May 15, 1928. 1,669,822

T. D. GREGG

GAME APPARATUS

Filed March 14, 1927 2 Sheets-Sheet 1

Fig. 1,

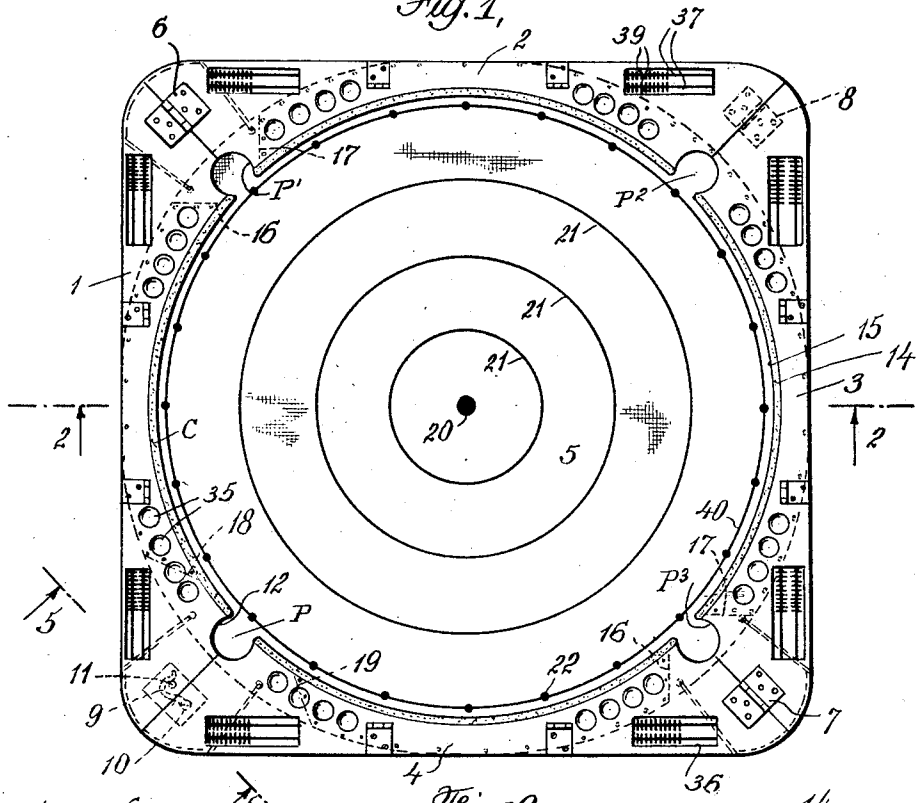


Fig. 2,

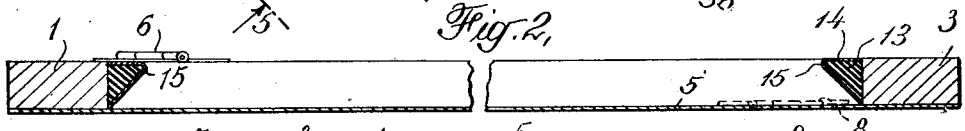


Fig. 3,

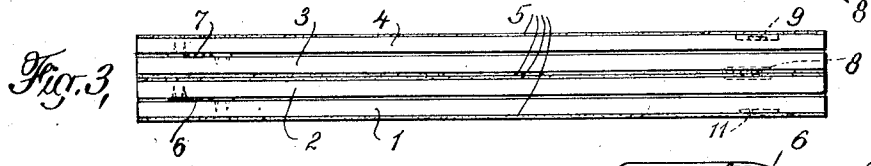


Fig. 5,

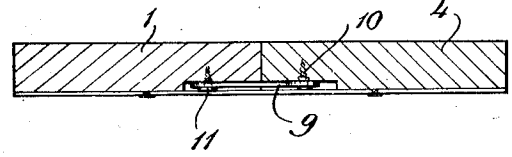
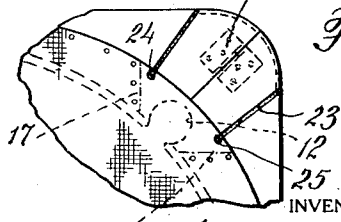


Fig. 4,



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Filed March 14, 1927 2 Sheets-Sheet 2

Fig. 6,

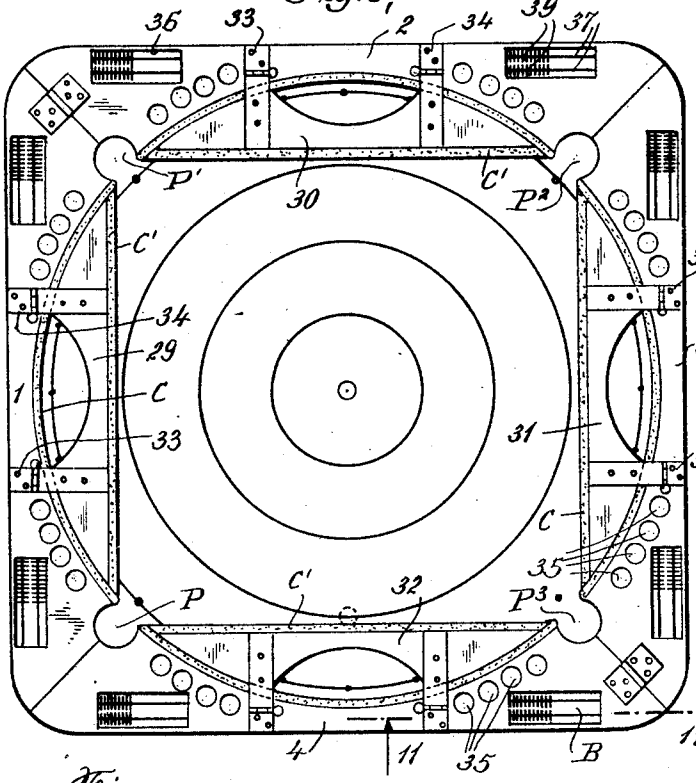


Fig. 7,

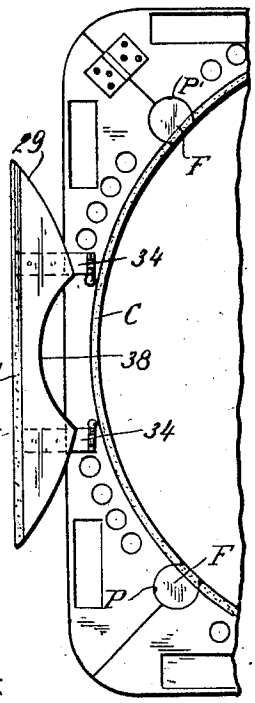


Fig. 8

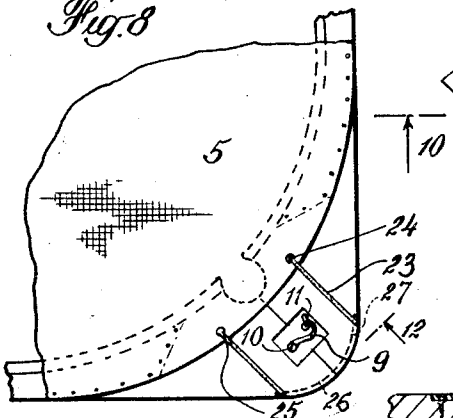
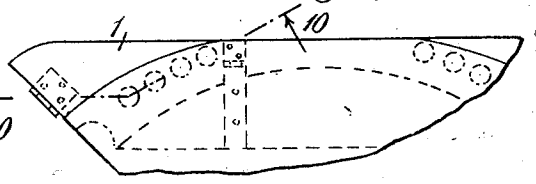


Fig. 9,



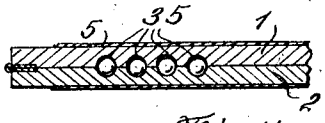


Fig. 10,

Fig. 11

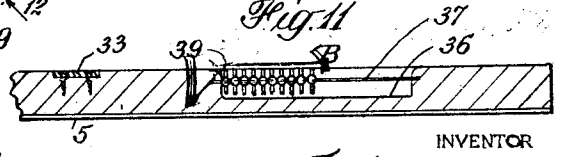
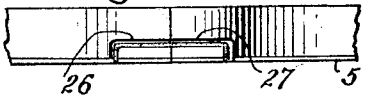


Fig. 12,



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Patented May 15, 1928. 1,669,822

UNITED STATES PATENT OFFICE.

TRESHAM D. GREGG, OF PLAINFIELD, NEW JERSEY.

GAME APPARATUS.

Application filed March 14, 1927. Serial No. 175,046.

This invention relates to apparatus for use in the playing of games, and more particularly concerns apparatus for use in games of the type in which the rebound of one or more rolling balls from a suitable surface is employed.

One well known and highly interesting type of game which has gained a high degree of popularity, employs a board or table having a smooth, level surface surrounded by cushions or other suitable means, the game being played by striking balls with cues or other similar instruments in such a manner that the balls rebound from the cushions and strike each other or drop into suitable pockets or openings through the cushions. Such games, commonly known as billiards or pool, are played upon tables or boards of rectangular shape having straight cushions with or without pockets therein. It is an object of the present invention to provide apparatus for playing games of this general type employing cushions which are curved, preferably in the form of a circle. With this arrangement, the manner in which the balls rebound from the cushions is quite different from the rebound obtained where straight cushions are employed, and many highly interesting and novel games may be developed by the use of such curved cushions.

It is a further object of the present invention to provide a game board of the type described embodying means whereby the cushions may be readily and quickly changed from the curved or circular type described to the straight or rectangular type, thus producing a device which is adaptable to a wide variety of games.

The game apparatus of the present invention may be constructed in the form of a permanent table, or it may be designed for use in homes or other places in which a limited space is available, and in which it is necessary or desirable to remove the game apparatus when not in use, so that the space occupied thereby may be used for other purposes. In the present embodiment of the invention, the game apparatus is shown in the form of a game board of collapsible construction which may be placed on a table or other available flat surface when in use, and may be folded up to a compact and convenient size and stored in a comparatively small space when not in use.

It is a further object of the invention to provide a game board having compartments therein in which the balls used in playing the game may be conveniently carried when the board is folded up.

It is a still further object of this invention to provide lines, marks or other indicia on the surface of the game board which may be employed to assist the player in ascertaining the manner in which a ball will rebound if struck against a cushion in a particular manner.

It is a still further object of the present invention to provide a game apparatus of the type described which is of light and strong construction, which may be easily and inexpensively manufactured and which occupies a minimum amount of space when not in use.

Other specific objects, advantages and characteristic features of the game apparatus comprising the present invention will be pointed out or will become apparent as the description thereof progresses.

In describing the invention in detail, reference will be made to the accompanying drawings in which;

Figure 1 is a top plan view of the game apparatus of the present invention in its extended or open condition, the straight cushion inserts being removed to simplify the disclosure;

Fig. 2 is an enlarged sectional view of the game board taken along the line 2—2 of Fig. 1;

Fig. 3 is a side view of the game board in its folded or collapsible condition;

Fig. 4 is a plan view of the lower face of one corner of the game board;

Fig. 5 is a sectional view taken along the line 5—5 of Fig. 1, and viewed in the direction of the arrows;

Fig. 6 is a top plan view of the game board with the movable straight cushion inserts in position for use;

Fig. 7 is a partial plan view of the board, showing one of the straight cushion inserts swung back to expose the arcuate or curved cushion;

Fig. 8 is a bottom plan view of one corner of the board showing the means for tightening the cloth thereon when in use;

Fig. 9 is a plan view of a portion of the board when folded up;

Fig. 10 is a sectional view taken along the line 10—10 of Fig. 9;

Fig. 11 is a sectional view taken along the line 11—11 of Fig. 6; and

Fig. 12 is a side view of the edge of the board at the corner thereof shown in Fig. 8.

Referring to the drawings, and more particularly to Figs. 1 and 2, the embodiment of the game apparatus shown comprises in general four comparatively thin strips 1, 2, 3 and 4, fastened together at their ends and shaped to form a rectangular frame having a circular central opening, this opening being covered by a circular piece of cloth or other suitable material 5 which is secured to the lower surface of the strips and is firmly stretched therebetween.

Each of the strips 1, 2, 3 and 4 is cut at both ends at an angle of substantially 45° to its outside edge as shown, and the strips 1 and 2 are connected by a hinge 6 of a suitable type, secured on the upper surfaces of these strips by suitable means such as screws or bolts. The strips 3 and 4 are connected by a similar hinge 7 secured to the upper surfaces thereof, while the strips 2 and 3 are connected by a hinge 8 secured to the lower or bottom surfaces thereof. The strips 1 and 4 are preferably connected by a releasable fastening means of any suitable or well known type. In the embodiment shown, this fastening means takes the form of a hook 9, pivotally secured to the strip 4 by the screw 10 and engaging a screw or pin 11 fixed to the strip 1. The hook 9 and its associated screw and pin are preferably located in cooperating depressions in the strips 1 and 4 as shown in Fig. 5, in order that these parts will not come into contact with the table or other support upon which the game board rests, and the hinges 6, 7 and 8 may be similarly countersunk in the strips if desired. The strips 1, 2, 3 and 4 may be constructed of any suitable material but are preferably formed of wood.

From the description given, it will be apparent that the strips forming the frame of the game board may be folded up to substantially the size of one of these strips. To accomplish this, the strips 1 and 4 are first lifted and folded over about the axis of the hinges 6 and 7 until they coincide with the strips 2 and 3 respectively. The hook 9 is then released from the pin 11, and the two pairs of strips 1—2 and 3—4 are folded together about the axis of the hinge 8, the bottom faces of the strips 2 and 3 coming into contact with each other.

The inner corners of each of the strips 1, 2, 3 and 4 are cut away at 12 to form a rounded notch therein, these notches cooperating to form curved pockets P, P_1, P_2 and P_3 when the board is open for use as shown in Figs. 1 and 6. The openings of the pockets are slightly larger than the diameter of the balls to be used in playing the game, whereas the diameter of the pockets is considerably larger than the diameter of these balls. In this manner, a ball played into a pocket is usually retained therein by the narrow opening of the pocket. If desired, suitable dead cushions, such as pads formed of cloth or other material filled with sand may be attached to the walls of the pockets to deaden the rebound of the balls therein. Each of the strips 1, 2, 3 and 4 is provided with a cushion C on the inner arcuate edge thereof. These cushions extend the entire distance between the edges of adjacent pockets P and may be constructed of any suitable materials or in any suitable form. As shown, the cushions C comprise a substantially triangular rubber strip 13 covered with a suitable material such as felt cloth 14. The cushions C are arranged to present a slightly curved or rounded edge 15 at a distance above the playing surface of the cloth 5 slightly greater than the radius, but less than the diameter of the balls used in playing the game. Although one specific form of cushion has been shown, it should be clearly understood that any other suitable type of cushion might be employed.

The cloth 5, forming the playing surface of the board is cut in substantially circular form as shown in Fig. 1, and is tacked, glued or otherwise suitably secured to the lower surfaces of the strips 1, 2, 3 and 4. The cloth 5 is fastened to the strips 2 and 3 up to their meeting edges behind the pocket P_2, but at the diagonally opposite pockets P_1 and P_3 the cloth is left free from the strips between the diagonal lines 16 and 17. At the pocket P, the cloth 5 is left free from the strips 1 and 4 for a greater distance than at the pockets P_1 and P_3, the cloth being fastened to the strips up to points represented by the lines 18 and 19. With this method of fastening, the cloth 5 is not unduly stretched or deformed when the game board is folded up. When the strips are folded along the hinges 6 and 7, the cloth at the pockets P_1 and P_3 falls into these pockets and so is relieved of any tension, and when the strips are folded about the axis of the hinge 8, the cloth at the pocket P drops partly into this pocket and partly into the central opening of the board.

The cloth 5 is preferably provided with a spot 20 at the center of the circular opening of the board, and is further marked with a plurality of suitably spaced concentric circles 21. In addition, a plurality of marker spots 22 are provided near the cushions C at points equally spaced around the circumference of the central opening. These marker spots 22 are preferably spaced a radial distance from the cushions C substantially equal to the radius of the balls used. The spots 20 and 22 and the circles 21 may be printed, painted or in any other manner formed on the cloth 5. These markers on

the cloth 5 aid the players in predetermining the behavior of balls struck in a given manner as hereinafter described.

In order to maintain the playing surface smooth and tight when the board is in use, elastic stretching means are provided at the pockets P, P_1 and P_2. In the embodiment shown, a loop of elastic material 23 such as rubber or elastic tape is suitably secured to the edge of the cloth 5 at the points 24 and 25, adjacent each side of each of the pockets P, P_1 and P_2 as shown in Figs. 1, 4, 8 and 12. Grooves 26 and 27 are provided in the edge faces of the frame strips at the corners thereof, these grooves coinciding at the meeting points of the strips and forming continuous channels in which the loops 23 may be retained as clearly shown in Fig. 12. The length of the loops 23 is so arranged that they are stretched and cause a slight pull on the cloth 5 when these loops are placed within the grooves 26 and 27. The loops 23 and the grooves 26 and 27 are so arranged that the pull exerted on the cloth 5 is substantially radial with respect to the center of the cloth, and in this manner the cloth is maintained taut and smooth. No loop is provided at the pocket P_2, as the cloth is secured to the strips 2 and 3 continuously behind this pocket. When the board is folded up, the loops 23 are released from the grooves 26 and 27.

As explained above, it is sometimes desired to play a game employing straight cushions between the pockets. In order that the game board of the present invention may be adaptable for use with either straight or curved cushions, four insert strips, 29, 30, 31 and 32 having straight inner edges are hinged to the strips 1, 2, 3 and 4 respectively. These insert strips are removed in Fig. 1, in order to simplify the disclosure of that figure, but are shown in place in Fig. 6, and in Fig. 7 one of these strips is shown folded back to permit the use of the curved or arcuate cushions C. Each insert strip is fastened to the corresponding frame strip by means of two hinges 33 and 34 secured by suitable means to the upper surfaces of the strips as shown in Fig. 6, these hinges permitting the insert strips to be folded back away from the playing surface to permit the use of the curved cushions C on the strips 1, 2, 3 and 4, as shown in Fig. 7. The insert strips are provided with suitable cushions C′ on the straight edges thereof, these cushions being suitably tapered at the ends of the strips so that they extend to the edges of the pockets P. The insert strips 29, 30, 31 and 32 are preferably cut away between the hinges 33 and 34 as shown at 38 to lighten these parts and also in order that the insert strips will not lie over or near to the curved cushions C when folded back as shown in Fig. 7, and so interfere with the playing on the curved cushions. When the game board is to be folded up, the insert strips are folded down within the central circular opening of the board, and thus do not in any way interfere with the folding of the frame strips as described above.

The game board of the present invention is provided with convenient means for carrying the balls used in playing thereon. The frame strips 1, 2, 3 and 4 are provided with a plurality of substantially semi-spherical depressions 35 in the upper surfaces thereof adjacent the pockets, as clearly shown in Figs. 1, 6, 9 and 10. These depressions are symmetrically arranged with respect to the axes of the hinges 6 and 7 so that the depressions 35 in the strips 1 and 4 cooperate with the depressions in the strips 2 and 3 respectively to form spherical cavities or compartments when the strips are folded together as shown in Figs. 9 and 10. When the game board is to be folded and put away, the balls used in playing thereon are placed in the depressions 35 in the strips 2 and 3, and the strips 1 and 4 are folded over on top of the strips 2 and 3 as described above, the depressions 35 in the strips 1 and 4 engaging the balls and so retaining them between the strips 1—2 and 4—3 respectively. In this manner, the balls are conveniently packed away and are always at hand when the board is opened up for use. The number of depressions provided may be varied in accordance with the number of balls to be used in playing the game. The cues used in striking the balls may be placed within the central opening of the board when it is folded up and are retained therein by the cloth 5.

Games of the type played on the board of the present invention are often scored by means of counters of the type in which perforated discs or buttons are slid along a rod or wire. In the game board of the present invention, a plurality of these counters B are located in depressions or channels 36 cut in the upper surfaces of the frame strips 1, 2, 3 and 4 as clearly shown in Figs. 1, 6 and 11. The counters may take any suitable form, but preferably comprise two or more parallel wires or rods 37, each carrying a plurality of perforated discs 39 thereon. The discs 39 on one of the rods 37 of each counter B may be employed to represent a larger number of score units than those on the other rod. For example, the discs on one rod may each represent one point whereas the discs on the other rod of the same counter may represent ten points of the score. The discs of the counters B are preferably colored to correspond with the color of one of the balls used, so that each player may readily identify his counter by the color of the ball he is using. The number of counters B may, of course, vary

from that shown in the disclosed embodiment of the invention.

If desired, pocket fillers of any well known or suitable type may be provided to fill the pockets P and so provide a game board having continuous unbroken cushions. Such pocket fillers are preferably formed to have a push fit in the pockets P and carry a section of cushion at one edge thereof to bridge the space between the cushions on either side of the pockets. Two of these pocket fillers F have been shown in place on the pockets P and P_1 in Fig. 7, it being understood that four of these fillers are provided for use in the four pockets.

In playing upon the game board of the present invention with the insert strips 29, 30, 31 and 32 removed and the circular cushions C exposed, the spots 20 and 22 and the concentric circles on the cloth 5 are of great assistance in predetermining the behavior of the balls when struck in any given direction by the players. The line of travel of a ball rebounding from the circular cushions C will lie at an angle to the radius of the circle, taken from the point of contact with the cushion, equal to the angle of incident between this radius and the approaching ball. In this manner, the spot 20 at the center of the circle and the spots 22 adjacent the cushions aid the player in determining the radius to be considered in calculating the proper line of travel of the rebounding ball, and thus the point where the ball should strike the cushion. If a ball is struck in such a manner as to travel along a line tangent to one of the concentric circles 21, the ball being struck with such force as to rebound several times, the line of travel of each successive rebound will lie tangent to the same circle and the complete path of the ball will trace a polygon having the midpoint of each of its sides tangent to the given circle. The polygonal paths of the balls, tangent to each circle, may be marked on the cloth if desired, such marking forming a pleasing ornamental design on the cloth. The marker spots 22 are located at a distance from the edge of the cushions substantially equal to the radius of the ball in order that these spots may indicate the points at which the center of the ball changes its direction of travel in rebounding. The player is thus enabled to predetermine the direction in which he must propel the ball to have it rebound in a given direction much more accurately than would be the case if the marker spots were located on the edges of the strips back of the cushions C. If desired, a large circle may be marked on the cloth 5, extending through the marker spots 22, and such a circle has been shown at 40. It will be readily apparent that the central spot 20, the marker spots 22 and the concentric circles 21 and 40 are of great assistance to the player in predetermining his shots in many ways in addition to the specific examples pointed out above.

The game board of the present invention presents many advantageous features. As described above, the board may be folded to a very compact size when not in use, and the balls and cues may be packed within the folded board, and in this manner the loss or misplacement of these parts is avoided. The counters for scoring the points made by the players are integral with the board, and so are conveniently disposed for use by the players. The arrangement of the insert strips permits the cushions to be quickly changed from the curved or circular type to the straight or rectangular type and these insert strips are so constructed and connected to the frame strips that when swung back they do not interfere with the hand of a player when it is rested on the curved cushion C to guide the cue.

The strips forming the frame of the board and the inserts are of such a shape that they may be cut from a single board or plank with a minimum waste of material. A board or plank having the desired thickness and having a width slightly greater than the greatest width of the finished frame strips is cut into equal lengths along lines at 45° to the edges thereof, alternate cuts being made at right angles to each other. Each section so cut is then cut along an arcuate curve to separate the frame strip and the insert strip, the insert strip being later cut away at its curved surface as shown at 38. Thus it is readily apparent that the game board of the present invention may be very easily and economically constructed with a minimum amount of labor.

Although the game apparatus of the present invention is shown in connection with a single specific game board of the collapsible type, it should be understood that the invention is not limited to the particular embodiment shown, and may vary in many respects within the limits defined by the appended claims. For example, the circular game apparatus of the present invention may be constructed in the form of a permanent, non-collapsible table or board, the insert strips forming straight cushions may be arranged to be completely removable from the board, and many other changes and modifications may be made.

I claim:

1. Apparatus for use in playing games comprising a plane surface surrounded by walls comprising strips, the inner edges of said strips being employed in playing the game, said strips having depressions therein, and means mounted within said depressions for recording the scores of the players.

2. A collapsible game board comprising a plurality of strips, hinge means connecting

said strips to form a closed polygonal frame, said hinge means permitting the surfaces of certain of said strips to be folded into engagement with each other, said strips having depressions in the surfaces thereof, and score recording means mounted within said depressions, said depressions completely enclosing said recording means when said strips are folded together.

3. In a collapsible game board, a frame having a central opening comprising a plurality of strips, hinges connecting at least one end of each of said strips to an adjacent strip whereby all of said strips may be folded together about said hinges to lie in stacked relation, and a cloth secured to one surface of said strips and forming a plane surface covering said central opening of said frame.

4. A collapsible game board comprising a plurality of strips, means for hingedly connecting at least some of said strips at their ends, adjacent strips being connected at an angle to each other, whereby said strips form a continuous wall surrounding a central opening, and a flexible cloth secured to one surface of all of said strips and covering said opening.

5. A collapsible game board comprising a plurality of strips connected end to end by hinges, each adjacent pair of strips extending at equal angles to each other, whereby said strips form a frame surrounding a central opening, releasable means for connecting two of said strips, and a flexible cloth secured to one surface of all of said strips and forming a plane surface surrounded by a wall formed by the inner edges of said strips.

6. Apparatus for use in playing games comprising a plane surface surrounded by a continuously curved wall and means insertable within said curved wall for forming straight walls around said surface.

7. Apparatus for use in playing games in which the rebound of an object from a wall is employed comprising a plane surface surrounded by a circular wall and means secured to said circular wall and movable to a position within said wall, said means having straight edges and forming a polygonal wall about said plane surface when moved within said circular wall.

8. Apparatus for use in playing games in which the rebound of an object from a wall is employed comprising a plane surface surrounded by a continuously curved wall having a plurality of pockets therein and a plurality of insert strips hingedly secured to said wall and movable into and out of contact with said said wall, said insert strips having straight edges forming straight walls extending between the adjacent pockets in said curved wall when said strips are in contact with said curved wall.

9. Apparatus for use in playing games in which the rebound of an object from a wall is employed comprising a plane surface surrounded by a circular wall having a plurality of equally spaced pockets therein and a plurality of insert strips hinged to the upper surface of said circular wall and movable into and out of contact with the inner edge of said circular wall, said insert strips having straight inner edges forming straight walls extending between said pockets when said strips are in contact with the inner edge of said circular wall.

10. A collapsible game board comprising a plurality of strips movably connected end to end, each adjacent pair of strips extending at an angle to each other whereby said strips form a frame surrounding a central opening, each of said strips having a continuously curved inner edge, whereby the inner edges of said strips form a continuously curved wall around said central opening and straight edged inserts secured to at least some of said strips and movable into engagement with the inner curved edges of said strips whereby straight walls may be provided for said central opening.

11. A collapsible game board comprising a plurality of strips movably connected end to end, each adjacent pair of strips extending at an angle to each other whereby said strips form a frame surrounding a central opening, each of said strips having a continuously curved inner edge, whereby the inner edges of said strips form a continuously curved wall around said central opening, a flexible sheet secured to one surface of all of said strips and forming a plane surface covering said central opening, and straight edged inserts secured to at least some of said strips and movable into engagement with the inner curved edges of said strips whereby straight walls may be provided for said central opening.

12. A collapsible game board comprising a plurality of strips and means connecting said strips end to end at an angle to each other to form a closed polygonal frame, said connecting means being flexible to permit said strips to be folded together, and said strips having notches at the inner corners at the meeting edges thereof, which notches cooperate to form pockets at spaced points along the inner edges of said frame.

13. A collapsible game board comprising a plurality of strips, hinge means connecting said strips end to end at an angle to each other to form a closed polygonal frame, said hinge means permitting said strips to be folded into stacked relation, and a flexible cloth secured to one face of said strips and covering the central opening of said frame, said strips having notches at the inner corners of the meeting edges thereof, which notches cooperate to form pockets at spaced

points along the inner edges of said frame.

14. A collapsible game board comprising a plurality of strips, and hinge means connecting said strips to form a closed polygonal frame, said hinge means permitting the surfaces of certain of said strips to be folded into engagement with each other, said strips having depressions in the surfaces thereof which depressions cooperate when said strips are folded together to form compartments for retaining articles used in playing games on the board.

15. Apparatus for use in playing games in which the rebound of circular objects from a wall is employed comprising a plane surface surrounded by a wall, and a plurality of marks on said surface adjacent said wall, said marks being equally spaced around said wall and being spaced a distance from said wall, substantially equal to the radius of said objects used in playing games on said apparatus whereby said marks indicate substantially the point at which said objects change their direction of travel in rebounding from the wall.

16. Apparatus for use in playing games in which the rebound of a rolling ball from a wall is employed comprising a plane surface surrounded by a wall, a ball for use on said surface, and a continuous line on said surface spaced a distance from said wall substantially equal to the radius of said ball.

17. A collapsible game board comprising a plurality of strips, hinge means connecting said strips end to end at an angle to each other to form a closed polygonal frame, said hinge means permitting said strips to be folded into stacked relation, a flexible cloth secured to one face of said strips and covering the central opening of said frame, said cloth being free from said strips adjacent the meeting edges thereof, and releasable means for tightening said cloth at the meeting ends of said strips.

In testimony whereof I affix my signature.

TRESHAM D. GREGG.