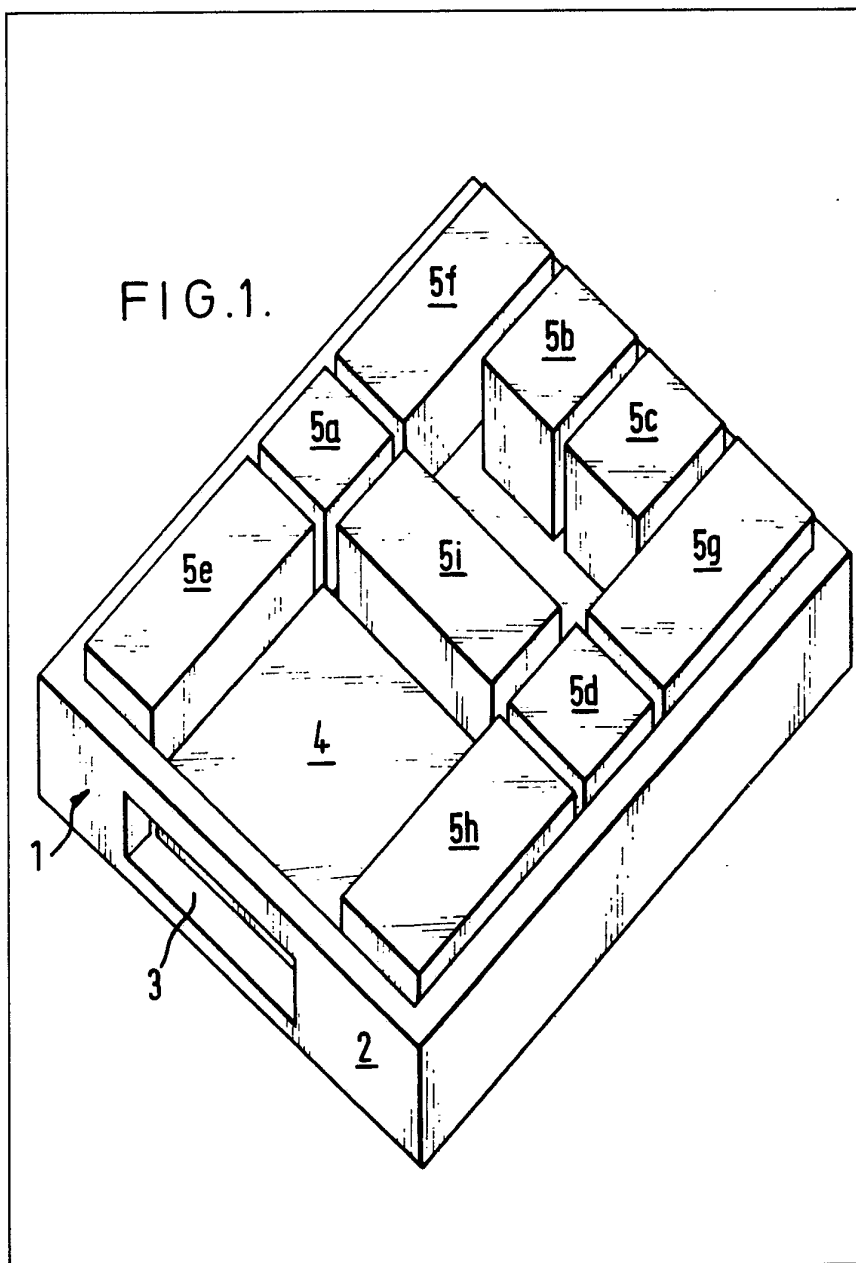


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(54) Puzzle

(57) The puzzle comprises a frame having an aperture 2 in a side wall 3 thereof; a first element 4 which can be positioned in the frame and which can

be removed from the frame through said aperture; and a plurality of further elements 5 which can be positioned within the frame but cannot be removed from the frame through said aperture; wherein all the elements can be simultaneously positioned in the frame to fill substantially the frame but to leave a space at least double in area to the smallest in area of said further elements so that the elements can be moved at least one at a time to a plurality of positional states.



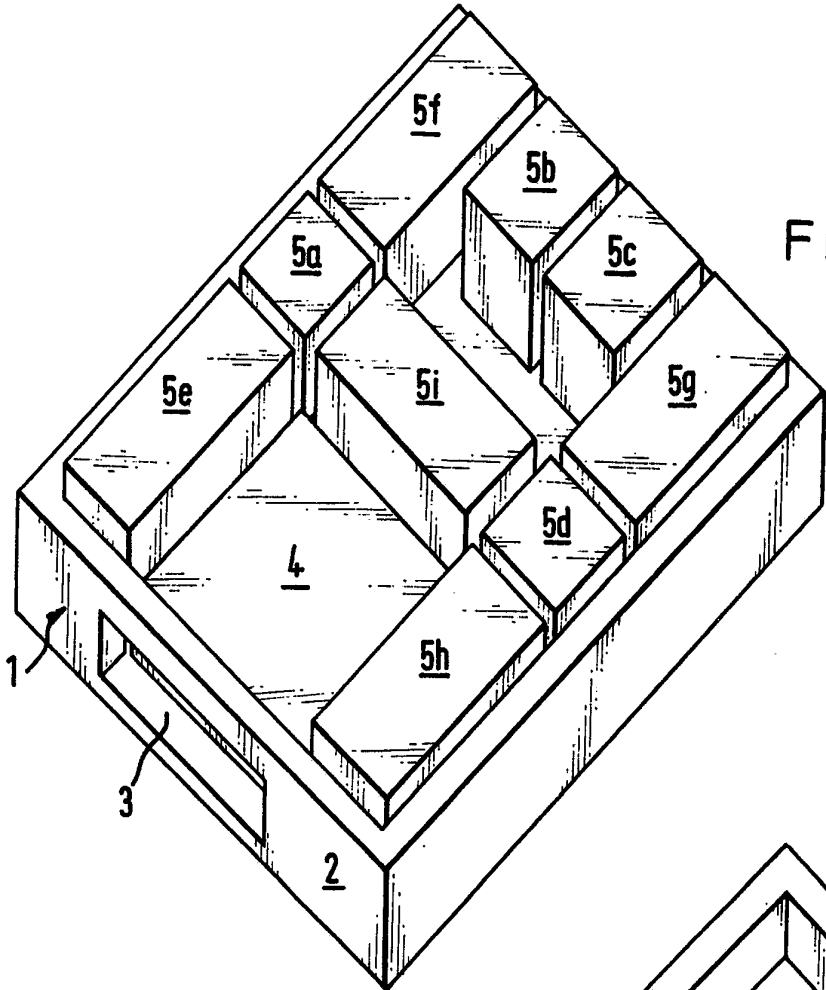


FIG. 1.

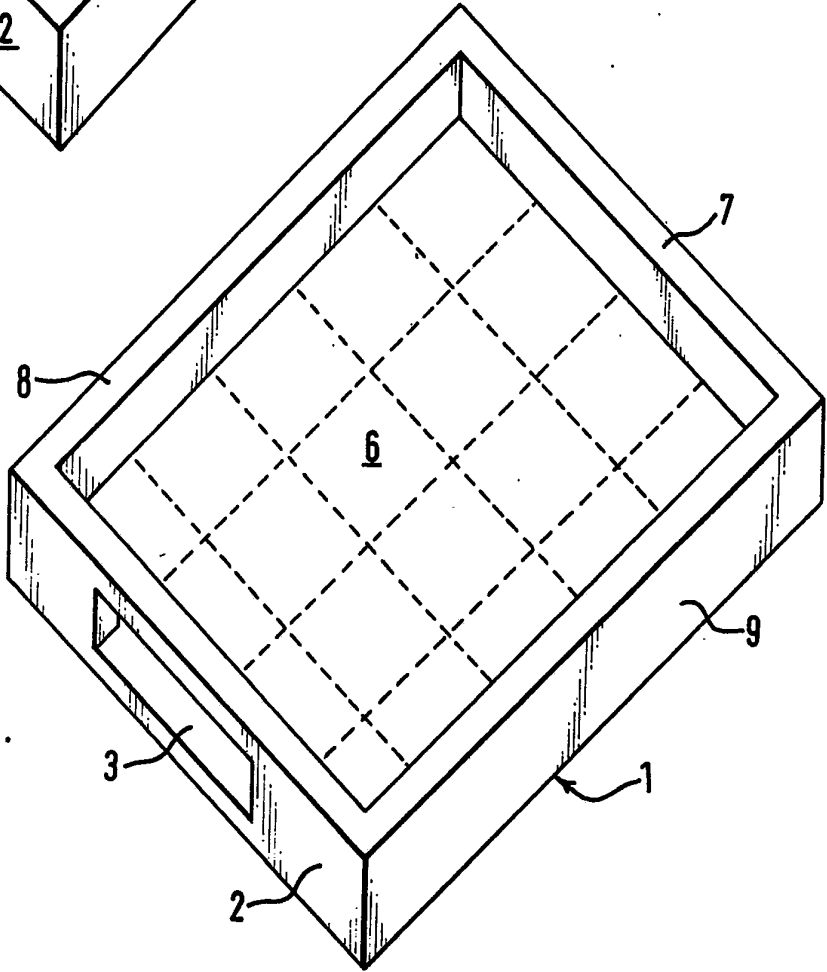


FIG. 2.

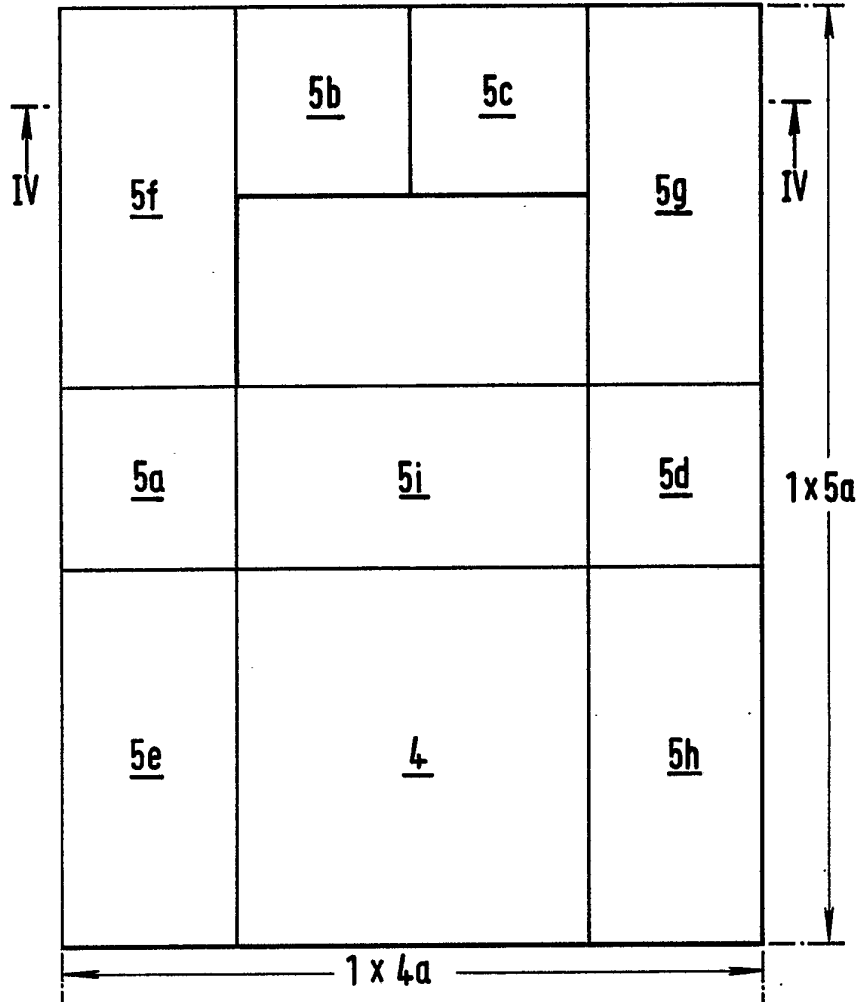


FIG. 3.

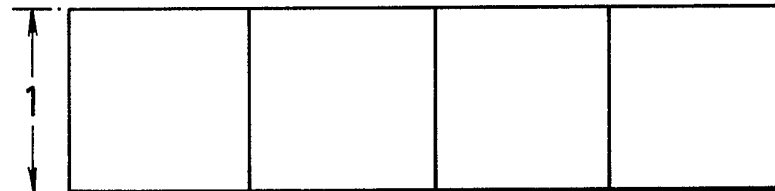
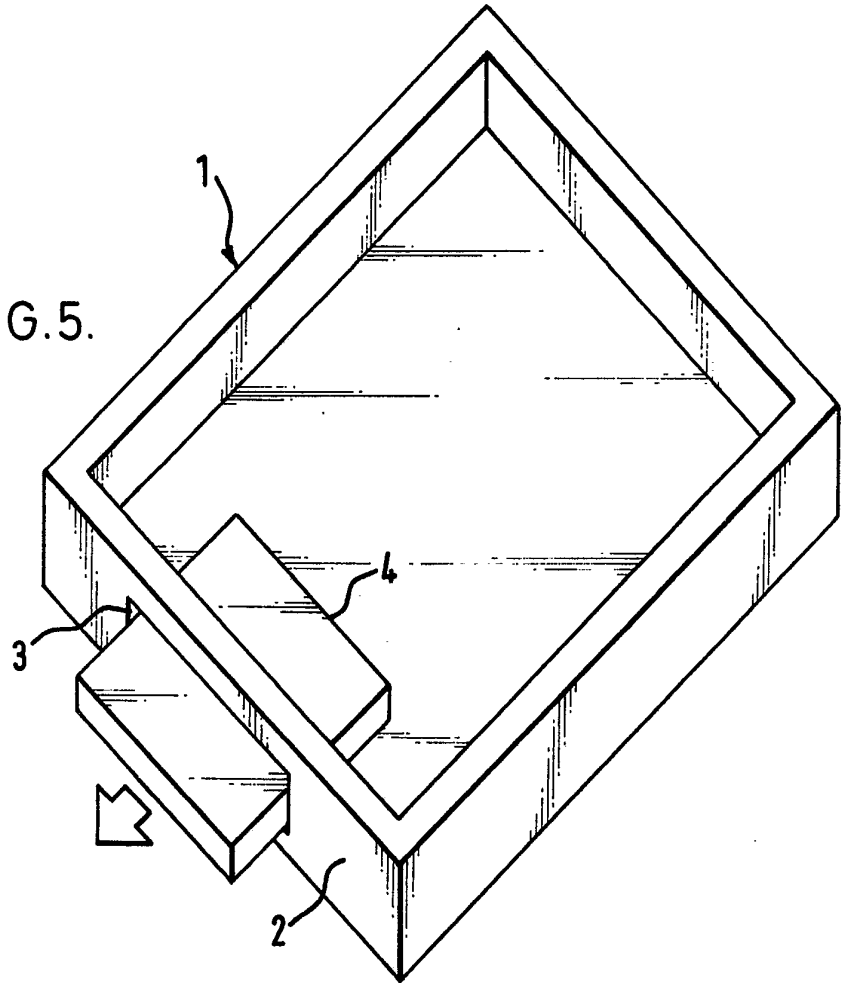


FIG. 4.

FIG. 5.



5a,b,c or d

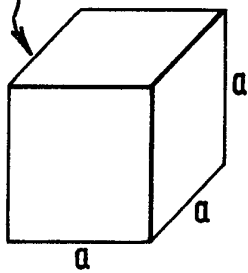


FIG. 6A.

5e,f,g,h or i

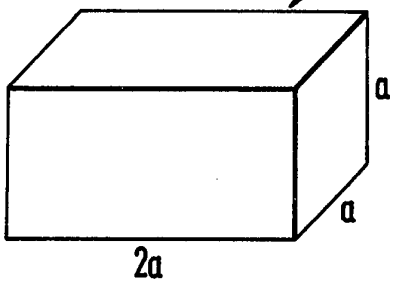


FIG. 6B.

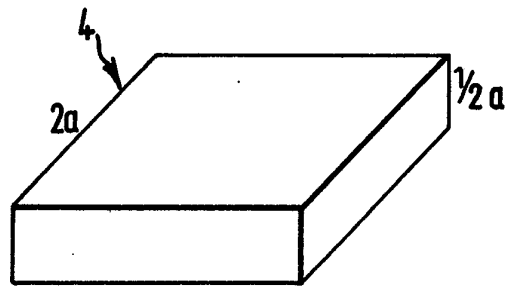


FIG. 6C.



FIG. 7A.

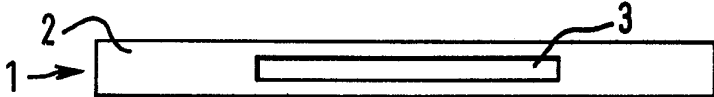


FIG. 7B.

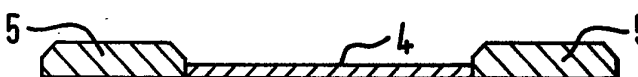


FIG. 7C.

SPECIFICATION

Puzzle or game

- 5 The present invention relates to a puzzle or game.
 In accordance with the present invention, there is provided a puzzle or game, comprising: a frame having an opening or aperture in a side wall thereof; a first element which can be positioned in the frame and which can be removed from the frame through said opening or aperture; and a plurality of further elements which can be positioned within the frame but cannot be removed from the frame through said opening or aperture; wherein all the elements can be simultaneously positioned in the frame to fill substantially the frame but to leave a space at least double in size to the smallest of said further elements so that the elements can be moved at least one at a time to a plurality of positional states, in at least one of which the first element can be removed from the frame through said aperture or opening without disturbing the other element and in a plurality of which the first element cannot be so removed through the aperture or opening.
- 25 Preferably the further elements have, in plan, straight edges each an integral number of units long, and the interior of the frame has, in plan, straight edges each an integral number of said units long, both the further elements and the interior of the frame being square or rectangular in plan. Preferably also the first element has in plan, straight edges an integral number of said units long and is square or rectangular in plan.
- A puzzle embodying the invention is described below by way of example with reference to the accompanying drawings, wherein;
- Figure 1* is a perspective view of the puzzle showing the movable elements in one positional state;
- 40 *Figure 2* is a perspective view of the frame of the puzzle;
- Figure 3* is a plan view of the movable elements in the same positional state as in *Figure 1*;
- Figure 4* is a section along line IV-IV of *Figure 3*;
- 45 *Figure 5* is a perspective view of the frame and the first element of the puzzle;
- Figures 6A, B and C* are perspective views of the movable elements showing their relative dimensions;
- 50 *Figure 7A* is a section centrally through a modified frame;
- Figure 7B* is a front view of the modified frame; and
- Figure 7C* is a section through some modified movable elements for use with the frame of *Figures 7A and 7B*.
- Referring to the drawings, the puzzle shown therein comprises a rectangular frame or tray 1, in a front wall 2 of which is provided an aperture 3, and a first movable element or unit 4 and nine further movable elements or units 5, each individually denoted by a suffix *a* to *i*.
- The frame 1 is provided with a base 6 having upstanding side walls, namely the aforementioned wall 2 and walls 7, 8 and 9. Internally the frame is slightly over four units (*a*) wide along its wall 2 and its opposite wall 7 and slightly over five units long along its walls 8 and 9. The base 6 is shown divided into notional unit squares of side *a* in *Figure 2*. The aperture 3 is disposed in the wall 2 midway between its ends and with its lower edge flush with the base 6. The aperture 3 is slightly over 2 units long and one half unit high.
- The element 4 is in the form of a square slab, one half unit thick and with sides 2 units long (see *Figure 6C*).
- The elements 5 are in the form of blocks. More specifically the elements 5*a, b, c* and *d* are cubes with edges one unit long and the elements 5*e, f, g, h* and *i* are rectangular blocks 2 units long, and one unit wide and one unit deep (see *Figures 6A and D*).
- It will be appreciated that the element 4 can pass through the aperture 2 (as shown in *Figure 5*) but the elements 5 are unable to pass through the aperture.
- 85 In one mode of operation of the puzzle all the elements 4 and 5 are placed in the frame 1 in the positions shown in *Figures 1 and 3*. It will be seen that a space two units by one unit is left unoccupied by the elements. The elements 4 and 5 are then shuffled around in the frame, that is they are slid one at a time on the base 6 of the frame in directions parallel to the sides of the frame so that the element 4 is moved away from the aperture 2, one or more elements 5 being interposed between the aperture 2 and the element 4 and/or the element 4 being laterally offset to the left or right (as viewed in *Figure 3*) from the aperture 2. As viewed in *Figure 4*, the initial moves in this shuffling may be: moving the element 5*b* one unit downwards; moving the element 5*b* one unit to the left; moving the element 5*f* one unit to the left; moving the elements 5*a* and 5*e* two units upwards; and moving the element 4 one unit to the left. (The terms "upwards" and "downwards" as here used with reference to *Figure 3* only: in practice the frame would be horizontal.)
- By continuing such shuffling eventually the elements 4 and 5 will attain positional states such that the element 4 is moved away from its initial position in *Figure 1*, one or more elements 5 being interposed between the aperture 2 and the element 4 and/or the element 4 being laterally offset to the left or right of its initial position, so that the element 4 cannot be removed or ejected from the frame 1 through the aperture 3 without first further moving the elements 4 and 5 around in the frame.
- To solve the puzzle, the elements 4 and 5 are shuffled or moved around in the frame 1 one at a time without removing them from the frame with the object of causing the element 4 to arrive at a position (in this case its initial position) in which it is aligned with and immediately adjacent the aperture 3 so that it can be removed or ejected from the frame through the aperture 3.
- In an alternative mode of operation of the puzzle, the elements 4 and 5 are placed in random positions in the frame. Attempted solving of the puzzle is as described in the preceding paragraph. However, depending on the initial position of the elements the puzzle may be insoluble. I.e. it may not be possible to cause the element 4 to arrive at the position in which

it is aligned with and immediately adjacent the aperture 3 so that it can be ejected through the aperture.

The parts of the puzzle (i.e. the frame 1 and the elements 4 and 5) may be made, for example, of plastic, metal, ceramic material, glass or marble or other stone.

The parts of the puzzle may be covered in, for example, fabric, paper, cardboard or laminated plastics.

The parts of the puzzle may be one colour or different colours and may have a smooth or textured surface.

Also, the parts of the puzzle may carry literary or graphic matter, e.g. advertising, logos or insignias, or instructions for operating the puzzle or other information, and such literary or graphic material may be printed or incised on the parts of the puzzle.

Figures 7A to 7C relate to a modification of the puzzle described above, wherein the walls of the frame 1 is lower, the elements 4 and 5 are thinner but the same size in plan as the elements 4 and 5 referred to above and the aperture 3 is correspondingly reduced in height.

As shown in Figure 7C, the upper edges of the elements 5 may be chamfered.

CLAIMS

1. A puzzle or game, comprising: a frame or tray having an opening or aperture in a side wall thereof; a first element which can be positioned in the frame and which can be removed from the frame through said opening or aperture; and a plurality of further elements which can be positioned within the frame but cannot be removed from the frame through said opening or aperture; wherein all the elements can be simultaneously positioned in the frame to fill substantially the frame but to leave a space at least double in area to the smallest in area of said further elements so that the elements can be moved at least one at a time to a plurality of positional states, in at least one of which the first element can be removed from the frame through said aperture or opening without disturbing or moving the other elements and in a plurality of which the first element cannot be so removed through the aperture or opening.

2. A puzzle or game according to claim 1, wherein the further elements have, in plan, edges each an integral number of units long, and the interior of the frame has, in plan, edges each an integral number of said units long.

3. A puzzle or game according to claim 2, wherein the first element has, in plan, edges an integral number of said units long.

4. A puzzle or game according to claim 2, wherein said edges are straight edges.

5. A puzzle or game according to claim 1, wherein the interior of the frame is square or rectangular.

6. A puzzle or game according to claim 1, wherein said further elements comprise elements of two different sizes in area.

7. A puzzle or game according to claim 6, wherein the larger elements are in plan of a size and shape formed by a multiple of the size and shape of the

smaller elements.

8. A puzzle or game according to Claim 6, wherein the smaller elements are square in plan and the larger elements are rectangular in plan.

9. A puzzle or game according to claim 8, wherein the first element is square and has edges equal in length to the length of said rectangular further elements.

10. A puzzle or game according to claim 1, wherein said opening or aperture is in the form of a slot.

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