

Nov. 11, 1952

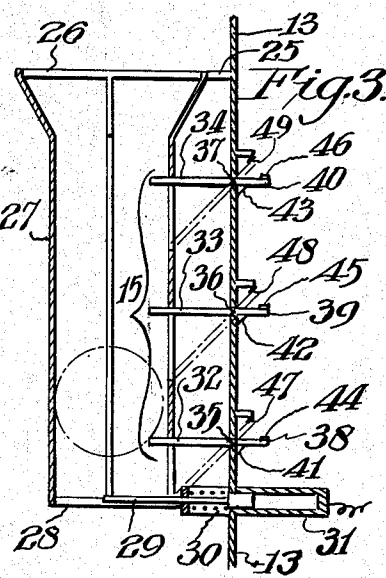
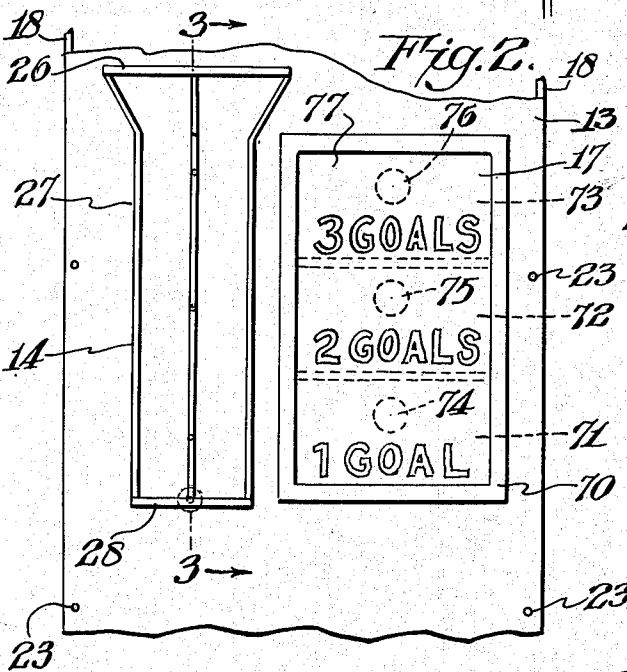
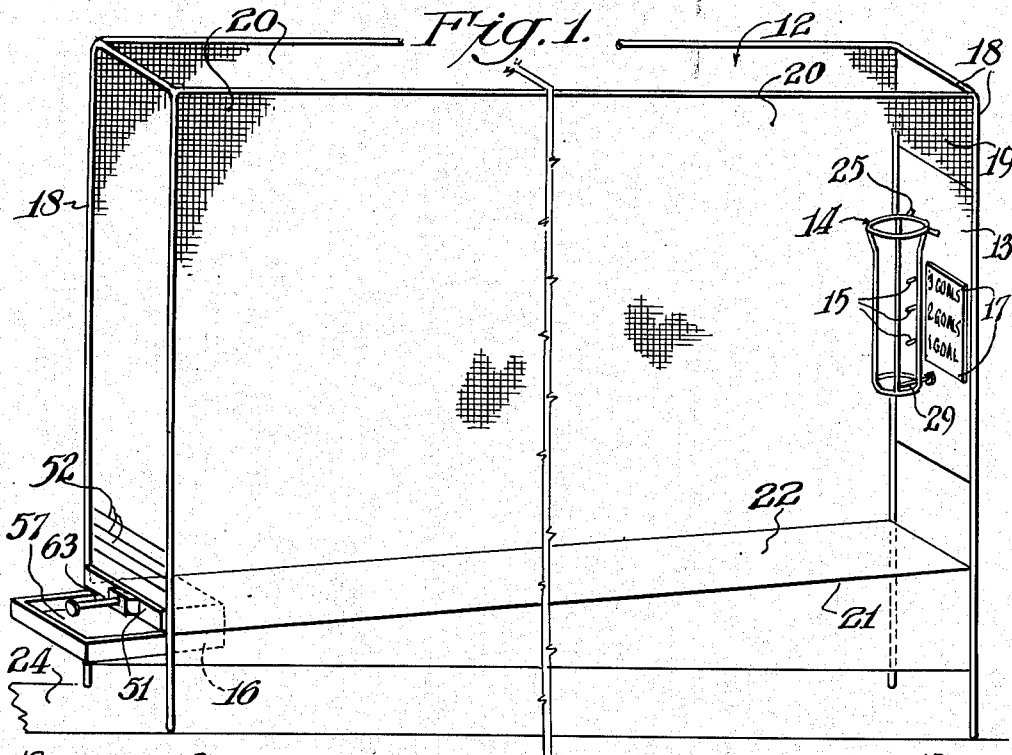
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2,617,653

BASKETBALL GAME APPARATUS

Filed Aug. 8, 1949

3 Sheets-Sheet 1



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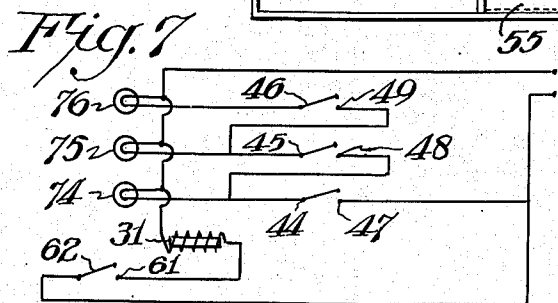
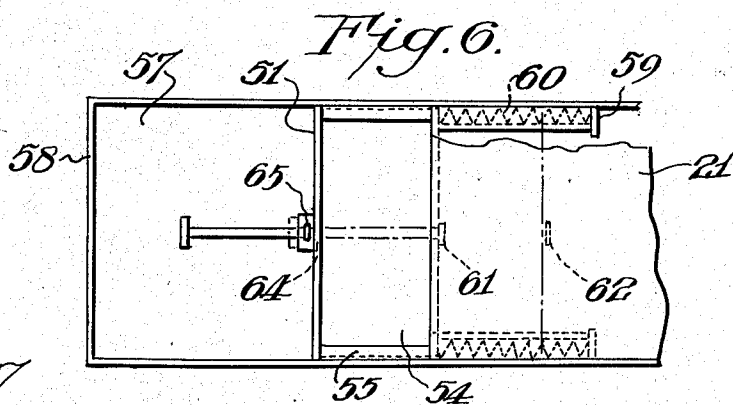
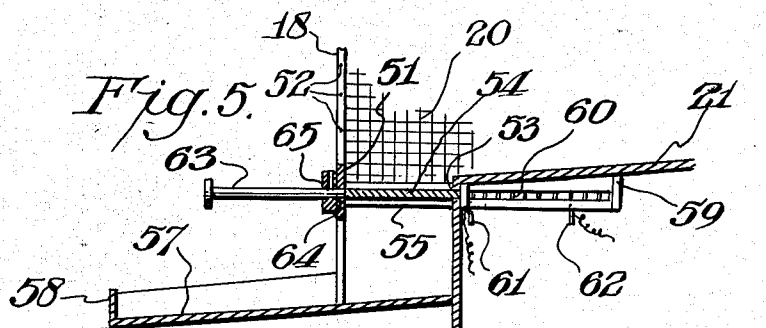
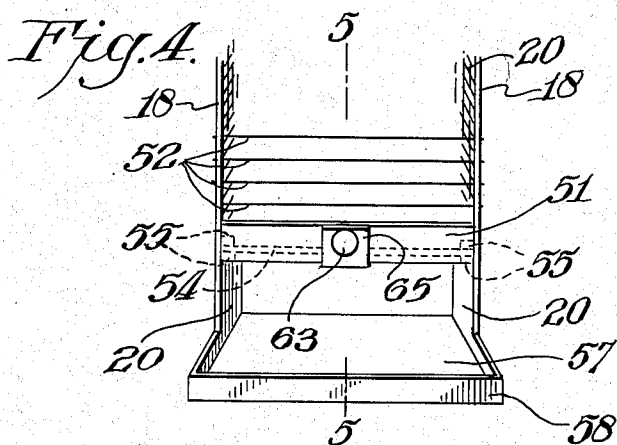
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BASKETBALL GAME APPARATUS

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3 Sheets-Sheet 2

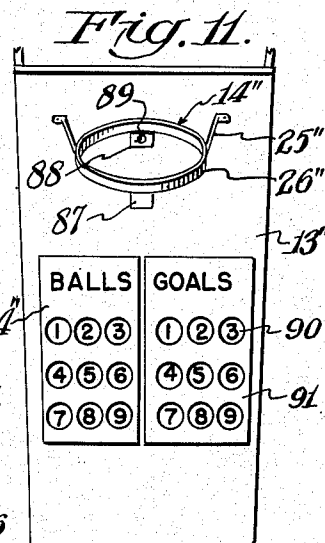
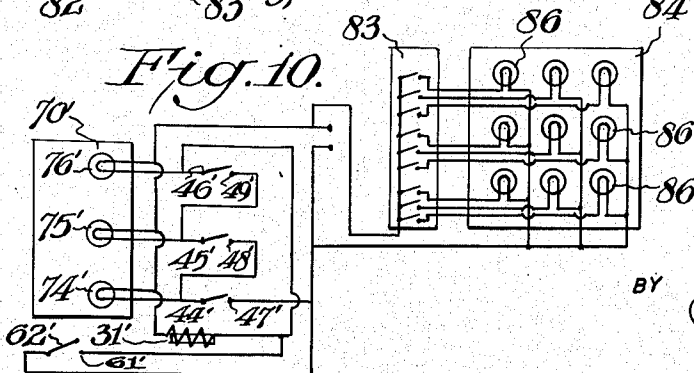
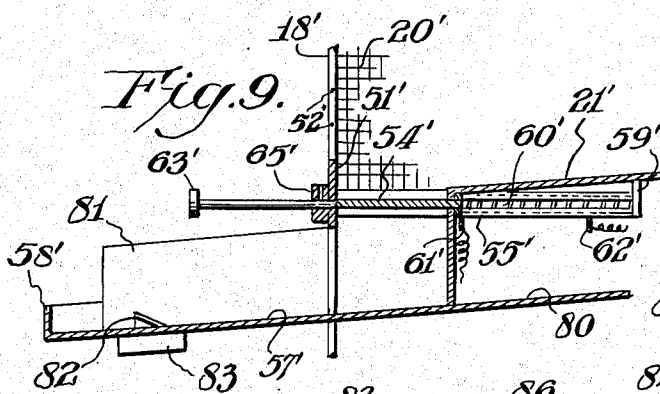
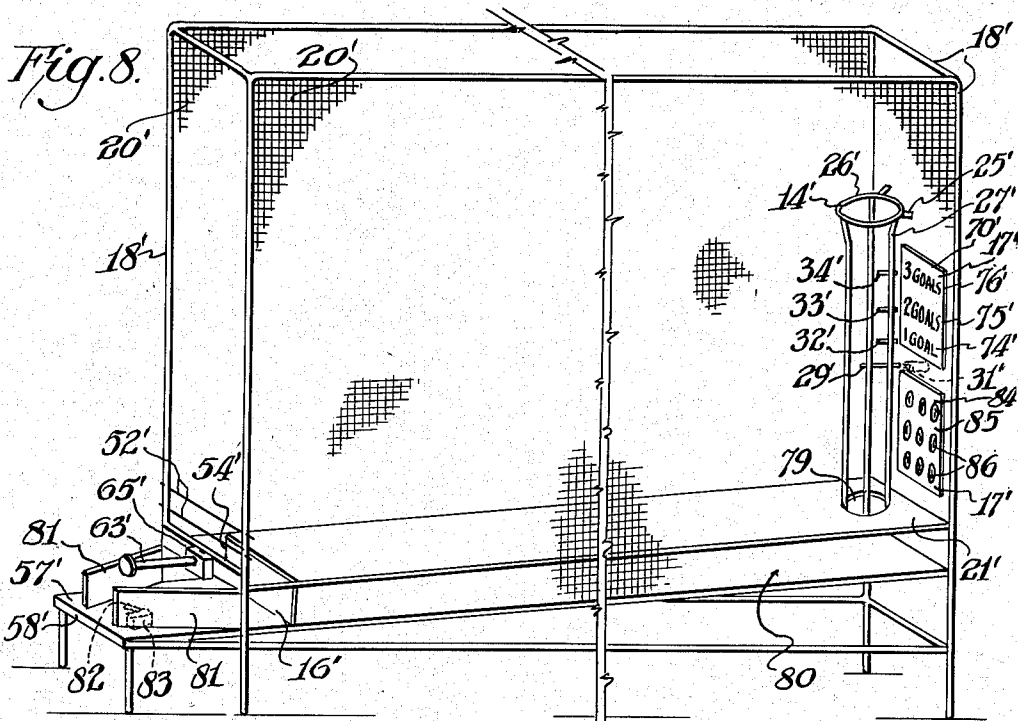


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BASKETBALL GAME APPARATUS

3 Sheets-Sheet 3

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UNITED STATES PATENT OFFICE

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BASKETBALL GAME APPARATUS

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3 Claims. (Cl. 273-102.2)

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This invention relates to an amusement device, and, more particularly, to an amusement device based on the game of basketball.

The principal object of this invention is to provide a novel amusement device adapted to provide a player with a means for exercising his skill in tossing basketballs into a basket. Another object is to provide such a device which is adapted for automatic operation. An additional object is to provide such a device which is released for play by a coin-in-slot device. A further object is to provide such an amusement device which will automatically award a "free" game. A still further object is to provide such a device with visual scoring means.

With the above and other objects in view, which will be apparent as the description proceeds, the invention is set forth below in the following specification and is illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of the amusement device;

Fig. 2 is a front elevation of the backboard and basket;

Fig. 3 is a vertical section on the line 3-3 of Fig. 2;

Fig. 4 is a front elevation of the ball delivering means;

Fig. 5 is a vertical section on the line 5-5 of Fig. 4, showing the ball delivering means in closed position;

Fig. 6 is a plan view with a portion broken away, showing the ball delivering means in open and closed positions;

Fig. 7 is a diagrammatic view of an electrical circuit that may be employed in conjunction with the device;

Fig. 8 is a modification of the invention adapted to award a "free" game;

Fig. 9 is a sectional view of the ball delivering means used in the modification shown in Fig. 8;

Fig. 10 is a diagrammatic view of an electrical circuit that may be employed in conjunction with the modification shown in Fig. 8; and

Fig. 11 is a perspective view of another modification, showing a basket rim with an electric eye device and a different scoring arrangement.

Referring to Fig. 1, the device comprises a cage 12, a backboard 13 mounted therein, a basket 14 mounted on the backboard 13, a means 15 for registering the number of balls passing through basket 14, means 16 for delivering a ball to a player, and visual scoring means 17.

As shown in Fig. 1, cage 12 is formed of supporting members 18, which may be metal pipes,

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wooden poles, or the like, and is composed of a back wall 19, forwardly projecting side walls 20, and a forwardly-projecting, downwardly-sloping floor 21. Back wall 19 and side walls 20 may be made of any suitable material attached to supporting members 18 in any suitable way, but are preferably made of stretched wire mesh whose openings are sufficiently smaller than the diameter of a basketball to prevent its passage therethrough. Floor 21 may also be formed of any suitable material, but is preferably made of plywood covered with a soft pad 22 (such as a 4-inch cotton mattress) to deaden the normal liveliness of a basketball and thus restrict bouncing.

Backboard 13 is vertically mounted approximately half-way up back wall 19, in any convenient but rigid way (as by bolts 23 through rear supporting members 18, shown in Fig. 2), and is made of wood, metal, or other material which will withstand the shock of a basketball thrown against it. It is of sufficient height to permit a basketball to be bounced off its face into basket 14 mounted thereon.

It will be apparent that backboard 13 may be omitted, back wall 19 may be made of suitable material, and basket 14 may be mounted directly thereon.

Basket 14 is preferably positioned on backboard 13 at a regulation court height from the player's floor level 24. As shown in Fig. 3, it is vertically mounted on backboard 13 and spaced outwardly therefrom by suitable brackets 25, and comprises a regulation basketball court rim 26 and a plurality of rigid ribs 27 depending from the rim. Ribs 27 taper inwardly from rim 26 at a predetermined angle, the function of which is explained below, until the circle formed thereby is just sufficiently larger than the outside diameter of a basketball to permit the latter to pass freely therethrough. Ribs 27 extend downwardly from rim 26 a distance equal to three times the diameter of a basketball to permit stacking of three basketballs therein, one on top of the other. At their lower ends, ribs 27 are provided with a bracing rim 28 adapted to hold the ribs in rigid alignment.

As best shown in Fig. 3, projecting into basket 14 at the bottom thereof is a retaining pin 29 designed to hold one or more balls within the confines of the ribs and to be withdrawn against the tension of a spring 30, mechanically or by a solenoid 31 mounted on the outside of bracing rim 28 or on backboard 13, to permit any balls in the basket to fall to floor 21.

Registering means 15 comprises three rocker arms 32, 33, 34, projecting into the basket and vertically spaced from the retaining pin 29 and from each other, preferably a distance equal to the diameter of a basketball. Rocker arms 32, 33, 34 are pivotally supported at 35, 36, 37, respectively, on backboard 13 and are of sufficient length that, when the basketballs enter the basket, the weight of the balls depresses the rocker arms within the basket.

At their opposite ends, rocker arms 32, 33, 34 are provided with balance weights 38, 39, 40, or springs (not shown), which maintain the arms in horizontal position and at rest on arm supports 41, 42, 43 when no ball is depressing the opposite end thereof. Rocker arms 32, 33, 34 also carry electrical contact points 44, 45, 46, respectively, on their weighted ends, which points are adapted to make contact with corresponding points 47, 48, 49, respectively, vertically spaced therefrom, and thus close electrical circuits when the ends projecting into the basket are depressed by the balls. If desired, the rocker arms may be extensions of suitable switch arms.

Floor 21 slopes gently forward to a point just short of the distance from the basket to a court foul line at which point it is provided with a vertical face board 51 extending the entire width of floor 21 and affixed at each end to front supporting members 18 so as to extend above and below the line of floor 21, as best shown in Fig. 4. Bumper wires 52 are stretched between front supporting members 18 just above face board 51 to prevent the balls from rolling over the face board, but, of course, bumper wires 52 must not extend to such height as would restrict tossing the ball at basket 14.

Referring to Figs. 5 and 6, it will be seen that ball delivering means 16 comprises an opening 53 in floor 21 immediately to the rear of face board 51, which opening is provided with a closure tray 54 adapted to slide on runners 55 mounted on side walls 20 just below opening 53, a sloping floor 57 extending outwardly from below opening 53, and a player positioning board 58 mounted on the outer end thereof and extending the entire width of floor 57, said board 58 being at the corresponding distance from basket 14 as a court foul line is from a basket.

Tray 54 is of sufficient horizontal depth that, when in its forward position, it closes opening 53 to prevent balls from returning to the player. Runners 55 extend sufficiently rearwardly so that tray 54 may be pushed to the rear and completely clear of opening 53.

At their rear extremities, runners 55 are provided with a suitable spring seat 59 adapted to hold one end of a spring 60 inside runners 55, the opposite end of said spring being held against the back edge of tray 54.

An electrical contact point 61 is located on the rear edge of tray 54 and a corresponding point 62 is mounted under floor 21, in horizontal alignment with point 61, these contact points being adapted to close an electrical circuit when tray 54 is in its open position. Point 61 is connected to solenoid 31 and point 62 is connected to a source of electrical current (not shown).

These contact points 61 and 62 may be incorporated in a trip arm switch (not shown) mounted so that movement of the tray to the rear will operate the switch.

Extending horizontally forward and attached to the front edge of tray 54 is a plunger 63 which passes through an opening 64 in the center of 75

face board 51, said plunger being of sufficient length that, when operated, it will push tray 54 backward and completely out of opening 53.

Mounted on the front of face board 51 and adjacent to opening 64 therein and plunger 63 is a coin-operated locking device 65 adapted to lock plunger 63 in its forward position until a coin has been inserted into the locking device.

Visual scoring means 17 comprises a "goal" scoreboard 70 vertically mounted on backboard 13 and adjacent to basket 14. Scoreboard 70 is horizontally divided into three sections 71, 72, 73 containing electric bulbs 74, 75, 76, respectively. The front of scoreboard 70 is closed by a suitable translucent cover 77, such as glass or plastic, bearing the legends "1 Goal" opposite bottom section 71 and rocker arm 32, "2 Goals" opposite middle section 72 and rocker arm 33, and "3 Goals" opposite top section 73 and rocker arm 34.

Contact points 44, 45, 46 are connected in series, as shown in Fig. 7, so that the first contact must be closed before the second will operate, and the second must be closed before the third will operate. Contact point 47 is connected to a source of electrical current (not shown). Contact point 44 on rocker arm 32 is connected to bulb 74 in section 71 of box 70 and also to contact point 48 adjacent to rocker arm 33. Contact point 45 is connected to bulb 75 in section 72 and also to contact point 49. Contact point 46 on rocker arm 34 is connected to bulb 76 in section 73.

In operation, three basketballs are normally at rest on tray 54 and against the back of face board 51. A player inserts a coin in locking device 65 and pushes the release plunger 63 to its fullest extent, thus permitting the three basketballs to ball through opening 53 and roll forward on floor 57 to player position board 58. He then releases the plunger, and spring 60 pushes tray 54 back into opening 53 and thus closes it.

The player, having access to the balls, tosses one toward the basket 14. If the ball misses going into the basket, it falls to floor 21 and rolls to its original position on tray 54 and against the back of face board 51. If the ball enters the basket, it falls therein until it comes to rest on pin 28 and depresses the lowest rocker arm 32. This causes the opposite end of rocker arm 32 to rise, bringing contacts 44 and 47 together, thus closing the electrical circuit and lighting bulb 74 in section 71 of scoreboard 70 behind the legend "1 Goal."

The player then tosses the second ball, and, if it misses the basket, it rolls to rest on tray 54. If it enters the basket, it falls to rest on top of the first ball and depresses middle rocker arm 33, thus causing electrical contact to be made as described above and light bulb 75 behind the legend "2 Goals."

The player then tosses the third ball which, if it misses the basket, rolls to rest on tray 54. If it enters the basket, it falls to rest on top of the previous ball to enter the basket and similarly depresses its adjacent rocker arm 34, closes the electrical circuit, and lights bulb 76 behind the legend "3 Goals."

Thus, if the player has missed the basket with one or more balls, those balls will be at rest on tray 54 and those which entered the basket will be held therein by pin 29.

The next player inserting a coin in lock 65 will then push plunger 63, thus removing tray 54 from opening 53 and permitting any balls resting thereon to drop to floor 57, as previously de-

scribed, and electrical contact point 61 on the rear edge of tray 54 will close the circuit with point 62 actuating solenoid 31. The latter will then withdraw pin 29 from basket 14 and permit any balls therein to fall to floor 21, roll down to and through opening 53, and be accessible to the player for tossing at the basket.

A modification of the device described above is shown in Figs. 8, 9, and 10, and is adapted to automatically award a "free" game when three goals are scored.

In this modification, ribs 27' of a basket 14' extend all the way to a floor 21' and an opening 79 therein directly under basket 14'. Ribs 27' may be fastened around the circumference of opening 79 and thus make it unnecessary to use any bracing rims. Spaced below floor 21' is a similarly inclined chute, track, or floor 80, the forward extended end of which forms sloping floor 57' of ball delivering means 16'.

Projecting into the basket at any desired vertical position, but here shown at about the half-way point between rim 26' and opening 79, is a retaining pin 29' which functions as previously described. Rocker arms 32', 33', 34' also project into basket 14'. Contact points 44', 45', 46' adapted to make contact with corresponding points 47', 48', 49', respectively, are carried by the outside ends (not shown) of the aforementioned rocker arms in a manner similar to that shown in Fig. 3. Contact point 47' is connected to a source of electrical current (not shown). Contact point 44' on rocker arm 32' is connected to a bulb 74' in a box 70' and also to contact point 48' adjacent to rocker arm 33'. Contact point 45' is connected to a bulb 75' and also to contact point 49'. Contact point 46' on rocker arm 34' is connected to bulb 76' and also to a solenoid 31' adapted to withdraw retaining pin 29' from the basket.

Ball delivering means 16' (shown in detail in Fig. 9) is similar to that shown in Figs. 4, 5, and 6, but has side boards 81 vertically mounted on floor 57' which taper inwardly from side walls 20' until there is just sufficient passageway for one ball at a time to pass to the player position board 58'. Projecting through floor 57', at about the center of the aforesaid narrow passageway, is a trip switch arm 82 connected to a "step" switch 83 mounted under floor 57'.

Tray 54' is provided with a contact point 61' located on its rear edge and adapted to rest against a contact point 62' mounted under floor 21'. Point 61' is connected to solenoid 31', and point 62' is connected to a source of electrical current (not shown).

A visual scoring means 17' is divided into two sections; one a "goal" section 70', as previously described, and the other a "ball" section 84. The latter comprises a translucent panel 85 bearing numbers (here shown from 1 to 9, but may bear any desired numbers), behind each number of which is mounted an electric bulb 86. Each of the bulbs 86 is connected with the corresponding "step" in the step switch 83 so that as the switch is operated, the bulbs will be progressively lighted.

In the operation of this modification, a player inserts a coin in lock 65' and operates plunger 63', as previously described, which removes tray 54' from opening 53' and permits the balls on tray 54' to drop to floor 57'. The rearward movement of tray 54' causes contacts 61' and 62' at the rear thereof to close an electrical circuit and operate solenoid 31' which, in turn, withdraws pin 29' from basket 14' and permits any balls therein to drop through opening 79 to floor 80

and floor 57', where they will all roll, one-by-one, through the narrow passage created by side boards 81 and over trip switch arm 82. There is just sufficient space between the opening of the narrow passage and player position board 58' to accommodate one ball at a time. As the player picks up the first ball, the second ball will roll through the passage and over trip switch arm 82 to player position board 58'. As the player picks up the second ball, the third will present itself in a similar manner. As each ball rolls over the trip switch arm 82, it registers that fact by lighting the correspondingly numbered bulb 86 in "ball" scoreboard 84.

The first and second balls to enter basket 14' depress rocker arms 32' and 33', respectively, and thus register on "goal" scoreboard 70' through bulbs 74' and 75', respectively. When the third ball enters the basket, it not only lights bulb 76', but also operates solenoid 31' to retract pin 29' and permit the balls to fall through opening 79 and to roll down floor 80 to floor 57' and the passage between side boards 81 to give the player a "free" game.

If desired, side boards 81 and trip switch arm 82 on floor 57' may be eliminated and contact point 61' may be connected to "step" switch 83 so that each time tray 54' is operated, that fact will be registered on the "ball" scoreboard 84.

Alternatively, trip switch arm 82 may be replaced by an electric eye device (not shown) suitably mounted so that the light beam cast thereby is interrupted by a ball traversing the restricted passageway.

Conventional time relays may be inserted in the electrical circuit connected to the solenoid to hold the retaining pin in its withdrawn position for a sufficient period of time to permit the three balls to drop through the basket.

A suitable "clearing" switch may also be inserted in the device in any suitable way so that the "goal" and "ball" scoreboards may be cleared to start another game. This should preferably be mounted on the face board 51' adjacent to the coin-locking device.

Still another modification of the invention is shown in Fig. 11, in which the baskets 14 and 14' shown in Figs. 1 and 8, respectively, are replaced by a basket 14'' which comprises a rim 26'', mounted on backboard 13'' by brackets 25'', and a light beam device 87, mounted on the rim 26'' in such manner as to throw a beam of light horizontally across the diameter of rim 26'' but slightly therebelow. On backboard 13'', and preferably behind an opening 88 therein, is mounted a beam receiver or "electric eye" 89 in direct line with light beam device 87 so as to receive the beam of light thrown thereby.

Beam receiver 89 is connected to a suitable "step" switch (not shown), the "steps" of which are, in turn, connected to bulbs 90 in a "goal" scoreboard 91. The latter is similar in construction to the "ball" scoreboard 84 shown in Figs. 8 and 10.

Adjacent to "goal" scoreboard 91 is a "ball" scoreboard 84'', similar to that shown in Fig. 8, connected to a suitable "step" switch mounted as shown in Fig. 9.

In operation, a ball passing through rim 26'' interrupts the beam of light from device 87 to eye 89 and thus actuates the "step" switch which, in turn, lights the first bulb 90 in "goal" scoreboard 91. The second ball, and subsequent balls, passing through the rim progressively light the other bulbs 90. The "step" switch in the ball de-

livering means progressively lights bulbs in the "ball" scoreboard 84".

By variation of the angle of inward taper of ribs 27 in basket 14, it is possible to vary the degree of skill required to toss the balls therein. For instance, extending the ribs straight down from the rim a distance of approximately six inches and then starting the inward taper, makes it easier for a player to toss the ball into the basket, since the ball will have less chance of striking one of the ribs and bouncing out of the basket. On the other hand, starting the inward taper right at the rim with a comparatively sharp angle, makes it necessary for the player to toss the ball squarely therein so that it will not bounce out.

Rocker arms 32, 33, 34, and their respective pivot points 35, 36, 37 and contact points 44, 45, 46, 47, 48, 49, may be replaced by suitable switches having sufficiently long trip arms to extend into the basket, as will be readily apparent to those skilled in the art.

It is apparent that many different embodiments of this invention may be made without departing from the spirit and scope thereof, and, therefore, it is not intended to be limited except as indicated in the appended claims.

I claim:

1. A basketball amusement device including in combination with a cage having back and side walls, a basket rim horizontally mounted on the back wall, a plurality of rigid ribs depending from said rim and tapering inwardly therefrom at a predetermined angle until the circle formed thereby is just slightly larger than the diameter of a basketball and extending vertically downward therefrom a distance equal to at least three times the diameter of a basketball, a retaining pin projecting into the circle formed by said ribs and adapted to be withdrawn therefrom against spring tension by means of a solenoid mounted outside the basket, a plurality of rocker arms pivoted outside the basket, the forward ends of which extend into the basket and the rearward ends of which are adapted to close electrical switches connected in series when the forward ends are depressed by a ball, said rocker arms being vertically spaced from each other a distance equal to the diameter of a basketball, a series of electrical bulbs mounted behind a translucent screen, each bulb being connected to a source of electrical current through a switch on a rocker arm, a sloping floor extending outwardly from the back wall, an opening in said floor at its outer end, a tray slidably mounted below said opening, and an electrical switch mounted on the rear of said tray and adapted to close an electrical circuit and actuate the retaining pin solenoid when the tray is pushed to its rearward extremity.

2. The basketball amusement device of claim

1 in which the rigid ribs stop their downward extension short of the sloping floor to permit any balls therein to drop to the aforesaid floor when the retaining pin is withdrawn.

3. A basketball amusement device including, in combination with a cage having back and side walls, a basket rim horizontally mounted on the back wall, a plurality of rigid ribs depending from said rim and tapering inwardly therefrom at a predetermined angle until the circle formed thereby is just slightly larger than the diameter of a basketball and extending vertically downwardly therefrom a distance equal to at least three times the diameter of a basketball, a retaining pin projecting into the circle formed by said ribs and adapted to be withdrawn therefrom against spring tension by means of a solenoid mounted outside the basket, a plurality of rocker arms pivoted outside the basket, the forward ends of which extend into the basket and the rearward ends of which are adapted to close electrical switches connected in series when the forward ends are depressed by a ball, said rocker arms being vertically spaced from each other a distance equal to the diameter of a basketball, a series of electrical bulbs mounted behind a translucent screen, each bulb being connected to a source of electrical current through a switch on a rocker arm, a sloping floor extending outwardly from the back wall and having one opening therein directly below the basket and another opening therein at its outer end, a tray slidably mounted below the second-mentioned opening, an electrical switch mounted on the rear of said tray and adapted to close an electrical circuit and actuate the retaining pin solenoid when the tray is pushed to its rearward extremity, and an inclined lower floor mounted below the first-mentioned floor and extending outwardly from the back wall to a point beyond the second-mentioned opening in the upper floor, the aforementioned rigid ribs extending vertically downward to the first-mentioned opening in the upper floor.

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