W. G. REUTER.

MAGNETIC DISPLAY DEVICE.

APPLICATION FILED MAY 18, 1915.

1,167,020. Patented Jan. 4, 1916.

Fig. 1.

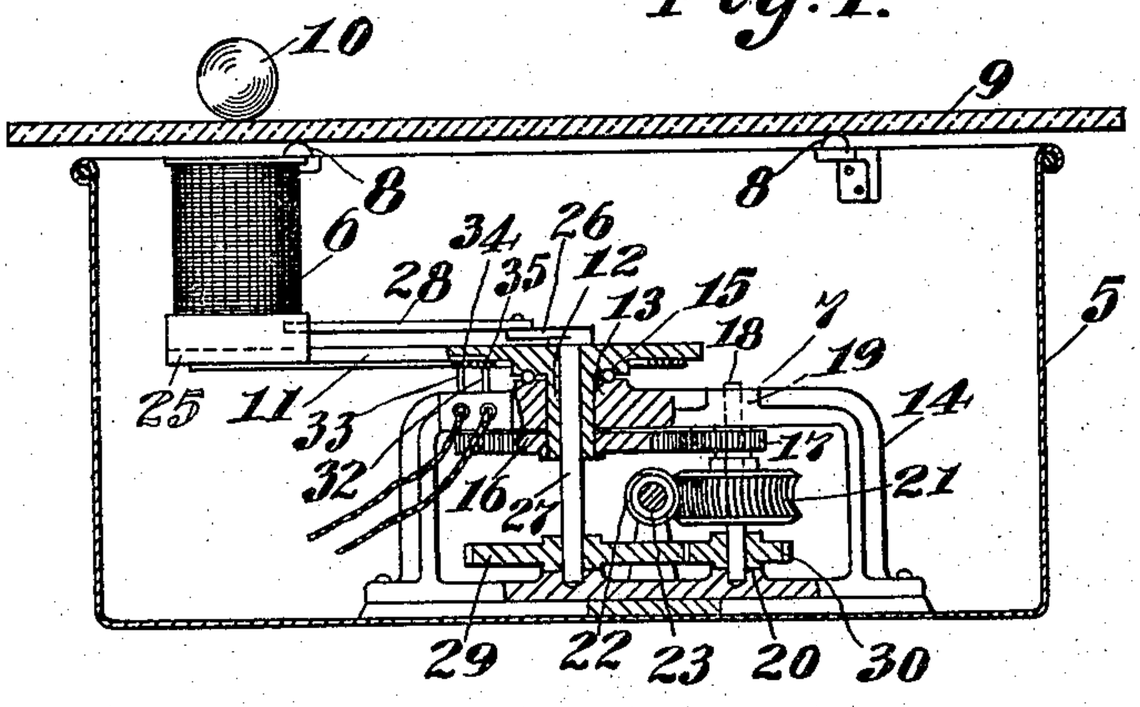


Fig. 4.

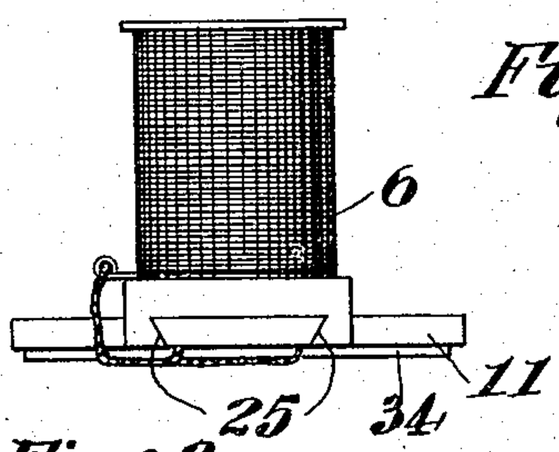


Fig. 3.

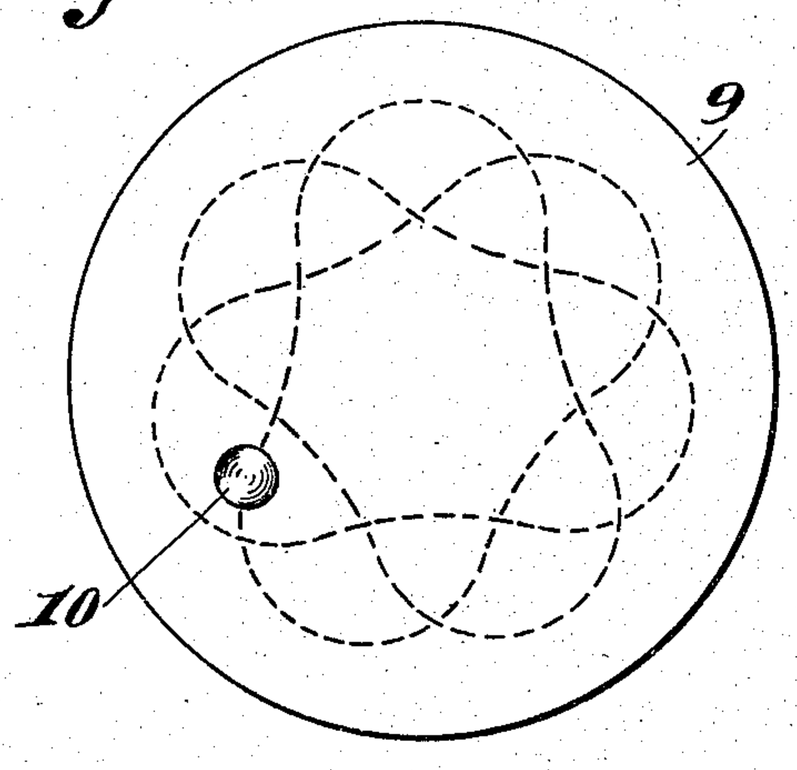
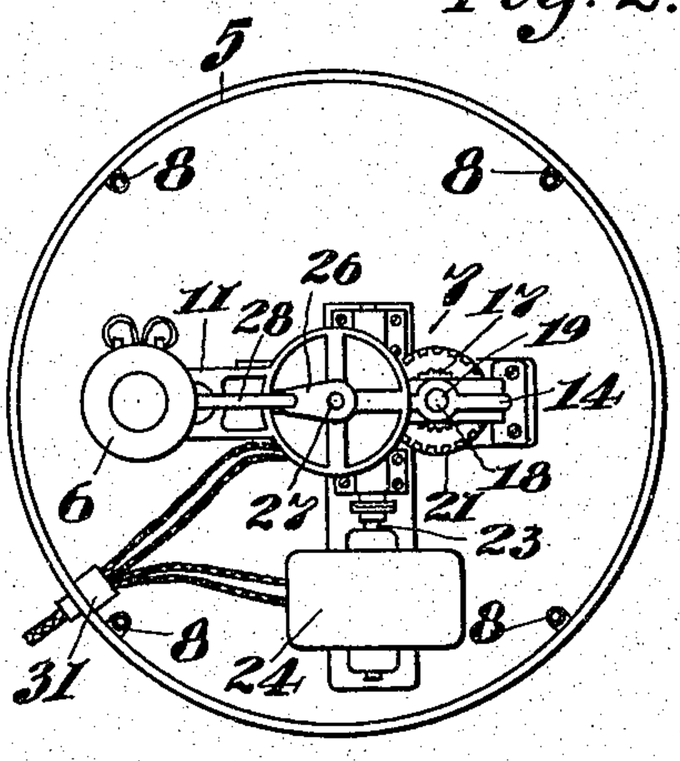


Fig. 2.



Inventor

William G. Reuter

By Walter J. Murray

Attorney

Witnesses

G. Garland Brown.

W. Thornton Bogert

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM G. REUTER, OF CINCINNATI, OHIO.

MAGNETIC DISPLAY DEVICE.

1,167,020. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed May 18, 1915. Serial No. 29,006.

To all whom it may concern:

Be it known that I, WILLIAM G. REUTER, a citizen of the United States of America, and resident of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Magnetic Display Devices, of which the following is a specification.

This invention relates to improvements in advertising devices and particularly to advertising devices in which magnetism is employed for moving followers in a mysterious manner over a supporting surface.

An object of my invention is to produce a magnetic advertising device in which means are employed for moving a follower in a circuitous path over its supporting surface. This and other objects are attained in the advertising device described in the following specification and illustrated in the accompanying drawings in which—

Figure 1 is a sectional view taken through the casing and the follower supporting table of advertising device embodying my invention, with certain other parts shown in section for convenience of illustration. Fig. 2 is a plan view on a reduced scale of the device embodying my invention, with the follower supporting table removed. Fig. 3 is a plan view on a reduced scale of the device with a follower mounted on the supporting table, and showing by dotted lines the path taken by the follower in moving under the influence of the movable magnet located beneath the surface. Fig. 4 is an end view of the magnet and magnet carrying arm embodying a detail of my invention.

My improved advertising device consists of a casing 5 which is preferably in the form of a cylindrical sheet metal container adapted to contain a movable magnet 6 and suitable mechanism 7 for moving the magnet about the interior of the casing. At the top of the casing and resting upon rubber buttons 8, is a nonmagnetic table 9 such as a glass mirror adapted to support a follower 10 of magnetic material, which will move in response to the movements of the magnet located beneath the table.

The magnet 6 is preferably one of the electromagnetic type and is mounted on an arm 11 having a hollow boss 12 rotatively mounted in a bearing 13 of the frame 14. In order to mount the arm to revolve freely, ball bearings 15 are provided. The boss 12 projects below the bearing 13 and has mounted thereon a gear 16 which meshes with a gear 17, the gear 17 being secured in turn to a shaft 18 rotatively mounted in bearings 19 and 20 formed in the frame 14. Adjacent to the gear 17 is a worm gear 21 secured to and adapted to drive the shaft 18 by means of an intermeshing worm 22 secured to the shaft 23 of a driving motor 24.

By means of the above described mechanism the magnet carrying end of the arm 11 is given a circular motion within and concentric with the casing 5, but since it is not desired to have the follower travel in a circular path over the surface of the table 9, the magnet is mounted to reciprocate to and from the pivotal center of the arm, on ways 25 formed thereon. For the purpose of reciprocating the magnet, a crank arm 26 secured to a shaft 27 extending through the boss 12 is provided, the crank arm being connected with the magnet 6 by means of a connecting rod 28 so that when the crank is rotated the magnet will be reciprocated on its ways 25. To rotate the crank rotating shaft 27, a gear 28 is secured thereto and in mesh with a gear 30 secured to the shaft 18. The gears 29 and 30 are of a different gear ratio than the gears 16 and 17 so that when shaft 18 is rotated, the magnet carrying arm 11 will be rotated at a different speed from the magnet reciprocating crank arm 26. By this means the magnet is caused to change its position on the arm 11 so that as the arm rotates, the magnet will be caused to move toward and away from the sides of the casing 5. In the particular mechanism illustrated, the magnet, and consequently the follower 10, will be caused to move in the path indicated in dotted lines in Fig. 3, in which the follower will constantly change direction of movement and thereby increase the mystery of its action.

In connecting the motor and the magnet to a suitable source of electrical energy, the lead wires are passed through an insulator 31 located in the casing 5, the lead wires of the magnet being connected with insulated brushes 32 and 33 mounted on the frame 14. These brushes are pressed against insulated collector rings 34 and 35 mounted on the arm 11, to which the terminals of the magnet are connected, so that when the arm is rotated the flow of current in the magnet coil will be maintained.

Although I have illustrated my improved advertising device as having a magnetic fol-

lower in the shape of a ball, located on the top 9, it will be understood that any object, such as a cigar, collar, tie, piece of candy, etc., having a piece of magnetic material concealed therein, may be caused to move over the top 9 in a most mysterious manner and in a great many different directions. It will also be understood that by means of different gear ratios, the speed of rotation of the arm 11 may be increased or decreased over that of the crank arm 26 so that the path of travel of the magnet may be materially varied from the path disclosed in dotted lines in Fig. 3.

Having thus described my invention, what I claim is;

1. In an advertising device the combination of a table, a revolving member beneath the table, a magnet mounted upon the revolving member, means for moving the magnet upon the member and for rotating the member.

2. In an advertising device the combination of an electromagnet, a follower, a table interposed between the magnet and the follower, a rotatively mounted arm adapted to movably mount the magnet and mechanism adapted to rotate the arm and to move the magnet on the arm, whereby the follower will be caused to move in a circuitous path.

3. In combination in an advertising device, a magnet, a follower, a table interposed between the magnet and the follower, an arm adapted to mount the magnet, a crank arm operatively connected with the magnet and adapted to move the magnet along the arm when the crank arm is rotated with relation to the magnet carrying arm, and means adapted to rotate the arms with relation to each other, whereby the magnet and the follower will be given a circuitous path of travel.

4. An advertising device comprising a magnet, a rotatively mounted arm having guides adapted to reciprocally mount the magnet, a crank arm operatively connected with the magnet and adapted to be rotated relatively to the magnet carrying arm to reciprocate the magnet on the magnet carrying arm, and mechanism adapted to rotate the arms at different speeds.

5. In an advertising device the combination of a magnet, a rotatively mounted arm having ways adapted to reciprocally mount the magnet, a crank arm mounted to rotate concentrically with the magnet carrying arm and operatively connected with the magnet, mechanism adapted to rotate the magnet carrying arm, mechanism adapted to rotate the crank arm at a rate of speed different from that of the magnet carrying arm, and means adapted to drive the mechanisms.

In testimony whereof, I have hereunto subscribed my name this 17th day of May, 1915.

WILLIAM G. REUTER.

Witnesses:
WALTER F. MURRAY,
W. THORNTON BOGERT.