

March 23, 1926.

1,578,022

C. E. FLORKEY

TOY POWER DRIVE

Filed Jan. 8, 1923

Fig. 1.

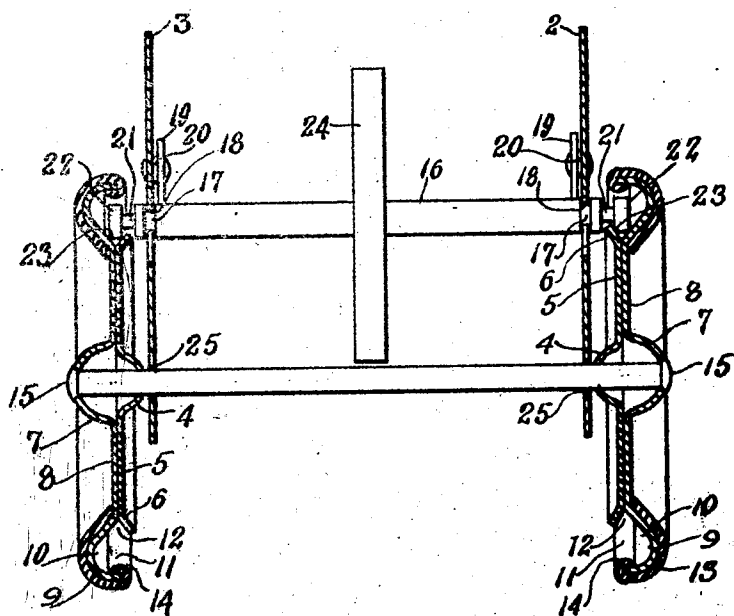


Fig. 2.

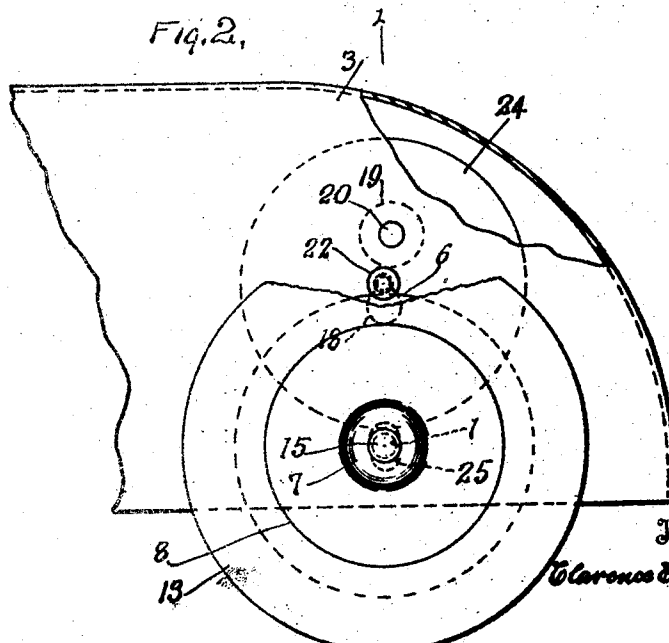
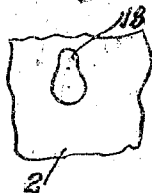


Fig. 3.



Inventor

Clarence E. Florkey

334 1 Taulmin & Taulmin
Attorneys

UNITED STATES PATENT OFFICE.

CLARENCE E. FLORKEY, OF DAYTON, OHIO, ASSIGNOR TO THE SCHIEBLE TOY AND NOVELTY COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

TOY POWER DRIVE.

Application filed January 8, 1923. Serial No. 611,548.

To all whom it may concern:

Be it known that I, CLARENCE E. FLORKEY, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Toy Power Drives, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to toys, and in particular to power drives for toys.

It is the object of my invention to provide a power drive for a toy in which the energy may be sufficiently stored and then utilized.

It is a further object to provide such a power drive in which the power is transmitted to the driving wheels and secured from the driving wheels, and at the same time utilizing driving wheels that have shock absorbing, resilient margins or tires.

It is my object to use a friction drive between the power shaft and the driving wheels and at the same time secure the advantages of rubber tire wheels to prevent injury to floors, carpets and furniture which results from the use of metal toy wheels without protecting tires or coverings.

It is a further object to provide a construction of a wheel and power drive which may be readily assembled, cheaply manufactured and which will be so rigid and strong that the parts will stay in their respective positions despite the abuse imparted to a toy of this character.

It is an additional object of my invention to provide a power drive which can be easily assembled and adjusted by unskilled labor in the course of manufacture.

It is a further object to provide a power drive of such a character that the moving parts will have little opportunity of injuring the fingers or persons of the children using the toys and will not tear their clothing. This is essential in toy constructions of this character in order to make them both safe and useful.

Referring to the drawings:—

Figure 1 is a section on the line 1—1 of Fig. 2.

Fig. 2 is a side elevation of the assembled structure with a portion of the toy side wall

broken away to show a part of the inertia wheel. A portion of the road wheel is also broken away to show the arrangement of the several parts.

Fig. 3 is a detail of the side wall showing the inertia wheel axle slot.

Referring to the drawings in detail:

1 is a road wheel axle carried in the side walls of the toy, designated respectively 2 and 3. This axle carries the road wheels at either end thereof on the outside of the toy side walls or frame. It will be understood that the walls 2 and 3 are parts of the toy or may be portions of a separate frame set in the toy and attached to it. In some instances it is desired to have a separate power unit attached to a toy and in another instance it is desired to have a power unit integral with the toy.

The road wheel is composed of an inner plate having a hub portion 4, a disk portion 5, and an angular rim portion 6. This constitutes the inner half of the road wheel. The outer half is composed of a hub portion 7, a disk or spoke portion 8, and a rim 9. This rim 9 is semicircular and is spaced from the inner flange 6 so that an area 10 is provided between them having an opening 11 on the inner side thereof and a V-shaped pocket 12 at the bottom of the space between 6 and 9. A rubber band is mounted over the portion 9. This band is designated 13 and has an overlapping inner portion 14 which extends into the space 10 so that the free edge of the rim 9 is covered by this resilient covering or tire, thus definitely retaining the tire on the rim due to the resilient character of the material.

It will be understood that I comprehend within my invention any kind of material mounted in any fashion upon the rim for the purposes described.

The entire wheel composed of these two halves and the tire is retained on the axle 1 by the head 15 on the axle. The two halves may be joined together in any desired fashion such as by riveting or spot welding.

Due to the fact that the semi-circular rim 9 is formed with the disk 8 and both of these elements are fashioned from a metallic disk, this rim 9 will possess resilient

qualities. Therefore, in placing the toy vehicle on the floor the yielding of the rim will eliminate shocks and jars to the toy.

Carried in the side walls 2 and 3 is the inertia wheel axle 16. This axle has a groove 17 cut in either end, a short distance from the extreme end of the axle. This groove serves to position the axle with respect to the frame and side wall members 2 and 3 which are located in the groove. A cut away portion 18 is provided for inserting the axle in the side wall members. Above the axle on either side carried by the side wall members are anti-friction rollers 19, having their peripheries engaging the axle for the purposes hereinafter described. Stub shafts or axles 20 support these anti-friction rollers 19 on the frame members 2 and 3.

A second right angle groove 21 is provided at either end of the inertia axle 16 between the first groove and the end of the axle. This provides a wedging head 22 on the end of the inertia wheel axle, the head having preferably sharp edges due to the fact that the groove is located at right angles to the major axis of the inertia wheel axle. The sharp edges 23 of the head engage with the portions 6 and 9 of the wheel in the V-shaped opening 12 forming a wedging action.

The inertia wheel axle 16 carries an inertia wheel 24. When the toy is pressed down upon the floor and moved along the floor the road wheels will rotate and due to the fact that the rollers hold the inertia wheel axle in position so that the inertia wheel axle wedge head is forced into wedging engagement with the portion of the road wheels forming the V-shaped groove 12, the motion of the road wheels is transmitted to the inertia wheel axle and the inertia wheel. By several short movements of the toy considerable momentum will be set up in the inertia wheel and its axle which, when the toy is pressed down upon the floor, will result in the imparting of the power thus stored up in the inertia wheel and axle to the road wheels in the same manner due to the wedging action between the road wheels and the ends of the inertia wheel axle.

Due to the play between the inertia wheel axle and the side wall members and the play between the main road wheel axle and the side wall members as at 25, when the pressure is placed downwardly on the body there is a severe frictional engagement between the head 22 and the walls 6 and 9. When this pressure is released the axle 1 drops in its slot and turns freely which is necessary to the movement of the toy when driven by the inertia wheel and its axle. The anti-friction rollers 18 relieve the friction of the body thereon.

While I have shown and described certain features as constituting my invention,

it will be understood that parts have been shown for purposes of illustration only, and that I do not desire to be limited to such details, as obvious modifications will occur to a person skilled in the art.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a toy, a frame, ground engaging wheels carried thereby, opposed transversely curved rims carried by the wheels, a power shaft mounted for vertical movement in the frame, beveled friction drive elements carried by the power shaft and accommodated in the transversely curved rims, a disk of smaller diameter than the wheels carried by the inner face of each of the latter, a circumferential flange carried by each of the disks and diverging from the inner edge of the rims and with the latter defining V-shaped grooves which receive the beveled friction drive elements when the toy is in operative position.

2. In a toy, a frame, a ground axle, said frame being slotted vertically for carrying said ground axle, said ground axle carrying ground engaging wheels, opposed transversely curved rims carried by the wheels, a power shaft mounted for vertical movement in the frame, beveled friction drive elements carried by the power shaft and accommodated in the transversely curved rims, a disk of smaller diameter than the wheels carried by the inner face of each of the latter, a circumferential flange carried by each of the disks and diverging from the inner edge of the rims and with the latter defining V-shaped grooves which receive the beveled friction drive elements when the toy is in operative position.

3. In a toy, a frame, ground engaging wheels carried thereby, opposed transversely curved rims carried by the wheels, each of said rims having an endless peripheral band composed of rubber and adapted to be sprung over said rims and to clamp the margins of the rims, a power shaft mounted for vertical movement in the frame, beveled friction drive elements carried by the power shaft and accommodated in the transversely curved rims, a disk of smaller diameter than the wheels carried by the inner face of each of the latter, a circumferential flange carried by each of the disks and diverging from the inner edge of the rims and with the latter defining V-shaped grooves which receive the beveled friction drive elements when the toy is in operative position.

4. In a toy, a frame, a ground axle, said frame being slotted vertically for carrying said ground axle, said ground axle carrying ground engaging wheels, opposed transversely curved rims carried by the wheels, each of said rims having an endless peripheral band composed of rubber and

adapted to be sprung over said rims and to clamp the margins of the rims, a power shaft mounted for vertical movement in the frame, beveled friction drive elements carried by the power shaft and accommodated in the transversely curved rims, a disk of smaller diameter than the wheels carried by the inner face of each of the latter, a circumferential flange carried by each of the disks and diverging from the inner edge of the rims and with the latter defining V-shaped grooves which receive the beveled friction drive elements when the toy is in operative position.

In testimony whereof, I affix my signature.

CLARENCE E. FLORKEY.