Aug. 7, 1951 P. L. CAPRON ET AL 2,563,706

KNOCKDOWN CHAIR

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FIG. 1.

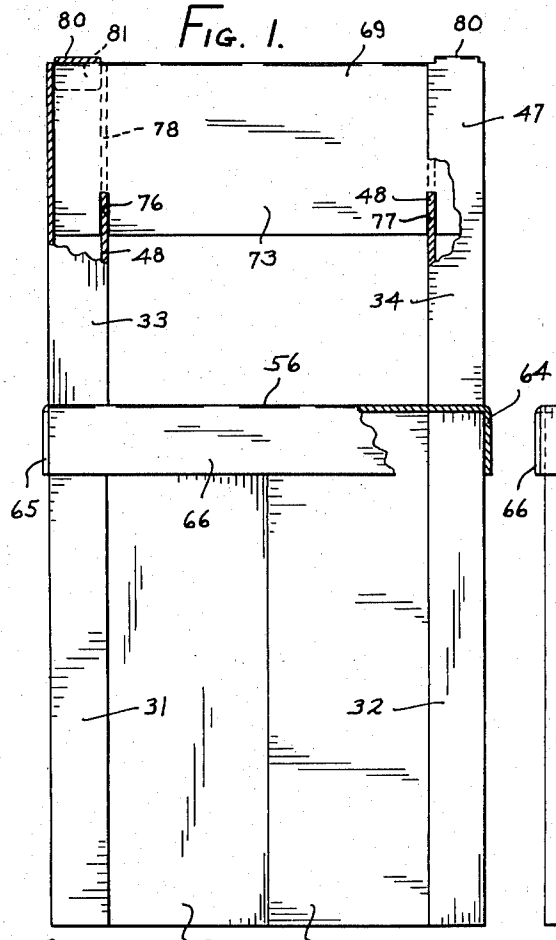
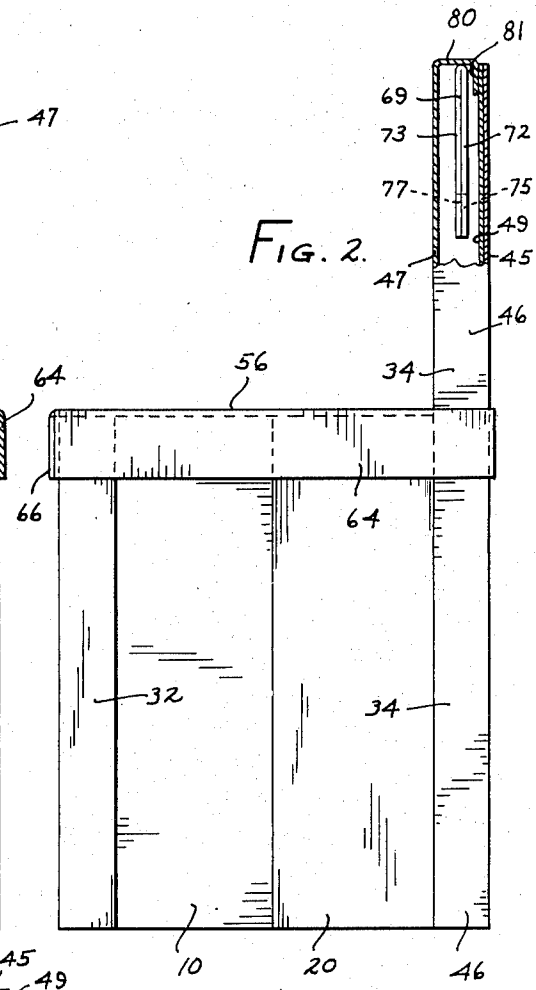


FIG. 2.



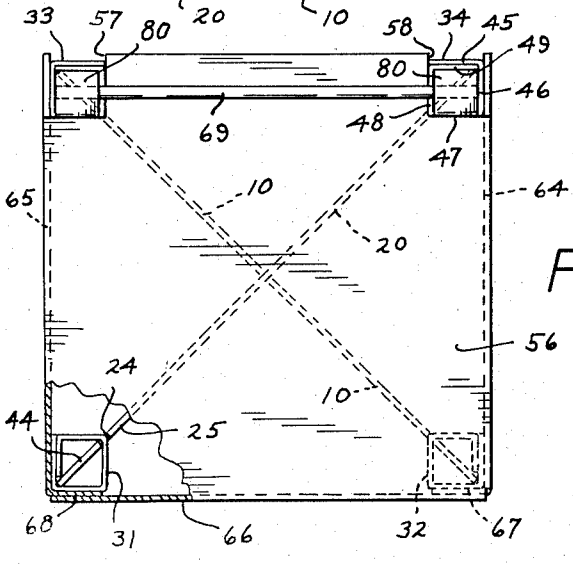


FIG. 3.

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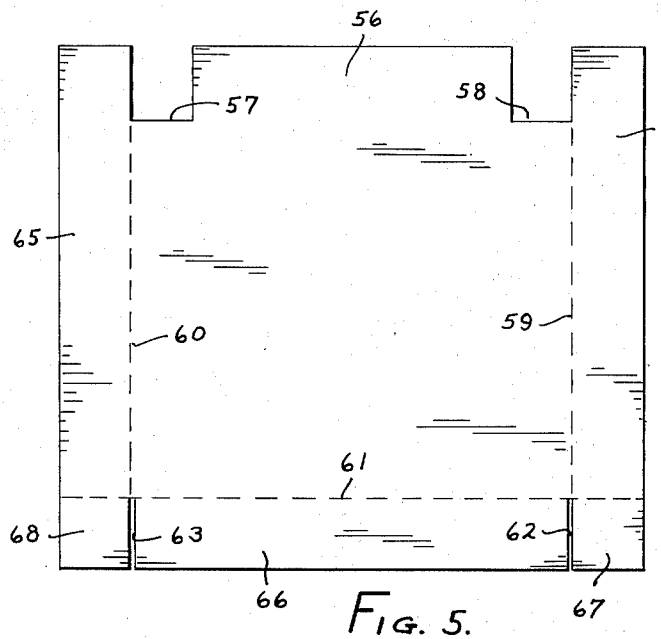


FIG. 5.

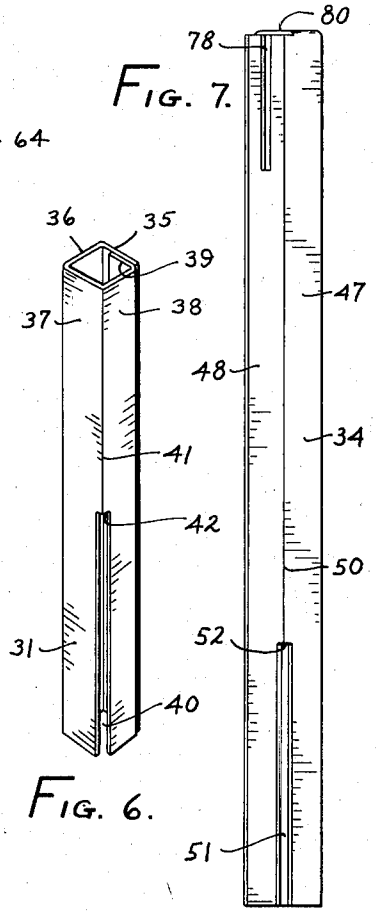


FIG. 6.

FIG. 7.

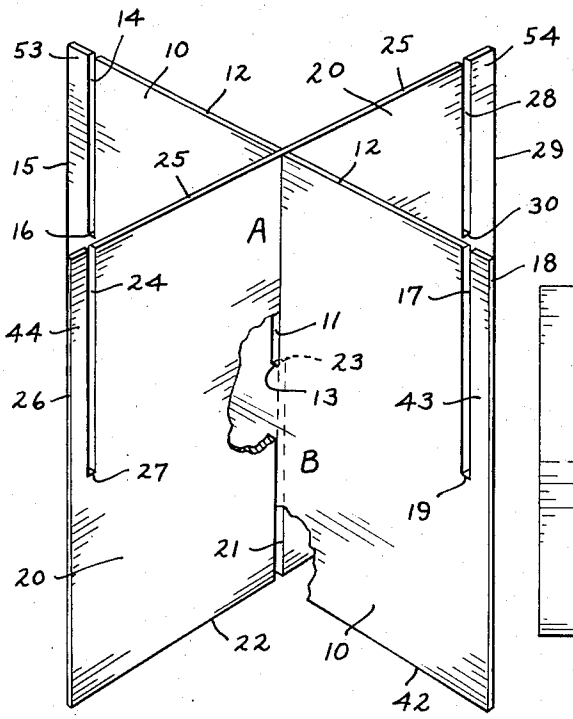


FIG. 4.

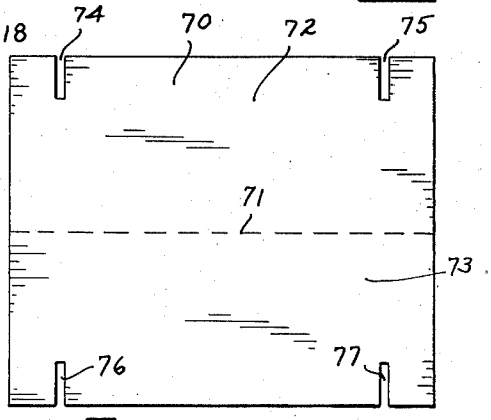


FIG. 8.

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UNITED STATES PATENT OFFICE

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KNOCKDOWN CHAIR

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6 Claims. (Cl. 155—196)

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This invention relates to an article of furniture such as a chair or the like.

A primary object of the invention is to provide an article of furniture which can be constructed from thin flat sheet material such as cardboard, corrugated strawboard, or sheet metal, and which therefore can be cut out at a factory and then shipped disassembled and stored in flat condition to conserve space.

A further important object of this invention is to provide an article of furniture which can be assembled at the place where it is to be used without the necessity for the use of special tools or any particular skill on the part of the assembler.

Further objects and advantages of this invention, including the securing of exceptional rigidity in the assembled article, and in the inexpensive, efficient and facile method of manufacture and assembly, will become obvious to those skilled in the art from the following description of one particular form of the invention as illustrated in the accompanying drawings, in which

Fig. 1 is a view in front elevation and partial section of a chair embodying the invention;

Fig. 2 is a view in side elevation and partial section thereof;

Fig. 3 is a top plan view in partial section thereof;

Fig. 4 is a view in top perspective of the base for the chair with part of the base panels broken away;

Fig. 5 is a top plan view of a blank formed for the chair seat;

Fig. 6 is a view in top perspective of a front leg of the chair;

Fig. 7 is a view in elevation of a rear leg of the chair; and

Fig. 8 is a view in top plan of a blank from which a back support of the chair is formed.

Referring to the drawings, in which like reference of characters refer to like parts throughout the several views, a base panel 10, Fig. 4, is formed to be generally rectangular in shape and to have a slot 11 entering from the top edge 12 to extend downwardly, centrally and vertically of the panel 10 to terminate at a lower end 13 at approximately the mid-point vertically of the panel 10. The width of this slot 11 is made to be equal to the thickness of the panel 10 itself.

The panel 10 is provided with a vertically disposed slot 14 entering from the top edge 12 adjacent the vertical edge 15, and this slot 14 is carried downwardly from the top edge 12 in parallel alignment with the edge 15 to terminate at a lower end 16 located approximately at the mid-point of the height of the panel 10. A slot 17 enters from the edge 12 adjacent the opposite vertical edge 18 to be carried downwardly in parallel alignment therewith to terminate by a lower end 19 in the plane of the ends 13 and 16.

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A second panel 20 is formed to have a vertically disposed slot 21 entering from its lower edge 22 to extend centrally of the panel 20 upwardly to terminate by an end 23 approximately at the mid-point vertically of the panel 20. The panel 20 is provided with a slot 24 entering from the top edge 25 to extend downwardly in parallel alignment with the vertical edge 26, and to terminate by a lower end 27 substantially in a horizontal plane including the upper end 23 of the slot 21. Further, the panel 20 is provided with a slot 28 entering from the top edge 25 adjacent the other vertical edge 29 and is carried downwardly in parallel alignment with the edge 29 to terminate by an end 30 in the plane of the ends 23 and 27.

The two panels 10 and 20 are interengaged by carrying the lower edge 22 of the panel 20 downwardly in reference to the top edge 12 of the panel 10 to have the upper portion A enter the slot 11 and the lower portion B of the panel 10 enter the slot 21 and to have the respective ends of the slots 11 and 21, that is the ends 13 and 23, come into abutment one with the other. The slots 11 and 21, both being made to be substantially as wide as the thicknesses of the two panels, frictionally engage the portions A and B, and tend to retain the panels 10 and 20 at right angles one to the other as indicated in Fig. 4.

Secured to these base panels 10 and 20, are the front legs 31 and 32, and the rear legs 33 and 34.

The front legs 31 and 32 are identical, and therefore a description of one is sufficient to describe both. Referring to Fig. 6 primarily, the leg 31 is shown as being formed to have the four face panels, namely the panel 35, the panel 36, the panel 37, and a panel 38, these panels being joined one to the other at their vertical edges integrally. The four panels are secured in a rectangular manner by means of a tongue 39 extending from the panel 38 inside of the panel 35, and these two panels 35 and 39 are then secured one to the other in any suitable manner. These four panels 35, 36, 37 and 38 form a rectangular, hollow column. A slot 40 enters from the lower end of the leg 31 to be centered on the juncture line 41 between the panels 37 and 38. This slot 40 is carried upwardly a distance approx-

imately equal to that distance from the slot end 19 to the lower edge 42 of the panel 10, this distance being the same as that from the lower end 27 to the bottom edge 22 of the panel 20.

The legs 31 and 32 are attached to the forwardly extending end portions of the panels 10 and 20 by having the panel portions enter through the slot 40 and then pushing the legs downwardly to bring the fold line 41 into the respective slots 17 on the panel 10 and 24 on the panel 20 to have the upper end 42 of the slot 40 come into abutment in each instance with the end 19 of the slot 17 and the end 27 of the slot 24. The over-all length of each of the legs 31 and 32 is made to be equal to the height of each of the panels 10 and 20. Thus, the upper end of the leg in each instance will be in the same plane as are the top edges 12 and 25, and the lower end of the leg in each instance will be in the plane of the bottom edges 22 and 42.

The slots 17 and 24 are spaced inwardly from the respective panel edges 18 and 26 a distance to form the tongues 43 and 44. The width of these respective tongues 43 and 44, along the faces is made to be equal to a diagonal line across from the juncture of the leg panels 37, 38, and the panels 35, 36 so that the tongues will fit snugly within the legs without any play.

The rear legs 33 and 34 are identical in construction and dimensions. Therefore a description of the leg 34 will suffice not only for that leg, but also for the leg 33. Referring to Fig. 7, as well as Figs. 1–3, the leg 34 is formed to comprise a rectangular hollow column to consist of the faces 45, 46, 47, and 48, hinged one to the other in that order. There is an inside flap 49, employed to lap over on the inside of the face portion 45 as a means for interconnecting those two members 45 and 49 in any suitable manner as may be desired. Centered on the fold line 50, there is formed a slot 51 entering between the faces 47 and 48 to continue upwardly from the lower end of the column to terminate at the upper end 52. This upper end 52 is spaced from the lower end of the faces 47 and 48 a distance equal to the length of the slot 40 in the front legs 31 and 32.

The two back legs 33 and 34 are assembled on the rearwardly extending portions of the panels 10 and 20 by having the slot 51 in each of those back legs receiving the end portions of those respective panels therethrough, and the legs are pushed downwardly to bring the seat 52 of the slot 51 into abutment respectively with the ends 16 and 30 of the slots 14 and 28.

These rear legs 33 and 34 thus have their fold lines 50 immediately above the upper slot end 52 located within the panel slots 14 and 28. The upwardly extending tongues 53 and 54 which are the portions of the panels 10 and 20 located outwardly between the slots 14 and 28 and the outer edges 15 and 29 extend entirely diagonally across the inside of these rear legs 33 and 34 without any clearance between the slot wall and the outer marginal vertical edges. The legs 33 and 34 are made to have a greater length than that of the legs 31 and 32 so that there will be an appreciable length of these rear legs extending above the top edges 12 and 25 of the panels 10 and 20.

Referring to Fig. 5, there is shown therein a cut out blank 56 having notches 57 and 58 formed along its rear side, score lines 59 and 60 extending in fore and aft directions continuously from the outer marginal edge portions of these notches 57 and 58 respectively, and a transverse score line 61 extending across the forward portion of the blank 56 spaced inwardly from its margin. The blank is provided with slots 62 and 63 entering from the front edge along the score lines 59 and 60 respectively to terminate on the transverse score line 61.

The blank 56 is laid over the panels 10 and 20 to rest on the top edges 12 and 25 and to have the rear legs 33 and 34 received upwardly respectively through the slots 57 and 58, the dimensions of these slots being made such that the legs will be received snugly therein. Then the blank is bent on the score lines to have a flange 64 turned downwardly from the score line 59, a flange 65 turned downwardly from the score line 60, a flange 66 turned downwardly across the front from the score line 61, and then the end flaps 67 and 68 are turned inwardly under the front flap or flange 66 and there secured, see Figs. 1–3.

Since the front legs 31, 32 and the rear legs 33, 34 are secured to the panels 10 and 20 in the manner above indicated, these legs will be presented to have their faces at 45 degrees to the faces of the respective panels, and therefore will have faces presented in parallel arrangement with the downturned flanges of the blank 56. Where the flanges 64, 65, and the end flaps 67 and 68, contact the four legs, they may be secured thereto in any suitable manner so as to retain the blank 56 thus formed into position securely across the upper edges of the two panels 10 and 20.

A back rest generally designated by the numeral 69 is formed out of a blank 70, Fig. 8, to be folded on a transverse line 71 to have the two contacting panels 72 and 73. The fold line 71 is presented at the upper side of the rest when it is interconnected between the upper portions of the legs 33 and 34 so that a rounded edge of a finished nature is thus presented. Each of the panels 72 and 73 is provided respectively with the entering notches 74, 75 and 76, 77 which will respectively coincide when the two panels 72 and 73 are folded one against the other. These combined notches 74, 76, and 75, 77 are provided to receive therein the face portion 48 of the respective legs 33 and 34 when the ends of the back rest section 72 are inserted through slots 78 which are provided to enter from the top ends of the faces 48 and extend downwardly centrally thereof. The length of the combined panels 72 and 73 is such that their vertical edges will be in contact with the inner sides of the face portions of the legs 33 and 34 which are then presented opposite the faces 48. The upper fold line 71 in the present form is then made to be even with the top ends of the posts 33 and 34.

To provide finished ends on the posts 33 and 34, upper end flaps 80 in each instance are provided to fold over and tuck down inside of the posts by tongues 81.

The invention has been described herein in one particular form in minute detail, and it is obvious that structural variations may be employed without departing from the spirit of the invention, particularly in the possible variations in lengths of the rear legs 33 and 34 so that the article of furniture may be a table, or have a higher back than indicated, and the like. The material from which the various elements above describe may be made may vary, although the common and well known corrugated fiber board is quite suitable and will provide a very firm and rigid structure when constructed in the manner above described. Pressed fiber board, or even metal, may be employed as may be desired. Also there may be conceivably a variation in the cross-

sectional configuration of the posts without departing from the spirit of the invention. Therefore we do not desire to be limited to that precise form beyond the limitations which may be imposed by the following claims.

We claim:

1. An article of furniture comprising a base formed from two vertical panels centrally, vertically intersecting one another to present outer vertical edge portions, each of said edge portions having a vertically disposed slot entering from its top; hollow legs, each having a vertical slot entering from its lower end; said legs being interengaged with said panel edge portions by having a lower part of a panel edge portion entered through a leg slot, and an upper portion of the leg entered in said panel slot; a top extending across the top edges of said panel; and a downturned flange extending across outwardly presented faces of said legs.

2. An article of furniture comprising two vertically disposed panels having centrally disposed slots entering therein respectively from relatively top and bottom edges, which panels interlock with each other through said slots to form a base having an X-shaped horizontal section, each of said panels having vertical slots spaced from the vertical edges and opening through the top edges thereof; hollow legs having end opening vertical slots therein, which legs interlock with the lateral edges of the panels through the end opening slots in the legs and the end opening vertical slots spaced from the vertical edges of the panels to hold the legs in an upright position; a seat resting on top of said base; and depending flanges on the front and sides of said seat.

3. An article of furniture comprising two vertically disposed panels having centrally disposed slots entering therein respectively from relatively top and bottom edges, which panels interlock with each other through said slots to form a base having an X-shaped horizontal section, each of said panels having vertical slots spaced from the vertical edges and opening through the top edges thereof; rectangular cross-section, hollow legs having end opening vertical slots therein, which legs interlock with the lateral edges of the panels through the end opening slots in the legs and the end opening vertical slots spaced from the vertical edges of the panels to hold the legs in an upright position; a seat resting on top of said base; and depending flanges on the front and sides of said seat; the distance which each of the leg interlocking panel slots is spaced from its respective vertical edge of the panel being equal to the diagonal distance from corner to corner of the inside of said hollow legs.

4. An article of furniture comprising a base formed from two vertical panels centrally, vertically intersecting one another to present outer vertical edge portions, each of said edge portions having a vertically disposed slot entering from its top; hollow legs, each having a vertical slot entering from its lower end; said legs being interengaged with said panel edge portions by having a lower part of a panel edge portion entered through a leg slot, and an upper portion of the leg entered in said panel slot; a top extending across the top edges of said panel; and a

downturned flange extending across outwardly presented faces of said legs; two adjacent legs having the same height as said panels; the other two adjacent legs having a greater height than said first two legs; and a member interconnecting the upper end portions of said two longer legs at zones spaced above said seat.

5. An article of furniture comprising a base formed from two vertical panels centrally, vertically intersecting one another to present outer vertical edge portions, each of said edge portions having a vertically disposed slot entering from its top; hollow legs, each having a vertical slot entering from its lower end; said legs being interengaged with said panel edge portions by having a lower part of a panel edge portion entered through a leg slot, and an upper portion of the leg entered in said panel slot; a top extending across the top edges of said panel; and a downturned flange extending across outwardly presented faces of said legs; two adjacent legs having the same height as said panels; the other two adjacent legs having a greater height than said first two legs; and a member interconnecting the upper end portions of said two longer legs at zones spaced above said seat; said top having horizontal slots formed to receive the longer legs therein.

6. An article of furniture comprising a base formed from two vertical panels centrally, vertically intersecting one another to present outer vertical edge portions, each of said edge portions having a vertically disposed slot entering from its top; hollow legs, each having a vertical slot entering from its lower end; said legs being interengaged with said panel edge portions by having a lower part of a panel edge portion entered through a leg slot, and an upper portion of the leg entered in said panel slot; a top extending across the top edges of said panel; and a downturned flange extending across outwardly presented faces of said legs; two adjacent legs having the same height as said panels; the other two adjacent legs having a greater height than said first two legs; and a member interconnecting the upper end portions of said two longer legs at zones spaced above said seat; each of said longer legs having top entering slots on opposed inside surfaces; said member being interengaged with said longer legs by having a portion of said member entered in said leg slots and by having portions of said longer legs entered in slots in said member.

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