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(54) **BUILDING SET WITH U-SHAPED BLOCKS**

Publication Classification

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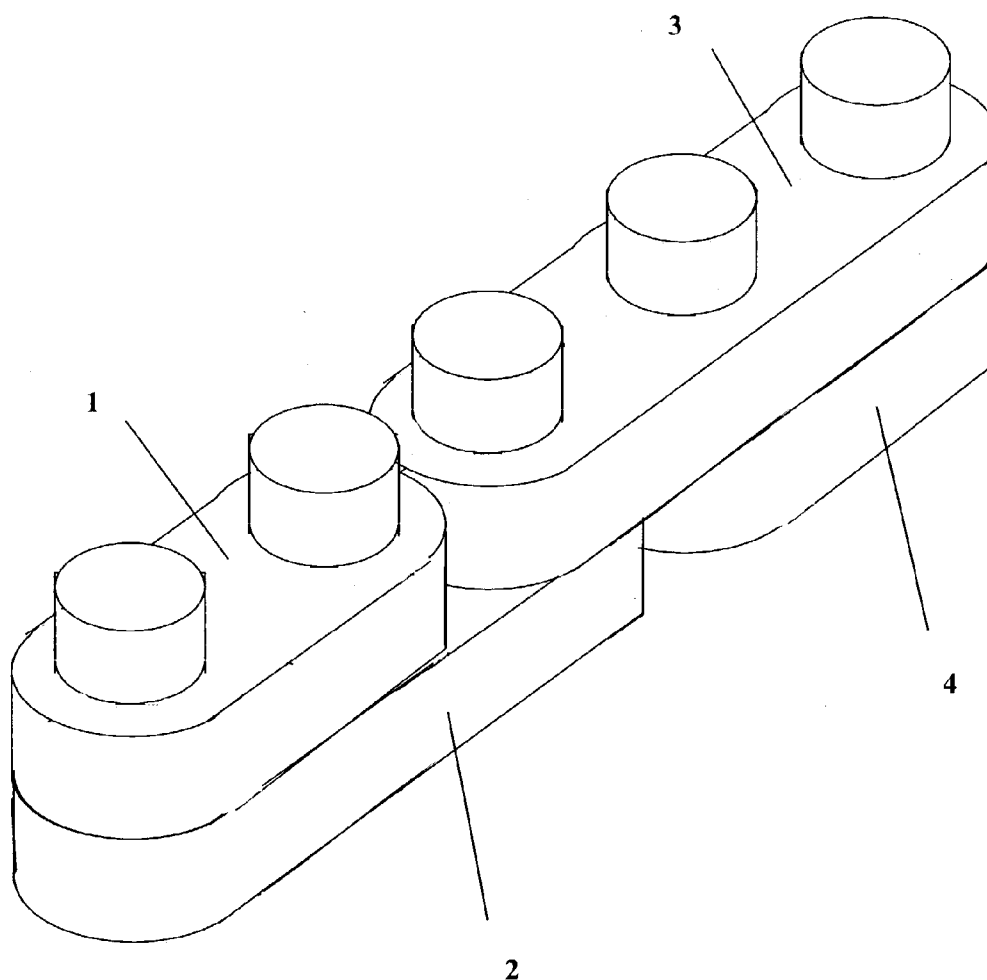
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(57) **ABSTRACT**

A building set with building elements, having coupling means in the form of projecting studs and corresponding cavities for interconnection of building elements, consists of building elements with U-shaped edges and single row of studs and cavities allowing construction of flexible angle structures with pivoting parts.

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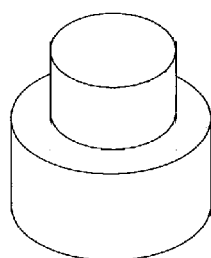


FIG. 1A

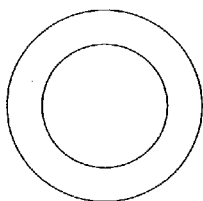


FIG. 1B

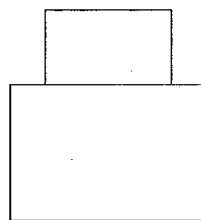


FIG. 1C

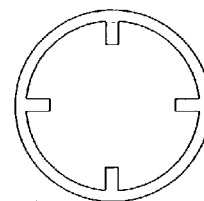


FIG. 1D

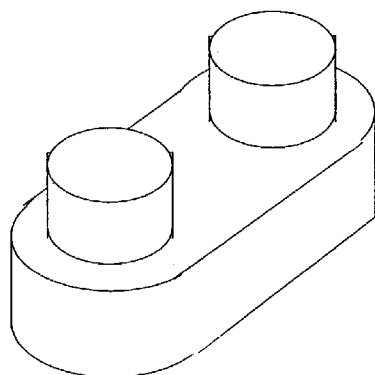


FIG. 2A

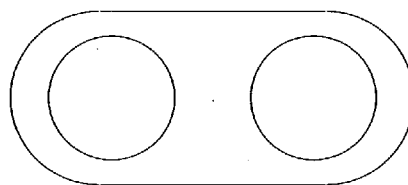


FIG. 2B

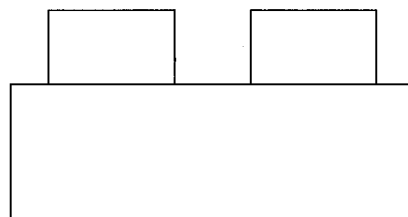


FIG. 2C

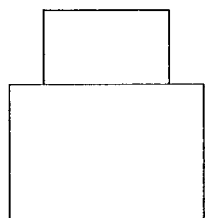


FIG. 2E

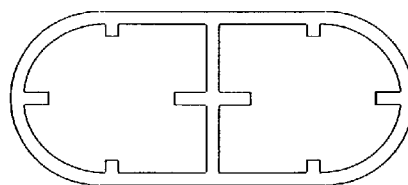


FIG. 2D

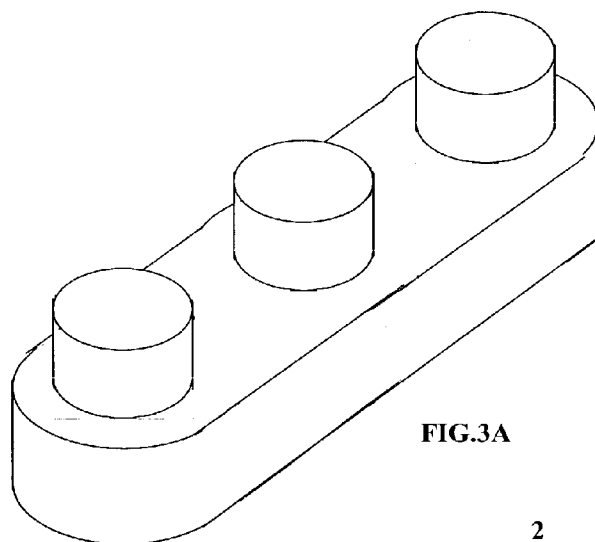


FIG. 3A

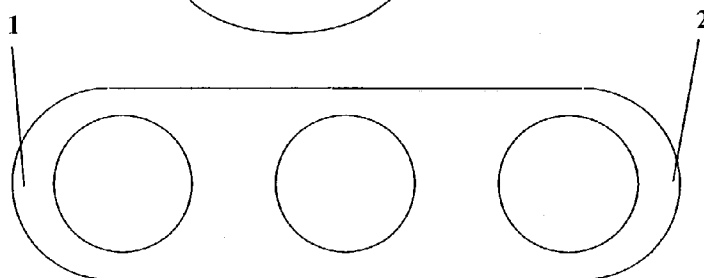


FIG. 3B

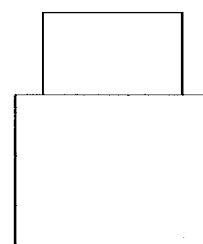


FIG. 3E

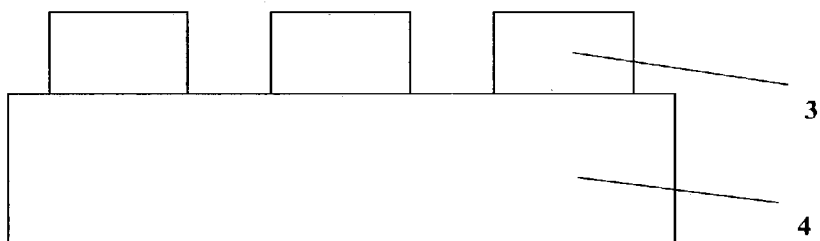


FIG. 3C

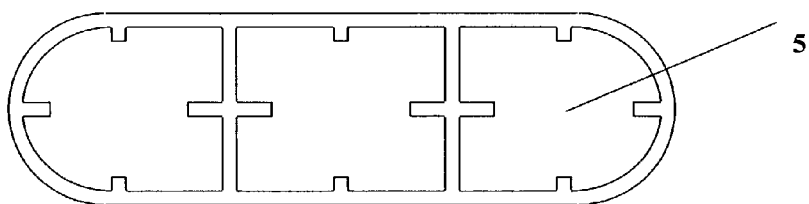
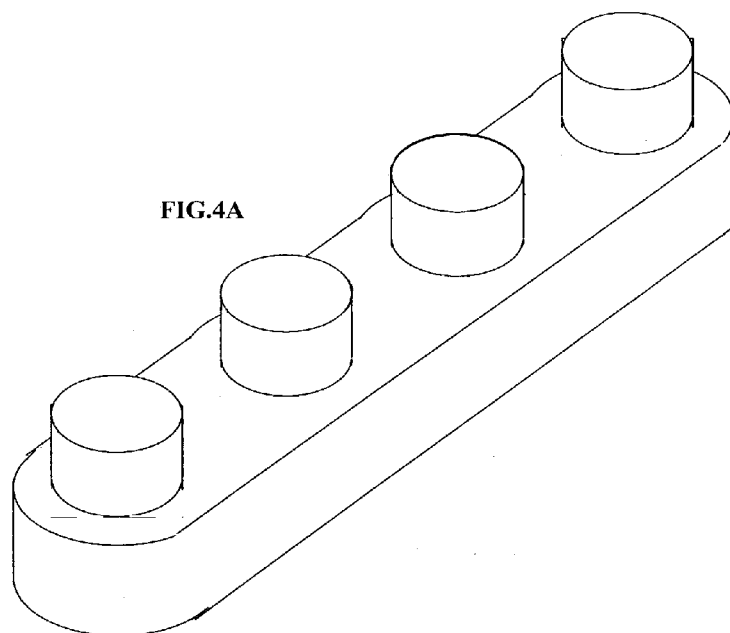
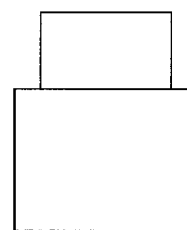
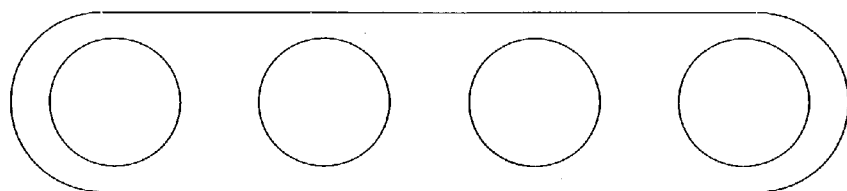
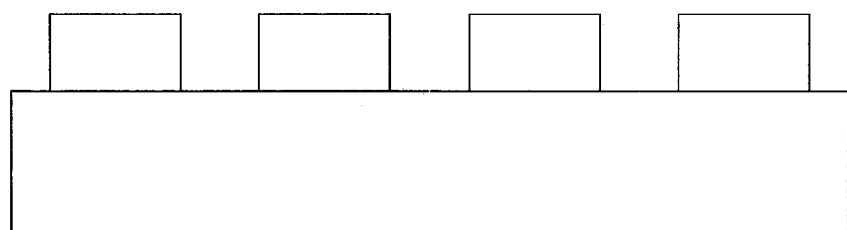
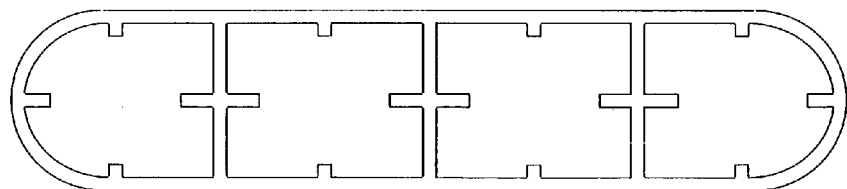
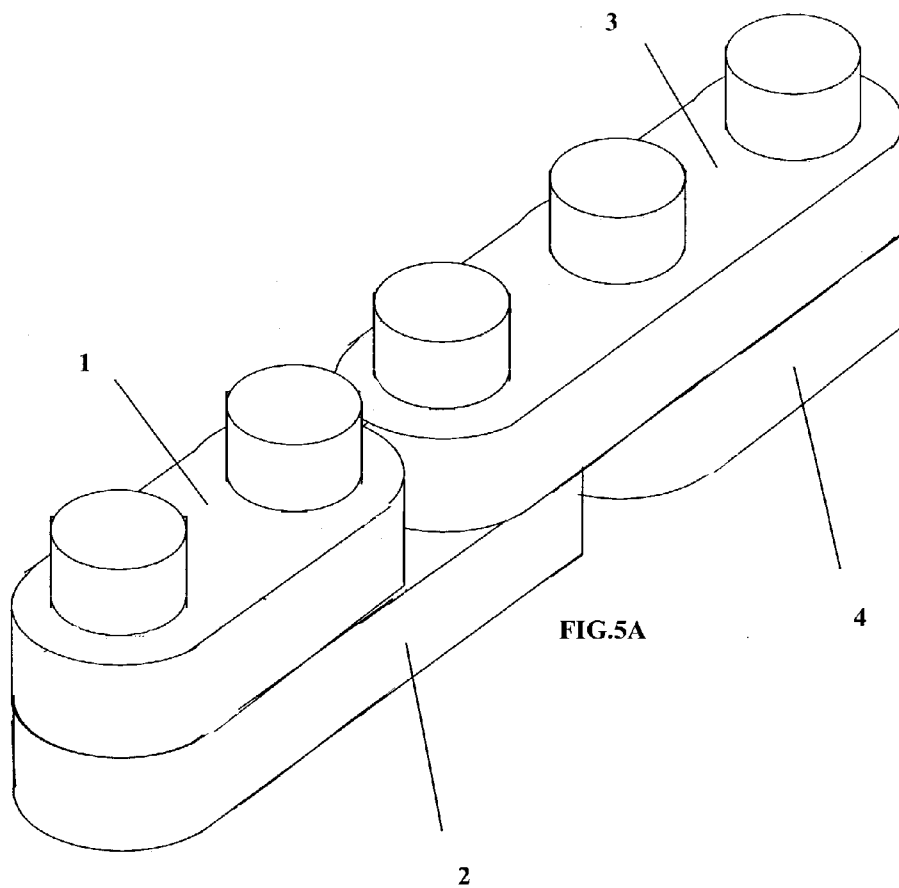
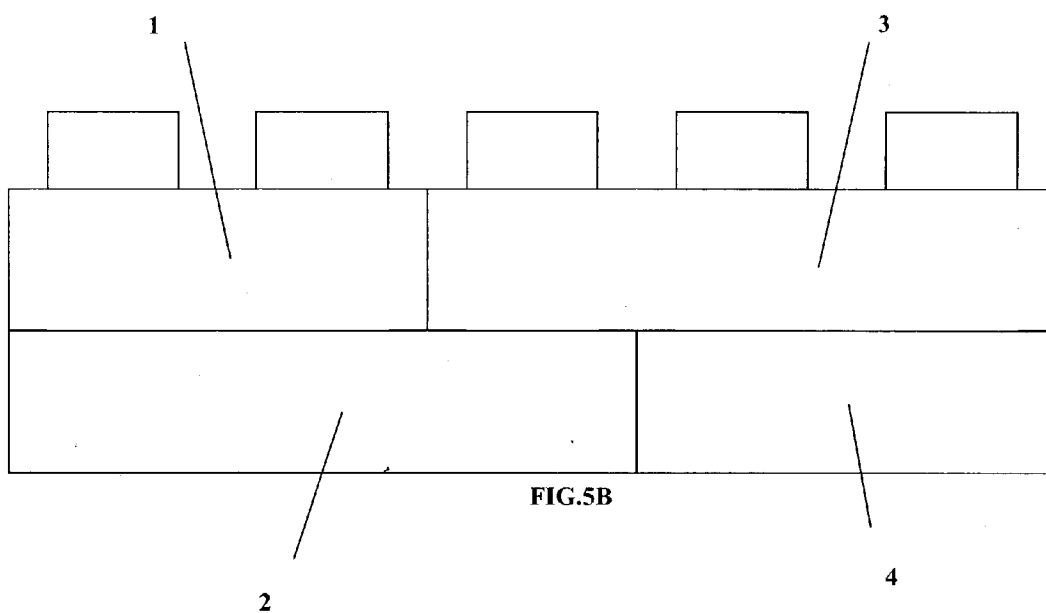
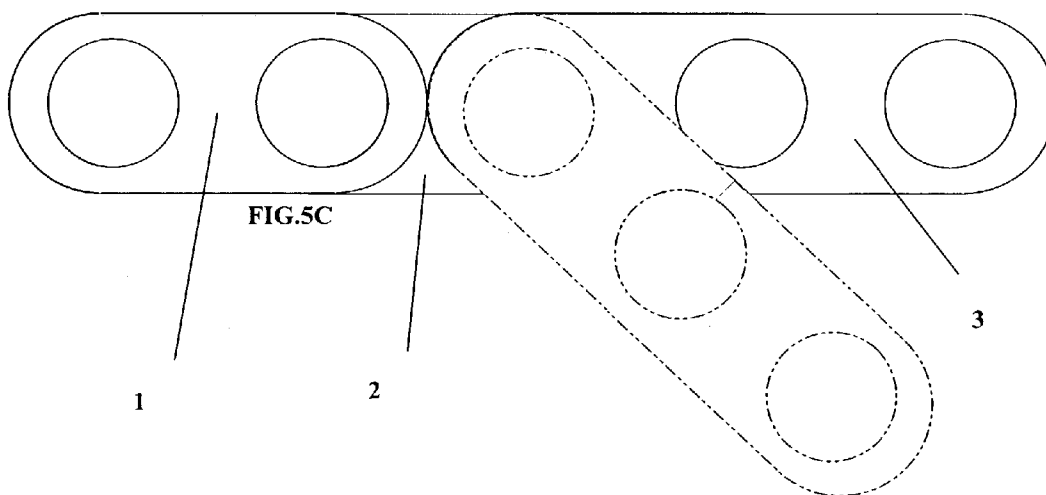


FIG. 3D







BUILDING SET WITH U-SHAPED BLOCKS**FEDERALLY SPONSORED RESEARCH**

[0001] Not Applicable

SEQUENCE LISTING OR PROGRAM

[0002] Not Applicable

BACKGROUND

[0003] This invention relates to set of building blocks, which are structured to be connected together. Building blocks of this kind are generally known, and marketed under the trade marks LEGO, or DUPLO. Such building sets includes traditional building elements in the form of box-shaped building blocks provided with coupling studs on the upper side and complementary coupling means on the lower side, as shown in U.S. Pat. No. 3,005,282 Christiansen. The drawbacks with such traditional building blocks are:

[0004] Construction of such blocks is only possible with right angles or straight angles (e.g. 0°, 90°, 180°, 270° angles).

[0005] No possibility of pivoting a portion of a structure relative to another portion.

[0006] Other invention such as U.S. Pat. No. 4,740,189 Bertrand takes more complicated new additional units to avoid the above drawbacks. The invention proposed hereinafter overcomes such drawbacks simply by means of U-shaped building blocks arranged only with single row of coupling studs on the upper side and complementary coupling means on the lower side.

SUMMARY

[0007] This invention proposes set of U-shaped building blocks having single row of coupling studs on the upper side and complementary coupling cavity on the lower side. The two common features (U-shape, single row of coupling) of blocks in the set allows the construction of blocks with flexible angles (any angles between 90° to 270°), and pivoting parts. Such building set may consist of blocks with any different number of coupling studs.

DESCRIPTION OF DRAWINGS

[0008] **FIG. 1A, FIG. 2A, FIG. 3A, FIG. 4A** are side perspective view of the toy building blocks with number of coupling studs of **1, 2, 3, and 4** respectively;

[0009] **FIG. 1B, FIG. 2B, FIG. 3B, FIG. 4B** are top plan view of the toy blocks with number of coupling studs of **1, 2, 3, and 4** respectively;

[0010] **FIG. 1C, FIG. 2C, FIG. 3C, FIG. 4C** are front elevational view (thereof, the rear side being identical) of the toy blocks with number of coupling studs of **1, 2, 3, and 4** respectively;

[0011] **FIG. 1C, FIG. 2E, FIG. 3E, FIG. 4E** are left side elevational view (thereof, the right side being identical) of the toy blocks with number of coupling studs of **1, 2, 3, and 4** respectively; and,

[0012] **FIG. 1D, FIG. 2D, FIG. 3D, FIG. 4D** are bottom plan view of the toy blocks with number of coupling studs of **1, 2, 3, and 4** respectively.

[0013] This invention is not limited to the above set of 4 blocks, but the elementary block structure in the set can be extended to any number of coupling studs.

[0014] **FIG. 5** series illustrate how such elementary building blocks described previously can be used to construct a structure with flexible angle, and a moving part.

[0015] **FIG. 5A** is a side perspective view of the structure constructed from four elementary blocks **1** through **4**.

[0016] **FIG. 5B** is front elevational view of the structure constructed from the four elementary blocks.

[0017] **FIG. 5C** is the top plan view of the structure constructed from the four elementary blocks. It illustrates block **3** and **4** can be moved freely against block **1** and **2**. Such is not possible with box-shaped blocks coupled by multiple row of studs.

REFERENCE NUMERALS IN DRAWINGS

[0018] **FIG. 3:**

[0019] **1, 2** U-Shaped edges.

[0020] **3** Stud

[0021] **4** Base

[0022] **5** Cavity

[0023] **FIG. 5:**

[0024] **1, 4** elementary building block with 2 studs.

[0025] **2, 3** elementary building block with 3 studs.

DETAILED DESCRIPTION

[0026] Referring to **FIG. 3B**, the building block has U-shaped (semi-circled) edges **1, 2** to allow flexible moves against each other as illustrated in **FIG. 5C**.

[0027] Referring to **FIG. 3C**, the suggested heights of stud **3** and its base **4** are approximately 1.25" and 1.5" respectively. The diameter of stud **3** is approximately 1", and width of its base **4** are approximately 1.25". The suggested ratio of dimensions can be altered, and the whole size can be scaled to make smaller (e.g. toy building blocks), or larger constructions possible. The dimensions of the said block can also be sized to fit with existing blocks in the market (e.g. MEGA BLOK block). In such case, existing MEGA BLOK block and the said blocks can be joined together to construct.

[0028] Referring to **FIG. 3D**, the cavity **3** surrounded by fins can be connected to the stud **1**.

[0029] Such male and female connecting means to attach blocks vertically can be any of various configurations and need not be necessarily the same as illustrated herein, as long as the male and female can make firm contact, and pivot against each other.

[0030] Building blocks according to the invention are preferably made of plastic by means of injection molding. Suitable plastics for the toy blocks include polypropylene and ABS; for the construction block, recycled plastic can be used.

[0031] The above descriptions are generally applicable to **FIG. 1-4**, and are not limited to blocks only with number of coupling studs **1-4**, but larger numbers as well.

What is claimed is:

1. A building block of U (semi-circle)-shaped parallelepiped hollow comprising a bottom and at most four side walls, at least one or more cylindrical projections extending normally outwardly from said bottom and arranged in single row, matching number of cavities to said cylindrical projections extending normally from the inner face of said bottom, and parallel to said side walls, the longitudinal axis of said cavity passing through the center of said cylindrical projec-

tion, and the peripheries of said cylindrical projections contacting said at least two side walls, whereby the cylindrical projections on one of said blocks can be inserted into the cavities on another of said blocks.

2. A building block as set forth in claim 1, wherein the inside diameter of said cavity is sized to fit snugly said cylindrical projection.

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