

May 19, 1925.

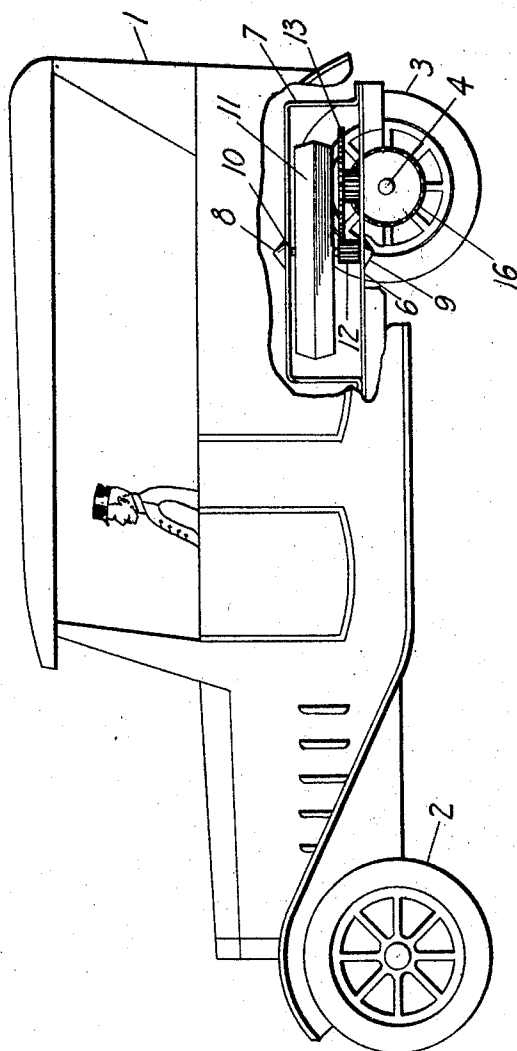
R. B. MUNDAY

1,538,205

FRICTION TOY

Filed June 12, 1922

2 Sheets-Sheet 1



Inventor

Richard B. Munday,

By

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May 19, 1925.

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FRICTION TOY

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2 Sheets-Sheet 2

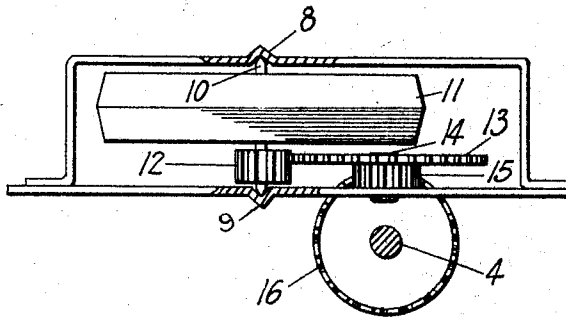


FIG. 2

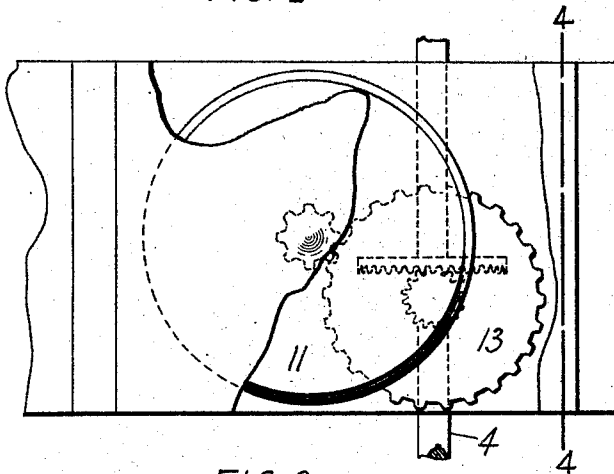


FIG. 3

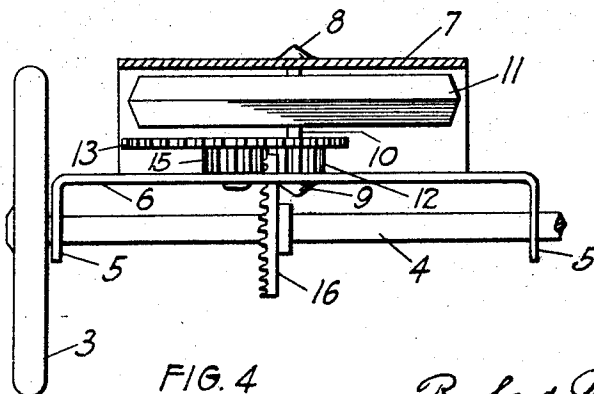


FIG. 4

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UNITED STATES PATENT OFFICE.

RICHARD B. MUNDAY, OF DAYTON, OHIO, ASSIGNOR TO THE DAYTON FRICTION TOY COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

FRICTION TOY.

Application filed June 12, 1922. Serial No. 567,665.

To all whom it may concern:

Be it known that I, RICHARD B. MUNDAY, a citizen of the United States, residing in the city of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Friction Toys, of which the following is a specification.

It is one of the objects of my invention to provide a friction toy in which the inertia wheel is disposed in a horizontal position within the toy to conserve space and act as a gyroscopic stabilizer for it.

In friction toys as at present constructed, the energy that is transmitted to the driving wheels is stored in a vertically-disposed inertia wheel. To increase the diameter of this wheel substantially beyond its present size, would require an undue or unproportional enlargement of that portion of the body of the toy which receives the inertia wheel; otherwise it would touch the ground.

The diameter of my improved inertia wheel is not limited by the ground below or the height of the toy because it is horizontally disposed within the latter. It, therefore, not only conserves space, but acts as a gyroscopic stabilizer for the toy. My horizontally-disposed inertia wheel may also be supported by point bearings to reduce friction.

Other important and incidental objects will be brought out in the following specification and particularly set forth in the subjoined claim.

In the accompanying drawings, Figure 1 is a side elevational view of a friction toy having an automobile body which is partly broken away at its rear end to reveal my horizontally-disposed energy-storing wheel and gear connecting means. Figure 2 is a side elevational view of the energy storing and transmitting means, with the housing and driving axle in section. Figure 3 is a top plan view of said means, and Figure 4 is a cross-sectional view taken on the line 4-4 of Figure 3, showing said energy storing and transmitting means.

Throughout the specification and drawings, similar reference characters denote corresponding parts.

Referring to the accompanying drawings for a detailed description of the form of embodiment of my invention illustrated therein, the numeral 1 designates the body

portion of the toy, which in this instance represents the body of an automobile, although any other form of vehicle-toy body may be employed if desired. The body portion 1 is mounted on ground wheels 2, 2 and 3, 3, the latter being fixedly secured to a shaft or axle 4 journaled in downwardly-projecting flange portions 5, 5 of the bottom 6 of said body portion.

Welded or otherwise suitably secured to the rear part of the bottom 6 of the toy, is a flat metallic piece 7 which is bent at both ends by a die or other means, to the shape shown in Figure 1 to form an elongated housing for the energy storing means now to be described. The middle portion of the piece 7, and the bottom 6 below it, are indented to form oppositely-disposed point bearings 8 and 9 respectively for a vertical shaft 10 whose ends are preferably tapered to reduce friction. Fixedly secured to the upper end of the vertical shaft 10 is an inertia or fly wheel 11. (See Figures 1, 2 and 4). It will be observed that this fly wheel, which is horizontally disposed within the housing 7, can be made very wide without increasing the height of the toy. Accordingly, a fly wheel of sufficient width and thickness to store a great deal of power is free to be employed in my improved toy without interference with the ground, or the top of, or a seat in, the body of the toy.

The following geared connecting means are employed for transmitting power from the horizontally-disposed inertia wheel 7 to the driving axle 4, although any other suitable power-transmitting means may be used if desired. Fast on the lower part of the shaft 10 is a pinion 12 in mesh with a horizontal gear 13 loosely mounted on a vertical shaft or pin 14 secured to the bottom 6 of the toy. Fixedly secured to the gear 13, and projecting downwardly therefrom around the shaft 14 so as to turn freely around it, is a pinion 15 which meshes with a crown gear 16 fast on the axle 4. When the toy is moved over a floor or other supporting surface, the driving wheels 3, 3 will rotate the axle 4, which, through the train of gearing just described, will turn the horizontally-disposed inertia wheel 7 for the purpose of storing energy therein. By this same train of gearing the stored energy is transmitted from the inertia wheel to the axle 4, and from it to the driving

wheels 3, 3 for the purpose of propelling the toy over the supporting surface when it is desired to operate it.

During the operation of the toy, the rotating inertia wheel 7 acts gyroscopically to stabilize the toy. Such a wheel, when mounted horizontally, lends itself to support by point bearings to reduce friction, although any other type of bearings may be used to support it if desired. And, as before brought out, a much larger inertia wheel than that at present employed, may be freely used without fear of contacting with the ground, to increase the power of the toy.

I do not desire to be limited to the details of construction and arrangement herein shown and described, and any changes or modifications may be made therein within the scope of the subjoined claim.

Having described my invention, I claim:

In a toy of the type described, driving wheels, an axle to which said wheels are fixedly secured, a body portion having a bottom supported at its rear end by said axle, a separate, horizontal housing mounted on said bottom over said axle, a vertical shaft journaled in said housing, a horizontal inertia wheel fast on said shaft, a pinion also fast on said shaft below the inertia wheel, a second shaft vertically mounted in said housing, a horizontal gear on the second shaft in mesh with said pinion, a downwardly projecting pinion secured to the horizontal gear, and a crown gear fast on said axle in mesh with the second pinion.

In testimony whereof I have hereunto set my hand this 7th day of June, 1922.

RICHARD B. MUNDAY.

Witness:

HOWARD S. SMITH.