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Katz et al.

[11] **3,850,475**

[45] **Nov. 26, 1974**

[54] **LOUNGER RECLINER WITH BACKREST UP AND DOWN AND HARDWARE THEREFOR**

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[73] Assignee: **Mohasco Industries, Inc.,** Amsterdam, N.Y.

[22] Filed: **July 25, 1973**

[21] Appl. No.: **382,392**

[52] **U.S. Cl.** **297/85,** 297/86, 297/353

[51] **Int. Cl.** **A47c 1/035**

[58] **Field of Search** 297/83, 84, 85, 86, 353, 297/354, 61

[56] **References Cited**

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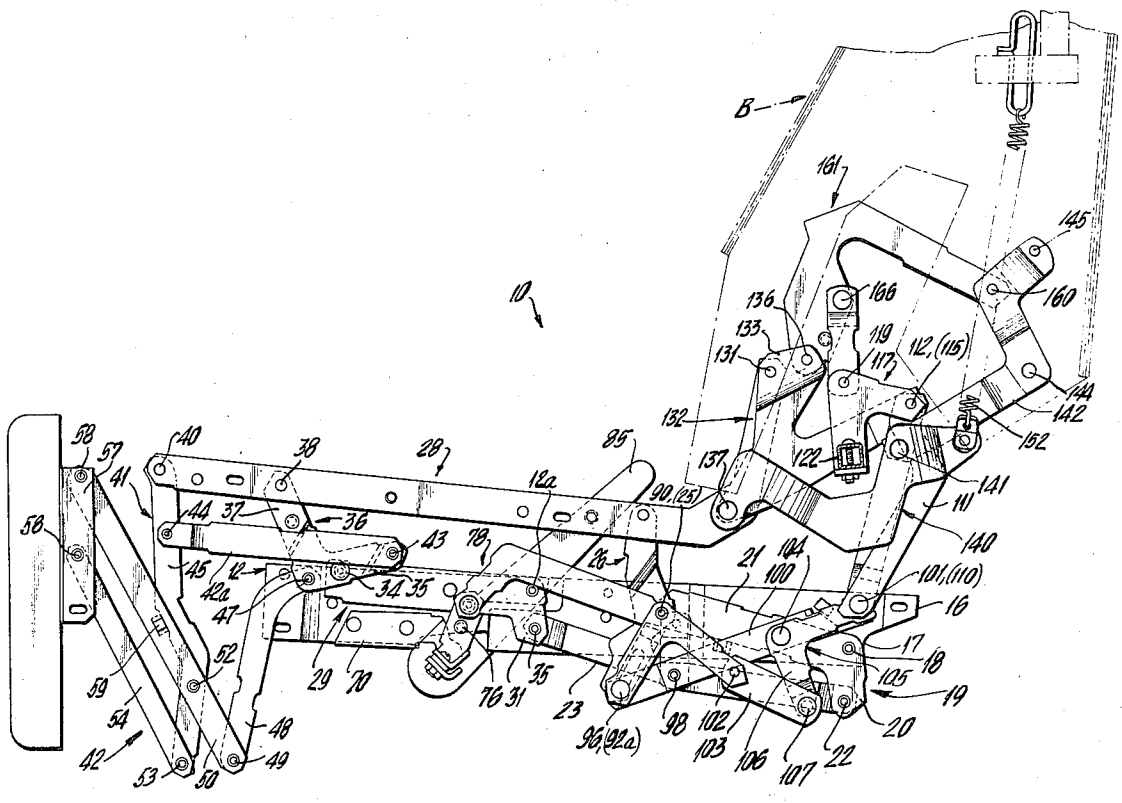
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Primary Examiner—Roy D. Frazier
Assistant Examiner—William E. Lyddane
Attorney, Agent, or Firm—Felshin and Feldman

[57] **ABSTRACT**

This recliner-lounger has a backrest which can be moved up and down between lowered and raised positions, when the chair is in its upright position, by actuating a manual handle. The chair is locked in its "down" position if the handle is not rotated and is locked in its upright sitting position until the backrest is raised. The backrest is locked when in its "up" position at which time the chair can move to its T.V. and recline positions and back again, during which time operation of the handle is prevented. A retractable footrest can be projected when moving to the T.V. position and the mechanism can be moved to the fully reclined position. Lowering of the backrest may be accomplished after the recline mechanism is returned to the upright position.

11 Claims, 7 Drawing Figures



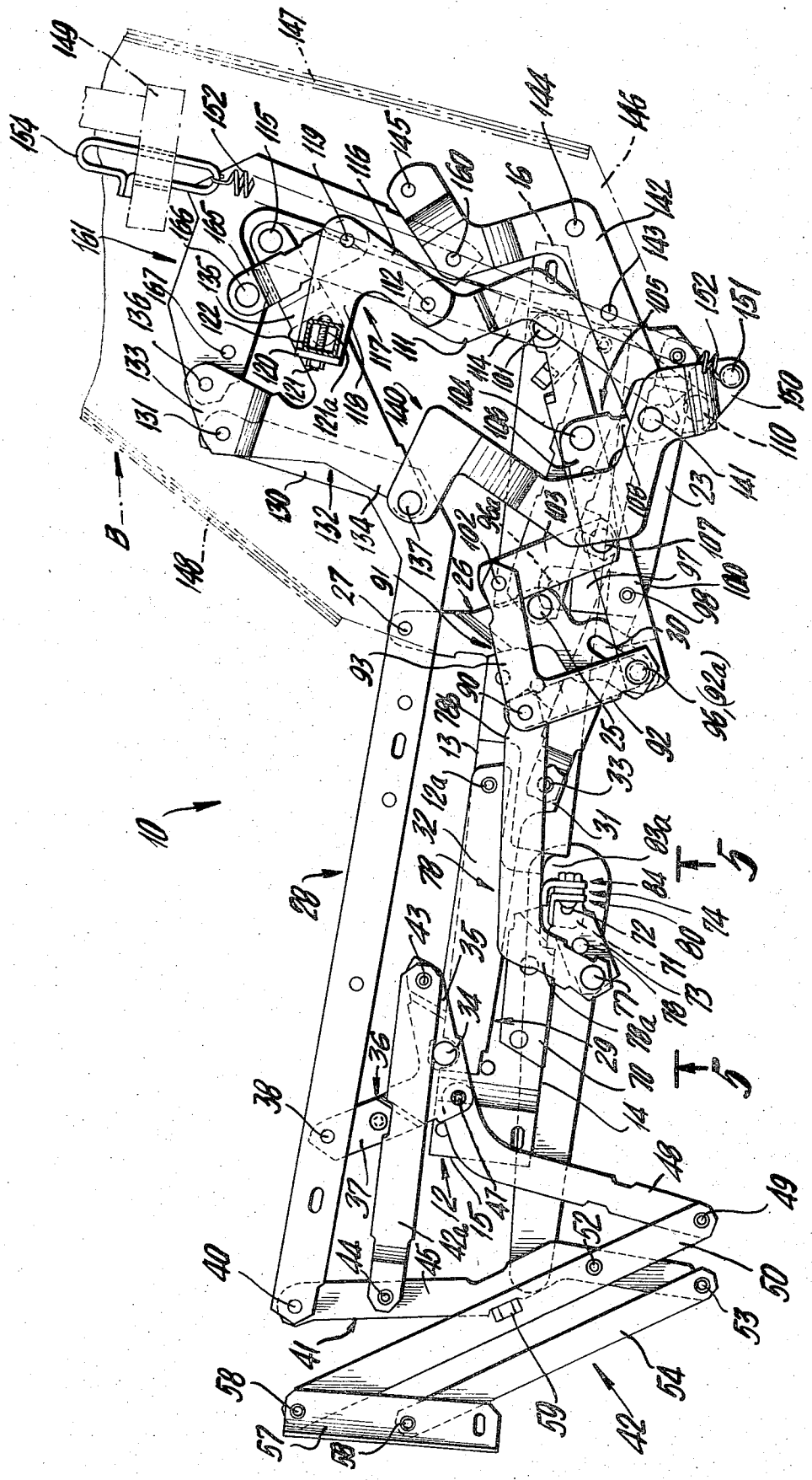


FIG. 1

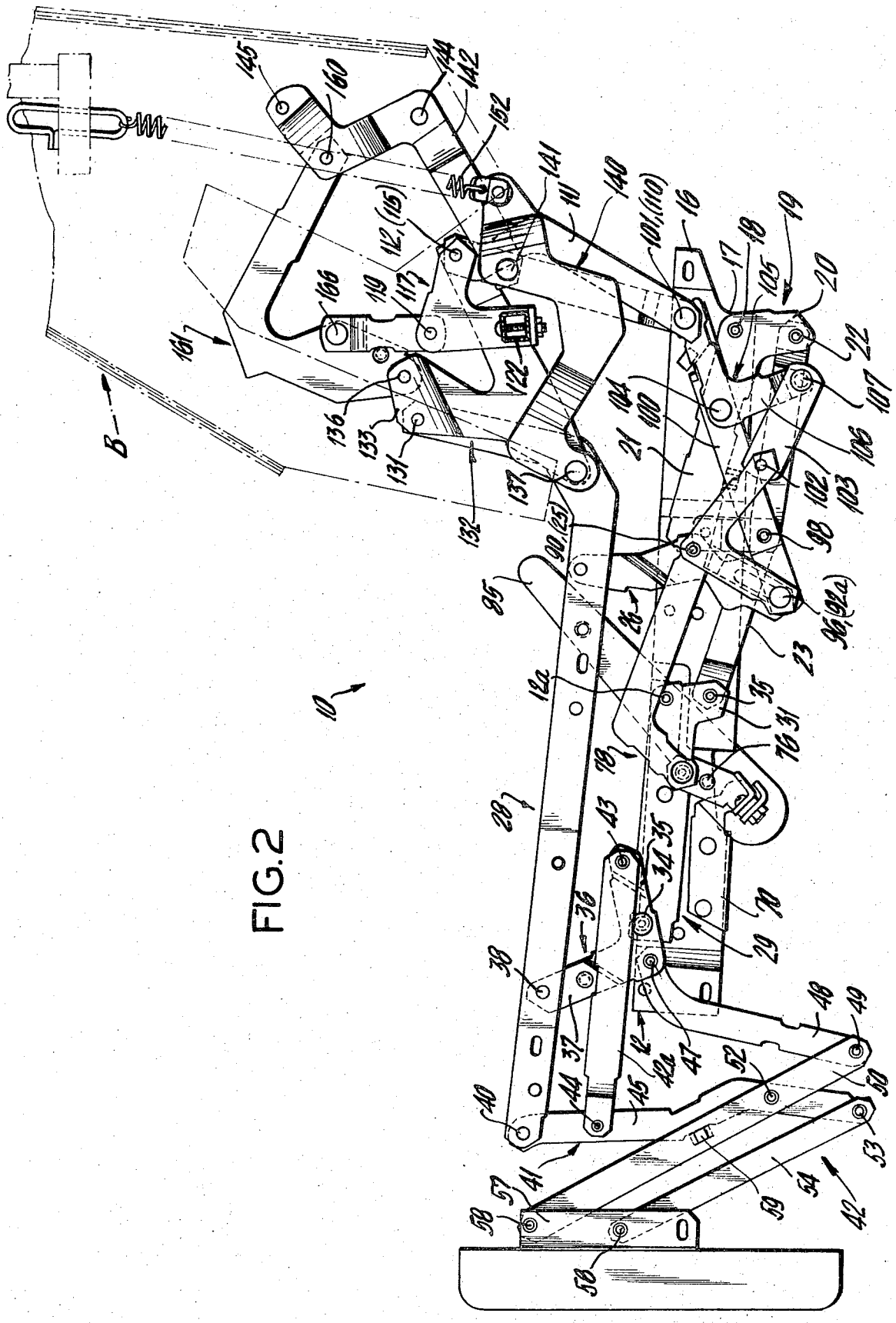

145
160
144
142
152
141
140
101,(110)
16
17
18
19
20
22
107
106
103
102
98
96,(92a)
23
35
76
31
78
28
43
34
36
30
29
70
48
49
37
42
42a
47
52
50
53
44
45
40
41
57
56
54
59
42
58
10
12a
90,(25)
95
21
104
100
137
132
131
133
136
122
117
119
142,(115)
166
161
B

FIG.2

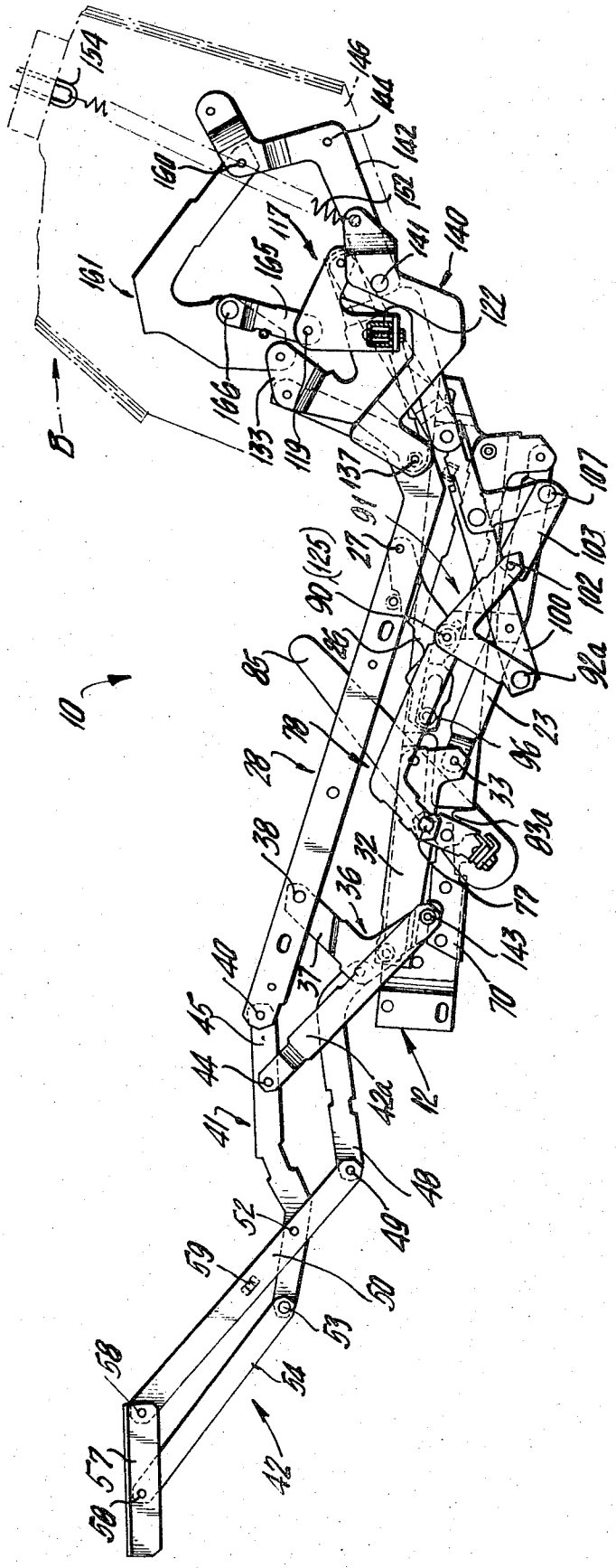

154
146
144
142
160
162
141
140
117
165
161
122
166
133
119
137
107
91
27
90 (125)
103
102
100
92a
86
10
28
78
23
96
33
93a
38
32
36
77
143
70
40
37
45
44
41
42a
12
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49
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FIG.3

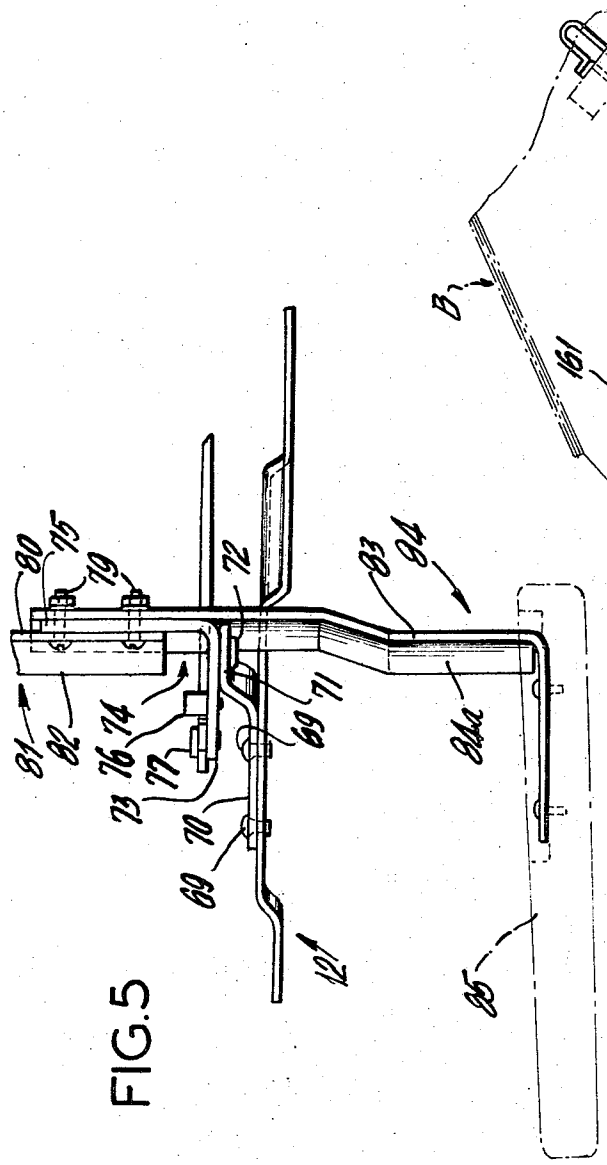


FIG. 5

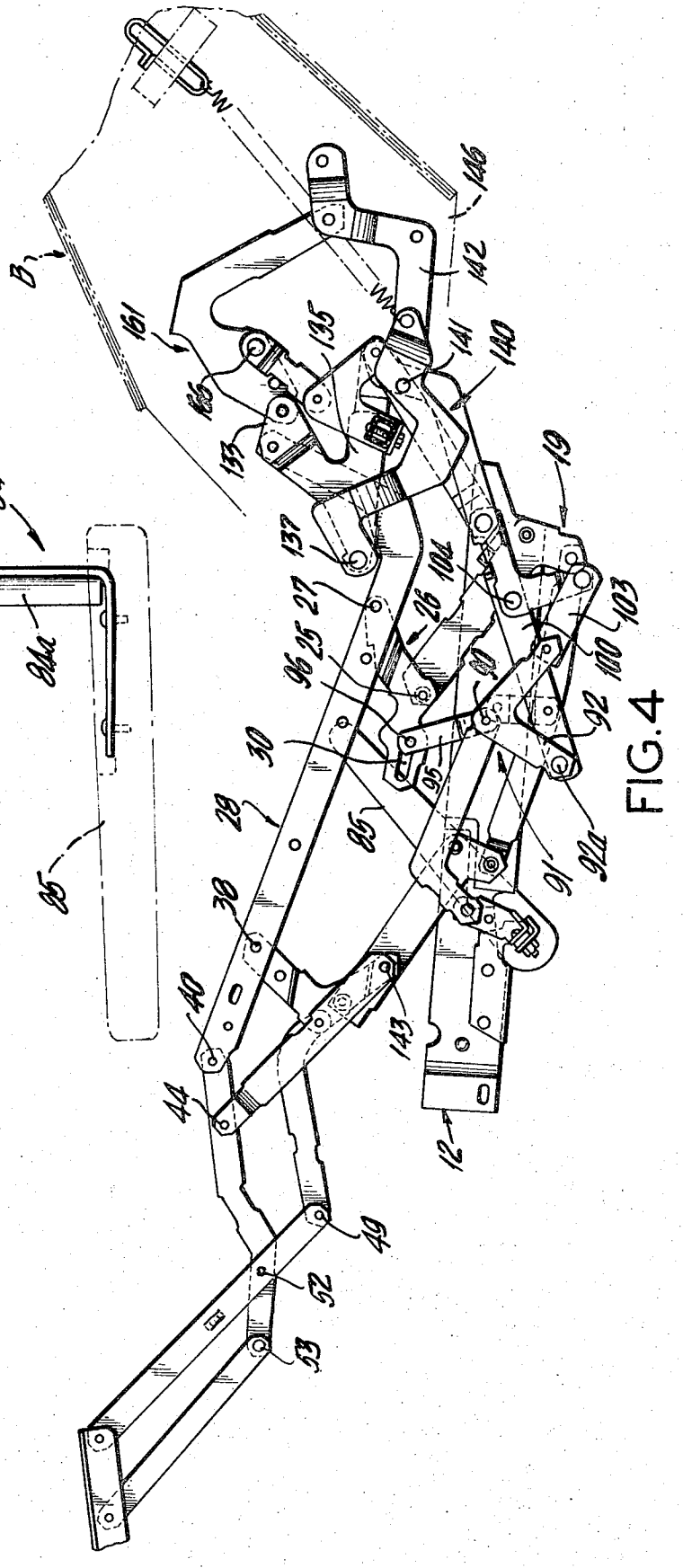


FIG. 4

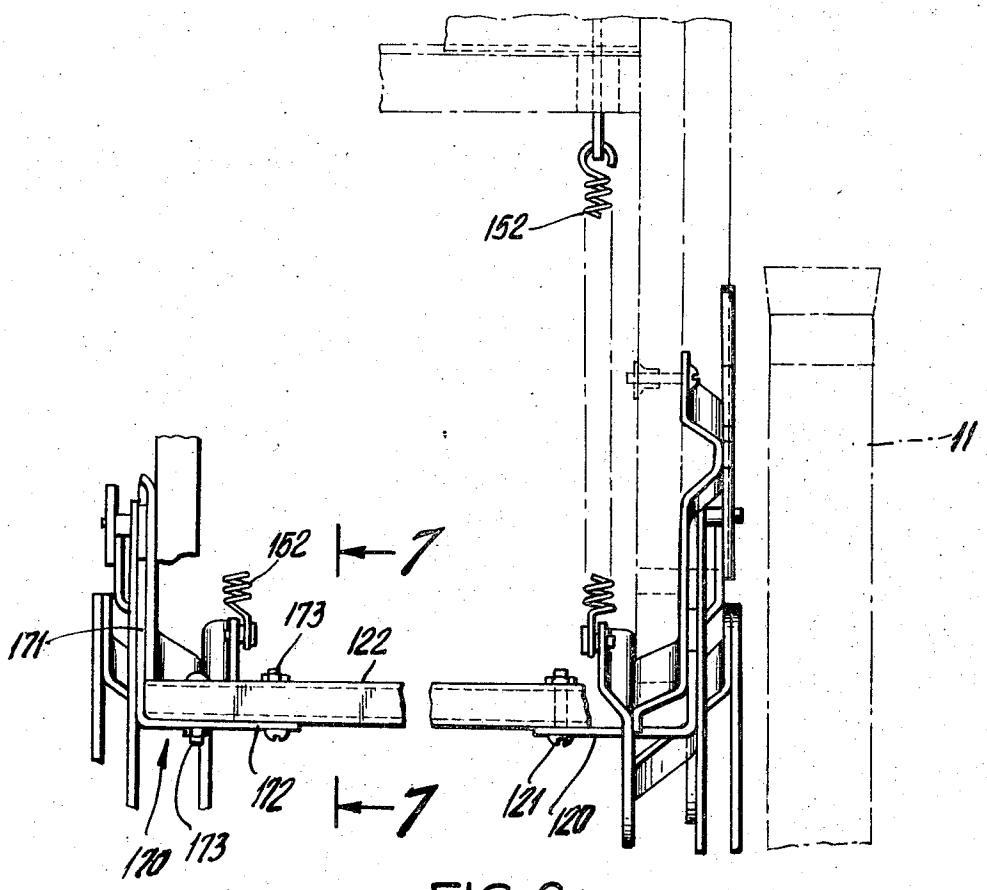

152
11
162
7
173
122
171
112
7
121
120
170
173

FIG.6

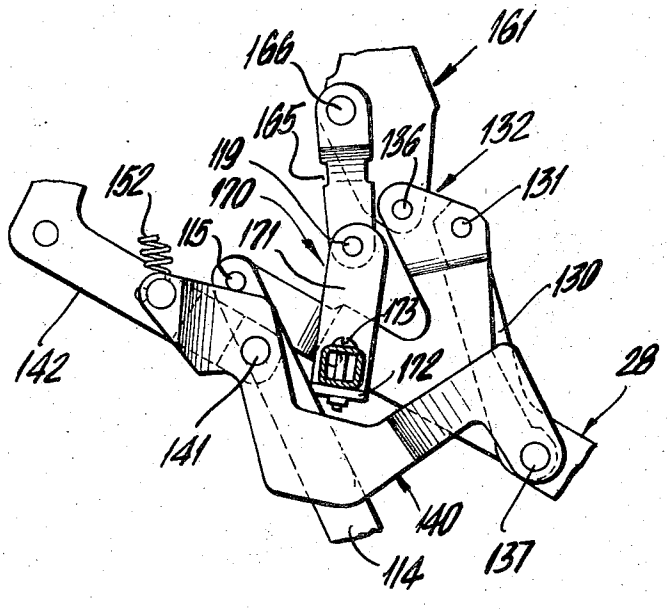

166
161
165
119
136
132
152
170
131
115
171
130
173
142
112
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141
140
137
114

FIG.7

LOUNGER RECLINER WITH BACKREST UP AND DOWN AND HARDWARE THEREFOR

Certain parts of this application are disclosed in application Ser. No. 282,847 filed Aug. 22, 1972, now U.S. Pat. No. 3,813,150, by Robert J. Caldwell and Alex J. Katz, two of the joint inventors herein and assigned to the assignee of the present application.

This invention relates to lounger recliners provided with a backrest which is movable up and down and hardware therefor. One object of this invention is to generally improve the locking construction disclosed in said copending application Ser. No. 282,847 filed Aug. 22, 1972, now U.S. Pat. No. 3,813,150, by Robert J. Caldwell and Alex J. Katz, for Chair With Backrest Movable Up and Down and Hardware Therefor.

Another object of this invention is to provide in a recliner-lounger movable from upright sitting position to T.V. and fully reclined positions and with a backrest movable up and down, and with a projectable and retractable leg rest, with said backrest under control of a manual handle, highly improved means to lock the backrest in its "down" position, to lock the recliner in the upright position of the chair until the backrest is raised, and to lock the chair against movement back to T.V. or fully reclined position when the backrest is not in its "up" position.

Yet another object of this invention is to provide a sturdy, strong and durable mechanism for a chair of the character described, that shall be relatively inexpensive to manufacture, easy to manipulate and which shall yet be practical and efficient to a high degree in use.

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

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described and of which the scope of invention will be indicated in the following claims.

In the drawings:

FIG. 1 is a side elevational view of the inside of the hardware embodying the invention on the right side of the chair, showing the same in upright sitting position, with the legrest retracted and the backrest in its "down" position;

FIG. 2 is a view similar to FIG. 1, but showing the backrest in raised or "up" position;

FIG. 3 is a view similar to FIG. 2, but showing the mechanism in T.V. position;

FIG. 4 is a view similar to FIG. 3, but showing the mechanism in fully reclined position;

FIG. 5 is a bottom plan view taken in line 5—5 of FIG. 1;

FIG. 6 is a partial rear view of the chair and linkages, looking forwardly; and

FIG. 7 is a cross-sectional view taken on line 7—7 of FIG. 6.

Referring now in detail to the drawing, 10 designates a chair embodying the invention. Said chair comprises a chair frame having side arms 11. Fixed to the insides of the sides of the chair are support or mounting plates 12. In FIG. 1, only the left facing support plate 12 is shown. This plate is on the right side of the chair frame. Said plate has an upper edge 15 and a rear upper end edge 16 and a rear lower end edge 17 disposed somewhat forwardly of said edge 16. Pivoted to plate 12, at 18, is a rear bell crank 19 having a rear, downwardly extending arm 20 and a front, forwardly extending arm 21. Pivoted to the lower end of arm 20, as at 22, is the rear end of a connector link 23. The forward end of arm 21 is pivoted as rivet 25, to an intermediate portion of a rear carrier lever 26. The upper end of rear carrier link 26 is pivoted, as at 27, to a seat link 28. The seat link is fixed to the seat of the chair (not shown) in any suitable manner. The lower arm of rear carrier link 26 is formed with a longitudinal slot 30, for the purpose hereinafter appearing.

Pivoted to the inner side of support plate 12, adjacent the upper edge 13 of said plate and about midway between the ends of said plate, as on rivet 12*a* is a forward bell crank 29 having a rear downwardly extending arm 31 and a forwardly extending arm 32. The forward end of link 23 is pivoted, as by rivet 33, to the lower end of arm 31 of forward end of arm 32 of bell crank 29, is pivoted, as by rivet 34, to an arm 35 of a bell crank 36. Said arm 35 extends rearwardly (FIG. 1), from its junction with upwardly extending arm 37. The upper end of arm 37 is pivoted, as by rivet 38, to the seat link 28 somewhat rearwardly of the forward end of said seat link.

Pivoted to the forward end of the seat link 28, as by rivet 40 is a lever 41 forming part of a legrest linkage 42. Lever 41 extends downwardly in the retracted condition of the legrest. A link 42*a* is pivoted at its rear end, as by rivet 43, to the outer end of arm 35 of a front carrier link 36 in shape of a bell crank, and is pivoted at its forward end, as by rivet 44 to an upper arm 45 of said lever 41.

Pivoted to the junction of arms 35, 37 of bell crank 36, as by rivet 47, is a link 48 which extends downwardly in the retracted condition of the legrest linkage 42. Pivoted to the lower end of link 48, as by rivet 49 is the lower end of a lever 50. Lever 50 crosses lever 41 and is pivoted thereto by a rivet 52 (disposed below pivot point 44). Pivoted to the lower end of lever 41, as by rivet 53, is a link 54. The upper end of link 54 is pivoted to said legrest link 57 by a rivet 58. Rivet 34 is located between rivets 43 and 47.

Lever 50 carries a stop 59 adapted to contact an edge of the upper arm of 41 when the legrest linkage is in retracted position, as shown in FIG. 1.

Only one side of the chair has been described, it being understood that both sides are similar and symmetrically disposed. This structure thus far described is shown and described in U.S. Pat. No. 3,243,226 issued Mar. 29, 1966 to said Alex J. Katz.

Referring now to FIG. 5, there is shown the arm mounting plate or support plate 12 shown in FIG. 1. Fixed to the inner side of said plate 12, as by fixed rivets 69, is a pivot plate 70 having an offset downwardly extending arm 71. Pivoted to said offset arm 71 as by rivet 72 is an arm 73 of a manual bell crank 74. Said manual bell crank 74 has an arm 75 extending in a transverse direction. Arm 73 carries a stop pin 76 at an intermediate portion thereof. At the outer end of said arm 73 is a rivet 77 to which is pivotally connected, one end of a primary actuator link 78. Arm 73 inclines downwardly and forwardly when the leg rest linkage is retracted, as in FIGS. 1 and 2. The primary actuator link 78 has an arm 78*a* inclined upwardly sharply to the rear, in the retracted condition of the legrest. Extending from arm 78*a* is an arm 78*b* inclined more to the horizontal, and rearwardly for the purpose hereinafter appearing. Fixedly riveted to arm 75 of the manual bell

crank **74** as by bolts **79** and disposed in front of it, is a wall **80** of transverse member **81** having a top forwardly extending strengthening rib or flange **82.**

Also fixed to arm **75** of manual bell crank **74,** as by said bolts **79,** is an arm **83** of a handle bracket **84** extending outwardly (to the right side of the chair). Arm **83** passes through a notch **83***a* in the lower edge of plate **12.**

Extending forwardly at right angles to arm **83,** is an arm **84** to which the handle **85** is fixed. Arm **83** has a strengthening forwardly offset flange **84***a* disposed above flange **82.**

To stabilize the handle **75** and handle bracket **84,** one end of the transverse member **81** is bolted securely to the handle bracket arm **83** and to the inwardly turned arm **75** of the manual bell crank **74,** as shown.

The other end of the transverse member **81** is bolted securely to a pivot bracket (not shown) symmetrical and similar to manual bell crank **74,** except that it does not carry pin **76** or rivet **77.** Such pivot bracket is pivoted, as by a rivet (not shown) similar to rivet **72,** to a pivot plate (not shown) like pivot plate **70,** fixed to a support or mounting plate (not shown) like plate **12,** on the left side of the chair (right hand facing mechanism).

At the rear end of arm **78***b* of the primary actuator link is a rivet **90.** Pivoted to the rivet **90** is a sequence drive link **91.** Said sequence drive link **91** has a downwardly and rearwardly extending arm **92** and an upwardly and rearwardly extending arm **93** (FIG. **1**). The rivet **90** is at the junction of arms **92, 93.** Also pivoted to said rivet **90** is a sequence control link **95** carrying a pin **96** at its lower end (FIG. **1**) slidably received in slot **30** of the downward extending arm of rear carrier link **26.** Attached to the mounting or support plate **12** by a rivet **96***a* is a crank mounting bracket **100.** Said bracket **100** is inclined upwardly and rearwardly and is fixed to the mounting or support plate **12** by rivet **101.** The three rivets **96***a*, **98** and **101** fix members **97** and **100** against movement relative to plate **12** because the plate **12,** and members **97** and **100** make the three sides of a fixed triangle. The outer end of arm **92** is pivoted by rivet **92***a* to the forward end of mounting bracket **100.** Rivets **92***a* and **96** are coaxial in the retracted position of the leg rest mechanism, as shown in FIGS. **1** and **2** of the drawing. Pivoted to the outer end of arm **93** of the sequence drive link **91,** as by rivet **102,** is a secondary actuator link **103** which is inclined downwardly and rearwardly in the retracted FIG. **1** position of the chair.

Pivoted, as at **104,** to the fixed bell crank mounting bracket **100,** is a primary bell crank **105.** Said bell crank **105** has an arm **106** which extends downwardly and forwardly in the FIG. **1** position of the mechanism, and is pivoted as at **107,** to the outer end of the secondary actuator link **103.** Said primary bell crank **105** has a second arm **108** which is inclined downwardly and rearwardly, as shown in FIG. **1.** The distance of rivet **110** to rivet **104** is the same as the distance of rivet **101** to rivet **104,** for the purpose hereinafter appearing.

Pivoted to the rivet **110,** is one end of primary drive link **111** which carries a rivet **112** at its upper end.

Pivoted to the rivet **101** is the lower end of a back carrier link **114** carrying a rivet **115** at its upper end.

Pivoted to rivet **112** is an arm **116** of a secondary bell crank **117.** Said secondary bell crank **117** has a second arm **118** at an angle thereto. At the junction of arms **116, 118** is a rivet **119.** Arm **118** has a transverse offset flange **120.** Said arm **118** carries a rivet **121***a.*

Fixed to said flange **120** by bolt **121** is a transverse square tubular torque member **122** which extends across the chair from the right side to the left side of the chair.

The seat link **28** has at its rear end, an upwardly extending arm **130.** Pivoted to the upper end of said arm **130,** as on rivet **131,** is a high-low mounting link **132.** Said high-low link **132** is substantially Y shaped, having arms **133, 134, 135.** Arm **133** extends upwardly and carries said rivet **131.** It also carries a rivet **136** spaced rearwardly of rivet **131.** Arm **134** projects downwardly from arms **133, 135** and carries a rivet **137.** Arm **135** is inclined upwardly and rearwardly and carries the rivet **115** to pivotally connect the high-low mounting link **132** to the upper end of the back carrier link **114.** Arm **118** of the secondary bell crank is pivoted by said rivet **121a** to the arm **135** of the high-low mounting link **132.** The distance from rivet **121***a* to rivet **112** is same as the distance from said rivet **121***a* to rivet **115.**

Pivoted to the rivet **137** is a lower carrier link **140.** Said lower carrier link **140** is pivoted by pivot **141** to a backrest mounting link **142,** which is fixed by rivets or bolts **143, 144, 145** to a backrest side panel **146** of backrest B. Said backrest side panels are attached to backrest shields **147, 148.** Said backrest side panels are interconnected by backrest cross-rail **149.** Said lower carrier link **140** extends below the rivet **141,** at **150.** On extension **150** is a pin **151.** Pin **151** is connected by a coil tension spring **152** to a loop **154** mounted on the crossrail **149.**

Pivoted to the backrest mounting link **142,** as by rivet **160,** is an upper carrier link **161** which goes around and over the pivot **115,** in spaced relation thereto, and is pivoted to said rivet **136** on arm **133** of the high-low mounting link **132.** A secondary drive link **165** is pivoted, at one end, to rivet **119** and is pivoted, at its opposite end, by rivet **166** to an upper portion of the upper carrier link **161.** A stop pin **167** on the upper carrier link **161** contacts the link **165** in the raised position of the backrest, as will appear hereinafter, and as shown in FIG. **2** of the drawing.

The handle **85,** the manual bell crank **74,** the primary actuator link **78,** the sequence drive link **91,** the sequence control link **95,** the bell crank mounting bracket **100,** the bell crank mounting bracket foot **97,** the secondary actuator link **103,** the primary bell crank **105,** the primary drive link **111,** the secondary bell crank **117,** rivets **77, 90, 92***a*, **102, 104, 107, 110, 112,** pin **76** exist on the left facing mechanism, only. As illustrated in FIGS. **6** and **7** of the drawing, a drive crank **170** takes the place of secondary bell crank **117.** Said drive crank **170** comprises an arm **171** similar to arm **118** of secondary bell crank **117.** Extending from arm **171** is an arm or flange **172** which projects in a transverse direction and is coplanar with flange **120.** The transverse torque member **122** is fixed to flange **172** by bolts **173** and thus operatively connects drive crank **170** to the secondary bell crank **117.**

Members **19, 23, 30, 36, 42, 41, 48, 50, 54, 28, 26, 132, 161, 142, 140, 165, 114** and springs **152** and their connections exist on both sides of the chair, although they are shown only on one side (the left hand facing side or right side of the chair).

The following sequence describes the operation of the left hand facing mechanism, as viewed from the right hand facing side of the chair and as shown in FIGS. **1, 2, 3** and **4** of the drawing.

Starting from the "down" position of the backrest B (conventional, low-profile club chair position), the backrest is locked in the "down" position by rivet **77** being below the common center line of rivets **72** and **90,** and the primary actuator link **78** is stopped against pin **76.** This arrangement prevents the springs **152** from raising the backrest B when the handle is in the position of FIG. **1.**

Since the primary actuator **78,** the sequence drive link **91** and the sequence control link **95** are all pivotally connected to one another by rivet **90,** the sequence control link **95,** being locked by the position of the parts shown in FIGS. **1,** (with the legrest linkage retracted) forces the rivet or pin **96** against the bottom end of the slot **30** in the rear carrier link **26,** thus locking the recliner in the upright, sitting position of the chair.

To raise the backrest B, the handle **85,** the handle bracket **84,** and the manual bell crank **74** are manually rotated together, clockwise around the rivet **72,** to move the primary actuator link **78** to the right, by means of rivet **77,** rotating the sequence drive link **91** and rivet **90** clockwise around the center of rivet **92a.** Rivet **96** remains forced against the bottom end of the slot **30** of the rear carrier link **26** and consequently the recliner remains locked in the upright, sitting position until rivet **90** stops in a position concentric with rivet **25** on rear bell crank **19,** on which the rear carrier link **26** is pivotally mounted, and the backrest is in the "up" position.

The rotation of the sequence drive link **91** around rivet **92***a* drives the secondary actuator link **103** downwardly and rearwardly by means of rivet **102,** thus rotating the primary bell crank **105** counter-clockwise, looking at FIG. **1,** around rivet **104** by means of rivet **107.** This operation will drive the primary link **111** upward by means of rivet **110** until rivet **110** becomes concentric with rivet **101** and rivet **112** becomes concentric with rivet **115.** These two concentricities will occur coincidentally with the concentricity of rivets **90** and **25,** as shown in FIG. **2,** when the backrest B reaches the "up" position.

The upward movement of the primary drive link **111** and the rivet **112,** rotates the secondary bell crank **117** counter-clockwise around the rivet **121***a.*

The above steps occur concurrently in both the right hand facing and left hand facing mechanisms through the torque bar **122,** thus imparting a bilateral lift to the backrest B of the chair.

Secondary bell crank **117** and drive crank **170,** by means of rivet **119** move secondary drive links **165** which in turn rotate upper carrier links **161** counter-clockwise around the rivets **136** by means of rivets **166,** until secondary drive links **165** stop against limit stop pins **167,** in the "up" position of the backrest B. This rest position occurs concurrently with the concentricity of rivets **110, 101,** rivets **112, 115** and rivets **90, 25.**

Counter-clockwise rotation of the upper carrier links **161** move backrest mounting links **142** upward by means or rivets **160,** thus rotating lower carrier links **140** counter-clockwise around rivets **137** by means of rivets **141.**

Lower carrier links **140** act as control links and complete the parallelograms which determine the angular position of the backrest B to the seat.

Helical springs **152** assist in lifting the backrest by rotating the lower carrier links **140** counter-clockwise about rivets **137.**

As the secondary drive links **165** approach their rest positions against limit stop pins **167,** rivets **119** cross the common center line of rivets **121***a* and **166,** thus locking the backrest B in the "up" position.

As this locking occurs and rivet **90** becomes concentric with rivet **25,** rear carrier link **26** and the sequence control link **95** become free to rotate about rivets **90** and **25** to allow the chain to move to the T.V. position of FIG. **3** and the fully reclined position of FIG. **4.**

The concentricity of rivets **101, 110** and **112, 115** in the "up" backrest position, allows the primary link **111** and the back carrier link **114** to move in unison while the chair is moving from the upright sitting position to the T.V. and fully recline positions and back again without moving the handle or disturbing the relative positions of the links **140, 142, 117, 161, 165, 132.** This arrangement keeps the backrest in the "up" position throughout the recline cycle by isolating the high-low parallelogram from its primary drive system. In the T.V. and recline positions, the almost horizontal position of the primary drive link **111** prevents rotation of the primary bell crank **105** and thus prevents operation of the handle **85.**

After the recline mechanism is returned to upright position, the second half of the high-low cycle, that is, the lowering of the backrest B from the locked "up" position to the locked "down" position, may be accomplished by reversing the sequence described above.

As sequence drive link **91** begins to rotate counter-clockwise around rivet **92***a,* in the backrest lowering cycle, rivet **90** begins to move away from its position concentric with rivet **25,** so that rivets **90** and **25** and **92***a* (which is concentric with rivet **96**) form a triangle which prevents sequence control link **95** and the rear carrier link **26** from rotating around rivet **25,** thus preventing the chair from moving into T.V. or recline positions. This triangle prevails and widens throughout the lowering cycle, thus locking the chair in the upright position when the backrest B is not up.

When the backrest is in the "down" position, the handle **85** is in a horizontal position, forward of its pivotal axis, thus forcing the occupant to reach and lean forwardly away from the backrest, to preclude resting his back against the backrest while trying to raise the backrest.

To go from T.V. position back to upright (sitting) position, the occupant pulls himself forward by grasphing the arm rests of the chair and at the same time pushes down with his feet on the legrest to collapse the legrest and that will swing the back forwardly to upright position.

It will thus be seen that there is provided an article in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative only.

We claim:

1. In a chair having a frame, a seat and a backrest, frame mounting means adapted to be fixed to the frame of the chair, manual handle means, means to mount said manual handle means for pivotal movement on said frame mounting means, a primary actuator link, means to mount said primary actuator link for pivotal movement relative to said manual handle means on an axis parallel to and spaced from the pivotal axis of said manual handle means on said frame mounting means, a sequence drive link pivoted to said primary actuator link, means to pivotally connect said sequence drive link to said frame mounting means, a sequence control link pivotally connected to the pivotal connection of said primary actuator link to said sequence drive link, a seat link adapted to be attached to the seat of said chair, a rear bell crank pivoted to said frame mounting means, a rear carrier link pivoted to said seat link, means to pivotally connect said rear bell crank to said rear carrier link below the pivotal connection of said rear carrier link to said seat link, said rear carrier link having an arm extending downwardly below the pivotal connection of said rear bell crank to said rear carrier link, said arm being formed with a longitudinal slot, slider means on said sequence control link slidable in said slot, a backrest mounting link adapted to be attached to the backrest of said chair, and means controlled by said sequence drive link to move said backrest mounting link up and down.

2. The combination of claim 1, the distance from the pivotal connection of said sequence drive link and said sequence control link with said primary actuator link, to the pivotal connection of said sequence drive link with said frame mounting means, being equal to the distance from the location of said slider means on said sequence control link to said pivotal connection of said sequence drive link and sequence control link with said primary actuator link.

3. The combination of claim 2, the distance from the pivotal connection of said sequence drive link with said primary actuator link, to the pivotal connection of said sequence drive link to said frame mounting means being equal to the distance from the pivotal connection of said rear carrier link with said rear bell crank to the slider means, when the slider means is at the bottom of the slot in said arm of said rear carrier link.

4. The combination of claim 1, a pin fixed to said manual handle means, and positioned to engage said primary actuator link when the pivotal connection of said manual handle means to said frame mounting means is past a center line through the pivotal connections of said primary actuator link to said manual handle means and to said sequence drive link, upon moving said manual handle means in a direction to lower said backrest mounting link.

5. The combination of claim 1, a front bell crank pivoted to said frame mounting means, a link connecting said rear and front bell cranks, a front carrier link pivoted to said frame mounting means and to said seat link, legrest linkage pivotally connected to said seat link and to said front carrier link, and means controlled by said front bell crank to project and retract said legrest linkage.

6. Hardware for a recliner chair having a frame, a seat and a backrest and comprising a frame mounting plate, manual handle means pivoted to said plate and having a handle and an fixed to the handle, a primary actuator link pivoted to said arm on an axis spaced from and parallel to the pivotal connection of said manual handle means to said frame mounting plate, a seat link adapted to be attached to the seat of said chair, a rear carrier link, a rear bell crank pivoted to said frame mounting plate, means to pivot said rear bell crank to said rear carrier link, means to pivotally connect said rear carrier link to said seat link, a backrest mounting link adapted to be attached to the backrest of said chair, means controlled by said primary actuator link to raise and lower said backrest mounting link, said means controlled by said primary actuator link including means to lock said rear carrier link against being raised relative to said frame mounting plate when said seat link is in upright sitting position and said manual handle is in one predetermined position, in which position said backrest mounting link is in lowered position, and to permit rotation of said rear carrier link about its pivotal connection to said rear bell crank, after said manual handle means has been swung to another position, in which position the backrest mounting link is in raised position, such rotation of said rear carrier link being caused by rearward movement of said seat link.

7. The combination of claim 6, said means controlled by said primary actuator link comprising a sequence drive link, and means to stop rotation of said manual handle means back to the lowered position of said backrest mounting means, after the pivotal connection of said manual handle means to said frame mounting plate is past a center line through the pivotal connections of said primary actuator link to said arm of said manual handle means and to said sequence drive link.

8. The combination of claim 7, legrest linkage connected to said seat link, and means controlled by said rear bell crank to project and retract said legrest linkage.

9. The combination of claim 8, said means to lock said rear carrier link comprisingg a sequence control link pivoted so the pivotal connection of said primary actuator link to said sequence drive link, said seat carrier link having a downwardly extending arm formed with a longitudinal slot and a pin on said sequence control link disposed at the lower end of said slot when said backrest mounting link is in lowered position.

10. The combination of claim 9, said pivotal connection of said primary actuator link to said sequence drive link and sequence control link being movable to coaxial position with respect to the pivotal connection of said rear carrier link to said rear bell crank upon rotating said manual handle means from its position in which the backrest mounting link is lowered to its position in which the backrest mounting link is raised.

11. The combination of claim 10, said means controlled by said primary actuator link further comprising a secondary actuator link pivoted to said sequence drive link, a primary bell crank pivoted to said frame mounting plate, and means controlled by said primary bell crank to control movement of said backrest mounting link.

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