Sept. 20, 1949. D. M. GILL 2,482,336

RETURN PLAYING-SURFACE GAME APPARATUS

Filed April 2, 1947 2 Sheets-Sheet 1

FIG. 1.

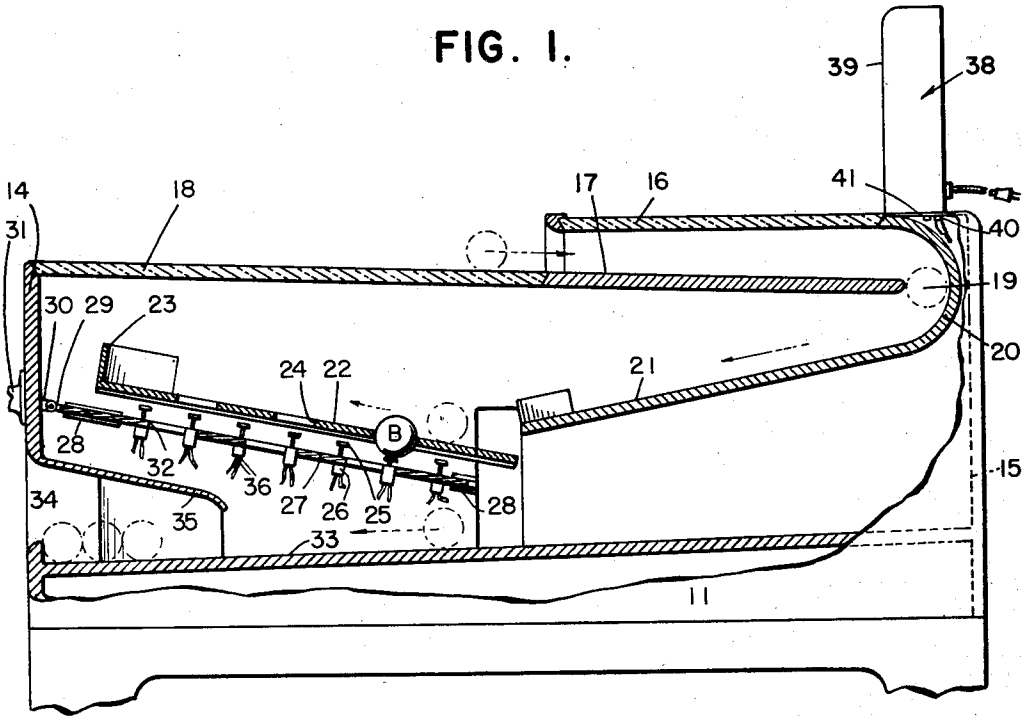
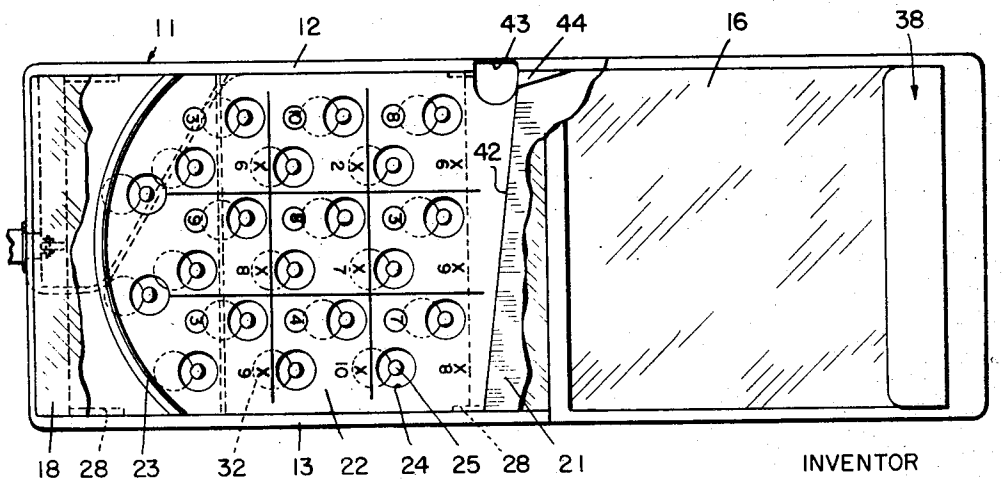


FIG. 2.



INVENTOR

DEAN M. GILL

BY

ATTORNEY

Sept. 20, 1949. D. M. GILL 2,482,336

RETURN PLAYING-SURFACE GAME APPARATUS

Filed April 2, 1947 2 Sheets-Sheet 2

FIG. 3.

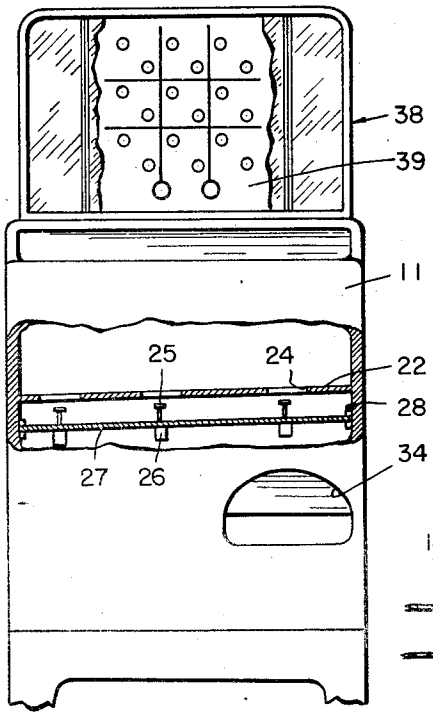


FIG. 5.

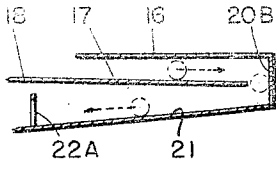


FIG. 6.

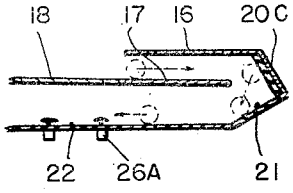
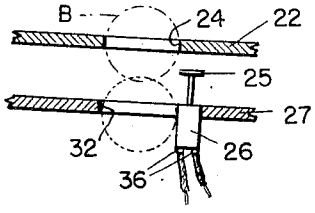


FIG. 4.



INVENTOR

DEAN M. GILL

BY

Bjuer R. Hartmann

ATTORNEY

Patented Sept. 20, 1949

2,482,336

UNITED STATES PATENT OFFICE

2,482,336

RETURN PLAYING-SURFACE GAME APPARATUS

Dean M. Gill, Lakewood Village, Calif., assignor to Homer E. Gillespie, Long Beach, Calif., doing business as Gillespie Games Company

Application April 2, 1947, Serial No. 738,775

3 Claims. (Cl. 273—124)

1

This invention relates to apparatus for amusement games and in particular to games involving the hand rolling of playing balls over a surface to a target area.

One object of the invention is to provide a return playing-surface for a rolling ball game apparatus in which the target area is disposed below the initial playing surface. Another object of the invention is to provide apparatus for a rolling ball game in which it is impossible to divert a played ball into a selected target area. Another object is to provide a rolling ball game in which the target area is disposed below the area of initiating the ball play and visible to the player. A further object is to provide a rolling ball game apparatus in which the balls, failing to lodge in the target area, are returned to the player for subsequent playing. A further object is to provide a return playing-surface game apparatus in which the momentum of the played ball is at least partly dissipated so that all played balls roll onto the target area under substantially the momentum acquired solely by freely rolling down an inclined surface under the force of gravity. These and other objects are attained by my invention which will be understood from the following description, reference being made to the accompanying drawings in which:

Fig. 1 is a side elevational view of a preferred form of my invention, parts being broken away and shown in section;

Fig. 2 is a plan view of the same with parts broken away to show the interior arrangement;

Fig. 3 is an end elevational view with parts broken away to show the internal arrangement;

Fig. 4 is an enlarged fragmentary view of the target area openings and the ball releasing plate including an electric contact switch;

Fig. 5 is a diagrammatic view of a modification of my invention; and

Fig. 6 is a diagrammatic view of another modification of my invention.

Referring to the drawings, the game apparatus is conveniently housed in a cabinet 11 having side panels 12 and 13, a front panel 14, and a rear panel 15. In the preferred form shown particularly in Figs. 1, 2, and 3, the top surface is covered by a plate 16 preferably transparent, extending from the rear toward the front and disposed above the playing surface and covering the playing surface except an open portion near the front where the ball is initially hand rolled. The playing surface 17 is preferably made with a window of transparent material 18, especially in that portion of the playing surface which is directly

2

above the target area so that this is plainly visible to the player. The playing surface 17 extends rearwardly from the front beneath the cover plate 16 to form a constricted throat 19 between the rear edge thereof and a curved inside surface of a connecting member 20 between the rear end of the cover plate 16 and a downwardly sloping free-rolling surface 21. The curvature of the inside surface, as shown, is a cylindrical segment, although this curvature may be distorted from a true cylindrical surface. The throat 19 between the rear edge of the playing surface 17 and the inside surface of the connecting member 20 is constricted to substantially the diameter of the playing balls which are adapted to pass through the throat, and then freely roll down the rolling surface 21 under the force of gravity. The free-rolling surface 21 extends forwardly and downwardly to about the middle of the cabinet where the playing balls may roll onto a target area 22 which is in general a plain surface sloping upwardly from the intersection with the said free-rolling surface, at a slightly smaller angle from the horizontal than the slope of said free-rolling surface, so that the momentum of the playing ball after rolling down the free-rolling surface may, unless pocketed, carry the ball to the extreme end of the target area and against the guard rim 23. The target area is provided with spaced openings or pockets 24 slightly larger than the playing ball. These openings 24 may be arranged in any desired pattern over the target area. The playing balls which drop into the holes 24 are prevented from falling through by the contact member 25 of individual electrical contact switches 26 which are mounted upon a ball discharge plate 27, the said plate being adapted to slide longitudinally in the grooved members 28 attached to the side panels 12 and 13, the sliding movement being controlled by means of the arm 29 actuated by the coin chute bar 30, the coin chute 31 being mounted on the front panel 14 and the bar 30 extending through the panel 14. The ball discharge plate 27 is also provided with openings 32 alignable with the pockets 24 in the target area 22, the pockets and holes being aligned when the plate 27 is moved rearwardly by the actuation of the coin chute bar 30. When the ball discharge plate 27 is thus moved rearwardly by the coin chute bar 30, the balls which are pocketed and resting upon the contact members 25 of the contact switches 26 drop through the openings 32 onto the return floor 33. The return floor 33 is slightly tilted so that the balls will roll toward the front of the cabinet to

the opening 34 where they may be picked up by the player. A guard partition 35 is provided at the top of this opening and extending inwardly so that the switches 26 and the discharge plate 27 may not be reached and tampered with by a player. The terminals 36 of the switches 26 are electrically connected to the annunciator 38 which is conveniently placed at the rear of the cabinet on the cover plate 16 so that its front face 39 may be readily viewed by the player. Signal lights or other annunciating means may be arranged on the face 39 and suitable counting means for summation of the scoring (not shown) may be included in the annunciator device. Terminals 40 are indicated for suitable electrical connection (not shown) with the terminals 36 of the contact switches, and an electric lighting circuit terminal 41 is also provided for the annunciator.

The lower end of the rolling surface 21 is preferably raised slightly above the surface of the target area so that the balls make a small vertical drop when they roll off of the surface 21 onto the target area 22. The forward edge of this rolling surface 21 is cut back diagonally along the forward edge 42, and inclined slightly, so that any ball which is rolled up the target area 22 and down again without dropping into one of the pockets 24 strikes this forward edge 42 and is diverted laterally to the opening 43 at the margin of the target area surface, this hole allowing the "dead" balls to roll off of the target area, drop down to the return floor 33 and eventually roll to the opening 34, where they may be removed and replayed. A diverting partition 44 is provided on the free rolling surface 21 around the hole 43 to divert any ball which may be rolling down the rolling surface at the extreme side position and prevent said ball from dropping into the dead ball hole 43.

While I prefer to use a smooth curved surface connecting member between the playing surface and the level of the target area, the transfer of the playing balls may be effected by non-curved surfaces. For example, in the form shown in Fig. 5, the connecting member 20B consists of a substantially vertical plane wall. If a rolled ball on the playing surface 17 is rolling gently at the rear end, it may simply drop over the end edge of the playing surface 17 and continue its roll down the free rolling surface 21. If the ball is strongly rolled, it may bump against the vertical end wall 20B and then drop down onto the surface 21, and roll down, under gravity plus some initial momentum, to the target area 22A. As shown in this case, for example, the target consists of openings in a vertical wall constituting pockets for the playing balls.

Similarly, in the form shown in Fig. 6, the rolled ball may be transferred from the playing surface 17 to the somewhat short and steep free-rolling surface 21 after bumping against an angularly placed end wall 20C which may be provided with an energy absorbing cushioning surface, the end wall deflecting the ball over the free-rolling surface to the target area 22. Contact switches 26A are shown, for example, on the target area, arranged in a suitable pattern and adapted to be actuated by contact witth the ball. The target area may be level instead of inclined upwardly as shown in Figs. 1 and 3.

As indicated above, the target area may be any combination or arrangement of pockets, contact switches, doors, labyrinths, hazards, grooves, etc., which are commonly used as targets in games of this type.

The advantages of my invention will be apparent. The return of the playing balls to the target area in direct view of the player permits him to see directly the results of a play. The reduction of the momentum of the balls at the start of the free rolling surface to a somewhat constant value, no matter how much energy may have been put into the ball initially, makes the game much more interesting, and increases the life of the apparatus. The inaccessibility of the target area, and the consequent inability to cheat the game by guiding the balls to advantageous pockets or otherwise, eliminates the principal objections to the use of hand rolled games.

I claim:

1. A game apparatus comprising an enclosing cabinet; a relatively flat wide playing surface arranged substantially horizontally near the top of said cabinet upon which surface a playing ball may be rolled, a curved surface connecting member, said playing surface having a forefield portion which is uncovered to permit initiating motion of a playing ball, and a rear field portion having its rear edge ending adjacent said curved surface connecting member, said rear edge forming with said curved surface a constricted throat of slightly greater width than the diameter of the ball through which the played ball must roll; a cover over said rear field arranged to allow the playing ball to roll thereunder; a free rolling surface disposed beneath said rear field and sloping downwardly from the back of said cabinet toward the front over which a playing ball may roll freely under gravitational force; said connecting member having a curved inner surface upon which the playing ball may be transferred by rolling around the rear end edge of said rear field to the rear upper end of said free rolling surface, the inner face of the upper end of said connecting member being substantially continuous with the under surface of said cover; a target area extending forwardly from the forward and lower end of said free rolling surface, said target area having ball receiving pockets and being sloped upwardly from the lower edge of said free rolling surface; and means to discharge the balls in the pockets and deliver them to a position accessible to a player.

2. A game apparatus comprising an enclosing cabinet; a relatively flat wide playing surface arranged substantially horizontally near the top of said cabinet upon which surface a playing ball may be rolled, a curved surface connecting member, said playing surface having a forefield portion which is uncovered to permit initiating motion of a playing ball, and a rear field portion having its rear edge ending adjacent said curved surface connecting member, said rear edge forming with said curved surface a constricted throat of slightly greater width than the diameter of the ball through which the played ball must roll; a cover over said rear field arranged to allow the playing ball to roll thereunder; a free rolling surface disposed beneath said rear field and sloping downwardly from the back of said cabinet toward the front over which the playing ball may roll freely under gravitational force; said connecting member having a curved inner surface upon which the playing ball may be transferred by rolling around the rear end edge of said rear field to the upper rear end of said free rolling surface, the inner face of the upper end of said connecting member being substantially continuous with the under surface of said cover; a target

area extending forwardly from the forward and lower end of said free rolling surface, said target area having ball receiving pockets, and being sloped upwardly from the lower edge of said free rolling surface; a movable discharge plate disposed beneath said target area, said plate being provided with drop-out holes arranged to correspond to the pockets in said target area and being also provided with contact switches arranged between said drop-out holes in a pattern corresponding to said pockets, said plate being movable to alternately position said drop-out holes or said contact switches in alignment with said pockets; coin-released means to move said plate to discharge the balls in the pockets; a ball return floor beneath said discharge plate arranged to collect the discharged playing balls and the unpocketed balls to return them to an opening in said cabinet for delivery to a player; and annunciator scoring means electrically associated with said contact switches and including means adapted to visibly indicate the position and score for each ball in a pocket in contact with one of said contact switches.

3. A game apparatus comprising an enclosing cabinet having front, back, and side panels; a relatively flat wide playing surface arranged substantially horizontally near the top edges of the side panels of said cabinet upon which surface a playing ball may be hand rolled, a curved surface connecting member, said playing surface having a transparent forefield portion which is uncovered to permit hand swinging to initiate a rolling motion of the playing ball, and said playing surface having a rear field portion having its rear edge ending adjacent said curved surface connecting member, said rear edge forming with said curved surface a constricted throat of slightly greater width than the diameter of the ball through which the played ball must roll; a transparent cover over said rear field arranged to allow the playing ball to roll thereunder; a free rolling surface disposed beneath said rear field and sloping downwardly from the back of said cabinet toward the front over which the playing ball may roll freely under gravitational force, a target area, the lower edge of said free rolling surface being raised above the adjoining surface of said target area and being terminated in a diagonal margin across the free rolling surface to form with the margin of said target area a lateral downwardly sloping trough to guide unpocketed balls off the said target area; said connecting memhaving a curved inner surface upon which the playing ball may be transferred by rolling around the rear end edge of said rear field to the rear upper end of said free rolling surface, the inner face of the upper end of said connecting member being substantially continuous with the under surface of said transparent cover; said target area extending forwardly from the forward and lower end of said free rolling surface, said target area having ball receiving pockets distributed thereover, and being sloped upwardly from the lower edge of said free rolling surface, said target area being provided adjacent its lower edge and at a margin of the playing surface with an opening for balls leading to a return ball floor; a movable discharge plate disposed beneath said target area, said plate being provided with drop-out holes arranged to correspond to the pockets in said target area and being also provided with countact switches arranged between said drop-out holes in a pattern corresponding to said pockets, said plate being movable to alternatively position said drop-out holes or said contact switches in alignment with said pockets; coin-released means to move said plate to discharge the balls in the pockets; a ball return floor beneath said discharge plate arranged to collect the discharged playing balls and the unpocketed balls to return them to an opening in said cabinet for delivery to a player; and annunciator scoring means electrically associated with contact switches and including means adapted to visibly indicate the position and score for each ball in a pocket in contact with one of said contact switches.

DEAN M. GILL.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
260,815	Wilcox	July 11, 1882
769,286	Zeip	Sept. 6, 1904
1,612,912	Esmarian	Jan. 4, 1927
2,130,123	Ebert	Sept. 13, 1938
2,138,859	Hubbard et al.	Dec. 6, 1938
2,278,024	Rosenzweig	Mar. 31, 1942