June 23, 1970 C. M. MAURER 3,516,672

GAME BOARD DICE AGITATOR

Filed May 6, 1966 2 Sheets-Sheet 1

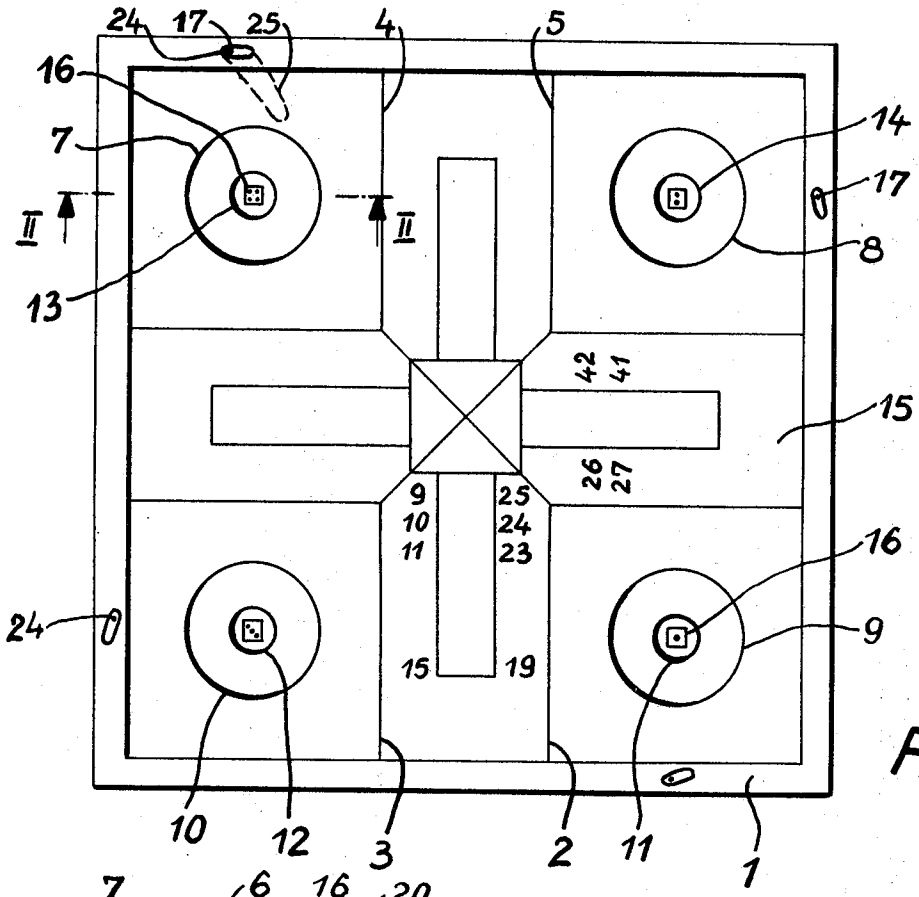


Fig. 1

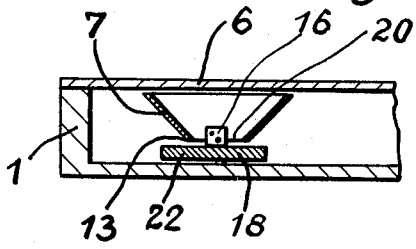


Fig. 2

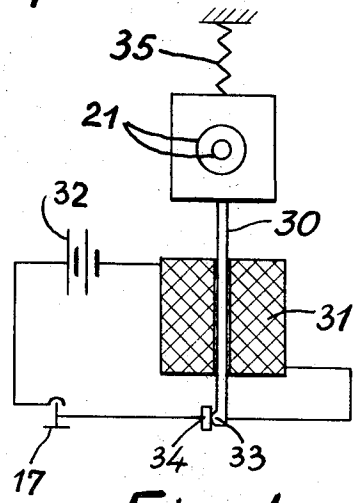


Fig. 4

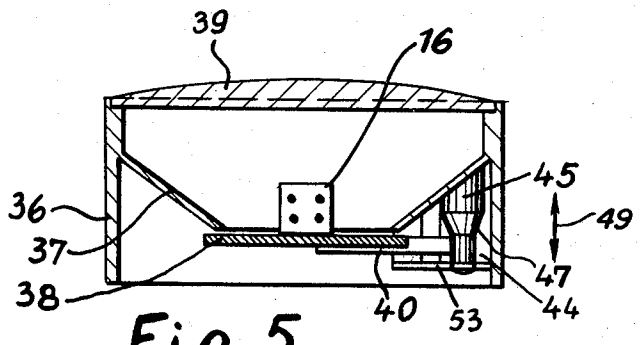


Fig. 5

INVENTOR.
CARL MAX MAURER

BY Hane and Nydick
ATTORNEYS

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GAME BOARD DICE AGITATOR

Filed May 6, 1966 2 Sheets-Sheet 2

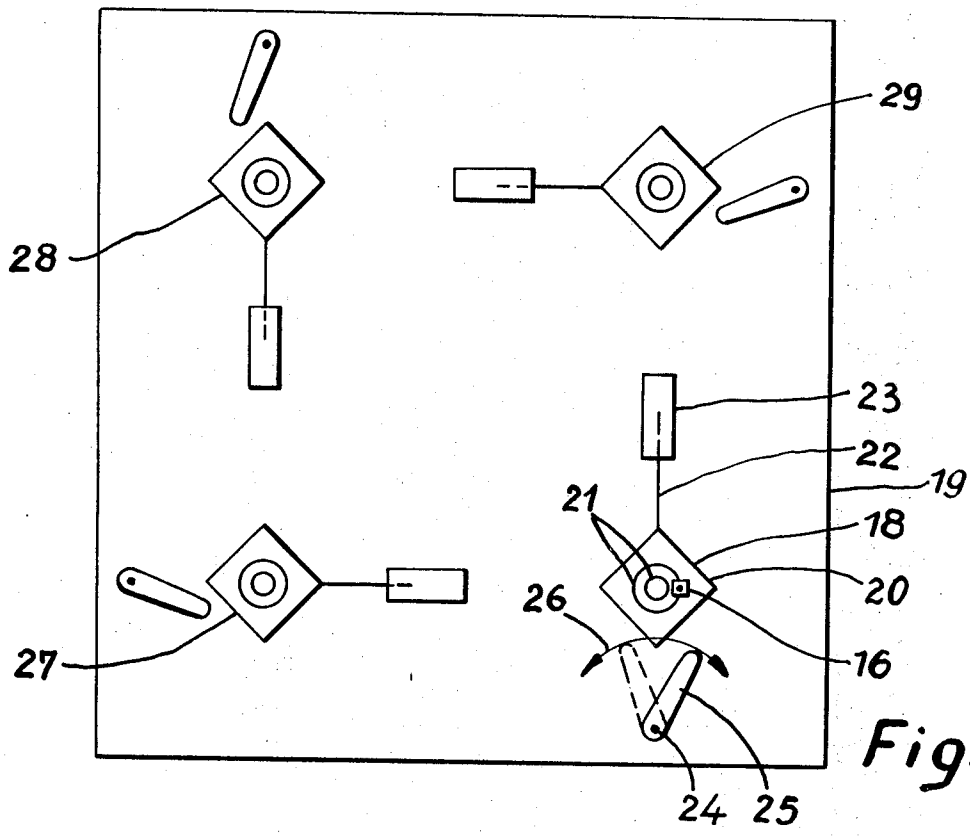


Fig. 3

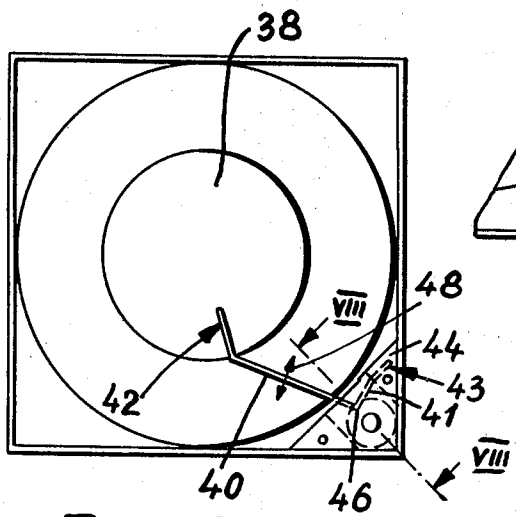


Fig. 6

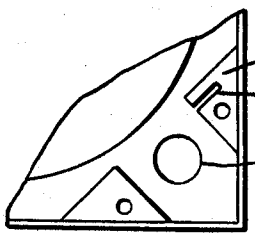


Fig. 7

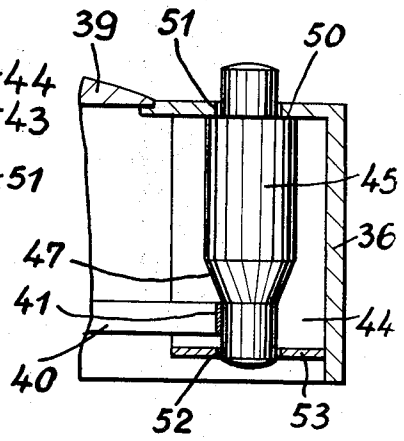


Fig. 8

INVENTOR
CARL MAX MAURER
BY Hane and Nydick
ATTORNEYS

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GAME BOARD DICE AGITATOR

Carl Max Maurer, Nuremberg, Germany, assignor to Perma Gesellschaft mit beschrankter Haftung, Nuremberg, Germany, a company of Germany

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Int. Cl. A63f 9/04
U.S. Cl. 273—134 10 Claims

ABSTRACT OF THE DISCLOSURE

A dice game is played by one or more players by placing the dice (or only one die) into a well and then subjecting the dice to random shaking or tumbling. Such random movements of the dice are produced by shaking the bottom of the well by means of a vibrator or shaker operated by each player in turn.

My invention relates to a round and entertainment game which is played by using one die or several dice.

So far dice have been rolled either by hand on a table top or dice have been rolled on a table top by means of a dice box.

In doing so, it has been unfavorable that, rather frequently, the dice have been rolling beyond the edge of the table top and have been hitting the floor. It has then been necessary to pick them up again. Sometimes, in this case even differences in opinion regarding the validity of the cast have occurred.

It also happened that one of the dice comes to rest slantwise on the edge of the game board which had been located on the table which position resulted in uncertainty which side of the die would have to be regarded as the valid one.

In order to avoid the drawbacks outlined above, the object of the present invention is that at least one die will be located in at least one well or trough of a game board and that said trough will comprise a vibrator intended for acting upon the die (or dice). Thus, according to the invention, touching of the die or dice respectively by the hands of the players will no longer be necessary. On the contrary, the dice will be shaken mechanically and will clearly show the valid side of the die as soon as they will have come to rest so that any disagreement as to which side of the die would be the valid one, will never be likely to occur.

Preferably, the object of the present invention is obtained by providing the trough of the game board with a vibrating bottom intended to receive thereon one die or several dice.

In addition, it is advantageous to provide a construction which will comprise a top plate covering the game board trough, which plate is at least partially transparent and, if possible, has a magnifying effect. The arrangement described will result in another favorable feature, i.e. that the dice are no longer directly accessible to the players, excluding therefore any risk of incorrect manipulations to be effected by any player.

An especially favorable feature according to an example of a construction in accordance with the present invention provides for the possibility that one die or several dice are housed in one or several game boards of a box like game board in which the top part of the box shows the game board trough or well provided within a frame and in which the bottom part of the box comprises the vibrator below the game board. In this example of a construction according to the invention the vibrator acts on the bottom of the game trough. The said bottom is located

opposite to a bottom opening of the board trough in the presence of a minimum positive clearance in which case the bottom, due to its vibration, will throw about the die or dice respectively on its surface and within the trough.

According to another feature of the invention the vibrating movement may be effected due to the action of a spring which is initially tensioned and subsequently freely swinging, which spring acts on the bottom of the trough. For this purpose, a leaf spring may be provided one end of which acts on the bottom of the trough while the other end is subject to stationary support.

In this case provisions may be made that the bottom of the trough is polygonal, for instance, rectangular or a square, and that a bottom angle projects into the movement area of a lever which is supported in such a way that it may be turned and which may be operated, for instance, by hand or electrically.

According to another construction based upon the present invention the spring is an angular spring one arm of which acts on the bottom plate and the other angular arm of which is stationary. In this case a tappet which may be lifted and lowered and which is activated by hand, is acting on the spring within the area of its angular part.

In this case it will be practical to insert one arm of the spring into a slot of the bottom plate and the other arm of the spring into a slot of a holding device which is located at the frame of the game board.

In order to effect that the spring arm supporting the bottom plate is performing both a movement to and fro and a movement up and down, i.e. that the dice are vigorously shaken, it is a further feature of the invention that the tappet acts on the spring by means of a conically reduced part.

It is advantageous that the tappet glides in a lower bridge of the frame and the top cover of the game board trough.

But it will also be practical to choose a construction in which the vibrator comprises an electric swinging relay or solenoid which will cause the vibrating movement of the bottom plate. It may even be possible to use a device in the form of a Wagner's interruptor.

Another feature of the present invention is that the surface of the bottom plate is preferably uneven, e.g. provided with one or several centric annular grooves or ribs, which feature will improve the throwing about of the die or dice respectively on the bottom of the trough.

It is recommended to give the game board trough a frusto-conical shape the narrow end of which opens upon the vibrating bottom. This feature will also have a favorable effect on the tossing about of the die or dice respectively.

For some games it may be sufficient to provide one game board trough with dice so that the players one after the other will have to activate the corresponding vibrator. For other games, however, it might be practical to provide several game board troughs each with a vibrator of its own, for instance, at every corner of the game board, and to design the game board in such a way that it is interchangeable. Consequently, the same board incorporating the corresponding dice troughs and vibrators may be used alternatively for various game boards with corresponding different rules.

The same possibly is obtained if, as intended by the present invention, the trough together with the bottom plate and the vibrator are located in a housing which will receive the cover plate and which, as a separate device, will be placed beside of or on any given game board.

It will then be possible that even owners of games of existing types will be able to make use of the advantages of the present invention by placing the device according to the invention beside their present game or on the game board of the same respectively.

Further features, details and advantages of the present invention will be disclosed in the following description of the drawing. In the drawing:

FIG. 1 is a top view of a game board provided with a dice trough at each of its four corners;

FIG. 2 is a partial section along the line II—II of the board and a dice trough as shown in FIG. 1;

FIG. 3 is a top view of the board with the game board removed;

FIG. 4 is a top view of a vibrator of another design;

FIG. 5 is an axial section of still another example of a construction of the vibrator;

FIG. 6 is a bottom view of FIG. 5;

FIG. 7 is a partial and enlarged view of FIG. 6 without vibrator and

FIG. 8 is a section along the line VIII—VIII of FIG. 6.

In the example of a construction according to the invention which is shown in the drawing the game comprises a flanged frame **1** upon the rim of which a game board **155** is placed, preferably interchangeable. In the four corners of the frame **1** there is arranged dice casting mechanisms **2**, **3**, **4**, and **5** which are independently operable. The frame **1** is covered by a glass panel **6**.

In the box space below the glass panel **6** and more particularly, in each instance, in the center of each of the four game mechanisms, there is a groove or well **7**, **8**, **9** and **10** which has a frusto-conical shape in axial direction. The narrow ends **11**, **12**, **13**, and **14** of which forms the lower opening of the well, while the wider cross section of the well is facing the glass panel **6**.

According to the agreed rules of the game corresponding numbers, for instance 9–25, 10–24, 11–23, etc., may be marked on the interchangeable game board **15**.

In the narrower cross section of the opening of each well one die or several dice **16** are located in each case upon a vibrating bottom plate **20** of a shaker or vibrator to be described, for the activation of which pivotal levers **17**, rotary switches or similar are supported by the frame **1**.

As may be seen from FIG. 2, a frusto-conical well such as insert **7** is provided at each corner of board **15**, the narrower cross section of its opening being identified by **13**. In addition, FIG. 2 shows a die **16** which rests on the well bottom **20**.

As shown in FIG. 3, the said vibrator is located on the bottom **19** of the game board, and more particularly it consists, in this example of a construction according to the invention, of the bottom plate **20** provided with annular grooves **21** which plate is freely swinging in the surface plane of the bottom and which, in this particular case, is square. In one corner of said bottom plate a freely swinging leaf spring **22** is fixed one end of which is inserted into a block **23** which, in this particular case, has been screwed to the bottom of the board. In addition, the said vibrating and rolling device comprises a swinging arm **25** which mounted on a spindle **24** and which is of such length that the swinging radius **26** of the arm end intersects the corner of the bottom plate **20**.

If a player is turning the swing lever **17** to the left which lever is supported on the marginal area of the game so that it may be turned, even the swinging arm **25** which is rigidly connected to the swinging lever spindle **24** is also moved to the left in the sense of the arrow **26**. In the course of this movement the arm end touches the edge of the bottom plate **20** which upon continued turning of the swinging arm **25** is at first yielding in which case the spring **22** is bent and thus tensioned. Now, as soon as the arm end has released the swing plate **20** which release will occur approximately in the position indicated by an interrupted line, the bottom plate **20** is able to freely snap back i.e. it is performing, due to the sudden release of the spring, very rapid oscillating movements. As a result the dice which are located on the bottom plate **20** are performing, due to their inertia, tilting and rolling movements and, in doing so, are tossed about within the insert. These movements which are occurring simultaneously are still increased by the annular grooves **21** which are arranged on the bottom plate **20**. After discontinuation of the swinging movements of the bottom plate the dice **16** are resting on the bottom plate **20** so that the number of points on the upwardly turned face side of the dice may be read off and evaluated accordingly.

The vibrators **27**, **28**, and **29** are operated in the same way as the device **18**. Consequently, their effect is the same as with the latter.

FIG. 4 shows an example of a construction according to the invention with respect to a bottom plate which is operated by electro-magnetic force and in turn operates, in a way similar to that employed in the field of electrotechnics with regard to a so called Wagner's interruptor which is used with electric bells.

This example makes use of the fact that the bottom plate **20** is solidly connected with the core **30** of an electric coil, i.e. a relay or solenoid **31**, the said solenoid being connected with an electric battery **32**. In this example of a construction according to the present invention a switch is operated by the swinging lever **17** which is located in the marginal area of the frame **1**. The contacts **33** and **34** are closed when the solenoid **31** is deenergized. However as soon as the coil is energized, i.e. as soon as one of the players has activated the switch via the lever **17**, the core **30** is pulled downwardly and against the action of a spring **35** into the relay **31** so long as the contact **33** is gliding on the countercontact **34**. When the contacts become separated, the solenoid coil **31** is without current and the core **30** will be moved upwardly of the coil due to the effect of a tension spring **35** until the contacts **33**, **34** are lying again on top of each other at which moment the core will be attracted again. These oscillations continue as long as the player leaves the switch **17** in its closed position. In the example of a construction according to this invention shown in FIGS. 5 through 8, below the game board and more particularly in the corners of the frame **1** there is a housing **36** which, by means of an insert **37** in the form in the form of a truncated cone, provides a playing well. A vibrating bottom plate **38** is assigned to said well, the dice **16** resting on said bottom plate.

It will be possible to provide each well **37** with an upper, preferably transparent cover **39**. Said cover may be a lens, i.e. a magnifying glass, or such lens **39** may be inserted into said cover as shown in the example of a construction according to the present invention.

The arm **40** of an angle spring acts on the bottom plate **38**, the other arm **41** of said spring, as shown in FIG. 6, being fastened to a stationary part of the shaft. In the example shown in the drawing the arm **40** is inserted into a slot **42** of the bottom plate **38** and the other arm **41** into a slot **43** of a holder **44** which is fixed to the housing **36**. The tappet **45** serves to activate the spring **40**, **41**. Said tappet acts on the spring within the area of its angular part **46**, and in particular by means of the conically reduced part **47** of said tappet. If the tappet is pressed down, the spring arm **40** is subject to a movement to and fro in the sense of the arrow **48** as well as to a movement up and down in the sense of the arrow **49**. Consequently, the bottom plate is subject to a vibrating movement. By means of the spring **40**, **41** the tappet **45** is returned into its initial position (see in particular FIG. 8). In order to prevent that the tappet moves too far upwards, the same is provided with a shoulder **50**. The tappet has an axial guide, and more particularly on the one hand in the hole **51** of the cover of housing **36** and on the other hand by means of the hole **52** in the bracket **53** fastened to the housing **36**.

As already disclosed and shown especially in FIG. 5, the well together with the bottom plate, the cover and the vibrator may constitute a separate device which may be inserted into the frame **1** and the game board **15**, but which

may even be used in connection with already existing games.

I claim:

1. A dice game device comprising in combination:

a game board assembly including at least one opening;

a hollow insert open at both ends fitted into said opening in registry therewith, the top opening of the insert being substantially flush with the plane of the game board assembly, said insert defining a well for confining a die or dice placed therein;

a bottom plate for placing thereupon a die or dice;

spring means supporting said plate below the bottom opening of said well adjacent thereto; and

actuating means coacting with said spring means for alternately flexing and relaxing the same to impart vibratory movements to the plate substantially in its plane thereby shaking the die or dice placed upon the plate,

said spring means including a leaf spring, one end of said spring being secured to said plate supporting the same and the other end being secured to said game board assembly, and said actuating means including an axially displaceable elongate member, a portion of said member engaging with pressure an intermediate portion of the spring upon displacement of said member toward the spring from an inactive upper position of the member into an active lower position by applying downward pressure to the member, engagement of the member with said intermediate portion of the spring causing flexing thereof and subsequent release of the member causing relaxation of the spring thereby imparting said vibratory movements to the plate.

2. The dice game device according to claim 1 and comprising a magnifying lens covering the top of said well to observe the positions of dice therein.

3. The dice game device according to claim 1 wherein said portion of the member engaging said intermediate portion of the spring is downwardly conical to bias said member for return into its initial upper position upon release of the member.

4. The dice game device according to claim 3 wherein said plate has a slot, said one spring end being secured in said slot and said other spring end being secured in a slot of said game board assembly.

5. A dice game device comprising in combination:

a box frame open at the top;

a game board having at least one playing area including an opening, said board being detachably supported on said frame;

a hollow insert open at both ends and mounted by the frame below said opening in registry therewith, the top opening of the insert being substantially flush with said game board, said insert defining a well for confining a die or dice therein;

a bottom plate for covering the bottom opening of the well;

a vibrating means for shaking a die or dice placed upon said plate, said vibrating means including an elongate flexible means secured at one end to said frame and at the other end supporting said plate below said bottom opening closely adjacent thereto, alternating flexing and relaxing of said flexible means causing vibratory movements of the plate substantially in its own plane thereby shaking the die or dice placed thereupon; and

actuating means including a plunger supported by said frame lengthwise displaceable relative thereto between an upper rest position and a lower active position, said plunger having a downwardly conical portion abutting against an intermediate portion of the flexible means with pressure engagement upon displacement of the plunger from its rest position into its active position, said pressure engagement causing flexing of the flexible means thereby tensioning the same, subsequent release of the plunger freeing the same for return into its upper rest position by the measure of the tensioned flexible means against the conical plunger portion whereby the flexible means are relaxed, said alternate flexing and relaxing of the flexible means imparting said vibratory movements of the plate.

6. The dice game device according to claim 5 wherein the conical portion of said plunger is downwardly continued by a cylindrical portion slidably extended through an opening of a bracket in the frame and the opposite end portion of the plunger is set off below the level of the rim portion of the frame and upwardly continued by a second cylindrical portion of reduced diameter slidably extended through an opening of substantially equal diameter in said game board on the frame, said cylindrical portions guiding the plunger in the frame.

7. The dice game device according to claim 5 wherein said flexible means comprises a twice angularly bent leaf spring, one end portion of said spring being secured in a slot of a holder in the frame and the other end portion of the spring being secured in a slot of the plate.

8. The dice game device according to claim 7 wherein said conical portion of the plunger coacts with said one end portion of the spring.

9. The dice game device according to claim 5 wherein said game board has a substantially square outline and said playing area has a substantially square outline smaller thn that of the gme board and occupies a corner thereof.

10. The dice game device according to claim 5 wherein the playing area is detachably fitted upon said game board.

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ANTON O. OECHSLE, Primary Examiner

A. W. KRAMER, Assistant Examiner

U.S. Cl. X.R.

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