Aug. 1, 1967 L. B. ROSEN 3,333,851

GAME APPARATUS INCLUDING PIVOTAL SLIDEWAY MEMBERS AND CONTROL MEANS FOR MANUALLY DIRECTING THE TRAVEL OF A BALL THEREOVER

Filed April 20, 1964 2 Sheets-Sheet 1

FIG 1

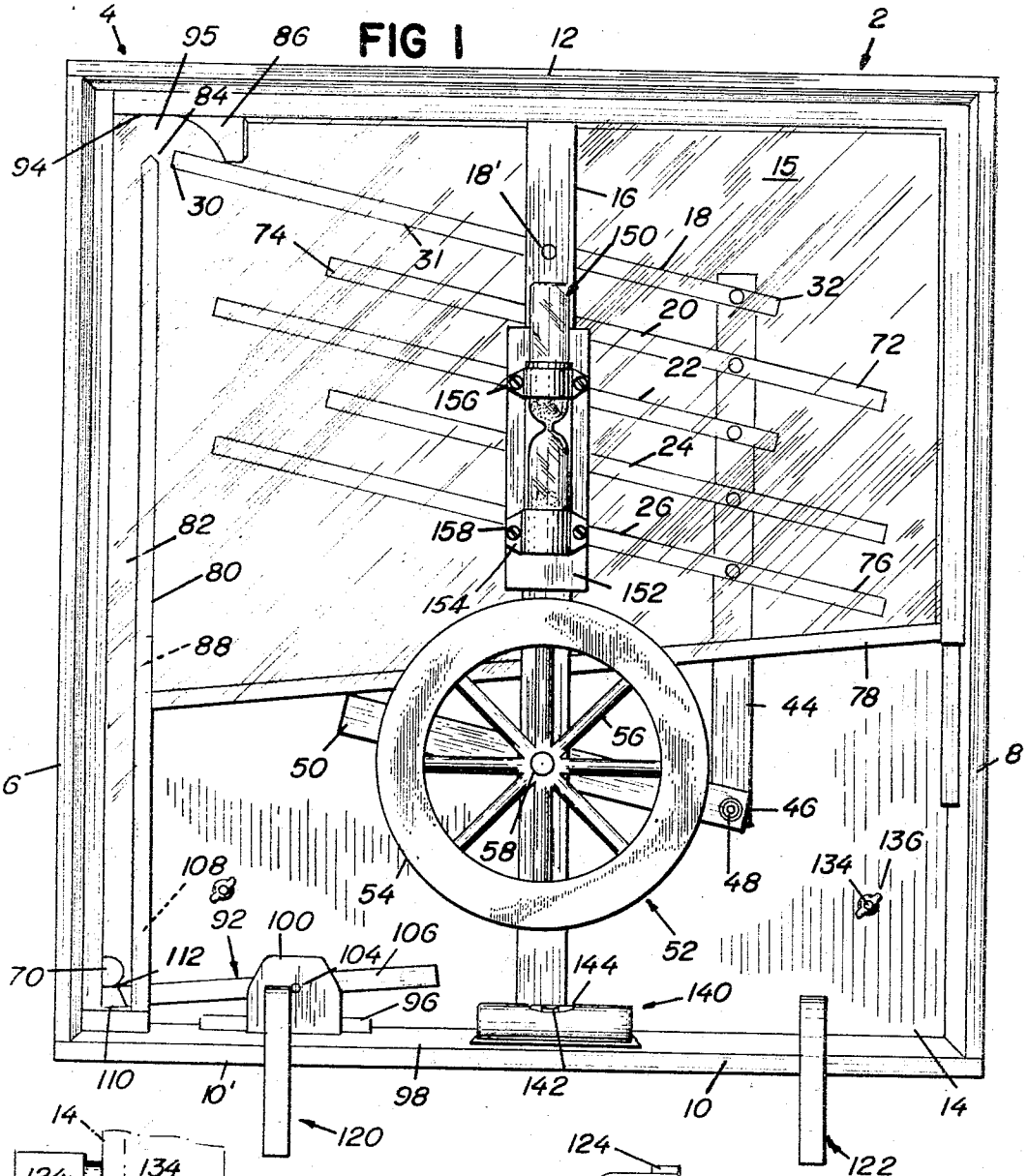


FIG 7

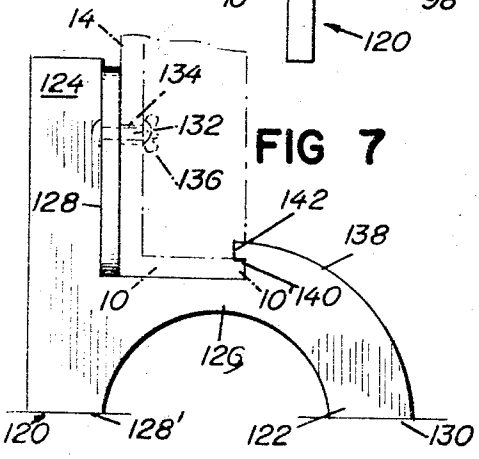
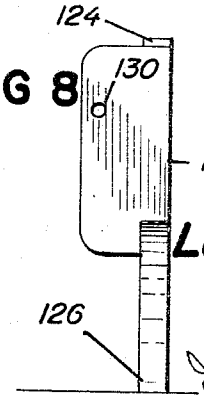


FIG 8



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Filed April 20, 1964 2 Sheets-Sheet 2

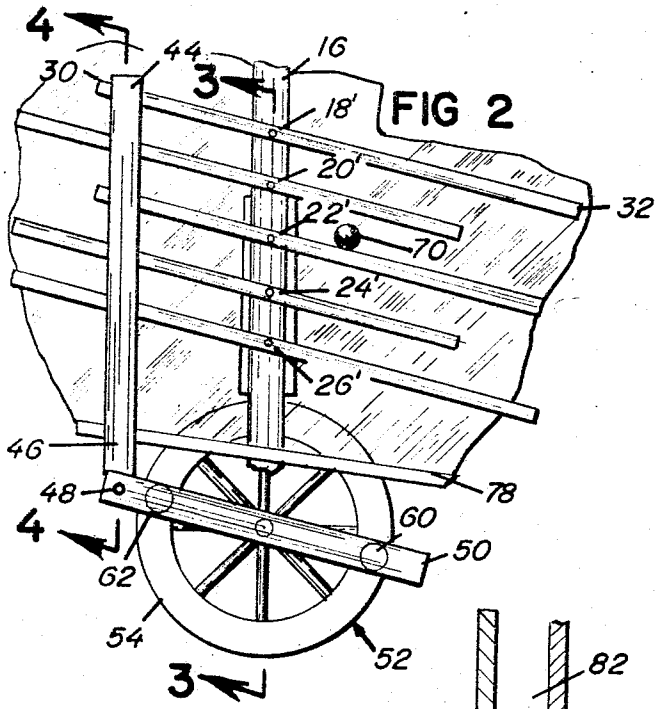


FIG 2

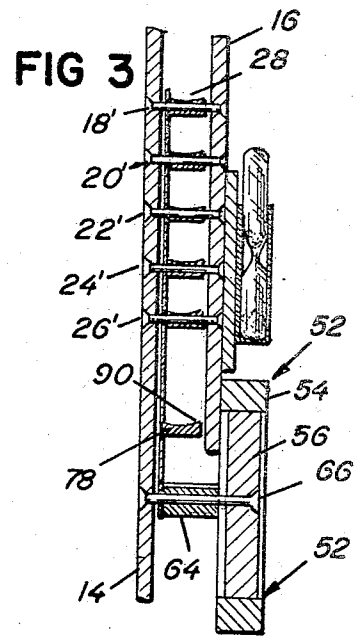


FIG 3

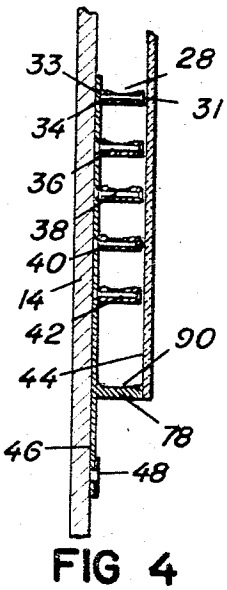


FIG 4

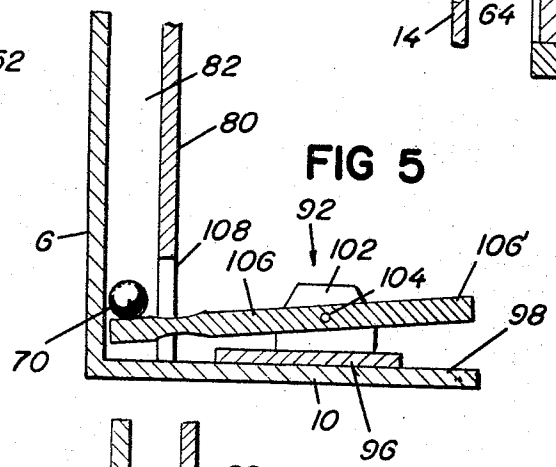


FIG 5

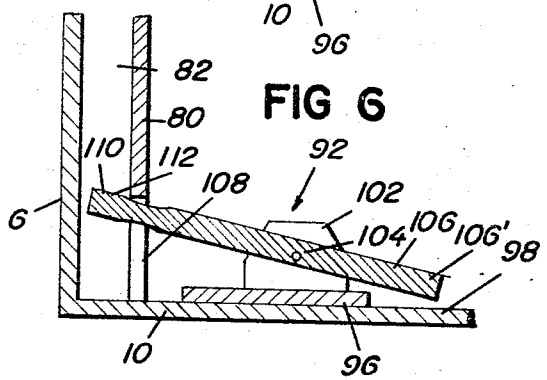


FIG 6

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GAME APPARATUS INCLUDING PIVOTAL SLIDEWAY MEMBERS AND CONTROL MEANS FOR MANUALLY DIRECTING THE TRAVEL OF A BALL THEREOVER

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3 Claims. (Cl. 273—95)

The present invention relates to a new and improved game apparatus and especially to a game of skill which is designed for both entertainment and amusement.

It is a primary object of the present invention to provide a game apparatus of the projected ball type wherein a ball or like projectile is propelled by a hand operated striker in a substantially vertical plane for gravitating movement past or onto successive slideway members projecting from a substantially vertical plane.

A more particular object is the provision of a game apparatus including a housing with a substantially vertical visual playing panel, a manually operated striker upon which a ball means rests, and a control mechanism for selectively controlling the descent of said ball means in the housing.

A still further object of the present invention is the provision of a game apparatus in which a plurality of slideway members in the form of pivotally mounted elongated slideways are maintained in vertically spaced relation to one another and operatively connected to a common operating member which is in turn operatively connected to a control mechanism for moving the slideway members between a first inclined position and a second inclined position wherein a ball means resting on anyone of the slideway members will be gravitated through a vertical plane in a zig-zag path along the successive slideway members or wherein the ball means will gravitate directly downwardly past the successive slideway members to an inclined pathway for return to the hand operated striker.

Consistent with the above general and basic specific objects of the invention, there are certain more detailed objects of the present invention, including the following:

(a) The provision of an amusement or game apparatus werein a guide means is provided at the top of the housing in overlying relation to a defined pathway for guiding the propelled ball means therefrom and onto an operable slideway member disposed at the uppermost portion of the housing between a front and rear wall thereof;

(b) The provision of an amusement or game apparatus wherein a plurality of slideway members are operably connected by a vertically extending connecting arm, and wherein an operating wheel means is operably connected to the vertically extending connecting member such that the slideway members may be moved through an oscillating motion between a first inclined position, a horizontal position and a second inclined position, to propel a ball means resting on any one of the slideway members to the next successive slideway member and downwardly toward the next successive slideway member, etc. through a zig-zag path until the ball means gravitates to an inclined pathway and returns to the defined pathway;

(c) The provision of an amusement or game apparatus wherein the pivotally mounted slideway members are secured to the housing in a vertical disposition so that the player can freely turn said wheel operating means to simultaneously actuate each of the slideway members;

(d) The provision of an amusement or game apparatus wherein the front wall of a housing comprises a transparent material so that the ascent of the ball means through a defined pathway and the descent of the ball means in the housing along the slideway members or past each of the successive slideway members, to an inclined pathway is visible to the player of the game apparatus;

(e) The provision of such an amusement or game apparatus which is free of any complicated mechanical parts and yet relatively light in weight and sufficiently strong to withstand continuous use; and,

(f) The provision of an amusement or game apparatus conforming with the preceding objects of the present invention wherein the same is durable in operation and which can be manufactured from existing materials so as to be available at a profitable commercial price.

The invention resides in the combination, arrangement, and construction of the overall apparatus, as well as in certain sub-combinations and arrangements incorporated therein. The invention will be better understood, and objects other than those set forth above, will become apparent when consideration is given to the following detailed description. Such description makes reference to the annexed drawings presenting preferred and illustrative embodiments of the present invention.

In the drawings:

FIGURE 1 is a front elevational view of an amusement or game apparatus constructed in accordance with the present invention;

FIGURE 2 is a partial rear elevation of a control mechanism and operating assembly for the game apparatus shown in FIGURE 1;

FIGURE 3 is a sectional side view taken along the line 3—3 of FIGURE 2, FIGURE 3 showing an operating assembly and timing indicator associated with the game apparatus of FIGURE 1;

FIGURE 4 is a sectional side view taken along the line 4—4 of FIGURE 2, FIGURE 4 showing the construction of operating slideway means in the game apparatus of FIGURE 1;

FIGURE 5 is a partial front elevational view partially in section of a ball striker assembly as the same appears before a ball means is projected upwardly in the housing of the game apparatus shown in FIGURE 1;

FIGURE 6 is a partial front elevational view partially in section and substantially the same view as FIGURE 5 but presenting the ball striker assembly as the same appears after a ball means has been projected upwardly through the housing;

FIGURE 7 is a side view of a supporting member associated with the housing of the game apparatus shown in FIGURE 1, FIGURE 7 presenting portions of the housing in phantom line; and

FIGURE 8 is a front elevational view of the support member shown in FIGURE 7.

In the preferred embodiment of the present invention described below and illustrated in the drawings, the game apparatus has been generally designated by the reference numeral **2**. The game apparatus comprises an overall housing generally designated by the reference numeral **4** which housing includes a pair of horizontally spaced apart side walls **6** and **8**, a bottom supporting wall **10** extending transversely between the side walls **6** and **8**, and a top wall **12** also extending transversely between the side walls **6** and **8**. Covering the back portion of the housing **4** and extending between the side walls and top and bottom walls is a rear wall **14** thereon. A centrally disposed vertically extending support member **16** is secured at the bottom portion thereof to the base wall **10** and at the uppermost portion thereof to the top wall **12**.

The centrally disposed support member **16** supports a plurality of pivotal slideway members **18**, **20**, **22**, **24** and **26** by means of the pin members **18'**, **20'**, **22'**, **24'** and **26'**

shown in FIGURES 2 and 3. These pin members extend through the upstanding support member **16**, the individual slideway members and then into the rear wall member **14** on the back of the housing **4**.

Since the configuration of each of the slideway members **18–26** is substantially identical, it would appear necessary to only describe one of such members for a sufficient understanding of the overall construction thereof. Thus, the slideway **18** includes an elongated transversely extending member having an upper concave surface thereon designated by the reference numeral **28** extending from one end **30** to the other end **32** thereof. The bottom surface of the slideway member **18** is substantially flat in configuration as are both the ends **30** and **32** and the side walls **31** and **33**. It should be noted that each of the slideway members **18–26** is pivotally secured to the upstanding support member **16** and the upstanding rear wall **14** by the pins **18'–26'**, respectively, passing through each of the slideway members at a point between the central vertical axis and one end thereof. In order to effectively support each of the slideway members, a second pivotal securement is provided by means of the pins **34**, **36**, **38**, **40** and **42** extending through each of the slideway members, respectively, and a first vertically disposed control member **44**, as shown in FIGURE 4. The vertically disposed control member **44** is pivotally connected at the bottom end **46** thereof to a transversely extending second control member **50** by means of a pin connection **48**. The second control member **50** is secured to the upstanding support member **16** substantially intermediate the ends thereof.

A control wheel assembly generally designated by the reference numeral **52** is also supported on the upstanding support member **16** of the housing **4** for rotational movement in a plane parallel to the faces of the housing. The control wheel assembly **52** comprises a rim **54** having spokes or supporting ribs **56** extending radially from the internal periphery of the rim **54** toward a central or hub section **58**. The transversely extending second control member **50** which is pivotally secured at **48** to the upstanding first control member **44** is further secured to the rim **54** of the control wheel assembly **52** at **60** and **62** so that rotation of the wheel **54** in either a clockwise or counterclockwise direction will correspondingly impart a tilting motion to the control member **50**, a reciprocal vertical motion to the control member **44** and an oscillating motion to the slideway members **18–26**.

The control wheel assembly **52** is pivotally secured to the housing **4** by means of a journal member **64** and a shaft **66** extending from the hub portion **58** on the control wheel assembly through the upstanding support member **16** and the rear wall **14**. The journal member **64** extends between the upstanding support member **16** and the rear wall **14** for maintaining proper orientation of the shaft **66**. Since the control member **44** is pivotally attached to each of the slideway members **18–26** by means of the pins **34–42**, the reciprocal vertical movement of the control member **44** imparts a simultaneous alternating inclination or oscillation to the slideway members such that they move from a first inclined position corresponding to the uppermost position of the control member **44** to a second inclined position corresponding to the lowermost position of the control member **44**.

The prescribed movement of the slideway members **18–26** will initially move the ball **70** from the end **30** toward the end **32** of the slideway member **18** along the concave face **28** thereof, and onto the end **72** of the next successive slideway member **20**. Then, by rapid movement of the control wheel **54** to the left, or in other words, in a counterclockwise direction, the slideway **20** will be downwardly inclined toward the side wall member **6** so that the ball **70** will then travel thereon toward the end **74** thereof. By continuing the rapid alternating rotational movements of the control wheel **54** the ball **70** is propelled downwardly along each of the successive slideways in a zig-zag path until the same reaches the

end **76** of the slideway **26**. At this point, the ball **70** will descend onto the inclined wall member **78** extending from the sidewall **8** to an upstanding wall means **80** horizontally spaced from the side wall **6**. Thus, a pathway **82** is defined between the sidewall **6** and the wall means **80** and between the bottom wall **10** and the top wall **12** of the housing. It should be here noted that the upstanding wall means or partition **80** terminates at a point **84** vertically spaced from a ball guide **86** secured to the top wall **12** of the housing.

It will be noted that the end **30** of the uppermost slideway member **18**, as clearly shown in FIGURE 1, will be spaced from the upstanding wall means or divider wall **80** a distance less than the diameter of the ball means **70** when the slideway member **18** is inclined downwardly somewhat toward the wall means **80**. In this position the ball means **70** is retained on the end **30** of the slideway member **18** until the slideway members are pivoted to the position shown in FIGURE 1 by rotation of the control wheel assembly **52** in a clockwise direction. Additionally, it will be seen from the drawings that alternate ends of the slideway members overlie the next lower slideway member whereby the ball means is capable of descending from one slideway member to the next when the slideway members are properly pivoted so that they are alternately inclined in opposite directions. Further, the remainder of the ends of the slideway members, other than end **30** of slideway member **18**, are spaced from the side wall **8** or the wall means **80** a distance greater than the diameter of the wall means **70** in all positions of the slideway members whereby the ball means is capable of bypassing the slideway members when the slideway members are improperly controlled.

The inclined wall **78** extends from the side wall **8** toward the upstanding wall means **80** and cooperates with a slot or hole **88** therein so that the ball **70** can return to the defined pathway **82** after either traversing the zig-zag path over the slideway members **18–26** and down the inclined pathway of the wall **78** having a concave upper face **90** thereon or after descending directly from the end of one of the uppermost slideway members.

It should be here noted that a transparent front wall **15** extends between the side walls **6** and **8**, the top wall **12** and the inclined wall **78** as well as overlying the defined pathway **82**. Thus, the player or operator of the game apparatus can see the complete operation of the various elements and the ascending and descending movement of the ball **70**.

By means of a ball striker generally designated by the reference numeral **92** shown in FIGURES 1, 5 and 6, the ball **70** is projected upwardly through the defined pathway **82**. Because of the arcuate contour **94** on the guide **86**, the ball **70** is guided over the top portion **84** of the wall member **80** on to the uppermost slideway member **18** at the end **30** thereof. Due to the relationship set forth hereinabove between the end **30** of the slideway member **18** and the wall means **80**, the ball **70** will be retained on the slideway member **18** when the slideway members are initially downwardly inclined toward the wall means **80** and until slideway members are pivoted to incline them in the opposite direction. The ball striker **92** comprises a base member **96** secured to the top face **98** of the bottom wall **10** and a pair of upstanding arm members **100** and **102** through which a pivot shaft **104** extends. The ball striker member **106** is pivotally secured to the shaft **104** and extends transversely of the housing **4** in spaced paralled relation to the rear wall **14** thereof. The ball striker **106** extends towards the side wall **6** and passes through a slot **108** in the bottom of the wall member **80** so that the front portion **110**, or the ball engaging part of the ball striker **106**, lies within the pathway **82** for engaging the ball **70** on the top surface **112** thereof.

In operation, the game apparatus is operated by the initial placement of the ball **70** as shown in FIGURE 1

on the top face **112** of the ball striker **106** so that the player's hand or finger is moved downwardly with some degree of force upon the end **106'** of the ball striker **106** thereby projecting the ball **70** upwardly through the path **82**. The ball then engages the guide surface **94** and passes through the space **95** between the uppermost point **84** of the wall **80** and the guide means **86** and then comes to rest on the slideway member **18**.

Through alternation of the direction of rotational movement of the wheel **54**, the slideway members **18–26** are placed in their alternate inclined positions previously described above. The player thereby attempts to maintain the ball in a descending zig-zag path until the same travels downwardly on the slideway member **26** toward the end **76** thereof and drops onto the inclined path **78** for return to the pathway **82** through the slot **88** in the upstanding wall member **80**. However, if the acceleration of the ball **70** down anyone of the slideway members **18–26** is such that the player by movement of the wheel **54** and associated movement of the slideway members to an inclined position, cannot control the ball **70**, then it will descend from the end of any one of the slideway members downwardly past all of the other successive slideway members to the wall **78** and return to the position shown in FIGURE 1. Thus, the operator will have unsuccessfully played the game.

In order to provide a sufficient support for the housing **4** on a flat surface, a pair of supporting leg members generally indicated by the reference numerals **120** and **122**, are releasably attached to the housing **4**, shown in FIGURE 4, so that the player cannot easily tip the entire housing over during operation of the game.

One of the support legs **120** is shown in FIGURES 7 and 8 and comprises a first member **122** having an upstanding section **124** integrally connected with a base portion **126** which rests on a table top or other flat surface by means of the surfaces **128'** and **130** at the rear and front portions, respectively. A second member **128** is integrally connected with the upstanding section **124** of the first member **122** and this second member extends perpendicular to the upstanding portion **124** so that the same may engage the rear wall **14** of the housing as shown in phantom line in FIGURE 7. The second member **128** is provided with an aperture **130** through which passes a conventional securing means such as a bolt **132**. An aligned aperture **134** in the rear wall **14** of the housing is also engaged by the bolt and a wing nut **136** is attached thereto so that the leg **120** is releasably secured to the housing. Attention is directed to the front portion **138** of the first member **126** wherein a notch **140** and overlapping edge portion **142** are provided for engaging the front lip **10'** of the bottom wall member **10** so that the same is secured to the supporting leg member. Since each of the supporting leg members **120** and **122** are of identical construction, the above description of the leg supporting member **120** should be sufficient for a full understanding of the overall construction.

Since the game apparatus **2** of the present invention can be best played when the housing **4** is level, the same is provided with an indicating means **140** which is of the conventional bubble type for indicating a level or inclined position by means of an air bubble **142** seen through the cut-out portion **144**. This level indicator is secured to the upper face **98** of the bottom wall **10** so that the player can see the position of the bubble **142** through the viewing slot **144** and thereby adjust the supporting surface of the housing **4** to the proper position in order to orient the housing in a level position.

If desired, the present invention may be used as a competitive game wherein the initial striking of the ball **70** and the descending zig-zag path taken by the ball for its return to the defined pathway **82** can be timed by a conventional timer designated by the reference numeral **150**. Such a timer is mounted on a supporting surface **152** secured to the upstanding support member **16** by means of the brackets **154** and **156**. There brackets are attached to the supporting surface **152** by means of the screw members **158**. The timer **150** includes a conventional two compartment glass container having a small orifice therebetween for passage of sand or other desirable material so that a predetermined time elapses between the filling and the unfilling of the timer compartments. The timer is removable from the brackets **154** and **156** so that a new sequence can be started merely by removing the timer and inverting the same into the brackets **156** and **154**.

After reading the foregoing description of the preferred and illustrative embodiment of the present invention, it should be apparent that the objects set forth at the outset of the present specification have been successfully achieved.

Accordingly, what is claimed is:

1. A game apparatus comprising, in combination:

(a) a housing including a first side wall, a second side wall, a top wall, a front wall and a rear wall, said front and rear walls extending substantially parallel to each other and ordinarily being substantially vertically disposed when said game apparatus is in use;

(b) ball means within said housing;

(c) a divider wall within said housing spaced from said first side wall between said front and rear walls to define a substantially vertically extending pathway between said first side wall, said divider wall and said front and rear walls and extending toward said top wall;

(d) a plurality of vertically spaced apart slideway members pivotally carried within said housing between said front and rear walls, at least the portion of said front wall overlying said slideway members being transparent;

(e) control means operatively connected to all of said slideway members to simultaneously pivot the same from a first position in which said slideway members are inclined downwardly toward said divider wall to a second position in which said slideway members are inclined downwardly toward said second side wall;

(f) the uppermost of said slideway members including one end spaced from said divider wall a distance less than the diameter of said ball means when said uppermost slideway member is in said first position to retain said ball means thereon until said slideway members are pivoted to said second position by said control means;

(g) alternate ends of said slideway members overlying the next lower slideway member whereby said ball means is capable of descending from one slideway member to the next when said slideway members are properly pivoted alternately from said first position to said second position by said control means and with the remainder of the ends of said slideway members being spaced from said second side wall and said divider wall a distance greater than the diameter of said ball means in all positions of said slideway members whereby said ball means is capable of bypassing said slideway members when said slideway members are improperly controlled;

(h) a return wall extending between said second side wall and said divider wall and said front and rear walls and below the lowermost of said slideway members, said return wall being inclined downwardly toward said divider wall;

(i) said divider wall including an opening aligned with said return wall and communicating with said pathway;

(j) actuator means including portions extending into said pathway below the point at which said opening in said divider wall communicates therewith, said portions being operable to engage said ball means to

move the same upwardly through said pathway; and,

(k) guide means disposed at the top of said pathway to direct said ball means onto said one end of said uppermost slideway member.

2. The combination defined in claim 1 further comprising support means for maintaining said housing in an upstanding relationship during use with said pathway extending substantially vertically.

3. The combination of claim 1 wherein said actuator means includes an actuator member pivotally carried by said housing, one end of said member extending through said divider wall at the bottom thereof for underlying said ball means whereby when the other end of said member is manually struck, said ball means is moved upwardly through said passageway.

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