

[54] SLIDABLE BLOCK PUZZLE

[76] Inventor: Frank W. Sinden, 106 Maple St., Summit, N.J. 07901

Primary Examiner—Anton O. Oechsle
Attorney, Agent, or Firm—George E. Kersey

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[57] ABSTRACT

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[51] Int. Cl. A63f 9/08
[58] Field of Search 273/153 S, 157 R

A mechanical puzzle in which a set of blocks is constrained by a frame of relatively narrow members to a space defined by one more than the number of blocks in the set. In particular, seven cubical blocks are constrained to an eight-cube space by a frame of narrow U-shaped members which lie in three mutually perpendicular planes. This affords enhanced visibility of the blocks and permits them to be slidable relative to one another within a simple, easily constructed frame.

[56] References Cited

UNITED STATES PATENTS

416,344 12/1889 Rice 273/153 S
1,518,889 12/1924 Wooster 273/153 S

FOREIGN PATENTS OR APPLICATIONS

675,678 7/1952 Great Britain 273/157 R

9 Claims, 4 Drawing Figures

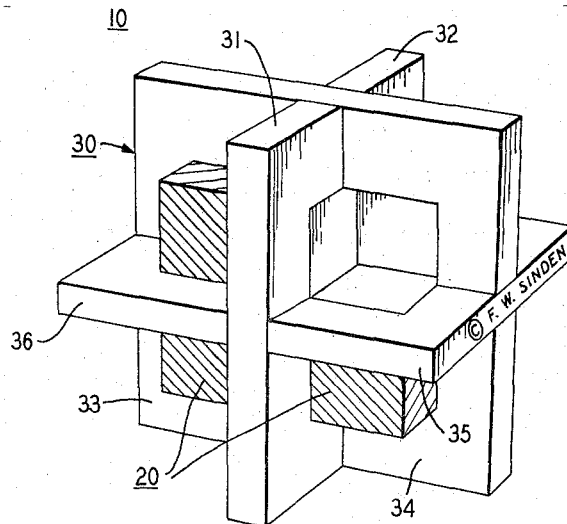


FIG. 1

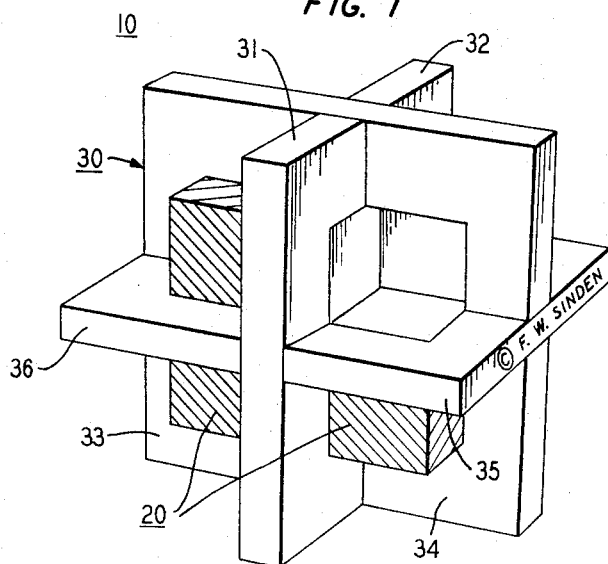


FIG. 2A

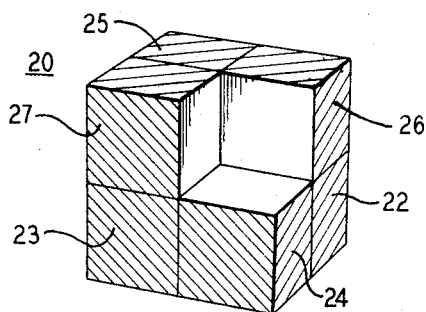


FIG. 2B

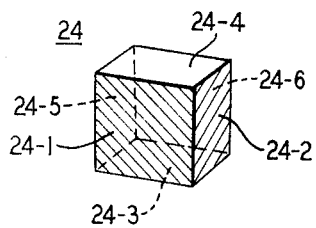
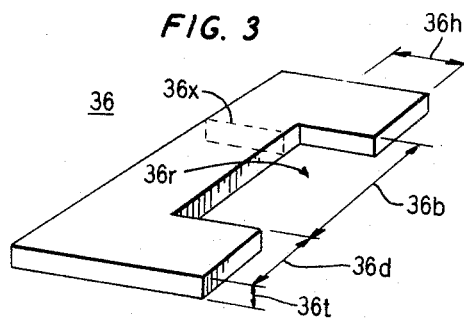


FIG. 3



SLIDABLE BLOCK PUZZLE

BACKGROUND OF THE INVENTION

This invention relates to mechanical puzzles, and more particularly to mechanical puzzles in which the playing pieces are slidable blocks.

Puzzles with slidable blocks are well known. One example is that of U.S. Pat. No. 416,344 which issued to C. I. Rice on Dec. 3, 1889. In the Rice patent, seven cubical blocks are placed in a box that has space for eight. The blocks have various indicia and are slidable relative to one another. The box has apertured side walls, a base and a glass cover. The result is that there is limited visibility of the blocks and of the indicia on the individual blocks. In addition, the construction and assembly of the puzzles are complicated by the requirement of different kinds of parts for the blocks and the use of different kinds of indicia on the blocks.

Accordingly, it is an object of the invention to simplify the construction and assembly of slidable block puzzles. A related object is to reduce the number of different parts needed for the construction of such a puzzle. Still another related object is to simplify the indicia used on the blocks without adversely affecting the challenge presented in solving the puzzle embodied in the blocks.

It is a further object of the invention to facilitate the manipulation of a slidable block puzzle. Another object is to increase the visibility of the slidable blocks within the frame of the puzzle. A further object is to achieve a slidable block puzzle which produces a striking visual effect.

SUMMARY OF THE INVENTION

In accomplishing the foregoing and related objects, the invention provides a slidable block puzzle in which the space occupied by a set of slidable blocks is girded by a frame along edges where the blocks are in contact with one another. In accordance with one aspect of the invention, the blocks are rectangular parallelepipeds in the form of cubes, and the space occupied by the blocks is equal to the total volume of the blocks plus the volume that would be occupied by one additional block.

In accordance with another aspect of the invention a plurality of contiguous faces of each block are occupied by one kind of indicia, and the remaining faces of each block are occupied by another kind of indicia. In an embodiment of the invention where the blocks are cubes, three adjoining faces have one kind of color indicia, and the three remaining faces have another kind of color indicia.

In accordance with still another aspect of the invention, the frame of the puzzle is formed by longitudinal members which span the space occupied by the blocks and each member has a width in a plane perpendicular to the direction of span which is less than the smallest measurement dimension of any individual block.

In accordance with a further aspect of the invention, the longitudinal members which span the space occupied by the blocks have rectangular cross sections, of which the major dimension is perpendicular to the face that is spanned. In accordance with still further aspects of the invention, each member of the frame has a rectangular recess adjoining the space that is spanned, and the members constituting the frame are disposed in three mutually perpendiculars, with the members in a

first plane clamping the members in a second plane which clamp the members in a third plane that in turn clamp the members in the first plane.

DESCRIPTION OF THE DRAWINGS

Other aspects of the invention will become apparent after considering several illustrative embodiments, taken in conjunction with the drawings in which:

FIG. 1 is a perspective view of a slidable block puzzle in accordance with the invention;

FIG. 2A is a perspective view of the individual blocks confined within the frame of the puzzle shown in FIG. 1;

FIG. 2B is a perspective view of an individual block from the set of blocks shown in FIG. 2A, illustrating the color indicia applied to the blocks;

FIG. 3 is a perspective view of a member of the frame of the slidable block puzzle of FIG. 1.

DESCRIPTION OF THE ILLUSTRATIVE EMBODIMENTS

Turning to the drawings, a perspective view of the puzzle 10 in accordance with the invention is shown in FIG. 1. The puzzle is formed by a set of blocks 20 that are slidable relative to one another within a frame 30.

The frame 30 is configured to confine the blocks 20 within an interior space without significantly curtailing their viewability. For that purpose, the frame 30 girds the space occupied by the blocks 20 over the regions where they are in contact with one another, and is formed by wall members with relatively narrow widths. To simplify the assembly of the frame 30, it is advantageously formed by identical members, such as the six members 31 through 36.

The constituent blocks of the set 20 are shown in FIG. 2A. In the particular embodiment of FIG. 2A, there are seven individual cubes 21 through 27, which are confined within an overall cubical space that measures 2 units on each side and has a total volume of eight cubical units. Seven units of volume are therefore always occupied by the constituent blocks 21 through 27 of the set 20. The result is an overall cubical pattern with one corner missing. By sliding the constituent blocks 21 through 27 relative to one another, the missing corner can be moved from one region of the puzzle to another. The blocks 21 through 27 are easily moved from one position to another within the frame by tilting it. Thus, if the frame 30 is tilted to the right in FIG. 1, block 27 will slide into the empty position. Conversely if the frame is turned upside down, the block 24 will slide into the empty position.

In addition, the constituent blocks 21 through 27 are color coded in the manner illustrated for the block 24 shown in FIG. 2B. Each of the individual cubical members 21 through 27 has six faces, of which three adjoining faces are of one color and the three remaining faces are of another color. For the particular block 24 shown in FIG. 2B, the three contiguous faces 24-1 through 24-3 are colored black while the remaining faces 24-4 through 24-6 are colored white. In one manipulation of the puzzle 10, the blocks are slidably moved relative to one another until all of the corner positions are of one color, for example black. The result is the formation within the frame 30 of what appears to be an overall cube of the selected color, except at the missing corner position. It can be demonstrated mathematically that if

the overall cube is realized for one color (except at the vacant corner position), an overall cube of the remaining color cannot be realized. Once a player has achieved one kind of overall color configuration, he can thereafter attempt (in vain) to achieve the other kind of overall color configuration.

Because of the relative thinness of the members 31 through 36 of the frame 30, there is increased visibility of the constituent blocks 21 through 27, and the visual effect that results from the manipulation of the blocks is enhanced.

The frame 30 is desirably formed by six identical, U-shape members which span the space occupied by the blocks, of which one such member 36 is shown in FIG. 3. The member 36 is of rectangular cross section with the major dimension of the rectangle perpendicular to the direction of span. The overall configuration of the member 36 is rectangular, with a rectangular recess 36r. The recess has a base 36b, which is 2 units in length, and a height 36h, which is less than one unit in length. The member 36 forms a portion of the overall wall of the frame 30 with a depth 36b that is illustratively one unit in length.

As can be seen from FIG. 1, the member 35 coacts with its coplanar member 36 and clamps the vertically disposed members 31 and 32 between them. The width 36t of the member 36, and thus the width of the member 31, is 2 units minus twice the height of the recess 36h. The members 31 and 32 clamp the members 33 and 34 between them. The latter in turn clamps the members 35 and 36 between them.

As a result the members 31 through 36 of the frame 30 are disposed in three mutually perpendicular planes to form an easily constructed frame that is able to retain the constituent blocks 21 through 27 of the puzzle within a space of prescribed volume, without significantly curtailing the viewability of the blocks and permitting ready manipulation of the blocks in an attempt to achieve the particular result that is desired.

It will be appreciated that while exteriors of the members 31 through 36 for the frame 30 are shown with square corners, a wide variety of other configurations may be employed. Thus, the corners can adopt a wide variety of other forms.

Furthermore, the foregoing detailed description is to be understood as being illustrative only and that vari-

ous changes in parts, shapes and proportions, and the substitution of equivalents for the elements and constituents shown and described, can be made by those of ordinary skill in the art without departing from the spirit and scope of the invention.

What is claimed is:

1. A mechanical puzzle comprising a plurality of blocks contiguously contacting one another within a space greater than that defined by said plurality; and a frame comprising longitudinal members, each member having a longitudinal dimension and a width perpendicular to said longitudinal dimension less than the maximum dimensional measurement of any block, said members being disposed with their widths covering edges where said blocks are in contact with one another such that portions of said blocks away from said edges are not obscured thereby.

2. A mechanical puzzle as defined in claim 1 wherein said space is defined by said plurality of blocks plus one; and said blocks are rectangular parallelepipeds.

3. A mechanical puzzle as defined in claim 2 wherein said parallelepipeds are cubes.

4. A mechanical puzzle as defined in claim 2 wherein each of said blocks have six faces of which three adjoining faces have one kind of indicia and the remaining three faces have another kind of indicia.

5. A mechanical puzzle as defined in claim 4 wherein the first kind of indicia is a first color and the second kind of indicia is a second color, different from the first.

6. A mechanical puzzle as defined in claim 2 wherein said members have rectangular cross sections, of which the major dimension is perpendicular to the direction of span.

7. A mechanical puzzle as defined in claim 6 wherein each member of said frame has a rectangular recess adjoining the space that is spanned.

8. A mechanical puzzle as defined in claim 6 wherein the longitudinal members of said frame are disposed in three mutually perpendicular planes.

9. A mechanical puzzle as defined in claim 8 wherein the members in a first plane clamp the members in a second plane, which clamp the members in a third plane, which in turn clamp the members of said first plane.

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