July 30, 1963 M. PEARLSTINE 3,099,478

FOLDING CONTOUR CHAISE

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FIG. 1.

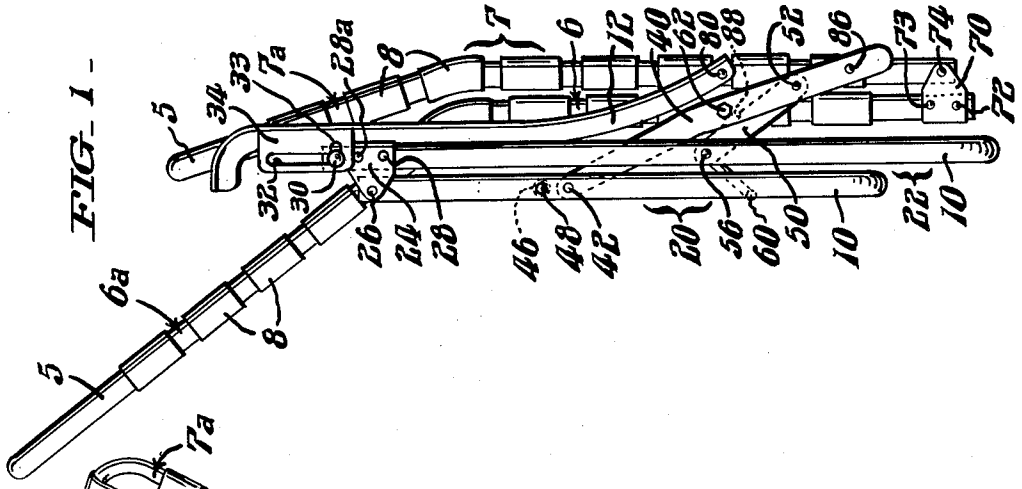
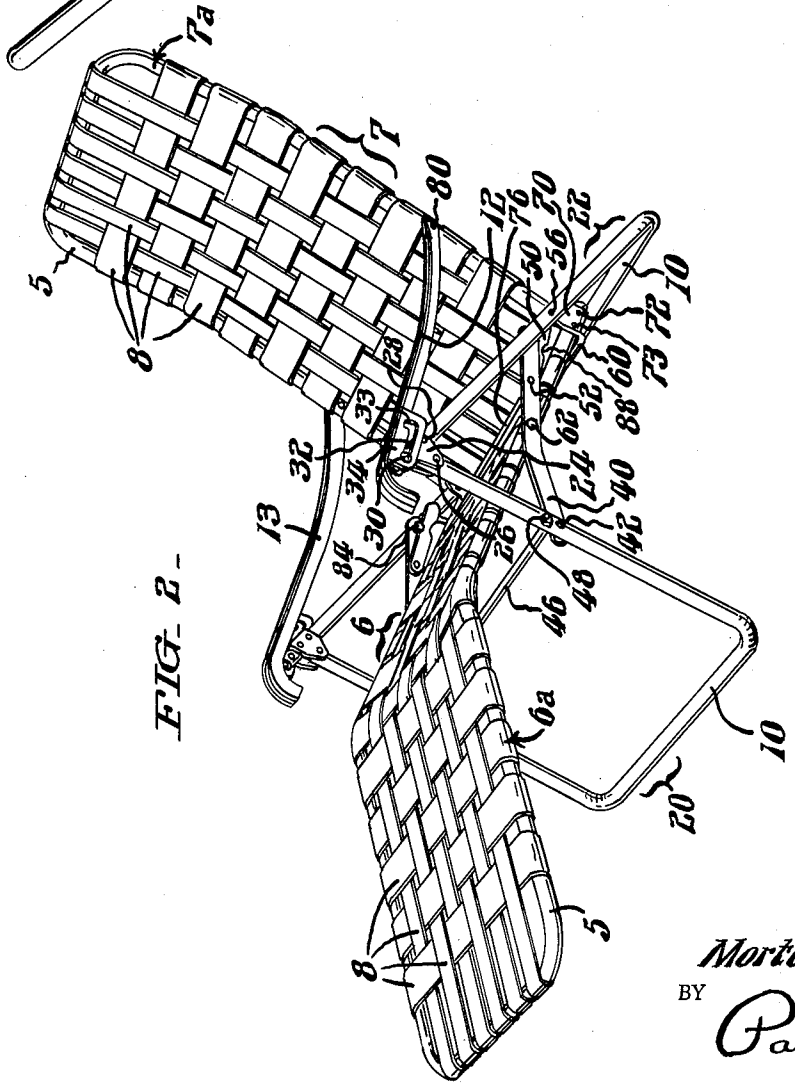


FIG. 2.

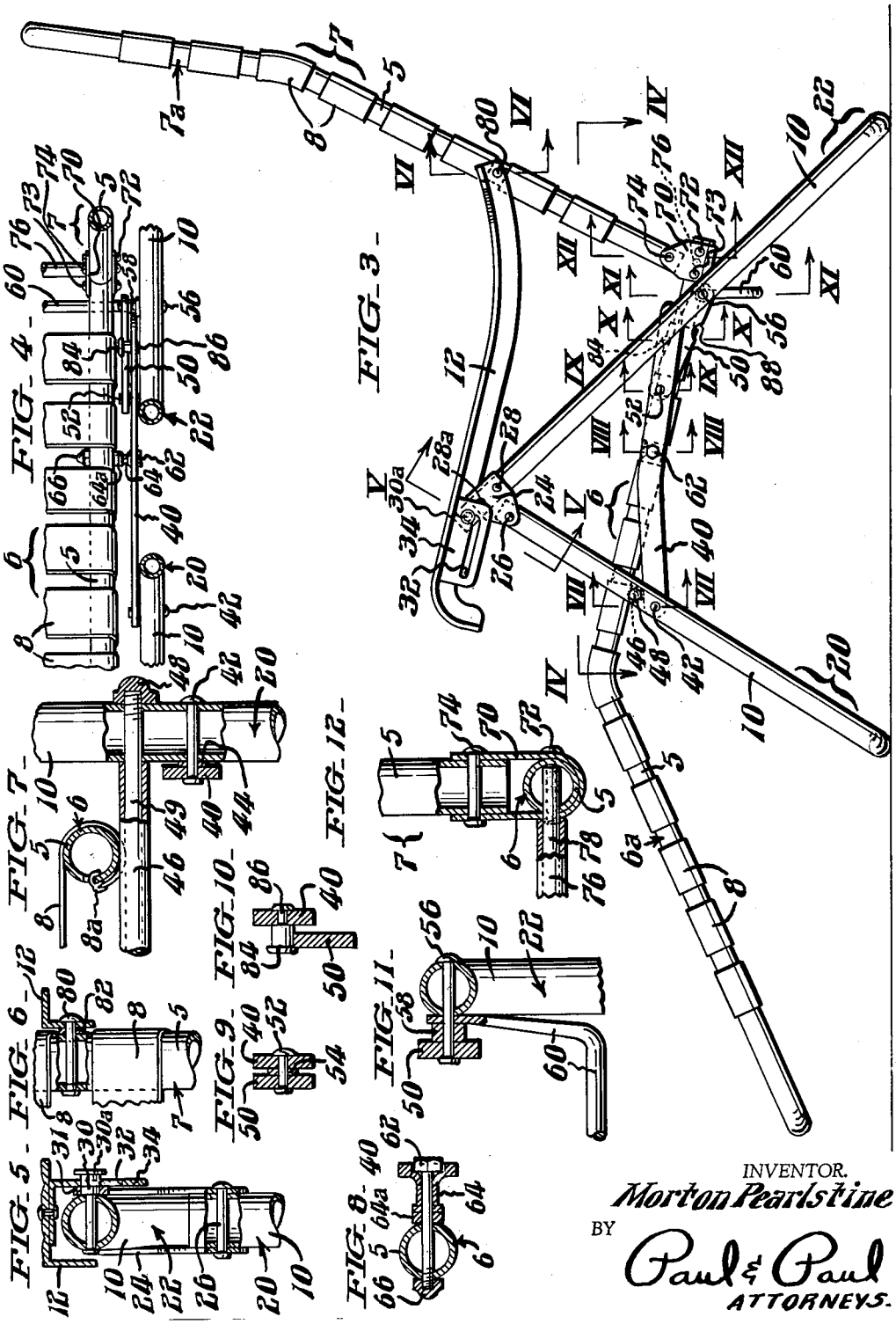


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FOLDING CONTOUR CHAISE

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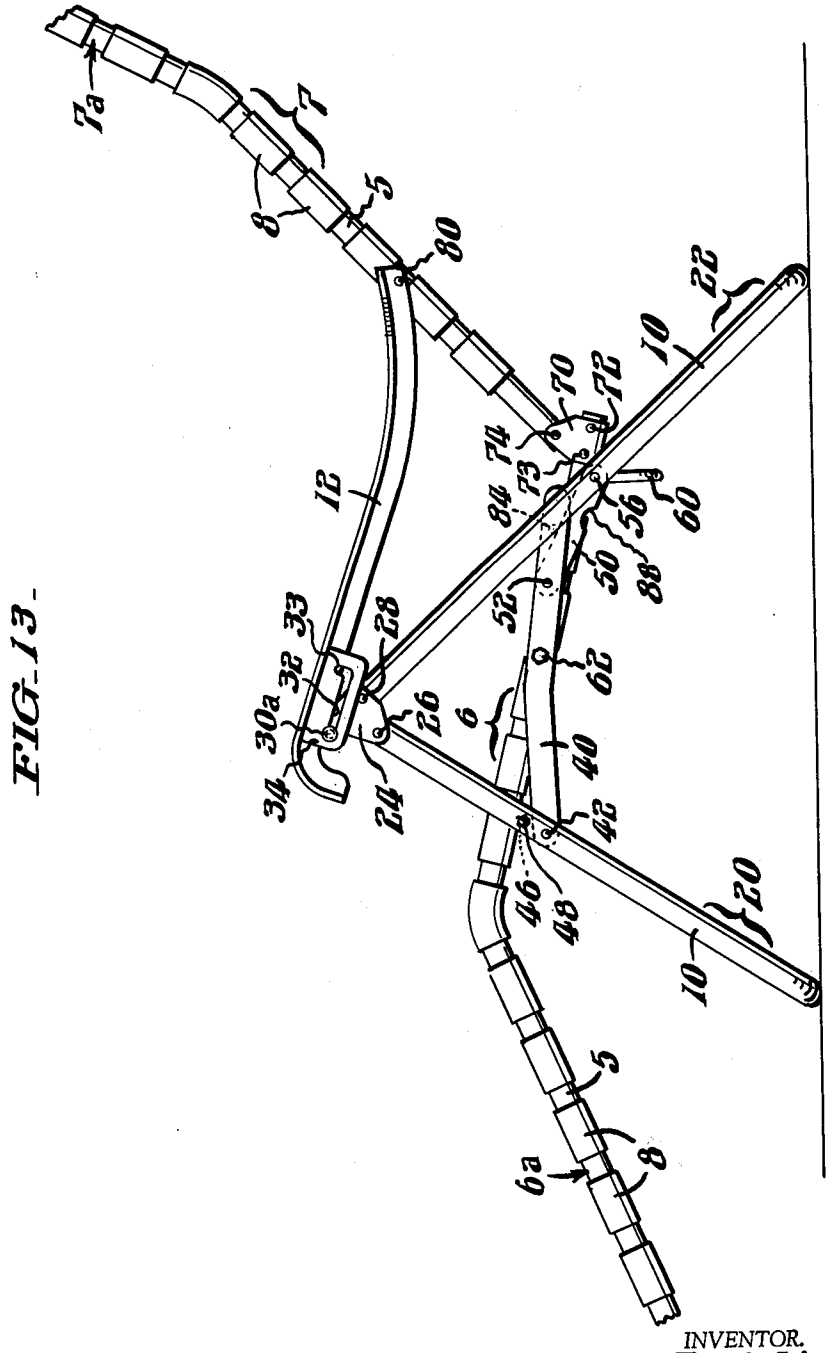


FIG. 13.

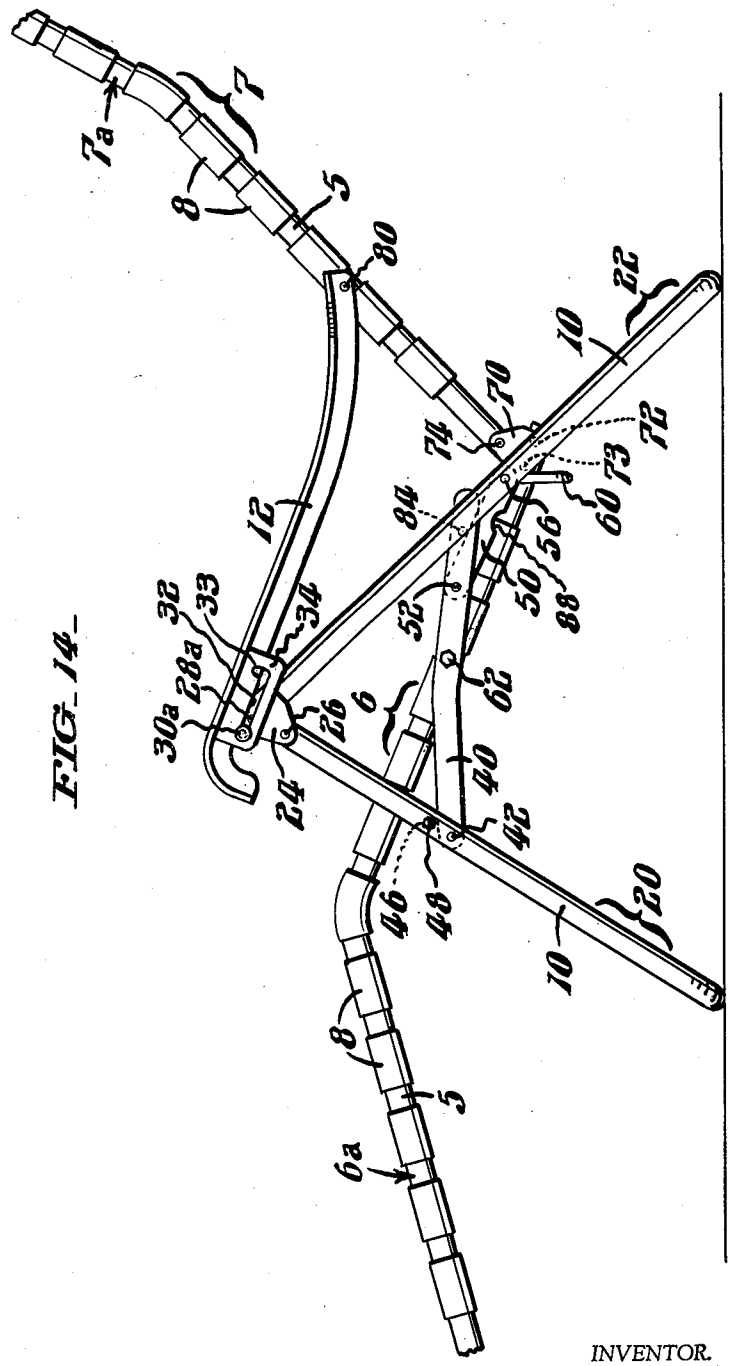
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FOLDING CONTOUR CHAISE

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FIG. 14



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FOLDING CONTOUR CHAISE

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FIG. 15.

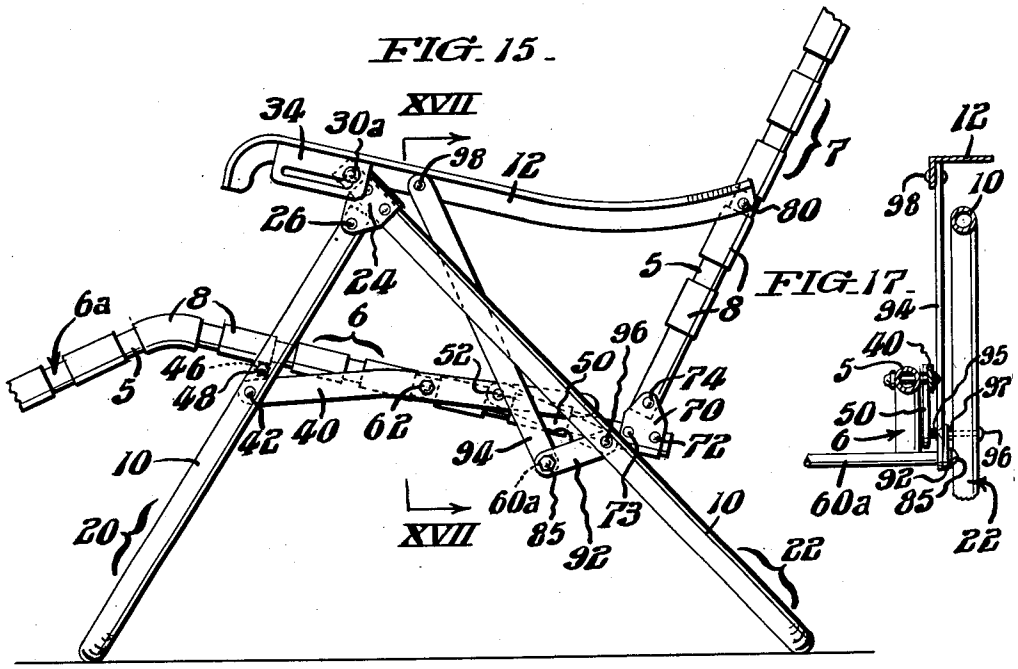
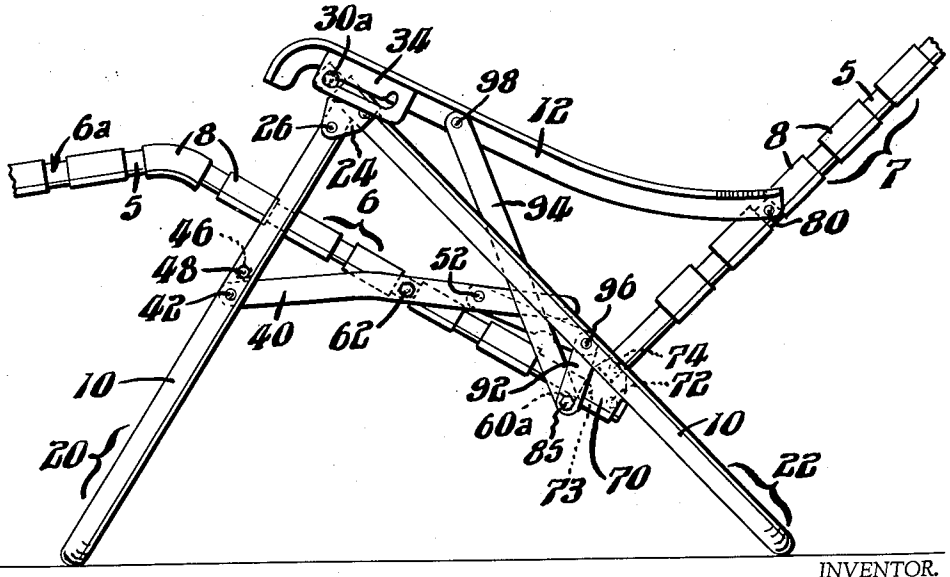


FIG. 17.

FIG. 16.



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United States Patent Office 3,099,478 Patented July 30, 1963

3,099,478

FOLDING CONTOUR CHAISE

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Filed Dec. 17, 1962, Ser. No. 245,082
4 Claims. (Cl. 297—28)

This invention relates to furniture and, in particular, to an adjustable folding contour chaise.

It is the primary object of this invention to provide in a unit of folding furniture, a chair which can be adjusted while in use by the occupant into a sitting position, a chaise position or a contour position.

It is another object of this invention to provide a chair employing the position adjusting structure described above in combination with a low weight construction having sufficient structural strength for long, hard use.

It is still another object of this invention to provide a chair having, in addition to the above outlined advantages, a frame construction which allows the chair to be folded flat with a relatively small cross section for shipping or storing.

These and other objects and attendant advantages of this invention will become more apparent from the description herein and from the attached drawings wherein:

FIG. 1 is a side elevational view in the folded condition of one form of the chair of my invention;

FIG. 2 is a perspective view of this chair;

FIG. 3 is a side elevational view of this chair in the sitting position;

FIG. 4 is a sectional view taken along the lines and arrows IV—IV of FIG. 3;

FIG. 5 is a sectional view taken along the lines and arrows V—V of FIG. 3;

FIG. 6 is a sectional view taken along the lines and arrows VI—VI of FIG. 3;

FIG. 7 is a sectional view taken along the lines and arrows VII—VII of FIG. 3;

FIG. 8 is a sectional view taken along the lines and arrows VIII—VIII of FIG. 3;

FIG. 9 is a sectional view taken along the lines and arrows IX—IX of FIG. 3;

FIG. 10 is a sectional view taken along the lines and arrows X—X of FIG. 3;

FIG. 11 is a sectional view taken along the lines and arrows XI—XI of FIG. 3;

FIG. 12 is a sectional view taken along the lines and arrows XII—XII of FIG. 3;

FIG. 13 is a side elevational view of the chair in the chaise position;

FIG. 14 is a side elevational view of the chair in the contour position;

FIG. 15 is a side elevational view of a modified chair in the sitting position;

FIG. 16 is a side elevational view of a modified chair in the contour position; and

FIG. 17 is a sectional view taken along the lines and arrows XVII—XVII of FIG. 15.

Referring first to FIG. 2 of the drawings, one form of the folding contour chaise of this invention is shown with a tubular metal construction forming the chair frame **5** and the chair supporting frame structure **10**. The chair, as the term is used herein to describe the body supporting structure, comprises a back unit **7** and a seat unit **6**. Both chair units **6** and **7** have angularly directed sections **6***a*, **7***a* which are designed to provide greater comfort for the user. Fastened on and to the chair frame **5** is a series of straps **8** forming a webbing preferably composed of a light weight, strong material such as plastic so as to be resistant to weather damage and hard use. The straps **8** are fastened to the frame **5** by detachable fasteners **8***a* as shown in sectional view in FIG. 7. The construction and use of these detachable fasteners **8***a* as used in a chair structure, are described in United States Patent No. 2,444,873, dated July 6, 1948, and owned by The Bunting Company of Philadelphia. The tubular members forming the frame **5** of the chair and the chair supporting structure **10** are preferably composed of a light weight metal such as aluminum. Two arm supports **12**, **13** connect the chair back **7** with the supporting structure **10** so as to control the inclination of the chair back.

Referring now to FIG. 3 of the drawings, one form of the apparatus for adjusting the chaise into a variety of positions is shown in greater detail. A front, substantially U-shaped supporting frame member **20**, shown to the left in FIG. 3 and shown in perspective view in FIG. 2, joins the rear, similarly shaped, frame member **22** by means of a bracket **24**. It is understood that the construction shown in FIG. 3 and described as forming one side of the chaise is duplicated on the other side and that the apparatus functions as a unit to control the attitude of the chaise. For brevity, only the structure on one side of the chaise as shown in FIG. 3 will be described herein.

As also shown in FIG. 5, a bolt **26** extends through the bracket **24** and frame member **20** to allow that member to pivot around the bracket when the chair is folded into the condition shown in FIG. 1. Two bolts **28**, **28***a* fasten the bracket **24** to the rear frame member **22**. Frame **22** is further equipped with a protruding stud **30** and spacer **31**, which allows flange **34** attached to arm rest **12**, by means of slot **32**, to move in relation to the rear frame member **22**. Slot **32** has a vertical groove **33**, shown in detail in FIG. 2, which permits the flange **34**, arm **12** and chair back **7** to be locked in the forward or upright position as shown in FIG. 3. Stud **30** has an annular flange **30***a* so as to prevent flange **34** from becoming disengaged. When the chair back **7** is to be reclined, arm **12** is lifted allowing stud **30** to move out of groove **33** and then to pass through the length of slot **32** while flange **34** and arm **12** move backwards or to the right as shown in FIG. 3.

A front chair limit rod **46**, shown in FIGS. 2 and 7, joins both of the upright sections of front frame member **20** by a nut **48** threaded on a stud **49** positioned within rod **46**. This rod holds the upright sections of frame member **20** in proper relative position and serves to limit the movement of seat **6** in the downward, counter-clockwise direction.

The main chair supporting bar **40**, shown in FIGS. 3, 7 and 8, is attached to front frame member **20** by a bolt **42**, with a spacing washer **44** inserted to allow pivotal movement of the bar. At the distal end, bar **40** joins a second supporting bar **50**, as shown in FIG. 9, by means of a rivet **52** and a spacer **54**. Both bars are formed from a strong metal such as steel so as to be able to carry the full weight of the chair and user. Bar **50** is fastened to the rear support member **22**, as also shown in FIG. 11, by a bolt **56**, with a spacer **58** and the rear limit rod **60** also attached at this point. Limit rod **60**, functioning similarly to front limit rod **46**, joins both sides of frame **22** and provides a support for the chair seat **6** when the rear portion of the seat is in its most downward position as shown in FIG. 2 or when the chair rotates in a clockwise direction.

The seat portion **6** of the chair is supported by a bolt **62**, as shown in FIG. 8, which extends through bar **40**, two spacers **64**, **64***a* and the seat frame **5** is fastened by nut **66**. The spacers **64**, **64***a* provide for easy pivotal movement of the chair seat on and around bolt **62**. The chair is balanced at this point so that by a slight shift in weight of the user, the chair will move forward or backwards.

A stud **84**, shown in FIG. 10 and in broken lines in FIG. 3, is mounted on the inner side of bar **40** by a pin **86**. This stud functions to prevent supporting bar **40** from rotating clockwise beyond a certain point but allows bar **40** to rotate counter-clockwise around rivet **52** when the chair is folded into the position shown in FIG. 1.

An indentation **88** is provided in bar **50** and so positioned that when the chaise is folded and bar **50** rotates counter-clockwise and bar **40** rotates clockwise, indentation **88** will fit around bolt **62** allowing the full collapse of the chair.

A bracket **70**, as shown in FIGS. 3 and 12, joins the chair back **7** by a bolt **74** and the seat **6** by two bolts **72** and **73**. A spacer **76**, extending across the end of the seat and holding apart the seat frame members **5**, is held in position by a rod **78** which passes through the hollow center of the spacer **76** and is mounted within the frame of the chair **6** on both sides as shown in FIG. 6. Bolt **74** allows a slight pivotal movement of the chair back and bracket **70** at this point.

Arm support **12**, similar to arm support **13** on the opposite side of the chair as shown in FIG. 3, is pivotally joined to the frame **5** of the chair back **7** by a bolt **80** passing through both as shown in FIG. 6. A spacer **82** separates the arm support **12** and the frame **5** so as to allow pivotal movement at this point.

The arrangement of the chair supporting structure is shown from above in FIG. 4 and it is clear that similar structure is found on the opposite side of the chaise. From this figure, it is apparent that seat **6** is balanced on and pivots freely around bolt **62**. The weight of the chair is carried by bar **40** and distributed to front frame member **20** and rear frame member **22** through rivet **52**, bar **50** and stud **84**. It should be clear that this arrangement allows the chaise to fold as shown in FIG. 1 when front leg **20** and rear leg **22** are brought together. When so folded, bar **40** and bar **50** rotate around rivet **52** and the notch **88** in bar **50** allows this bar to assume a position substantially parallel to bar **40** as shown in FIG. 1. To complete the folded condition, seat **6** and back **7** are brought together, pivoting around bolt **74** with the entire structure assuming the position shown in FIG. 1.

Referring now to FIGS. 2, 3, 13 and 14, the three main positions of the folding chaise of this invention are shown in detail. The sitting or upright condition is disclosed in FIG. 3, the chaise condition is disclosed in FIG. 13 and the contour condition is disclosed in FIG. 14.

In the sitting or upright condition, as shown in FIG. 3, stud **30** is locked in the groove **33** in bracket **34** so as to pull the arm supports **12**, **13** forward and position the back **7** in substantially an upright position. The seat **6** is resting on the front limit rod **46** and the bracket **70**, together with this end of the seat and back, is raised from the rear limit bar **60**. The seat is held in this position by the weight of the user which is relatively forward. This is the normal chair position used when a person is reading or otherwise desires to have his back supported substantially upright.

The chaise position is shown in FIG. 13 in which the chair back **7** has been pivoted backwards by allowing stud **30** to pass in slot **32** in bracket **34**, and arm supports **12**, **13** move backwards in relation to frame member **22**. The seat **6** still remains on the front limit rod **46** and, in this position, the back of the user is lower while his legs remain in substantially the same position as in the sitting condition.

The partial contour position is shown in FIG. 14 in which the chair back moves rearward even farther than in the chaise position and the seat portion moves downward in back and rises in the front. FIG. 2 shows the chaise in the full contour position with the back of the seat resting against rear limit rod **60** and the front of the chair substantially raised. FIG. 14 shows the chair in an intermediate position between the chaise and contour position. It will be noted that the chair is so balanced in the supporting frame members that the user can rock between the chaise and contour position by simply shifting his weight slightly.

This unique suspension structure of the chaise of my invention is achieved by supporting the chair at four points forming a quadrangle. These points are bolts **62** joining the seat to bar **40**, bracket **70** joining the seat and back portions of the chair, bolt **80** joining the back and arm supports and stud **30** mounted to allow movement of flange **34**.

A modification of the folding contour chaise of this invention is shown in FIGS. 15–17. The nature of this modification is that the rear limit bar **60**, previously stationary and positioned almost directly below the point where the chair seat and back join, now changes position as the chair moves from the sitting position through the chaise and contour position.

Referring to FIGS. 15 and 17, the rear limit bar **60*a***, located behind bolt **85** in FIG. 15, is positioned, while the chair is in the sitting position, more toward the left or front of the chair than in the arrangement shown in FIG. 3. Bar **60*a*** is held by the two levers **92** and **94**. Lever **92** is attached to the rear frame **22** by a bolt **96** which extends through member **22**, through a spacer **97**, through lever **92**, through a spacer **95**, finally is attached to bar **50**. This construction is shown in detail in FIG. 17. Lever **94** is pivotally attached to bar **60*a***, adjacent to lever **92**, by bolt **85** and lever **94** is attached to arm rest **12** by a bolt **98**. A spacer (not shown) separates lever **94** from arm rest **12** so as to allow pivotal movement at this point. It should be understood that the two levers **92**, **94** and other structures described supra are duplicated on the other side of the chaise.

When the chair is placed in sitting condition as shown in FIG. 15, arm rest **12** is forward, drawing lever **94** forward and thus pulling bar **60*a*** forward and upwards as said bar follows an arc prescribed by lever **92**. When limit bar **60*a*** is in the position shown in FIG. 15, the chair seat can descend only a very short distance before it comes in contact with the limit bar. This construction prevents the chair seat from swinging downward rapidly when the user inadvertently shifts his weight backward in the chair usually while getting into the chair. Through use of this modification, limit bar **60*a*** prevents the chair seat from rapidly changing position.

In FIG. 16, the arm rests have been moved backward, the chair back pivoted backwards and the seat moved downward against the limit bar **60*a***. As this is the full contour condition the limit bar **60*a*** has shifted to a lower position than in FIG. 15 and allows the chair to fully recline. Movement of the bar **60*a*** is caused when lever **94** moves backward and downward with the arm supports and bar **60*a*** prescribing an arc around lever **92**. The limit bar is now in position to prevent the chair seat from moving downward farther than the contour position.

It should be understood that when the chair is placed in the chaise position, that is, the condition between the sitting and contour condition, lever **94** moves backward and downward a smaller distance, not quite that shown in FIG. 16, thereby controlling the downward movement of the chair while so positioned.

The preferred forms of the adjustable folding contour chaise of this invention as disclosed herein provide three definite, separate sitting positions and a variety of intermediate positions. In addition, the chair of my invention is structurally strong, of light weight and can be completely folded into a closed position of relatively small thickness. When the members are formed of material such as aluminum and plastic straps, the chair is suitable for long exposure to the weather without any or little deterioration.

It is obvious that those skilled in the art can make

changes and alterations in the preferred forms of my invention shown herein. For example, the supporting members may have a different shape and the back and seat portions may be bent at a different angle. However, these and other changes are well within the spirit of this invention and within the scope of the appended claims.

Having described my invention, I claim:

1. An adjustable folding contour chaise comprising in combination

a chair having seat and back units pivotally joined,

a frame structure for supporting the chair having front and rear support members pivotally joined,

a pair of arm supports pivotally attached to the chair at one end and displaceably mounted on the frame structure at the other end,

means for supporting the chair unit in a variety of positions in relation to the frame structure having on each side of the chair

a main supporting bar attached to a support member at one end and attached to a second bar at the other end, said second bar attached to the other support member,

a pivotal connection between the main supporting bar and the seat unit of the chair,

an adjustable rear limit bar mounted beneath the chair, said bar positioned by a lever extending from an arm support and a second lever attached to the rear support member, and

a front limit bar mounted upon the front support member whereby rotation of the chair in the counter-clockwise direction is limited.

2. The chaise as defined in claim 1 wherein tubular metal forms the framework of the chair and the supporting frame structure.

3. An adjustable folding contour chaise comprising in combination

a chair having substantially rigid seat and back units pivotally joined, said units having angularly displaced portions,

a frame structure for supporting the chair having a front, U-shaped support member and a rear U-shaped support member, said members being pivotally joined,

a pair of arm supports attached to the back unit of the chair at one end and displaceably mounted on the frame structure at the other end,

means for supporting the chair in a variety of positions in relation to the frame structure having on each side of the chair

a main supporting bar pivotally attached to a second supporting bar, both bars pivotally mounted on opposite frame support members,

a pivotal connection between the main supporting bar and the seat unit of the chair,

front and rear limit bars mounted between the vertical upright portions of the front and rear support members and positioned to limit the rotation of the chair in both directions,

a lever attached to an arm support at one end and the rear limit bar at the other, said lever adjusting the position of the limit bar in relation to the chair as the position of the arm rest varies.

4. The chaise as defined in claim 3 wherein the chair comprises a tubular metal framework with webbing attached thereto.

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