March 8, 1966 P. MATTE 3,239,226

MINIATURE CURLING GAME WITH MOVABLE SURFACE

Filed Feb. 6, 1964 3 Sheets-Sheet 1

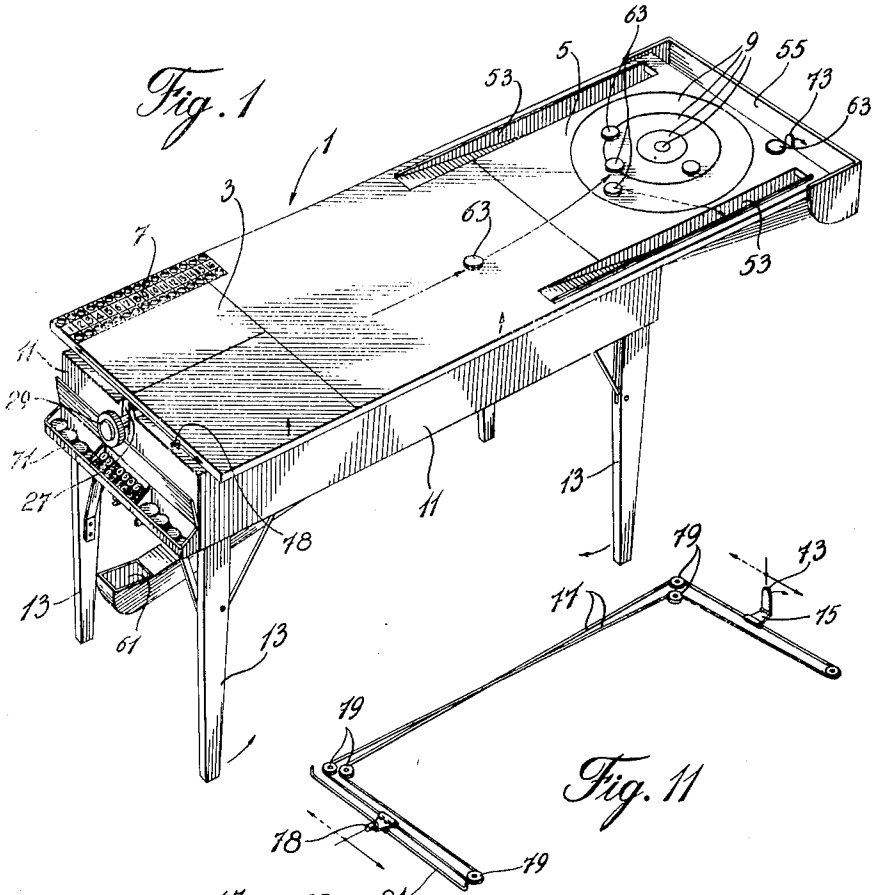


Fig. 1

Fig. 11

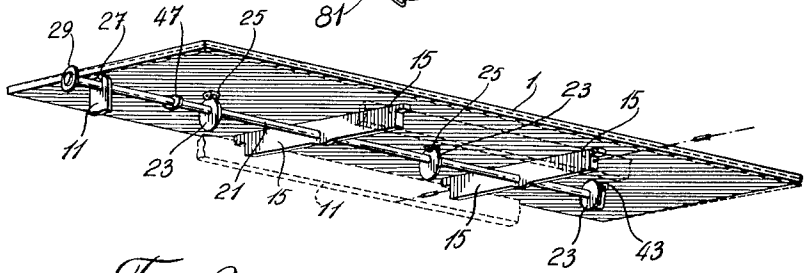


Fig. 2

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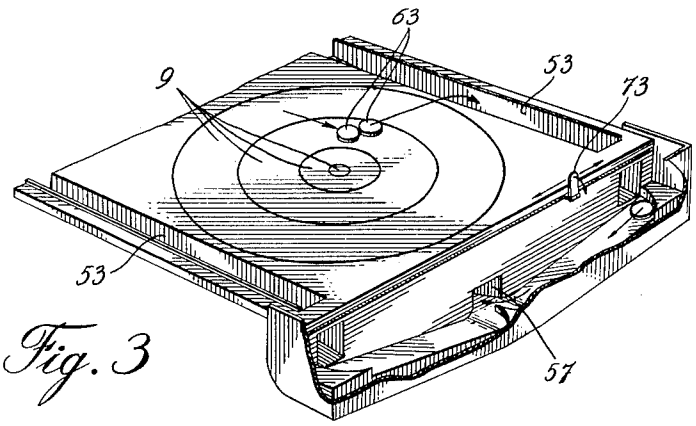


Fig. 3

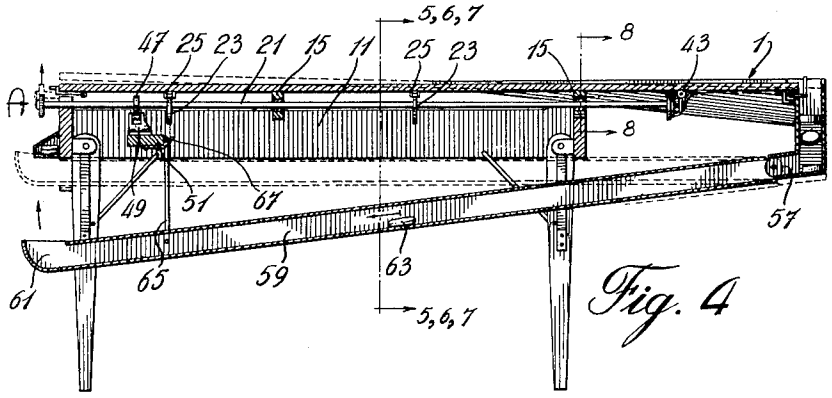


Fig. 4

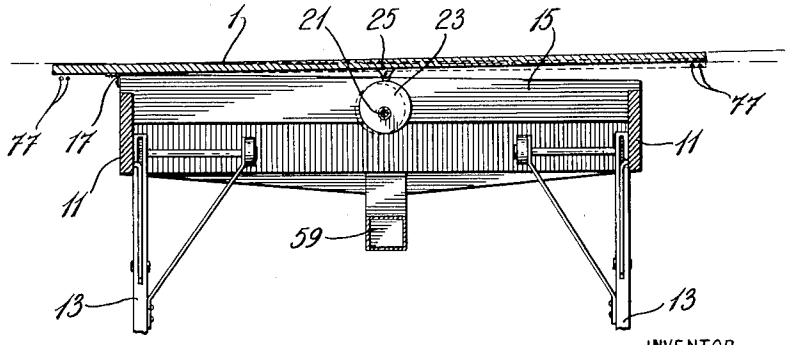


Fig. 5

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MINIATURE CURLING GAME WITH MOVABLE SURFACE

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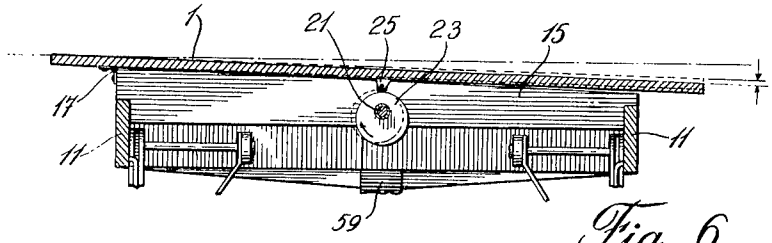


Fig. 6

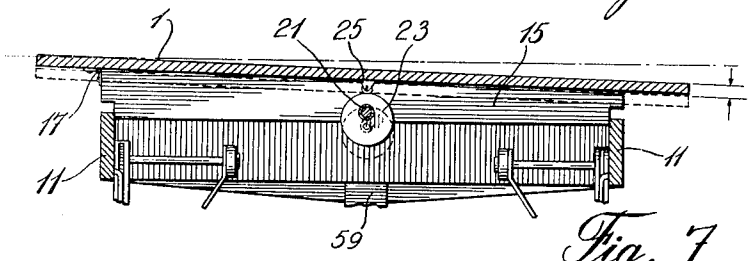


Fig. 7

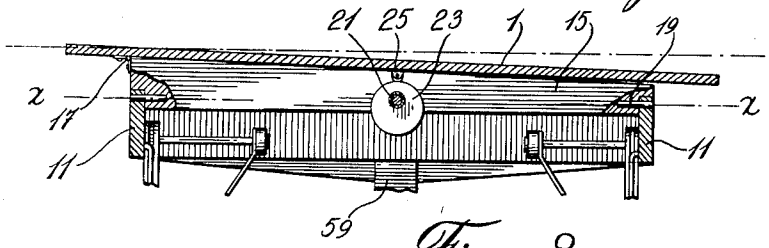


Fig. 8

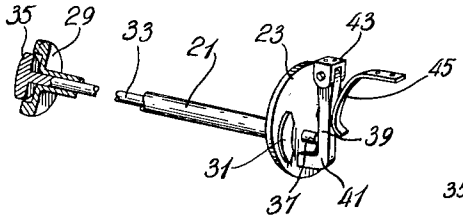


Fig. 9

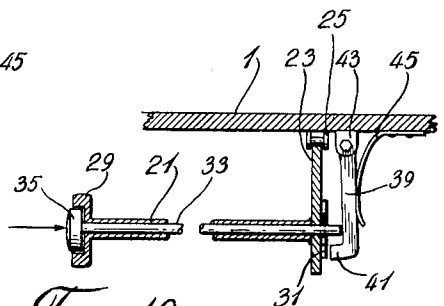


Fig. 10

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MINIATURE CURLING GAME WITH MOVABLE SURFACE

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Filed Feb. 6, 1964, Ser. No. 342,930
15 Claims. (Cl. 273—110)

The present invention relates to a table game apparatus particularly intended to simulate the conventional curling game as played on ice.

In all miniature games attempting to simulate an actual game or sport, one of the main difficulties to be encountered is to devise and achieve conditions which are close to those met when the actual game is played and and it is an object of the present invention to provide a miniature game, particularly applicable to curling, which is to be played on a table and which provides control facilities of the playing surface capable of imparting, to the stone or missile, the curling movement that a stone on an actual curling rink attains when thrown with a twisting motion, and capable of adjusting the curved course and the decrease in the loss of speed caused by the sweeping of the ice in front of the stone, in the actual game.

Another object of the invention resides in the provision of such a game wherein the playing surface may be tilted both longitudinally and laterally to urge the missile into a desired arcuate path.

Still another object of the invention resides in the provision of a control mechanism whereby the playing surface may be tilted laterally both upwardly and downwardly, at will, whereby when the missile is thrown it will take a predetermined curling motion.

A further object of the invention lies in providing a control mechanism whereby the predetermined curling motion is reduced in amplitude while the table is tilted longitudinally thus simulating the action of the sweeping broom which is precisely used in the actual game to decrease the curvature of the path of the stone and to reduce the loss in speed due to friction.

Yet another object of the invention resides in that the lateral tilting of the plane board takes place both upwardly and downwardly from the horizontal plane whereby, when coupled with the provided longitudinal tilting, universal movement of the board results which affords appreciable control over the missile.

Still another object of the invention is to provide a game of the aforesaid type having a gulley system for the collection of missiles at the scoring end of the playing surface, the said gulley system serving for the return of the missiles to the delivery end.

The above objects may be attained in a miniature game made according to the invention which comprises: a horizontal support; a substantially flat generally horizontal playing board; an operating frame adapted to receive said playing board; first pivoting means connecting said operating frame to said support for pivoting action of the frame and board about an axis transverse of said board; second pivoting means connecting said board to said frame for pivoting action of the board about a lateral axis parallel to the longitudinal axis thereof, and an operating means on said frame operable to cause pivoting of said board about said lateral axis.

Preferably, the operating frame comprises a plurality of transverse members; said first pivoting means being a pair of pivot pins joining the ends of one of said transverse members to said support and said second pivoting means being hinges mounted on said board and on the ends of said transverse members corresponding to said lateral axis.

Preferably again, the operating means on the frame comprises a rotatable shaft extending through said transverse members as bearings; a series of circular discs eccentrically fixed to said shaft, as cams, and adapted to contact the undersurface of said board whereby rotation of the discs will cause lifting of the board and pivoting thereof about said lateral axis.

The invention will be better understood by the description that follows of a specific embodiment having reference to the appended drawing, wherein:

FIG. 1 is a perspective view of the miniature curling game of the invention;

FIG. 2 is a perspective view illustrating the undersurface of the playing board equipped with the operating frame therefor;

FIG. 3 is a perspective view, partly cut away, of the scoring end of the playing board, intended particularly to illustrate part of the collecting gulley system;

FIG. 4 is a central longitudinal cross-sectional view of the miniature game of the invention;

FIGS. 5 and 6 are transverse vertical cross-sectional views taken along line 5—5, 6—6, respectively of FIG. 4, the playing board being shown in two different lateral angular positions;

FIG. 7 is another vertical cross-sectional view along line 7—7 of FIG. 4 showing the playing table as being tilted both laterally and longitudinally;

FIG. 8 is a transverse cross-sectional view taken along line 8—8 of FIG. 4;

FIG. 9 is a perspective view, partly cut away to show some internal features, of the rotation control mechanism of the table lateral pivoting means;

FIG. 10 is a longitudinal cross-sectional view of the pivoting means of FIG. 9;

FIG. 11 is a perspective view of an aiming finger arrangement.

Referring more particularly to FIG. 1, the miniature curling game of the invention generally comprises a substantially flat generally horizontal playing board 1 having a delivery end 3 and a scoring end 5. The delivery end comprises an optional score board 7 while the scoring area 5 includes the usual scoring circles 9.

This playing board 1 is mounted on a generally horizontal frame-like support 11 mounted upon the floor by means of a plurality of foldable legs 13, the mechanism for folding being of a known type and not part of the instant invention.

The playing board 1 is connected to the support 11 by means of an operating frame which, as said previously, will allow inclination of playing board 1 by rotation about a lateral longitudinal axis parallel to the central longitudinal axis of the playing board and tilting thereof, by pivoting about an axis transverse of the playing board and located generally at the scoring end of board 1.

The preferred operating frame consists of a plurality of transverse members 15 (see FIG. 2) to one end of which board 1 is pivotally connected as by means of hinges 17 (see FIGS. 5, 6, 7 and 8). The forwardmost transverse member 15, the one at the scoring end 5 of the playing board 1, is in turn connected to support 11 for pivotal action through a transverse axis x—x, as shown in FIG. 8. The connection is preferably through pivoting pins 19.

A central operating shaft 21 extends longitudinally centrally beneath playing board 1, and through transverse members 15 acting as bearings, shaft 21 being held against axial displacement by any known means.

A plurality of discs 23 are secured on said shaft 21, discs 23 being eccentrically mounted thereon to act as cams and being made to rest on roller mounts 25 se-

cured on the undersurface of board **1** as clearly shown in FIGS. 4 through 8.

The operating end of rod **21** slides in a vertical slot **27** formed in the delivery end part of support **11**. The said operating end of shaft **21** is provided with an operating knob **29**.

As shown in FIGS. 9 and 10, shaft **21** is hollow and the terminal disc **23** is provided with two circular segments **31** projecting from one surface thereof. A rod **33** is slidably received within the bore of hollow shaft **21**, having at one end a button **35** whiie the other end thereof extends through a hole **37** in terminal disc **23**.

The extreme end of rod **33** presses on a lever **39** provided with a finger **41**, the said lever being pivotally mounted at the end opposite that of finger **41** on a bracket **43** secured to the undersurface of board **1** as shown in FIGS. 2 and 4. A leaf spring **45** also secured on the undersurface of board **1** presses lever **39** towards terminal disc **23** to force finger **41** in abutment against the same terminal disc **23**.

Projecting segments **31** have a 90° angular extent and are spaced 90° apart thus leaving two grooves therebetween for finger **41** to ride when not pressed out by rod **33**. Segments **31** are so located that, in the uppermost and lowermost positions of the board **1** (FIGS. 5 and 6), finger **41** lies midway between the two segments. This also means that, when finger **41** lies in one groove, knob **29** may be rotated ⅛ of a turn, or 45°, either way, for lefthanded or righthanded players, causing raising of the board (FIG. 6) or lowering thereof (FIG. 7).

Button **35** is manipulated when it is desired to shift finger **41** from one groove to the other.

It should be noted from FIGS. 5 through 8 that transverse cross members **15** slope downwardly below the horizontal from the end thereof corresponding to hinges **17** for a purpose now to be determined.

Operation of the miniature curling game thus far described operates as follows:

In order to provide the missile or stone to be thrown from the delivery end **3** with a curving motion so that it can move about on the playing board **1** into a curvilinear motion, operating knob **29** is rotated in the direction corresponding to the desired upward or downward maximum lateral inclination of the board. This maximum inclination may be reduced by forcing rotation of shaft **21** so that finger **41** is displaced in the direction of one of the segments **31**, maximum reduction being obtained upon abutment of finger **41** against one of the segments **31**.

Forwardly of the first cam **23**, between the latter and support **11**, there is provided an oval-shaped wheel **47**, fixed to shaft **21**, and adapted to freely rest on a roller assembly **49** secured to a transverse element **51** held between the lateral members of support **11**. Furthermore, and as perhaps as best seen in FIG. 2, oval wheel **47**, in the extreme downwardly inclined position of the playing board **1** (that of FIG. 6) and in the extreme upwardly inclined position (that of FIG. 5) has the long axis thereof in horizontal inoperative position. However, as soon as knob **29** is rotated in either direction, wheel **47** also rotates and as it rests on the roller assembly **49** and because of its oval shape, causes board **1** to pivot slightly about axis *x*—*x* through the rearward transverse member **15**. In other words, as the amplitude of the curve the stone is to follow is adjusted by means of cams **23**, the board is automatically and simultaneously tilted about axis *x*—*x*. This is to simulate the sweeping effect of the brooms in an actual game of curling.

It should be noted that as board **1** pivots about axis *x*—*x*, all transverse members **15** of the operating frame rise above support **11** except the one member **15** provided with pivot pins **19**.

The invention also contemplates the provision of a novel missile collecting gulley system better illustrated in FIGS. 1, 3 and 4 and seen to consist of two lateral gulleys **53** each having a steeply inclined bottom surface discharging into a transverse net **55** the bottom surface of which slopes towards a delivery trough **57** (FIG. 4). Gulleys **53**, net **55** and delivery trough **57** are integral with one another.

At the open end of delivery trough **57**, there is pivotally mounted an elongated chute **59** extending longitudinally beneath playing board **1** and support **11** towards the delivery end **3** where it terminates into a collecting pocket **61**.

From the above arrangement, it will be understood that whenever missiles or stones **63** drop into either of gulleys **53**, or net **55**, they are directed into chute **59** and eventually end up in the collecting pocket **61** where they may be picked up again to be thrown by the players.

Chute **59** may be held in inclined position by any known means such as by a system of bent rods **65** hooking into a strap **67** provided on transverse element **51**. Whenever the game is to be put away, the bent rods **65** may be disengaged from strap **67** and chute **59** made to lie against support **11** and remain thereagainst in any known manner.

As an added convenience, support **11** may be provided, at the delivery end of the playing board, with a collector **71** adapted to contain extra stones as well as counting pegs for the score board **7** and which may have a closable cover for use when the game is put away.

Also as an added convenience, an aiming finger system may be provided as illustrated in FIG. 11, consisting of an upward finger **73** foldable over the retainer member **75** secured to a chord system **77**, including pulleys **79**, which can be made to move the said finger **73** by means of an operating arm **78** preferably having a part thereof slidable along a transverse rigid bar **81** used as guide therefor. Preferably also, finger **73** is spring pressed upwardly by means of a light spring so as not to resist the knock of a missile or stone **63** which happens to have been thrown in that direction.

As can easily be seen from perusal of FIG. 11, displacement of operating arm **78** in either direction will result in displacement of finger **73** in the same direction.

Although a specific embodiment of the invention has just been described, it will be understood that various modifications may be made thereto without departing from the spirit of the invention.

I claim:

1. A miniature game comprising:

(a) a horizontal support;

(b) a substantially flat generally horizontal playing board;

(c) an operating frame adapted to receive said playing board;

(d) first pivoting means connecting said operating frame to said support for pivoting action of the frame and board about an axis transverse of said board;

(e) second pivoting means connecting said board to said frame for pivoting action of the board about a lateral axis parallel to the longitudinal axis thereof, and

(f) an operating means, on said frame, operable to cause pivoting of said board about said lateral axis.

2. A game as claimed in claim **1**, wherein said operating frame comprises a plurality of transverse members; said first pivoting means being a pair of pivot pins joining the ends of one of said transverse members to said support and said second pivoting means being hinges mounted on said board and on the ends of said transverse members corresponding to said lateral axis.

3. A game as claimed in claim **2**, wherein said operating means on said frame comprises a rotatable shaft extending through said transverse members; a series of circular discs eccentrically fixed to said shaft, as cams, and adapted to contact the undersurface of said board where-

by rotation of the discs will cause lifting of said board and pivoting thereof about said lateral axis.

4. A miniature game comprising:

(a) a horizontal support;

(b) a substantially flat generally horizontal playing board having a delivery end and a scoring end;

(c) an operating frame over which said board is adapted to lie;

(d) first pivoting means connecting the end of said frame, corresponding to the scoring end of said board, to said support for pivoting action of both the frame and board about an axis transverse of said board;

(e) second pivoting means connecting said board to said frame for pivoting action of the board about a lateral axis parallel to the longitudinal axis thereof, and

(f) an operating means on said frame, including handle means at the delivery end of said board, operable through said handle means, to cause pivoting thereof thereof about said axes.

5. A game as claimed in claim 4, wherein said operating frame comprises a plurality of transverse members; said first pivoting means being a pair of pivot pins joining the ends of one of said transverse members to said support and said second pivoting means being hinges mounted on said board and on the ends of said transverse members corresponding to said lateral axis.

6. A game as claimed in claim 5, wherein said operating means on said frame comprises a rotatable shaft extending through said transverse members as bearings; a series of circular discs eccentrically fixed to said shaft, as cams, and adapted to contact the undersurface of said board whereby rotation of the discs will cause lifting of said board and pivoting thereof about said lateral axis.

7. A game as claimed in claim 6, wherein said operating means further comprises a roller assembly on said support and an oval wheel secured to said shaft and bearing on said assembly whereby rotation of said shaft causes pivoting of said board about both said axes.

8. A game as claimed in claim 7, rollers secured for rotation on the undersurface of said board and adapted to be contacted by said cams during rotation of the said cams.

9. A game as claimed in claim 5, wherein the top surface of said transverse members slopes evenly downwardly from the pivoting ends thereof whereby said playing board may move from a downwardly inclined position to an upwardly inclined position in relation to said lateral axis; the eccentricity of said discs being of a magnitude to allow such positioning of the board.

10. A game as claimed in claim 6, wherein one of said discs is mounted at the extreme end of said shaft and is provided with a rigid abutting segment projecting from the outer surface thereof in relation to said shaft; a downward lever pivotally mounted on said board and having a horizontal finger spring pressed against said outer surface to abut said abutting segment and prevent full rotation of said discs and shaft, and releasing means for

pushing said lever and finger away from said outer surface and allow full rotation of said discs and shaft.

11. A game as claimed in claim 10, wherein said shaft is hollow and said releasing means is a rod extending therethrough and directed against said lever.

12. A miniature curling game comprising:

(a) a horizontal support;

(b) a substantially flat generally horizontal playing board having a delivery end and a scoring end;

(c) an operating frame over which said board is adapted to lie;

(d) first pivoting means connecting the end of said frame, corresponding to the scoring end of said board, to said support for pivoting action of both the frame and board about an axis transverse of said board;

(e) second pivoting means connecting said board to said frame for pivoting action of the board about a lateral axis parallel to the longitudinal axis thereof,

(f) an operating means on said frame, including handle means at the delivery end of said board, operable through said handle means, to cause pivoting thereof about said lateral axis; and

(g) an inclined gulley system at the scoring end of said board terminating into a collecting trough centrally at the said end and beneath said board and a downwardly inclined elongated chute operatively connected to said trough and directed to said delivery end of said board, whereby playing missiles which collect into said gulley system slip down into said chute and are directed back to said delivery end.

13. A game as claimed in claim 12, wherein said operating frame comprises a plurality of transverse members; said first pivoting means being a pair of pivot pins joining the ends of one of said transverse members to said support and said second pivoting means being hinges mounted on said board and on the ends of said transverse members corresponding to said lateral axis.

14. A game as claimed in claim 13, wherein said operating means on said frame comprises a rotatable shaft extending through said transverse members as bearings; a series of circular discs eccentrically fixed to said shaft, as cams, and adapted to contact the undersurface of said board whereby rotation of the discs will cause lifting of said board and pivoting thereof about said lateral axis.

15. A game as claimed in claim 13, wherein said operating means further comprises a roller assembly on said support and an oval wheel secured to said shaft and bearing on said assembly whereby rotation of said shaft causes pivoting of said board about both said axes.

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