

[54] GAME WITH REVERSIBLE PIECES

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

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

[21] Appl. No.: **273,510**

Related U.S. Application Data

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

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

[51] Int. Cl. A63f 9/20

[58] Field of Search 273/137 R, 137 C, 137 D, 273/137 B, 146, 136 E

[56] **References Cited**

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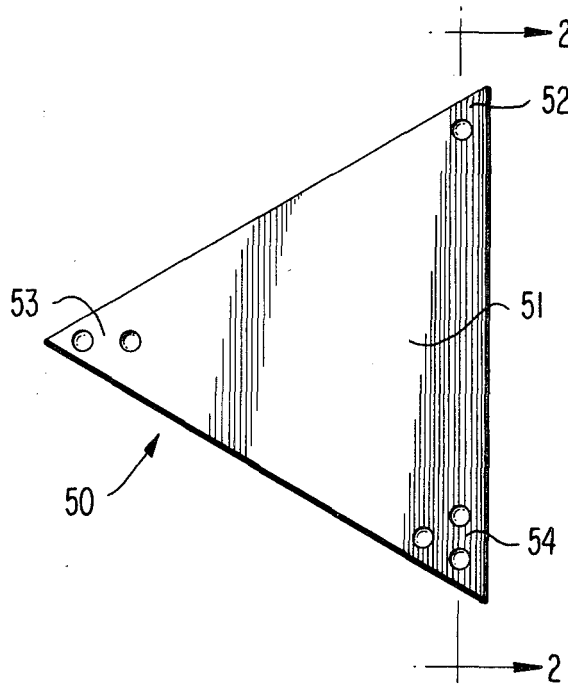
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Primary Examiner—Paul E. Shapiro
Attorney, Agent, or Firm—Young & Thompson

[57] **ABSTRACT**

A game comprises a set of 20 polygonal pieces having a limited number of different indicia on the apices thereof, the possible combinations of the indicia being repeated once and only once, and forming sequences to be read in order. The pieces are reversible, so that the same indicium is reproduced in the corresponding position on the opposite side of the piece (the mirror image position). The indicia may be provided only on the opposite surfaces of the pieces, or may extend all the way through the pieces. Because of the mirror image placement of the indicia, twenty four different sequences of indicia are producible with the twenty pieces by inverting the four pieces which have a different indicium at each apex.

1 Claim, 5 Drawing Figures



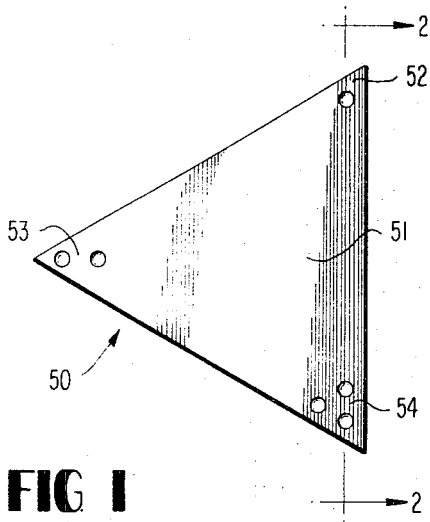


FIG 1

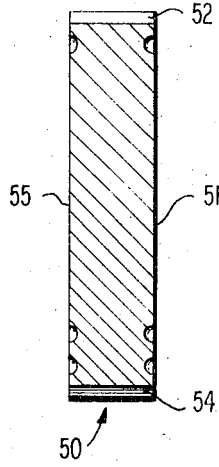


FIG 2

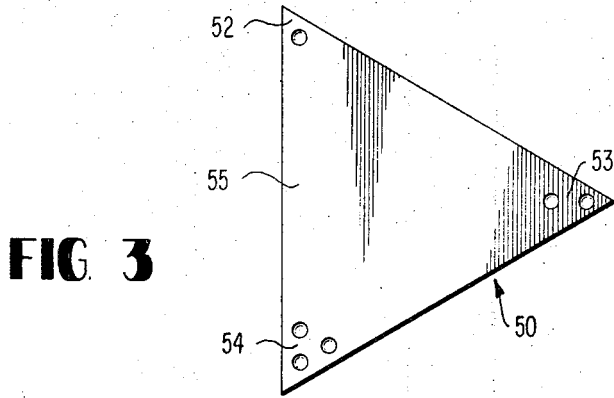


FIG 3

FIG 4

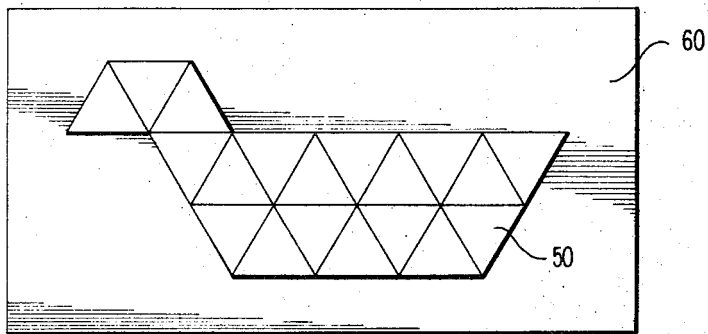
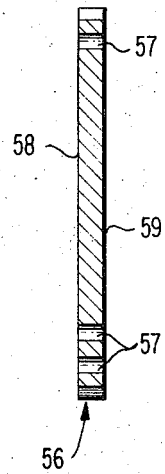


FIG 5

GAME WITH REVERSIBLE 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 parlourgame type, comprising a plurality of polygonal game pieces of identical size and shape, each apex of each piece bearing 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 the 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 the pieces are reversible, having the same values on both faces at the same location on each piece but on the opposite sides of each piece.

The objects of the invention, and its characteristic features and advantages will be further seen in 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 invention;

FIG. 2 is a view in cross section of this playing piece, taken on the line 2—2 of FIG. 1;

FIG. 3 is a plan view of the other face of this same playing piece;

FIG. 4 is a view similar to FIG. 2 but showing an alternative form of construction; and

FIG. 5 is a plan view of a game panel with playing pieces according to the present invention in place thereon.

Referring now to the drawing in greater detail, and first to the embodiment of FIG. 1, there is shown a game piece 50 which is one piece of a set according to the present invention, comprised by a plurality of game pieces which are identical in size and shape but which differ as to the indicia that they bear at their apices. According to the shown embodiment each game piece 50 is an equilateral polygon of at least three sides, having at their apices each a different combination of M values. In FIG. 1, the face 51 of the playing piece 50 is designated 1 2 3 according to the values carried by its apices 52, 53 and 54. FIG. 2 shows the same piece 50 in cross section, and FIG. 3 shows its opposite face 55. It can be seen that an apex such as 52 carried in this case the conventional 1 both on the face 51 and on the face 55 at the corresponding positions thereon. The apex 54 carries the same conventional value 3 on the two faces and this is also true for the apex 53 which carries the value 2 on both faces. The face 55 of the piece 50 thus corresponds to the denomination 1 3 2.

According to an alternative construction shown diagrammatically in section in FIG. 4, a playing piece 56 is made of thin sheet metal, each apex carrying the indi-

cation of the same conventional value on the two faces 58, 59 by a selected number of holes 57 which pass through the piece from one of the faces 58 to the other. The particularly simple method of construction is preferred when the playing pieces according to the invention are to be utilized in association with flat or polyhedral game supports having compartments which can each receive a whole number of polygonal playing pieces, these compartments being made of magnetic material in order to hold the pieces on the selected partitions even if the panel (or polyhedral) of the game is inclined.

Whatever the method of construction may be, these reversible pieces are joined together in definite sets permitting individual and collective games which utilize a logic associated with the actual constitution of the sets of pieces. Again in the example of application of the invention to a set of pieces in the form of equilateral triangles with four possible conventional values ($M = 4$), two types of game can be obtained at will.

According to a first method of application of the invention, the 24 pieces in the form of equilateral triangles already described above are put together in a game box. As the pieces are reversible, instead of comprising four single pieces A and four pieces B symmetrical with the pieces A, the game box comprises two sets of four single pieces which can each be reversed. At the will of the players, there may thus be utilized two pieces 1 2 3 and no piece 1 3 2. In this method of application of the invention, a complete logic of the game based on topology and combination analysis can be developed, taking account of the reversible nature of the pieces.

According to a second method of application of the invention, the pieces necessary for obtaining all the possible combinations of the M values are joined together in a game box, it being understood that certain pieces can possibly correspond by their two faces to two different combinations. In the case of a game made up of equilateral triangular pieces, the set of pieces defined corresponding to $M = 4$ consists of 20 pieces only, comprising:

- The four triple pieces;
- the twelve double pieces;
- Four single pieces.

As the latter are reversible, they constitute at the will of the players A or B pieces. By way of example, the single piece shown in FIGS. A and 3 becomes the piece 1 2 3 or alternatively the piece 1 3 2 at the will of the user. For each of the existing four single pieces, the choice of the face utilized has important consequences on all the logical developments of the game. It can be emphasized that these developments are very different from those corresponding to the first-cited method of application. In the case referred to here as a non-limitative example, it should be stressed that the twenty reversible pieces form a definite set which can be placed on the twenty faces of a regular icosahedron while perfectly observing the conditions of juxtaposition of the apices of the pieces.

FIG. 5 shows a plurality of the pieces 50 arranged on a game board 60. A panel of this kind can have the silhouette of a geometric, emblematic or other figure, to be covered by playing pieces. In the case of FIG. 5, for example, the panel is suitable for triangular pieces and the silhouette shown is that of a duck.

Whether the playing pieces have the geometrical shapes which have been described in the co-pending

application U.S. Pat. No. 47,989 or alternatively shapes derived from the same data, in all cases juxtapositions may be effected with all or part of these pieces. Individual forms of games are possible in the spirit of games of patience, or alternatively puzzles in which a silhouette proposed on one or more game panels are to be reproduced, as has already been described in the above-mentioned patent application.

Collective forms of game can also be obtained, as alternatives to those already described. In all cases, the fact that according to the invention all the possible combinations of pieces are present once and once only in the game renders possible the development of a "logic" of the game which may be interesting in itself for its applications of an educational nature, for the use of the game for the purposes of scientific tests or studies, etc.

The supports which may be associated with the pieces of the game may be flat, in which case they are panels.

These game supports may also be three-dimensional, that is to say, they may have several faces to be covered by playing pieces.

In all cases, these game supports may carry an outline of compartments corresponding to the playing pieces to be placed on the support.

In all sets of pieces obtained according to the invention, an additional piece permits the interest of certain forms of individual or collective games to be increased. This is a piece having a shape and dimensions identical with the set pieces, but of which at least one apex and/or one site bears a particular sign having any value at the will of the player or players.

The pieces 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 the 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 set consisting of 20 all-different reversible flat equilateral triangular playing pieces of identical size, each piece having at each of its apices and on both sides thereof an indicium selected from four possible different indicia, the indicia of each piece forming a sequence to be read in a predetermined order, four different said pieces each having at each of its apices a same indicium, 12 different said pieces each having at each of two apices a same first indicium and at its third apex an indicium different from said first indicium, and the last four different said pieces each having a different indicium at each apex thereof, the sequence of the values of each side of each of said last four pieces being different from one another, the indicia of one side of each piece being the mirror image of the indicia on the other side of the same piece, whereby 24 different said sequences are producible with said 20 pieces by inverting said last four pieces.

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