May 16, 1950 S. D'ELIA 2,508,146

AMUSEMENT SLOT MACHINE FOR TESTING HAND STEADINESS

Filed Nov. 15, 1946 3 Sheets-Sheet 1

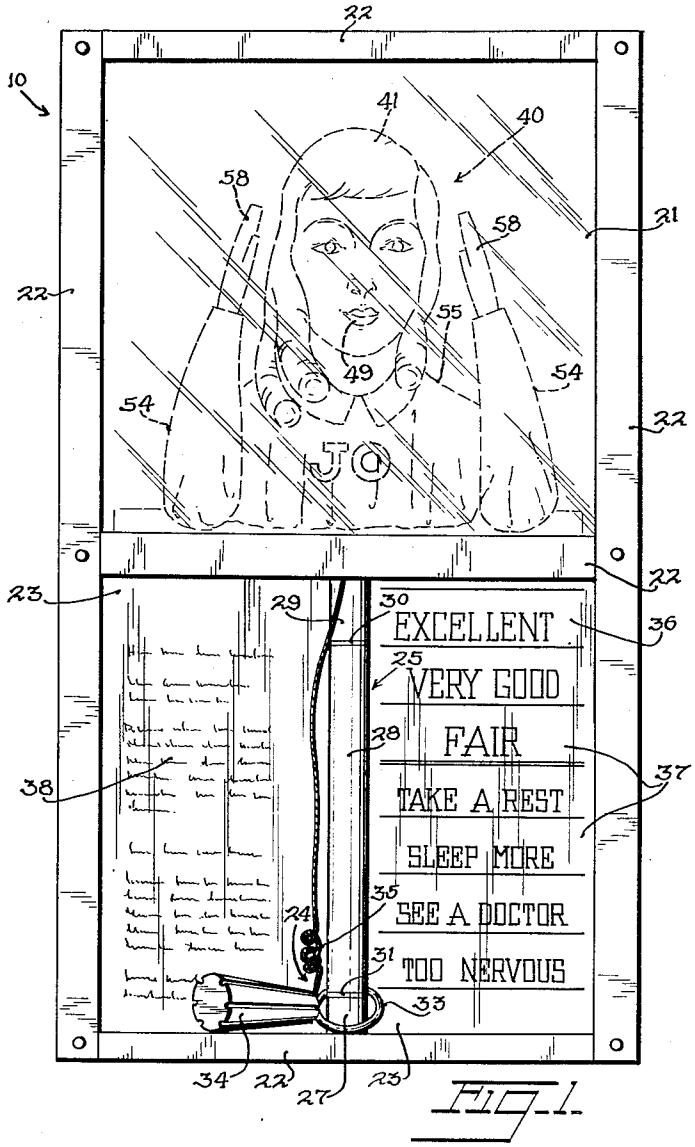

FIG. 1.

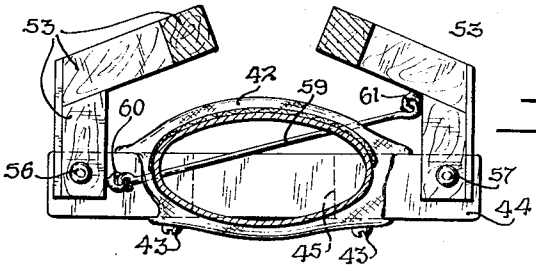

FIG. 7.

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AMUSEMENT SLOT MACHINE FOR TESTING HAND STEADINESS

Filed Nov. 15, 1946 3 Sheets-Sheet 2

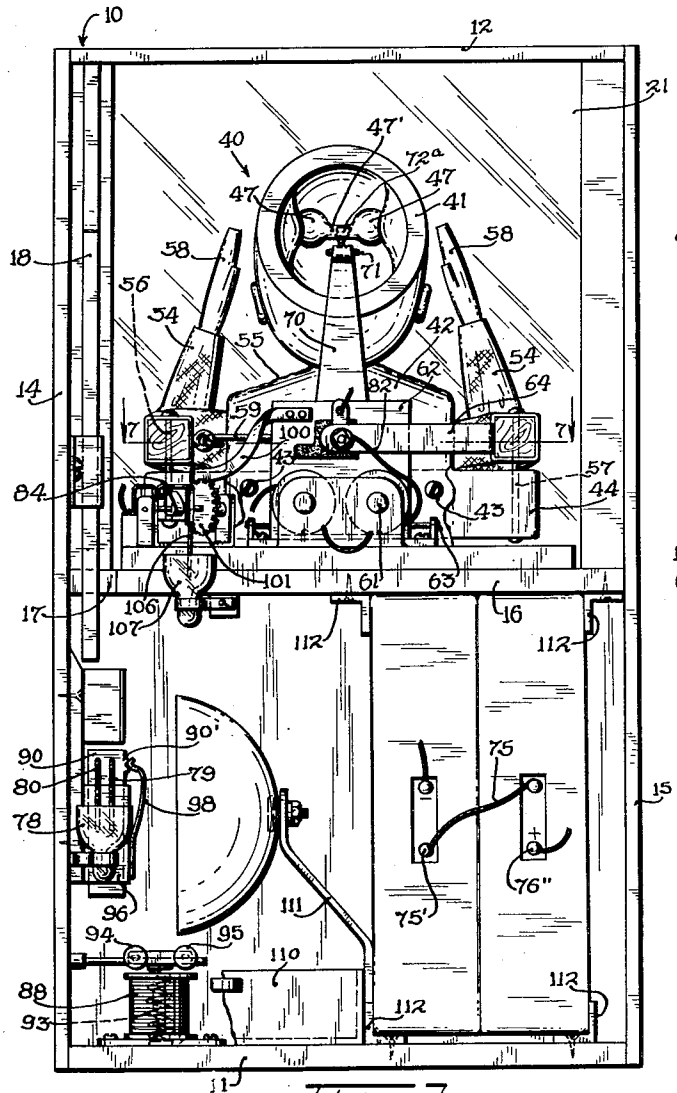

FIG. 2.

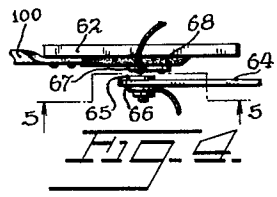

FIG. 4.

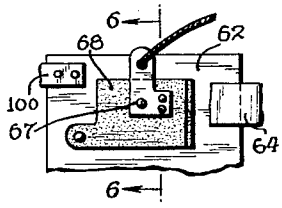

FIG. 5.

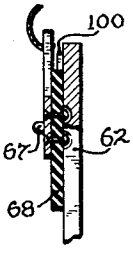

FIG. 6.

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May 16, 1950 S. D'ELIA 2,508,146

AMUSEMENT SLOT MACHINE FOR TESTING HAND STEADINESS

Filed Nov. 15, 1946 3 Sheets-Sheet 3

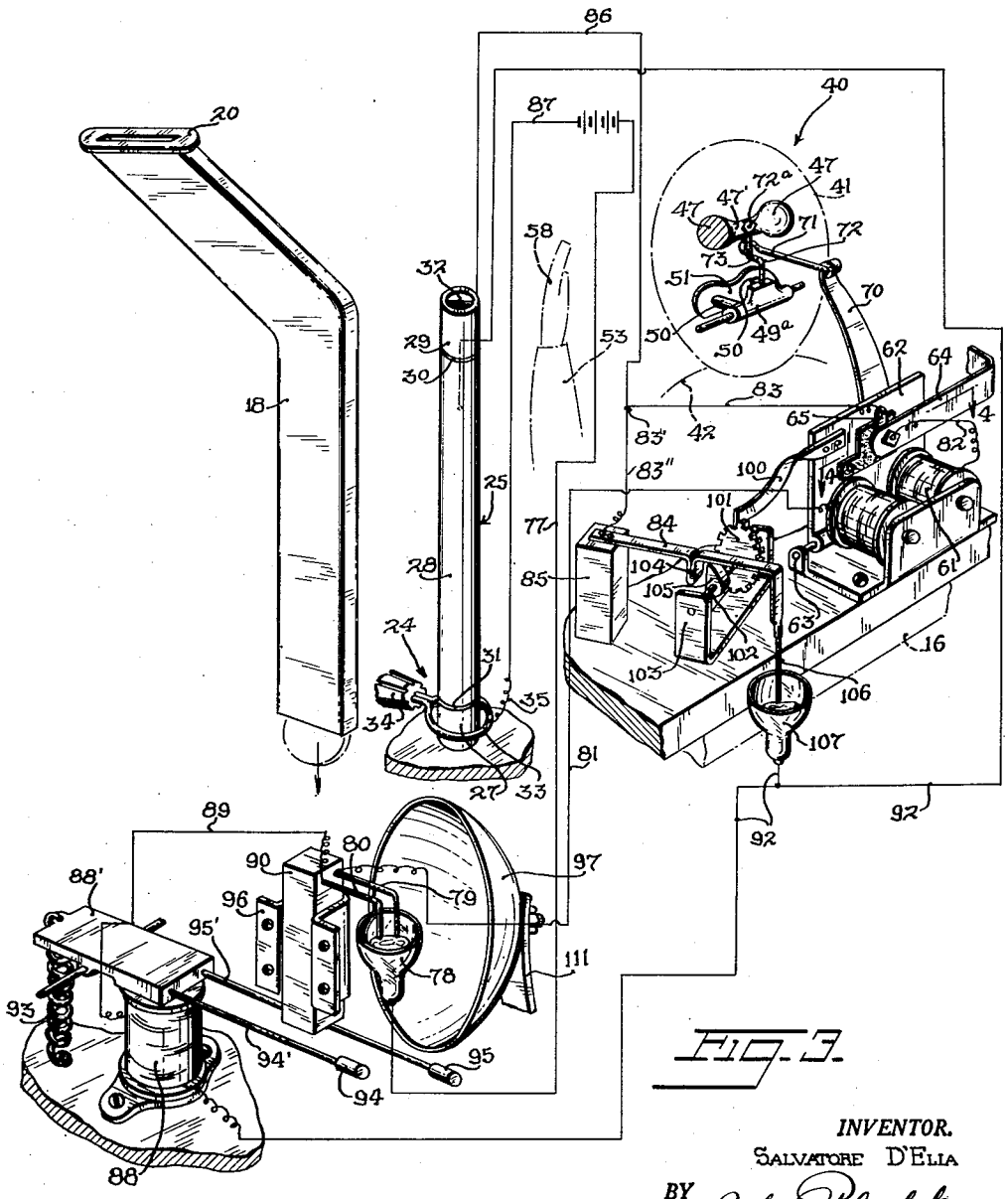

FIG. 3.

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Patented May 16, 1950 2,508,146

UNITED STATES PATENT OFFICE

2,508,146

AMUSEMENT SLOT MACHINE FOR TESTING HAND STEADINESS

Salvatore D'Elia, New York, N. Y.

Application November 15, 1946, Serial No. 710,066

5 Claims. (Cl. 35—22)

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This invention relates to amusement devices, and more particularly to such devices which require the exercise of skill by the person manipulating a movable part of the same.

The invention as herein embodied requires a high degree of coordination between nerves and muscles affecting precision in governing movements of the hand and wrist. Also as herein embodied, the invention is shown as incorporated in a public patronage amusement device or game, as one adapted to be made operative by insertion of a coin.

A special object of the invention is to provide a harmless, amusing and useful means for testing nerve steadiness or, in other words, nerve health. While operation of the invention in its preferred form is essentially electrical, no electricity is permitted to touch any part of a patron's body. It must be said, and indeed emphasized, that the aim of the present invention is to provide primarily an amusement device, and one not intended in any sense to be a medical practitioner's nerve testing meter.

However, by use of the device, valuable warning is incidentally given when the patron's hand is unusually tremulous, in other words, when nerves are below par, as from occasional drug use, or abuses such as excessive smoking or excessive drinking of spirituous liquors or beverages strong in caffein or the like. The warning given may vary in significance and relative seriousness, according to how unsteady the nerves are.

The principal object of the invention is to provide an amusement apparatus in accordance with the above, which is characterized by novelty of operation, intriguing attractiveness to the casual patron, dependable operation, and long life.

Another object is to provide an amusement apparatus of improved type, in that it satisfies not only the aims just recited but is capable of being manufactured at relatively slight cost and sold at a correspondingly low price.

So that it may have many possible installations far beyond those of the typical public amusement apparatus having to be placed on the floor and so take up valuable space, the device, when electrically operated as above, is preferably inclusive of a compartment in which may be placed a small dry or storage battery as the source of electric current thereby providing a device which is readily operable as well as having the advantages last above described.

Essentially, there is provided the combination of a tell-tale mechanism, preferably a representation of an animate body, such as the head, upper

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torso and arms of an attractive feminine figure, with various elements normally quiescent but operable to give sudden and preferably startling animation to the object or figure—as a swinging of the arms to clap the hands, a flirty or other change of expression at the eyes, or a reshaping of the mouth and lips to deliver an approving smile; in combination with a nerve-checking means to be manipulated by the patron, and rendered thus manipulable on insertion of a penny, or other coin as predetermined.

As the invention is preferably carried out, the nerve-trial is conducted by manipulating a movable part relative to a fixed part, the latter preferably being an elongate and upright cylinder divided along its length into circumferentially complete sections of electrically conductive material separated from each other by insulation, and the manipulable part being a ring of electrically conductive material carried by an insulated handle. When nerves are very steady, the ring is able to be moved from one end of the cylinder to the other without touching a preferably longer section thereof before the ring is brought opposite a shorter such section. The arrangement is such that when the ring has been thus brought opposite said shorter section and then placed in contact therewith, the tell-tale mechanism operates.

Also according to the preferred way of carrying out the invention, opposite said longer cylinder section is a wall member visibly carrying a succession of legends, each comprising a phrase to indicate a different relative condition of nerve unsteadiness. Those indicating greater degrees of nerve instability are the legends closer to the starting point in moving the ring along the cylinder, preferably in a direction to elevate the ring from the bottom of a vertical cylinder toward its top.

Further, as the invention is preferably embodied, when the ring is inadvertently prematurely contacted with the longer cylinder section, a bell rings or some other signal is given, and the device is rendered inoperative, until another coin is inserted.

Further, the device in its perferred form is provided with means for preventing an unduly selfish patron from blocking others over an unfairly long period of time in the latter's desire to use the device. To this end the device is automatically disabled, and preferably the signal above referred to is given, after a patron has brought the ring to the shorter section of the cylinder and he continues too long to hold it there in order to have the tell-tale mechanism continue in-

definitely its repetitions of its characteristic movements of animation.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

Fig. 1 is a front elevation of an embodiment of the invention now favored.

Fig. 2 shows such embodiment in rear elevation, with its rear wall removed.

Fig. 3 is a somewhat exploded perspective view of various working parts of the device, for a better understanding of its manner of operation, which view is partially diagrammatic in that there are schematically shown the current source and various electrical leads.

Fig. 4 is a detail view, being a horizontal section taken on line 4—4 of Fig. 3.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 4.

Fig. 6 is a sectional view taken on the line 6—6 of Fig. 5.

Fig. 7 is also a detail view, this being a horizontal section taken on line 7—7 of Fig. 2.

When completed with its said rear wall which is secured in place by suitable lock (not shown), the device is housed in a cabinet 10 having a floor 11, a top wall 12, side walls 14 and 15, and a horizontal partition wall 16 cut out at 17 for extension therethrough of a coin chute 18. The chute has a coin receiving mouth at its top covered by an escutcheon plate 20 on the top face of the top wall 12.

As shown in Fig. 1, the upper part of the cabinet is closed in by a glass pane or other suitable transparent wall member 21, and the cabinet front is framed by five strips 22, one of which latter lies opposite partition 16.

In a compartment 23, below the partition 16, open and accessible to a patron is a manipulable means 24.

The fixed member of the manipulable means 24 is shown as a vertical cylinder 25 extending from top to bottom of the lower open compartment 23. The cylinder is divided into three superimposed sections, a bottom sleeve 27 which is dead electrically, above that a much longer intermediate electrical contact 28, and above the latter a relatively short upper or winning electrical contact 29.

The three sections are insulated from each other by rings of suitable insulating material as indicated at 30 and 31. A convenient way to construct the cylinder 25 has been found to be to cut the three sections thereof from standard brass tubing and then string these pieces of tubing, with rings of insulating material 30 and 31 alternating therewith as shown, on a wooden dowel 32 of standard diameter forced through the tubular elements to be sleeved on it.

The movable member of the manipulable means 24 is a ring 33 of electrically conductive material of a diameter preferably rather closely approaching the diameter of cylinder 25, such ring being carried by a handle 34 of insulating material and with the ring able to be placed in electrical circuit by way of a lead 87 shown in Figs. 1 and 3, as including a pigtail 35.

On a wall member 36 behind the manipulable means 24 there is inscribed a column 37 of suitable legends such as those shown in Fig. 1, while appropriate reading matter such as displayed at 38 is also carried by the wall member.

In the upper compartment fronted by the glass pane 21, and facing the patron, is a tell-tale means 40, here shown as the head, shoulders and arms of an attractive young woman. The device in use has been called "Jo," which might be taken as the name of the mannequin to be animated; but it was selected because according to the dictionary for the language spoken in the country where applicant was born the word "jo" means sweetheart. Referring to Jo, as the mannequin 40 will be called from now on, and personalized by use of the feminine pronoun, her head 41 is shown as in the form of a hollow bisque body such as is commonly used for dolls' heads, and set on a hollow bisque neck-and-shoulders base 42 such as is usually placed over and suitably attached to the top-torso portion of the ordinary stuffed doll's body.

In the present case a standard such base 42 is shown, drilled for application of screws 43, for attaching the base to a wooden bar 44 fixedly mounted on a block 45 secured to the top of horizontal partition 16.

While Jo's hair is shown in Fig. 1, the wig providing the latter is removed in Fig. 2 to show the interior of her head, wherein, in the conventional way, her opening and shutting eyes 47 are on an eye-carrying member 47′ pivoted at its ends in masses of plaster placed and hardened in position in the head.

Her mouth 49, seen in Fig. 1, has been made changeable in expression so that she can give a smile as part of her animation. The means for effecting this, shown in Fig. 3, comprises a rocker-shaft 49a journalled at its ends in suitable supports (not shown) in her head. Near its ends rocker-shaft 49a carries two similar, forwardly projecting, offset pegs 50. The forward ends of these pegs are suitably secured, as by an adhesive, to a rubber or similar elastically flexible sheet 51, secured along its marginal portion around and in the rear of a mouth-location opening in Jo's face.

The rocker 49a is rotated in a clockwise direction as seen in Fig. 3, by an actuator moved relative to a blade 52 rigid on the rocker. On such rotation of the rocker, the pegs are lifted, and the ends of Jo's mouth as carried by the front face of sheet 51 are lifted for a smile.

Jo's arms 53 are made of angularly joined wood pieces as shown best in Fig. 7, and covered with sleeves 54 forming part of an apparent bodice 55 as seen from the front of the device. The arms 53 are respectively pivoted at 56 and 57 near the end portions of the wood bar 44. When Jo's arms are rocked toward each other about their points of pivoting, Jo's hands 58 are clapped together.

In order that a swinging in of Jo's left arm (her right arm as viewed from the back of the device) may be accompanied by simultaneous moving in of her other arm, for hand clapping, the two arms are operatively connected as best shown in Fig. 7 by a wire link 59 having eyes formed on its opposite ends which engage screw-eyes 60 and 61 respectively on her two arms. Her neck-and-shoulders base 42 is broken away as best shown in Figs. 2 and 7 for the diagonal line of thrust and pull of the link 59 through said base.

Jo animatedly operates, that is, claps her hands, and moves her eyes, and smiles, on each energization of a two-coil electromagnet 61, to at-

tract its upstanding armature 62 pivoted at 63 and normally held retracted by gravity acting through Jo's arms by virtue of their weight and the way in which they are pivotally mounted.

Attached to the back end of her left arm (her right arm as seen from the rear of the device) is a slider-arm 64 made of conducting material, as a strip of stiff brass. The slider-arm 64 is bent around beyond Jo's arm and toward the center of the device, to have a stretch thereof resiliently bear against the rear face of armature 62.

On that end of arm 64 which engages armature 62 is a contact, 65 insulated at 66, which contact with Jo's hands apart, touches a contact 67 on a plate of insulation on the armature 62. Each time magnet 61 is energized it attracts the armature 62, but immediately and as a result of such energization the circuit for the magnet is broken at the switch established by the contacts 65, 67, and so the magnet is deenergized. Thus, there is a staccato repetition of Jo's hand clapping and as well of her eye movement and change of expression at her mouth.

Each time the magnet 61 is energized, Jo's eyes are moved by armature 62 through means comprising a vertical strip 70 upstanding from the armature. The strip 70 is curled at its top, and a forwardly extending oppositely eyed bent wire link 71 is coupled at its rear eye to such curl and at its front eye is connected with a Z-shaped wire piece 72 above a bend-established shoulder 73 carried by the latter between its ends. Piece 72 depends from the rocker 47', being anchored at its upper end to the center rear of the rocker as by a gob of sealing wax or the like, as indicated at 72a. The lower end of piece 72 bears against the front face of the blade 52 on rocker 49a.

The device is rendered operative by dropping into a chute 18 a coin such as shown issuing from the bottom of said chute in Fig. 3. The weight of this coin, when the coin strikes the top of a vertically slidable block below the bottom of the chute, drives the block down and free of an impositive detent forming part of a suitable block guiding and retaining means (all of which parts will be described later), and as a result the block drops by gravity thereby to close the operating circuit in a way which also will be described later.

The electrical circuit-means includes a source of current, preferably of the battery type as already stated. Such battery is conventionally shown in Fig. 3, and preferably, as the same is illustrated in Fig. 2, it is a two-cell battery, each cell desirably a 4½ volt one, and with the cells connected in series as will be noted from a lead 75, shown in Fig. 2, as joining the positive terminal 75' of one cell and the negative terminal 75'' of the other.

Also included in the circuit-means as shown best in Fig. 3, is a lead 77 from the battery to the bottom electrode of a liquid mercury cup-switch 78; two contacts 79 and 80, when lowered into the mercury pool in the cup; a lead 81 from the contact 79 to the series connected coils of magnet 61; and a lead 82 from such coils to the contact 65 on the slider-arm 64. The return circuit for said magnet is by way of the contact 67 on armature 62, a lead 83 to a point 83' (ignoring for a moment a lead 83'' to a metal arm 84 anchored at one end to a wood block 85), thence a lead 86 to the upper or winning contact 29 of cylinder 24, the ring 33 (when it touches said contact), and a lead 87 back to the battery.

Thus in operation, each time the ring 33 has

been moved up along cylinder 24 without touching cylinder section 28 and then is contacted with upper electrical contact 29, Jo gives one clap of her hands, moves her eyes once, and smiles once; and thereupon repeates these performances rapidly all the while the ring 33 remains in contact with the upper contact 29 of cylinder 24.

However, should the patron allow ring 33 to touch the long intermediate contact 28, while attempting to move the ring toward the shorter upper electrical contact 29, the battery is placed in circuit with an electromagnet 88; such circuit including lead 77, the bottom electrode of cup-switch 78, the contact 80 (fixed, with the contact 79, on the coin-weight-lowered block above referred to, such block marked 90), a lead 89, the coil of magnet 88, a lead 92, cylinder section 28, and thence through ring 33 and lead 87 back to the battery.

On energization of magnet 88, its armature 88', normally held retracted by a spring 93, is attracted, and clappers 94 and 95, each on the free end of a stiffly resilient rod or wire rearwardly extended from the swinging end of the armature, these rods marked 94' and 95', are snapped upward.

Clapper 94 breaks the operating circuit by lifting the overlying block 90 to bring about a result immediately below explained, and at the same time clapper 95 strikes a bell 97.

Referring to the block 90, and the snapping up of clapper 95 to raise the same, this is for the purpose of resetting the block after it has been forced down to make the operating circuit, by the dropping of a coin on the upper end of the block. This block 90 is loose for ascent or descent in a vertical guide-way provided by a bent metal clip 96 secured to a side wall of the cabinet. The aforesaid impositive detent means for normally holding the block elevated includes on a side of the block a plurality of transverse ribs 90', and, bearing against these elements 90' of the block, is leaf spring 98 mounted on the clip 96. The weight of a coin discharged from chute 18 is such as to have sufficient impact against the block to free its ribs 90' from springs 98. Thereupon the block drops by gravity lowering the contacts 79 and 80 into the mercury pool in cup-switch 78.

When, however, the clapper 95 is snapped up as above to ring bell 77, to indicate a false try has been made during manipulation of ring 33, the simultaneous upward snap of the clapper 95 strikes the bottom of the block 90 and raises the latter to reengagement with the spring 98, thus breaking the operating circuit at the cup-switch 78.

In order after a predetermined time interval to terminate Jo's animation, means are provided to render the device inoperative after the lapse of such time interval. There is fixedly carried by the armature 62 a fairly stiff sheet metal arm 100 shaped and bent to engage the toothed periphery of a wheel 101 fixed on a shaft 102 journalled in a bent-metal cradle 103 secured to horizontal partition 16. What has been used for the wheel 103 is an ordinary fine toothed spur gear typical in clock work, and the same acts as a ratchet with the arm 100 providing its actuating pawl. Each time magnet 61 is energized, to give Jo an animation, such pawl rotates the gear a one-tooth extent, in a clockwise direction as the parts are seen in Fig. 3. Fixed on shaft 102 is a cam 105, having a high point so located that

after one full revolution of wheel 103 the cam will lift arm 84, which arm has a cam follower 104 integral therewith and constituted here by a reentrant bend intermediate the length of said arm. The arm 84, which is of electrically conductive material, and which is connected as aforesaid with lead 83'', is at its other end bent vertically downward; and the bottom of this down bent portion is curled and crimped tightly about the upper end of a contact 106 normally above the top of a pool of mercury in a second cup-switch 107.

When the wheel 103 has about completed a full revolution, cam 105 has been rotated a sufficient extent to carry its high point beyond cam-follower 104, and the contact 106 drops into said mercury pool, and then, as the cam turns still further, the contact is lifted clear of the pool. The dip of the contact 106 into the pool, and its subsequent rise therefrom, occurs in a split second.

The dip, however, energizes magnet 88, by connecting it momentarily in circuit with the battery. This circuit is comprised of the lead 77, contact 89 of the other cup-switch 78, lead 89, the coil of magnet 88, lead 92, the mercury pool in cup-switch 107, the contact 106, the cam-controlled arm 84, the leads 83'' and 86, the top or winning section 29 of cylinder 24, the ring 33 now being held against said section in an endeavor to prolong Jo's performance indefinitely, and lead 87 back to the battery.

Energization of magnet 89, as previously described, snaps up the clappers 94 and 95. The clapper 95 sounds the bell 97, and the clapper 94 raises block 90 to disable the operating circuit for the device at contact 79 and at the same time to break at 80 the circuit for energization of magnet 88.

In Fig. 2, a coin receiving tray in the form of a sliding drawer 110 is shown, one of the sides of its guideway being provided by a standard 111 for supporting the bell 97. Four identical clips 112 may conveniently be used to define a subcompartment for accommodating the battery.

As will now be understood, the device provides also an attractive game of skill for competitive use by a number of players, as, for instance, by having the players take turns in attempting to lift the ring 33 so as to cause Jo to perform.

As will also be understood, parts of the improvements may be used without others. For example, the coin chute may be omitted, and the apparatus used as a home game.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. In an amusement machine, a casing divided into upper and lower compartments by a horizontal partition, said upper compartment being open at its front and closed by a transparent member, a mannequin within said upper compartment behind said transparent member and formed with a movable mouth, movable eyes and relatively movable arms, a solenoid having a movable armature arranged to be drawn toward the solenoid as the solenoid is energized, switch means operated by movement of said armature toward said solenoid to deenergize said solenoid, means

connecting said armature to said movable eyes, mouth and arms of said mannequin to move the same when said armature moves relative to said solenoid, a vertical post mounted within the bottom compartment of said casing, a short electrical contact mounted on the upper end of said vertical post, a ring of conductive material slidable on said post and having a normal lowered position on said post to be manually raised on said post to make electrical contact with said short electrical contact, a source of electrical energy, and a circuit connecting in series said source of electrical energy, said solenoid, said switch means, said short electrical contact and said ring to energize said solenoid to move said armature when said ring contacts said short electrical circuit.

2. In an amusement machine, a casing divided into upper and lower compartments by a horizontal partition, said upper compartment being open at its front and closed by a transparent member, a mannequin within said upper compartment behind said transparent member and formed with a movable mouth, movable eyes and relatively movable arms, a solenoid having a movable armature arranged to be drawn toward the solenoid as the solenoid is energized, switch means operated by movement of said armature toward said solenoid to deenergize said solenoid, means connecting said armature to said movable eyes, mouth and arms of said mannequin to move the same when said armature moves relative to said solenoid, a vertical post mounted within the bottom compartment of said casing, a short electrical contact mounted on the upper end of said vertical post, a ring of conductive material slidable on said post and having a normal lowered position on said post to be manually raised on said post to make electrical contact with said short electrical contact, a source of electrical energy, and a circuit connecting in series said source of electrical energy, said solenoid, said switch means, said short electrical contact and said ring to energize said solenoid to move said armature when said ring contacts said short electrical circuit, and a short electrically inactive sleeve on the bottom end of said vertical post to be surrounded by said ring when in its lowered position.

3. In an amusement machine, a casing divided into upper and lower compartments by a horizontal partition, said upper compartment being open at its front and closed by a transparent member, a mannequin within said upper compartment behind said transparent member and formed with a movable mouth, movable eyes and relatively movable arms, a solenoid having a movable armature arranged to be drawn toward the solenoid as the solenoid is energized, switch means operated by movement of said armature toward said solenoid to deenergize said solenoid, means connecting said armature to said movable eyes, mouth and arms of said mannequin to move the same when said armature moves relative to said solenoid, a vertical post mounted within the bottom compartment of said casing, a short electrical contact mounted on the upper end of said vertical post, a ring of conductive material slidable on said post and having a normal lowered position on said post to be manually raised on said post to make electrical contact with said short electrical contact, a source of electrical energy, and a circuit connecting in series said source of electrical energy, said solenoid, said switch means, said short electrical contact and said ring to energize said solenoid to move

said armature when said ring contacts said short electrical circuit, and a short electrically inactive sleeve on the bottom end of said vertical post to be surrounded by said ring when in its lowered position, a long intermediate contact on said vertical post between said short electrical contact and said short sleeve and electrically insulated from each and which must be successfully bypassed by said ring before electrical contact can be made with said short electrical contact, a second solenoid having a movable armature arrange to move toward said second solenoid when energized, a bell positioned at the free end of the armature of said second solenoid, clappers mounted on the free end of the armature of said second solenoid to strike said bell when the armature of said second solenoid moves relative to said second solenoid, a second circuit connecting in series said source of electrical energy, said second solenoid, said long intermediate contact and said ring to energize said second solenoid to move its armature to ring said bell when said ring contacts said long intermediate contact in an unsuccessful attempt to raise said ring on said vertical post to make electrical contact with said short electrical contact.

4. In an amusement machine, a casing divided into upper and lower compartments by a horizontal partition, said upper compartment being open at its front and closed by a transparent member, a mannequin within said upper compartment behind said transparent member and formed with a movable mouth, movable eyes and relatively movable arms, a solenoid having a movable armature arranged to be drawn toward the solenoid as the solenoid is energized, switch means operated by movement of said armature toward said solenoid to deenergize said solenoid, means connecting said armature to said movable eyes, mouth and arms of said mannequin to move the same when said armature moves relative to said solenoid, a vertical post mounted within the bottom compartment of said casing, a short electrical contact mounted on the upper end of said vertical post, a ring of conductive material slidable on said post and having a normal lowered position on said post to be manually raised on said post to make electrical contact with said short electrical contact, a source of electrical energy, and a circuit connecting in series said source of electrical energy, said solenoid, said switch means, said short electrical contact and said ring to energize said solenoid to move said armature when said ring contacts said short electrical circuit, and a short electrically inactive sleeve on the bottom end of said vertical post to be surrounded by said ring when in its lowered position, a long intermediate contact on said vertical post between said short electrical contact and said short sleeve and electrically insulated from each and which must be successfully bypassed by said ring before electrical contact can be made with said short electrical contact, a second solenoid having a movable armature arranged to move toward said second solenoid when energized, a bell positioned at the free end of the armature of said second solenoid, clappers mounted on the free end of the armature of said second solenoid to strike said bell when the armature of said second solenoid moves relative to said second solenoid, a second circuit connecting in series said source of electrical energy, said second solenoid, said long intermediate contact and said ring to energize said second solenoid to move its armature to ring said bell when said ring contacts said long intermediate contact in an unsuccessful attempt to raise said ring on said vertical post to make electrical contact with said short electrical contact, and a normally open master switch common to both of said circuits for energizing said circuits for operation when closed, said master switch being disposed above the armature of said second solenoid to be reopened by movement of that armature when said second solenoid is energized by the electrical contact of said ring with said long intermediate contact.

5. In an amusement machine, a casing divided into upper and lower compartments by a horizontal partition, said upper compartment being open at its front and closed by a transparent member, a mannequin within said upper compartment behind said transparent member and formed with a movable mouth, movable eyes and relatively movable arms, a solenoid having a movable armature arranged to be drawn toward the solenoid as the solenoid is energized, switch means operated by movement of said armature toward said solenoid to deenergize said solenoid, means connecting said armature to said movable eyes, mouth and arms of said mannequin to move the same when said armature moves relative to said solenoid, a vertical post mounted within the bottom compartment of said casing, a short electrical contact mounted on the upper end of said vertical post, a ring of conductive material slidable on said post and having a normal lowered position on said post to be manually raised on said post to make electrical contact with said short electrical contact, a source of electrical energy, and a circuit connecting in series said source of electrical energy, said solenoid, said switch means, said short electrical contact and said ring to energize said solenoid to move said armature when said ring contacts said short electrical circuit, and a short electrically inactive sleeve on the bottom end of said vertical post to be surrounded by said ring when in its lowered position, a long intermediate contact on said vertical post between said short electrical contact and said short sleeve and electrically insulated from each and which must be successfully bypassed by said ring before electrical contact can be made with said short electrical contact, a second solenoid having a movable armature arranged to move toward said second solenoid when energized, a bell positioned at the free end of the armature of said second solenoid, clappers mounted on the free end of the armature of said second solenoid to strike said bell when the armature of said second solenoid moves relative to said second solenoid, a second circuit connecting in series said source of electrical energy, said second solenoid, said long intermediate contact and said ring to energize said second solenoid to move its armature to ring said bell when said ring contacts said long intermediate contact in an unsuccessful attempt to raise said ring on said vertical post to make electrical contact with said short electrical contact, and a normally open master switch common to both of said circuits for energizing said circuits for operation when closed, said master switch being disposed above the armature of said second solenoid to be reopened by movement of that armature when said second solenoid is energized by the electrical contact of said ring with said long intermediate contact, and means operated by said first solenoid when energized to energize said second solenoid to move said master switch to its normally open

position after the lapse of a given length of time following the contacting of said ring with said upper short electrical contact to energize said first solenoid.

SALVATORE D'ELIA.

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