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54 **Jigsaw puzzle.**

57 A novel jigsaw puzzle is here disclosed which is characterized by meeting the following requirements:

- (a) a plurality of pieces being separably combined so as to form a flat plate,
- (b) letters, a picture or a pattern being offset on either surface of the flat plate, and
- (c) screen printing being made on predetermined parts of the offset letters, picture and pattern by the use of a luminescent material comprising 30 to 60% by weight of a fluorescent pigment and 70 to 40% by weight of a colorless ink.

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JIGSAW PUZZLE

BACKGROUND OF THE INVENTION

(i) Field of the Invention

The present invention relates to a jigsaw puzzle having a luminescent part.

(ii) Description of the Prior Art

Heretofore, a jigsaw puzzle has functions as a puzzle play and an ornament. In the case of the puzzle play, a plurality of pieces are combined to complete a picture, and in the case of the ornament, the completed picture is mounted in a frame and is then decorated in a room. Accordingly, any jigsaw puzzle having a luminescent part has not been present so far.

However, the conventional jigsaw puzzle, when utilized as the ornament, is not different from usual pictures at all, and therefore, inconveniently it is poor in an interest. For the purpose of providing the picture of jigsaw puzzle with the interest, it can be conceived that a fluorescent pigment is applied onto the picture so that a part of the picture may emit light even in the nighttime. However, since the fluorescent pigment itself is opaque, the picture, letters and pattern which have been first printed on the pieces of the jigsaw puzzle disappear, so that the function as the ornament is lost inconveniently. Furthermore, it can also be conceived that all of the picture, letters and pattern are printed from the beginning by the use of the fluorescent pigment, but in this case, it is very difficult to cause only a part in a region having one color, for example, only a partial contour of the picture to emit light.

SUMMARY OF THE INVENTION

The present invention has been achieved in view of the above-mentioned problems, and an object of the present invention is to provide a jigsaw puzzle having an interest which the conventional jigsaw puzzles do not have. That is, the jigsaw puzzle of the present invention has a function as a jigsaw puzzle and another function as an ornament which can be utilized as a usual picture in the daytime and which can partially emit light in the nighttime and exhibit a partially or entirely different picture than in the daytime.

The jigsaw puzzle of the present invention has been contrived to achieve the above object and has the following constitutions:

- (a) a plurality of pieces being separably combined in order to form a flat plate,
- (b) letters, a picture or a pattern being offset on either surface of the flat plate, and

(c) screen printing being made on predetermined parts of the offset letters, picture and pattern by the use of a luminescent material comprising 30 to 60% by weight of a fluorescent pigment and 70 to 40% by weight of a colorless ink.

BRIEF DESCRIPTION OF THE DRAWING

Fig. 1 is an entire perspective view illustrating one embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

Now, one embodiment of the present invention will be described in detail in reference to the drawing.

Reference numeral 1 is a flat plate on which a mountain, a house and a building are depicted, and this flat plate is formed by combining a plurality of pieces 2, 2 ..., i.e., by engaging each engaging convex 2a with each engaging concave 2b which are cut out in the pieces. Silk screen printing is carried out on predetermined positions on the surface of the flat plate 1, for example, on outlines 3a, 3b, 3c of the mountain, the house and the building and all the windows 3d. This luminescent material is a mixture of 40% by weight of a fluorescent pigment (trade name Keiko-Color Y-50, made by Nippon Keikou Chemical Co., Ltd.) and 60% by weight of a colorless ink (trade name 2000 A ink, sold from Mino Group Co., Ltd.), and it has transparency and afterglow properties (light accumulation properties).

Therefore, the play of the jigsaw puzzle can be enjoyed as follows: The flat plate 1 is first separated into a plurality of pieces 2, 2 ..., and afterward the latter are combined by engaging each engaging convex 2a with each engaging concave 2b thereof in order to complete an original picture on the flat plate 1. Furthermore, if the completed flat plate 1 is mounted in a frame, it can be utilized as an ornament. In this case, a part of the offset picture is screen-printed with the luminescent material. Since this luminescent material has transparency and afterglow properties (light accumulation properties), the flat plate 1 displays, in the daytime, the offset picture without any problem, and in the nighttime, some parts of the picture, i.e., the outlines 3a, 3b, 3c of the mountain, the house and the building and all the windows 3d emit light, so that the flat plate 1 can exhibit the picture which is different in an interest from it in the daytime.

Moreover, if the pattern, the letters and the picture which are utterly different from or are con-

nected to the picture offset on the surface of the flat plate are subjected to silk screen printing with the above-mentioned transparent luminescent material, the pattern and the like which cannot be seen in the daytime appear thereon in the nighttime. In such a way, the very interesting jigsaw puzzle can be obtained. 5

For example, in the above-mentioned embodiment, if the letters of "HAPPY NEW YEAR" are subjected to the silk screen printing on the surface of the flat plate 1, the play of the jigsaw puzzle is more interesting. Because the above-mentioned letters are concealed, i.e., hidden, and so the play of the jigsaw puzzle can be enjoyed, expecting the concealed and unknown letters which will come out in the nighttime. Furthermore, if the picture of Empire State Building is offset on the surface of the flat plate, and if the outline of Empire State Building and the picture of King Kong are subjected to the silk screen printing by the use of the transparent luminescent material, the picture of King Kong is hidden, and the flat plate displays a quiet situation in the daytime but a savage situation in the nighttime in which King Kong climbs the building. The jigsaw puzzle of the present invention has the enjoyment of watching the changeable picture or the like in addition to the puzzle play of itself. 10 15 20 25

The present invention can provide a jigsaw puzzle having an interest which the conventional jigsaw puzzles do not have. That is, the jigsaw puzzle of the present invention has, in addition to a usual function as a jigsaw puzzle, another function as an ornament which can be utilized as a usual picture in the day time and which can partially emit light in the nighttime and exhibit a partially or entirely different picture than in the daytime. 30 35

Claims 40

1. A jigsaw puzzle characterized by meeting the following requirements:
 - (a) a plurality of pieces being separably combined in order to form a flat plate,
 - (b) letters, a picture or a pattern being offset on either surface of said flat plate, and 45
 - (c) screen printing being made on predetermined parts of said offset letters, picture and pattern by the use of a luminescent material comprising 30 to 60% by weight of a fluorescent pigment and 70 to 40% by weight of a colorless ink. 50

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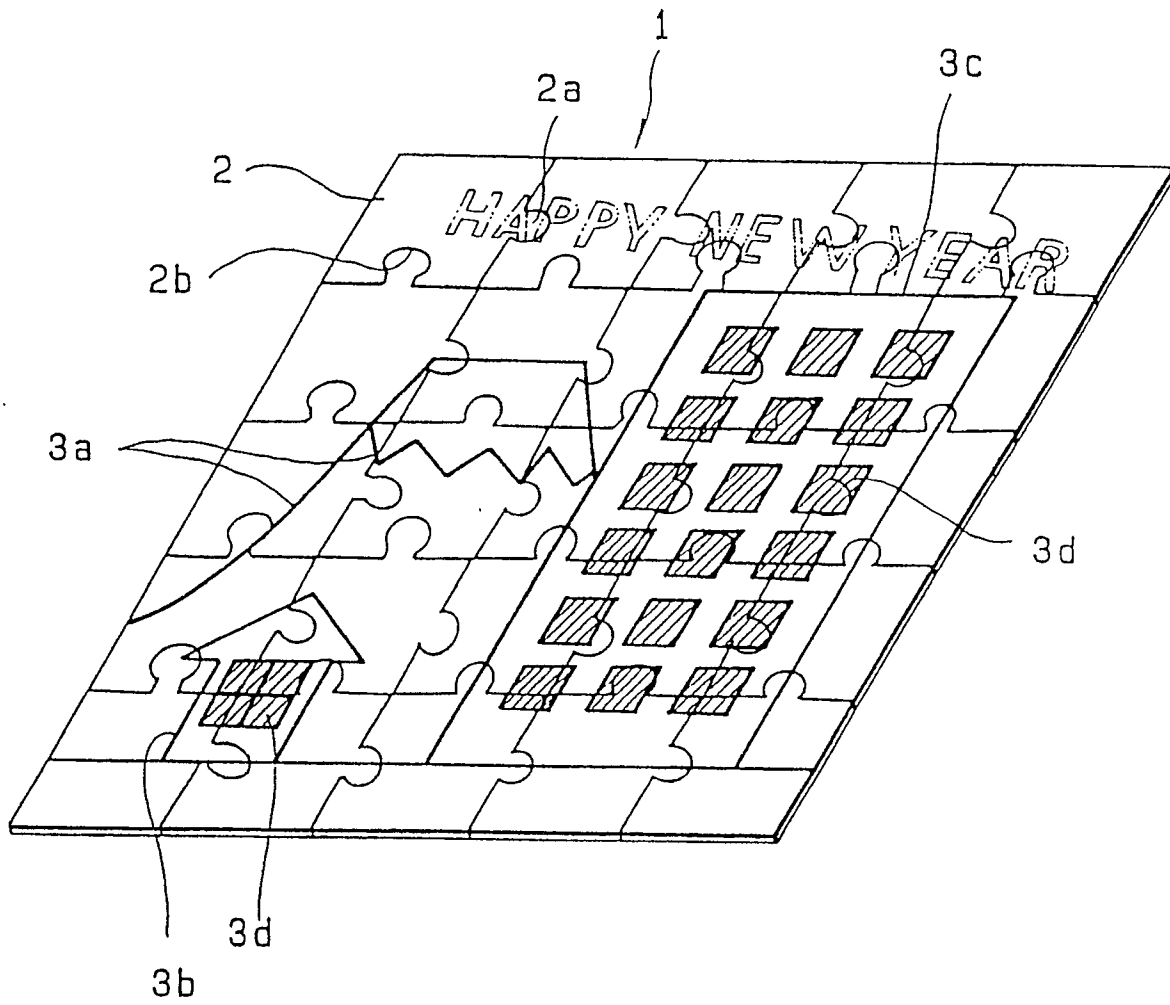


FIG. 1



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	DE-A-2 125 669 (TANKE) * Claim 1 * - - - -	1	A 63 F 9:10 A 63 H 33:22
A	EP-A-0 183 906 (VACHEK) * Claim 7 * - - - -	1	
A	DE-A-3 505 365 (WEISE-RICHTER) * Claim 1 * - - - -	1	
A	DE-A-3 606 119 (ZANDER) * Claim 1 * - - - -	1	
A	US-A-2 306 939 (FERRIS) - - - - - -		
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A 63 F A 63 H
The present search report has been drawn up for all claims			
Place of search		Date of completion of search	Examiner
The Hague		18 March 91	GLAS J.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention</p> <p>E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &: member of the same patent family, corresponding document</p>			