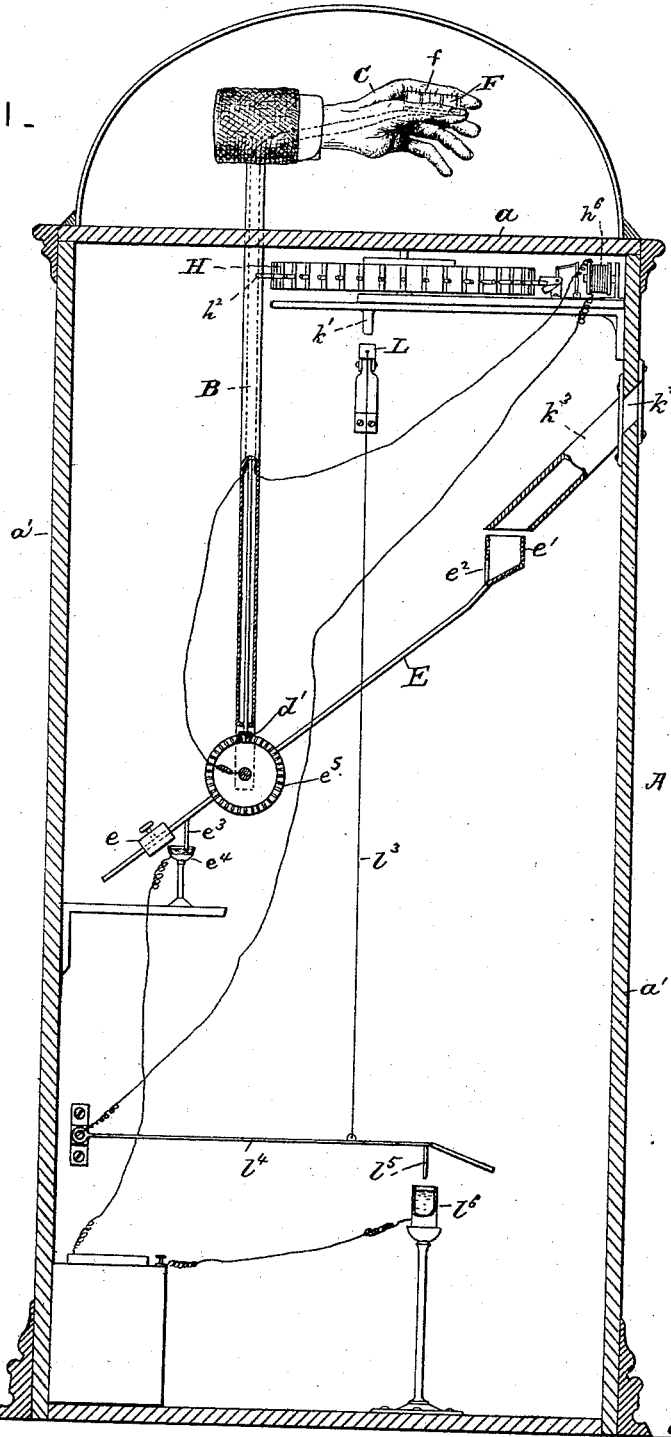


H. G. ROGERS & A. M. COYLE.
ELECTRICAL TOY.

No. 418,070.

Patented Dec. 24, 1889.

FIG. 1.



Attest
 Geo. T. Smallwood.
 Jas. K. McBethran

Inventors.
 Henry Gustave Rogers
 Andrew M. Coyle

H. G. ROGERS & A. M. COYLE.
ELECTRICAL TOY.

No. 418,070.

Patented Dec. 24, 1889.

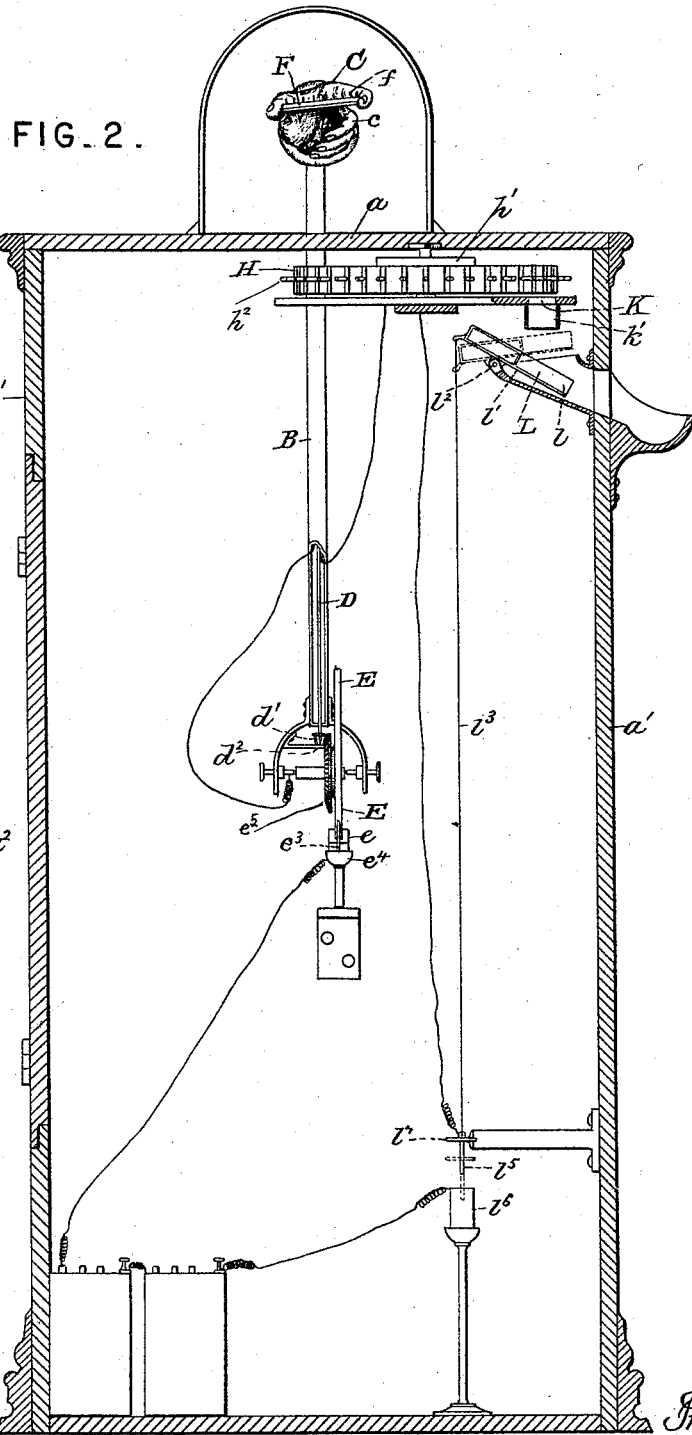


FIG. 2.

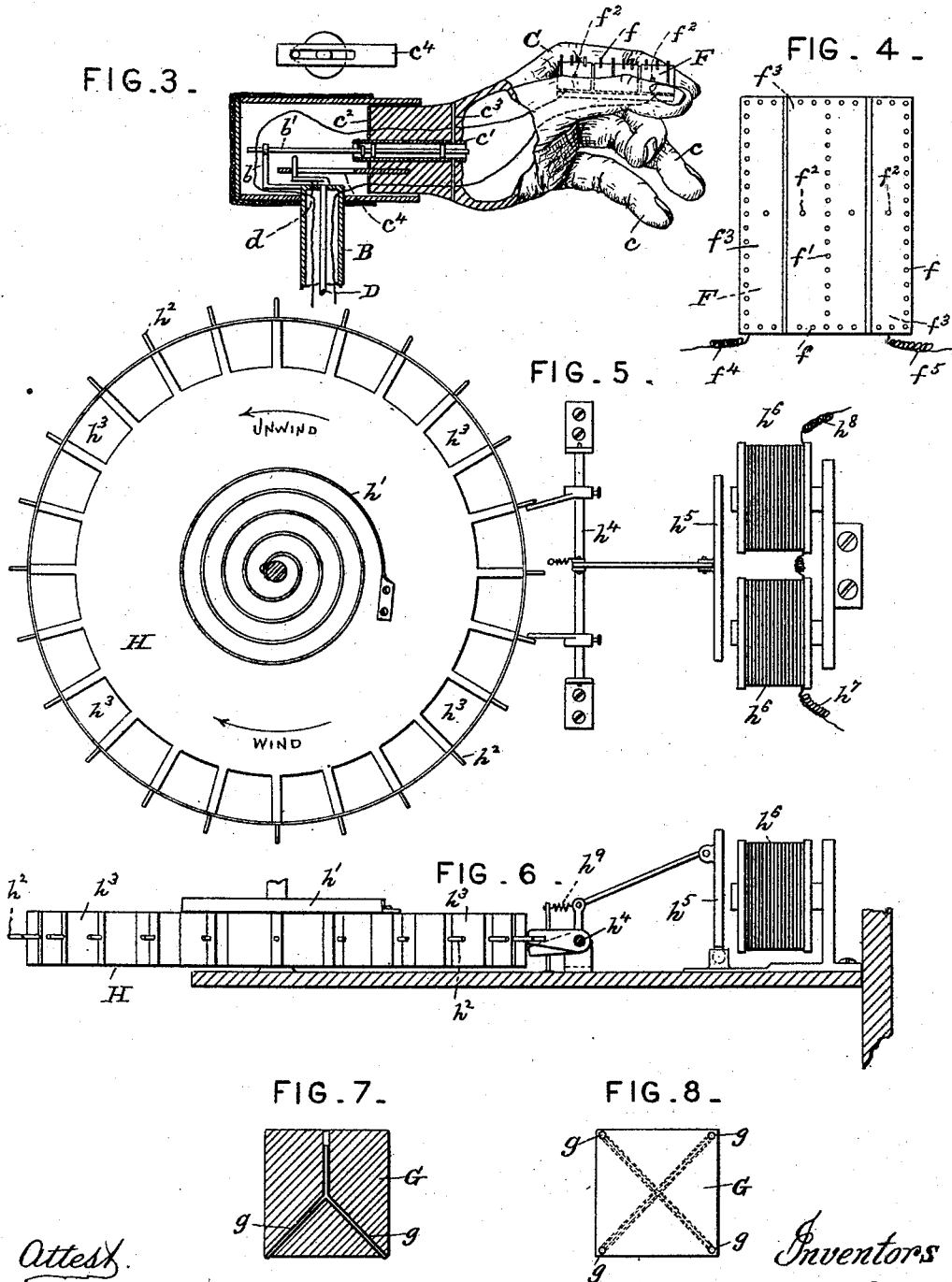
Attest:
 Geo. T. Smallwood,
 Jas. K. McBethman

Inventors
 Henry Gustave Rogers
 Andrew M. Coyle

H. G. ROGERS & A. M. COYLE.
ELECTRICAL TOY.

No. 418,070.

Patented Dec. 24, 1889.



Attest.
 Geo. T. Smallwood,
 Jas. H. McBethman

Inventors
 Henry Gustave Rogers,
 Andrew M. Coyle

H. G. ROGERS & A. M. COYLE.
ELECTRICAL TOY.

No. 418,070.

Patented Dec. 24, 1889.

FIG. 9.

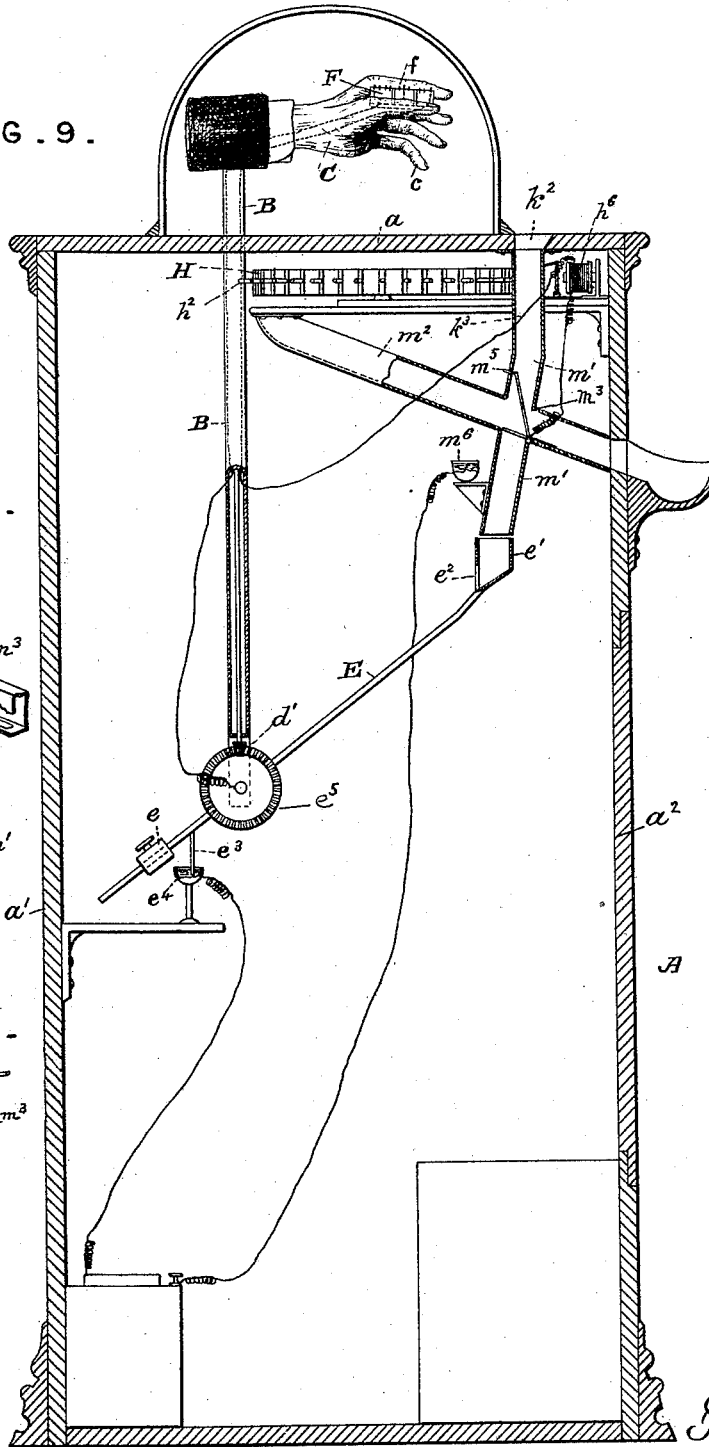


FIG. 10.

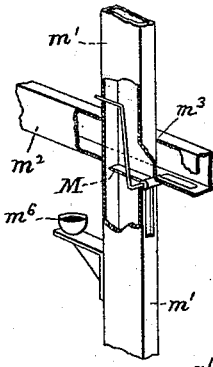
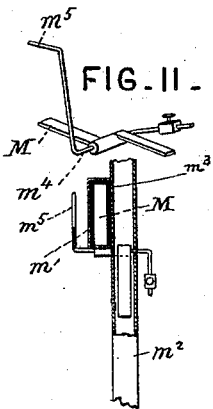


FIG. 11.



Attest:

Geo. T. Smallwood,
Jas. K. McBethan.

Inventors.

Henry Gustave Rogers
Audrius M. Coyle

UNITED STATES PATENT OFFICE.

HENRY GUSTAVE ROGERS AND ANDREW M. COYLE, OF WASHINGTON,
DISTRICT OF COLUMBIA.

ELECTRICAL TOY.

SPECIFICATION forming part of Letters Patent No. 418,070, dated December 24, 1889.

Application filed October 31, 1888. Serial No. 289,594. (No model.)

To all whom it may concern:

Be it known that we, HENRY GUSTAVE ROGERS and ANDREW M. COYLE, citizens of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Electrical Toys; and we do 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 appertains to make and use the same.

Our invention relates to electrical toys or apparatus intended to be used for amusement, for advertising, or for like purposes, and has particular reference to apparatus controlled or set in operation by the deposit of a coin for the profit of the proprietor or exhibitor of the device. This apparatus may be placed on exhibition in stores or shops for the purpose of attracting customers by exciting curiosity in its workings, and when so used may, for small purchases, itself receive the coin paid therefor, which, upon being deposited by the purchaser, sets the apparatus into operation. The apparatus includes mechanism for throwing out or discharging articles of small size upon certain occasions, determined by the positions in which a cube or cubes come to rest after being shaken by the deposit of a coin or token, the discharge mechanism remaining quiescent, except upon the occurrence of the conditions indicated. It is proposed that the articles so delivered shall be small cards or like objects, advertising in an attractive way the business of the proprietor or exhibitor of the apparatus, or the devices set in operation by the cube or cubes may perform any mechanical operation calculated to amuse or gratify curiosity. It is also proposed to exhibit the apparatus in public places, as has been done with various mechanical toys which are caused to go through certain motions on the deposit of a proper coin. In such case the advertising privileges of the machine, for the distribution of business-cards and the like, would constitute an additional source of revenue.

Many purposes will readily suggest themselves for which the mechanism hereinafter described, wholly or in part, may be usefully employed.

The invention comprises, among other new features, the following:

First. An oscillatory holder for shaking and displaying cubes or other polyhedra, combined with a coin-actuated lever and with connections whereby upon the deposit of a proper coin the holder will be oscillated, so as to shake the cubes. As herein carried out the holder is made in the form of a human hand supported in bearings, so as to oscillate with little friction, and carrying a tray or box which contains the cubes; but this is not of the essence of the invention, as the holder may be made to represent any other object.

Second. The coin-actuated lever is connected directly with the holder, so that the weight of the deposited coin itself furnishes the power by which the holder is oscillated.

Third. The device for carrying and upon proper occasions delivering the souvenirs or other articles is actuated through electrical agency by the cubes or polyhedra above referred to. As this part of the invention is carried out the bottom of the tray or box containing the cubes is provided with metallic strips constituting the terminals of an electric circuit including a battery. Each cube, if more than one be used, is a circuit-controller having one face provided with contacts adapted to connect said terminals and close the circuit at that point when said face is underneath. The said electric circuit includes an electro-magnet, which becomes energized when the circuit is closed, and by attracting its armature actuates the souvenir-discharger.

Fourth. The souvenir-carrier and its electro-magnetic actuating mechanism may be of different forms, and many ways of carrying out this part of the invention will suggest themselves to persons skilled in the art. As herein shown, the souvenir-carrier consists of a disk having radial slots in which the souvenirs are stored, said disk being provided with a spring for rotating the same. A discharge-channel is provided with its lower orifice leading to a ledge or trough outside the box. The radial slots in the disk register with the upper part of this channel as one after another they pass over it, the souvenirs dropping out one by one. An escapement is provided, which is actuated by the electro-

magnet above referred to, to hold the disk normally stationary against the pressure of its spring and when released by the attraction of the armature to permit the disk to rotate only far enough to discharge one souvenir before again arresting it.

Fifth. When the circuit is once closed by the cubes coming to rest with the predetermined faces uppermost, the normal condition of things must be restored—*i. e.*, the circuit must be again broken before the souvenir-carrier can be again actuated. This is accomplished by an automatic circuit-breaker actuated by the falling of the souvenir into the passage leading out of the apparatus.

Sixth. During the shaking of the cubes the latter may momentarily assume the position to close the circuit, and thus, without special provision to prevent it, the discharger would be at once operated. We therefore provide a circuit-breaker or circuit-breakers which keep the circuit open during the period while the holder is oscillating.

Seventh. As herein shown, this control of the circuit is maintained by the coin-actuated lever, which breaks the circuit the moment it begins to move, keeping it open till it comes to rest.

Eighth. Moreover, if the circuit has just previously been broken by the device actuated by the souvenir, as explained in paragraph six above, the coin or lever actuated thereby automatically closes the circuit at this point as it descends, so that everything will be in readiness for the discharge of another souvenir when the cubes next assume the predetermined positions.

The invention further comprises certain details of construction and combinations of parts, as hereinafter set forth.

In the accompanying drawings, forming part of this application, and in which similar letters of reference indicate the same parts in all the figures, Figure 1 is a side view of the machine, partly in section, showing the internal arrangement of the different parts. Fig. 2 is a front view of the same, also partly in section. Fig. 3 is a detailed view of the hand, showing the tube on which it is set and means for oscillating it. Fig. 4 is a plan view of the box. Fig. 5 is a plan view of the device for holding and discharging the show-cards or souvenirs. Fig. 6 is a side view of the same. Fig. 7 is a sectional view of one of the cubes. Fig. 8 is a view of the under side of the same. Fig. 9 is a side view of the machine, showing a different form of circuit-breaker. Fig. 10 is a perspective view of the same form of circuit-breaker. Fig. 11 shows the same in section, and also a supplementary and enlarged view of the latch forming part of the circuit-breaker.

A is the outer casing or stand of the apparatus, a being the top and a' the sides, in one of which is a door a^2 for the purpose of internal examination and for collecting the coins dropped into the machine.

B is a tube to support the bearings of the holder. (Shown in the drawings as a hand.)

b is a metal head, to which a metal rod b' is attached, extending from it horizontally.

C is the hand, which comprises also a part of the wrist, and may be constructed of any suitably light material—such as wax, celluloid, papier-maché, or of a thin skin of copper or other metal deposited on a wax form by electrolysis, which form may be afterward melted out. The fingers c of the hand are shaped to hold a box or tablet with turned-up edges, and in shape the hand should be made so as to balance itself as well as possible in its bearings.

c' is a metal tube firmly attached to the hand at c^2 and at c^3 and extending beyond the wrist, as shown. A bushing may be placed in it at either end, and a round aperture formed in the bushing to permit of the hand being swung on the rod b' with as little friction as possible. To attach the tube c' to the wrist part of the hand, a thin plate of hard rubber may be made use of. To this plate is fastened a wire loop c^4 , by means of which the hand will be oscillated.

D is a rod located within the tube and adapted to rotate. At its upper end is provided a bent pin or crank d , which engages with the slotted plate c^4 . At its lower end the rod has keyed or screwed to it a beveled pinion d' and is set in a socket or bearing d^2 .

E is a coin-actuated lever journaled between points to diminish the friction of its bearings, and has at one end the adjustable counterbalance-weight e and at the other the coin-basket e' , which is constructed with an opening or slot e^2 , of a size sufficient to allow the passage of a coin of smaller dimensions than the one necessary to depress the lever without influencing the latter. The position of the bearings of the lever E should be about one-sixth from the weighted end, and the value of the weight e must be such that a coin of predetermined weight introduced into the basket e' shall depress that end, and at the same time have sufficient weight to rotate the rod D through the beveled gear-wheel e^3 , centered in the bearings and attached to the lever E and engaging with the pinion d' .

At a point somewhere between the pivotal point of the lever E and the weighted end is a platinum wire e^3 , projecting downward a distance of three-quarters of an inch or more and adjusted to descend into a mercury-cup e^4 . In making up the connections the circuit is carried through the platinum wire and the mercury-cup when the lever is in normal position—*i. e.*, with the weighted end down—and it is broken at this point when the other end of the coin-lever is down, the purpose being to remove any chance of the cubes momentarily closing the circuit as they are in the act of shaking.

F is a box, made of any light non-conducting material—such as ivory, hard rubber, cel-

luloid, or well-seasoned wood—and is in the form of a tablet having a series of pins f placed vertically along its edges and corresponding to the sides of a box to prevent the cubes falling off.

When it is desired to use two cubes, it is necessary to place a partition f' in the box, which divides it into two compartments. The partition f' may be formed of vertical pins, and as the cubes are thrown against them by the oscillation of the box they are thereby caused to turn round, and a greater variety of combinations will ensue. Points f^2 , protruding upward from the bottom of the box, will also help the cubes to display a greater variety of colored combinations by causing them to turn over as they move from side to side. In the bottom of the box are metal terminal strips f^3 , which are connected to the battery and make an open circuit through the wires f^4 and f^5 .

G represents one of the cubes constructed with an electrical conducting-piece. The conducting-piece may be formed of copper or silver wires g , let into the body of the cube, as shown in Fig. 7, and forming a metallic bridge from one side of the face of the cube to the other side of the same face. In this manner, when any other face but the one opposite the bridge side falls uppermost, the circuit will not be closed, while when the right face is displayed the electric current will pass through the conducting-wires and close the circuit. Instead of metal wires being used, the channels in the cube may be filled with amalgam, such as is used by dentists. This method of constructing the cubes may be preferable, and as the amalgam presents a somewhat rough surface the electric connection will be more easily secured.

The faces of the cubes should be colored or stained of different tints, so that when the faces opposite those having the metallic bridge are displayed uppermost they may be readily observed.

The device for carrying and discharging the souvenir is shown in Figs. 5 and 6, and consists of a disk H, having a number of radial slots and adapted to rotate on the arbor, and to which is attached a spiral spring h' , the other end of the spring being secured to the disk. A series of pins h^2 , corresponding in number to the slots h^3 , is placed on the face of the disk. An escapement-anchor h^4 is swung so as to engage the pins, and has connected to it by means of a link a magnet-armature h^5 , which is journaled to permit it to swing and actuate the escapement when attracted by the magnet h^6 , which is included in the circuit, h^7 and h^8 being the conducting-wires. A light coiled spring h^9 is added to return the anchor to its original position when not attracted by the magnet.

K is an opening formed under the souvenir-carrying disk, through which a souvenir will be discharged when one of the radial slots is

brought over it and registers therewith. The opening K leads by a channel k' to a trough or ledge placed outside of the casing of the machine, and into which the prize will be exposed to view.

k^2 is the coin-slot, through which a coin may be introduced to set the mechanism in motion.

k^3 is the channel leading the coin to the coin-basket.

L is a circuit-breaker placed directly under the opening K, and consists of a trough extending from l to l' . It is pivoted at l^2 in such a manner that it will stay in either position, as shown in Fig. 2 in dotted lines.

l^3 is a slight rod or wire connecting one end of circuit-breaker L to a lower lever l^4 , placed below the point where the nickel or actuating-coin leaves the coin-lever and flattened at one end directly in the path of said coin. The other end of circuit-breaker L may be provided with a weight to counterbalance the weight of the lower lever l^4 . On the under side of the lower lever l^4 is a downwardly-projecting platinum wire l^5 , which will descend into the mercury-cup l^6 when the actuating-coin falls upon the flat end of the lever.

The modification of the circuit-breaker shown in Figs. 9, 10, and 11 may be found simpler than the one hereinbefore described. The modification consists of a balanced latch M, located at the intersection of two channels m^1 and m^2 , the former channel leading from the coin-slot k^2 and may correspond to the coin-channel k^3 , and the channel m^2 may correspond to the channel k' , the two being located in such a position as to meet at m^3 , where the latch M is located. Beyond the latch the channels again separate, the one leading the actuating-coin to the coin-basket and the other to the cup or trough outside the machine to hold the show-card when delivered. The latch M should be of such dimensions as to fill the channel and yet be able to swing from side to side. It may be constructed of a thin sheet of metal attached to a rod m^4 , whose ends may protrude beyond the channel. To one end of the rod m^4 should be attached a platinum wire m^5 , which will dip into a mercury-cup m^6 . Both the wire and the cup are in circuit with the different parts of the machine in the same way that the circuit-breaker L is connected up.

It will be evident that when the actuating-coin falls through the channel k^2 the latch will be thrown in such a position as to open the passage leading to the coin-basket and cause the platinum wire m^5 to dip into the mercury-cup m^6 , thereby closing the circuit in so far as it can be closed without the bridging of the metal strips in the box. On the occasion of the circuit being completely closed the escapement will cause one of the cards or other articles to be discharged, and as it falls through the channel m^2 it will bring the other end of the latch down, and in rotating the rod

m^4 will cause the platinum wire to leave the mercury-cup, thereby breaking the circuit after the show-card has been delivered.

The function of the circuit-breaker is to accomplish what its name implies after the movable portion of the support for the box has come to rest. It is evident that if the circuit was closed before, either a prize might be discharged when not desired or no effect might take place when the desired sides of the cubes were displayed.

The different parts of the mechanism being adjusted and the cubes or other polyhedra placed in the box, the operation of the apparatus is as follows: A coin being introduced into the coin-slot k^2 , it finds its way through the channel k^3 and falls into the coin-basket. If the coin is of the correct value, its weight will depress the lever, and in so doing will rotate the rod in the tube, which in turn will oscillate the hand. When the end of the lever carrying the coin-basket descends far enough, the coin will roll out of it by its own weight, and the counter-balance at the other end of the lever will bring the latter to its normal position. The weight of the counter-balance must necessarily be adjusted not only in relation to the weight of the coin to bring the lever back to normal position when the coin has left the basket, but must also allow for the inertia of the hand and the weight of the cubes in the box. Although no difficulty is experienced in causing the coin when falling to actuate the hand, some little adjustment is requisite for the coin to carry the counter-balance upward and at the same time to have sufficient power to rotate the rod and oscillate the hand. During this operation the cubes will be carried first to one end of the box, and then, as the hand oscillates back to its normal position and still farther to the opposite side and back to regain its normal position, the cubes will be thrown backward and forward and thoroughly shaken. As the coin leaves the coin-basket, it will strike the flat end of the lower lever, which will necessarily be depressed and carry the platinum wire l^5 into the mercury-cup. As the lever l^4 and the mercury-cup are included in the circuit, when the cubes display the combination of faces predetermined, it will be evident that the circuit will be closed through the electromagnet h^6 . The armature of the latter will therefore be attracted to it and draw the escapement-anchor with it toward the magnet, thereby releasing one of the teeth on the prize-carrying disk. One of the souvenirs will thereupon fall through the opening K onto the circuit-breaker L, which will thereby swing down toward the cup outside the casing, and by raising the platinum wire out of the mercury-cup will break the circuit. The armature of the magnet will be immediately released and the anchor will be drawn back to its first position before the circuit was closed, whereby the escapement will be

completed. The circuit being now open, the battery will not run down, and it cannot be fully closed until another nickel or actuating-coin falls upon the lower lever.

The reason for providing a circuit-closer is to give time to the cubes to stop after being shaken and assume the position which they would ultimately take before the circuit is closed; otherwise it is evident that the cubes might cause the circuit to be closed and then turn over and display some other face than the one desired.

Whenever the predetermined faces are displayed the souvenir-carrying disk will be rotated to bring one of its radial slots over the channel, through which the contents of the slot will fall into the cup or ledge and be exposed to view. Whether this takes place or not, after the hand has stopped oscillating, the apparatus will be ready to receive another coin and the whole operation be repeated. The angle at which the coin-lever remains when in normal position should be practically the same as that at which the coin-channel leading to it is sloped, so that the coin will roll to the aperture in the back of the coin-basket. This will prevent any coin of less size than the right one from remaining in the basket, for the undesirable coin will roll through the aperture and fall to the bottom of the inclosing-casing without affecting the mechanism.

The faces of the cubes may be colored according to taste, or minute photographs may be cemented onto the faces of the cubes.

The souvenirs may be show-cards delivered for advertising purposes, or round disks with a motto suitable for elections, or a calendar, or any little souvenir.

As has been shown, the invention is not limited to the use of any particular number of cubes, since the use of a different number from that shown necessitates only obvious modifications of parts. It will therefore be understood that where a cube or polyhedron is referred to as an element of the invention it is not to be regarded as excluding the use of a greater number of such devices.

Having now fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, with a pivotally-supported holder for a cube or cubes, of a coin-actuated lever and connections between said lever and holder whereby said holder may be oscillated by the deposit of a coin, substantially as described.

2. The combination, with the oscillatory holder, of a coin-actuated lever provided with a coin receptacle or basket and adapted to be swung on its pivot by the weight of a coin deposited in said receptacle and connections between said lever and holder whereby the movement of the former imparts an oscillatory movement to the latter, substantially as described.

3. The combination of the oscillatory holder, the coin-actuated lever, a gear-wheel adapted

to rotate coincidentally with the rocking of said lever, a second gear-wheel meshing into it, and operative connections between said second gear-wheel and the oscillatory holder whereby when the lever is rocked by the introduction of a coin the necessary motion will be given to the said holder, substantially as described.

4. The combination of the oscillatory holder, the coin-actuated lever, a gear-wheel carried thereby, a rod having a pinion engaging therewith, and a bent arm or crank for communicating the motion from said rod to said holder, substantially as described.

5. The combination of the souvenir-carrier, the discharge-channel for souvenirs, an electric circuit, an oscillatory holder containing a circuit-controller in the form of a cube having a conducting-face, an electro-magnet in said circuit, and an armature for controlling said souvenir-carrier, whereby each time the circuit is closed the said carrier is actuated to drop a souvenir into the discharge-channel, substantially as described.

6. The combination of the souvenir-carrier in the form of a disk having receptacles containing each a souvenir, means, substantially as described, for driving said disk, a discharge-channel, an escapement controlling the movements of said disk, an electro-magnet and armature for actuating said escapement, permitting said disk to rotate step by step, at each motion bringing a receptacle above said discharge-channel, an electric circuit including said magnet, and a circuit-controller for closing said circuit to energize said magnet, substantially as described.

7. The combination, with a souvenir-carrier, an electric circuit, electro-magnetic devices therein for controlling said carrier to discharge a souvenir therefrom, and a circuit-controller, of an automatic circuit-breaker operated by the discharge of the souvenir for opening the circuit, thereby permitting only one souvenir at a time to be discharged, substantially as described.

8. The combination, with the oscillatory holder, the circuit-controller carried thereby, the normally-open electric circuit, the coin-actuated lever for oscillating said holder, the souvenir-carrier, and its operating mechanism, of a circuit-breaker controlled by said lever for keeping the circuit open while the oscillating holder is in motion, substantially as described.

9. The combination of a holder swinging in bearings and carrying a box having strips of metal exposed in the bottom thereof connected in open circuit with an electric battery, a tube supporting the holder, and a rod located within said tube and having a crank for communicating motion to the holder, a pinion attached to the said rod, a coin-actuated lever having a gear-wheel engaging said pinion, a cube or other polyhedron in said holder having an electric conducting-surface on one of its faces, a device to carry souvenirs, provided with an escapement adapted to be actuated by the closing of the said electric circuit, and a battery, substantially as described.

10. The combination of an oscillatory holder, one or more cubes or other polyhedra, each provided with a metallic piece having points protruding beyond the surface, two or more metallic strips on which the cube or cubes may rest, a coin-actuated lever adapted to shake the said holder, a circuit-closer adapted to operate only when said lever assumes a normal position, a souvenir-carrying device, and a circuit-breaker adapted to be actuated by the souvenir as it is discharged, and an electric battery and connections, substantially as described, and for the purpose specified.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY GUSTAVE ROGERS.
ANDREW M. COYLE.

Witnesses:

PHILIP MAURO,
C. J. HEDRICK.