May 6, 1952 W. C. STUDT 2,595,374

AERIAL SPINNING TOY

Filed April 21, 1949

Fig. 1.

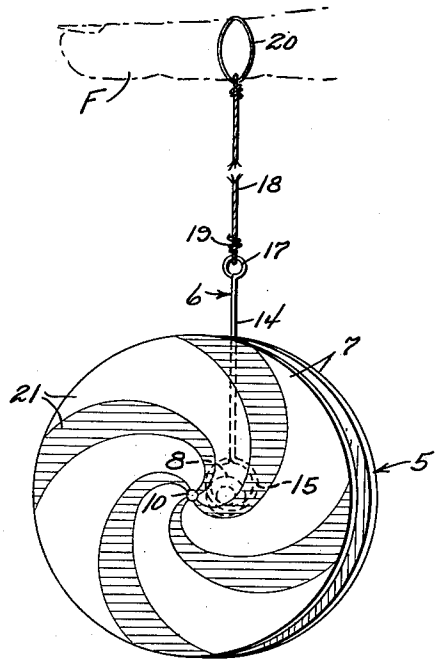


Fig. 2.

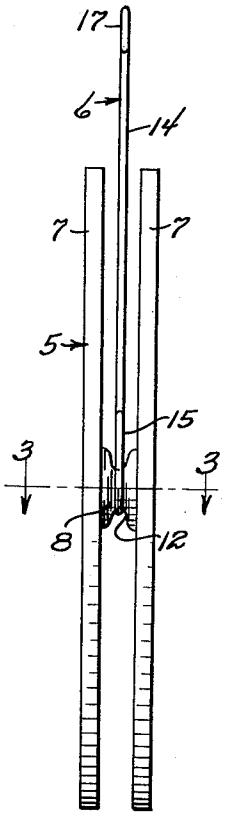


Fig. 3.

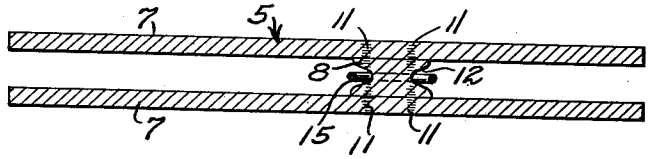
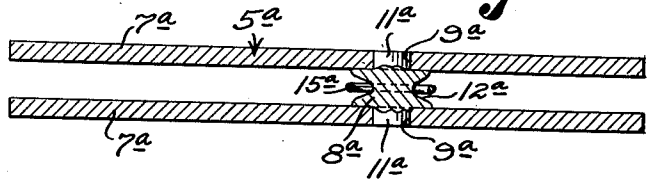


Fig. 4.



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AERIAL SPINNING TOY

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1 Claim. (Cl. 46—49)

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The present invention relates to amusement devices, and more particularly to a disk assembly providing a spinning toy.

One object of the invention is to provide a spinning toy which requires a certain degree of skill to manipulate and operate the same to thereby increase the interest of the player and user.

Another object is to provide a spinning toy which is operated by means of a series of vibrations imparted thereto with the finger. The arrangement being such that said vibrations produce a simple harmonic motion and impart a rotary spinning movement to the toy.

Another object is to provide a spinning toy having a pair of rotary disks connected together by means of an eccentric pin around which is received the looped end of a wire rod such that impulses manually imparted to said rod will cause said top to rotate about its central point as a free body.

Another object is to provide a toy of the spinning type having spiral or other decorative stripes to enhance the appearance of the toy during operation and increase the attractiveness thereof.

Other objects and advantages of the invention will become apparent during the course of the following description of the accompanying drawing wherein:

Figure 1 is a perspective view of the spinning top illustrating the manner in which the same is manipulated and operated by imparting a series of vibratory to and fro impulses thereto with one of the player's fingers.

Figure 2 is an end edge elevational view of the spinning vibratory toy showing the manner in which the spinning disks are spaced and connected by an eccentric pin spaced from the common central axis of the disks.

Figure 3 is a diametrical cross-sectional view taken on line 3—3 of Figure 2 looking in the direction of the arrows to illustrate various structural details of the disk connecting pin which is offset from the spin axis of the disks and held in place by being welded or otherwise secured in place.

Figure 4 is a diametrical cross-sectional view similar to Figure 3, but showing a slightly modified construction in which the eccentric or offset pin is provided with short opposed dowels for reception in correspondingly shaped openings in the spaced disks.

In the drawing, and more in detail, there is shown in Figures 1 to 3 inclusive, one embodiment of the invention and for convenience of

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illustration, there is illustrated a spinning body generally designated 5 and a suspension member connected thereto likewise generally designated 6. The body 5 comprises a pair of circular disks 7 which are disposed in concentric relation and are of the same diametrical dimensions. The disks 7 are held in spaced apart relation by means of a pin 8 which is offset from the central point 10 (Fig. 1) a slight distance. The pin or spacing member 8 is held in place by being spot welded as at 11 and the peripheral surface thereof is provided with an annular groove positioned midway between said discs. The pin 8 is formed of substantially the same metal as the disks 7 to facilitate welding the parts into place.

The suspending member 6 includes an elongated stiff wire 14 having a circular loop 15 of a larger diameter than that of the pin 8 at its lower end which operatively embraces said pin and is received in the groove 12 of the pin 8. The upper end of the wire 14 is likewise provided with a circular loop 17 through which one end of a string 18 is passed and fastened by being knotted or otherwise secured as at 19. The upper end of the string or cord 18 is affixed to a finger ring or loop 20 which is adapted to be slipped over the finger F of the player to manipulate the spinning toy.

The outer radial walls of the disks 7 are provided with alternately colored spiral stripes 21 to enhance the appearance of the toy during its spinning movement about the central point 10.

In the modified form of the invention (Fig. 4) the spinning body 5a includes a pair of disk-shaped members 7a which are provided with correspondingly aligned openings 9a offset slightly from the central point of the disks 7a. The pin 8a is provided with reduced portions 11a which are received in the openings 9a and are frictionally held in place. The disks 7a and pin 8a are formed of wood, and if desired, the pins 11a may be retained in the openings 9a by gluing or adhesively securing the parts together. The pin 8a is provided with a groove 12a in its peripheral surface and the ring or loop 15a is passed around said groove in substantially the same manner as the looped ring 15 on the rod 14 (Figs. 1 to 3 inclusive). An operating rod (not shown) is formed on the looped ring 15a and the same is connected to a suspension cord and finger ring similar to the cord 18 and ring 20 (also Figs. 1 to 3 inclusive).

In operation, the ring 20 is slipped over the finger F of the player and a series of vibratory to and fro movements are imparted to the operat-

ing rod or wire 6 in a vertical direction. These impulses are applied to the body 5 of the spinning disk to create a rotational force about the central point 10 or spin axis of the disks 7 during the upstroke of the actuator rod 14 so that during the down stroke the disks 7 will rotate as a free body. The vertical force applied intermittently to the offset pins 8 and 8a in addition to causing angular displacement, acts to urge the body upwardly and support the same from its suspension rod 6. During the down stroke or vibratory movement of the actuator rod 14 the body 5 rotates as a free body until the pin 8 passes the lower dead center point with respect to the spin axis 10.

The spinning toy is started by exerting a rotational force thereto manually while the device is suspended from the rod 6, and when the vibratory vertical to and fro movements are manually imparted to the actuator rod 6 by the player's finger F the body 5 will rotate about its central point 10 provided that the impulses are in phase with the simple harmonic motion of the pin 8. Thus, by timing the actuator rod 6 in rhythm with the simple harmonic motion of the pins 8 and 8a the body 5 may be kept in rotation until the impulses become out of phase with said motion.

It is to be understood, that the forms of the invention herewith shown and described are to be taken as preferred embodiments thereof and that various changes in the shape, size and arrangement of parts may be resorted to without

departing from the spirit of the invention or the scope of the subjoined claim.

What I claim is:

In a toy, the combination which comprises a disk assembly and operating means for effecting rotation of said disk assembly, said disk assembly consisting of a pair of circular disks disposed in concentric relation and connected together by a pin, said pin being disposed off center with respect to the common central axis of the disks and having an annular groove spaced midway between said disks, said operating means consisting of a stiff wire having, at one end, a loop larger than said pin operatively embracing said pin and engaging said groove, and a cord having one end connected to the free end of the wire, the other end of the cord having a finger engaging loop.

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