Feb. 2, 1954 B. W. FRY 2,668,057

SIMULATED TENNIS GAME

Filed Aug. 2, 1950 3 Sheets-Sheet 1

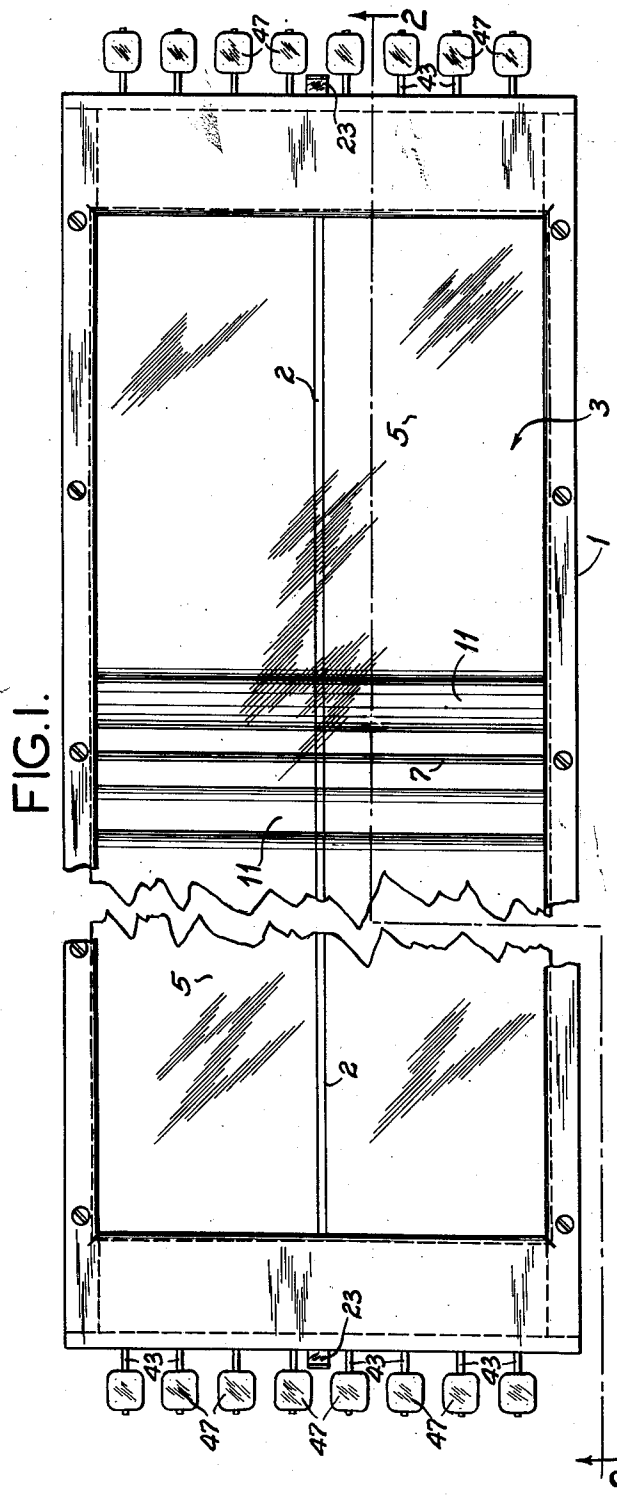


FIG. 1.

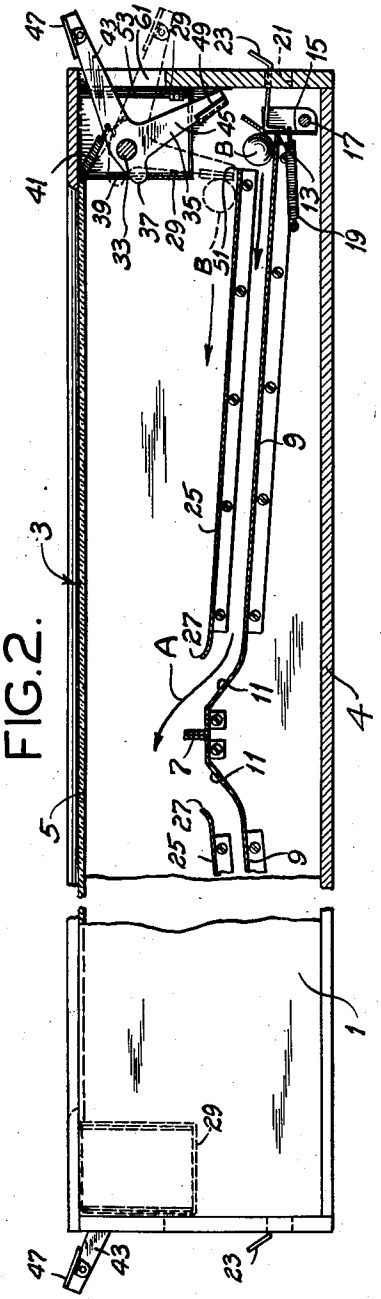


FIG. 2.

Benjamin W. Fry,
Inventor.
Haynes and Koenig,
Attorneys.

Feb. 2, 1954 B. W. FRY 2,668,057

SIMULATED TENNIS GAME

Filed Aug. 2, 1950 3 Sheets-Sheet 2

FIG.5.

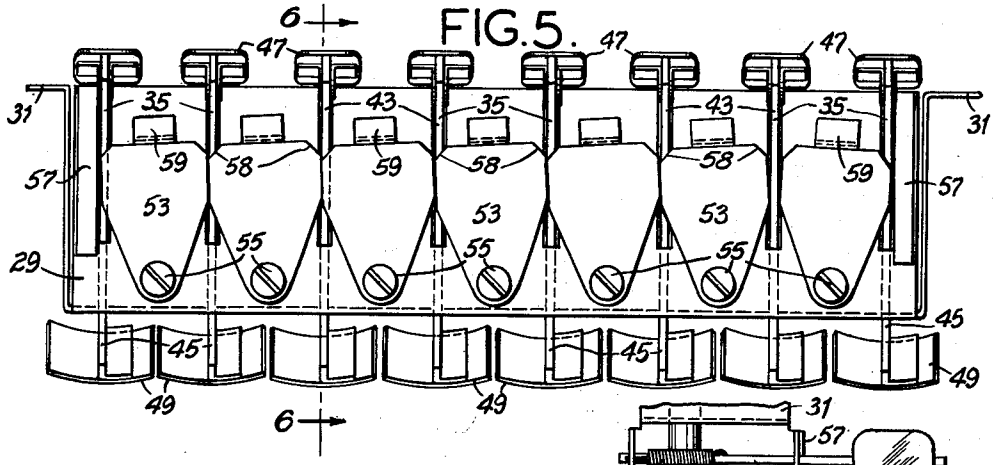


FIG.4.

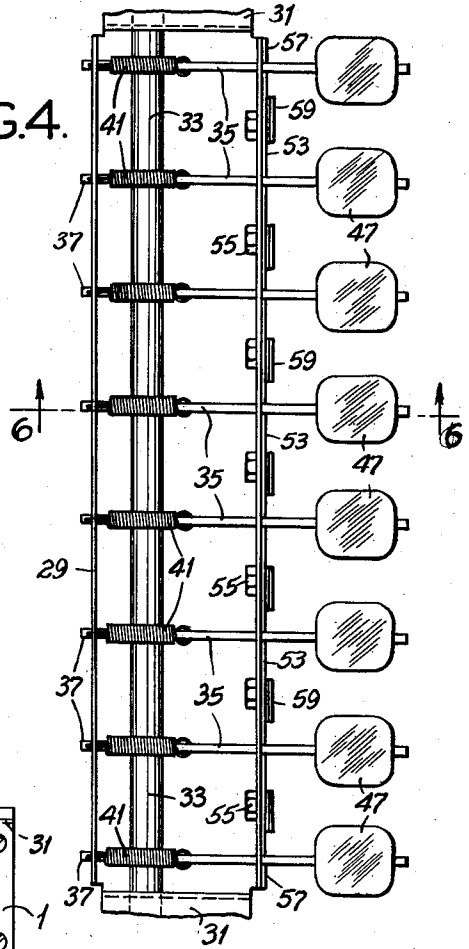


FIG.6.

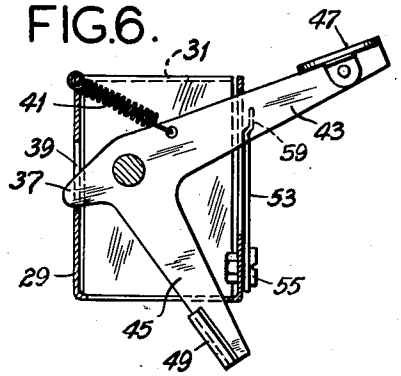
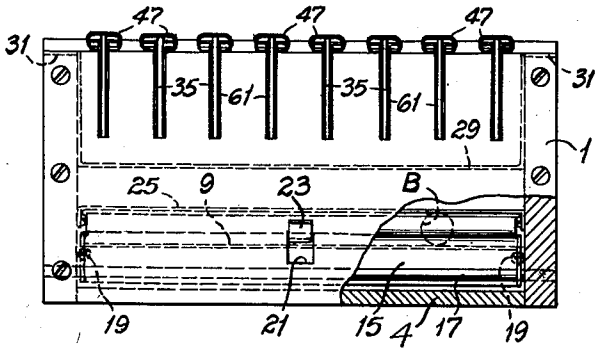


FIG.3.



Benjamin W. Fry,
Inventor.
Haynes and Koenig,
Attorneys.

Feb. 2, 1954 B. W. FRY 2,668,057

SIMULATED TENNIS GAME

Filed Aug. 2, 1950 3 Sheets-Sheet 3

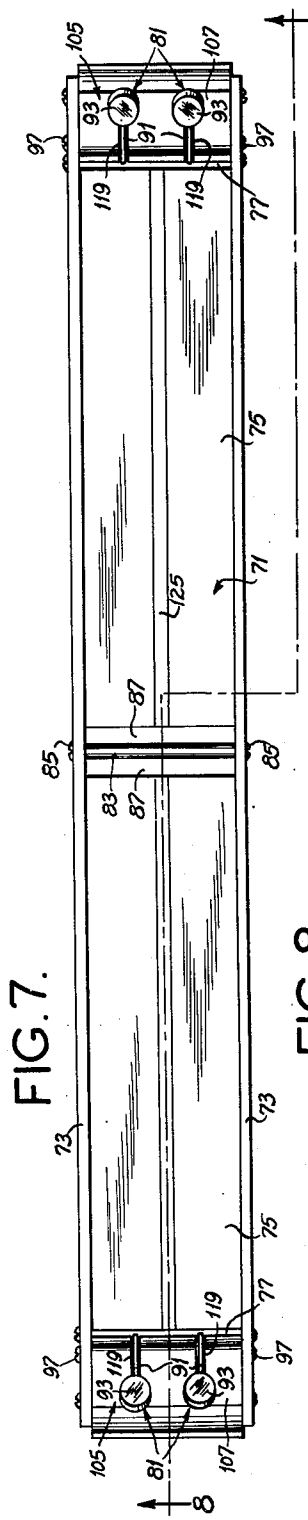


FIG. 7.

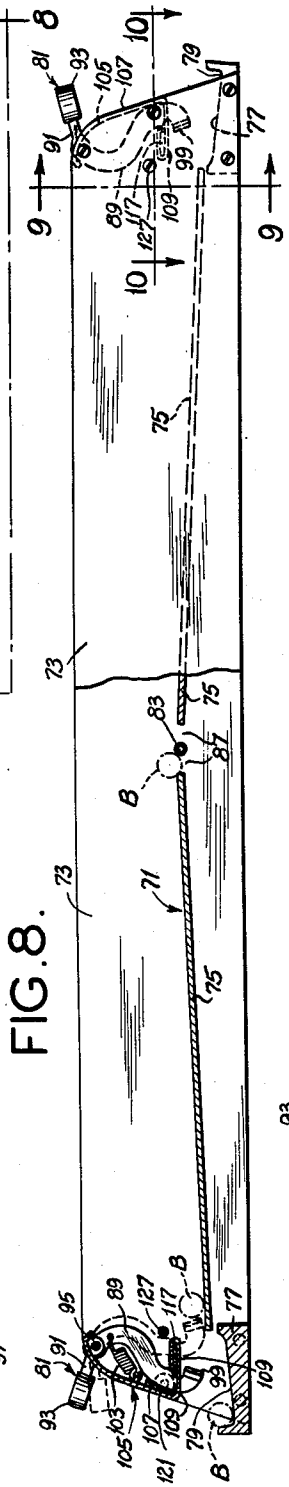


FIG. 8.

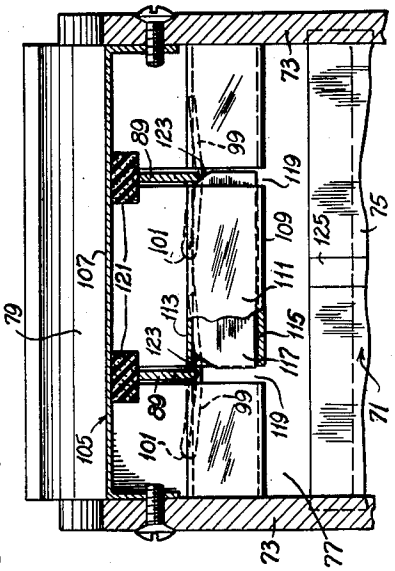


FIG. 10.

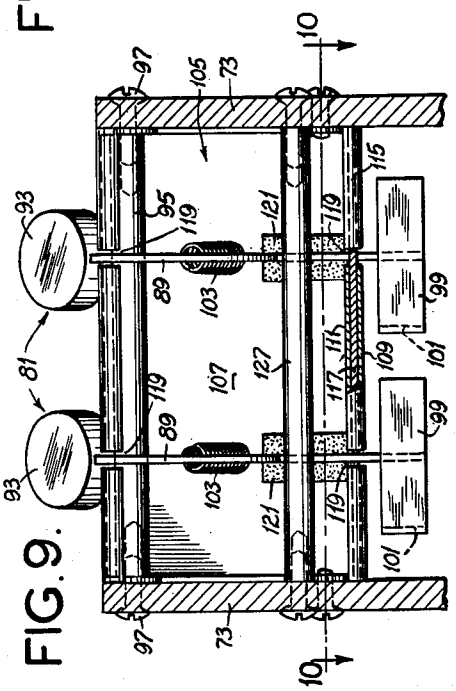


FIG. 9.

Benjamin W. Fry,
Inventor.
Haynes and Kaenig,
Attorneys.

Patented Feb. 2, 1954

2,668,057

UNITED STATES PATENT OFFICE

2,668,057

SIMULATED TENNIS GAME

Benjamin W. Fry, Ladue, Mo.

Application August 2, 1950, Serial No. 177,234

4 Claims. (Cl. 273—85)

1

This invention relates to games, and with regard to certain more specific features, to a mechanical table game simulating in certain of its functions the outdoor game of tennis.

This application is a continuation-in-part of my copending application entitled Game, Serial No. 762,911, filed July 23, 1947 and now abandoned.

Among the several objects of the invention may be noted the provision of a relatively simple and economical mechanical structure providing means for simulating the play of the game of tennis; the provision of apparatus of the class described which ensures a mode of playing the game by both players on a basis of substantial equality; and the provision of a game of the class described wherein with a minimum number of easily operated parts in a compact unit maximum interest may be sustained for a substantial period. Other objects will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, in which several of various possible embodiments of the invention are illustrated,

Fig. 1 is a plan view of one embodiment of my new game, parts between ends being broken away;

Fig. 2 is a vertical section taken on line 2—2 of Fig. 1;

Fig. 3 is a right-hand end view of Fig. 2;

Fig. 4 is a plan view of a key bar construction such as is used at each end of the Fig. 1 game;

Fig. 5 is a front elevation of Fig. 4;

Fig. 6 is a cross section taken on line 6—6 of Figs. 4 and 5;

Fig. 7 is a plan view of a second embodiment of my new game;

Fig. 8 is a view of said second embodiment partly in side elevation and partly in section on line 8—8 of Fig. 7;

Fig. 9 is an enlarged vertical transverse section taken on line 9—9 of Fig. 8, with parts broken away; and,

Fig. 10 is an enlarged horizontal section taken on line 10—10 of Fig. 8, with parts broken away.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring now to the drawings, Figs. 1-6 illustrate a first embodiment of my new game, comprising an elongate box having side walls and end portions, for example about 12 inches wide and 30 inches long, having an upper window opening 3 in which is preferably located a pane of transparent glass or plastic 5 through which play may be observed.

2

Within the box, midway between its ends, is located an upright crossbar, hurdle bar or divider 7 which simulates a net of an ordinary tennis court. It constitutes a hurdle about midway between said ends for a playing ball to be mentioned. The device is longitudinally symmetrical with respect to the hurdle 7 and all parts used on one side of the hurdle 7 are duplicated on the other side. Therefore, in the drawings details of parts in one end only are shown and described, and it may be inferred that the remaining parts are identical, though reversed in positions to be opposite.

Extending in opposite directions from the hurdle 7 are lower ball-serving platens 9, each of which slopes toward a respective end of the machine, at which the respective players are located. Each platen 9 also has an upwardly sloping portion 11 near the hurdle 7, so that any ball, marble or the like (simulating a tennis ball) which is projected up the platen with sufficient velocity, will be projected over the hurdle 7, as indicated by the dart A. The balls take off, if they have sufficient velocity, from a marginal jump portion spaced from the hurdle.

Behind the lower edge 13 of each platen 9 is a holding and play-initiating projecting device in the form of a striker bar 15, which extends entirely across the box 1. This bar 15 is pivoted on a rod 17 and is angularly biased into position against the edge 13 by means of a return spring 19. Extending from the bar 15 through an opening 21 in the end of the box is a central play-initiating key 23. A player, by depressing the key 23 causes the spring 19 initially to stretch. Then by releasing the key 23 he permits the spring 19 to snap the bar 15 forward against the edge 13, thereby projecting up the inclined platen the playing ball indicated at B; provided that this ball is in position against the bar 15, as indicated by solid lines in Fig. 2. It should be observed that the ball B may occupy any of various lateral positions against the bar 15, but that a single finger operation at the initiator key 23 will serve to project the ball up the platen 9. Since the position of the ball B at the bar 15 cannot easily be seen by the players (as will appear), there is an element of surprise in regard to the

point at which the ball B can be expected to jump the hurdle 7 when it is put into play.

Above the platen 9 is a second ball-return-serving platen 25 which simulates and forms a field of play. It and the slope 11 of platen 9 are marked centrally as shown at 2 in order to simulate ground marks of a tennis court. The platen 25 is spaced above the platen 9 a distance slightly greater than the diameter of the playing ball B. It is curved upward, as shown at 27, in order to permit the ball initially to take the path shown by the dart A. The margin at 27 is also spaced from the hurdle 7 to form a jump portion. It will be clear from the above that if the ball has been given sufficient velocity by projection up one platen 9, in jumping the hurdle 7 it will descend upon the opposite playing platen 25. Since the latter, like the platen 9, slopes downward to the opposite end of the device, the ball will proceed toward the opposite player. If the ball is not given sufficient velocity it may drop in between the opposite platens 9 and 25 on the far side of the hurdle 7 and thus be put out of play relatively to platen 25 and arrive at the opposite player's striker bar 15.

In order that each player may effect running play with the ball on the upper play serving platens 25, there is provided adjacent each end of the machine a key bar projecting device which is shown more particularly in Figs. 4–6. Each key bar construction comprises a cross frame 29 having ears 31 for support at an end of the box 1. The structure 29 forms a support for a rock shaft 33 upon which are pivoted spaced bell cranks 35. A lug 37 on each bell crank cooperates with the ends of a slot 39 (Fig. 6) which serves to limit the angular motion of each bell crank. Springs 41 bias the bell cranks in a counterclockwise direction, as viewed in Figs. 2 and 6. Each bell-crank member 35 comprises an outwardly extending key-supporting or key bar 43 and a downwardly extending arm 45. The former (43) carries at its end a striker tab 47 and the latter (45) a curved impact or striker bat 49. Each bat 49 is normally biased by action of the respective spring 41 into a retracted normal position above the adjacent play-initiating bar 15 (solid lines Fig. 2), but when depressed to the dotted-line position can be made to strike a ball descending the upper platen 25. The ball under such circumstances is shown by dotted lines in Fig. 2. If, however, the player improperly anticipates the approach of a ball by selecting for operation the wrong tab 47, the ball will pass to one side of the tab and descend over the rear edge 51 of the upper platen 25 and onto the lower platen 9 in a position against the striker bar 15 and is then ready again to be put into play.

It will be seen from the above that without provision against it, it would be possible for a receiving player to push down all of his tabs 47 and thus assure a return of the ball in play on the platen 25. To prevent this, an interlock construction is used comprising a series of laterally rocking plates 53 which are pivoted at their lower end to the cross member 29 by means of pivots 55. These plates 53 may rock laterally to engage one another sidewise. The end plates 53 are engageable with limiting stops 57. The distance between the inner edges of the stops 57 and the widths of the plates 53 are such that when one key bar 43 of bell-crank member 35 is admitted between one pair of plates 53, no other pair of plates will admit any additional key bar 43. In other words, the operation of one bell crank 35 locks out the operation of any other one. In order that an initially selected key bar may enter between its respective pair of plates 53, the latter are beveled, as shown at 58. It will be noted that the end key bars enter between an end plate 53 and one of the stops 57, the interlocking functions at this point being the same as those between adjacent plates 53. Each plate 53 is provided with a pad 59 to form a bearing between it and the end wall of the box 1, which bearing is flush with the top of each pivot pin 55. Each key bar 43 extends outward from the box through a suitable slot such as shown at 61.

Operation of the game shown in Figs. 1–6 is as follows:

Ball B is normally in the solid-line position, as shown in Fig. 2, which it has assumed after the last play of a former game. It is then in what may be referred to as a crosswise receiving channel formed by the bar 15 and the part of the lower platen 9 extending beyond the upper platen 25. One player is positioned at each end of the box 1. The player at one end, after the other has indicated ready, depresses his play-initiator key 23 and releases it so that the spring 19 snaps it forward against the edge 13, thus projecting the ball B upward along the platen 9 and over the hurdle or net 7, as indicated by the dart A. Assuming that the ball has been projected with sufficient velocity, it will land upon the playing platen 25 on the other side of the hurdle 7 and roll down to the opposite end of the device. As above noted, there is an element of surprise regarding the point at which the ball will emerge and pass over the hurdle 7, because it cannot be seen until just before it jumps the hurdle. This means that the receiving player must quickly decide upon what tab 47 he will depress to meet the oncoming ball for return. If he makes a wrong selection he cannot correct it soon enough because, until the wrongly selected tab has been allowed to return to its initial position, no other one can be depressed. Thus, practically, he may make only one attempt at a return of the ball through operation of one of the tabs 47. Assuming that he presses the proper tab at the proper time, the ball will be projected back at some indeterminate angle up the playing platen 25, as indicated by the dotted bat 49, ball and dart in Fig. 2. At the curve 27 the ball will again be projected over the hurdle 7 and if it has sufficient velocity will land on the opposite platen 25 for similar play by the opposing player. If its velocity is not sufficient, it may jump the hurdle 7 but land on the opposite lower platen 9 and coast down to the respective initiator bar 15. It may also have such small velocity that it will simply roll over the lip 27 over which it passes and coast back to the bar 15 of the player who made the play. In either event, the play must again be initiated. It will be noted in this connection that the ball can at any time be transferred from one player to another for play initiation. This allows the play to be initiated by the player whose turn it is to do so.

Assuming that the receiving player fails to contact a ball rolling down the playing platen 25, the ball having missed his bat 49 will pass under a bat and drop over the edge 51 into position in the receiving recess ahead of the initiator bar 15 of the player who missed it. The ball is then ready again to be put into play.

In connection with the forms of the bats 49 it will be noted that they are shown as being convex toward the ball in play. Thus a ball contacted

by a bat 49 may go off at an unpredictable tangent and even carom against the sides of the box in moving up the platen 25. If as is possible, the curvatures of the bats 49 were made flat, or concave toward the ball, there would be less element of chance and more element of skill introduced.

Scoring may be effected as in an ordinary game of tennis or any other desirable way, the criterion being that a bad serve from the striker bar 15, or a bad volley from a bat 49 or a miss by the latter is a point of relative demerit.

The fact that the game is enclosed by its box and has the transparent top over the playing field prevents interference with the actions of the ball by over-zealous players. However, more economical models may be made without the pane 5 and even the bottom 4 of the box may be omitted. If it is desired to permit an opposing player to view an oncoming ball for a longer period of time, the upper platens 25 may be made transparent.

Figs. 7–10 illustrate a second and simplified embodiment of my new game comprising a playing field 71 provided with side walls 73 to retain a ball B in play on the field. The playing field is defined by the surfaces of two flat bottom members 75 which slope downward from the center of the field toward its ends. The bottom members 75 and the sides 73 make up a long narrow trough-like box structure, open at the top. At the ends of this box structure are transverse ball-receiving troughs or recesses 77 fixed in position between the sides 73 and located outward of and somewhat below the level of the ends of the playing field. The floor 79 of each ball-receiving trough 77 slopes downward toward the respective end of the structure.

Mounted adjacent each end of the playing field is a series of striking devices 81. As shown, there are two such devices in each series, located side-by-side. Each striking device comprises a striker which is manually movable from a retracted position clear of the respective end of the playing field to strike the ball (or other object) in play and project it upon the field at random toward the other end of the field. If a player fails to strike the ball with an appropriate striker, it will drop off his end of the field into the respective trough 77, whereupon it rolls outward upon the inclined floor of the trough to a position such as shown in dotted lines at the left of Fig. 2, from which it may be readily picked up to be put back into play.

As shown in Figs. 7 and 8, there is a space between the adjacent ends of the two bottom members 75 at the center of the structure. A tubular spacer or hurdle bar 83 extends transversely across this space between the sides 73, screws 85 being threaded into the ends of the spacer. The spacer is located generally at the level of the adjacent but spaced ends of the inclined bottom members and divides the space between these ends of these members into two spaces 87 extending transversely across the structure, each narrower than the diameter of the ball B.

Each striking device comprises a bell crank, one arm 89 of which constitutes a striker, and the other arm 91 of which carries a key tab 93. The bell cranks are sheet metal stampings, and the cranks of each series are pivoted on a shaft consisting of tubular spacer 95 which extends transversely between the sides 73 above the respective end of the playing field. Screws 97 extend through the sides 73 into the ends of the spacer. The striker arms 89 of the cranks extend generally downward from the spacers 95 and the key tab arms 91 extend outward. Each striker arm 89 has a bat 99 at its lower end facing toward the playing field. Each bat consists of a tongue formed integrally with the striker arm 89 bent to have a portion extending laterally outward from the arm at its lower end and bent back upon itself at 101 to extend crosswise of the lower end of the arm (see Figs. 9 and 10). As shown in Fig. 10, the bats may be convexly curved.

Each bell crank is biased by a spring 103 to its retracted normal position, wherein its respective bat is positioned outward away from the respective end of the playing field a distance greater than the diameter of the ball B. The retracted position of the bell cranks is shown in solid lines at the left of Fig. 8 and in dotted lines at the right. Each spring 103 is a tension spring, connected at one end to the striker arm of its respective bell crank and at its other end to a member 105 at the respective end of the structure, to bias the respective bat away from the respective end of the playing field. By depressing a key tab 93, the respective bat may be swung toward the respective end of the playing field against the bias of the respective spring 103, the arrangement being such that the bat just clears the upper surface of the end of the playing field.

Each end member 105 comprises a sheet metal blank bent to provide a curved end wall 107 closing the upper part of the respective end of the box structure between the sides 73 and a generally horizontal bottom wall 109 which extends inward from the lower margin of the end wall 107 toward the playing field a sufficient distance above the respective end of the playing field 71 and the trough 77 to permit the ball to drop off the field into the trough and roll down the inclined floor of the trough. An integral portion 111 of the blank is bent back to extend horizontally above the bottom wall 109 and has a flange 113 (see Fig. 10) bent down toward the bottom wall 109, the flange being spaced forward of the end wall 107 a distance somewhat greater than the width of the striker arms 89.

The part 111, flange 113, and the portion of the bottom wall 109 under part 111 define a guide 115 for a laterally slidable interlock plate 117, there being one such plate in each guide at each end of the box structure. The flat striker arms 89, which swing in longitudinal planes, extend through slots 119 cut in the bottom walls 109 back to the end walls 107 and also cut in the parts 111 and 113, the bats 99 being below the bottom walls 109. In their retracted positions, the striker arms 89 bear against resilient noise-reducing pads 121, of rubber or the like, fixed to the end walls 107, and the arms protrude slightly beyond the flanges 113 (see Fig. 10). Each interlock plate 117 has a length corresponding to the lateral spacing of the central planes of the two respective striker arms and slots (see Figs. 9 and 10), and slides in the guide 115 between the two respective slots. The corners of each interlock plate toward the respective end wall 107 are bevelled as indicated at 123. The arrangement is such that when one striker arm of a series is swung forward in its slot 119 from its retracted position, the interlock plate blocks the other slot 119 to lock the other striker arm of the series out of operation.

Reference character 125 denotes a longitudinal center line on the playing field 71 for aiding the

players in determining which striker to operate. The forward movement of the strikers of a series are limited by stop bars **127** extending transversely between the sides **73**.

Operation of the game shown in Figs. 7–10 is as follows:

The ball is put into play either by allowing it to roll down the playing field toward one of its ends or by projecting it toward said one end of the field by striking it with one or the other of the strikers at the other end of the field. The player at the said one end of the field must decide which striker has to be operated to strike the ball and project it back toward the other end. If he makes the wrong selection or times his play wrong, the ball drops off the end of the playing field into the respective trough **77**. Due to the interlock as between the two strikers of a series, a player does not have sufficient time to correct a wrong selection, nor can he actuate both strikers at the same time. Assuming that he makes the proper selection, and times the striking properly, the ball will be projected at random on the ungrooved surface of the playing field toward the other end of the field, jumping over the spacer **83**, which simulates a net, if struck with sufficient force. If not struck with sufficient force to cross the spacer **83**, it will simply roll back down for the player to strike again or lodge in a space **87**, from which it may be removed and allowed to roll back down. Then, the other player returns the ball, and so on, until one player misses and the ball drops out of play into one or the other of troughs or recesses **77** below the bats **99**. Then, it is simply picked up and put back into play.

From the above, it will be seen that the game of this invention, either in its embodiment shown in Figs. 1–6 or in its embodiment shown in Figs. 7–10, involves considerable skill and coordination to maintain the ball in play on the playing field, inasmuch as a player must quickly make the proper decision as to which striker should be operated, and also time the operation of the striker properly, otherwise the ball will drop off the field out of play. Nevertheless, a factor of chance enters in that the velocity and angle of ball movement are indeterminate, as already explained in connection with the first form of the invention described in connection with Figs. 1–6. Also, with the provision of the interlocks, it is impossible for a player to operate all of his strikers simultaneously. I have found that two strikers in each series, as in the embodiment shown in Figs. 7–10, are quite adequate to make the game sufficiently difficult to sustain interest. Scoring may be effected in any manner desired, as in tennis, for example.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A table game construction comprising side walls and end portions defining a rectangular playing area, a hurdle bar extending crosswise between the side walls substantially midway between said end portions, ungrooved ball-serving platens having adjacent marginal jump portions spaced from said bar and sloping downward toward said end portions, groups of finger-operated ball-projecting bats pivoted near the lower ends of the platens, said bats having ball-engaging bat faces, means biasing each bat to a normal position, a ball-receiving recess below said faces of a group of bat faces and at the lower margins of the platens respectively, the normal positions of the bats allowing an unbatted ball to escape from the adjacent platen to a point below the bats, an interlock mechanism between the individuals of the respective bat groups preventing operation at one time of all except one of the individuals, whereby only one bat at a time may be operated to project a ball up a platen, and whereby a batted ball will move up a platen indeterminately as to speed and angle so as to reach the jump portions with or without engaging the hurdle bar, thus either to roll back down the platen or to jump the hurdle and drop down onto the other platen for indeterminate descent to the other group of bats, with or without engaging the side walls.

2. A table game construction made according to claim 1, wherein the ball-engaging faces of the bats are of convex form so as to produce angular ball movement when a ball is projected by a bat up along a platen.

3. A table game construction made according to claim 1, wherein there is one platen on each side of said hurdle bar.

4. A table game construction made according to claim 1, wherein there is a pair of vertically spaced platens on each side of said hurdle bar.

BENJAMIN W. FRY.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,662,162	Nestor	Mar. 13, 1928
2,019,797	Pierce	Nov. 5, 1935
2,167,847	Olken	Aug. 1, 1939
2,215,637	Carter	Sept. 24, 1940

FOREIGN PATENTS

Number	Country	Date
680,997	France	Jan. 27, 1930
758,054	France	Oct. 23, 1933
416,790	Great Britain	Sept. 21, 1934
420,749	Great Britain	Dec. 3, 1934
787,430	France	July 8, 1935
505,683	Great Britain	May 16, 1939