United States Patent

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[54] **COLLAPSIBLE CHAIR**
9 Claims, 7 Drawing Figs.

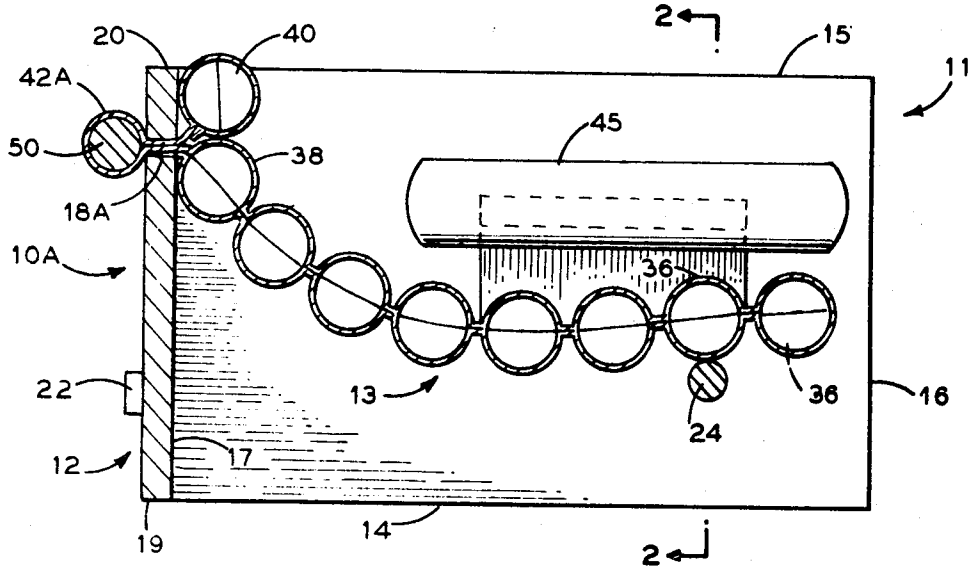
[52] **U.S. Cl.** **297/454,** 297/441
[51] **Int. Cl.** **A47c 27/08,** A47c 27/18
[50] **Field of Search** 297/440, 441, 445, 454–456

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ABSTRACT: A collapsible chair construction having separably connected side and back frames together with a combination seat and back member separably suspended on the frames and including inflatable cushioning chamber portions, together with selected chamber portions for locking the seat and back member to the frames.



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SHEET 1 OF 2

FIG. 1

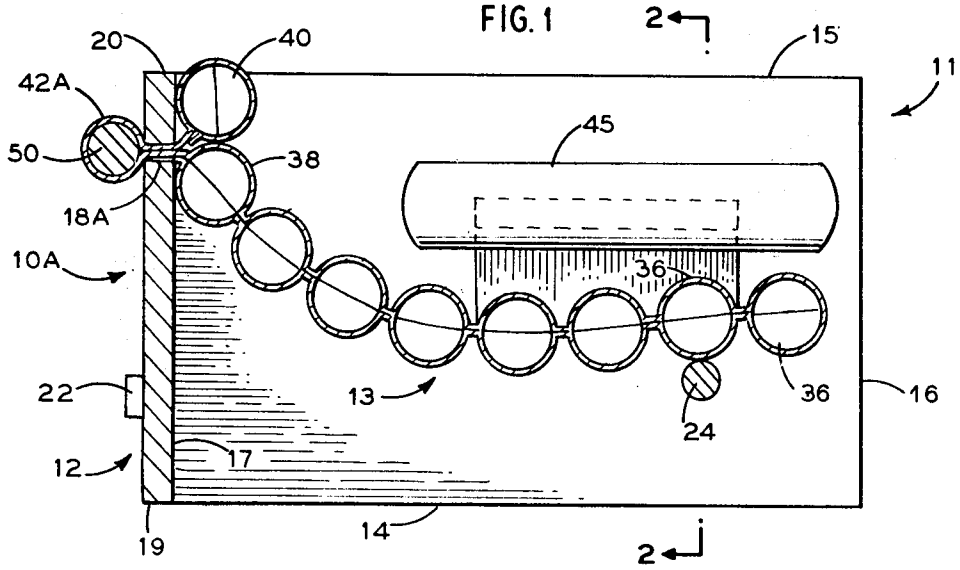
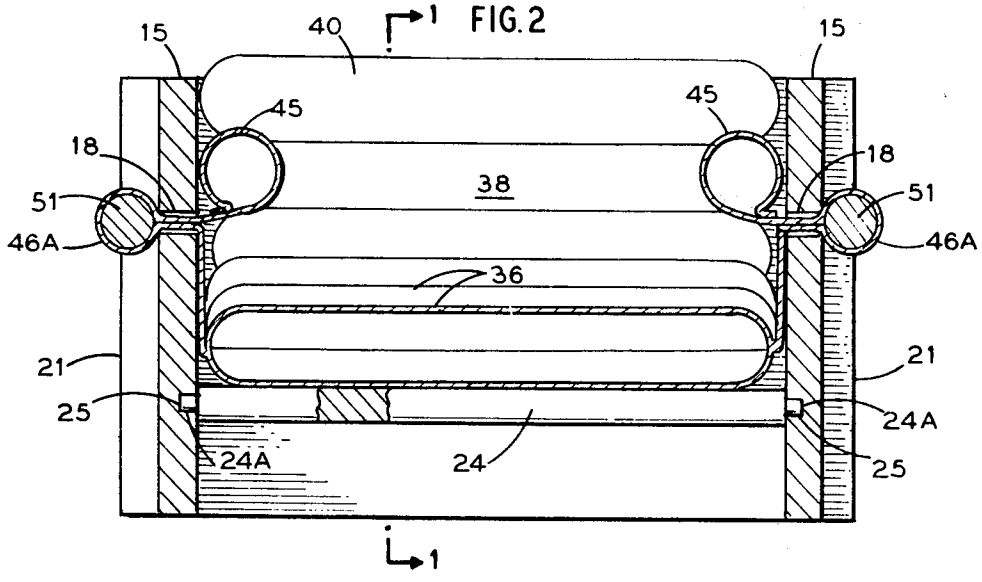


FIG. 2



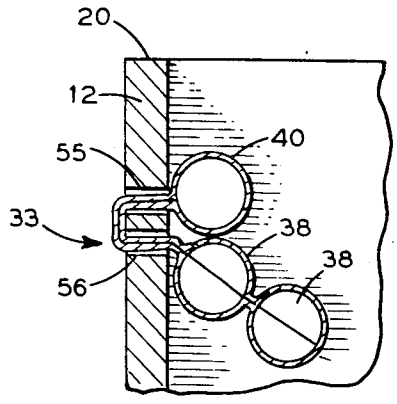


FIG. 7

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FIG. 4

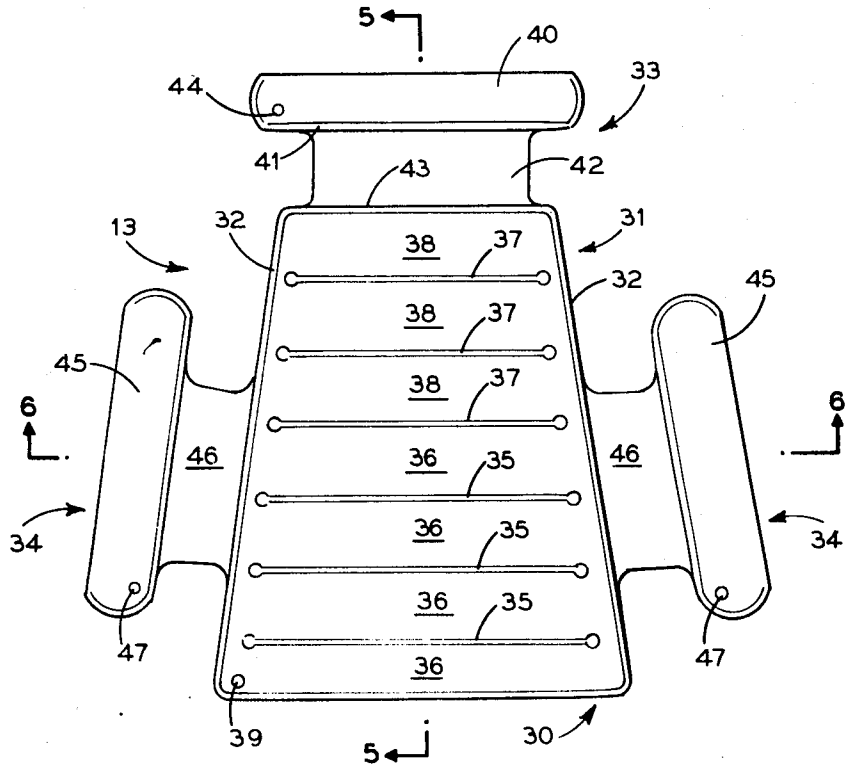


FIG. 5

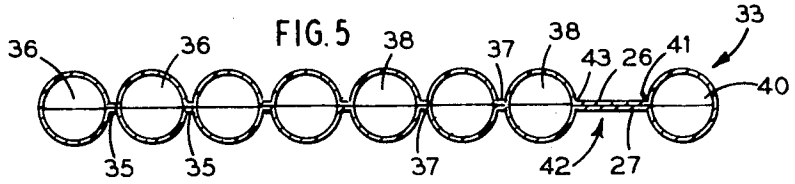
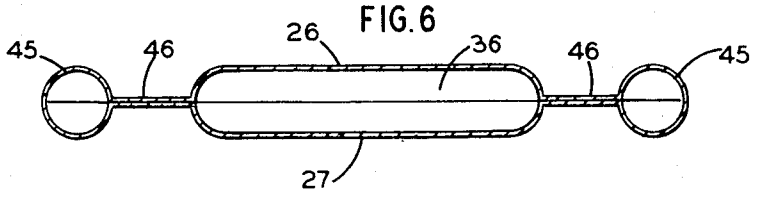


FIG. 6



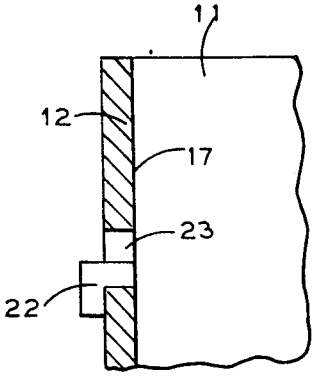


FIG. 3

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COLLAPSIBLE CHAIR

BACKGROUND OF THE INVENTION

Collapsible chair constructions have been proposed which lend themselves to disassembly and reassembly. However, such known chair constructions utilize flexible fabric for forming the seat and back for the chair. Obviously, such fabric seat and back is devoid of upholstery and accordingly affords little seating comfort.

Accordingly, an object of this invention is to provide an improved collapsible chair construction which includes a seat and back portion for removable suspension on frame portions of the chair; the seat and back portion when removed from the chair being in flat, flexible form yet convertible to provide inflated chamber portions when the same is suspended from the chair frame portions to give a comfortable upholstered effect.

Another object of this invention is to provide in a chair of the character described, a flexible seat and back member having inflatable chamber portions to provide an upholstered effect, together with suspending portions having inflatable chamber portions operative to lock the seat and back member to frame portions of the chair and also to provide upholstered elements of the chair.

A further object of this invention is to provide for use with chair frame means, an improved seat and back member made up of laminated sheets of flexible material arranged to provide a series of inflatable chambers to produce an upholstered effect; together with suspending portions for attaching the seat and back member to the chair frame means in a separable manner.

Still another object of this invention is to provide a chair construction which includes side and back frame members of lightweight material which can be readily assembled and disassembled; together with combination seat and back means formed of flexible sheet material and arranged to provide inflatable cushioning chambers and portions for suspending the same from the frame members which includes terminal inflatable chamber portions for locking the seat and back member in place and also providing arm and backrest means.

Yet another object of this invention is to provide a chair construction of the character described, which comprises frame members derived from economical materials and combination back and seat members which may be fabricated in an economical manner; which lends itself to easy and rapid assembly and disassembly; and which in its disassembled form lends itself to storage with minimal bulk.

Other objects of this invention will in art be obvious and in part hereinafter pointed out.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view with parts in section, showing a chair construction embodying the invention;

FIG. 2 is a front elevational view thereof;

FIG. 3 is a view showing the connection of frame members;

FIG. 4 is a plan view of the seat and back member;

FIG. 5 is a sectional view taken on the line 5—5 of FIG. 4;

FIG. 6 is a sectional view taken on the line 6—6 of FIG. 4; and

FIG. 7 is a view showing a modified form of suspension.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The collapsible chair embodying the instant invention, is generally indicated at 10. The same comprises a pair of similar side frame members in the form of rectangular panels 11 which are separably interconnected by a back frame member in the form of a rectangular panel 12. A combination, flexible seat and back member 13 is removably suspended from panels 11, 12.

The panels 11, 12 are formed of light but strong materials such as plywood, corrugated board, honeycomb, resin-impregnated glass fiber, light metal alloy, or the like. As shown in FIGS. 1, 2, side panels 11 have bottom edges 14, top edges 15, front edges 16 and rear edges 17, with slots 18 located below top edges 15, for the purpose later described.

The back panel 12 has a bottom edge 19, a top edge 20 and side edges 21. The side panels 11 are arranged for separable interconnection to back panel 12 with a spacing therebetween which is somewhat less than the distance between side edges 21 of back panel 12. The separable connection between panels 11, 12 may take the form of downwardly extending hook-shaped tongues 22 projecting from the rear edges 17 of panels 11 and which pass through slots 23 located inwardly of side edges 21 of panel 12 and lock panels 11, 12 together, yet allowing for quick disassembly of the same.

Back panel 12 is formed with a centrally located slot 18A located adjacent top edge 20 thereof, for the purpose later described. The spacing between side panels 11 is further maintained by a dowel 24 having reduced end portions 24A removably received in recesses 25 formed in the inner surfaces of the panels 11 adjacent the forward edge 16 thereof.

The combination seat and back member 13, which is removably suspended on panels 11, 12 is formed from an elastomeric material such as polyvinyl chloride or the like and comprises a pair of similar sheets 26, 27 of selected gauge in superposed relation. The sheets 26, 27 are die cut to the outline indicated in FIG. 4 and heat sealed along the periphery thereof. The composite sheets 26, 27 include a seat portion 30 and a back portion 31 extending from seat portion 30; said portions 30, 31 having tapering side edges 32 and terminating in a suspending wing portion generally indicated at 33.

The seat portion 30 has suspending wing portions generally indicated at 34, which project laterally from the side edges 32 thereof. The suspending wings portions 33, 34 are removably interconnected to panels 11, 12, as hereinafter described.

The plastic sheets 26, 27 are further secured together along spaced lines to provide inflatable chamber portions to thereby convert said combination seat and back member into a cushioned, upholstery element for suspension on panels 11, 12. To this end, the plastic sheets 26, 27 are seamed together along parallel lines 35 extending between side edges 32 in seat portion 30, to form chambers 36; said chambers being intercommunicating since seam lines 35 stop short of side edges 32.

Similarly, sheets 26, 27 are seamed together along parallel lines 37, also extending between side edges 32 and stopping short thereof, to form chambers 38 which are in intercommunicating relation and communicate with chambers 36. A conventional inflating-deflating valve 39 in a corner of seat portion 30, provides means for inflating chambers 36, 38 when member 13 is to be suspended on panels 11, 12; and to deflate the same to a flat condition, when the same is removed from the panels for storage.

The suspending wing portion 33 comprises a terminal inflatable chamber forming portion 40 defined by a seam line 41 and the sealed peripheral edge portions of sheets 26, 27. A flat laminated web portion 42 separates chamber 40 from the outermost chamber 38; said web portion being defined by same line 41 and a seam line 43; the web portion having end edges located inwardly of side edges 32. A conventional inflating-deflating valve 44 allows for inflation and deflation of chamber 40.

Similarly, suspending wing portions 34 comprise terminal inflatable chamber portions 45 which are spaced from side edges 32 by flat laminated web portions 46. Inflating-deflating valves 47 serve to inflate and deflate chamber portions 45.

The seat and back member 13 is readily suspended from panels 11, 12 and locked thereto, after inflating chambers 36, 38, 40 and 45. The web portion 42 is doubled in a flat folded condition and passed through slot 18A in back panel 12. A dowel 50 is then inserted into the looped portion 42A of web portion 42 which is located on the outer surface of panel 12. As shown in FIG. 1, the looped portion 42A of web 42 with inserted dowel 50, coact with terminal inflated chamber 40 and the outermost chamber 38, to secure said suspending portion 33 in place.

Similarly, the webs 46 of suspending portions 34, are folded flat and passed through slots 18 in panels 11, to form loops 46A for receiving dowels 51. Here, inflated chambers 45, in

conjunction with looped portions 46A and the inserted dowels 51, lock suspending portions 34 on panels 11.

Further, the inflated chambers 45 serve as upholstered arm rests, while inflated chamber 40 serves as a back or neck support, to thereby further contribute to the comfort of one seated in chair 10.

It will be apparent, that chair 10 may be readily disassembled by withdrawing dowels 50, 51 to allow separation of seat and back member 13 from panels 11, 12; deflating the chambers of member 13; separating panels 11, 12 from each other and removing spacing dowel 24. The several elements of chair 10 may then be compactly packaged for storage in limited storage space areas.

In an alternative embodiment of the invention, as shown in FIG. 7, the dowels 50, 51 may be eliminated. Here the back panel 12 is formed with closely spaced parallel slots 55, 56 located adjacent top edge 20 thereof. The terminal chamber 40 of suspending portion 33 is in a deflated condition which permits the same to be flat folded for passage, together with web portion 42A through the slots 55, 56 to thereby locate chamber portions 40 and 38 inwardly of panel 12. On inflating chamber portion 40, suspending portion 33 is locked in place on panel 12.

Panels 11, are similarly provided with pairs of slots, as described above; and suspending portions 34 are similarly manipulated to lock the same in respect to said panels 11.

It is understood that sheets 26, 27 may be formed of various plastic or rubbery materials having a degree of stretch and elasticity.

I claim:

1. A collapsible chair comprising a pair of side frame members, means for maintaining said frame members in laterally spaced relation, and flexible seat and back means removably suspended from said frame members, said seat and back means comprising a plurality of adjacent inflatable chamber portions and a pair of oppositely disposed suspending wing portions, each of said wing portions comprising web portions and terminal inflatable chamber portions extending from said web portions, said frame members being formed with slots to pass the web portions of said wing portions therethrough with the terminal inflatable chamber portions located on the inner sides of said frame members forming body support means, and means engageable with said web portions and coacting with said terminal inflatable chamber portions to lock said wing portions to said frame members.

2. A chair as in claim 1 and further including a back frame member, means separably connecting said back frame member to said side frame members, said seat and back means comprising a third suspending wing portion terminating in an inflatable chamber portion, said back frame member being formed with a slot to pass a portion of said third wing portion thereto with the terminal inflatable chamber portion being located on the inner side of said back frame member, and means coacting with said last mentioned terminal inflatable portion to lock said third wing portion to said back frame member.

3. A chair as in claim 1 wherein said seat and back means comprises adjacent seat and back portions, said suspending wing portions projecting laterally from the side edges of said seat portion, said seat portion including parallel inflatable chamber portions extending at their opposite ends to said suspending wing portions.

4. A chair as in claim 3, said web portions being foldable into flat condition for passage through the slots in said frame members to provide looped portions on the outer sides of said frame members, said coacting means comprising dowel means removably mounted on the looped portions of said web portions.

5. A chair as in claim 1, each of said frame members being formed with a pair of parallel adjacent slots, successive portions of said web portions being disposed in said pair of slots respectively.

6. For use with a chair having side and back frame members, flexible combination seat and back means and means for suspending said seat and back means on said frame members, said seat and back means comprising a central portion including a plurality of inflatable chamber portions, said suspending means comprising wing portions projecting outwardly from said central portion, each wing portion comprising a web portion and a terminal inflatable chamber portion extending from the web portion, said terminal inflatable chamber portion being adapted to be disposed on the inner sides of said frame members to provide body-supporting means and to form locking means for securing said wing portions to said frame members.

7. Seat and back means as in claim 6 wherein said seat and back means comprises a pair of plastic sheets, said sheets being seamed together about the peripheral edges thereof and being seamed together along spaced lines to form said inflatable chamber portions.

8. Seat and back means as in claim 7 and further including valve means for inflating said inflatable chamber portions.

9. Seat and back means as in claim 6 wherein said central portion comprises side edges, a pair of said wing portions projecting laterally from the respective side edges of said central portion.