

SPECIFICATION

Hinge for Toy Building Sets

This invention generally relates to toy building sets, and more particularly, to a hinge for inter-connecting a pair of blocks forming part of such a building set.

An example of such a building set is disclosed in British patent specification No. 866,557 and comprises hollow, box-shaped blocks provided with engagement studs or projections. With such building sets there is frequently a requirement to provide a hinge connection between adjacent blocks, and as stated above, the invention is concerned with a construction for this purpose.

A hinge in accordance with the invention comprises a pair of hollow, box-shaped toy building blocks of equal height, each having four side walls and a fifth wall together defining a cavity, the fifth wall having at least one projection extending outwardly from one face of the fifth wall, the blocks being hingedly connected along one rectilinear corner edge of each block defined by the intersection of a pair of adjacent side walls, one of the blocks having a tubular bush and the other block having a complementary cylindrical pivot, the arrangement of the bush and pivot relatively to the blocks being such that the axis of the bush and the axis of the pivot both coincide with the respective corner edge. Preferably the pivot is provided with a cylindrical extension having the same diameter as the outer diameter of the bush and a circular face which is flush with the outer face of the fifth wall of the block formed with the pivot, the total length of the pivot including the extension being equal to the height of the blocks and the bottom face of the bush is flush with the open end face of the block formed with the bush, the length of the bush being equal to the length of the pivot without its extension.

An example of a construction in accordance with the invention will now be described with reference to the accompanying drawings, in which:—

Figures 1, 2 and 3 are a top view, a side elevation and a bottom view respectively showing a box-shaped toy building block constituting one component of a hinge according to the invention;

Figures 4, 5 and 6 are similar views showing another box-shaped toy building block constituting the other component of the hinge;

Figure 7 is a top view of the hinge in one extreme position of the two components;

Figure 8 is a bottom view of the hinge shown in Figure 7.

Figures 9 and 10 are top and bottom views respectively showing the same hinge in the other extreme position of the two components;

Figure 11 is a side elevation showing a pair of structures hingedly connected by hinges according to the invention in one extreme position, each structure comprising inter-connected toy building blocks; and

Figure 12 is a top view of the same two

structures in the other extreme position of the hinges.

Referring to the drawings, it will be observed that the hinge shown in Figures 1 to 10 comprises a pair of box-shaped toy building blocks 10a, Figures 1 to 3, and 10b, Figures 5 to 6, each having two side walls 11 and two end walls 12 and a fifth wall 13 defining a cavity 16. The fifth walls 13 are provided with a pair of outwardly extending projections 14 which, in building sets of the kind referred to, are generally defined as "primary" projections. Similarly, both of the blocks 10a and 10b are provided with one projection 15 disposed in the cavity 16. These projections are referred to as "secondary" projections and are arranged and dimensioned so as to provide for engagement with the primary projections of an adjacent toy building block in a toy building set as described in British patent no: 866,557.

The two blocks 10a and 10b are substantially identical except for the provision of a tubular bush 17 in one corner of the block 10a, which will henceforward be designated as the bush block, and a complementary pivot 20 in one corner of the block 10b, which will henceforward be designated as the pivot block. The height of both blocks is designated as h .

The cylindrical pivot 20, as shown more clearly in Figure 5, is provided at one end with a cylindrical extension or head 21 and at the other end with an annular collar 23 which fits into a corresponding recess 19 at the bottom of the bush 17, when the two blocks are assembled, as shown in Figures 7 to 10.

As shown in Figures 2 and 5, the length of the bush 17 is equal to the length of the pivot 20 and hence somewhat shorter than the height h of the blocks, the distance from the top annular face 17a of the bush to the top face 13 of the block 10a being equal to the length of the extension 21 of the pivot. The circular top face 22 of the extension 21 is flush with the top face 13 of the pivot block 10b. Likewise, the annular bottom face 18 of the bush 17 is flush with the bottom face adjacent the open end of the bush block defined by the plane of the end faces 11' and 12' of the walls 11 and 12.

So as to provide for a snap locking effect between the pivot 20 and the bush 17 when the two components are assembled to form the hinge, the pivot is provided with a pair of slits 24 allowing for a slight compression of the pivot 20 and the collar 23, until the latter is received in the recess 19. In that position, the pivot 20 with the collar 23 will again expand and prevent axial displacement of the two hingedly inter-connected blocks 10a and 10b.

As shown in Figures 5 and 6, the side and end walls of the pivot block adjacent the pivot 20 are partly removed so as to leave an open space 25 to enable the pivot 20 to be inserted in the bush 17.

It is an essential feature of the construction that, in the position wherein the pivot 20 is rotatably mounted in the bush 17, the axis x of

the bush 17 and the axis y of the pivot 20 both coincide with a corner edge 11—12 in each block defining an axis xy of rotation of the hinge.

If, and only if, this geometrical condition is complied with, the hinge according to the invention will be capable of taking up the two extreme positions shown in Figures 7 and 8 and 9 and 10 respectively, i.e. where two end walls 12 or two side walls 11 abut one another.

Figures 11 and 12 illustrate by way of example how a construction in accordance with the invention may be used for hingeing two structures 100a and 100b, such as a pair of walls, each comprising an assembly of standard toy building blocks inter-connected by a series of hinges. In one extreme position of the hinges corresponding to Figures 7 and 8, the planes of the sides of the two structures coincide, so as to form one continuous wall, whereas, in the other extreme position, the hinges are folded together with their side faces abutting one another, as shown in Figure 12.

It will be understood that the two box-shaped toy building blocks of the hinges may have other rectangular shapes than that illustrated in the drawings and may comprise an arbitrary plurality of primary and secondary projections. However, the construction illustrated and described with reference to the drawings will generally be considered as preferred.

Claims

1. A hinge comprising a pair of hollow, box-shaped toy building blocks of equal height, each

having four side walls and a fifth wall together defining a cavity, the fifth wall having at least one projection extending outwardly from one face of the fifth wall, the blocks being hingedly connected along one rectilinear corner edge of each block defined by the inter-section of a pair of adjacent side walls, one of the blocks having a tubular bush and the other block having a complementary cylindrical pivot, the arrangement of the bush and pivot relatively to the blocks being such that the axis of the bush and the axis of the pivot both coincide with the respective corner edge.

2. A hinge as claimed in claim 1, wherein the pivot is provided with a cylindrical extension having the same diameter as the outer diameter of the bush and a circular face which is flush with the outer face of the fifth wall of the block formed with the pivot, the total length of the pivot including the extension being equal to the height of the blocks, and wherein the bottom face of the bush is flush with the open end face of the block formed with the bush, the length of the bush being equal to the length of the pivot without its extension.

3. A hinge as claimed in claim 1 or claim 2, in which the side walls of the block adjacent the pivot are partially removed to enable the pivot to be assembled with the bush of the other block.

4. A hinge comprising a pair of box-shaped toy building blocks hingedly connected together substantially as described and as illustrated with reference to Figures 1 to 10 of the accompanying drawings.



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