SPINNING DISC TOY WITH SHIFTABLE WEIGHT

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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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This invention relates to a manually operated spinning toy of the type wherein a disc is mounted to freely rotate on a handle provided with a hand grip, and the disc includes an unbalancing weight which functions to rotate the disc in response to back and forth motions imparted to the disc by means of the handle while the disc is supported in midair free of any other apparatus. A spinning toy of this general type is disclosed and claimed in my copending application Serial No. 812,470, now Patent 3,039,228. It is an object of this invention to provide an alternative type of spinning toy to that disclosed and claimed in my copending application, which may be considered to be an improvement thereover, notwithstanding the basic advantages and merits of the invention of my copending application, in that it produces superior action with less vibration. By "superior action" is meant that the disc rotates smoothly and rapidly and is sensitive in responding to the back and forth motions of the handle which cause it to rotate.

Other objects and further details of that which I believe to be novel and my invention will be clear from the following description and claims taken with the accompanying drawings, wherein:

FIG. 1 is a side elevational view of my improved spinning toy being held by the hand of a conventional position in which the improved toy may be operated;

FIG. 2 is a top plan view with portions broken away and shown in section for clarity, taken generally on line 2—2 of FIG. 1;

FIG. 3 is a sectional view taken on line 3—3 of FIG. 1 on an enlarged scale, and

FIG. 4 is a sectional view taken on line 4—4 of FIG. 3.

In my copending application, there are disclosed a number of embodiments of spinning toys which are of the general type to which this invention pertains. In that application, there are disclosed a plurality of handle variations for spinning toys as well as a plurality of variations of discs, namely, the single disc and the double disc types. Aside from these structural variations, all of the embodiments in my copending application include an unbalancing weight at one point at the periphery of the disc, which functions to cause rotation of the disc in response to movements of the handle, which weight is mounted in a fixed position on the disc. Although all of the embodiments in my copending application produce unique and desirable spinning toys, further research has revealed that the spinning operation of the embodiments of my copending application can be, and it has been found in practice that they are, improved by providing a different form of unbalancing weight on the discs. Applicant will herein disclose one embodiment of the invention as being incorporated in a single disc spinning toy having a double rod handle; however, it should be fully understood that it may be incorporated in numerous other embodiments having different disc and handle formations, including all of the formations disclosed in my copending application.

In FIGS. 1–4 my invention is illustrated as incorporated in a single disc, double rod handle, spinning toy. The spinning toy generally comprises a disc 10 and a handle 12.

The disc 10 comprises a single flat circular plate member 14 having a central hub 16 extending transversely to both sides thereof and including a central bore 18 forming a bearing surface, and a circular circumferentially extend-
relative to the dynamic condition of the disc at any given moment; that is, the relative condition and disposition of the mass 24 of unbalancing weights to the axis of rotation of the disc. In view of the fact that the mass 24 of unbalancing pellets or small balls is not fixed on the disc, this mass is capable of both effecting rotation of the disc and thereafter shifting itself in the passageway 22 relative to the disc in response to the rotation it has caused; therefore, the influence and effect of the mass 24 of shifting unbalancing weights is considerably more subtle and complex than that of the fixed weights in the embodiments of my copending application, as it varies during operation. The overall result of the operation of the shifting unbalancing mass of weights is that of producing high speed, smooth, vibrationless rotation of the disc.

The illustrated embodiment of my invention may be operated in other ways, that is, by disposing it in other relative dispositions than the one illustrated in FIG. 1. Also, as in the case of the embodiments in my copending application, the surface of the disc may be decorated in any desired way to secure different visual effects resulting from rotation of the disc.

As will be evident from the foregoing description, certain aspects of my invention are not limited to the particular details of construction of the example illustrated, and I contemplate that various and other modifications and applications will occur to those skilled in the art. It is, therefore, my intention that the appended claims shall cover such modifications and applications as do not depart from the true spirit and scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A spinning toy comprising: a flat, solid disc; a handle including a hand grip and a rod means extending from one end thereof and having a spindle bearing at its free end; said disc provided with a central bearing rotatably mounted on said spindle bearing to freely rotatably mount said disc thereon; an unbalancing particulate weight means; weight confining means encircling the periphery of said disc and defining an annular passageway of circular cross section spaced from the central bearing, said weight means being freely movable therein; said weight means comprising the sole means for causing rotation of said disc about said spindle bearing in response to transverse back and forth movement of said disc in its major plane in air while free of any support or operating means other than said handle, said weight means altering its shape and position relative to said disc during such rotation and thereby influencing the speed and smoothness of disc rotation.

2. A spinning toy as defined in claim 1 wherein said weight means comprises a plurality of balls.

3. A spinning toy as defined in claim 1 wherein said passageway comprises an annular tube and said weight means comprises a plurality of balls mounted in said tube.

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