Jan. 11, 1966 H. R. RESAR 3,228,724

COLLAPSIBLE LAWN CHAIR

Filed April 8, 1964 2 Sheets-Sheet 1

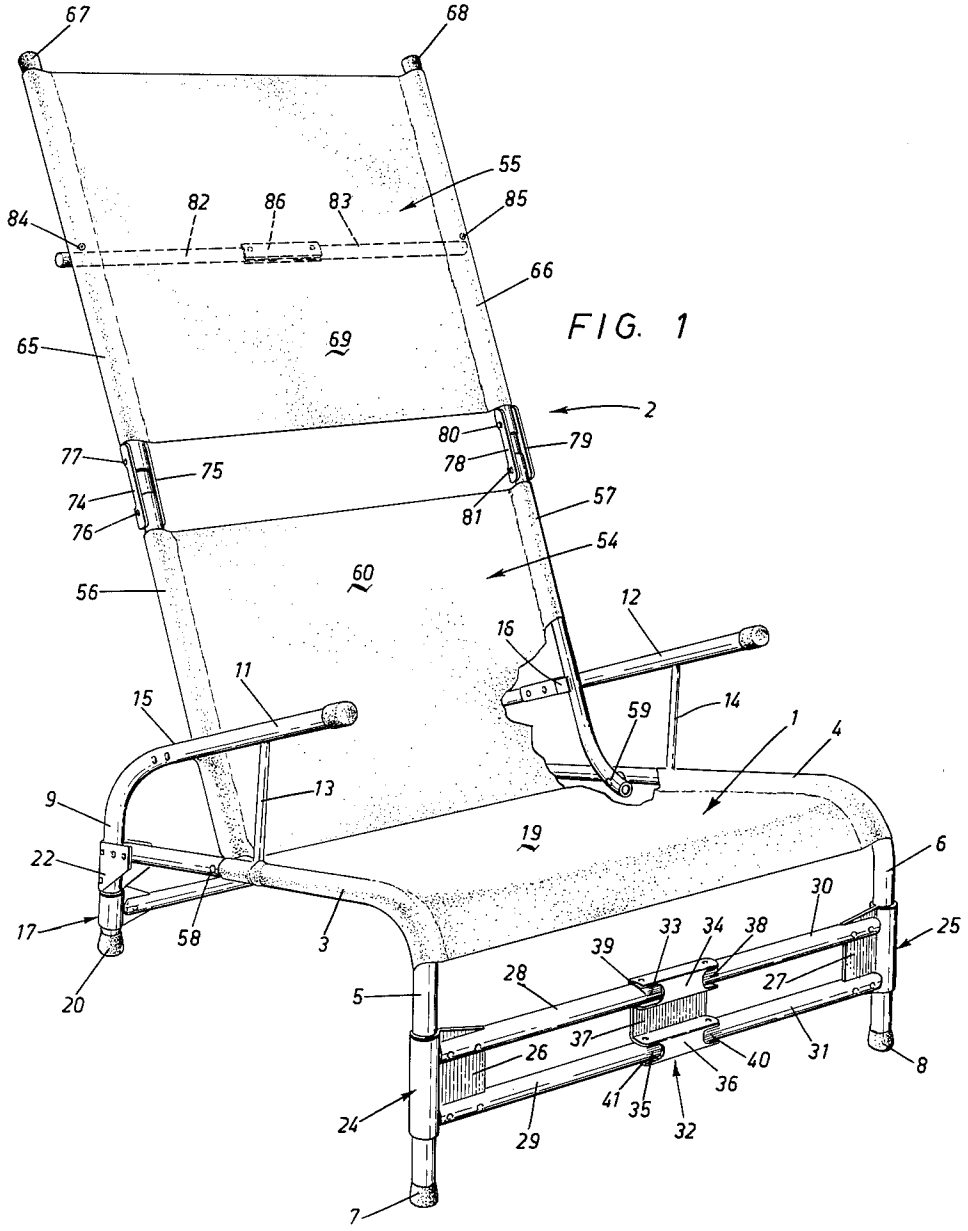


FIG. 1

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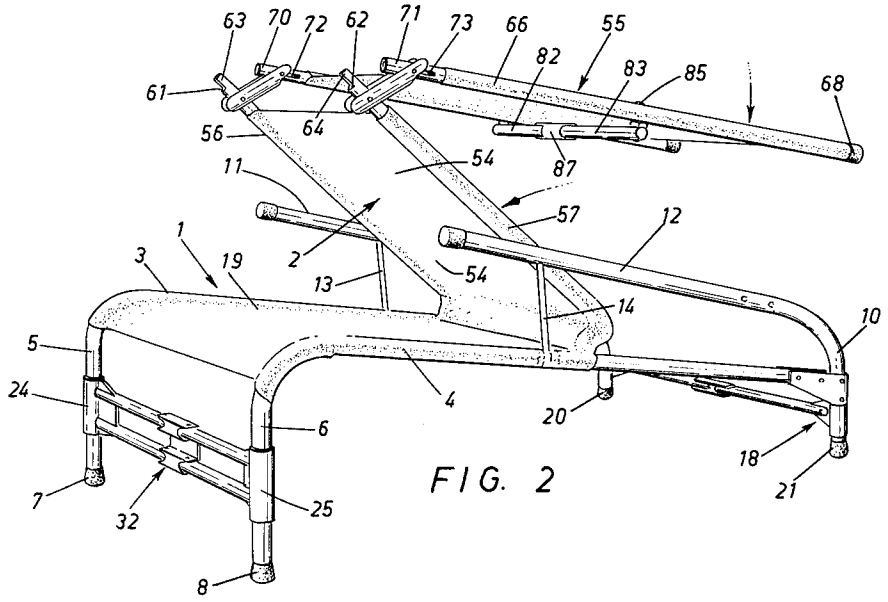


FIG. 2

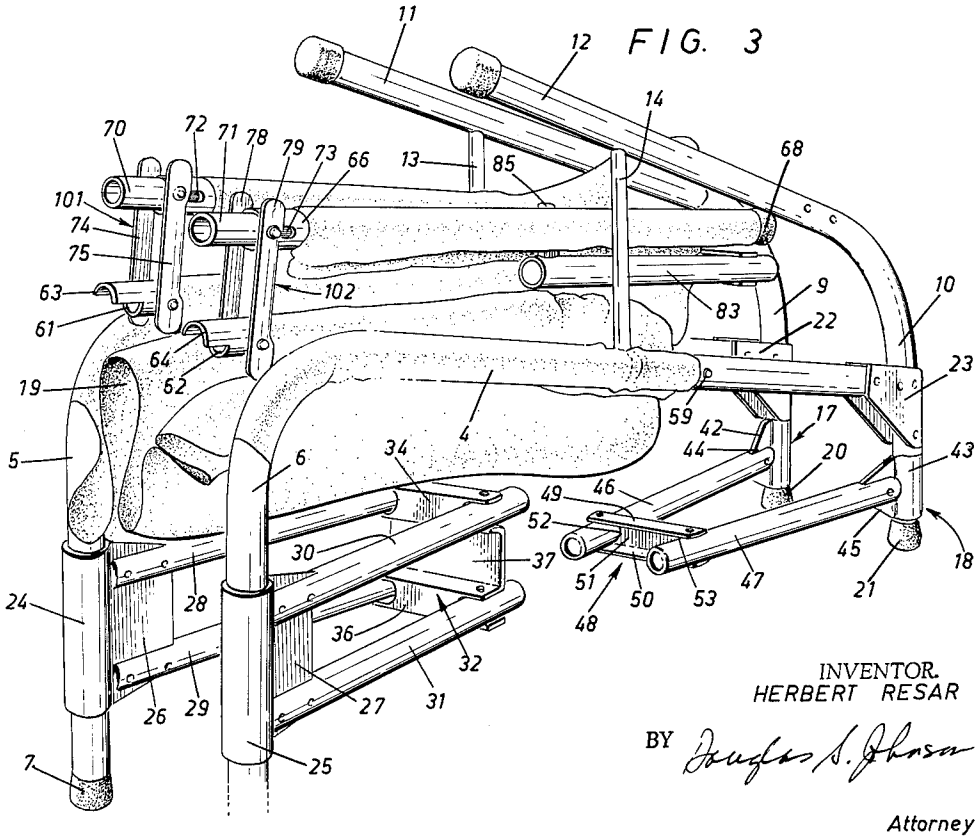


FIG. 3

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COLLAPSIBLE LAWN CHAIR

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7 Claims. (Cl. 297—45)

This invention relates to collapsible furniture and more particularly to collapsible chairs.

In the prior art, the provision of collapsible chairs is well known, but these chairs while of simple construction, have frequently been difficult or awkward to assemble and when assembled, have not proven completely stable or reliable because they have tended to collapse completely under weight.

One of the principal objects of the prior art chairs has been to provide facility of storage and transportation, hence their collapsibility. However, for the most part, their collapsible characteristics have been such that they are limited to collapse either in one plane or when collapsed, extend through as about a main plane.

In the chair now provided, it is so constructed that it may be collapsed through at least two planes: one section meing movable through a vertical and a horizontal plane and a second section having members movable laterally.

It is the main object of this present invention to provide improved collapsible furniture.

It is a further object of this present invention to provide an improved collapsible chair which is simple and economical to manufacture.

It is a further object of this present invention to provide a collapsible chair which will permit collapse of respective sections through different planes so that the chair may be more compactly stored or shipped.

In accordance with the present invention, the collapsible chair comprises a seat portion including a pair of spaced apart rigid side members, a flexible seat member secured to and extending between said side members, said side members each including at least one downwardly extending leg portion; a first bracing member secured to and extending between said downwardly extending leg portions of said side members; and a second bracing member extending between and secured to a second pair of depending leg members, each of said second pair of depending leg members being connected to a respective one of said side members in spaced apart relationship from said first mentioned leg portions, said bracing members each comprising at least a pair of swivably mounted rigid half members extending inwardly toward the immediately opposed depending leg member and a rigid connecting member hingedly connected to the inner end of each of said bracing half members to restrain outward movement thereof.

This construction gives several advantages in storage, in transportation and stability of the assembled chair which will be more evident from the description and drawings in which a specific embodiment is described by way of illustration and in which:

FIG. 1 is a front perspective view of a chair in accordance with the present invention;

FIG. 2 is a perspective view taken from one side of the chair of FIG. 1 in a partially collapsed condition;

FIG. 3 is a further perspective view of the chair illustrated in FIGS. 1 and 2 in a completely collapsed condition.

Referring now to the drawings and in particular to FIGS. 1 and 2, the chair comprises a seat and back portion generally indicated at **1** and **2** respectively. The seat portion **1** in turn, comprises side members **3** and **4**, preferably tubular to reduce weight, which have at their forward ends thereof, downwardly turned leg portions **5** and **6** respectively. Stoppers **7** and **8** are inserted in the ends of leg portions **5** and **6** to provide ground engaging means. As will be observed in FIG. 1, the side members **3** and **4** are inclined downwardly toward the rear thereof and they terminate in members **9** and **10** respectively, again preferably tubular, each of which provides an integral rear leg and arm of the chair. The arm portions **11** and **12** of members **9** and **10** are supported in spaced apart relationship from their respective side members **3** and **4** by means of vertical supports **13** and **14**; arcuate members **15** and **16** are secured to the inner sides of the arm portions **11** and **12** adjacent to the point where the members **9** and **10** turn downwardly into the leg portions **17** and **18** respectively. Between the side members **3** and **4**, a flexible seat portion **19** is secured in any conventional manner although a particularly convenient arrangement is to wrap the sides of a suitable length of material comprised of canvas, saran or the like, around the side members **3** and **4**, and then stitched into position. It is particularly to be noted that no cross member is needed to support the flexible seat **19**. The ends of the downwardly extending leg portions **17** and **18** of the members **9** and **10** are provided with ground engaging stoppers **20** and **21** and the leg portions **17** and **18** of the members **9** and **10** are secured to the side members **3** and **4** respectively by means of brackets **22** and **23**.

On the downwardly extending leg portions **5** and **6** of the side members **3** and **4**, respectively, brackets **24** and **25** are pivotably secured, and they include inwardly extending flanges **26** and **27**. The flange **26** carries a pair of parallel bracing members **28** and **29** extending inwardly towards the opposed leg portion **6** whilst the other flange **27** carries a similar pair of parallel bracing members **30** and **31** extending towards the opposed leg portion **5**. The inner ends of bracing members **28** and **29** are hingedly secured to one side of a bracket **32** and the inner ends of the other bracing members **30** and **31** are hingedly secured to the other side of the bracket **32**. In the embodiment of the invention shown in FIG. 1, the bracket **32** comprises an upper channel portion **33** presenting a wall **34** to the front of the chair and a lower channel portion **35** having an outer wall **36**, again facing forwardly. These two channel portions **33** and **35** are connected by a web **37** and to facilitate bending, the wall **34** is cut away as at **38** and **39** and the wall **36** is cut away as at **40** and **41**.

As will be observed in FIGS. 2 and 3, an arrangement similar to that already described for connecting the leg portions **5** and **6** is also used to connect the downwardly extending leg portions **17** and **18** of the members **9** and **10** respectively. A pair of brackets **42** and **43** are rotatably secured to the leg portions **17** and **18** respectively and these brackets **42** and **43** have flanges **44** and **45**

respectively, from which rigidly secured tubular bracing members 46 and 47 extend inwardly towards each other. A channel like bracket 48 is hingedly secured adjacent the inner ends of tubular members 46 and 47 and the bracket 48 comprises top and bottom walls 49 and 50 respectively, spaced apart by a web 51 which restrains the outward movement of the bracing members 46 and 47 when they are rotated about the leg portions 17 and 18. To facilitate hinging, the web 51 is cut away as at 52 and 53.

The back portion 2 comprises a lower and upper part denoted by 54 and 55 respectively, the lower part 54 being constructed by a pair of spaced apart tubular side members 56 and 57, the lower ends of which are curved forwardly to be hinged by means of pins 58 and 59 to the respective tubular side members 3 and 4. Across and between the tubular side members 56 and 57, a first back support panel 60 is secured which may be made continuous with the flexible seat 19 though it will, of course, be understood that it may be provided as a separate panel. In either case, it is conveniently secured to the side members 56 and 57 in the manner already described for the flexible seat 19. As shown in FIG. 2, the top end of the tubular side members 56 and 57 are cut away as at 61 and 62 respectively to form projections 63 and 64 which, in the particular embodiment, provides support for the upper part 55 of the back portion 2. This upper part 55 is constructed of a pair of spaced apart tubular side members 65 and 66 which are provided with caps or stoppers 67 and 68 respectively on their upper ends. A separate back or head support panel 69 is secured between the side members 65 and 66 in the manner already described for the back support panel 60. At the lower ends of the tubular side members 65 and 66, a pair of tubular projections of reduced diameter 70 and 71 are rigidly secured and these are provided with longitudinally extending slots 72 and 73. The lower end of a bracket 101 having a pair of opposed sides 74 and 75 disposed on either side of a tubular side member 56 is pivotally secured to the upper end thereof adjacent to the projection 63 by means of a pin 76 and the upper end of the bracket 101 is slidably secured by a pin 77 which extends through a slot 72 positioned in the tubular projection 70. A similar arrangement connects the tubular side member 57 with the upper tubular member 66, the side members 78 and 79 of a corresponding bracket 102 being slidably engaged at their upper ends by a pin 80 in the slot 73, whilst the lower end of the side members 78 and 79 are pivotably secured by a pin 81 extending through the side member 57.

Intermediate the ends of the upper side members 65 and 66, a pair of bracing members 82 and 83 are hingedly secured in the manner illustrated in FIG. 2, by means of pins or rivets 84 and 85 respectively, and the inner ends of the members 82 and 83 are hingedly secured together by means of a bracket 86 having a solid wall portion 87 which in the normally asembled condition, faces downwardly.

The chair will be received initially as illustrated in FIG. 3 with the bracing members 28 and 29, 30 and 31 and also 46 and 47 broken inwardly so that the side members 3 and 4 are pushed together; the back members 56 and 57 and 65 and 66 will also be pushed together, but it will be observed that the lower back portion 54 is also folded forward by virtue of the hinging on the pins 67 and 68 and the upper back portion 55 will be folded backwards.

To open the chair, the side members 3 and 4 are pulled apart so that the seat portion 19 is tightened therebetween. The bracing members 28 and 29, 30 and 31 will swing outwardly towards the front and bracing members 46 and 47 towards the rear of the seat 19. When the side members 3 and 4 are fully extended, the respective bracing members will extend substantially normally from the leg members 5 and 6 and 17 and 18 to be locked in position and thereby restrained from further outward movement by the front vertical walls 34 and 36 and the web 51. The lower back portion 54 is then pushed backwards moving hinged members 56 and 57 about the pins 58 and 59 respectively, until the members 56 and 57 engage in position with the arcuate brackets 15 and 16. The upper back portion 55 is raised at the same time as illustratrated in FIG. 2 and is pulled up to the full extent of the travel of the pins 77 and 80 in the slots 72 and 73 respectively, after which, the tubular projections 70 and 71 on the upper members 65 and 66 seat in the upper projections 63 and 64 of the lower side members 56 and 57. The pins 77 and 80 will, of course, during this motion slide up in the slots 72 and 73 and a lock will be effectively secured. At the same time, the bracing members 82 and 83 extending between the side members 65 and 66 will be pushed upwardly and secured in position by the locking bracket 86.

To stow the chair, all that is necessary is to be reverse the above procedure.

It will be seen from the above description, that the structure provided in this present application provides a comfortable seat, there being no transverse bars to disturb the comfort of a person sitting upon the chair, and the weight of an individual sitting upon the chair will tend to lock the various bracing members into firm engagement with their respective locking members. It will also be noticed that this structure permits for facile production and easy storage however, it will be understood that the embodiment described is described by way of example only and many of the modifications to the structure will be obvious to those skilled in the art without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. A collapsible chair comprising a seat portion including a pair of spaced apart rigid side members, a flexible seat member secured to and extending between said side members, said side members each including at least one downwardly extending leg portion; a first bracing member secured to and extending between said downwardly extending leg portions of said side members; a second bracing member extending between and secured to a second pair of depending leg members, each of said second pair of depending leg members being connected to a respective one of said side members intermediate the length of said leg members in spaced apart relationship from said first mentioned leg portions, said bracing members each comprising at least a pair of swivably mounted rigid half members extending inwardly toward the immediately opposed depending leg member and a rigid connecting member hingedly connected to the inner end of each of said bracing half members to restrain outward movement thereof; a back portion including spaced apart side members and at least one flexible panel extending between said spaced apart back side members, said back side members being hingedly secured to corresponding side members of said seat portion, forward of the rear end thereof to move through a vertical plane, and stop means mounted on said second pair of leg members and extending upward therefrom to restrain rearward movement of said back side members.

2. A chair as claimed in claim 1 wherein said bracing members upon collapse, each fold away from each other and each includes a solid vertical wall portion to restrain outward movement of said bracing half members.

3. A chair as claimed in claim 1 wherein said half members each comprise upper and lower rigid members each being hingedly secured to said connecting member, and wherein said connecting member includes upper and lower channel members having substantially solid outwardly facing walls to prevent outward movement of said bracing member inner end portions.

4. A chair as claimed in claim 1 wherein each side member comprises a pair of upper and lower side half members, said lower side half member being hingedly se-

cured to said upper side half member and including an extension adapted to engage the rear surface of said upper side half member.

5. A chair as claimed in claim 1 including a back portion having an upper and lower part each comprising a pair of side members, the sides of the upper part being hingedly secured to the corresponding sides of the lower part, means for locking said side members in position, each part having a flexible panel extending between and secured to said spaced apart respective side members.

6. A chair as claimed in claim 5 wherein the outer ends of a pair of bracing members are hingedly secured to the side members of the upper part and the inner ends of said bracing members are hingedly secured to a bracket having a solid wall portion which in the normally assembled condition, faces downwardly.

7. A chair as claimed in claim 5 wherein the means for locking said back side members in position comprises a projection on the upper end of the lower back side member engageable with the rear surface of the lower end of the upper back side member, a bracket including opposed members disposed one on either side of said upper and lower back side members, said brackets having lower ends pivotably secured to the upper ends of the respective lower side member and having upper ends slidably secured to the lower end of the adjacent back side member.

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