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3,065,026

RECLINING CHAIR OF THE MULTIPLE POSITION TYPE

Filed July 20, 1960

2 Sheets-Sheet 1

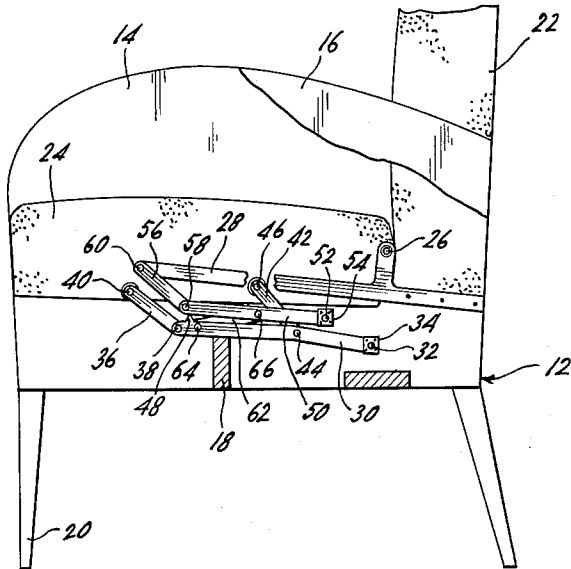


FIG. 1.

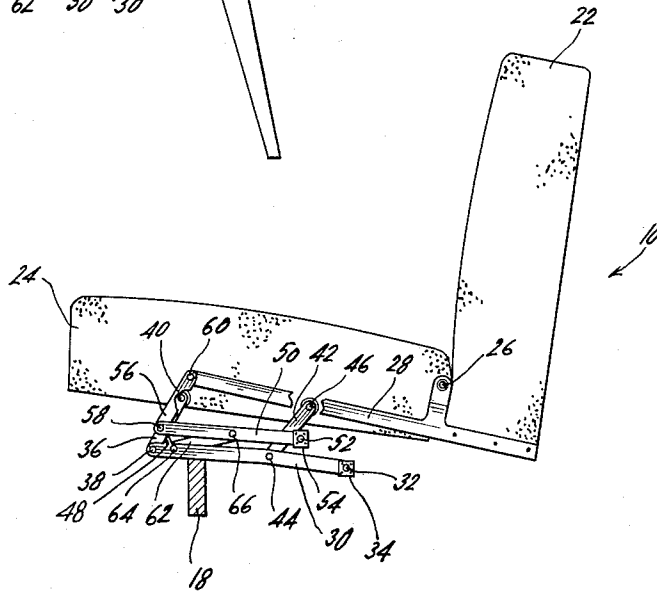


FIG. 2.

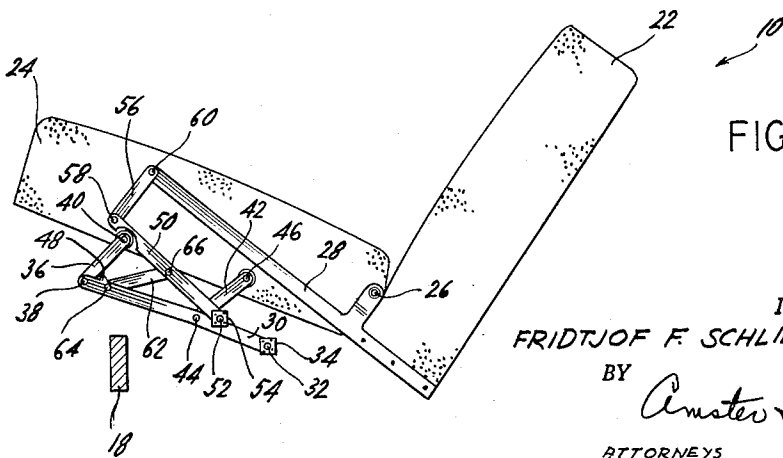


FIG. 3.

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2 Sheets-Sheet 2

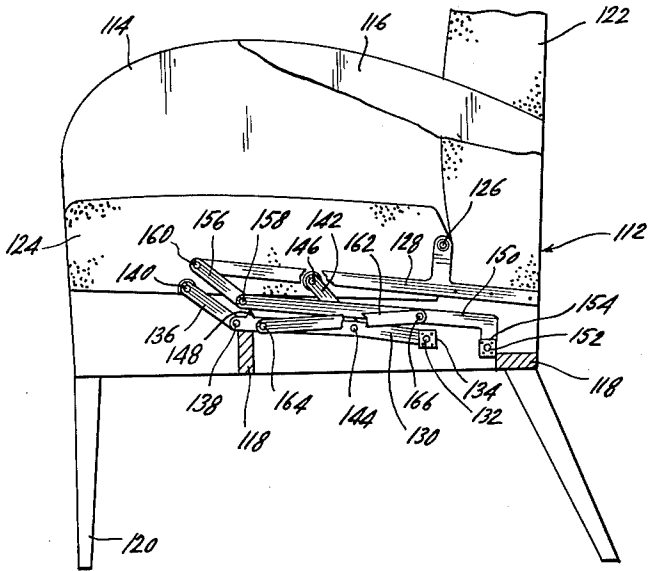


FIG. 4.

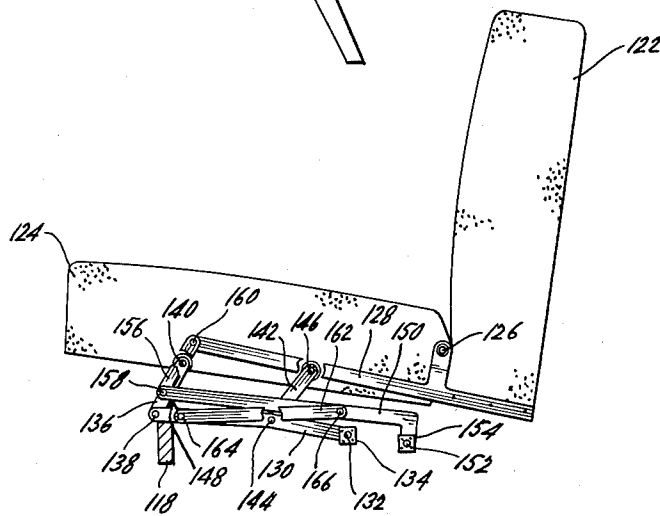


FIG. 5.

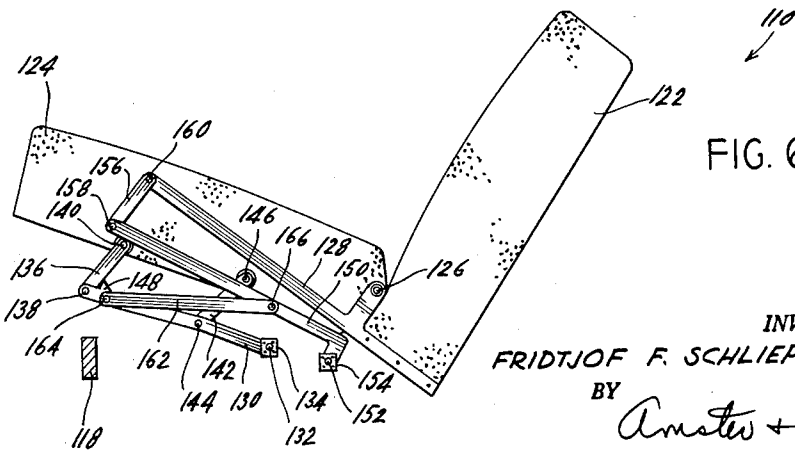


FIG. 6.

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## RECLINING CHAIR OF THE MULTIPLE POSITION TYPE

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 Filed July 20, 1960, Ser. No. 44,041  
 9 Claims. (Cl. 297-322)

The present invention relates to reclining chairs of the multiple position or movement type, and to an improved reclining chair incorporating a movable seat and movable back-rest making up a body-supporting unit which is movable to multiple chair positions and wherein the seat and back-rest are coordinated to each other to establish desired angular relationships between the seat and back-rest in such multiple chair positions.

The recently developed multiple movement or position chair of the recliner type comprises a support and body-supporting means including a seat and back-rest each of which is movably mounted for first and second movement phases. During the first movement phase the seat and back-rest move from a sitting position to an intermediate tilted sitting position during which there is substantially no change in the angular relationship between the seat and the back-rest; and during the second movement phase the seat and back-rest move from the intermediate tilted sitting position through various reclining positions to the fully reclined position, with a progressive increase in the angular relationship between the seat and back-rest. Usually such chair incorporates a leg-rest which is movable to a substantially elevated leg-supporting position during the first movement phase such as to provide an adequate leg-support for the chair occupant in the intermediate tilted sitting position and in the infinite number of reclining positions during the second movement phase.

In such multiple movement chair of the recliner type, there exists a need for relatively simple and compact mechanisms for achieving the coordinated movement of the seat and back-rest such that there should be substantially no angular displacement between the seat and back-rest during the first movement phase and an increase in the angular relationship between the seat and back-rest during the second movement phase to establish an optimum attitude for the chair occupant in the fully reclined position of the chair. Such coordinating mechanisms should be compatible with the more generalized requirements for reclining chairs of this type including ease of assembly of the chair, the facility for incorporation of the mechanisms into chairs of relatively high styling, and the ability to manufacture the coordinating mechanisms or linkages at relatively low unit cost.

Broadly, it is an object of the present invention to provide an improved recliner type of multiple movement chair having coordinating mechanisms which realize one or more of the aforesaid objectives. Specifically, it is within the contemplation of the present invention to provide a recliner type of multiple movement chair wherein the coordinating mechanisms establish respective first and second movement phases for the chair, with an initial movement of the body-supporting means to an intermediate tilted sitting position with substantially no angular change between the seat and the back-rest, and the further movement of the chair through successive reclining positions to a fully reclined position, with a progressive increase in the angular relationship between the seat and back-rest.

In accordance with an illustrative embodiment demonstrating objects and features of the present invention there is provided a recliner chair which comprises a support and body-supporting means including a seat and back-rest adapted to be mounted on the support for inclining and reclining movement respectively from a sitting posi-

tion to an intermediate tilted sitting position during a first movement phase and from the intermediate tilted sitting position to a reclining position during a second movement phase. The back-rest is pivotally mounted on the seat at a back-rest pivot, while the seat is mounted on the support by a first carrier member which is pivotally mounted on the support for turning movement about a first carrier pivot. A seat guiding means is mounted on the first carrier member and operatively connected to the seat for guiding the same to a first inclined position during the first movement phase, with the first carrier member remaining relatively stationary. Provision is made for blocking the seat guiding means against movement relative to the first carrier member at the end of the first movement phase such that the first carrier member, the seat guiding means and the seat become a unitary assembly during the second movement phase which unitary assembly turns about the first carrier pivot. A second carrier member is pivotally mounted on the support for turning movement about a second carrier pivot and is operatively connected to the back-rest such as to guide the back-rest to a first reclined position during the first movement phase, with the second carrier member remaining stationary. The first inclined position of the seat and the first inclined position of the back-rest is such that the intermediate tilted position is established, with substantially no angular change between the seat and back-rest. Coordinating means are pivotally interconnected between the first and second carrier members at respective first and second coordinating pivots. The first carrier member intermediate the first carrier pivot and the first coordinating pivot provides a driver lever, while the second carrier member intermediate the second carrier pivot and the second coordinating pivot provides a driven lever. The driver lever is longer than the driven lever such that the angular displacement of the driven lever is greater than the angular displacement of the driver lever for each increment of turning movement of the driver lever such that there is an increase in the angular relationship between the seat and back-rest during the second movement phase in response to the turning movement of the first carrier member about its carrier pivot.

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 several presently preferred, but nonetheless illustrative embodiments, according to the present invention, wherein:

FIG. 1 is a side elevational view, with parts broken away of a reclining chair demonstrating features of the present invention, shown in the upright or sitting position;

FIG. 2 is a side elevational view similar to FIG. 1 with the chair frame removed and showing the chair in its intermediate tilted sitting position;

FIG. 3 is a side elevational view similar to FIG. 2, but showing the chair in the fully reclined position;

FIG. 4 is a side elevational view of a further embodiment of reclining chair demonstrating further features of the present invention, shown in the upright or sitting position;

FIG. 5 is a side elevational view similar to FIG. 4, but with the chair frame removed and showing the chair in the intermediate tilted sitting position; and,

FIG. 6 is a side elevational view similar to FIG. 5, but showing the chair in a fully reclined position.

Referring now specifically to FIGS. 1 to 3 of the drawings, there is shown a reclining chair, generally designated by the reference numeral 10, which includes a chair frame or support 12 having opposite side walls 14, 16 interconnected by appropriate cross braces 18 and supported on depending legs 20. A body-supporting unit or means

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including a back-rest 22 and a seat 24 are mounted on the support for reclining and inclining movement respectively through a first movement phase from the upright or sitting position illustrated in FIG. 1 to the intermediate tilted sitting position illustrated in FIG. 2 and for a second movement phase from the intermediate tilted sitting position illustrated in FIG. 2 through a series of reclining positions to the fully reclined position illustrated in FIG. 3. In the interest of simplicity there is no showing of the leg-rest and its mounting arrangement which is usually found in a recliner chair of this type. However, it will be appreciated that such leg-rest will be incorporated in the usual chair which leg-rest moves to an elevated leg-supporting position as the body-supporting means moves into an intermediate tilted sitting position illustrated in FIG. 2 such that the leg-rest provides an adequate support for the legs of the chair occupant as the chair moves throughout the second movement phase into the fully-reclined position illustrated in FIG. 3.

The back-rest 22 is mounted on the seat 24 at a back-rest pivot 26 which back-rest pivot is provided intermediate the seat and an elongated back-rest bracket 28 which is secured to the lower end of the back-rest 22 and extends fore and aft of the chair. Extending from the front to the rear of the chair frame or support 12 is a first carrier member 30 which rests adjacent its front end on the underlying cross brace 18 and has a first carrier pivot 32 at its rearward end on the support 12 provided by an appropriate mounting bracket 34. During the first movement phase, the first carrier member 30 remains stationary and rests against the underlying cross brace 18, as may be appreciated by progressively inspecting FIGS. 1 and 2; during the second movement phase, the first carrier member 30 turns in the clockwise direction about the first carrier pivot 32 and through an ascending arc, as may be appreciated by progressively inspecting FIGS. 2 and 3.

Seat guiding means are operatively connected between the first carrier member 30 and the seat 24 for imparting a first inclination to the seat 24 during the first movement phase, as may be seen in FIGS. 1 and 2. The seat guiding means includes a front seat guiding link 36 which is upwardly and forwardly inclined from its lower end to its upper end. The lower end of the front seat guiding link 36 has a front pivotal mount 38 on the forward end of the first carrier member 30, while the upper end of the front seat guiding link has a front pivotal connection 40 to the seat 24. Disposed rearwardly of the front seat guiding link 36 and substantially parallel thereto is a rear seat guiding link 42 which has a rear pivotal mount 44 at its lower end on the first carrier member 30 at a point spaced rearwardly of the front pivotal mount 38 and a rear front pivotal connection 46 to the seat 24 at a point spaced rearwardly of the front pivotal connection 40. The front and rear seat guiding link 36, 42 and the relatively stationary first carrier member 30 will be recognized as providing a four-bar seat guiding linkage which is operative during the first movement phase and includes as the stationary link thereof, the carrier member 30 intermediate the front and rear pivotal mounts 38, 44, the front guiding link 36, the portion of the seat intermediate the front and rear pivotal connection 40, 46, and the rear guiding link 38. Such four-bar seat guiding linkage is effective during the first portion or phase of chair movement to guide the seat 24 rearwardly relative to the support to a first inclined position, with the first carrier member 30 remaining stationary during such first movement phase.

Provision is made for blocking movement of the seat guiding means relative to the first carrier member 30 at the end of the first movement phase such that the carrier member 30, the seat guiding means including the front and rear seat guiding links 36, 42 and the seat 24 become a unitary assembly which turns about the first carrier pivot 32 during the second movement phase. In this

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illustrative embodiment, the blocking means in the form of a blocking member or stop 48 which is fixed to the carrier member 30 rearwardly of the front seat guiding link 36 and in position to abut the same in the intermediate tilted sitting position illustrated in FIG. 2.

The coordinating or guiding linkage for the chair is completed by the provision of a second carrier member 50 which is disposed above the first carrier member 30 and extends from front to rear of the chair frame or support. At its rearward end the second carrier member 50 has a second carrier pivot 52 on the support provided by an appropriate mounting bracket 54 which second carrier pivot 52 is spaced forwardly of the first carrier pivot 32. Means are provided for connecting the second carrier member 50 to the back-rest 22 which means is arranged in relation to the seat guiding means for guiding the back-rest 22 to a first reclined position during the first movement phase, with the second carrier member remaining stationary. The connecting or coupling means includes a back-rest connecting and guiding link 56 which is upwardly and forwardly inclined and is generally parallel to the front and rear seat guide links 36, 42. The back-rest connecting and guiding link 56 has a pivotal connection 58 at its lower end to the forward end of the second carrier member 50 and has a pivotal connection 60 at its upper end to the forwardly extending elongated back-rest bracket 28.

Provision is made for coupling the second carrier member 50 to the first carrier member 30 such that during the second movement phase the first carrier member 30 serves as a driver lever while the second carrier member 50 serves as a driven lever. The coordinating or coupling means includes a coordinating link 62 which has a first coordinating pivot 64 to the first carrier member 30 at a point spaced from the carrier pivot 32 and a second coordinating pivot 66 to the second carrier member at a point spaced from the second carrier pivot 52. The first carrier member 30 intermediate the first coordinating pivot 64 and the first carrier pivot 32 provides the driver lever, while the second carrier member 50 intermediate the second coordinating pivot 66 and the second carrier pivot 52 provides the driven lever. The effective length of the driver lever is longer than the driven lever such that the angular displacement of the driven lever is greater than the corresponding angular displacement of the driver lever during their concurrent movement. Accordingly, for each increment of turning movement of the driver lever there is a corresponding greater turning movement or angular displacement of the driven lever such that there is an increase in the angular relationship between the seat 24 and the back-rest 22 during the second movement phase. The ratio of the effective lever arms provided respectively by the first and second carrier members 30, 50 is selected to establish the desired increase in the angular relationship between the seat 24 and the back-rest 22 during the second movement phase, as may be appreciated by comparing FIGS. 2 and 3. At the start of the second movement phase and in the intermediate tilted sitting position of FIG. 2 it is seen that the first and second carrier members 30, 50 are substantially parallel, while at the end of the second movement phase (as seen in FIG. 3), the second carrier member 50 has turned through a greater angular traverse about the second carrier pivot 52 than the first carrier member 30 about the first carrier pivot 32. Since the seat 24 is effectively unitary with the first carrier member 30 throughout the second movement phase, and the back-rest 22 is coupled to the second carrier member 50, there is a corresponding increase in the angular relationship between the seat and back-rest incident to the accelerated turning of the second carrier member 50 in relation to the first carrier member 30. The end of the second movement phase may be established by the provision of an appropriate stop, for example, a portion of the chair frame abutting the back-rest 22.

In order to facilitate a more thorough understanding

of the present invention a typical sequence of operations will now be described;

When the chair occupant is seated in the body-supporting unit 22, 24 and leans against the back-rest 22, the first movement phase is initiated with the seat 24 being guided relative to the stationary first carrier member 30 to the first intermediate tilted sitting position. During such first movement phase, the second carrier member 50 which is coupled to the first carrier member 30 remains stationary with the back-rest 22 being guided by the back-rest connecting and guiding link 56 turning about its pivotal connection 58 to the second carrier member 50 as a relatively stationary back-rest pivot. The guiding action of the link 56 will be such as to maintain a substantially fixed angular relationship between the seat 24 and the back-rest 22 in that the link 56 is substantially parallel to the front and rear seat guiding links 36, 42. When the front seat guiding link 36 abuts the stop 48 at the end of the first movement phase and as the chair arrives at the intermediate tilted sitting position, the unitary relationship is established between the seat 24 and the first carrier member 30 such that the assembly of the seat, the intermediate seat guiding means and the carrier member 30 turn about the first carrier pivot 32 during the second movement phase. Upon further pressure against the back-rest, there will be a concurrent clockwise turning movement of the first and second carrier members 30, 50 through ascending arc about their respective first and second carrier pivot 32, 52, with the second carrier member having a greater turning movement than the first carrier member due to the coordinating interconnection 62 therebetween. Accordingly, the back-rest is reclined at a greater rate than the seat is inclined to open up the angle between the seat and back-rest during the second movement phase and as the chair moves through the infinite number of reclining positions to the fully reclined position illustrated in FIG. 3.

Referring now specifically to FIGS. 4 to 6 of the drawings, there is shown a reclining chair, generally designated by the reference numeral 110, which includes a chair frame or support 112 having opposite side walls 114, 116 interconnected by appropriate cross braces 118 and supported on depending legs 120. A body-supporting unit or means including a back-rest 122 and a seat 124 are mounted on the support for reclining and inclining movement respectively through a first movement phase from the upright or sitting position illustrated in FIG. 4 to the intermediate tilted sitting position illustrated in FIG. 5 and for a second movement phase from the intermediate tilted sitting position illustrated in FIG. 5 through a series of reclining positions to the fully reclined position illustrated in FIG. 6. Again in the interest of simplicity there is no showing of the leg-rest and its mounting arrangement which is usually found in a recliner chair of this type.

The back-rest 122 is mounted on the seat 124 at a back-rest pivot 126 which back-rest pivot is provided intermediate the seat and an elongated back-rest bracket 128 which is secured to the lower end of the back-rest 122 and extends fore and aft of the chair. Extending from the front to the rear of the chair frame or support 112 is a first carrier member 130 which rests adjacent its front end on its adjacent and underlying cross brace 118 and has a first carrier pivot 132 at its rearward end on the support provided by an appropriate mounting bracket 134. During the first movement phase, the first carrier member 130 remains stationary and rests against the underlying cross brace 118, as may be appreciated by progressively inspecting FIGS. 4 and 5; during the second movement phase the first carrier member 130 turns in the clockwise direction about the first carrier pivot 132 and through an ascending arc, as may be appreciated by progressively inspecting FIGS. 5 and 6.

Seat guiding means are operatively connected between the first carrier member 130 and the seat 124 for imparting a first inclination to the seat 124 during the first move-

ment phase, as may be seen in FIGS. 4 and 5. The seat guiding means includes a front seat guiding link 136 which is upwardly and forwardly inclined from its lower end to its upper end. The lower end of the front seat guiding link 136 has a front pivotal mount 138 on the forward end of the first carrier member 130 while the upper end of the front seat guiding link 136 has a front pivotal connection 140 to the seat 124. Disposed rearwardly of the front seat guiding link 136 and substantially parallel thereto is a rear seat guiding link 142 which has a rear pivotal mount 144 at its lower end on the first carrier member 130 at a point spaced rearwardly of the front pivotal mount 138 and the front pivotal connection 146 to the seat 124 at a point spaced rearwardly of the front pivotal connection 140. The front and rear seat guiding link 136, 142 and the relatively stationary first carrier member 130 will be recognized as providing a four-bar seat guiding linkage which is operative during the first movement phase to guide the seat 124 rearwardly relative to the support to a first inclined position, with the first carrier member 130 remaining stationary during such first movement phase.

Provision is made for blocking movement of the seat guiding means relative to the first carrier member 130 at the end of the first movement phase such that the carrier member 130, the seat guiding means, and the seat 124 become a unitary assembly which turns about the first carrier pivot 132 during the second movement phase. The blocking means in the form of a stop 148 which is fixed to the carrier member 130 rearwardly of the front seat guiding link 136 and in position to abut the same in the intermediate tilted sitting position illustrated in FIG. 5.

The coordinating or guiding linkage for the chair is completed by the provision of a second carrier member 150 which is disposed above the first carrier member 130 and extends from front of the chair frame or support to a location rearwardly of the first carrier pivot 132. At its rearward end the second carrier member 150 has a second carrier pivot 152 on the support provided by an appropriate mounting bracket 154 which second carrier pivot 152 is spaced rearwardly of the first carrier pivot 132. Means are provided for connecting the second carrier member 150 to the back-rest 122 which means is arranged in relation to the seat guiding means for guiding the back-rest 122 to a first reclined position during the first movement phase, with the second carrier member 150 remaining stationary. The connecting or coupling means includes a back-rest connecting and guiding link 156 which is upwardly and forwardly inclined and is generally parallel to the front and rear seat guide links 136, 142. The back-rest connecting and guiding link 156 has a pivotal connection 158 at its lower end to the forward end of the second carrier member 150 and has a pivotal connection 160 at its upper end to the forwardly extending elongated back-rest bracket 128.

Provision is made for coupling the second carrier member 150 to the first carrier member 130 such that during the second movement phase the first carrier member 130 serves as a driver lever while the second carrier member 150 serves as a driven lever. The coupling means includes a coordinating link 162 which has a first coordinating pivot 164 to the first carrier member 130 at a point spaced from the carrier pivot 132 and a second coordinating pivot 166 to the second carrier pivot 152. The first carrier member 130 intermediate the first coordinating pivot 164 and the first carrier pivot 132 provides the driver lever, while the second carrier member 150 intermediate the second coordinating pivot 166 and the second carrier pivot 162 provides the driven lever. The effective length of the driver lever is longer than the driven lever such that the angular displacement of the driven lever is greater than the corresponding angular displacement of the driver lever during their concurrent movement. Ac-

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 cordingly, for each increment of turning movement of the driver lever there is a corresponding greater turning movement or angular displacement of the driven lever such that there is an increase in the angular relationship between the seat 124 and the back-rest 122 during the second movement phase. The ratio of the effective lever arms provided respectively by the first and second carrier members 130, 150 is selected to establish the desired increase in the angular relationship between the seat 124 and the back-rest 122 during the second movement phase, as may be appreciated by comparing FIGS. 5 and 6. At the start of the second movement phase and in the intermediate tilted sitting position of FIG. 5 it is seen that the first and second carrier members 130, 150 are substantially parallel, while at the end of the second movement phase (as seen in FIG. 6), the second carrier member 150 has turned through a greater angular traverse about the second carrier pivot 152 as compared to the first carrier member 130 which turns about the first carrier pivot 132. Since the seat 124 is effectively unitary with the first carrier member 130 throughout the second movement phase and the back-rest 122 is coupled to the second carrier member 150 there is a corresponding increase in the angular relationship between the seat and back-rest incident to the accelerated turning of the second carrier member 150 in relation to the first carrier member 130, although the second carrier member 150 is longer than the first carrier member 130.

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. A reclining chair comprising a support, body-supporting means including a seat and back-rest adapted to be mounted on said support for inclining and reclining movement respectively from a sitting position to an intermediate tilted sitting position during a first movement phase and from said intermediate tilted sitting position to a reclining position during a second movement phase, means pivotally connecting said back-rest to said seat at a pivot, a first carrier member, means pivotally mounting said first carrier member on said support for turning movement about a first carrier pivot, seat guiding means movably mounted on said carrier member and pivotally connected to said seat for guiding said seat to a first inclined position during said first movement phase with said first carrier member remaining stationary, a second carrier member, means pivotally mounting said second carrier member on said support for turning movement about a second carrier pivot, link means connecting said second carrier member to said back-rest and arranged in relation to said seat guiding means for guiding said back-rest to a first reclined position during said first movement phase with said second carrier member remaining stationary, and coordinating means interconnecting said first and second carrier members such that said carrier members turn about said first and second carrier pivots simultaneously during said second movement phase.

2. A reclining chair according to claim 1 wherein said seat guiding means includes respective front and rear seat guiding links pivotally mounted on said first carrier member and pivotally connected to said seat.

3. A reclining chair comprising a support, body-supporting means including a seat and back-rest adapted to be mounted on said support for inclining and reclining movement respectively from a sitting position to an intermediate tilted sitting position during a first movement phase and from said intermediate tilted sitting position to a reclining position during a second movement phase, means pivotally connecting said back-rest to said

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 seat at a pivot, a first carrier member, means pivotally mounting said first carrier member on said support for turning movement about a first carrier pivot, seat guiding means movably mounted on said first carrier member and pivotally connected to said seat for guiding said seat to a first inclined position during said first movement phase with said first carrier member remaining stationary, means for blocking said seat guiding means against movement relative to said first carrier member at the end of said first movement phase, a second carrier member, means pivotally mounting said second carrier member on said support for turning movement about a second carrier pivot, link means connecting said second carrier member to said back-rest and arranged in relation to said seat guiding means for guiding said back-rest to a first inclined position during said first movement phase with said second carrier member remaining stationary, said first inclined position of said seat and said first reclined position of said back-rest being such that said intermediate tilted sitting position is established with substantially no angular change between said seat and back-rest, and coordinating means interconnecting said first and second carrier members such that said carrier members turn about said first and second carrier pivots simultaneously during said second movement phase, said coordinating means being arranged to cause a greater turning movement to be imparted to said second carrier member for each increment of turning movement of said first carrier member such that said back-rest is reclined at a faster rate than said seat is inclined to increase the angular relationship between said back-rest and seat during said second movement phase.

4. A reclining chair comprising a support, body-supporting means including a seat and back-rest adapted to be mounted on said support for inclining and reclining movement respectively from a sitting position to an intermediate tilted sitting position during a first movement phase and from said intermediate tilted sitting position to a reclining position during a second movement phase, means pivotally connecting said back-rest to said seat at a pivot, a first carrier member, means pivotally mounting said first carrier member on said support for turning movement about a first carrier pivot, seat guiding means movably mounted on said first carrier member and pivotally connected to said seat for guiding said seat to a first inclined position during said first movement phase with said first carrier member remaining stationary, a second carrier member, means pivotally mounting said second carrier member on said support for turning movement about a second carrier pivot, means connecting said second carrier member to said back-rest and arranged in relation to said seat guiding means for guiding said back-rest to a first reclined position during said first movement phase with said second carrier member remaining stationary, and coordinating means pivotally interconnecting between said first and second carrier members at first and second coordinating pivots, said first carrier member intermediate said first carrier pivot and said first coordinating pivot providing a driver lever and said second carrier member intermediate said second carrier pivot and said second coordinating pivot providing a driven lever, said driver lever being longer than said driven lever such that the angular displacement of said driver lever for each increment of turning movement of said driver lever such that there is an increase in the angular relationship between said seat and back-rest during said second movement phase.

5. A reclining chair according to claim 4 wherein said seat guiding means includes respective front and rear seat guiding links pivotally mounted on said first carrier member and pivotally connected to said seat.

6. A reclining chair comprising a support, body-supporting means including a seat and back-rest adapted to be mounted on said support for inclining and reclining movement respectively from a sitting position to an in-

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intermediate tilted sitting position during a first movement phase and from said intermediate tilted sitting position to a reclining position during a second movement phase, means pivotally connecting said back-rest to said seat at a pivot, a first carrier member, means pivotally mounting said first carrier member on said support for turning movement about a first carrier pivot, seat guiding means movably mounted on said first carrier member and pivotally connected to said seat for guiding said seat to a first inclined position during said first movement phase with said first carrier member remaining stationary, a second carrier member, means pivotally mounting said second carrier member on said support for turning movement about a second carrier pivot, means connecting said second carrier member to said back-rest and arranged in relation to said seat guiding means for guiding said back-rest to a first reclined position during said first movement phase with said second carrier member remaining stationary, said first inclined position of said seat and said first reclined position of said back-rest being such that said intermediate tilted sitting position is established with substantially no angular change between said seat and back-rest, and coordinating means pivotally interconnected between said first and second carrier members at first and second coordinating pivots, said first carrier member intermediate said first carrier pivot and said first coordinating pivot providing a driver lever and said second carrier member intermediate said second carrier pivot and said second coordinating pivot providing a driven lever, said driver lever being longer than said driven lever such that the angular displacement of said driven lever is greater than the angular displacement of said driver lever for each increment of turning movement of said driver lever such that there is an increase in the angular relationship between said seat and back-rest during said second movement phase.

7. A reclining chair comprising a support, body-supporting means including a seat and back-rest adapted to be mounted on said support for inclining and reclining movement respectively from a sitting position to an intermediate tilted sitting position during a first movement phase and from said intermediate tilted sitting position to a reclining position during a second movement phase, means pivotally connecting said back-rest to said seat at a pivot, a first carrier member, means pivotally mounting said first carrier member on said support for turning movement about a first carrier pivot, seat guiding means movably mounted on said first carrier member and pivotally connected to said seat for guiding said seat to a first inclined position during said first movement phase with said first carrier member remaining stationary, means for blocking said seat guiding means against movement relative to said first carrier member at the end of said first movement phase, a second carrier member, means pivotally mounting said second carrier member on said support for turning movement about a second carrier pivot, means connecting said second carrier member to said back-rest and arranged in relation to said seat guiding means for guiding said back-rest to a first reclined position during said first movement phase with said second carrier member remaining stationary, said first inclined position of said seat and said first reclined position of said back-rest being such that said intermediate tilted sitting position is established with substantially no angular change between said seat and back-rest, and coordinating means pivotally interconnected between said first and second carrier members at first and second coordinating pivots, said first carrier member intermediate said first carrier pivot and said first coordinating pivot providing a driver lever and said second carrier member intermediate said second carrier pivot and said second coordinating pivot providing a driven lever, said driver lever being longer than said driven lever such that the angular displacement of said driven lever is greater than the angular displacement of said driver lever for each incre-

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ment of turning movement of said driver lever such that there is an increase in the angular relationship between said seat and back-rest during said second movement phase.

8. In a reclining chair, a support, body-supporting means including a seat and a back-rest pivotally mounted thereon at a back-rest pivot, a first carrier member pivotally mounted on said support for turning movement about a first carrier pivot, seat guiding means operatively connected to said seat and to said first carrier member and including a front seat guiding link having a front pivotal mount on said carrier member and a front pivotal connection to said seat and a rear guiding link having a rear pivotal mount on said carrier member and a rear pivotal connection to said seat, said front and rear seat guiding links and the portion of said seat intermediate said front and rear pivotal connections serving as three movable links of a four-bar seat guiding linkage during the first movement phase with said carrier member serving as a stationary link thereof, back-rest guiding means operatively connected to said first carrier member and to said back-rest and including a second carrier member pivotally mounted on said support for turning movement about a second carrier pivot, a first guiding link operatively connected to said back-rest and projecting forwardly thereof, and a second back-rest guiding link pivotally connected to said first back-rest guiding link and to said second carrier member, said second carrier member, said first and second back-rest guiding links, the portion of said seat intermediate said back-rest pivot and said rear pivotal connection, and said rear seat guiding link serving as movable links of a first back-rest guiding linkage including the portion of said carrier member and said support intermediate said rear pivotal mount and said second carrier pivot as the stationary link thereof during a first movement phase, said second carrier member, said first and second back-rest guiding links and the portion of said chair intermediate said back-rest pivot and said first carrier pivot serving as movable links of a second back-rest guiding linkage including said support between said first and said second carrier pivots as a stationary link thereof during a second movement phase.

9. In a reclining chair, a support, body-supporting means including a seat and a back-rest pivotally mounted thereon at a back-rest pivot, a first carrier member pivotally mounted on said support for turning movement about a first carrier pivot, seat guiding means operatively connected to said seat and to said first carrier member and including a front seat guiding link having a front pivotal mount on said carrier member and a front pivotal connection to said seat and a rear guiding link having a rear pivotal mount on said carrier member and a rear pivotal connection to said seat, said front and rear seat guiding links and the portion of said seat intermediate said front and rear pivotal connections serving as three movable links of a four-bar seat guiding linkage during the first movement phase with said carrier member serving as a stationary link thereof, back-rest guiding means operatively connected to said first carrier member and to said back-rest and including a second carrier member pivotally mounted on said support for turning movement about a second carrier pivot, a first guiding link operatively connected to said back-rest and projecting forwardly thereof, and a second back-rest guiding link pivotally connected to said first back-rest guiding link and to said second carrier member, said second carrier member, said first and second back-rest guiding links, the portion of said seat intermediate said back-rest pivot and said rear pivotal connection, and said rear seat guiding link serving as movable links of a first back-rest guiding linkage including the portion of said carrier member and said support intermediate said rear pivotal mount and said second carrier pivot as the stationary link thereof during a first movement phase, and means for blocking said seat guiding means against movement relative to said first

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carrier member at the end of said first movement phase, said second carrier member, said first and second back-rest guiding links and the portion of said chair intermediate said back-rest pivot and said first carrier pivot serving as movable links of a second back-rest guiding linkage including said support between said first and said second carrier pivots as a stationary link thereof during a second movement phase. 5

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