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M. I. GLASS ET AL

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MECHANICALLY ACTUATED GAME FOR OPPOSING PLAYERS

Filed Feb. 28, 1964

2 Sheets-Sheet 1

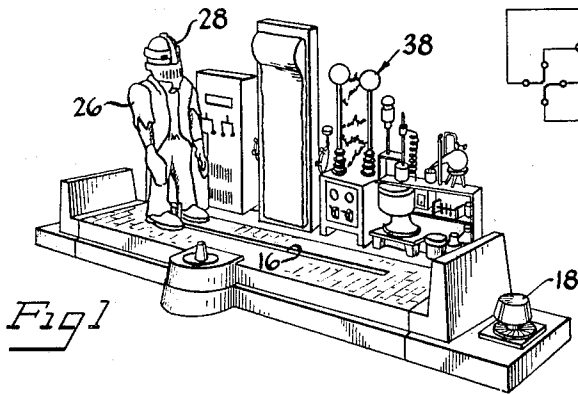
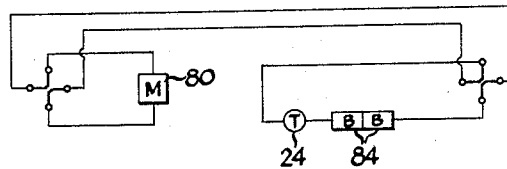
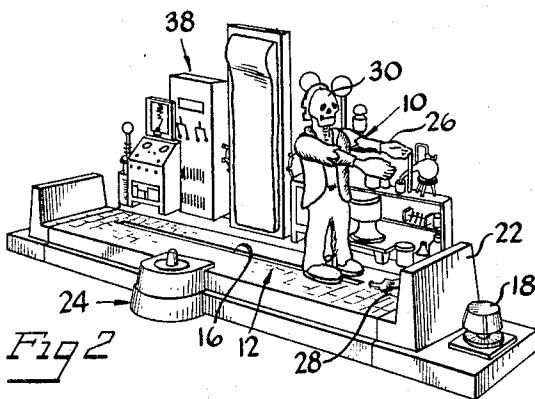
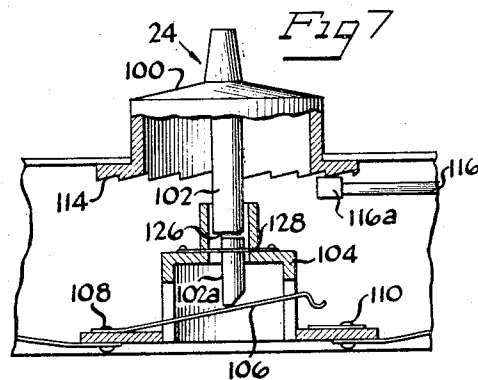
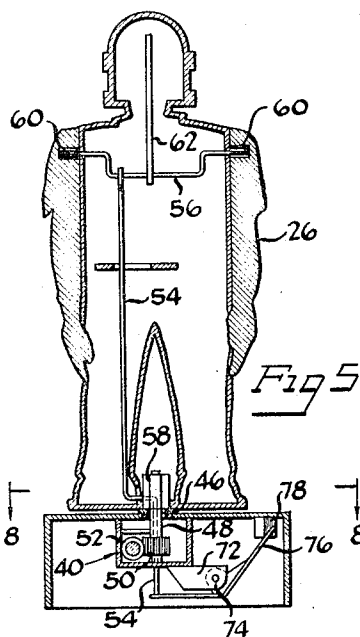
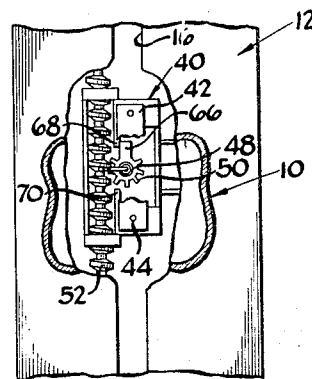


Fig 6



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2 Sheets-Sheet 2

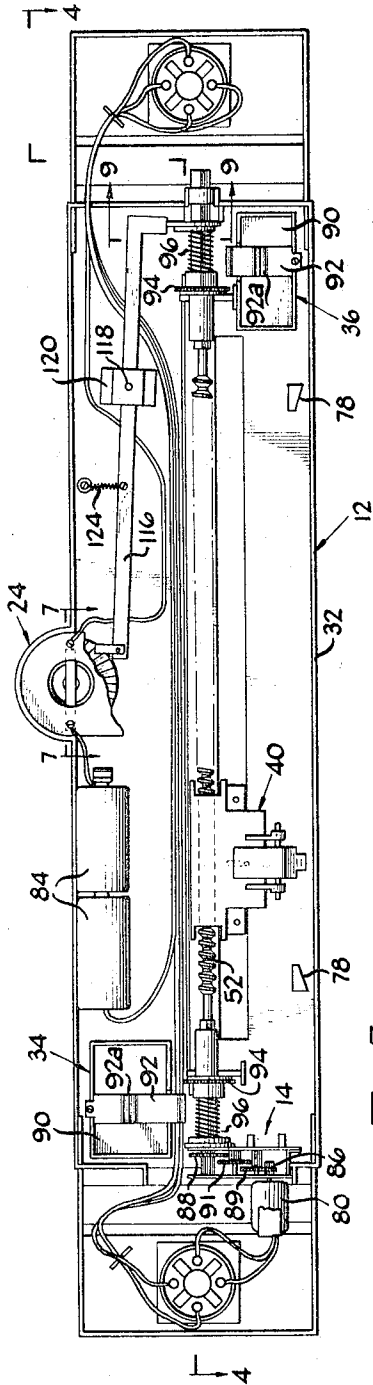


Fig. 3

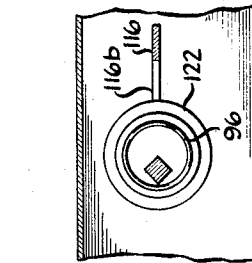


Fig. 5

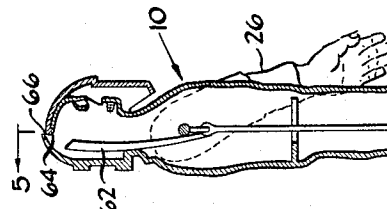
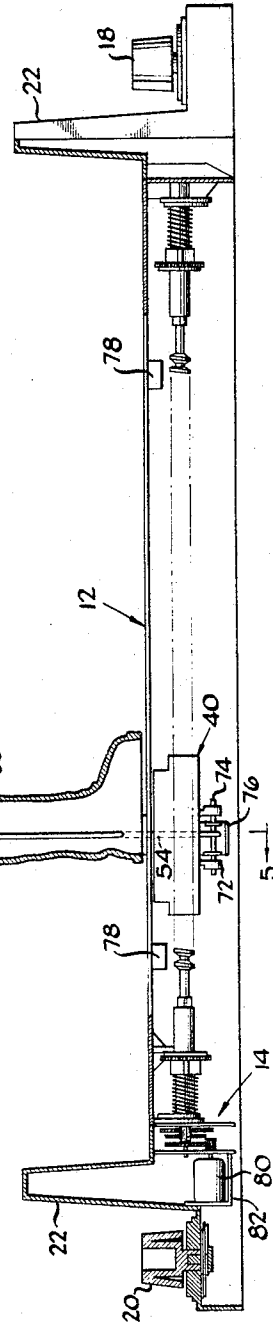


Fig. 4



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MECHANICALLY ACTUATED GAME FOR OPPOSING PLAYERS

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This invention relates generally to a toy, and is more particularly directed to a mechanically actuated toy which provides a game to be played between opposing players.

Mechanical toys have become very popular in recent years, particularly those toys which afford participation by the child in the action of the toy. The present invention is particularly directed to a toy which not only provides for participation by the child, but which provides a game which can be played between two players in a manner affording very active competition between the players and considerable excitement during the course of the game, with each player trying to outwit the other.

The principal object of this invention is to provide a novel mechanically operated toy which can also be used as a game. A further object of the invention is to provide a power operated toy having a figure thereon movable through a predetermined path, wherein the movement of the figure is controlled jointly by a pair of control means. More particularly, it is an object of this invention to provide a mechanically actuated toy wherein a movable and articulated figure is movable along a predetermined path between opposing goals, each goal is provided with control means for determining the direction of movement of the figure, and wherein the figure, upon reaching one of the goals, makes a gesture which indicates that one of the players has won the game.

Other objects and advantages of the invention will be apparent from the following description of the selected embodiment illustrated in the drawings, wherein:

FIGURE 1 is a perspective view of a toy embodying the invention and depicted as a movable figure in a scientific laboratory;

FIGURE 2 is a perspective view, similar to FIGURE 1, with the figure in a different position;

FIGURE 3 is a bottom plan view of the selected embodiment, particularly illustrating the operating mechanism;

FIGURE 4 is a sectional view taken along the line 4—4 in FIGURE 3;

FIGURE 5 is a sectional view taken along the line 5—5 in FIGURE 4;

FIGURE 6 is a schematic wiring diagram of the electrical circuit used in the selected embodiment;

FIGURE 7 is an enlarged view taken along the line 7—7 in FIGURE 3, with parts broken away and in section;

FIGURE 8 is a view taken along the line 8—8 in FIGURE 5, with parts broken away and in section; and FIGURE 9 is an enlarged, sectional view taken along the line 9—9 in FIGURE 3.

Generally, the present invention provides a mechanically actuated toy which is particularly useful as a game between two opposing players. As seen particularly in FIGURES 1 and 2, the toy has the appearance of a scientific laboratory wherein a masked monster 10 is movable from adjacent one end of the supporting platform 12 to the other end. The monster is operably connected with a drive means 14 (FIGURE 4) for movement along a path defined by a slot 16 extending a substantial portion of the length of the platform. The drive mechanism is battery powered and a pair of drive circuit control knobs 18 and 20 are provided at opposite ends of the platform

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and are disposed behind abutments 22 which conceal the direction of rotation of the knobs by opposing players. At an intermediate portion of the platform there is provided a timer mechanism 24 which is suitably connected with the drive mechanism 16 so as to provide for selection of a predetermined length of time of operation of the drive mechanism. Preferably each player in turn sets the timer mechanism after both players have moved their control knobs 18 and 20 to one of two available positions. The setting of the timer mechanism and the positioning of the control knobs determines the direction of travel of the figure 10 and the extent of such travel. The game is started with the figure in the center of the platform and, as the figure approaches one of the goals 22, he raises his arms 26 and his mask 28 falls off to expose a skull 30. The player defending the goal reached by the figure is the loser of the game. In addition to the uncertainty of the direction and extent of movement of the masked figure, further excitement is provided through means of a soundmaker which indicates a climatic moment in the game as the figure approaches one of the goals.

Referring also to FIGURES 3 and 4, it will be noted that the platform 12 comprises an elongated, box-like member 32, preferably of plastic, which has sufficient depth to accommodate the drive mechanism 14, soundmakers 34 and 36 and timer mechanism 24. Elements depicting components of a scientific laboratory 38 are suitably secured to the platform 12 along one edge thereof to provide a background for the monster figure. These elements are also preferably of plastic and may be suitably colored or left clear where they are to resemble glass components. In the latter respect, a lighting effect may be provided in any known manner to provide for either constant or intermittent lighting through the clear plastic elements by means of a suitable source of light (not shown) operated from the batteries.

As seen particularly in FIGURES 4, 5 and 8, the monster figure 10 is supported on a movable carriage 40 which underlies the platform 12. More particularly, this carriage is generally rectangular with an open top and is supported and guided for movement along the slot 16 by means of a strap member 42 which is fixed to opposite ends of the carriage by screws 44 or the like and which strap has an intermediate portion 46 (FIGURE 5) overlying the slot and of greater width than the slot. The feet of the monster are movably supported on this intermediate portion 46 and the latter portion also has a central opening therethrough for rotatably receiving a sleeve-like element 48. This sleeve-like element 48 has fixed thereto at its lower end a segmented gear 50 in position for engagement with a drive worm 52. Extending upwardly through the bottom of the carriage 40 and the sleeve 48 is an elongated, vertically extending rod 54 which is bent at right angles adjacent the leg of the figure and then extends upwardly through the body to a crank 56 disposed transversely of the shoulders of the figure. A nut 58 or the like is provided at the upper end of the sleeve-like element 48 and includes a slot or opening to permit lateral passage of the bent portion of the rod 54. This nut 58 is fixed to the legs of the figure so that as the nut is rotated, in a manner to be described, the figure 10 also rotates.

The opposite ends of the transverse crank 56 in the upper portion of the figure are provided with knurled sections 60 or the like providing means for attachment of the movable arms of the figure for movement with the crank 56. The central portion of the crank has projecting upwardly therefrom a shorter rod 62 which is disposed for movement through the head of the figure (FIGURE 4). The face of the figure is normally concealed by the mask 28 which is removably supported on the head by a

hook-like portion 64 which rests in an opening 66 in the top of the head. The shorter rod 62 is positioned for engagement with this hook-like portion 64 to thereby effect removal of the mask from the face.

The segmented gear 50 engaging the drive worm 52 includes a projecting arm portion 66 (FIGURE 8) which is engageable with stops 68 and 70 provided lengthwise of the carriage and adjacent the drive worm. The carriage 40 has also fixed to the bottom portion thereof a pair of projecting arms 72 with aligned openings therein for receiving a pin 74 or the like pivotally supporting an angularly bent lever 76 having one end supporting the lower portion of the vertically extending rod 54. The other end of this lever is positioned for engagement with inclined cam surfaces 78 provided on the underside of the platform. A more detailed description of the operation of the lever 76 and of the segmented gear 50 in connection with the travel of the figure 10 will be found hereinafter.

The mechanism for effecting travel of the figure 10, including rotation thereof so as to face in the direction of the goal it is approaching, is seen particularly in FIGURES 3 and 4. More specifically, the drive mechanism 14 includes an electrically-operated, reversible motor 80 which is supported on a suitable housing or platform 82 fixed to the underside of the toy at one end thereof. The motor receives its power from a pair of flashlight batteries 84 also carried on the underside of the main platform. The drive shaft of the motor has connected thereto a driving pinion 86 which provides for rotation of a main driven gear 88 through a pair of speed reduction gears 89 and 91. The main drive gear 88 is coaxially disposed on a shaft which extends substantially the length of the platform. A substantial portion of the drive shaft is in the form of the worm gear 52 having driving engagement with the segmented gear 50 on the carriage supporting the monster, and preferably at least the worm portion of the drive shaft is of molded plastic.

Controlling the operation of the motor 80 is the pair of rotatable switch knobs 18 and 20 disposed adjacent each of the opposite goals for the figure. Each of these knobs is in the form of a two-way switch which is operable, as indicated in FIGURE 6, to control the direction of rotation of the reversible motor. In this connection, it is to be noted that both two-way switches are always operable in the circuit and the direction of rotation of the motor is dependent upon the setting of both control knobs.

As seen in FIGURES 5 and 8, the long worm drive 52 is in meshing engagement with the segmented gear 50 rotatably mounted on the vertically extending rod 54 which extends through the supporting carriage and upwardly into the figure. Thus, the rotation of the worm drive is effective through its engagement with the segmented gear 50 to move the carriage 40 longitudinally of the platform. The initial movement of the worm drive may also be accompanied by rotational movement of the gear 50 to the extent permitted by the arm 66, so as to close rotate the figure 10 through approximately 180° to face in the direction of its travel. If the figure is continuing in the same direction, the arm 66 on the segmented gear 50 will be disposed against one of the stops 68-70 so that there is no accompanying rotation of the figure. However, if the direction of rotation of the worm 52 has been reversed, the initial rotation thereof will provide an accompanying movement of the gear 50 and its arm 66 in the direction of the opposite stop means 68 or 70, which movement will also produce approximately 180° movement of the figure. Thus the figure is always faced in the direction of its movement.

Extending laterally of the carriage 40 is the pivoted lever 76 which is supported on the two extending brackets 72 on the underside of the carriage. Adjacent opposite ends of the platform are the inclined cams 78 which are disposed for engagement with the pivoted lever 76 on the

carriage. As the carriage approaches the end of the platform, the lever 76 is engaged by the associated cam 78 and thereby pivoted about its supporting shaft 74. This pivoting movement of the lever is accomplished by an elevation of the vertical rod 54 to raise the arms 26 of the figure. Preferably near the end of the upward movement of the arms, the rod 62 in the head of the figure strikes against the mask portion 64 and knocks the mask off the face to expose a skull or the like. Finally, as the pivoted lever 76 moves beyond the cam 78, the arms 26 again drop to the side of the figure.

There is also provided a sound mechanism which provides for a suitably eerie sound in accompaniment to the raising and lowering of the arms of the figure. More particularly, the sound mechanisms 34-36, one at each end of the platform, each include a sounding chamber 90 or diaphragm in the nature of a box having a covering of fish paper or the like and a leaf spring or reed 92 which is fixed to one edge of the box and has an intermediate portion 92a bent to strike the center portion of the diaphragm. As the carriage 40 approaches the end of its travel, and the cam lever 76 operates the arms in the manner just described, the carriage also moves a slidable gear 94 along a rectangular section of the drive shaft in opposition to a coil spring 96 disposed between the slidable gear and an end wall supporting the shaft. As the slidable gear 94 is moved rearwardly toward the adjacent end wall, the teeth surrounding the periphery of the gear engage an end of the leaf spring 92 to cause the latter to vibrate against the diaphragm 90. The accompanying noise is sustained through the finishing motions of the figure 10 and until the carriage 40 has moved the slidable gear 94 past the leaf spring 92. At this point, the noise and the movement of the figure ceases and as the timer shaft 102 is rotated to its "off" position the groove 126 is freed from the plate 128 and moved upwardly by the spring 106. This releases switch 106 to move out of contact with terminal 110 and thereby shut off motor 80.

Although the game provided by this toy may be such that the movement of the figure is always under the control of the players, it is preferred that additional suspense be provided through the use of a timer mechanism in the circuit. Such a timer mechanism is provided in the selected embodiment and is illustrated at 24 in a position adjacent the center edge of the platform. FIGURES 3 and 7 illustrate the details of the timer mechanism. As noted in these figures, the timer mechanism includes a rotatable knob or dial 100 having a center shaft 102 extending downwardly through a small housing 104, which housing also includes a conventional spring leaf type switch 106 disposed between two terminals 108 and 110 fixed to the housing and electrically connected with the battery powered motor 80. The knob 100 is biased into a raised position by means of the leaf spring switch 106 bearing against the shaft 102 and the lower edge of the knob includes a series of circumferential serrations or inclined cam surfaces 114. Engaging one of the inclined cam surfaces 114 is the free end 116a of a lever 116 which is pivoted at an intermediate portion by means of a pin 118 (FIGURE 3) and bracket 120 fixed to the underside of the main platform. The opposite end 116b of the lever 116 includes an angularly bent section disposed for engagement with an eccentrically mounted cam disc 122 (FIGURE 9) on the main drive shaft. The lever 116 is biased into engagement with the serrations 114 on the timer knob by means of a coil spring 124. As the eccentric cam disc 122 rotates with the drive shaft, it causes the lever 116 to pivot about its axis 118 and such pivotal movement is accompanied by a rotation of the timer knob 100. When the knob 100 is depressed so as to close the switch 106 and complete the electric motor circuit, it is held against upward movement by rotation of the knob relative to its off position. The depressing and rotation of the timer knob 100 causes an annular groove portion 126 in the lower, reduced section 102a of the shaft 102

to become engaged with a complementary opening in a metal plate 128 to thereby lock the shaft 102 against vertical movement. As the timer knob 100 is rotated by the lever 116 into its "off" position, the configuration of the lower end of the shaft 102 is such that it cooperates with the opening in the metal plate 128 to free the shaft and permit upward movement under the biasing action of the leaf spring 106. This permits the leaf spring switch 106 to raise and break contact with the terminal 110, thereby shutting off the motor 80.

Although shown and described with respect to a particular embodiment, it will be apparent that various modifications might be made without departing from the principles of this invention.

What is claimed is:

1. A game for opposing players comprising, a platform having opposite goals, an articulated figure of a man having a head and movable arms, means mounting said figure on said platform for rotation and for movement between said goals, a mask mounted on said head for movement from a normal position concealing said head to a position exposing said head, drive means connected with said mounting means, control means connected with said drive means and operable by the opposing players to move said figure in either of opposite directions between said goals and to turn said figure to face in its direction of movement, said control means being arranged so that a player cannot determine in advance the effect of any particular setting of the control on the drive means, and means responsive to said figure arriving at a position adjacent either of said goals for effecting a raising movement of said arms and a removal of said mask from said normal position so as to expose the face of the figure, whereby each player can operate the control means in an attempt to move the figure to the goal associated with the other player and the player associated with the goal opposite the goal at which the figure raises its arms and exposes its face is the winner.

2. A game for opposing players comprising, a platform having opposite goals, an articulated figure of a man having a head which is at least in part concealed by a relatively movable mask, and said figure including arms movable between a normally lowered position and a raised position, means mounting said figure on said platform for rotation and for movement between said goals, drive means connected with said mounting means and selectively operable to move said figure in either of opposite directions between said goals, means responsive to changing the direction of movement of said figure between said goals for turning said figure to face in its direction of movement, cooperating control means, one associated with each of said goals, which are connected with each other and with said drive means so that the positioning of both of said control means determines the direction in which said drive means will move said figure, manually adjustable timer means for rendering said drive means operative a selectively variable period of time during which

said figure moves on said platform, and means responsive to said figure arriving at either of said goals for effecting movement of said arms from said lowered position to said raised position and back to said lowered position and as said arm returns to said lowered position for effecting movement of said mask to expose said head, whereby the players set their respective control means and take turns setting the timer means to attempt to move the figure to the goal associated with the other player and the player associated with the goal opposite the goal at which the figure raises and lowers its arms and exposes its head is the winner.

3. A game for opposing players, comprising, a platform having opposite goals, an articulated figure of a man having a skeleton head concealed by a helmet, and arms movable between a normally lowered position and a raised position, means mounting said figure on said platform for movement between said goals, a mask mounted on said helmet for movement between a normal position concealing said head and a second position exposing said head, reversible drive means selectively operable for moving said figure in either of opposite directions between said goals, means responsive to a change in the direction of movement of said drive means to turn said figure to face in its direction of movement, cooperating control means for said drive means, one associated with each of said goals and effectively concealed from the other of said goals, each control means being selectively operable by an associated player and cooperating with the other control means for operating said drive means to move said figure in either one of said opposite directions, articulating means responsive to said figure arriving at either of said goals for effecting movement of said arms from said lowered position to said raised position and back to said lowered position and, as said arm returns to said lowered position, for effecting movement of said mask from said normal position to said second position to expose said head, and sound mechanism operative in response to movement of said figure adjacent either of said goals, whereby the players set their respective control means to attempt to move the figure to the goal associated with the other player whereupon the figure raises and lowers its arms and exposes its head and said sound mechanism is operated.

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55 RICHARD C. PINKHAM, *Primary Examiner*.

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