United States Patent

[11] 3,629,969

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[54] **SEGMENTED MODEL HOUSE**
7 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** **46/21**
[51] **Int. Cl.** **A63h 33/16**
[50] **Field of Search** 46/21, 12, 19; 206/45.11

[56] **References Cited**

UNITED STATES PATENTS

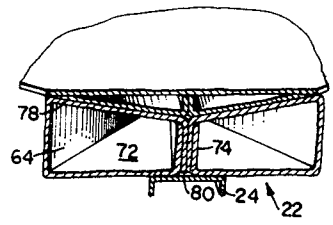
1,493,277	5/1924	Pool	46/12
2,112,062	3/1938	Berger	206/45.11
2,872,753	2/1959	Fenton	46/12
3,186,781	6/1965	Lax	206/45.11 X
3,220,773	11/1965	Burns	46/15 X

FOREIGN PATENTS

453,077	9/1936	Great Britain	46/21

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Assistant Examiner—D. L. Weinhold
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ABSTRACT: A toy dollhouse comprised of a series of movable hinged-together sections having a pair of vertical wall portions connected at a corner which form the exterior walls of the house in its normal state with the sections folded together and which form interior walls or partitions viewed from inside the house when the sections are folded outwardly in various positions, thereby exposing and providing access to the house interior. Each house section may include a series of floor members supported on its vertical wall portions in addition to top and bottom members.



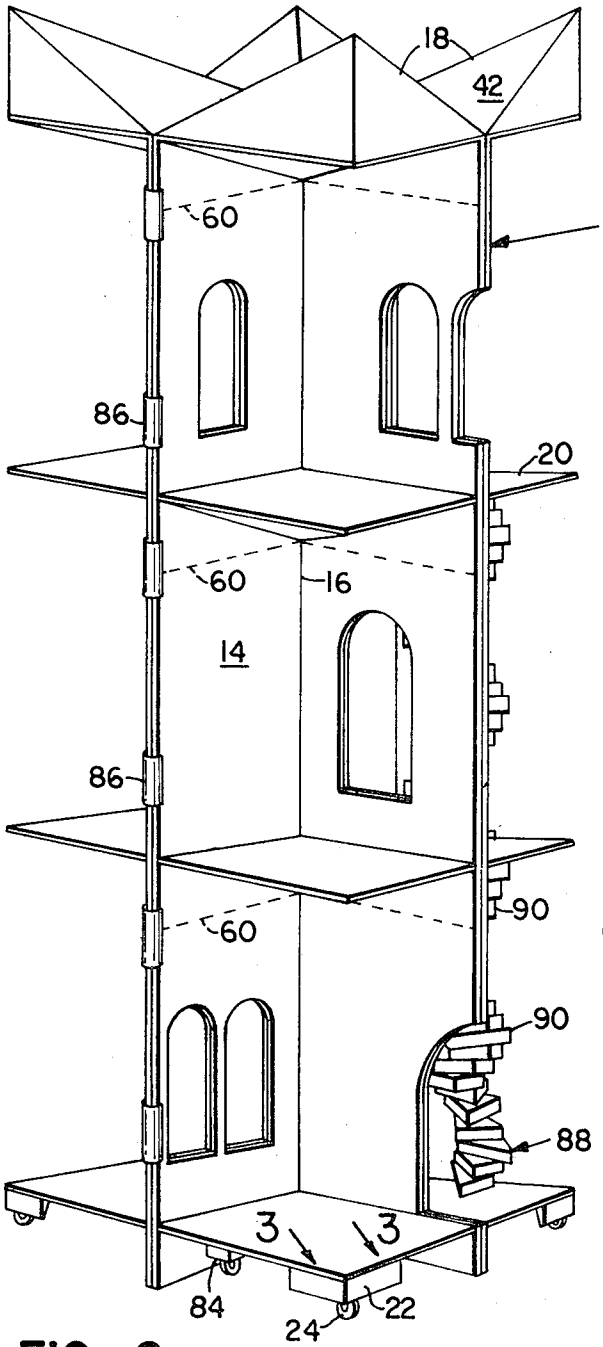


FIG_2

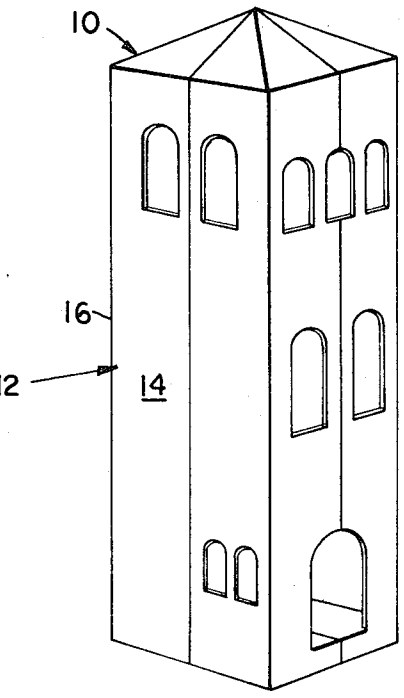


FIG_1

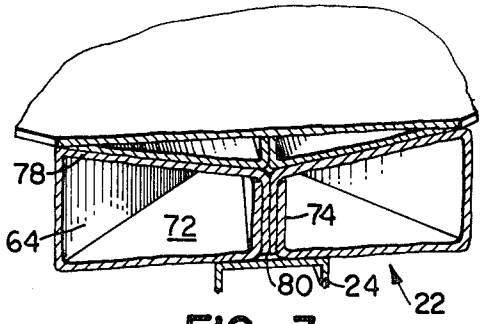


FIG_3

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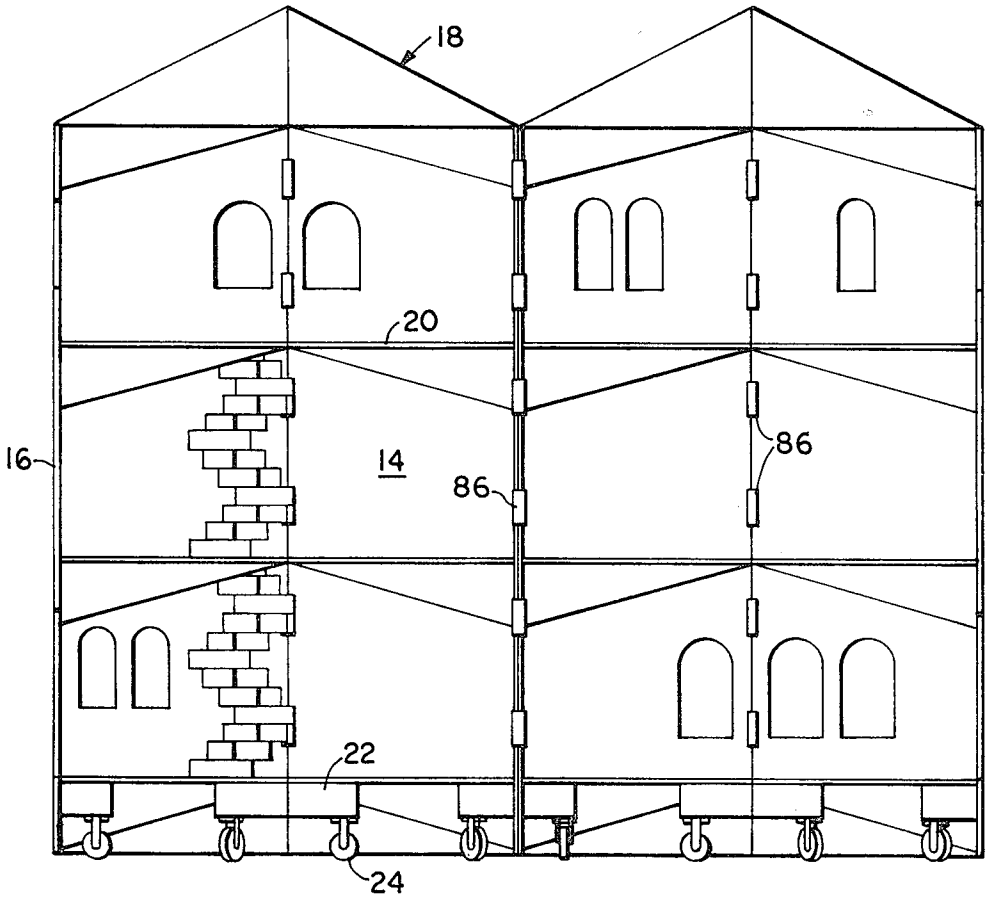


FIG_4

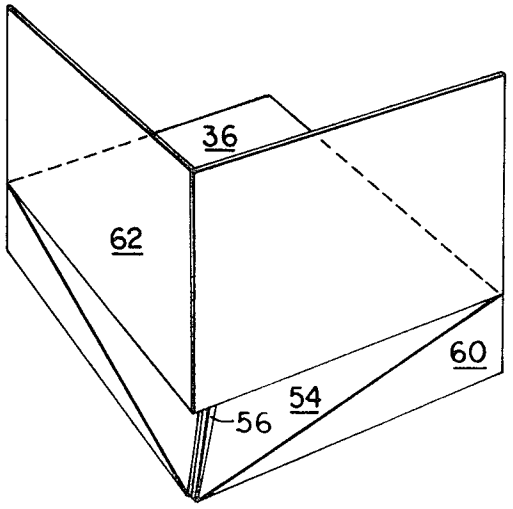


FIG_5

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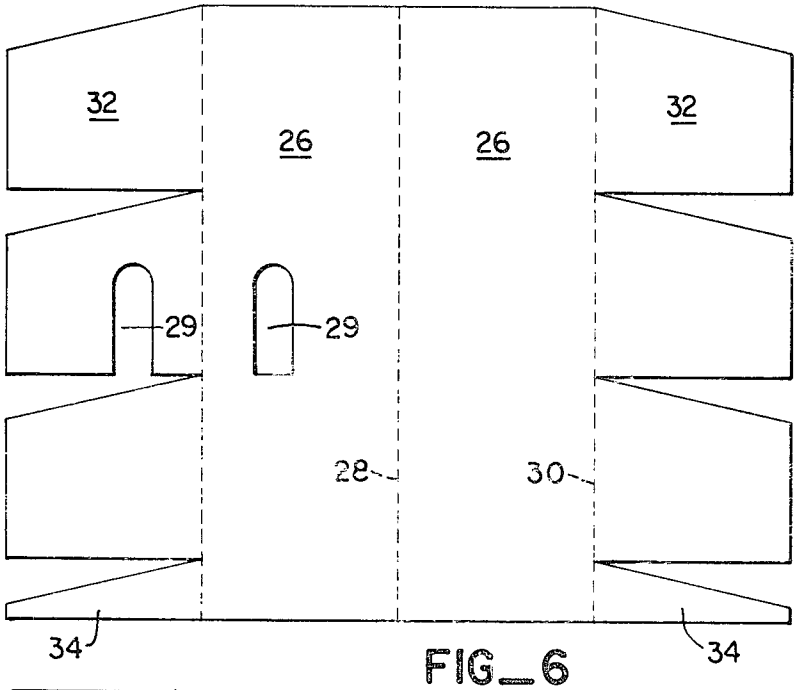


FIG_6

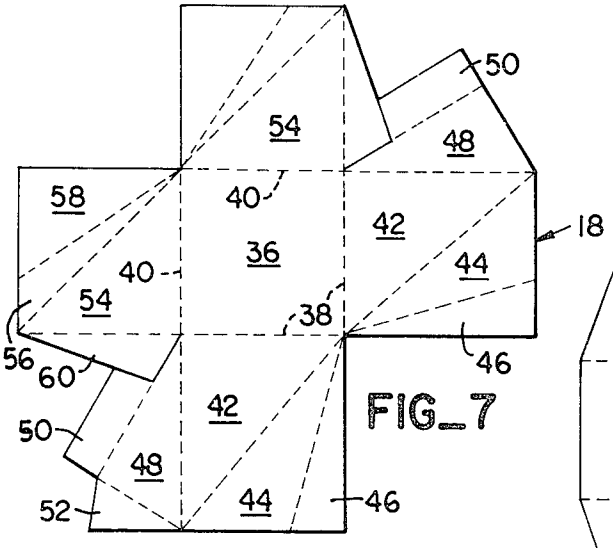


FIG_7

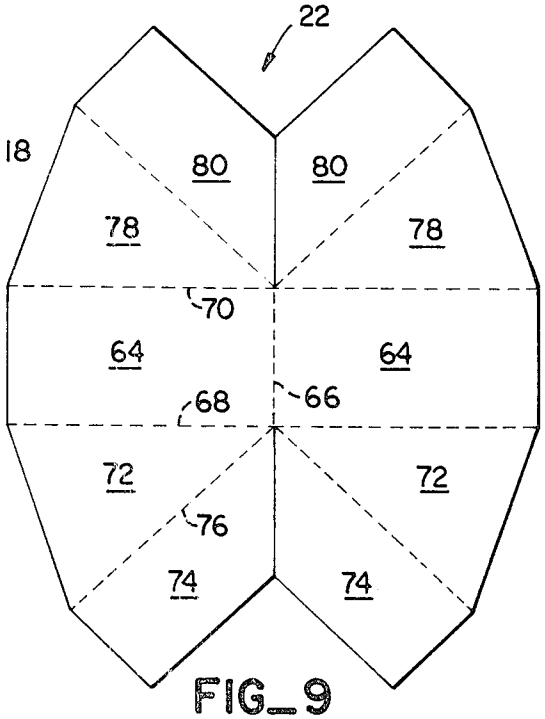


FIG_9

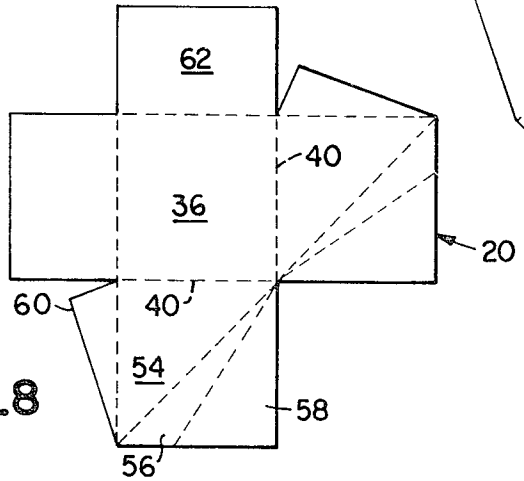


FIG_8

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SEGMENTED MODEL HOUSE

This invention relates to a toy dollhouse for children and more particularly to a foldable dollhouse with sections that can be positioned to afford access to the interior of the house in a variety of arrangements.

The degree of enjoyment which may be attained by children in playing with a dollhouse can be enhanced by an ability to vary the overall structural arrangement of the house and also by a high degree of accessibility of its interior sections which can be decorated in a lifelike manner. A general object of the present invention is to provide a dollhouse with both of these capabilities.

Another object of my invention is to provide a building model such as a toy dollhouse comprised of a series of pivotally connected sections which can fit together in one position to simulate a building in its normal condition with its exterior visible, and which can move, while still connected to other positions to expose and make accessible the interior portions of the building model.

Another object of my invention is to provide a dollhouse that will fold completely inside out, so that all the interior floors and wall areas will be exposed and available for decoration.

Still another object of my invention is to provide a dollhouse that is particularly well adapted for ease and the economy of manufacture. The basic configuration of each section of my dollhouse is similar in appearance and construction and can readily be made from relatively inexpensive materials such as corrugated paperboard that can be easily cut, scored and perforated in the well-known manner, The pivotally connected sections are comprised of a relatively few parts that can be formed and assembled easily on a large volume basis. For each section I may provide one or more floor sections that are attached by only two sides to adjoining walls of the house section and yet which are capable of supporting large amounts of decorative toy accessories which may be used in playing with the house.

A particular advantage of my doll house is its inherent versatility, ease of manipulation and mobility in use, making it quickly transformable from a compact exterior model to an interior model in which all floors are exposed and easily accessible for use.

Yet another object of my invention is to provide a dollhouse that is inherently strong and stable and thus capable of enduring the sustained usage by children.

Other objects, advantages and features of my dollhouse will become apparent from the following detailed description of one embodiment thereof presented in conjunction with the drawing, in which:

FIG. 1 is a view in perspective of a multisection dollhouse according to the present invention as it appears when all sections are folded together to form the house in its normal condition with exterior surfaces exposed;

FIG. 2 is a larger view in perspective showing the dollhouse of FIG. 1 with its sections folded together with the inside-out position;

FIG. 3 is a view in section taken along the line 3—3 of FIG. 2;

FIG. 4 is a view in elevation of my dollhouse with two sections thereof folded open;

FIG. 5 is a view in perspective of a floor section for my dollhouse;

FIG. 6 is a flat pattern of one wall section of my dollhouse;

FIG. 7 is a flat pattern for the top of each wall section;

FIG. 8 is a flat pattern for the floor of each wall section; and

FIG. 9 is a flat pattern for a caster support member for each wall section.

Referring to the drawing, a dollhouse **10** embodying the principles of the present invention is shown comprised of four movable sections **12** that are connected together at three vertical hinge lines. These sections each have two vertical

sidewalls **14** joined together along an outside corner edge **16**. They can be moved closely together like segments of an orange to form the house in its normal state with the exterior sidewalls visible, as shown in FIG. **1**. However, when in use they are more likely to be moved apart to expose the interior of the house so that the inside surfaces of its sidewalls and its floors are readily accessible. In FIG. **2**, the house sections **12** are turned completely inside out with their outer corner edges **16** all adjacent to each other at a central vertical axis. In this position, the sidewalls **14** of each section serve as interior walls or room dividers. Each house section includes a top or roof section **18**, and one or more floor sections **20** depending on the size of the house. Attached to each bottom floor section are a plurality of support members **22** to each of which is fixed a suitable caster **24** thereby enabling each section **12** individually or the entire house to be moved easily from one position to another.

The aforesaid components forming each house section can be made from any suitable rigid sheet material such as metal or wood. However, a preferred form of my invention is a house constructed from a rigid paper or cardboard such as corrugated board used in making shipping containers. The following description will explain how such board can be cut, scored and folded to form the sidewalls, roof section, floor sections and castor supports in accordance with my invention.

FIG. **6** shows one form of a flat pattern for making a sidewall section **12** which includes a pair of sidewall panels **26** separated by a score line **28**. These sidewall panels preferably have the same width and length, depending on the size of the house and number of floors desired. Opening **29**, for windows or doors, may be readily cut in the panels at desired locations. Bordering the outside edge of each panel is a score line **30** which is parallel to the central score line **28** and separates the panels **26** from a series of side flaps **32**. The latter, which are all of the same width as the side panels and also tapered outwardly, are used for retaining the floor sections on the side panels, as will be described below. A pair of narrower bottom side flaps **34** at the lower end of the panels **26** are used for retaining the bottom floor section in the same manner.

A flat pattern for the top or roof sections **18** is shown in FIG. **7** and comprises a central rectangular-shaped central panel **36** surrounded by first and second pairs of adjoining score lines **38** and **40**. A pair of right triangular portions **42** adjacent the central panel along the score lines **38** form the sloping upper part of each roof section **18** which essentially is shaped like a quarter sector of a pyramid. Adjoining the hypotenuse of each triangular portion **42** is another triangular portion **44** which is connected to yet another outer triangular portion **46**. Adjoining the other side of each right triangular portion **42** is another triangular member **48** having a rectangular tab portion **50** adjoining its other side. Attached to the remaining side on one of the triangular portions **48** is another triangular tab member **52**. The score lines between the central panel **36** and the triangular top portions **42** are made so that the latter can be bent upwardly, and the score lines between the other portions **44**, **46**, **48**, **50** and **52** are made for bending in the same manner. Thus, in assembling the top section **18**, the aforesaid portions are all folded along their bordering score lines so that the two triangular portions **44** are brought together and can be secured by a suitable bonding cement or staples. Similarly, the members **46** and **50** are folded to lie flat against the upper surface of the top panel and are also secured in place, while the tab member **52** is secured to the opposite triangular portion **48**. The result is the hollow pyramidal quarter-roof section **18** as shown in FIGS. **1–3**.

For securing it to the upper end of the pair of sidewalls **14**, each top section has a pair of right triangular portions **54** adjoining the central panel **36** along the score lines **40**. Adjoining the hypotenuse of each triangular portion is a narrower triangular portion **56** to which is attached still another right triangular portion **58**. On the other side of each right triangular portion **54** is yet another triangular tab portion **36**. The score lines interconnecting the portions **54**, **56**, and **58** are made so

that these portions can all readily fold in the same direction relative to each other. The triangular tab portions **60**, however, fold in the opposite direction. Thus, when the lower part of each top section **18** is connected to the sidewall panel **26**, the triangular portions **54** are folded downwardly toward each other until the adjoining triangular portions **56** come flush against each other and are secured in place by a suitable bonding means. As these portions come together the outer triangular portions **58** fold against the underside of the top panel **36** and are bonded thereto in a similar manner. The triangular portions **60** are folded downwardly in the opposite direction and into vertical planes when the top panel is horizontal. These portions are now placed flush against and are bonded in place by a suitable cement to the inside surface of the sidewalls when the top cover section **18** is properly positioned.

The flat pattern for each floor section **20** as shown in FIG. **8**, is essentially identical to the lower part of the top **18**, as indicated by the similarly numbered portion in the drawing section. In addition it has a pair of side flap members **62** adjoining the sides of the central floor panel that fold upwardly and lie flat against the inside surfaces of the sidewall panels **26**.

When the house sections **12** are assembled, the sidewall panels **26** are bent along the score line **28** to a right angle and the top section **18** is fixed in place by securing the downwardly extending triangular members **60** to the sidewall surfaces, as previously described. The desired number of floor sections **20** are installed in a similar manner at the locations desired, including the bottom floor member. This is done by securing both the upper and lower vertical portions **60** and **62** to the inner sidewall surfaces. Now, the outer tapered flap portions **32** along the opposite outer edges of the side panels are folded back and over the upper and lower vertical portions **60** and **62** and are bonded thereto. This forms a double-thickness sidewall **14** and also firmly secures the top section **18** and floor sections **20** in place. The latter, though attached to the sidewalls on only two sides, are particularly strong because of the folded triangular portions **54**, **56** and **58** that form the pyramidal underside. Thus, the floor sections can well support any arrangement of toy furniture, decorations and the like which might be placed on them when the dollhouse is used.

The caster support members **22** may also be constructed of paperboard material that is cut, scored and folded in a predetermined configuration. The flat pattern for one form of a caster support member which is located at the outer corner of each bottom floor section, is shown in FIG. **9**. Essentially, this member comprises a pair of rectangular-shaped wall members **64** connected together by a score line **66** which forms the corner of the support member when it is folded, assembled and attached to the bottom of a house section **12**. Perpendicular to the score line **66** are a pair of parallel score lines **68** and **70** that define the lower and upper edges of the wall members **64**. Adjacent to each wall member **64** along the lower score line **68** is a triangular section **72** to which is attached a tab member **74** along a score line **76**. A similar but somewhat larger triangular section **78** is attached to each wall member along the upper score line **70**, and attached to each section **78** is a tab member **80**. As shown in FIG. **3**, in the assembled support member **22**, the wall members **64** are bent along the score line **66** at a right angle and the lower triangular section **72** are bent to right angles to their respective wall members. The upper triangular sections **78** are bent downwardly from their side members **64** an amount greater than 90°. The tab members **74** are turned up and lie adjacent the tab members **80**, and all these tab members are held together by some suitable means such as a bonding cement or staples. Since the upper triangular sections **78** are somewhat larger than the lower triangular sections **72**, they slope downwardly toward each other and form a recess which conforms to the pyramidal-shaped underside of the bottom floor section. Thus, when folded, these corner support members fit flush against the pyramidal underside of the lower floor section and may be attached thereto by a suitable bonding means. The caster **24**, which may be of any suitable type commonly used on furniture, is merely attached by its base, using any suitable means such as a bonding cement, to the flat undersurface of the support member. Auxiliary caster supports **82** which are cut, scored and folded into a generally tubular shape with a flat undersurface for supporting a caster, are also fixed to the underside of the bottom floor section, along the sides thereof that are directly adjacent the sidewalls. Thus, each house section is supported by three casters **24** so that it is well stabilized and easily movable.

The house section **12** are pivotally connected at the outer edges by a suitable hinge member **86**, which can be of various types. For the embodiment shown in which the wall sections are of a paperboard material, I have found that a series of fairly wide strap members of a suitable flexible material such as a fabric-reinforced tape provide an inexpensive but strong hinge means. These strap members are spaced apart vertically with their ends secured to the sidewalls **14** by some suitable means such as a bonding cement and covered by the flap portions **32**. If the sidewalls are made of wood, other forms of hinges can be used, as long as they provide the 270° of movement between the connected house sections **12**.

In addition to the basic structural elements of my dollhouse as described above, various other structural features may be utilized. For example, as shown in FIG. **4** I may install a stairway **88** in one of the movable house sections. In the embodiment shown, the stairway is comprised of a plurality of block members **90** of wood or plastic stacked on top of each other and fixed together but offset in a spiral arrangement to provide steps. The floor sections are recessed in plan form to accommodate the stairway. Other stairway arrangements could, of course, be used within the scope of the invention.

As previously mentioned, the openings **28** for windows or doors may be cut in the sidewalls at any desired location. In some instances it may be desirable for the windows of adjoining house sections to coincide so that they will provide through passages between sections when the adjoining sidewalls are moved together, as in FIG. **2**.

From the foregoing it should be apparent that the present invention provides a unique dollhouse structure that can be built at a high rate of production for low unit cost. Yet, my multisection house is extremely versatile because of its mobility and ability to assume different positions while also providing for unusual accessibility to the interior portion of the house.

To those skilled in the art to which this invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the spirit and scope of the invention. For example, while my invention has been described relative to a particular dollhouse embodiment, it is apparent that its principles are also applicable to houses or buildings of different configurations and thus may also be exemplified in the form of architectural models and the like. The disclosures and the description herein are purely illustrative illustrative and are not intended to be in any sense limiting.

I claim:

1. A dollhouse comprising:

a plurality of hinged and relatively movable house sections each section including a pair of vertical wall members integrally and rigidly connected together at right angles to form one of the corners of the house and having exterior and interior surfaces terminating at vertical edges of the wall members said vertical edges abutting intermediate said corners;

hinge means located on only certain of said vertical edges of adjacent house sections to form a series of vertical axes for pivotally connecting said house sections so that they can be moved into a closed position with only the exterior wall surfaces visible and into an open inside out position with their exterior wall surfaces back to back and with only their interior wall surfaces visible and accessible and transverse means connected to said wall member near the upper and lower ends of each said house section forming a floor and a cover section for said house.

2. The dollhouse as described in claim 1 including at least one intermediate floor section for each said house section having edges connected to the interior surfaces of its said pair of wall members.

3. The dollhouse as described in claim 1 comprised of four said house sections each with a cover section having a pair of sloping planar exterior portions.

4. The dollhouse as described in claim 1 wherein said house sections are comprised of cut, scored and bent cardboard members connected together, one or more of said house section having cutouts simulating windows in either or its wall members.

5. A dollhouse comprising:

a plurality of house sections each including a pair of connected wall members having exterior and interior surfaces;

hinge means located at a series of vertical axes for pivotally connecting said house sections so that they can be moved into a closed position with only the exterior wall surfaces visible and into an open inside out position with their exterior wall surfaces back to back and only their interior

wall surfaces visible and accessible; at least one floor section connected to the interior surfaces of said pair of wall members, each said floor section including a horizontal planar panel, a supporting underside member connected to said panel and forming a pyramidal-shaped enclosure which increases in vertical cross section from two unsupported outer edges of said floor section towards its supporting sidewalls, and vertically oriented portions secured to said sidewalls.

6. The dollhouse as described in claim 5 wherein each said sidewall includes flap portions that are bent back into an overlying position on said vertical portions.

7. The dollhouse as described in claim 2 wherein said floor sections each have a central, horizontal panel and a lower part comprised of a first pair of triangular portions that meet along a diagonal line to form its undersurface, a second pair of triangular members that engage in a vertical plane containing diagonal line, and a third pair of portions each connected to a said second triangular member and attached to the underside of said central horizontal panel.

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