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[54] **PIN BALL GAME APPARATUS**

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[52] **U.S. Cl.**..... **273/121 A,** 273/124 A, 273/127 R, 273/129

[51] **Int. Cl.** **A63f 7/10**

[58] **Field of Search**..... 273/118 R, 118 A, 118 D, 273/119 R, 119 A, 121 R, 121 A, 121 D, 121 E, 122 R, 122 A, 123 R, 123 A, 125 R, 125 A, 126 R, 126 A, 127 R, 127 D, 129, 124 R, 124 A

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[57] **ABSTRACT**

A pin ball type game in which a ball is propelled by means of a launcher over an inclined playing surface among various types of targets. The game has flipper members which are used to keep a ball in play on the playing surface. Operation of any one of the flippers actuates a sound mechanism which renders simulated motorcycle noise by striking a diaphragm with a plurality of striker elements. The game also has a return channel which allows a ball in play to be directed back for repeat launching, in the form of a reward. The entrance to the return channel has a ball receiving area for holding a number of balls at a time. When a ball in play is hit against a ball in the ball receiving area the ball in the receiving area is knocked into the channel to be directed for launching. In addition, the game has a centrally located bell mounted on the playing surface, which is moved whenever it is struck by a ball to signify an achievement of a score. Mounted on the playing surface away from and generally surrounding the bell are a plurality of guide rails. An imaginary extension of each guide rail defines a path of travel to the bell. A plurality of ball propellers, one for each guide rail, are rotatably mounted adjacent each guide rail for engaging a ball and propelling the ball around the periphery of the propeller along the guide rail. A ball so engaged will be directed to and strike the bell. The movement of the bell is response to the striking thereof by a ball mechanically registers a score.

13 Claims, 7 Drawing Figures

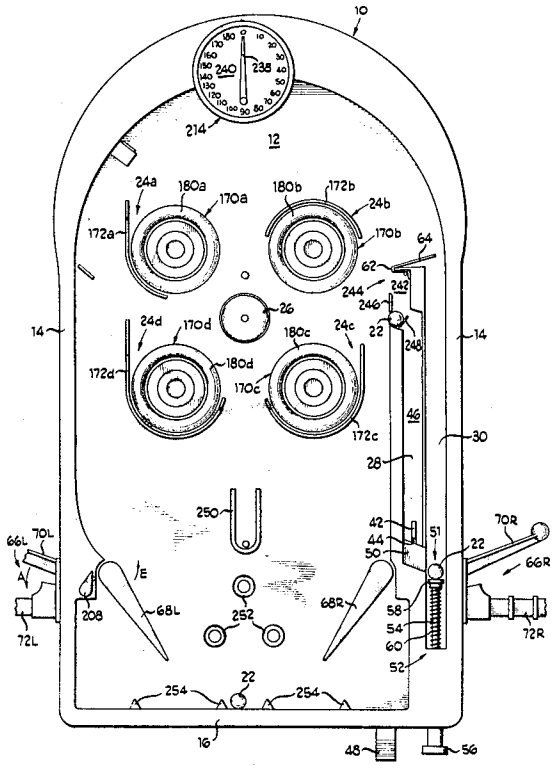
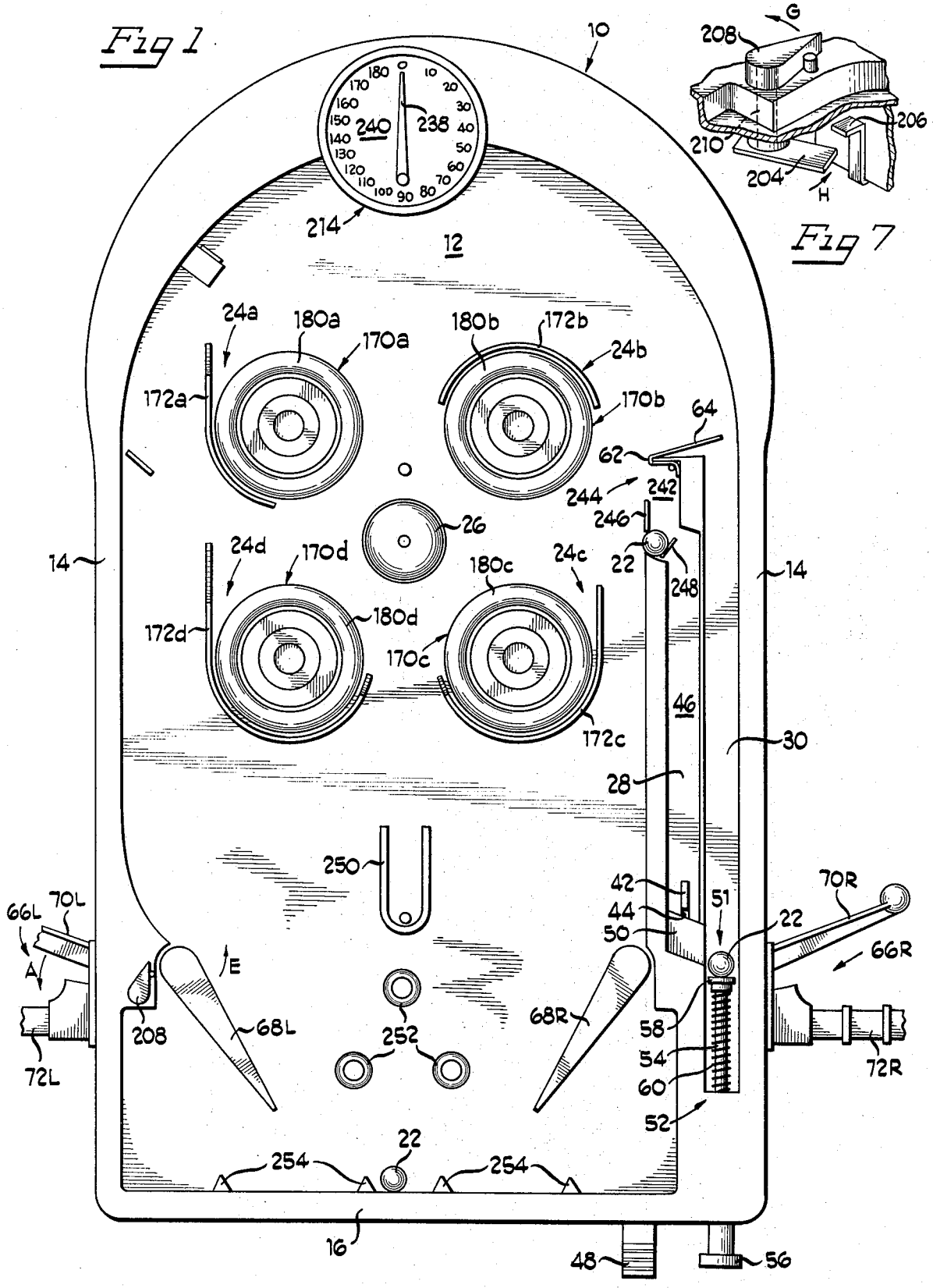


Fig 1


10
12
14
16
180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0
240
238
214
24a
180a
170a
172a
180b
172b
24b
170b
64
62
244
242
246
26
22
248
24d
170d
180d
172d
180c
24c
170c
172c
46
30
28
250
42
44
50
51
22
70R
66R
72R
58
54
60
52
66L
70L
A
E
208
68L
72L
252
68R
254
254
22
48
56

G
208
206
210
204
H

Fig 7

Fig 2

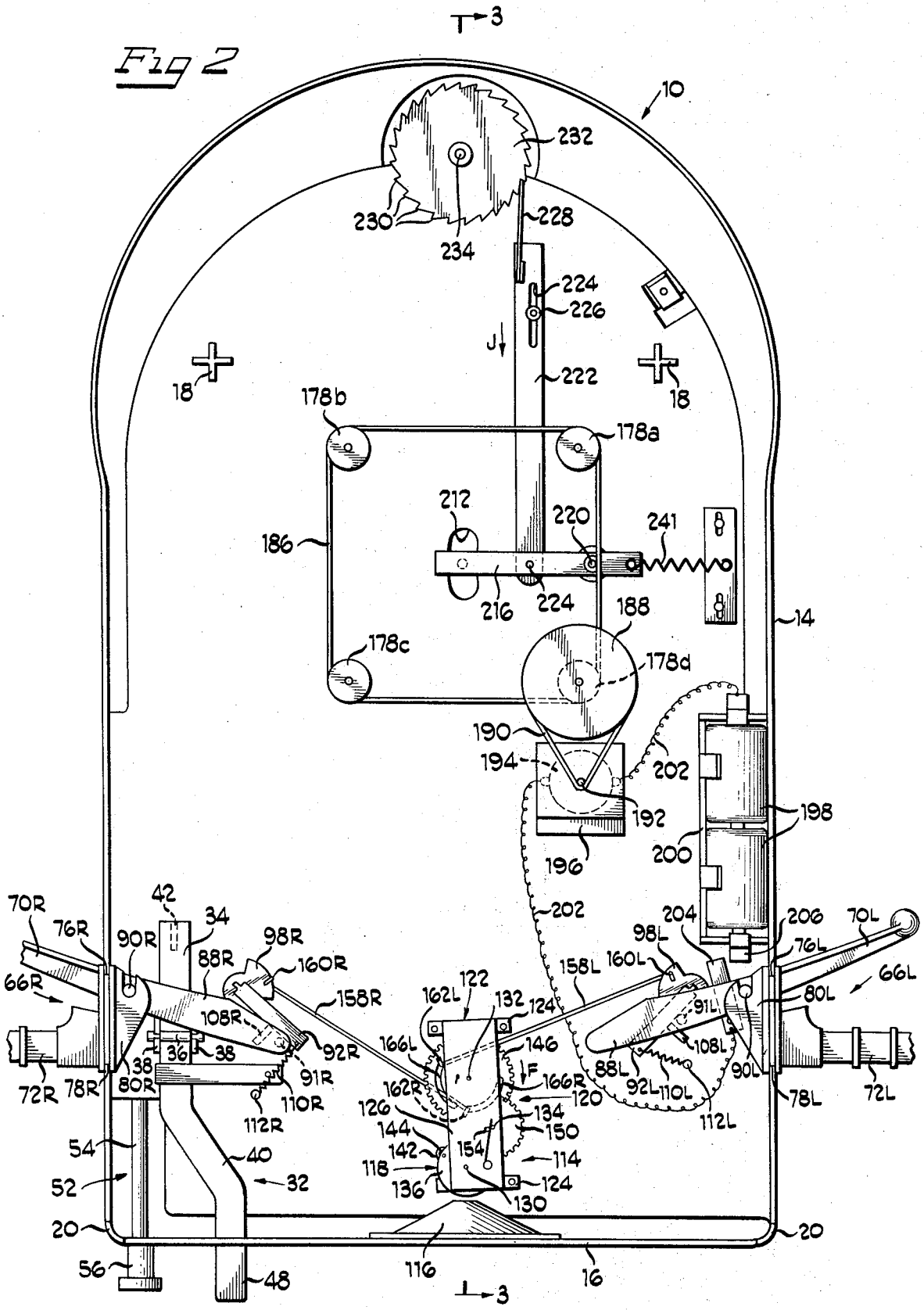

10
232
230
234
228
224
226
222
18
18
178b
178a
212
220
241
186
216
224
188
14
178c
178d
190
194
202
192
198
196
200
202
70R
76R
42
34
90R
98R
88R
160R
66R
158R
108R
92R
72R
78R
38
36
38
80R
91R
110R
112R
54
40
52
32
20
56
48
116
16
20
3
3
162L
122
132
124
166L
146
F
166R
120
162R
126
134
144
150
142
154
118
114
136
124
130
98L
204
206
70L
76L
160L
158L
66L
91L
80L
108L
88L
92L
110L
90L
78L
72L
112L

Fig 7
Fig 4
Fig 6
Fig 5

PIN BALL GAME APPARATUS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to improvements in pin ball type games.

2. Brief Description of the Prior Art

Pin ball games or machines have been known for many years and have enjoyed a great deal of popularity. The usual pin ball game generally includes a housing having an inclined playing surface over which a ball may be propelled, a launching station whereat a ball is positionable preparatory to launching, a spring loaded plunger-type launcher adjacent the launching station for propelling a ball onto the playing surface, flipper members which are selectively actuable for keeping a ball on the playing surface, and some form of scoring means. The scoring means usually include target members mounted on the playing surface and registering means for registering the score everytime a target member is struck by a moving ball.

Some of the prior art pin ball games provide for the generation of noise when a flipper member is actuated. Some other of the prior art pin ball games have a ball return means whereby a ball launched on the playing surface is directed back to the launching station for another "turn." Such a return is considered to be in the way of a reward or advantage.

SUMMARY OF THE INVENTION

The principal object of the present invention is to provide a new and improved pin ball type game. More particularly, it is an object of the present invention to provide a new and improved pin ball type game designed on a "motorcycle" type theme, including related sound and ball propelling devices.

One feature of the invention is the provision of a target member which generally includes an annular guide rail mounted on the playing surface and ball propulsion means rotatably mounted adjacent to and on the inside of the guide rail for momentarily engaging a ball and propelling it around the periphery of said propulsion means against the inner edge of the guide rail. WHen the ball is so engaged, it is directed to other areas of the playing surface for further play.

Another feature of the invention is to provide in the form of a signal means movably mounted on the playing surface for producing a sound whenever a moving ball strikes the signal means. When a ball strikes the signal means it signifies the acheivement of a score which is mechanically registered.

Another feature of this invention is to provide a plurality of target members as above described around and spaced from a single centrally located signal means. Imaginary extensions of the guide rails define paths of travel to said signal means from the ball propulsion means so that whenever a ball is engaged by the ball propulsion means it will strike the signal means which in turn will cause the registery of a score.

Still another feature of the present invention is to provide a channel adjacent the launching station which provides a ball path of travel between the playing surface and the launching station. The channel includes a ball receiving area at the entrance thereto open to the playing surface. The ball receiving area holds a number of balls at a time. A ball held in the receiving area will not be directed down the channel to the launching station until another ball in play strikes the held ball. In this manner the player can be rewarded or given an advantage by being given an "extra turn" so that he can replay the ball so returned.

Still another feature of the present invention is to provide a flipper noise mechanism which simulates the sound of a motorcycle. The noise mechanism generally includes a diaphragm mounted in the housing, a striker support journaled in the housing for rotation relative thereto adjacent the diaphragm, and a plurality of striker elements carried by the support for movement in a manner to strike the diaphragm causing noise thereby. The noise mechanism also has a gear train in the housing which is operably connected to the striker support for effecting rotation thereof and means connecting the gear train with both flippers so that when a flipper is actuated the connecting means causes the gear train to rotate which causes the striker elements to strike the diaphragm. In the preferred embodiment the connecting means includes two arms each of which are connected between a flipper and the gear train. The gear train has lost motion means to engage one end of each arm so that the noise mechanism will produce noise in response to the pivoting of one flipper without causing the simultaneous pivoting of the other flipper.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a top plan view of the game of the present invention;

FIG. **2** is a bottom plan view of the game of the present invention;

FIG. **3** is a partially fragmented vertical sectional view taken generally along the line **3—3** of FIG. **2**;

FIG. **4** is an enlarged fragmented exploded perspective view of a flipper assembly provided for in the game of the present invention;

FIG. **5** is an enlarged fragmented exploded perspective view of a portion of the flipper noise mechanism provided for in the game of the present invention;

FIG. **6** is an enlarged fragmented exploded perspective view of a target member provided for in the game of the present invention; and

FIG. **7** is an enlarged fragmented perspective view of an on-off switch of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to the drawings in greater detail the pin ball game of the present invention includes a housing, generally designated **10,** which has a playing surface **12,** surrounded on three sides by a continuous upright wall **14** and on a fourth side by a base wall **16.** As best seen in FIG. **3,** the housing **10** is designed for positioning on a table or the like in an inclined position by means of a pair of front legs **18** and a pair of base legs **20.** Legs **18** are longer than legs **20** so that the playing surface **12** is sloped downwardly toward the base wall **16.** Playing objects in the form of balls **22** roll down the playing surface amongst target members, generally designated **24,** signal means **26** in the form of a bell, and other components on the playing surface.

The balls **22** are initially held in a storage channel **28** and are fed one at a time into a launching chute **30** adjacent thereto by a release mechanism, generally designated **32** (FIG. **2**). The release mechanism **32** includes a bent rod-like member having a portion rockably mounted over a shaft **36** which acts as a fulcrum and

which is secured between a pair of brace-type brackets **38** fixed underneath the playing surface **12** on the underside of the housing **10.** An angled rod portion **38** underlies the launching chute **30** and part of the storage channel **28.** A generally vertical rod portion **42** (FIG. **1**) protrudes upwardly at the end of rod portion **34** so that the upper end thereof extends through a notch **44** in the floor **46** of the storage channel **28.** A handle portion **48** is exposed on the outside of the base wall **16.**

When a ball **22** is positioned at the base end of the storage compartment **28** overlying notch **44,** it is blocked from rolling into the launching chute **30** by a blocking step **50** which is inclined toward the launching chute and is at a somewhat higher level than the floor **46** of the storage channel. In order to move the ball from the storage channel into the launching chute **30,** the handle portion of the release mechanism **32** is pushed downwardly so that the upstanding rod portion **42** is moved upwardly. Portion **42** then engages the underside of the ball **22** and moves it over the step **50** into the launching chute **30** where the ball is positioned in the base end of the launching chute **30** defining a launching station **51** where the ball is positioned preparatory to launching.

A ball propelling device or launcher, generally designated **52** is provided adjacent the launching station **51** and is in the form of a spring loaded plunger **52** (FIGS. **1** and **2**) reciprocally mounted through the housing. The plunger has a handle portion **56** exposed outside the housing **10** in front of the base wall **16** and a ball engaging portion **58** at the opposite end thereof at the launching station. A coil spring **60** (FIG. **1**) is positioned about the plunger **54.** In order to propel a ball **22** from the launching station **51** onto the playing surface **12,** the plunger is pulled outwardly away from the base **16** and released whereupon the ball engaging end **58** of the plunger **54** strikes the ball and propels it up the launching chute **30** onto the playing surface **12.**

A leaf spring **62** is positioned as best seen in FIG. **1** so that a bent end portion **64** thereof blocks the exit of launching chute **30.** The leaf spring **62** is sufficiently flexible to permit a ball **22** which is propelled by the launcher **52** to pass thereby onto the playing surface **12.** However, the spring **62** prevents a ball which is already on the playing surface **12** from passing back past the spring into the launching chute **30.**

The other manually actuable components of the present pin ball game are a pair of slipper assemblies, generally designated **66L** and **66R.** All of the components of the flipper assemblies **66L** and **66R** are the same. However, for ease of discussion all of the components of the flipper assembly on the right hand side of the housing **10** when viewed in FIG. **1** will be designated and referred to by a number followed by the letter "R." All corresponding components of the left hand flipper assembly will be designated and referred to by the same number followed by the letter "L." When it makes no difference which corresponding flipper assembly component is referred to, the suffix "L" or "R" will not be used.

As best shown in FIGS. **1** and **2,** each flipper assembly **66L** and **66R** has a ball engaging element **68** which overlies the playing surface **12** and a manually manipulatable element **70** which protrudes outwardly from one side of the housing **10** operably connected to element **68.** Also included adjacent portion **70** of each manually manipulatable element **70** is a stationary simulated motorcycle handle **72.** The combination of flipper portion **70** and motorcycle handle **72** simulates a handlebar of a motorcycle, i.e., a handle plus hand brake, the element **70** simulating a hand brake. When element **70** is moved toward handle **72,** element **68** moves to hit a ball onto the playing surface **12.**

As best shown in FIG. **4,** the handle **72L** is received through an opening (not shown) in the housing **10** and is fixed to the wall **14** by receiving portions thereof in two vertical notches **76L** and **78L** formed in the handle **72.** The portion **80** of the handle **72L** which is inside the housing **10** has two relatively thin, flat, spaced apart, parallel ears **82L** and **84L.** Each ear **82l** and **84L** has a slotted opening **86L** (only the opening in ear **82** is shown) which are in registery with each other.

Turning againt to FIG. **4,** the manually manipulatable element **70L** has an interior portion **88L** within the housing **10** and includes a top surface **89L,** a pivot post **90L** extending above and below the portion **88L,** and an upwardly extending guide post **91L.** Portion **88L** is adapted to be received between the ears **82L** and **84L** while the pivot post **90L** is received in the slotted openings **86L.** In this manner, the manipulatable element **70L** is mounted to pivot with respect to handle **72L** about pivot post **90L.**

Elements **70L** and **72L** are operably connected to one another through an L-shaped member, generally designated **92L** (FIG. **4**), which has a horizontal leg **94L** supported on the top surface **89L** of portion **88L** and a T-cross sectioned vertical leg **96L** extending upwardly from the horizontal leg. Fixedly mounted on vertical leg **96L** is a plate **98L** which receives the leg **96L** through a mating T-shaped opening **100L** formed in the plate.

The top of the vertical leg **96** extends above the playing surface **12** through a round opening **102L** formed therein. The portion of the vertical leg **96L** extending above the playing surface is received into the bottom of a hub **104L** having a mating opening **106L** therein. The ball engaging element **68** is force fit onto the hub **104** through a round opening (not shown) formed in element **68.**

When element **70L** is manually moved toward handle **72L** as shown by arrow A in FIG. **1,** element **70L** rotates about pivot post **90L** in the direction shown by arrow B in FIG. **4.** When element **70L** so rotates, post **91L** bears against the side of the horizontal leg **94L** of the L-shaped member **92L** and pushes the horizontal leg **94L** in the direction shown by arrow C in FIG. **4.** While horizontal leg **94L** is being pushed, it slides over the top surface **89L** and causes the vertical leg **96L** to rotate within the opening **102L** in the direction shown by arrow D in FIG. **4.** The rotation of vertical leg **96L** causes the hub **104L** and the connected ball engaging element **68L** to rotate in the direction shown by the arrow E in FIGS. **1** and **4** in a ball striking motion.

Depending stops **108** (FIGS. **2** and **4**) are provided to limit the movement of the flipper assemblies **66.** The L-shaped members **92** bear against stops **108** before actuation of the flipper assemblies.

For each flipper, a coil spring **110** (FIGS. **2** and **4**) is connected between the horizontal leg **94** of the L-shaped member **92** and a post **112** depending from the underside of the housing **10** in order to bias the flipper assemblies **66** to a "retracted" position so that the L-shaped member **92** bears against stop **108.** When so mounted, the spring **110** returns the ball engaging ele-

ment 68 to the position shown in FIG. 1 after actuation.

As mentioned above the exemplary embodiment of the invention incorporates a "motorcycle" theme. This is evident by the design of the flipper assembly 66. Also included is a flipper noise mechanism generally designated 114 which simulates the sound of a motorcycle. The noise mechanism 114 is actuable in response to the actuation of either the flipper assembly 66.

As best seen in FIGS. 2, 3 and 5 the noise mechanism 114 is seen generally to comprise a generally frusto-conical diaphragm 116, a striker assembly, generally designated 118, a gear train, generally designated 120, and a support frame 122 to the inside of the housing 10. The frame structure 122 includes a pair of spaced apart members 126 and 128, preferably fabricated of metal and having aligned openings therethrough to rotatably support three shafts 130, 132 and 134 respectively.

Shaft 130 has mounted thereon the striker assembly 118 which includes a pair of disc-shaped plates 136 and 138 disposed in a relatively fixed, spaced apart relation by pins 140 (FIG. 3). Each of the pins 140 carries a circular washer-like striking element 142 having a centrally enlarged opening 144 through which a pin is received. Consequently each striking element 142 is rotatable relative to the supporting plates 136 and 138 and is also shiftable relative to its supporting pin 140 generally under centrifugal force.

The gear train 120 for effecting rotation of the striker assembly 118 includes a main drive gear 146 fixed on supporting shaft 132 for rotation therewith, a pinion gear 148 on the shaft 134 which also carries a larger gear 150. A gear 152 is mounted on shaft 130 adjacent the striker assembly 118 and is in mesh with the gear 150. Rotation of the main gear 146 is transmitted through the pinion gear 148 and then through the gear 150 to the gear 152 fixed on the striker assembly shaft 130. The two step-down, large to small, gear arrangements steps up the speed of rotation from shaft 132 to the striker assembly 118 on shaft 130.

Shaft 134 is journaled at opposite ends in a pair of aligned elongated slots 154 formed in the metal plates 126 and 128. This allows shaft 134 and gears 148 and 150 to move bodily relative to the other gears in the gear train which affords a free running arrangement for the striker assembly 118 after the main gear 146 has stopped its motion. Such disengagement of the main gear 146 from the pinion 148 permits the striker assembly 148 to function as a fly wheel and continue rotation and striking of the diaphragm until such fly wheel stops rotating. More particularly, the initial movement of the main drive gear 146 causes pinion gear 148 and its associated shaft 134 and gear 150 to move in the slots 154 with gear 150 pressing against the gear 152 on the striker assembly shaft 130. As gear 150 rotates and moves into driving engagement with gear 152, the pinion gear 148 moves out of engagement with the main gear 146 to provide a free running motion for the striker assembly 118 on shaft 130.

The rotation of the striker assembly 118 causes each of the striker elements 142 to strike against the diaphragm 116 in sequence causing a noise thereby. Due to inertia, the rotation of the striker assembly 118 diminishes in speed as it continues to rotate and such reduction in speed affects the timing of the striking engagement of the striker elements 142 against diaphragm 116 resulting in a change in the pitch in the sound produced thereby.

As seen in FIG. 5, spring 155 rotates main gear 146 back to its initial position after it moves out of engagement with pinion gear 148. Repeated and intermitent rotation of the main gear in quick succession will produce rapid changes in speed of operation in the noise mechanism 114 with accompanying changes in pitch so as to simulate the revving of a motorcycle.

In order to operably connect the flipper assemblies 66 with the noise mechanism 114 to drive the main gear 146, two connecting arms 158 are provided, each connecting the noise mechanism 114 with each of the flipper assemblies 66. (FIG. 2). Each arm 158 is a rod-like element having hooked end portions 160 and 162. As best shown in FIG. 4, end portion 160L is received in a hole 164L formed in the plate 98L. As best shown in FIG. 5, end portions 162L and 162R are received in slotted openings 166L and 166R, respectively, formed in the main gear 146.

When the hand manipulatable element 70 is moved toward the handle 72 as shown by arrow A in FIG. 1, the plate 98 rotates in the direction as shown by arrow D in FIG. 4. When plate 98 is so rotated, arm 158 pulls the main gear 146 so that it rotates in a direction shown by arrow F in FIG. 2. This will produce the sound already described.

It should be noted that the slotted openings 166 provide lost motion means so that the actuation of one flipper assembly 66 will not affect the other flipper assembly. That is, the main gear can only be rotated an amount allowed by the slotted openings 166. The end portion 162 of the arm 158 that is not pulling the main gear 146 merely stays in the same position while the gear 146 rotates relative to the stationary arm.

As shown in FIG. 2, each of the target members generally includes a ball propulsion means, generally designated 170, and a guide rail 172, generally around the periphery of the propulsion means 170. For ease of discussion the four target members and their corresponding components will be referred to by the same reference numeral followed by either "*a*," "*b*," "*c*" or "*d*."

Turning now to FIG. 6, each ball propulsion means, 170a (in FIG. 6), includes a fixedly mounted vertical post 174*a* in the form of a hollow cylinder extending above and below the playing surface 12. Each end of the post 174 has an opening 176 therein (only the top opening is shown) through which a shaft 177 is rotatably mounted. A pulley 178 is fixedly mounted on the bottom of the shaft 177 below the post 174 for rotation therewith and a generally circular umbrella-like top member 180 is fixedly mounted on the top of the shaft 177 above the post 174 for rotation therewith (see FIG. 3). Looking at FIG. 6, top 180*a* has a plurality of depending ball pushing tabs 182 extending downwardly from the interior thereof and a downwardly facing opening 184 which is adapted to be press fit onto the top of shaft 177 for rotation therewith. The members 180 are shaped to resemble motorcycle tires, or the like.

A pulley drive belt 186 is wrapped around all the pulleys 178 (FIG. 2) so that all of the members 180 rotate together. Post 174*d* is longer than either 174*a*, *b* or *c* in order to accommodate a longer shaft which has mounted at the bottom thereof another pulley 188. A second pulley drive belt 190 is wrapped around pulley 188 and a drive shaft 192 of an electric motor 194 which is carried in a motor frame 196 attached in the housing 10 (FIGS. 2 and 3). Thus when motor 194 is

turned on. shaft **192** rotates causing the rotation of ball propulsion means **170***d* which, in turn, causes simultaneous rotation of all of the other ball propulsion means.

Motor **194** receives electric power from two batteries **198** carried within the housing **10** in a battery carriage **200.** The electricity generated by the batteries **198** is carried to the motor **194** by means of ordinary wiring **202.** The motor circuit is completed by engaging a movable contact **204** with a fixed contact **206.** Contact **204** is attached to a knob **208** (FIGS. **1** and **7**) by means of a shaft **210** secured therebetween through an opening (not shown) in the housing **10.** As can be seen in FIG. **7** when knob **208** is rotated in the direction shown by arrow G contact **204** will rotate in the direction of arrow H causing contact **204** to engage contact **206** thus completing the motor circuit.

The guide rail **172***a* is in the form of an upstanding rib which is generally curved around the periphery of the ball propulsion means **170***a*. Looking at FIG. **1,** it can be seen that an imaginary extension of each of the guide rails **172***a*, *b* and *d* defines a path of travel to the bell **26.** An imaginary extension of rail **172***c* defines a path of travel toward target member **24***b*.

When the knob **208** is turned to the "on" position, thus causing all the ball propulsion means **170** to spin, any ball launched onto the playing surface **12** which rolls between a ball propulsion means and respective guide rail will be engaged by the depending tabs **182** on the underside of the top **180,** propelling the ball around the periphery of the ball propulsion means against the guide rail **172** and returned outwardly therefrom on another side of the propulsion means. If the ball is propelled against the bell **26,** it will ring to signify an achievement of a score and a score will be mechanically registered as described hereinafter.

The bell **26** is movably mounted within a slot **212** (FIG. **2**) formed in the playing surface **12.** The bell is fixedly mounted on a central support post **213** at the top thereof which extends downwardly through the slot **212** into the interior of the housing. Everytime the bell **26** is struck by a moving ball, it will move relative to the playing surface **12** causing a score registering means, generally designated **214** to register or indicate a score.

Turning to FIG. **2,** it can be seen that a pivoting member is fixedly secured to the bottom of post **213.** The other end of the pivoting member **216** is rotatably secured to the housing at pivot point **220.** A reciprocating member **222** is rotatably secured to the first pivoting member **216** intermediate points **218** and **220** at point **224.** Slot **224** is formed in pivoting member **222** and is adapted to capture pin **226** depending from the top of the housing **10** in order to insure generally reciprocal movement of member **222.**

Secured to the end of the pivoting member **222** is a pawl member **228** in the form of a leaf spring extending therefrom. The free end of the pawl member **228** is in engagement with teeth **230** of a circular ratchet member **232.** Ratchet member **232** is secured to a shaft **234** at one end thereof. Shaft **234** is rotatably mounted within an elongated opening **236** having an indicator **238** secured to the upper end thereof (FIGS. **1, 2** and **3**). Thus, it can be seen that indicator **238** is mounted for rotation with ratchet member **232.**

Indicator **238** overlies a simulated speedometer face **240** having numerals printed thereon (FIG. **1**). The numerals are representative of the total score a given player has accumulated.

When a ball **22** strikes the lower side of the bell **26,** shaft **213** moves within slot **212.** The moving of the bell in this manner causes the pivoting member **216** to pivot about point **220.** The pivoting of member **216** causes member **222** to move in a direction opposite that shown by arrow J which causes the pawl member **228** to positively move the ratchet member **232** one increment of rotation. The rotation of ratchet member **232** causes rotation of indicator **238.** The rotation of the indicator **238** visually indicates a change in the score on the face **240.**

Spring **241** is attached between the end of member **216** and some point in the interior of the housing. After bell **26** has been moved and a score registered, spring **241** returns the bell to its initial position.

WHen a ball **22** strikes the upper side of the bell **26,** shaft **213** moves member **222** in the direction shown by arrow J in FIG. **2.** This movement causes pawl member **228** to engage the next tooth **230** of the ratchet member **232.** Then spring **241** returns the the bell to its initial position and simultaneously causes pawl member **228** to positively move the ratchet member **232** one increment of rotation to indicate a change in score.

Many times a ball which is propelled by a target member **24** so that it strikes the bell **26** will ricochet off of the bell **26** toward a ball receiving area, generally designated **242** (FIG. **1**), formed at the upper end of the ball storage channel **28** which defines an entrance thereto adjacent the playing surface **12.** The ball may also be propelled off of propulsion means **107***b*. One or more balls **22** can enter the ball receiving area **242** through opening **244.** The first ball to enter within the ball receiving area **242** is held between a wall **246** and a smaller detent ridge **248.** That is, it is not available to the player. However, if during the play of another subsequent ball by the same player, that subsequent ball is caused to ricochet against the side of the ball in the receiving area which faces the playing surface, the subsequent ball will knock the previously held ball across the detent ridge **248** into the storage channel **28** for further use by that player. Thus, unlike reward type apparatus provided for in a pin ball game which returns a ball, the structure of the instant invention requires that two balls be directed sequentially to the same general area before the first ball is returned for a second "turn."

Other scoring features are provided near the base of the playing surface **12** and are shown best in FIGS. **1** and **3.** More particularly, a U-shaped rib **250** which is open toward the top of the playing surface **12** is provided to capture a ball therein. If a ball **22** is captured within the U-shaped rib **250** it can signify, depending upon the rules of the game, either a penalty or a reward. For example, it could signify a bonus in terms of points or a multiplying factor in terms of points. As can be seen in FIG. **3,** rib **250** has its leg portions low enough so that a ball received therein can be knocked out into play by another ball.

Bumpers **252** are provided between the ball engaging elements **68** of the flipper assemblies **66** in order to ricochet the ball **22** as it nears the base of the housing **10.**

A plurality of ribs **254** are spaced along the inside of the base wall **16.** Scoring indicia may be provided in the spaces between the ribs **254** to provide scoring means should a ball **22** come to rest between two of the ribs.

The foregoing detailed description has been given for clearness of understanding only and no unnecessary limitations should be understood therefrom as some

modifications will be obvious to those skilled in the art.

We claim:

1. In a pinball type game including a housing having an inclined playing surface over which a ball may be propelled, at least one ball to be propelled on said playing surface, a launcher for propelling a ball onto the playing surface, and target means mounted on the playing surface for striking by a ball, the improvement wherein said target means comprises:

an upstanding, generally circular guide rail mounted on the playing surface; and

rotatably driven ball propulsion means mounted at least in part within the circumference of said guide rail for engaging a striking ball and positively propelling said ball from the periphery of said propulsion means along the inside of the guide rail whereby the ball is directed by the guide rail to other areas of the playing surface.

2. The game of claim 1 wherein the ball propulsion means includes a wheel-like member mounted on the playing surface for rotation about an axis generally perpendicular to the playing surface and spaced thereabove, said wheel member having angularly spaced, downwardly depending ball pushing tabs for capturing and pushing a ball about the underside of the wheel member and drive means operatively connected to said wheel member for continuously rotating said wheel member.

3. The game of claim 2 wherein said guide rail is formed by an annular flange protruding upwardly from the playing surface about a portion of the periphery of said wheel member.

4. In a pin ball type game including a housing having an inclined playing surface over which a ball may be propelled, at least one ball to be propelled on said playing surface, a launcher for propelling a ball onto the playing surface, and target means mounted on the playing surface, the improvement in said target means comprising:

a central signal means movably mounted on the playing surface for producing a sound whenever a ball strikes the signal means signifying the achievement of a score;

a plurality of guide rails mounted on the playing surface away from and generally surrounding said signal means, an imaginary extension of at least one guide rail defining a path of travel to said signal means; and

a plurality of ball propulsion means, one for each guide rail, rotatably mounted adjacent each guide rail for engaging a striking ball and propelling said ball around the periphery of said propulsion means along the guide rail whereby a ball is caused to strike the signal means.

5. The game of claim 4 including means connecting the signal means with score registering means, said connecting means including a pivotally mounted means connected to said signal means and having a pawl member operatively associated with the score registering means, said score registering means including a generally circular rotatably mounted ratchet member having teeth adapted for engagement with the pawl member whereby said ratchet member moves an increment of rotation each time the connecting means pivots, said score registering means further including an indicator secured to the ratchet member for rotation therewith overlying an indicia bearing face for indicating the score.

6. The game of claim 5 wherein the ball propulsion means includes a wheel-like member mounted on the playing surface for rotation about an axis generally perpendicular to the playing surface and spaced thereabove, said wheel member having angularly spaced, downwardly depending ball pushing tabs for capturing and pushing a ball about the underside of the wheel member.

7. The game of claim 6 wherein said guide rail is formed by an annular flange protruding upwardly from the playing surface about a portion of the periphery of said wheel member.

8. The game of claim 4 wherein said playing surface has a slot formed therein and said signal means is a bell captured for movement within said slot.

9. The game of claim 4 wherein at least one guide rail directs a ball to another propulsion means.

10. In a pinball type game including a housing having an inclined playing surface over which a ball may be propelled, at least one ball to be propelled on said playing surface, a launcher for propelling a ball onto the playing surface, and target means mounted on the playing surface, the improvement in said target means comprising:

a plurality of upstanding, generally circular guide rails mounted on the playing surface; and

a plurality of rotatably driven ball propulsion means, one for each guide rail, each mounted at least in part within the circumference of one of said guide rails for engaging a striking ball and propelling said ball from the periphery of said propulsion means along the inside of the guide rail whereby a ball is directed to other areas of the playing surface, at least one of said guide rails directing a ball from the ball propulsion means therewithin toward another one of said ball propulsion means.

11. In a pinball type game including a housing having an inclined playing surface over which a ball may be propelled, at least one ball to be propelled on said playing surface, a launcher for propelling a ball onto the playing surface, and target means mounted on the playing surface for striking by a ball, the improvement wherein said target means comprises:

a guide rail mounted on the playing surface;

rotatably driven ball propulsion means mounted adjacent the guide rail for momentarily engaging a moving ball and positively propelling said ball around the periphery of said propulsion means along the guide rail; and

signal means mounted on the playing surface away from said ball propulsion means for producing a sound whenever a moving ball strikes the signal means signifying the achievement of a score, with an imaginary extension of said guide rail defining a path of travel to said signal means whereby a ball engaged by said ball propulsion means is directed by the guide rail to the signal means.

12. The game of claim 11 wherein said signal means is movably mounted on said playing surface so that said signal means will move relative to the playing surface when struck by a ball, said game including scoring means for registering a score in response to said movement.

13. The game of claim 12 including registering means for registering a score every time the signal means is

struck by a moving ball and means connecting the signal means with the registering means, said connecting means including pivotally mounted means connected to said signal means and having a pawl member operatively associated with the registering means, said registering means including a generally circular rotatably mounted ratchet member having teeth adapted for engagement with the pawl member whereby said ratchet member moves an increment of rotation each time the connecting means pivots, said registering means further including an indicator secured to the ratchet for rotation therewith.

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