

(No Model.)

M. BACON.

ELECTRO MAGNETIC TOY SWING.

No. 312,178.

Patented Feb. 10, 1885.

FIG. 1

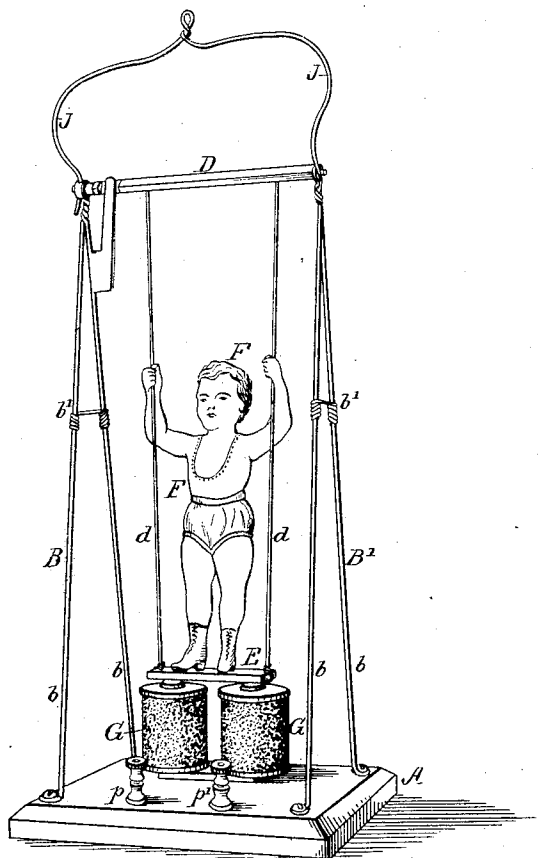


FIG. 2

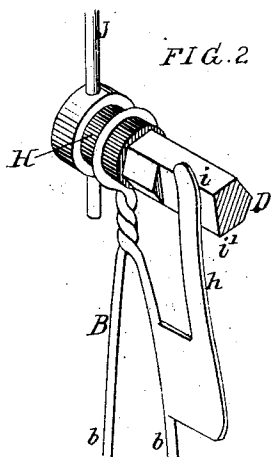
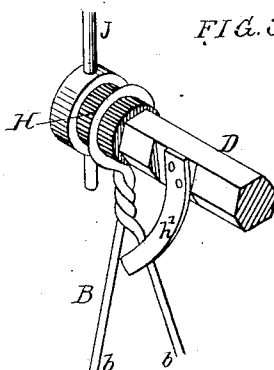


FIG. 3



WITNESSES:

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INVENTOR

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MURRAY BACON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE
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ELECTRO-MAGNETIC TOY SWING.

SPECIFICATION forming part of Letters Patent No. 312,178, dated February 10, 1885.

Application filed December 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, MURRAY BACON, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented an Improved Electro-Magnetic Toy Swing, of which the following is a specification.

My invention consists of a toy swing adapted to be operated automatically by electricity, as more fully described hereinafter.

In the accompanying drawings, Figure 1 is a perspective view of the toy swing; Fig. 2, an enlarged view of the commutator, and Fig. 3 a view of a modification.

A is the base, preferably of wood or other non-conducting material, on which are mounted the side standards, B and B', having at their upper ends bearings for the cross-bar D, from which is suspended by cords or wires *a* the cross-piece or seat E for the figure F.

The standards B B' (shown in the drawings) are made of wire; but they may be made of cast or sheet metal, if desired, the inclined legs being suitably braced at *b b'*, and each wire standard being twisted at the upper end into a loop, or drilled, if of cast or sheet metal, to form or carry the bearing for the cross-bar D. An arched loop or casting, J, may be applied over the top for the purposes of stiffening, suspension, or ornament.

To the base A is secured an electro-magnet, G, in such a position that its pole or poles will be under the cross-piece E when the swing is at rest, this cross-piece E being of metal and forming an armature for the electro-magnet.

One of the terminals of the electro-magnet is connected to a binding-post, *p'*, while the other is connected to one of the legs of the side frame B'. One of the legs of the side frame B is connected to the other binding-post, *p*, and the terminals of a circuit containing a source of electricity are connected to these posts when it is desired to set the swing in motion.

The construction of the commutator for automatically breaking the circuit may be varied to suit convenience. In Figs. 2 and 3 I have shown two forms which may be used. In Fig. 2 the looped top of the standard B carries a block, H, of insulating material, in which the end of the cross-bar D has a bear-

ing, and to the standard is secured a spring contact-finger, *h*, projecting up to the cross-bar, D, which is cut away to form two contact-points, *i i'*. When the figure F is at rest, neither of these points is in contact with the finger *h*; but when the swing is connected up in an electrical circuit and the figure is set in motion one of the points—say *i*—will come into contact with the finger *h*, as shown in Fig. 2, to complete the circuit, and the electro-magnet G will then exercise an attractive influence to draw the bar E back to its original position. As the bar D swings back, however, the circuit will be again broken before it reaches its central position, but the momentum will carry the swing forward until the point *i'* comes in contact with the finger *h*, when the bar E will be drawn back again by the magnet and then the circuit broken again, the oscillation of the swing and figure being thus kept up so long as the toy remains connected up in circuit.

In the modified form of circuit-breaker shown in Fig. 3, an insulating-block, H, is used to form a break in the circuit, which is closed intermittently by a spring-finger, *h'*, coming in contact with one or other of the legs *b b'* of the standard B, as will be readily understood.

An armature may be fixed to the base and the magnets carried by the vibrating portion of the swing, if desired; but the arrangement shown is preferred.

I am aware that electric clocks have been devised in which the oscillation of the pendulum has been effected by annular electro-magnets so located that at each end of the swing of the pendulum a bar on the same came under the influence of the magnet; and I am also aware that a magnet has been placed directly beneath the pendulum, the current through the magnet being controlled by a switch operated at intervals by a fly on the pendulum; but neither of these plans is admissible in a toy swing, as it is an object in such case that the swing shall be free from appearance of control, and this object would be defeated by the presence of the end electro-magnets, or by the switch-operating fly on the swing.

I claim as my invention—

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1. An electric toy in which a frame, an oscillating swing, an electro-magnet, and an armature, all arranged as set forth, so that the point of attraction is beneath the swing,
5 are combined with a circuit-breaker, as described, whereby the circuit is broken on each oscillation, as set forth.

2. An electric swing in which are combined a frame one standard of which is connected
10 to the positive pole and the other to the negative pole of the battery, a cross-bar mounted in the frame, but insulated from one standard thereof, an armature suspended from the cross-

bar and carrying a figure, an electro-magnet located beneath the armature, and an auto- 15 matic circuit-breaker whereby the current through the electro-magnet is completed only when the swing is at and near the limit of its movement, as set forth.

In testimony whereof I have signed my name 20 to this specification in the presence of two subscribing witnesses.

MURRAY BACON.

Witnesses:

JOHN E. PARKER,
HUBERT HOWSON.