Nov. 20, 1951 A. LORENZ 2,575,881

RECLINING ARTICLE OF FURNITURE

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FIG. 1

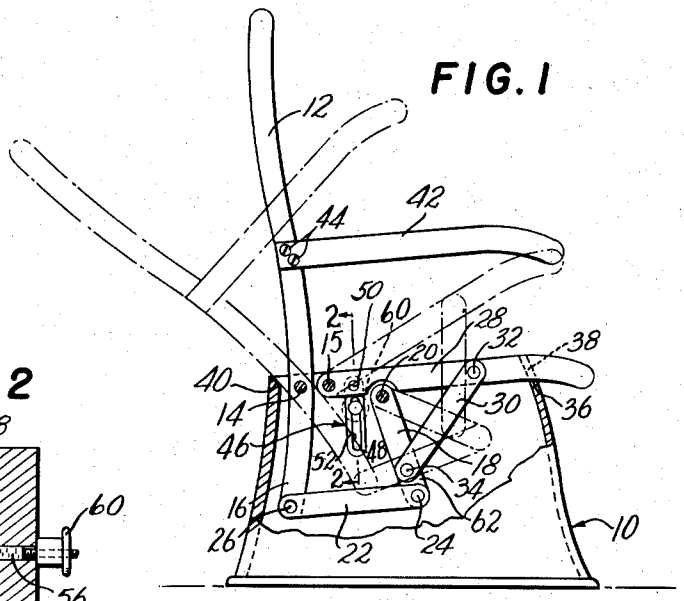


FIG. 2

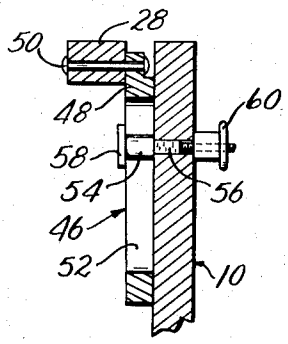
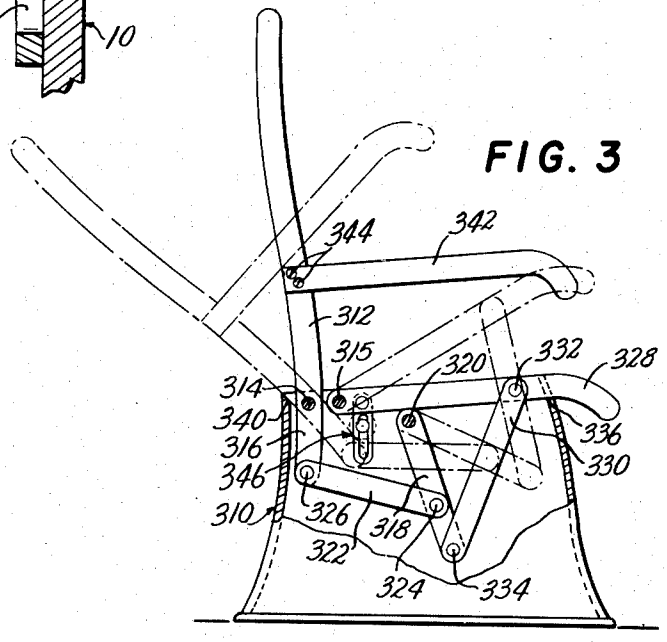


FIG. 3



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RECLINING ARTICLE OF FURNITURE

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FIG. 4

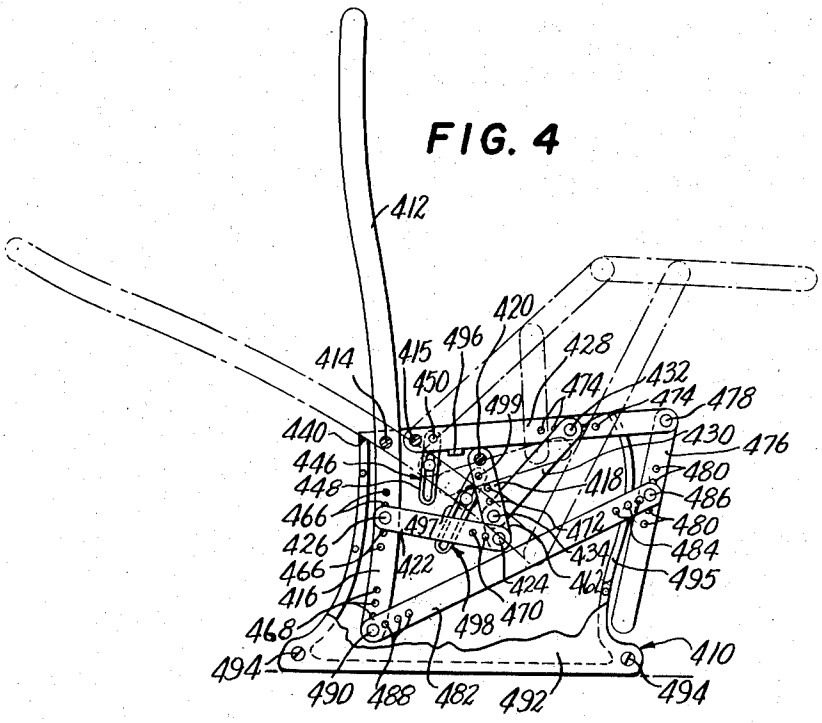
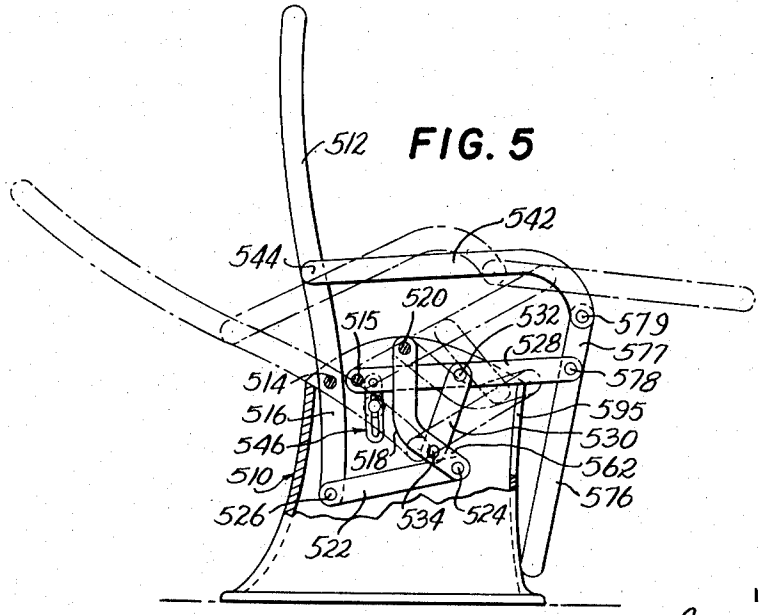


FIG. 5



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RECLINING ARTICLE OF FURNITURE

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FIG. 6

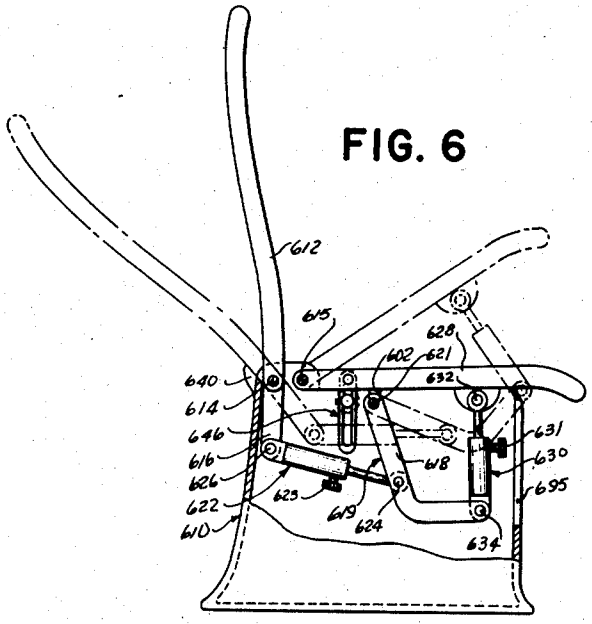


FIG. 9

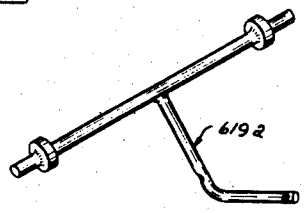


FIG. 7

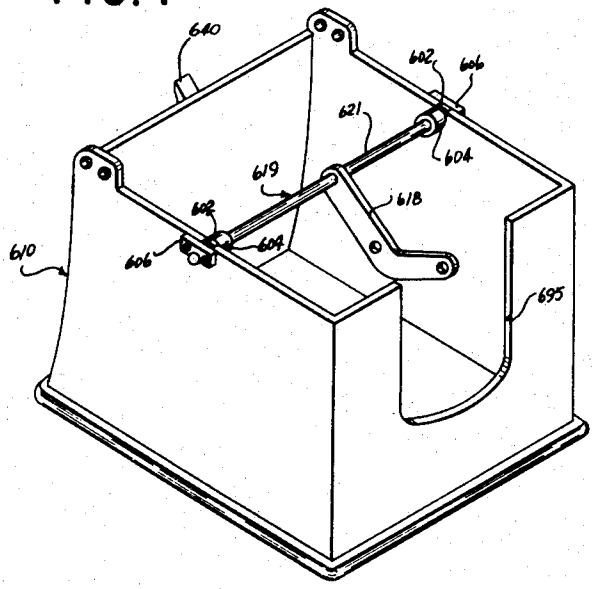
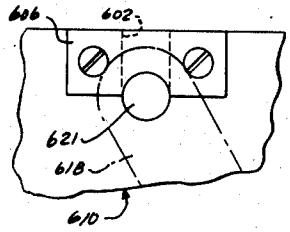


FIG. 8



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Patented Nov. 20, 1951

2,575,881

UNITED STATES PATENT OFFICE

2,575,881

RECLINING ARTICLE OF FURNITURE

Anton Lorenz, Buffalo, N. Y.

Application January 21, 1947, Serial No. 723,414

17 Claims. (Cl. 155—105)

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This is a continuation in part of abandoned patent application Ser. #640,264 filed Jan. 10, 1946 for "A Reclining Article of Furniture," the latter being a continuation in part of patent application Ser. #580,378 filed March 1, 1945 for "A Reclining Article of Furniture" which matured into U. S. Patent 2,433,521.

The present invention relates to articles of furniture, and more particularly to a reclining article of furniture, wherein the seat and a downward extension of the back-rest form movable links of a polygonal compound linkage swingably mounted on a support, a portion of the latter forming the stationary link of said linkage.

An object of the present invention is to provide an article of furniture of above described type with a mechanism simple in construction, for controlling the movements of the seat and the back-rest in dependence on each other.

A further object of the present invention is to provide a reclining article of furniture wherein the change in the angle between the back-rest and the seat during a movement of said members may be readily adapted to the requirements of users of the article of furniture.

Another object of the present invention is to provide a reclining article of furniture of above described type with means, by which the user of the article of furniture may alter the inclination of the back-rest while the seat is held in a predetermined position.

A further object of the present invention is to provide a reclining article of furniture of above described type with means, by which the user of the furniture may alter the inclination of the seat while the back-rest is held in a predetermined position.

Still another object of the present invention is to provide a reclining article of furniture of above described type with means, by which the user of the article of furniture may alter the degree of the change in the inclination of the back-rest from the sitting position into the extreme reclining position while the degree of the change in the inclination of the seat from the sitting position into the extreme reclining position remains substantially unchanged.

A further object of the present invention is to provide a reclining article of furniture of above described type with means, by which the user of the article of furniture may alter the degree of change in the inclination of the seat from the sitting position into the extreme reclining position while the degree of the change

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in the inclination of the back-rest from the sitting position into the extreme reclining position remains substantially unchanged.

Still another object of the present invention is to improve upon reclining articles of furniture as now ordinarily made.

With the above and other objects of the invention in view, the invention consists in the novel construction, arrangement and combination of various devices, elements and parts, as set forth in the claims hereof, certain embodiments of the same being described in the specification and being illustrated in the accompanying drawings forming part of this specification, wherein:

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

Fig. 2 is a sectional view of a locking device of the chair shown in Fig. 1 in an enlarged scale,

Fig. 3 is a side elevational view of another embodiment of an adjustable reclining chair according to the invention, a portion of a side wall of the support being broken away,

Fig. 4 is a side elevation view of a further embodiment of an adjustable reclining chair according to the invention, wherein said chair is provided with a leg-rest and with means for adjusting the relative position between the back-rest and the seat, a portion of a side cover of the casing forming the support being broken away,

Fig. 5 is a side elevational view of another embodiment of a reclining chair according to the invention, a portion of the side wall of the support being broken away,

Fig. 6 is a side elevational view of another embodiment of a reclining chair according to the invention, a portion of the side wall of the support being broken away,

Fig. 7 is a perspective view of the support of the chair shown in Fig. 6, a unit pertaining to the system of movable members of the chair being mounted in the support,

Fig. 8 is a fragmentary side elevational view of the safety device arranged on the support for holding the unit of the chair shown in Fig. 6 in its position, and

Fig. 9 is a perspective view of a different embodiment of a unit which may be used in the chair shown in Fig. 6.

Referring now to Figs. 1 and 2, 10 generally indicates a support in the shape of a casing, which may be of any suitable material, such as wood, metal, plastic or the like.

The rear end portion of a seat 28 is pivoted to the support 10 at 15. On each side of the chair, the upper end portion of a front link 30 is pivoted to the seat 28 at 32. The lower end portion of said front link 30 is pivotally connected at 34 with the lower portion of a connecting link 18, the upper portion of which is pivoted at 20 to the support 10 at a point spaced from the pivotal connection 15 between the seat 28 and the support 10. Thus, the seat 28, the front link 30, the connecting link 18 and the stationary portion of the support 10 between the pivotal connection 20 of the connecting link 18 with the support 10 and the pivotal connection 15 of the seat 28 with the support 10 form the links of a four-bar link mechanism.

A back-rest 12 is pivoted to the support 10 at 14 at a point spaced from the pivotal connection 15 of the seat 28 with the support 10. Said back-rest 12 has a downward extension 16 projecting beyond the pivotal connection 14 of the back-rest 12 with the support. According to Fig. 1 said downward extension 16 is integral with said back-rest 12; if desired, however, said downward extension 16 and said back-rest 12 may be made of separate pieces rigidly connected with each other in any suitable manner. On each side of the chair the rear end portion of a lower link 22 is pivoted to the downward extension 16 of the back-rest 12 at 26 at a point below the pivotal connection 14 between the back-rest 12 and the support 10. The front end portion of each lower connecting link 22 is pivoted at 24 to an extension 62 of the connecting link 18 projecting beyond the pivotal connection 34 of the connecting link 18 with the front link 30.

As will be apparent from above, the seat 28 and the downward extension 16 of the back-rest 12 form movable links of a polygonal compound linkage comprising the movable links 28, 30, 18—62, 22, 16 and the stationary links represented by the stationary portion of the support 10 between the pivots 14 and 15 and the stationary portion of the support 10 between the pivots 15 and 20. When the user of the chair leans the weight of his body against the back-rest 12 for moving same from its sitting position shown in full lines into the reclined position shown in dash and dot lines, the front link 30 pivotally connected with the connecting link 18—62, which in turn is connected with the downward extension 16 of the back-rest 12 through the medium of the lower link 22, controls the movements of the seat 28, so that the latter is brought from its sitting position shown in full lines into its reclined position shown in dash and dot lines. During said movement of the members of the chair from the sitting position into the reclined position, the angle between the back-rest 12 and the seat 28 is increased.

As will be readily understood, the degree of lifting the seat 28 depends on the length of the front link 30 and its connections with the connecting link 18 and the seat 28. For example, if the front link 30 were of shorter length and were connected with the connecting link 18 at a point above the pivot 34, the seat 28 would be lifted to a lesser degree when the proportions of above mentioned polygonal compound linkage remain unchanged and the back-rest 12 is brought into the extreme reclined position shown in Fig. 1. In other words, owing to above described control of the seat 28 by the front link 30 pivoted to the connecting link 18, the designer of the chair has a wide range for obtaining different degrees of inclination of the seat and for obtaining different relative positions between the seat and back-rest in the reclined position so as to make the chair as comfortable as possible for various uses. Furthermore, it may be mentioned that the arrangement of the movable members of the chair as described above permits a construction of the chair with very well balanced movable members, which may be easily brought from one position into another one.

According to the embodiment of the chair shown in Fig. 1, the sitting position of the movable members of the chair is limited by the wall 36 of the recess 38 of the support 10 receiving the seat 28 in its sitting position. The extreme reclined position of the movable members of the chair is limited by the inclined wall 40 of the support 10 cooperating with the back-rest 12.

On each side of the chair an arm rest 42 is rigidly secured to the back-rest 12 by screws 44 or the like.

A locking device generally indicated by 46 may be used for holding the movable members of the chair in any desired adjusted position. According to Figs. 1 and 2 said locking device 46 comprises a bar 48 swingably mounted on a frame member of the seat 28 at 50. Said bar 48 has a slot 52 for slidable engagement with a bolt 54 having a square portion 56 inserted into a corresponding square aperture of the support 10. The bolt 54 has on one of its ends a head 58 for engagement with a surface of the bar. A locking knob 60 is screwed onto the opposite threaded end of the bolt 54 projecting from the support 10. If the locking knob 60 is loosened the bar 48 may be freely moved, so that the seat 28 and the other movable members of the chair connected with the seat may be brought into any desired position. If, however, the locking knob 60 is tightened, so that it clamps the bar 48 by means of the head 58 and the bolt 54 against the support 10, the seat and the movable members of the chair connected therewith are firmly held in their position.

Fig. 3 illustrates another embodiment of an adjustable reclining chair according to the invention. The rear end portion of the seat 328 is swingably mounted on the casing-like support 310 at 315. The upper end of a front link 330 is pivoted to said seat 328 at 332. The lower end of said front link 330 is pivoted at 334 to the lower end of a connecting link 318, the upper end of which is swingably mounted on the support 310 at 320.

A back-rest 312 having a downward extension 316 is swingably mounted on the support 310 at 314 at a point spaced from the pivotal connection 315 between the seat 328 and the support 310. The rear end portion of a lower link 322 is pivoted to said extension 316 of the back-rest 312 at 326. The front end portion of said lower link 322 is pivotally connected at 324 with the connecting link 318 at an intermediate point thereof between its pivotal connections 320 and 334 with the support 310 and the front link 330 respectively.

An arm rest 342 is rigidly secured to the back-rest 312 at 344.

The sitting position of the movable members of the chair limited by the wall 336 is shown in full lines, while the extreme reclined position of the movable members limited by the abutting wall 340 is shown in dash and dot lines.

The movable members of the chair may be held

in any desired position by means of the locking device 346.

The mechanism of the reclining chair shown in Fig. 4 is similar to the mechanism of the chair shown in Fig. 1. The chair shown in Fig. 4, however, is provided with means whereby the effective length of the lower link 422, the connecting link 418 and the seat 428 may be varied and adjusted as will be described hereinafter. The seat 428 swingably mounted on the support 410 at 415 has a series of holes 474. A pin 432 passing through a bore of the front link 430 may be selectively engaged with one hole of said series of holes 474. Likewise, the connecting link 418 swingably mounted on the support at 420 is provided with a series of holes 472 for selective engagement with a pin 434 passing through a bore of the lower end of the front link 430.

The downward extension 416 of the back-rest 412 swingably mounted on the support 410 is provided with a first series of holes 466 and a second series of holes 468. A pin 426 passing through a bore of the lower link 422 may be selectively engaged with one hole of the series of holes 466. The front end portion of the lower link 422 is provided with a series of holes 470. A pin 424 passing through a bore of the extension 462 of the connecting link 418 may be selectively engaged with one hole of the series of holes 470 of the lower link 422.

A leg-rest 476 swingably mounted on the front portion of the seat 428 at 478 is provided with a series of holes 480. One end of a controlling link 482 is provided with a series of holes 484; said end of the controlling link 482 is pivotally connected with the leg-rest 476 by means of a pin 486 inserted into one hole of the series of holes 484 and into a hole of the series of holes 480. In a similar manner the other end of the controlling link 482 having a series of holes 488 is pivotally connected with the downward extension 416 of the back-rest 412 by means of a pin 490 fitting into one of the holes 468. As will be readily understood, the selective engagement of the pins 486 and 490 with a hole of the series of holes 484 and 488 of the controlling link 482 permits a variation of the effective length of the latter.

492 indicates a side wall of the support 410. A substantial portion of said side wall 492 is detachably mounted in the casing forming the support 410 by means of screws 494, so that the user of the chair may have access to the mechanism of the chair after removal of said covering side wall 492 for a purpose to be described hereinafter. 495 indicates an aperture of the casing 410 for the passage of the controlling link 482.

The sitting position of the movable members of the chair is limited by a stop 496 arranged on the support 410 for cooperation with the seat 428, and the extreme reclined position of the movable members of the chair is limited by the inclined wall 440 cooperating with the back-rest.

The adjustable reclining chair shown in Fig. 4 is equipped with a first locking device generally indicated by 446 and a second locking device generally indicated by 498. Both locking devices are of the type shown in Fig. 2 and described above in connection with the chair shown in Fig. 1. The locking bar 448 of the first locking device 446 is swingably mounted on the seat 428 at 450, so that said locking device 446 is associated with the seat and the support. The locking bar 497 of the second locking device 498 is swingably mounted on the connecting link 418 at 499, so that the second locking device 498 is associated

with said connecting link 418 and the support 410. If the movable members of the chair are connected with each other as shown in Fig. 4, they may be held in any desired adjusted position by tightening either one of the locking devices 446 or 498.

If the user of the chair wishes to have the back-rest at a different angle relative to the seat when the latter is in a certain position, he may hold the seat in said certain position by a tightening of the locking device 446. The other locking device 498 remains in loose condition. Now, the user of the chair may change the position of the pivotal connection 426 between the lower link 422 and the downward extension 416 of the back-rest 412 by inserting the pin 426 into another hole of the series of holes 466 whereby the angle between the back-rest 412 and the seat 428 may be changed. If, furthermore, a change in the angle between the leg-rest and the seat is desirable, such an adjustment may be obtained by varying the position of the pivotal connection 486 and/or 490 by inserting the respective pins into other holes of the series of holes.

When the user of the chair wishes to have the seat in a different position relative to the back-rest when the latter is in a certain reclined position, the back-rest is held in said position by a tightening of the locking device 498, while the locking device 446 remains in loose condition. Now, the user of the chair may bring the seat into a different position relative to the back-rest by altering the position of the pivotal connection 432 and/or 434 by inserting the respective pins into another hole of the series of holes 474 and/or 472.

Above described change in the position of the back-rest 412 and/or the seat 428 causes a change in the degree of change of angularity between the back-rest and the seat during a movement from the sitting position into the reclined position. If the back-rest alone is adjusted in a different position, the degree of the change of inclination of the seat will remain substantially unchanged. If the seat alone is adjusted in a different position, the degree of the change of inclination of the back-rest will remain substantially unchanged.

According to the embodiment of a reclining chair shown in Fig. 5, the rear end portion of the seat 528 is swingably mounted on the support 510 at 515. The upper end portion of the front link 530 is pivoted to the seat 528 at 532, the lower end portion of said front link 530 is pivoted to a connecting link 518 at 534. Said connecting link 518 is of bent shape and has its upper end portion pivoted to the support 510 at 520. Furthermore, said bent connecting link 518 has an extension 562 pivotally connected with the front end of a lower link 522 at 524. The rear end of said lower link 522 is pivoted at 526 to the downward extension 516 of a back-rest 512 swingably mounted on the support 510 at 514 at a point spaced from the pivotal connection 515 between the seat 528 and the support 510.

A leg-rest 576 pivoted to the front portion of the seat 528 at 578 has an upward extension 577. One end of a controlling link 542 representing an arm rest is pivoted to said upward extension 577 of the leg-rest 576 at 579, the other end of said controlling link 542 is pivotally connected with the back-rest 512 at 544.

The sitting position of the movable members of the adjustable reclining chair is shown in full lines. When the user of the chair leans the

weight of his body against the back-rest 512, the movable members of the chair are brought into the reclined position shown in dash and dot lines in Fig. 5. During such a displacement of the movable members of the chair from the sitting position into the extreme reclined position, the front end portion of the lower link 522 may pass through a slot 595 of the front wall of the casing-like support 510.

The movable members of the chair may be held in any desired position by means of the locking device 546.

According to the embodiment of a reclining chair shown in Fig. 6, the back-rest 612 is pivoted to the support 610 at 614. The rear end of the seat 628 is pivoted to the support 610 at 615 at a point spaced from the pivotal connection 614 between the back-rest 612 and the support 610.

The back-rest has a downward extension 616 substantially in the center of the chair. The rear end of a single telescopic lower link 622 is pivoted to said extension 616 of the back-rest 612 at 626. The front end of said lower link 622 is pivoted at 624 to an intermediate point of a single connecting link 618 arranged substantially in the center of the chair. The upper portion of said connecting link 618 is rigidly connected with a transverse rod 621 rotatably arranged in recesses 602 of the side walls of the casing-like support 610 (see Figs. 7 and 8). The rod 621 is prevented from axial displacement by collars 604 mounted thereon. The connecting link 618 and the rod 621 positively connected with each other form a unit generally indicated by 619 which may be readily inserted into the recesses 602 open at the top, when the elements of the chair are assembled. The unit 619 may be held in its position by safety members 606 attached to the side walls of the support 610 by screws. The connecting link 618 is of bent shape. The lower end of a telescopic front link 630 is pivoted to the lower end of the connecting link 618 at 634. The upper end of said front link 630 is pivoted to the seat 628 at 632. The effective length of said telescopic front link 630 may be varied and adjusted by means of the set screw 631. Likewise, the effective length of the lower link 622 may be adjusted by means of the set screw 623.

During a movement of the movable members of the chair from the sitting position limited by the upper edge of the support 610 and shown in full lines into the extreme reclined position limited by the stop 640 and shown in dash and dot lines, the connecting link 618 and the front link 630 may pass through an aperture 695 in the front wall of the support 610.

The movable members of the chair may be held in any desired position by means of the locking device 646.

Fig. 9 illustrates a different embodiment of a unit 619*a* which may be substituted for the unit 619 of the chair shown in Figs. 6 and 7. According to Fig. 9 the unit 619*a* is made of an integral piece of material shaped in suitable manner.

I have described preferred embodiments of my invention, but it is understood that this disclosure is for the purpose of illustration, that the invention may also be applied to various other types of reclining articles of furniture, such as garden chairs, chairs for use in railroad cars, chairs for use in airplanes, sofas, loungets, etc., and that various omissions or changes in shape, proportion and arrangement of parts, as well as the substitution of equivalent elements for those, herein shown and described, may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

What I claim is:

1. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, and a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, and the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link.

2. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, said connecting link having an extension projecting beyond its pivotal connection with the front link, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, and a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, and the front portion of said lower link being pivoted to said extension of the connecting link.

3. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said con-

necting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, and means whereby the effective length of said connecting link may be varied and adjusted.

4. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, and means whereby the effective length of said lower link may be varied and adjusted.

5. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, and means whereby the effective length of said seat may be varied and adjusted.

6. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, and locking means associated with at least two members of the article, at least one of said members being a member of the linkage including said connecting link, said lower link and said downward extension of the back-rest for locking said linkage with the back-rest in a predetermined position.

7. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, and locking means associated with said seat and said support for locking said seat in a predetermined position.

8. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front

link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, a leg-rest swingably mounted on the front portion of the seat, and means for controlling the movements of said leg-rest in dependence on the movements of a movable member of the article.

9. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, a leg-rest swingably mounted on the front portion of the seat, and a controlling link, said controlling link being pivoted at one of its ends to said downward extension of the back-rest, and said controlling link being pivoted at its other end to said leg-rest.

10. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the

pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, a leg-rest swingably mounted on the front portion of the seat, a controlling link, said controlling link being pivoted at one of its ends to said downward extension of the back-rest and at its other end to said leg-rest, and means whereby the effective length of said controlling link may be varied and adjusted.

11. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, and a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, and the front portion of said lower link being pivoted to an intermediate point of the connecting link between its pivotal connections with the front link and the support.

12. A reclining article of furniture, comprising a support, a seat pivoted to said support at its rear end portion, a connecting link, said connecting link being in the shape of a bent link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of coaxial alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, and a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, and the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link.

13. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link spaced from its pivotal connection with the front link, and means whereby the effective length of said front link may be varied and adjusted.

14. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a connecting link, the upper portion of said connecting link being pivoted to said support at a point spaced from the pivotal connection between the seat and the support, a front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said connecting link, said seat, said front link, said connecting link and the stationary portion of the support between the pivotal connections of the connecting link with the support and of the seat with the support forming the links of a four-bar link-mechanism, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, a lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, the front portion of said lower link being pivoted to a point of the connecting link

spaced from its pivotal connection with the front link, a leg-rest swingably mounted on the front portion of the seat, said leg-rest having an extension projecting beyond its pivotal connection with the seat, and a controlling link, one end of said controlling link being pivoted to said extension of the leg-rest, and the other end of said controlling link being pivoted to said back-rest.

15. A reclining article of furniture, comprising: a support, a seat pivoted to said support at its rear end portion, a unit, said unit being swingably mounted at its upper portion on said support at a point spaced from the pivotal connection between the seat and the support, at least one front link, the upper end portion of said front link being pivoted to the front portion of said seat, the lower end portion of said front link being pivoted to the lower portion of said unit, a back-rest, said back-rest being pivoted to said support at a point spaced from and out of alignment with the pivotal connection of the seat with the support, said back-rest having a downward extension projecting beyond its pivotal connection with the support, and at least one lower link, the rear end of said lower link being pivoted to said downward extension of the back-rest below the pivotal connection between the back-rest and the support, and the front portion of said lower link being pivoted to a point of said unit spaced from the pivotal connection of the latter with the front link.

16. In a reclining article of furniture as claimed in claim 15, said unit including a rod and at least one connecting link, said connecting link being positively connected at its lower portion with said rod.

17. In a reclining article of furniture as claimed in claim 15, said unit including a rod and at least one connecting link, and said unit being made of an integral piece of material.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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