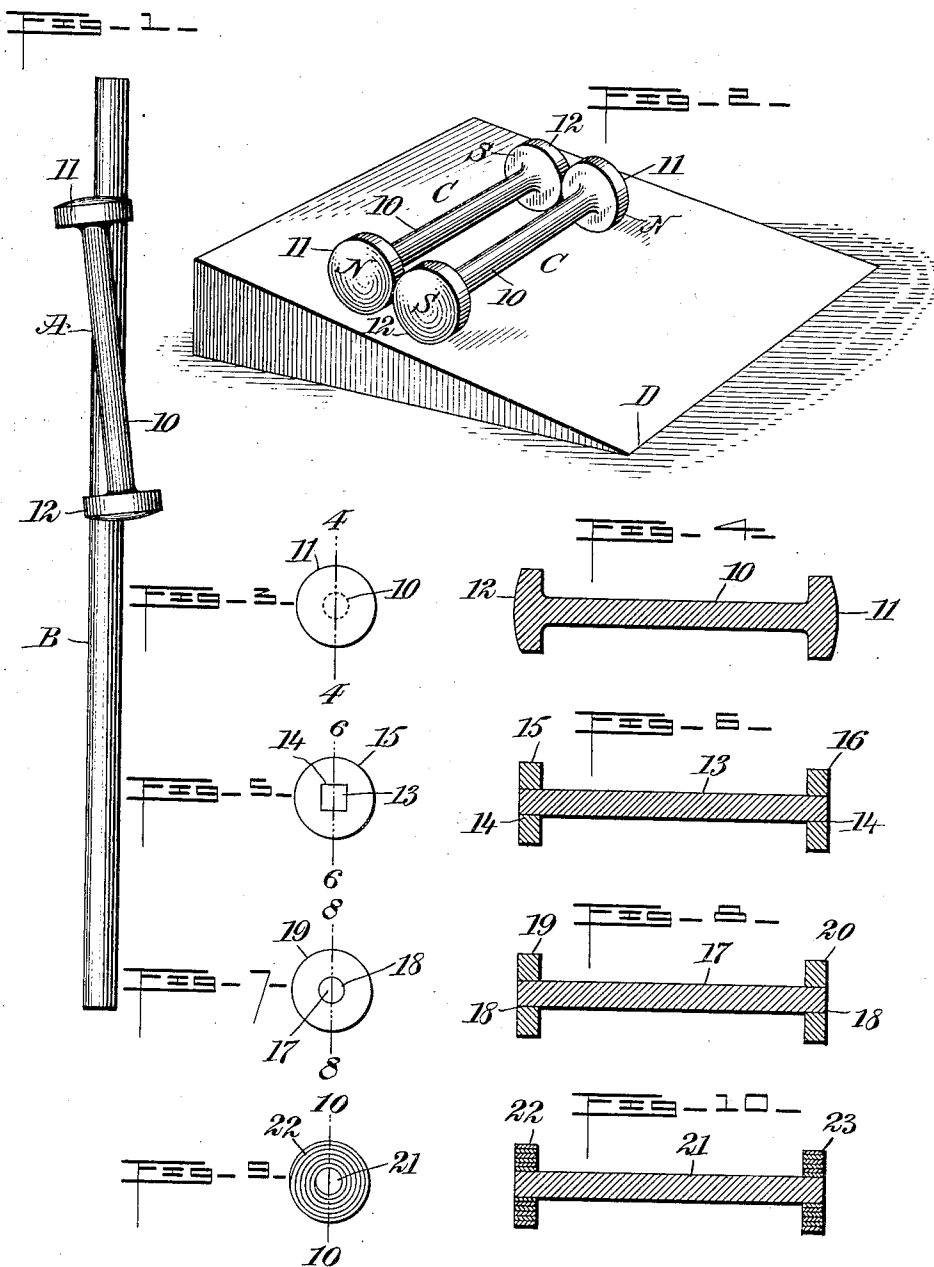


No. 824,812.

PATENTED JULY 3, 1906.

H. R. PLIMPTON, 2D.
MAGNETIC APPARATUS.
APPLICATION FILED FEB. 25, 1904.



WITNESSES:

H. C. Allen
Wm. H. Allen

INVENTOR

Henry Richardson Plimpton, 2nd

BY

Mumford
ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY RICHARDSON PLIMPTON, 2d, OF NEWTON CENTER, MASSACHUSETTS.

MAGNETIC APPARATUS.

No. 824,812.

Specification of Letters Patent.

Patented July 3, 1906.

Application filed February 25, 1904. Serial No. 195,177.

To all whom it may concern:

Be it known that I, HENRY RICHARDSON PLIMPTON, 2d, a citizen of the United States, and a resident of Newton Center, in the county of Middlesex and State of Massachusetts, have invented a new and Improved Magnetic Apparatus, of which the following is a full, clear, and exact description.

The invention relates to a novel magnetic apparatus; and the object of the invention is to demonstrate in a new manner and by new means the repelling power of bar-magnets as well as the attracting power.

The invention consists of a suitable support and a magnet having roll-shaped ends for engaging with the support, the magnet being free to revolve on its axis.

The invention further consists in the novel construction and arrangement, as will be hereinafter fully described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of an upright steel rod and the improved magnet so placed thereon as to automatically take a spiral course around the rod without departing from engagement with the rod. Fig. 2 is a perspective view of an inclined plane and two magnets placed thereon in attracting position, where one serves as a brake to the other, both remaining stationary on the inclined plane at such time. Fig. 3 is an end view of the improved magnet made in one piece. Fig. 4 is a longitudinal section through the magnet shown in Fig. 3, the section being taken on the line 4 4 of Fig. 3.

Fig. 5 is an end view of the magnet in which the magnet is secured to the roll-heads. Fig. 6 is a longitudinal section through the magnet shown in Fig. 5, the section being taken practically on the line 6 6 of Fig. 5. Fig. 7 is an end view of the form of magnet shown in the preceding figures, but presenting a slight departure in the manner of connecting the roll-heads with the body. Fig. 8 is a longitudinal section taken substantially on the line 8 8 of Fig. 7. Fig. 9 is an end view of the magnet having its heads made of spirally wound or coiled wire, and Fig. 10 is a longitudinal section taken practically on the line 10 10 of Fig. 9.

Under all conditions of construction the body portions of the bar-magnets are provided with roll-shaped ends or heads constituting pole-pieces, and I desire it to be understood that such bar-magnets may be varied in form or size or may be composed of one or more parts without departing from the spirit of the invention, which is to provide means whereby bar-magnets may be made to revolve or rotate on their axes through the medium of roll-shaped heads, ends, or pole-pieces.

In the form of construction shown in Figs. 1, 2, 3, and 4 the bar-magnet consists of a body 10 circular in cross-section; but it may have other cross-sectional shape and roll-heads or pole-pieces 11 and 12 of greater diameter than the body, so that the body is held from engagement with any support on which the magnet may be placed. The heads or pole-pieces are termed "roll heads" or "ends," as they enable the bar-magnet to turn or revolve on its axis by their means.

Under the form of construction shown in Figs. 5 and 6 the same result is obtained; but the body 13 of the magnet is polygonal in cross-section and is fitted in corresponding openings 14 in the central portion of the roll-heads, ends, or pole-pieces 15 and 16.

The form of the bar-magnet shown in Figs. 7 and 8 is practically the same as that illustrated in Figs. 5 and 6, both forms being made in sections, and the only difference resides in the fact that the body 17 of the magnet shown in Figs. 7 and 8 is round in cross-section and is let into and secured in circular openings 18 in the roll heads, ends, or pole-pieces 19 and 20.

With reference to the construction shown in Figs. 9 and 10 the body 21 of the magnet is shown round in cross-section, although it may be otherwise formed, the feature of this particular bar-magnet being that the roll heads, ends, or pole-pieces 22 and 23 are composed of spirally-wound wire round or flat in cross-section.

With reference to Fig. 1, one of the roll-shaped magnets A is shown with its roll heads, ends, or pole-pieces in engagement with an upright rod B of suitable metal, the body of the bar-magnet being diagonal with respect to the rod; and after the improved magnet is thus placed and released the magnet, with its roll ends, will revolve around

and run down the rod in a spiral course by the force of gravity pulling downward and magnetism holding the revolving bar-magnet piece to the said rod through the medium of its roll ends.

In Fig. 2 I have shown two of the improved roll-magnets (designated as C) located upon an inclined plane D with opposite poles presented, so that the said magnetic rolls attract one another, forming a magnetic brake, permitting or compelling the two roll-magnets to remain stationary on the inclined plane upon which either magnet separately would rapidly travel down. When like poles are presented and the roll-shaped magnets are placed on a level surface, the magnets will rapidly repel or push each other apart. When unlike poles are presented, either roll will attract or lift the other.

In this new form of magnetic apparatus with roll-shaped ends or pole-pieces the magnetic lines of force emanate radially from the periphery of such roll-shaped ends and form continuous circular poles. The magnetic apparatus hereinbefore described is capable of being used as a toy, but is adapted to various other and more practical uses. As a toy it is useful in demonstrating both the repelling and attracting power of such magnets in a new manner not possible with usual magnets of horseshoe or plain bar form.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a magnetic apparatus, a support, and magnets having roll-shaped ends or pole-pieces for engaging with the support, the magnets being free to revolve on their axes.

2. In a magnetic apparatus, a support, and a bar-magnet comprising a straight body of desired cross-sectional shape and roll-shaped ends or pole-pieces at the ends of the body of greater diameter than the body and adapted to engage the support to permit the magnet to revolve on its axis.

3. In a magnetic apparatus, a support, and a bar-magnet having a straight body portion and roll-shaped ends or pole-pieces at opposite ends of the body, and connected at their centers with the ends of the body, the roll-shaped end pieces forming continuous circular poles, adapted to engage the support, the magnet being free to roll in contact with said support.

4. A magnetic apparatus comprising a rod of metal, and a magnet having roll-shaped ends for engagement with the rod to cause the magnet under the action of gravity to revolve around and run down the rod, as described.

5. A magnetic apparatus comprising an upright rod of metal, and a magnet having a body portion arranged diagonally with respect to the rod, and roll-shaped ends of greater diameter than the body for engagement with the rod to cause the magnet under the force of gravity to revolve around and run down the rod in a spiral course, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY RICHARDSON PLIMPTON, 2d

Witnesses:

JAMES L. PLIMPTON,

EDITH ALDEN PLIMPTON.