Sept. 4, 1951 D. E. READY 2,566,634

GARAGE TURNTABLE

Filed Jan. 9, 1946 2 Sheets-Sheet 1

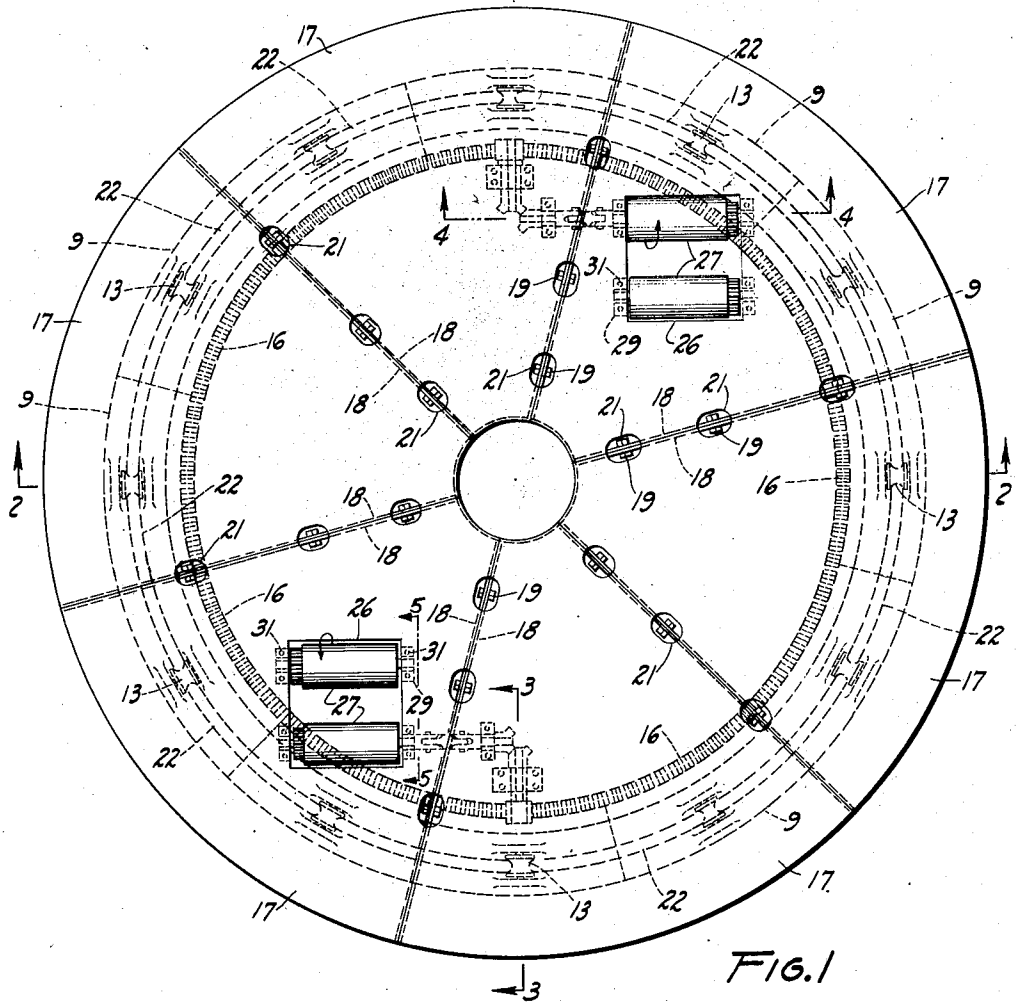


FIG. 1

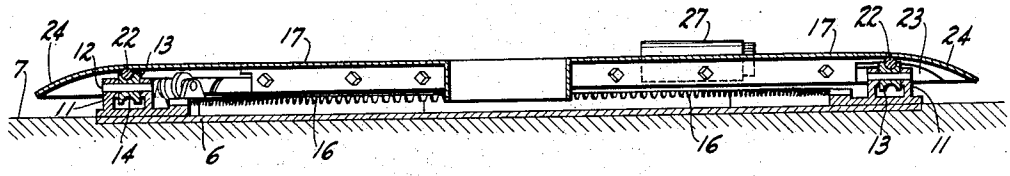


FIG. 2

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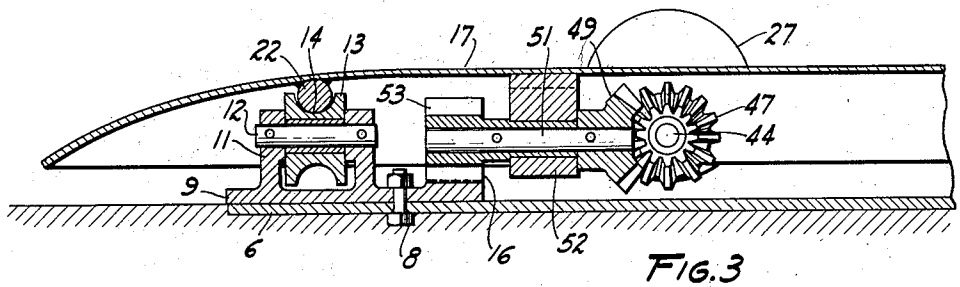


FIG. 3

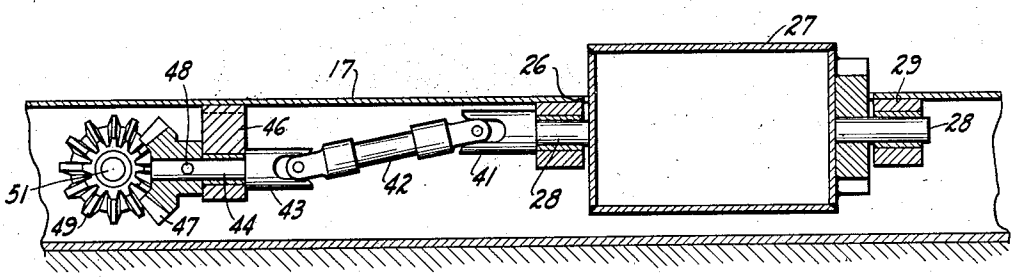


FIG. 4

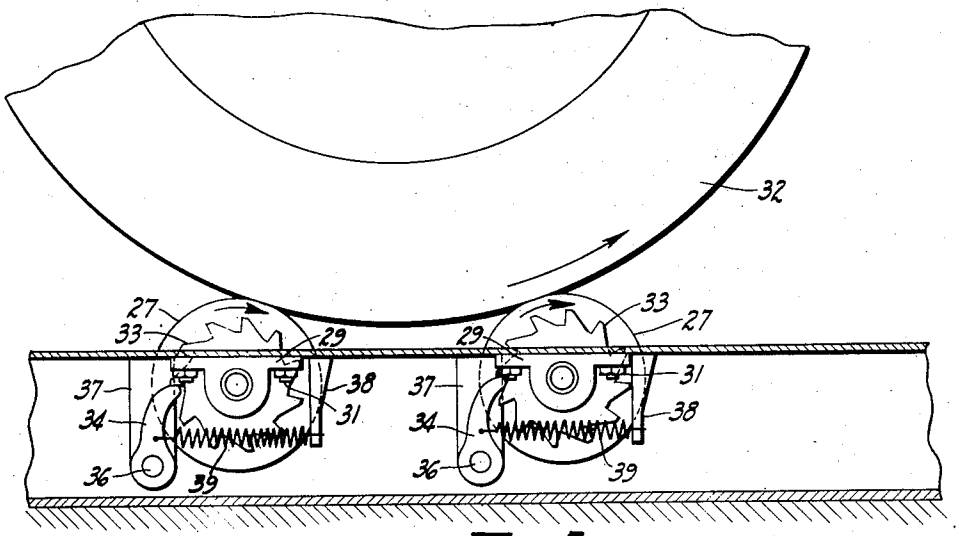


FIG. 5

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UNITED STATES PATENT OFFICE

2,566,634

GARAGE TURNTABLE

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Application January 9, 1946, Serial No. 640,056

3 Claims. (Cl. 104—41)

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This invention relates to turntables for garages or driveways.

An object of the invention is to provide a turntable structure which may be set up to operate without the provision of a subjacent specially constructed foundation.

Another object of the invention is to provide a turntable structure capable of being disassembled into a plurality of similarly shaped parts permitting of arrangement into a compact group of minimized size so as to afford convenience in storage or shipping.

A further object of the invention is to provide apparatus of the character described which is constructed of interfitting prefabricated sections designed for superposed assembly and interconnection in the positions that they normally occupy when in operation.

Still another object of the invention is to provide a turntable, capable of deriving its rotative power from the motor of the vehicle supported thereby, which may be rotated by operation of the vehicles standing thereon in its reverse gear and which will be automatically locked against rotation when the vehicle is operated in a forward gear.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of the invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood, however, that variations in the showing made by the said drawings and description may be adopted within the scope of the invention as set forth in the claims.

Referring to the drawings:

Figure 1 is a top plan view of the complete turntable of my invention.

Figure 2 is a vertical sectional view taken in the plane indicated by the line 2—2 of Figure 1.

Figure 3 is an enlarged vertical sectional view of a portion of the turntable taken in the plane indicated by the line 3—3 of Figure 1.

Figure 4 is an enlarged vertical sectional view taken in the plane indicated by the line 4—4 of Figure 1.

Figure 5 is an enlarged vertical sectional view taken in the plane indicated by the line 5—5 of Figure 1.

In the past, turntables have been proposed for use in home garages or parking spaces which may be reached only by running the vehicle through long narrow driveways, the purpose of the turntable being to effect an end-for-end reversal of the vehicle at the end of the driveway so that operation of the vehicle in a forward direction both in entering and leaving the garage or parking space is provided. Several undesirable features are inherent in the previously proposed turntables however. In the first place, the known types of turntables require more or less elaborate permanent foundation structures which are comparatively expensive and which, as a direct result of their permanency, hinders the purchase thereof by home renters since the latter must leave the apparatus as an attached part of the rented property in the event that they should move to another location. In the second place, these turntables must be provided with positive stops which limit their rotation during the process of reversing the position of the vehicle, to 180 degrees and to facilitate driving the vehicle from the turntable. Thirdly, the complexity of the underlying structures of the aforesaid turntables was such that sizeable pits were required for their accommodation in order to position the vehicle-supporting surface of the apparatus reasonably flush with the surface of the ground or driveway.

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I have provided an improved turntable structure which overcomes these and other undesirable features associated with the previously proposed types of apparatus of this character. Referring to Figures 1 and 2, I provide a base comprising a circular disk 6, adapted to lie on the ground 7 or other supporting surface, to the upper face of which is secured, by bolts or screws 8 or other suitable means, a plurality of segmental annular flanges 9 each of which is provided with one or more upwardly projecting brackets 11 carrying axially horizontal pins 12 on which are journaled support wheels 13 each having a semicircular groove 14 in its periphery. Each segmental flange 9 is provided, along its edge confronting the center of the base disk 6, with a segmental section 16 of a toothed bull ring. The flange sections 9 when arranged end to end form a marginal annulus on the base disk 6 as does also the sections 16, the latter forming a complete ring gear.

Positioned above and concentric with the base disk is a platform or turntable comprising a plurality of segments 17 each comprising a unit section of steel plate having, along its radial margins, downwardly bent flanges 18 which are secured to the flanges of adjacent segments by suitable bolts 19. Semi-circular portions of each segment 17 vertically above the positions of the bolts are cut out to form openings 21 through which the bolts may be inserted or removed.

These openings permit the sections of the platform or turntable to be set in place and to be then connected together thus eliminating the extensive work of assembling the sections in inverted position and thereafter turning the relatively heavy unit over which the absence of the openings 21 would make necessary. Attached to the underside of each segment 17 is an arcuate section 22 of cylindrical bar which axially abuts the similar sections of adjoining segments 17 to form a continuous circular rail engaged in the peripheral grooves 14 of the respective support wheels 13 so as to support the platform or turntable above and for rotation relative to the base structure. In order to clear the support wheels 13 and their brackets 11 when the platform is being rotated, the flanges 18 are cut away as shown by the reference numeral 23; and to facilitate the passage of the vehicle wheels from the adjacent ground or driveway surface 7 onto the platform the perimetral portion 24 of each segment 17 is curved downwardly so as to give the platform the shape, in elevational aspect, of an inverted dish.

Means is provided, which may be actuated by a vehicle positioned on the platform, for powering the latter to cause its rotation relative to the base structure. As will be best seen in Figure 1, each of a diametrically opposed pair of the platform segments 17 is provided with a rectangular opening 26 in which is disposed a pair of spaced, axially parallel rollers 27 each being provided with a shaft 28 which is journaled in bearings 29 secured by studs 31 to the underside of the platform. The rollers are spaced sufficiently apart radially, as will be seen in Figure 5, to permit the engagement thereon, in a transaxial direction, of a vehicle wheel indicated by the numeral 32, and are long enough so that a certain amount of lateral leeway is permissible in guiding the vehicle onto the platform with the assurance that one of the vehicle's powered wheels will be brought into engagement with the rollers at a point intermediate the ends of the latter. Each roller 27, as may be best seen in Figure 5, is fitted with an attached concentric ratchet wheel 33 whose teeth are engageable with a pawl 34 pivotally mounted on a pin 36 carried by a suitable bracket 37 attached to and depending from the underside of the platform. An additional bracket 38 secured to the underside of the platform and spaced from the bracket 37 carries a stretched coil spring 39 having an end thereof attached to the pawl 34 so as to yieldably retain the latter in engagement with the ratchet wheel teeth. Referring to Figure 4, one of each set of rollers 27 is provided with an extended shaft 28 to which is attached a universal joint 41 forming part of a power transmission shaft 42 connected to drive, through an additional universal joint 43, a stub shaft 44 suitably journaled in a bearing 46 attached to and depending from the underside of the platform and carrying a miter gear 47 secured to and for rotation with the shaft 44 by a key or pin 48. The miter gear 47 meshes with a miter gear 49 fixed on a drive shaft 51 which is journaled in a bearing 52 carried by the platform, the latter being provided with a spur gear pinion 53 meshing with the ring gear. By tracing torque flow through the train of interconnected rotatable parts it will be seen that rotation of the rollers 27 will cause rotation of the pinion 53 and thereby rotate the platform or turntable relative to the subjacent relatively fixed base structure.

Referring to Figure 1, it will be seen that the two sets of rollers 27 are spaced apart axially of each other a distance substantially equal to the standard tread gauge existing between the opposite wheels of an axle in most conventional vehicles. This insures that when a vehicle is driven onto the platform along a substantially radial path intersecting the axis of the platform and the axes of the rollers, one of the powered wheels of the vehicle will be directed to come to rest in engagement with and at a position intermediate the ends of the rollers of a set thereof. The arrangement of the apparatus is such as to accommodate standard types of vehicles, that is, those whose driving torque is applied to the rear wheels and this class of vehicle should be borne in mind when the operation of the apparatus is explained. In further clarifying this it may be explained that the path of approach of the vehicle to the turntable is in either direction along the vertical axis of the apparatus as shown in Figure 1 so that the left rear wheel of the vehicle will traverse and may be brought into engagement with the set of rollers nearest to the entering side of the platform. It should be also observed that due to the provision of the ratchet gears 33, the rollers are restrained from rotation only in the direction indicated by the arrows of Figure 1. Assuming that the turntable is placed in operative position in a garage or beyond the end of a narrow driveway a vehicle, which it is desired to reverse so that it may be driven in a forward direction out of the garage or driveway, is approaching the turntable. The operator causes the vehicle to pass onto the platform over the downturned skirt 24 thereof until the slight jar will signal that the left rear wheel has dropped into engagement with a set of rollers 27. The vehicle is then halted in this position. The operator then shifts the vehicle transmission to a reverse gear and engages the clutch. This will cause counter-rotation of the engaged driving wheel and likewise a rotation of the rollers in the direction permitted by the ratchet wheels 33 which, as explained above, will cause the platform and the vehicle superposed thereon to rotate about the axis of the turntable structure. When this rotation has progressed through substantially 180 degrees or until the vehicle is facing in the direction from which it approached the turntable, the vehicle clutch is disengaged which stops the platform rotation. The vehicle transmission is again shifted to a forward gear speed, the clutch is reengaged and the vehicle may be driven from the platform. It will be seen that when the vehicle is started in a forward direction from the platform, the driving wheel will tend to rotate the rollers 27 in a direction counter to that indicated by the arrows of Figure 1, which cannot occur due to the digging action of the ratchet gears and their pawls and consequently the driving wheel may climb out of engagement with the rollers as the vehicle moves forward. Each rotational movement of the apparatus to reverse the position of a vehicle will bring one set of the rollers into proper relationship with the path along which the vehicle next approaches so that the aforesaid operational engagement of the vehicle's driving wheel with the rollers will be effected as soon as the vehicle is fully driven onto the platform.

It will be seen from the foregoing description of my invention that I have provided a compact turntable apparatus which is designed to

function with ground surface contact instead of with a comparatively expensive underlying pit and foundation structure, which is capable of being assembled or disassembled by the average person possessed of ordinary mechanical skill, which may be dismantled into component parts which, when grouped together, will occupy a minimum of storage or shipping space, and which provides for a full automatic stop of the platform without the requirement of any manipulation of lock levers or pins employed to limit the swing of the platform.

I claim:

1. In a vehicle turntable of the type wherein power to rotate the turntable is derived from transmission mechanism carried by the turntable and including drive rollers tractionally engageable and rotatable by the driving wheels of an automobile positioned on said turntable, a ground-engaging base, a plurality of arcuate segmental members arranged on said base to form an annular support including a ring gear, wheels journaled on and arranged in circumferentially spaced relation on said support, a platform superposed on and concentric with said base, said platform comprising a plurality of unit segments arranged in orbital sequence to form a circular unit, each of said segments having a downturned outer end portion arranged for cooperation with corresponding portions of the other segments to provide a continuous upwardly inclined periphery for the platform, means to secure the respective segments together, means in the platform in juxtaposition with said securing means for permitting access to said securing means from the upper side of the platform, arcuate rail sections secured to each segment and axially abutting each other to provide a circular unit rail engaged with said wheels to mount the platform on the support for rotation relative thereto, said rail being disposed below the inner terminus of said inclined portion, and a pinion journaled on said platform, meshing with said ring gear and operatively connected to be driven by said transmission mechanism.

2. In a vehicle turntable of the type wherein power to rotate the turntable is derived from transmission mechanism carried by the turntable and including drive rollers tractionally engageable and rotatable by the driving wheels of an automobile positioned on said turntable, a ground-engaging base, a plurality of arcuate segmental members arranged on said base to form an annular support including a ring gear, wheels journaled on and arranged in circumferentially spaced relation on said support, a sectional platform superposed on and concentric with said base, said platform being of circular form and having a circumferentially continuous perimetral margin curved angularly upwardly toward said support, securing means for said sections under said platform, means in the platform in juxtaposition with said securing means for permitting access to the securing means from the upper side of the platform, a sectional annular rail carried by said platform and engaging said wheels to mount the platform on the support for rotation relative thereto, rollers journaled on said platform and tractionally engageable with one of the power-driven wheels of a vehicle positioned on said platform at said inclined portions thereof, and a pinion gear journaled on said platform and meshing with said ring gear and operatively connected to be driven by said transmission mechanism.

3. In a vehicle turntable of the type wherein power to rotate the turntable is derived from transmission mechanism carried by the turntable and including drive rollers tractionally engageable and rotatable by the driving wheels of an automobile positioned on said turntable, a ground-engaging base, a plurality of arcuate segmental members secured to said base to form an annular support including a ring gear, peripherally grooved wheels journaled on and arranged in circumferentially spaced relation on said support, a platform superposed on and concentric with said base, said platform comprising a plurality of circular segmental sections each having a flat body portion provided with radial sides having downturned integral flanges, a peripheral side curved downwardly toward the base and provided at spaced points along the junctions of the flanges and the body portion with openings in the body portion and said flanges having therein apertures for the reception of attachment bolts by means of which adjacent segmental sections are secured together, said attachment bolts being accessible through said openings, arcuate rail sections carried by the respective platform sections and arranged in relative abutting relationship to provide an annular track engageable in the peripheral grooves of said wheels, and a pinion journaled on said platform meshing with said ring gear and operatively connected to be driven by said transmission mechanism.

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