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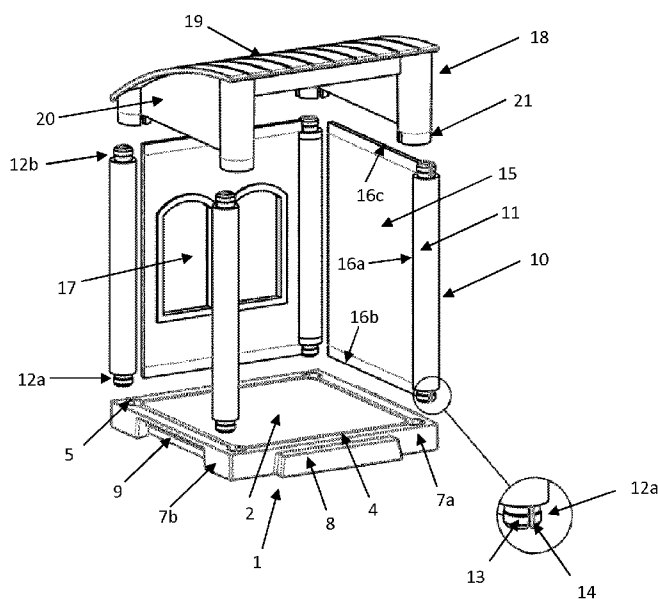


Fig. 4a

(57) Abstract: The present invention relates to a toy building system comprising least one base plate (1), a plurality of support columns (10), and at least one roof segment (18), and a method of assembling such a toy building system. The method comprises the steps of locking an end section (12a) of a support column (10) into a recess (5) in a top surface (2) of a base plate (1), and, if the support column (10) is provided with a wall plate (15), simultaneously inserting one edge (16b) of the wall plate (15) into a groove (4) in the top surface (2). The above step is repeated such that each recess (5) is provided with one support column (10). Thereafter, each opposing end section (12b) of the support columns (10) is locked into a corresponding recess (5) arranged in a roof frame (20) or in a bottom surface (3) of a further base plate. After assembly, the planes of the surfaces (2, 3) and/or the roof frame (20) of the toy building system are arranged in parallel.

TOY BUILDING SYSTEM AND COMPONENTS FOR A TOY BUILDING SYSTEMField of the invention

The present invention relates to a toy building system and its interrelated components, as well as a method of assembling such a toy building system.

Background of the invention

One common children's toy is the doll house, usually comprising a mainly rigid multi-storey structure having one large opening for access to the interior of the doll house. The interior of such a conventional doll house can be decorated and furnished to a child's liking, but the structure itself is, however, not very flexible as regards building, demolishing, and re-building the house to any desired size or layout.

US5876261A discloses a somewhat more flexible toy building set comprising a number of building modules which each defines a space. The building modules are designed such that they may be stacked or arranged next to each other in order to construct single- or multi-storey toy buildings, with or without wall elements. However, such a solution still has limited flexibility since the coupling means of the set comprise of non-releasable snap or friction locks, or at least locks which are difficult to release. I.e., rebuilding is, if not impossible, at least very difficult for a small child. Further, this solution comprises small parts, which makes the toy unsuitable for small children.

Summary of the invention

It is an object of the present invention to mitigate the above problems, and to provide a toy building system, and toy building components, which are suitable for small children and easy to both assemble and disassemble, while still being stable when assembled.

According to a first aspect of the present invention, these objects are achieved by a base plate comprising at least one surface provided with at least one groove extending at least partially along the periphery of the surface, the groove being provided with at least one enlarged recess, the groove and the recess extending at least partially through the base plate in a direction perpendicular to the surface.

Such a solution provides a stable base, which does not comprise any loose parts, and which is simple to use even for a very small child. The base is easy to manufacture and use, while still allowing for flexible and secure connection with other toy building components.

Further, each recess may comprise at least one notch extending at least partially along its inner periphery, in the direction of the recess, allowing for a simple yet stable interlocking with other toy building components.

In one embodiment, the base plate comprises at least one peripheral edge section provided with a protrusion and at least one peripheral edge section provided with a slot, each protrusion being arranged such that it is releasably lockable together with a corresponding slot provided on a further base plate, allowing any number of base plates to be interconnected and to form a larger ground plate.

The protrusion and slot may together form a dovetail joint, which is a simple and stable way of releasably connecting two toy building components.

According to a second aspect of the present invention, these objects are achieved by a support column comprising a centre section and two end sections arranged at opposing ends of the centre section, the centre section and the end sections having a common centre axis, and each end section having outer dimensions which are smaller than the outer dimensions of the centre section.

Such a solution provides a support column which does not comprise any loose parts, and which is simple to use even for a very small child. The support column is not only simple to manufacture and use, but also stable while still allowing for flexible and secure connection to other toy building components.

The centre section and the end sections may be tube shaped, allowing the support column to be rotated when interconnected to other toy building components.

In one embodiment, each end section is provided with a flange, protruding along its outer periphery in a plane perpendicular to the direction of the centre axis, allowing for simple yet stable interconnection with other toy building components.

In a further embodiment, each end section is provided with a through aperture, extending along its periphery in the direction of the centre axis, allowing the end section to yield such that the end section is easily and releasably interconnected with other toy building components, even for a small child.

A wall plate may be attached to the support column such that a peripheral edge of the wall plate extends along the support column in the direction of its centre axis, allowing the support column and the wall plate to be manufactured in one integral piece.

The wall plate may be provided with at least one through hole, allowing for windows and doors, making the toy building system even more flexible.

According to a third aspect of the present invention, these objects are achieved by a roof segment comprising a roof and a roof frame provided with a plurality of connection portions arranged along the periphery of the roof frame, each connection portion comprising a recess which extends in a direction perpendicular to a plane of the roof frame.

Such a solution provides a roof segment which does not comprise any loose parts, and which is simple to use even for a very small child. The roof segment is easy to manufacture and use, while still allowing for flexible and secure connection to other toy building components.

In one embodiment, each recess comprises at least one notch extending at least partially along its inner periphery, in the direction of the recess.

According to a fourth aspect of the present invention, these objects are achieved by a toy building system comprising at least one base plate, at least four support columns, and at least one roof segment, as described above.

Such a solution provides a toy building system which comprises of a few, larger parts, and which is secure and simple to use even for a very small child. The components of the toy building system are easy to manufacture and use, while still allowing for flexible and secure connection to other toy building components.

According to a fifth aspect of the present invention, these objects are achieved by a method of assembling a toy building system comprising at least one base plate, a plurality of support columns, and at least one roof segment, as described above, the method comprising the steps of locking an end section of a support column into a recess in a top surface of a base plate, and, if the support column is provided with a wall plate, simultaneously inserting one edge of the wall plate into a groove in the top surface, repeating the above step such that each recess is provided with one support column, locking each opposing end section of the support columns into a corresponding recess arranged in a roof frame or in a bottom surface of a further base plate, whereby the planes of the surfaces and/or the roof frame of the toy building system are arranged in parallel.

Such a method provides a toy building system which does not comprise any loose parts, and which is simple to use even for a very small child. The toy building system is easy to use, while still allowing for flexible and secure connection to other toy building components.

The method may further comprise the step of, if the support column is provided with a wall plate and its opposing end section is to be fitted into a recess in a bottom surface of a further base plate, simultaneously inserting an opposing edge of the wall plate into at least one groove section in the bottom surface, hence increasing the stability of the assembled toy building system.

In one embodiment, the step of locking an end section into a recess comprises an end section flange interlocking with at least one recess notch, a through aperture allowing the end section to yield, hence facilitate releasable locking.

The method may further comprise the step of locking the peripheral edges of two base plates together by inserting a protrusion arranged on one base plate into a slot arranged in another base plate, allowing any number of base plates to be easily interconnected and form one large base plate system.

Generally, all terms used in the claims are to be interpreted according to their ordinary meaning in the technical field, unless explicitly defined otherwise herein. All references to "a/an/the [element, device, component, means, etc.]" are to be interpreted openly as referring to at least one instance of said element, device, component, means, etc., unless explicitly stated otherwise. Further, by the term "comprising" it is meant "comprising but not limited to" throughout the application.

Brief description of the drawings

This and other aspects of the present invention will now be described in more detail, with reference to the appended drawings showing currently preferred embodiments of the invention.

Fig. 1a shows a top perspective view of one embodiment of a base plate according to the present invention, said view comprising two such identical base plates in a detached state.

Figs. 1b-1c show bottom perspective views of the base plate embodiment in Fig. 1a.

Fig. 1d shows a top perspective view of the base plate embodiment in Fig. 1a-1c, said view comprising two identical base plates in an attached state.

Fig. 2a shows a perspective view of one embodiment of a support column according to the present invention.

Figs. 2b-2c show two side views of two further embodiments of a support column according to the present invention.

Fig. 2d shows a top view of the embodiments in Figs. 2b-2c.

Fig. 2e shows a further side view of the embodiments in Figs. 2b-2c.

Fig. 3a shows a top perspective view of two embodiments of a roof segment according to the present invention.

Fig. 3b shows a bottom perspective view of the embodiments in Fig. 3a.

Fig. 4a shows an exploded view of one embodiment of a toy building system according to the present invention, comprising the above discussed interrelated components.

Fig. 4b shows a perspective view of the embodiment in Fig. 4a, when assembled.

Detailed description

The present invention relates to a toy building system, its interrelated components, and a method of joining the different components together such that they form a single- or multi-storey toy building.

Figs. 1a-1d show a base plate 1, which constitutes the foundation of the inventive toy building system. The base plate can be used to build not only the ground plate of the building, but also the floors/inner ceilings of any intermediate storeys. The base plate may be rectangular, preferably square, but can have any suitable shape such as circular or pentagonal. The height of the plate is considerably smaller than its width and depth. In other words, height means the extension of the peripheral edge 7 of the base plate in the vertical direction when the plate is placed on an essentially horizontal surface such as a floor or table. The width and depth of the plate means the extension of the plate in directions perpendicular to its height and the peripheral edge 7, i.e., the dimensions which form the top surface 2 and the bottom surface 3 which together make up the main surfaces and/or planes of the base plate. The surfaces/planes 2, 3 will extend in parallel with a floor or table when the base plate is placed thereupon, i.e., extend in the horizontal direction. The base plate is provided with a number of grooves, recesses, and protrusions which will function as connection points for one or several of the other components of the system. This will be discussed in more detail below.

As shown in Figs. 1a-1d, the base plate 1 essentially comprises of a top surface 2, a bottom surface 3, extending in parallel with the top surface 2, and a peripheral edge 7, extending between the top and bottom surfaces 2, 3. The peripheral edge 7 is preferably provided with at least one protrusion 8 and at least one corresponding slot 9, which are both designed to be releasably lockable to a corresponding slot 9 or protrusion 8 arranged on another base plate 1. In a preferred embodiment, the peripheral edge 7 is provided with two protrusions 8 and two slots 9, each being

arranged centrally on one peripheral edge section 7a, 7b each. The use of protrusions 8 and slots 9 allows interconnection of multiple base plates 1a, 1b, such that the toy building, or at least its ground plate, can be built to any desired size. Fig. 1d shows two base plates in an attached state, i.e., the protrusion 8 of a first base plate 1a being inserted into the slot 9 of a second base plate 1b.

In an embodiment where the base plate 1 is rectangular, preferably square, the peripheral edge 7 comprises of four perpendicularly arranged edge sections 7a, 7b. Preferably, two abutting edge sections 7a are provided with one protrusion 8 each, while the remaining two edge sections 7b are provided with one slot 9 each. The protrusions 8 and slots 9 are designed such that they, when locked together, form a dovetail joint. I.e., the protrusion 8 extends from the peripheral edge 7a of one base plate 1a and may interlock with a corresponding slot 9, cut into the peripheral edge 7b of another base plate 1b. Both protrusion 8 and slot 9 have a shape which, in the plane of the surfaces 2, 3 is wider at one end and narrower at one end. The protrusion 8 is widest at its outermost end, while the slot 9 is widest at its innermost end; outermost referring to the end which is farthest from the centre of the base plate and innermost referring to the end which is closest to the centre of the base plate.

Two base plates 1a, 1b may be locked together by placing the slotted 9 edge of one base plate 1b vertically above the protruded 8 edge of another base plate 1a, and subsequently lowering the upper base plate 1b, in a direction which is perpendicular to the surfaces 2, 3, to the vertical level of the lower base plate 1a. With such a movement, the slot 9 is slid over the protrusion 8, hence interconnecting the two. The base plates may be unlocked by a corresponding, but reversed, movement wherein the base plate 1b is lifted upwards, vertically, in a direction from the other base plate 1a. The slot 9 is preferably covered by the top surface 2, such that the slot 9 is exposed when seen from the bottom surface 3 or from the peripheral edge 7 of the base plate, but covered when seen completely from the top surface 2. As a result thereof, the base plates 1a, 1b remain locked together if one lifts the base plate 1a, provided with the protrusion 8, upwards. I.e., in order to release the base plates 1a, 1b from each other, one must lift the base plate 1b with the slot 9. Of course, when having multiple interlocked base plates 1, one must lift one base plate at a time, but always a plate which only locked by means of its slot(s) 9. This solution allows for a firm lock in the direction of the surfaces 2, 3, i.e., horizontally, but which still is easily releasable in a direction which is perpendicular to the surfaces 2, 3, i.e., vertically.

As shown in Fig. 1a, the top surface 2 is provided with a groove 4 which extends in a direction perpendicular to the top surface 2 and in a closed loop along the periphery of the top surface 2. In a

preferred embodiment, the groove 4 extends partially through the base plate 1. However, the groove 4 could, at least partially, extend completely through the height of the base plate 1.

The groove 4 is provided with a number of enlarged recesses 5, preferably placed equidistantly along the extension of the groove 4. In an embodiment comprising a rectangular base plate 1, one recess 5 is arranged at each base plate corner area, and hence the closed loop groove 4 extends through, and connects with, four recesses 5. Each recess 5 extends completely through the base plate 1. However, the recess 5 could extend only partially through the base plate 1. The recess 5 is preferably tubular, i.e., has a circular cross section area in a plane which is parallel to the plane of the top surface 2. However, the recess cross section area could, e.g., be square. Each recess 5 comprises at least one notch 6 which extends at least partially along the inner periphery of the tubular recess 5 and in the same direction as the recess 5. In a preferred embodiment, the recess 5 is provided with six such notches 6. Each notch 6 is provided with a lip 22, which extends in a plane parallel to the planes of the surfaces 2, 3. Every second notch 6a has its lip 22a at the notch end which is closest to the top surface 2, while the remaining notches 6b have their lips 22b at the notch end which is closest to the bottom surface 3.

Correspondingly, and as shown in Figs. 1b-1c, the bottom surface 3 is provided with at least one groove which extends in a direction perpendicular to the bottom surface 3, and partially through the base plate 1. However, the groove(s) 4 could, at least partially, extend through the entire height of the base plate 1. The bottom surface 3 could be provided with one groove 4 which extends in a closed loop along the periphery of the bottom surface 3. However, groove 4 is preferably divided into at least two groove sections 4a, 4b. In an embodiment comprising a square base plate, one recess 5 is arranged at each base plate corner. Each groove 4, or groove section 4a, 4b, extends through, and is connected to, at least one recess 5. In a preferred embodiment, one shorter groove section 4a extends across only one recess 5, i.e. across one corner, while a further, longer, groove section 4b extends across the remaining three recesses 5, i.e. across three corners. As mentioned above, the recess 5 extends completely through the base plate. However, the recess could, at least partially, extend through the entire height of the base plate 1.

Figs. 2a-2e show a number of embodiments of a support column 10, which is adapted to be connected with the previously mentioned base plate 1 when assembling the toy building system.

The support column 10 comprises an elongate centre section 11 and two end sections 12a, 12b, arranged at opposing ends of the centre section 11. The centre section 11 and the end sections 12a, 12b are preferably manufactured as one, integral piece. However, the end sections 12a, 12b may be manufactured as two separate sections which are subsequently attached to the centre

section 11. The elongate centre section 11 and the end sections 12a, 12b have a common centre axis. The centre section 11 and the end sections 12a, 12b preferably have circular cross sections, making every section 11, 12a, 12b cylindrical and the entire support column 10 essentially tube shaped. The centre section 11 and/or the end sections 12a, 12b could however have a differently shaped cross section such as, e.g., square. Also, the centre section 11 could have a differently shaped cross section than the end sections 12a, 12b, e.g., the centre section 11 could be square and the end sections 12a, 12b circular.

Preferably, each end section 12a, 12b has outer dimensions which are smaller than the outer dimensions of the centre section 11. I.e., when the support column 10 is tubular and comprises of cylindrical sections, the outer diameter of the end sections 12a, 12b is smaller than the outer diameter of the centre section 11, giving the support column 10 a stepped configuration.

As shown in Fig. 2a, each end section 12a, 12b is preferably provided with a flange 13, protruding outwards from the outer surface of the end section 12a, 12b. The flange 13 extends essentially along the outer periphery of the end section 12a, 12b in a plane perpendicular to the direction of the centre axis. The flange 13 is preferably shaped as a ridge and located near the very top of the end section 12a, 12b. Each end section 12a, 12b is preferably also provided with a through aperture 14, extending along the periphery of the end section 12a, 12b. The through aperture extends through the wall of the tubular end section, forming a slit in the wall. The through aperture 14 is elongate in shape and extends in the direction of the centre axis, preferably along the entire length of the end section 12a, 12b. Hence the wall of the end section is allowed to yield such that its diameter decreases when being pressed against in a direction perpendicular to the direction of the centre axis.

Further, as shown in Figs. 2b-2e, the support column 10 may be provided with a wall plate 15, preferably rectangular in shape. One peripheral edge 16a of the wall plate 15 is attached to the support column 10 along the entire length of the support column 10 and in the direction of its centre axis. I.e., at least two opposing edges of the wall plate 15 are of the same length as the support column 10. The wall plate 15 and the support column 10 are preferably manufactured as one, integral piece, but the wall plate 15 could also be manufactured as a separate section which subsequently may be attached to the support column 10. The wall plate 15 may be a solid plate or be provided with one or several openings 17, such as holes for doors or windows.

Figs. 3a-3b show two embodiments of a roof segment 18, comprising a roof 19 and a roof frame 20. The Figs. show the roof 19 as a saddle roof and an arched roof, respectively, but any suitable roof shape is possible. The roof frame 20 is preferably essentially rectangular in one plane.

The roof 19 is arranged on top of the roof frame 20, i.e., the roof 19 is adapted for being the highest vertical point of any assembled toy building.

As seen in Fig. 3b, the bottom of the roof frame 20 is provided with a plurality of connection portions 21 arranged along the periphery of the roof frame 20. In an embodiment with a rectangular, preferably square, shape the roof frame 20 comprises of four perpendicularly arranged sections, each corner of the roof frame 20 being provided with one such connection portion 21. Each connection portion 21 comprises a recess 5, of the same kind as the recesses found on the base plate 1, which extends in a direction perpendicular to the plane of the roof frame 20. The recess 5 is preferably tubular, i.e., it has a circular cross section in a plane which is parallel to the plane of the roof frame 20. However, the recess cross section could, e.g., be square. Each recess 5 comprises at least one notch 6 which extends at least partially along the inner periphery of the tubular recess 5 and in the direction of the recess. Each notch 6 is provided with a lip 22.

Figs. 4a-4b show a toy building system comprising one base plate 1, four support columns 10, and one roof segment 18. A method for assembling the inventive toy building system will be discussed below, with reference to all Figs., but mainly Fig. 4a.

The assembled toy building system can be based on solely one base plate, or on multiple base plates which are interconnected horizontally, i.e., arranged next to each other, and/or vertically, i.e., stacked on top of each other. The horizontal connection is executed by means of protrusions 8 and slots 9, while the vertical connection is executed by means of recesses 5, grooves 4, and support columns 10. This will be discussed in more detail below.

When assembling a toy building system according to the present invention, it is preferable to build vertically upwards, i.e., to start from the bottom with one base plate 1 placed on a floor or table. The assembly method of the present invention describes such an approach. However, it is of course possible to assemble the toy building system with a top-down approach instead, starting with a roof segment.

A toy building system comprising the above discussed interrelated components is preferably assembled by first placing a base plate 1, on its bottom surface 3, on a horizontal surface such as a floor or a table. The top surface 2 of the base plate 1 is, as previously discussed, provided with a vertically extending groove 4, forming a closed loop which extends along the periphery of the base plate 1. The top surface 2 of the base plate 1 is further provided with four vertically extending recesses 5 which are connected to the groove 4 and placed equidistantly along the groove 4, i.e.,

each corner of the rectangular base plate 1 is provided with one recess 5 and the groove 4 extends there between.

After placing the base plate 1 on a horizontal surface, one support column 10 is arranged at each corner of the base plate 1 by inserting one end section 12a of each support column 10 into one recess 5. If a support column 10 is provided with a wall plate 15, the bottom edge 16b of the wall plate 15 is simultaneously inserted into the groove 4. The end section 12a is locked against at least one lip 22 within the recess 5, by means of flange 13.

After connecting the four support columns 10 to the first base plate 1, the opposite, free ends 12b of the four support columns 10 are connected to either a roof segment 18 or a further base plate 1. The connection is done in the same way as discussed above, by inserting the end section 12b of each support column 10 into a recess 5. The end section 12b is locked against at least one lip 22 within the recess 5. The roof segment 18 comprises of a roof 19 and, in a preferred embodiment, a rectangular roof frame 20. Each corner area of the roof frame is provided with one connection portion 21 having a recess 5 provided with at least one notch 6, i.e., having essentially the same design as the recesses 5 in the base plate 1. When connecting, the opposing, and still free, end sections 12b of the support columns are inserted into one such recess 5 each, and the end section 12b is locked against at least one lip 22 within the recess 5.

If the support column 10 is provided with a wall plate 15, and the subsequent building component is yet another base plate 1, the top edge 16c of the wall plate 15 will be inserted into one or several groove sections 4a, 4b, at the same time as inserting the end section 12b into the recess 5. As previously discussed, the bottom surface 3 of such a base plate 1 may be provided with one closed loop groove 4 or a number of partial groove sections 4a, 4b, each base plate corner being provided with one recess 5. The recesses 5 are arranged such that each groove section 4a, 4b extends through, and is connected to, at least one recess 5. I.e., the top edge 16c of the wall plate 15 is inserted into either one groove section 4b, extending along a complete edge of the base plate 1, or into two groove sections 4a, 4b, one located at the base plate corner where the top edge 16c will begin and one at the adjacent corner, where the top edge 16c will end.

As previously discussed, the end sections 12a, 12b are releasably locked into their corresponding recesses 5 by means of a flange and notch function. Each end section 12a, 12b is provided with a flange 13, and each recess 5 is provided with at least one, e.g. four to eight but preferably six, notches 6. By pushing the end section 12a, 12b into the recess 5, the flange 13 is pressed over a lip 22 arranged at an end of the notch, locking the flange 13 into the notch(es) 6. Further, the end section 12a, 12b is provided with a through aperture 14 which allows the wall of the

end section 12a, 12b to yield inwardly when being moved over lip, hence facilitating the releasable lock.

As mentioned above, the recess 5 is preferably provided with six notches 6. Each notch 6 is provided with a lip 22, which extends in a plane parallel with the planes of the surfaces 2, 3. Every second notch 6a has its lip 22a arranged at the notch end which is closest to the top surface 2, while the remaining notches 6b have their lips 22b arranged at the notch end which is closest to the bottom surface 3. When locking two support columns into the same recess 5, i.e., when building a multi-storey building, the flange 13 of the lower support column 10 locks with the, e.g. three, lips 22b which are located closest to the bottom surface 3, while the flange 13 of the upper support column 10 locks with the, e.g. three, lips 22a which are located closest to the top surface 2. Of course, any suitable number of notches 6a, 6b is possible.

Several base plates 1 may be locked together, initially or at the end of assembly, by locking the peripheral edges 7a, 7b of two base plates 1a, 1b together by inserting a protrusion 8, arranged on a first base plate 1a, into a slot 9, arranged in a second base plate 1b, the protrusion and slot forming a dovetail joint. Locking is executed through downwardly directed, vertical movement of the second base plate 1b towards the first base plate 1a. Unlocking is executed through the same movement but in reverse, i.e., in an upwardly directed vertical direction of the second base plate 1b.

After assembly, all surfaces 2, 3 and roof frames 20 are arranged such that they are parallel with each other and with the surface on which the toy building system is placed.

The person skilled in the art realizes that the present invention by no means is limited to the preferred embodiments described above. On the contrary, many modifications and variations are possible within the scope of the appended claims. For example, the roof may have a different design. Also, the components of the toy building system could be made in any suitable material such as plastic, e.g. ABS, or wood. Further, the through hole(s) of the wall plate could be of any number or shape, or be provided with a movable element such as, e.g., a door.

CLAIMS

1. Base plate (1) comprising
at least one surface (2, 3) provided with at least one groove (4) extending at least partially along the periphery of said surface (2, 3),
said groove (4) being provided with at least one enlarged recess (5),
said groove (4) and said recess (5) extending at least partially through said base plate (1) in a direction perpendicular to said surface (2, 3).
2. Base plate (1) according to claim 1, wherein each recess (5) comprises at least one notch (6a, 6b) extending at least partially along its inner periphery, in the direction of the recess (5).
3. Base plate (1) according to claim 1 or 2,
further comprising at least one peripheral edge section (7a) provided with a protrusion (8)
and at least one peripheral edge section (7b) provided with a slot (9),
each protrusion (8) being arranged such that it is releasably lockable together with a
corresponding slot (9) provided on a further base plate (1).
4. Base plate (1) according to claim 3, wherein said protrusion (8) and said slot (9) together
form a dovetail joint.
5. Support column (10) comprising
a centre section (11) and two end sections (12a, 12b) arranged at opposing ends of said
centre section (11),
said centre section and said end sections having a common centre axis, and
each end section (12a, 12b) having outer dimensions which are smaller than the outer
dimensions of said centre section (11).
6. Support column (10) according to claim 5, wherein said centre section (11) and said end
sections (12a, 12b) are tube shaped.
7. Support column (10) according to claim 5 or 6, wherein each end section (12a, 12b) is
provided with a flange (13), protruding along its outer periphery in a plane perpendicular to
the direction of said centre axis.

8. Support column (10) according to any of claims 5-7, wherein each end section (12a, 12b) is provided with a through aperture (14), extending along its periphery in the direction of said centre axis.
9. Support column (10) according to any of claims 5-8, wherein a wall plate (15) is attached to said support column (10) such that a peripheral edge (16a) of said wall plate (15) extends along said support column (10) in the direction of its centre axis.
10. Support column (10) according to claim 9, wherein said wall plate (15) is provided with at least one through hole (17).
11. Roof segment (18) comprising
a roof (19) and
a roof frame (20) provided with a plurality of connection portions (21) arranged along the periphery of said roof frame (20),
each connection portion (21) comprising a recess (5) which extends in a direction perpendicular to a plane of said roof frame (20).
12. Roof segment (18) according to claim 11, wherein each recess (5) comprises at least one notch (6a, 6b) extending at least partially along its inner periphery, in the direction of the recess (5).
13. Toy building system comprising
at least one base plate (1) according to claims 1-4,
at least four support columns (10) according to claims 5-10, and
at least one roof segment (18) according to claims 11-12.
14. Method of assembling a toy building system comprising at least one base plate (1) according to claims 1-4, a plurality of support columns (10) according to claims 5-10, and at least one roof segment (18) according to claims 11-12,
said method comprising the steps of:
-locking an end section (12a) of a support column (10) into a recess (5) in a top surface (2) of a base plate (1),
-and, if said support column (10) is provided with a wall plate (15), simultaneously inserting one edge (16b) of said wall plate (15) into a groove (4) in said top surface (2),

-repeating the above step such that each recess (5) is provided with one support column (10),

-locking each opposing end section (12b) of said support columns (10) into a corresponding recess (5) arranged in a roof frame (20) or in a bottom surface (3) of a further base plate, whereby the planes of said surfaces (2, 3) and/or said roof frame (20) of said toy building system are arranged in parallel.

15. Method of assembling a toy building system according to claim 14, further comprising the step of, if said support column (10) is provided with a wall plate (15) and its opposing end section (12b) is to be fitted into a recess (5) in a bottom surface (3) of a further base plate, simultaneously inserting an opposing edge (16c) of said wall plate (15) into at least one groove section (4a, 4b) in said bottom surface (3).
16. Method of assembling a toy building system according to claim 14 or 15, wherein said locking of an end section (12a, 12b) into a recess (5) comprises
an end section flange (13) interlocking with at least one recess notch (6a, 6b),
a through aperture (14) allowing said end section (12a, 12b) to yield, and hence facilitating releasable locking.
17. Method of assembling a toy building system according to any of claims 14-16, further comprising the step of locking the peripheral edges (7a, 7b) of two base plates (1a, 1b) together by inserting a protrusion (8) arranged on one base plate (1a, 1b) into a slot (9) arranged in another base plate (1b, 1a).

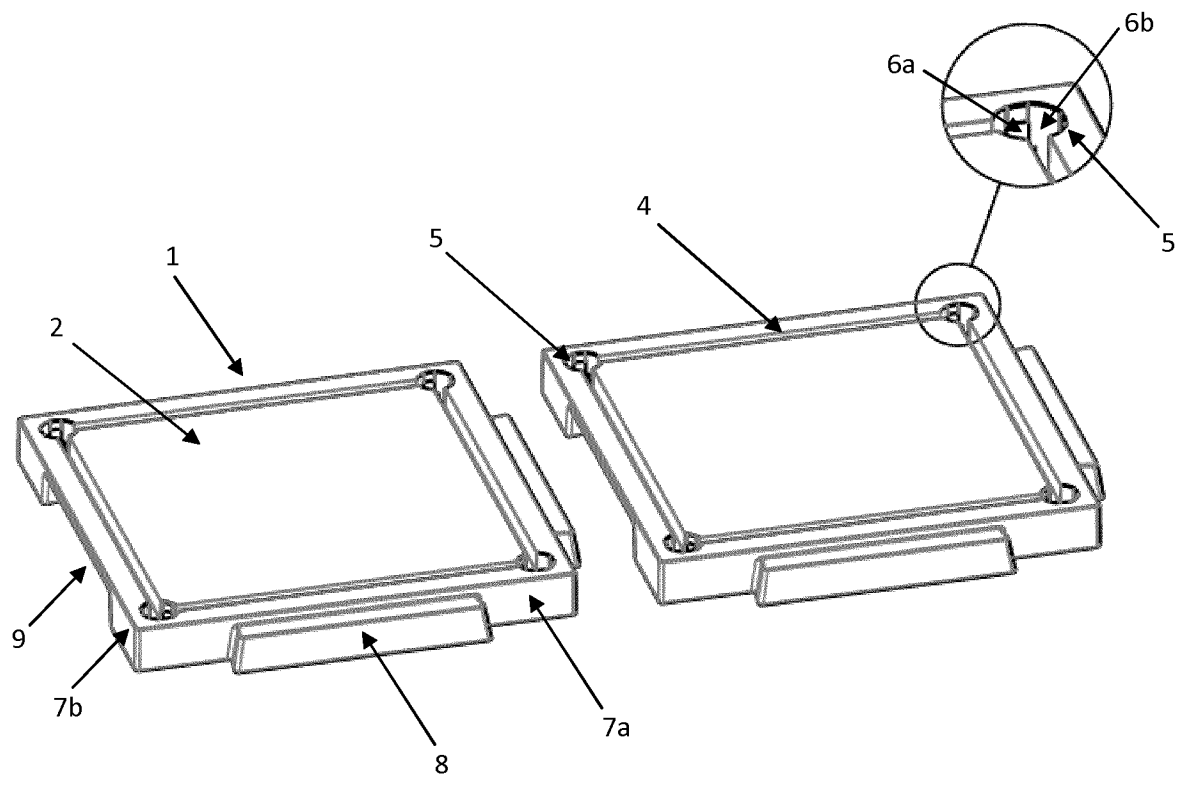


Fig. 1a

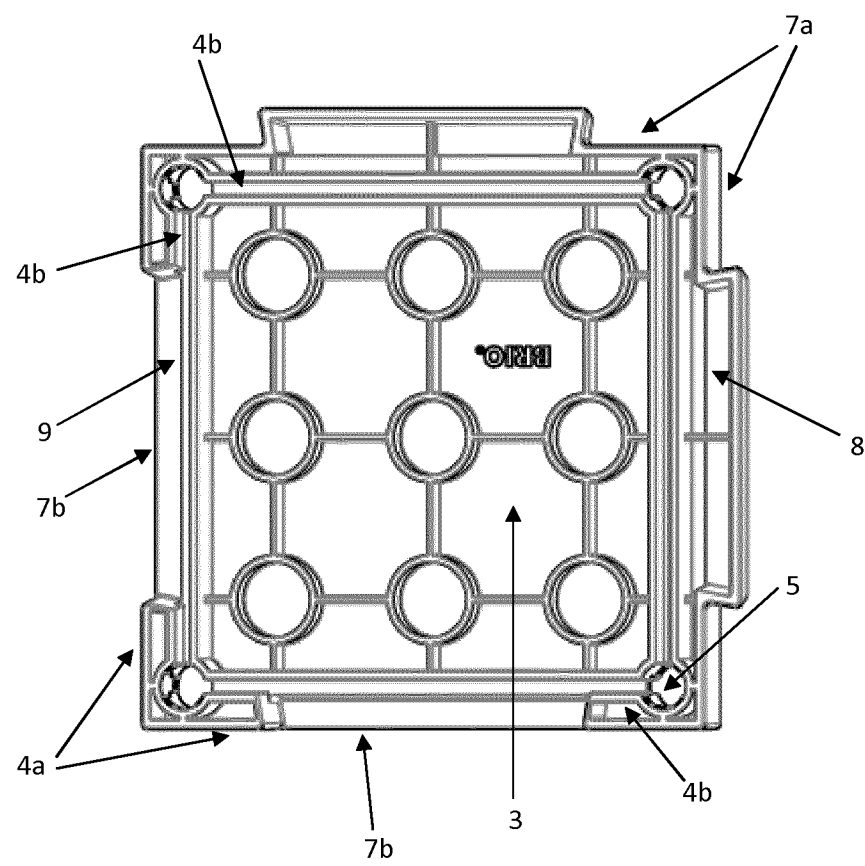


Fig. 1b

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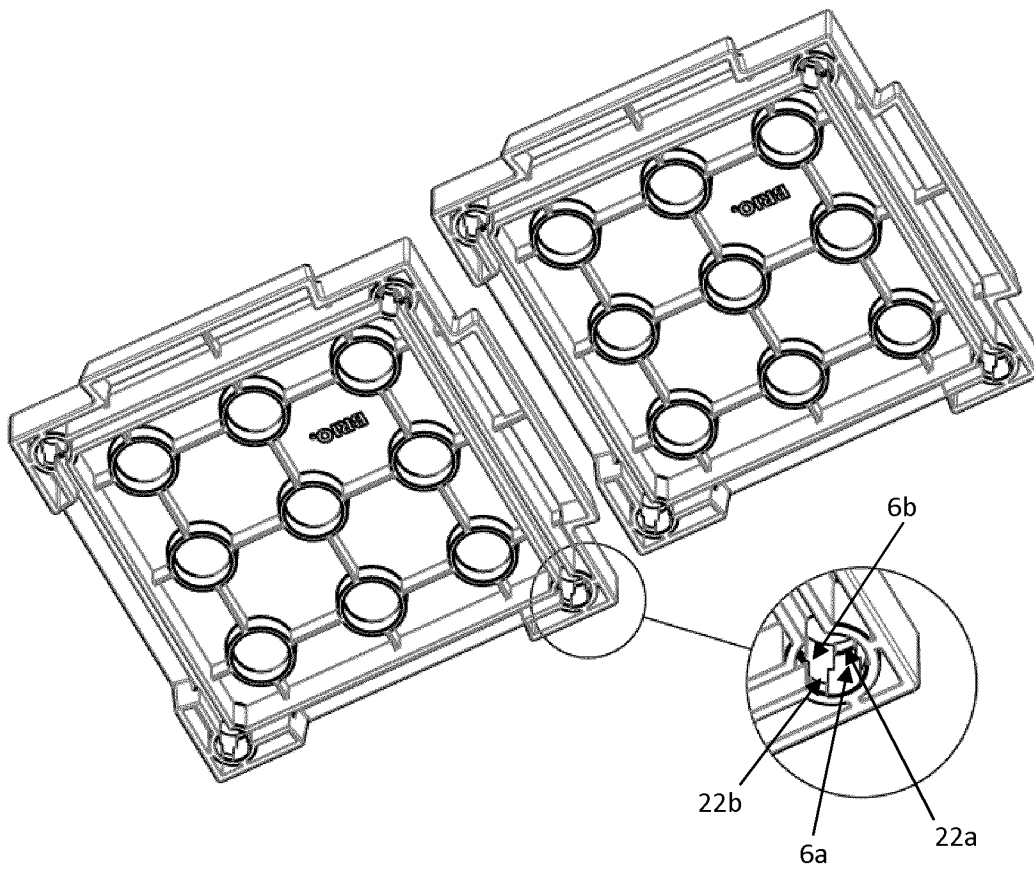


Fig. 1c

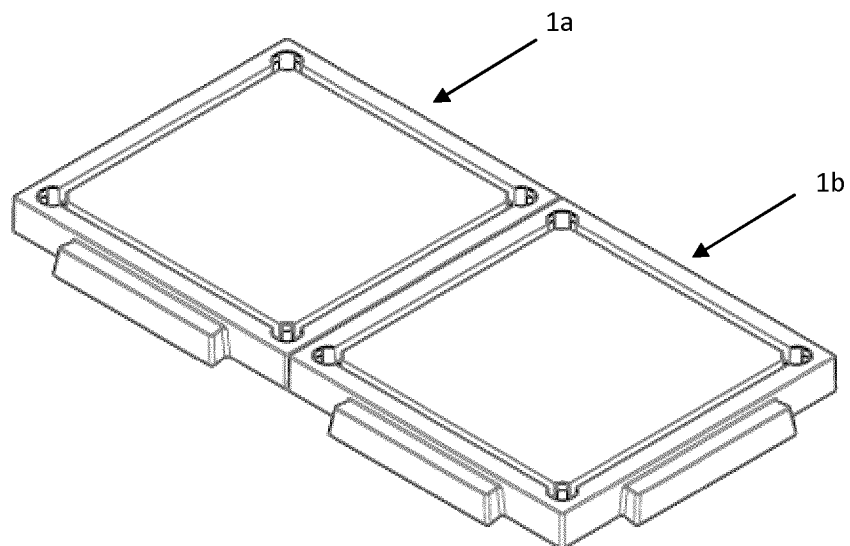


Fig. 1d

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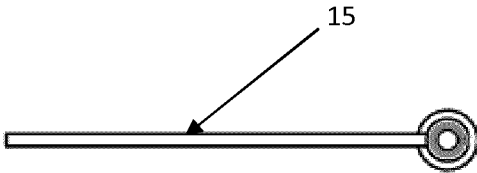


Fig. 2d

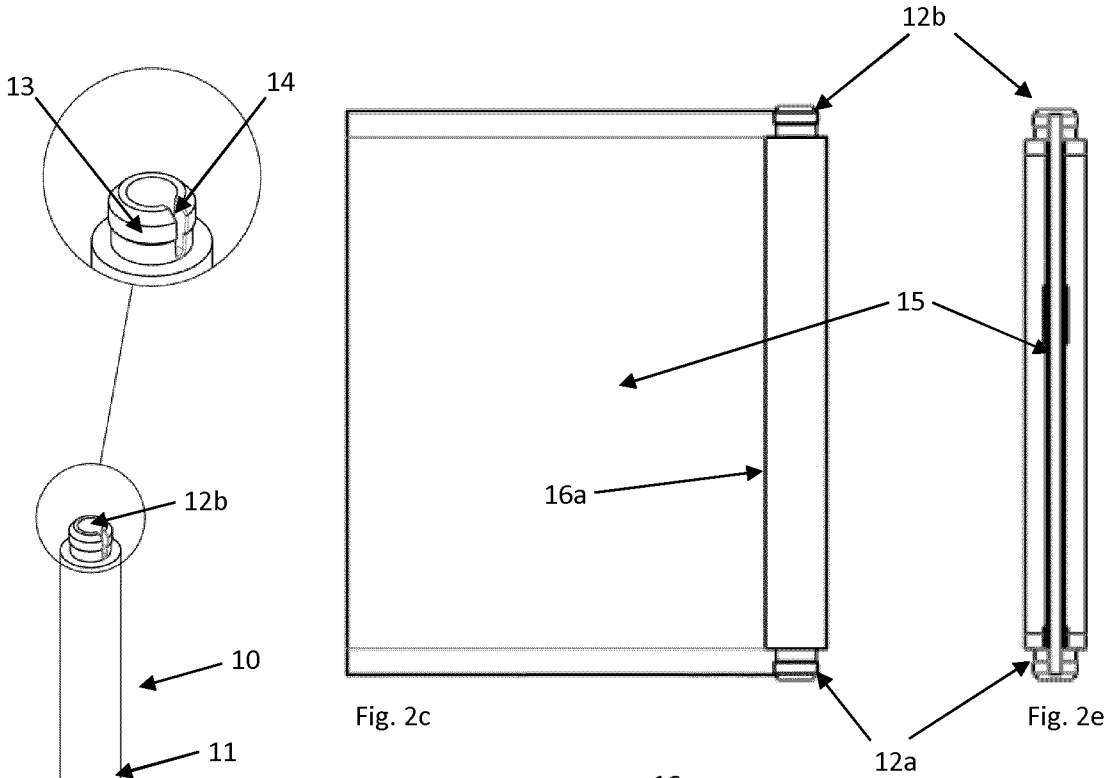


Fig. 2c

Fig. 2e

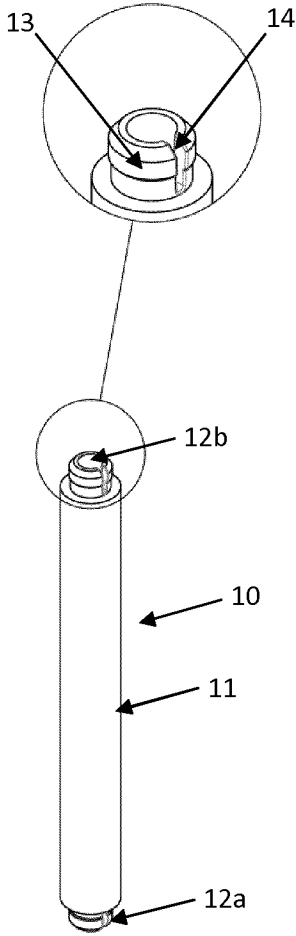


Fig. 2a

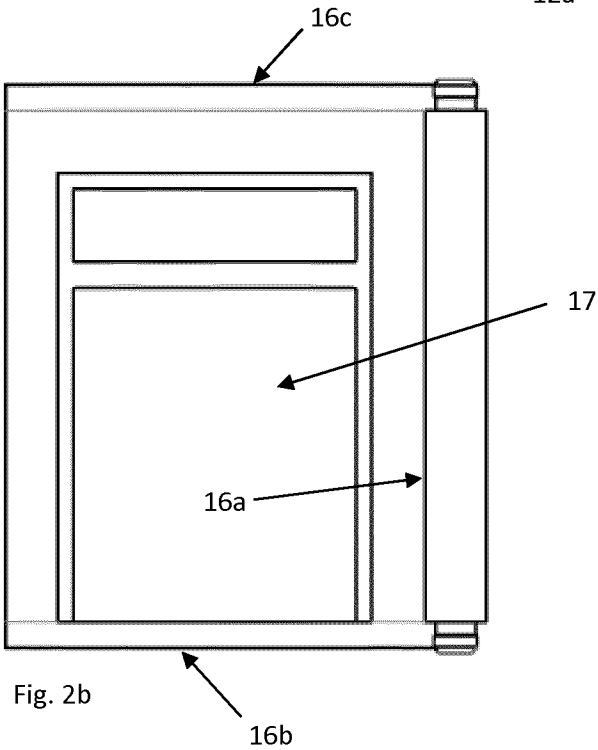


Fig. 2b

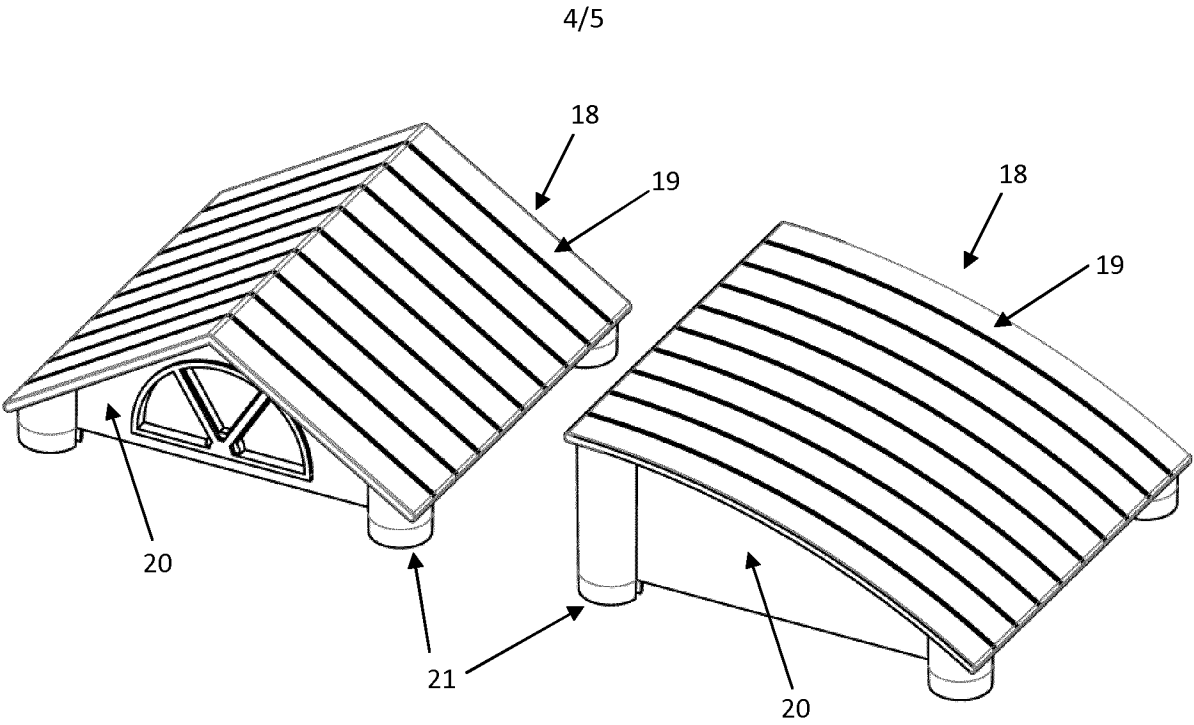


Fig. 3a

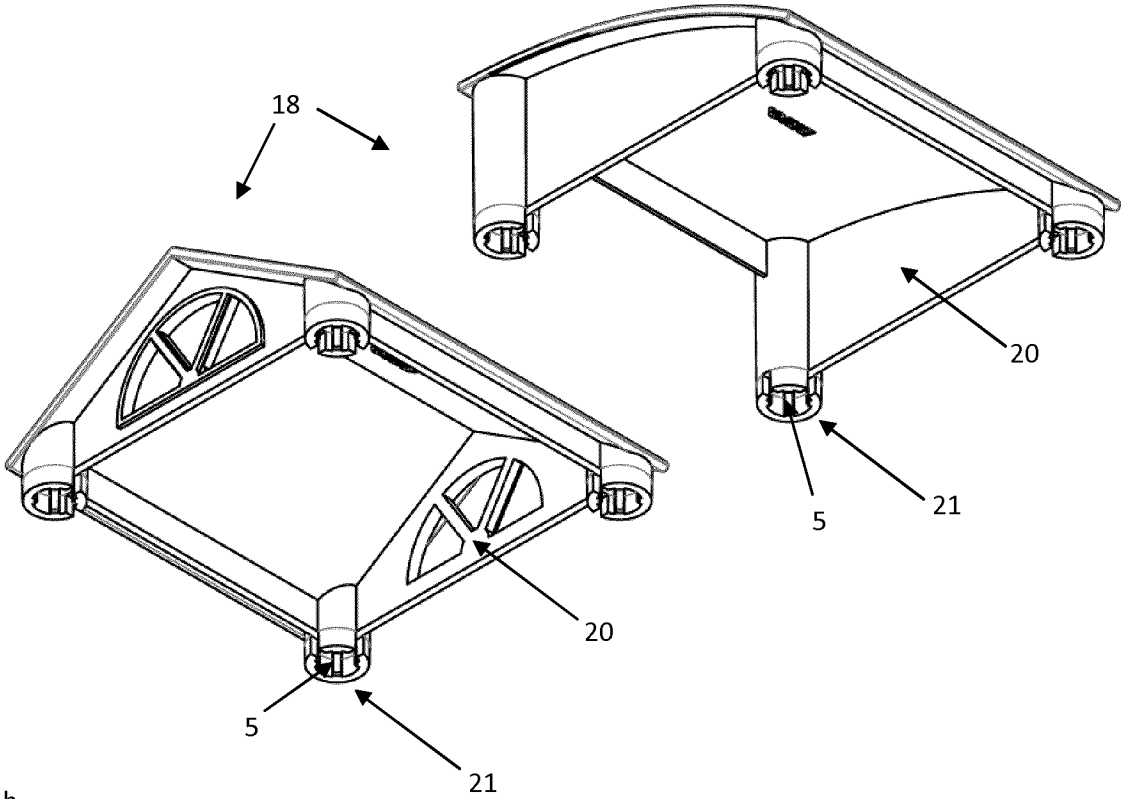


Fig. 3b

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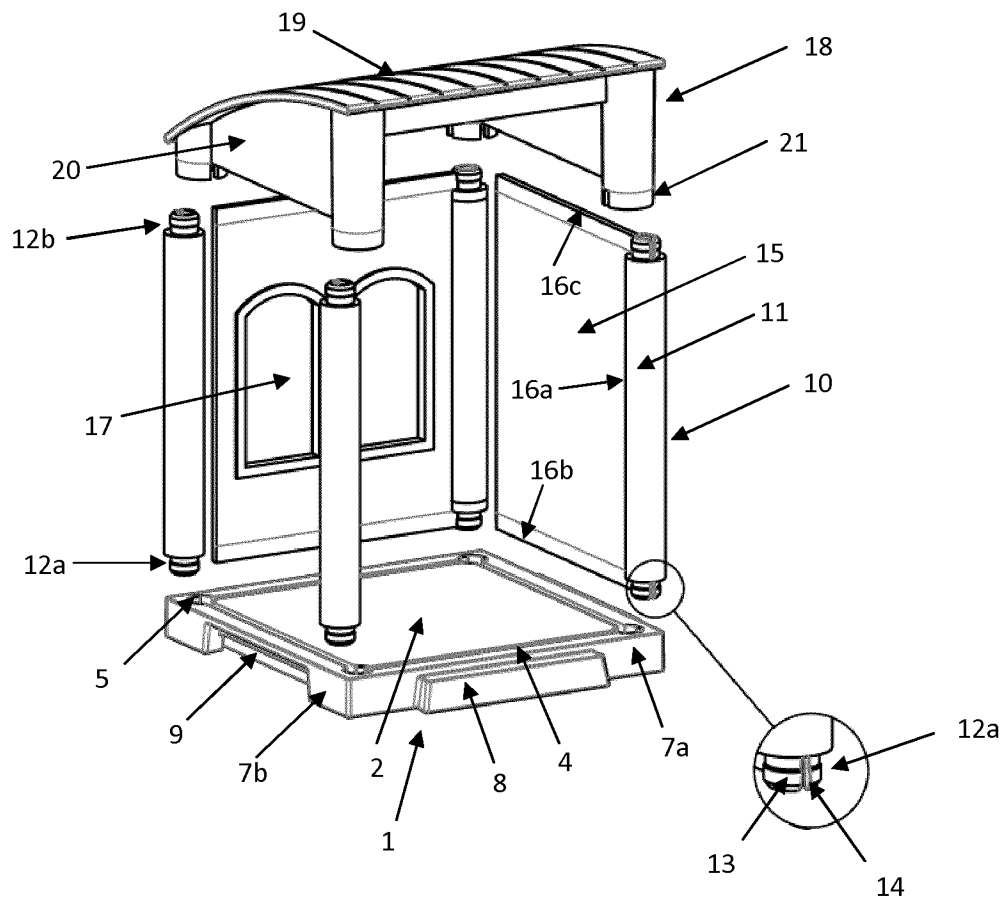


Fig. 4a

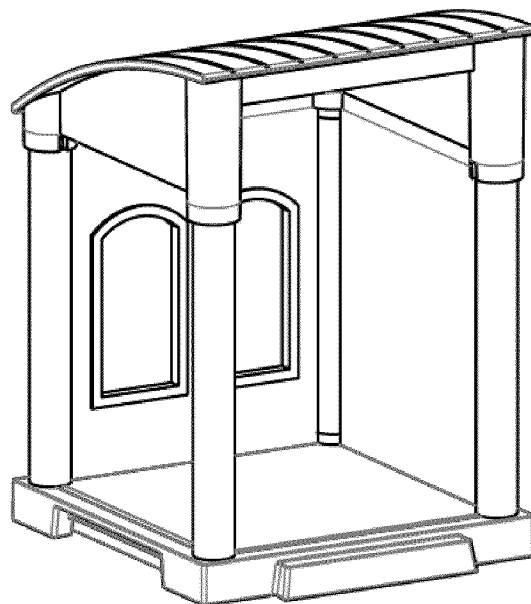


Fig. 4b

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2016/051427

A. CLASSIFICATION OF SUBJECT MATTER
INV. A63H33/04 A63H33/08
ADD.

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)
A63H

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

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

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 094 090 A (WALMER HARRY E) 13 June 1978 (1978-06-13)	1,2
Y	column 2, line 63 - column 6, line 7; figures	3,4
Y	US 2007/281580 A1 (SAMBENEDETTO MELISSA C [US]) 6 December 2007 (2007-12-06) paragraph [0029]; figures	3,4
A	FR 90 616 E (M. DANIEL WAGON) 19 January 1968 (1968-01-19) page 2, line 61 - page 3, line 8; figures	1-4
A	CN 201 404 689 Y (LIAO FUXIN) 17 February 2010 (2010-02-17) the whole document	1-4



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

13 October 2016

Date of mailing of the international search report

03/01/2017

Name and mailing address of the ISA/

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Authorized officer

Lucas, Peter

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2016/051427

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-4

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4

Base plate (1) comprising at least one surface (2, 3) provided with at least one groove (4) extending at least partially along the periphery of said surface (2, 3), said groove (4) being provided with at least one enlarged recess (5), said groove (4) and said recess (5) extending at least partially through said base plate (1) in a direction perpendicular to said surface (2, 3). Solving the problem of providing a base plate.

2. claims: 5-10

Support column (10) comprising a centre section (11) and two end sections (12a, 12b) arranged at opposing ends of said centre section (11), said centre section and said end sections having a common centre axis, and each end section (12a, 12b) having outer dimensions which are smaller than the outer dimensions of said centre section (11). Solving the problem of providing a support column.

3. claims: 11, 12

Roof segment (18) comprising a roof (19) and a roof frame (20) provided with a plurality of connection portions (21) arranged along the periphery of said roof frame (20), each connection portion (21) comprising a recess (5) which extends in a direction perpendicular to a plane of said roof frame (20). Solving the problem of providing a roof segment.

4. claims: 13-17

Toy building system and method comprising at least one base plate (1) according to claims 1-4, at least four support columns (10) according to claims 5-10, and at least one roof segment (18) according to claims 11-12. Solving the problem of providing a toy building system and method of building such a system.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2016/051427

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4094090	A	13-06-1978	NONE	

US 2007281580	A1	06-12-2007	NONE	

FR 90616	E	19-01-1968	NONE	

CN 201404689	Y	17-02-2010	NONE	
