The present invention relates generally to reclining chairs, and in particular to a reclining chair of the multiple position lounger type.

This is an improvement of the invention of my earlier filed application Serial No. 820,431, filed June 15, 1959, now U.S. Patent No. 3,086,814 of April 23, 1963.

The recently developed multiple position reclining chair includes a support, body-supporting means including a seat and back-rest adapted to be mounted on the support for inclining and reclining movements respectively, and a mounting linkage which mounts the seat and back-rest for movement from an upright sitting position to an intermediate, tilted sitting position during a first movement phase, with substantially no change in the angular relationship between the seat and the back-rest, and for further movement from the intermediate, tilted sitting position to a fully reclined position during a second movement phase, with an increase in the angular relationship between the seat and back-rest. The chair additionally includes a leg-rest which is mounted for movement from a stored position beneath the forward end of the seat to an elevated position forwardly of the seat during the first movement phase, with the leg-rest remaining in the elevated leg-supporting position throughout the second movement phase. As is generally understood, the intermediate, tilted sitting position is appropriate for television viewing, sewing, reading, and the like, while the fully reclined position is appropriate for complete relaxation.

An important consideration in the design of this type of reclining chair, apart from attaining the requisite chair positions, is the ability to precisely control the path of movement for the body-supporting means during the first and second movement phases to achieve the desired chair balance in such movement phases. The conditions for obtaining proper chair balance are rather complex when it is appreciated that this type of chair essentially has two independent balance problems related respectively to the first and second movement phases. During the first movement phase, it is necessary to balance the seat and back-rest (which are moving rearwardly into the intermediate, tilted sitting position with substantially no angular change relative to each other) with the leg-rest which is moving upwardly and forwardly from the stored position to the elevated leg-supporting position; and during the second movement phase, it is necessary to balance the seat and back-rest (which are moving relative to each other to increase the angular relationship therebetween) with the leg-rest which is disposed in an elevated leg-supporting position forwardly of the seat and moves substantially with the seat. The problem is somewhat further complicated in that the effective center of gravity of the chair occupant shifts incident to the movement of the chair through the first and second movement phases.

Broadly, it is an object of the present invention to provide a reclining chair of the multiple position lounger type which realizes one or more of the aforesaid objectives. Specifically, it is within the contemplation of the present invention to provide a mounting and coordinating linkage for a reclining chair of the multiple position type which establishes precise paths of movement for the body-supporting means in the respective first and second movement phases, which paths of movement are independent of each other and may be selected easily and precisely to establish the requisite chair positions and to achieve proper chair balance in the respective movement phases.

In accordance with the present invention, the mounting means for the seat and back-rest include a first constrained linkage operative during the first movement phase of the chair and an independent and coordinated second constrained linkage operative during the second movement phase thereof. The first constrained linkage includes as movable links thereof an intermediate coordinating link, a front guiding link and a rear guiding link. The front and rear guiding links are pivotally connected to the intermediate coordinating link at respective front and rear pivotal connections, and are pivotally mounted on the support at respective front and rear pivotal mounts. The second constrained linkage includes means pivotally connecting the rear-rest of the body-supporting means to the seat at a seat pivot and means pivotally mounting the back-rest on the intermediate coordinating link at a back-rest pivot such that the seat and the back-rest serve as two movable links of the second constrained linkage. Interconnecting links are provided between the back-rest, the seat, and the coordinating link for completing a six-bar control linkage which is operable during the second movement phase to move the seat upwardly and to incline the seat as a function of the reclining movement of the back-rest. Provision is made for blocking the movement of the movable links of the first constrained linkage at the end of the first movement phase such that the intermediate coordinating link serves as a stationary link of the six-bar control linkage and effectively provides a stationary pivotal mount for the back-rest. Advantageously, the six-bar control linkage enables a high order of control over the inclination of the seat as a function of the reclining movement of the back-rest and over the chair balance during the second movement phase, which control is essentially independent of the control of the body-supporting means by the first constrained linkage during the first movement phase.

The above brief description, as well as further objects, features and advantages of the present invention will be more fully appreciated by reference to the following detailed description of presently preferred, but nonetheless illustrative embodiments in accordance with the present invention, when taken in conjunction with the accompanying drawings, wherein:

FIG. 1 is a side elevational view, with parts broken away, showing a reclining chair of the multiple position lounger type embodying features of the present invention, shown in the upright sitting position;

FIG. 2 is a side elevational view similar to FIG. 1 but showing the chair in the intermediate, tilted sitting position;

FIG. 3 is a side elevational view similar to FIG. 1 but showing the chair in the fully reclined position at the end of the second movement phase;

FIG. 4 is a fragmentary side elevational view of the mounting and coordinating linkage, shown modified to incorporate a positive sequencing means, with the linkage being shown in the position corresponding to the normal sitting position of the chair;

FIG. 5 is a view similar to FIG. 4, but showing the linkage in the position corresponding to the intermediate, tilted sitting position of the chair;

FIG. 6 is a view similar to FIG. 4, but showing the linkage in a position corresponding to the fully reclined position of the chair.

Referring now specifically to the drawings, there is shown in FIGS. 1 to 3 inclusive a reclining chair of the multiple position lounger type, generally indicated by the
reference numeral 10, which includes a support 12 including opposite side walls 14, 16 interconnected by a plurality of cross members 18 and supported on depending legs 20. Mounted on the support 12 is a body-supporting means including a seat 22 and a back-rest 24 which are adapted to be inclined and reclined respectively. As it will be described, the seat 22 and the back-rest 24 of the body-supporting means 22, 24 are movable from the upright sitting position shown in FIG. 1 to an intermediate, tilted sitting position shown in FIG. 2 during a first movement phase, with substantially no change in the angular relationship between the seat 22 and the back-rest 24, and under further movement from the intermediate, tilted sitting position shown in FIG. 2 to a fully reclined position shown in FIG. 3 during a second movement phase, with an increase in the angular relationship between the seat 22 and the back-rest 24.

Disposed beneath the forward end of the seat 22 is a leg-rest 26 which is normally disposed in a stored position when the body-supporting means 22, 24 is in the normal sitting position. The leg-rest 26 is mounted for movement to an elevated leg-supporting position during the first movement phase, as may be appreciated by progressively inspecting FIGS. 1 and 2 by a leg-rest mounting linkage 28 which is operable in response to the rearward movement of the seat 22 relative to the support 12. The leg-rest mounting linkage 28 maintains the leg-rest 26 in the elevated leg-supporting position throughout the second phase, as may be appreciated by progressively inspecting FIGS. 2 and 3.

In accordance with the present invention, the seat 22 and the back-rest 24 are mounted on the support 12 for the respective movement phases along independent, but coordinated, paths into the several chair positions by a mounting and coordinating linkage, generally designated by the reference numeral 30, which includes a first constrained linkage which is operative during the first movement phase and an independent and coordinated second constrained linkage which is operative during the second movement phase. Specifically, the mounting and coordinating linkage 30 includes a support bracket 32 which may be screwed or otherwise secured to the adjacent side wall (i.e. wall 16) of the support 12, it being appreciated that identical linkages are provided at the opposite sides of the chair for mounting the movable chair components 22, 24, and 26. Extending fore and aft of the chair is an intermediate coordinating link 34 which is movably mounted on the support bracket 32 at a front pivot 36 and pivotally connected to the intermediate coordinating link 34 at a front pivot connection 40 and a rear guiding link 42 which is pivotally mounted on the support bracket 32 at a rear pivot 36 and pivotally connected to the intermediate coordinating link 34 at a rear pivot connection 44 and pivotally connected to the intermediate coordinating link 34 at a rear pivot 36 spaced rearwardly of the front pivot 36 and pivotally connection 40. As will be appreciated hereinafter, the seat 22 remains stationary relative to the intermediate coordinating link 34 during the first movement phase. The seat 22 is guided relative to the support 12 during the first movement phase by a first constrained four-bar linkage including as the movable links thereof, the intermediate coordinating link 34 together with the seat and back-rest which are temporarily rigid, the front guiding link 36 and the rear guiding link 42, and as the stationary link thereof the portion of the support bracket 32 intermediate the front and rear pivot mounts 38, 44.

The mounting and coordinating linkage 30 further includes a seat bracket 48 which is secured to the seat 22 and is pivotally connected to the back-rest 24 at a seat pivot 50 which in turn is pivotally connected to a back-rest bracket 52 secured to the back-rest 24 and depending therefrom. The back-rest bracket 52, which for practical intents and purposes can be considered to be integral with or an extension of the back-rest 24, provides a pivotal mount for the back-rest 24 on the intermediate coordinating link 34 at a back-rest pivot 54 such that the seat 22 and the back-rest 24 serve as two movable links of a second constrained linkage which is operative during the second movement phase.

The second constrained linkage of the mounting and coordinating linkage 30 further includes interconnecting links between the back-rest and the seat 22, one of which interconnecting links is pivotally mounted on the coordinating link 34 and completes a six-bar control linkage which is operative during the second movement phase and is pivotally mounted on the intermediate coordinating link 34 at a lever pivot 58 on the intermediate coordinating link 34 and has its arm 56c coupled via a connecting link 60 to the back-rest bracket 52 and the back-rest 24. Specifically, the interconnecting link includes a bell crank connecting lever 56 which is pivotally mounted intermediate its ends at a lever pivot 58 on the intermediate coordinating link 34 and has its arm 56c coupled via a connecting link 60 to the back-rest bracket 52 and the back-rest 24. Specifically, the arm 56c has a pivotal connection 62 to the forward end of the connecting link 60, while the rearward end of the connecting link 60 has a pivotal connection 64 to the lower end of the back-rest pivot 54 at a point spaced below the back-rest pivot 54. The arm 56c of the bell crank connecting lever 56 is coupled to the back-rest pivot 54 and a pivotal connection 66 which has a pivotal connection 68 at its lower end to the adjacent end of the arm 56c and a pivotal connection 70 at its upper end to the seat bracket 48, which pivotal connection provides a control pivot on the seat 22. This arrangement will be recognized as providing a six-bar linkage which controls the inclination of the seat 22 as a function of the re inclining movement of the back-rest 24. The use of this arrangement of such six-bar control linkage enables a high order of control over the chair balance and the positions of the body-supporting means throughout the second movement phase. The six-bar control linkage includes as the stationary link thereof the intermediate coordinating link 34 intermediate the lever pivot 58 and the back-rest pivot 54 and as the movable links thereof the seat 22, the back-rest 24, the connecting link 60, the bell crank connecting lever 56 and the connecting link 66.

Provision is made for blocking the movement of the movable links of the first constrained linkage at the end of the first movement phase such that the intermediate coordinating link 34 will become temporarily rigid with the support and will serve as the stationary link of the six-bar seat control linkage and effectively provides a stationary pivot mount for the movable links of the back-rest pivot 54. In this illustrative embodiment, the support bracket 32 carries a stop pin 72 at a location rearwardly of the rear guiding link 42 and positioned to be accommodated within a cut-out 42a formed therein when in the intermediate, tilted sitting position shown in FIG. 2.

An additional stop 104 is provided on the back-rest bracket 52 which is engaged within a notch 34a on the intermediate coordinating link 34 throughout the first movement phase, as may be appreciated by progressively inspecting FIGS. 1 and 2. Reference will now be made to the details of the leg-rest mounting and actuating linkage 28 which is seen to include a first pair of links 74, 76 having an intermediate pivotal connection 78, and a second pair of links 80, 82 having an intermediate pivotal connection 84. The link 82 and the link 84 are pivotally connected to the seat 22 and 42b pivotal connection 86 thereto. The links 74, 76, 80 of the respective link pairs are pivotally mounted on the forward end of the seat bracket 48 at respective pivotal connections 88, 90 and the links 76, 82 are pivotally connected at 92, 94 to the leg-rest bracket 96 secured to the leg-rest 26. This described arrangement of links will be recognized as a double four-bar lazy tongs type of linkage.

Actuation of the leg-rest linkage is achieved by the provision of a control link 98 which is pivotally mounted on the support bracket 32 at a mounting pivot 100 and is pivotally connected to the leg-rest links 80, 82.
axially of pivotal connection 84. The action of this control link and the leg-rest link to which it is connected is more fully described in my copending application Serial No. 36,674, filed June 13, 1960. The control link 98 depends upon the mounting pivot 100 when the leg-rest 26 is in the stored position (see FIG. 1) and opposes upward movement of the seat 22 during the first movement phase and operation of the second constrained linkage. The leg-rest linkage further includes a stop 102 on the link 74 which engages the link 82 in the stored position of the leg-rest 26 (see FIG. 1) to establish the limit of retraction of the linkage 28 and the corresponding stored position for the leg-rest 26. A stop 103 is mounted on the support bracket 32 in position to abut the arm 56 of the double-arm lever 56 to establish the fully reclined position for the chair; as shown in FIG. 3.

In order to facilitate a more thorough understanding of the present invention, a typical sequence of operations will now be described in detail:

When the chair occupant is seated in the chair in the upright sitting position of FIG. 1, and pushes rearwardly against the back-rest 24, the control link 98 for the leg-rest mounting linkage 28 tends to push downwardly as the body-supporting means moves out of the normal sitting position of FIG. 1 toward the intermediate, tilted sitting position of FIG. 2. This downward force does not interfere with the rearward movement of the suspending pivot 90, which is included as the movable links thereof of the intermediate coordinating link 34, the front guiding link 36, and the rear guiding link 42, and as the stationary link thereof the portion of the support bracket 32 intermediate the front and rear pivot mountings 36, 44. During such first movement phase, there is no relative movement between the seat 22 and the intermediate coordinating link 34 and substantially no relative movement between the seat 22 and the back-rest 24, the latter movement rearwardly in a substantially unitary relationship with the seat 22. The end of the first movement phase is established when the notch 42c of the rear guiding link 42 engages the stop 72 on the support bracket 32, with the body-supporting means 22, 24 in the intermediate, tilted sitting position and the leg-rest 26 in the elevated leg-supporting position forwardly of the seat 22. Once the rear guiding link 42 is blocked against movement relative to the support bracket 32, the front guiding link 36, the rear guiding link 42 and the intermediate coordinating link 34 effectively become part of the support, such that the intermediate coordinating link 34 serves as the stationary link for the second constrained linkage which is operative during the second movement phase.

Upon further pressure against the back-rest 24, the second movement phase is initiated, with the seat 22 being inclined as a function of the reclining movement of the back-rest 24 under control of the six-bar control linkage which includes as the stationary link thereof the portion of the intermediate coordinating link 34 intermediate the lever pivot 58 and the back-rest pivot 54, and as the movable links thereof, the seat 22, the back-rest 24, the connecting link 60, the connecting lever 56, and the connecting link 56. The end of the second movement phase is established by physically blocking any one of the second movement links, including the connecting link 60 against further reclining movement.

It should be noted that the leg-rest control link 98 in the intermediate, tilted sitting position of FIG. 2 is in a more or less horizontal position so that it no longer opposes upward movement of the seat and therefore no longer tends to hold the second constrained linkage inoperative. On the contrary, this link 98 now swings upwardly with the seat to hold the leg-rest in the elevated leg-supporting position during the second movement phase as shown in FIGS. 2 and 3.

Although the built-in sequencing of the linkage incorporated in the instant chair has been found to be satisfactory, it may be desirable to provide a positive sequencing means as a safety device to insure the proper order of operation of the first and second constrained linkages, and in particular, to prevent the chair from reclining without the occupant therein. Accordingly, there is shown in FIGS. 4-6 inclusive, a modification of the present linkage to incorporate a positive sequencing means, generally designated by the reference numeral 105. Like reference numerals have been applied to the various linkage parts shown in FIGS. 4-6 as are applied in FIGS. 1-3 inclusive, and accordingly the description of the environment for the positive sequencing means 105 is dispensed within the interests of brevity. The positive sequencing means 105 includes a sequencing plate 106 pivoted on the seat bracket 48 at pivot 107 and coupled via an actuating link 108 to the leg-rest link 80. Specifically, the upper end of the actuating link 108 has a pivotal connection 110 to the leg-rest link 80 at a point spaced below the suspending pivot 90, while the lower end of the actuating link 108 has a pivotal connection 112 to the seating plate 106. In response to the turning of the clockwise direction of the suspending pivot 90, the link 108 is effective to turn the sequencing plate 106. The sequencing arrangement is completed by a double-arc slot 114 formed in the sequencing plate 106, which slot receives a pin 116 secured to the adjacent forward end of the intermediate coordinating link 34. The double-arc slot 114 includes a first slot section 114a of a shape determined by the path of movement of the seat 22 during the first movement phase, and a second section 114b of a shape determined by the path of movement of the seat 22 during the second movement phase. The slots meet at a junction 114c. In the normal sitting position of the chair, the pin 116 is seated at the forward end of the slot section 114a remote from the junction 114c. In response to the movement of the intermediate coordinating link 34 rearwardly during the first movement phase, the pin 116 moves to the junction 114c of the slots 114a, 114b, such that the seat 22 is freed to move upwardly relative to the intermediate coordinating link 34 during the second movement phase. The lower end of the slot 114b contacts the pin 116 at the end of the second movement phase and serves as a positive stop (see FIG. 6) to establish the limit of movement for the chair and the fully reclined position (see FIG. 3). This type of sequencing means is more fully described in my copending patent application Serial No. 838,539, filed September 8, 1959. A latitude of modification, change and substitution is intended in the foregoing disclosure and in some instances some features of the invention will be employed without a corresponding use of other features. Accordingly it is appropriate that the appended claims be construed broadly and in a manner consistent with the spirit and scope of the invention herein.

What I claim is:

1. In a reclining chair of the multiple position lounger type including a support, body-supporting means including a seat and a back-rest adapted to be mounted on said support for inclining and reclining movements respectively, means mounting said seat and back-rest of said body-supporting means for movement from an upright sitting position to an inclined reclining position during a first movement phase with substantially no change in the angular relationship between said seat and said back-rest and for movement from said intermediate, tilted sitting position to a fully reclined position during a second movement phase with an increase in the angular
relationship between said seat and said back-rest, a leg-rest, and means mounting said leg-rest for movement from a stored position to an elevated leg-supporting position during said first movement phase, the improvement comprising the mounting means for said seat and back-rest including a first constrained linkage operative during said first movement phase and an independent and coordinated second constrained linkage operative during said second movement phase, said first constrained linkage including as movable links thereof an intermediate coordinating link, a front guiding link pivotally mounted on said support at a front pivotal mount and pivotally connected to said intermediate coordinating link at a rear pivotal connection and a rear guiding link pivotally mounted on said support at a rear pivotal mount and pivotally connected to said intermediate coordinating link at a rear pivotal connection, said second constrained linkage including means pivotally connecting said back-rest to said seat at a seat pivot and means pivotally mounting said back-rest on said intermediate coordinating link at a back-rest pivot such that said seat and said back-rest serve as two movable links of said second constrained linkage, interconnecting links between said back-rest and a control pivot on said seat and pivotally mounted on said supporting link for rotating said six-bar control linkage operable during said second movement phase to move said seat to an upright position and to incline said seat as a function of the reclining movement of said back-rest, and means for blocking the movement of said movable links of said first constrained linkage at the end of said first movement phase such that said intermediate coordinating link serves as a stationary link of said six-bar control linkage and effectively provides a stationary pivot mount for said back-rest at said back-rest pivot during said second movement phase.

2. A reclining chair according to claim 1 wherein the mounting means for said leg-rest includes an extensible linkage pivotally mounted on said seat and pivotally supporting said leg-rest and a control link pivotally mounted on said support at a mounting pivot and pivotally connected to said extensible linkage, said control link depending from said mounting pivot when said leg-rest is in said stored position and opposing movement of said second constrained linkage and a corresponding upward movement of said seat during said first movement phase.

3. A reclining chair according to claim 1 wherein said interconnecting links include a bell crank lever pivotally mounted on said intermediate coordinating link at a lever pivot spaced from said back-rest pivot, a first connecting link pivotally connected to said back-rest and to one arm of said bell crank lever, and a second connecting link pivotally connected to the other arm of said bell crank lever and to said seat at said control pivot.

4. In a reclining chair of the multiple position lounger type including a support, body-supporting means including a seat and a back-rest adapted to be mounted on said support for inclining and reclining movements respectively, means mounting said seat and back-rest of said body-supporting means for movement from an upright sitting position to an intermediate, tilted sitting position during a first movement phase with substantially no change in the angular relationship between said seat and said back-rest, a leg-rest, and means mounting said leg-rest for movement from a stored position to an elevated leg-supporting position during said first movement phase, the improvement comprising the mounting means for said seat and back-rest including a first constrained linkage operative during said first movement phase and an independent and coordinated second constrained linkage operative during said second movement phase, said first constrained linkage including as a movable link thereof an intermediate coordinating link and further links pivotally mounting said intermediate coordinating link on said support, said second constrained linkage including means pivotally connecting said back-rest to said seat pivot and means pivotally mounting said back-rest on said intermediate coordinating link at a back-rest pivot such that said seat and said back-rest serve as two movable links of said second constrained linkage, interconnecting links between said back-rest and a control pivot on said seat and pivotally mounted on said intermediate coordinating link for connecting said six-bar control linkage operable during said second movement phase to incline said seat as a function of the reclining movement of said back-rest, and means for blocking the movement of said movable links of said first constrained linkage at the end of said first movement phase such that said intermediate coordinating link serves as a stationary link of said six-bar control linkage and effectively provides a stationary pivot mount for said back-rest at said back-rest pivot during said second movement phase.

5. A reclining chair according to claim 4 wherein said intermediate coordinating link includes a bell crank lever pivotally mounted on said intermediate coordinating link at a lever pivot spaced from said back-rest pivot, a first connecting link pivotally connected to said back-rest and to one arm of said bell crank lever, a leg-rest, and means mounting said leg-rest for movement from a stored position to an elevated leg-supporting position during said first movement phase, the improvement comprising the mounting means for said seat and back-rest including a first constrained linkage operative during said first movement phase and an independent and coordinated second constrained linkage operative during said second movement phase, said first constrained linkage including as movable links thereof an intermediate coordinating link, a front guiding link pivotally mounted on said support at a front pivotal mount and pivotally connecting said intermediate coordinating link at a front pivotal connection and a rear guiding link pivotally mounted on said support at a rear pivotal mount and pivotally connected to said intermediate coordinating link at a rear pivotal connection, said second constrained linkage including means pivotally connecting said back-rest to said seat at a seat pivot and means pivotally mounting said back-rest on said intermediate coordinating link at a back-rest pivot such that said seat and said back-rest serve as two movable links of said second constrained linkage, interconnecting links between said back-rest and a control pivot on said seat and pivotally mounted on said intermediate coordinating link for connecting said six-bar control linkage operable during said second movement phase to incline said seat as a function of the reclining movement of said back-rest, and means for blocking the movement of said movable links of said first constrained linkage at the end of said first movement phase such that said intermediate coordinating link serves as a stationary link of said six-bar control linkage and effectively provides a stationary pivot mount for said back-rest at said back-rest pivot during said second movement phase.

6. A reclining chair according to claim 4 wherein said intermediate coordinating link includes a bell crank lever pivotally mounted on said intermediate coordinating link at a lever pivot spaced from said back-rest pivot, a first connecting link pivotally connected to said back-rest and to one arm of said bell crank lever, and a second connecting link pivotally connected to the other arm of said bell crank lever and to said seat at said control pivot.

7. In a reclining chair of the multiple position lounger type including a support, body-supporting means including a seat and a back-rest adapted to be mounted on said support for inclining and reclining movements respectively, means mounting said seat and back-rest of said body-supporting means for movement from an upright sitting position to an intermediate, tilted sitting position during a first movement phase with substantially no change in the angular relationship between said seat and said back-rest and for movement from said intermediate, tilted sitting position to a fully reclined position during a second movement phase with an increase in the angular relationship between said seat and said back-rest, a leg-rest, and means mounting said leg-rest for movement from a stored position to an elevated leg-supporting position during said first movement phase, the improvement comprising the mounting means for said seat and back-rest including a first constrained linkage operative during said first movement phase and an independent and coordinated second constrained linkage operative during said second movement phase, said first constrained linkage including as movable links thereof an intermediate coordinating link, a front guiding link pivotally mounted on said support at a front pivotal mount and pivotally connecting said intermediate coordinating link at a front pivotal connection and a rear guiding link pivotally mounted on said support at a rear pivotal mount and pivotally connected to said intermediate coordinating link at a rear pivotal connection, said second constrained linkage including means pivotally connecting said back-rest to said seat at a seat pivot and means pivotally mounting said back-rest on said intermediate coordinating link at a back-rest pivot such that said seat and said back-rest serve as two movable links of said second constrained linkage, interconnecting links between said back-rest and a control pivot on said seat and pivotally mounted on said intermediate coordinating link for connecting said six-bar control linkage operable during said second movement phase to incline said seat as a function of the reclining movement of said back-rest, and means for blocking the movement of said movable links of said first constrained linkage at the end of said first movement phase such that said intermediate coordinating link serves as a stationary link of said six-bar control linkage and effectively provides a stationary pivot mount for said back-rest at said back-rest pivot during said second movement phase.
between said back-rest and a control pivot on said seat and pivotally mounted on said coordinating link for completing a six-bar control linkage operable during said second movement phase to incline said seat as a function of the reclining movement of said back-rest, means for blocking the movement of said movable links of said first constrained linkage at the end of said first movement phase such that said intermediate coordinating link serves as a stationary link of said six-bar control linkage and effectively provides a stationary pivotal mount for said back-rest at said back-rest pivot, and sequencing means operative to block said second constrained linkage against movement during said first movement phase.

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