United States Patent [19]

Goldfarb et al.

[11] **3,820,788**

[45] **June 28, 1974**

[54] **UP-HILL TOY RACING GAME**

[76] Inventors: **Adolph E. Goldfarb,** 4614 Monaraca Dr., Tarzana, Calif. 91356; **Erwin Benkoe,** 17965 Medley Dr., Encino, Calif. 91316

[22] Filed: **Feb. 21, 1973**

[21] Appl. No.: **334,220**

[52] **U.S. Cl.** ..... **273/86 D,** 124/37, 273/129, 273/DIG. 25

[51] **Int. Cl.** **A63f 9/14**

[58] **Field of Search** ..... 273/86 B, 86 D, 86 F, 129, 273/DIG. 25; 124/34, 37

[56] **References Cited**

UNITED STATES PATENTS

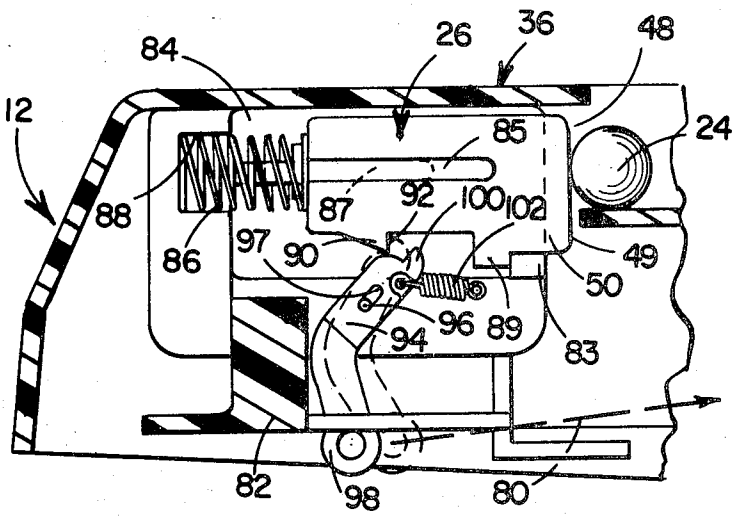
1,289,622	12/1918	Blackshear	124/34 X
1,822,873	9/1931	Brewer	273/86 F
1,958,563	5/1934	Brooker et al.	273/86 D
2,518,897	8/1950	Jones	273/86 D
2,530,555	11/1950	Tobin et al.	273/86 D
3,411,782	11/1968	Wood	273/86 B

Primary Examiner—Anton O. Oechsle
Attorney, Agent, or Firm—Robert M. Ashen

[57] **ABSTRACT**

A competitive racing game apparatus comprising a board having at least two upwardly inclined tracks, racing pieces such as motorcycle figures each movable along one of the tracks, and individual impact-propelling mechanisms associated with each of the tracks and operable selectively and independently from the other impact-propelling mechanisms for effecting incremental movement of the associated racing piece upwardly along its track. Each of the illustrated impact-propelling mechanisms comprises an impact ball and a manually actuating propelling mechanism which propels the ball up along the associated track to impact its racing piece and thereby advance it along the track. After each impact, the ball rolls back down its track to the propelling mechanism for a subsequent shot. Mechanisms to indicate the start of the race and the finish of the race by the winner may also be provided.

2 Claims, 14 Drawing Figures



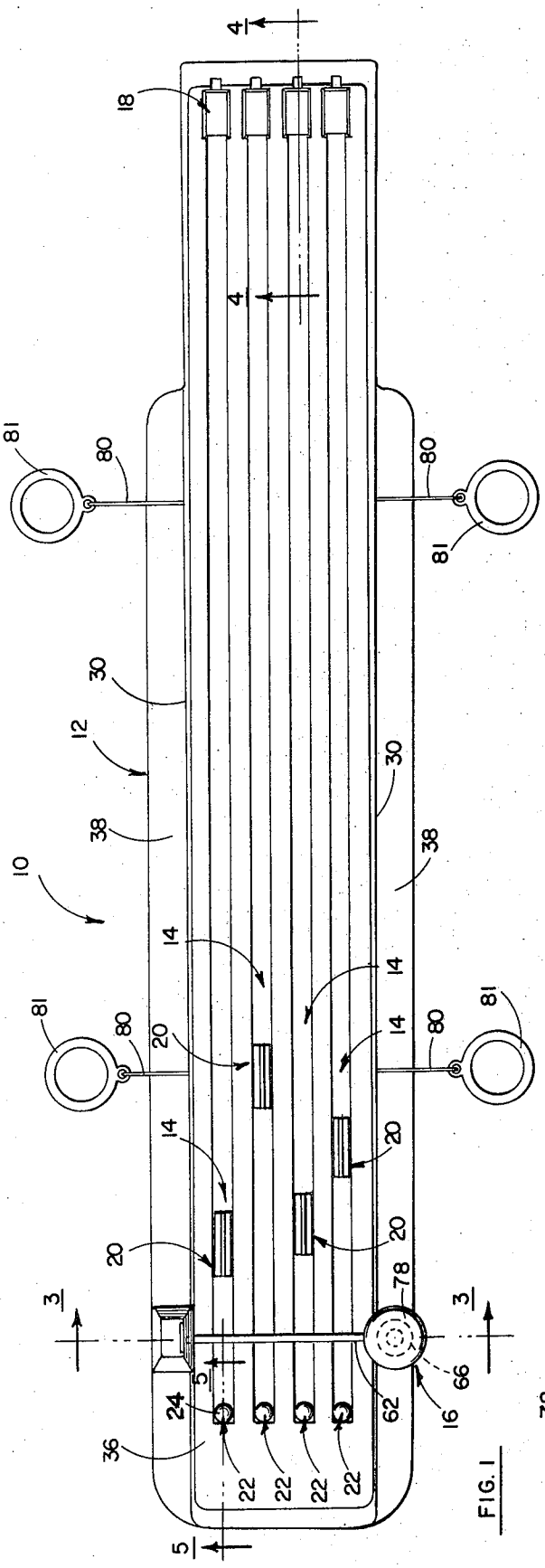

4
18
81
80
30
12
38
10
14
20
3
5
24
22
36
62
16
66
78

FIG. 1

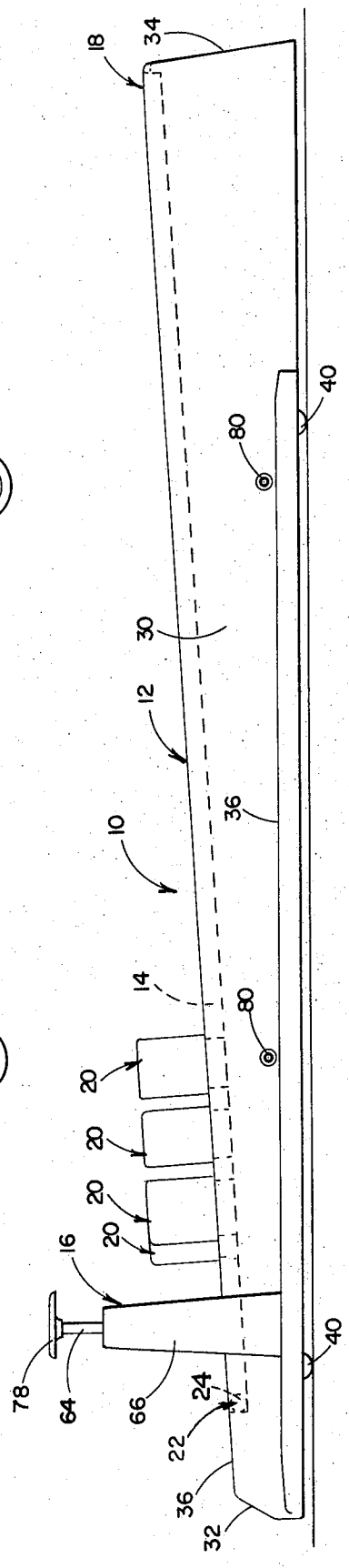

18
34
40
80
30
12
36
10
14
20
16
78
64
66
24
22
36
32

FIG. 2

FIG. 3

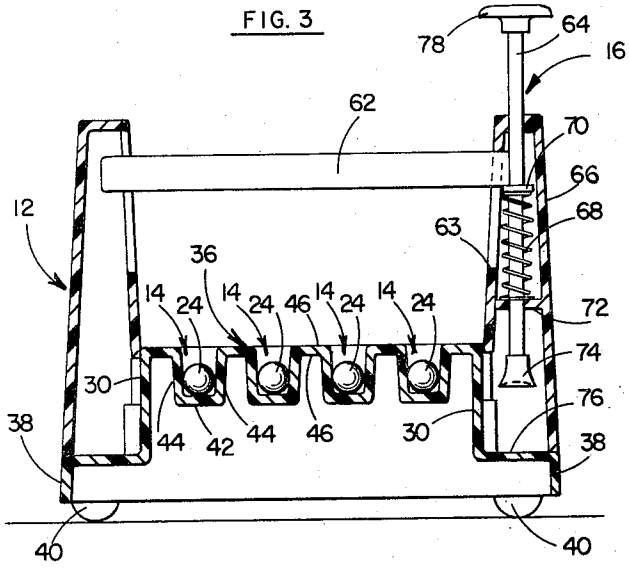


FIG. 4

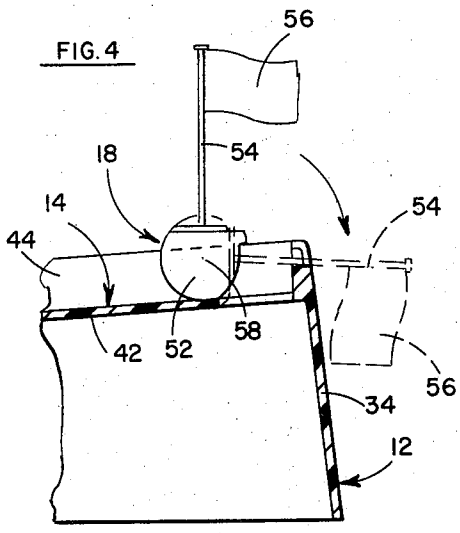


FIG. 5

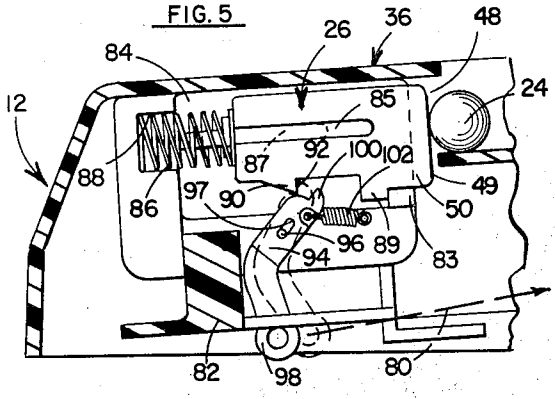


FIG. 7

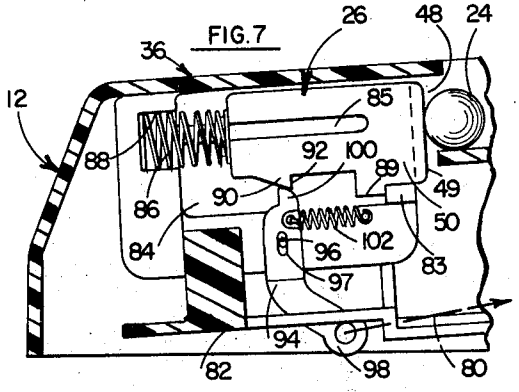


FIG. 6

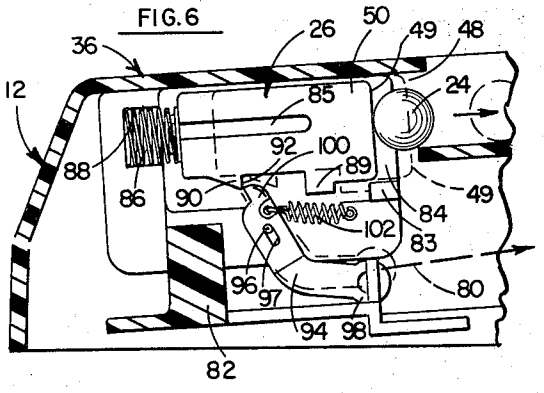
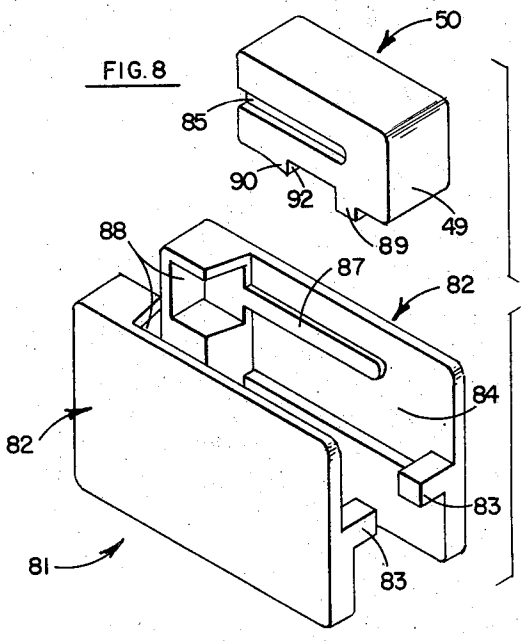


FIG. 8



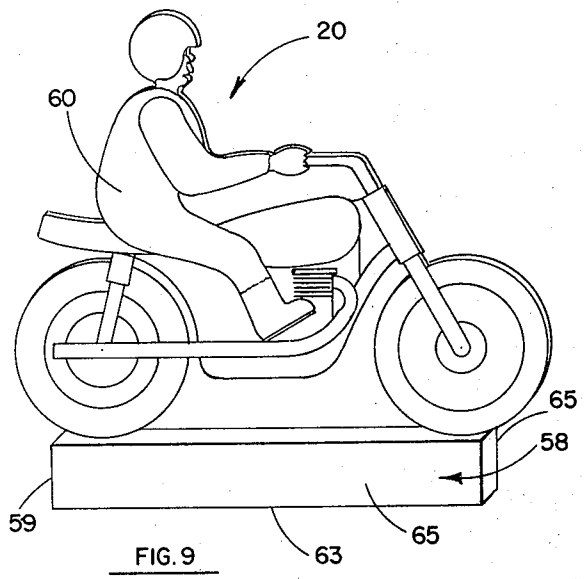


FIG. 9

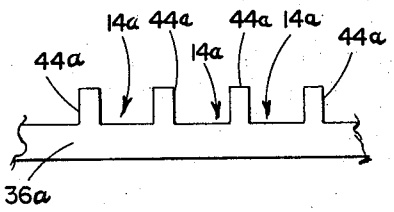


FIG. 9A

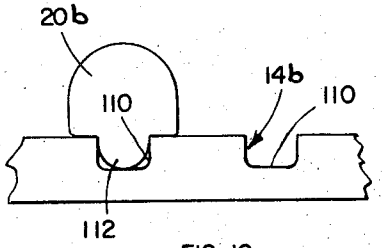


FIG. 10

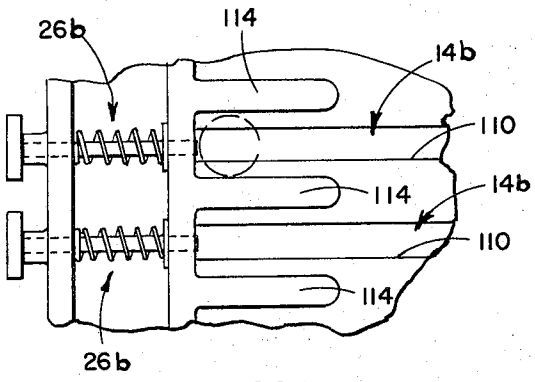


FIG. 11

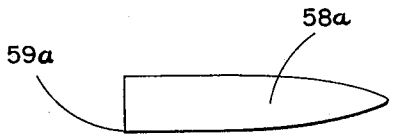


FIG. 12

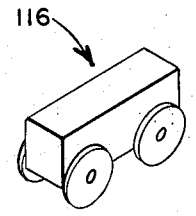


FIG. 13

UP-HILL TOY RACING GAME

Competitive racing means in toys have always been exciting and interesting to children as well as adults. Often, however, in such devices or games there is very little that the participant contributes to the outcome of the race. In other words, each player may start his racing piece in the race, and he may affect its progress to some extent, but the progress of the race may be much more dependent upon the characteristics of the particular racing piece then upon any particular skill which he is able to contribute.

The toy racing apparatus of the present invention combines the excitement and fun of a simple racing toy with the demand for skill and timing in the operation of the device by each of the competing players to produce the maximum result and thus win the race. In particular, in the present device, where a ball rolls back down an incline to be repeatedly shot forward to impact the racing piece and thereby move it along its track, the player must try to re-shoot the sphere as soon as it reaches the shooter. However, if the player operates the shooter too soon (that is, before the sphere has returned to its ready position), the shot will be partially or even totally wasted and valuable time will be lost. Thus, the game may be played and enjoyed by more skillful and sophisticated players, whose timing of the shots may be excellent. On another level, the same game may be enjoyed as much or more so by young children whose skill and timing are much inferior to those of the sophisticated players, so long as such lower levels of skills are generally balanced with regard to the competing children.

In the drawings:

FIG. **1** is a plan view of a competitive motorcycle racing game apparatus which embodies a presently preferred form of the present invention;

FIG. **2** is a side elevation view of the apparatus of FIG. **1**;

FIG. **3** is an enlarged sectional view taken generally along lines **3—3** of FIG. **1** showing the starting gate arrangement of the apparatus;

FIG. **4** is an enlarged sectional view taken generally along line **4—4** of FIG. **1**, showing the finish line arrangement of the apparatus;

FIGS. **5** through **7** are progressive and enlarged views of one of the shooting means of the apparatus;

FIG. **8** is a perspective exploded view of the housing and impact-hammer of one of the shooting means;

FIG. **9** is a perspective view of an illustrative racing piece;

FIGS. **9A** and **10** are schematic cross-sectional illustrations of alternative forms of track configurations of the present invention;

FIG. **11** is a schematic plan view of a modified form of track and propelling means;

FIG. **12** is a schematic plan view of an alternative form of base portion for the racing piece;

FIG. **13** is a perspective view of an alternate form of racing piece.

In brief, the illustrated toy racing apparatus **10** comprises a board **12**, having a plurality of paths or tracks **14** running therealong, and having an automatic starting-gate means or arrangement **16** and flip-up finish indicating means **18**. The apparatus **10** also includes a plurality of racing pieces **20** which each move along one of the tracks **14**, and an individually operable impact-propelling means **22** associated with each of the tracks for selective and independent operation to incrementally moving the associated racing piece along the track towards the finish. Each illustrated impact-propelling means **22** comprises an impact ball **24** and a shooting or propelling mechanism or means **26**. The tracks **14** are arranged in an upward incline toward the finish. There is sufficient frictional contact between each of the racing pieces **20** and its track **14** so that the piece will retain an uphill position once it has been attained. Each propelling means **26** is located at the lower starting end of its track **14** and it propels its impact ball **24** up along the track to impact its racing piece **20**, and thereby move the piece a distance against the force of gravity and friction up the incline and along the track. The ball **24** then rolls back down the track to the propelling means **26** which is again operated to propel the ball, and the process continues until one of the racing pieces **20** reaches the finish line.

Now to consider the illustrated structure in further detail. The board **12** is generally rectangular in configuration, having a pair of upright side walls **30**, a starting end wall **32**, a finish end wall **34**, and a top wall **36**. Along the lower edge of each side wall **30** and extending outwardly therefrom is a generally flat enlongated side base **38**. Feet **40** may be secured to the underside of each side base **38** adjacent either end. The illustrated top wall **36** is formed to provide a plurality of the longitudinal tracks **14** extending lengthwise of the board. This is shown best in FIGS. **1** and **3**. Each track **14** is defined by a recess or groove having a bottom wall **42** and a pair of upstanding side walls **44**. Intermediate strips or portions **46** of the top wall **36** span the distance between upright side walls **44** of adjacent tracks. The top wall **36** is inclined upwardly from a lower first or starting end to an elevated second or finishing end. As may be seen in FIG. **1**, the tracks **14** extend longitudinally of the board and parallel to one another. The tracks **14** stop short of the ends of the board. At the starting end of each track there is an opening **48** that is normally blocked by the face **49** of an impact-hammer **50** of the propelling means **26** (See FIGS. **5–7**). As shown at FIG. **4**, at the forward or finish end of each track, there is mounted a finish indicating means **18** in the form of a tiltable finish member.

Each finish member **18** includes a camming base portion **52**, a upstanding rod portion **54**, and an indicator portion **56** representing a flag fixed to the upper end of the rod portion **54**. The finish member **18** is pivotally mounted at its base portion **52** for rotation about a transversely extending horizontal axis designated **58**. This may be accomplished in a conventional manner as by means of a transversely extending shaft or pin (not shown). The finish member **18** normally assumes the broken line position shown in FIG. **4** where the flag **56** is lowered. The member **18** is moved to the position shown in full line in FIG. **4**, when engaged by the associated racing piece **20**, by rotation of the finish member **18** about its axis **58** due to being struck below the axis by the racing piece **20**. Thus, when one of the racing pieces **20** reaches the finish line, it will operate the associated finish member **18** to clearly indicate to the players the winner of that race.

As shown best in FIG. **9**, each of the illustrated racing pieces **20** comprises a base section **58**, and an upstanding plate section **60**. The illustrated base section **58** is a generally rectangular block slightly narrower in

dimension then the width of a track **14.** The base section **58** has a rearwardly facing, transverse impact surface **59** which receives the impact from the propelled ball **24.** The base section **58** also has a flat smooth bottom wall **63** for sliding along the bottom wall **42** of the track and a pair of side wall surfaces **65** which engage the side walls **44** of the track to guide the piece therealong. The base block **58** and the track should be made of compatible material that will permit the base block to slide along the track, while providing sufficient friction therebetween so that the racing piece will be maintained in the uphill position along the track to which it is moved and it will not have a tendency to slide back down the incline. The plate section **60** of the illustrated racing piece extends vertically upward from the base portion **58,** and has the representation thereon on its opposite sides of a motorcycle and motorcycle rider.

The starting gate arrangement or means **16** is comprised of an elongated horizontally-extending gate or bar **62** secured at one end to a vertically-extending post **64.** The post **64** and bar **62** are mounted at the starting end of the board for vertical movement. As shown in FIGS. **1** and **3,** the starting gate **62** extends across all of the tracks **14** a short distance along the tracks from their starting ends. This provides sufficient space at the starting end of each of the tracks for its racing figure **20** as well as for its impacting ball **24** and to permit a certain amount of initial travel of the ball before it impacts its racing figure. The rod **64** is contained within a generally tubular housing extension **66** mounted at one side of the board. As shown in FIG. **3,** a coil spring **68** is disposed around the rod **64** so that one end of the spring engages an annular flange **70** on the rod while the other end of the spring engages a transverse, horizontal, intermediate wall **72** within the housing extension **66.** The spring **68** thereby urges the rod **64** upwardly to the position shown in FIG. **3.** This positions the starting gate **62** in the elevated position shown in FIG. **3,** which provides ample room beneath the starting gate for the passage of the racing pieces along the tracks. The gate **62** extends through a vertical slot **63** in the side wall of the housing extension **66.** The rod **66** extends down through an opening in the intermediate wall **72.** A suction cup **74** is mounted on the lower end of the rod **72** for engagement with an upwardly facing contact surface **76** formed by the portion of the side base **38** below the tubular housing extension **66.** A setting handle **78** is provided at the upper end of the rod **64** externally of the extension housing **66.** By pushing downwardly on the handle **78** so as to engage the suction cup **74** with the contact surface **76,** the starting gate **62** is brought down to a position which bars passage of the racing figures along the tracks. The suction cup **74** temporarily maintains the starting gate **62** in this lowered position. When the suction cup **74** releases, the rod **64** is impelled upwardly by the spring **68** to open the gate **62,** and the race can begin.

Now the illustrated impact-propelling means **22** may be described in detail. In general terms, each player has a pull cord **80** which operates to actuate the impact or propelling hammer **50** of his propelling means **26** to impart a forward blow to his ball **24** positioned at the lower beginning end of his track.

Referring now to FIGS. **5–8,** each of the illustrated propelling means **26** comprises a generally rectangular housing **81** (made of two halves **82**) having a longitudinally extending recess **84** along its upper end within which the impact hammer **50** is slidably received for front to back movement. The illustrated hammer **50** has longitudinal slots **85** along either side which receive therein longitudinal ribs **87** on the inside of the block side walls. Forward movement of the hammer **50** is limited by a stop section **83** within the housing recess **84.** A depending projection **89** on the underside of hammer engages the stop section **83** to stop further forward movement of the hammer. A coil compression spring **86** is disposed in the recess **84** behind the impact hammer **50** to store and then impart impacting-energy to the hammer. In particular, the rear end of the spring **86** is seated in a receptacle **88** at the rear of the recess **84.** The hammer **50** has a downwardly projection **90** having a forwardly-directed vertical surface **92.** A trigger member **94** is pivotally mounted within the block **82** on a transversely extending horizontal pin **96** that is secured to the opposite side walls of the block. The pin **96** passes through a generally vertical slot **97** through the member **94.** The trigger member **94** is a generally elongated part having a loop **98** at its lower end to which one end of the pull cord **80** is secured. The pull cord **80** extends lengthwise within the board **12** and then passes through a hole in the board side wall **30.** A ring or other graspable handle **81** may be attached to the outer end of the cord for readily pulling the cord. The upper end of the trigger member has a finger **100** adapted to engage the surface **92** on the hammer projection **90,** to thereby draw back the hammer **50** against the spring **86** and then release the hammer so that the spring will drive it forwardly. This sequence is illustrated in FIGS. **5** through **7.** Pull on the cord **80** tends to rotate the trigger member **94** in the counterclockwise direction. A small biasing spring **102** is connected between the upper end of the trigger member **94** and the block **82** to urge the trigger member in the other or clockwise direction. As shown in FIG. **5,** initial pull on the cord **80** rotates the trigger member **94** from the position shown in full line to the position shown in broken line. This in turn moves the hammer **50** rearwardly against the spring **86** to the position shown in FIG. **5.** Continued pull on the cord **80** and rotation the trigger member **94** causes the hammer **50** to reach the end of its travel as shown in FIG. **6.** This distance of travel may be controlled by the length of the side slots **84.** In other words, maximum rearward travel of the hammer is defined by the forward ends of the slots **85** engaging the forward ends of the ribs **87.** The spring **86** is in a compressed condition. Further pull on the cord **80** effects downward movement of the trigger member **94** on the supporting pin **96** (by virtue of the vertical slot **97**) to a position as shown solid in FIG. **6,** from where the finger **100** at the upper end of the trigger member **94** is able to clear the extension **90** of the hammer (as shown in broken line in FIG. **6**). This permits the drive spring **86** to impell the hammer **50** forwardly. Any further pull on the cord does not affect the hammer. When the cord **80** is released, the biasing spring **102** pulls the upper end of the trigger member **94** to the right. As shown in FIG. **7,** the finger **100** of the trigger member engages the extension **90** and the trigger member is shifted downward (by virtue of the pin **96** in the slot **97**). Continued pull by the spring **102** shifts the trigger member enough to permit the finger **100** to clear the projection or extension **90.** The trigger member **94** is thus returned to the ready position shown in solid line in FIG. **5.** Thus, when each player pulls his

cord **80**, this effects the withdrawal and forward propulsion of the hammer **50**. As noted above, the forward end **49** of the hammer extends through the aperture **48** at the start of the associated track **14** so that it will engage and propel forward the ball **24** when that ball is seated at the lower starting end of the track. The ball **24** is thus rolled up the inclined track **14** to impact and thereby advance forwardly along the track the racing piece **20**. Then the ball rolls back down the track to the starting position so that it can be propelled again.

Various modifications may be made in the illustrated structure of FIGS. **1** through **8** without departing from the spirit and scope of the present invention. For example, in FIG. **9**A an alternate form of track is shown. The upper wall of the housing is a generally flat planar wall **36***a* having longitudinally-extending, parallel, upstanding walls or rails **44***a*. A track **14***a* is thus formed between each pair of rails **44***a*. FIG. **10** shows another alternative form of track **14***b* which might be utilized wherein a longitudinally extending groove **110** is provided that receives a downwardly projecting tab **112** on the underside of the racing piece **20***b*. Such a groove **110** would normally not provide sufficient guidance to the **24** ball to return it to the same propelling means **26**. Therefor when utilizing such a configuration of track **14***b*, the game apparatus might be provided with a plurality of balls **24** which could return to any propelling means at random. Each propelling means **26***b* may be provided with some short guides or rails **114** immediately in front of it as shown in FIG. **11**, so that when a ball returns to the bottom of board, it will be seated centrally in front of one of the propelling means **26***b*. Thus, in this variation of the apparatus, a player would not continually shoot one ball along his track, but each player could have one or more propelling means, and he would merely propel a ball whenever one seated itself in front of one of his propelling means.

The form of the racing figure could also be varied to match the particular configuration and arrangement of the track, so long as a rearwardly directed impact surface was provided to be engaged and impacted by the ball. For example, FIG. **12** illustrates one alternative form of base portion **58***a* which is generally bullet-shaped, having a flat transverse rear impact surface **59***a*. Further, the plate section of the racing piece may be varied, or the racing piece may be in three dimensional form rather than the illustrated essentially two dimensional form.

The rollable impact member might take a form other than a sphere or ball. For example, the impact member might be cylindrical shaped or be mounted on wheels or ball bearings. FIG. **13** shows a wheeled vehicle **116** which could ride within and follow the track **14**. It would be propelled up the track to impact the racing piece and it would then roll back down the track. The sphere is preferred however, since it is simple and economical and it would not have orientation problems and it would not tend to become caught going up or down a track.

Alternative propelling means may also be provided, as for example, the simple pull-and-release plunger-type shooter found in pin-ball machines as shown in FIG. **11**. The illustrated and preferred arrangement of propelling means and pull cords has the advantage of permitting a number of players to be comfortably spaced around the board, rather than requiring that all the players be positioned at the lower end of the board to operate a plunger-type shooter.

Another alternative propelling means could comprise an elongated lever arm pivotally mounted longitudinally of the board so that striking one end portion of the arm will pivot it to cause a portion at its other end to impact a ball or other object at the start of an associated track.

We claim:

1. Competitive racing game apparatus comprising:

a board having means defining a plurality of upwardly inclined tracks therealong, said tracks having lower starting ends and higher finishing ends;

a plurality of racing pieces each disposed for movement along one of said tracks;

a plurality of rollable impacting objects for engaging the racing pieces; and

a plurality of individual propelling means on said board adjacent the lower starting ends of said tracks for selective and independent operation to propel the impacting objects up along the inclined tracks to impact the racing pieces and thereby advance them along the tracks, said propelling means comprising a housing, the housing including an impact-hammer movably mounted in said housing for forward and rearward motion, a drive spring mounted in said housing urging said hammer in a forward direction, a pin mounted between the walls of the housing transversely to said direction of motion of said hammer, and a triggering member disposed within said housing for pivotal movement, said triggering member having a first end for engaging said impact-hammer and a second end, said triggering member defining a mounting slot, extending between said first end and said second end of said triggering member and being disposed intermediate said ends, said triggering member being pivotally mounted at said slot upon said pin, means biasing said triggering member such that said pin is initially disposed at the second end extremity of said slot, said propelling means further including a pull cord coupled to said second end, said triggering member having a configuration such that pull on said pull cord will cause the trigger member to pivot into engagement with said impact-hammer and move the latter rearwardly to compress said drive spring, and such that further pull on said pull cord will cause the triggering member to move along said slot to the first end extremity thereof, thus disengaging said first end thereof from said impact-hammer.

2. The invention as set forth in claim **1** wherein the triggering member has an initial position prior to pull of said pull cord such that said first end of said triggering member is adjacent said impact-hammer and wherein said biasing means includes spring means mounted in said housing and coupled to the triggering member to return the triggering member to said initial position after being displaced therefrom.

* * * * *