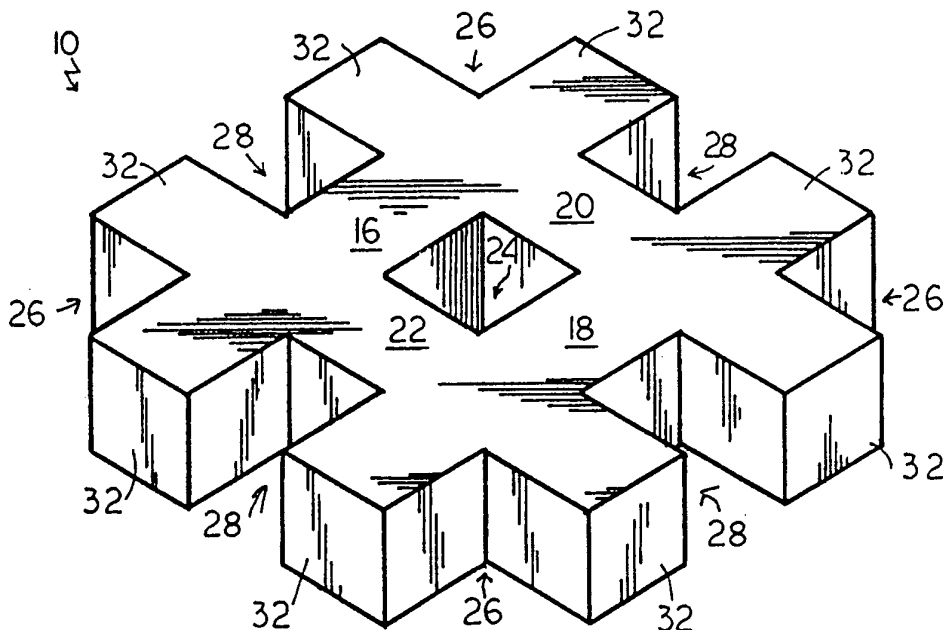




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(54) Title: INTERLOCKABLE FOAM TILES FOR USE BY CHILDREN



(57) Abstract

An interlockable foam tile (10) adapted for use in interlocking with one or more other identical tiles to form a three-dimensional structure such as arranged for children. Interlockable tiles are composed of semi-rigid foam material having two pairs of spaced apart legs (16, 18 with 20 and 22) parallel to each other and perpendicular to the other pair to form a central open cube (24), four open two-sided cubes (26) at the corners of the tile and four open three-sided cubes (28) at the centers of the sides. The tile so formed is employed with identical tiles to form an interlocking structure by inserting one or more of the extended cubes (32) of one tile into one or more of the open cubes (24, 26 or 28) of an adjacent tile.

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DESCRIPTION

--INTERLOCKABLE FOAM TILES FOR USE BY CHILDREN--

Background of the Invention

5 There are a plurality of interlockable blocks that are composed of solid or foam materials for use by children to interlock the blocks together to form a variety of three-dimensional toy structures. Some of the interlockable blocks provide for a snap-fit arrangement
10 to interlock the blocks together, while others comprise tile-like elements composed of a foam with key-type male and female edge structures adapted to be interlocked together by children to form a three-dimensional toy structure.

15 It is desirable to provide a new and improved interlockable tile element which is easily adapted by children to interlock together to form a wide variety of interlockable three-dimensional toy structures.

Summary of the Invention

20 The invention relates to a tile element composed of a foam material, which tile element is adapted to be interlocked with one or a plurality of identical tile elements to form a three-dimensional structure.

25 The invention concerns an interlockable foam tile adapted for use for interlocking, typically by children, with one or more identical foam tiles to form a three-dimensional structure. The tile comprises a semi-rigid foam material, such as a urethane, vinyl or olefinic-type foam material or more particularly a
30 polyethylene or cross-linked polyethylene material having a foam density, for example, ranging from about 3 to

12 pcf, or more typically, 4 to 10 pcf and wherein the tile has a face surface, a back surface and four sides. The tile element generally comprises a plurality of peripheral squares which are adapted to be inserted by
5 finger pressure into the peripheral square openings of an adjacent tile or into the central opening of an adjacent tile. The foam material typically is sufficiently rigid to permit a child to insert forcefully the squares of one tile into the openings of another tile, and
10 sufficiently flexible to permit the removal of the squares of one tile from the opening of an adjacent tile.

Tiles of the invention have spaced apart, parallel, first and second legs and spaced-apart, parallel third and fourth legs, all legs of the tile being of equal
15 dimensions of height, length and width. The third and fourth legs are perpendicular to the first and second legs to form a tile element having a periphery, with the depth of the tile element typically less than the length and width of the tile element, and generally about
20 20% of the length of the tile legs. The legs form a central open square and four open two-sided squares at the corners of the tile and four open one-sided squares intermediate the four two-sided squares, thus form eight outwardly extending squares extending uniformly about
25 the periphery of the tile, with all squares of the same dimensions. The dimensions of the square may vary, but typically, for example, in one embodiment the squares may have an open central square and other squares of about 5/8" on each side of the square, and each square
30 may be, for example, 3-1/8 by 3-1/8 by 5/8".

The tiles are composed typically of a semi-rigid cross-linked polyethylene foam, which tile may be of the same or different colors or have a swirled pattern therein, and are generally adapted for use by children.

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The tiles of the invention may be used to form an interlocking structure by inserting one or more of the extended square legs of one tile into one or more of the open square spaces of adjacent, identical, tiles.

5 The invention also comprises various three-dimensional structures composed of a plurality of the interlockable tiles. These three-dimensional structures, formed by the identical tiles, may vary in nature, and are typically comprised of a plurality of the tiles wherein one or
10 more of the external squares of one tile are pushed or forced into in an interlocking relationship with one or more of the open squares of an adjacent tile, until the desired three-dimensional structure is provided.

15 The invention will be described for the purpose of illustration only in connection with certain embodiments, however it is recognized that those persons skilled in the art may make various modifications, changes and improvements to the illustrated embodiments, all falling within the spirit and scope of the invention.

20 Brief Description of the Drawings

 Fig. 1 is a perspective view from above of the tile of the invention.

 Fig. 2 is a side view of the building tile of the invention with all sides being the same view.

25 Fig. 3 is a face view of the building tile of the invention with the bottom view being the same.

 Fig. 4 shows four identical tiles of the invention arranged in a representation, illustrative, interlocking relationship to form a three-dimensional structure.

30 Description of the Embodiments

 The drawings illustrate an interlockable foam tile
10 having a face 12, a back surface 14 and first leg 16, second leg 18, and perpendicular legs 20 and 22, to define an open central square 24, with all legs being

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of identical dimensions, forming about the periphery of the tile 10. Four corner squares 26, of double open-sided squares and four single open-sided squares 28 forming eight three-sided extending square 30. The tile 10 has a depth dimension about 20% of the length and width of the legs, and for example, has a dimension of 5/8" by 3-1/8" by 3-1/8", with all squares of the identical dimensions. The tile 10 has eight extended square legs 32, which are 5/8" by 5/8".

Fig. 4 shows four tiles 10 of the invention engaged in an interlockable manner wherein the extended square legs 32 of the tile 10 and have been inserted in various open squares adjacent tile 10 to form a three-dimensional foam structure 30.

It is recognized that the tile 10 of the invention may be engaged in a variety of interlockable relationships with identical tiles to form a wide variety of interlockable foam structures, with one or two of the extended square legs of one tile 10 being able to be force fitted into one or two of the open-ended squares 26 or 28 or central open square 24 of the adjacent structure and so forth.

There is thereby formed an interlockable foam tile adapted for use in an interlocking with one or more identical tiles to form a wide variety of three-dimensional structures for use by children.

What is claimed is:

CLAIMS

Claim 1. An assembly of a plurality of identical,
2 interlockable, three-dimensional foam tiles adapted for use
by children to form a three-dimensional, interlocked toy
4 structure, each of said foam tiles consisting of:

a) spaced-apart, parallel first and second legs and
6 spaced-apart, parallel third and fourth legs, all legs
being of the same dimensions, all dimensions being
8 equal, and the third and fourth legs perpendicular to
the first and second legs;

10 b) the legs forming eight extended cubic legs about
the sides of the tile, a single central open cube, for
12 open two-sided cubes intermediate the four two-sided
squares to form eight outwardly extending cubes about
14 the periphery of the tiles, with all cubes of the same
dimensions; and

16 c) the tile formed of a semi-rigid foam material
having a face surface, a back surface, and four sides
18 wherein the foam material is sufficiently rigid to
permit a child to insert forcefully by finger pressure
20 one or more of the cubic legs into one or more of the
cubic openings of an adjacent, identical tile and
22 sufficiently flexible to permit the removal by finger
pressure of a child of the cubic legs of one tile from
24 the cubic openings of an adjacent, identical,
interlocked tile.

Claim 2. The assembly of claim 1 wherein the foam
2 tiles have a foam density of about 3 to 12 pcf.

Claim 3. The assembly of claim 1 wherein the foam
2 material comprises a cross-linked polyethylene foam
material.

Claim 4. The assembly of claim 1 wherein the depth of
2 the foam tile between the back and face surfaces is about 20
percent of the length of the legs from side to side.

Claim 5. An interlocked, three-dimensional structure
2 which combines in combination a plurality of the identical
foam tiles of claim 1 arranged in an interlocked structure
4 wherein one or more of the extended cubic legs of at least
one first foam tile is forcibly, flexibly engaged in one or

6 more of the cubes of an adjacent, identical second foam
tile.

Claim 6. The structure of claim 5 wherein at least one
2 cubic leg of the first foam tile is engaged in the central
open cube of the second foam tile.

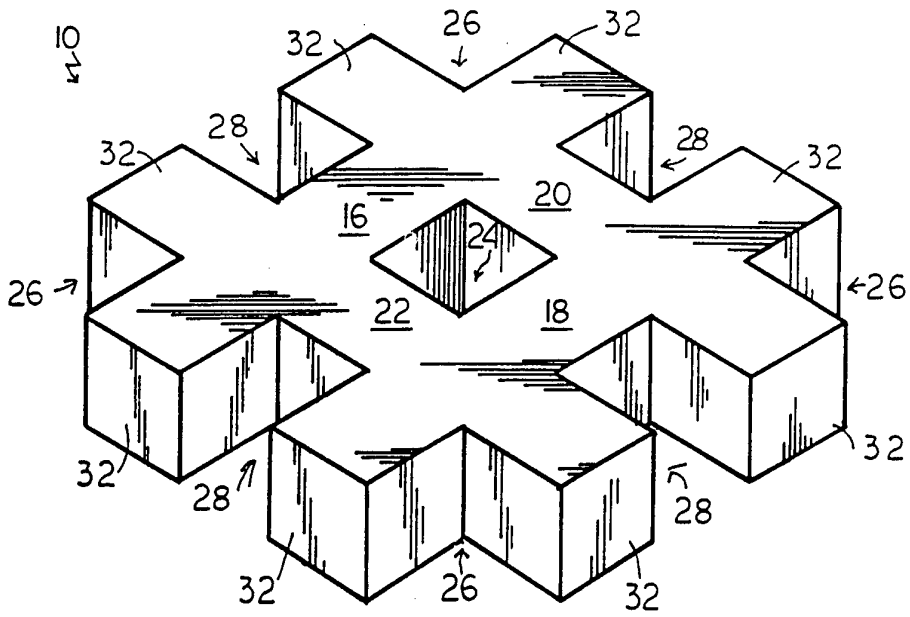


FIG. 1

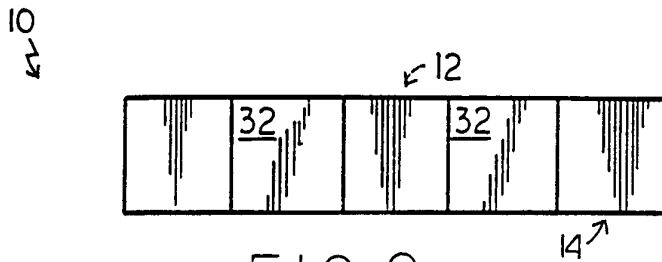


FIG. 2

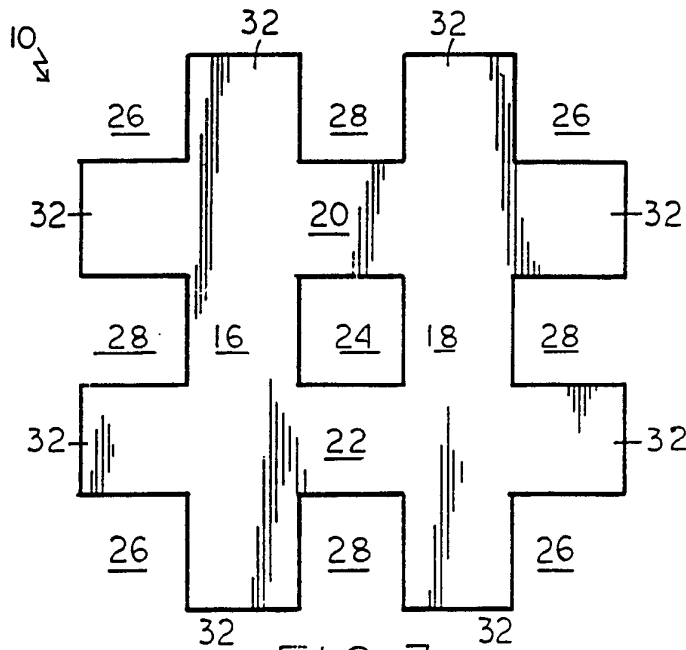


FIG. 3

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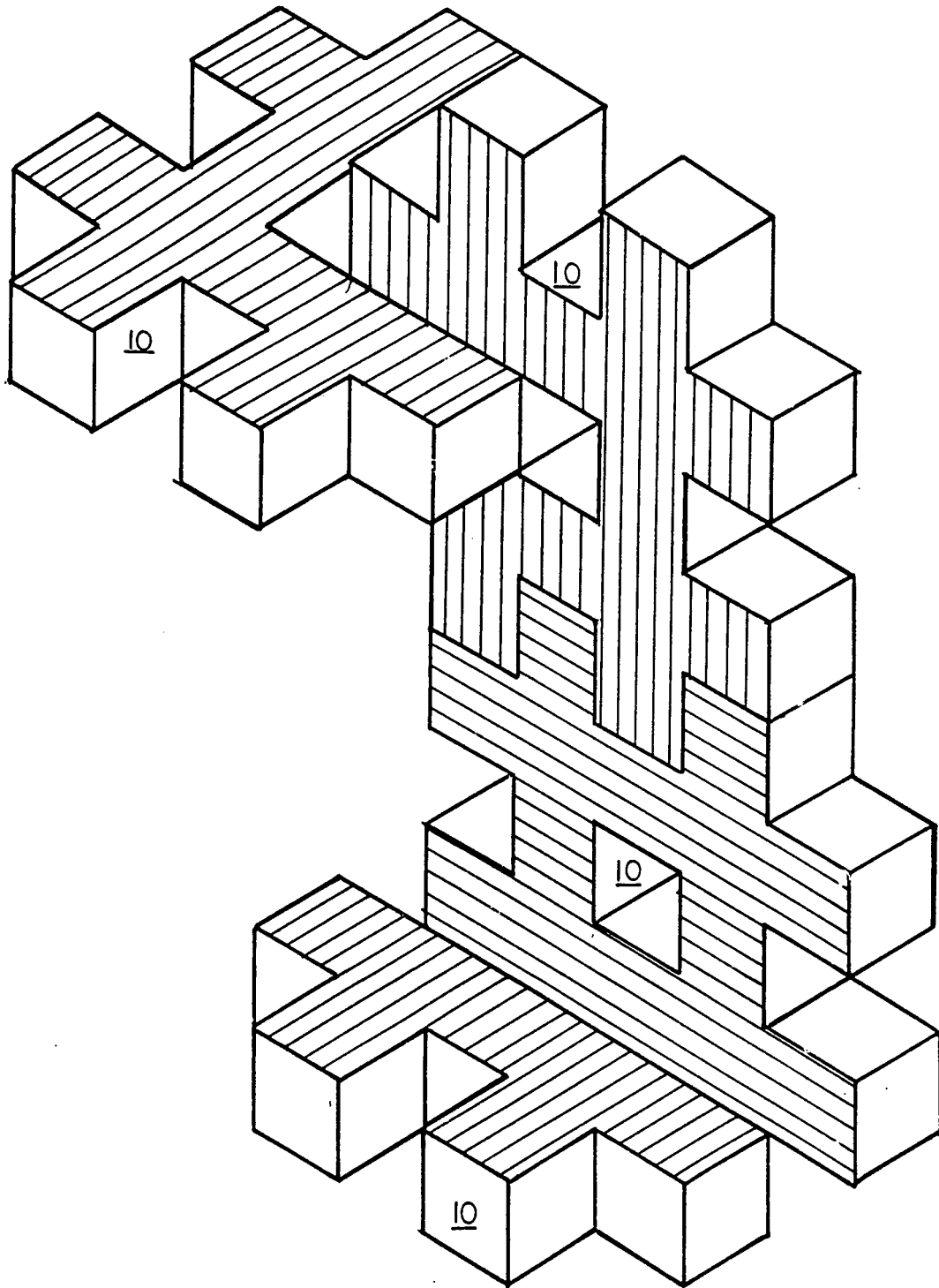


FIG. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US94/00286

A. CLASSIFICATION OF SUBJECT MATTER

IPC(5) :A63H 33/04, 33/08; A63F 9/08

US CL :446/85, 124, 125; 273/271

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 446/85, 106, 114, 115, 120, 121, 124, 125; 273/4, 271, 425, 428; 434/258, 259

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO, A, 82/02341 [GRAM] 22 July 1982, see entire document.	1,2,4-6
Y		1,2,4-6
Y	DT, A, 2716090 [OTTO] 26 October 1978, see figure A. US, A, 3518786 [HOLTVOIGT] 07 July 1970, See Abstract.	3

Further documents are listed in the continuation of Box C. See patent family annex.

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Date of the actual completion of the international search 08 MARCH 1994	Date of mailing of the international search report 03 MAY 1994
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