United States Patent

Sakamoto

[15] **3,701,214**

[45] **Oct. 31, 1972**

[54] **FLEXIBLE, SOFT, FOAM RESIN ASSEMBLING PIECES**

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[22] Filed: **Dec. 22, 1970**

[21] Appl. No.: **100,663**

[52] **U.S. Cl.** **46/25,** 46/26, 273/DIG. 4, 273/DIG. 5, 273/160

[51] **Int. Cl.** **A63h 33/08**

[58] **Field of Search** .....273/DIG. 4, DIG. 5, 157 R; 46/16, 25

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Primary Examiner—F. Barry Shay

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[57] **ABSTRACT**

Assembling of toys in which, assembling pieces are obtained by cutting soft, flexible, elastic, foam synthetic resin material in suitable shapes, and more particularly to such toys wherein circumferential margin of said assembling pieces are cut off at a certain interval in such a manner that a cut-off portion and a setting protrusion, whose shape conforms to that of said portion, alternate with each other, and inlaying pieces are punched or cut out from the assembling pieces.

3 Claims, 8 Drawing Figures

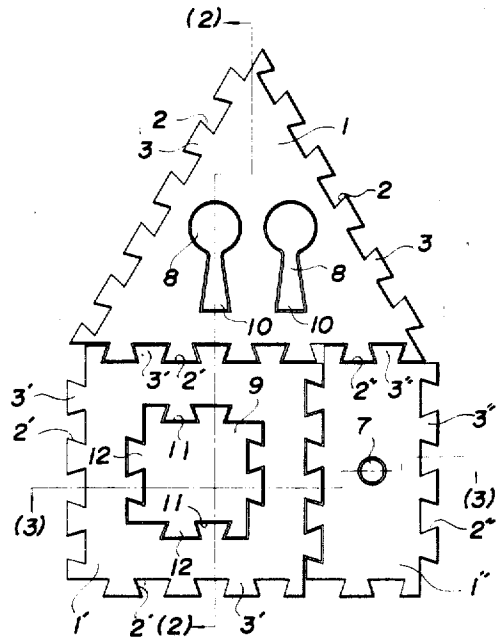


Fig. 3

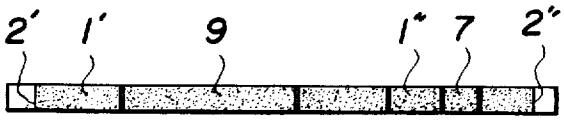


Fig. 2

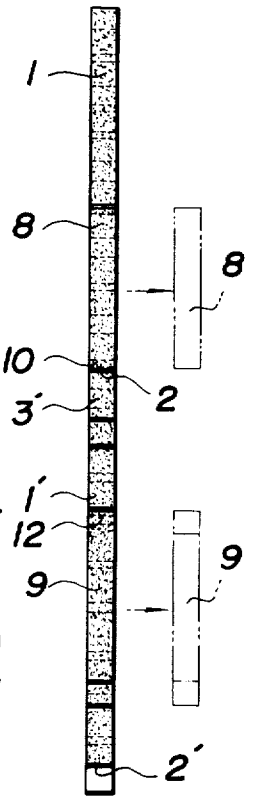


Fig. 1

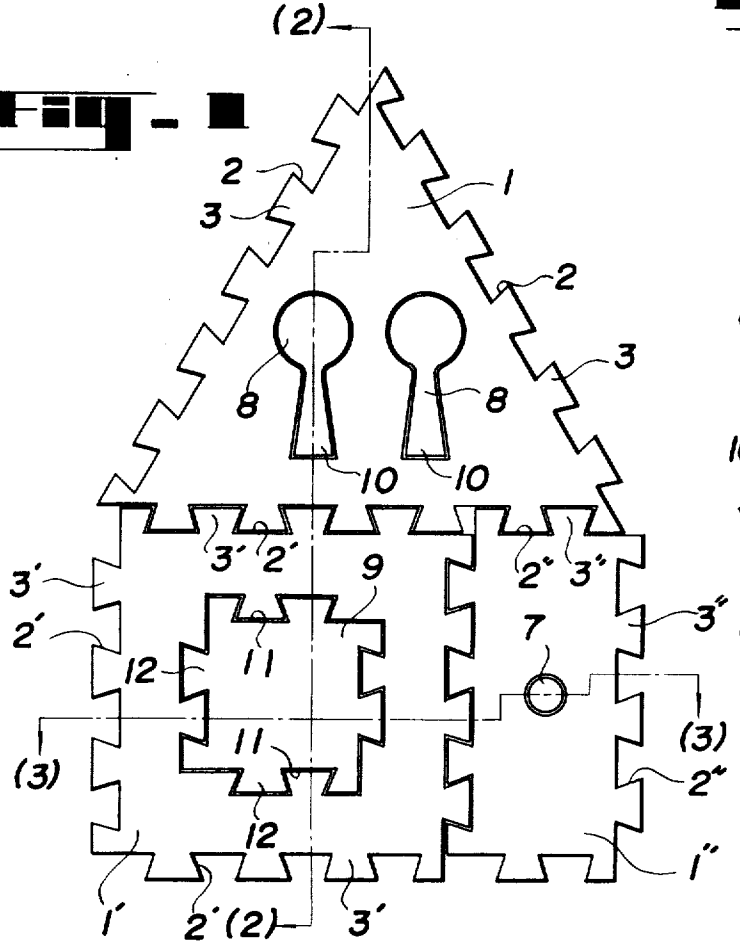


Fig. 5

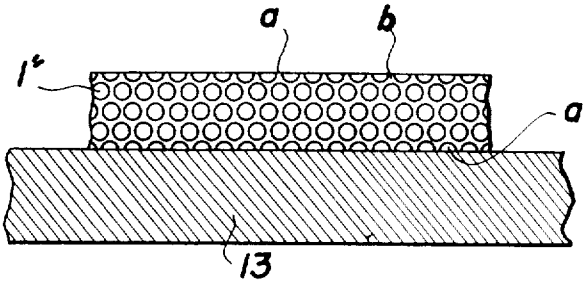


Fig. 4

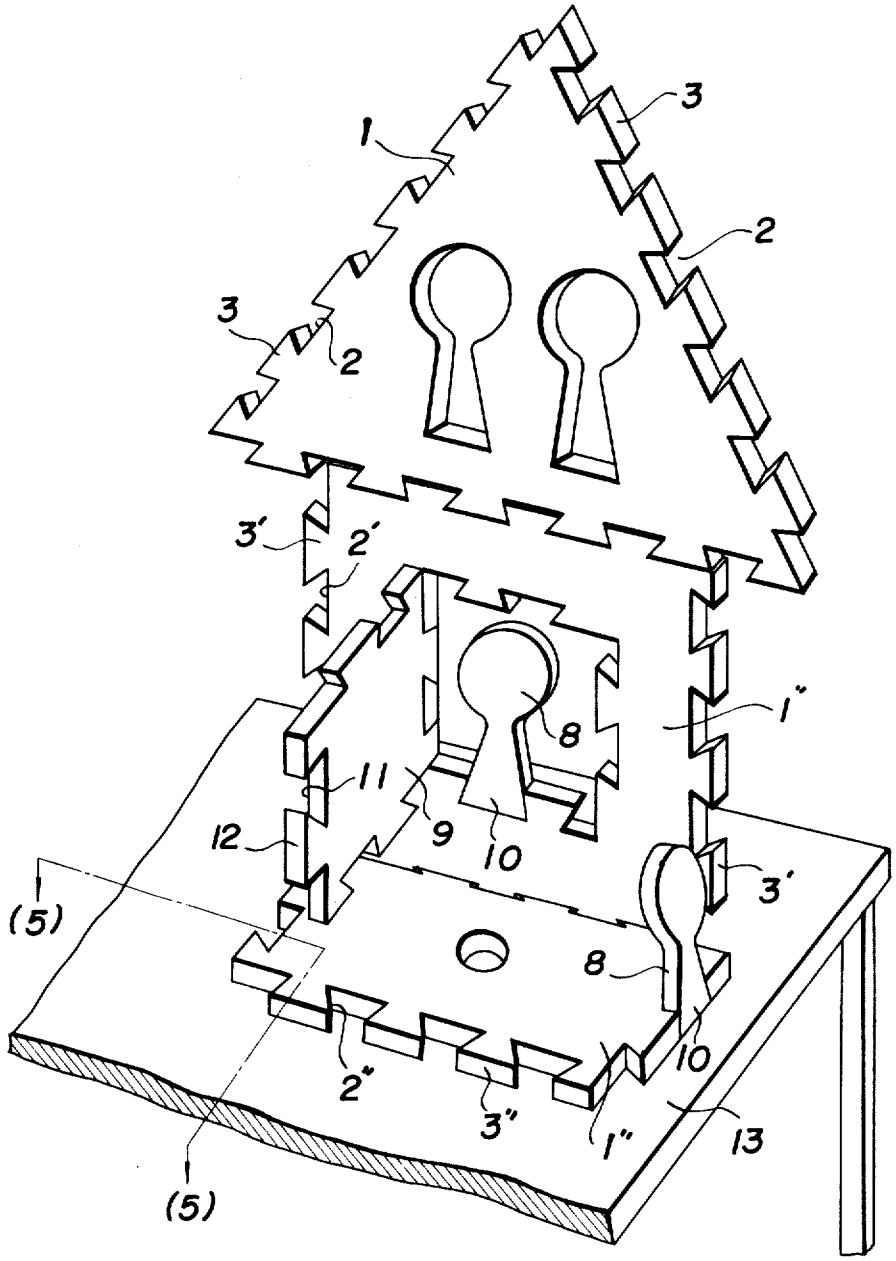


Fig. 6

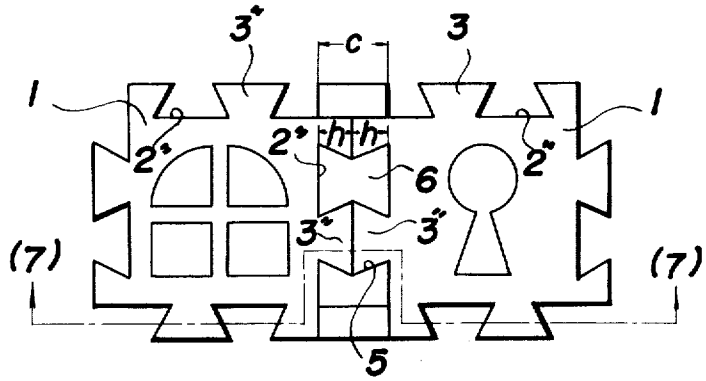


Fig. 7

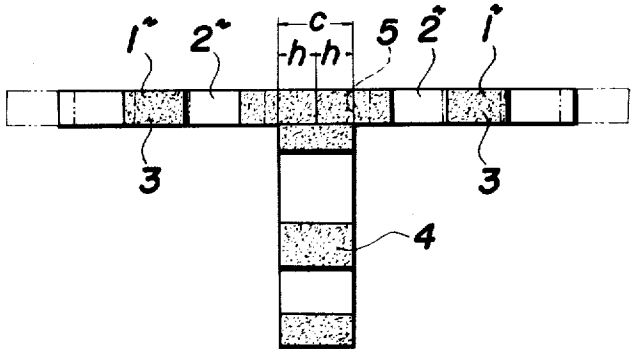
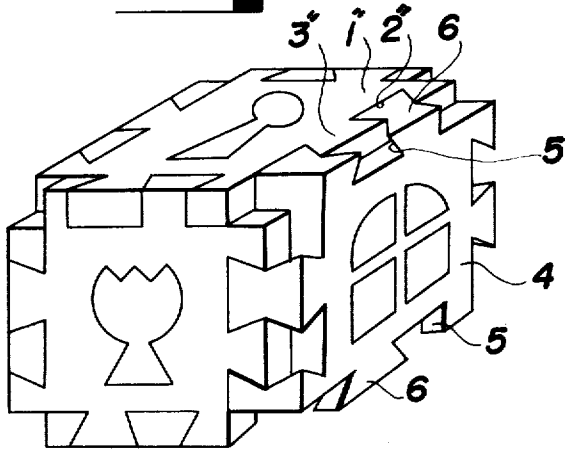


Fig. 8



FLEXIBLE, SOFT, FOAM RESIN ASSEMBLING PIECES

BACKGROUND OF THE INVENTION

The present invention relates to assembling toys in which the assembling pieces are obtained by cutting foam synthetic resin material in suitable shapes, and more particularly to such toys wherein the circumferential margin of said assembling pieces are cut off at a certain interval in such a manner that a cut-off portion and a setting protrusion, whose shape conforms to that of said portion, alternate with each other, and inlaying pieces are punched or cut out from the assembling pieces.

Thus, the object of the present invention is to provide an improved, safe and soft educational assembling toys of interest to children.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention, as well as other objects and advantages thereof will become more apparent form the following detailed description when taken in conjugation with the accompanying drawings, in which:

FIG. 1 is a frontal view of the toy assembling arrangement contemplated herein;

FIG. 2 is a longitudinal sectional view along the line 2—2 of toys shown in FIG. 1;

FIG. 3 is a cross-sectional view along the line 3—3 of toys shown in FIG. 1;

FIG. 4 is a slanting view of toys when assembled or joined;

FIG. 5 is an enlarged longitudinal side cut view along the line 5–5 of toys shown in FIG. 4;

FIG. 6 is a frontal view of another embodiment of assembling toys;

FIG. 7 is a longitudinal sectional view along the line 7—7 of toys shown in FIG. 6; and

FIG. 8 is a slanting view of toys when assembled or joined.

DETAILED DESCRIPTION

Assembling pieces 1, 1', 1'', are obtained by cutting elastic and non-water absorbing synthetic resin, such as polyethylene or vinyl chloride, after molding to form a foam structure into suitable forms such as a triangle, a square, or a rectangle. The cut section *a* also is a finished foam structure. (See FIG. 5). The thus obtained assembling pieces 1, 1'.. are flexible and elastic, and buoyant on cold and hot water. When they are wetted, water drops stay about at the top *b* of the absorptive foam surface. And so, by applying pressure over the pieces, they adhere to a base plate 13 or other pieces, since a vacuum state is produced in the concave between the top *b* in the foam section a.

The circumferential margin of the assembling pieces is cut off in a certain geometric configuration in such a manner that a cut off portion 2, 2'.. and a setting protrusion 3, 3'.., whose shape conforms to the reverse of said cut off portion, alternates with each other, so as to form mating members.

The assembling piece 1 is connected to the other piece 1' by fitting or setting its setting protrusions 3, 3'.. into the cut off portions 2, 2'.. of the other piece, while its cut off portion 2, 2'.. is mated with the protrusions 3 , 3'... Protrusion and cut off portions being flexible and elastic, the assembling pieces are connected with each other detachably at a right angle or with a gradient. It is also possible to have a connecting piece 4 intermediate to two of the assembling pieces to connect them, as seen from FIGS. 6 to 8.

The intermediating piece 4 is made of the same synthetic resin material as that for the assembling pieces, and is provided at its margin with cut out portions 5 and protrusions 6 of a same height, but the depth *c* being twice or even deeper than the height *h* of the protrusion 3, 3'.. and of cut off portions 2, 2'.. By using this piece 4, a simpler but a more solid joining or assembling of take-apart pieces 1, 1'..is realized.

Inlaying pieces of various shapes, in turn are obtained by punching out or cutting out inner parts of the assembling pieces. The pieces thus obtained such as hole piece 7, decorative piece 8 and smaller assembling piece 9 are inlaied freely in the respective cut out hole. Said decorative piece 8 is such that it has a setting protrusion 10 which may fit in the cut off portions 2, 2'.while said smaller assembling piece 9 has the same cut out portions 11 and fitting protrusions 12 as those of the assembling pieces.

Thus, according to the inventive concept, assembling pieces are obtained by cutting foam synthetic resin, with the circumferential margin being cut at a certain interval in such a manner that a cut out portion and a setting protrusion, whose shape conforms to the reverse of said cut out portion, alternates with each other.

Therefore, assembling pieces in various shapes can be connected or joined securely at right angles or with a gradient with each other in a simple way, such as fitting setting protrusions of one piece into cut-out portions of the other. The pieces are so elastic and light weight that they are pleasant to touch, and safely and easily assembled. Being made of foam synthetic resin, they are buoyant on cold and hot water, adhere closely to a wall or to each other when wetted and pressed. Accordingly, children will take much interest in joining or pressing them to a wall or to other pieces during bathing, etc. Furthermore, since inlaying pieces of various shapes have been cut out from the assembling pieces, a more complicated building up of structures can be expected.

When they are not used, each of the inlaying pieces are set into the respective cut-out hole of the assembling pieces, which are then connected flat so that they may be neatly piled up. In this way, inlaying parts and assembling pieces do not go disjoined or scattered while not used.

What is claimed is:

1. A set of assembling toys comprising assembling pieces of flexible, soft and elastic foam synthetic resin cut into suitable shapes with the circumferential margin of each said piece having coupling means thereon comprising alternating dovetail cut-out portions and dovetail setting protrusions whose shapes are complementary to those of said cut-out portions, whereby any of said pieces may be joined to another said piece by mating said respective coupling means optionally in coplanar or in mutually angular relation.

2. A set as claimed in claim 1, including inlaying pieces of suitable shapes cut out from said assembling pieces, so as to be inlaid.

3. A set as claimed in claim 1, including a connecting piece so provided intermediate two of the assembling pieces as to connect them by cooperation with their respective coupling means, the margin of said connecting piece being cut off in such a manner that a cut-off portion and a setting protrusion alternate with each other, and the depth of the cut is at least twice the height of the protrusion of the assembling pieces.

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