July 16, 1963 F. C. PRUNKARD 3,097,448

MAGNETIC TOY

Filed May 26, 1961

FIG. 1

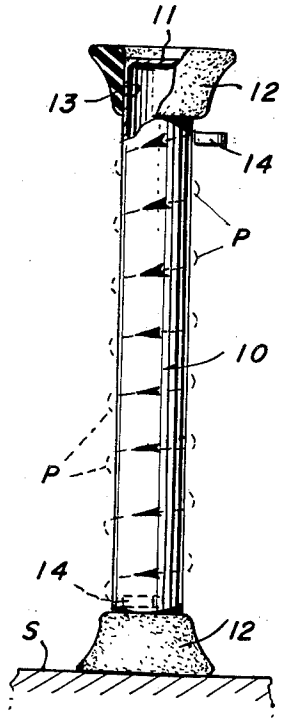


FIG. 2

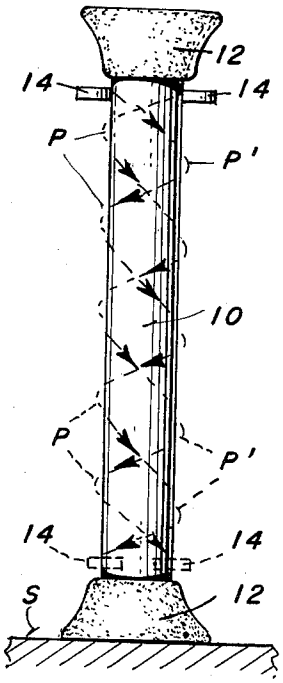


FIG. 3

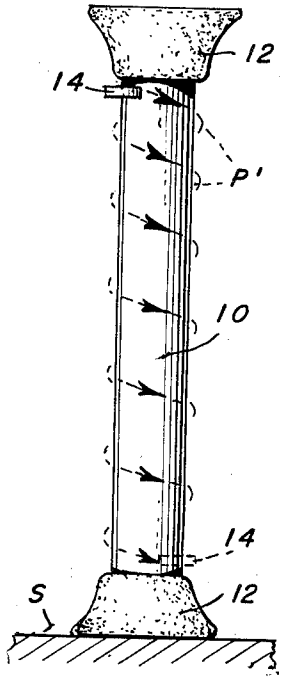


FIG. 4

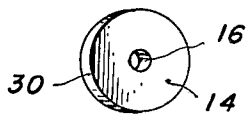


FIG. 5

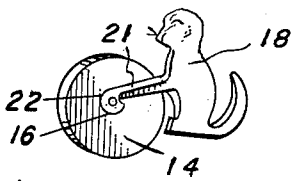
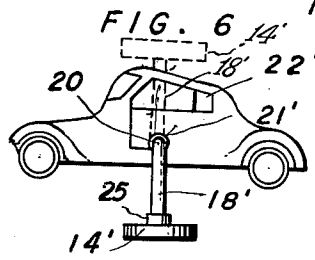


FIG. 6



Inventor

FRANKLIN C. PRUNKARD

By J. J. Trundle

Attorney

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MAGNETIC TOY

Franklin C. Prunkard, 5707 Chain Bridge Road, McLean, Va.

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2 Claims. (Cl. 46—241)

The present invention relates to improvements in games and amusement devices, and more particularly to a magnetic toy having a rotating and spinning member.

One object is to provide a toy which will afford amusement to children as well as grown people, and which can be used to simulate racing and the like, as well as other chance controlled games.

Another object is to provide an amusement device in the form of a toy having a cylindrical metal member to the surface of which is applied a magnetic disc which will travel around the periphery of the metal member and describe a helical path due to the component forces of magnetism and gravity.

Another object is to provide a magnetic toy including a ferrous metal bar or tube having a smooth peripheral surface and a magnetic disc applied to the tube for supporting an animated object or the like. The tube or bar being adapted to be supported on end and reversed end over end after the magnetic disc has traveled through a spiral path to the bottom of the support or tube.

Another object is to provide a magnetic spinning toy including a ferrous metal bar or tube which may be used as a wand and manipulated so that the magnetic disc or discs may be made to rotate around the periphery of the wand by simple up and down movement imparted to the bar.

Another object is to provide a magnetic amusement device in which the ferrous support or bar may be of various shapes such as spherical and conical with a substantially round smooth surface so that when the magnetic disc and animated object supported thereby are placed on the support they will travel along a spiral path over the round surface about a vertical axis.

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

FIGURE 1 is a side elevational view of the toy illustrating one of the magnetic discs at the top thereof, and showing the path of travel toward the lower end of the tubular support. Also, the ends of the tubular support are provided with suction cups to permit end over end reversal of the tubular support.

FIGURE 2 is a side elevational view similar to FIGURE 1 but showing a pair of magnetic discs applied to the support and showing the manner in which they are made to travel in opposite directions and through spiral pathways.

FIGURE 3 is a side elevational view similar to FIGURE 2 and showing the manner in which the magnetic disc may be rotated in an opposite direction to that shown in FIGURE 1.

FIGURE 4 is a perspective view of one of the magnetic discs.

FIGURE 5 is a perspective view showing the manner in which an animated object is supported on the magnetic disc, and

FIGURE 6 is a slightly modified form of the invention showing an object in the form of a toy automobile or other vehicle.

In the drawing, and more in detail, there is shown in FIGURES 1 to 5 inclusive one embodiment of the invention including a tubular bar or support **10** of ferrous metal and preferably having a coating of chrome on the

peripheral surface to provide a relatively smooth rolling contact surface.

The tube may be of any desired height or length, as well as any desired diameter, but it is preferred to make the tube approximately 12 inches long and of a diameter between 1½ and 2 inches. The ends of the tube are provided with suction cups **12** formed of rubber and having bores **13** to slidably receive the tube ends (FIGURE 1). A partition wall **11** extends across the end of the tube and is integrated with the rubber suction cup **12** (also shown in FIGURE 1). Thus, a suction chamber is formed between a surface upon which the support or tube **10** is placed and the partition wall **11**.

The magnetic disc **14** is formed of Alnico magnetic metal whch includes powdered aluminum, nickel and cobalt pressed into shape of disc-like contour and of any desired diameter. The magnetic discs **14** are provided with a central opening **16** (FIGURE 4) for supporting an animated object **18** formed of plastic or the like and having an arm **21** terminating in a downward depending portion **22** fitted into the opening **16** with a loose fit to permit free relative rotation between the disc **14** and the animated object **18** which may be a representation of a cat, monkey or similar animal.

In operation, the standard **10** is placed on a support S such as a table or desk, and held thereon by the suction cup **12** on the lower end of the tubular support. The magnetic disc **14** or discs as shown in FIGURE 2 are placed at the top of the tubular support adjacent the upper suction cup **12** and against the peripheral surface of the tubular support **10**. When positioning a magnetic disc or discs **14** on the tubular support, they are grasped between the fingers and manually placed in contact with the upper end of the tubular support. It makes no difference whether the plane of the magnetic disc is normal to the axis of the tubular support or is parallel therewith and extends longitudinally thereof, since the moment the player releases his grasp on the magnetic disc it will immediately orient itself so that its plane is substantially normal to the axis of the tubular support. When the disc is released it will travel around the periphery of the tubular support and describe a spiral path P in a clockwise direction as shown in FIGURE 1 or may be made to move in a spiral path P′ in a counterclockwise direction as shown in FIGURE 3. When a pair of magnetic discs **14** are applied to the upper end of the tubular support **10**, they may be made to travel in clockwise and counterclockwise pathways P and P′ as shown in FIGURE 2. This may be accomplished by exerting a little push force on the magnetic discs in opposite directions as they are applied and placed on the upper end of the ferrous metal tube **10**. The animated object **18** is removably mounted in the magnetic disc **14** so that it can be shipped into place when the magnetic disc **14** or discs are applied to the upper end of the tube.

In the modified form of the invention shown in FIGURE 6 the magnetic disc **14′** is formed of pressed powdered magnetic material sold under the trade name of Alnico and shaped under pressure to form a disc **14′** of a suitable diameter. It has been found in practice that magnetic discs such as those shown in FIGURES 1 to 5 and the modification in FIGURE 6 operate efficiently when their diameter is substantially one half the diameter of the ferrous metal tube **10**. The disc **14′** is provided with a central opening to support a bracket having a shaft portion **18′** which is loosely and rotatably mounted in the magnetic disc **14′**, and the free end is angularly bent as at **20** for being received in an opening **21′** in an object such as a toy vehicle **22′** formed of plastic or lightweight metal such as aluminum. The ends of the angular bracket **18′** may be provided with a collar **25**

to limit movement of the spindle portion 18' of the bracket within the central opening (not shown) in the magnetic disc 14'.

The operation of the toy shown in FIGURE 6 is similar to that shown in the other figures of the drawing, and the magnetic disc 14' supporting the toy vehicle shaped object 22' is placed against the upper end of a ferrous metal tube 10 adjacent the upper suction cup 12. With the tubular support 10 mounted on a desk or the like in an upright position, the magnetic disc 14' and toy vehicle supported thereby will travel in a spiral pathway either clockwise or counterclockwise depending on the direction the same is initially urged before the player releases his grasp. When the device is used as a racing game, a plurality of the toy vehicles shown in FIG. 6 may be used and applied as shown in FIGURE 2 so that they will travel in opposite spiral pathways around the periphery of the ferrous metal chromeplated tubular support 10.

By holding the tubular support 10 substantially horizontally and applying one of the discs 14 to the periphery the disc may be made to spin around the axis of the tube by imparting short to and fro vibratory up and down movements to the tubular support, whereupon the disc 14 will rotate around a substantially circular path on the periphery of the ferrous metal chromeplated tubular support. In this case, animated objects may be applied to the disc 14 and the brackets 21 shown in FIGURES 5 and 6 can be altered so that the spindle portions passing through the disc are angularly displaced 90 degrees. Actually, the figure toy may be properly mounted in any position by merely bending the arm 21 in the form of the invention shown in FIGURES 1 to 5 or the arm 18' shown in the modified form of the invention in FIGURE 6.

When shapes other than the ones shown of a right cylinder are used such as cones and spheres the magnetic disc or discs may be placed thereon and the same will travel in a substantially spiral path around the axis thereof.

The discs 14 and 14' are preferably of a thickness not less than one eighth of an inch and the peripheral surface is generated about a true right cylinder.

Obviously other changes and modifications may be made in the shape of the support and animated objects carried by the magnetic disc without departing from the spirit of the invention or the scope of the subjoined claims.

What I claim is:

1. A magnetic toy comprising a ferrous bar having a round peripheral surface, a relatively thin magnetic disc of reduced diameter with its peripheral edge surface adapted to be placed at the upper end of the bar so that the resultant of the magnetic and gravity forces will cause said disc to travel around the axis of said bar in a spiral pathway, said disc being provided with a central opening, a toy object, and a spindle received in the opening of said disc connecting said toy object with said disc.

2. A magnetic toy comprising a round ferrous bar adapted to be placed on end to extend vertically from a support, a relatively thin magnetic disc of reduced diameter with its peripheral edge surface presented to said bar and having a central opening, a figured object having an arm portion terminating at the end in an angle portion adapted to be received in the opening in said disc, said disc and figured object being applied to the upper end of the bar so that the resultant of the magnetic and gravity forces will cause said disc and figured object to travel in a spiral pathway around said bar and toward the lower end thereof.

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