Feb. 10, 1959 A. LORENZ 2,872,968

ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

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Fig. 1.

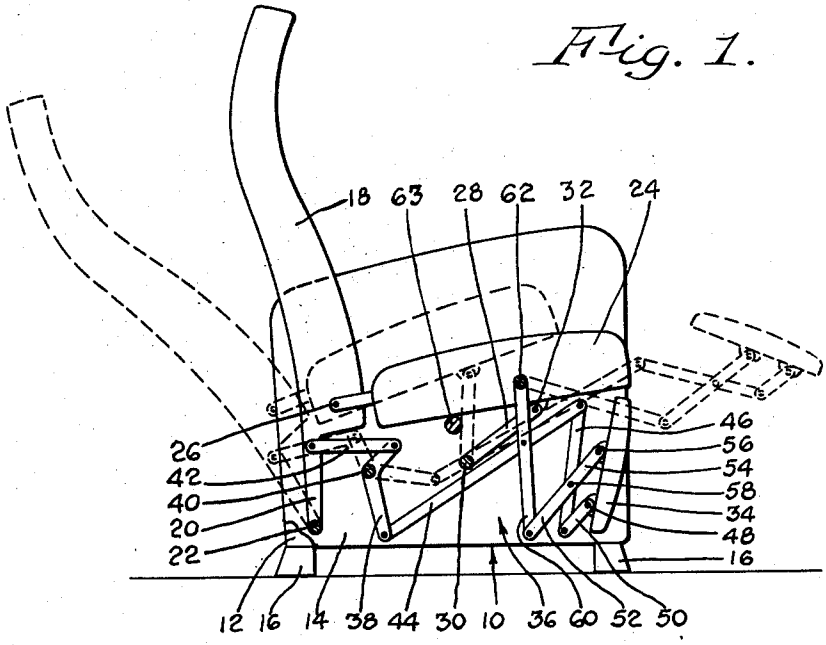
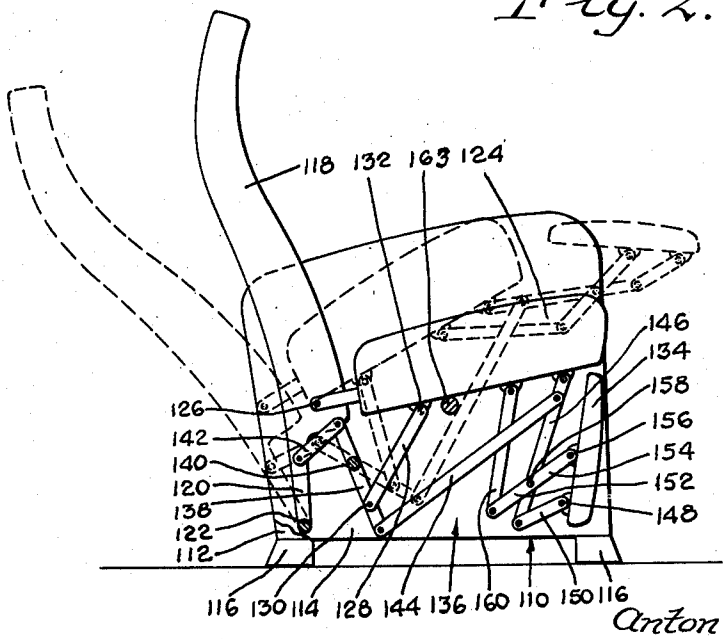


Fig. 2.



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Fig. 3.

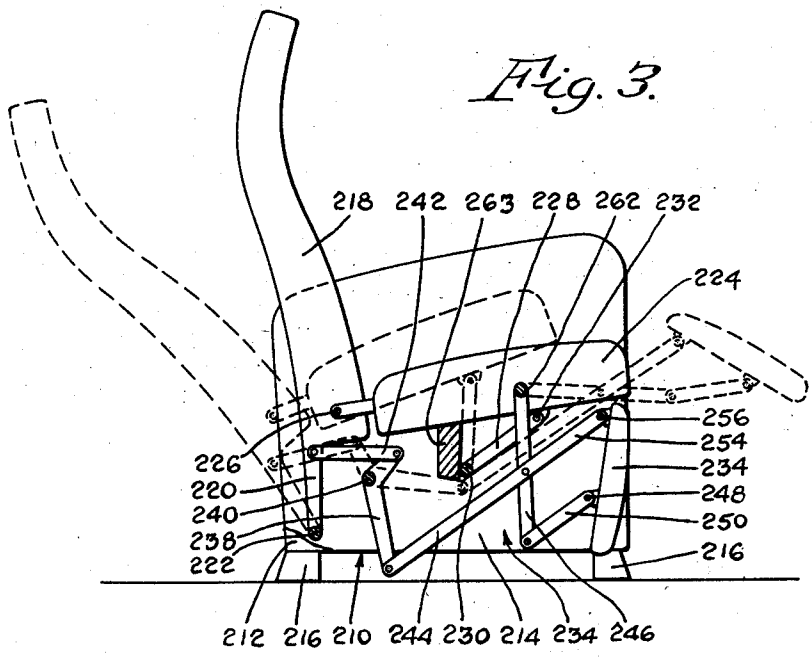
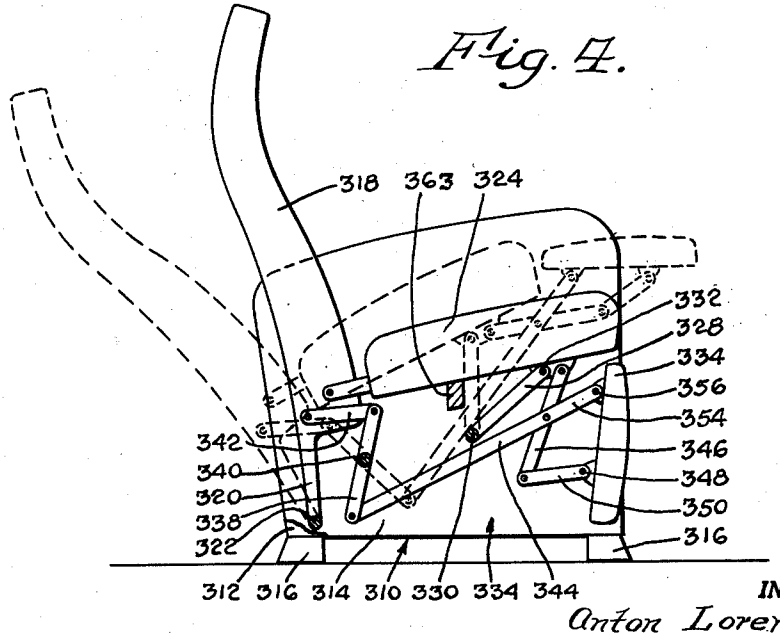


Fig. 4.



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United States Patent Office 2,872,968 Patented Feb. 10, 1959

2,872,968

ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

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Application November 26, 1954, Serial No. 471,375

10 Claims. (Cl. 155—106)

This invention relates to articles of furniture and more particularly to articles of repose for supporting the body of a person wherein a movable back-rest, seat and leg-rest may be brought from a sitting position into a reclined position and vice versa.

An object of the invention is to provide an article of repose of above described type wherein the movements of the movable members from one position into another one may be obtained with ease.

Another object of the invention is to improve on the construction of articles of repose as now customarily made.

Other objects and structural details of the invention will be apparent from the following description when read in conjunction with the accompanying drawings forming part of this specification, wherein:

Fig. 1 is a side elevational view of a reclining armchair according to the invention, a portion of a side wall being broken away.

Fig. 2 is a side elevational view of another embodiment of a reclining armchair according to the invention, a portion of a side wall being broken away.

Fig. 3 is a side elevational view of a further embodiment of a reclining armchair according to the invention, a portion of a side wall being broken away.

Fig. 4 is a side elevational view of still another embodiment of a reclining armchair according to the invention, a portion of a side wall being broken away.

Referring now to Fig. 1 the numeral 10 generally indicates a base having side arms 12 and 14 connected with each other in any suitable manner, and a set of supporting legs 16.

A back-rest structure 18, having an integral extension 20 which extends downwardly therefrom for rocking movement at its one end 22 on the base 10, forms a part of a body supporting means (not numbered) movable between upright and reclining positions. Also included in the body supporting means for movement between upright and reclining position is a seat 24. The seat 24 is supported on the sides of the back-rest structure 18, 20 at 26 for rocking movement with the structure about the mounting 22 on the base 10, and for swinging movement relative thereto.

An arm 28 is pivoted at its one end 30 to the base 10 and at its other end 32 to the under side of the seat 24. As the description proceeds it will become obvious that the pivoted arm 28 controls the swinging movement of the seat 24 relative to the back-rest structure 18, 20 as the body supporting means is rocked about the mounting 22 to the reclining position shown in dash lines.

At the same time as the body supporting means is rocked to its reclining position a leg-rest 34 is moved to an extended leg-supporting position, also shown in dash lines. The leg-rest 34 is projected to its extended leg-supporting position by a controlling linkage generally identified by the numeral 36. Included in the controlling linkage 36 is a double-armed lever 38 which

is rocked intermediate its ends at 40 to the base 10. One of the arms of the double-armed lever 38, namely the upper arm, is linked by way of the connecting link 42 to the back-rest structure 18, 20.

In the present modification the connecting link 42 is pivotally connected with the upper arm of the double-armed lever 38 at its one end and at its other end with the downward extension 20 which is formed as part of the back-rest structure. It will be recognized, however, that the connecting link 42 may be connected either to the downward extension 20 or to the back-rest 18.

A controlling link 44 is pivoted at its one end to the other or lower arm of the double-armed lever 38 and at its other end to a first front link 46. The lower end of the first front link 46 is in turn pivotally connected with a first pivotal connection 48 on the leg-rest 34 by way of a first connecting link 50. A second connecting link 52 is formed in two parts. The first part 54 pivotally interconnects a second pivotal connection 56 of the leg-rest 34 with an intermediate portion of the front link 46 at 58.

The second part of the link 52 of which the link 54 forms a continuation or extension interconnects one end of a second front link 60 with the first front link 46. The other end of the second front link 60 is mounted at 62 for pivotal movement on the base 10. Both the second front link 60 and the controlling link 44 are pivotally interconnected intermediate their ends for conjoint and also relative pivoting movement.

A stop 63, supported between the side arms 12 and 14 on the base 10, provides an abutment for the pivoted arm 28 to limit the extent of movement of the body supporting means into the reclining position and for the seat 24 when the same is moved to its upright position.

In Fig. 1 of the drawing the dash lines show the respective positions of the parts previously described when the body supporting means is rocked to its reclining position and when the leg-rest 34 is projected to its leg-supporting position.

In operation, as the back-rest structure 18, 20 is rocked about the mounting 22 on the base 10 the connecting link 42 and the seat 24 are caused to move and rock with the back-rest structure. Movement of the connecting link 42 causes the double-armed lever 38 to rock about its mounting 40 to extend the controlling link 44. The two front links 46 and 60 which are pivotally connected with the controlling link 44 are also pivoted to extend the first and second connecting links 50 and 52 to project the leg-rest 34 to its leg-supporting position as shown in Fig. 1.

At the same time, linked with the back-rest structure 18, 20, the seat 24 is caused to move upwardly and away from the stop 63. Arm 28 pivots about its end 30 to extend the seat 24 upwardly while permitting it to rock with the back-rest structure. The extent to which the body supporting means will move into its reclining position is determined by the engagement between the pivoted arm 28 and the stop 63.

Similarly, the extent to which the body supporting means is rocked about the mounting 22 into its upright or sitting position (shown in full lines in Fig. 1) is determined by the engagement between the bottom of the seat 24 and the stop member 63.

In the embodiment shown in Fig. 2 the parts which correspond to those shown and described in the embodiment in Fig. 1 will be identified by similar numerals except, however, that they will have the prefix numeral 1. In Fig. 2 the body supporting means, including the seat 124 and the back-rest structure 118, 120, is rockably mounted on the base at 122.

The leg-rest 134 has a first pivotal connection 148 and a second pivotal connection 156. The first pivotal connection is linked by way of the first connecting link 150 to one end of the first front link 146 while the other end of the first front link is pivotally connected to the under side of the seat 124.

The second pivotal connection 156 is linked by the first part 154, an extension of the second connecting link 152, with an intermediate portion of the first front link 146 at 158. The second pivotal connection 156 is also linked to one end of a second front link 160 by way of the second connecting link 152. The other end of the second front link 160 is pivotally connected with the under side of the seat 124. A controlling link 144 is connected at its one end with an intermediate portion of the first front link 146 and at its other end with an arm of the double-armed lever 138.

The double-armed lever 138 is rockably mounted on the base 110 at 140 and is controlled in its rocking movement by the rocking movement of the back-rest structure 118, 120 by way of the connecting link 142. An arm 128 is pivoted at its one end 130 to an arm of the lever 138 intermediate the rocking mounting 140 and the connection of the same with the controlling link 144. The other end of the arm 128 is pivotally connected as at 132 with the under side of the seat 124. The arm 128 controls the swinging movement of the seat 124 relative to the back-rest structure as the body supporting means is rocked about the mounting 122 to assume its reclining position shown in dash lines.

A stop member 163 is supported between the sides 112 and 114 of the base 110 to limit the reclining position of the body supporting means by providing an engaging abutment for the controlling link 144 when the body supporting means is rocked to its reclining position. On the other hand the stop 163 provides an engaging abutment for the under side of the seat 124 when the body supporting means is rocked to the upright position shown in full lines in Fig. 2.

When the body supporting means is rocked about the mounting 122 to its reclining position the double-armed lever 138 is rocked about its mounting 140 by the connecting link 142 to extend the controlling link 144. Movement of the controlling link 144 pivotally extends the first front link 146 and the first part 154 of the second connecting link 152 to move the leg-rest 134 to its leg-supporting (dash line) position.

At the same time as the leg-rest 135 is being projected, arm 128 is also moved upwardly by the lower arm of the double-armed lever 138. Arm 128 causes the seat 124 to rock with the back-rest structure 118, 120 and at the same time swings the same relative thereto. The reclining position of the body supporting means is then limited by the engagement made when the controlling link 144 is stopped by the stop member 163.

In a similar manner when the body supporting means is rocked to its upright position the extent of its movement will be limited by the engagement which the under side of the seat 124 makes with the stop member 163.

In the embodiment shown in Fig. 3, elements corresponding to those shown in Fig. 1 are similarly numbered except however, that they are preceded by the prefix numeral 2. In the present embodiment the leg-rest 234 having the pivotal connections 248 and 256 is moved to and from its leg-supporting position shown in dash lines in Fig. 3 by the controlling linkage structure generally identified by the numeral 234.

The controlling linkage structure 234 includes a front link 246 wihch is pivotally mounted at its one end 262 on the base 210 and linked to one of the pivotal connections, namely 248 by a first connecting link 250. The other pivotal connection 256 is also linked to the front link 246 by a second connecting link 254 which is formed as a part of or as an extension of the controlling link 244. Thus the controlling link 244 is also pivotally connected

to the front link 246 while at its opposite end it links the front link with an arm of the double-armed lever 238.

The double-armed lever 238 is rockably mounted on the base 210 intermediate its ends at 240. The upper or other end of the double-armed lever 238 is in turn linked by way of connecting link 242 to the back-rest structure 218, 220. An arm 228 is pivoted on the base 210 at 230 and to the under side of the seat 224 at 232. A stop 263 cooperates with the pivoted arm 228 when the body-supporting means is in the reclining position as shown by the dash lines in Fig. 3 to limit the reclining position of the same. On the other hand, the stop 263 cooperates with the under side of the seat 224 to limit the rocking movement of the body-supporting means when the same rocks into its upright position shown in full lines in Fig. 3.

The operation is substantially the same as that described with respect to the embodiment shown in Fig. 1. When the back-rest structure 218, 220 is rocked about the mounting 222 the double-armed lever 238 is caused to rock with the back-rest structure and about its mounting 240 by way of the connection 242. In turn the controlling link 244 pivots the front link 246 about its pivot mounting 262 to project the leg-rest 234 to its leg-supporting position.

At the same time as the leg-rest 234 is being projected the seat 224 is also rocked with the back-rest structure and caused to swing relative thereto by its connection with the pivoted arm 228. As mentioned previously the stop 263 limits the reclining position of the body-supporting means by providing an engaging abutment for the arm 228 to limit the swinging movement of the seat 224 and in turn the rocking movement of the back-rest structure.

In the modified embodiment shown in Fig. 4 elements which correspond to those shown in Fig. 3 will be similarly identified except, however, that they will be preceded by the numeral 3. In this embodiment the leg-rest 334, having a first pivotal connection 348 and a second pivotal connection 356, is moved to and from its leg-supporting position by a controlling linkage structure 334.

The controlling linkage structure 334 includes a front link 346 which is pivotally connected at its one end to the under side of the seat 324 and linked at its other end to the first pivotal connection by a first connecting link 350. A second connecting link 354 links the second pivotal connection 356 with the front link 346 intermediate the ends thereof.

The second connecting link 354 is formed as a continuation of a controlling link 344 which links the front link 346 with an arm of a double-armed lever 338. The double-armed lever 338 is rockably supported intermediate its ends at 340 on the support 310. The other arm of the double-armed lever 338 is linked with the back-rest structure 318, 320 by way of connecting link 342.

An arm 328 is pivoted at its one end 330 to the base 310 and at its other end 332 to the under side of the seat 324 in close proximity to the pivotal connection between the front link 346 and the seat. The pivoted arm 328 limits the swinging movement of the seat 324 relative to the back-rest structure 318, 320 as the body supporting means is rocked about the rocking mounting 322.

A stop 363 limits the pivoting movement of the arm 328 when the body-supporting means is rocked into its reclining position to provide an abutment therefor and to limit the extent of the rocking movement of the body-supporting means. This may be seen more clearly in the dash line representation shown in Fig. 4.

When the body-supporting means is rocked to its upright position, as depicted in the full line position shown in Fig. 4, the lower or under side portion of the seat 324 engages the stop 363 and is limited thereby.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to several preferred embodiments thereof, it will be understood that various substitutions and changes in the form of the devices illustrated and in their opera-

tions may be made by those skilled in the art, without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto.

What I claim is:

1. In an article of repose for supporting the body of a person, the combination of: a base, a back-rest swingably mounted on said base, a seat pivotally connected with said back-rest at a point above the pivotal connection of the latter with the base, a double-armed lever swingably mounted on said base, a link pivoted to said back-rest and one arm of said double-armed lever for moving same in dependence on movement of said back-rest, an arm pivoted to a member of the article and to said seat for controlling the movements of the latter, a controlling linkage including a first front link, a second front link, a controlling link, a first connecting link, and a second connecting link, said first front link being pivoted to said controlling link and to said first connecting link, said first front link and said second connecting link being pivotally connected with each other at intermediate points thereof, said second front link being pivoted to said base and to said second connecting link, said second front link and said controlling link being pivotally connected with each other at intermediate points thereof, said controlling link being pivoted to said other arm of the double-armed lever, and a leg-rest, said leg-rest being pivoted at spaced points thereof to said first and second connecting links.

2. In an article of repose for supporting the body of a person, the combination of: a base, a back-rest swingably mounted on said base, a seat pivotally connected with said back-rest at a point above the pivotal connection of the latter with the base, a double-armed lever swingably mounted on said base, a link pivoted to said back-rest and one arm of said double-armed lever for moving same in dependence on movements of said back-rest, an arm pivoted to said base and to said seat for controlling the movements of the latter, a controlling linkage including a first front link, a second front link, a controlling link, a first connecting link, and a second connecting link, said first front link being pivoted to said controlling link and to said first connecting link, said first front link and said second connecting link being pivotally connected with each other at intermediate points thereof, said second front link being pivoted to said base and to said second connecting link, said second front link and said controlling link being pivotally connected with each other at intermediate points thereof, said controlling link being pivoted to said other arm of the double-armed lever, and a leg-rest, said leg-rest being pivoted at spaced points thereof to said first and second connecting link.

3. A reclining chair comprising a base member, a back-rest pivotally mounted on said base member, a seat member pivotally mounted at its rear end on said back-rest at a point above the pivotal connection of the latter with said base whereby said seat moves rearwardly with said back-rest, a double-armed lever swingably mounted on said base, link means pivotally connecting one end of said double-armed lever with said back-rest at a point above the pivotal connection of the back-rest to said base member, whereby said link means pulls said one arm of the double-armed lever rearwardly when the back-rest is pivoted rearwardly, control means between a portion of said chair and the forward portion of said seat for raising said seat forward portion when the seat is moved rearwardly with the back-rest, a leg-rest, and a leg-rest controlling linkage including a plurality of interconnected links movable in dependence on each other, the controlling linkage being supported by at least one of said seat and base members and being operatively connected to the other arm of said double-armed lever, said leg-rest being pivoted at spaced points thereof to two links of said linkage.

4. A reclining chair comprising a base member, a back-rest pivotally mounted at its bottom end on said base member, a seat member pivotally mounted at its rear end on said back-rest at a point above the pivotal connection of the latter with said base whereby said seat moves rearwardly with said back-rest, a double-armed lever swingably mounted intermediate its ends on said base, link means pivotally connecting one end of said double-armed lever with said back-rest at a point above the pivotal connection of the back-rest to said base member and below the pivotal connection of said seat member to said back-rest, whereby said link means pulls said one arm of the double-armed lever rearwardly when the back-rest is pivoted rearwardly, an arm pivoted to a portion of said chair and to a forward portion of said seat for raising said seat forward portion when the seat is moved rearwardly with the back-rest, a leg-rest, and a leg-rest controlling linkage including a plurality of interconnected links movable in dependence on each other, the controlling linkage being supported by at least one of said seat and base members and being operatively connected to the other arm of said double-armed lever, said leg-rest being pivoted at spaced points thereof to two links of said linkage.

5. A reclining chair comprising a base member, a back-rest pivotally mounted at its bottom end on said base member, a seat member pivotally mounted on its rear end to said back-rest at a point above the pivotal connection of the latter with said base, whereby said seat moves rearwardly with said back-rest, a double-armed lever swingably mounted on said base, a link pivotally connected at one end to one end of said double-armed lever and at the other end to said back-rest at a point above the pivotal connection of the back-rest to said base member and below the pivotal connection of said seat member to said back-rest, whereby said link pulls said one arm of the double-armed lever rearwardly when the back-rest is pivoted rearwardly, an arm pivoted to said support and to a forward portion of said seat for raising said seat forward portion when the seat is moved rearwardly with the back-rest, a leg-rest, and a leg-rest controlling linkage including a plurality of interconnected links movable in dependence on each other, the controlling linkage being supported by at least one of said seat and base members and being operatively connected to the other arm of said double-armed lever, said leg-rest being pivoted at spaced points thereof to two links of said linkage.

6. A reclining chair comprising a base member, a back-rest pivotally mounted at its bottom end on said base member, a seat member pivotally mounted on its rear end to said back-rest at a point above the pivotal connection of the latter with said base, whereby said seat moves rearwardly with said back-rest, a double-armed lever swingably mounted on said base, a link pivotally connected at one end to one end of said double-armed lever and at the other end to said back-rest at a point above the pivotal connection of the back-rest to said base member and below the pivotal connection of said seat member to said back-rest, whereby said link pulls said one arm of the double-armed lever rearwardly when the back-rest is pivoted rearwardly, an arm pivoted to said double-armed lever and to a forward portion of said seat for raising said seat forward portion when the seat is moved rearwardly with the back-rest, a leg-rest, and a leg-rest controlling linkage including a plurality of interconnected links movable in dependence on each other, the controlling linkage being supported by at least one of said seat and base members and being operatively connected to the other arm of said double-armed lever, said leg-rest being pivoted at spaced points thereof to two links of said linkage.

7. A reclining chair comprising a support member, a body-supporting member including a back-rest and seat, means pivotally mounting said back-rest at a back-rest pivot on said support member for rearward reclining

movement, means pivotally mounting said seat at a seat pivot on said back-rest for inclining movement, said seat pivot being disposed above said back-rest pivot and moving rearwardly in response to said reclining movement, a leg-rest, and leg-rest control means operatively connected to said leg-rest and to said body-supporting member for elevating said leg-rest to a leg-supporting position in response to said rearward reclining movement, said leg-rest control means including a double-arm lever swingably mounted on said support member, means connecting one arm of said lever to said body-supporting member at a point spaced above said back-rest pivot such that said one arm of said lever swings rearwardly in response to said rearward reclining movement and said other arm swings forwardly, and linkage means operatively connected to said leg-rest and to said lever and cooperating with said other arm of said lever serving as a rear guiding link to form a double four-bar connecting and suspending linkage for elevating said leg-rest in response to said other arm swinging forwardly under control of said body-supporting member, said linkage means including a front guiding link pivotally mounted on one of said members, a first connecting link pivotally connected to said rear and front guiding links and to said leg-rest, and a second connecting link pivotally connected to said front guiding link and to said leg-rest at points spaced respectively from the pivotal connections of said first connecting link to said front guiding link and said leg-rest.

8. A reclining chair according to claim 7 wherein said first guiding link is pivotally mounted on said support member.

9. A reclining chair according to claim 7 wherein said front guiding link is pivotally mounted on said body-supporting member.

10. A reclining chair comprising a support member, a body-supporting member including a back-rest and seat, means pivotally mounting said back-rest at a back-rest

pivot on said support member for rearward reclining movement, means pivotally mounting said seat at a seat pivot on said back-rest for inclining movement, said seat pivot being disposed above said back-rest pivot and moving rearwardly in response to said reclining movement, seat control mean operatively connected to said seat for inclining said seat in response to said reclining movement, a leg-rest, and leg-rest control means operatively connected to said leg-rest for elevating said leg-rest to a leg-supporting position in response to said rearward reclining movement, said leg-rest control means including a double-arm lever swingably mounted on said support member, means connecting one arm of said lever to said body-supporting member at a point spaced above said back-rest pivot such that as said one arm of said lever swings rearwardly in response to said rearward reclining movement and said other arm swings forwardly, and linkage means operatively connected to said leg-rest and to said lever and cooperating with said other arm of said lever serving as a rear guiding link to form a double four-bar connecting and suspending linkage for elevating said leg-rest in response to said other arm swinging forwardly under control of said body-supporting member, said linkage means including a front guiding link pivotally mounted on one of said members, a first connecting link pivotally connected to said rear and front guiding links and to said leg-rest, and a second connecting link pivotally connected to said front guiding link and to said leg-rest at points spaced respectively from the pivotal connections of said first connecting link to said front guiding link and said leg-rest.

References Cited in the file of this patent

UNITED STATES PATENTS

2,535,687	Lorenz	Dec. 26, 1950
2,672,919	Luckhardt	Mar. 23, 1954