slightly reduced scale.

Fig. 4 is a vertical sectional view on a slightly reduced scale through the rear portion of the case taken substantially in the plane of line 4-4 of Fig. 2.

Fig. 5 is an enlarged fragmentary vertical sectional view through the center pan taken substantially in the plane of line 5-5 of Fig. 3 and

showing details of the pan construction and drive mechanism.

Fig. 6 is a sectional plan view taken substantially in the plane of line 6-6 of Fig. 5.

Fig. 7 is a vertical sectional view, on an enlarged scale, taken substantially along line 7-7 of Fig. 3 to show one of the side pans and the bearing structure therefor.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawings and will herein describe in detail a preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

An important feature of the present invention resides in the provision of an arrangement involving motion of merchandise supporting members such as pans mounted for rotation on spaced, parallel vertical axes and grouped in a vertically spaced relationship for economy of space and compactness of display. The pans may be simultaneously driven rotatably and have frictional driving connections enabling any pan to be selectively stopped for access to any portion of its contents without affecting the continued operation of the remaining pans. An economical and efficient unitary drive has been devised for actuating the pans. The arrangement permits the use of pans of unusually large diameter to any portion of which access may be had at a convenient station as the pans revolve thereby, for example, at the rear of an enclosing case, while every portion of the contents is brought successively into full view for inspection through the front window of the case. The case may also have shelving rather closely overhanging substantial portions of the pans without diminishing the effectiveness of the display because while the pans are revolving no part of the contents can remain in obscurity more than momentarily.

In the embodiment of the invention selected for illustration, the display arrangement is conveniently contained within a case 10 (Fig. 1) including a raised base 11 (Figs. 2, 3 and 4), spaced parallel side walls 12 rising therefrom and enclosed by a front wall 13, a rear wall 14 and a top wall 15. The front wall 13 rises vertically a limited distance above the base 11 and in the remainder thereof comprises a window including a rearwardly slanting lower transpar-

ent panel 17 and a more sharply slanting hinged upper transparent panel 18 adapted to permit advantageous inspection of the interior of the case by a person looking more or less downwardly thereinto from the front. The upper panel 18 can be swung open for cleaning purposes. The side walls 12 may also be equipped with windows 19 and 20. For access into the interior of the case the rear wall 14 may include an upwardly opening hinged panel 21 and a downwardly opening hinged panel 22. Within the rear portion of the case, intermediate the base 11 and the top wall 15, may be mounted a relatively narrow shelf 23 for supporting merchandise in packages or receptacles such as trays 24 conveniently accessible by opening the upper rear closure panel 21. Shielded illuminating means such as spaced electric lamps 25 may be mounted under the top wall 15 for attractively lighting the material upon the shelf 23, while similar spaced lamps 27 may be supported under the shelf 23 for illuminating whatever may be located therebelow over the base 11. Where the case is intended for displaying merchandise such as toasted nuts, the interior thereof should preferably be maintained at a warm temperature to keep the contents in the best possible condition. Where the heat from the lamps 25 and 27 is not sufficient for this purpose a suitable heater 28 may be mounted, as for example, under the shelf 23.

According to the present invention the base 11 directly or indirectly provides support for a movable display comprising a plurality of turntables or rotatable merchandise carriers or receptacles 29 of any preferred shape. Herein the carriers 29 are shown as round trays or pans each adapted to support a fairly large quantity of discrete, bulk merchandise such as shelled nuts, and are of identical, interchangeable construction, having an attractive, sanitary, enameled or other finish. If desired any of the pans 29 may be interiorly divided by means of partitions (not shown) to provide a number of separated compartments for different varieties of nuts.

A feature of the invention is to have the pans 29 of as large dimensions as practicable and to mount them in an unusually compact yet effective and efficient relationship requiring a minimum of counter space and enabling the use of a common driving means for rotatably actuating all the pans simultaneously. Accordingly, each pan may be of a diameter almost as large as the front to rear dimension of the base 11, and the arrangement of the pans upon the base 11 may be a grouped relationship requiring little more longitudinal counter space than will accommodate a smaller number of pans side-by-side.

In the present instance (Fig. 3) three of the pans 29 are shown grouped together for coincident rotation, two of the pans being mounted upon vertical rotatable spindles 30 (Fig. 7) in coplanar slightly spaced alinement with their peripheries respectively adjacent to the opposite sides of the base 11. The third pan 29 is located in a generally centered vertically spaced overlying relation to the inner adjacent portions of the side pans (Figs. 1, 3 and 4) and receives support from a vertical shaft 31 (Fig. 5). By preference, the pans are of a depth which will bring the rims of the side or lower pans 29 approximately level with the upper edge of the vertical portion of the front wall 13 when such

pans are somewhat spaced from the base 11 (Fig. 2). The side pan rims may approach the base of the window panel 17 in spaced relation. To maintain the proper spaced relation between the rim of the center pan 29 and the slanting window panel 17, this pan may have its axis set slightly rearwardly of the side pan axes. Although the pans 29 are shown as enclosed within the display case 10 of which the base 11 forms an integral part, it is apparent that the display could, if desired, be mounted upon the base 11 in the open without the enclosing walls of the case.

The overlapping, grouped arrangement of the pans 29 enables simultaneous rotation thereof by a single driving means utilizing the center-pan shaft 31. For this purpose the shaft 31 projects through the base 11 and is rotatably supported by a motor and transmission assembly 32 which is carried under the base by means such as removable brackets or hangers 33 (Figs. 2 and 4). Rotation of the shaft 31, of course, revolves the center pan 29 since the latter is directly supported thereby. To revolve the two lower pans 29, however, means such as a frictional driving roller 34 (Figs. 4 and 5) of a diameter to simultaneously engage the smooth perimeters of both of the lower pans 29 is fixedly secured to the shaft 31. In practice, it has been found that where the roller 34 is made of a yieldable, friction material such as soft rubber, and particularly sponge rubber, it efficiently coacts frictionally with the pan surfaces to drive the pans even though heavily loaded. Means for removably connecting the driving roller 34 to the shaft 31 may comprise a hub 35 having an annular peripheral rabbet groove 37 into which the roller may be secured by means of a pair of semi-circular clamping ring elements 38 fastened down by means of screws 39 (Fig. 6). To facilitate attachment of the hub 35 to the shaft it may be formed in two complementary sections adapted to be clamped together against the shaft by bolting or otherwise securing in face-to-face relation lateral connecting wing flanges 40. Because the shaft 31 is located rearwardly of the common vertical median plane through the lower pans 29 (Figs. 2 and 3) it is possible to have these pans fairly close together and yet have the roller 34 of substantial diameter to contact the pan perimeters rearwardly of said plane where the spacing is greater.

Since the peripheral speed of the lower pans is substantially the same as that of the roller 34 and since the diameter of the center pan is obviously greater than the diameter of the roller, the speed with which the center pan 29 rotates is noticeably greater than the rotational speed of the lower pans. Moreover, the direction of rotation of the center pan is opposite to that of the lower pans. As indicated by the arrows in Fig. 3, where the center pan 29 rotates counterclockwise the lower pans rotate clockwise. These differences in speed and direction of motion increase the attractiveness of the display. It may also be noted that details of the driving mechanism will not distract an onlooker because they are effectively hidden due to the large diameters and low-lying positions of the pans 29.

In practice, the pans 29 are loaded with selections of varieties of nut meats or the like and during sales hours the display may be kept in substantially continuous motion to carry all parts of the pan contents around for customer inspection at the front of the case and for sales access

at the rear of the case. However, when a sale is made from the contents of any of the pans 29 it is generally desirable to stop such pan to facilitate removal of the desired quantity of merchandise. According to the invention stoppage of the selected pan 29 may be effected without interfering with the continued, unslackened rotation of the other pans. In so far as the side pans 29 are concerned the peripheries contacted by the drive roller 34 are preferably of such smooth character that when the selected pan is halted the roller will slide relative thereto without undue resistance or overload upon the driving motor. For the center pan 29 a friction driving connection is provided by an assembly 41 which enables stoppage of this pan also without interfering with continued rotation of the shaft 31 or overloading the driving motor. As a matter of fact, the respective frictional driving connections for the pans is such that not only may the selected pan be stopped but it may actually be rotated in reverse without straining the driving mechanism or retarding onward rotation of the other pans. Upon releasing the selectively stopped pan, its inertia is gradually and smoothly overcome until it again resumes full rotative movement.

By preference, the frictional center-pan driving connection 41 includes a spindle 42 upon which the pan rests and which is formed generally cup shape having a central bore 43 for receiving the upper end of the shaft 31 (Fig. 5). An antifriction ball bearing 44 is interposed between the end of the shaft and the inner wall of bore 43. A skirt 45 upon the spindle 42 concentric with the shaft 31 has fixedly mounted therein a ring-like bearing race 47. A preloading or inwardly squeezing pressure is exerted upon the race 47 by the skirt 45 whereby to subject an inner race 48 and an interposed row of roller elements or balls 49 to like pressure and cause a resistance to relative rotation between the inner and outer races. The inner race 48 is fixed upon the shaft 31 and due to the preloading of the bearing the spindle 42 will normally tend to rotate with the shaft 31 but when the spindle is held against rotation as by stopping the center pan 29, the balls 49 perform their normal rolling function and allow the shaft 31 to continue rotation. In order to reduce the height of the assembly, that portion of the frictional driving connection 41 circumscribed by the skirt 45 is preferably received within a concentric recess 50 in the upper part of the roller hub 35.

Each of the side-pan spindles 30 is preferably identically constructed and mounted to support its pan in freely rotatable, non-tilting relationship. For this purpose each spindle 30 includes an axial downwardly extending shaft 51 (Fig. 7) which is received within a thrust and centering bearing generally indicated by the numeral 52. The bearing 52 is mounted within a cup-shaped journal box 53 and includes vertically spaced rows of roller elements or balls 54 riding between upper and lower concentric disk races 55 and 57, respectively, within the journal box, and the ends of a generally spool shaped race member 58 fixedly secured to the shaft 51 as by means of a set screw 58^a. The journal box 53 may extend downwardly within the base 11 through an aperture 59 and has an upper lateral flange 59^a bolted or otherwise secured to the base.

To facilitate removal and replacement of the pans 29 and interchanging thereof, each is preferably equipped with a similar flanged socket 60 secured coaxially to the lower face thereof as by

means of an axial bolt 61 (Figs. 2, 3 and 5). The socket 60 is dimensioned to fit interchangeably upon either of the spindles 30 or 42 and to frictionally engage the shoulders 62 or 63, respectively, with which the latter are equipped for this purpose. Reinforcement and cushioning of the connection between the pan bottom and the socket 60 is effected by interposing between the head of the bolt 61 and the pan bottom a metal reinforcing plate 64 and a fibre disk 65 and between the base of the socket and the under face of the pan a similar reinforcing plate 67 and cushioning disk 68.

Merchandise such as nut meats should be properly heat-conditioned to insure retention of qualities like crisp freshness, aroma, taste and appearance, as well as to avoid possible infestation with insect life peculiar thereto. With the present arrangement such conditioning of the nuts in the pans 29 is effected by the heater 28 and the lamps 27, which are disposed to afford uniform treatment for all parts of the pan contents. As best seen in Figs. 2 and 4, the lamps 27 are preferably two in number respectively located over the rear portions of the side pans 29, while the heater 28 is mounted above the rear portion of the center pan 29 and has a downwardly reflecting shield 28^a thereabove. As a result of this arrangement all exposed portions of the pan contents are properly uniformly heated in the rotation of the pans 29 by the heat from the lamps 27 and the heater 28, and the light from the lamps thoroughly illuminates the display causing the heat-softened oil upon the nuts to glisten attractively, producing a practically sparkling effect during the rotative movement.

To improve the appearance of the display and avoid spilling over from the pans 29 onto the base 11 at the front of the case, an easily cleaned guard 69 (Figs. 2, 3 and 4) formed of sheet metal may be mounted as a false bottom forwardly of the pans. By preference, the top surface of the guard comes approximately up to the rims of the lower pans 29 and is cut away on the radius of each such pan to form coves 70 for partially receiving the pan rims. Means for maintaining the guard 69 properly centered with respect to the lower pans may comprise opposed adjustment screws 71 threaded through the forward margins of the side walls 12 of the case to engage endwise against the opposite ends of the guard.

By having the edges defining the coves 70 close to the pan rims, spillovers are held upon the guard 69 and prevented from falling down upon the base 11 or under the pans where it might be relatively difficult to get at and clean them away to the detriment of appearance of the display. When the case is to be cleaned, the pans 29 may be removed from their spindles and the guard 69 released from the screws 71.

To aid the prospective customer in making his selection, identification and pricing of the merchandise both upon the shelf 23 and in the revolving pans 29 therebelow may be accomplished by equipping the shelf with a price card flange strip 72 along the front thereof and depending, spaced price card holders 73 (Figs. 1 and 2). The strip 72 may be used for cards relating to the merchandise in the trays 24 while the holders 73 may be identified with the pans 29 therebelow, there being one holder for each of the pans.

From the foregoing it will be apparent that the present invention provides a novel display arrangement by means of which a relatively large variety and quantity of merchandise can be ad-

vantageously and attractively displayed in rotary fashion resulting also in improved accessibility to the displayed merchandise for sales purposes. Although the interchangeable revolving pans are of large area, the overlapping manner in which they are mounted enables mounting thereof within a comparatively small space. Toasted shelled nut meats can be maintained under conditions most appropriate to keep them sanitary and in an optimum salable state, attractiveness of the display being enhanced by the glistening appearance of the surfaces of the nut meats arising from the light and heat of the overlying lamps and heating means under which all parts of the revolving display are successively carried. The single driving means for simultaneously relatively rotating all of the pans assures uniformity and economy of operation, and the frictional driving connections permit any pan to be stopped at will at any point of a revolution without interfering with continuous rotation of the other pans or strain upon the prime mover or associated driving mechanism. The adjustable guard means associated with the lower pans avoids waste of spill-overs, facilitates cleaning and improves the appearance of the display. All parts of the device are formed from readily available materials, can be manufactured inexpensively, and are relatively simply and ruggedly constructed.

I claim as my invention:

1. A merchandise display arrangement of the character described comprising, in combination, a stationary base structure, a plurality of carriers rotatably mounted on individual fixed axes over said base structure, and driving means common to all of said carriers for rotating said carriers simultaneously, said means being concentric with one of said carriers and including driving connections enabling stopping of any selected carrier without interfering with the continued rotation of the remaining carriers, said one carrier being

located above and in overlapping relation to the other two carriers.

2. Driving mechanism adapted for use in a movable display arrangement of the character described, including, in combination, a drive shaft, means for rotating said shaft continuously, means for rotatably supporting a carrier including a frictional driving connection with the end of said shaft to permit the carrier to be stopped without slackening the speed of said shaft, and a friction roller secured to said shaft adapted for driving engagement with the smooth surfaces of a pair of laterally spaced freely rotatable carriers to revolve the latter until they are forcibly stopped, the roller being thereupon slidable over the surfaces of such carriers without slackening speed, said roller being smaller in diameter than said first-mentioned carrier whereby the latter overlaps the laterally spaced carriers.

3. A display device comprising, in combination, a base, a vertical shaft supported by said base, means for driving said shaft, a friction roller mounted on said shaft above the base, a pair of round pans rotatably supported on said base at the level of said roller and having peripheral friction driving contact with opposite sides of said roller, a third pan mounted on the upper end of said shaft above and overlapping said pair of pans and having a frictional driving contact with said shaft, the frictional driving contact between said pair of pans and said roller and the frictional driving contact between said third pan and the shaft being sufficient to drive the pans when the latter are free to rotate but permitting any pan to be stopped without excess friction, said third pan by its overlying relation to the shaft and said pair of pans substantially concealing the drive from view with all parts of the three pans being brought into full view by their rotation.

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