Sept. 18, 1934. C. R. KIRK 1,973,814

GAME APPARATUS

Filed May 23, 1934

Fig. 1.

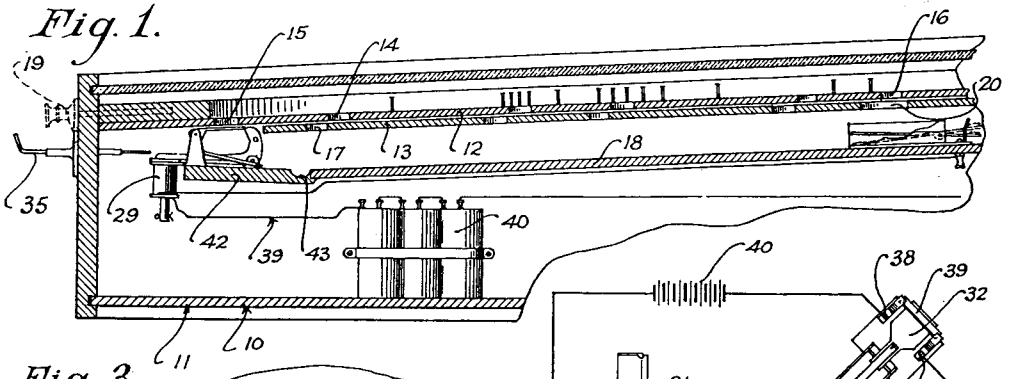






Fig. 2.

Fig. 3.

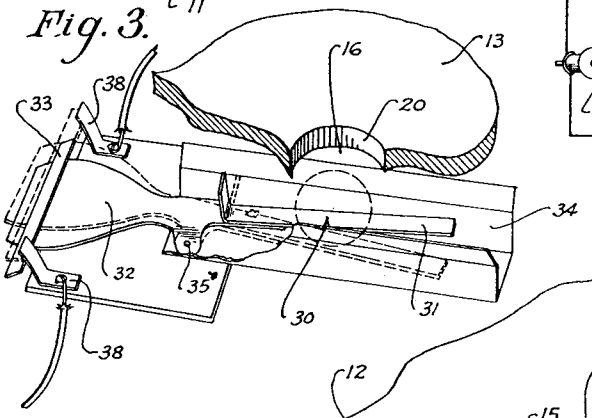



Fig. 4.

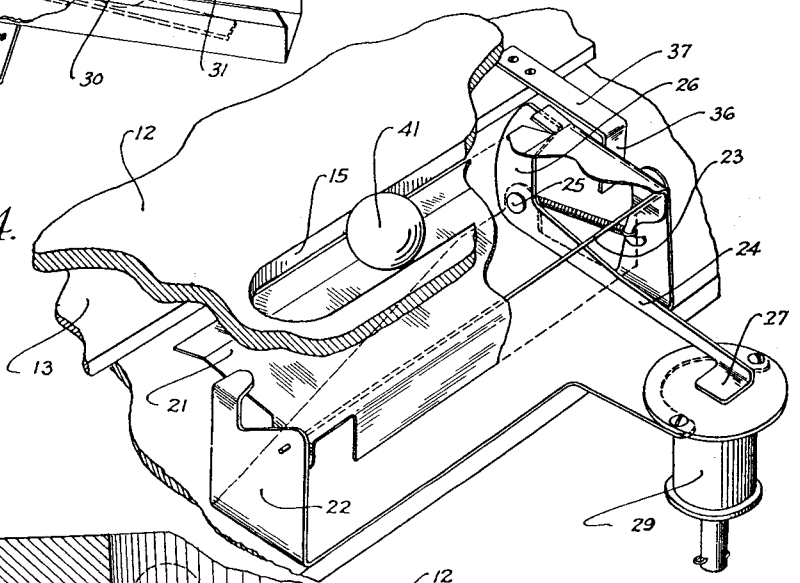
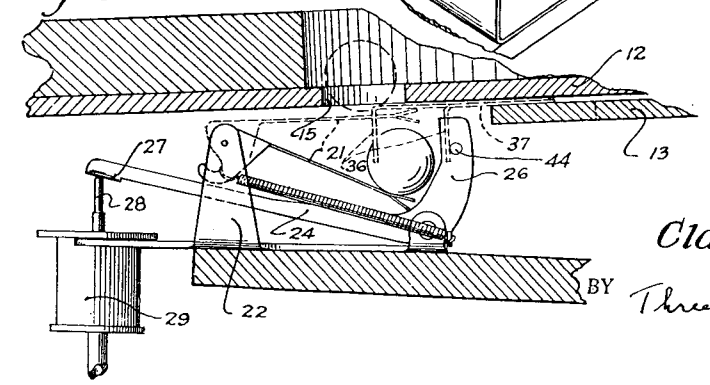



Fig. 5.




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Patented Sept. 18, 1934 1,973,814

# UNITED STATES PATENT OFFICE

1,973,814

## GAME APPARATUS

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Application May 23, 1934, Serial No. 727,153

4 Claims. (Cl. 273—122)

This invention relates to a game apparatus.

It is an object of this invention to provide an improved game apparatus which is relatively simple and inexpensive in construction and efficient in use.

Another object of the invention is to provide a novel game apparatus comprising the combination of: an inclined playing board having a "free play" ball exit opening in the lower end portion thereof and having another ball exit opening formed in the upper end portion thereof; means for propelling balls one at a time onto the upper portion of said playing board so that they may gravitate downwardly thereover into either of said ball exit openings; means normally retaining the balls collecting in said "free play" ball exit openings against return to said propelling means; and means actuated by a ball passing through the second-named and upper one of said exit openings to release said retaining means so as to allow the balls held thereby to return to said propelling means.

Other objects will appear hereinafter.

The invention consists in the novel combination and arrangement of parts to be hereinafter described and claimed.

The invention will be best understood by reference to the accompanying drawing, showing the preferred form of construction and in which:

Fig. 1 is a longitudinal vertical sectional view of a game apparatus showing a preferred form of the invention associated therewith;

Fig. 2 is a diagrammatic view of an electromagnetic circuit embodied in the preferred form of the invention shown;

Fig. 3 is a perspective view, partly in section, showing a circuit-closing device embodied in the form of the invention shown in Fig. 1;

Fig. 4 is a perspective view showing the means for retaining the balls collecting in the "free play" opening in the lower end portion of the inclined playing board, and also showing the means for latching the ball retaining means in ball-retaining position, and the means for releasing the latching means from engagement with the ball-retaining means so as to allow the balls to return to the elevating means and propelling means; and

Fig. 5 is a sectional view illustrating the ball-retaining means and the latching means therefor.

A preferred form of the invention is shown in the drawing, is therein generally indicated at 10, and comprises a cabinet 11 which includes an inclined playing board 12. Arranged below the inclined playing board 12 is a slidable panel 13. Provided in the inclined playing board 12 are ball exit openings 14. Provided in the lower end portion of the inclined playing board 12 is a "free play" ball exit opening 15, and provided in the upper end portion of the playing board 12 is another ball exit opening 16.

Formed in the slidable panel 13 are ball exit openings 17 which are adapted to be registered with the ball exit scoring openings 14 in the playing board 12, when the sliding panel 13 is shifted inwardly (left to right, Fig. 1), thereby dropping the balls through the thus registered scoring openings 14 and 17 onto an inclined runway 18, which is arranged below the sliding panel 13, for return to the elevating means (not shown) by which the balls are elevated one at a time up to, and in front of, the propelling means or plunger 19.

Provided in the upper end portion of the sliding panel 13 is an opening 20 (Figs. 1 and 3) which is normally in registration with the ball-exit opening 16.

Arranged below the sliding panel 13 and normally supporting and retaining the balls which collect in the "free play" exit opening 15 is a pivotal trap 21. This trap 21 is pivotally mounted upon a supporting bracket 22 by means of a rock shaft 23.

Normally latching the trap 21 in a raised position (as in Fig. 4) so as to support or retain the balls held thereby within the "free play" opening or pocket 15 is a pivotal latch member 24. This latch member 24 is pivotally mounted between its ends below the trap 21, as at 25, and has at one end an upwardly extending arm 26 which is adapted to bear against the trap 21 to support the same in raised and ball retaining position.

At its other end the latch member 24 has a lateral extension 27 which projects above the slidable armature or core of a solenoid 29 which is suitably supported below the latch member 24.

Mounted upon a ball trough 34 which is attached to the runway below the sliding panel 13, and beneath the normally registered ball exit openings 16 and 20, is a pivotal circuit-closing member. This member is pivotally mounted between its ends as at 35'; one end portion 31 of the circuit-closing member 30 projecting under the ball exit openings 16 and 20 and the other end portion 32 of the pivotal member 30 carrying a movable contact bar 33 which is adapted to engage and close circuit between a pair of spaced stationary contacts 38 that are embodied in an electro-magnetic circuit 39 (Fig. 2).

*Operation*

Balls are propelled one at a time onto the upper area of the inclined playing board 12, by means of the propelling device or plunger 19, so that they may gravitate downwardly over the playing board 12 and enter into the ball exit opening 16; or into one of the scoring pockets or exit openings 14; or roll down the playing board 12 to the lower end thereof and accumulate in the "free play" pocket or ball exit opening 15, in which latter opening or pocket the balls are temporarily held by the ball-retaining means or pivotal trap 21; whereas the balls lodging in the scoring openings or pockets 14 are held therein by the sliding panel 13 until the latter is shifted inwardly by operation of the coin slide 35, (left to right, Fig. 1) so as to register the exit openings 14 and 17, and thereby drop the balls from the scoring pockets 14 onto the inclined runway 18 for return to the ball elevating means (not shown) and the ball propelling means 19. This shifting movement of the sliding panel 13 is effected by the engagement of the inner end of the coin slide 35 with a depending arm 36 (Fig. 4) of a bar 37 that is attached to the sliding panel 13 at the lower end of the latter.

The balls accumulating in the "free play" opening or pocket 15 are temporarily held therein by the retaining means or trap 21 until the player succeeds in causing a ball to enter the exit opening 16 in the inclined playing board 12, whereupon the said ball drops through the exit 16 and the corresponding opening 20 in the sliding panel 13 onto the end portion 31 of the circuit-closing member 30, thereby pivoting the latter (clockwise, from full to dotted line position, Fig. 3), thus engaging the bridge bar or movable contact member 33 with the relatively stationary contacts 38, and thereby closing the electromagnetic circuit 39 (Fig. 2) which includes the solenoid 29, the stationary contacts 38, the movable contact 33, a suitable source of electric current, such as the battery 40 of dry cells arranged in the cabinet 11, and suitable conductors.

This closing of the electromagnetic circuit 39 to the solenoid 29 causes the armature or core 28 of the latter to be lifted upwardly against the lateral extension 27 of the latch member 24, whereupon the latch member 24 is pivoted (clockwise, Fig. 5), thereby lowering the upwardly extending end portion 26 of the latch member 24 out of latching engagement with the pivotal ball-retaining means or trap 21. The trap 21 thereupon falls or pivots by gravity (into the position of Fig. 5), whereupon the balls that have accumulated in the "free play" opening or pocket 15 fall therethrough and roll off the trap 21 onto the reversely inclined portion 42 of the runway 18 (Fig. 1) into a groove 43 which is formed in the runway 18 and extends transversely thereof and by which the balls are conducted to the ball elevating means (not shown) for return, one at a time, to the propelling means 19.

After the allowed number of balls have been played and have collected in the "free play" pockets 15, and the game is complete, the balls may be discharged from the "free play" pocket 15, and another game played by inserting a coin of proper denomination in the coin aperture of the coin slide 35 and pushing the latter inwardly (left to right, Fig. 1). During this movement the inner end of the coin slide engages the depending arm 36 of member 37 and shifts the panel 13 therewith (left to right, Fig. 1) whereupon the depending portion 36 of member 37 engages a laterally extending pin 44 carried by the arm 26 of latch member whereby the latch member 26 is pivoted (clockwise, Fig. 5) to release the trap 21 whereupon the balls are dropped off the trap 21 onto the inclined portion 42 of runway 18.

While I have illustrated and described a preferred form of the invention, it is to be understood that the same is not limited to the specific devices and structure shown and described but contemplates and includes any similar or equivalent devices that may be embodied in the combination of: an inclined playing board 12 having a ball exit opening 15 formed in the lower end portion thereof and having a ball exit opening 16 formed in the upper end portion thereof; means 21 for temporarily retaining balls in the said first-named and lower exit opening 15; means 24—25—26—27—28—29 for latching the said ball-retaining means 21 in ball retaining position; and means 30—31—32—33—39 actuated by a ball dropping through the second-named exit opening 16 to release said latching means from latching engagement with said ball-retaining means so as to allow the latter to move into ball-releasing position and thereby permit the balls held thereby to return to the ball-elevating and propelling means.

While I have illustrated and described the preferred form of construction for carrying my invention into effect, this is capable of variation and modification, without departing from the spirit of the invention. I, therefore, do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to protect by Letters Patent is:

1. In a game apparatus, the combination of: an inclined playing board having a ball exit opening formed in the lower end portion thereof and having another ball exit opening formed in the upper portion thereof; means for propelling balls one at a time over said inclined playing board so that they may gravitate downwardly thereover and enter into either of said exit openings; means for temporarily retaining therein balls which enter into the first-named and lower one of said exit openings; means for latching said ball-retaining means in ball-retaining position; and means actuated by a ball dropping through the second-named and upper one of said exit openings for releasing said latching means from engagement with said ball-retaining means so as to allow the latter to move into ball-releasing position.

2. In a game apparatus, the combination of: an inclined playing board having a ball exit opening formed in the lower end portion thereof and having another ball exit opening formed in the upper portion thereof; means for propelling balls one at a time over said inclined playing board so that they may gravitate downwardly thereover and enter into either of said exit openings; means for temporarily retaining therein balls which enter into the first-named and lower one of said exit openings; means for latching said ball-retaining means in ball-retaining position; and means including an electromagnetic device actuated by a ball dropping through the second-named and upper one of said exit openings for releasing said latching means from engagement with said ball-retaining means so as

to allow the latter to move into ball-releasing position.

3. In a game apparatus, the combination of: an inclined playing board having a ball exit opening formed in the lower portion thereof and having another ball exit opening formed in the upper portion thereof; means for propelling balls one at a time over said playing board so that they may gravitate downwardly thereover into either of said exit openings; pivotal means for temporarily retaining therein balls that enter into the first-named and lower one of said exit openings; means for latching said pivotal ball-retaining means in raised and ball-retaining position against the force of gravity; and means actuated by a ball dropping through the other of said exit openings for releasing said latching means from latching engagement with said ball-retaining means so that the latter may drop by gravity and permit the balls held thereby to return to said propelling means.

4. In a game apparatus, the combination of: an inclined playing board having a ball exit opening formed in the lower portion thereof and having another ball exit opening formed in the upper portion thereof; means for propelling balls one at a time over said playing board so that they may gravitate downwardly thereover into either of said exit openings; pivotal means for temporarily retaining therein balls that enter into the first-named and lower one of said exit openings; means for latching said pivotal ball-retaining means in raised and ball-retaining position against the force of gravity; and means including an electromagnetic device actuated by a ball dropping through the other of said exit openings for releasing said latching means from latching engagement with said ball-retaining means so that the latter may drop by gravity and permit the balls held thereby to return to said propelling means.

CLAUDE R. KIRK.