Sept. 22, 1964 N. F. STEUER 3,149,880

DISPOSABLE FURNITURE

Filed June 4, 1962 2 Sheets-Sheet 1

FIG_1

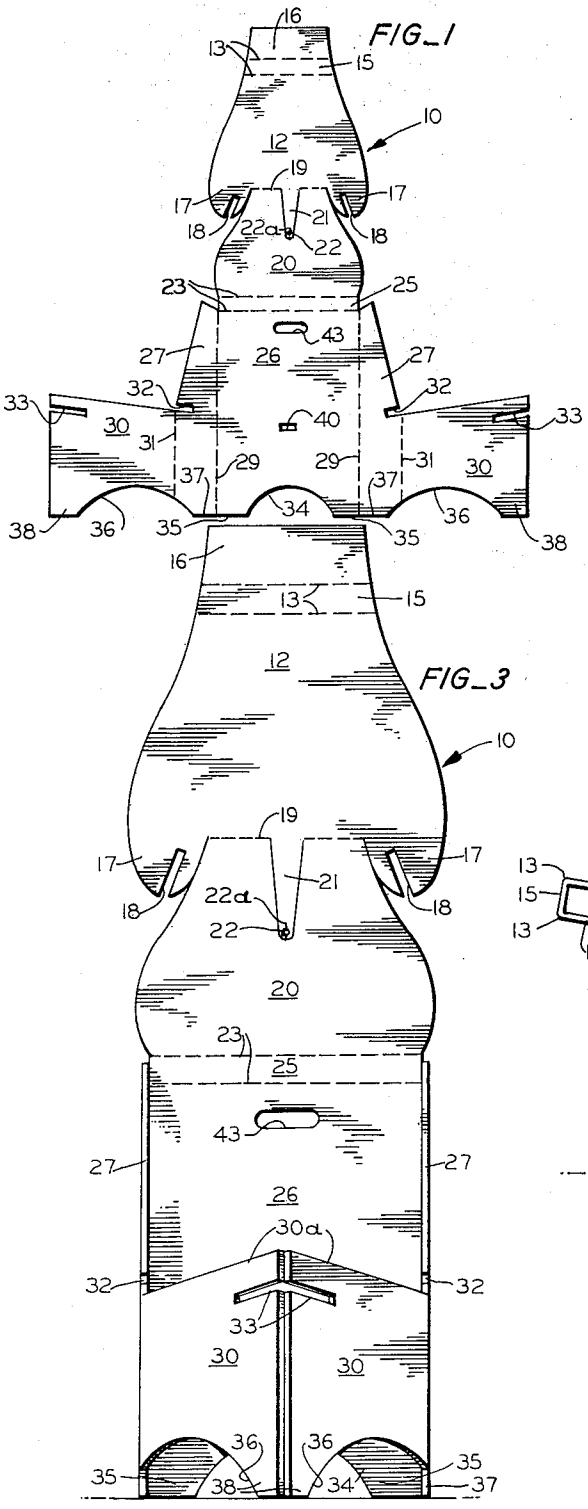


FIG_2

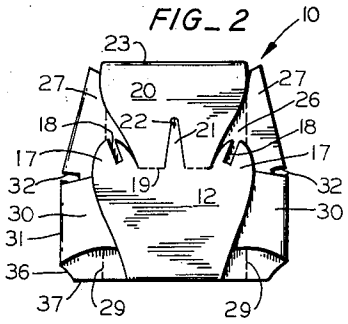
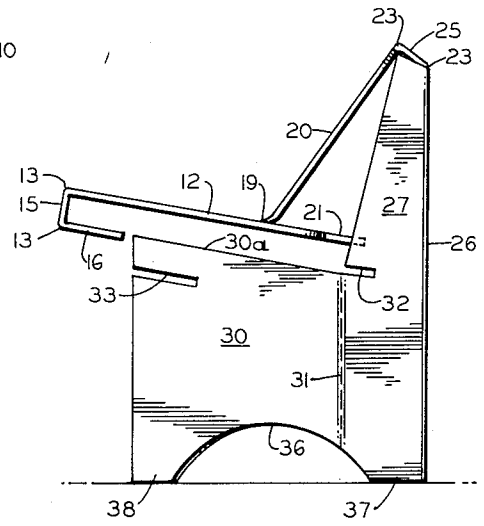


FIG_3

FIG_4



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DISPOSABLE FURNITURE

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FIG_5

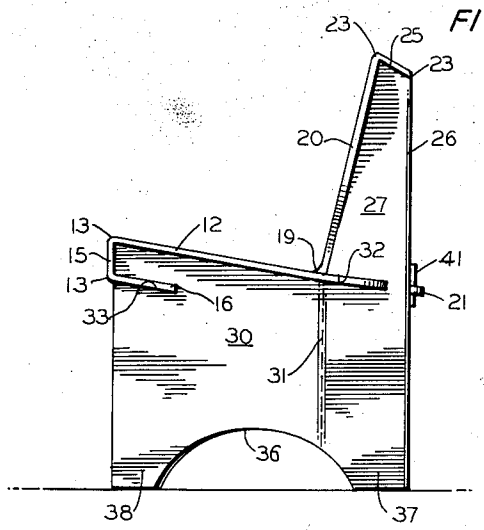


FIG_6

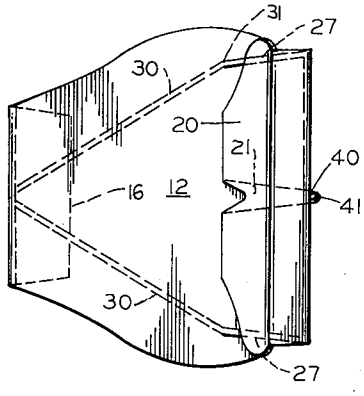
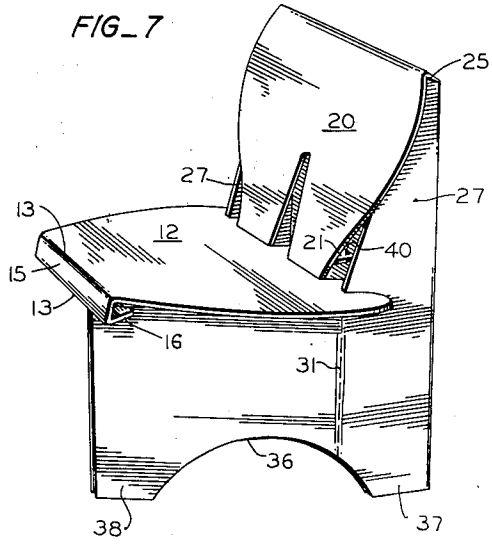


FIG_7



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DISPOSABLE FURNITURE

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12 Claims. (Cl. 297—440)

This invention relates generally to an article of furniture, and more particularly to an article of furniture formed from an integral blank of disposable material.

It is an object of the present invention to provide an article of furniture formed from an integral blank of disposable material which is adapted to be manually set up to form a sturdy piece of furniture in a minimum amount of time and with very little effort and skill.

It is another object of the present invention to provide a longitudinally symmetrical blank of a disposable material which has been precut and scored, and is manually foldable to form a sturdy, upright article of furniture which will support even extremes of human weight.

A further object of the present invention is to provide an article of furniture which is quickly and easily set up from an integral blank of a disposable material which has been precut and scored, whereby the article of furniture is easily and quickly set up by manually folding the blank in its set-up position by a simple locking means.

The use of disposable furniture is particularly convenient in camps, parks or in picnic areas where it is desired to provide inexpensive furniture for limited use, and which may be conveniently disposed of when desired or unfolded into flat form for storage. Another important use for the furniture is for children's parties as it saves wear and soiling of the usual furniture. This disposable furniture of the present invention has particular application for use in fall-out and bomb shelters in the Civil Defense program where it is essential that any contaminated furniture be disposed of, as by burning, etc., as quickly as possible after such contamination occurs.

The particular article of furniture described herein as an embodiment of the present invention is a chair, however, it will be apparent that other articles of furniture, such as benches, tables, and the like, may be formed in the manner of the present invention without departing from the spirit thereof. The chair is formed from an integral blank of a disposable material, such as heavy gauge cardboard, corrugated board or the like. The cardboard blank is relatively inexpensive and light in weight. The corrugated or cardboard material may be suitably sized or coated when it is manufactured to resist dampness.

Further objects are to provide a construction of maximum simplicity, economy and ease of assembly and disassembly, also such further objects, advantages and capabilities as will fully appear and as are inherently possessed by the device and invention described herein.

The invention further resides in the combination, constructon and arrangement of parts illustrated in the accompanying drawings, and while there is shown therein a preferred embodiment thereof, it is to be understood that that the same is illustrative of the invention and that the invention is capable of modificaion and change and comprehends other details of construction without departing from the spirit thereof or the scope of the appended claims.

In the drawings:

FIGURE 1 is a plan view of the blank which has been been cut and scored;

FIGURE 2 is a plan view of the blank when folded in relatively flat form for shipping and storage;

FIGURE 3 is a front elevational view on a larger scale showing the first stage of setting up the chair;

FIGURE 4 is a side elevational view showing the final stage of setting up the chair;

FIGURE 5 is a side elevational view of the chair as folded and set up for use;

FIGURE 6 is a top plan view of the chair as folded and set up for use;

FIGURE 7 is a perspective view of the chair.

Referring to the drawings, wherein like reference numerals refer to identical members, and especially to FIGURE 1, there is shown the blank **10** which has been cut to the configuration desired in a symmetrical pattern about its longitudinal axis. The pattern is divided into a seat panel **12**, a block rest panel **20**, a back panel **26**, all three panels being longitudinally aligned, and two side panels **27**, and two support panels **30** extending transversely of the back panel **26**, the separation being by means of a plurality of scored lines appropriately located thereon. The front portion of seat panel **12** has a pair of transversely extending, parallel, scored lines **13** which define a rectangular front section **15** therebetween for forming a distally located flap **16** in the uppermost portion of seat panel **12**. The lower or rearward portion of seat panel **12** flares downwardly, outwardly and then inwardly to form a pair of lobes **17**, each having an open, angularly inclined slot **18** cut therein. The lowermost central portion of seat panel **12** is delineated from the back rest panel **20** by means of scored line **19** which extends transversely between the two panels to thereby allow the two panels to be folded relative to each other. The line **19** terminates at its outer ends at the inner portion of the lobes **17** and extends inwardly toward but stops short of the centerline of the blank **10** to define the base of a tongue **21** which is cut out of the central upper portion of the back rest panel **20**. The tongue **21** has a cut-out hole **22** located in its distal end for cooperation with a locking dowel, to be later described. When the seat panel **12** is folded over relative to the back rest panel **20**, the tongue **21** will be separated from the back rest panel **20** and project rearwardly as an elongation of and in the same plane as the seat panel **12**, as can best be seen in FIGURE 4.

The back rest panel **20** of the cut blank of FIGURE 1, flares downwardly and outwardly and then curves inwardly and terminates at its lower end in a rectangularly shaped top panel **25** defined by a pair of transversely extending, parallel scored lines **23**. The top panel **25** serves to separate the back rest panel **20** from the substantially rectangularly shaped back panel **26**. The back panel **26** is separated from the side panels **27** by a pair of parallel, longitudinally extending, scored lines **29** which permit the side panels **27** to be folded in generally right angular relation to the back panel **26**. The outer boundaries of the side panels **27** are laterally defined by longitudinally extending scored lines **31** which are in parallel relation to scored line **29** and serve to separate side panels **27** from the outwardly extending support panels **30**. The top edge of each of the support panels **30** is inclined outwardly and upwardly to define a support edge for the seat panel **12** as seen in FIGURE 4. The top edge of each support panel **30** extends inwardly into the side panels **27** to define slots **32**, one each in the side panels **27**, the slot **32** being adapted for mating engagement with the slots **18** in seat panel **12** precisely on the plane of the top supporting edge of the support panels **30**. The outer ends of the support panels **30** each have an inwardly directed slot **33** therein in parallel relation to the top edge of the support panels. The support panels **30** are adapted to be folded on the scored lines **31** and joined together at their extreme outer edge to form a generally triangularly shaped base for the chair. When the extreme outer edges of support panels **30** are thus brought together, as seen in FIGURE 3, the open ends of the slot **33** will be joined to form an inwardly diverging slot for the insertion

therein of the locking flap 16. The slots 33 are dimensioned according to the thickness of the flap 16 so that a tight frictional fit of flap 16 in the slots 33 is assured. If desired, the juncture of the support panels may be secured additionally by a piece of tape placed over the joint.

The back panel 26 may be provided with an inwardly directed arcuate cut-out portion 34 located in the bottom thereof to define a pair of foot members 35 on either side. Each of the support panels 30 also may be provided with an inward arcuate cut-out portion 36 which extends partially into the bottom portion of the side panels 27, to thereby define foot members 37 in the side panels 27 and foot members 38 in support panels 30.

FIGURE 2 illustrates the blank 10 when it is folded for storage or for shipment. The two support panels 30 are folded about scored line 31 to overlap the back panel 26. The back rest panel 20 is folded about the uppermost scored line 23 to overlap the back panel 26, so that the back rest panel 20 lies on top of the support panels 30. The flap 16 and the front section 15 are tucked under seat panel 12 by folding front section 15 about the lowermost scored line 13. In this manner the blank 10 is conveniently arranged to form a substantially flat, conveniently sized form for storage and transporting.

The longitudinal symmetry of the blank 10 facilitates and simplifies to a great extent the folding of the blank 10 in setting up the chair, as will now be described. FIGURE 3 illustrates the blank 10 in the first stages of setting up to form the chair of the present invention. The side panels 27 are folded inwardly at substantially right angles to the back panel 26 along the scored lines 29. The support panels 30 are then folded inwardly about the scored lines 31 until they meet along their respective outer edges to form a generally triangularly shaped base portion, as can best be seen in FIGURES 3 and 6. The back rest panel 20 is then folded inwardly along each of the parallel scored lines 23, and the seat panel 12 is folded outwardly about scored line 19 relative to back rest panel 20 to disengage the tongue 21 from the back rest panel 20. The flap 16 is then folded along each of the parallel scored lines 13 and turned under the seat portion 20 for cooperative engagement with the slot 33. The respective panels are so related that when the chair is in the set-up position illustrated in FIGURE 4, the flap 16 is in position to engage the slot 33, the slots 18 and 32 are in position for mating engagement, and the tongue 21 is positioned for insertion into and through the locking slot 40 in the back panel 26. In the final stage of setting up the chair, the flap 16 is fully inserted into the slot 33, the slots 18 and 32 are fully interlocked, and the tongue 21 is inserted into the locking slot 40 so that the end portion of the tongue 21 extends beyond the back panel 26 leaving the hole 22 open just beyond the back surface of the back panel 26. In order to maintain the chair in its set-up position a locking dowel 41 may be used, although this is not necessary for a completely strong and durable chair. The locking dowel 41 may be any suitably sized object, such as a pencil, which will maintain the tongue 21 in locking engagement with the back panel 26 to prevent the seat panel 12 from moving toward the front of the chair, inadvertently releasing the flap 16 from engagement with the slots 33. It will be observed that the tongue member 21 may be cut as at 22*a*. When the tongue 21 is in the operative position the split end projects beyond the back 26, so that one half of the end can be bent upwardly, and the other one half bent downwardly to lock the chair in the erected position.

Any weight on the seat 12 will, of course, bear upon the upper portion 30*a* of the outer edges of support panels 30 to hold the flap 16 in the slots 33 and retain the support panels 30 in the triangular position shown in FIGURE 6. Thus it is seen that the chair is maintained in its set-up position even more securely when it is supporting weight in its intended manner with no other locking means than the interlocking of the several members.

If it is desired to break down the chair and fold it for storage or transporting, the locking dowel 41 (if used) is removed from the bore 22 and the reverse of the above-described procedure is followed. A slot 43 may be provided in the back panel 26 to function as a hand grip so that a person's hand may be inserted into the slot 43 for ease in lifting and carrying about.

Although the description above given is directed to press board, corrugated board or any other material which can be scored and folded with integrity, the invention is obviously not limited to such material. The separate panels may be individually cut to the shape desired and then joined with suitable hinges or hinging material along the abutting edges where the scoring lines are indicated in the drawings, care being taken to make allowances for the thickness of the material when required. In this manner such materials as Masonite, plywood and the like can be used.

I claim:

1. In the method of forming an article of furniture the steps of cutting a piece of sheet material symmetrically about its longitudinal axis to a predetermined outline to form a blank, said blank having notches rearwardly on the seat panel at either side of the back panel, in the front edges of the side panels at the seat line, and in the front edges of the support panels, scoring the blank with a plurality of transverse lines dividing the blank into a seat panel, a flap panel adjacent the front edge of the seat panel, a back rest panel and a lower panel, scoring said lower panel with a plurality of longitudinal lines dividing the lower panel into a central back panel, side panels and seat support panels one each at either side, folding along the longitudinal scores adjacent the central back panel forming parallel and symmetrical side panels, folding along the longitudinal lines at the front of the side panels and bringing the front edges of the support panels together to form a triangular seat support, folding the upper panel on the transverse score lines to form the back rest panel, the seat panel and the inturned seat flap, interlocking the seat notches with the side panel notches, and interlocking the flap panel in the abutting notches of the seat support panels.

2. In the method of forming a knockdown article of furniture the steps of cutting a piece of disposable sheet material symmetrically about its longitudinal axis to a predetermined outline to form a blank, said blank having notches rearwardly on the seat panel at either side of the back panel, in the front edges of the side panels at the seat line, and in the front edges of the support panels, scoring the blank with a plurality of transverse lines dividing the blank into a seat panel, a flap panel adjacent the front edge of the seat panel, a back rest panel and a lower panel, scoring said lower panel with a plurality of longitudinal lines dividing the lower panel into a central back panel, side panels and seat support panels one each at either side, folding along the longitudinal scores adjacent the central back panel forming parallel and symmetrical side panels, folding along the longitudinal lines at the front of the side panels and bringing the front edges of the support panels together to form a triangular seat support, folding the upper panel on the transverse score lines to form the back rest panel, the seat panel and an inturned seat flap, interlocking the seat notches with the side panel notches, and interlocking the flap panel in the abutting notches of the seat support panels.

3. The method of claim 2, the steps of cutting from the back rest panel a rearwardly extending tongue integral with the seat panel, and cutting a cooperating slot in the central back panel to register with and receive the outer portion of said tongue.

4. The method of claim 3 including the step of locking the seat tongue in position on the exterior of the central

back panel thus locking the article of furniture in its erected position.

5. In an article of furniture a blank for erecting the same in combination a piece of sheet material cut symmetrically along its longitudinal axis to provide a blank, said blank being scored transversely to define a front flap, a seat panel, a back rest panel, and a central back portion, said blank being scored longitudinally to define a central back panel with side and seat support panels at either side, notches cut in the rear edge of the seat panel at either side of the back support panel, notches in the side panels at the seat line for cooperating with and receiving the seat panel notches, and notches in the outward edge of each seat support panel below the seat line to receive the front flap and to lock the furniture in the erected position.

6. In a disposable article of furniture a blank for erecting the same in combination a piece of consumable sheet material cut symmetrically along its longitudinal axis to provide a blank, said blank being scored transversely to define a front flap, a seat panel, a back rest panel, and a central back portion, said blank being scored longitudinally to define a central back panel with side and seat support panels at either side, notches cut in the rear edge of the seat panel at either side of the back support panel, notches in the side panels at the seat line for cooperating with and receiving the seat panel notches, and notches in the outward edge of each seat support panel below the seat line to receive the front flap and to lock the furniture in the erected position.

7. In a disposable article of furniture a blank for erecting the same in combination a piece of consumable sheet material cut symmetrically along its longitudinal axis to provide a blank, said blank being scored transversely to define a front flap, a seat panel, a back rest panel, and a central back portion, said blank being scored longitudinally to define a central back panel with side and seat support panels at either side, a rearwardly extending tongue integral with the seat panel cut from the back rest panel, a slot cut in the central back portion for receiving the outer end of said tongue therethrough, notches cut in the rear edge of the seat panel at either side of the back support panel, notches in the side panels at the seat line for cooperating with and receiving the seat panel notches, and notches in the outward edge of each seat support panel below the seat line to receive the front flap and to lock the furniture in the erected position.

8. In a disposable article of furniture a blank for erecting the same in combination a piece of consumable sheet material cut symmetrically along its longitudinal axis to provide a blank, said blank being scored transversely to define a front flap, a seat panel, a back rest panel, and a central back portion, said blank being scored longitudinally to define a central back panel with side and seat support panels at either side, a rearwardly extending tongue integral with the seat panel cut from the back rest panel, a slot cut in the central back portion for receiving the outer end of said tongue therethrough, a slot in the external end of said tongue being locking means externally of said central back panel, notches cut in the rear edge of the seat panel at either side of the back support panel, notches in the side panels at the seat line for cooperating with and receiving the seat panel notches, and notches in the outward edge of each seat support panel below the seat line to receive the front flap and to lock the furniture in the erected position.

9. An article of furniture made of connected panels in combination an inwardly turned flap panel, a seat panel connected at its front portion to said flap panel, having a pair of rearwardly directed slots spaced at the rear edge thereof, a back rest panel connected to the said seat panel, a central back panel connected at its top to the back rest panel, a pair of side panels coextensive in length with and connected at right angles to said central back panel, the upper portions of said side panels forming a spaced angled support for said back rest panel, and a pair of seat support members attached along one vertical edge to the lower portion of said side panels, with their other vertical edge in abutment to form a support for the seat panel, said abutting edges being slotted below the seat line to receive the inwardly turned flap panel.

10. An article of furniture made of connected panels in combination an inwardly turned flap panel, a seat panel connected at its front portion to said flap panel, having a pair of rearwardly directed slots spaced at the rear edge thereof, a tongue integral with and projecting rearwardly from said seat panel, a back rest panel connected to the said seat panel, a central back panel connected at its top to the back rest panel, said central back panel having an opening for receiving and passing therethrough, the outer end of said tongue, a pair of side panels coextensive in length with and connected at right angles to said central back panel, the upper portions of said side panels forming a spaced angled support for said back rest panel, and a pair of seat support members attached along one vertical edge to the lower portion of said side panels, with their other vertical edge in abutment to form a support for the seat panel, said abutting edges being slotted below the seat line to receive the inwardly turned flap panel.

11. The article of furniture of claim 9 where the material of the panels is rigid and connected together by flexible hinge material.

12. The article of furniture of claim 10 where the material is corrugated paper folded into panels by appropriate scorings, and locked into position by the interlocking slots and the tongue.

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