Feb. 28, 1967 TADAO KAWADA 3,306,626

OCCUPANT-PROPELLED PLAYTHING HAVING A SINGLE WHEEL

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Fig. 1.

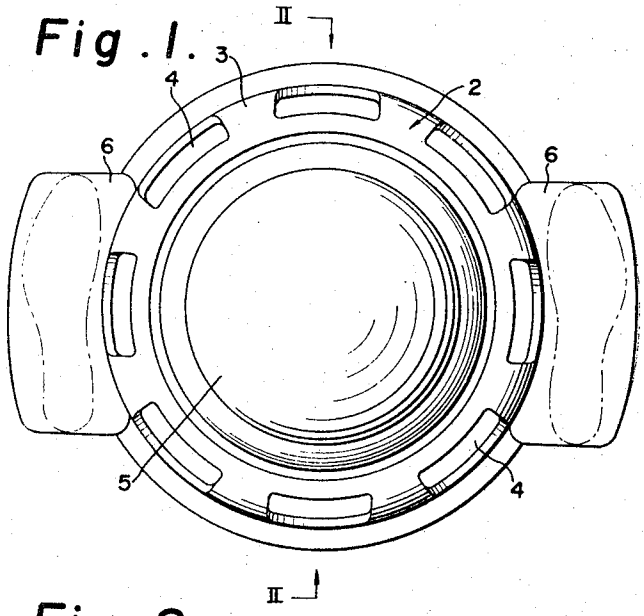
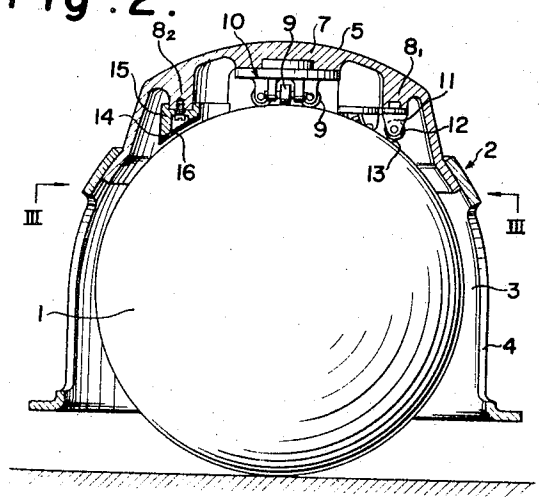


Fig. 2.



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Fig. 3.

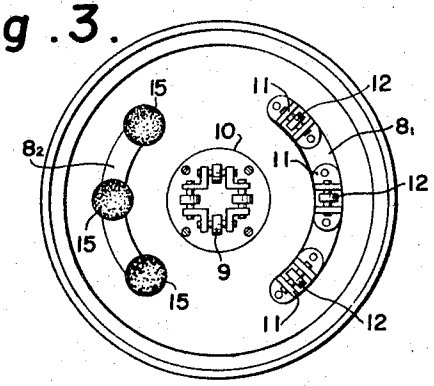
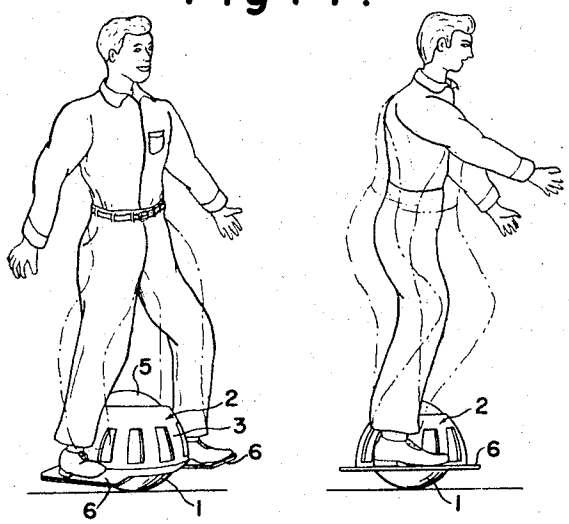


Fig. 4.



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United States Patent Office 3,306,626
Patented Feb. 28, 1967

3,306,626

OCCUPANT-PROPELLED PLAYTHING HAVING A SINGLE WHEEL

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Filed July 9, 1965, Ser. No. 470,796
4 Claims. (Cl. 280—205)

This invention relates to a playing device or an exercising instrument and has an object to provide a novel playing device which can be utilized not only for amusement but also for improving health.

Briefly stated the exercising instrument embodying the principle of this invention comprises a rolling body in the form of a sphere or a barrel, and an inverted cup-shaped member supported on said rolling body by means of a roller assembly fixed at the center of the inner surface of the inverted cup-shaped member. On the opposite sides of the roller assembly are provided at least one roller and at least one braking member which are normally spaced a short distance from the outer surface of the rolling member. The inverted cup-shaped member is provided with a pair of horizontal steps on which a rider can stand. When the rider tilts the inverted cup-shaped member in one direction by manipulating the member by his feet the braking member will be brought into close contact with the peripheral surface of the rolling body whereby to cause the cup-shaped member and the rolling member to move or roll as an integral body, whereas when the inverted cup-shaped member is tilted in the opposite direction the roller rolls along the surface of the rolling body. Thus by tilting the inverted cup-shaped member back and forth the rolling body is advanced and the direction of movement can be varied by varying the forces exerted on the steps by both feet of the rider. To master and maneuver the device the rider is required to maintain his body in a well balanced condition so that it is pleasant and healthy to play with it.

Those features of the invention which are believed to be novel are specifically set forth in the claims attached hereto. The invention will be better understood and further advantages thereof appreciated from a consideration of the following description and drawings, in which:

FIG. 1 is a plan view of a playing device embodying this invention;

FIG. 2 is a sectional view taken along a line II—II of FIG. 1;

FIG. 3 is a horizontal sectional view taken along a line III—III of FIG. 2; and

FIG. 4 shows a method of utilizing the playing device of this invention.

Referring now to the accompanying drawings, the playing device of this invention comprises a spherical rolling body **1** made of hard synthetic resin, metal and the like and an inverted cup-shaped shell **2** having a mouth of the sufficient diameter enough to accommodate the rolling body **1** therein. The shell **2** is provided with a pair of horizontal steps **6** on its lower peripheral edge at diametrically opposite points. The shell **2** comprises a body portion **3** having a plurality of perforations **4** through its peripheral wall and a top disc **5** with its lower periphery fitted in an opening at the top of the main body. On the lower or inner surface of the top disc are provided at central boss **7** and arcuate elongated side bosses on the opposite sides of the central boss **7**. On the central boss **7** is mounted a central roller assembly **10** comprising a plurality of radially disposed rollers **9** which are rotatably supported by a common base plate secured to the boss **7**. Alternatively, the roller assembly **9** may comprise a number of steel balls held by a cage just like a roller bearing assembly. A plurality of radially disposed rollers **12** are

rotatably supported by one of the arcuate boss 8_1 to encircle the central roller assembly **10**, it being understood that there will be a small gap **13** as shown in FIG. 2 between the rollers **12** and the peripheral surface of the rolling body **1** when the shell **2** encircling the rolling body is held stationary by being supported by the central roller assembly **10**. As shown in FIG. 2 the lower surface of the other arcuate boss 8_2 which is disposed symmetrically with respect to the boss 8_1 is tapered and a plurality of braking members **15**, preferably of the same number as the rollers **12**, and each including a braking plate **14** made of rubber and the like are secured to the tapered surfaces at positions symmetrical with respect to said rollers **12**. These braking members **15** are also mounted such that to define a small gap **16** between them and the peripheral surfaces of the rolling body just in the same manner as rollers **12** when the shell **2** is stationary.

The operation of the playing device of the construction outlined hereinabove is as follows: More particularly, a person rides on the steps of the playing device and then swings the device back and forth with his feet. Thus in the stationary state the shell **2** is supported on the rolling body **1** by the central roller assembly **10** provided on the inner surface of its top disc **5**, but when the shell **2** is slightly tilted forwardly or towards left as viewed in FIG. 2 by feet of the rider the braking plates **14** of the braking members **15** will be brought into close contact against the surface of the rolling body so that if the rider tries to further tilt the shell in the same direction the rolling body would be caused to roll in the direction of tilting of the shell because the shell is tightly engaged against the rolling body. After the shell has been tilted by a proper angle, the rider will tilt it slightly in the opposite direction, or towards right, as viewed in FIG. 2, to disengage the braking members **15** from the rolling body **1**. Then rollers **12** will come into contact with the peripheral surface of the rolling body **1** so that as the shell is further tilted in the same direction, only the shell will be rotated while the rolling body is stationary to prepare for the succeeding forward stroke.

By repeating such a cycle of operation the rolling body can be advanced in one direction and the riders can enjoy the game by racing their speeds. While the rolling body is advanced by swinging back and forth the feet of the rider on the steps **6**, because the rolling body **1** is made to have spherical or barrel shaped form and because the roller assembly **10** at the center of the shell comprises a plurality of rollers **9** the rolling body **1** will not advance along a straight body but will change its direction due to slight difference between forces applied to the steps by both feet of the rider. More particularly, the shell will be tilted to the side wherein stronger force is applied to the step thus causing one of the rollers or braking elements supported within the shell to engage the rolling body. As the result the rolling body will be advanced along a tortuous path. As a result, in order to reach the goal as fast as possible along as straight as possible path of advance the rider is required to vigorously shake his feet, waist as well as hands while preserving the balance of his body thus awakening great interest of not only the rider himself but also of spectators so that they will rush to try the game.

Thus the invention provides very interesting and healthy sport device because the rider must vigorously shake his body back and forth while maintaining his body in a well balanced condition. For example, children in the stage of growth can exercise how to balance their bodies and also can improve their appetite. Whereas mental workers who have but little time to exercise can promote their health and beauty by utilizing the present playing device.

While a specific embodiment has been disclosed for

the purpose of illustration and description, it is to be understood that various changes can be made therein without departing from the spirit and scope of the invention, whereby it is intended to cover in the appended claims all such modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. A playing device comprising a rolling body and an inverted cup-shaped member adapted to support a rider, said member including a roller assembly adapated to engage said rolling body to support said member, a roller or rollers normally spaced from said rolling body by a small gap and at least one braking member normally spaced from said rolling body by a small gap but brought into contact with said rolling body when said member is tilted with respect to said rolling member to cause said member and said rolling body to move in unison.

2. The playing device as claimed in claim 1 wherein said rolling body is a sphere.

3. The playing device as claimed in claim 1 wherein said inverted cup-shaped member accommodates therein said rolling body and is provided with radially extending horizontal steps on which the rider can ride.

4. The playing device as claimed in claim 1 wherein said roller assembly comprises a plurality of rollers disposed in different radial directions with respect to the center of said inverted cup-shaped member and disposed substantially at the center of the inner surface thereof, and said roller or rollers and said braking member normally spaced from said rolling body are positioned on the opposite sides of said roller assembly.

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