

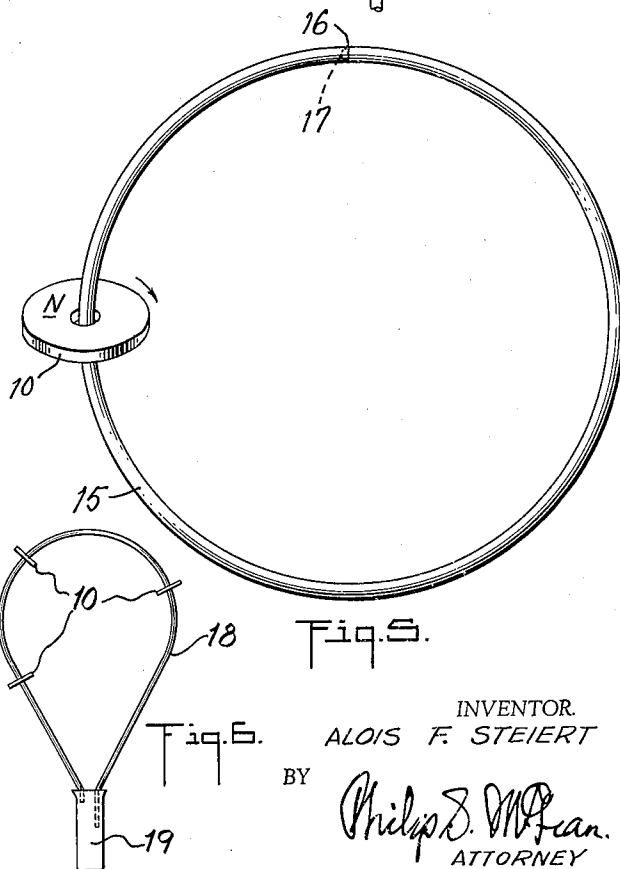
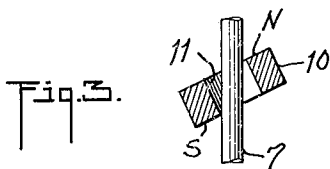
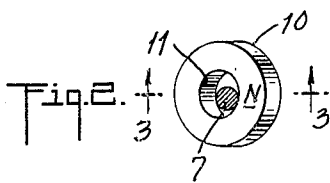
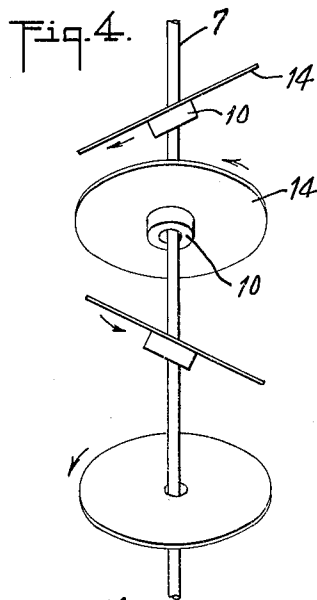
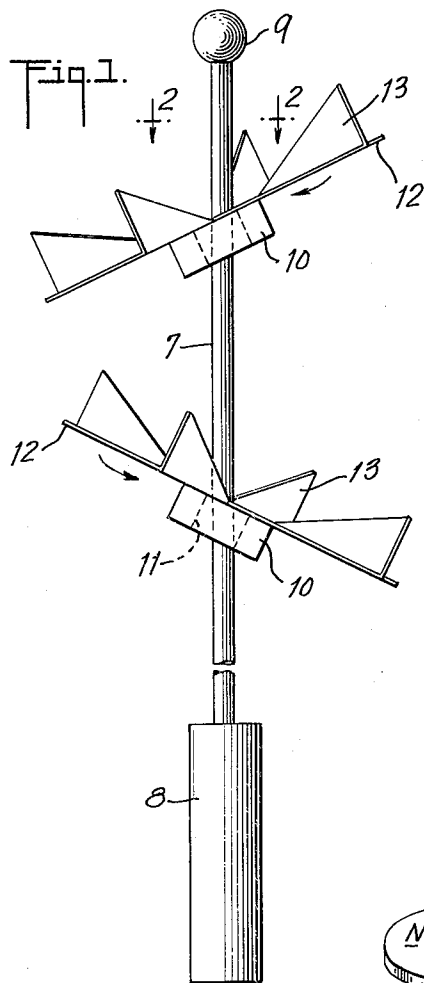
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MAGNETIC AND GRAVITY ACTUATED SPINNING TOY

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## MAGNETIC AND GRAVITY ACTUATED SPINNING TOY

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2 Claims. (Cl. 46—242)

The invention herein disclosed relates to spinning toys and the general objects of the invention are to provide a toy of this type which will be self-energizing in effect and which will be interesting and attractive in operation.

Particularly it is a purpose of the invention to provide a toy of this character which will be simple and inexpensive in construction and which by reason of its concealed mode of operation will afford the greater entertainment and amusement.

These and other desirable objects have been attained by a novel combination, utilizing permanent magnets in the form of rings and a guiding rod of magnetizable material, with the rings having an internal diameter slightly greater than the diameter of the rod so that with the rod in upright position the magnet rings will cling to the rod and, assisted by gravity, will assume a rolling helical path of travel down the rod.

Other novel features and objects attained by the invention are set forth and will appear in the course of the following specification.

The drawing accompanying and forming part of the specification is illustrative of certain practical embodiments of the invention but structure may be modified and changed as regards the immediate illustration, all within the true intent and scope of the invention as hereinafter defined and claimed.

FIG. 1 is a front elevation of one of the toys, with the rod shown broken away.

FIG. 2 is a cross sectional detail on substantially the plane of line 2—2 of FIG. 1.

FIG. 3 is a vertical sectional detail as on the line 3—3 of FIG. 2.

FIG. 4 is a diagrammatic view, illustrating a greater number of the magnet rings rotating in different directions on the same supporting rod.

FIG. 5 is an elevation showing the supporting rod element modified to the extent of being continued in the form of a hoop.

FIG. 6 is a detail of another modification.

In the first four views the supporting rod is designated 7 and is shown as a straight length of magnetic material such as iron or steel, of any chosen length.

For convenience in handling and holding the device the rod is shown as provided with a handle grip 8 at one end and for the purpose of limiting movement along the rod a stop piece 9 in the form of a ball is shown as detachably engaged on the opposite end of the rod.

One or more annular form permanent magnets 10 are engaged on the rod between the end stops illustrated.

These permanent magnet rings have an inside diameter 11 enough greater than the diameter of the rod to assume a slanting position, with the rod upright such as to enable the ring to magnetically cling to the rod at diagonally opposite edges, substantially as illustrated in FIGS. 2 and 3.

In such relation the force of gravity will tend to initiate a helical path of rotation of the ring about the rod. The speed of such rotation can be controlled by varying the upright position of the rod between the vertical and the horizontal, with the ring slowing down and coming to a stop as the horizontal position is approached or reached.

The rings may be variously ornamented and equipped. FIG. 1 shows the rings equipped with disks 12 carrying

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fan blades 13 which control and to some extent will accelerate and retard rotation, depending upon the direction in which the fan blades are faced and on the direction of rotation.

By facing the magnets in opposite polarity the rotating units may be made to cling together and to traverse the rod in that condition and by facing them with like poles in opposition they may be made to descend the rod in spaced relation and one rotating magnet ring may be made to start an opposing magnet ring in rotative movement.

FIG. 4 shows how, with a number of magnet rings in position on the rod, rotating movement in different directions may be maintained by the several rings.

In FIG. 4 it is also shown that the extended surface element may be just a plain disk 14 of paper, cardboard or the like, which will exert a controlling effect over the rotation and descending movement of the ring.

FIG. 5 shows how the supporting rod may be curved and extended in endless form in the nature of a hoop 15 of magnetic material. In the illustration the hoop is broken at 16 with the opposing ends releasably interlocked at 17, permitting opening of the hoop for removal or replacement of one or a number of the permanent magnet rings.

The gyratory movements of the magnet rings may be controlled in various ways. They may be kept spinning continuously by simply reversing the rod, end for end, as the rings descend to the lower end of the rod.

In the modified form of the invention shown in FIG. 6 the rod element is developed and extended into the form of a ring or loop 18, with the ends of the same caught in a handle 19, one or both of such ends being removable or releasable to permit removal and replacement of the permanent magnet rings 10.

What is claimed is:

1. A gravity, magnetically and air controlled spinning toy, comprising

a smooth surfaced, metallic rod capable of being magnetized and of substantially uniform circular cross section,

a surrounding permanent magnet of annular formation having an internal diameter enough larger than the diameter of the rod to permit the magnet to slide and tilt into inclined angular relation on the rod and to assume helical rotative movement about the rod under influence of gravity when the rod is held in a more or less upright position, and

a fan blade forming disc affixed to said annular magnet and projecting beyond the rim of the magnet to thereby operate in free air in the rotative movement of the magnet and whereby to exert a controlling influence on the rotary descending movement of the magnet on the rod.

2. A gravity and magnetically controlled spinning toy comprising in combination,

a rod of uniform circular cross section having a continuous smooth surface,

said rod being of magnetizable material and provided at opposite ends with stop shoulders defining between them a continuous smooth surface circular track of magnetizable material,

a permanent magnet of annular formation surrounding said rod and having an internal diameter enough larger than the diameter of the rod to enable said magnet to slide over said track forming portion of the rod between said end stops and to tilt into inclined angular relation on the rod in rotative helical movement about the rod under influence of gravity when the rod is held in a more or less upright position, and

one of said end stops being in the form of a handle by which the rod may be held and reversed end for end to initiate magnetic and gravity travel along the rod under combined influence of the magnetizing effect of the permanent magnet on the magnetizable rod and force of gravity.

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