Aug. 12, 1952 G. G. MESSICK 2,606,664

ROTATABLE DISPLAY STAND

Filed July 22, 1946 4 Sheets-Sheet 1

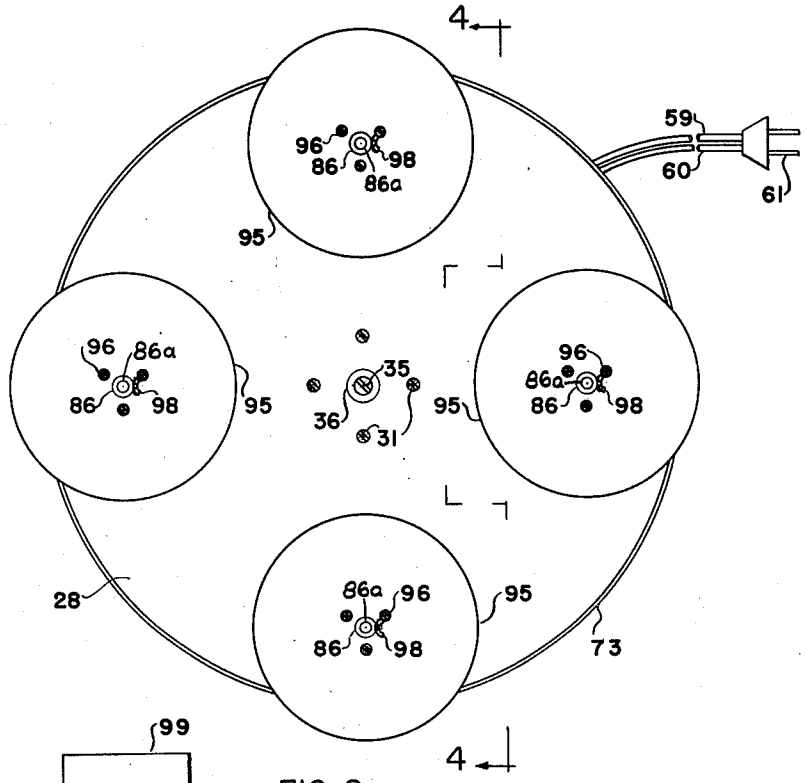


FIG-2

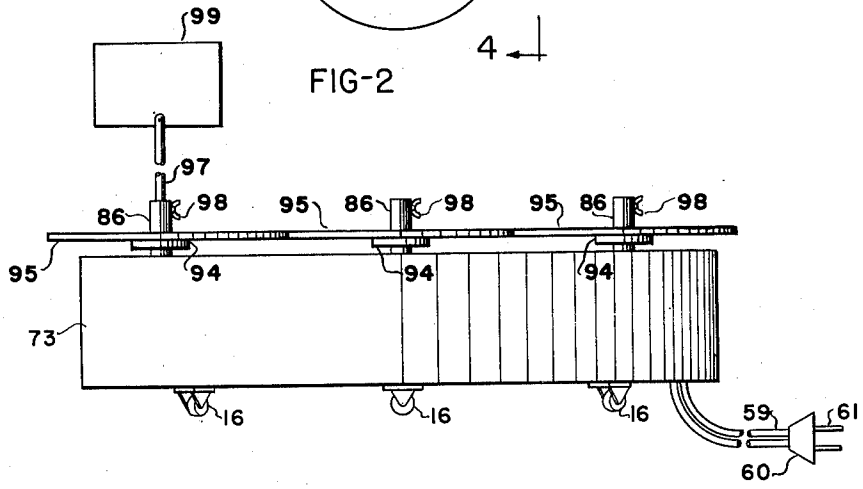


FIG-1

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ROTATABLE DISPLAY STAND

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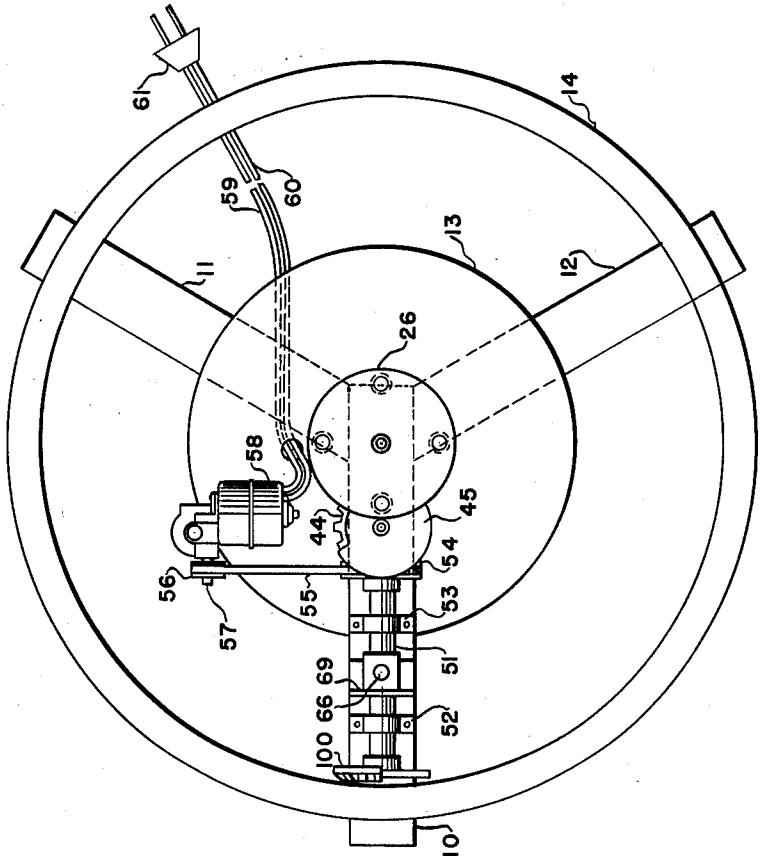


FIG-3

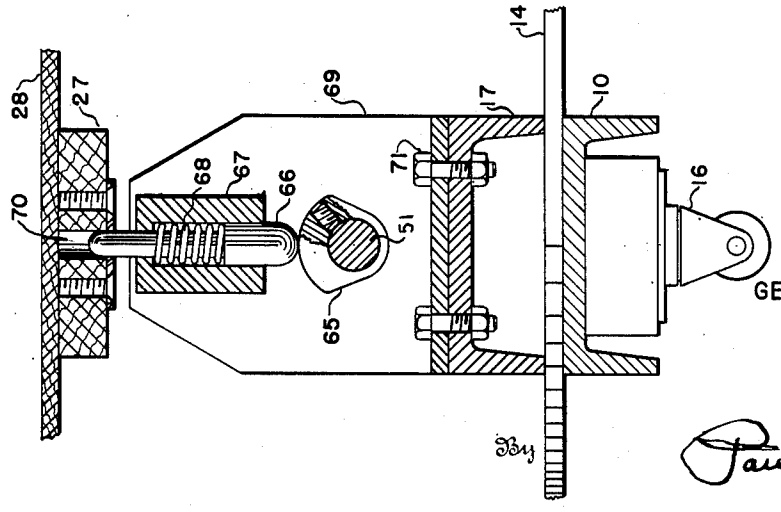


FIG-5

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ROTATABLE DISPLAY STAND

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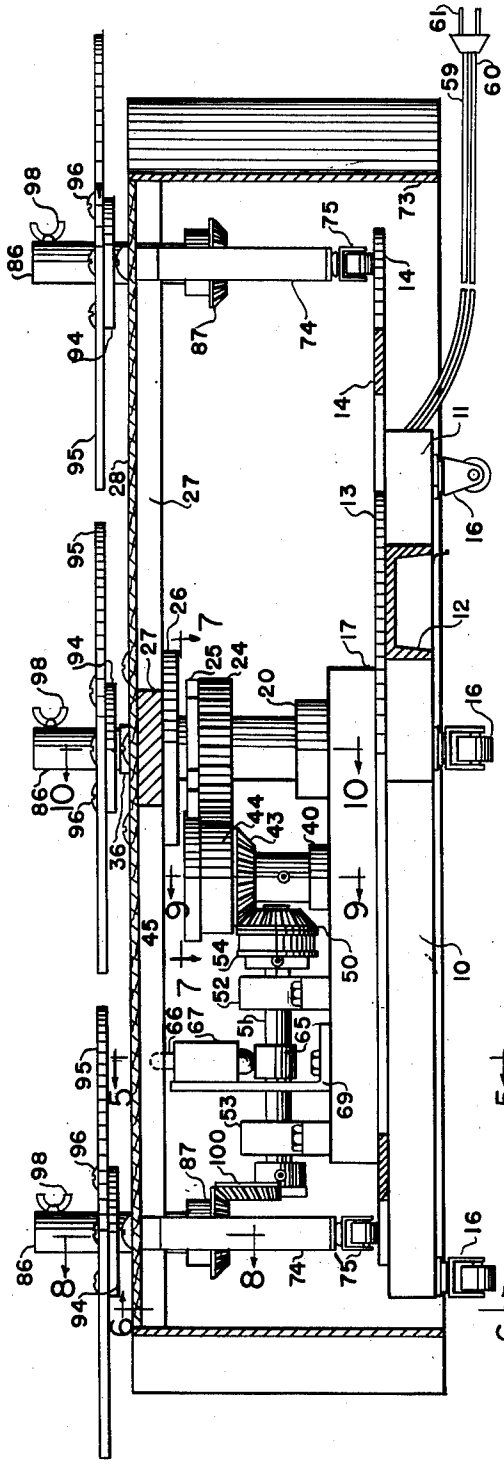


FIG-4

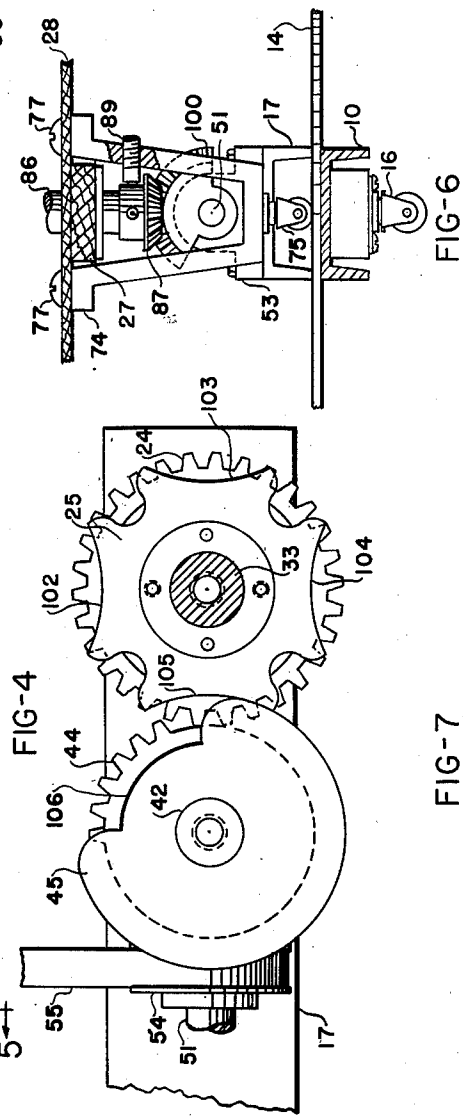


FIG-7

FIG-6

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ROTATABLE DISPLAY STAND

Filed July 22, 1946 4 Sheets-Sheet 4

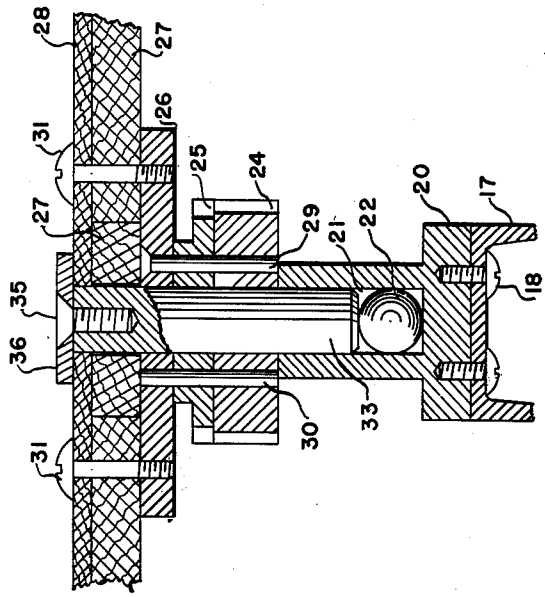


FIG-10

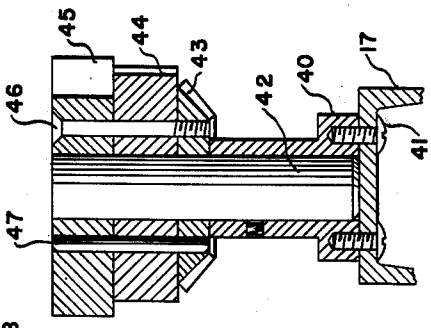


FIG-9

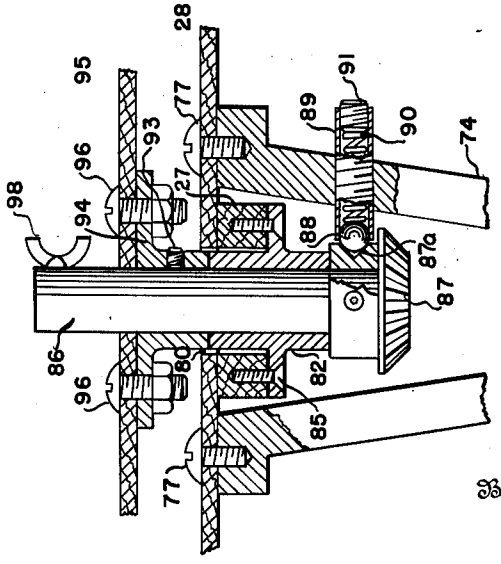


FIG-8

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UNITED STATES PATENT OFFICE

2,606,664

ROTATABLE DISPLAY STAND

George G. Messick, Charlotte, N. C., assignor of one-fourth to Harry E. Beck, Charlotte, N. C.

Application July 22, 1946, Serial No. 685,570

1 Claim. (Cl. 211—1.6)

1

This invention relates to a moving display apparatus and providing means whereby a plurality of display stands are mounted on a suitable platform with means for rotating the platform to move the display stands in a circle, together with means for engaging one of the display stands at a time and imparting a complete revolution to the same and then ceasing revolution of this display stand and when the next display stand comes to position imparting the complete revolution to the same and continuing this cycle of operation as long as the machine is in operation.

It is an object of this invention to provide a rotatable display platform having mounted thereon a plurality of rotatable display stands with means for not only rotating the display platform and carrying along with it the display stands, but having means for engaging the display stands and imparting a complete revolution to them one at a time as the display platform moves on its vertical axis, together with means for locking the display platform in position while one of the display stands is being rotated.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which:

Figure 1 is a side elevation of the apparatus and showing a display sign mounted in one of the stands thereof;

Figure 2 is a top plan view of the display apparatus but omitting the display sign shown in Figure 1;

Figure 3 is a top plan view without the platform;

Figure 4 is a vertical sectional view taken along the line 4—4 in Figure 2;

Figure 5 is a vertical sectional view taken along the line 5—5 in Figure 4;

Figure 6 is a vertical sectional view taken along the line 6—6 in Figure 4;

Figure 7 is a top plan view partly in section and taken along the line 7—7 in Figure 4;

Figure 8 is a vertical sectional view taken along the line 8—8 in Figure 4;

Figure 9 is a vertical sectional view taken along the line 9—9 in Figure 4;

Figure 10 is a vertical sectional view taken along the line 10—10 in Figure 4.

Referring more specifically to the drawings, the numerals 10, 11 and 12 indicate three channel members joined together at their inner ends and on which a circular plate 13 is mounted. These channel members 10, 11 and 12 also support an annular trackway 14. At the outer ends of the arms 10, 11 and 12 are mounted the caster rollers 16, so that the apparatus can be rolled to any desired position within a show window, for example.

Mounted on top of circular plate 13 is an inverted channel iron 17 which has secured thereto by any suitable means, such as screws 18, a bearing member 20 having a vertically disposed cavity 21 therein having a ball 22 in its lower portion. Resting on top of the member 20 is a pinion 24, which has resting on the top thereof a cam wheel 25, and resting on top of cam wheel 25 is a plate 26 and resting on top of plate 26 is cross arm 27 on which a circular platform 28 rests. The pinion 24, cam 25, and plate 26, are secured to each other by means of suitable pins 29 and 30, secured therein as by a pressed fit, and this assembly rests on the upper end of a shoulder portion of the bearing member 20. The platform 28, cross arms 27 and plate 26 are all secured together by means of suitable screws 31. Penetrating platform 28, one of the cross arms 27, plate 26, cam wheel 25 and pinion 24 is a shaft 33 whose lower end rests on ball 22. The shaft 33 has a threaded bore in its upper end receiving a screw 35, which penetrates a washer 36 on the upper side of platform 28. Members 24, 25, and 26 are press fitted onto the shaft 33, while the lower end of shaft 33 is rotatably mounted in the bore 21 of member 20 (Figure 10).

Mounted on top of channel member 17 is a tubular member 40 and secured thereto by any suitable means, such as screws 41. This member 40 has secured therein a stud shaft 42. Resting on top of tubular member 40 and rotatably mounted on stud shaft 42 is a bevel gear 43, a pinion 44 and a locking disc 45, which are all secured to each other by means of suitable screws 46 and pins 47. This assembly is also press fitted onto shaft 42.

Meshing with bevel gear 43 is another bevel gear 50 fixedly secured on a shaft 51 rotatably mounted in bearings 52 and 53 secured on top of channel member 17. Also fixedly secured on shaft 51 is a V-pulley 54 on which a V-belt 55 is mounted, which V-belt is also mounted on a V-pulley 56 secured on motor shaft 57 of a reduction gear motor 58, which has a pair of wires 59 and 60 leading therefrom to a suitable plug 61, which can be plugged into a suitable source of electrical energy. The shaft 51 has a cam 65 thereon which is adapted to engage a plunger 66 mounted in a housing 67 secured on a bracket 69 whose lower end is secured to the top of channel member 17 by bolts 71. This plunger is shouldered and has a restricted upper portion penetrating the upper portion of housing 67 and between the shoulder portion of plunger 66 and the upper end of the cavity in housing 67 is a compression spring 68 for normally urging the plunger 66 downwardly into engagement with cam 65. The upper end of plunger 66 is adapted to engage a cavity 70 in the lower surface of one of the cross members 27, which support the platform 28. There are four of these cavities, one

for each of the radially disposed members 27. This is for arresting and locking the rotatable platform 28 in a position while one of the display stands is to be given a complete revolution.

To the outer edge of platform 28 is secured an annular band 73 which projects downwardly and encases the main portion of the apparatus. Also secured to the lower surface of platform 28 is a plurality of brackets 74, each having in its lower end a caster roller 75 for contacting the annular trackway 14. The brackets 74 are V-shaped and have the caster rollers 75 mounted in their lower ends and their upper ends are spaced apart from each other and are secured by means of suitable screws 77 to the lower side of platform 28.

The platform 28 and cross arms 27 have a plurality of vertically disposed openings 80 therein. Secured to the lower surface of each cross arm 27 is a sleeve 82 by means of suitable screws 85. Rotatably mounted in this sleeve 82 is a shaft 86 having a bevel gear 87 secured on the lower end thereof and which bevel gear has a cavity 87*a* at one spot in its periphery adapted to be engaged by a ball 88 disposed in one end of a well 89 secured in one leg of the bracket 74 and having a compression spring 90 mounted therein and its other end closed by a plug 91 for forcing the ball 88 against the periphery of the hub of bevel gear 87 at all times to cause the ball 88 to move into the cavity in the hub of bevel gear 87 when the ball and the cavity coincide.

Disposed on top of the sleeve 82 is a sleeve member 94 which is secured onto the shaft 86 by means of a set screw 93 and this sleeve 94 is flared outwardly at its upper end, and has resting thereon a circular display support or stand 95 which is secured in position by means of bolts 96. The upper end of this shaft 86 has a bore 86*a* therein (Figure 2) into which a rod 97 may be fitted and secured in position by means of a set screw 98 and rod 97 may have a suitable display sign 99 mounted therein, if desired.

Bevel gear 87 is adapted to be contacted by a segmental gear 100 mounted on the outer end of shaft 51, there being as many teeth in the segmental gear 100 as there are in the bevel gear 87 so that the segmental gear 100 will impart a complete revolution to bevel gear 87, when it is engaged, and then will cease to rotate bevel gear 87.

The cam wheel 25 has a plurality of arcuate portions 102, 103, 104 and 105 in its periphery which are adapted to be engaged by the periphery of locking disc 45. Wheel 45 has a cutaway portion, as at 106, disposed immediately above the toothed portion of segmental gear 44 so that while the toothed portion of segmental gear 44 is engaging teeth in gear 24 this will allow rotation of gear 24, but just as the teeth in the segmental gear 44 move out of contact with the teeth in gear 24, then the larger peripheral portion of wheel 45 will pass into the path of cam wheel 25 to the position shown in Figure 7 to thus prevent any change of position of platform 28 until the next operation is called for.

The segmental gear 100 has twice the circumference as beveled gears 87, and as it moves out of contact with beveled gear 87, the gear 87 is in position where the ball 88 will fall into the cavity in the hub of beveled gear 87 and holds the stand 95 in stationary position until its beveled gear is again contacted by segmental gear 100.

During the time that the gear 87 is in mesh with gear 100, the segmental gear 44 is not in mesh with the gear 24 (Figures 4 and 7) thus permitting the platform 28 to rotate while all of the display stands 95 remain stationary except for moving with the platform 28. Of course, this will also cause the display stand 95, whose gear 87 had moved into engagement with the segmental gear 100, to rotate a revolution when the platform 28 is stationary.

In the drawings and specification, there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being defined in the claim.

I claim:

An improvement in a display apparatus having a base member and a rotatable platform mounted on a vertical axis at the center of said base member and provided with means for intermittently imparting a partial revolution thereto and said apparatus also having a plurality of rotatable display supports mounted to rotate on and relative to the platform, each of said display supports also having a beveled gear fixed on the lower end thereof and disposed below the platform, said display apparatus also having a driven horizontal shaft disposed beneath the platform, and also having a segmental beveled gear fixed on the driven horizontal shaft adjacent the outer end thereof relative to the axis of the platform for engaging a beveled gear on the lower end of a rotatable display support when presented thereto by a partial revolution being imparted to the rotatable platform, said improvement comprising means for locking the platform in a stationary position upon the segmental gear engaging the beveled gear at the lower end of the corresponding display support comprising said platform being provided with an opening in the lower surface thereof adjacent each of the display supports, a plunger mounted for vertical movement above said horizontally disposed shaft, a cam member fixed on said horizontal shaft and engaging the lower surface of said plunger, spring means normally urging said plunger downwardly into engagement with the upper surface of the cam member and said corresponding opening in the lower surface of the platform being so positioned as to register with the plunger upon said platform being locked in a stationary position whereby the cam on the horizontal shaft will cause the plunger to move into the corresponding opening in the lower surface of the platform to lock the platform in a stationary position while rotation is imparted to the corresponding display stand.

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