April 20, 1954 D. CORNISH ET AL 2,676,018

GAME APPARATUS

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Fig. 1.

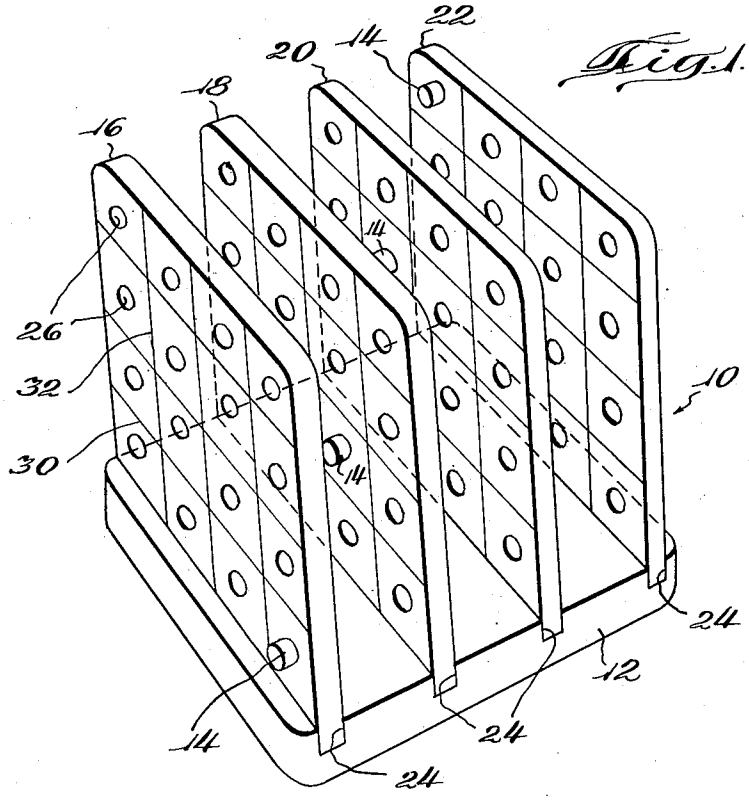
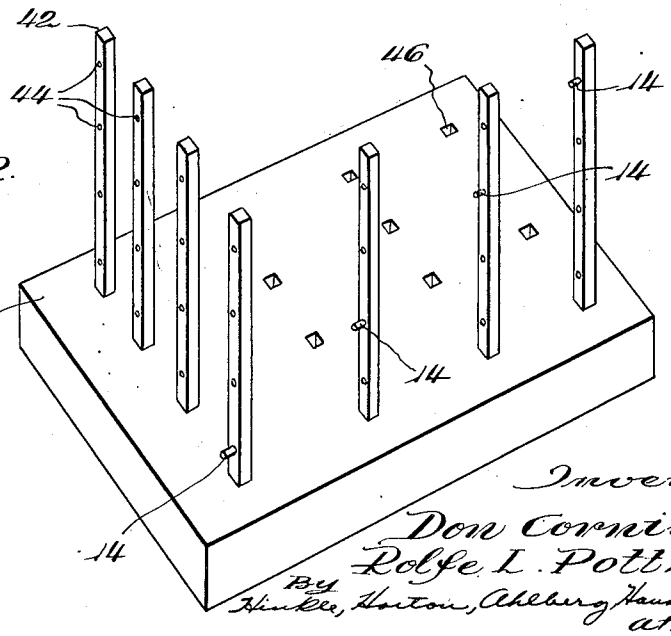


Fig. 2.



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Fig. 4.

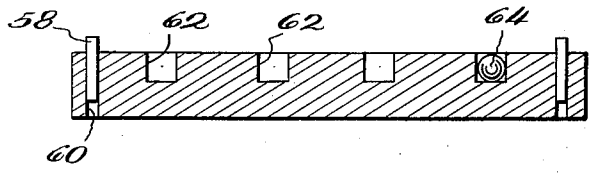
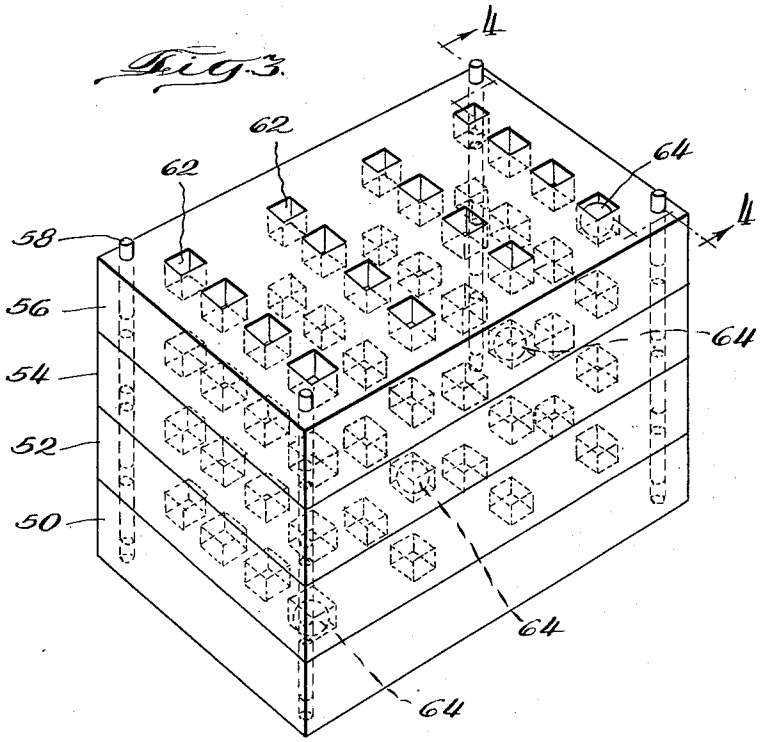


Fig. 3.



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GAME APPARATUS

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13 Claims. (Cl. 273—130)

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The present invention relates to games and has for its object the provision of a new and improved three dimensional game and the present application is a continuation-in-part of our application Serial No. 654,638 filed March 15, 1946, which became abandoned April 24, 1948.

The primary object of the present invention is the provision of a new and improved three dimensional game having an enhanced play value.

A further object of the present invention is the provision of a new and improved three dimensional game comprising a three dimensional array of playing positions into which game pieces can be placed in "lines" and each of which lines consists of at least three and preferably four playing positions, and where there is no unique playing position because of symmetry in the array.

Another and more specific object of the present invention is the provision of a new and improved three dimensional game which comprises four spaced planes of playing positions, each of which has four rows of four equally spaced and aligned playing positions so that playing pieces can be placed into lines (either straight or curved) of four playing positions each and there being no unique playing position making it more advantageous than the rest.

A further object of the present invention is the provision of a new and improved three dimensional game including game pieces and a movable game board so constructed and arranged to receive the pieces that the latter will be immovably held in all positions into which the apparatus may be moved during play.

Another object of the present invention is to provide a new and improved three dimensional game in which the game board is adapted frictionally to hold the game pieces in playing positions.

Still another object of the present invention is to provide new and improved three dimensional game apparatus which can be constructed readily and economically.

Other objects and advantages of the present invention will become apparent from the ensuing description of certain embodiments thereof, in the course of which reference is had to the accompanying drawings, in which:

Fig. 1 is a perspective view of one form of game apparatus constructed in accordance with our invention and in which game pieces are shown in a diagonal line;

Fig. 2 is a fragmentary perspective view of another embodiment of game apparatus;

Fig. 3 is a perspective view of yet another embodiment of the invention, from which some of the playing positions have been omitted in order to avoid confusion; and

Fig. 4 is a vertical cross-sectional view of one of the four separable sections making up the game board of Fig. 3, and taken along the broken line 4—4 of Fig. 3.

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Referring now to the drawings and first to Fig. 1, it may be noted that the game apparatus is indicated as a whole by reference character 10. It comprises a base 12 and structure defining a three dimensional array of playing positions of which no position is unique or particularly advantageous because of the symmetry of the array, and which positions are also arranged in lines of at least three and preferably four positions into which game pieces 14 may be placed by the players.

The three dimensional array defining structure may take various forms so that the lines may be straight or curved (they may be mathematically simple and regular lines, e. g., straight, spiral, helical, parabolic, logarithmic, etc.). In the embodiment of Fig. 1, the structure is shown as including four panels 16, 18, 20 and 22 supported vertically and in spaced relation upon the base. The panels are shown secured in parallel relation lengthwise of the base in a series of parallel slots or grooves 24. The panels can be either permanently or separably secured to the base.

According to one of the features of the invention, the game pieces 14 are immovably held, as by friction, in the playing positions which are defined by openings 26 in the panels. The panels are made of transparent material so as to render all the playing positions visible to the players and the game pieces are made of material such that and so dimensioned that they are frictionally held in the panels when inserted into the openings. Cork is one material which can be advantageously used and the game pieces can be colored or otherwise marked so that each player may have distinctive game pieces.

The playing positions may be arranged in various forms of three dimensional array which are well known in the fields of mathematics and crystallography. The illustrated array is one in which the playing positions may be located by Cartesian coordinates. They are thus arranged in four spaced parallel vertical planes (planes passing through the four panels), another four spaced parallel vertical planes each passing through all four panels (and at right angles to the first group of planes), and in four spaced horizontal planes. Observation of the locations

of the playing positions may be facilitated by the horizontal and vertical lines 30 and 32 upon the panels.

The array is symmetrical but no playing position is unique, i. e., located at the point of symmetry. Consequently, the first player does not have any decided or valuable advantage over his opponent as would be the case of a three dimensional arrangement of tick-tack-toe.

Various games may be played on the apparatus. One of these is a game like tick-tack-toe but having an increased play value because of the absence of a unique playing position. In this game the players attempt to place four of their game pieces in a line—as indicated by the positions of the game pieces (14 in Fig. 1—which are the game pieces for but one player). Another advantage of the game apparatus is that the four in a line arrangement provides a greater number of possibilities for completing lines—of either three or four in a line. The lines can be vertical, horizontal and diagonal in one panel; or horizontal and either parallel to or diagonal with respect to the length of the board; or oblique to the vertical and either parallel or diagonal with respect to the length of the board.

The spacing of the panels is preferably such that the players can readily insert their game pieces into the playing positions. Otherwise, the panels can be made removable for insertion of the game pieces—a type of construction shown in Figs. 3 and 4 and which will be described shortly.

A simplified construction providing the same three dimensional array of playing positions is illustrated in Fig. 2. Referring to this figure, it will be noted that the game includes a generally rectangular base 40 upon which are mounted, either permanently or separably, as desired, a series of sixteen rods 42 (of which only seven are shown). The rods are located so that the openings 44 therein provide playing positions located like the playing positions 26 of the previously described embodiment. The rods, or pencils as they might be aptly termed, are mounted in small openings 46 at the upper side of the base.

In the illustrated embodiment, the game pieces 14 which may be constructed like the game pieces 14 of the previous embodiment are shown located in an oblique line parallel to one side of the base. In this embodiment, the visibility is achieved through the use of relatively small sectional area rods or pencils and the latter may also be transparent. Other types of lattice work or screening could also be used to provide the visibility.

The embodiment of the invention illustrated in Figs. 3 and 4 is more truly "separable-in-play" than the first embodiment, even if the latter be made separable. In this embodiment, the three dimensional array of playing positions is provided by four transparent sections or parallelopipeds 50, 52, 54 and 56 adapted separably to rest upon or abut against one another and which are prevented from moving when so arranged by dowels 58 protruding above each section and adapted to fit into recesses 60 disposed below the dowels. The sections are also preferably rectangular to facilitate return to the original nested position after separation during play.

The playing positions are defined by openings or cavities 62 shown at the upper sides of the section but which could extend all the way through. The openings are disposed so that the playing positions defined by them are located in space the same as the playing positions 26 and 44 of the previously described embodiments.

All the playing positions have not been illustrated in Fig. 3 in order to avoid confusion. However, enough have been shown to indicate how the playing positions are in lines and how game pieces 64 may be placed in lines in the same manner as the game pieces 14 of the earlier described embodiments. The game pieces may be of various forms and are shown as being balls made of the same material as the game pieces 14 and frictionally held in the cavities. They are also so related dimensionally to the cavities that they do not project beyond the surfaces of the sections.

In playing the game with the apparatus of Figs. 3 and 4, the sections are separated in play except when a play is made on the top one. One of the advantages of this construction is that it gives the players a better visual picture of the three dimensional cube or space in which play takes place.

It should be understood that while the details of three embodiments of the invention have been described in detail, the specific structures and types of game described as being played thereon are intended to be illustrative rather than limitative of the invention except in so far as set forth in the accompanying claims.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. A game apparatus comprising structure defining a plurality of game piece receiving playing positions, the arrangement of said positions being substantially symmetrical about a point in space other than one of said positions, each of said positions being located on a mathematically simple and regular line which also passes through an odd number of other positions, greater than one, thus making possible a sequence of game positions of an even number and there being the same even number of positions on each of said lines, and whereby the game pieces are adapted to be placed in positions to form said lines of the pieces.

2. A game apparatus for playing a game with game pieces comprising a three dimensional structure including four spaced apart transparent and like panels each having four horizontal rows and four vertical columns of game piece receiving playing positions, whereby the game pieces are adapted to be placed in said positions to form lines.

3. Apparatus for the playing of a game of the nature of tick-tack-toe; in which the two or more players or teams, in turn, indicate the occupancy of a selected playing position by placing therein one of their own game pieces, with the object of effecting the placement of a predetermined number of their own game pieces in an uninterrupted line of playing positions; comprising: a 3-dimensional game board structure extending in length, width and depth; said structure being provided with means defining a 3-dimensional space-lattice-like array of playing positions to receive game pieces; each of said playing positions being located at the intersection of at least three noncoplanar lines of playing positions; and each of said noncoplanar lines including at least four playing positions; and wherein the number and the locations of the playing positions in the array are such that there is no single position which, by reason of its coincidence with the point of symmetry of the array, is unique as compared with the other positions.

4. A game, as claimed in claim 3, wherein said

structure comprises four like transparent and parallel panels, each having four horizontal rows of four apertures each, said apertures being equally spaced apart and vertically aligned, and wherein said structure comprises a base with a series of panel receiving and holding grooves therein for receiving and holding said panels.

5. A game as claimed in claim 3, wherein said structure comprises four like transparent and parallel panels each having four horizontal rows of four apertures each, and said apertures being equally spaced apart and vertically aligned.

6. Apparatus for the playing of a game of the nature of tick-tack-toe; in which the two or more players or teams, in turn, indicate the occupancy of a selected playing position, with the object of effecting their own occupancy of a predetermined number of playing positions in lines of playing positions; comprising a 3-dimensional game board structure extending in length, width and depth; said structure being provided with means defining a 3-dimensional space-lattice-like array of playing positions for indicated occupancy; each of said playing positions being located at the intersection of at least three non-coplanar lines of playing positions; and each of said non-coplanar lines including at least four playing positions; and wherein the number and locations of the playing positions in the array are such that there is no single position which, by reason of its coincidence with the point of symmetry of the array, is unique as compared with the other positions.

7. Apparatus as claimed in claim 6 wherein said structure includes four like and parallel panels each having four horizontal rows of four apertures each, and said apertures being equally spaced apart and vertically aligned.

8. Apparatus as claimed in claim 6 wherein said game board structure includes a base, a symmetrical array of rods extending from said base, and said playing positions are defined by structure on said rods.

9. Apparatus as defined in claim 8 wherein said playing positions are defined by apertures in said rods.

10. Apparatus as defined in claim 6 wherein said game board structure includes a plurality of abutting but separable transparent sections and said playing positions are defined by cavities in said sections.

11. Apparatus as claimed in claim 10 wherein said sections are parallelopipeds.

12. Apparatus as claimed in claim 10 wherein said cavities are rectangular in sections and open at one side only of their respective sections.

13. Apparatus as claimed in claim 10 wherein said sections are provided with complementary interengaging structural means enabling them to be located in predetermined nested relation to each other.

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