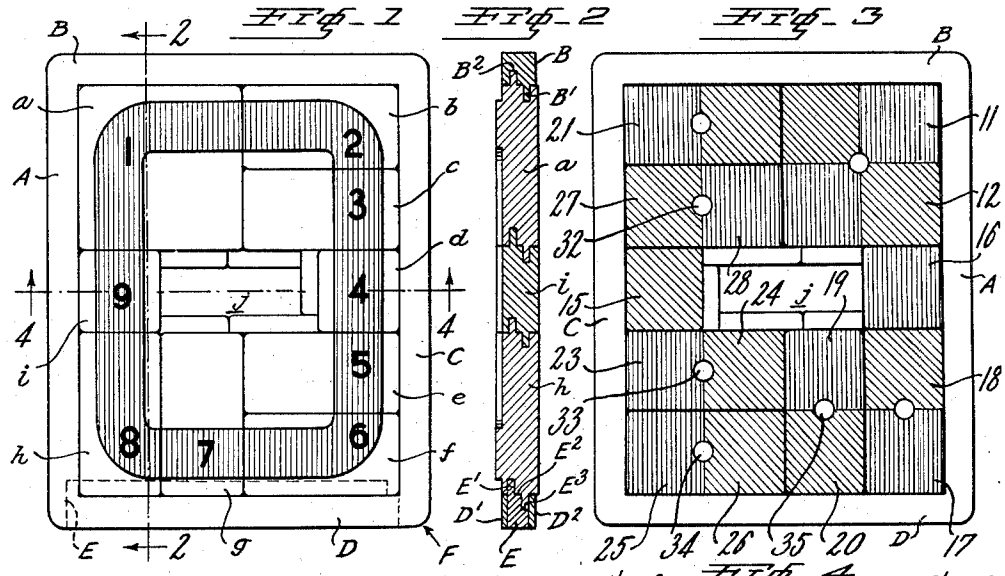
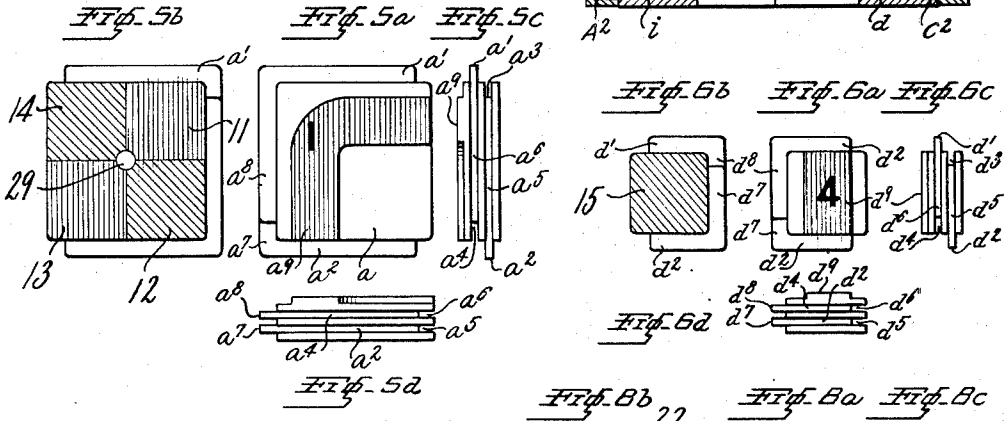
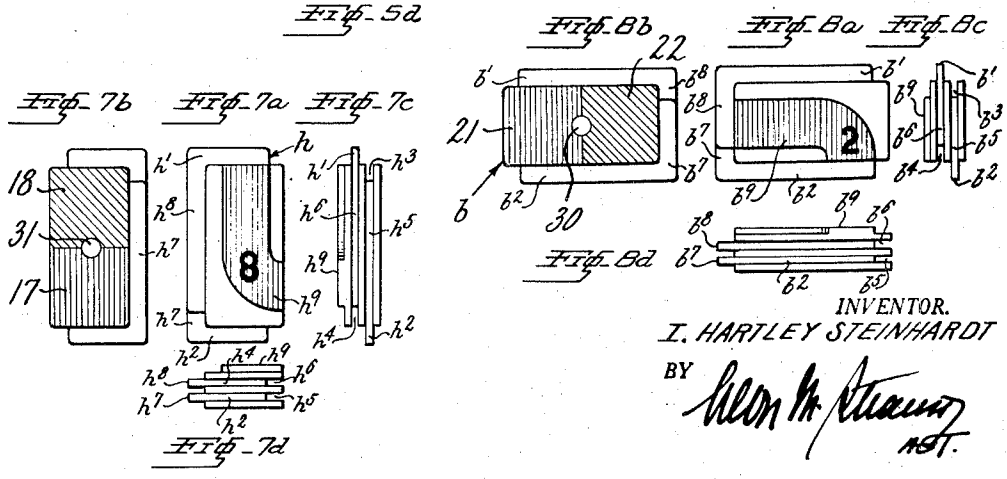
Jan. 29, 1957 I. H. STEINHARDT 2,779,598

GAME BOARDS

Filed Dec. 31, 1954 2 Sheets-Sheet 1







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Filed Dec. 31, 1954 2 Sheets-Sheet 2

Fig. 9

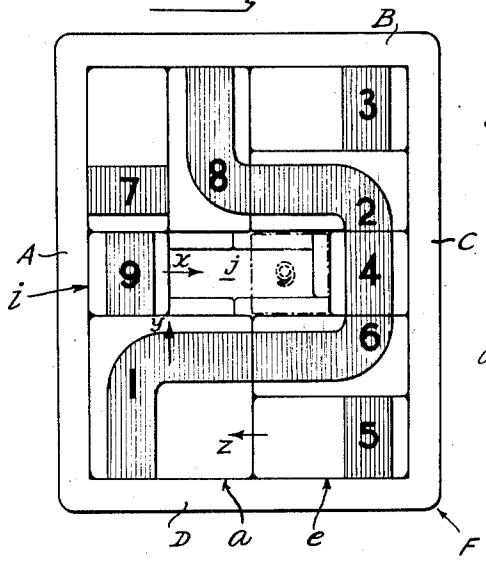


Fig. 10

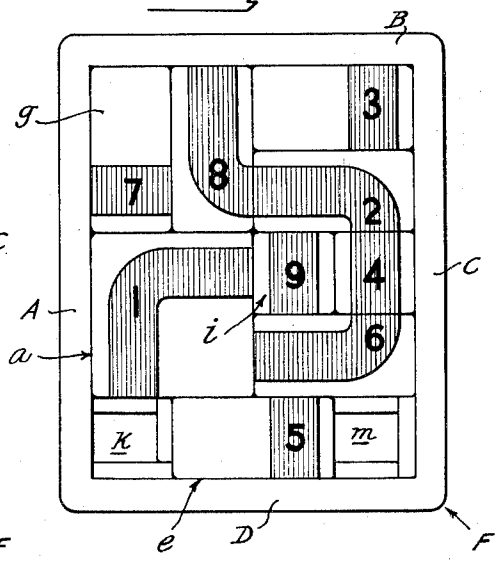
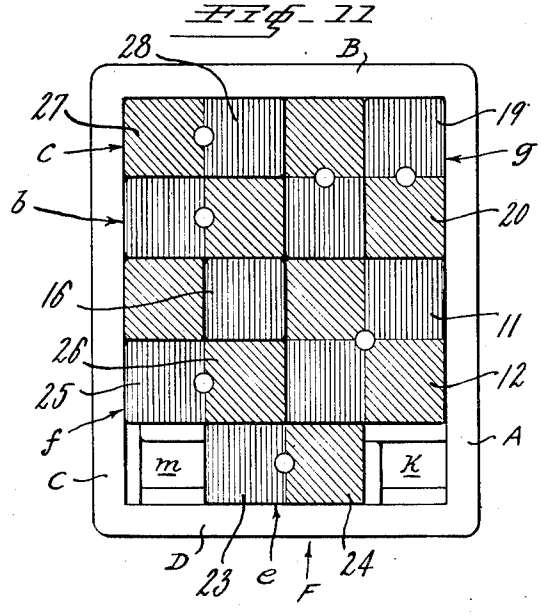


Fig. 11



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GAME BOARDS

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5 Claims. (Cl. 273—132)

This invention relates to game boards and more particularly to game boards with movable component parts or sections.

It is one of the prime objects of the present invention to provide means affording the creation of a game or puzzle board with movable or displaceable sections or elements of different sizes and shapes, whereby simultaneously the front and the reverse sides of the game board may be subjected to variations in design.

It is another object of the present invention to provide means facilitating the employment, in a game or puzzle, of a variety of movable sections of different dimensions in exercises requiring manual and mental dexterity to thereby bring about assembly of said sections in a variety of predetermined patterns.

It is still another object of the present invention to provide means conducive to facile and rapid manipulation of a plurality of movable sections or blocks, each having a predetermined value or number on one face and a color scheme on the other face, to thereby produce different esthetic effects both on the front and back surfaces of said board, as well as to permit distribution of said numbers in a multiplicity of sequential arrangements.

Yet another object of the present invention is to provide means presenting a novel and highly ingenious game or puzzle board employing a plurality of displaceable blocks or sections having opposite faces whereby a complete game or puzzle is defined on one side of said board without regard to the opposite side thereof.

A further object of the present invention is to provide means constituting a greatly improved and highly simplified game board including an open or hollow frame and a plurality of movable blocks therein and so constructed that the latter may be retained in the frame without the intermediary of any backing means, whereby separate games or puzzles at both faces of said frame are facilitated.

It is still a further object of the present invention to provide means permitting rapid and complete dismantling and reassembly of a plurality of movable blocks and a frame of a game or puzzle board, whereby said blocks may be returned to predetermined positions with minimum expenditures of time and effort.

The invention will be fully and comprehensively understood from a consideration of the following detailed description when read in connection with the accompanying drawings which form part of the application, with the understanding, however, that the improvement is capable of extended application and is not confined to the exact showing of the drawings nor to the precise construction described and, therefore, such changes and modifications may be made therein as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claims.

In the drawings:

Fig. 1 is a front view of a game or puzzle board embodying the invention and illustrating movable blocks of the board in starting position;

Fig. 2 is a sectional view of the board of Fig. 1, the section being taken along line 2—2;

Fig. 3 is a rear view of the board of Fig. 1, illustrating a design corresponding to the arrangement of the blocks as shown in Fig. 1;

Fig. 4 is a sectional view of the board of Fig. 1, the section being taken along line 4—4;

Figs. 5*a*, 5*b*, 5*c*, and 5*d* are front, back, side, and bottom views, respectively, of the "number 1" block employed in the game board according to the invention;

Figs. 6*a*, 6*b*, 6*c*, and 6*d* are front, back, side, and bottom views, respectively, of the "number 4" block employed in the game board according to the invention;

Figs. 7*a*, 7*b*, 7*c*, and 7*d* are front, back, side, and bottom views, respectively, of the "number 8" block employed in the game board according to the invention;

Figs. 8*a*, 8*b*, 8*c*, and 8*d* are front, back, side and bottom views, respectively, of the "number 2" block employed in the game board according to the invention;

Fig. 9 is a front view of a game board embodying the present invention and illustrating a further pattern and arrangement of numbers appearing on the blocks;

Fig. 10 is a front view of a game board embodying the present invention and illustrating a further arrangement of the blocks obtained by moving some of the blocks of Fig. 9 in directions indicated by the arrows; and

Fig. 11 is a rear view of a game board embodying the present invention and illustrating a design corresponding to the block arrangement of Fig. 10.

Referring now more particularly to Figs. 1 to 4, the game or puzzle board embodying the invention includes a hollow frame F having four side walls or frame elements A, B, C, and D and open front and rear faces. Frame elements A, B, and C are elongated, substantially rectangular bodies provided with guide means on their inner faces for a purpose to be more fully described below.

Frame element A, as may be seen from Fig. 4, is provided between its sides with two longitudinally extending grooves A^1 and A^2 separated by a longitudinally running ledge or tongue A^3. Frame element C is provided between its sides with two longitudinally extending ledges or tongues C^1 and C^2, separated by a longitudinal groove C^3. As may be seen from Fig. 2, frame element B is provided between its sides with a longitudinally extending ledge B^1 and a groove B^2 extending parallel therewith.

The remaining wall member or frame element D consists of two parallel, substantially rectangular slats or thin plates D^1 and D^2 having their corresponding extremities connected to opposite sides of frame elements A and C, respectively, opposite frame element B, thus leaving a space between said slats for a purpose to be more fully explained below. This space is filled, when the game board is in use, by an insert or closure member E. As may be seen from Fig. 2, insert member E has a flat bottom surface and a stepped upper surface, thus providing a ledge or key E^1 and two vertically spaced shoulders E^2 and E^3. These shoulders and the ledge of insert member E define, together with plates D^1 and D^2, a ledge and groove corresponding to the ledge and groove of frame element B. All the ledges and grooves of frame F are located in spaced, parallel planes between the aforesaid front and rear faces and on the inner facing sides of the frame elements and constitute the inner guide means herein referred to.

Slidably retained in frame F by means of the aforementioned inner guide means is a plurality of blocks, designated by reference characters *a* to *i*, each of said blocks being provided with outer guide means cooperating with the inner guide means of the frame. Each block has front and rear surfaces on which are provided

suitable designs or other identifying marks which, in cooperation with the designs or other insignia appearing on the remaining blocks, serve to define patterns or color schemes visible from the front and rear faces of the frame. The various blocks *a* to *i* have different shapes, and, in the illustrated embodiment, are either substantially square or rectangular. It will, however, be realized that these blocks may have any suitable shape, e. g., triangular or hexagonal, depending on the type of frame employed.

Block *a*, as may be seen from Figs. 5*a* to 5*d*, is substantially square in shape and is provided on its front face with a colored strip a^9 bearing a numeral 1, and on its rear face with four colored squares **11**, **12**, **13**, and **14** which, by way of example, are shown to be red and green squares diagonally arranged. At the top side or edge block *a* is provided with a ledge a^1 and a groove a^3 extending parallel to the flat faces of the block. A ledge a^2 and a groove a^4 are provided on the bottom side or edge of the block. On the right side of the block are formed two grooves a^5 and a^6, while on the left side two ledges a^7 and a^8 are formed.

As may be visualized from Figs. 5*a* to 5*d*, ledges a^1 and a^3 are actually a single ledge or projection provided with two perpendicular legs. This projection extends beyond the boundaries of the block at one corner thereof. Likewise, ledges a^2 and a^7 constitute the perpendicular legs of a single ledge or projection which extends beyond the boundaries of another corner adjacent to the first mentioned corner. In a similar manner, groove a^3 communicates with groove a^5 and groove a^6 communicates with groove a^4. It will, therefore, be apparent that the various ledges and grooves a^1 to a^8 cooperate with the various ledges and grooves, such as A^1 to A^3, of frame F to guide block *a* for sliding movement internally of the frame.

Block *d*, illustrated in Figs. 6*a* to 6*d*, is also substantially square but only one quarter as large as block *a*. It is provided on its front face with a colored strip d^9 bearing the number 4, and presents a green rear surface **15**. Like block *a*, block *d* is provided with a series of ledges and grooves d^1 to d^8 arranged substantially like the ledges and grooves of block *a*. As may be seen from Figs. 1, 9, and 11, for example, block *i*, which constitutes the "number 9" block, has a shape and a ledge and groove arrangement identical with that of block *d*. The rear surface of block *i*, however, is provided with a red square **16**, as may readily be seen from Figs. 3 and 11. As in the case of block *a*, the ledges project beyond two adjacent corners of their respective blocks.

Block *h*, as illustrated in Figs. 7*a* to 7*d*, has a substantially rectangular shape and is provided on its front surface with a colored strip h^9 bearing numeral 8 and on its rear surface with one red square **17** and one green square **18**. On its sides are formed, in a manner similar to that described with respect to block *a*, a series of ledges and grooves h^1 to h^8. Block *g* (number 7) is substantially identical with block *h* except for the number on its front face and the arrangement of the colored squares **19** and **20** on its rear surface. As may be seen from Figs. 3 and 11, on block *g* the red square **19** is adjacent the top end of the block while on block *h* the red square **17** is adjacent the bottom end of the block.

Block *b* is provided with a colored strip b^9 and numeral **2** on its front face and with red and green squares **21** and **22**, respectively, on its rear face, the block being substantially rectangular in shape. As in the case of the already described blocks, the "number 2" block is provided with a series of ledges and grooves b^1 to b^8. Blocks *c*, *e*, and *f* are substantially identical in shape and configuration with block *b*. As will be seen from Figs. 3 and 11, the color arrangements **23**—**24** and **25**—**26** on the back surfaces of blocks *e* and *f*, respectively, are identical with that of block *b* while the color arrangement **27**—**28** on the back of block *c* is the reverse of

that on the back of block *b*. Again as in the case of block *a*, the ledges of each of blocks *b*, *c*, *e*, *f*, *g* and *h* project beyond two adjacent corners of their respective blocks.

It is to be noted that all of the ledges and grooves of each block, like those of each frame element lie in two spaced parallel planes between the front and rear surfaces of the block.

The ledges and grooves of blocks *a* to *i* constitute the aforesaid outer guide means. As will furthermore be readily seen, the aforementioned ledges and grooves on the frame and on tthe blocks form tongue-and-groove joints operable to retain the blocks in the frame when a predetermined number of said blocks is located in said frame while permitting sliding movement of said predetermined number of blocks relative to said frame and relative to one another.

In order to facilitate manipulation of the various blocks exclusively from the rear face of the frame, all of the blocks other than blocks *d* and *i* are provided with markings or otherwise differentially colored areas at the junctions of the red and green squares. In the disclosed embodiment, these markings are shown as small white circular areas **29**, **30**, and **31**, respectively, on blocks *a*, *b*, and *h*. The presence of such a mark between any two or more colored squares indicates that these squares belong to the same block. It therefore becomes unnecessary to refer back to the front face of the game board in order to determine the outlines of the various blocks.

Blocks *c*, *e*, *f*, and *g* are provided with similar markings **32**, **33**, **34**, and **35**, respectively, on their rear faces. Blocks *d* and *i*, however, do not require any such marks, since each of these two blocks presents only a single colored square on its rear face.

As has already been indicated above, each of blocks *a* to *i* is provided on its front surface with a strip of material, shown to be red for purposes of illustration, in which the various numerals are located. In the disclosed exemplary embodiment of the invention, the blocks are constructed of a suitable plastic material by conventional molding procedures. Again, merely by way of example, the blocks are colored white as are the numerals in the red strips. Of course, any desired color combination other than red and white for the front and red and green for the back may be employed without departing from the scope of the present invention.

The puzzle or game board may be used as follows: Assuming that it is desired to start with a numerical arrangement, as illustrated in Fig. 1, all of the various blocks except block *g*, for example, may be inserted into the frame through the open faces thereof and the various ledges and grooves of the blocks and frame elements brought into engagement. Thereafter, slats D^1 and D^2, which, because of their relative thinness, are substantially resilient and deformable, are spread apart slightly and block *g* inserted therethrough into the frame to operative position, i. e., where its grooves and ledges engage the adjacent ledges and grooves of blocks *h*, *f*, and *e*. Finally, closure member E is inserted between slats D^1 and D^2 and the board is then ready for use.

In order to change the positions of the blocks so as to create different patterns, designs, or numerical arrangements, the various blocks which, by virtue of the interengaged ledges and grooves, are retained within the frame and prevented from falling out of the frame despite the open front and back faces thereof, must be moved along one another and along frame members A to D. The first step is to shift block *i* to the right in Fig. 1 through space *j*, which is twice as large as either of the small blocks *d* and *i*, until said block is immediately adjacent the "number 4" block. Thereafter, block *a* may be shifted downwardly into the space vacated by block *i*, or blocks *g* and *h* may be shifted upwardly into the same space.

When this has been done, either block *b* or block *f* may

be shifted to the left within the frame. Blocks *c, d, e,* and *i* can now be moved, depending on whether block *a* or blocks *g* and *h* were involved in the original sequence of movements. Subsequent manipulation of the various blocks, and especially of blocks *d* and *i,* will then enable the positions of block *a* and blocks *g* and *h* to be reversed in conjunction with a reversal of the positions of blocks *b* and *c* and a reversal of the positions of blocks *e* and *f.* This will bring about the arrangement of blocks illustrated in Fig. 9. Movement of blocks *i, a,* and *e* in the directions of arrows *x, y,* and *z,* respectively, then results in the arrangement of blocks illustrated in Figs. 10 and 11. It is to be noted that the size of each of spaces *k* and *m* thus formed is equal to that of either block *d* or block *i,* while the combined size of said spaces is equal to that of space *j.*

An alternative type of game results when the various blocks are moved from the rear of the frame while only their rear surfaces, i. e., the red and green squares, are observed. Thus, starting with the position of the blocks illustrated in Fig. 3, said blocks may be shifted back and forth until the design illustrated in Fig. 11 is attained, i. e., a green square in the upper left-hand corner and no two squares of the same color located side by side. The design as a whole then simulates a checker board. It is to be noted, however, that such a design need not have a configuration of strips and numbers on the front surfaces of the blocks identical with that of Fig. 10. Rather, it will be found that a number of different configurations of said strips and numbers may accompany a checker board design on the back of the board.

It will be readily apparent, therefore, that the game board according to the invention may be employed in any one of a number of ways. Thus, the blocks may be manipulated back and forth in order to produce some desired pattern out of the red strips on the front faces of the blocks either in conjunction with or without regard to any particular arrangement of the numbers and the design formed by the rear faces of the blocks.

Alternatively, the blocks may be manipulated to produce desired number arrangements, such as equal sums in all vertical columns and horizontal rows, with or without regard to either the pattern formed by the front strips or the design of the back squares. In addition, the blocks may be manipulated to produce a desired design of the colored squares on the rear surfaces of the blocks without regard to any pattern formed by the indicia on the front surfaces thereof.

While the game board according to the present invention has been described as constructed of one-piece blocks and a one-piece frame molded to shape, it is within the scope of the present invention to employ laminated blocks and frame elements constructed from a plurality of slats or plate-like elements of different widths. Thus, for example, each frame element A, B, and C as well as insert member E may be composed of a plurality of elongated, substantially rectangular slats or laminae cemented or otherwise joined together so as to produce the required ledges and grooves, the completed frame elements then being fused, cemented, or similarly united at their extremities to form the frame F.

Likewise, any of the blocks may be built up from a plurality of suitably shaped and dimensioned plates or laminae joined together to form the required ledges and grooves. The red strip on the front face of each block may be a raised portion of such block (or of the plate forming the front side of the block), or a separate strip attached to the block (or the plate), or simply a colored zone in the block (or plate) surface. Likewise, the colored squares may be composed of separate elements attached to the block or of colored zones directly on the block surface. The numbers, of course, may be either impressed into the strips or stand out therefrom in relief or may, if desired, not be associated with the strips at all.

As indicated above, the various parts of the game board may or may not be of different sizes and shapes. Moreover, other identifying insignia than the ones disclosed may be employed without departing from the spirit of the invention. Thus, a different set of numbers may be substituted for the numbers 1 to 9, and the colored rear sections may be replaced by curved- or straight-line patterns adapted to be matched up in different ways. The front and rear surfaces of the blocks need not be plane, of course, by virtue of the open front and rear faces of the frame, even though the frame retains the blocks in substantially coplanar relationship. In this manner, three-dimensional, pictorial designs such as landscapes, human figures, etc., in various degrees of bas and high relief may be formed on the surfaces of the blocks.

In summary, therefore, there has been provided in accordance with the invention a game board comprising a plurality of blocks having outer guide means engageable with one another, frame means for retaining said blocks in substantially coplanar relationship with one another and including inner guide means engageable with said outer guide means, there being provided a number of said blocks sufficient to fill said frame means except for a space of predetermined size equivalent to the size of at least one of said blocks, whereby said blocks may be selectively shifted from one position to another within said frame means, said frame means being provided with open front and rear faces, and each of said blocks having front and rear surfaces and bearing identifying indicia on said surfaces, whereby a plurality of different designs may be attained at each face of said frame means upon shifting of said blocks therewithin.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. A game board comprising a plurality of substantially rectangular blocks of different sizes, said blocks having front and rear surfaces and further having outer guide means engageable with one another, said outer guide means for each block comprising at least two lateral ledges and at least two lateral grooves located in at least two spaced, parallel planes between said front and rear surfaces, one of said ledges being arranged in one of said planes and projecting from first and second adjacent sides of said block, the other of said ledges being arranged in the other of said planes and projecting from a third side of said block opposite said first side and from said second side, one of said grooves being arranged in said one plane and extending along said third side and along a fourth side of said block, the other of said grooves being arranged in said other plane and extending along said first and fourth sides of said block, frame means provided with a central opening extending from the front to the rear of said frame means and including inner guide means engageable with said outer guide means for retaining said blocks in substantially coplanar relationship with one another and within said frame means, said inner guide means comprising a plurality of grooves and ledges located on the inner periphery of said frame means facing said opening and in said spaced, parallel planes for engagement with said ledges and grooves constituting said outer guide means of said blocks, respectively, there being provided a number of said blocks sufficient to fill said frame means except for a space of predetermined size equivalent to at least twice the size of the smallest one of said blocks, whereby said blocks may be selectively shifted from one position to another within said frame means without the intermediary of a back wall for the latter, said blocks bearing identifying indicia on said surfaces, whereby a plurality of different designs may be attained on said block surfaces upon shifting of said blocks within said frame means.

2. A board according to claim 1, said frame means comprising at least one frame element having spaced and deformable side members of reduced thickness and defining an aperture therebetween, said aperture being longer than the largest of said blocks and narrower than any of the latter, whereby a block may be inserted into or

removed from said frame means through said aperture upon deformation of said side members so as to widen said aperture, and an insert member fitting into said aperture for closing the latter, said insert member being shaped to present, in conjunction with said side members, a portion of said plurality of grooves and ledges for said frame means.

3. A board for puzzles and like games, comprising four elongated wall members joined to one another at their opposite ends to constitute a rectangular frame having front and rear faces and defining a central opening extending from said front face to said rear face, two opposite ones of said wall members being provided, respectively, at their sides facing said opening with a frame ledge and a frame groove extending longitudinally of said two wall members and in spaced, parallel planes located between said front and rear faces of said frame, said frame ledge of a first of said two wall members being coplanar with said frame groove of the second of said two wall members and said frame groove of said first wall member being coplanar with said frame ledge of said second wall member, a third of said four wall members being provided with two frame ledges extending longitudinally of said third wall member and in said spaced, parallel planes, the fourth of said four wall members arranged opposite said third wall member being provided with two frame grooves extending longitudinally of said fourth wall member and in said spaced, parallel planes, a plurality of rectangular blocks of different sizes located within said opening of said frame, each of said blocks being provided with a front surface and a rear surface, each block being further provided with two block ledges and with two block grooves, said block ledges being located, respectively, in said spaced, parallel planes, one of said block ledges of each block projecting beyond first and second adjacent sides of the respective block, the other of said block ledges of each block projecting beyond said second side and beyond a third side of said respective block adjacent said second side and opposite said first side, one of said block grooves of said respective block being coplanar with said one of said block ledges and extending along said third side and the fourth side of said respective block, the other block groove being coplanar with the other block ledge and extending along said first and fourth sides of said respective block, said block grooves and said block ledges of each block coacting with the block ledges and block grooves of the remaining blocks, respectively, and with said frame ledges and frame grooves of said wall members to permit slidable displacement of said blocks relative to one another and relative to said wall members within said frame without the intermediary of a back wall to cover said opening at said rear face of said frame, said blocks being provided on their front and rear surfaces, respectively, with means of identification, whereby said blocks may be selectively displaced within said frame to combine said means of identification to present a variety of patterns of predetermined characteristics at both said front and rear faces of said frame.

4. A board for games, puzzles and the like, comprising a frame having open front and rear faces, a plurality of four-sided blocks of different sizes movably located within said frame and having front and rear surfaces, respectively, and tongue-and-groove means on each block and on said frame for connecting said blocks to one another and to said frame to thereby permit slidable displacement of said blocks within said frame relative to one another and relative to said frame, said tongue-and-groove means for each block comprising at least two lateral tongues and at least two lateral grooves located in at least two spaced, parallel planes between said front and rear surfaces, one of said tongues being arranged in one of said planes and projecting from first and second adjacent sides of said block, the other of said tongues being arranged in the other of said planes and projecting from a third side of said block opposite said first side and from said second side, one of said grooves being arranged in said one plane and extending along said third side and along a fourth side of said block, the other of said grooves being arranged in said other plane and extending along said first and fourth sides of said block, said tongue-and-groove means on said frame comprising a plurality of tongues and grooves engaging and co-acting with said grooves and tongues on said blocks to retain the latter in said frame without necessitating provision of a back for the latter, said blocks being provided on said surfaces, respectively, with design means, whereby said blocks may be selectively displaced within said frame to combine said design means so as to prevent a variety of patterns of predetermined characteristics.

5. An element for use in a puzzle or game board, comprising a four-sided block having front and rear surfaces and provided with at least two lateral ledges and at least two lateral grooves located in at least two spaced, parallel planes between said front and rear surfaces, one of said ledges being arranged in one of said planes and projecting from first and second adjacent sides of said block, the other of said ledges being arranged in the other of said planes and projecting from a third side of said block opposite said first side and from said second side, one of said grooves being arranged in said one plane and extending along said third side and along a fourth side of said block, the other of said grooves being arranged in said other plane and extending along said first and fourth sides of said block.

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