United States Patent [19]

Odier

[11] **3,869,125**

[45] ***Mar. 4, 1975**

[54] **GAME WITH ARCUATE PIECES**

[76] Inventor: **Marc Odier,** 85 Boulevard Exelmans, Paris 16, France

[*] Notice: The portion of the term of this patent subsequent to July 22, 1989, has been disclaimed.

[22] Filed: **July 10, 1972**

[21] Appl. No.: **270,294**

Related U.S. Application Data

[62] Division of Ser. No. 47,969, June 22, 1970, Pat. No. 3,687,455.

[30] **Foreign Application Priority Data**

Jan. 9, 1970 France 70.00840

[52] **U.S. Cl.** ..... **273/137 D**

[51] **Int. Cl.** **A63f 9/20**

[58] **Field of Search** 273/137

[56] **References Cited**

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Primary Examiner—Delbert B. Lowe

Attorney, Agent, or Firm—Young & Thompson

[57] **ABSTRACT**

A game comprises at least one set of polygonal pieces, the pieces of each set being identical and having a limited number of different indicia on the apices thereof, the possible combinations of the indicia being repeated once and only once for each set. Each piece has at least two arcuate edges, at least one concave and at least one convex, with at least one concave edge being of the same length and radius of curvature as at least one convex edge.

9 Claims, 7 Drawing Figures

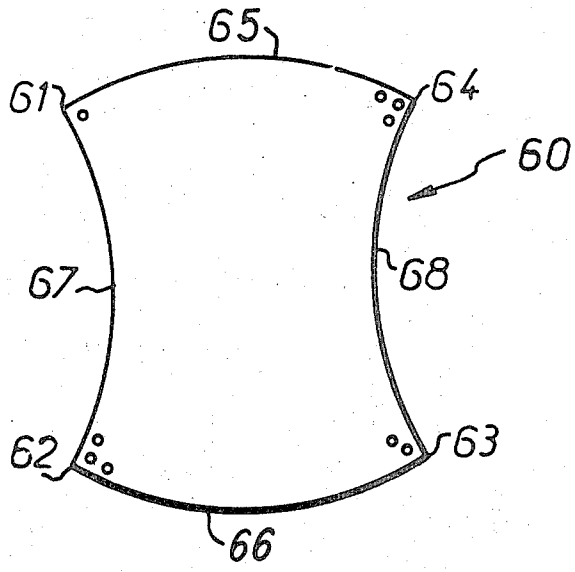


FIG. 1

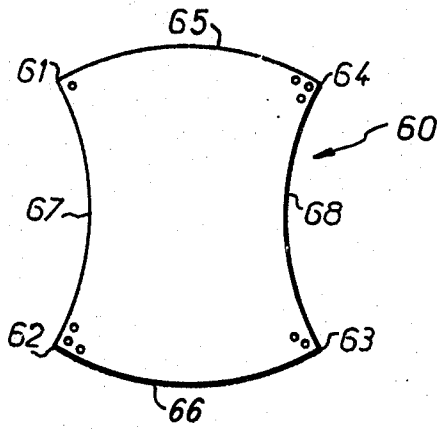


FIG. 2

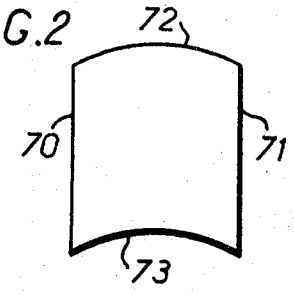


FIG. 3

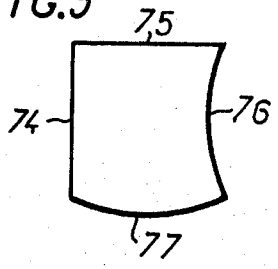


FIG. 4

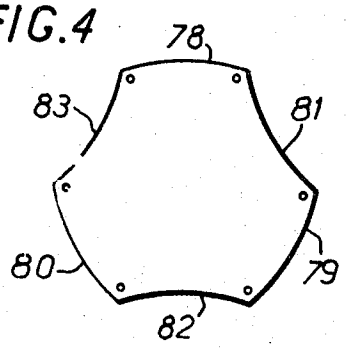


FIG. 5

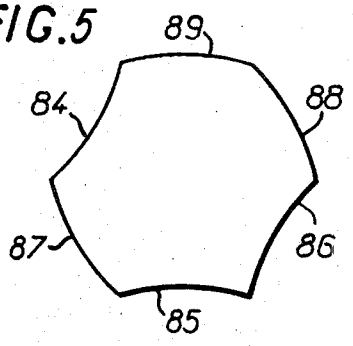


FIG. 6

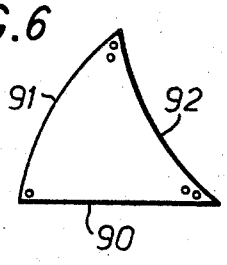
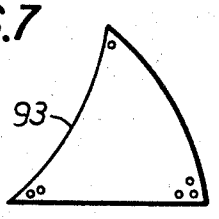


FIG. 7



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ATTYS.

GAME WITH ARCUATE PIECES

The present invention is a division of my copending application Ser. No. 47,969, filed June 22, 1970, now U.S. Pat. No. 3,687,455, to which reference is had for a fuller explanation of the background and other relationships of this invention.

The present invention relates to games of the parlour game type, comprising at least one set of polygonal game pieces, the pieces of each set being of identical size and shape. Each apex of each piece bears a value such as a number or other indicium taken from M possible values arranged in a predetermined sequence to be read in a predetermined direction about the piece, the number of pieces of each set being just sufficient for all the combinations of M values to be reproduced once and only once by all of the sequences carried by the pieces of the set, having regard for the direction of reading and the order of the values.

The rules of the game provide for juxtaposing each piece with at least one side in common with respect to the pieces already laid down, in such manner that at least two identical values are located facing each other.

The present invention provides an improvement on such games, in that each piece has at least two arcuate edges, at least one convex and at least one concave, at least one convex edge of each piece being of the same length and radius of curvature as at least one concave edge of the piece.

The objects of the invention, and its characteristic features and advantages will be further seen from the description which follows, given by way of example, with reference to the accompanying diagrammatic drawing, in which:

FIG. 1 is a plan view of one of the faces of a playing piece according to the present invention; and

FIGS. 2–7 are views similar to FIG. 1 but showing alternative forms of the invention.

Referring now to the drawing in greater detail, and first to the embodiment of FIG. 1, there is shown a game piece 60 having the shape of a curvilinear polygon and comprising four apices 61, 62, 63 and 64 equidistant and connected by four curved sides of the same radius and same length, two convex sides 65, 66 opposite each other, and two concave sides 67, 68. To each convex side of such a piece 60 there corresponds a concave side of another piece of the same shape and dimensions. The apices of piece 60 each carry a conventional value selected from M values, each piece having at its apices a combination of M values that is different from each other piece of the set.

In the alternative form of FIG. 2, each playing piece comprises two straight sides 70 and 71, a convex side 72 and a concave side 73. The four apices of a piece of this kind correspond to the arrangement of the apices of a rectangle. The two curved sides have the same radius of curvature and the same length and the straight sides are also of the same length as each other.

In the alternative embodiment of FIG. 3, each playing piece comprises two adjacent straight sides 74 and 75, a concave side 76 and a convex side 77. The four apices of a piece of this kind correspond to the arrangement of the four apices of a square in the example shown.

In each case, previously and hereinafter described, each apex of each piece carries one of the chosen conventional values, and a particular set of pieces provides each possible combination once and only once.

FIG. 4 shows a piece according to the present invention, having six apices corresponding to the arrangement of the apices of a regular hexagon, there being three convex sides 78, 79 and 80 and three concave sides 81, 82 and 83 of the same length and radius and uniformly alternate. This radius may for example be equal to the radius of the circumscribed circle of the regular hexagon; but it is preferably larger as shown in FIG. 4, in order to avoid excessively acute angles at the apices. In this embodiment, for $M = 2$ possible values attributable to each apex, and taking into account the symmetry of the piece, it will be observed that 24 different pieces are necessary and sufficient to form a full set of game pieces bearing all the possble combinations of values and each piece differing from the others with respect to these values.

In the embodiment of FIG. 5, each piece has three concave sides 84, 85 and 86, of which the sides 85 and 86 are adjacent, and three convex sides 87, 88 and 89, of which the sides 88 and 89 are adjacent.

A piece with three apices is shown in FIG. 6, the apices being equidistant, there being a straight side 90, a convex side 91 and a concave side 92. For $M = 3$ possible values, it will be seen that there are 27 different pieces in such a set.

FIG. 7 shows a piece 93 which is the mirror image of the piece of FIG. 6, and which illustrates that it is possible also to constitute a game from a plurality of sets, for example, a complete set of pieces as in FIG. 6, plus a complete set of pieces as in FIG. 7. The concave and convex sides of the piece of FIG. 7 will of course receive the convex and concave sides, respectively, of the pieces of FIG. 6, each set being constituted by 27 different pieces and the game possibilities and total number of playing pieces being correspondingly increased.

It is of course intended that the pieces can be arranged on a game board or any other level surface, in the juxtaposition described above, thereby to form various geometrical shapes or designs or other forms. Individual forms of the game are possible in the spirit of games of patience, or alternatively puzzles in which a silhouette proposed on one or more game panels is to be reproduced, can be foreseen.

The pieces according to the present invention may be manufactured by any conventional means, such as by molding from plastic, machining or casting from metal, etc. In all cases, the pieces will be flat.

Although the present invention has been described and illustrated in connection with preferred embodiments, it is to be understood that modifications and variations may be resorted to without departing from the spirit of the invention, as those skilled in this art will readily understand. Such modifications and variations are considered to be within the purview and scope of the present invention as defined by the appended claims.

Having described my invention, I claim:

1. A game comprising at least one set of flat polygonal pieces, the pieces of said set being of identical size and shape, each piece having at each of its apices a value selected from M possible different values arranged in a predetermined order, the values of each piece being different from the values of each other piece of the set and the number of pieces of the set being sufficient for all the combinations of M values to

be reproduced once and only once by the whole of the sequences carried by the pieces of the set, each piece having four apices and four sides, two of said sides being straight and the other two sides being arcuate, one said arcuate side being convex and the other said arcuate side being concave, both the said arcuate sides having the same length and radius of curvature.

2. A game as claimed in claim **1,** in which said straight sides are opposite sides.

3. A game as claimed in claim **1,** in which said straight sides are adjacent sides.

4. A game comprising at least one set of flat polygonal pieces, the pieces of said set being of identical size and shape, each piece having at each of its apices a value selected from M possible different values arranged in a predetermined order, the values of each piece being different from the values of each other piece of the set and the number of pieces of the set being sufficient for all the combinations of M values to be reproduced once and only once by the whole of the sequences carried by the pieces of the set, each piece having four arcuate sides of the same length and radius of curvature, the sides being alternately concave and convex about the periphery of the piece.

5. A game comprising a set of 24 flat polygonal pieces, the pieces of said set being of identical size and shape, each piece having at each of its apices a value selected from two possible different values arranged in a predetermined order, the values of each piece being different from the values of each other piece of the set and the 24 pieces of the set being sufficient for all the combinations of said two values to be reproduced once and only once by the whole of the sequences carried by the pieces of the set, each piece having six arcuate sides of the same length and radius of curvature, said sides being alternately concave and convex about the periphery of the piece.

6. A game comprising a set of 27 flat polygonal pieces, the pieces of said set being of identical size and shape, each piece having at each of its apices a value selected from three possible different values arranged in a predetermined order, the values of each piece being different from the values of each other piece of the set and the 27 pieces of the set being sufficient for all the combinations of said three values to be reproduced once and only once by the whole of the sequences carried by the pieces of the set, each piece having three sides, one of which is straight and two of which are curved, one said curved side being convex and the other said curved side being concave, both said curved sides having the same length and radius of curvature.

7. A game as claimed in claim **1,** said two straight sides being of the same length.

8. A game comprising at least one set of flat polygonal pieces, the pieces of said set being of identical size and shape, each piece having at each of its apices a value selected from M possible different values arranged in a predetermined order, the values of each piece being different from the values of each other piece of the set and the number of pieces of the set being sufficient for all the combinations of M values to be reproduced once and only once by the whole of the sequences carried by the pieces of the set, each piece having three concave arcuate sides of which at least two are adjacent, and three convex arcuate sides of which at least two are adjacent, said concave and convex arcuate sides all having the same length and radius of curvature.

9. A game as claimed in claim **6,** comprising two sets of three-sided pieces, each of the pieces of one said set being the mirror image of a piece of the other said set.

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