June 4, 1963 J. D. SHOOK 3,091,887

MAGIC CLOWN TOY BANK

Filed April 23, 1962 2 Sheets-Sheet 1

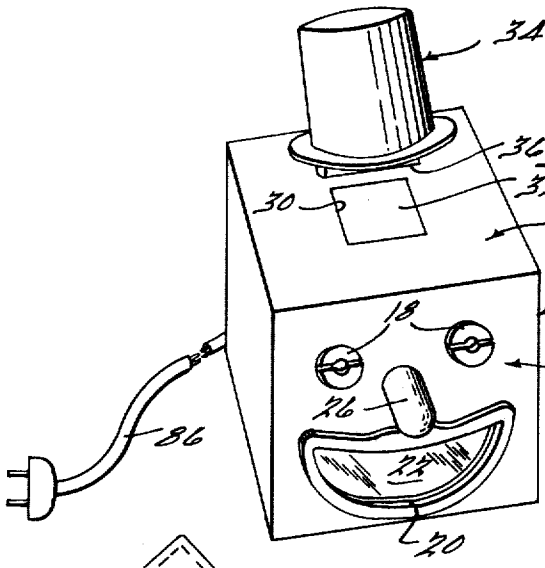


FIG. 1.

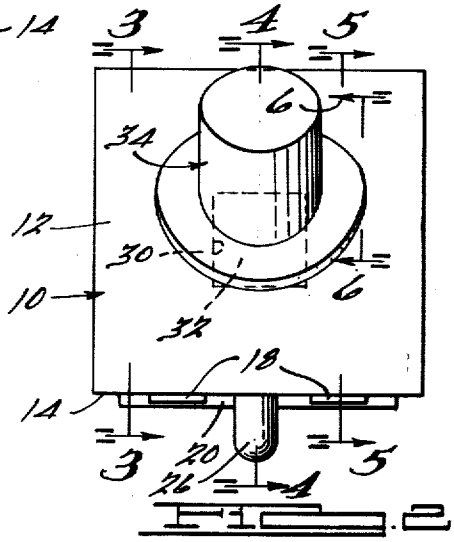


FIG. 2.

FIG. 3.

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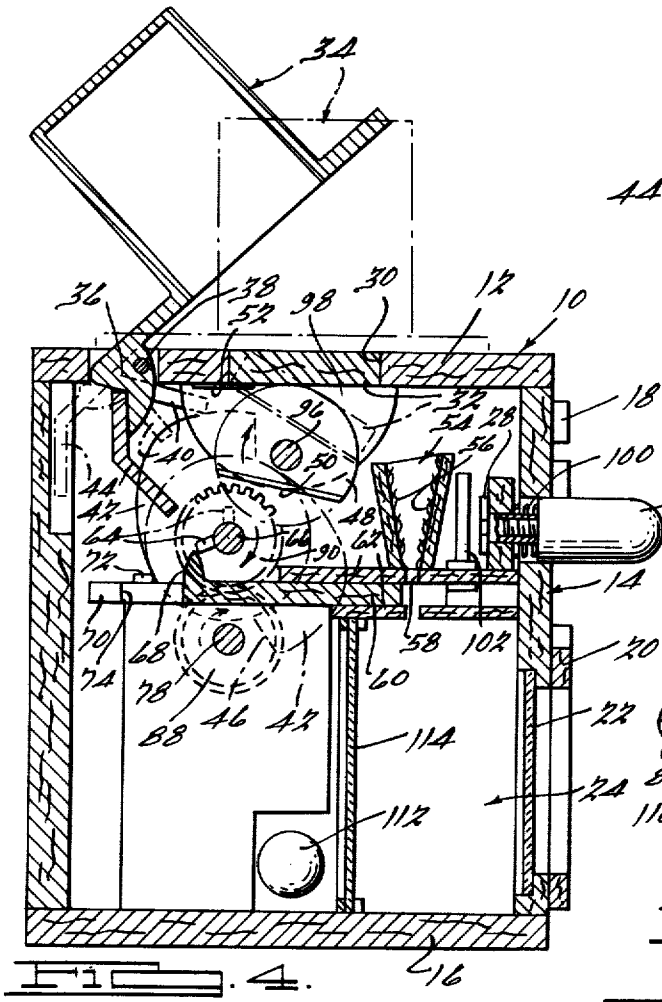


FIG. 4.

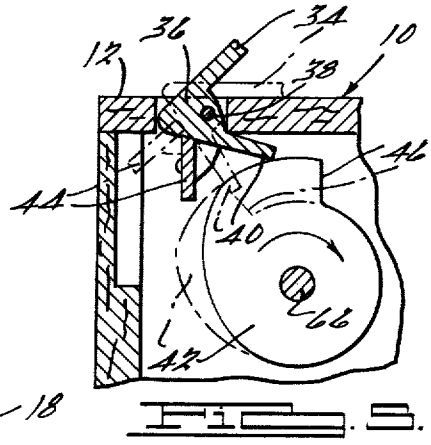


FIG. 5.

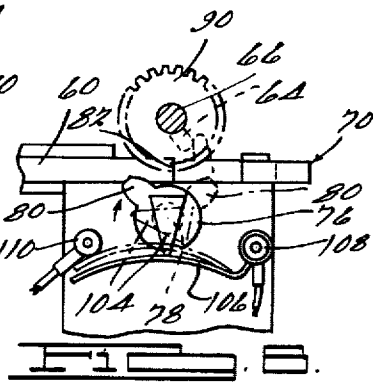
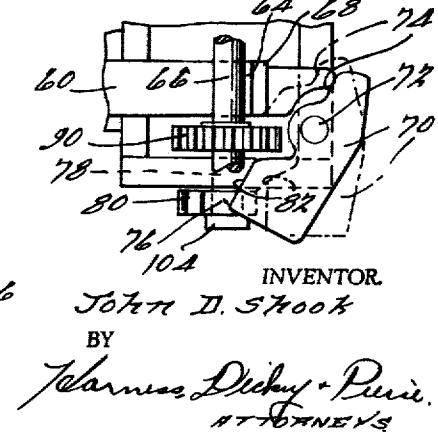


FIG. 7.



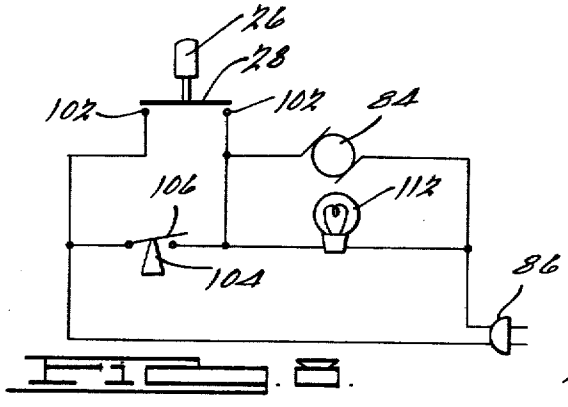


FIG. 8.

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MAGIC CLOWN TOY BANK

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8 Claims. (Cl. 46—4)

The present invention relates to a functional toy bank providing entertainment by its apparent magic qualities thereby stimulating the interest and enjoyment of children in depositing money in the bank and promoting a savings habit in youngsters.

It is a primary object of the present invention to provide a novel toy savings bank which possesses ostensible magic qualities whereby a coin placed on a magic square is subsequently covered by a hat after which the coin ostensibly vanishes from thereunder only to reappear a predetermined time period after the hat has again been raised at which time the coin drops within visual observation into the interior of the bank.

Another object of the present invention is to provide a unique toy savings bank incorporating power means therein which on initial actuation is effective to provide for an automatic sequentially phased operating sequence during which the coin deposited disappears and reappears and which automatically stops at the completion of the cycle.

A further object of the present invention is to provide a novel toy savings bank which is of a pleasant and amusing appearance, of simple operation by children of durable operation and construction and of simple and economical manufacture.

The foregoing and other objects and advantages of the present invention are achieved by providing an enclosure having a top of an ostensibly solid appearance on which a cover member such as a hat is pivotally mounted for tilting movement to and from a raised position and a lowered position in which it is disposed in overlying covering relationship on a magic square pivotally secured to the top on which a coin is adapted to be placed and removed therefrom in response to a downward tilt of the magic square. The coin is received in a chute and is retained therein for a predetermined time period until the hat again is tilted to the raised position at which time means are actuated enabling the coin to fall the remaining distance into the interior of the bank where it is audibly and visually observed through a window in a wall of the depository portion of the bank. Suitable power means are incorporated in the interior of the bank which upon initial actuation are effective to cause tilting movement of the hat and the magic square between the appropriate positions in a sequentially phased operating sequence at the completion of which the power means automatically stop in a position preparatory to the next actuation thereof. Suitable illuminating means are preferably incorporated in the bank for illuminating the depository section during operation of the power means facilitating visual observance of the coin dropping into the depository section.

Other objects and advantages of the present invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings, wherein:

FIGURE 1 is a perspective view of the toy bank constructed in accordance with the preferred embodiments of the present invention;

FIG. 2 is a plan view of the toy bank shown in FIG. 1;

FIG. 3 is a transverse vertical sectional view through the bank shown in FIGURE 2 and taken substantially along the line 3—3 thereof;

FIG. 4 is a transverse vertical sectional view of the bank shown in FIGURE 2 and taken substantially along the line 4—4 thereof;

FIG. 5 is a fragmentary transverse sectional view of the cam for moving the hat to and from a raised position and lowered position as incorporated in the bank shown in FIGURE 2 and taken substantially along the line 5—5 thereof;

FIG. 6 is a fragmentary transverse sectional view of the interrupter switch and cam mechanism of the bank shown in FIGURE 2 and taken substantially along the line 6—6 thereof;

FIG. 7 is a fragmentary plan view of the interrupter switch mechanism and slide return mechanism shown in FIGURE 6, and

FIG. 8 is a schematic wiring diagram of the circuitry for providing automatic sequential operation of the bank.

Referring now in detail to the drawings and as may be best seen in FIGS. 1–4, a toy bank constructed in accordance with the preferred embodiments of the present invention comprises a three-dimensional enclosure indicated at **10** including a top panel **12**, a face panel **14**, a base **16** in addition to side and rear panels. The several panels forming the enclosure **10** are preferably interfittingly secured enabling disassembly of at least the base or face and rear panels to enable access to the interior of the bank for either withdrawing money deposited therein or for maintenance of the operating components such as the replacement of a burnt out bulb.

The face panel **14** is provided with a clown face comprising a pair of eyes **18** and a mouth **20** in which a transparent panel **22** is disposed for visually observing the interior of a depository compartment or chamber generally indicated at **24** in which the coins are stored. A nose **26** is mounted on the face panel **14** and projects through an aperture therethrough and is connected to a reciprocably actuated switch bar **28** for initiating action of the operating cycle.

The top panel **12** of the enclosure **10** is formed with an aperture **30** therethrough in which a closure member or door **32** is pivotally mounted and movable to and from a raised position in which it is disposed in planar alignment with the plane of the top panel to a lowered position angularly inclined inwardly of the enclosure as shown in phantom in FIGURE 4. The door **32** forms a so-called magic square on which the coins to be deposited are placed. The door **32**, when in the closed position is positioned in tight clearance relationship with the edges of the aperture **30** presenting the appearance of a unitary top panel. It is preferred to emboss a checkerboard pattern on the upper surface of the top panel to further disguise the presence of a movable door **32** therein.

A suitable cover such as a hat **34** as indicated in the exemplary bank illustrated in the drawings, is pivotally mounted on the top panel **12** and is movable thereon to and from a raised position in which it is angularly tilted upwardly relative to the plane of the top panel to a lowered position in overlying relationship on the surface of the panel as indicated in phantom in FIGURE 4, and in which position it is disposed in covering relationship over the door **32**. The hat **34** as best shown in FIGURE 3, is connected at the edge of its brim to a suitable hinge member **36** which is pivotally mounted to the top panel **12** by means of a pin **38** and incorporates a cam follower arm **40** which is adapted to be disposed in sliding relationship on the periphery of a cam **42** as best shown in FIGURE 5. A suitable counterweight **44** is secured to the hinge member **36** which partly counterbalances the downward gravitational tilting force of the hat but does not completely overcome this tendency whereby the hat is urged toward the downward position by the force of gravity.

Movement of the hat to and from the raised position as shown in solid lines in FIGURE 4 to the lowered position as shown in phantom is achieved in response to rota-

tion of the cam **42** in a clockwise direction as viewed in FIGURES 4 and 5. The cam **42** as shown in the drawings in solid lines is disposed in a position corresponding to that prior to initiation of a cycle which also corresponds to the position at which the prior operating cycle is completed. Accordingly, the initiation of rotation of the cam **42** causes the cam follower arm **40** in contact with the periphery thereof to move therealong to a peripheral portion of smaller diameter as shown in phantom in FIGURE 5, enabling downward gravitational movement of the hat **34** from the raised position to the lowered position. When the cam **40** attains a position wherein a ramp surface **46** thereon as shown in phantom in FIGURE 5, contacts the cam follower arm **40**, the hinge member **36** and hat **34** are pivotally moved from the lowered position about the pin **38** to the raised position in which position the hat is retained by virtue of the coaction of the cam follower arm **40** with the high portion of the periphery of the cam **42**.

The magic square or door **32** is similarly moved to and from a raised position in closing relationship in the aperture **30** to a lowered position angularly tilted inwardly as shown in phantom in FIGURE 4 by virtue of the sliding bearing contact of the lower surface of the door **32** with a cam **48** incorporating a flat segment **50** on the periphery thereof. The cam **48** as shown in FIGURE 4 rotates in a clockwise direction and is shown in solid lines in the position prior to the initiation of an operating cycle. On initiation of the operating cycle, the cam **48** rotates in a clockwise direction during which time the periphery of the cam **48** is positioned in sliding supporting relationship against the underside of the door **32** maintaining it in a raised position. When the flat segment **50** is rotated to a position wherein it is disposed adjacent to the underside of the door **32**, the gravitational force biasing the door **30** to an open or downwardly inclined position as shown in phantom causes a progressive movement of the door to the lowered position as provided by a hinge **52** along the lower rearward edge thereof. Further rotation of the cam **48** effects movement of the door **32** from the fully lowered position as shown in phantom back to the raised position after which the cam stops in a position as shown in solid lines in FIGURE 4 preparatory to the next operating cycle. The tilting movement of the hat **34** and the magic square or door **32** are coordinated to occur in a prescribed sequence as will be subsequently described in detail.

A coin (not shown) which is manually positioned on the magic square or door **32** while in the closed position, is caused to slide downwardly and forwardly in response to the downward movement of the door **32** to the lowered position. The coin during the downward movement of the door, slides forwardly as a result of the force of gravity and is received in a padded chute **54** positioned along the forward edge of the door. The padded chute **54** incorporates a suitable padding material **56** along the inner surfaces thereof to prevent transmission of any audible indication of the falling or dropping of a coin therein. The bottom of the padded chute **54** is provided with an aperture or slot **58** which is selectively exposed to communication with the depository compartment **24** therebelow by means of a slide member **60** slidably disposed therebeneath and longitudinally reciprocable from a blocking relationship to a non-blocking relationship. The slide member **60** is shown in solid lines in FIGURE 4 in a withdrawn position or non-blocking position corresponding to the position in which it is disposed at the completion of a cycle and prior to the initiation of a new operating cycle. In this position a coin held within the padded chute **54** has been allowed to drop through the slot **58** into the depository chamber **24**.

The longitudinal reciprocatory movement of the slide member **60** is guided by a pair of guide members **62** against which the upper, lower, and side surfaces of the slide member **60** are slidably and guidably disposed.

Movement of the slide member from a blocking position to a non-blocking position is achieved by a lobe **64** projecting from a shaft **66** which is adapted to contact a projection **68** affixed to the rearward portion of the slide member **60**. The position of the lobe **64** on the shaft **66** is oriented so as to effect a retraction of the slide member **60** just prior to the completion of the operating cycle whereby a coin in the chute **54** drops into the depository chamber **24** after the hat **34** has again attained the elevated position and the door **32** is in the closed position.

Movement of the slide members **60** back to a blocking position is achieved by a bell crank cam **70** pivotally mounted on a pin **72** which is provided with a cam surface **74** as best seen in FIGURE 7 which is adapted to engage the projecting end of the slide member **60** causing as viewed in FIGURE 7 in response to movement of the movement thereof to a blocking position or to the left as viewed in FIGURE 7 in response to movement of the bell crank cam **70** from the position shown in solid lines in FIGURE 7 to the position shown in phantom. Movement of the bell crank **10** is accomplished in response to a single lobe cam **76** which is secured to the end of a shaft **78** and is rotatable therewith in a clockwise direction as viewed in FIGURE 6. As the lobe **80** on the single lobe cam **76** rotates to a position wherein it engages a cam surface **82** on the bell crank cam **70**, the bell crank cam is pivoted from the position shown in solid lines in FIGURE 7 to the position shown in phantom whereupon the slide member is moved back into blocking relationship beneath the slot **58** of the chute **54**. The lobe **80** on the single lobe cam **76** is disposed so as to effect actuation of the bell crank cam during the initial portion of the operating cycle prior to the time that the door **32** moves to the lowered position.

It is also contemplated within the scope of the present invention that the return movement of the slide member **60** to the blocking position can be achieved by means resiliently biasing the slide member toward the blocking position which is overcome at a preselected time by the coaction of the lobe **64** with the projection **68** on the slide member enabling the coin in the chute to drop.

The coordinated rotation of the several cams and lobes as hereinbefore described is accomplished by a plurality of gears disposed in meshing relationship with each other maintaining thereby a constant preselected relative orientation therebetween. Rotation of the several shafts can be accomplished by suitable motor means either of a mechanical windup-type or of an electric battery or line current. In the exemplary embodiment shown in the drawings, an electric motor **84** is employed of the synchronous-type to which power is supplied by means of a lead **86** as shown in FIGURE 1. The electric motor **84** as shown in FIGURE 3, is mounted within the enclosure **10** rearwardly of the depository compartment **24** and includes an output shaft which is drivingly connected to the shaft **78** for rotating the single lobe cam **76**. A drive gear **88** is affixed on the shaft **78** and is disposed in constant meshing relationship with a driven gear **90** (FIG. 4) which is affixed on the shaft **66** effecting rotation thereof.

An intermediate gear **92** (FIG. 3) is mounted on the shaft **66** in longitudinally spaced relationship from the driven gear **90** and is disposed in constant meshing relationship with a gear **94** mounted on a shaft **96** to which the cam **48** for operating the door **32** is affixed. The ends of the shaft **96** are rotatably supported in pillow blocks **98** affixed to the underside of the top panel **12** as indicated in FIGURES 3 and 4. In accordance with this arrangement, energization of the motor **84** effects simultaneous rotation of the shafts **66**, **78**, and **98** whereupon the cams **42**, **48**, **70**, and the lobe **64** rotate in preselected angular relationship effecting a predetermined actuation of the several components in sequentially phased relationship.

Initiation of the operating cycle as hereinbefore indi-

cated is accomplished by manually depressing the nose **26** which as shown in FIGURE 4, is resiliently biased outwardly by a coil spring **100** whereupon the switch bar **28** makes contact between a pair of transversely spaced terminal bars **102**. Upon contact of the terminal bars and the switch bar **28**, the motor is energized and commences to rotate, which in turn causes rotation of the shaft **78** which is provided at its opposite end as viewed in FIGURES 6 and 7 with a triangular cam **104** which is adapted to actuate a resiliently biased interrupter switch **106**. Accordingly, as the triangular cam **104** rotates from a position as shown in solid lines in FIGURE 6 to a position angularly spaced therefrom, the interrupter switch **106** moves from the open position as shown in solid lines to the closed position as shown in phantom providing a connection between terminals **108, 110** enabling the nose **26** to be released. The electric motor **84** remains energized by virtue of the closing of interrupter switch **106** and continues to operate until the triangular cam **104** again attains the position shown in solid lines in FIGURE 6 at which the contacts are opened deenergizing the motor and terminating the operating cycle.

In addition to effecting an energization of the electric motor **84**, by depressing the nose **26**, a suitable bulb **112** is also illuminated during the initiation of the operating cycle which is disposed in the base of the enclosure **10** rearwardly of the depository compartment **24** and separated therefrom by a suitable transparent colored filter **114** for providing a decorative illumination of the depository compartment and the contents therein, as viewed through the transparent panel **22** in the mouth of the face panel. The bulb **112** is extinguished upon completion of the operating cycle concurrently with the deenergization of the electric motor **84**.

The electrical circuitry of the toy bank may be best seen with reference to FIGURE 8 wherein a schematic diagram is provided of the wiring circuit. As shown in this drawing, the nose **26** is connected to the switch bar **28** effecting temporary contact between the terminal bars **102**. Accordingly, power supplied through the lead **86** passes through the terminals **102** and switch bar **28** energizing the electric motor **84** which commences to rotate. Simultaneously, the bulb **112** is illuminated. As the motor **84** rotates the triangular cam **104** releases the interrupter switch **106** enabling the nose to be released and maintaining the motor and the bulb energized until the cam **104** has made a complete revolution which corresponds to the completion of the operating cycle of the bank.

In accordance with the foregoing description, the operation of the bank is simply achieved by first plugging the lead **86** in a suitable electrical outlet whereby the toy bank is placed in a standby condition. A coin which is desired to be deposited in the bank is first placed on the top surface of the magic square or door **32** beneath the hat **34** and thereafter the nose **26** is depressed energizing the electric motor and illuminating the bulb **112**. The hat first moves from the raised position to the lowered position in overlying covering relationship over the door **32** and the coin thereon. During the first phase of the operating cycle and prior to movement of the door **32** to the lowered position, the single lobe cam **76** actuates the bell crank cam **70** causing the slide member to be moved to the right as viewed in FIGS. 3 and 4 and back into blocking position beneath the padded chute **54**. Continued rotation of the motor effects movement of the cam **48** whereupon the door tilts from the raised position to the lowered position whereupon the coin slides downwardly and is received in the padded chute **54**. At this point the slide member **60** has been moved to the blocking position. The cam **48** continues to rotate whereupon the door **32** is again returned to the fully closed position after which the ramp portion **46** on the cam **42** engages the cam follower arm **40** and the hat commences to move from the fully lowered position as shown in phantom in FIGURE 4 to the fully raised position. When the hat attains the fully raised position or slightly prior thereto, the lobe **64** on the shaft **66** engages the projection **68** on the slide member **60** causing it to move to the left as viewed in FIGURE 4 whereby the coin in the padded chute **54** drops through the slot **58** into the interior of the depository chamber **24** which is illuminated by the bulb **112** and is readily visible and audible to the depositor. This visual delay in the depositing of the coin provides for an ostensible magic or temporary disappearance of the coin. The gears continue to drive the shafts until the triangular cam **104** contacts the interrupter switch deenergizing the electric motor and extinguishing the bulb.

While it will be apparent that the preferred embodiments herein illustrated are well calculated to fulfill the objects above stated, it will be appreciated that the invention is susceptible to modification, variation and change without departing from the proper scope or fair meaning of the subjoined claims.

What is claimed is:

1. A toy bank comprising a three dimensional enclosure including a top having an aperture therein and a cover member pivotally mounted thereon and movable to and from a lowered position in overlying covering relationship over said aperture and a raised position spaced upwardly therefrom, a door disposed in said aperture and movable to and from a closed position and an open position angularly tilted inwardly from said enclosure, receiving means in said enclosure for receiving a coin sliding downwardly off said door during movement thereof toward said open position, releasing means for selectively releasing a coin in said receiving means enabling it to drop into a depository section within said enclosure, power means for moving said cover member and for opening and closing said door while said cover member is in said lowered position and for actuating said release means when said cover member attains said raised position, actuating means for actuating said power means, and means for deactivating said power means at the completion of the cycle.

2. A toy bank comprising a three dimensional enclosure including a top formed with an aperture therein and a cover member pivotally mounted thereon and movable to and from a lowered position in covering relationship over said aperture and a raised position spaced upwardly therefrom, a door disposed in said aperture and movable to and from a closed position and an open position angularly tilted inwardly from said enclosure, a receiver in said enclosure for receiving a coin sliding downwardly off said door during movement thereof to said open position, release means selectively operable for releasing a coin in said receiver enabling it to drop downwardly into a depository section defined within said enclosure, power means in said enclosure, cam means drivingly connected to said power means for moving said cover member and for opening and closing said door when said cover member is in said lowered position and for actuating said release means releasing a coin in said receiver when said cover member again approaches said raised position, actuating means for energizing said power means initiating the operating cycle thereof, and deactivating means for deactivating said power means upon completion of said cycle.

3. A toy bank as described in claim 1 wherein a wall of said enclosure is formed in the configuration of a face including a mouth having a transparent partition thereover for visually observing the contents of said depository section and a coin dropping therein.

4. The bank as described in claim 3 further characterized wherein said actuating means is mechanically connected to an outwardly projecting nose on said face and movable responsive to manual operation.

5. The toy bank as described in claim 3 further characterized as incorporating illuminating means in said enclosure for illuminating said depository section facilitat-

ing visual observation thereof through said transparent partition during the operation of said cycle.

6. The toy bank as described in claim 2 wherein said power means comprises an electric motor drivingly connected by gears to said cam means.

7. The toy bank as described in claim 6 wherein said actuating means comprises a nose movably mounted on a wall of said panel formed with an amusing face thereon which is mechanically connected to a resiliently based push-button switch.

8. The toy bank as described in claim 7 further characterized by the fact that said deactivating means comprise an interrupter switch operatively associated with a cam drivingly connected to said power means for de-energizing said power means at the completion of an operating cycle.

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