

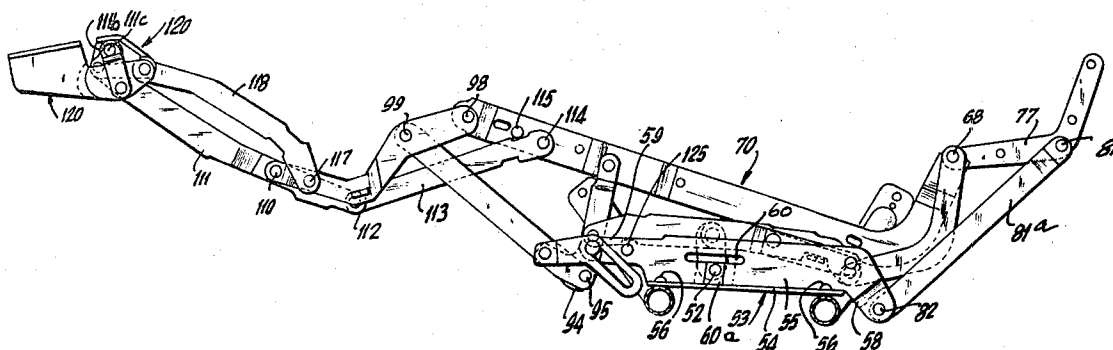
[72] Inventor **Arlen H. Ferguson**
 Tupelo, Miss.
 [21] Appl. No. **792,418**
 [22] Filed **Jan. 21, 1969**
 [45] Patented **Dec. 29, 1970**
 [73] Assignee **Mohasco Industries, Inc.**
 Amsterdam, N.Y.
 a corporation of New York. by mesne assignments

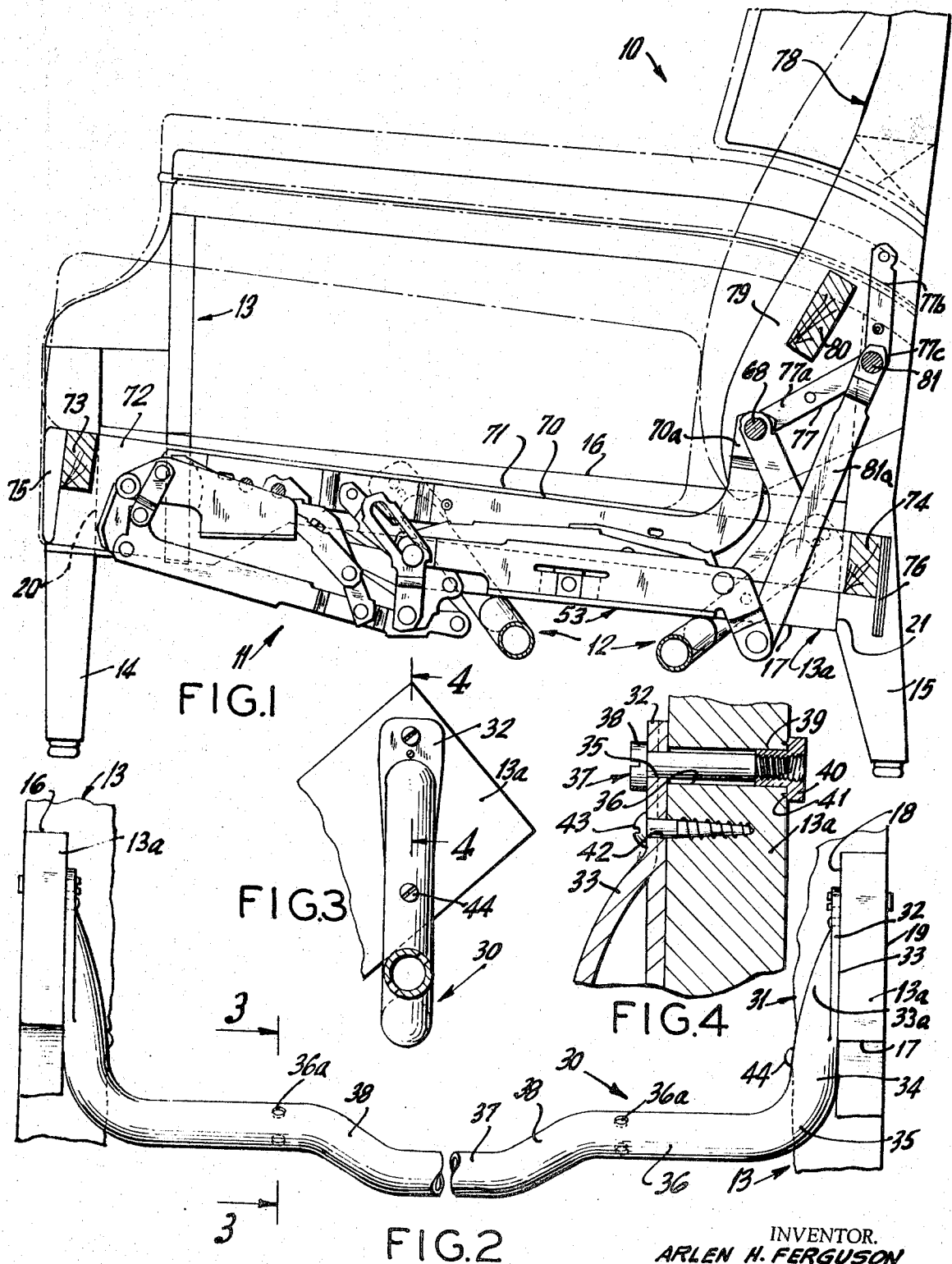
3,492,045 1/1970 Schefthaler 297/75
 Primary Examiner—Reinaldo P. Machado
 Attorney—J. B. Felshin

ABSTRACT: Two tubular cross braces interconnect the arms of a chair frame, to support the load on the seat and to keep the arms from spreading apart. The braces are at opposed upwardly divergent 45° angles to get the upper mounting points of the braces to the frame, further apart to get maximum bearing area. The braces have a middle downward bend to provide clearance for a soft seat and to strengthen the braces. The cross braces support reclining chair linkage hardware. These linkages are provided with sequencing mechanism so arranged that the chair goes from closed upright position to an intermediate TV position before going to a fully reclined position. This sequence mechanism is embodied in a restler and also in a high legged lounger and in a low legged lounger. In the restler, the seat, when moving from TV to fully reclined positions, shifts pivot points for the seat which at the beginning of the movement, pivots about a more forward point and at the end of the movement pivots about a pivot point disposed further back to thereby maintain the balance over a longer portion of the movement. The hardware includes an ottoman which goes completely under the chair with a delaying of the movement of the ottoman mounting bracket until the seat has reached a maximum upward position (as distinguished from a back position).

[54] **RECLINING CHAIRS AND HARDWARE THEREFOR**
 16 Claims, 18 Drawing Figs.
 [52] U.S. Cl. 297/85, 297/89
 [51] Int. Cl. A47c 1/037
 [50] Field of Search 297/75, 83, 84, 85, 88, 89

[56] **References Cited**
UNITED STATES PATENTS
 3,185,520 5/1965 Rosmarin 297/85
 3,243,225 3/1966 Katz 297/75
 3,359,034 12/1967 Re 297/75
 3,339,972 9/1967 Fletcher 297/83





INVENTOR.
ARLEN H. FERGUSON

BY

J. B. Felshin
ATTORNEY

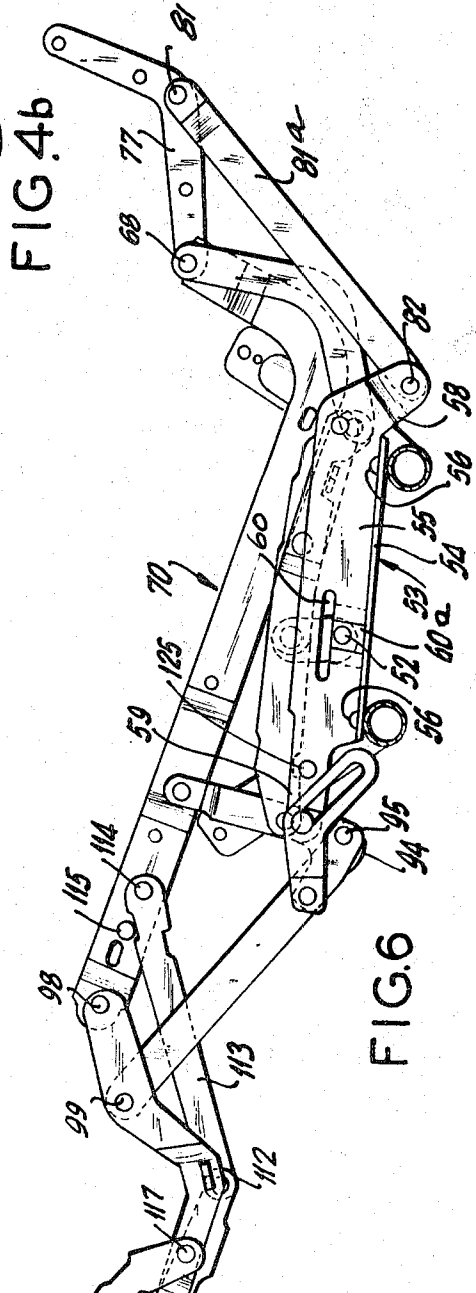
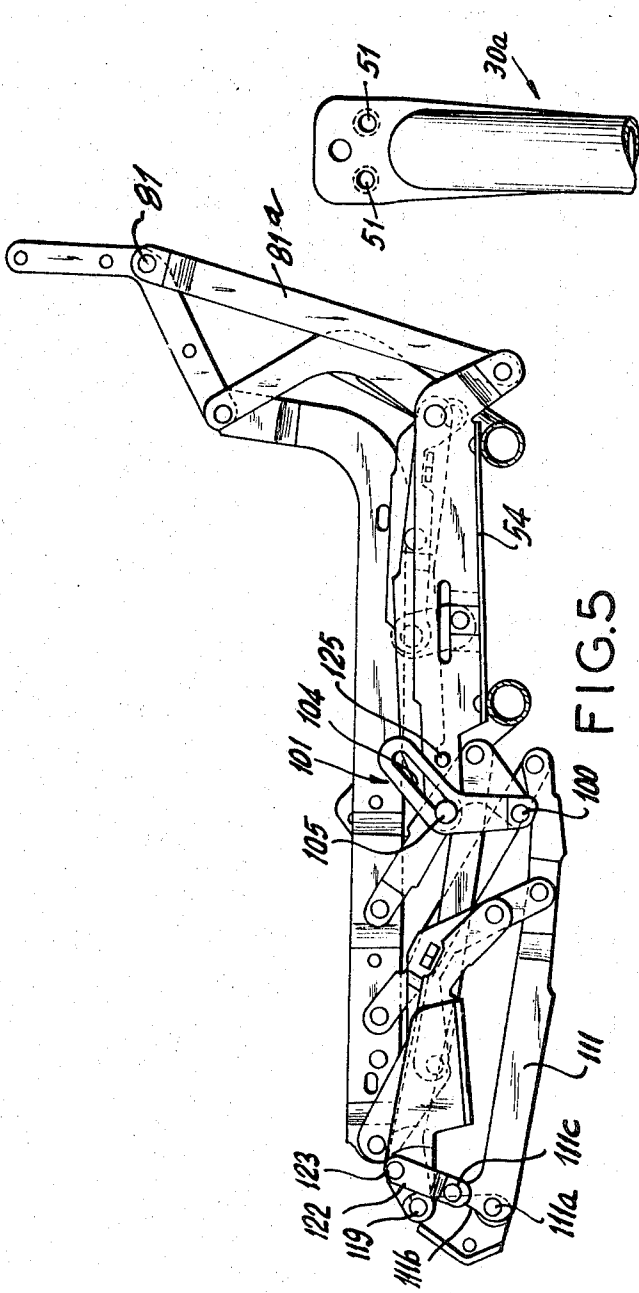


FIG. 4a

FIG. 4b

FIG. 5

FIG. 6

INVENTOR.
ARLEN H. FERGUSON

BY
J.B. Folschin
ATTORNEY

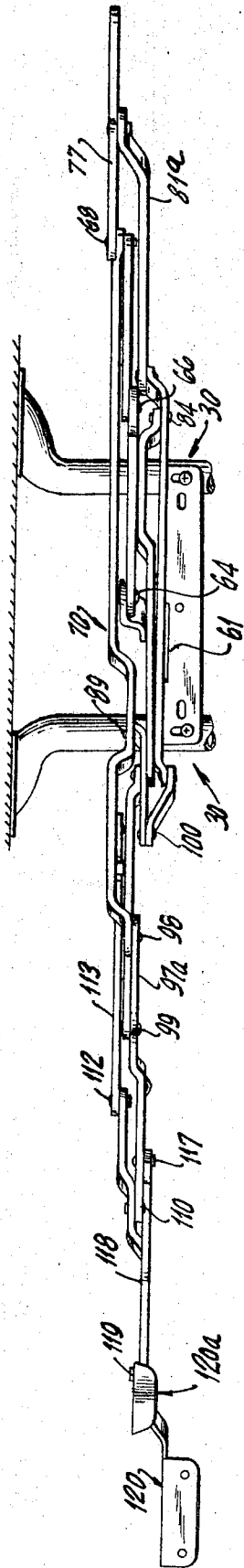


FIG. 8

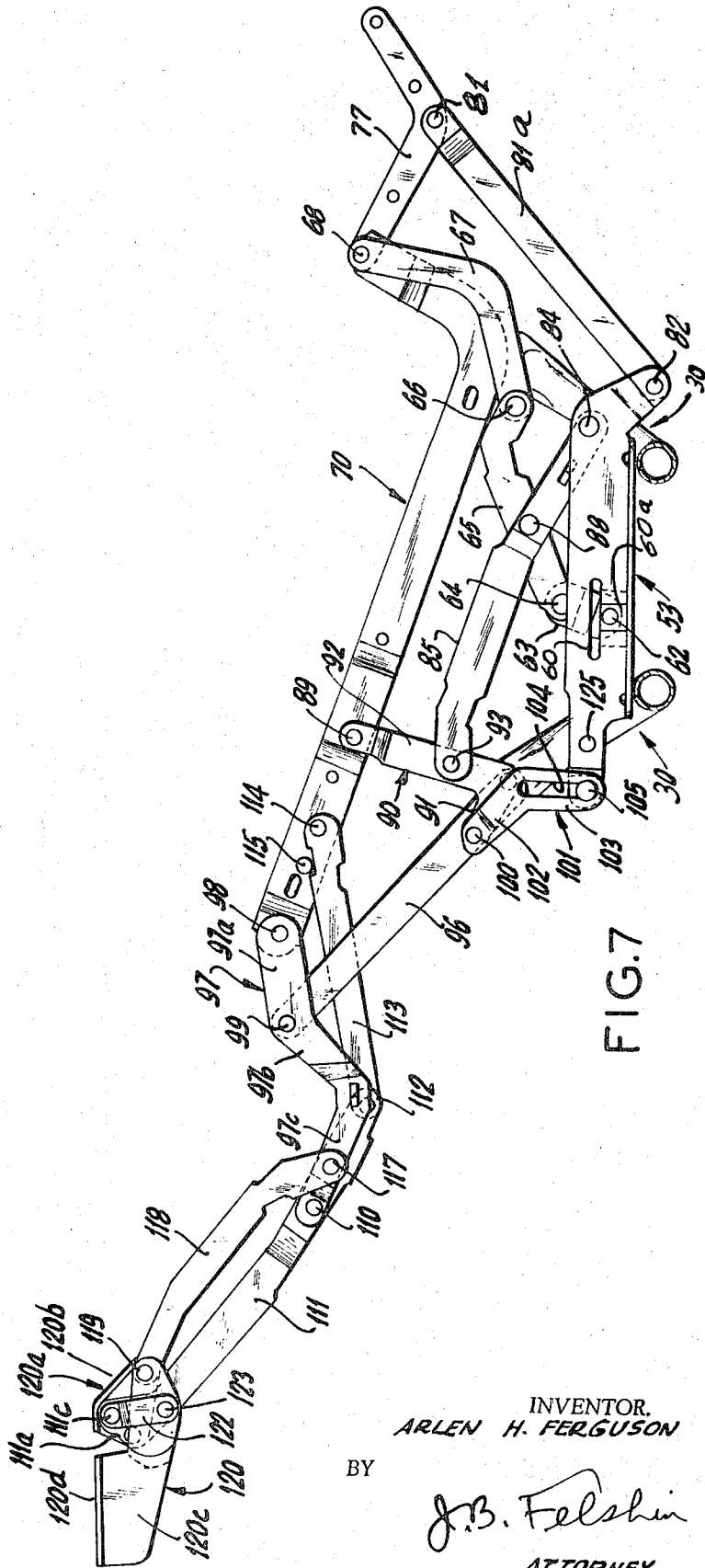


FIG. 7

INVENTOR.
ARLEN H. FERGUSON

BY

J.B. Felshin
ATTORNEY

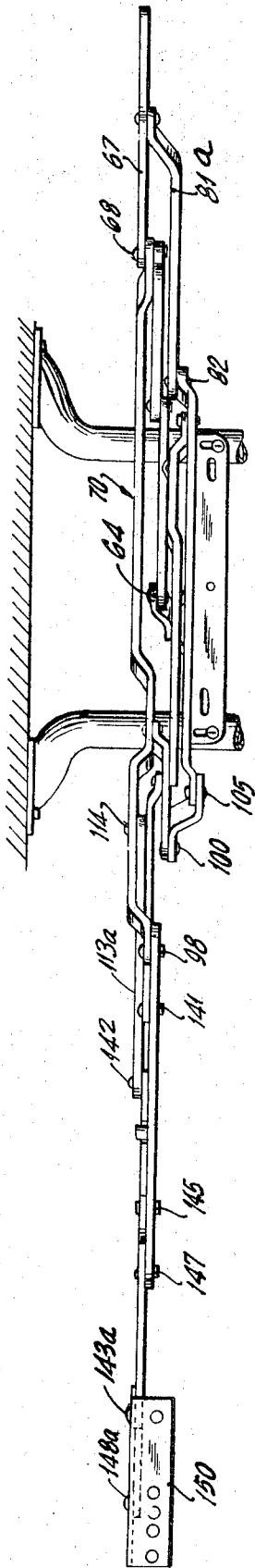


FIG. 12

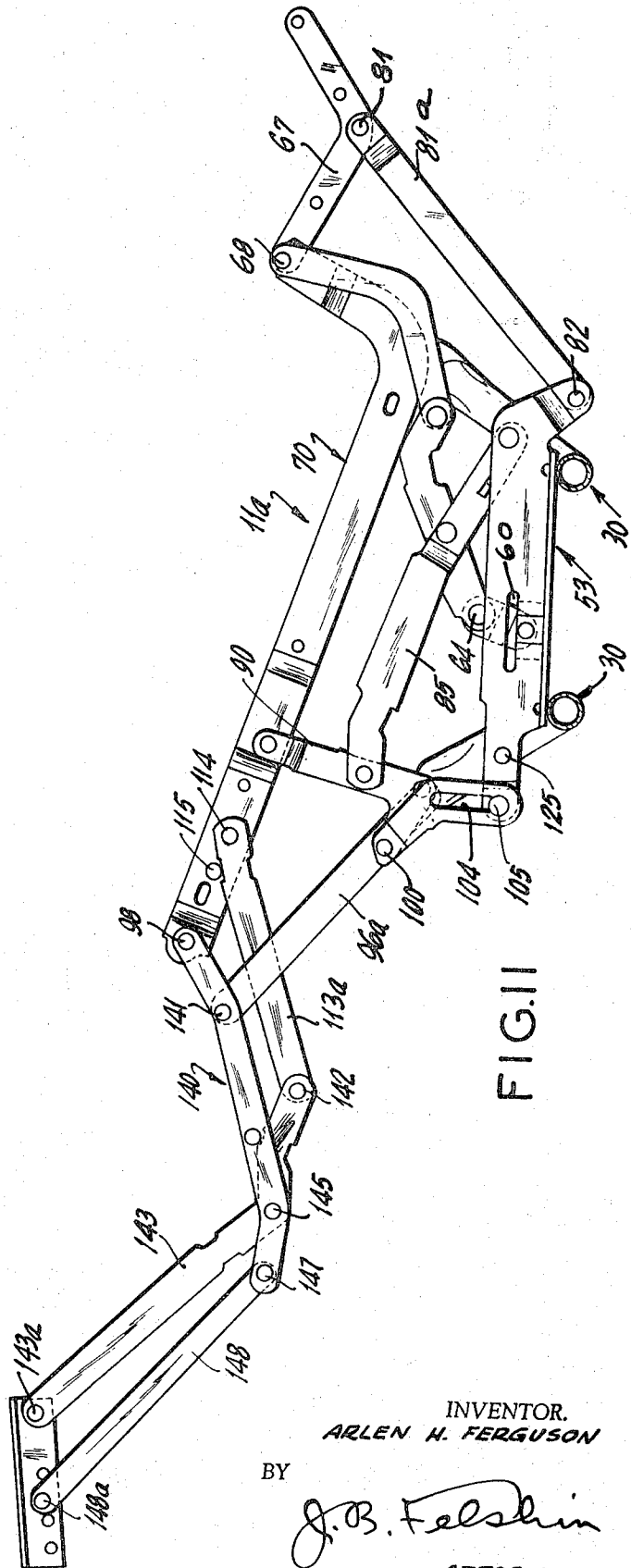


FIG. 11

INVENTOR.
ARLEN H. FERGUSON

BY

J. B. Felshin
ATTORNEY

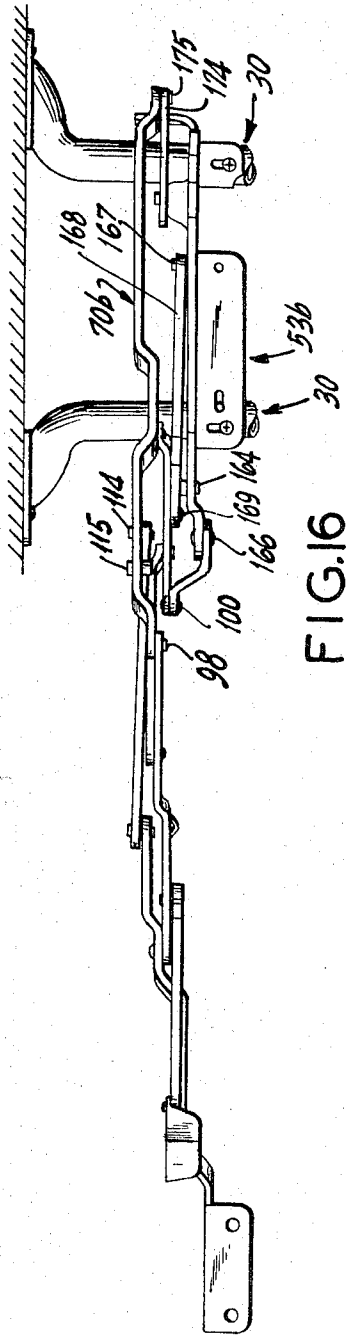


FIG. 16

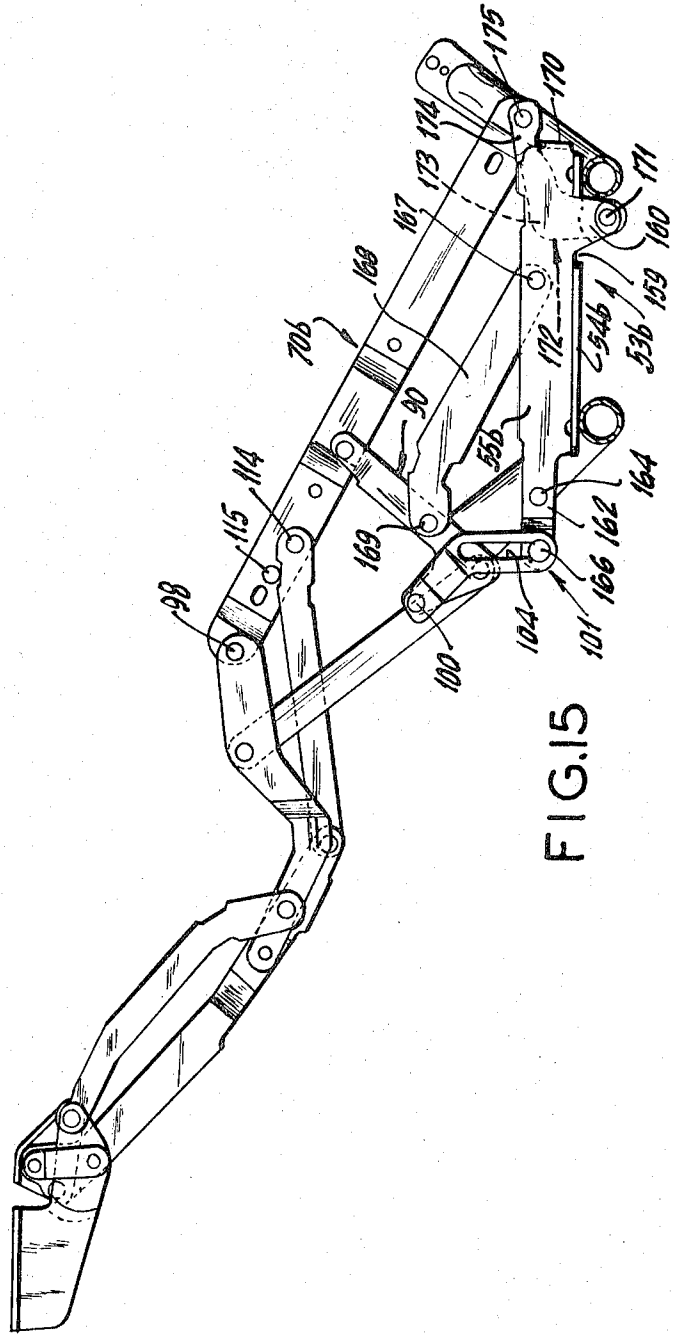


FIG. 15

INVENTOR.
ARLEN H. FERGUSON

BY

J. B. Felslin
ATTORNEY

RECLINING CHAIRS AND HARDWARE THEREFOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to hardware for reclining resters and loungers.

2. Description of the Prior Art

Reclining chair hardware embodying sequencing is known in the patent art. One such U.S. Pat. is Katz No. 3,162,482 and another is Katz No. 3,243,226.

SUMMARY OF THE INVENTION

An object of this invention is to provide, in hardware of the character described, double pivot points as the chair moves from TV to fully reclined position that vastly improves the balance between those two positions.

Another object of this invention is to provide, in hardware of the character described, highly improved means to prevent the chair from moving into fully reclined position with the leg rest closed.

Yet another object of this invention is to provide hardware of the character described including an ottoman mounting bracket that goes completely under the chair and means to delay movement of the ottoman mounting bracket until the seat has reached its maximum upward movement, to permit the ottoman mounting bracket to clear the floor as it is swung beneath the chair.

Still another object of this invention is to provide, in mechanism of the character described, means on the seat-mounting link, to stop movement of the leg rest actuating link before a rear carrier link, which connects the arm-mounting member (fixed to an arm of the chair frame) with the rear of the seat-mounting link, from contacting a stop on said arm-mounting member, in TV position of the mechanism as said mechanism is moved from closed to TV position, whereby, as the mechanism is moved from TV to fully reclined position, said rear carrier link may pivot during substantially the first half of the movement from TV to fully reclined position, about its pivot to said arm-mounting member, until it contacts said stop on said arm-mounting member, whereby to shift the pivot point of the seat-mounting link about its pivotal connection to the upper end of said rear carrier link during substantially the last half of movement of the mechanism from TV to fully reclined position.

A further object of this invention is to provide, in lounge mechanism of the character described, means to move the seat-mounting link, vertically and horizontally, when going from closed to TV position, means to change the angle of said seat-mounting link by moving its rear end downwardly, and maintaining the position of the chair-back-mounting link relative to said seat-mounting link, but moving it down relative to the floor, thereby increasing the angular pitch of the seat-mounting link, and, in going from TV to fully reclined position, means responsive to pressure on the chair back, to lift the rear of the seat-mounting link and simultaneously lift the front of the seat.

A still further object of this invention is to provide an improved sequencing mechanism for reclining chair hardware which can be embodied either in a restler chair or a high leg lounge chair or a low leg or no-leg lounge chair.

Yet a further object of this invention is to provide, in a reclining chair of the character described, metal cross brace means interconnecting the arms of the chair frame and supporting reclining chair hardware interconnecting the seat and leg rest, and preventing the chair frame arms from spreading apart.

Yet another object of this invention is to provide, in a reclining chair of the character described, cross brace means which may be used with a great variety of recliner hardware, and comprising a pair of cross brace members which diverge upwardly and outwardly, whereby to support arm-mounting members at closer spaced points and which are attached to the chair frame arms at more outwardly spaced points, to get max-

imum bearing area, said brace members being centrally depressed for strength and to allow use of softer seats without the seats contacting the cross brace members when the chair is occupied, and further being so attached to the arms as to prevent said brace members from turning relative to said arms.

Still another object of the invention is to provide a strong and durable recliner chair hardware construction of the character described, which shall be relatively inexpensive to manufacture, easy to assemble, which shall be smooth in operation, easy to incorporate into chairs, 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 arrangements 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.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevational view of a recliner high legged lounge chair provided with cross brace means supporting recliner hardware and embodying the invention, and shown in closed position;

FIG. 2 is a transverse view of one of the brace members attached to the side arms of the chair frame;

FIG. 3 is a cross-sectional view taken on line 3-3 of FIG. 2;

FIG. 4 is a cross-sectional view taken on line 4-4 of FIG. 3;

FIG. 4a is a view similar to FIG. 4, but illustrating a modified construction;

FIG. 4b is a view similar to FIG. 3, but illustrating the structure of FIG. 4a;

FIG. 5 is a side elevational view of the recliner mechanism shown in FIG. 1, in closed position;

FIG. 6 is a view of the structure shown in FIG. 5, but shown in TV or intermediate position;

FIG. 7 is a view similar to FIG. 6, but showing the recliner mechanism in fully reclined position;

FIG. 8 is a top plan view of the structure of FIG. 5, but in an open position;

FIG. 9 is a side elevational view of a low leg or no-leg lounge recliner hardware embodying the invention, and shown in closed position;

FIG. 10 is a view similar to FIG. 9, but showing the linkage in TV position;

FIG. 11 is a view similar to FIG. 10, but showing the hardware in fully reclined position;

FIG. 12 is a top elevational view of the structure shown in FIG. 9, but showing the hardware in open position;

FIG. 13 is a side elevational view of recliner mechanism for a restler, illustrating another modified form of the invention;

FIG. 14 is a view similar to FIG. 13, but showing the mechanism in TV position;

FIG. 15 is a view similar to FIG. 14, but showing the mechanism in fully reclined position; and

FIG. 16 is a top plan view of the structure of FIG. 13, but showing it in open position.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now in detail to FIGS. 1-8 of the drawing, 10 designates a chair, here shown in the form of a lounge, provided with recliner hardware 11 and support means 12 therefor, embodying one form of the invention.

The chair 10 comprises side arms 13 including arm side rails 13a in parallel planes supported on front legs 14 and rear legs 15.

Side rails 13 incline upwardly and forwardly somewhat, and have upper edges 16, lower edges 17, inner faces 18, outer faces 19, front ends 20 and rear ends 21.

The side arms of reclining chairs have heretofore been built with a wooden cross member that spaces the arms apart and

supports the load on the seat, which is the occupant. The wooden cross members have proven unsatisfactory in high leg chairs because they are too weak, so that the side arms tend to part and the wood supports are too weak to support the occupant. As one cure for this difficulty, manufacturers have added steel angles to the wood board, at both ends, which required time consuming labor and expense. Furthermore, these straight wood cross braces were often contacted by the seat, so that the seats had to be fairly firm not to sag into contact with such wood cross braces, so that soft seats could not be used.

In accordance with the present invention, these difficulties have been obviated. As shown in FIGS. 1—8, the side rails 13a are interconnected by a pair of similar, symmetrically disposed metal cross brace members 30 disposed in upwardly extending, forwardly and rearwardly divergent planes. Each member 30 is made of tubular metal stock and comprises parallel end arms 31, end portions of which are flattened as at 32. Flattened portions 32 have outer flat surfaces 33 contacting the inner faces 18 of side rails 13a, and extend beyond the tapered ends 33a of the pipe. Arms 31 also comprise tubular portions 34 from which extend inwardly curved tubular portions 35. Extending from curved portions 35 are aligned, horizontal portions 36 interconnected by a downwardly depressed or bent central tubular portion 37, through inclined tubular portions 38. Each member 30 is in a single inclined plane, preferably of about 45°. The flat portions 32 are in vertical parallel planes tangent to tubular portions 34, and are fastened to rails 13a. shown in FIGS. 1 to 4, flat portions 32 are each formed with an upper opening 35 concentric with a horizontal opening 36 in rail 13a. Extending through openings 35, 36 is a stud 37 having a screwhead 38 at the inner surface of flat portion 32. The outer end of stud 37 is externally screw-threaded as at 39, engaging a nut 40 having cleats 41 that dig into the outer surface of rail 13a.

Flat portion 32 also has a hole 42 to receive a wood screw 43 screwed into the rail 13a, to prevent rotation of the cross brace relative to the rails. Other screws 44 pass through aligned openings in arms 31 to firmly fix said cross brace members 30 to the rails and hence to the side arms 13 of the chair supporting frame.

It will be observed that each member 30 is similar and symmetrical about its midportion. The members 30 comprise means for supporting the recliner hardware 11 in the manner hereinafter explained.

In FIG. 4a, 4b, there is shown a modified cross brace member 30a similar to member 30 except that each arm has a flattened part 32a similar to flattened part 32 but formed with an outwardly extruded opening 50 to dig into the wood rail 13a and a pair of countersunk openings 51 to receive screws for attaching said members 30a to the wood rails.

The recliner hardware comprises similar, symmetrically disposed linkages 11 at the right and left sides of the chair. Hence only one of the linkages (the one on the right side of the chair) will be described.

Linkage 11 comprises an arm-mounting member or plate 53 resting on portions 36 of the cross brace members 30. Each arm-mounting member or plate 53 comprises a flat horizontal flange 54 from which a vertical wall or flange 55 extends upwardly. The ends of flange 54 rest on portions 36 of the cross brace members. With said cross brace members inclined at 45°, tubular portions 36 have vertically aligned openings 36a receiving bolts 56 for attaching said arm-mounting members to said cross brace members. The wall 35 of member 53 has a rearwardly and downwardly inclined finger or lug extension 58 and a forwardly extending finger or lug extension 59. It is also formed with a substantially horizontal central slot 60 disposed above flange 54 and with an outwardly recessed strap portion 60a forming a slot 61 with said flange.

Pivoted to strap 60a as by rivet 62 is a short anchor link 63 to the upper end of which is pivoted, as by rivet 64, a secondary lifter link 65. Pivoted to the outer end of link 65, as on rivet 66, is one end of a rear carrier link 67. The upper end of link

67 is pivoted as by rivet 68 to one end of a seat-mounting link 70 attached to a seat frame 71 (FIG. 1). Said seat frame 71 comprises parallel side members 72 running from front to rear, inside of and in spaced relation to rails 13a, and interconnected at the front by front crossrail 73 and at the rear by a rear crossrail 74. A front piece 75 is attached to the part of front crossrail 73 and a rear piece 76 is attached to the rear of rear crossrail 74. The seat-mounting link 70 is attached to the inner surface of seat side member 72. The main front portion of the seat-mounting link 70 runs substantially parallel to the side member 72. It is formed with an upwardly bent rear end portion 70a which carries the rivet 68 at its upper end. Pivoted to said rivet 68 is a back mounting link 77 to which the chair back 78 is attached. The chair back 78 comprises side members 79 in vertical planes interconnected by a crossrail 80. Link 77 is bent to provide arms 77a, 77b joined at a juncture 77c. At the juncture 77c is a rivet 81 which connects a rear control link 81a to a rivet 82 located at the lower end of finger extension 58 of the arm-mounting member 53. It will be noted that rivet 82 is located rearwardly of portion 36 of the rear cross brace 30 and below the level of flange 54.

Pivoted to wall 55 of arm-mounting member 53 as at 84 is the rear end of a primary lifter link 85 which crosses secondary lifter link 65 and is pivoted thereto by a rivet 88.

Pivoted to seat-mounting link 70, as at 89, is a bellcrank 90. Bellcrank 90 has an arm 91 from which an arm 92 extends at an acute angle. The front end of primary lifter link 85 is pivoted, as at 93, to an intermediate portion of arm 92 of bellcrank 90. The upper end of arm 92 is pivoted on said rivet 89 to said seat-mounting link 70. The juncture 94 of arms 91, 92 of bellcrank 90 is pivoted as at 95, to one end of a drive link 96. One end of a rear ottoman link 97 is pivoted, as at 98, to the front end of seat-mounting link 70. Said drive link 96 is pivoted as at 99 to said rear ottoman link 97 at a point spaced from pivot 98.

Pivoted to the outer end of arm 91 of bellcrank 90, as at 100, is a sequencing link 101. Said link 101 has an arm 102 at an obtuse angle to a second arm 103. Arm 103 has a longitudinal slot 104. Fixed to finger extension 59 of the arm mounting member 53 is a headed pin 105 having a shank slidably received in slot 104.

Link 97 is Z-shaped, having an upper arm 97a (pivoted at 98), an intermediate arm 97b and a third arm 97c. Pivot pin 99 is located between arms 97a, 97b. The outer end of arm 97c is pivoted, as at 110, to an intermediate portion of a lower ottoman link 111. The rear end of link 111 is pivoted, as at 112, to the outer end of a rear ottoman control link 113. The upper end of said link 113 is pivoted as at 114 to the seat-mounting link 70, rearwardly of, and in spaced relation to pivot 98, and forwardly of, and in spaced relation to pivot pin 89. Fixed to seat-mounting link 70 is a stop pin 115 located between pivots 114 and 98.

Stop 115 is positioned to engage an edge of link 113 when the linkage 11 is opened to TV position, as shown in FIG. 6, and to maintain said link in such position as the linkage moves from said TV to the fully reclined position of FIG. 7.

Pivoted to an intermediate portion of arm 97c of link 97, as at 117, is one end of an upper ottoman link 118. The opposite end of said link 118 is pivoted by pivot pin or rivet 119 to one end of an ottoman mounting bracket 120 and also by said pin or rivet 119 to one corner of a substantially triangular shaped ottoman guard 120a. Another corner of said guard 120a carries a pivot 111a pivoted to one end of link 111. Said end of link 111 has an offset lug 111b pivoted as by pivot 111c to one end of a short link 122. The other end of said link 122 is pivoted by pivot 123 to bracket 120. The upper end of said ottoman guard 120a has an offset flange 120b overlying pivot 119. Ottoman mounting bracket 120 has an extension 120c provided with an offset flange 120d which is located at the top, in the open position of the linkage. Flanges 120b, 120d support the transverse ottoman parts, not shown.

When the linkage is in the closed position of FIGS. 1 and 5, the seat frame 71 is almost in horizontal position and the chair

back 78 is almost in vertical position. The entire linkage is supported on the cross brace members 30. The divergence of said members 30 puts the upper mounting holes further apart to get maximum bearing area. The middle bend in the tubes provide clearance for a sagging seat when the chair is occupied, thereby allowing for use of softer seat springs without bottoming out. The metal cross braces are strong and prevent the side arms from separating.

On vertical wall 55 of member 53 is a stop pin 125, located on the front end of finger extension 59, and it is contacted by the primary lifter link 85 in the closed position of the linkage as seen in FIG. 5. At that time, the pivot pin 105 is located at the lower end of slot 104, in sequence link 101, and prevents the chair from moving into fully reclined position because the primary lifter link 85 is pivoted, as at 93, to the bellcrank 90 and the bellcrank is pivoted, as at 100, to the sequence link.

The leg rest or ottoman supporting links must first be projected. The pivot pin 105 being at the lower end of slot 104, an upward movement of the mechanism or linkage is prevented because the lower end 102 of the slotted sequence link is a rigid strut which prevents movement of the bellcrank 90. The opposite end of the slot provides the final stop in fully reclined position, as seen in FIG. 7. The sequence link thus has two purposes.

The ottoman supporting bracket and guard (120, 120a) go completely under the chair. The movement of the ottoman mounting brackets is delayed until the seat has reached the maximum upward position (as distinguished from backward movement).

The seat moves upwardly and rearwardly from closed position as the linkage moves from the closed position of FIG. 5 to the TV position of FIG. 6. The bracket 120 moves slowly (stays almost horizontal) until the seat-mounting link has reached its maximum upward motion. By that time, the ottoman bracket 120 has reached its lowest limit relative to the floor. This bracket 120 first moves slowly and then faster. Pivots 111a, 111c and 123 are almost in a straight line in the closed position of FIG. 5. As a result of the angular displacement of these three points, relative to pivot 119, is a small vertical displacement for a given angle, and then a larger vertical displacement for a continued movement of same angular extent.

As we go from closed position of FIG. 5 to the TV position of FIG. 6, the bellcrank 90 pivots about pivot 93 to move the seat-mounting link 70 vertically and horizontally to change its angle by means of the rear carrier link 67. The seat-mounting link 70 is rotated clockwise, looking at FIGS. 5 and 6, so that its rear end moves down. During this movement, the chair back maintains its position relative to the seat mounting link by means of the rear control link 81a, but moves down relative to the floor, thereby increasing the seat pitch or the incline of the seat relative to the floor.

Now, going from TV position of FIG. 6 to the fully reclined position of FIG. 7, pressure on the back of the chair, acting through back-mounting link 77, lifts the rear of the seat-mounting link 70 by action through the rear carrier link 67 and the secondary lifter link 65 which is acting on the anchor link 63, which is pivoted to the arm-mounting member 53 at pivot 62.

The lifting of the front of the seat is simultaneously caused by the secondary lifter link 65 acting through pivot 88 on primary lifter link 85 which is pivoted to the bellcrank 90 at pivot 93. This bellcrank 90 is connected to the seat-mounting link 70 at pivot point 89.

This mechanism is so arranged that it can be used with a low leg, down to the floor or no-leg chair, as will be explained hereinafter.

In FIGS. 9, 10, 11, 12, there is shown recliner chair hardware 11a and support means 12 for a lounge or the low leg type or down to floor or no-leg type. The support means 12 may be the same as shown in FIGS. 1, 2, 3, 4, 4a, 4b, 5, 6, 7 and 8.

The linkage or hardware 11a is same as linkage 11 except for differences hereinafter pointed out, and is supported on the cross braces 30 in the same manner as heretofore explained, and the cross braces are attached to the chair frame in the same manner as disclosed hereinabove. Parts 53, 63, 65, 67, 77, 81a, 70, 85, 90, 101, 113 are the same in linkage 11 as in linkage 11a, and these parts are similarly interconnected. Member 53 of linkage 11a has the stop 125 and member 70 has the stop 115. Sequence link 101 of linkage 11a has the slot 104 slidably receiving the headed pin 105 for the same purposes as in linkage 11.

Pivoted to seat-mounting link 70 on pivot 114 is a link 113a and pivoted to pivot pin 98 is a link 140. On bellcrank 90 is a pin 95 to which is pivoted one end of a drive link 96a pivoted to link 140 as at 141. In the TV position of FIG. 10 and in the fully reclined position of FIG. 11, link 113a contacts stop 115. In the closed position of FIG. 9, link 85 contacts stop 125. This also occurs in the TV position of FIG. 10.

Pivoted to link 113a, as at 142, is a link 143 which is inter-pivoted to link 140, as at 145. Link 140, at its outer end, is inter-pivoted, as at 147, to a link 148. A leg rest member 150 is pivoted to the outer ends of links 143, 148, as at 143a, 148a, respectively.

In the closed position of FIG. 9, the leg rest member 150 is in vertical position but does not move below the linkage. The operation of linkage 11a is same as for linkage 11 except for the leg rest operating differently than the ottoman links.

In FIGS. 13, 14, 15 and 16, there is shown rest recliner hardware linkage 11b and support means 12 thereof embodying a further modified form of the invention. The support means 12, including the cross braces 30, are the same as explained above and are similarly attached to the side arms of the chair frame.

The linkage 11b is the same as linkage 11 except as described hereinafter. Linkage 11b comprises a seat-mounting link 70b attached to the seat of the chair. Since this hardware is for a rest, no chair-back-mounting link is necessary. This linkage 11b comprises a bellcrank 90 pivoted to seat-mounting link 70, as at 89, same as in linkage 11. It comprises also the same sequence link 101, link 96 pivoted to bellcrank 90, and link 113 pivoted to the link 70b, as at 114, the stop 115, link 97 pivoted to link 70b, as at 98; links 111, 118, ottoman guard 120a, ottoman mounting bracket 120, link 122 are all interconnected and function as in linkage 11.

Linkage 11b is shown in closed position in FIG. 13, in TV position in FIG. 14, in fully reclined position in FIG. 15.

Linkage 11b comprises a seat-mounting member 53b having a horizontal flange 54b and a vertical wall 55b. Flange 54b has a notch 159 and wall 55b has a downward projection or lug 160 projecting down through said notch. Wall 55b has a forwardly extending finger extension 162 carrying a stop 164 and also carrying a headed pin 166 slidably received in slot 104 of sequence link 101.

Pivoted to wall 55b, as at 167, is a lifter link 168. The forward end of link 168 is pivoted, as at 169, to bellcrank 90.

Arm-mounting member 53b has, at its rear end, an offset stop tab 170. Pivoted to the lower end of extension 160, as at 171, is an L-shaped rear carrier link 172. Link 172 has an arm 173 extending up from the pivot 171 and from which an arm 174 extends rearwardly. The rear end of arm 174 is pivoted, as at 175, to the rear end of the seat-mounting link 70b.

In the closed position of FIG. 13, arm 173 of rear carrier link 172 extends forwardly from pivot 171, and arm 174 extends upwardly from arm 173.

In going from fully closed position to the TV position of FIG. 14, link 172 rotates in a clockwise direction, looking at FIG. 14. In TV position, arm 174 is still spaced above the stop tab 170 of the arm-mounting member 53b.

A double pivot is employed in movement of the linkage 11b from TV to fully reclined position that improves the balance between those two positions. When you move from closed to TV position, the movement is stopped by contact of the leg rest link 113 with stop 115 on the seat-mounting link 70b.

When you start the motion from TV to fully reclined position, you are pivoting about the pivot 171 of the arm-mounting member 53b to the rear carrier link 172, which pivot is substantially forward of pivot 175 which pivots rear carrier link 172 to the rear end of seat-mounting link 70b.

When you reach about halfway between TV and fully reclined positions, the pivot point is switched to the pivot 175 of the seat-mounting link 70b to the rear carrier link 172. In the beginning of the movement from TV to fully reclined positions, the pivot 171 is closer to the center of gravity of the occupied chair.

As you go closer to fully reclined position, the center of gravity of the occupied chair moves to the rear, and the chair tends to fall rearwardly. Therefore, it is better to move the pivot point backwards as you approach fully reclined position, to help maintain the balance over as long a part of the movement as you can. About halfway between TV and fully reclined positions, link 172 rotates to move arm 174 into engagement with the stop tab 170 of the arm-mounting member 53b and, from then on, the pivot of the seat-mounting link is about pivot 175.

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.

I claim:

1. Recliner chair linkage comprising an arm-mounting member, a seat-mounting link, rear carrier link means connecting said arm-mounting member with said seat-mounting link, a link member pivoted to said seat-mounting link, lifter link means connecting said arm-mounting member to said link member, a sequence link having one arm formed with a slot and a second arm, pin means at the front of said arm-mounting member slidably received in said slot, a drive link pivoted to said link member, leg rest means, and link means connecting said leg rest means to said seat-mounting link and to said drive link, said linkage being movable from a closed position with said leg rest means retracted to a TV open position, and from TV position to fully reclined open position, said sequence link, in the closed position of said linkage having its slotted arm extending upwardly with the pin means located at the lower end of the slot, and said second arm of said sequence link projecting downwardly and being pivoted at its lower end to said link member.

2. The combination of claim 1, said link member comprising a bellcrank having a first arm and a second arm disposed at an acute angle to first arm, said pivot between said link member and said seat-mounting link being located at the outer end of said first arm, the pivot between the sequence link and said link member being located at the outer end of said second arm of said bellcrank and the pivot of the drive link with said link member being located at the juncture of said first and second arms of said bellcrank.

3. The combination of claim 2, said first arm of said bellcrank being longer than said second arm of said bellcrank.

4. The combination of claim 2, said first arm of said bellcrank being inclined rearwardly and downwardly in the closed position of said linkage, and said second arm of said bellcrank being inclined downwardly and forwardly in said closed position of said linkage.

5. The combination of claim 1, said link means comprising a

rear leg rest link pivoted to the front end of said seat-mounting link, the connection of said drive link to said link means comprising a pivotal connection between said drive link and said rear leg rest link, a rear leg rest control link pivoted to said seat-mounting link rearwardly of the pivotal connection of said rear leg rest link to said seat-mounting link, an upper leg rest link pivoted to said rear leg rest link, a lower leg rest link pivoted to said rear leg rest link and to said rear leg rest control link, and leg rest linkage connecting said upper leg rest link with said lower leg rest link.

6. The combination of claim 5, said leg rest linkage comprising a leg rest mounting bracket and a leg rest guard pivoted on a common pivot to said upper leg rest link, means to pivot said leg rest guard to said lower leg rest link and a front control link connecting said lower leg rest link with said leg rest mounting bracket.

7. The combination of claim 1, said rear carrier link means comprising a rear carrier link pivoted at one end to said arm-mounting member and at its other end to the rear of said seat-mounting link.

8. The combination of claim 7, said arm-mounting member having a rear stop means, said rear carrier link being spaced from said rear stop means in the TV position of said chair linkage, and moving into engagement with said rear stop means during the movement of said chair linkage from TV to fully reclined position.

9. The combination of claim 5, and a stop pin on said seat-mounting link disposed between the pivotal connections of said rear leg rest control link and said rear leg rest link to said seat-mounting link, and being adapted to be contacted by said rear leg rest control link in the TV and fully reclined positions of said chair linkage.

10. The combination of claim 2, said lifter link means comprising a lifter link pivoted at one end to said arm-mounting member and at its other end to an intermediate portion of said first arm of said bellcrank.

11. The combination of claim 10, and stop means on said arm-mounting member to contact said lifter link in the closed and TV positions of said chair linkage.

12. The combination of claim 1, a chair back mounting bracket pivoted to said seat-mounting link, said rear carrier link means comprising an anchor link pivoted to said arm-mounting member, a secondary lifter link pivoted at one end to said anchor link and, medially the ends thereof to said lifter link, a rear carrier link, said secondary lifter link being pivoted at its other end to said rear carrier link, and said rear carrier link being pivoted to the pivotal connection of the seat-mounting link to said chair back mounting link.

13. The combination of claim 12, and stop means on said arm-mounting means to contact said lifter link in the closed and TV positions of said chair linkage.

14. The combination of claim 9, and stop means on said arm-mounting means to contact said lifter link in the closed and TV positions of said chair linkage.

15. The combination of claim 14, said rear carrier link means comprising a rear carrier link pivoted at one end to said arm-mounting member and at its other end to the rear of said seat-mounting link.

16. The combination of claim 15, said arm-mounting member having a rear stop means, said rear carrier link being spaced from said rear stop means in the TV position of said chair linkage, and moving into engagement with said rear stop means during the movement of said chair linkage from TV to fully reclined position.