

[54] **PLAYGROUND ASSEMBLY SET**

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[58] Field of Search 46/30, 31, 215; 52/650, 52/DIG. 10, 585

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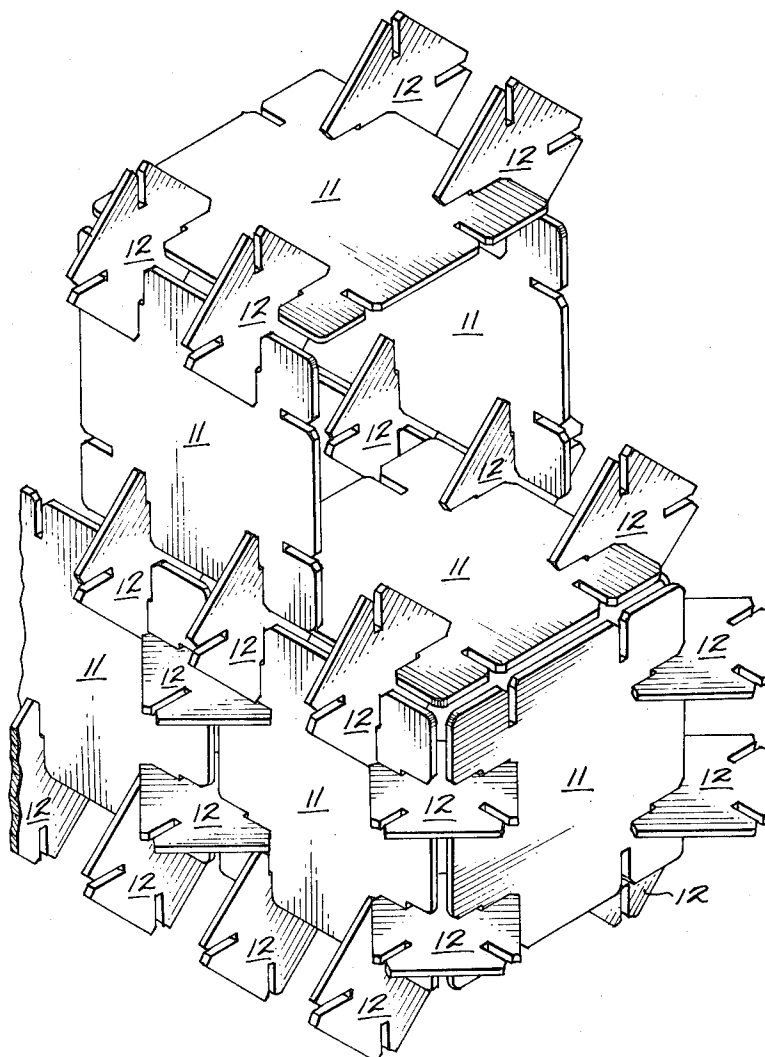
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[57]

ABSTRACT

Playground assembly elements consisting of a plurality of planar elements of at least two different sizes. One element is substantially larger in area than the other element, and both elements have notches in strategic locations so that the two elements may be easily combined in numerous permutations, and just as easily disassembled, without the use of fasteners or other connecting elements. The elements are of a size and construction such that they are capable of safely supporting the weight of children playing in or on the constructed assemblies.

6 Claims, 8 Drawing Figures



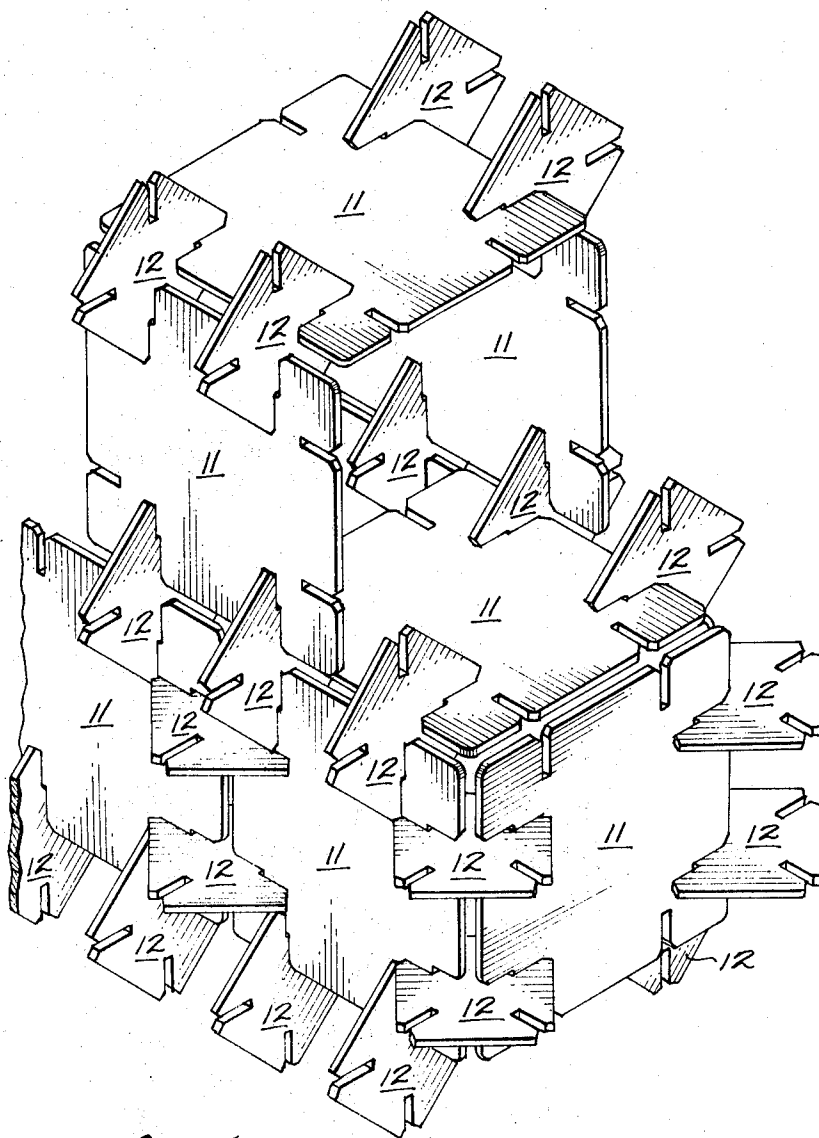


Fig. 6

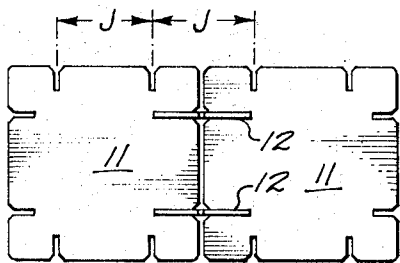


Fig. 7

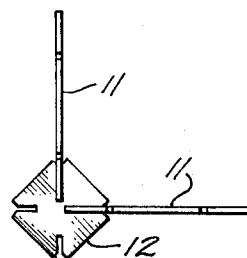


Fig. 8

SHEET 2 OF 2

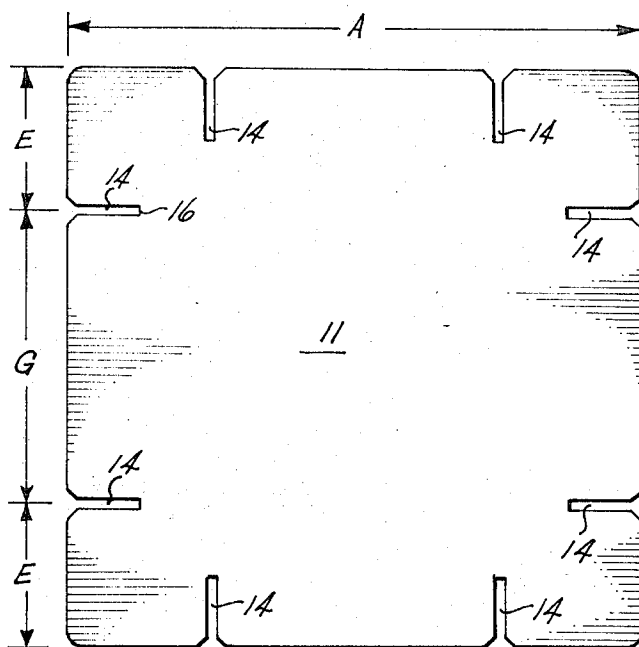


Fig. 1

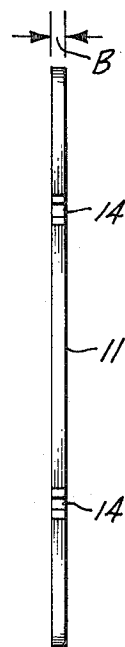


Fig. 2

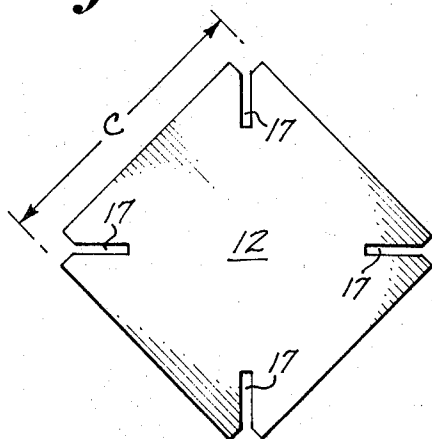


Fig. 3

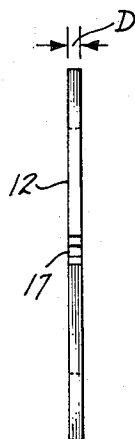


Fig. 4

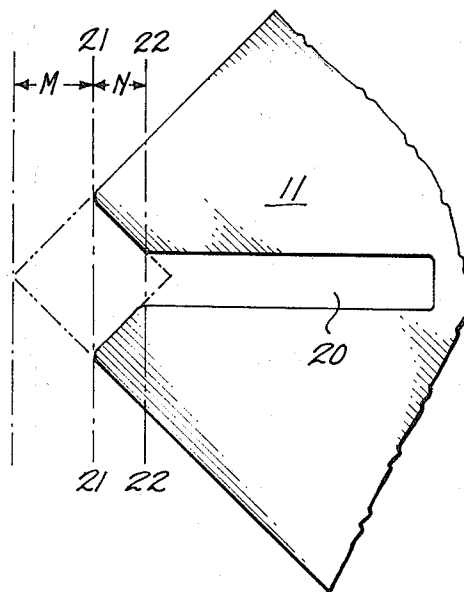


Fig. 5

PLAYGROUND ASSEMBLY SET

BACKGROUND OF THE INVENTION

This invention relates to playground apparatus for children, and more specifically, to a category of playground apparatus wherein the child utilizes given building elements to construct various playground assemblies, according to his own imagination.

The art of entertaining children has, in the past, resulted in a great deal of creative effort. Toys, games and other such entertainment devices have provided a continuing challenge for the mind of the creative inventor, and this has been especially true in the last 75 years, as it has become less and less necessary for children to make a working contribution, with a resulting increase in time for play-type activities. Such devices for children have generally had two purposes: (1) to provide entertainment for the child, i.e., to keep the child occupied for considerable periods of time; and (2) to teach or assist the child in learning a particular skill, physical coordination, or in some instances, social lessons, such as peer cooperation. The last few years has witnessed an increasing emphasis on the educational or "teaching" toy, as it is generally accepted that such items are a pleasurable, and thus effective, means for assisting a child to learn needed physical as well as social skills.

One characteristic of the maturing child appears to be an inclination toward construction, according to his imagination and particular level of skill that he has achieved. This inclination toward construction and assembling various disassociated elements into an imaginative whole has prompted the development of many toys which allow the child to construct various models, such as houses, cars, buildings, etc., from individually supplied elements. Many of these toys are adapted such that they may be easily assembled to form the desired model and then just as easily disassembled, the same elements then being used to form a different assembly.

This category of assembly toys, however, while allowing the child to have relative free rein of his imagination, and satisfying to a certain extent the child's inclination to build, also has numerous disadvantages. First of all, the overwhelming majority of prior art assembly toys are miniature, and the child thus is not able to play on or in them. Furthermore, the miniature assemblies are capable of being constructed entirely by a single individual, a feature which, although desirable in some respects, is undesirable from the standpoint of a child learning cooperation with others. In view of the above, it is an object of the present invention to provide a modular building set comprising elements which may be assembled in various structural arrays.

It is another object of the invention to provide a modular building set comprising elements of such configuration that assemblies of the elements are sufficiently strong that children may play in or on them.

It is another object of the present invention to provide a modular building set comprising elements which may be easily assembled and disassembled by children, without the need of fasteners or braces.

It is a further object of the present invention to provide a modular building set comprising elements which require cooperation between children in building with the elements.

It is a still further object of the present invention to provide a modular building set comprising elements which may be assembled into a large variety of configurations.

It is a further object of the present invention to provide a modular building set comprising elements which, when not assembled, fit into a relatively compact space.

It is a still further object of the present invention to provide a modular building set comprising elements wherein the configuration of the individual elements is conducive to a child's imagination in assembling the various elements into a particular whole.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of one element of the present invention.

FIG. 2 is an elevational view of a first element of the present invention.

FIG. 3 is a plan view of a second element of the present invention.

FIG. 4 is an elevational view of a second element of the present invention.

FIG. 5 is a view of the notch cut into the second element of the present invention.

FIG. 6 is a diagram of one particular configuration utilizing the first and second elements.

FIG. 7 is a plan view of two building elements connected opposed by two connecting elements.

FIG. 8 is a side elevation of two building elements connected normal to each other by two connecting elements.

SUMMARY OF THE INVENTION

To accomplish the above and other objects of the present invention, a plurality of first and second planar assembly elements are provided, each element having a predetermined size, shape and configuration of assembly notches. More particularly, the first element is a planar member, preferably in the form of a square having notches cut in a predetermined fashion in the sides of the element, the notches extending transversely across the edge of the element, and inwardly a substantial distance without significantly closing upon one another. The second element is likewise a planar member, preferably in the form of a square, although substantially smaller than the first element, and has notches located at various locations on the periphery thereof, the notches extending transversely across the edge of the element and inwardly toward its center. A plurality of each element then can be fitted together according to the imagination and wishes of the children using them, resulting in strong, stable assemblies, without the use of other elements such as braces, connections, fasteners, etc.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1 through 4, the general configuration of the two elements making up the playground assembly elements of the present invention are shown. Each of the elements is constructed of marine-grade birch plywood, although other woods or materials of similar strength and structure characteristics may be used. A plurality of each element is provided so that the users may be able to build many different structures utilizing various combinations of the two elements. A

typical set of elements, providing a substantial building capability, might be 20 to 30 of the elements shown in FIGS. 1 and 2, and 60 to 80 of the smaller elements shown in FIGS. 3 and 4, although set combinations may be equally useful, depending upon the particular application.

In the preferred embodiment, the element shown in FIG. 1 is, in plan, a square having a dimension A of 2 feet, and a dimension B of one-half inch. This particular size and shape allows a substantial amount of construction flexibility without being too heavy or cumbersome for the child, while providing the large size and appropriate strength to form enclosures, platforms, or the like, large enough so that a child may conveniently play on or within the assemblies. The element shown in FIGS. 1 and 2 is the "building block" element of the modular playground set.

The element shown in FIGS. 3 and 4 is likewise a square, having a dimension C of $9\frac{1}{2}$ inches, and a dimension D of one-half inch, similar to the first element. These smaller elements are the "connection block" elements, utilized to connect together the building elements into various original assemblies. Thus, while the building element will form the floor, ceiling and walls of a typical enclosure, the connecting elements will provide the stable structural connection and support between the building elements.

This principle is demonstrated in FIGS. 6, 7 and 8, which shown configurations utilizing the building and connecting elements. Thus, for instance, in FIG. 6, a plurality of building elements 11 form the basic structural enclosure, while a plurality of connecting elements 12 provide a stable structural connection between the building elements. The resulting structure is a sturdy, safe enclosure, sufficiently large enough and strong enough so that children may easily play in it and upon it.

The shape and size of the two elements were chosen for maximum building flexibility and strength, as well as economy of fabrication from standard 4x8 foot plywood sheets. The building elements were selected to be 2 foot squares so as to provide sufficient size without becoming cumbersome, and to provide maximum flexibility in module design, as the use of the square enables the user to expand his module in any direction he chooses.

The connecting elements of the preferred embodiments were chosen to be substantially smaller squares again for the reasons of strength and design flexibility. The connecting element is substantially smaller than the building element, so that the building elements can be connected together with a minimum loss of space. The shape, moreover, provides strength for connecting the building elements without undue loss of space, due to the connecting element extending into the area enclosed by the building elements. For instance, if the connecting elements were circular, they would possess additional strength, but would also extend substantially farther into the area bounded by the building elements, thus restricting movement, while if the connecting element were contoured to give more interior room, a substantial reduction in strength would result. Nevertheless, other element shapes may be utilized to practice the invention, although the optimum shape, for the purposes of the invention, is the square.

The notch structure by means of which the elements achieve a stable connection is shown in FIGS. 1

through 4, and shown in detail in FIG. 5. With respect to FIGS. 1 and 2, a portion 14—14 is cut or notched out of the element at predetermined locations around the periphery of the element. The cut-out portion extends entirely through the element edgewise, beginning at the edge and extending inwardly normal to the edge from which it started to point 16—16, 2.75 inches from the edge for the building element shown in FIGS. 1 and 2. The width of the cut-out portion 14—14 in plan is slightly greater than the one-half inch edge dimension of the connecting element to slip into the notches edgewise. In the preferred embodiment, two such notches are provided along each 2 foot edge of the building element, the two notches being spaced from opposing edges a distance E, 5.68 inches, with distance G being 12.37 inches between the respective centers of the two notches of an individual edge.

With respect to the connecting element of FIGS. 3 and 4, the notches are similar, but not identical, to those of the building element of FIGS. 1 and 2. The cut-out portion 17—17 in the connecting element begins at each corner of the element and extends inwardly for 3.50 inches from the imaginary corner of the square. Again, the cut-out portion 17—17 extends transversely across the edge of the element, and has a width in plan of slightly greater than one-half inch.

The length and location of the notches are important to the invention, as the modular capability of the elements provided by the location of the notches and the shape of the elements allows for significant design flexibility. For instance, when two building elements are connected as shown in FIGS. 7 or 8 by connecting elements, the edge distance J between adjacent slot centers will always be the same, 12.37 inches. This allows the structure to be extended in any direction. Furthermore, when two building elements are connected in an opposed direction as in FIG. 7, there exists slightly more than 1 inch of space between the opposing building elements. When the building elements are connected normal to each other, as in FIG. 8, the edges of the elements do not quite abut each other. The above-described slot configuration and location results in assemblies which are structurally sound, flexible in design, and having minimum open space between connected elements.

Another feature of the notch in the elements is the flare, shown in FIGS. 1-4, and in detail in FIG. 5. With respect to the building elements, the flare is cut at 45° angle to the edge with each of the resulting corners being slightly rounded. The angled flare cut extends approximately one-half inch into the length of the notch itself. This flare allows for the easy insertion and removal of the connecting elements.

With respect to the connecting elements, a similar flare is used, although the flare is made with respect to a corner and not a straight edge. The flare is especially important in the connecting element notches because the notches begin at the corners of the square element. If there is no flare, the building elements are difficult to insert, and the stress at the corners will eventually cause cracking and breaking. By using the flare, the stress concentration points are moved toward a more stable portion of the connecting elements. Referring to FIG. 5, a corner of a connecting element 11 is shown. The flare and the notch may be easily cut at one time by use of a standard router, or similar technique, or the corner may be first cut off along line 21—21, and the

notch cut subsequently. In any event, the distance M is three-fourths inch, and the distance N is one-half inch, in the preferred embodiment. The corners of the flare, both in the building and connecting elements, are rounded, as shown. This flare portion of the notch results in a reduction of the stress at the corners of the notch, and allows for easy insertion and removal of the building elements from the connecting elements. Additionally, the notches 20 may be slightly tapered inward of the element, to allow for additional flexibility in construction.

The building and connecting elements then are connected together to form various configurations, the particular assembly being limited only by the imagination of the user and the number and kind of elements available. The notch type of connection allows building and connecting elements to fit together quite readily. For instance, with respect to the building elements 11—11 and the connecting elements 12—12 in FIG. 6, it can be seen that when the connecting elements and the building elements fit together, the respective notches in each element meet edgewise.

To fit the two elements together, as shown in FIG. 6, it is only necessary to orient the one element edgewise, or at a 90° angle, with respect to the other, and then slide the two mating slots of the elements, respectively, together until the end boundaries of the respective slots meet. By mating the plurality of building and connecting elements in such a manner, a multitude of stable assemblies may be produced, large enough and stable enough for a child to play within or upon, as demonstrated in FIG. 6. Furthermore, by rounding the corners of all the elements, and sanding their edges, any sharp edges or angles which could injure the user are eliminated.

The building and connecting elements utilized by the present invention take advantage of the maturing child's natural desire and ability to build, and encourage him, because of the size of the elements, to develop cooperative habits with other children so that a particularly complex structure may be implemented.

The use of these playground elements clearly demonstrates to the child the concept of modular construction, both its advantages and disadvantages, and also assists in developing his physical skills and his ability to visualize in terms of three-dimensional geometry. Furthermore, although the elements may be combined into cumbersome or even unwieldy structures, as well as compact ones, they may be easily and quickly disassembled, and the plurality of building and connecting elements may be stored in a relatively compact space, as the elements are all planar, of regular size, and have no protrusions.

Although an exemplary embodiment of the invention has been disclosed herein for purposes of illustration,

it will be understood that various changes, modifications and substitutions may be incorporated in such embodiment without departing from the spirit of the invention. For instance, different sized and shaped elements may be utilized as well as the ones disclosed in the present invention. Still other modifications may be made without departing from the spirit of the invention which is defined by the claims which follow.

What is claimed is:

1. A building set, the elements of which can be connected with one another to form modular structures, comprising:

a plurality of thin-edged, multilateral, plate-like building elements having defined therein a plurality of first slots of predetermined uniform depth, including at least two slots opening onto each edge of said building element, each of said two slots being spaced an equal distance from the nearest corner of said building element; and,

a plurality of thin-edged, plate-like connecting elements substantially smaller in surface area than said building elements and having defined therein a plurality of second slots of predetermined uniform depth, said connecting elements joining with said building elements in slidable interconnection between said first and second slots, wherein the distance between adjacent first slots in a given edge of said building elements is equal to twice said equal distance plus the difference between the straight-line distance separating opposing second slots in said connecting element and a distance equal to twice the depth of said first slots.

2. An apparatus in accordance with claim 1, wherein each edge of said building elements is substantially 2 feet in length, and wherein each of said plurality of building elements and connecting elements are substantially one-half inch thick and are made of a substantially nonresilient material.

3. An apparatus in accordance with claim 2, wherein said connecting element includes at least two pairs of opposing second slots.

4. An apparatus in accordance with claim 3, wherein said connecting element is a square, and each of said second slots open on a corner thereof.

5. An apparatus in accordance with claim 4, wherein each of said second slots is relieved where it opens onto a corner of said connecting element.

6. An apparatus in accordance with claim 5, wherein each relieved edge of said connecting element between a second slot and the peripheral edge is substantially straight, and forms a right angle with the respective peripheral edge and an obtuse angle with the respective second slot.

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