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J. C. KOCI ET AL

2,433,224

SIMULATED BASKETBALL GAME APPARATUS

Filed July 22, 1946

5 Sheets-Sheet 2

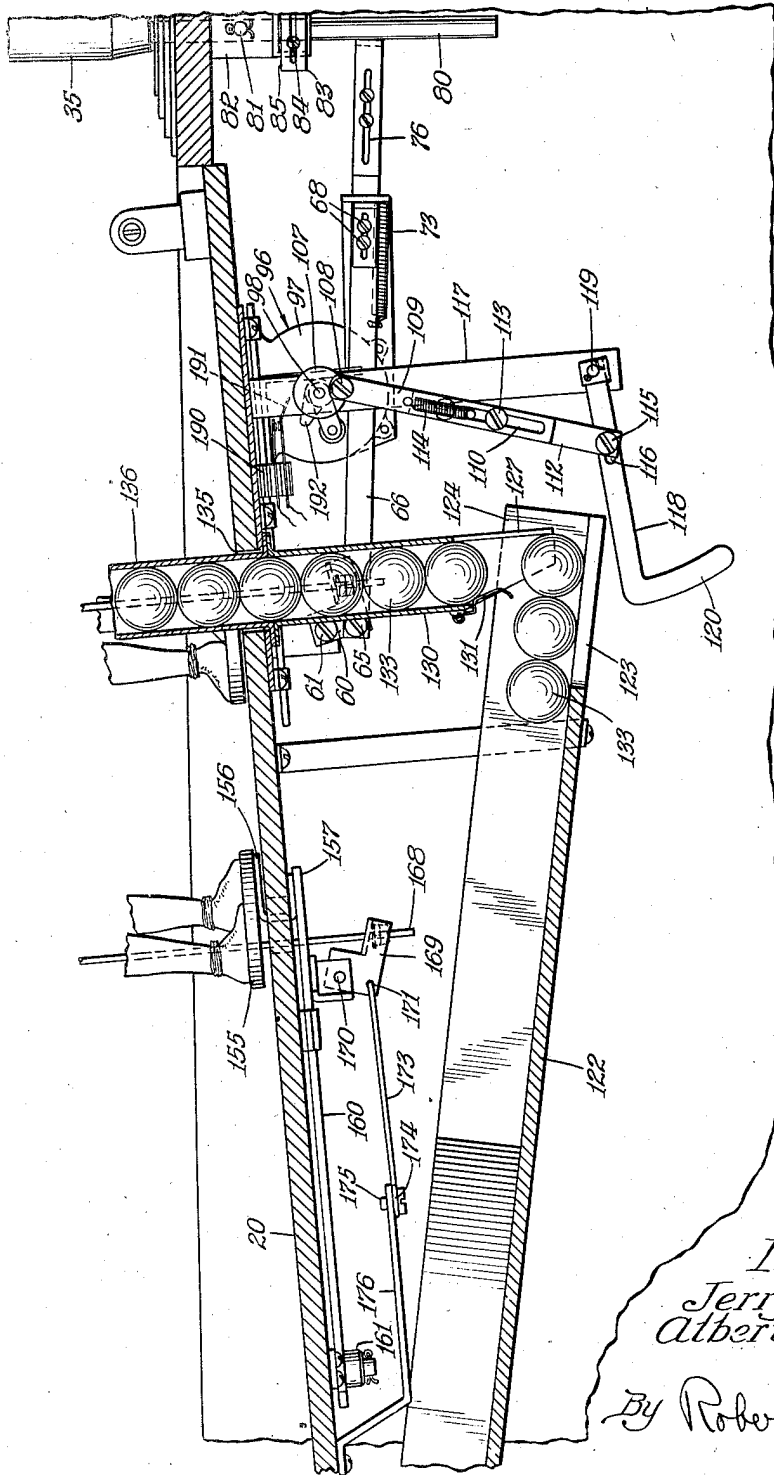


Fig. 2.

Inventors
Jerry C. Koci
Albert J. Schlapa

By Robert L. Kaly
Atty.

Dec. 23, 1947.

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5 Sheets-Sheet 3

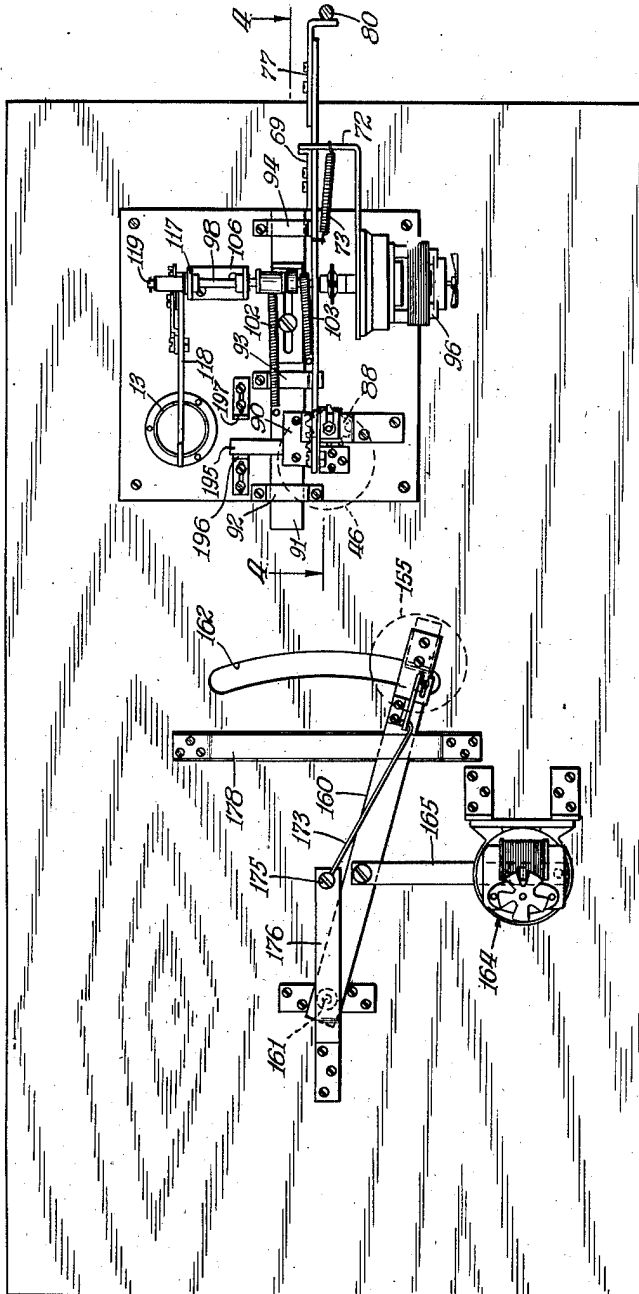


Fig. 3.

Inventors
Jerry C. Koci
Albert J. Schtapa

By Robert L. Kalin
Atty.

Dec. 23, 1947.

J. C. KOCI ET AL

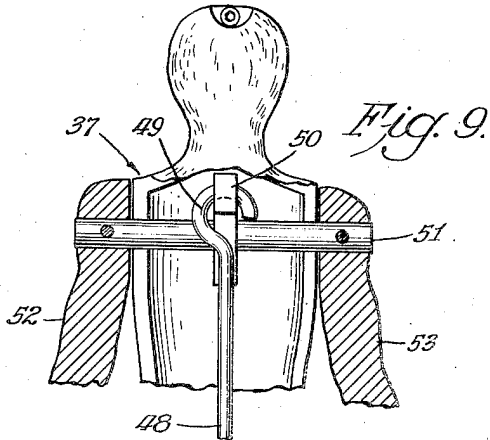
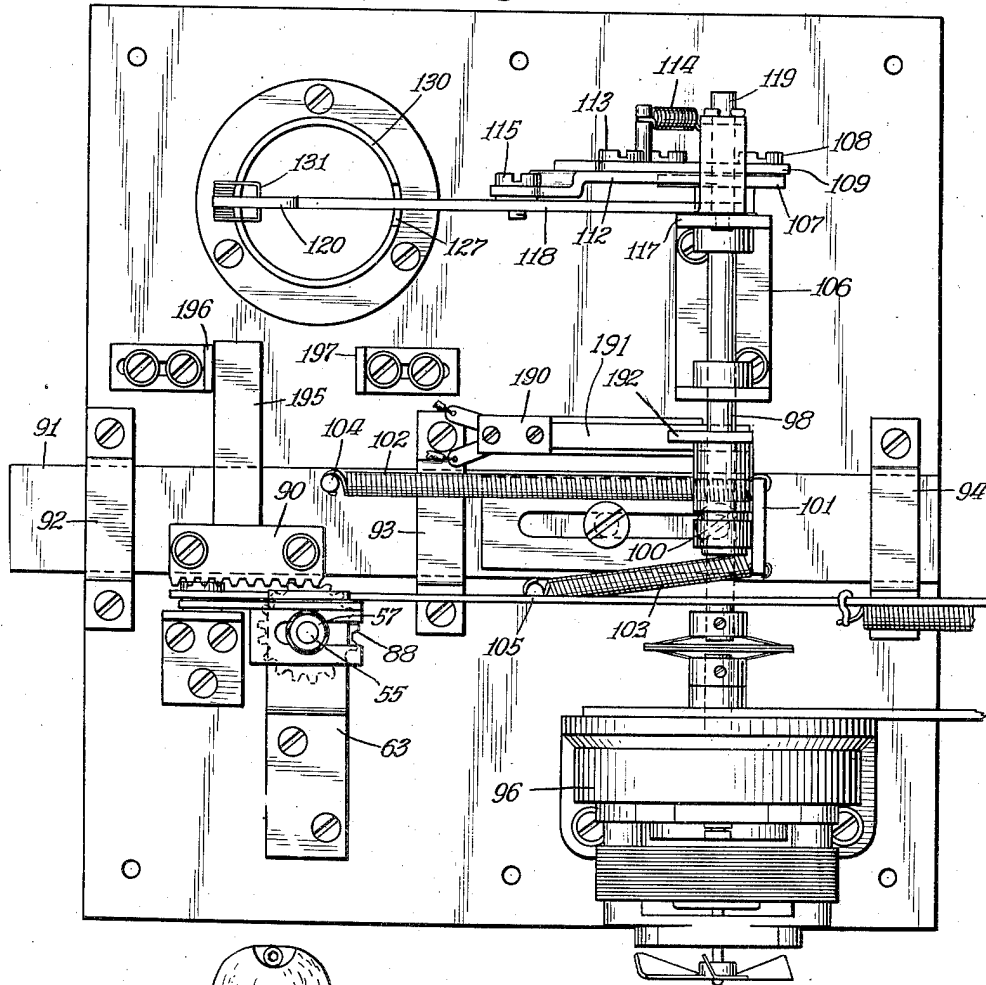
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Fig. 8.



Inventors
Jerry C. Koci
Albert J. Schlapa

By Robert L. Kalny
Atty.

UNITED STATES PATENT OFFICE

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SIMULATED BASKETBALL GAME APPARATUS

Jerry C. Koci, Riverside, and Albert J. Schlapa,
Elmwood Park, Ill., assignors, by mesne as-
signments, to Chicago Coin Machine Co., Chi-
cago, Ill., a corporation of Illinois

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6 Claims. (Cl. 273—85)

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This invention relates to a game apparatus and particularly to an apparatus for simulating a basketball game. The invention provides a simple and effective mechanism whereby a player may operate the mechanism for amusement and for development of playing skill.

In order that the invention may be adequately disclosed, reference will now be made to the drawings wherein Figure 1 is an isometric view of a game apparatus embodying the present invention. Figure 2 is a sectional detail along line 2—2 of Figure 1. Figure 3 is a view looking up to the bottom of the baseboard. Figure 4 is a section along line 4—4 of Figure 3. Figure 5 is a sectional detail on line 5—5 of Figure 4. Figure 6 is a detail from the front of the ball throwing means. Figure 7 is an enlarged detail of the goal. Figure 8 is an enlarged view of the power drive for the player and ball feed. Figure 9 is a detail of the manikin arm drive.

The game apparatus may be housed in any suitable cabinet 10 of plywood or other similar material and is adapted to stand on legs 11. Cabinet 10 has front panel 13 in which is mounted coin-control panel 15 carrying coin chute 16 and coin control means of well-known construction, the details of which are not necessary for this invention.

Cabinet 10 has baseboard 20 upon which the entire game apparatus is secured. This baseboard may be of wood or other material and has side glass panels 22 and 23 extending toward rear enclosure 24. Enclosure 24 carries superstructure 26 in which is disposed score indicating means 27 of any desired construction. Top panels 30 and 31 of glass or transparent plastic are provided to complete the enclosure of the game apparatus.

Baseboard 20 has front portion 33 in the center of which are mounted handles 34 and 35 as control means. These handles are merely exemplary and may be replaced by other suitable manual means. As shown here, one of the handles, 34, is rigid, while the other handle, 35, is rockable back and forth.

The game includes player manikin 37 adapted to turn periodically to the position shown in Figure 1 and receive a ball and thereafter turn 90 degrees to the right of the manikin. Guard manikin 40 having arms 41 is adapted to move back and forth in front of manikin 37 and move arms 41 vertically. Preferably, arms 41 are partly raised during an intermediate portion of the travel and are raised straight when the manikin is in an extreme position at either end of travel.

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Basket 43 carried by board 44 is provided. By means which will be hereinafter explained, operation of handle 35 will result in player 37 throwing the ball. The force, direction and path of the ball are functions of the force used on handle 35 and the timing of operation of the handle with reference to the movements of the two players.

Referring to player 37, the manikin stands upon base 46 of wood or other material, this base consisting of a circular disc. Base 46 is apertured at 47 to clear actuating rod 48 extending up into the interior of the manikin. Rod 48 has top end 49 pivotally secured to crank 50 within the manikin. Crank 50 is secured to rocker 51 pivoted at the shoulders of the manikin, the rocker being secured to arms 52 and 53. Longitudinal movement of rod 48 will cause vertical movement of arms 52 and 53 of the manikin. Rod 48 has bottom end portion 55 threaded and carries nut 56 and lock nut 57 as shown in Figure 5. Slidable on rod 48 and disposed above nut 56 is ear 58 of rocker arm 60. Rocker 60 is pivotally secured at 61 to ear 62 depending from fixture 63 rigidly carried at the bottom of the baseboard.

Rocker arm 60 has pivotally secured thereto at 65 actuating link 66. Link 66 has end portion 67 tapped to accommodate screws 68. Overlying end 67 is slotted end 69 of extension link 70. Links 66 and 70 are thus slidably coupled together. Link 70 is supported by guide 72, this consisting of a sheet metal strip carried by a suitable portion of the mechanism. Coil spring 73 extending between guide 72 and pin 74 on link 66 serves to bias link 66 to the position shown in Figure 4. From this position, link 66 is adapted to be moved toward the left.

Link 70 carries screws 75, these screws being passed through slotted end 76 of arm 77. Arm 77 has bent finger 78 adapted to be pushed forward by rod 80 rigidly attached to operating handle 35. It will be noted that operating handle 35 is pivotally mounted at 81 below the baseboard to permit rod 80 to be moved back and forth. Pivot 81 is supported in ears 82 carried by the bottom of the baseboard. In order to limit the forward movement of rod 80, suitable means may be provided. Thus, fixture 83 clamped around rod 80 by bolt 84 passing through suitable slots may be firmly clamped on rod 80. The top surface 85 of fixture 83 may be used to engage the bottom edge of ears 82 during rod movement to limit the same.

Referring back to manikin 37, base 46 of the manikin is rigidly attached to pushing 87. Bush-

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ing 87 carries pinion 88 around its outer surface, the two being attached together by any suitable means such as set-screws 89 passing through the hub of the pinion to bear against bushing 87. The manikin is vertically supported by fixture 63 through which the lower end of bushing 87 is threaded and upon which the bottom end of the pinion hub rests.

Cooperating with pinion 88 is rack 90 carried by slide 91 maintained in position by guide brackets 92, 93 and 94 secured to the bottom of the baseboard or a mounting plate as shown here. Slide 91 is adapted to be oscillated along its length, this serving to periodically turn player 37 through an angle of ninety degrees from a ball receiving position to a ball playing position and back again. This oscillation may be accomplished in any suitable manner. Thus, motor 96 of any suitable type having suitable reducing gears may be provided as the source of power. It is understood that motor 96 has its circuit energized only during the time that the game is in operation. The motor itself is supported from the bottom of the mounting plate as shown in Figure 4 by bracket 97. Motor 96 drives shaft 98 through a universal joint or the like. Shaft 98 carries cam 100. Cooperating with cam 100 is follower 101 coupled to slide 91 by suitable screws. Follower 101 is supported against the cam by spring 102 anchored to pin 104 on slide 91. Spring 103 extending between follower 101 and pin 105 on the mounting plate maintains the follower and slide in a biased position against the cam.

Motor shaft 98 also drives a ball feed mechanism illustrated in Figure 2. Thus, shaft 98 is journaled in bracket 106 carried by the bottom of the baseboard. Motor shaft 98 also has attached thereto disc 107 to which is pivotally secured in eccentric position, as at 108, to link 109. Link 109 is slotted at 110 and overlies link 112 carrying guide screw 113 passing through slot 110. Spring 114 has one end attached to link 109 and the other end attached to link 112 to provide a spring coupling therebetween.

Link 112 at the bottom end carries pivot bolt 115 passing through slot 116 of ball actuating arm 118, this latter arm being pivoted at 119 to arm 117 carried by bracket 106. Arm 118 has downwardly extending finger 120 at the end thereof. The linkage system is so devised that rotation of shaft 98 will oscillate ball feed arm 118 vertically.

Disposed below baseboard 20 is ball bin 122 sloping downwardly and having slot 123 through which finger 118 may pass. Bin 122 has discharge end 124 disposed below receiving end 127 of ball magazine 130. Ball magazine 130 has spring detent finger 131 for retaining balls 133 against dropping, once they have been fed into the magazine. The balls themselves may be of any size and construction. Thus, the thin moulded balls used in table tennis and generally available in the market may be used to advantage.

It will be noted that receiving end 127 of magazine 130 extends down into the discharge end of the bin so that balls 133 may collect as shown. Magazine 130 passes through aperture 135 in the base plate and has portion 136 extending up above the base plate at one side of manikin 37. As shown here, magazine 130 is disposed at the left of the manikin. This, however, is not important, and the magazine may be disposed on the other side of the manikin or even to the rear. It is understood that the

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positions given are with reference to the playing position of the manikin when the manikin is facing the basket.

Upper portion 136 of the magazine has discharge mouth 137 disposed at such a distance from the manikin as to permit balls to be received by the manikin. In order for the manikin to receive a ball, arms 52 and 53 carry metal loop 140 at the end portions of the arms. Metal loop 140 is rigidly carried by the manikin's arms. Extending across between the two arms is rod 141. This rod is below metal loop 142 pivotally secured in any suitable manner to the manikin as at waist 143. Loop 142 has portion 144 well within the outline of loop 140. Loop 140 is small enough to support a ball. In the bottom position of arms 52 and 53 of the manikin, inner loop 144 is disposed just below a ball resting on loop 140.

It will be evident that the movement of control handle 35 will raise arms 52 and 53 from the bottom position as shown in Figure 4. Due to the linkage system, inner loop 144 will rise faster than loop 140 so that, in the upward position of the arms, inner loop 144 may be above loop 140. In order to provide a limit to the upward movement of inner loop 144, part 146 of the loop material may be bent as shown to co-act with the body of the manikin. Thus, a quick upward movement of the arms will not only cause a ball to be thrown but will also cause inner loop 144 to be bounced back to a down position. If manikin 37 is to retain a ball from discharge chute 137, the manikin should be in the position shown in Figure 4, which position corresponds to the normal setting of control handle 35.

The turning movement of the player manikin is synchronized with the ball feed. Every time a ball is pushed up into the ball magazine, the manikin is facing the discharge end of the magazine and ready to receive a ball. It is understood, of course, that the movement of the hands of the manikin is under the control of handle 35 and is thus entirely independent of the direction faced by the manikin.

Guard 40 is moved back and forth across the line of play between player manikin 37 and receiving basket 43. Guard 40 is carried on base 155 of wood or similar material. Base 155 is carried by bracket 156 rigidly attached to end 157 of arm 160 pivoted at 161 for swinging movement in a plane generally parallel to the baseboard. Baseboard 20 has arcuate slot 162 cut out therein through which the support for the guard may extend and along which the support may move. Movement of the guard manikin throughout the extent of arcuate slot 162 may be obtained in any suitable fashion such as by motor 164 driving crank 165 through suitable reduction gearing and crank pin, not shown. It is preferred to have the guard make a substantially different number of trips along arcuate slot 162 in a given time than the number of turning movements of player 37. In practice, guard 40 may be moved back and forth and player 37 be permitted to pause long enough in a position facing the basket so that there will always be a suitable moment for an unguarded play.

Guard 40 has arms 41 which may be maintained in a generally up-raised position, as shown in Figure 1, but may be oscillated from an extreme upper position to some intermediate position by suitable means. Thus, guard 40 may have a crank arrangement within the body of the guard similar to the crank within the shoulder

portion of player 37. Guard 40 is provided with operating rod 168 extending from within the body down through base 155 to pass through an ear of sheet metal member 169 pivoted at 170. The sheet metal member is apertured at 171 for engagement with wire 173 having end 174 pivotally secured by bolt 175 to anchor strip 176 carried by the baseboard. By suitable arrangement of the linkage system, guard 40 may have the arms moved up and down as the figure is moved along slot 162. In order to provide more interest in the game, the arms of the guard will be permitted to drop from the extreme upper position to some intermediate position at the center of the path of travel of the guard. In this position, the guard is directly between player 37 and basket 43.

Link 160 may be guided in its travel by retaining strip 178 carried by the bottom of the baseboard.

Referring now to basket 43, metal loop 182 is carried within the basket near the discharge end thereof, this loop being anchored to switch block 183 supported from ring fixture 184 upon which the basket is hung. Loop 182 is somewhat larger than the diameter of the balls used in playing and has immediately below it spring finger 186 for controlling a switch within switch block 183. When a ball falls through the spring loop, it strikes finger 186 to close a switch for scoring. Switch block 183 has suitable wires 187 going to any suitable scoring means associated with indicator 27. Inasmuch as scoring means for various types of games are well known, it is deemed unnecessary to describe such a system in detail. Balls on the playing panel 20 gravitate toward the rear of playing panel 20 and fall through a suitable opening to bin 122.

Counting means are also provided for determining the number of balls fed to the player during a game cycle. Thus, switch block 190 carried by the bottom of the baseboard may be actuated each time a ball is fed. As shown, switch block 190 has finger 191 adapted to be contacted by cam 192 on motor shaft 98. One turn of the drive shaft results in one ball being fed to the player and serves to close the switch carried by block 190 once. Suitable counting means may be provided for automatically deenergizing the system at the end of a predetermined number of plays.

The game apparatus thus far described is comparatively simple and fool-proof. It will be noted that spring couplings or lost motion are generally utilized. Thus, beginning with operating handle 35, the only positive force exerted by the handle is when moving rod 80 forward to cause the player to throw the ball. The coupling between the links is by means of springs, thus eliminating close tolerances and damage to any portion of the mechanism in case excessive force is used.

The motor drive for the ball feed and turning of the player mechanism is accomplished through flexible couplings. Thus, cam follower 101 is merely a rod floating on cam 100. Similarly, the ball feed has driving force fed through spring 114. It is evident that, in the event of jamming of the magazine, no damage to any mechanism will result. Similarly, it is possible for a person to hold the player manikin while the motor is running without damage or derangement of the apparatus.

With respect to the guard player, the motor

drive may be through some flexible coupling, not shown.

In order to define the end positions of player 37, suitable stops may be provided. Thus, slide 91 may carry arm 195 operated between adjustable stop fingers 196 and 197.

What is claimed is:

1. A basketball game apparatus comprising a baseboard, a player having movable arms, means for rotatably supporting said player on said board, a basket goal carried by said baseboard at a predetermined height above said board, a guard disposed generally between said player and basket, means operating during a game cycle for moving said guard over a prescribed path, means operating during a game cycle for rotating said player from a normal playing position when the player faces the basket to a ball receiving position and back again, means operating during a game cycle for supplying a ball to said player when said player is in a ball receiving position and manual means for moving the arms of said player to throw said ball, said manual means being selectively operable at any position of said player.

2. A game apparatus for playing a basketball game comprising a player having arms movable vertically, means for rotatably mounting said player on said baseboard, a basket for receiving a ball thrown by said player, a guard disposed between said player and basket, means normally operating during a playing cycle for moving said guard in a path generally perpendicular to the line between said player and basket, means normally operating during a playing cycle for rotating said player periodically from a normal playing position facing the basket to a side position for receiving a ball, means for supplying said player with a ball each time said player reaches a ball receiving position, said player having arms pivoted for vertical movement, said arms being adapted to support a ball and manual means for moving said arms to throw a ball.

3. The structure of claim 2 wherein said player has a member carried by the arms for supporting a received ball and wherein an additional member is disposed below said first-named member and wherein means are provided during the movement of the arms for moving said additional member at a substantially faster rate than said first member.

4. In a game apparatus of the character described, a baseboard having front and rear portions, a goal at the rear portion of said baseboard, a manikin pivotally mounted at the front portion of said baseboard, said manikin having arms pivotally mounted at the shoulders, manually controlled means for moving said arms upwardly to throw a ball, means operating during a game cycle for periodically turning said manikin on said pivot from a position facing said goal to a side position and back again to a position facing said goal, means on said baseboard for feeding a ball to said manikin when said manikin is in its side position, a second manikin disposed between said first manikin and goal, means operating during a game cycle for moving said second manikin back and forth along a path generally perpendicular to a line extending between said first manikin and the goal, said ball feeding means and first manikin being operated by one motor and said second manikin being operated by a second motor whereby the movements of said two manikins are substantially independent of each other.

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5. The game according to claim 4 wherein said means for operating said ball feed and first manikin include spring couplings whereby said ball feed or manikin pivoting means may be stopped independently of each other without damage.

6. The game according to claim 4 wherein said manual means for moving the arms of said manikin upwardly includes a spring coupled linkage system, a manual control, a lost motion coupling between said manual control and linkage system, said linkage system being biased normally to a position wherein the arms of the manikin are down for supporting a ball.

JERRY C. KOCL.

ALBERT J. SCHLAPA.

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