United States Patent

Weber

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[54] **GAME STRUCTURE EMPLOYING MARKERS AND LINKS**

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[51] **Int. Cl.**.....**A63f 3/00**

[58] **Field of Search**.....273/130, 135, 136, 156, 157; 46/16, 17; 35/27, 34

[56] **References Cited**

UNITED STATES PATENTS

1,953,631	4/1934	Pritzkow	273/135 F
3,404,890	10/1968	Christy	273/130 R

FOREIGN PATENTS OR APPLICATIONS

58,989	9/1891	Germany	35/27

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[57] **ABSTRACT**

A game structure which makes use of an apertured and channeled playing board and a multiplicity of markers and link members which constitute playing pieces that are arrangeable on the game board in the apertures and channels, respectively, to realize a desired configuration in accordance with a specified set of rules. The apertures form a grid and are connected by the channels.

9 Claims, 3 Drawing Figures

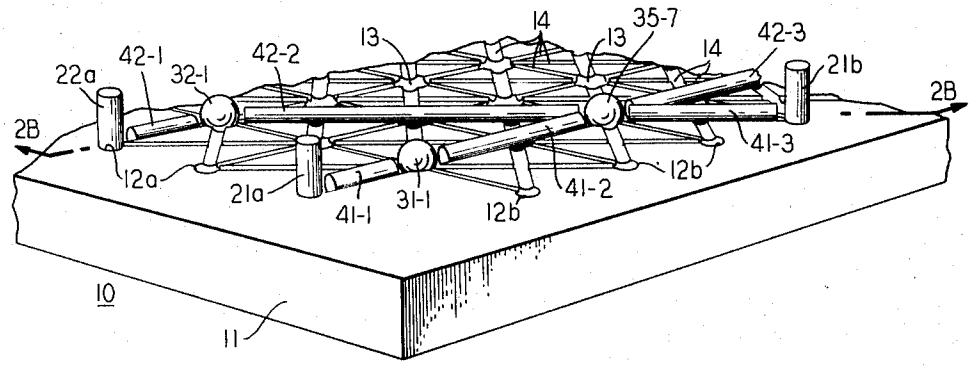


FIG. 1

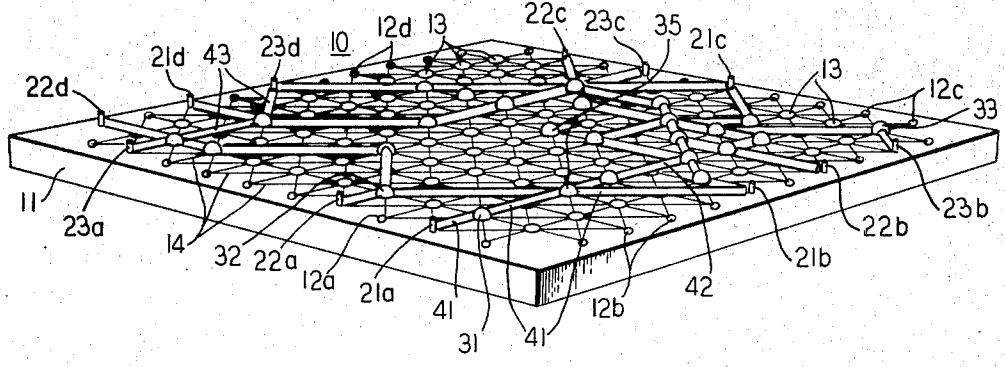


FIG. 2A

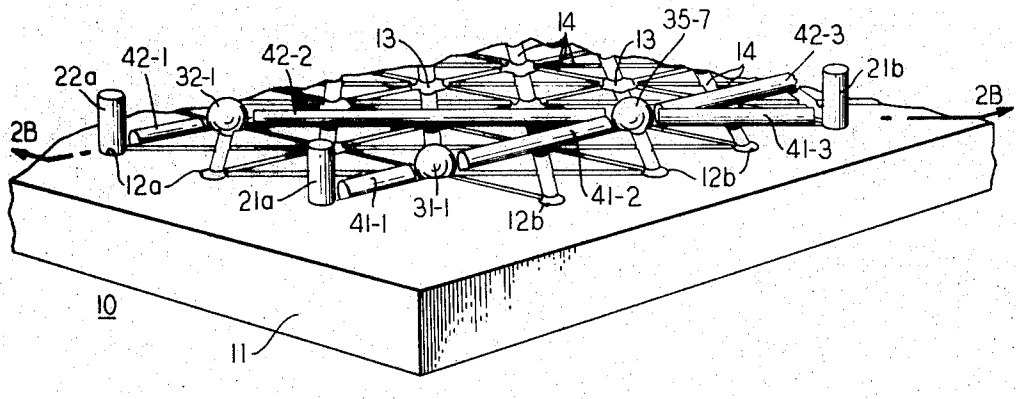
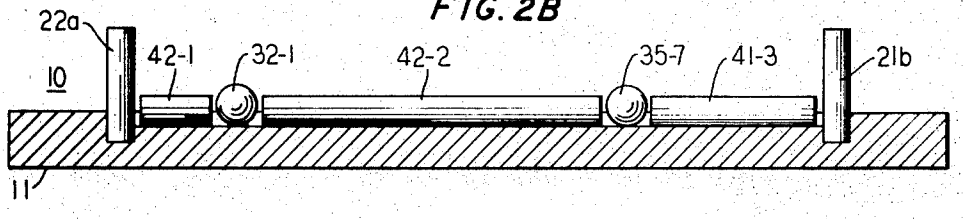


FIG. 2B



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GAME STRUCTURE EMPLOYING MARKERS AND LINKS

BACKGROUND OF THE INVENTION

This invention relates to a game structure and more particularly to a game structure which employs markers and link members as playing pieces in conjunction with an apertured and channeled playing board.

A game structure typically includes constituent playing pieces which are manipulated in accordance with a specified set of rules. Where the constituents are large in number or of wide variety, the game can be too difficult for ordinary players. On the other hand, if the constituents are limited in number and variety, the game may be too simple and too easily mastered.

Accordingly, it is an object of the invention to provide a game structure in which the game concepts are easily mastered and yet there is challenge to players with wide varieties of skills. A related object is to realize a challenging game that is playable with a relatively small number of easily constructed playing pieces.

In addition to being a source of amusement, it is advantageous for a game to have teaching value as well. Some games, for example, have been devised to illustrate number concepts, but it is also desireable to demonstrate geometric concepts, such as in the field of topology, which concerns itself with the properties of geometric configurations.

Another object of the invention is to provide a game structure which has both amusement and teaching value. A further object is to provide a game which demonstrates topological relationships.

A related object is to achieve a game structure in which playing pieces can be used to establish paths between terminal positions on a game board and the paths are weighted in accordance with the number and types of playing pieces employed, with the goal of each player being to achieve paths of minimum weighting while taking the paths of other players into account.

SUMMARY OF THE INVENTION

In accomplishing the foregoing and related objects, the invention provides a set of playing members, i.e., pieces, and a game board with a plurality of apertures and connecting channels into which the pieces are selectively inserted. The apertures indicate potential terminal and node positions, while the playing pieces are markers for the apertures and links which extend in the channels, i.e., link slots, from marker to marker.

The markers desirably include terminal markers for terminal apertures and node or playing markers for node apertures. Some of the node markers, in turn, are advantageously distinctive to the various players and others are common to all players.

In one method of employing the game board and the playing pieces, the goal of each player is to form paths of links and nodes that extend between terminals at the edges of the game board, using links and nodes which produce, in the face of maneuvers by other players, minimum path values according to preassigned weightings associated with the various links and markers.

In accordance with one aspect of the invention, the terminal markers are of distinctively different appearance from the node or playing markers so that the two types of markers are readily distinguishable from each other. Thus the terminal markers may take the form of cylindrical pegs inserted into the terminal apertures, while the node markers are desirably spheroids, such as marbles.

In accordance with another aspect of the invention, the node markers of the various players are of similar configuration but have different markings, such as provided by color coding. A further type of color code is desirably used with the node markers that are common to all players.

In accordance with still another aspect of the invention, the apertures of the game board form a row and column grid of potential nodal positions with each edge of the grid being faced by a row of potential terminal positions, and the apertures are interconnected by the channels both directly and diagonally.

According to yet another aspect of the invention, the link members are of different lengths so that some can extend directly from one aperture to another and others can extend diagonally between apertures. According to a further aspect of the invention, some of the link members are able to span a single inter-aperture interval, while others are able to extend over a multiplicity of inter-aperture intervals.

BRIEF DESCRIPTION OF THE DRAWINGS

Other aspects of the invention will become apparent after considering several illustrative embodiments taken in conjunction with the drawings in which:

FIG. 1 is a perspective view of a game structure showing one arrangement in accordance with the invention;

FIG. 2A is a fragmentary perspective view on an enlarged scale of a game structure showing an arrangement in accordance with the invention; and

FIG. 2B is a cross-sectional view of the fragment shown in FIG. 2A taken along section line 2B—2B.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

Turning to the drawings, a game structure **10** in accordance with the invention is formed by a game board and various playing pieces which are selectively inserted into apertures and connecting channels of the board.

As shown in FIG. 1, a suitable game board **11** has four sides and a face with a plurality of apertures, including edge apertures **12***a* through **12***d* for indicating potential terminal positions and grid apertures **13** for indicating potential nodal positions. All of the apertures are interconnected by channels or slots **14**. The literal suffixes, i.e., *a*, *b*, *c* and *d*, of the aperture designations indicate particular sides of the board **11**.

The playing pieces on the board **11** are markers inserted at selected terminal and node positions and links that extend between the markers. In FIG. 1 there are terminal markers **21***a* through **23***d*, node or playing markers **31** through **33** and **35**, and links **41**. The particular arrangement of markers in FIG. 1 is representative of game configuration that can be realized by three players. The playing pieces of a particular player are identified by the units' digit of the pieces, while the literal suffixes designate the edges of the board with which the pieces are associated. Thus, the terminal marker **23***c* is a terminal placed by the third player on

the "*c*" edge of the board **11**, while the node markers of the second player are designated "**32**" and the associated links are designated "**42**." In addition the units' digit may designate a different color for the playing pieces of each player. It is to be noted that the node markers designated "**35**" are not identified with any particular player, but are common to all players as more particularly described below.

A further description of the aperture configuration of the game board **11** in FIG. **1** and details of an illustrative method of using the board will be discussed after additional consideration in FIGS. **2A** and **2B** of structural details of the board and of the various types of playing pieces.

As appears from FIGS. **2A** and **2B**, the terminal apertures **12***a* and **12***b* and the node apertures **13** are a part of a grid with direct and diagonal connecting grooved channels **14**. The grid can be considered as being formed by parallel rows or columns of apertures. In the case of each of the node apertures **13**, direct channels extend laterally and longitudinally to the nearest adjoining apertures. For each of the terminal apertures **12***a* and **12***b*, there is a direct channel to the nearest node aperture. In addition a diagonal channel extends from the aperture at each row and column position to the adjoining apertures at each different row and column position. Stated in mathematical terms, a diagonal channel is one which extends from an aperture A_{ij}, where *i* designates the row and *j* designates the column of the aperture, to an adjoining aperture $a_{i'j'}$, where both *i'* and *j'***0** are different from *i* and *j*. The terminal markers **21***a*, **21***b* and **22***a* are cylindrical pegs which are inserted into terminal apertures. On the other hand, the potential nodal apertures **13** are adapted to receive node or playing markers such as marbles **31-1**, **32-1** and **35-7**. Extending between the markers **21***a* and **21***b* of the first player by way of nodes **31-1** and **35-7** are cylindrical links **41-1**, **41-2** and **41-3**. The numerical suffixes of the links **41** indicate the order in which they are played. Similarly, beginning at the terminal marker **22***a* of the second player, there are links **42-1**, **42-2** and **42-3** with nodes **32-1** and **35-7**. The links **41** and **42** are of various lengths in accordance with the dictates of the player who places them.

As shown more clearly in FIG. **2B**, the first link **42-1** is the length of the shortest distance between adjoining apertures, the second link **42-2** is the length of two diagonals and the final link **41-3** is the length of a single diagonal. A fourth length is the double direct distance of the second link **41-2** of the first player in FIG. **2A**.

Returning to the game board **11** of FIG. **1**, it has a 10-by-10 square grid of one hundred potential nodal apertures **13**, flanked on each side of the grid by 10 potential terminal apertures **12***a*, **12***b*, **12***c* and **12***d*. A terminal is created when a potential terminal aperture is occupied by a terminal marker. Similarly, nodes and links are created when potential node apertures and channels are occupied, respectively, by node markers and link members.

In one method of play using the game structure **10** of FIG. **1**, the goal of each player is to establish minimum weighted paths formed by links and nodes extending between terminals in the face of possibly intervening and blocking paths established by other players, where the links and nodes have different preassigned weightings.

For example, in FIG. **1** each of three players has established a terminal on each of the four sides of the board **11**. The terminals are **21***a* through **21***d* for the first player, **22***a* through **22***d* for the second player and **23***a* through **23***d* for the third player. The goal for each player is to interconnect all four of his terminals with a minimum weighting of links and nodes where the links, regardless of length, have a numerical value, for example, of one point and the nodes have a different numerical value, for example, three points, except in the case of common nodes **35** which are not scored. Alternatively, the links may be scored according to length. The common node markers **35** are cast at random on the board **11** at the beginning of the game, and each player is permitted to use them without penalty.

The players proceed, each taking a turn at a time, in attempting to interconnect their terminals. No link marker can be placed which is not bounded at both ends by either a node marker or a terminal. If during his turn a player finds no appropriate link to play without adding a node, he can play both a link member and a node marker. Any player can use any node, even one which has been placed by another player but points accrue only to the player who initially played it, unless it is a common node, which is not scored. No player, however, may place a link adjoining another player's terminal. If a player is blocked from reaching one of his terminals, he does not need to connect to it but is assessed a penalty. When the game is completed, the player with the smallest number of points is the winner. If one player finishes before the others, they proceed without him until all players have finished.

The terminals, nodes and links of each player are identified by a color which is unique to that player. Illustratively, in the designations of the playing pieces in FIGS. **1**, **2A** and **2B**, the units' digits 1, 2 and 3 can signify red, blue and yellow, respectively. The common node markers **35** are of a different color, for example, black.

While various aspects of the invention have been set forth by the drawings and the specification, it is to be understood that the foregoing detailed description is for illustration only and that various changes in parts, as well as the substitution of equivalent constituents for those shown and described, may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What is claimed is:

1. A game structure which comprises

a game board with a plurality of apertures therein and a plurality of channels interconnecting said apertures;

a first plurality of members insertable into said apertures, the members of said first plurality comprising terminal markers in the form of pegs and playing markers in the form of spheroids;

and a second plurality of members insertable into said channels, each member of said second plurality being capable of extending from one member of said first plurality to another;

thereby to provide a game structure in which said members can be arranged in said apertures and channels to extend from one aperture position to

another in accordance with a prescribed set of rules.

2. A game structure which comprises

a game board with a plurality of apertures therein and a plurality of channels interconnecting said apertures;

a first plurality of members insertable into said apertures, said members comprising terminal markers and playing markers,

said playing markers comprising a plurality of groups of markers, the members of each group being visually distinguishable from those of each of the other groups;

and a second plurality of members insertable into said channels, each member of said second plurality being capable of extending from one member of said first plurality to another;

thereby to provide a game structure in which said members can be arranged in said apertures and channels to extend from one aperture position to another in accordance with a prescribed set of rules.

3. A game structure as defined in claim 1 wherein the members insertable into said channels constitute links having a plurality of different lengths.

4. A game structure as defined in claim 1 wherein

the apertures of said game board form a grid of nodal and terminal positions

and the apertures of said game board are both directly and diagonally interconnected by said channels.

5. A game structure as defined in claim 4 wherein the members insertable into said channels include links which are of a length to extend directly from one aperture to another and links which are of a length to extend diagonally from one aperture to another.

6. A game structure as defined in claim 5 wherein some of said links are of a length to extend between single interaperture intervals and others of said links are of a length to extend between multiple interaperture intervals.

7. A game structure as defined in claim 1 wherein

the apertures of said game board are arranged in a square grid of node positions accompanied by a set of terminal positions for each side of the square; the channels of said game board form link slots by which said node positions are both directly and diagonally interconnected and said terminal positions and adjoining node positions are both directly and diagonally connected;

said pegs are insertable into said terminal positions to form terminals and said spheroids are insertable at said node positions to form nodes; and the members insertable into said channels constitute links, some of which are of a length to link a terminal with a node and others of which are of a length to link one node with another node;

thereby to permit realization of a topological configuration extending from a terminal near one edge of the grid by way of links and nodes to a terminal near another edge of said grid.

8. A game structure as defined in claim 2 wherein

the apertures of said game board form a grid of nodal and terminal positions;

the apertures of said game board are both directly and diagonally interconnected by said channels;

the members insertable into said channels include links which are of a length to extend directly from one aperture to another and links which are of a length to extend diagonally from one aperture to another.

9. A game structure as defined in claim 8 wherein some of said links are of a length to extend between single interaperture intervals and others of said links are of a length to extend between multiple interaperture intervals.

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