Aug. 29, 1939. T. MOREN 2,170,909

GAME

Filed May 16, 1938

Fig. 1.

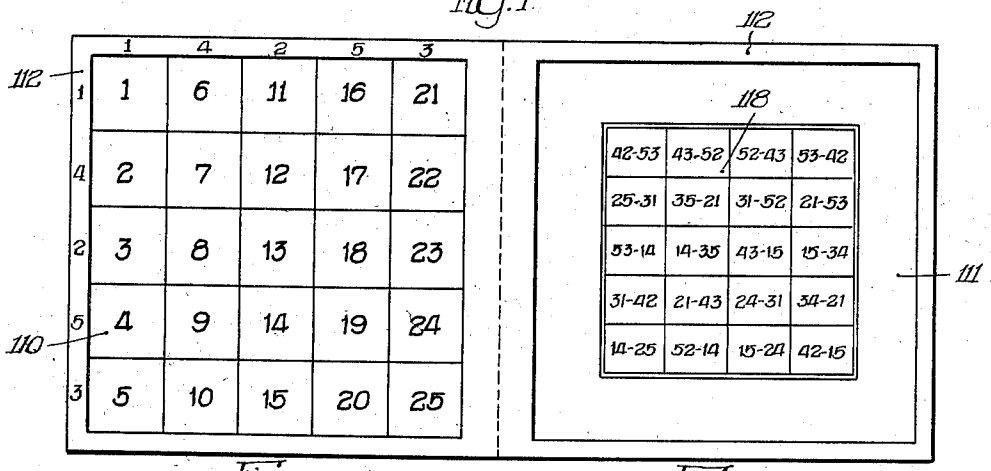


Fig. 2.

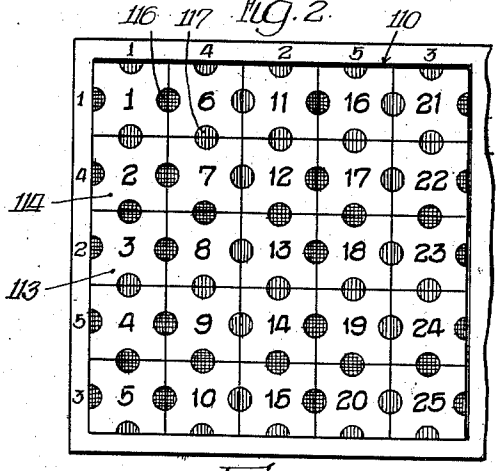


Fig. 3.

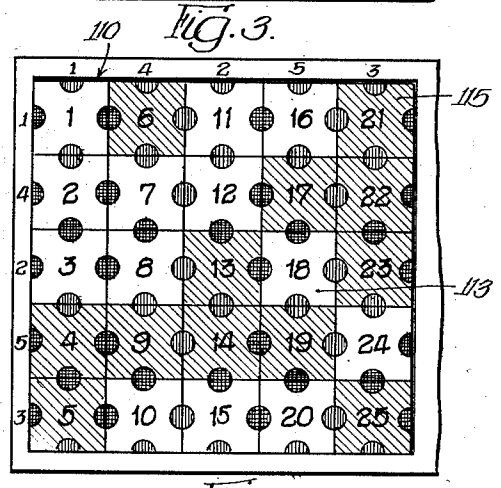


Fig. 4.

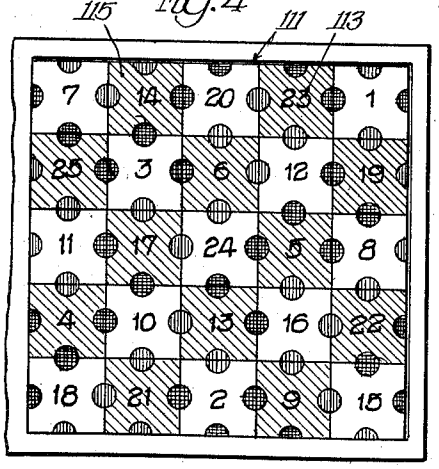
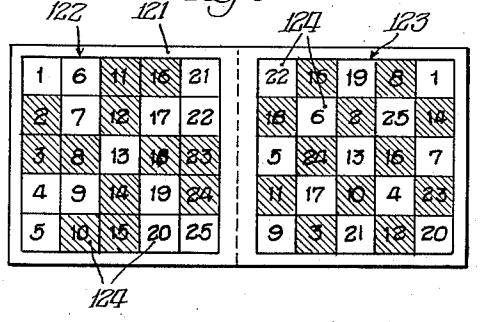


Fig. 5.



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GAME

Theodore Moren, Chicago, Ill.

Application May 16, 1938, Serial No. 208,150

5 Claims. (Cl. 273—132)

The present invention pertains to that class of puzzle or problem games known as magic-squares, wherein numbered loose pieces may be arranged in columns, rows, full diagonals and also broken-diagonals, the sum of the numerals of each of which will equal a self-same amount.

Heretofore games of this type have consisted of plain pieces numered on one face only, which, after having been miscellaneously disarranged in a number face-up manner were to be assembled into a magic-square, and, obviously, all possible solutions could be had from this one general disorganized or orderless arrangement.

The instant invention, however, in its restricted features, embodies limitations requiring that only such pieces as have a differently-colored background, or other differentiating characteristics, may be placed adjacent to each other, and also that only such pieces as have the counterparts of similar edge-markings may be positioned adjoining each other, and, in addition, my new game provides the means for selecting, one at a time, any one of many specific problem combinations for which the player must find the solution.

The antiquity of magic-squares as such, and also of a literature pertaining thereto, are well known, and there is no intent of claiming anything except the novel features of the construction of the numbered pieces, both singly and collectively, and a means for selecting specific problems therefrom, thereby adapting magic-squares to a new and interesting game.

Stated somewhat differently, the present invention concerns what might be aptly characterized as problem games, one main object of the invention being to provide a magic-square game in which the player sets up his problem without knowing the solution thereof and then proceeds to discover its answer.

A further aim of the invention is to supply a game of this kind which may be designated as a pan-diagonal magic-square game, in that the solution of the problem requires the player to so arrange the numbered pieces or blocks that they will be in checkerboard-design and the sums of their numbers for each horizontal row, for each upright-column, for each complete diagonal, and for all divided diagonals, shall be equal and a predetermined amount.

To enable those acquainted with this art to fully understand the invention, in the accompanying drawing two present preferred embodiments of the invention have been illustrated and for simplicity like parts have been given the same reference numerals throughout the several views.

In this drawing:

Figure 1 is a face view of a duplex-tray or game-board conveniently used in playing the game;

Figure 2 is a front view of the set of serially numbered members or pieces used in the game and these are shown in the left-hand part of the tray or game-board portrayed in Figure 1;

Figure 3 shows certain of such pieces or members in Figure 2 turned over, such view representing the means by which the answer to the problem may be evolved.

Figure 4 illustrates the problem solved by such members or pieces in the right-hand part of the duplex-tray or game-board of Figure 1; and

Figure 5 shows a problem and its solution with a different set of numbered blocks or pieces.

By reference to Figure 1, it will be perceived that the game-board or double-tray has two substantially-square sections or parts 110 and 111 each surrounded by a shallow, upstanding, marginal rim 112, 112.

The left-hand portion 110 of such duplex game-board or compartment is divided by lines intersecting at right-angles into upright columns and horizontal rows of spaces numbered consecutively from 1 to 25 inclusive in the present instance, all as is clearly shown, it being observed that the numeral in each such space has the same relation (5 less) to the numeral in the space to its right that all others have to those to their right, and that the numeral in each such space has the same relation (1 less) to the numeral in the space below it that all other of such numerals have to those directly below them.

It will be noted, in addition, that each such vertical column at its top has a designating number, in this case, in this order 1, 4, 2, 5, 3, and that the horizontal rows are numbered downwardly by the same numerals in the same order.

The right-hand part 111 of the game-board displays a table or chart 118 of four-figure numbers with a period between the second and third figures, the numbers in the top row being made up of the column and row figures omitting all 1's and having the remaining four digits in different arrangements, and in each succeeding horizontal row the numbers omit another of the five digits, the remaining digits being arranged in different orders.

The loose members or blocks 113 with which the game is played, shown in Figures 2, 3 and 4, are numbered in sequence from 1 to 25 inclusive and each has its specific number on both of its opposite faces, one set of faces 114 of such pieces

being all of one color and the opposite set of faces 115 being all of one color different from the first mentioned color.

Additionally, these blocks or pieces have at the middle points of their edges, identifying semi-circles 116 and 117 of different colors and different from those of the two faces of the blocks or pieces.

As shown, these pieces 113 are desirably square in shape and comparatively thin, but nevertheless, thick enough so that they can be manipulated or turned over with facility.

To play the game, these 25 loose pieces are placed in part 110 of the game-board with their numbers coinciding with those of the spaces in the game-board which they occupy, as shown in Figure 2, and the colors of all of the upper faces of these pieces are the same.

The player then selects any number in the table or chart 118 and writes it down, for example, thus 1 4 2 5, and, thereupon, he selects any other number in the chart, for instance, 2 4 3 1, and, instead of writing it down, as shown, he may write it down directly below the number 1 4 2 5 as either, beginning with the middle period, 3 1 2 4 or 4 2 1 3 thus, for example,

1 4 2 5
3 1 2 4

The individual digits of the top number represent the columns and the individual digits in the lower number represent the horizontal rows.

Thereupon, the player, observing the 1 in the upper number and the 3 below it, selects that block or tile numbered 5 in column 1, row 3 and turns it over as shown in Figure 3.

Then finding the 4 in the upper number and the 1 under it in the lower number, he reverses piece numbered 6 which is in column 4, row 1.

Then coming to the digit 2 in the top number and the digit 2 directly below it in the lower number, he turns over piece numbered 13 in column 2, row 2.

Viewing digit 5 in the column number and the digit 4 in the row number under it, he turns over the piece numbered 17 in column 5, row 4.

This leaves an intersecting column 3 (because there is no 3 in the number 1 4 2 5) and a row 5 (due to the fact that there is no 5 in the number 3 1 2 4) without any pieces turned over in them, and the player then turns over all such 9 pieces, except the piece 24 which is at the intersection of such column and row.

The pieces which have been turned over and those which have not been disturbed are illustrated as in Figure 3 and the problem for the player is to rearrange such pieces in checkerboard-design and in such a way that the sum of all of the numbers of the pieces in each horizontal row, the sum of all the numbers of the pieces in each vertical row, the sum of the numbers of all of the pieces in each complete diagonal row, and the sum of the numbers of all of the pieces in broken or divided oblique or diagonal rows, such as the pieces 9, 22, 11, 3 and 20, or the pieces 2, 16, 8, 25 and 14, or the pieces 21, 13, 5, 19 and 7, etc., shall all add up to the same sum, namely 65.

The solution of such problem is presented in Figure 4 and the pieces or members must not only be in checkerboard-design, but the edge-matching semi-circles 116 and 117 must match properly to make complete circles as is also shown in Figure 4.

As will be readily understood, a selection of any two other numbers in the chart 118 results in a different problem, but the specified sums will always be 65, in the present instance.

A somewhat simpler form of game is shown in Figure 5, in which case the gameboard 121, which is really not essential, has two tray-compartments 122 and 123, and the pieces 124 used to play the game may be like those displayed in Figures 2, 3 and 4, but the gameboard has no numbered spaces corresponding to those 110 in Figure 1, nor any chart comparable to that 118 in Figure 1, and the pieces have no edge designations responding to those 116 and 117 in Figures 2, 3 and 4.

Such pieces 124, however, are numbered on both faces consecutively from 1 to 25, inclusive, and one set of faces are of one color and the opposite set of another color.

Such set of pieces are arranged in succession in the tray 122, or wholly separate from the gameboard, in five columns and five rows all with their faces of one color disposed upwardly, as portrayed in Figure 1.

Then the player turns over one piece in each column less one with all such four manipulated pieces in different rows, thus leaving an undisturbed column intersecting an unchanged row, and in these two he turns over all the pieces except the single one at their point of crossing.

Such a problem or puzzle arrangement is shown in the tray 122 and one of several checkerboard-design solutions thereof is presented in the tray 123.

The illustrations in this drawing and the specification are on a preferred n^2 basis where n is equal to 5, although in general the intent is that the invention shall cover cases where n is an odd number not divisible by 3.

Also the face-differentiating-means are shown as of differently-colored backgrounds, but it is to be assumed that different shapes, colored numerals, etc., may be also employed, as a substitute. This applies also to the edge-identifications.

In the present instance, the numbers in chart 118 are determined as follows from the column identification numbers arranged in this order—1, 4, 2, 5, 3 leaving out one digit at a time in succession and reading the remaining digits in sequence beginning with the one at the right of the omitted one: thus leaving out the 1 we get for the first number in the first column in the table 4 2 5 3, and leaving out the 4 we obtain for the second number in the first column 2 5 3 1, and then leaving out the 2 we obtain for the third number in the first column 5 3 1 4 and so on for such first column.

The rearrangements of the four digits in the other columns depends upon the matching of the edge-markings 116 and 117 as will be readily understood.

Those acquainted with this art will readily understand that the invention is not limited or confined to the details hereinabove set forth and that many changes or modifications may be resorted to without departure from the substance or principles of the invention as defined by the appended claims, and without the loss or sacrifice of any of its substantial advantages or material benefits accruing from the use of the invention.

I claim:

1. A checkerboard magic-square game including a complete set of numbered separate pieces each displaying its same individual number on both of its opposite faces, one set of said numbered faces having indicia differentiating them from their opposite numbered faces, whereby said pieces may be arranged in upright columns and

in horizontal rows all with the like faces disposed up and one such piece may be turned over in each of one less than the total number of columns, said turned-over pieces being in different rows, leaving one column and one row intersecting in which no pieces have been turned over, and all of said pieces in said last-mentioned intersecting column and row may be turned over except the one piece at such intersection, thus setting up a problem of rearranging said turned and unturned pieces in checkerboard-design with the sum of the numbers of the pieces in each upright column and in each horizontal row the same.

2. The game presented in claim 1 in which the sum of the numbers of each complete diagonal row of rearranged pieces is also the same as the sum specified in claim 1.

3. The game presented in claim 1 in which the sum of the numbers of each complete diagonal row of said rearranged pieces is the same as the sum specified in claim 1 and in which the sum of the numbers of each divided oblique row of said rearranged pieces is also the same as the sum specified in claim 1.

4. A checkerboard magic-square game, including in combination, a game-board having numbered spaces arranged in n vertical columns and n horizontal rows with a uniform numerical relationship between the numbers of each pair of horizontally-located spaces in any two columns and a uniform numerical relationship between the numbers of each pair of vertically located spaces in any two rows, said game-board having a column-identification number for each of said columns and the selfsame identification-numbers in the same order for the rows as row-identifications, a set of n^2 loose pieces provided on both of their opposite faces with the individual numbers of the spaces of said game-board, each piece having its same individual number on both of its opposite faces, one numbered face of said pieces having indicia to distinguish them from their opposite numbered faces, and a game-selecting table of numerical rearrangements of the column or row identification-numbers, each such number in said table having n—1 digits.

5. The game presented in claim 4 in which said pieces are rectangular and when arranged in said game-board in accordance with the numbered spaces thereon, each such piece has on both of its faces, at the centers of each of its corresponding edges one part of an edge-matching design, the counterparts of which are at the opposite edges of pieces in other columns and rows.

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