Feb. 4, 1941. F. MALLGRAF 2,230,305

COLLAPSIBLE PAPERBOARD HOUSE

Filed April 24, 1939

Fig. 1.

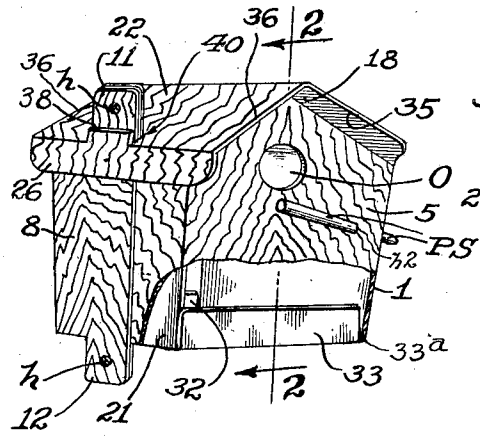


Fig. 2.

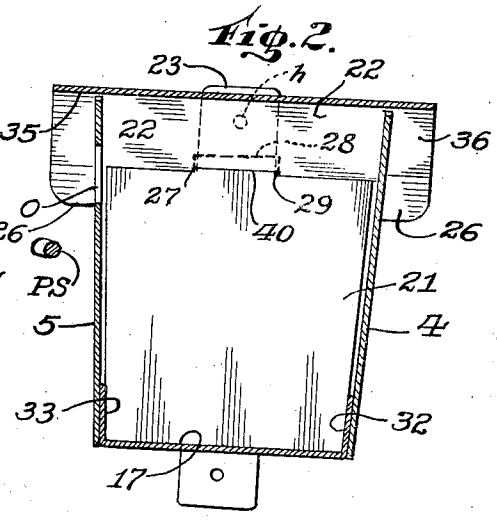


Fig. 4.

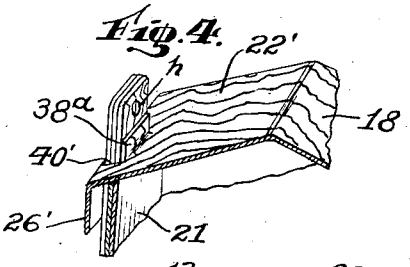


Fig. 6.

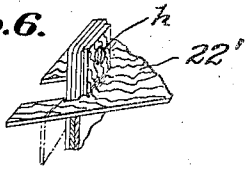


Fig. 5.

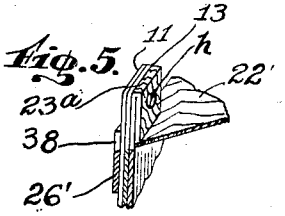


Fig. 3.

Fig. 7.

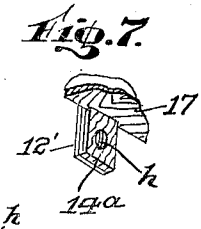


Fig. 8.

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UNITED STATES PATENT OFFICE

2,230,305

COLLAPSIBLE PAPERBOARD HOUSE

Ferdinand Mallgraf, Little Neck, N. Y.

Application April 24, 1939, Serial No. 269,560

2 Claims. (Cl. 119—23)

This invention relates to collapsible paperboard bird houses, toy-houses, box-like containers and the like, and is an improvement over my Patents No. 2,190,721 and No. 2,195,575, and co-pending application bearing Ser. No. 234,352.

The salient feature of this invention is the improvement in the structural form of the house, comprising side flaps that extend upwardly approximately at a right angle to the floor panel, thus providing rigidity and firmness therewith, and also preventing the sagging and deflection of the floor panel, due to the truss-like construction of the side flaps when extended at about a right angle, forming side braces to the floor.

Another salient feature of this invention is the reinforcement feature provided in the keeper-slot, whereby the interlocking tabs of the overlapping end flaps of the house structure are secured firmly in their locked position and further the hinged end flap of the roof is simultaneously held under pressure against the rear wall and end flaps of the extended house structure.

Another salient feature of this invention, is the tapered perch-stick that is adaptable to adjust and bind itself firmly in a wedging fit into small holes provided at the corner portion of the house structure, whereat the older bird may feed the younger birds through the ingress opening provided in one of the side walls therewith.

Another salient feature of this invention is the unique finish of the wood-like exterior of the house structure, which provides a neat, conservative and inexpensive decorated exterior, although the exterior finish may be made to suit any house design.

Another feature of this invention is the ingress or entrance hole for the birds to feed their young, whereby the hole is located under the protruding eaves of the roof, thus providing a shelter and less liability of the rain water going through the hole into the house.

Other features of the invention will appear as the description proceeds in the following specification, accompanied by the annexed drawing, in which:

Figure 1 is an elevational view in perspective of the extended paperboard house structure, partly broken away for the purpose of illustrating the upturned side braces forming a truss-like construction to prevent sagging of the floor portion.

Figure 2 is a cross-sectional view in elevation of the same house structure taken on line 2—2 of Figure 1.

Figure 3 shows the paperboard blank that forms the house structure shown in Figure 1.

Figure 4 is a fragmentary sectional view in perspective of an alternative means for forming the keeper-slot.

Figure 5 is a similar view of another alternative tab locking operation.

Figure 6 is a similar view of another alternative tab locking operation.

Figure 7 is a similar view of another alternative tab locking operation.

Figure 8 is a modification of a sloping floor design which may assist in draining out any water at the hole in the lowest part thereof.

Referring to the drawing, particularly to the blank B shown in Figure 3, the numeral 1 indicates the intermediate panel interconnecting by creases 2 and 3 to panels 4 and 5 which interconnect by creases 6 and 7 to end flaps 8 and 9 provided with upper and lower tabs 11 and 12, 13 and 14, respectively, each having a small hole *h*. The intermediate panel 1 also interconnects by creases 15 and 16 to panels 17 and 18 which by creases 19 and 20 interconnect to panels 21 and 22, the panel 21 being provided with a tab 23, and the panel 22 interconnecting by a crease 25 to an end eaves flap 26 having a portion cut on lines 27, 28 and 29 adjacent the crease line 25. The panel 17 interconnects by creases 30 and 31 to side braces or flaps 32 and 33. The panel 5 is provided with an opening O in the apexed or gabled portion 35, or this opening may be provided in the apexed or gabled portion 36 of the panel 4, this being optional. All creases may be known as folding, score or crease lines.

The blank B is shown extended into a house structure in Figures 1 and 2, in which the panel 1 forms the front wall, the panels 4 and 5 form the side walls, the panel 21 forms the rear wall, the panels 18 and 22 form the roof portion, and the panel 17 forms the floor portion.

The side flaps or braces 32 and 33 of the floor panel 17 prevent the sagging of the floor 17, since through experimental tests the floor without these braces 32 and 33, if water-soaked, will sag and warp. Therefore, it will be readily seen that these side braces 32 and 33 will assist in preserving the floor panel, clearly shown in Figure 1 and Figure 2. One end of the braces 32 and 33 interposes between the edges of the rear panel 21 and side panels 4 and 5, thereby securing the braces in their upright and extended position. Small drain holes or openings *dh* as shown in Fig. 8 of the drawing may or may not be provided in the floor panel, but cutting holes or slots in the floor panel tends to weaken the panel, and this is important when these blanks B are made of light weight paper or kraft board material.

The opening O, may be known also as an ingress or entrance to the interior of the extended house structure and is situated in the apexed or gabled roof portion directly under the projecting eaves 35 and 36 of the roof portion, thereby lessening somewhat the liability of rain water entering through the opening O.

The slitted portion on the lines 27, 28 and 29 of the hinged flap 26, as shown in the blank B

of the Figure 3, when extended as shown in Figure 1, provides a keeper-slot 40 for the tabs 11, 13 and 23, and a unique tab-brace and pressure member 38, as shown in Figure 1 and Figure 5, thereby providing a flat rear portion to the house structure in order that same may be secured by nails through the small holes *h* in the tabs to any suitable support. This tab-brace member 38 tends to bind the flap 26 under pressure against the rear folding flaps 8 and 9 as shown, thus eliminating stapling and riveting for securing the end eaves flap 26 to the rear folding flaps and panel.

In Figure 4 this cut or slitted feature is reversed and the brace member 38a projects from the gable roof panel as shown, and provides a gutter to prevent rain water entering the keeper-slot 40'.

A tapered perch-stick PS is shown in Figure 1, one end of which is larger than the other. It has been found in straight perch-sticks of uniform diameter, that when shrunk they become loose in holes *h*2 and *h*3. If tapered they are slidable further into the holes *h*2 and *h*3, for a tight and wedging fit. The perch-stick may be slightly set at an angle as shown in Figure 1 so if loose, it may tend to work into a wedging fit by its own weight or by the bird hopping on and off the perch-stick.

In Figure 1, the finish of the paperboard is shown to represent wood printed upon one side of the blank, in which the upper and lower tabs will show the unprinted side towards the front of the house structure. In order to provide a finish thereat, in Figure 5 and Figure 7, the upper and lower tabs 14 and 23 are made longer than those shown in Figure 3, and are turned over at 14a and 23a as shown, thereby providing the outside exterior grain finish to be on the front of the tabs. However, printing the wood grain finish on both sides of the tabs will eliminate the turnover feature of the tabs. However, the turnover tabs bear upon and hold roof panel 22 in a locked position. If desired, this turnover feature may be also on tabs 11 and 12. Also the exterior finish may be of one solid color only, such as white, yellow or red, etc., or may be striped in two or more colors, all of which is optional.

It is to be understood that the house structure may be made up in different shapes or designs, in which the vertical and horizontal panels 4, 5, 17 and 18, and the flaps 8 and 9 of the blank B may be cut at right angles to each other, thereby making an oblong-shaped house with the front, sides and rear panels, when extended, instead of the obtuse angle and keystone design shown and described in Figure 1. Also the floor panel 17 may be lower at the front panel interconnecting crease 15, thereby allowing a sloping floor with suitable drainage openings *dh* at its lower portion to drain off water within the house structure as shown in Figure 8.

Also the cut-blank B may be printed to represent any design of a house structure having the wall panels 1, 4, 5 and 21, and tabs 11, 13 and 23 of the flaps 8 and 9 and rear panel 21, respectively, forming the chimney, the tabs 12 and 14 being cut off, the flaps 8 and 9 and rear panel 21 overlapping and interlocking in a three-fold formation.

It is understood that all parts similar in purpose but altered slightly in an alternative form, will be designated by same numerals primed.

The drawing is not to be considered exact in detail, it being merely illustrative of the invention, and I reserve the right to alter any part of my device within the scope of the appended claims.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is as follows:

1. A collapsible house structure of the character described, comprising a blank having a plurality of adjoining panels and interconnecting crease lines, said blank being erected into a house structure whereby said panels form the front, side and rear walls, and the floor and roof portions of said house structure, said floor having side brace portions, each of said side walls having an apexed portion, an ingress opening provided in one of said apexed portions, said side walls being provided with end flaps overlapping onto said rear wall, said end flaps having upper and lower projecting tabs, said rear wall having an upper tab, said tabs being provided with small holes therein, said side brace portions of said floor being extended at about a right angle to said floor in order to prevent said floor from warping and sagging, said roof portion being provided with a hinged flap portion bounded by a U shaped slit adaptable to form a keeper-slot arranged at the crease line in between said roof portion and hinged flap, said roof portion having an intermediate crease line whereby said roof portion forms a gabled roof onto said apexed portions of said side walls, said gabled roof having eaves protruding beyond said apexed portions and ingress opening, said rear wall and overlapping end flaps being secured in their overlapping position by said upper tabs being interlocked into said keeper-slot, whereby said hinged flap of said roof portion is forced against said rear wall and end flaps due to the portion bounded by a U-shaped slit forming a brace-tab therewith, thereby providing a flat rear portion to said house structure in order that the same may be secured by a nail through said small holes in the tabs to any suitable support.

2. A collapsible house structure of the character described, having front, side and rear wall portions and floor and roof portions, said floor portion being provided with lateral side braces to prevent said floor from sagging, an ingress opening in one of said wall portions, said side wall portions being provided with end flaps having tabs formed integrally therewith, said rear wall portion being provided with a tab formed integrally therewith, said roof portion being provided with a keeper-slot having a brace-tab and an end flap formed therewith, said tabs being inserted through said keeper-slot whereby said brace-tab is forced under pressure by the inserted tabs, thereby extending said end flap of said roof portion against the rear wall and overlapping end flaps of said side walls, whereby a flat rear portion is provided for said house structure, small holes being provided at one corner of said house structure, and a perch-stick provided with one end portion larger than the other end, said perch-stick adaptable to be inserted into said small holes, whereby it may adjust itself into a wedging fit into said holes, said perch-stick being adjacent said ingress opening whereat the larger bird may feed through said opening the younger birds.

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