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Ahlstrand

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[54] **MODEL HOUSE**

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[52] **U.S. Cl.** **46/19,** 46/21, 35/16

[51] **Int. Cl.** **A63h 33/06**

[58] **Field of Search** 46/12, 19, 21; 35/16

[56] **References Cited**

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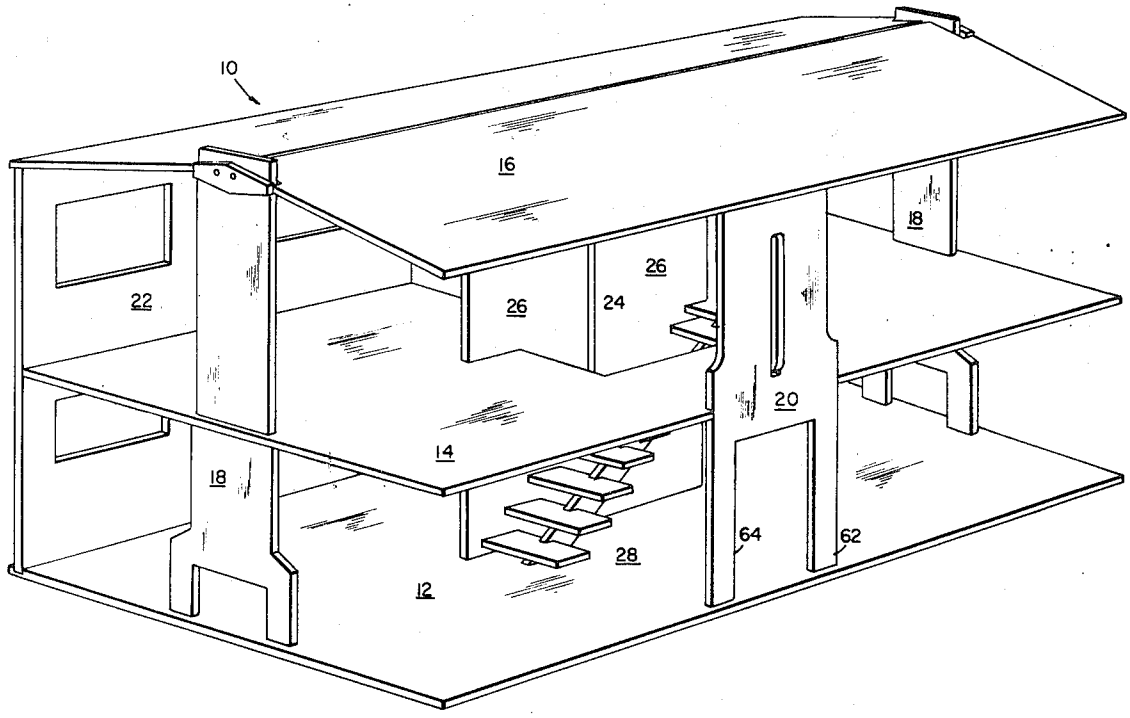
[57] **ABSTRACT**

A model house that can be erected from a combination of parts without tools or fasteners and then easily knocked down for shipment or storage. A base member has a main cutout to receive a central vertical partition and peripheral openings to receive vertical side members that support a second floor and a folding roof. All parts are rigid members that interlock so that they cooperate together to maintain the structural arrangement of the house.

14 Claims, 6 Drawing Figures



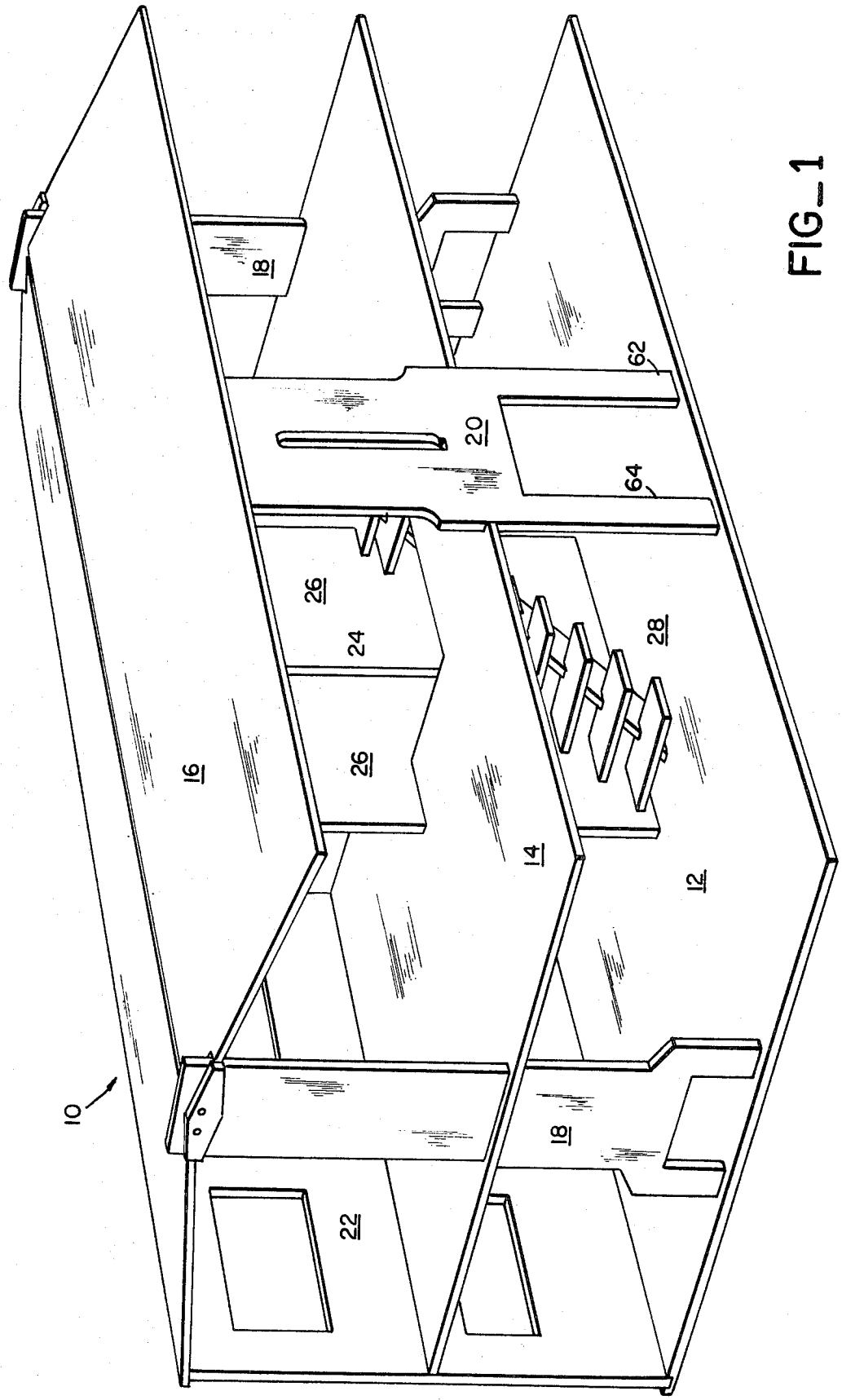


FIG_1

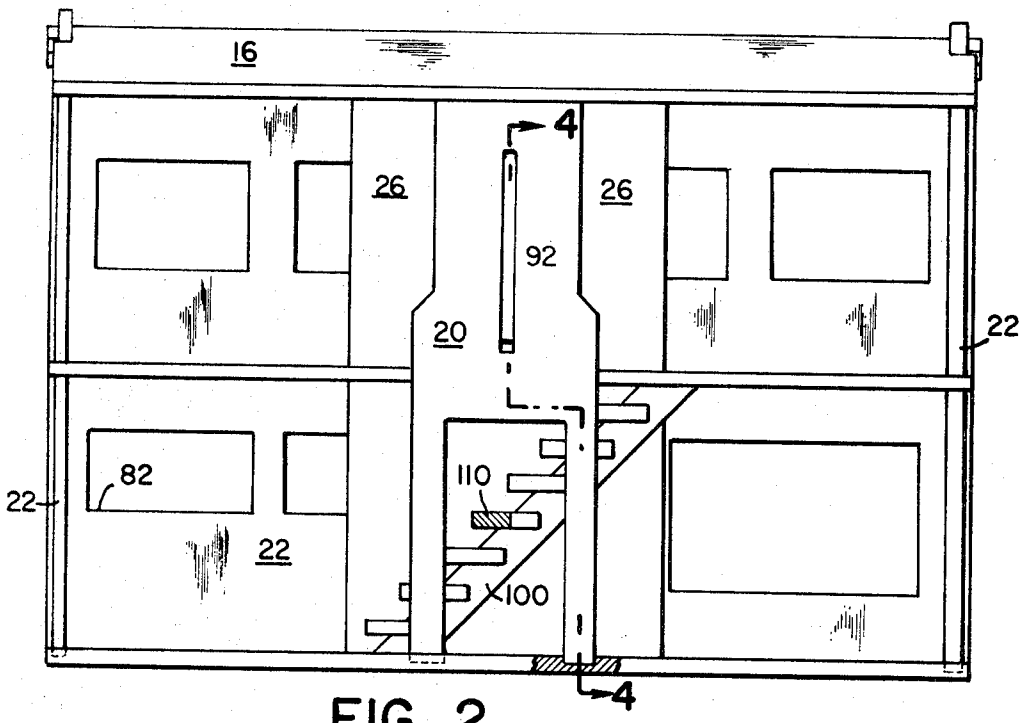


FIG_2

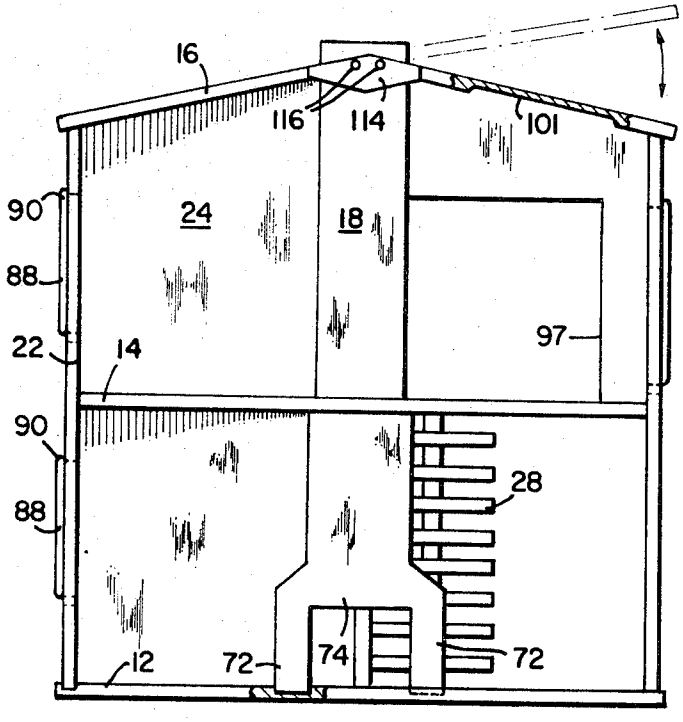


FIG_3

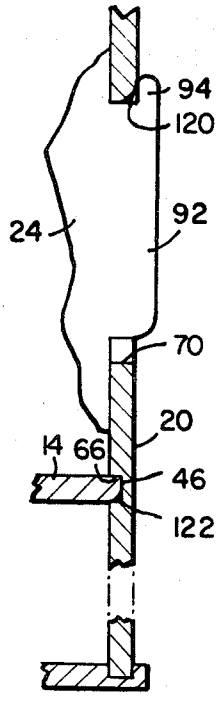


FIG_4

16
80
116
18
114

FIG_6

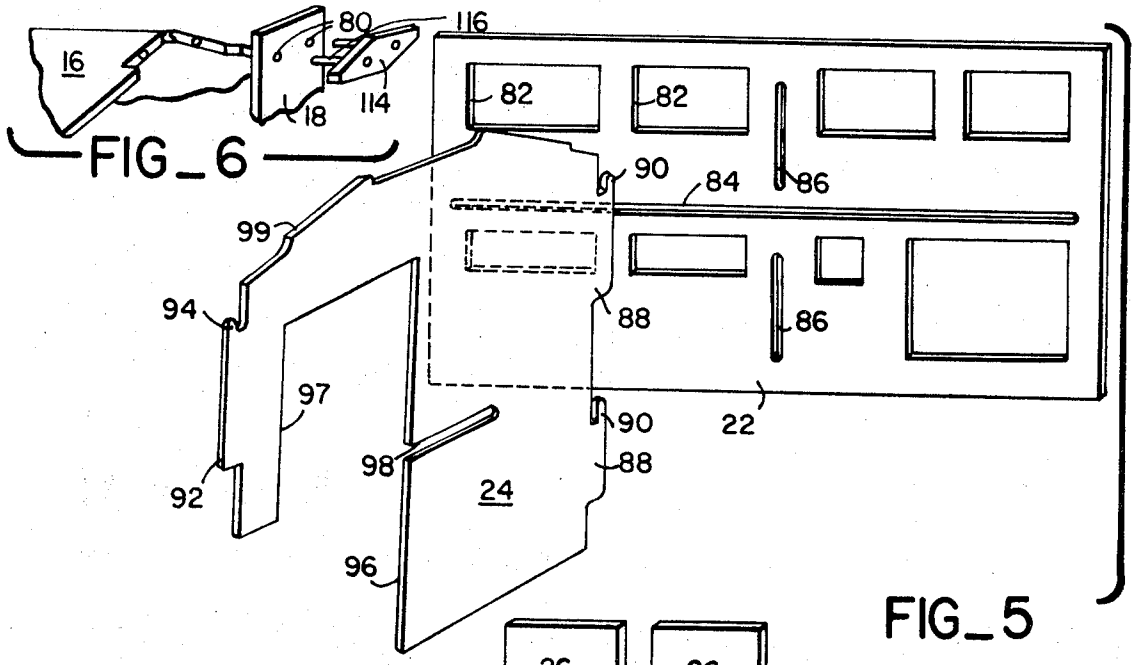

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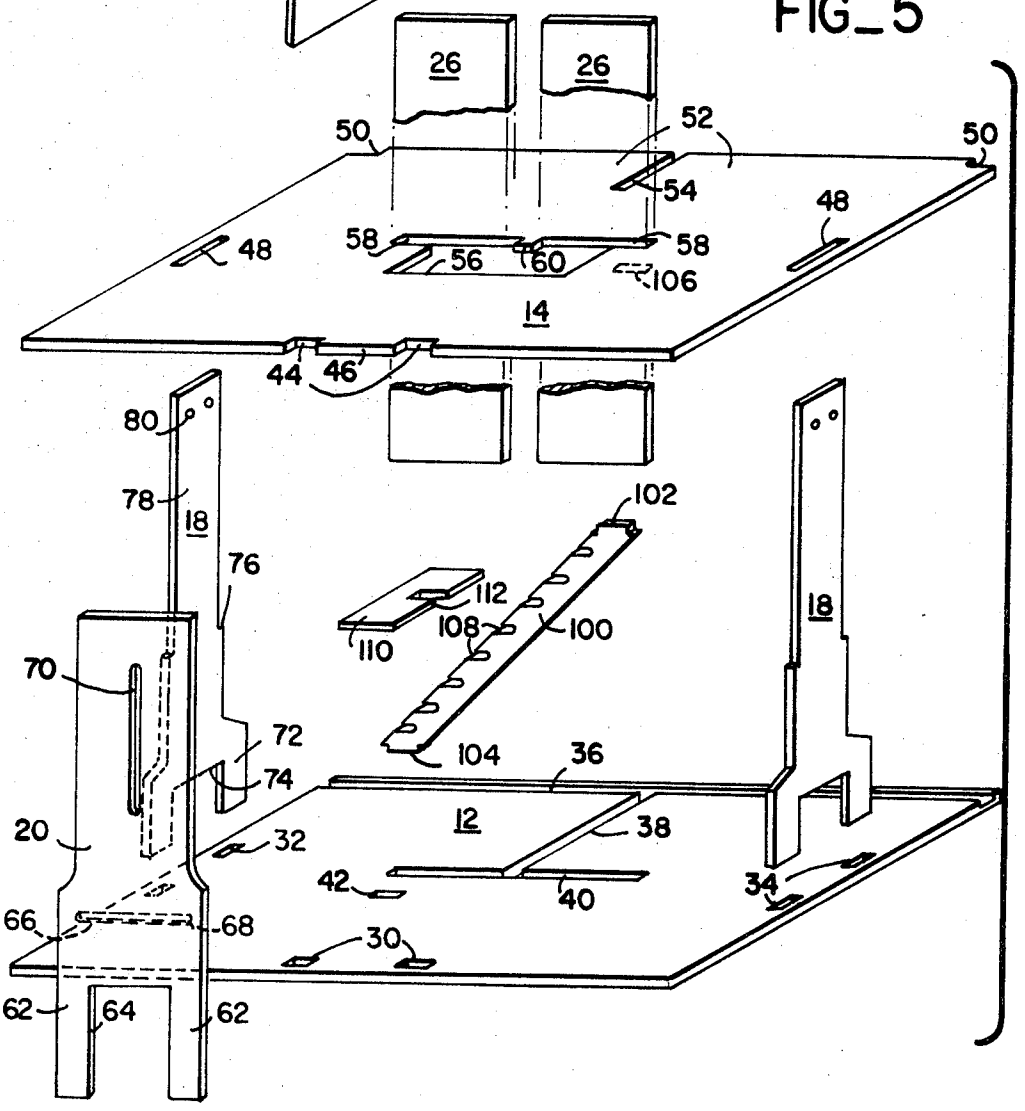
FIG_5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MODEL HOUSE

BACKGROUND OF THE INVENTION

This invention relates to a model house structure which is useful as a means for displaying or planning interior designs or as a child's doll house.

Heretofore doll houses of various types have been deviced to simulate actual home interiors and thereby provide a recreational and educational structure for children. For the most part such houses were generally permanent structures constructed in a conventional manner with numerous parts and fasteners. Once constructed or assembled these houses were not adaptable to be easily disassembled for storage or movement to another locality.

It is therefore one object of the present invention to provide a doll house that is comprised of relatively few parts which can be knocked down for shipment and storage and yet can be easily created for use without the need for skilled labor, special tools or fasteners.

Another object of the present invention is to provide a doll house that is realistic and eye-pleasing in appearance.

Yet another object of my invention is to provide a model house that is sturdy, durable and can withstand rigorous use.

Another object of the present invention is to provide a doll house having internal first and second floor areas that are easily accessible from three or more sides of the structure.

Another object of the present invention is to provide a doll house that is well adapted for general ease and economy of manufacture.

Other objects, advantages and features of my invention will become apparent from the following detailed description of one preferred embodiment presented with the accompanying drawings.

BRIEF SUMMARY OF THE INVENTION

In general, my model or doll house comprises a plurality of basic components that form the floors, the roof and side supporting members that may simulate sidewalls but which leave substantial openings to provide considerable access to the interior floor areas from at least three sides of the house. A first floor or horizontal base member has a series of centrally located slots which receive the lower ends of a vertical transverse divider support member. At opposite ends of the base member are holes or slots for receiving the lower ends of narrow, upright support members that may simulate chimneys.

Along the rear edge of the base member is another slot for receiving a rear upright member that may be long enough to simulate a wall and which is connected to the transverse divider member. Yet another narrow, upright member may be secured in openings along or near to the front edge of the base member to receive and retain a front upright member. The transverse divider member together with the front, rear and end support members hold in place a second floor member and a roof member, all of which are locked together when the house is assembled.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view in perspective of a model house embodying the principles of my invention as it appears when fully assembled;

FIG. 2 is a somewhat smaller front view in elevation of the house shown in FIG. 1;

FIG. 3 is an end view in elevation of the house shown in FIG. 1;

FIG. 4 is a fragmentary view in section taken along line 4—4 of FIG. 2;

FIG. 5 is an exploded view in perspective showing all of the major parts of my house except the roof as they appear when separated from each other; and

FIG. 6 is an enlarged fragmentary view in perspective showing one roof connection.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENT

Referring to the drawing, FIG. 1 shows a model house **10** embodying the principles of the present invention as it appears when fully assembled for use as a display or recreational device. Generally, it comprises a base or first floor member **12** having a rectangular shape with a similarly shaped second floor member **14** spaced vertically above it. A hinged two-piece roof member **16** is spaced above the second floor member. Holding the floor and roof members firmly together are a pair of end members **18**, a front member **20** and a rear wall member **22**, all of which are joined to or engaged with edge portions or near-edge portions of both floor members and the roof member. Centrally located within the house is a transverse, upright divider member **24** which provides support to the floor and roof members and also serves to divide the interior floor into room areas. Perpendicular to this divider are a pair of additional divider members **26**. A stairway **28** located adjacent the divider members **26** provides a central access between the first and second floors. Since the end members and the front members can be made relatively narrow in width the interior of the house on both floors is readily accessible. This is an important feature because it greatly enhances the use and enjoyment of the house by children as a doll house.

All of the components of my house **10** are preferably made from a suitable sheet material such as wood or plastic board that is relatively light yet durable and similar in appearance to materials used on actual houses. A fairly thick (e.g., one-half inch) plywood such as birch is particularly adaptable because it can be sanded and finished to have smooth, precisely dimensioned surfaces. Another important feature of my invention is that all components of my house can be made from the aforesaid sheet material so that when disassembled they can all be stacked and packaged together in a relatively compact space for storage or shipment.

Turning to FIGS 2 – 6, the house **10** is shown in greater detail to illustrate the detailed shape and function of various components. The base member **12** has a pair of spaced apart recesses **30** centrally located near its front edge. Similarly spaced apart recesses **32** and **34** are provided at the opposite ends of the base member. Extending parallel to the rear edge of the base member and along its entire length is an elongated groove **36**. Perpendicular to this latter groove is a T-shaped groove **38** having an inner portion **40** that is parallel to the rear edge groove **36** and located substantially midway between the front and rear edges of the base member. Near one end of this inner groove portion **40** and spaced from it is a relatively short recess **42**. All of the aforesaid grooves and recesses may be routed to a suitable depth within the base member by

conventional wood masking tools and it is preferred that none of them extend completely through the base member so that its under surface will remain smooth and unbroken.

The second floor member **14** which has the same rectangular shape as the base member **12** also has cutout portions generally above its various grooves and recesses. Along the front edge of the base member are a pair of notches **44** between which is formed a tongue member **46.** At its opposite ends are a pair of elongated rectangular holes or slots **48.** The rear corners are each provided with a notch **50** between which are formed a pair of elongated tongue members **52.** Extending inwardly from the rear edge of the floor member **14** between its tongue members **52** is a slot **54** which is vertically aligned with the slot **38** when the house is assembled. Spaced from the end of this slot **54** is an opening **56** having slot portions **58** at opposite ends and along one side thereof. These slot portions are vertically aligned with the groove **40** on the base member when the house is assembled. Separating the slot portions **58** is a short tongue member **60.**

At the front of the house the front member **20** has a bifurcated low portion with two spaced apart vertical portions **62** forming an opening **64** that readily simulates a front door. Spaced above this opening on the inside of the front member **20** is a horizontal groove **66** having substantially the same width as the tongue **46.** The width of material designated by the numeral **68** at the opposite ends of the groove **66** is the same or slightly less than the width of the slots **44.** Spaced above the groove **66** is a vertical slot **70** which cooperates with the upright divider member **24** when the house is erected.

At the opposite ends of the house the end members **18** may be relatively narrow, as shown, so as to simulate fireplaces but also to provide easy access to the interiors of both floors. The low end of each member **18** is bifurcated with narrow spaced apart portions **72** forming an opening **74.** Above the portions **72** each member **18** tapers to a narrower width which extends upwardly to the second floor level. Here, end member **18** tapers abruptly to a still narrower width by means of a pair of horizontal shoulders **76** on its opposite sides. The narrowest portion **78** above these shoulders has a width only slightly smaller than the length of the slots **48.** Near the upper end of this narrow portion are a pair of spaced apart holes **80.**

The rear wall member **22** is generally rectangular and has a series of openings **82** which simulate windows. Its thickness is only slightly less than the width of the groove **36** in the base member. Spaced approximately midway between its upper and lower edges is a horizontal groove **84,** the opposite ends of which terminate a short distance from the vertical end edges of the wall member. This groove is just slightly larger in width than the tongue portions **52** of the floor member **14** so as to receive them with a snug fit. Located approximately midway between the ends of the wall member **22** are a pair of vertically aligned and spaced apart slots **86** adapted to receive and retain the divider member **24.** This rear wall member, as shown, extends the entire length of the base member and thereby simulates a full outside wall of the house. However, it is apparent that it could be shorter, if desired, particularly if more access to the interior of the house was required from its rear side.

The transverse divider member **24** extends between the rear wall **22** and the front member **20** and helps to hold the second floor in place as well to support the roof **16.** Along a rear vertical edge of this divider are a pair of projecting tongue members **88** which are spaced apart and sized so as to fit within the slots **86.** Each of these members **88** is generally hook shaped with an upper end portion **90** that extends outwardly and upwardly from the vertical edge of the divider. When these tongue members are inserted into the slots **86,** as shown in FIG. **4,** their end portions **90** extend above the upper ends of the slots and hold the two adjoining members **24** and **26** firmly together. On the opposite vertical edge of the divider **24** is a similar projecting tongue member **92** also with a hook-like upper portion **94.** This tongue member fits into the vertical slot **70** of the front upright member **20** in the same manner as the other tongue members **88.** The divider **24** is shaped so that it has an internal vertical edge **96** on one side of cutout portion **97** above the stairwell opening **56** and an internal horizontal slot **98** that extends inwardly therefrom towards its rear edge. The length of this latter slot is such that when the divider **24** is attached to the floor member **14** so that its internal edge **96** is flush with the projection **60,** the portion of the divider **24** adjacent its slot **98** will fit in the slot **54** of the floor member. At the top of the divider are a pair of tongue members **99** that are sloped at an angle in opposite directions and are adapted to fit within grooves **101** of the same length in the underside of the roof members **16** as shown in FIG. **3.**

The other vertical dividers **26** fit into the slots **58** and adjacent to these divers the opening **56** provides space for accommodating the stairway **28.** The stairway is comprised of an inclined member **100** with projecting tongue members **102** and **104** at its upper and lower ends. The upper tongue member fits into a recess **106** provided in the underside of the floor member **14** and the lower tongue member fits into the similar recess **42.** A series of horizontal slots **108** are provided in one side of the inclined member **100** for receiving a series of steps **110** each having a similar slot **112.**

The roof **16** is comprised of two generally rectangular members that are pivotable around a hinge axis that extends parallel to the rear wall member **22.** As shown in FIG. **6,** both roof members at both ends of the hinge axis are notched out to receive the upper ends of the upright end members **18.** At this point each end member is secured to the roof by a short retainer block **114** which extends across the width of the end member and has a pair of spaced apart dowel pins **116** that project from one side of the block. The dowel pin of each block extends through the openings **80** in the end member and into similar openings provided in the roof members. Thus, the dowel pins serve as hinge means by allowing each roof member to pivot about the aligned pins at its opposite ends. When installed in the block the dowel pins are angled outwardly with respect to each other a small amount (e.g., 1° to 2°) and this assures that once placed in their proper position they will essentially grip the sides of their openings and stay in place.

The assembly of my house **10** can be accomplished quickly and easily by an unskilled person, and in fact part of the unique recreational value of the house to small children lies in the process of assembling and disassembling the various components. With the base

member 12 supported on a flat surface the center divider 24 is first attached to the rear wall 22 by inserting the rear tongue members 88 into the slots 86. Now, with the back wall preferably resting on a flat surface, the floor member 14 is inserted into the slot 98 of the divider 24 so that its slot 54 receives the divider portion adjacent thereto and until the tongue members 52 of the floor are seated in the groove 84 of the rear wall. The slot 98 of the divider 24 and the groove 84 of the rear wall will be in the same plane to allow connection of these components only when the divider tongues 88 are uppermost in the slots 86. Therefore when the floor member 14 is inserted in the divider 14 and into the back member, the back member becomes locked to the divider. Now, the front upright member 20 is secured in place by inserting the front tongue member 92 on the divider 24, into the slot 70, while the tongue member 46 of the floor 14 fits within the recess or groove 66. This action locks the front member to the divider and in fact locks these members to the floor member 14 in the same manner that it was previously locked to the rear wall member. This connection is made possible by rounding or beveling the top outer edge 120 of the slot 70 and the bottom edge 122 of the floor tongue portion 46. As the front member is connected the rounded edge 120 engages upper portion 94 of the tongue 92 and cams the front member downwardly until the tongue 92 is uppermost in the slot 70 and the tongue portion 46 of the floor member is with the mating slot 66. The end members 18 can now be installed in a similar manner by being inserted upwardly through the floor slots 48. At this point, the assembled components are pivoted into place on the base member with the rear wall situated in the groove 36, the front door member in the recesses 30 and the end chimney members in their recesses 34. Now, the steps 110 can be inserted into the notches 108 of the member 100 to form the stairway 28 and its bottom tongue 104 can be placed in the recess 42 of the base member. By lifting the floor member 14 slightly, the upper tongue member 102 of the stairway can be inserted into the recess 106.

The room dividers 26 can now be inserted into the slots 58 adjacent the opening 56 that forms the stairwell.

Now, the roof 16 is attached to the center divider 24 so that the tongue members 99 thereof are inserted into the grooves 101 of the roof. In this position the upper ends of the chimney like end members 18 are situated within the notched out portions at the opposite ends of the roof members. The retaining blocks 114 can now be attached with their dowel pins 116 inserted through the holes 80 and into the roof.

The disassembly of the house is accomplished by merely reversing the assembly procedure and should be readily apparent. When assembled the house is sturdy and stable with the components locked together as described. Yet no fasteners such as screws or bolts are required. The high degree of accessibility of the floor areas greatly enhances the use and enjoyment of the house by more than one child at a time. In the knocked down condition all parts are flat for easy storage and handling.

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. The disclosures and the description herein are purely illustrative and are not intended to be in any sense limiting.

I claim:

1. A model house that can be rapidly assembled from a combination of individual, connectable components without fasteners and thereafter disassembled for storage or shipment, comprising:

a generally rectangular base member providing a first floor means and having a groove extending parallel to one side thereof;

a second generally rectangular member providing a second floor means parallel to said first floor means;

a rear member simulating a rear wall having a generally rectangular shape and extending vertically upward from said groove and substantially the full length of said base member;

a front member having a shorter length than said rear member, supported on and extending vertically upward from said base member and simulating a front portion of the house;

a pair of end vertical members simulating end wall portions of the house located near end edges of said base member and extending vertically upward therefrom, said rear, front and end vertical members all being connected with said first and second floor means;

a transverse divider member having opposite end portions connected with said rear and front members and extending vertically upward from said base member;

and roof means connected to said divider member and said end members.

2. The model house as described in claim 1 wherein said divider member has tongue portions projecting from its vertical edges at its opposite ends which extend through aligned slots in said front and rear vertical members and sloped tongue members that fit within mating grooves of said roof means.

3. The model houses as described in claim 1 wherein each of said end vertical members has an enlarged lower portion and a narrower upper portion forming shoulder means for supporting said second floor means.

4. The model house as described in claim 1 wherein said front vertical member has a bifurcated lower end forming an opening that simulates a front door and a slot on its inner surface for receiving an edge portion of said second floor means.

5. The model house as described in claim 1 including retainer block means having projecting pins that extend through the upper end of each end member and into said roof means.

6. The model house as described in claim 1 wherein said divider member and said second rectangular member have similar slots for connecting them in a cruciform manner, the slotted portion of said divider member having a width that is approximately one half of the width of the second rectangular member, said slotted portion extending from the rear edge thereof so that an open space extending across the entire length of the second floor means is provided.

7. The model house as described in claim 6 including a stairway means extending below a stairwell opening in said open space between said first and second floor means.

8. The model house as described in claim 7 wherein said stairway means comprises an inclined beam mem-

ber having a series of spaced apart slots with a step member in each slot and tongue members at the ends of said beam member that fit within recesses of said first and second floor means.

9. The model house as described in claim **8** wherein all of said components are made from sheet plywood material.

10. The model house as described in claim **8** including a pair of internal wall members forming a sidewall of said stairwell opening and situated perpendicular to said divider member.

11. A model house comprising:

a rear upright wall member having a horizontal groove and a pair of vertical slots;

a front upright member spaced apart and parallel to said rear member and having a horizontal groove and a vertical slot;

a vertical divider member extending transversely between said rear and front members, said divider member having a horizontal slot and including locking means projecting from its opposite ends connected to said rear and front members;

a horizontal floor member having opposite edge portions which are retained by said grooves in said rear and front members and said divider slot only when said divider locking means are in their locked position within said rear and front members.

12. The model house as described in claim **11** wherein said locking means on said divider member are projecting tongue members extending through said slots in said rear wall member and said front member, said slot on said front member having a rounded outer edge to facilitate its attachment to said divider and said floor member.

13. The model house as described in claim **11** including a base member having recesses for receiving the lower ends of said rear member, front member and divider member.

14. The model houses as described in claim **13** including upright end support members supported on said base member each extending upwardly through an opening in said floor member and having a pair of spaced apart holes at its upper end; pin means extending through said holes and a pair of roof members pivotally supported on said pin means.

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