

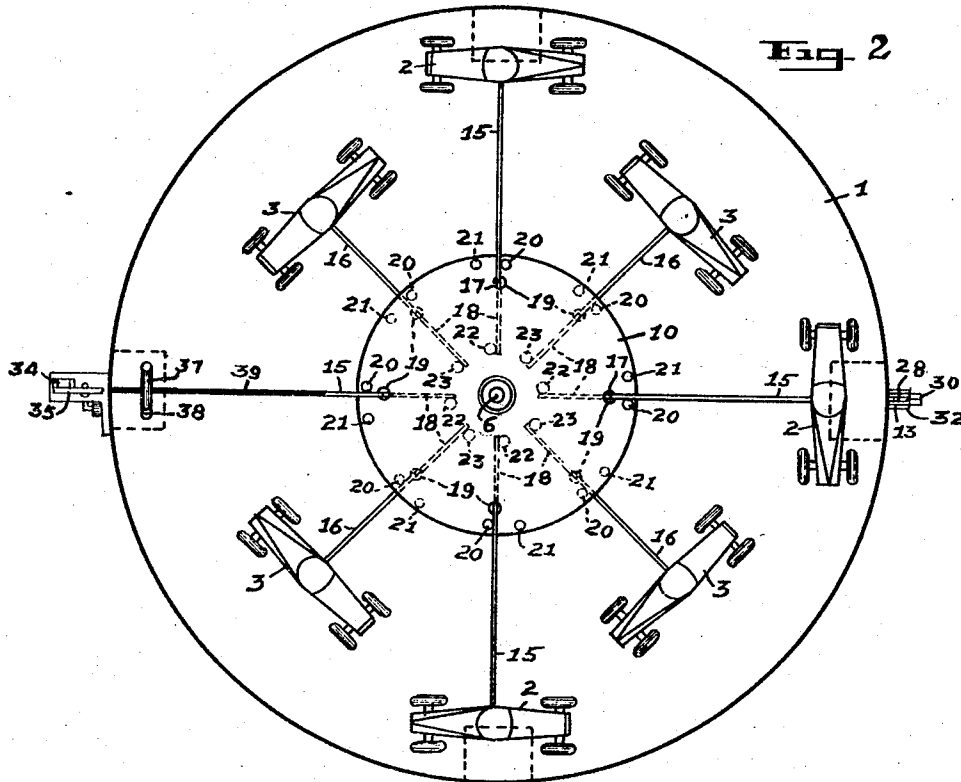
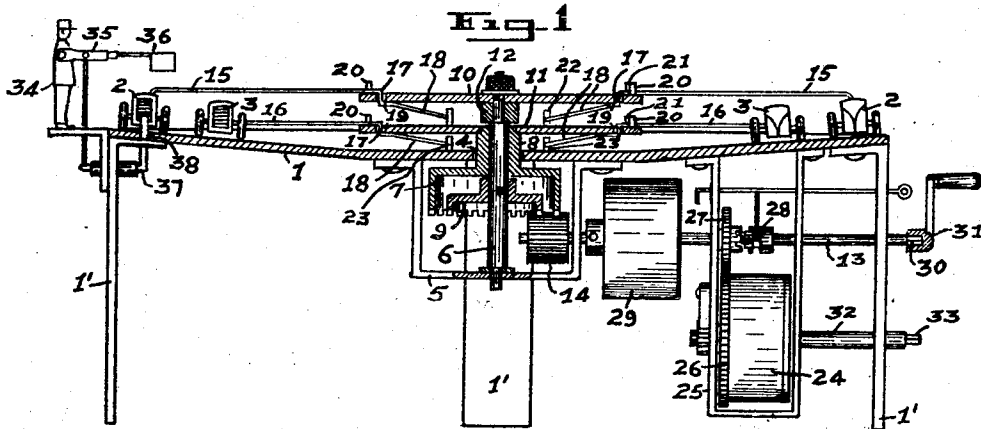
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MECHANICAL TOY

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MECHANICAL TOY

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My invention relates to a mechanical toy representative of an automobile race, and important objects of the invention are to provide a toy of the character described, which is attractive and entertaining to children, which includes an operating mechanism that may be optimally driven by either momentum or a power motor, which embodies novel means for imparting intermittently added impetus to the racing cars characteristic of an actual automobile race, and which may be readily taken apart and assembled.

Further objects of the invention are to provide a device of the class stated which is simple in its construction and arrangement, strong, durable and efficient in its use, and comparatively inexpensive to manufacture.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction and arrangement described and claimed, it being understood that changes in the precise embodiment of the invention hereinafter disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings wherein like numerals of reference designate corresponding parts throughout the several views:—

Figure 1 is a vertically cross sectional view of a mechanical toy constructed in accordance with the invention.

Figure 2 is a top plan view thereof.

Referring in detail to the drawings, 1 denotes a circular track member, which comprises a sheet metal plate providing a runway for the travel of the racing cars 2 and 3. The track member 1 is dished to simulate an actual race track, and is supported by a plurality of legs 1' which are fixed to and depend from the peripheral edge margin thereof.

An opening 4 is formed in the diametric center of the track member 1, and a suspension bracket 5 straddles said opening 4 and

is fixed to and depends from the under side of the track member 1.

A turn shaft 6 having its lower end journaled for rotation in the suspension bracket 5, is disposed vertically and projects through the track member opening 4. A large crown gear 7 is revolubly mounted on the turn shaft 6 below the track member 1, and includes a hub 8 which extends through the opening 4. A small crown gear 9, fixedly mounted on the turn shaft 6, is disposed below and within the large crown gear 7.

An upper circular turning disk 10 is secured to the top of the turn shaft 6 to rotate with the latter, and a similar lower turning disk 11 is fixed to the top of the crown gear hub 8. The upper turning disk 10 is spaced from the lower turning disk 11 by a collar 12, which is mounted on the reduced upper portion of the turn shaft 6. The lower turning disk 11 is spaced from the top of the track member 1 by its connection with the upper end of the crown gear hub 8.

A horizontally disposed drive shaft 13 is suitably journaled for rotation in the suspension bracket 5 and in one of the supporting legs 1'. The inner end of the drive shaft 13 carries a fixed driving gear 14, which is disposed in the suspension bracket 5 and meshes with both of the crown gears 7 and 9 to rotate the latter simultaneously.

The racing cars 2 are joined to the upper turning disk 10 by long connecting rods 15, and the racing cars 3 are joined to the lower turning disk 11 by relatively short connecting rods 16. By this arrangement the path of travel of the cars 2, on the track member 1, is disposed sufficiently outward of the path of travel of the cars 3, so as not to interfere with each other.

The outer end of each of the connecting rods 15 and 16 are rigidly secured to respective racing cars 2 and 3. The inner end portion of each of the connecting rods 15 and 16 is bent to form a vertical pivot 17 and an angularly disposed arm 18. The connecting rods 15 and 16 are pivotally and detachably joined to respective turning disks 10 and 11 by extending the inner end por-

tions thereof downwardly through perforations 19, formed in respective turning disks 10 and 11, to seat the vertical pivots 17, of the connecting rods 15 and 16, in said perforations 19 and to position the angularly disposed arms 18 below respective turning disks 10 and 11.

The perforations 19 are spaced from the peripheral edges of respective turning disks 10 and 11, and are regularly spaced from each other in each of the latter. While but four such perforations 19 are disposed in each of the disks 10 and 11, it is evident that the number thereof may be varied to permit the connection of any corresponding number of racing cars desired.

Each of the connected rods 15 and 16 is associated with a pair of vertically extending control pins 20 and 21, which are fixed at the peripheral edges of respective turning disks 15 and 16 and disposed on respective sides of the associated connecting rods 15 and 16. Each pair of control pins 20 and 21 are spaced from each other and are disposed outwardly with respect to the disk perforations 19.

Each pair of control pins 20 and 21 limits the lateral movement of respective connecting rods 15 and 16 on their pivots 17 in the disk perforations 19. The pins 20 are disposed on the rear sides of connecting rods 15 and 16, and the latter extend radially to the axial centers of the turning disks 10 and 11 when engaged by said pins 20. The pivotal connection of each of the connecting rods 15 and 16 with the turning disks 10 and 11 allows the former to freely shift laterally in either direction between its associated pair of control pins 20 and 21.

A plurality of vertically extending actuating studs 22 are fixed in the top of the lower turning disk 11, and a plurality of similar vertically extending actuating studs 23 are fixed in the top of the track member 1. The disk studs 22 are positioned to engage the inner ends of the arms 18 of the long connecting rods 15, and the track member studs 23 are disposed to engage the inner ends of the arms 18 of the short connecting rods 16.

The engagement and operation of the driving gear 14 with the lower small crown gear 9 will rotate the turn shaft 6 and thereby impart rotation to the upper turning disk 10 fixed to the upper end of the latter. Such rotation of the upper turning disk 10 will cause the travel of the racing cars 2 around on the track member 1, as the cars 2 are joined to the turning disk 10 by the long connecting rods 15.

The engagement and operation of the driving gear 14 with the upper large crown gear 7 will rotate the lower turning disk 11, as the latter is fixed to the upper end of the hub 8, of said crown gear 7. The ro-

tation of the lower turning disk 11 will cause the travel of the racing cars 3, as the latter are joined thereto by the short connecting rods 16.

As the lower crown gear 9 is smaller than the upper crown gear 7, the speed of the upper turning disk 10, associated with said small crown gear 9, will be greater than the speed of the turning disk 11, which is associated with said large crown gear 7, and accordingly, the racing cars 2 will travel faster than the racing cars 3.

During the operation of the device, the connecting rods 15 and 16 are normally maintained in radial alignment to the axial centers of respective turning disks 7 and 9, by their engagement with the rear control pins 20, as the latter prevent any further rearward movement thereof. However, when the inner ends of the rod arms 18 strike or engage the actuating studs 23, fixed in the lower disk 11 and track member 1, respectively, the connecting rods 15 and 16 will be forced forwardly, on their pivots 18, until the ends of said arms 18 clear the actuating studs 23 or to a distance limited by the positions of the forwardly disposed control pins 21. This feature of the invention will impart intermittent spurts of speed to the already travelling cars 2 and 3 and effect realistic simulation of automobile racing.

My improved toy may be driven by a spring motor 24, which is suspended in a bracket 25 fixed to the under side of the track member 1. The motor 24 includes a gear 26, which meshes with a gear 27 loosely mounted on the drive shaft 13. The gear 27 is provided with a suitable clutch element 28, so that the former may operate the drive shaft 13, or turn idly thereon to permit the rewinding of the spring motor 24.

A fly wheel 29 is fixed on the drive shaft 13, intermediate of the brackets 5 and 25, for stabilizing the operation of the device. If desired, the toy may be operated independently of the motor 24, by spinning the fly wheel 29 to create sufficient momentum for temporarily driving the device. The drive shaft 13 is provided with an extension 30, which is adapted for the reception of a crank 31 for spinning the fly wheel 29 for the purpose set forth. The motor 24 includes a shaft 32 having an extension 33 likewise adapted for the reception of the same crank 30 for rewinding the spring motor 24.

A figure 34, representative of a flagman, is suitably mounted at one side of the track member 1. The figure 34 includes a pivoted arm 35 and flag 36. The arm 35 is operated to alternately elevate and lower the flag 36, by a suitably journaled crank mechanism 37, which extends through a slot 38 formed in the path of travel of the racing cars 2. Each time a car 2 engages the crank mecha-

nism 37, while passing over the slot 38, the figure 34 will be actuated to elevate and lower the flag 36.

A radially extending line 39 is painted on the track member 1 to permit the determination of a winner, especially if the device is operated by momentum through the operation of the fly wheel 29, in the manner stated.

It will here be noted that the control pins 20 and 21 and the actuating studs 23 may be, if desired, stamped directly from the parts by which they are carried. Further, the device may be driven by an electric motor or any other suitable power unit besides those set forth in the embodiment herein disclosed. It is also apparent that the principle of the invention may be successfully employed on any type of racing toy regardless of whether the same be representative of races embodying automobiles, men, horses, dogs, and the like.

The present invention is, of course, appropriately colored, and provides a substantial toy which may be economically manufactured, and which is full of action and therefore very entertaining for children.

What I claim is:

1. In a mechanical racing toy of the character described, a track member, a turning disk revolubly mounted on said track member, racing elements, and means pivotally connected with said turning disk and joined with said racing elements.

2. In a mechanical racing toy of the character described, a track member, a turning disk revolubly mounted on said track member, a plurality of racing elements, and connecting rods having pivotal connections with said turning disk and being joined with said racing elements.

3. In a mechanical racing toy of the character described, a track member, a turning disk revolubly mounted on said track member, a plurality of racing elements, connecting rods having pivotal connections with said turning disk and being joined with said racing elements, and means for limiting the movements of said connecting rods on said pivotal connections.

4. In a mechanical racing toy of the character described, a track member, a turning disk revolubly mounted on said track member, a plurality of racing elements, connecting rods having pivotal connections with said turning disk and being joined with said racing elements, and means intermittently engaging the inner ends of said connecting rods for shifting the latter forwardly on their said pivotal connections.

5. In a mechanical racing toy of the character described, a track member, a pair of turning disks mounted on said track member, a plurality of connecting rods each having pivotal connections with one of said

turning disks, a racing element carried at the outer end of each of said connecting rods and travelling on said track member, and a driving mechanism for simultaneously rotating said pair of turning disks.

6. In a mechanical racing toy of the character described, a track member, a pair of turning disks mounted on said track member, a plurality of connecting rods each having pivotal connections with one of said turning disks, a racing element carried at the outer end of each of said connecting rods and travelling on said track member, and a driving mechanism for simultaneously rotating said pair of turning disks at different speeds relatively to each other.

7. In a mechanical racing toy of the character described, a track member, a pair of turning disks mounted on said track member, a plurality of connecting rods each having pivotal connections with one of said turning disks, a racing element carried at the outer end of each of said connecting rods and travelling on said track member, a driving mechanism for simultaneously rotating said pair of turning disks at different speeds relatively to each other, and means carried by each of said pair of turning disks for limiting the movements of said connecting rods on said pivotal connections.

8. In a mechanical racing toy of the character described, a track member, a pair of turning disks mounted on said track member, a plurality of connecting rods each having pivotal connections with one of said turning disks, a racing element carried at the outer end of each of said connecting rods and travelling on said track member, a driving mechanism for simultaneously rotating said pair of turning disks at different speeds relatively to each other, and means for intermittently engaging the inner ends of said connecting rods for shifting the latter forwardly on their said pivotal connections.

9. In a mechanical racing toy of the character described, a track member, a pair of turning disks mounted on said track member, a plurality of connecting rods each having pivotal connections with one of said turning disks, a racing element carried at the outer end of each of said connecting rods and travelling on said track member, a driving mechanism for simultaneously rotating said pair of turning disks at different speeds relatively to each other, means carried by each of said pair of turning disks for limiting the movements of said connecting rods on said pivotal connections, and means for intermittently engaging the inner ends of said connecting rods for shifting the latter forwardly on their said pivotal connections.

10. In a mechanical racing toy of the character described, a track member, a pair of turning disks mounted on said track mem-

ber, a plurality of connecting rods each having pivotal connections with one of said turning disks, a racing element carried at the outer end of each of said connecting rods and travelling on said track member, a driving mechanism for simultaneously rotating said pair of turning disks at different speeds relatively to each other, means carried by each of said pair of turning disks for limiting the movements of said connecting rods on said pivotal connections, and means carried by one of said pair of turning disks and by said track member for intermittently engaging the inner ends of said connecting rods for shifting the latter forwardly on their said pivotal connections.

In testimony whereof I affix my signature.
JOSEPH G. GAVLAK.