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(54) **Shunting puzzle**

(57) The puzzle comprises a body having an opening (5) through which is displayed a plurality of colored or patterned tiles (6) in e.g. a 4 × 4 array. The array is altered by manipulation of elongate tile carriers (7-9, 14-16) into and out of the body.

A hole (39) is provided for hanging the puzzle on a chain as a pendant or novelty.

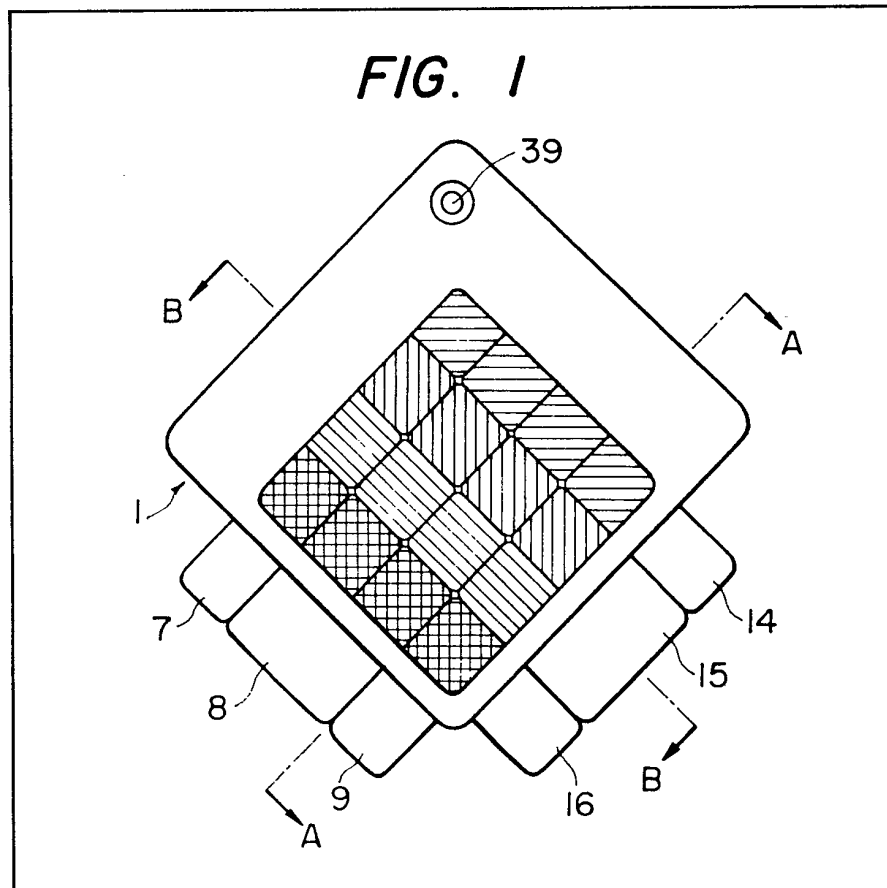


FIG. 1

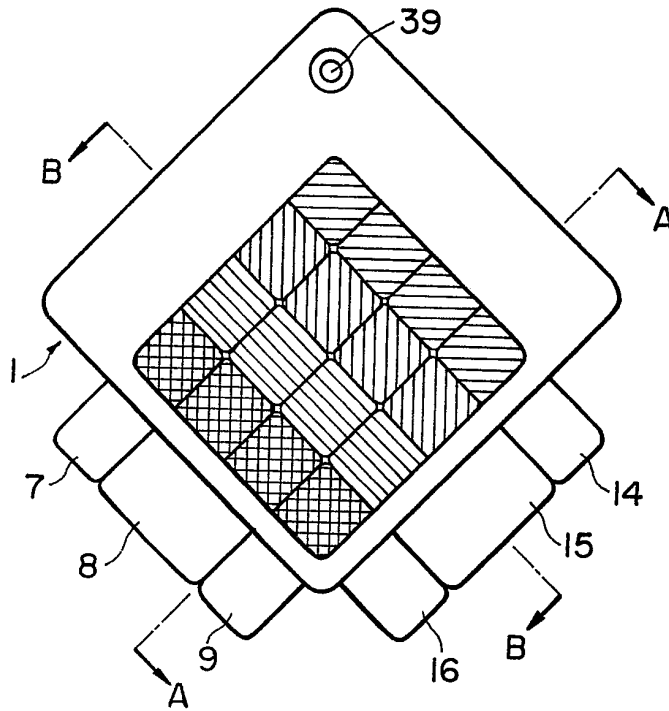
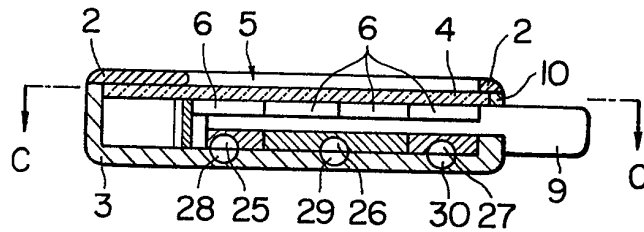


FIG. 2



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FIG. 3

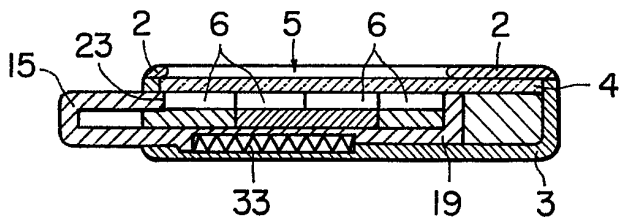


FIG. 5

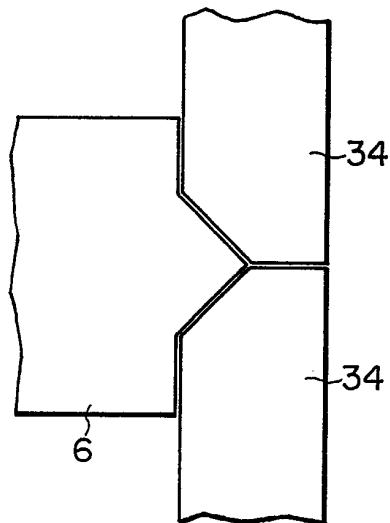


FIG. 4

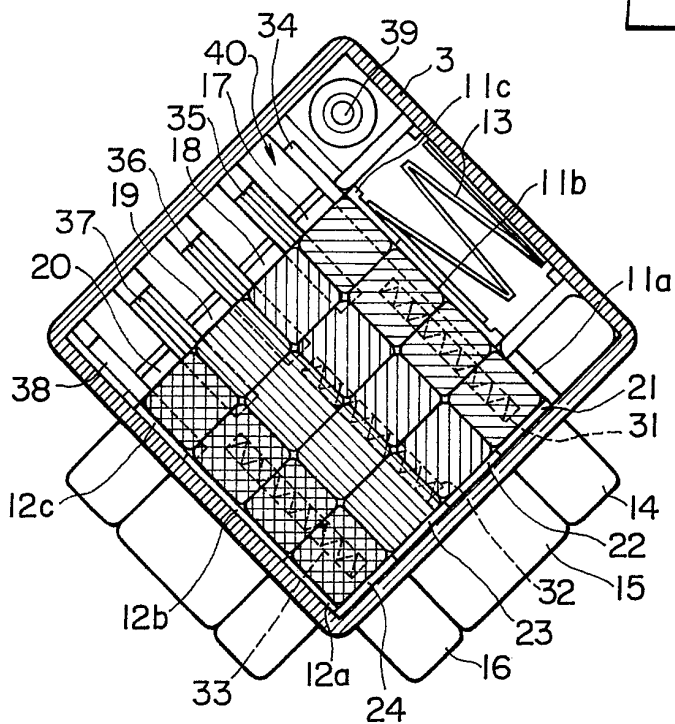


FIG. 6

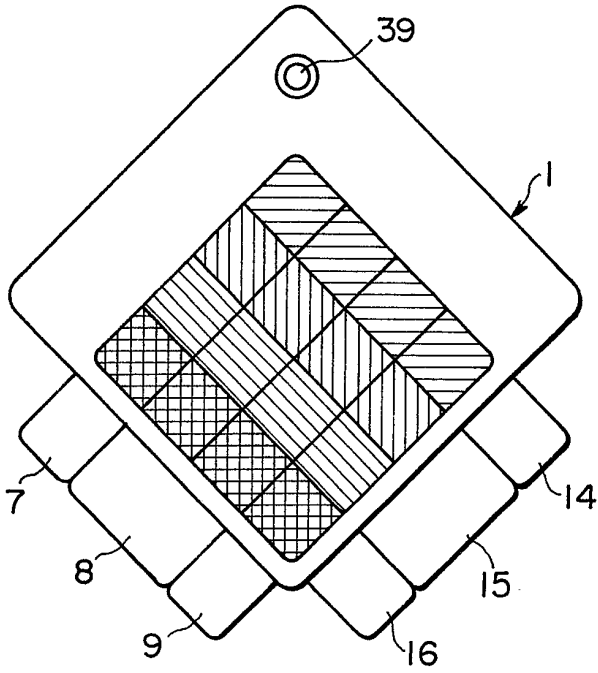


FIG. 7

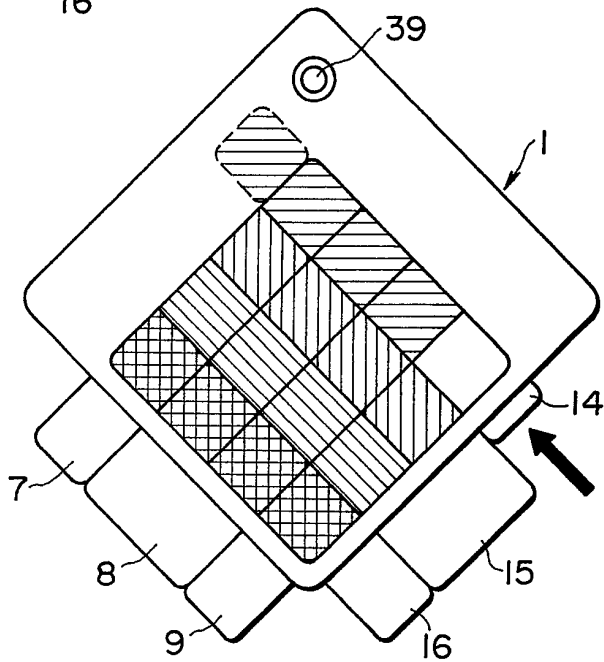


FIG. 8

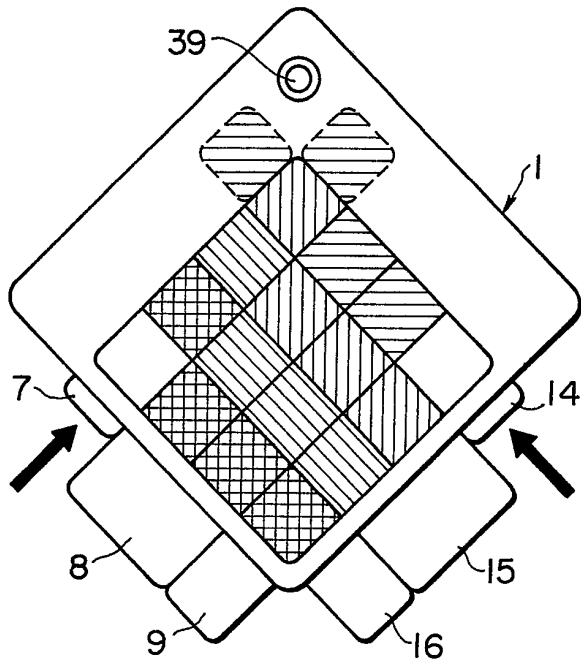


FIG. 9

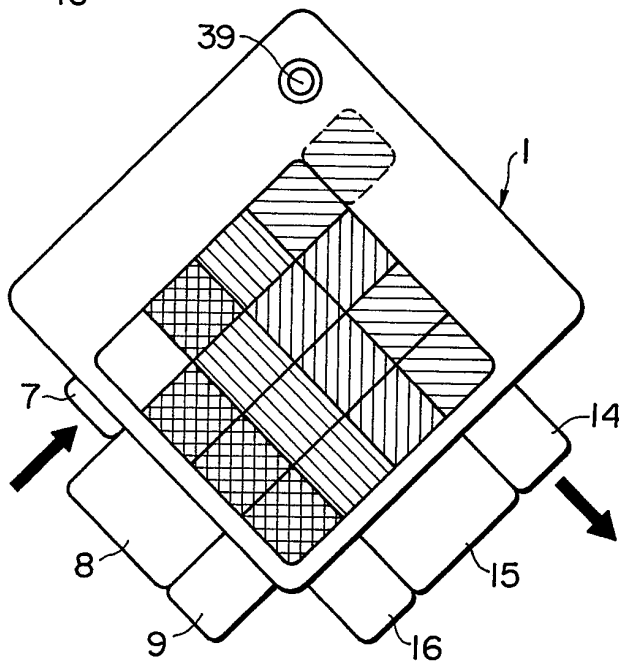
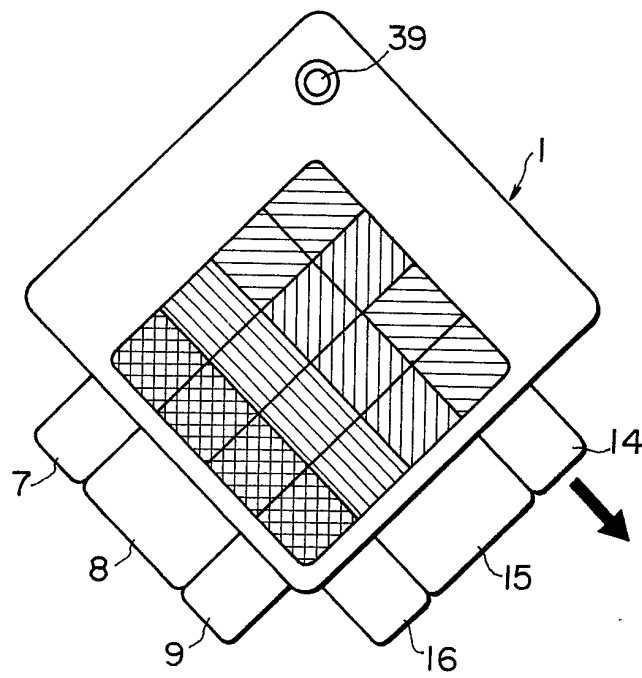


FIG. 10



SPECIFICATION

Plaything

5 This invention relates to a plaything or puzzle, and more particularly to a plaything or puzzle which may be used as a pendant for wear. The plaything or pendant according to the invention comprises an array of pieces, the usual appearance of which can be changed by alteration of the relative position of the pieces, and can thus serve as a puzzle by making use of such a pattern change.

10 Most pendants which are presently available are constructed from art pieces and naturally occurring objects, and are not readily susceptible to variation. To add variation to daily life, therefore, an individual must possess a considerable number of different pendants.

20 According to the invention, there is provided a plaything comprising a container, a plurality of differently coloured or patterned pieces, arranged in a two dimensional array in the container, a window to enable the pieces to be viewed from the exterior of the container whilst retaining them therein, and means operable from the outside of the container to enable the relative positions of the said pieces in the array to be changed.

30 In a second aspect of the invention, there is provided a pendant which comprises a box or body having in its one plane an opening to be covered with a transparent plate from inside, and a plurality of differently coloured or patterned pieces, which are two-dimensionally aligned in said box or body and below said opening, an array of said pieces being designed to be altered from the outside of said box. Alteration of, for instance, a four-by-four array of pieces and hence of a pattern defined by said array of pieces may be easily achieved by manual means extending from the body. By these means, the pendant according to the present invention can be used as a puzzle or plaything.

A preferred embodiment of the invention will now be described with reference to the accompanying drawings, in which:-

45 *Figure 1* is a plan view of a preferred embodiment of the present invention;

Figure 2 is a sectional view taken along the line A-A of *Figure 1*;

50 *Figure 3* is a sectional view taken along the line B-B of *Figure 1*;

Figure 4 is a sectional view taken along the line C-C of *Figure 2*;

Figure 5 is a partially enlarged section of the engagement of one piece with guides; and

55 *Figures 6 to 10* are plan view of the embodiment in use.

Referring now to the drawings, in particular to *Figures 1 to 4*, there is shown a preferred embodiment of the plaything according to the present invention and adapted for use as a pendant, which includes a pendant body 1 in the form of a box comprising a lid member 2 and a bottom member 3, both being formed of a rigid synthetic resin material. The lid member 2 has therein an opening 5 covered with a transparent plate 4 from inside.

Below the opening, there are a plurality of rectangular blocks or pieces 6, e.g., four blocks by four blocks. Each block has its flat planes coloured or patterned.

70 Formed of the same material as that of the body 1, retaining plates 7 to 9 are loosely placed in the body 1 with their one ends extending from the body 1 and serve to loosely hold the pieces 6 between them and the transparent plate 4 in a position below the opening 5. These plates are provided with projections 11a to 11c and 12a to 12c at their other ends and their portions corresponding to the side 10 of the body 1, said projections flushing with the pieces 6 and serving to hold the pieces 6 in order to prevent them from dislodging from the retaining plates 7 to 9 in the horizontal direction.

80 While the retaining plate 7 is fixed to the body 1, the retaining plates 8 and 9 are placed in the body 1 in such a manner that they are movable by a distance corresponding to one piece 6.

A W-shaped spring 13 is disposed between the retaining plates 8 and 9 and the inner side of the bottom member 3 of the body, and always urges such plates 8 and 9 against the opposite side thereof.

90 Although not illustrated, it should be noted that the retaining plates 8 and 9 are provided on their rear planes with projecting pieces which engage with the sides of the bottom member 3 to keep them at the given positions against the resiliency of the spring 13.

100 Formed of the same material as that of the body, manual pieces 14 to 16 are inserted into the body in a direction perpendicular to the retaining plates 7 to 9 to permit horizontal movement of the pieces 6 arranged on the plates 7 to 9 by a distance corresponding to one piece 6 in a direction normal to their movement caused by the retaining plates 7 to 9. Each manual piece has one end extending from the body and the other end provided with upward extensions 17, (18, 19) or 20. The said one ends of the manual pieces 14 to 16 are U-shaped in longitudinal section with their points 21 to 24 abutting upon the relative pieces 6 to assure a given array thereof.

105 The manual pieces 14 to 16 and the bottom member 3 are provided in their rear planes and the side plane with grooves 25 to 27 and 28 to 30 which are semi-cylindrical in section. Spaces defined by these grooves receive coil springs 31 to 33 which always bias the manual piece 14 to 16 against the body 1. The bottom member 3 is provided inside with guides 34 to 38 to prevent the pieces 6 from dislodging from the manual pieces 14 to 16 when they are on the move.

120 Better results are obtained if the pieces 6 are engaged with the guides 34 to 38 as shown in *Figure 5*.

Reference numeral 39 stands for a through-hole for attaching a chain or thong (not shown), to the body 1.

125 The pattern displayed below the opening 5 is changed by altering an array of the pieces aligned in the body 1. This will now be explained with reference to *Figures 6 to 10*.

130 In *Figure 6*, there is shown a four-by-four array of the pieces 6 wherein the pieces 6 are aligned

longitudinally in four rows according to the pieces of the same type. To alter this array, the manual piece 14 is first forced into the body 1 by fingers as shown in Figure 7, whereby the piece 6 at the uppermost end is moved into a void 40 together with the manual piece 14. Subsequently, the projecting end of the retaining plate 7 is forced into the body while the manual piece 14 is left untouched. Even if a pressure applied on the manual piece 14 is removed in this state, it is still left untouched by the resiliency of the spring 13, as shown in Figure 9. Subsequent removal of a pressure applied on the retaining plate 7 causes it to be restored to the original position by the resiliency of the spring 13, so that the said uppermost piece 6 is replaced by another piece 6, as shown in Figure 10, resulting in alternation of a pattern defined by a four-by-four array of the pieces 6.

Repeating the foregoing procedures leads to a variety of patterns. It is understood that the present invention is not limited to the foregoing procedures; the order thereof may optionally be changed; and the selection of the retaining plates or the manual pieces may optionally be effected, in order to obtain a desired array of pieces. To obtain a more complicated pattern, a greater number of the retaining plates and the manual pieces may be applied. It is also possible to render all the retaining plates and the manual pieces movable.

It will be understood that many modifications or changes may be made without departing from the scope and spirit of the present invention as defined in the appended claims.

It will be readily appreciated that the pendant described above has a pattern which can optionally be changed, and can also serve as a puzzle.

CLAIMS

1. A plaything comprising a container, a plurality of differently coloured or patterned pieces, arranged in a two-dimensional array in the container, a window to enable the pieces to be viewed from the exterior of the container whilst retaining them therein, and means operable from the outside of the container to enable the relative positions of the said pieces in the array to be changed.

2. A plaything as claimed in claim 1, wherein the container is generally rectangular and the pieces are generally rectangular.

3. A plaything as claimed in claim 2, wherein the array is a generally square array of generally square pieces.

4. A plaything as claimed in any one of the preceding claims, wherein the means operable from the outside of the container comprise operating members slidably engaged in apertures in the container walls and adapted to move a plurality of the said pieces by a distance corresponding to at least a dimension of one playing piece on operation of said operating members, and means to resiliently bias the pieces in the array against operation of the operating members.

5. A plaything as claimed in any one of the preceding claims having a flexible member attached

thereto to enable use of the plaything as a decorative pendant.

6. A plaything substantially as hereinbefore described with reference to and as illustrated by the accompanying drawings.

7. A pendant comprising a box having in its one plane an opening to be covered with a transparent plate from inside, and a plurality of differently coloured or patterned pieces, which are two-dimensionally aligned in said box and below said opening, an array of said pieces being designed to be altered from the outside of said box.

8. A pendant as recited in claim 7, in which said body is in the form of a box, and a four-by-four array of said pieces is provided, each piece having square planes.

9. A pendant as recited in claim 7, in which an array of said pieces is urged by a spring in the outward direction of the body, retaining plates are disposed in such a manner that said pieces are movable by a distance corresponding to one piece, and manual means are disposed perpendicular to said retaining plates and biased by springs to alter said array of said pieces, each of said manual pieces having their one ends U-shaped in section and their other ends provided with projections.