

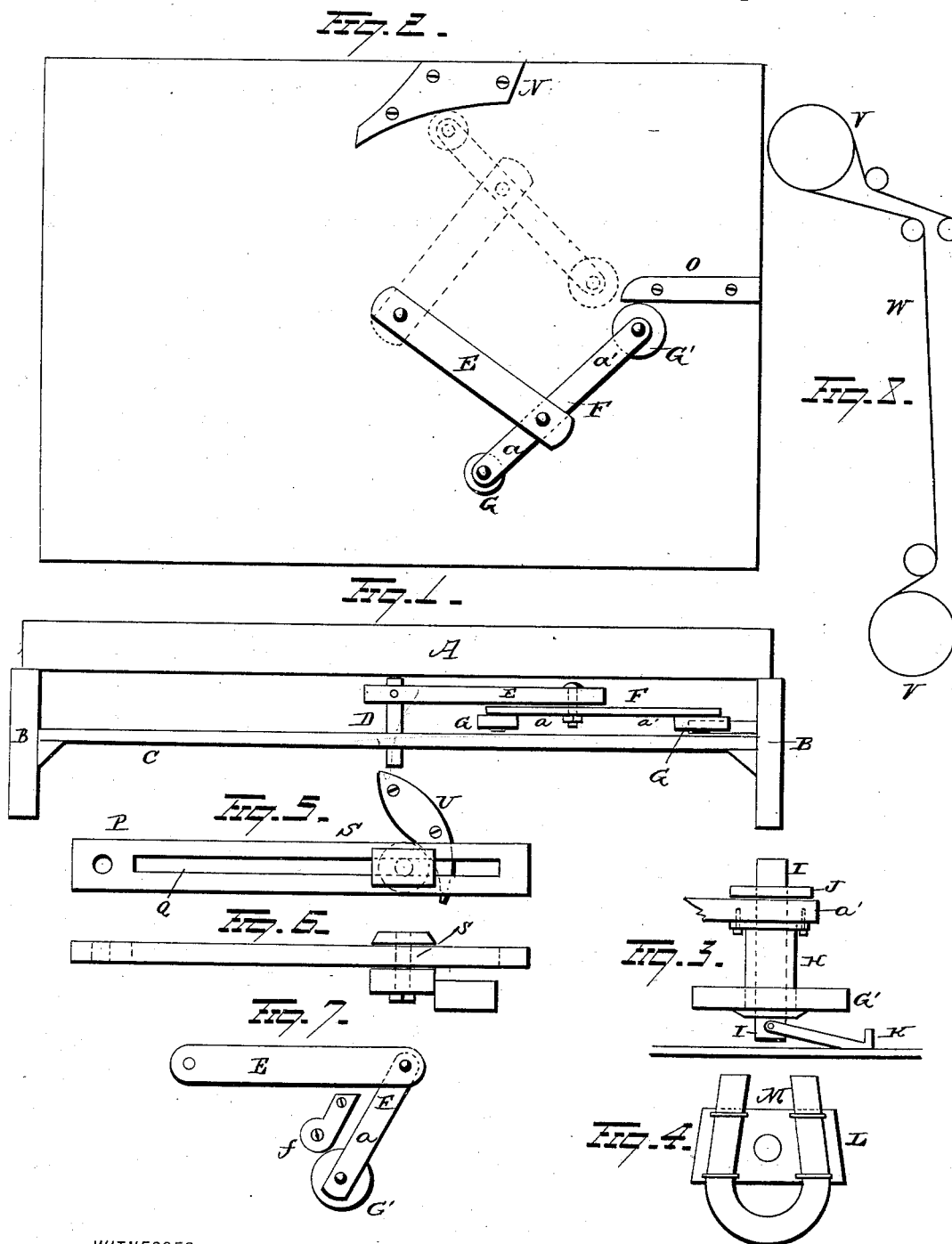
(No Model.)

O. J. DIMMICK.

MAGNETIC TOY.

No. 264,258.

Patented Sept. 12, 1882.



WITNESSES

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MAGNETIC TOY.

SPECIFICATION forming part of Letters Patent No. 264,258, dated September 12, 1882.

Application filed February 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, OTHELLO J. DIMMICK, of Fairbury, in the county of Livingston and State of Illinois, have invented certain new and useful Improvements in Magnetic Toys; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to an improvement in that class of toys in which appropriately designed and constructed figures or objects are caused to move over plane surfaces by bringing them under the influence of magnetic attraction.

The particular object of my present invention is to locate the said attractive force, which consists of one or more permanent magnets, below the plane surface over or upon which the toys are located, and to automatically actuate the said magnets through paths corresponding in shape with those to be ascribed to the figures or toys.

With this object in view my invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in side elevation of devices constructed in accordance with my invention to actuate a permanent magnet. Fig. 2 is a plan view of Fig. 1 with the tank A removed. Fig. 3 is a view in cross section of a device for mounting the magnets. Fig. 4 is a plan view of Fig. 3. Fig. 5 is a plan view of an auxiliary attachment. Fig. 6 is a side view thereof, and Figs. 7 and 8 are views of other forms of actuating devices.

In the drawings, A represents a shallow tank of any desired construction, and adapted to be filled with water to float miniature vessels and swans or other appropriate toys. The said tank rests upon standards B, which also support the floor C. The space between the tank and the said floor is designed to contain the magnet and the devices arranged to actuate it in regular or eccentric motion.

D is a shaft mounted in the floor C, and extending above it and below it. Any conven-

ient form of motor may be employed to actuate the said shaft. If a compact spring motor is chosen, it may be located in the space below the floor; but if a motor is employed which is necessarily located without the toy the space below the floor may be used for the gearing necessary to transmit the power to the shaft D or such other shafting as it is desired to operate.

E is a lever secured to the shaft D, and arranged in a horizontal position with relation to the tank A.

F is a lever pivotally secured midway of its length to the outer end of the lever E. The shorter arm *a* of the lever F is provided with a roller, G, arranged to be revolved in a plane parallel to that in which the lever E revolves, while the arm *a'* of the said lever is provided with a roller, G', arranged to be revolved in the same manner as the roller G. A permanent magnet is mounted upon or attached to the arm *a'* of the lever F in any desired manner.

One way of mounting the magnets is shown in Fig. 3 of the drawings, wherein the arm *a'* is illustrated as being provided with a sleeve, H, on the lower end of which the roller G' is mounted. A spindle, I, passes through the sleeve and projects above and below it. This spindle is provided with a ring, J, which holds it in place and permits it to be turned in the sleeve. A drag, K, is pivoted to that end of the spindle which projects below the sleeve, for the purpose of turning the spindle in such manner that the magnet secured to its upper end shall always face with its poles the direction in which it is moving.

L is a perforated plate adapted to be secured to the upper end of the spindle I. The magnet M is secured to this plate in any suitable manner.

Instead of a horseshoe-magnet, a straight-bar magnet may be employed, and, if desired, the free end of the drag may be provided with a caster-wheel. I do not, however, wish to limit myself to any one form of carriage for the magnets, as it is apprehended that many forms of carriages may be devised, which will be well adapted for this purpose.

N and O are blocks secured to the floor C

in position to engage with the rollers G and G' as the levers E and F revolve. The number, disposition, and configuration of these blocks will depend entirely upon the character of the movements which it is designed to impart to the toys in the tank A, and it is apparent that such movements may be almost infinitely varied by varying the blocks.

Figs. 5 and 6 show different views of an auxiliary attachment. It consists of a lever, P, provided with a horizontal slot, Q. A roller, R, is secured to the said lever by means of a stud, S, which passes through the slot Q, and which has a plate, T, to support a magnet secured to its upper end. If desired, a drag similar to the drag K may be attached to the lower end of the stud S.

U is a block designed to engage with the roller R and move the plate toward and from the end of the lever. This lever is designed to be secured to a shaft projecting through the floor C and actuated by the same motor which revolves the shaft D. The arrangement of this lever and the blocks which deflect the magnet-carriage should be such that the same will not interfere with the magnet-carriage attached to the lever F, and this may be effected even though the paths of the carriages are interwoven with each other. Many exceedingly pleasing effects may be produced by the employment of one or more of these auxiliary levers to carry magnets. For instance, if the magnet attached to the lever F is arranged to move a miniature steamer through the water in the tank, the magnet or magnets attached to the lever P may be employed to cause groups of swans or fishes to perform very pleasing evolutions as the steamer approaches or passes them. The lever P is not of course confined to use as an auxiliary lever, for it may be used in place of the levers E and F with good effect.

Fig. 7 shows a modification of the lever system shown in Fig. 1, the only difference being that the arm *a* is omitted, its place being supplied by additional deflecting-blocks, of which the block *b* is one.

The devices illustrated by the first seven figures of the drawings are designed to produce complex movements, particularly suitable for aquatic exhibitions; but when trains of cars or carriages are to be moved over a plane surface substituted for the shallow tank A devices like those shown in Fig. 8 of the drawings may be employed. They consist simply of a series of pulleys, V, connected by a belt, W, to which the magnet-carriage is attached. The part traversed by the magnet will, in such connection, be simple and appropriate to the actuation of railway-trains and carriages. The variety of movements which I am enabled to obtain is only limited by the number of variations of which the deflecting-blocks and levers are capable. The toys actuated,

whether they are adapted to float in tanks of water or to locomotion on plane surfaces of wood or metal, should be provided with pieces of iron or some other substance susceptible of magnetic attraction.

When surfaces of wood, metal, or paper are employed as a field for the toys, such surfaces may be located in inclined as well as in horizontal positions, thereby giving a wider scope for effect, and by providing suitably-beveled tracks for the magnets toys may be made to travel over surfaces slightly rolling or curved. I would therefore have it understood that I do not limit myself to the devices herein shown, but hold myself at liberty to employ similar devices to produce the same or similar results.

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

1. The combination, with plane or slightly-curved surfaces, of toys located upon or supported above them and adapted to be subject to magnetic attraction, magnets located below said plane surfaces, and devices to automatically actuate the magnets.

2. The combination, with plane surfaces, of toys located upon or supported above them and adapted to be subject to magnetic attraction, magnets located below said plane surfaces, systems of levers to which the magnets are connected, and a motor to actuate said levers.

3. The combination, with plane surfaces, of toys located above them and adapted to be subject to magnetic attraction, magnets located below said plane surfaces, systems of levers arranged to be actuated in planes parallel with the plane surfaces, blocks to shape the paths of the levers, and a motor to actuate the levers.

4. The combination, with plane surfaces, of toys located above them and adapted to be subject to magnetic attraction, magnets located below said plane surfaces, systems of levers, magnet-carriages attached to said levers and arranged to cause the poles of the magnets to face the direction in which the magnets are moving, and a motor to actuate the levers and their attachments.

5. A magnet-carriage consisting of a sleeve secured to a lever, a spindle arranged to turn in said sleeve, a drag attached to the lower end of the spindle, and a plate for the attachment of the magnet, attached to the upper end of the spindle.

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

OTHELLO J. DIMMICK.

Witnesses:

ED. A. SEIBIRD,
STEPHEN TRONC.