

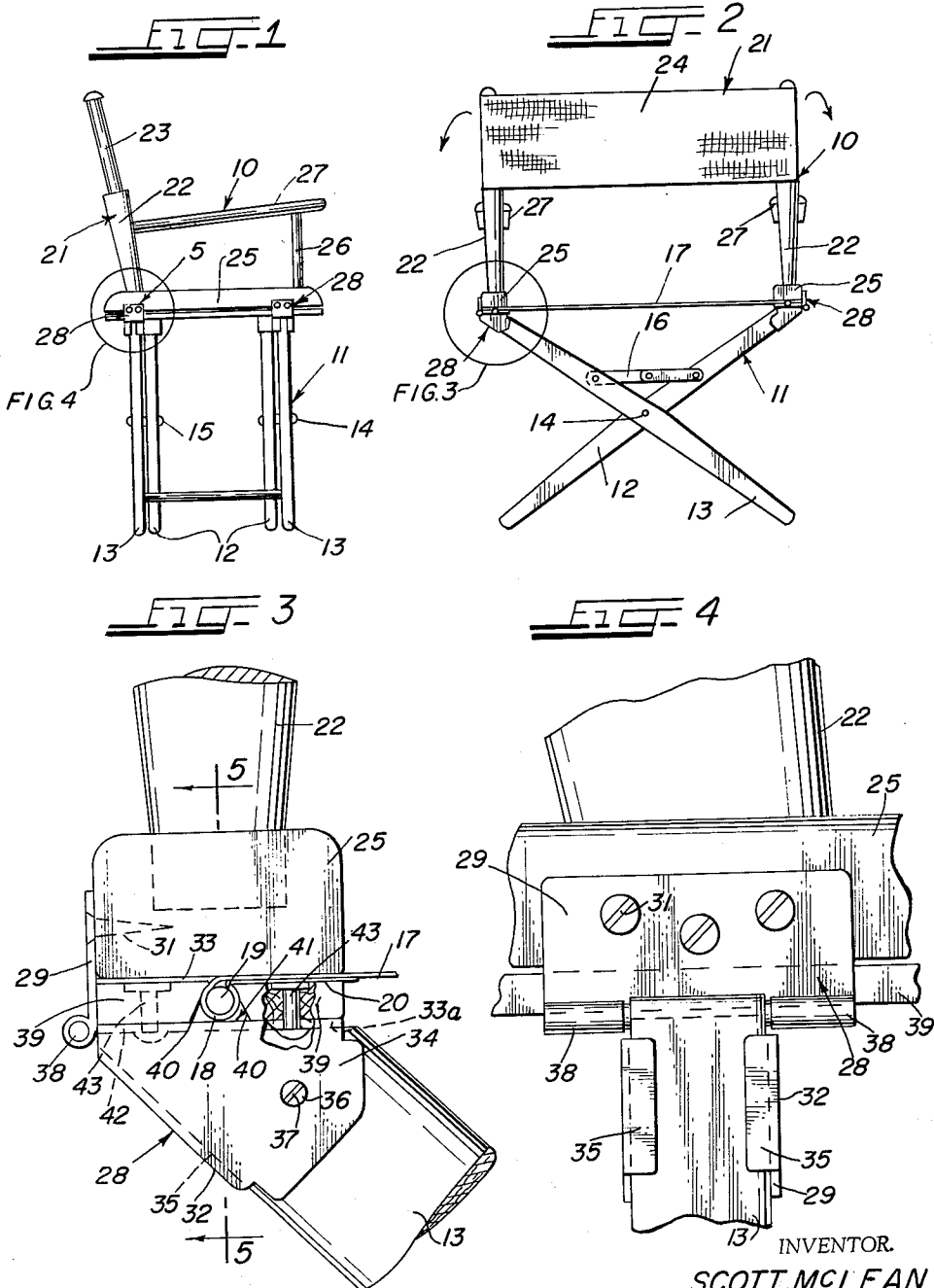
June 23, 1964

S. McLEAN
FOLDING CHAIR

3,138,401

Filed July 17, 1963

3 Sheets-Sheet 1



INVENTOR.
SCOTT McLEAN
BY
Charles B. Cannon
His Atty.

June 23, 1964

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FIG. 5

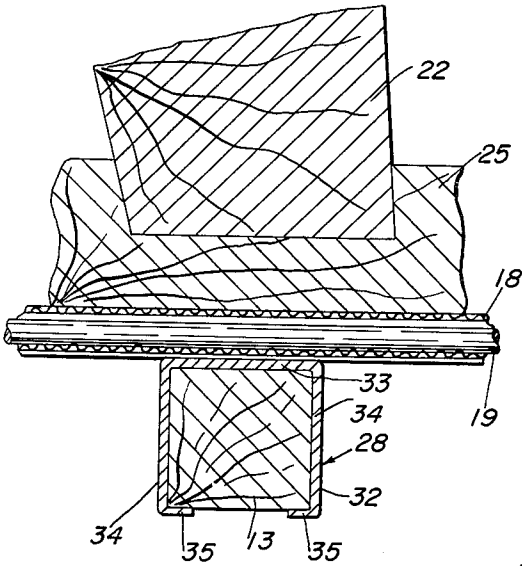


FIG. 6

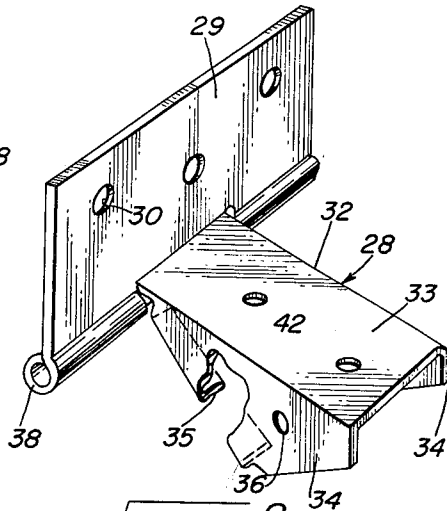
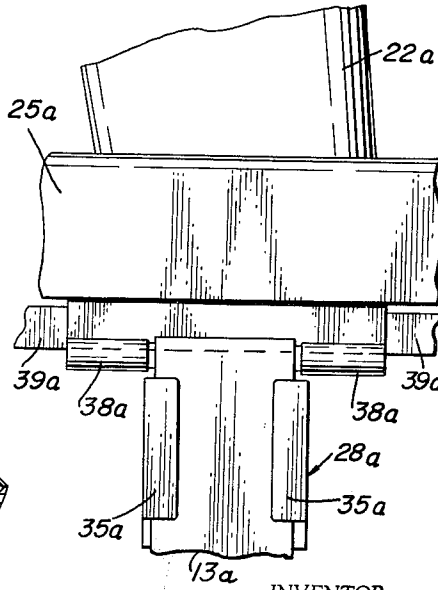
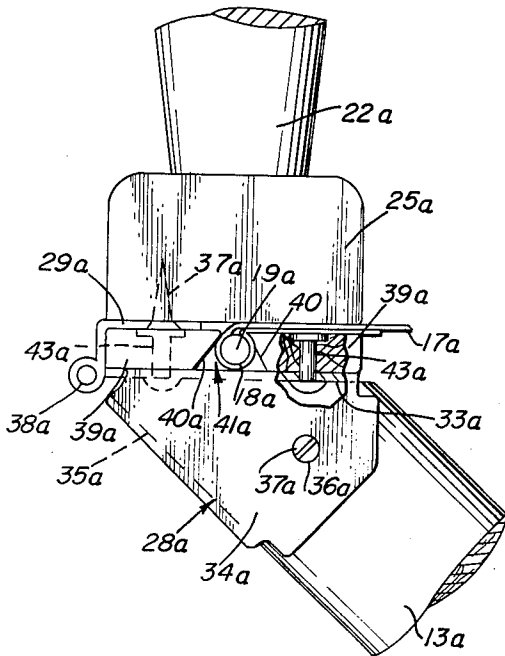


FIG. 7



INVENTOR.
SCOTT McLEAN

BY
Charles B. Cannon
His Att'y.

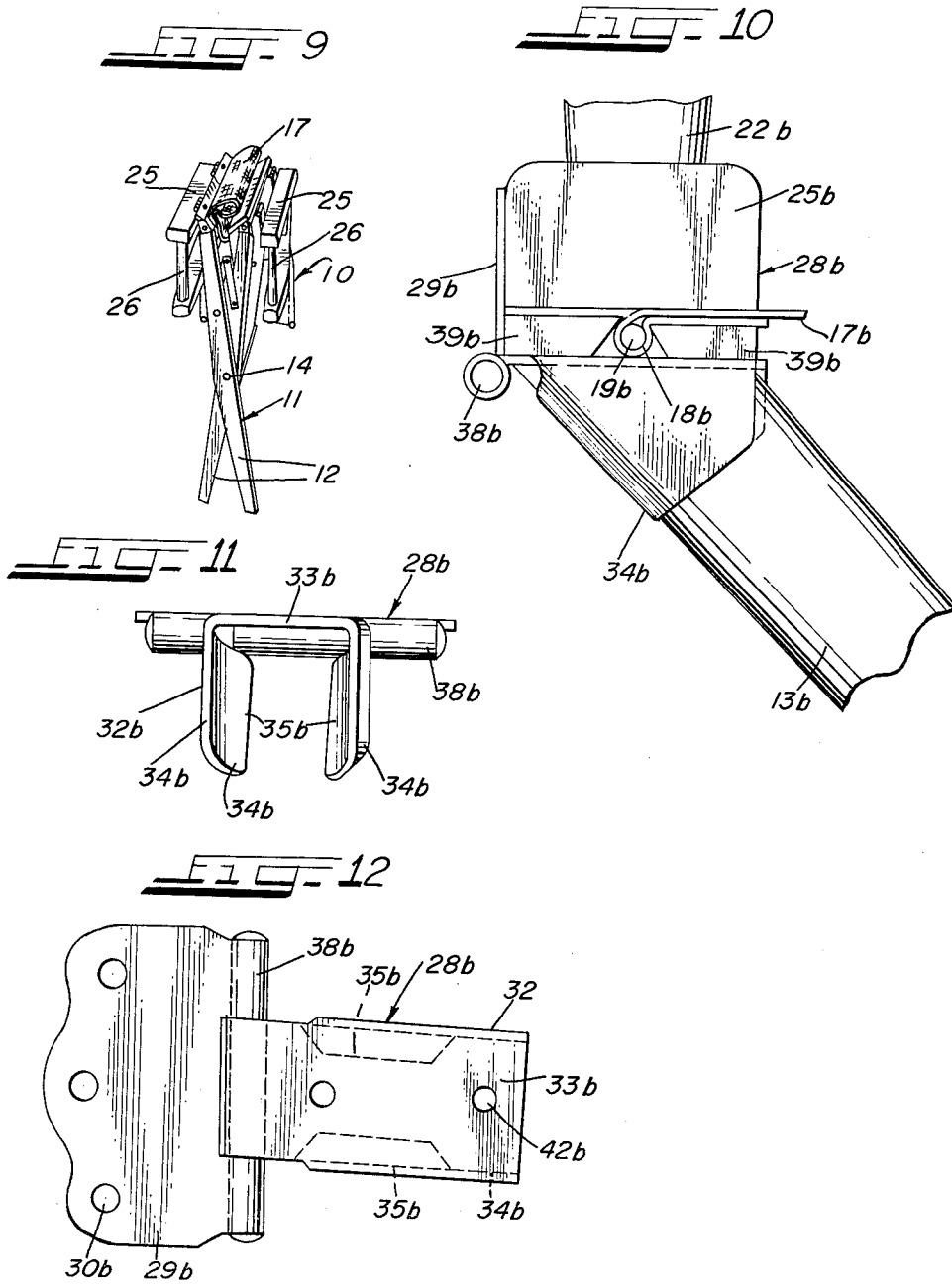
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INVENTOR.
SCOTT MC LEAN
BY
Charles B. Cannon
HIS ATTORNEY

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3,138,401

FOLDING CHAIR

Scott McLean, Bowling Green, Ky., assignor to L. F. Strassheim Company, Bowling Green, Ky., a corporation of Wisconsin

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5 Claims. (Cl. 297-36)

This invention relates to folding chairs and, more particularly, to folding chairs of the type which are sometimes known as director's chairs.

An object of the present invention is to provide a new and improved folding chair which is relatively simple in design and construction and economical to manufacture.

Another object of the invention is to provide a new and improved folding chair embodying novel means for mounting and retaining a flexible fabric or like seat cover embodied therein in position of use.

An additional object of the invention is to provide a new and improved folding chair embodying a novel combination hinge and leg bracket unit for holding the folding legs and the side rails of the new folding chair in position of use.

Other and more specific objects of the present invention are: to provide a novel combination hinge and leg bracket member which is adapted to hold and support the upper end portions of the folding legs of a folding chair, and which eliminates the necessity for heavy lower side rails as embodied in certain of the prior folding chairs, and thus effects economy in the material used in the manufacture of the new folding chair while, at the same time, eliminating the necessity for expensive chucking and grooving operations required in the production of certain of the prior folding chairs to form tenon joints between the seat rails and the legs of the chair; to provide a novel construction and arrangement of slat members for the lower side rails of the new chair and which slat members may be made of relatively thin and inexpensive wooden strips which are so designed, constructed and arranged that they provide a novel channel for the reception of retaining rods for the flexible fabric or like seat cover; and to provide a novel construction for holding the end portions of the flexible fabric or like seat cover in position of use so that the weight of the occupant of the new folding chair is distributed along and throughout the entire width of the flexible fabric or like seat rather than being concentrated on tacks, staples or like fastening elements used to fasten the seat cover to the seat rails, as in certain of the prior art chairs.

Other objects will appear hereinafter.

In the drawings:

FIG. 1 is a side elevational view of a folding chair embodying the present invention;

FIG. 2 is a rear elevational view thereof;

FIG. 3 is an enlarged fragmentary detail view of the area indicated by the legend "FIG. 3" in FIG. 2, a part of the structure being broken away to reveal certain parts thereof;

FIG. 4 is an enlarged fragmentary detail view of the area indicated by the legend "FIG. 4" in FIG. 1;

FIG. 5 is an enlarged fragmentary sectional detail view on line 5-5 in FIG. 3;

FIG. 6 is an isometric view of one form of the new combination hinge and leg bracket member embodied in the present invention, a part thereof being broken away to reveal the construction of certain parts thereof;

FIG. 7 is a fragmentary detail view similar to FIG. 3, but illustrating a modified form of the new combination hinge and leg bracket member embodied in the new folding chair;

FIG. 8 is a view similar to FIG. 4 but illustrating the

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modified form of the new combination hinge and leg bracket member illustrated in FIG. 7;

FIG. 9 is a perspective view illustrating the new folding chair in folded or collapsed position;

FIG. 10 is a fragmentary elevational view, similar to FIG. 3, but illustrating a modified form of construction of the new combination hinge and leg bracket member;

FIG. 11 is an end elevational view of the form of the new combination hinge and leg bracket member shown in FIG. 10; and

FIG. 12 is a top plan view of the form of the new combination hinge and leg bracket member shown in FIGS. 10 and 11.

A typical form of the new folding chair is illustrated in FIGS. 1 to 6, inclusive, and 9, of the drawings, wherein it is generally indicated at 10, and comprises a frame structure 11 including crossed front folding legs 12 which are pivotally interconnected, as at 14, and crossed rear folding legs 13 which are pivotally interconnected, as at 15, and reinforcing foldable leg bracket members 16, one of which is pivotally attached to each of the pairs of folding legs 12 and 13 above the pivots 14 and 15 therefor.

The new folding chair 10, embodies a flexible fabric or like seat member 17, which may be made of canvas, synthetic plastic resinous sheet material, or the like, having end portions 18 which are wrapped about retaining rod members 19 which will be referred to more fully hereinafter. The end portions 18 of the flexible fabric seat member 17 are attached to the body of the flexible fabric seat member 17, as by stitching or the like 20 so as to anchor the end portions 18 of the seat member 17 to the retaining rod members 19.

The new folding chair includes a back-rest structure 21 which includes upright rearwardly inclined back-rest posts 22 each of which has an upper portion 23 of reduced diameter (FIG. 1). A flexible fabric or like back-rest 24 extends between and has its end portions removably secured about the reduced upper end portions 23 of the back-rest posts 22 (FIG. 2), for a reason which will be pointed out hereinafter.

Seat rails 25 extend horizontally across the frame structure 11 of the new folding chair 10, from the front to the rear thereof. These seat rails 25 carry upright front brace posts 26 and the rear back-rest posts 22-23, and arm rests 27 extend between the upright front brace posts 26 and the rear back-rest posts 22-23.

The new folding chair comprises a novel combination hinge and leg bracket unit 28, one form of which is shown in detail in FIG. 6 of the drawings, and which includes a flat rectangular-shaped hinge leaf member 29 having holes 30 provided therein through which fastening elements in the form of screws 31 are inserted to fasten the hinge leaf member 29 to an adjacent one of the side rails 22. It will be noted, in this connection, that one of the new combination hinge and leg bracket units 28 is associated with the upper end portion of each of the outer leg members in each pair of folding legs 12 and 13 of the new folding chair 10, as shown in FIGS. 1 and 2. The new combination hinge and leg bracket unit 28 includes a novel and generally channel-shaped leg-receiving and bracket member 32 which includes a generally rectangular-shaped flat body 33 which has a pair of depending side walls 34, and each of these depending side walls 34 has an inwardly extending flange member 35. Holes 36 are provided in the side walls 34 of the leg-receiving and bracket member 32 for the reception of fastening elements in the form of screws 37 by which one of the leg-receiving and bracket members 32 may be attached to the upper portion of each of the outer legs in each pair of legs 12 and 13 (FIGS. 1 and 2).

The hinge leaf member 29 and the combination leg-receiving and bracket member 32 in each of the combination hinge and leg bracket units 28 are hingedly connected by a hinge knuckle 38.

The new folding chair includes two pairs of spaced parallel seat rail slat members 39 which are preferably made of light wood stock. One pair of these seat rail slat members 39 is associated with each of the seat rails 25. Each of the seat rail slat members 39 is generally rectangular in shape and has a downwardly and outwardly inclined inner edge portion 40, these inner edge portions 40 cooperating to provide an inverted V-shaped channel 41 for the reception of one of the retaining rods 19 for the end portions of the flexible fabric or like seat cover 17 (FIG. 3).

The top wall portion 33 of the combination leg-receiving and bracket member 32 has holes 42 therein for the reception of fastening elements in the form of rivets 43, or the like, by which said top wall portion 33 is fastened to the seat rail slat members 39 (FIG. 3).

Each of the seat rail slat members 39 is fastened in position of use by inserting the rivets 43 through the holes 42 in the top wall portion 33 of the member 32 into position of use in the seat rail slat members 39, whereupon one of the retaining rods 19, having an end portion 18 of the flexible seat cover 17 wrapped therearound, is placed in position of use, as shown in FIG. 3. The other seat rail slat member 39 is then similarly fastened in position of use so as to provide an inverted V-shaped channel 40 between each pair of the seat rail slat members 22, with one of the retaining rods 19, having an end portion of the flexible seat cover 17 wrapped therearound, disposed therein.

The flexible back-rest cover 24 may then be removably slipped over the reduced upper end portions 23 of the back-rest posts 22 so as to hold the chair in assembled position, as shown. This is accomplished by pinching the upper end portions 23 of the back-rest posts 22 slightly inwardly toward each other and then removing the flexible back-rest 24 therefrom.

In use, when the parts thereof are assembled and arranged as shown, the new folding chair 10 may be collapsed into flat or collapsed condition for ready shipment and carrying, as in FIG. 9, by pinching the upper end portions 23 of the back rest posts 22 toward each other, slidably removing the flexible back-rest member 24 therefrom, and then collapsing the seat rails 25 and the arm rests 27 and attached leg bracket members 32 outwardly on the hinge portions 38 of the combination hinge and leg bracket units 28 into position adjacent the leg members 12-13, which may be collapsed into flat position, as in FIG. 9, by collapsing the foldable leg brace members 16 and the folding legs 12-13 on their pivots 12-13.

However, when the new folding chair 10 is in the erected position, as shown in FIGS. 1 and 2 of the drawings, each of the seat rails 25 extends parallel to and downwardly over a pair of the seat rail slat members 39 and spans a corresponding one of the inverted V-shaped channels 41 so as to clamp the corresponding one of the retaining rods 19 and the outer end portion 18 of the flexible fabric or like seat member 17 in the channel 41 and between the seat rail 25 and the seat rail slat members 39. It will be noted, in this connection, that the retaining rods 19 and the end portions 18 of the flexible fabric or like seat member 17 wrapped therearound are thus retained in the inverted V-shaped channels 41 and are prevented from being withdrawn therefrom. The flexible seat member 17 is thus held taut in position of use and the strain of the weight of the occupant is spread uniformly thereover, and over the entire width of the flexible seat member 17, rather than being concentrated on tacks, screws or like, used in fastening the flexible seat member in position of use in certain of the prior chairs of a comparable nature.

The form of the invention illustrated in FIGS. 7 and

8 of the drawings is substantially similar to the form of the invention shown in FIGS. 1 to 6, inclusive, and 9, of the drawings, and those parts thereof which are similar or comparable to corresponding parts of the form of the invention shown in FIGS. 1 to 6, inclusive, and 9, have been given similar reference numerals, followed by the additional and distinguishing reference character "a".

The form of the invention illustrated in FIGS. 7 and 8 of the drawings differs from that shown in FIGS. 1 to 6, inclusive, and 9, of the drawings, in that in the form of the invention shown in FIGS. 7 and 8 of the drawings the hinge leaf members 29a, which correspond to the hinge leaf members 29 in the form of the invention shown in FIGS. 1 to 6, inclusive, and 9, are attached to the bottom surfaces of the seat rails 25a rather than at the sides thereof, as in the form of the invention shown in FIGS. 1 to 6, inclusive, and 9.

Except as above indicated, the construction and operation of the folding chair shown in FIGS. 7 and 8 are the same as described above in connection with the form of the invention shown in FIGS. 1 to 6, inclusive, and 9.

Another modification of the new combination hinge and leg bracket units is illustrated in FIGS. 10, 11 and 12 of the drawings. This form of the invention is substantially similar to the form thereof shown in FIGS. 1 to 6, inclusive, and 9 and those parts thereof which are similar or comparable to the form of the invention shown in FIGS. 1 to 6, inclusive, and 9, have been given the same reference numerals followed by the additional and distinguishing reference character "b".

The form of the new combination hinge and leg bracket unit shown in FIGS. 10, 11 and 12 of the drawings differs from the form thereof shown in FIGS. 1 to 6, inclusive, in that in the form of the invention shown in FIGS. 10, 11 and 12 the inwardly extending flanges 35b on the side walls 34b of the leg bracket member 32b are arcuate in shape and are curved inwardly better to conform to the rounded shape of the legs 13b and better to grip the latter. In addition, the hinge leaf member 25a differs somewhat in design and shape from the hinge leaf member 25 shown in FIGS. 1 to 6, inclusive.

It will be noted that the new folding chair thus embodies a novel combination hinge and leg bracket unit 28, 28a or 28b, which enables the folding legs 12-13 of the new chair to be hingedly attached to the seat rails 25 without the necessity for the use of expensive grooves or mortise and tenon joints, and that the present invention also provides a novel construction and arrangement of the seat rail slat members 39-39 and of the inverted V-shaped channel members 41-41a having the novel retaining rods 19-19a arranged thereon with end portions 18 or 18a of the flexible seat cover 17-17a wrapped therearound, thus enabling the use of lighter seat rails 25 and effecting economy in the manufacture of the new folding chair 10.

It will thus be seen from the foregoing description, considered in conjunction with the accompanying drawings, that the present invention provides a new and improved folding chair and a new and improved combination hinge and leg bracket unit therefor, and thus has the desirable advantages and characteristics and accomplishes its intended objects including those hereinbefore set forth and those which are inherent in the invention.

I claim:

1. A folding chair comprising a supporting base structure including two pairs of pivotally interconnected folding leg members each including an inner leg member and an outer leg member having an upper end portion, a combination hinge and bracket unit disposed at the upper end portion of each of said leg members, each of said units including a generally channel-shaped portion embracing the upper end portion of the associated leg member with the channel-shaped portion rigidly attached to the upper end portion of the associated leg member, each of said units including a top wall portion, said chair including two pairs of spaced parallel seat rail slat mem-

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bers, one pair of said slat members being disposed adjacent one another and being rigidly secured at spaced portions thereof to the top wall portions of a pair of units secured to the leg members at one side of the chair, and the other pair of slat members being disposed adjacent one another and being rigidly secured at spaced portions thereof to the top wall portions of the other pair of units secured to the leg members at the opposite side of the chair, whereby the slat members provide a rigid interconnection between the upper portions of the leg members at each side of the chair, each of said slat members having a downwardly and outwardly inclined inner edge portion such that each adjacent pair of slat members provides an inverted V-shaped channel therebetween, a flexible seat member having opposite edge portions extending through the channels provided between the slat members at opposite sides of the chair, a pair of retaining rods each of which extends substantially throughout the length of one of the V-shaped channels and having an edge portion of the flexible seat member wrapped securely therearound substantially throughout the length thereof, the retaining rod members each having a diameter greater than the opening provided between the slat members at the apex portions of the V-shaped channels whereby the opposite edge portions of the seat member are held in place within said V-shaped channels and cannot pull out therefrom when the seat is under load, each of said units also including a hinge leaf member pivotally interconnected with the associated unit, a pair of seat rail members disposed at opposite sides of the chair, each of said seat rail members being rigidly secured at spaced portions thereof to a pair of said leaf members at one side of the chair whereby the rail members are pivotally interconnected with the leg members, a pair of arm rests and a back rest structure supported by said seat rail members, each of said seat rail members when the chair is in erected

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 operative position extending substantially parallel to and adjacent a pair of said seat rail slat members in spanning relation to the channel therebetween so as to clamp portions of said seat member between said seat rail members and said seat rail slat members.

2. Apparatus as defined in claim 1 wherein each of said hinge leaf members is secured to the associated seat rail member on the outer side surface of the seat rail member.

3. Apparatus as defined in claim 1 wherein each of said hinge leaf members is secured to the associated seat rail member on the bottom surface of the associated seat rail member such that when the chair is in erected operative position, each hinge leaf member is disposed between the bottom surface of the associated seat rail member and the pair of seat rail members adjacent thereto.

4. Apparatus as defined in claim 1 wherein the channel-shaped portion of each of said units includes a pair of depending side wall portions, and each of said depending side wall portions having an inwardly extending flange portion thereon.

5. Apparatus as defined in claim 4 wherein said inwardly extending flange portions are arcuately curved.

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