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O'Keefe

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[54] **GIMBAL-MOUNTED GAME BOARD TILTABLE BY CONTROL STICK**

[76] Inventor: **Jack Victor O'Keefe,** 726 W. Dempster St., Apt. H 204, Mt. Prospect, Ill. 60056

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[52] **U.S. Cl.** **273/110**

[51] **Int. Cl.** **A64f 7/16**

[58] **Field of Search** 273/110

[56] **References Cited**

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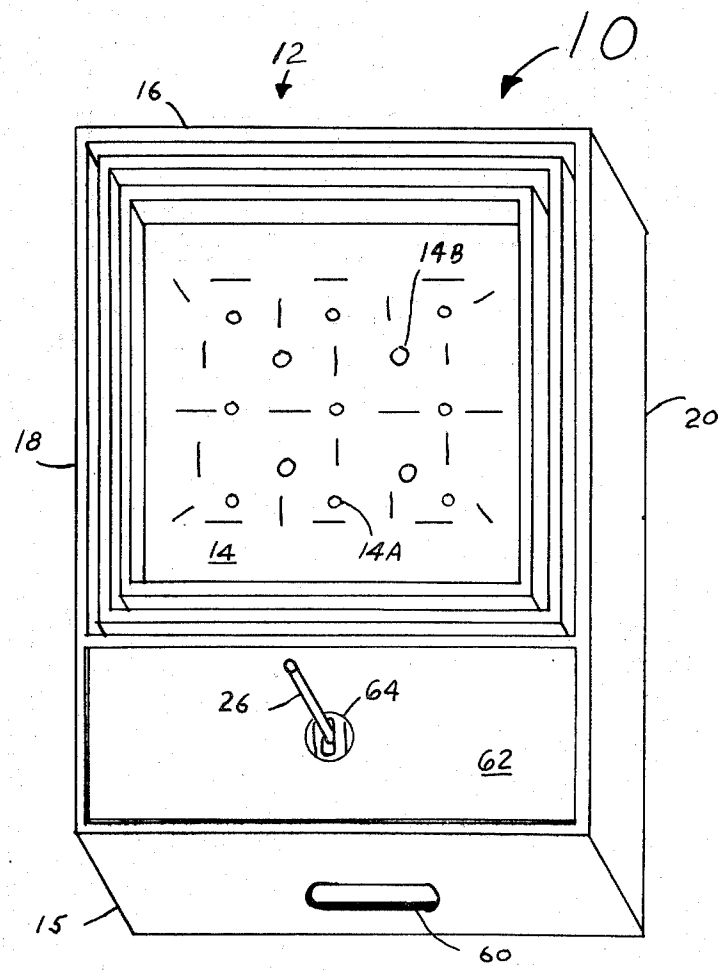
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Primary Examiner—Anton O. Oechsle
Assistant Examiner—Arnold W. Kramer
Attorney—E. Manning Giles et al.

[57] **ABSTRACT**

A game device having a laterally and longitudinally tiltable platform manually manipulable by means of a control stick. Cooperating game boards which are removably mountable on said platform are provided with playing surfaces having raised or recessed portions adapted to serve as obstacles or traps for ball-shaped playing members used therewith.

3 Claims, 4 Drawing Figures



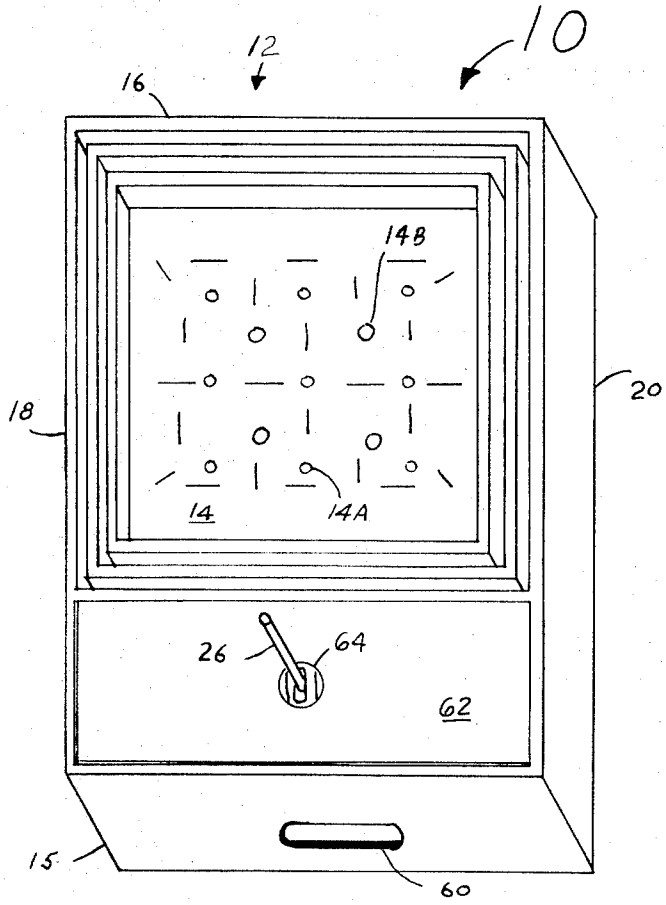


FIG. 1

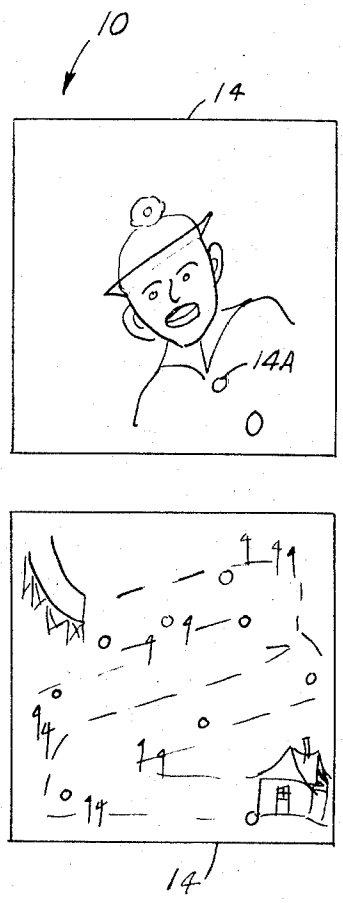


FIG. 4

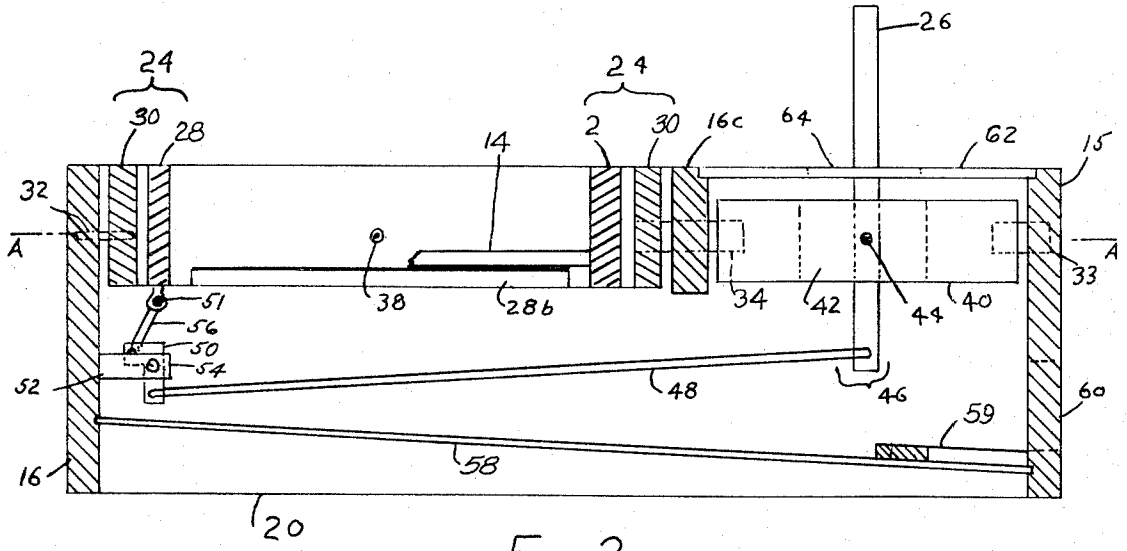


FIG. 3

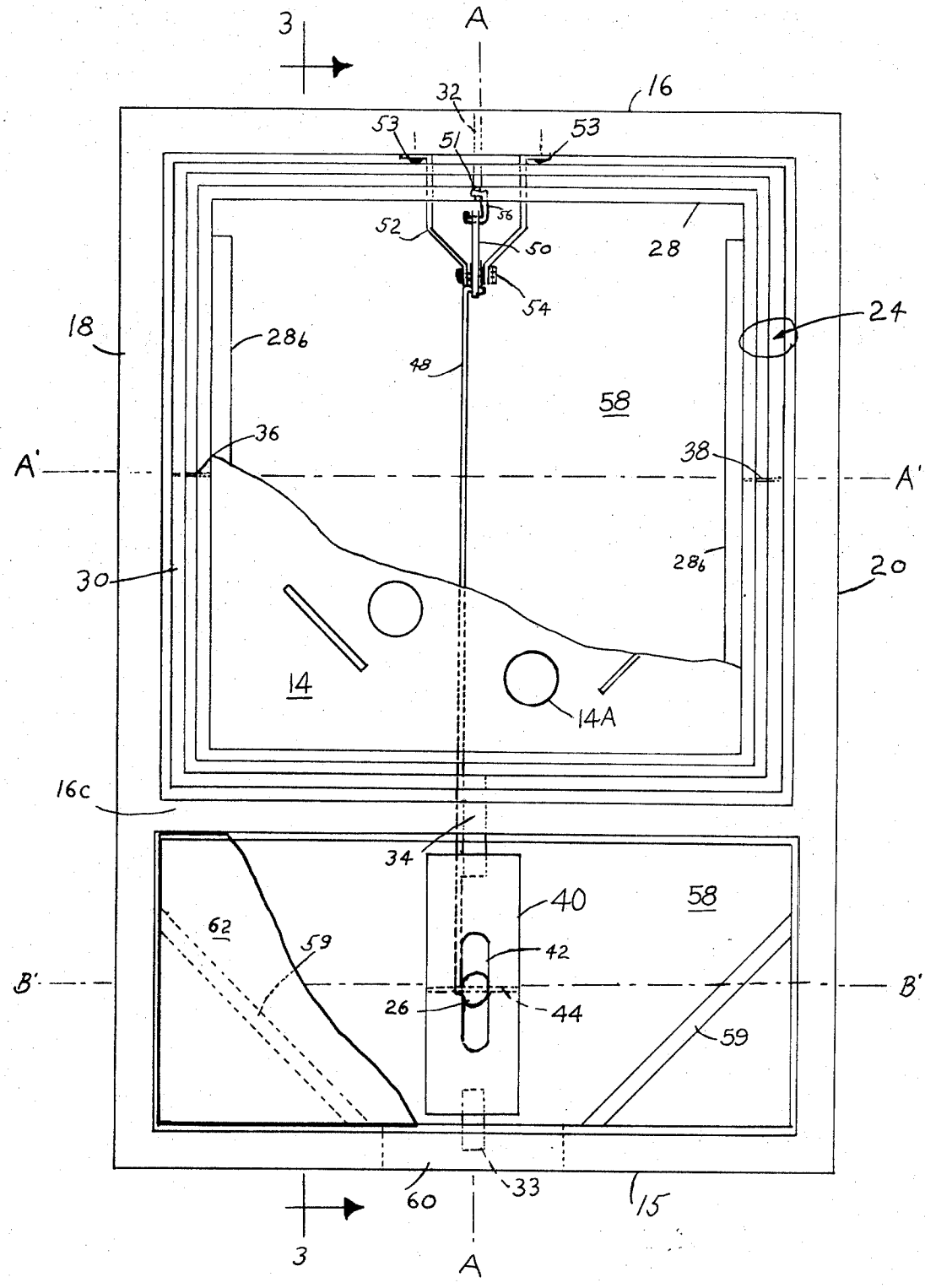

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A
16
32
53
53
51
52
56
50
28
54
24
18
28b
48
58
36
38
A'
A'
30
28b
20
14
14A
16c
34
40
58
62
59
42
B'
B'
26
44
59
60
33
15
3
A

FIG. 2

GIMBAL-MOUNTED GAME BOARD TILTABLE BY CONTROL STICK

BACKGROUND OF THE INVENTION

The present invention relates to a game device and, more specifically, to games of the type wherein a game board is mechanically manipulable to cause a ball to roll in directions controlled by the player over the surface of the board.

Game devices of this general type have been known heretofore wherein a game board is provided with protrusions or recesses which serve as obstacles or traps and mechanical means are supplied to enable tilting the board in selected directions to cause a ball, rolling freely on the surface of the board, to avoid such obstacles or traps or to become seated in some selected recess. Such games may be designed to appeal primarily to children or to adults, or they may have specific purposes such as occupational therapy where manual dexterity needs to be developed.

The primary object of the present invention is to provide a game device of this general type with increased versatility as an amusement device for all age levels and as a training tool. More particularly, the object of the present invention is to provide a game device of the foregoing type which can be easily modified in terms of the level of skill required for successful manipulation of the game ball over the game surface so that the same basic game structure can be utilized for amusement both by young children and adults as well as by handicapped persons desiring to improve their manual dexterity.

SUMMARY OF THE INVENTION

The game device herein involves controlling the movement of a game ball over a game surface by tilting the game surface. The game surface is selectively tiltable in various directions by manipulating a control stick mechanically connected to the game board. With the present invention, a set of game boards is provided, each having a specially designed game surface over which the game ball is to be manipulated, and each having indentations, mazes, courses, and the like which establish specific game objectives of varying degrees of difficulty. Each game board is readily removable and replaceable on the game device so that one such device enables playing any number of different games with different subject matter and different levels of difficulty, simply by changing game boards.

In the preferred embodiment illustrated herein the common control unit includes a support for removably supporting the game boards individually which is gimbal-mounted for tilting action about a pair of orthogonally oriented axes. Tilting action of the support is accomplished through manipulation of a single control stick, much like the control stick in an aircraft. The use of a single control stick is especially advantageous when the device is to be used by persons having various levels of skill and dexterity since the simplicity or difficulty of each game is determined by the design of the respective game boards.

Other features and advantages of the invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which show structure embodying preferred features of the present invention and the principles thereof, and what

is now considered to be the best mode in which to apply these principles.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings forming a part of the specification, and in which like numerals are employed to designate like parts throughout the same:

FIG. **1** is a perspective view of a game device embodying the present invention, showing one of the game boards in position on the game support plate;

FIG. **2** is a top plan view of the game device of FIG. **1** with portions of the inserted game board support plate cut away to show the interior;

FIG. **3** is a sectional view taken, as indicated, along the line **3—3** of FIG. **2**; and

FIG. **4** illustrates a set of alternate game boards for use with the game device support plate.

With reference now to the drawings, the presently preferred embodiment of my game device is designated by the reference numeral **10**. In accordance with this invention, a common game control unit **12** is adapted to receive a game board **14**, which is one of a set of such game boards which are removably mounted on said control unit **12**.

In the illustrated embodiment the game boards **14** comprise flat, generally rectangular sheets of relatively rigid material such as "Masonite" board or other flat, smooth surfaced board. Each game board **14** is provided with grooves, concavities, openings, protrusions and the like, along with suitable decorations depending upon the game.

The common game control unit **12** illustrated herein comprises a main frame of rectangular generally boxlike configuration having a front wall **15**, a rear wall **16** and opposed side walls **18** and **20**. A cross member **16C** serves as a transverse structural member between the respective side walls **18** and **20** and provides support for the control and support mechanisms of the control unit as will be explained hereinafter. Said cross member **16C** also separates the game board area from the control area of the frame, as shown in FIG. **2**. Tilting action of the game board **14** is controlled by manipulation of a control stick **26**, which extends vertically upward above the control unit **12**, said control stick **26** projects through an opening **64** in a top cover plate **62** which is disposed on the control unit **12** between the front wall **15**, the cross member **16C**, and the opposed side walls **18** and **20**.

Referring to FIGS. **2** and **3**, the control unit **12** utilizes a support means **24** on which the selected game board **14** is removably mounted. Said support means **24** comprises a boxlike inner frame **28** which is provided with supporting ribs **28B** along the inner faces of opposite sides of said frame **28** and adjacent the bottom edges thereof. To provide for longitudinal tilting movement of the support means **24**, the inner frame **28** is supported by aligned pins **36** and **38** to an outer frame **30** of similar rectangular configuration which is interposed between said inner frame **28** and the front wall **15**, rear wall **16** and opposed side walls **18** and **20** of the game control unit **12**. The outer frame **30** is mounted for lateral tilting about pin **32** and shaft **33** which are axially aligned. Shaft **34** is fixed to the outer frame **30** and is journaled through cross member **16C** and into fixed engagement with control shaft **40** which is, in turn, fixed to the front wall **15** of the base **12** by a shaft **33** axially aligned with shaft **34** and pin **32**. Thus, turn-

ing of the control bracket **40** in either direction causes a corresponding tilting of the outer frame **30** about axis A—A.

Control bracket **40** is provided with an elongated slot **42** extending therethrough and aligned with axis A—A. Control stick **26** is mounted in the slot **42** and secured to said control bracket **40** by means of a pin **44** in a manner to permit forward and backward movement pivoting on the axis parallel to axis A'—A'. In the illustrated embodiment, one end of an elongated rod **48** is connected at linkage **46** to the lower region of control stick **26** and the other end of said rod **48** is connected to one end of a bell crank **50** which is pivotally mounted on a bracket **52** secured to the rearwall **16** of the base **12**, beneath support means **24**. A short link **56** is connected to the other end of the bell crank **50** by means of a ring connector **51** on the underside of inner frame **28**. Bell crank **50** is supported on bracket **52** by means of a pivot **54**, said bracket **52** being affixed to rear wall **16** by appropriate mounting means **53**.

In operation, when a player exerts lateral pressure on the control stick **26** it results in a tilting of the support means **24**, while forward or backward movement of the control stick causes a corresponding movement thereof. The player may apply lateral and forward or backward movement to the control stick **26** simultaneously, with any desired amount of movement along each of the respective axes, A—A and A'—A'. By so manipulating the control stick **26**, the player is able to tilt the game board **14** mounted on the inner frame **28** to any desired inclination in any direction he chooses. By doing so, he is able to cause a free-rolling ball (not shown) resting on the game board **14** to move in the direction of such inclination and he can instantly change the direction of movement of such ball by manipulating the control stick **26** to change the inclination of the game board **14**.

It is contemplated that some of the game boards **14** would be provided with recesses **14A** and with holes **14B** large enough to permit the game ball to fall through. In order to return the ball to the control stick end of the game device **10**, a bottom plate **58** is mounted between the respective walls **15, 16, 18** and **20** of the main frame adjacent the bottom edges thereof, said bottom plate **58** being inclined so that the portion mounted on the rear wall **16** is higher than the portion mounted on the front wall **15**. Guides **59** are secured to said bottom plate as shown in FIG. **2**. A horizontally disposed elongated opening **60** is provided in the front wall **15**, just above the bottom plate **58**, said opening **60** being large enough to permit the game ball to be removed through said opening **60**. Thus when the ball drops through a hole **14A** in the game board **14**, it lands on the bottom plate **58** and is caused by the inclination thereof to roll toward the front wall **15**. As it nears the front wall **15**, the ball may strike either of the guides **59** and will be caused thereby to roll toward the opening **60**, where the player may conveniently insert a thumb and finger through the opening **60**, grasp the ball, and remove it for further or continued use.

In order to prevent excessive control stick displacement, a cover plate **62** is mounted on the front wall **15** and the cross member **16C** over the control bracket **40**. Said cover plate **62** is provided with a circular opening **64** through which the control stick **26** passes. Said circular opening **64** is of a diameter sufficient to permit free movement of the control stick **26** in any direction as far as it is likely to be moved in the course of a game but to limit displacement of the control stick **26** therebeyond.

The game device **10** is provided with any desired number of removable game boards **14**. Certain of said game boards **14** may involve an exceedingly simple arrangement of designs and recesses, protrusions, holes and the like for use by young persons or those with limited manual dexterity. Other game boards **14** may be of increasing difficulty or the subject matter may be adapted to more adult interests.

One of the game boards **14** contemplated herein is shown in FIG. **1** in position on the supporting ribs **28B** in the inner frame **28**. The surface of the game board **14** is provided with one or more recesses **14A** and one or more holes **14B**. The object of the game would be to place a ball on the surface of the game board **14** and then causing the ball to move about on the surface of the board **14** by manipulating the control stick **26** until the ball is seated in one or more of the recesses **14A** without dropping through any of the holes **14B**.

Two other examples of game boards **14** are illustrated in FIG. **4**. The upper board shows the head of a clown and has a recess **14A** into which the player attempts to roll the ball without losing it through a hole in said board. The lower game board **14** shows a ski jump and slalom trail through which the player would undertake to move the ball. It will be understood that the subjects and designs of the game boards **14** are unlimited and my invention therefore is not restricted to any specific game boards but rather contemplates the combination shown and described herein with any removable game boards adapted to be used with a ball or any similar game member which can be caused to move across the surface of the board through selective tilting of the board in various directions permit only a predetermined amount of control stick displacement in any given direction.

As stated hereinabove, the game device of the present invention is readily adaptable for use by persons having various degrees of manipulative skill simply by interchange of the game boards **14**. All of the game boards of the set of game boards are of substantially identical shape and size, conforming to the inner dimensions of inner frame **28**. With reference to FIG. **3**, it will be noted that the walls of the inner frame **28** extend vertically above the supported game board several times the thickness of the game board so as to provide a secure supporting structure as well as a vertical game wall.

Thus, while preferred constructional features of the invention are embodied in the structure illustrated herein, it is to be understood that changes and variations may be made by those skilled in the art without departing from the spirit and scope of the appended claims.

What is claimed is:

1. In a game device of the type wherein a manipulable game board is adapted to be tilted in various directions to cause a movable game member on the surface thereof to move toward selected objectives, the combination of a base, a support member manipulably mounted on said base, a controller movably mounted on said base and operably connected to said support member, and a game board removably mountable on said support member, said base comprising a pair of spaced, elongated sidewalls, a pair of opposed end

walls interposed between and connected at their respective ends to said sidewalls, and an intermediate wall disposed laterally between said sidewalls and secured thereto to form a partition between a peripherally-enclosed game section of said base at one side of said intermediate wall and a control section at the other side thereof, said support member comprising cooperating inner and outer frame members, said outer frame member corresponding in peripheral configuration to said game section of said base but of reduced dimension with respect thereto, said outer frame member being nested within said game section and being pivotally secured thereto along a pivot axis at two opposed locations respectively to the game section end wall and to said intermediate wall of said base, said inner frame member corresponding in peripheral configuration to said outer frame member but of reduced dimension with respect thereto, said inner frame member being nested within said outer frame member and being pivotally secured thereto in two axially opposed locations substantially parallel to said end walls, said inner frame having inwardly projecting means to removably support said game board within said frame, said controller comprising the combination of a cross member pivotally mounted within said control area along said pivot axis in fixed engagement with said outer frame and an upstanding control stick pivotally secured to said cross member for pivoting about an axis transverse to said pivot axis and having a control shaft pivotally connecting said control stick to said inner frame.

2. The combination of a game device in accordance with claim **1** with a removable game board adapted to receive a cooperating spherical game member, said game board being provided with a plurality of concavities, apertures and raised portions adapted to guide and receive said spherical game member in response to lateral and longitudinal tilting of said game board through manipulation of said control stick.

3. A game device in accordance with claim **2** wherein said base is provided with a floor member disposed below said inner and outer frames and sloped toward the end wall of said base at the control section end thereof, said end wall being provided with an access opening immediately above said floor member.

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