March 18, 1958 A. LORENZ 2,827,108

ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

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Fig. 1

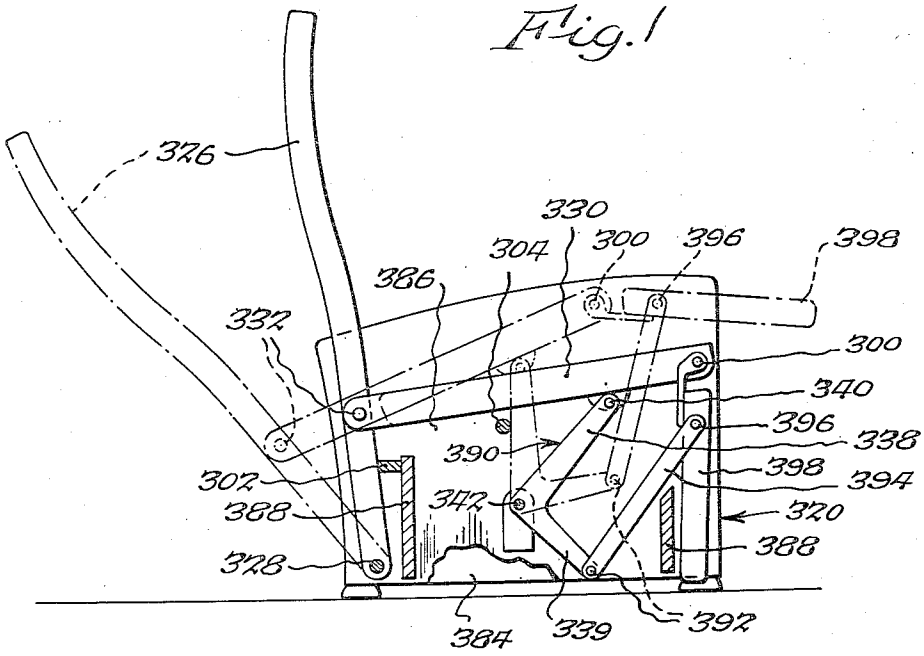
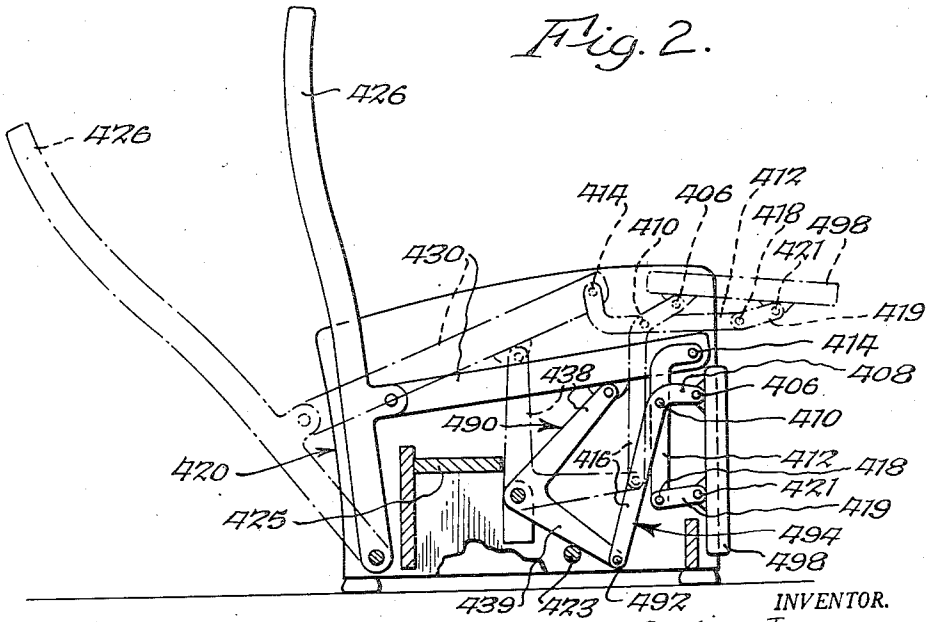


Fig. 2.



INVENTOR.
Anton Lorenz
BY
Attorney.

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ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

Anton Lorenz, Boynton Beach, Fla.

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3 Claims. (Cl. 155—106)

The present invention relates to reclining chairs, and in particular to an improved reclining chair of the type including a seat, a back-rest and a leg-rest coordinated for movement with respect to each other wherein a compound inclining movement is imparted to the seat to increase the angle between the seat and back-rest as a function of the reclining movement and the leg-rest is elevated as a function of said compound inclining movement. This is a continuation-in-part of my copending application Serial No. 97,370 filed on June 6, 1949 and entitled "A Reclining Article of Furniture" now abandoned.

It is generally known to construct chairs of the reclining type which include a seat and back-rest rockably mounted on a support and a leg-rest disposed beneath the forward end of the seat and coordinated to the movement of the back-rest such that the leg-rest is elevated as a function of the reclining movement of the back-rest. Accordingly, when the occupant of the seat leans back and displaces the back-rest from its normal sitting position to the various reclined positions, the leg-rest is moved upwardly and outwardly to an elevated position selected to comfortably accommodate the person in the reclined or partially reclined position.

Broadly it is an object of the present invention to provide an improved linkage for controlling and coordinating the seat, back-rest and leg-rest of a reclining chair of the aforesaid general construction. Specifically, it is within the contemplation of the present invention to provide an improved coordinating and controlling linkage which is effective to impart a compound inclining movement to the seat as a function of the reclining movement of the back-rest and to elevate the leg-rest as a function of said compound inclining movement.

In accordance with an illustrative embodiment demonstrating features of the present invention, my improved reclining chair comprises a support and a back-rest having a depending extension which is disposed in upright sitting position and is pivotally mounted at the lower end of its depending extension for reclining movement. The chair further includes a seat which is mounted to the back-rest at a point spaced above the pivot of the back-rest on the support such that the seat translates rearward upon reclining movement of the back-rest about its pivot on the support. A guiding link is disposed below the seat in a forwardly inclined position and extends forwardly and upwardly from its lower end to its upper end when the back-rest is in the upright sitting position, the guiding link being pivoted adjacent its upper end to the seat and adjacent its lower end to the support. Thus, the reclining movement of the back-rest is simultaneously effective to cause the seat to move rearwardly and to cause the pivot of the guiding link on the seat to move upwardly such that a compound inclining its imparted to the seat to increase the angle between the seat and back-rest as a function of the reclining movement. A leg-rest is disposed in a stored position beneath the forward end of the seat and is mounted on the chair for

movement from a stored position to various elevated positions. Linkage means are operatively connected to the leg-rest and to the seat for elevating the seat as a function of the compound inclining movement of the seat. Accordingly, in response to reclining movement of the chair, a compound inclining movement is imparted to the seat and the leg-rest is elevated in accordance with such compound inclining movement.

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

Fig. 1 is a side elevational view, with parts broken away, of an improved reclining chair illustrating features of the present invention, the full line showing the chair in the upright sitting position and the broken line showing the chair in a reclined position; and

Fig. 2 is a side elevational view of a modified reclining chair illustrating features of the present invention, the full line showing the chair in the upright sitting position, and the broken line showing the chair in a reclined position.

Referring now specifically to Fig. 1 there is shown an improved reclining chair demonstrating features of the invention which include a support 320 which is made up of side frames or members 384, 386 which are interconnected by transverse bracing bars or members 388.

A back-rest 326 is pivotally mounted adjacent its lower end on the support 220 at a back-rest pivot 328.

The chair further includes a seat 330 having a seat pivot 332 adjacent its forward end which pivotally mounts the seat 330 on the back-rest 326 at a point spaced above the pivot 328 of the back-rest 326 on the support 320. The rigid depending extension of the back-rest 326 intermediate the pivots 328, 332 serves as a mount arm for the back-rest on the support. The disposition of the seat pivot 332 above the back-rest pivot 328 is such that the seat pivot will translate rearwardly upon a reclining movement of the back-rest 326. In the illustrative position of the seat pivot 332, that is slightly rearwardly beyond a position vertically above the pivot 328, the seat pivot 332 will translate through a downward arc at the start of reclining movement of the back-rest.

Disposed below the seat 330 is a guiding member 390 which includes a guiding link or arm 338 disposed in a forwardly inclined position. The guiding link 338 extends forwardly and upwardly from its lower end to its upper end when the back-rest 326 is in the upright sitting position. The guiding member, which is in the form of a bell crank, is pivoted on the support at the pivot 342, the pivot 342 providing a pivotal connection at the lower end of the guiding link 338 to the support 320. The upper end of the guiding link 338 is pivoted to the seat at the pivot 340. The reclining movement of the back-rest 326, in addition to causing the seat pivot 332 to move rearwardly, causes the pivot 340 of the guiding link 338 to move upwardly in a rearwardly directed arc such that a compound inclining movement is imparted to the seat 330 which increases the angle between the seat and the back-rest as a function of the reclining movement of the chair.

Positioned beneath the forward end of the seat 330 is a leg-rest 398 which is disposed in the stored position and is movable into various elevated positions forwardly of the seat 330. In this embodiment, the leg-rest 398 is swingably mounted at a leg-rest pivot 300 on the forward end of the seat 330 by means of a depending hanger 312. Linkage means are operatively connected to the movably mounted leg-rest 398 to elevate the leg-rest as a function

of the compound inclining movement of the seat 330. The linkage means includes the arm or rigid extension 339 of the guiding member 390 serving as a driving link which extends below the pivot 342 when the back-rest is in the upright sitting position. The rigid extension or driving link 339 is connected to the leg-rest 398 by a connecting or controlling link 394 having a pivotal connection 392 at its lower end to the lower end of the link 339 and a pivotal connection 396 at its upper end to the leg-rest 398. The leg-rest 398 serves as a biasing means for returning the movable components of the reclining chair from the reclined position to which the chair is brought by the seat occupant to the upright sitting position.

The reclining movement of the chair is limited by a stop 304 which is in position to abut the guiding link 338 of the guiding member 390 when the guiding link 338 approaches the vertical or upright position illustrated by the broken lines. A stop 302 is in position to abut the depending extension of the back-rest to properly orient the chair components in the sitting position.

In order to facilitate a more thorough understanding of the present invention a typical operating sequence of the chair will be described:

When the chair occupant is seated in the chair and leans back against the back-rest 326, the rearward portion of the seat will move through a rearward and downward arc, the radius thereof depending upon the spacing of the seat pivot 332 from the back-rest pivot 328. Simultaneously the guiding link 338 moves through an upwardly and rearwardly directed arc about the pivot 342 which elevates the forward portion of the seat 330 such that the seat experiences a compound inclining movement. Turning of the guiding member 390 in the counterclockwise direction about its pivot 342 will cause the depending arm or driving link 339 to impart a thrust to the controlling or connecting link 394 such that the leg-rest 398 is elevated in coordination to the compound inclining movement of the seat via the linkage 394, 339 and 338.

Referring now specifically to Fig. 2, there is illustrated a further embodiment of a reclining chair in accordance with the present invention which is similar in many respects to the construction illustrated in Fig. 1. Accordingly, corresponding parts in Fig. 2 will be designated by reference numerals as part of the "400" series. However, in Fig. 2, the leg-rest support and control is somewhat different from that illustrated in Fig. 1 and will be described in detail. The leg-rest 498 is movably mounted on the chair by a depending hanger 412 which has a pivotal connection 414 at its upper end to the forward portion of the seat 430. The connecting or controlling link 494 is pivoted at an intermediate pivot 410 to the depending hanger or arm 412. The downwardly extending arm 416 of the controlling link 494 has a pivotal connection 492 at its lower end to the driving link or extension 439 of the guiding member 490 and the other arm 408 has a pivotal connection 406 to the upper end of the leg-rest 498. The lower end of the depending hanger 412 is coupled to the leg-rest by a further controlling link 419 which has a pivotal connection 418 at its rearward end to the hanger 412 and a pivotal connection 421 at its forward end to the leg-rest 498.

As before, appropriate stops are provided for limiting the movement of the chair between the upright sitting position illustrated by the full line in Fig. 2 and the full reclined position illustrated by the broken line. In this embodiment, an abutment or stop 423 limits the movement of the guiding member 490 in a clockwise direction to establish the upright sitting position for the chair and an abutment or stop 425 limits the counterclockwise movement of the guiding member 490 which in turn establishes the fully reclined position of the chair.

The chair operates essentially in the manner previously described above with the leg-rest being controlled by the compound inclining movement of the seat from the driving link or arm 439 by the linkage 494, 412 and 419.

A latitude of modifications, change and substitution is intended in the foregoing disclosure, and in some instances some features of the invention will be used without a corresponding use of other features. Accordingly, it is appropriate that the invention be construed broadly in a manner consistent with the spirit and scope of the disclosure herein.

What I claim is:

1. An improved reclining chair comprising a support, a back-rest having a depending extension and disposed in a substantially upright sitting position, means adjacent the lower end of said extension pivotally mounting said backrest on said support for reclining movement, a seat, means adjacent the rearward end of said seat pivotally mounting said seat to said back-rest at a point spaced from the pivot of said back-rest on said support, the pivot for said seat being disposed above the pivot for said back-rest and in position to translate rearwardly upon reclining movement of said back-rest about its pivot on said support, a guiding link disposed below said seat in a forwardly inclined position and extending forwardly and upwardly from its lower end to its upper end when said back-rest is in said upright sitting position, means pivotally connecting said upper end of the guiding link to said seat, means pivotally connecting said lower end of said guiding link to said support, the reclining movement of said back-rest being simultaneously effective to cause said seat to move rearwardly and to cause the pivot of said guiding link on said seat to move upwardly such that a compound inclining movement is imparted to said seat to increase the angle between said seat and back-rest as a function of said reclining movement, a leg-rest disposed in a stored position beneath the forward end of said seat, means movably mounting said leg-rest on said chair for movement from said stored position to various elevated positions, and link means operatively connected to said leg-rest and to said seat for elevating said leg-rest as a function of said compound inclining movement of said seat.

2. An improved reclining chair comprising a support, a back-rest having a depending extension and disposed in a substantially upright sitting position, means adjacent the lower end of said extension pivotally mounting said back-rest on said support for reclining movement, a seat, means adjacent the rearward end of said seat pivotally mounting said seat to said back-rest at a point spaced from the pivot of said back-rest on said support, the pivot for said seat being disposed above the pivot for said back-rest and in position to translate rearwardly upon reclining movement of said back-rest about its pivot on said support, a guiding link disposed below said seat in a forwardly inclined position and extending forwardly and upwardly from its lower end to its upper end when said back-rest is in said upright sitting position, means pivotally connecting said upper end of the guiding link to said seat, means pivotally connecting said lower end of said guiding link to said support, the reclining movement of said back-rest being simultaneously effective to cause said seat to move rearwardly and to cause the pivot of said guiding link on said seat to move upwardly such that a compound inclining movement is imparted to said seat to increase the angle between said seat and back-rest as a function of said reclining movement, a leg-rest disposed in a stored position beneath the forward end of said seat, means movably mounting said leg-rest on said chair for movement from said stored position to various elevated positions, and link means operatively connected to said leg-rest and to said guiding link for elevating said leg-rest as a function of said compound inclining movement of said seat.

3. An improved reclining chair comprising a support, a back-rest having a depending extension and disposed in a substantially upright sitting position, means adjacent the lower end of said extension pivotally mounting said

back-rest on said support for reclining movement, a seat, means adjacent the rearward end of said seat pivotally mounting said seat to said back-rest at a point spaced from the pivot of said back-rest on said support, the pivot for said seat being disposed above the pivot for said back-rest and in position to translate rearwardly upon reclining movement of said back-rest about its pivot on said support, a guiding link disposed below said seat in a forwardly inclined position and extending forwardly and upwardly from its lower end to its upper end when said back-rest is in said upright sitting position, means pivotally connecting said upper end of the guiding link to said seat, means pivotally connecting said lower end of said guiding link to said support, the reclining movement of said back-rest being simultaneously effective to cause said seat to move rearwardly and to cause the pivot of said guiding link on said seat to move upwardly such that a compound inclining movement is imparted to said seat to increase the angle between said seat and back-rest as a function of said reclining movement, a leg-rest disposed in a stored position beneath the forward end of said seat, means movably mounting said leg-rest on said chair for movement from said stored position to various

elevated positions, and link means operatively connected to said leg-rest and to said guiding link for elevating said leg-rest as a function of said compound inclining movement of said seat, said link means including as a driving link thereof a rigid extension of said guiding link extending below the pivot of the lower end of said guiding link to said support in said upright sitting position, and a controlling link pivotally connected to said rigid extension and to said leg-rest.

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