March 5, 1940. B. RADTKE 2,192,622

AMUSEMENT APPARATUS

Filed April 9, 1938

Fig. 1.

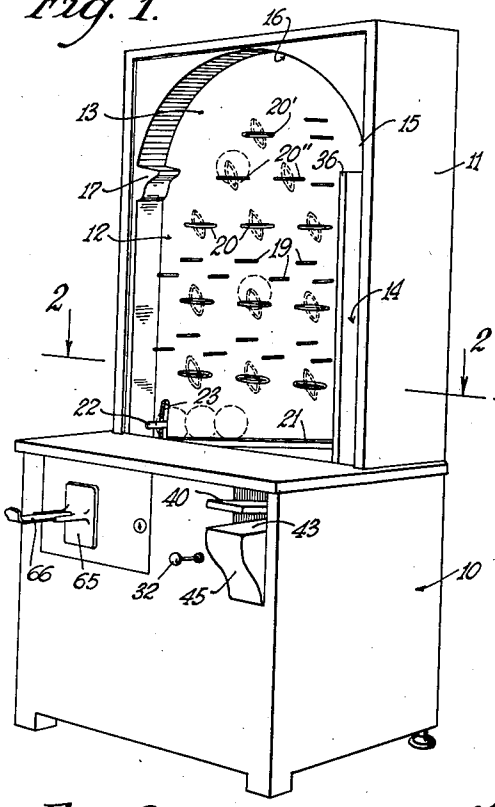


Fig. 3.

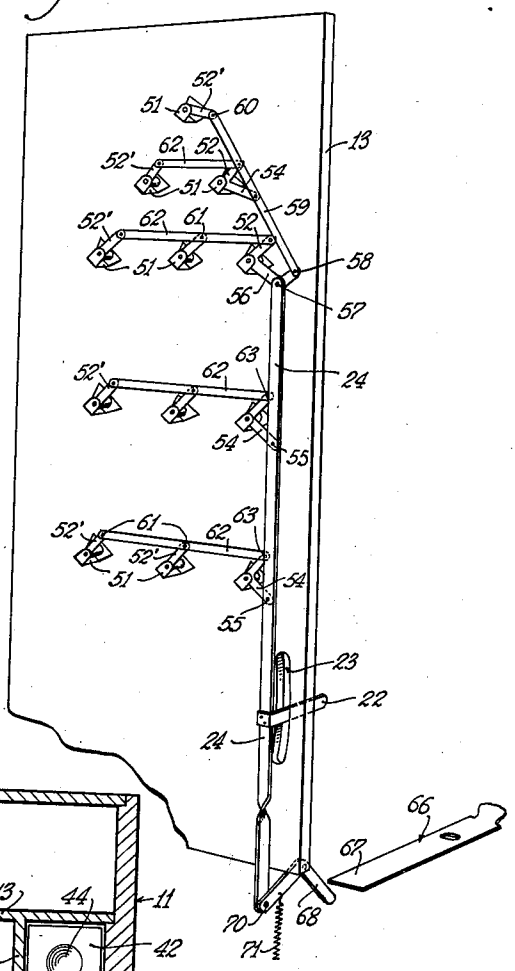


Fig. 2.

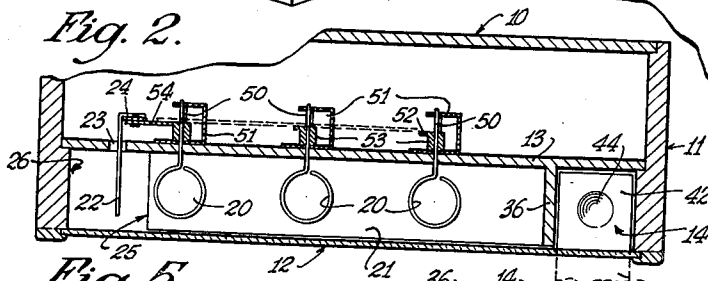


Fig. 4.

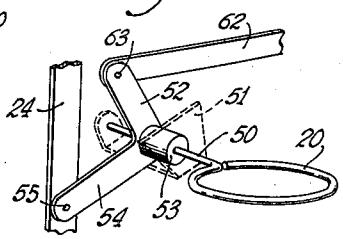
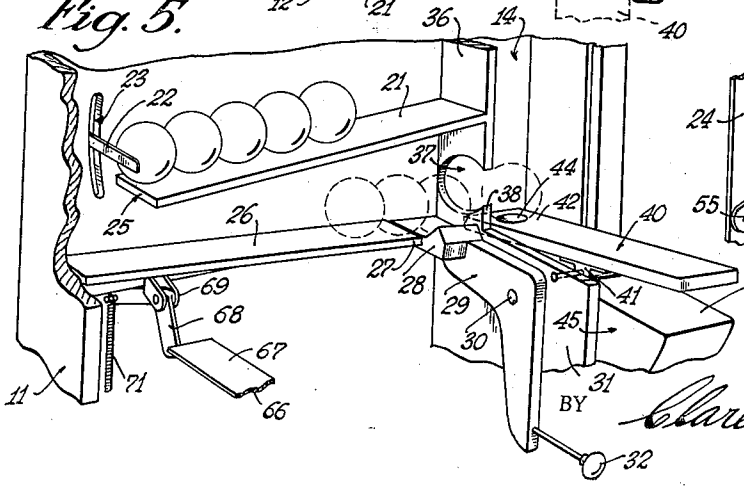


Fig. 5.



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AMUSEMENT APPARATUS

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Application April 9, 1938, Serial No. 201,074

1 Claim. (Cl. 273—121)

This invention pertains to amusement apparatus, and has as its principal object the provision of improved game means of the projected ball type wherein a ball or like projectile is projected by a hand-operated strike in a substantially vertical field for gravitating movement past or into ball receptacles projecting from a substantially vertical panel.

A more particular object is the provision of amusement apparatus including a cabinet with a substantially vertical playing panel and a manually operated strike upon which a ball rests, and which is adapted to be struck sharply with the hand to project the ball upwardly toward the top of the panel so that the ball may gravitate downwardly in a substantially vertical field past or into ball receiving means projecting from the panel in a substantially horizontal plane.

A further object is the provision of improved ball or article receiving means in the form of members pivotally mounted on a substantially vertical panel so as to lie normally in a horizontal plane in position to receive and retain a ball or like article, together with mechanism for pivoting all of the receptacles so that each of the same lies in a substantially vertical plane to dislodge any articles resting therein.

Another object is the provision of manually operable control means arranged to release a predetermined number of balls or projectiles for play and simultaneously move the several ball or projectile receptacles into dislodging position.

A further object is the provision of a game apparatus with a vertically disposed panel, and means for projecting balls toward the top of the panel for gravitating movement before the latter, and a plurality of ball receptacles in the form of ring members each having a radially extended pivot arm seated for pivotal movement in the panel such that the ring members may be turned from a normal horizontal position into a substantially vertical position to spill or eject ball members severally lodged therein.

Yet another object is the provision of lever mechanism connecting the several pivot arms of the receptacles with a common actuating or pivoting means arranged to be operated by a manual control.

Still another object is an arrangement, in a game apparatus of the type characterized, of ball return runways and a cut-off device normally blocking movement of balls in said runways and operably connected with the common actuating member.

A still further object is the provision of a novel ball elevating or feeding mechanism in the form of a manually operable member movable to raise balls one at a time for gravitating movement over a barrier into projecting position.

Other objects and novel aspects of the invention reside in particular details of construction and operation, for example in the arrangement of the vertical panel, the rebound, and the baffle means thereon, and in the construction and operation of the ball projecting strike, all of which will appear hereinafter as the following specification develops in view of the drawing, in which:

Fig. 1 is a perspective view of the preferred embodiment of the game apparatus;

Fig. 2 is a horizontal section looking down along line 2—2 of Fig. 1;

Fig. 3 is a rear perspective of the ball panel showing the receptacle-clearing or tilting mechanism;

Fig. 4 is an enlarged perspective detail of one of the tiltable ball receptacles; while

Fig. 5 is an enlarged fragmentary perspective of the ball returning, feeding and projecting mechanism.

In the embodiment of the invention shown in Fig. 1, there is provided a cabinet member 10 having a substantially vertical section 11 with a transparent or glass front wall 12 and a vertically disposed ball or playing panel 13 arranged behind the transparent panel.

At one side of the ball panel 13 is a vertically extending ball shaft or guideway 14 which is open at its upper end just below one extremity 15 of an arcuate upper end wall block 16 arranged at the top of the panel. At the opposite extremity of the arcuate end wall is an offset rebound projector 17, the purpose of which will appear hereinafter.

Disposed in accordance with a predetermined pattern on the front of the panel 13, are a plurality of ball receptacles 20 of a particular structure to be described in conjunction with the embodiment thereof shown in Fig. 4. Arranged in variously spaced relations on the panel are a plurality of horizontally projecting baffle members or pins 19 adapted to be engaged by a ball or like object gravitating down before the panel to alter the course of such ball or object.

At the lower end of the ball panel is an inclined ball return runway or ramp 21 upon which balls gravitating down the panel are received in alignment for gravitating movement into projecting position. At the lower end of the runway or ramp 21 is a cut-off member or arm 22 projecting through an opening 23 from behind the

panel 13 and attached on the rear side of the panel to a vertically extending shift or actuating rod 24 (Fig. 3) so as to move up and down with the latter, the shift rod 24 being normally in a lowered position so as to dispose the cut-off arm 22 in the path of the lowermost ball on the runway 21 to prevent movement of such ball, and all others aligned behind it, downwardly past the lower end or terminal 25 (Fig. 5) of the runway or ramp 21.

Below the ball storing runway 21 is an oppositely inclined ramp or runway member 26 having its upper end immediately below the terminal 25 of the storing runway 21 and terminating at its lower end 27 opposite an inclined ball seat 28 disposed at the end of the horizontally extended arm 29 of a dog leg or bell crank lever pivotally mounted as at 30 on a portion 31 of the cabinet structure.

The upright ball shaft or guideway 14 is formed by a small upright panel 36 (Figs. 1 and 5 particularly) projected laterally from the panel 13 in spaced relation to the inner vertical surface portion on the right-hand side of the upright cabinet portion 11. At its lowermost extremity, the guideway panel 36 blocks gravitating movement of balls down the lower runway 26 and over the inclined ball seat 28. However, there is provided a ball opening or passage 37 leading into the lower portion of the shaft or guideway 14 at a point above the rolling level of the balls sufficient to leave a small barrier portion 38 which stops the balls so that they rest on the seat 28 and cannot enter the guideway 14.

Means for projecting the balls includes a strike in the form of a paddle 40 pivotally mounted between its ends by means 41 disposed at one side of its mid-point so that the inner end portion 42 will normally gravitate into a lowered position against the top of a table or anvil block 43 in such manner that a ball passing through the opening 37 will be lodged on the lowered end portion, such lodgement being facilitated by the provision of a ball seat or recess 44.

As viewed in Figs. 1 and 5, the striking anvil or table 43 constitutes the top surface of a block 45 projecting from the front of a cabinet section 10 to underlie a similarly projected end portion of the strike 40 so that the latter is accessible to the player to be struck sharply with the hand for the purpose of projecting a ball in the seat 44 thereof up the guideway 14 toward the top of the panel, the ball thereafter gravitating down the vertically extensive chamber formed between the transparent panel 12 and the play panel 13. The ball projected as aforesaid will variously engage the receptacles 20 and baffles 19 projecting out from the face of the panel 13, possibly to become lodged in one of the receptacles 20, there to remain until the receptacle is tilted or moved to dislodge the ball by means hereinafter to be described.

As seen in Fig. 4, a preferred form of ball receptacle comprises an annulus or ring-like member 20 having a radially extending pivot arm 50 projecting through the panel 13 for pivotal mounting in a U-shaped bracket 51 (Figs. 2 and 3 also) secured to the back side of the play panel. These receptacles may readily be formed from a heavy gauge wire or rod having an end portion formed back upon itself to form the ball seat or ring part 20, the diameter of the latter, of course, being slightly less than that of the ball or projectiles used with the apparatus, so that the balls or projectiles will be prevented from passing through the ring portion.

Means for pivoting the several ball receptacles includes a lever or bell crank 52 for each of the receptacles, each bell crank being mounted by means of a hub portion 53 forced or shrunk onto the shaft portion 50 between the sides of the U-shaped brackets 51.

The tiltable ball receptacles are preferably arranged in horizontal rows across the panel 13, there being no limit to the number of receptacles in a given row; however, only the first receptacle in each row is provided with a bell crank lever means 52, all other receptacles after the first having a single lever 52' (Fig. 3).

The bell crank arms 54 opposite the arms 52 on the first receptacle unit in each row are pivotally attached as at 55 (Figs. 3 and 4) to the vertically extending shift rod 24 heretofore mentioned.

In order to vary the placement pattern of the several receptacles so as to make the game interesting, the number of receptacles in the several rows or groups may be varied, as illustrated for example by the topmost receptacle 20' (Fig. 1) or the two receptacles 20'' in the row immediately therebelow.

The tilting means for the several receptacles is, therefore, preferably arranged so that the pivoting mechanism for one receptacle in each group is linked with the actuating or shift rod 24, the tilting mechanisms for the remaining receptacles in each group being linked with the tilting means for the first receptacle of the group for simultaneous tilting operation with the latter.

Beginning with the bottommost row of receptacle-tilting means, as viewed in Fig. 3, this arrangement is illustrated by the connections 55 of the bell crank arms 54 with the shift rod 24. However, in the third higher group, the operating lever means for the first receptacle of that group is in the form of a compound or offset lever 56 pivotally connected at the juncture 57 of one of its pairs of offset arms with the upper end portion of the shift rod 24, the free end portion of one of the arms of the last-mentioned offset pair having pivotal connection as at 58 with the lower end of an operating rod 59 pivotally connected at its upper end 60 with the single lever arm 52' of the solitary topmost receptacle 20'.

The remaining receptacle-tilting mechanisms of each group have their respective single operating levers 52' pivotally attached as at 61 to common operating rods 62 which are in turn pivotally attached as at 63 to bell crank arms 52 of the first receptacle-tilting means in their corresponding rows or groups.

By this arrangement the shift rod 24 is operable to tilt certain receptacles in each group, all of the receptacles in each group being interconnected so as to be actuated together. Thus, the tilting lever mechanism here described makes possible a varied arrangement of the receptacles, the several tilting mechanisms of which are, however, operated by a common actuating member.

A coin control mechanism 65 including a reciprocable slide 66, is mounted in the front of the cabinet section 10, so that the inner end portion 67 (Fig. 3) of the slide control will bear against one arm 68 of a bell crank pivoted in a bracket 69 mounted beneath the lower runway section 26 and pivotally connected as at 70 to the lower end of the shift rod 24 whereby to raise the latter and hence effect, through the aforesaid lever system, a simultaneous tilting or pivot-

ing of all of the receptacles. A spring 71 (Fig. 5) is provided to restore the shift rod 24 to lowered position and hence to project the bell crank arm 68 into position for engagement by the end of the slide or other control 66.

In operating the improved game apparatus, the player will manipulate the control 66, inserting a coin in the same where the control unit is of the coin-freed variety, and push the control inwardly to effect raising movement of the common shift rod 24 to tilt the several ball receptacles or rings and spill or dislodge any balls or projectiles held therein, such balls or projectiles gravitating to the lower region of the playing chamber for alignment on the storing ramp 21 behind the cut-off 22. At the same time, the upward movement of the shift rod 24 raises the cut-off 22 and permits the balls on the ramp 21 to descend onto the lower, oppositely inclined runway 26, the operator holding the control 66 in long enough to permit such action. When the control 66 is released, the spring 71 will restore the shift rod to its lowered position and hence restore the several receptacles or rings to their normal horizontal ball-receiving position. The cut-off 22 is useful particularly when the control 66 is freed by deposit of a coin therein, thus regulating the number of balls one may play on deposit of a single coin.

The balls having thus been freed for alignment on the lower runway 26, the leading or lowermost ball will rest upon the elevating platform 28, bearing against the barrier portion 38 below the opening 37 in the runway wall panel 36. The operator will then depress the handle 32 (Figs. 1 and 5) to pivot the dog leg or bell crank member 29 upwardly and raise the ball on the seat or platform 28 thereof for gravitating movement through the opening 37 and over the barrier 38 onto the ball seat 44 in the normally lowered end of the strike paddle 40. Thereupon the operator, preferably clenching his fist for the purpose, will strike the exposed portion 40 of the paddle vigorously to throw the outer or raised end thereof against the anvil or striking table 43 of the block 45, thus hurtling the ball in the seat 44 upwardly in the guideway 14. If the ball is given adequate momentum it will hug the arcuate upper wall portion 16 at the top of the chamber and strike the rebound block 17, and it will be observed in Fig. 1 that the striking surface of this block is tilted downwardly at a pitch adequate to cause rebound of a ball or projectile substantially out toward the center of the upper playfield or region. On the other hand, the ball may begin its downward movement shortly after leaving the upper discharge end of the runway, but in either case the ball ultimately will gravitate down past the several baffle members 19 and the receptacle rings 20, possibly to become lodged in one of the latter.

The ball receptacles may be given scoring values so that after a predetermined number of balls have been played, an objective score may or may not be achieved by the player dependent upon his skill in projecting the ball for downward movement over various sections of the playfield.

Attention is called to the fact also that the pivotable ball receptacles may be variously arranged in the chamber or playfield to vary the degree of skill required to achieve high scoring values in one or another model of the game, and such an arrangement is made possible by the receptacle-clearing or tilting leverage system heretofore described in view of Fig. 3.

The objects of the invention may be accomplished by other forms of construction than that specifically described for purposes of illustration herein, and it is therefore a condition of the present disclosure that the invention is not to be limited to any such details of form, location, or operation, except as may be expressuy provided in the appended claim.

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

Amusement apparatus including mean providing a substantially upright ball chamber, means for projecting balls toward the upper region of said chamber for gravitating descent therein, and a ball receptacle in the form of a ring arranged in said chamber for pivotal movement about a horizontal axis radial thereto into an out of horizonal ball receiving position, said receiving ring being normally disposed in horizontal ball receiving position, together with mechanism for pivoting said ring into a position to discharge a ball lodged therein.

BRUNO RADTKE.