United States Patent

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[54] **MARBLE GAME DEVICE WITH REMOVABLE INSERTS**

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[52] **U.S. Cl.**.....**273/110,** 273/115, 273/127 R

[51] **Int. Cl.**.....**A63b 67/14**

[58] **Field of Search**.....273/110, 109, 111, 113, 115, 273/116, 136 K, 126 R, 112

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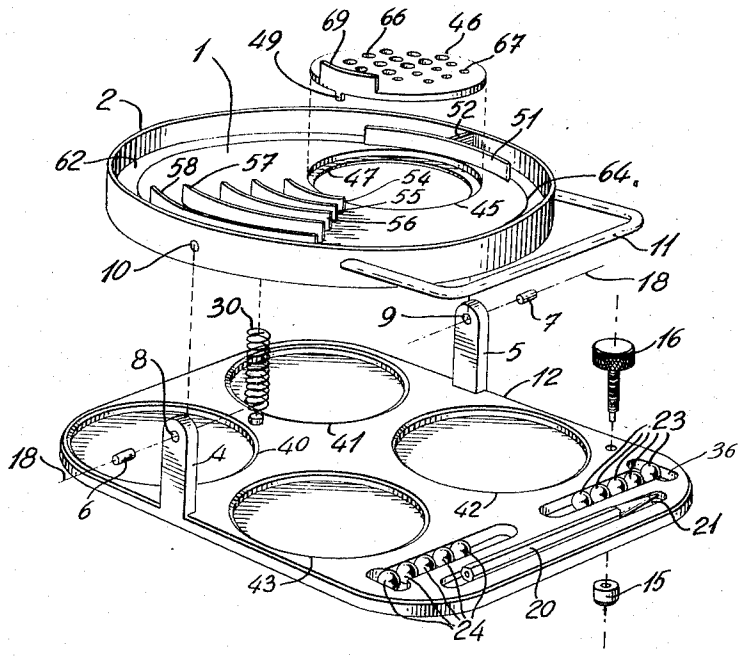
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[57] **ABSTRACT**

A manually tiltable playing table is provided for playing a variety of marble games. The table is pivoted on a central horizontal axis. A spring normally holds the disk,which provides the playing surface, tilted so that the side carrying a playing handle is raised. The playing surface is about 10 inches in diameter, and enclosed by a circumferential wall. Opposite the starting position, which is at one end of the tilt axis, are a number of curved channels to turn rolling marbles back so that further rolling can be directed generally towards other by sectoral vanes. An array of one or more deflectors or traps and one or more goals is located between the curved channels and the starting position. The said array is carried by a removable disk and other arrays may be substituted to vary the game.

8 Claims, 7 Drawing Figures



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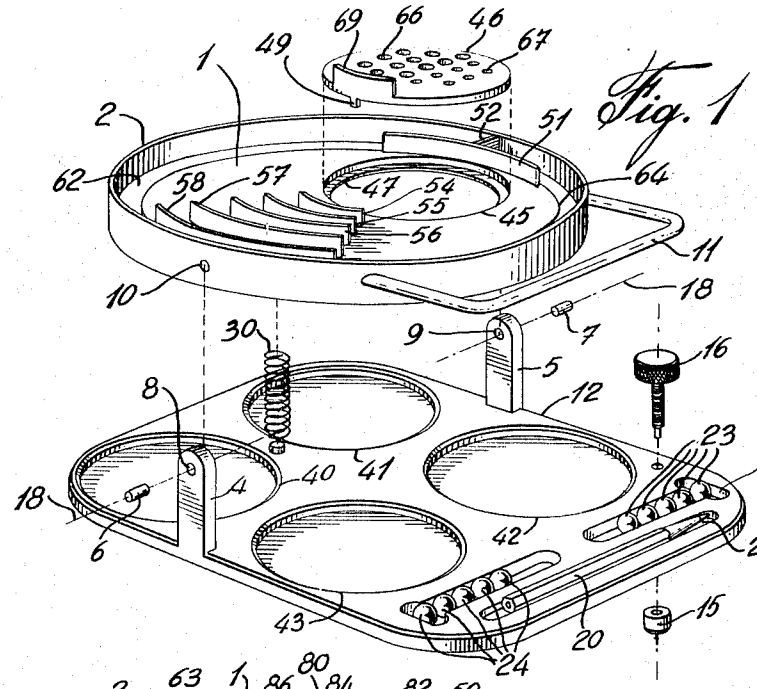


Fig. 1

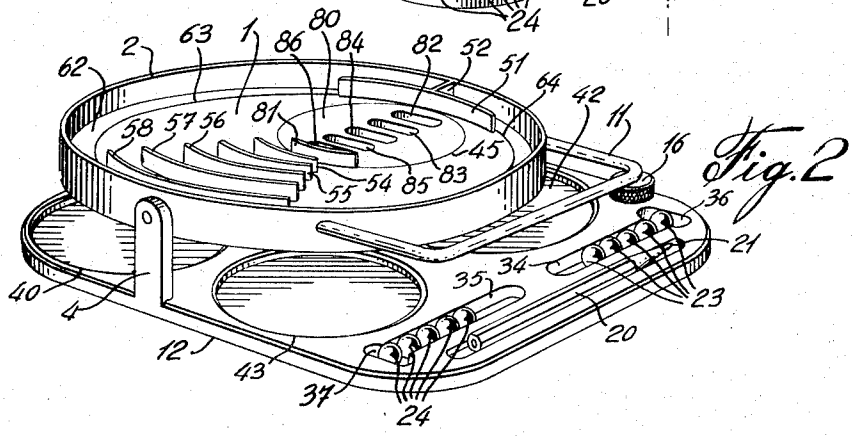


Fig. 2

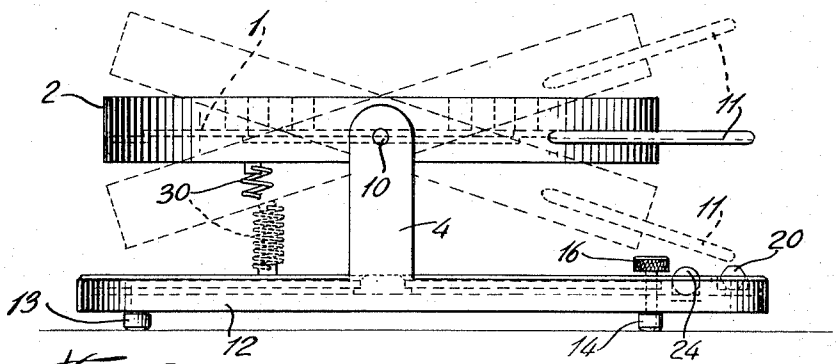


Fig. 3

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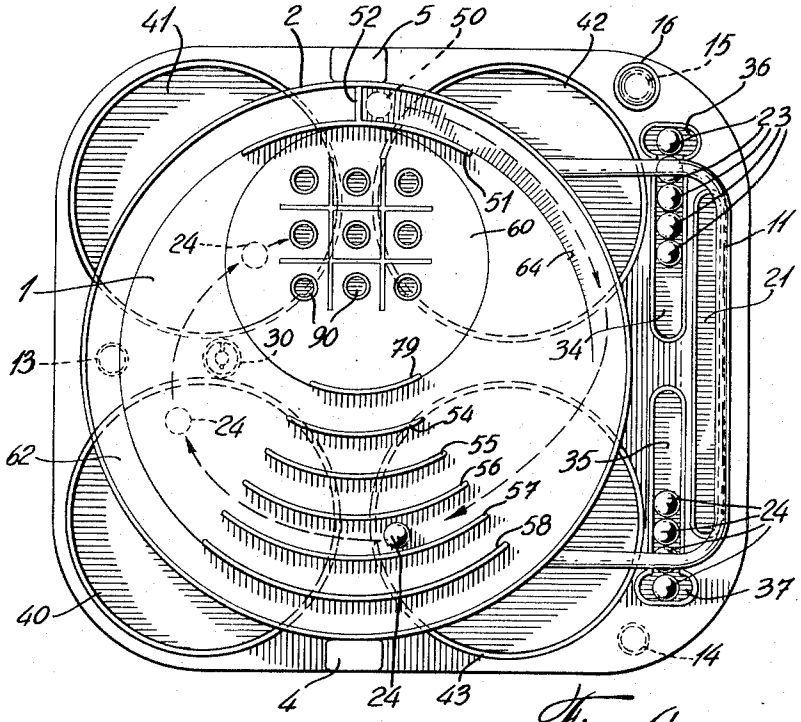


Fig. 4

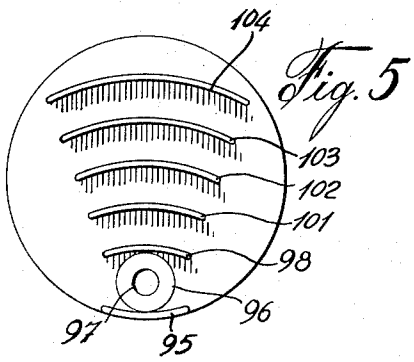


Fig. 5

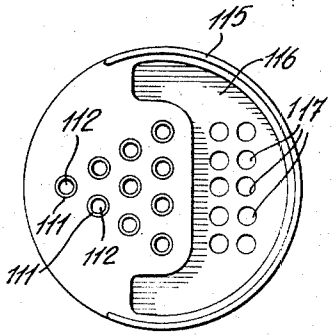


Fig. 6

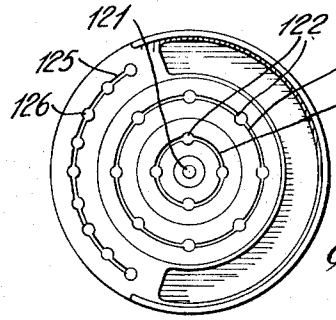


Fig. 7

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MARBLE GAME DEVICE WITH REMOVABLE INSERTS

This invention relates to marble game devices of the table type and more particularly to game devices in which the playing surface is a disk with a circumferential wall and in which the player causes a marble to roll on the playing surface by tilting the disk.

The term "marble" is used in the sense which means a small playing ball that may be of metal or of another heavy material, such as glass or stone. For table games metal balls, such as steel balls, are preferred.

Table games played by rolling marbles on a tiltable playing surface have generally suffered either from the disadvantage that the position of the table was not sufficiently stabilized to permit the player to acquire rapidly an interesting degree of skill, or else that, if skill in manipulation was capable of ready development, then the game was not sufficiently challenging to be of lasting interest to a player.

The games playable by the device of this invention are made challenging to a skillful player by limiting the manipulation of the playing surface to tilting about a single horizontal axis and also by the provision of a plurality of laterally adjacent curved "turn-around" channels through one of which a marble must be rolled before it is in play. Furthermore, the provision of a variety of interchangeable inserts for the goal area of the playing surface, makes repeated use of the game device possible without monotony, even though in each case the same skill is involved in aiming the marble, first at a turn-around channel and then at a selected goal.

In order to enable a player with good coordination of hand and eye to acquire skill at the game without a tiresome amount of practice, the tiltable playing surface is pivoted on a base which is provided with a levelling adjustment suitable for easily bringing the axis of tilt from an approximately level position to an exactly horizontal position. In addition, the tiltable playing surface is designed to be manipulated by a handle the main part of which is parallel to the axis of tilt. Finally, the mounting of the playing surface is biased by a spring which tends to raise the control handle, so that the manipulation of the playing surface by the player is always done by adjusting a downward pressure on the handle, whether tilt is away from the player or towards him.

In all kinds of games playable in accordance with this invention, the choice of a turn-around channel through which a marble must roll before it is in play is an important and challenging element of the play. This choice greatly influences the position from which the marble will approach the goal area. The turn-around channels serve to help redirect the marbles in directions more or less opposite to movement of the marble.

The interchangeable goal portions of the playing surface may include, in one case, an array of depressions suitable for playing tic-tac-toe, in another case an array of depressions for a simple scoring game, with the more difficult places to reach having higher scores, and in still another case an array of depressions in which miniature bowling pins may be seated with sufficient stability to keep them in place during reasonably careful manipulation of the playing handle while still allowing them to be knocked over by a marble in play. Other more complicated arrays are also possible, as more fully described below.

In the drawings which illustrate embodiments of the invention:

FIG. 1 is an exploded perspective view of an embodiment of the invention,

FIG. 2 is an assembled perspective view of this embodiment, but with a different goal area substituted in the playing surface,

FIG. 3 is a side elevation of this embodiment,

FIG. 4 is a top plan view of this embodiment with still another goal area unit substituted in the playing surface,

FIG. 5 is a top plan view of a goal unit for a solitaire game requiring a marble to be propelled over a spiral course to a central goal,

FIG. 6 is a top plan view of a goal unit for playing tenpins, and

FIG. 7 is a top plan view of a goal unit for a marble game similar to curling.

The game device of this invention requires a tiltable game surface **1** in the shape of a disk, provided with a circumferential wall **2**. The game surface **1** is flat except for certain features described below. The disk **1** is pivoted on an axis constituting a diameter of the game surface, by means of posts **4** and **5**, pivot pins **6** and **7**, bearing holes **8** and **9** and corresponding holes in the disk edge, one of which is shown at **10**. One side of the disk is provided with a control handle **11** which preferably has a major portion parallel to the axis of tilt **18**.

The pivot posts **4** and **5** form part of, or are mounted on, the base **12** which, as shown in FIGS. **3** and **4**, is supported upon three feet, including the fixed feet **13** and **14** and the adjustable foot **15**, the length of which can be regulated by the knurled screw **16**. When the tilt axis **18** is not quite horizontal, adjustment of the height of foot **15** by means of screw **16** permits levelling of the tilt axis so that it will become horizontal. For the levelling operation, pencil **20** is removed from its groove **21** in the base **12** and one of the marbles **23** or **24** is placed in the pencil groove, which is parallel to the axis of tilt and has a flat bottom, so that the marble will roll one way or the other unless the tilt axis is level. This adjustment, which is readily made, assures that when the marbles roll on the flat unobstructed portion of the game surface they will not be subject to any acceleration parallel to the axis of tilt. In other words, the only acceleration the marbles get in play is transverse to the axis of tilt, as a result of tilting of the surface. The player can urge the marbles towards him or away from him, but their sidewise motion is obtained only be deflection caused by the circumferential wall **2** or by the vanes or deflectors described below.

With the feet **13**, **14** and **15** of base **12** disposed as shown in FIG. **4**, levelling of the tilt axis will be accompanied with an immaterial slight tilting of the base towards or away from the player which has no effect on the play.

Between the disk **1** and the base **12**, on the side away from the control handle **11**, a spring **30** is provided which pulls that side of the disk down towards the base, thereby tending to raise the handle **11** above the level of the tilt axis. This arrangement makes it possible to control the tilt of the disk **1**, through all positions of play, by adjusting the manually applied downward pressure on the handle **11**, a circumstance which greatly favors the development of skill in directing the course of marbles by manipulation of the handle **11**.

The disk 1 and its associated structure should be made of a material which retains its shape well and is not subject to warping or to surface deterioration. It may be conveniently made of plastic material in production quantities by injection molding. The handle 11 may be of metal and press-fitted into the disk 1, or it may be integrally made bymolding with the disk 1. The size of the disk 1 is not critical, but a diameter of about 10 inches is preferred. The base 12 can likewise be made of plastic material by injection molding.

The base 12 carries at its front edge, below the handle 11, in addition to the pencil groove 21 already mentioned, two grooves 34 and 35 for holding a full complement of marbles for use in the game device. The bottom of these grooves are tilted away from the center, in order to deliver the marbles in pick-up portions 36 and 37 at the outer ends. Two separate marble grooves are provided, because it is desirable to have half of the marbles of a different color from the rest for playing certain games, as described below. The portion of the base underneath the disk 1 can conveniently be provided with cutouts 40, 41, 42 and 43, (FIGS. 1 and 4) for carrying spare inserts for substitution in a portion of a disk 1, as described below.

Although a game device according to this invention could be provided with an unchangeable playing surface 1, it is preferred, as mentioned above, to provide a cutout 45 in the disk 1 into which any of a number of arrays of features defining the object of the game, as for example the insert 46 of FIG. 1, may be seated with its upper surface flush with the playing surface of the disk 1. The cutout 45 has a shelf 47, such that when a mating insert is pressed in against the shelf the playing surface will be flush. A notch (not shown) is provided at one place in the shelf 47 to mate with a key 49 (FIG. 1) on the bottom of each insert at its periphery, in order to assure a defined orientation for the features of each insert.

The starting position for a marble to be played on disk 1 is shown in FIG. 4 at 50. It is defined by three walls, the circumferential wall 2, a sectoral vane 51 and an axial partition 52. To start the game, a marble is placed on the player's side of the partition 52. The sectoral vane 51 serves as a starting guide for the marble and it also serves as a baffle for marbles that successfully reach the goal area of the playing surface. For that reason the vane 51 extends for a distance on both sides of the partition 52. It is concentric with the circumferential wall 2.

Curved vanes 54, 55, 56, 57 and 58 are symmetrically disposed with respect to the tilt axis, on the side of the disk opposite the starting position 50. These vanes have a length between 60° and 100° of arc, they define laterally adjacent curved channels into which a marble may be directed after it leaves the starting position and serve to deflect a marble so that with proper adjustment of the disk tilt the marble can be directed towards the goal area.

As seen from the palyer's position in front of the handle 11, the marble is started at the extreme right, by a tilt of the disk towards the player and is caused to roll to the left by the starting groove. After adjustment of the tilt causes the marble to roll into one of the curved channels between the sectoral vanes, the curved channel turns the course of the marble around so it will move towards the player's right, while he attempts to aim it at a particular part of the goal area. In other words, the curved channels serve to reverse the component of the marble's velocity which is parallel to the axis of tilt.

The vanes 54, 55, 56, 57 and 58 maybe concentric, but it is preferable to decrease the radius of curvature less rapidly as the vanes approach the center of the disk, while still allowing the inner vanes to be curved more sharply than the outer vanes. If a strictly concentric arrangement were used, it would be too easy to deflect the marbles to the goal area by using the channel with the highest curvature. The arrangement shown in FIG. 4 is preferred, because it does not so greatly favor the use of the innermost turnaround channel.

The principle of the turn-around channels just described can be fulfilled of course, by structures other than vanes on a flat surface. Various ways of breaking up the left hand portion of the playing surface, as viewed from the player's position, into curved paths of various diameters will be obvious on brief consideration. Indeed, the variety of curved turn-around paths could be provided instead of by several distinct channels, by a deformation of the playing surface of the left-hand half of the disk, as seen from the player's position, which would gradually raise the surface, away from the plane passing through the tilt axis, to reach a maximum, for example, a quarter of an inch above the tilt axis, at the left hand extremity of the tilt axis.

The channel between the outer sectoral vane 58 and the circumferential wall 2 leads to the lost ball groove 62 around the far side of the disk from the player. The edge of this groove is marked by a line 63 to warn the player. A similar groove is provided from the starting position towards the front of the disk to guide the initial movement of the marble. From the starting position 50 this groove becomes progressively shallower and disappears at the front of the disk. Its presence is marked by the line 64.

For playing any of the games here shown with the device illustrated in FIGS. 1 through 4, a marble must pass through one of the channels defined by the vanes 54, 55, 56, 57 and 58 once and, except in the case of FIG. 5, only once. If a marble becomes engaged in a channel which the player has not selected, he may bring it back by tilting the disk 1 and attempt to roll it into another channel, but once it has gone completely through one of the channels, it is in play and maynot be brought back. If it gets into the groove 62, the play of that marble is lost.

The game insert 46 shown in FIG. 1 has an array of holes in which a marble may be seated. Some of the holes such as the hole 66 are larger than some of the others, such as the hole 67. It is more difficult to seat a marble in a small hole than in a big one and furthermore, the closer the holes are to the vane 51 the more difficult it is to reach them. Likewise, the holes nearer the player are harder to reach than the holes farther away from him. Scores (not shown) are marked next to each hole, with the score increasing with the difficulty of reaching it. The game is played by each player aiming a succession of a fixed number of marbles, for example five, and then determining his score according to where the marbles are seated at the end of the play. The insert 46 carries, in addition to the holes mentioned above, a vane 69 which cooperates with the

vane **54** to define an additional channel which the marble may traverse in order to be put into play.

FIG. **2** shows the insert **80** seated in the cutout **45** of the disk **1** instead of the insert **46** shown in FIG. **1**. The insert **80** carries a vane **81** similar to the vane **69** of the insert **46** (FIG. **1**) and the vane **79** of the insert **60** (FIG. **4**). The features supplied by the insert for the goal area are five slots or elongated depressions **82, 83, 84, 85** and **86**, each of which is capable of seating several marbles, at least three and preferably four. The slots farther to the right of the player have higher scores because they are more difficult to reach. This game is suited for two players who take turns at aiming one marble at the goal slots, the two different colors of marble serving to identify the results of the two players.

The insert **60** shown in FIG. **4**, is for a tic-tac-toe game. The nine depressions or holes **90** are of a size suitable for seating a marble. The holes **90** must be sufficiently far apart so that those near the player and those farther to his right may be reached by marbles travelling on a suitable diagonal path. In this game, two players take turns at aiming one marble, using the distinctive colors to identify their play. In this particular game, if a marble is trapped in the lost ball groove **62** or, after being put in play it wanders back into the starting groove beyond the line **64**, the player loses his turn, but he may play the marble again after his opponent has taken a turn.

The insert shown in FIG. **5** is designed for a game of solitaire. When it is seated in the cutout **45**, the vane **95** has the same position and function as the vanes **69, 79** and **81** on the corresponding inserts previously described. The round depression **96** is in the center of the playing surface **1** and a marble reaching it will be seated in the middle at **97**. A vane **98** is provided on the other side of depression **96** from vane **95** with approximately the same length of curvature. Vanes **101, 102, 103** and **104** are arranged in a manner similar to vanes **54, 55, 56** and **57** in opposition to the latter. When the insert of FIG. **5** is in place, the purpose of the game is to pass the marbles first in the channels between vanes **57** and **58**, then in the channel between vane **104** of the insert and vane **51** of the disk **1**, then through the channel between vanes **56** and **57**, and so on in a spiral path through all the smaller curved channels, after which it must be seated at **97** in the central depression **96**. This game is primarily designed for solitaire playing, since a single play has many stages and takes a long time.

The insert for the cutout **45** (FIGS. **1, 2** and **4**) which is shown in FIG. **6** is for a game of ten-pins similar to alley bowling. Ten spherical depressions **111** are provided on the insert in the usual triangular array for bowling pins i.e. evenly spread over an equilateral triangular area. Miniature bowling pins **112** with matching bottom surfaces are stood up in the depressions **111**. They stand with sufficient stability to hold their position during reasonably careful manipulation of the tilt of the playing surface, but the pins are usually knocked over by a properly aimed marble. A curved retaining wall **115** surrounds the sides and rear of the bowling pin array and cooperates with a depression **116** to collect spent marbles and unseated pins. A group of holes **117** may also be provided of such size as to hold the bowling pins tightly when this game insert is not in use.

The insert shown in FIG. **7**, likewise for seating in the cutout **45** (FIGS. **1, 2** and **4**) is intended to provide a game similar to "curling". The aim in this case is to cause marbles to reach the center position **121** and one or more of the enlargements **122** of the ring grooves **123** and **124**. Marbles must approach the aforesaid objectives across a groove **125** which has enlargements **126** in which a marble may be trapped. Marbles so trapped act as obstructions for future play, but they are sometimes dislodged by a subsequent play and projected towards scoring positions.

It will be understood that still other forms of inserts for the cutout **45** may be devised to add still more variety to the games that may be played with the characteristic initial features provided by the disk **1** and its vanes **54, 55, 56, 57** and **58**.

I claim:

1. A marble game device comprising

a circular disk plate,

a circular wall around said disk plate,

a base located below said disk plate and spaced therefrom,

means for pivotally supporting, on said base, the said disk plate about a diameter thereof,

elastic means mounted between said disk plate and said base and at 90° with said diameter for resiliently maintaining a parallel relationship between the disk plate and said base,

a control handle fixed to said wall and diametrically disposed opposite the said elastic means,

a groove in said disk plate adjacent said wall, a transversal partition in said groove disposed longitudinally along said diameter, the surface of said groove levelling with the surface of the disk plate for a short distance at about 90° from said partition, the groove adjacent the said partition, on the side of the said levelling, constituting the starting position of a playing marble,

a target comprising an array of marble-seating depressions located in the surface of said disk plate and disposed adjacent said partition and over said diameter,

a plurality of curved vanes, on said disk plate for defining parallel channels located between said target and a portion of the wall opposite said partition, the said channels being bisected by the said diameter, the outermost vane being located along the edge of said groove,

wherein a movement of the playing marble located in the groove adjacent the partition is controlled by the vertical actuation of the said handle so as to guide the said marble through one of the said channels and to direct it towards one of the depressions of the target.

2. A device as recited in claim **1**, wherein the target is a removable insert adapted to seat in a matting cutout in said disk plate.

3. A device as recited in claim **2**, wherein the depressions in the insert are evenly spread over an equilateral triangular area, a said insert including pins inserted in the said depressions adapted to be knocked down by a trajectory of the marble.

4. A device as recited in claim **1**, wherein the length of the vanes are progressively longer according to their distance from the target.

5. A device as recited in claim 1, wherein the said elastic means is a coil spring.

6. A device as recited in claim 1, wherein the insert is an orientable circular member having a vane on a portion of its periphery

7. A device as recited in claim 1, wherein the depressions are disposed over concentric rings.

8. A device as recited in claim 1, wherein the depressions are spherical and have different sizes.

* * * * *