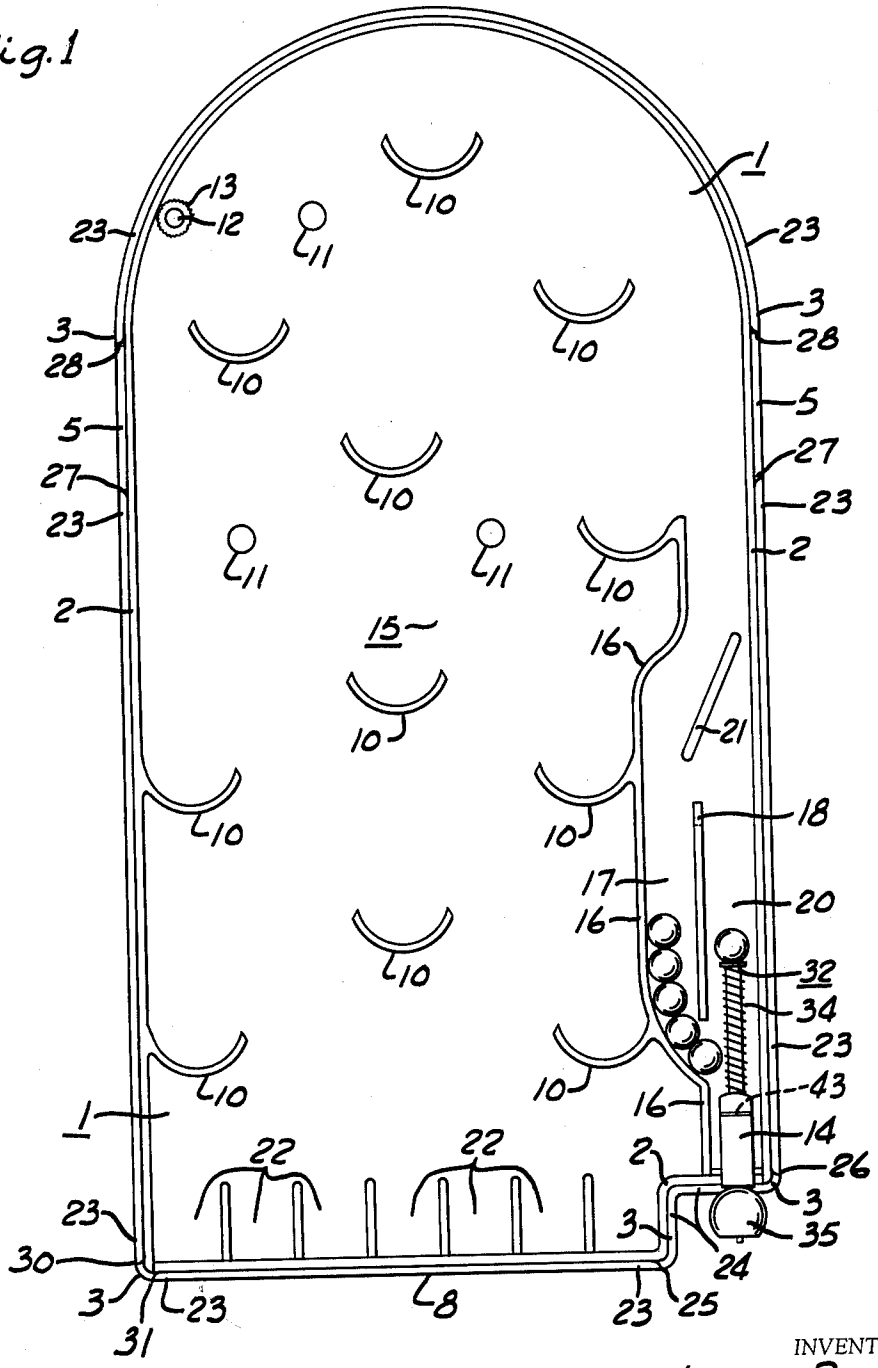
Dec. 21, 1965 L. RITZ 3,224,775

ENCLOSURE MEANS FOR BALL CONTROL GAME APPARATUS

Filed Feb. 11, 1963 3 Sheets-Sheet 1

Fig. 1



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ENCLOSURE MEANS FOR BALL CONTROL GAME APPARATUS

Filed Feb. 11, 1963 3 Sheets-Sheet 2

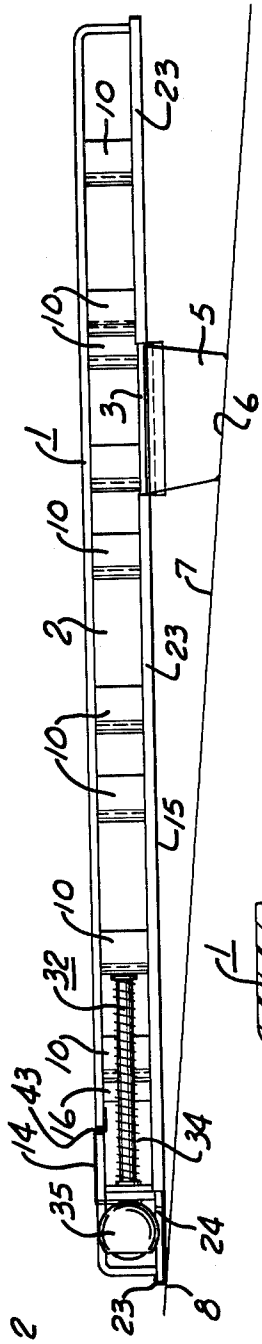


Fig. 2

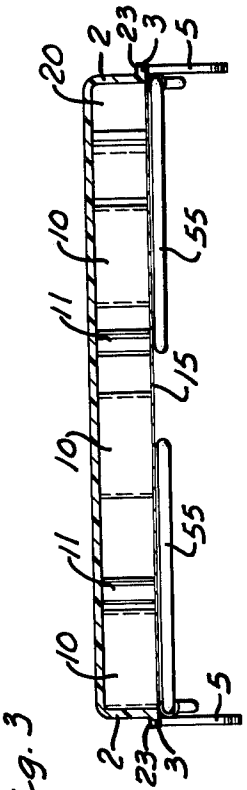


Fig. 3

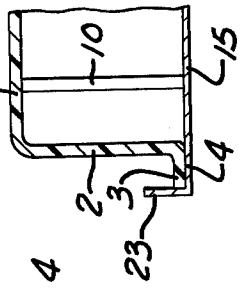


Fig. 4

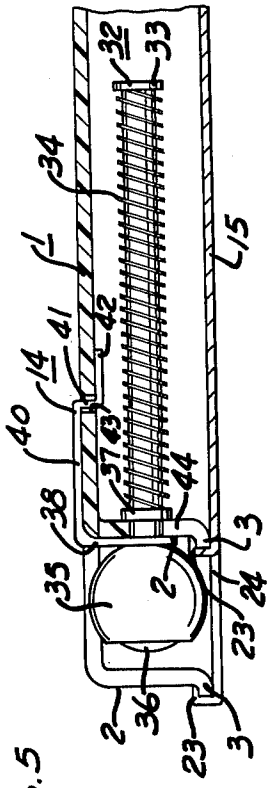


Fig. 5

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Dec. 21, 1965 L. RITZ 3,224,775

ENCLOSURE MEANS FOR BALL CONTROL GAME APPARATUS

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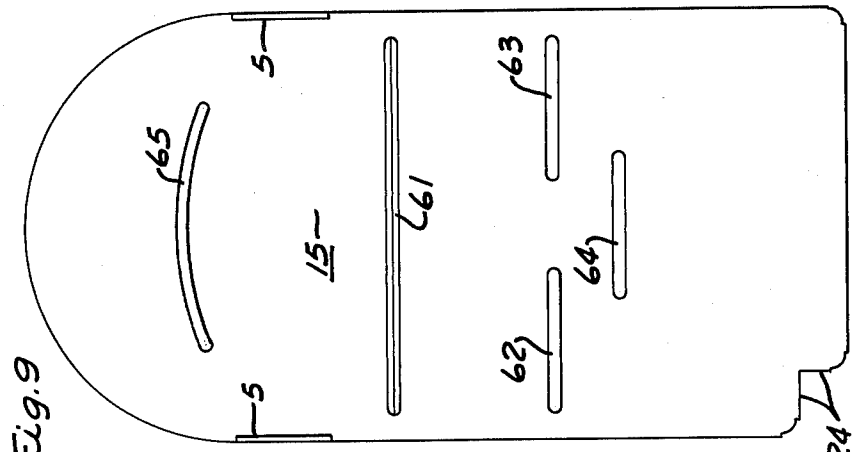


Fig. 9

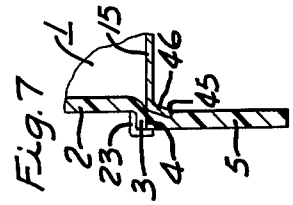


Fig. 7

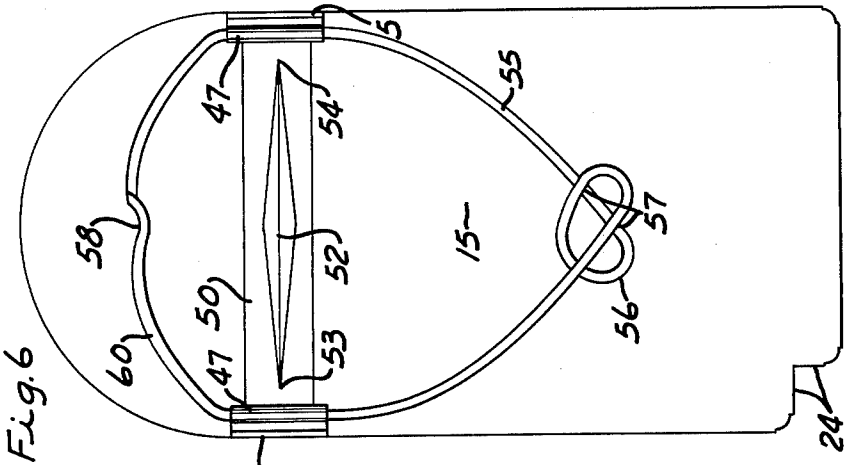


Fig. 6

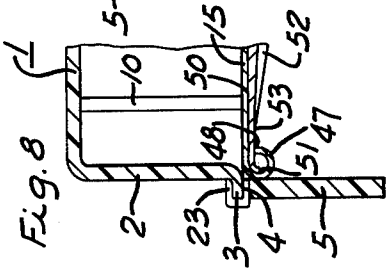


Fig. 8

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3,224,775

ENCLOSURE MEANS FOR BALL CONTROL GAME APPARATUS

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Filed Feb. 11, 1963, Ser. No. 257,377
5 Claims. (Cl. 273—121)

This invention relates to enclosed self-contained games and more particularly to the manner of constructing the enclosure.

Games with molded unitary transparent plastic tops with an integral depending perimetral wall and other integral depending elements that cooperate in playing the game are known in the art. Such games have sheet metal bottoms which have selected perforations to receive aligned small plastic studs protruding from the depending elements and which studs are riveted over on the under side of the metal bottom by heat to hold the flat metal bottom to the integral top. Such a structure is illustrated in U.S. Letters Patent 2,634,129. The problem here lies in the fact that the sheet metal bottom is flat and even though it engages the bottom of the wall and the depending elements there is a limit on how many studs and perforations are employed to hold the metal bottom in place. The forming of the studs make a more costly mold. The studs break off readily before the game is assembled. Too many depending elements are required over a large game area that spoils the game owing to too many interceptions of the balls. The flat bottom is too vulnerable as a blow on the bottom pulls the sides in off the offset edge as there is nothing to hold this flat metal strip. When indented in the middle the side and end edges pull in and completely spoil the game by creating improper undulations in what is desirably a smooth surface. The perimetral edge of this bottom is not anchored. If the game is circular the problem is more difficult as the circular flat bottom is readily indented and in such a game there are not many studs available for riveting. These and other problems make this type of assembly structure undesirable.

The principal object of this invention is the provision of a means to anchor the perimeter of the sheet metal base to the bottom of the perimetral wall that is an integral transparent plastic structure. By anchoring the perimeter of this sheet metal base these edges will not pull in the edges due to blows of the metal bottom. The blow would have to be with a sharp instrument to produce undesirable and destructive undulation in the bottom held perimetrally.

Another object is the provision of means to expressly force the center of the sheet metal bottom upwardly against the bottoms of the depending elements. This does not require a great force. This may be accomplished by many different novel means. The first is to provide downwardly and outwardly projecting tongue portions engaging opposed buttresses on the perimetral wall or legs. This provides an arched stress in the metal bottom to force the intermediate portion upwardly against the bottom of the depending elements. Two or more of these need only be provided for a game that is circular or rectangular.

A second mode is to stiffen the sheet metal by indentations which may be turned in or out of the game area to function with moving objects such as balls.

A third structure would be an independent metal strap stiffened by indentations longitudinally of the strap and have its ends locked under opposed inturned flanges of the bottom. This is like placing a girder with maximum strength in the center when the indentation gradually increases to a maximum at the center of the strap.

A fourth structure may be constructed of springs anchored in sockets rolled back from the bottom perimeter under the same adjacent the legs. These sockets are for the purpose of holding springs that press upwardly on the bottom. These springs may be of the cantilever type with single loop or opposite loops with end anchors. These springs may take on a twist with one end against the spring itself which is pressed against the bottom.

If the expanse of the game is not great and the bottom sheet metal is not of an extremely light gauge, the mere forming of the perimetral anchoring flange with a gentle upward dish in the bottom is sufficient to hold the same against the bottom of the depending elements.

Other objects and advantages of this invention appear hereinafter in the following description and claims.

The accompanying drawings show, for the purpose of exemplification without limiting this invention or the claims thereto, certain practical embodiments illustrating the principles of this invention wherein:

FIG. 1 is a plan view of a bagatelle type game illustrating this invention.

FIG. 2 is a view in longitudinal section of a bagatelle type game showing this invention.

FIG. 3 is a transverse sectional view of a bagatelle type game.

FIG. 4 is an enlarged detailed sectional view of the perimetral wall and flange with the upturned edge of the bottom ready to be bent down over the flange to anchor the same.

FIG. 5 is an enlarged sectional view showing the ball propelling device.

FIG. 6 is a view of the underside showing their bottom pressure means.

FIG. 7 is an enlarged sectional view showing the manner of bracing the bottom from a buttress.

FIG. 8 is an enlarged sectional view showing the manner of securing a transverse brace beam.

FIG. 9 is a view of the underside showing transverse indentations in the metal bottom to support the intermediate portion.

Referring to the drawings the game employed to illustrate this invention is a bagatelle game and comprises generally an enclosed self-contained game having an integrally molded unitary transparent top 1 of plastic material which is provided with a depending perimetral wall 2 which is of uniform depth and, as shown in FIG. 4, has an outwardly projecting flange 3 that runs for the full perimeter of the wall and game. The perimetral flange 3 has a flat bottom 4 that lies in a common plane over the entire under surface of the wall and bottom flange with the exception of the leg means as illustrated at 5 and as shown in FIGS. 3, 7, and 8 is also formed integral with the molded unitary transparent top 1 and has the thickness of the projecting dimension of the perimetral flat bottom flange 3 as illustrated in FIGS. 3, 5, 7, and 8. As illustrated in FIG. 2 the integral leg means 5 and the foot 6 of the leg 5 is disposed at an angle as illustrated in FIG. 3 so as to engage the table surface illustrated by the construction line 7 that is also engaged by the bottom or rear of the game as illustrated at 8.

The integrally molded unitary transparent top 1 of plastic material has many other integral depending ball engaging, ball guiding, and ball intercepting elements that are molded integrally with the top and depend downwardly with their bottom edges substantially in alignment with the plane of the under flat bottom 4. As shown in FIG. 1 the interceptor elements 10 are in the form of cups or buckets. Additional interceptor elements are in the form of the guiding posts 11. These posts are spaced in appropriate positions to deflect the path of movement of the ball as it intercepts and strikes the same so that the ball may pass laterally to one or more of the inter-

cepting pockets 10 where it will be deflected to the edge thereof. The guiding post 12 has a rubber sleeve 13 thereon which receives most of the balls. Immediately upon leaving the ball projector member 14 the ball will travel around the inner face of the wall 2 and strike the rubber sleeve 13 on the post 12 and be deflected backwardly. Depending upon the force of impact, it may be returned to the ball projector 14 or it may be deflected to one or more of the pockets 10 and posts 11 as it proceeds down the sloping bottom 15 of the game.

Another ball guiding element is in the form of the division wall 16 that separates the storage passage 17 and the ball projector 14. This guiding wall 16 is also made integral with three of the pocket members 10. A second guiding division wall 18, which is integral and depending from the top 1, separates the storage passage 17 from the passage 20 in which the ball projector element is mounted. This passage is, of course, parallel with the adjacent side wall 2 and the adjacent sides of the wall 2 and the wall 18 will aid in guiding the ball as it is projected outwardly to the field of play. The bottom 15 is provided with an indentation 21 which will deflect and return the balls to the passage 17 rather than have them continue back into the passage 20. Of course, if the ball has the necessary and considerable speed and force, it will pass over the indentation 21 upon being initially propelled by the projector 14.

The whole of the bottom of the game is provided with a series of pockets 22 along the back edge 8 for receiving any ball that is not caught by one of the pockets 10 in the field of play. The end pockets 22 may be given a score value as it is quite difficult to get the ball in these end pockets and other score values will be given to the other pockets 10 in the playing field. Some of the pockets 22 may be given a zero score value or even a mounting score value. Such an arrangement of a bagatelle game is, of course, quite similar to that known in the previous art.

The bottom 15 is preferably made of sheet metal, the upper surface of which may be pointed and each of the pockets 10 and 22 are given their designated numbers or any other type of designations which the game employs on the upper surface of the bottom 15 to properly designate the value of the pockets and other information which is followed in playing the game. The bottom 15 is ordinarily cut to substantially the same perimetral shape as the top 1 following the outer edge of the perimetral flanges 3. However, in the structure comprising this invention, the bottom is extended beyond the perimetral edge of the flange 3 and is bent upwardly as illustrated in FIG. 4 to provide for the continuous anchoring flange 23 which when bent downwardly such as illustrated in FIGS. 2 and 5 locks the bottom 15 to the top 1 by anchoring over the entire continuous perimetral flange 3 in all places except where the legs 5 depend and in places such as illustrated by the offset 24 where it is expedient to allow the flange 23 to terminate between the points 25 and 26 and on each side of the legs 5 between the points 27 and 28 on opposite sides of the game. Thus the flange 23 is substantially continuous and would be as continuous if it were not for specific conditions such as the offset 24, the legs 5, or the corner as illustrated by the points 30 and 31. At these places the flange 23 is rounded on the corner and when bent downwardly and in contact with the flange 3 securely locks the bottom to the top and provides a strengthened rib in the bottom which aids in producing a stronger structure that will not allow the perimetral edge of the bottom 15 to be drawn inwardly if struck on the bottom or otherwise injured.

As illustrated in FIGS. 1, 2 and 5 the ball projector 14 comprises a nail type plunger member 32 having a head 33 and projecting through a helical spring 34 and into an enlarged finger grasping ball head 35 and being riveted over on the opposite side thereof as indicated at 36. The stem of this plunger 32 passes through a washer 37 and an opening in the flange 38 of the bracket member 40, the second leg of which lies against the top surface of the top member 1 and is provided with an offset 41 so that the flange end 42 may be inserted through an opening 43 in the top 1. This ball projector 14 may be mounted by inserting the flange 42 through the opening 43 and bent upwardly in place as shown in FIG. 5 after the stem has been slid upwardly through the slot 44 in the plastic wall 2 that forms the first portion of the slot 44. Thus the bends forming the flange 38 and the offset 41 and the flange 42 of the bracket member 40 are formed while mounting the same on the plastic top 1 and before assembling the bottom 15 thereto.

If the expanse of the sheet metal bottom 15 is material across the game between the diagonally opposite side walls 2, the bottom 15 may have a tendency to bow downwardly owing to its own weight and provide a slight clearance between the bottom of the integrally engaging and ball engaging and ball intercepting elements. Such a clearance will not in any way interfere too much with the game. However, it does have a tendency to channel the balls in the center of the playing field and such a clearance is never sufficiently great to pass a ball thereunder. However, it is preferable to provide some means to hold the sheet metal bottom 15 upwardly against the bottom surface of the integrally engaging, ball engaging and ball intercepting elements in the plane of the bottom 4 of the flange 3. This may be accomplished by several different means. The foremost and principal one is illustrated in FIG. 7 wherein the leg means 5 is provided with an upwardly facing buttress shoulder or crevice 45 which is engaged by a downwardly and outwardly formed flange 46 that extends the width of the leg means 5 and is formed from the sheet metal bottom 15. The material that forms this downwardly and outwardly projecting flange 46 is a material that would ordinarily provide the anchoring flange 23 along the space occupied by the leg means 5. The sheet metal 15 forming the bottom has a considerable resiliency and the flange 46 is formed so as not to quite meet the position of the buttress shoulder or crevice 45. It then provides for an internal stress from engaging the leg means 5, which stress is carried across the metal under the playing field and provides it with an upwardly projecting force causing the upper surface of the bottom 15 to engage the bottom surface of the ball engaging, guiding and intercepting elements of the integrally molded unitary transparent top 1 and of the bottom 4 of the flange 3. Thus by this buttress type support and merely by a portion of the bottom 15 that would not ordinarily be employed, one can create an upward force within the bottom itself in the middle of the playing field. This, of course, would be on opposite sides adjacent the leg means 5 or if the game were of different configuration and had more than one leg there would be more than one buttress shoulder 45 to create an upwardly directing force in the intermediate portion of the playing area of the bottom 15.

In the structure shown in FIG. 8 the outwardly and downwardly extending flange for the width of the leg means 5 is curled in cylindrical form as illustrated at 47 with its edge 48 engaging the under surface of the bottom 15 and this structure being provided adjacent each leg means 5 will aid in supporting the opposite ends of a flat brace member 50, the ends 51 of which are forced under the rolled edge 48 and the intermediate portion of the brace 50 is provided with a deformed indentation 52 which starts at 53 and ends at 54 as shown in FIG. 6 and the center of which is wider which indicates that the depth of this indentation is greater at the center than at the ends. This brace 50 is thus a pressure beam and provides upward pressure all the way across the underside of the bottom 15, the greatest resistance to pressure downward being the center which is the greatest depth of the indentation 52. The ends 51 of the brace 50 being shoved under

the ends 48 of the spherical loops 47 are sprung upwardly which increases the pressure of the loop 47 on the ends 48 of the brace 50 and thus provide a tight clamping means that provide additional forces upwardly against the underside of the bottom 15.

The cylindrical loops 47 as illustrated in FIG. 6 also provide sockets for receiving the ends of the wire brace members 55 which owing to their shape engage the underside of the bottom 15 as indicated at 56 and the top turn of the spring 55 also presses against the bottom turn as indicated at 57. Thus the cylindrical loops 47 of the bottom 15 function as anchor supports for wire members that act in cantilever form in forcing the bottom 15 in different playing areas remote of the anchor members 47. As shown on the opposite side a single bend 58 is formed in the wire brace 60 to produce the same result. The indentation 58 here is the only engaging portion of this cantilever to force the bottom upwardly. As previously stated such structures as these are not necessary in relatively narrow games, but are desirable in large games that have considerable expanse.

Another mode of stiffening the bottom is by the simple indentations which may be straight and lateral or may have curves as illustrated in FIG. 9. The single indentation as indicated at 61 in FIG. 9 may be upward and into the playing area whereas the series of three indentations 62, 63 and 64 may be downwardly providing the hollows in the playing area instead of a ridge as at 61. This type of forming the bottom 15 by the use of dies provides stiffening which prevents the bottom 15 from taking a sway downwardly in the center of the playing area.

The arcuate indentation 65 is sometimes desirable in the playing area as either a groove or a slightly raised abutment but it certainly provides stiffness in the bottom 15.

Thus the invention here provides a sheet metal bond which is provided with a continuous perimetral anchor except at legs and corners which is formed exteriorly of the game by an overturned flange that anchors on a continuous perimetral flange on the bottom of the perimetral wall 2, a perimetral wall 2 being integral with the top and also being provided with the several depending elements formed integral therewith provides a very rigid structure that does not lend itself to flexibility. This taken in combination with the overturned flange 23 actually anchors the perimetral edge of the bottom preventing it from readily flexing. This is the important feature of this invention and is augmented by the different modes of bracing, stiffening, or otherwise supporting the intermediate portion of the bracing area of the bottom from opposite points of the anchoring flange on the perimeter of the game.

I claim:

1. An enclosure means for a ball control self-contained game consisting of an integrally molded and unitary transparent top of plastic material having a continuous perimetral depending wall of uniform depth and terminating in an outwardly extending perimetral flat bottom flange in a common plane parallel with said top, the perimetral contour of the wall and flange following a predetermined contour that cooperates with the game, a ball projector mounted on said top and extending through said wall, a plurality of balls in said top, a plurality of depending ball engaging and ball guiding and ball intercepting elements molded integrally with said top and terminating in said common plane, leg means extending downwardly from said flat bottom flange to support said top at an angle relative to a table surface, and a flat sheet metal bottom engaging the flat bottom of said flange in said plane and the perimeter of said sheet metal bottom extending uniformly beyond said perimetral flange for its entire length but deviating around said legs, the perimeter of said sheet metal bottom being bent upwardly and inwardly over the top of said perimetral flange to enclose said top and provide a self-contained enclosed game, oppositely disposed leg means on said top, a cylindrical turned-in flange on the perimetral edge of said metal bottom adjacent the inside of each leg means, a cross brace engaging the under side of said metal bottom and having its ends terminating in the cylindrically turned roll of said turned-in flange to clamp said cross brace against said metal bottom and hold said metal bottom rigidly with upward force against the bottom of said adjacent depending ball engaging and guiding and intercepting elements.

2. The game of claim 1 which also includes a longitudinal indentation in said cross brace to stiffen the same and rigidly hold the central part of said cross brace in contact with said metal bottom.

3. An enclosure means for a ball control self-cointained game consisting of an integrally molded and unitary transparent top of plastic material having a continuous perimetral depending wall of uniform depth and terminating in an outwardly extending perimetral flat bottom flange in a common plane parallel with said top, the perimetral contour of the wall and flange following a predetermined contour that cooperates with the game, a ball projector mounted on said top and extending through said wall, a plurality of balls in said top, a plurality of depending ball engaging and ball guiding and ball intercepting elements molded integrally with said top and terminating in said common plane, leg means extending downwardly from said flat bottom flange to support said top at an angle relative to a table surface, and a flat sheet metal bottom engaging the flat bottom of said flange in said plane and the perimeter of said sheet metal bottom extending uniformly beyond said perimetral flange for its entire length but deviating around said legs, the perimeter of said sheet metal bottom being bent upwardly and inwardly over the top of said perimetral flange to enclose said top and provide a self-contained enclosed game, oppositely disposed leg means on said top, a downwardly inwardly and upwardly inturned flange on the perimetral edge of said metal bottom adjacent the inside of each leg means, and a wire brace held by said inturned flanges and extending outwardly and circling upwardly to engage and applying an upward force under said sheet metal bottom to hold the same against the bottom of said depending ball engaging, guiding and intercepting elements.

4. An enclosure means for a ball control self-contained game consisting of an integrally molded and unitary transparent top of plastic material having a continuous perimetral depending wall of uniform depth and terminating in an outwardly extending perimetral flat bottom flange in a common plane parallel with said top, the perimetral contour of the wall and flange following a predetermined contour that cooperates with the game, a ball projector mounted on said top and extending through said wall, a plurality of balls in said top, a plurality of depending ball engaging and ball guiding and ball intercepting elements molded integrally with said top and terminating in said common plane, leg means extending downwardly from said flat bottom flange to support said top at an angle relative to a table surface, and a flat sheet metal bottom engaging the flat bottom of said flange in said plane and the perimeter of said sheet metal bottom extending uniformly beyond said perimetral flange for its entire length but deviating around said legs, the perimeter of said sheet metal bottom being bent upwardly and inwardly over the top of said perimetral flange to enclose said top and provide a self-contained enclosed game, downwardly and outwardly turned flange on the perimetral edge of said metal bottom adjacent the inside of each leg means, and an inwardly disposed crevice on the inside of each leg means engaged by said flange to rigidify the resilient sheet metal bottom with upward force against the bottom of said depending ball engaging, guiding and intercepting elements.

5. An enclosure means for a ball control self-contained game consisting of an integrally molded and unitary transparent top of plastic material having a continuous perimetral depending wall of uniform depth and terminating

in an outwardly extending perimetral flat bottom flange in a common plane parallel with said top, the perimetral contour of the wall and flange following a predetermined contour that cooperates with the game, a ball projector mounted on said top and extending through said wall, a plurality of balls in said top, a plurality of depending ball engaging and ball guiding and ball intercepting elements molded integrally with said top and terminating in said common plane, leg means extending downwardly from said flat bottom flange to support said top at an angle relative to a table surface, and a flat sheet metal bottom engaging the flat bottom of said flange in said plane and the perimeter of said sheet metal bottom extending uniformly beyond said perimetral flange for its entire length but deviating around said legs, the perimeter of said sheet metal bottom being bent upwardly and inwardly over the top of said perimetral flange to enclose said top and provide a self-contained enclosed game, said perimetral depending wall has at least two corners along its continuous length forming adjacent and opposite sides in said perimetral depending wall, said flat bottom flange continuous around said corners, and notches in said sheet metal bottom aligned with and adjacent to the perimetral edge of said flat bottom flange at said corners to form a rib in said sheet metal bottom between adjacent sides to strengthen the enclosure of said sheet metal bottom on said flat bottom flange.

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