

[54] **BOARD GAME APPARATUS**

[72] Inventor: **Ivan Moscovich**, Ha. Universita St. 79.,
Ramat Aviv, Israel

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273/136 A, 273/137 A, 273/137 D

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35/31 G

[56] **References Cited**

UNITED STATES PATENTS

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Attorney—Benjamin J. Barish

[57] **ABSTRACT**

A board game of educational value in familiarizing the player with the binary-system, comprises a playing board and a set of identically-shaped playing pieces, each playing piece having "n" (e.g. 4) equal sides and being divided into "n" equal parts. The parts of the playing pieces are colored in two distinctive colors providing 2^n possibilities of color-part combinations, each set including a playing piece for each of the 2^n color part combinations. The playing board includes markings dividing the board into a plurality of at least 2^n divisions, each division having an external shape identical to that of the playing pieces. Each playing piece represents a value in the binary-system of notation according to the position played on the board.

6 Claims, 2 Drawing Figures

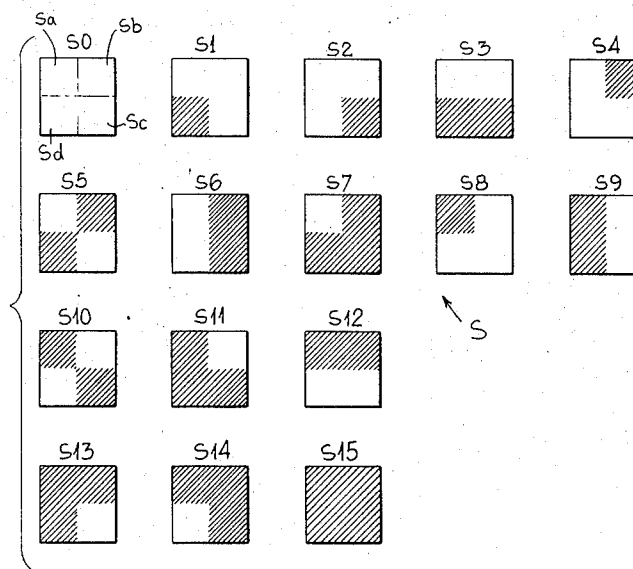


FIG. 1

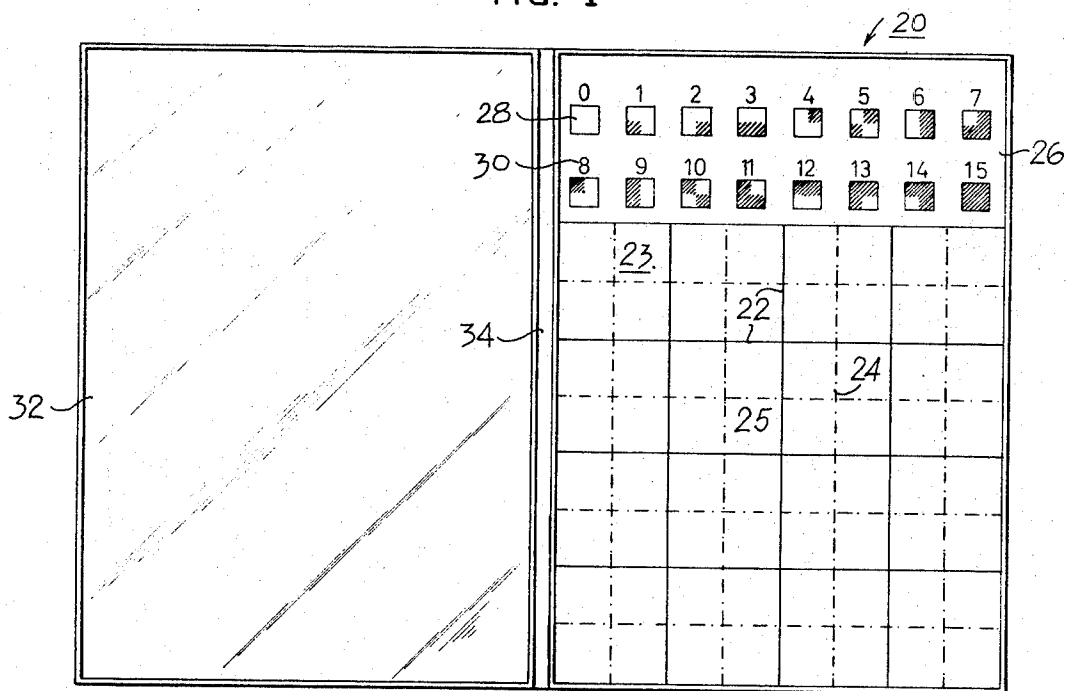
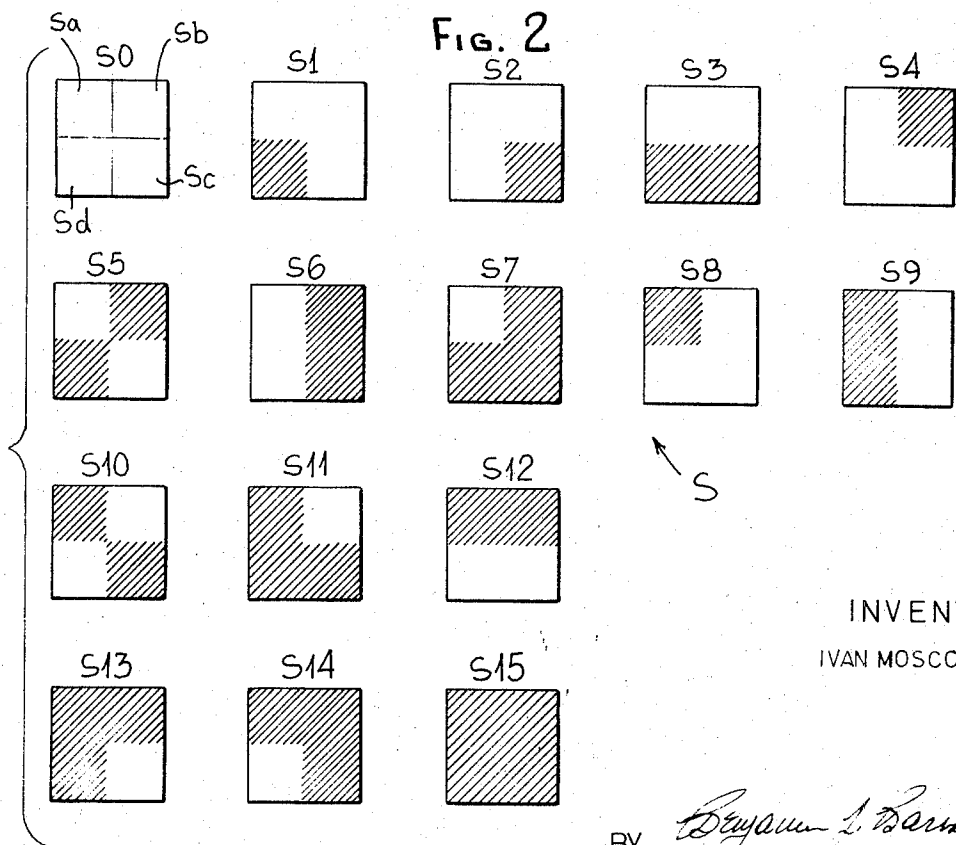


FIG. 2



INVENTOR
IVAN MOSCOVICH

BY *Bryan L. Davis*
ATTORNEY

BOARD GAME APPARATUS

BACKGROUND OF THE INVENTION

The present invention relates to board games, and particularly to such games including a playing board and a set of playing pieces which game may be played for amusement purposes.

An object of the present invention is to provide a board game related to the binary-system of notation such that the game includes in addition to an element of amusement, also an element of education in learning the binary-system of notation.

SUMMARY OF THE INVENTION

According to the invention there is provided a board game comprising a playing board and a set of identically shaped playing pieces, each playing piece having a number "n" of equal sides and being divided into "n" equal parts, "n" being at least four. The parts of the playing pieces are colored in two distinctive colors, thereby providing 2ⁿ possibilities of color-part combinations. Each set includes a playing piece for each of the 2ⁿ color-part combinations. The playing board includes markings dividing same into a plurality "p" of at least 2ⁿ divisions. Each division has an external shape identical to that of the playing pieces.

In the preferred embodiment of the invention described below, "n" is equal to four, i.e., each part has four equal sides and is divided into four equal parts, providing 16 color-part combinations. In addition, the playing board is divided into sixteen divisions, one for each of the playing pieces. It will be appreciated, however, that the invention could also be embodied in a game where "n" equals 5 or a greater number, to provide 32 or a larger number of possible color-part combinations.

According to another feature of the invention, the board carries a printed table showing all the 2ⁿ color-part combinations arranged in sequence according to their values in the binary-system of notation. The printed table also includes the respective values of the color-part combinations in the decimal-system of notation.

The manner in which the game is played is described below with respect to a preferred embodiment.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is herein described, by way of example, only, with reference to the accompanying drawings, wherein

FIG. 1 illustrates a playing board and cover made in accordance with the invention; and

FIG. 2 illustrates a set of playing pieces for use with the playing board of FIG. 1.

DESCRIPTION OF PREFERRED EMBODIMENT

The board game illustrated in the drawings comprises a playing board generally designated 20, and a set of identically-shaped playing pieces generally designated S. In this embodiment, each playing piece S is square-shaped, i.e., has four equal sides. There are 16 such playing pieces S0-S15 in the set. Each playing piece is divided into four equal parts, Sa, Sb, Sc, Sd; and all the parts of the playing pieces are colored in two distinctive colors, e.g., red and yellow. This provides 16 possible color-part combinations. If each part, according to its color, is made to indicate "0" or "1" of the binary-system of notation, the 16 playing pieces together may represent the values "0-15" in the decimal-system of notation.

In the described example, the part Sa in the upper left-hand corner of the playing piece represents the first position of the binary-system of notation, the remaining positions being indicated by counting the parts in a clockwise direction. All four parts of playing piece S0 are of one color, and therefore this playing piece represents "0000" in the binary-system, and "0" in the decimal system. Playing piece S1 has one part (lower left-hand corner) of one color, and the remaining parts of the

second color; this piece therefore designates "0001" in the binary-system, and "1" in the decimal system. In playing piece S2, the part in the lower right-hand corner is of one color, and the remaining parts are of the second color, and therefore this piece designates "0010" in the binary-system, and "2" in the decimal system. In the 16th playing piece S15, all four parts are of the second color, and therefore this playing piece designates "1111" in the binary-system, and "15" in the decimal system.

The playing board 20 is made of stiff sheet material, for example plastic or cardboard. It includes a plurality of primary markings 22 in the form of solid printed lines dividing the board into 16 squares 23 each of the size of the playing pieces S. The board 20 further includes a plurality of secondary markings 24 in the form of broken printed lines dividing each of the squares into four equal parts or smaller squares 25, each identical to the parts or smaller squares Sa-Sd of the playing pieces S.

At the top of the board 20 there is provided a printed table 26 showing all the color-part combinations of the playing pieces S arranged in sequence according to their values in the binary-system of notation. These are indicated at 28, and the table further includes the values, designated 30, of the respective color-part combinations in the decimal system of notation.

Preferably, the packaged game as sold includes a plastic transparent cover 32 hinged to the board 20 along vertical line 34 and adapted to be closed on top of the board and held closed by a clip or latch (not shown). The playing pieces S, in the packaged article, would be disposed on board 20 within the respective squares 23 thereof, according to any desired arrangement, and would be held by cover 20 through which they would be viewable.

The game illustrated may be played by different numbers of players and according to different rules. Following is a description of one example:

1. All 16 playing pieces are turned with the distinctively-colored faces down, the thus exposed faces being all of one color so as to be indistinguishable from each other;
2. Each player then selects one of the playing pieces in turn, until they are all divided between the players;
3. The player who selected the lowest-value playing piece (namely S0) is the first to play, and he sets one of the playing pieces on the board 20 in any one of the large squares provided by the solid printed lines 22.
4. The next player then selects from his playing pieces one that would provide a color-to-color match with the played piece along one of the edges of the played piece, and places that piece down in the respective large square of board 20. For example, if the first player placed piece S0 in the upper left-hand square, the second player has the choice, to the extent he possesses such pieces, of playing one of pieces S1, S2, S3, S4, S6, S8, S9 or S12 in the vertically-adjacent square, or in the horizontally-adjacent square.
5. The next player then selects from his pieces one which will provide a color-to-color match in one of the vertically or horizontally-adjacent squares of the pieces already played.
6. The game thus proceeds with each player, in his turn, placing one of his pieces on the board in a color-to-color match with the adjacent playing piece or pieces already played, until one player exhausts all his playing pieces, or further progress is blocked. If a player, in his turn, cannot play a piece according to the rules, his turn passes to the next player.
7. When a game ends, each player computes his score according to the decimal value of the pieces he played (which also depends on the position played) in the course of the game. The one that has the highest score is declared the winner.

It will be seen that all the playing pieces, except the solid ones S0 and S15, can have different values in the decimal

system according to the position played. For example, piece S1 can have the decimal value of 1, 2, 4, or 8 according to the position played, and playing piece S3 can have the decimal value of 3, 6, 9, or 12 according to the position played. Therefore, when the player selects the pieces for play, he is called upon to exercise skill and planning to effect the highest score possible for the complete game.

It will be appreciated that the game may be played according to other rules. For example, it could be played according to a color-against-color rule. Also, the number of rounds could be predetermined at the beginning of the game, and at the end of the predetermined number of rounds, each player left with playing pieces must deduct their decimal value (e.g., according to the position giving the highest possible value) from the value of the pieces played. The game could also be played by a single player to produce the combination giving the highest possible score. Blank work pages could be provided so that the player can record the various combinations he has played, or the one giving the highest score he was able to obtain. Also the game may be played without a board, directly on a table top or the like. Further, the game may include electrical switches for reading the plays into a computer or data processing system.

The order of counting the parts Sa-Sd described above, that is starting from the upper left-hand corner and counting clockwise, is of course arbitrary, and it may be desirable to have another order of counting, for example, starting from the upper left-hand corner and proceeding row-by-row from left to right.

Further variations, modifications and other applications of

the illustrated embodiment will be apparent.

What is claimed is:

1. A board game comprising a playing board and a set of identically-shaped playing pieces, each playing piece having a number "n" of equal sides and being divided into "n" equal parts, "n" being at least four, the parts of the playing pieces being colored in two distinctive colors thereby providing 2ⁿ possibilities of color-part combinations, said set including a playing piece for each of said 2ⁿ color-part combinations, said playing board including markings dividing same into a plurality "p" of at least 2ⁿ divisions, each division having an external shape identical to that of said playing pieces.

2. A board game as defined in claim 1, wherein n = 4.

3. A board game as defined in claim 2, wherein p = 16.

4. A board game as defined in claim 1, wherein the board carries a printed table showing all said 2ⁿ color-part combinations arranged in sequence according to their values in the binary-system of notation, said printed table including the respective values of said color-part combinations in the decimal-system of notation.

5. A board game as defined in claim 1, wherein said plurality of "p" divisions of the playing board are formed by primary printed markings, each division further including secondary printed markings dividing each division into "n" equal parts.

6. A board game as defined in claim 5, wherein said primary printed markings are in the form of solid printed lines, and said secondary printed markings are in the form of broken printed lines.

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