Aug. 3, 1965 E. S. ROSMARIN 3,198,576

RECLINING SEATING DEVICE

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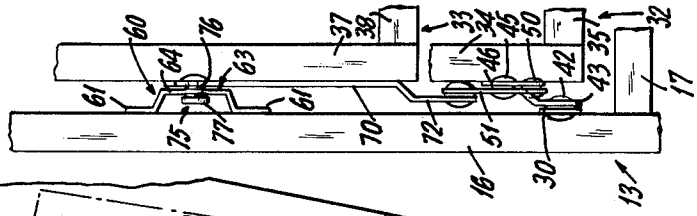


FIG. 2

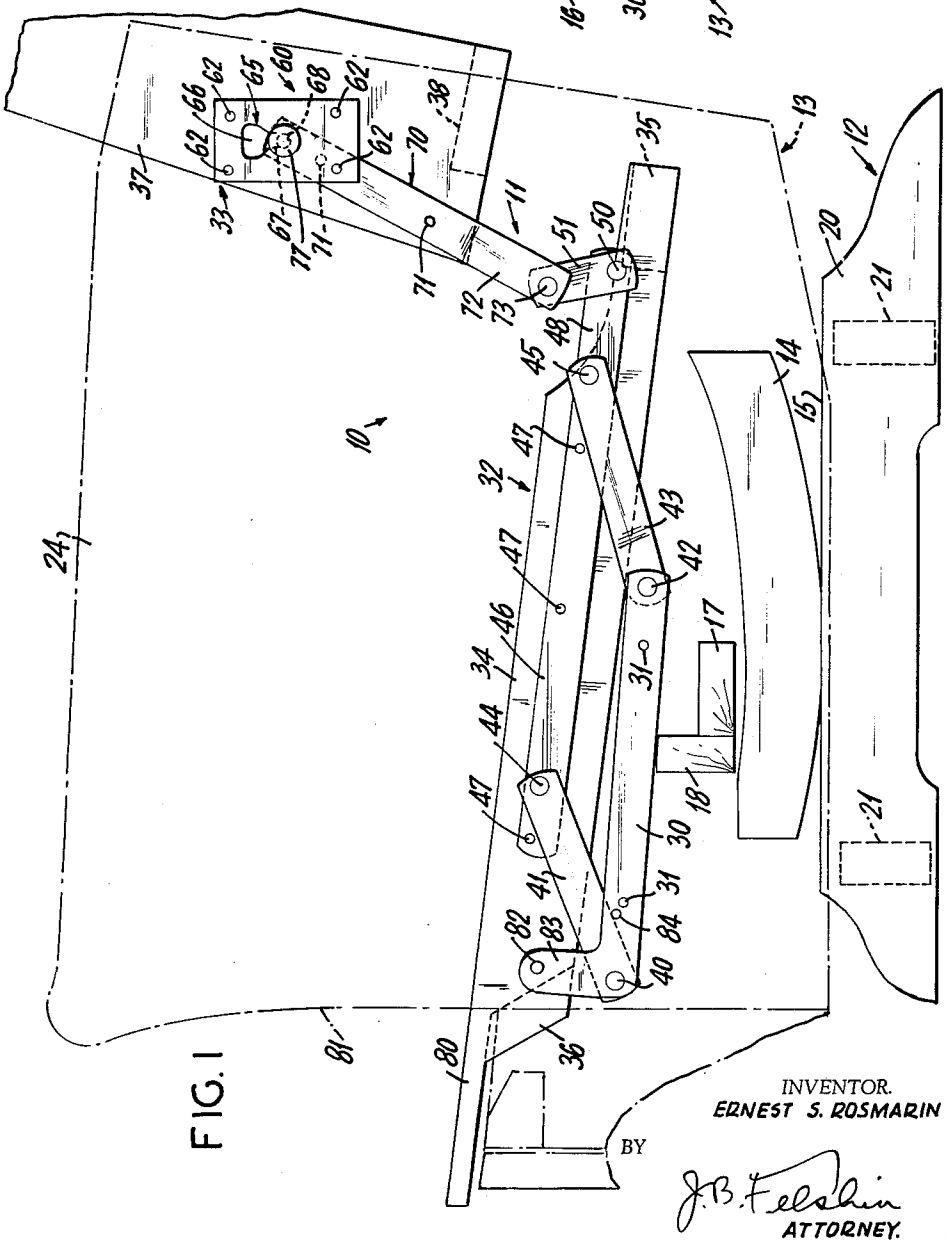


FIG. 1

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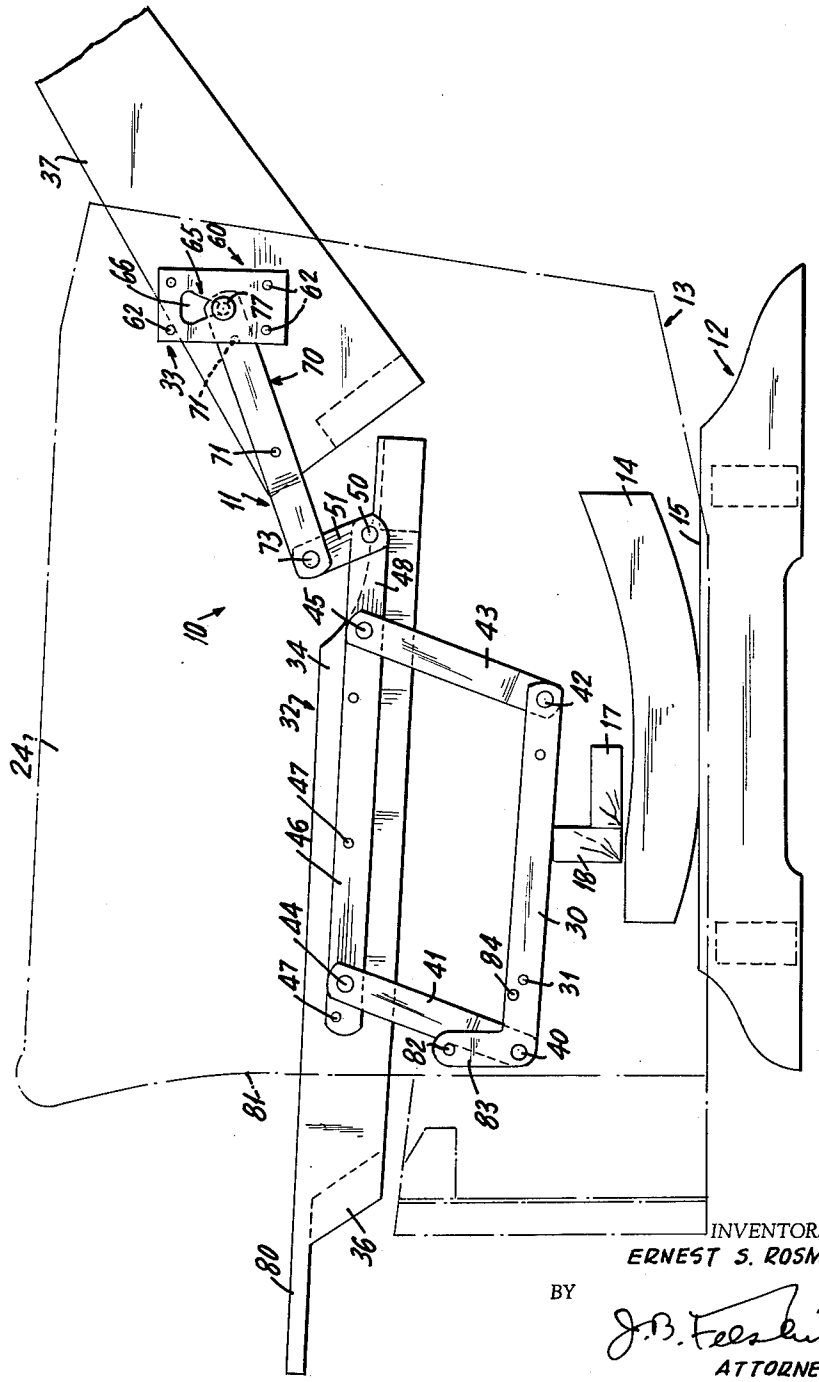


FIG. 3

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RECLINING SEATING DEVICE

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1 Claim. (Cl. 297—342)

This invention relates to reclining seating devices and to seating mechanisms therefor. It is particularly directed to mechanism for chairs, rockers, or other seating device which can be used either in a sitting position or in any of a multiplicity of reclining positions.

An object of this invention is to provide, in a device of the character described, linkage so designed that by pressing or leaning against the back of the chair, causing the back to rotate rearward on its pivot, the seat is moved upward and forward to a reclined chair position, the angle between the seat and back being determined by the amount of rearward rotation of the back. The linkage may be returned to its original sitting position by applying pressure rearwardly on the seat. The linkage has also been designed so that the weight of the occupant on the seat counterbalances the pressure against the back, permitting the chair to remain in a reclined position without use of friction device or counterbalancing springs. The linkage is further balanced to maintain its normal sitting position and will recline only when pressure is exerted against the upper portion of the back.

The mechanism includes a four-bar linkage for supporting and moving the seat, a fixed pivot about which the back rotates, and a connecting and balancing link to actuate back and seat simultaneously.

Another object of this invention is to provide a strong, rugged and durable device of the character described which shall be relatively inexpensive to manufacture, comfortable in use, smooth in operation, and practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claim.

In the accompanying drawings in which is shown an illustrative embodiment of this invention,

FIG. 1 is a side elevational view of a seating device provided with improved reclining mechanism embodying the invention;

FIG. 2 is a rear elevational view illustrating one side of the seating device and its reclining mechanism; and

FIG. 3 is a view similar to FIG. 1, but showing the seating device in reclining position.

Referring now in detail to the drawing, 10 designates a seating device embodying the invention and provided with reclining mechanism 11 for said device.

The seating device 10 is here shown, for the purpose of illustration, in the form of a rocker, it being understood that the invention may be embodied in a chair, sofa or other seating device.

The seating device 10 comprises a base 12 resting on the floor. Mounted thereon is a seat and back support 13, here shown in the form of a rocker, but which could be the base of a chair or other seating device, and could be mounted directly on the floor. Said support 13, if in form of rocker, has curved rails or underparts 14 having rocking or rolling contact with top flat surfaces 15 of base 12. The rocker 13 and base 12 may be assembled in any suitable well known manner.

The support 13 comprises vertical, parallel, opposed side members 16 interconnected by a horizontal transverse or cross member 17 located above curved part 14, and by a vertical transverse or cross member 18 located at the front edge of cross member 17.

The base 12 may also comprise side members 20 interconnected by transverse cross members 21. The curved rails 14 contact the flat surfaces 15 which are at the upper ends of side base members 20.

The side members 16 may extend upwardly and include side arms 24 for the chair. Fixed to the inner sides of the side members 16, above the cross members 17, 18 are opposed, horizontal fixed mounting links 30 attached to said members by rivets, bolts or other attaching means 31. In the drawing, the supporting means for one side only of a seat rail 32 and a back rail 33 are illustrated, it being understood that the supports for said rails on opposite sides of the chair are similar and symmetrically disposed about a vertical plane at the middle of the chair and parallel to members 16. The mechanism on one side only will be described. Seat rail 32 comprises parallel side members 34 interconnected by a rear transverse member 35 and an inclined front transverse member 36. The back rail 33 comprises parallel side members 37 interconnected by a transverse member 38. Parallel members 37 may be in the planes of parallel members 34, as seen in FIG. 2 of the drawing. The seat and back rails are located between members 16.

When the chair is in sitting position, the seat rail 32 may be somewhat upwardly and forwardly inclined from horizontal, as shown in FIG. 1, whereas the back rail 33 is somewhat upwardly and rearwardly inclined from vertical. Also the back rail 33 is located above and at the rear end of the seat rail, in the sitting position illustrated in FIG. 1.

The seat and back rails when upholstered comprise the seat and back of the rocker or chair.

The side portions 34 and 37 of the seat and back rail are spaced inwardly away from the walls 16, as shown in FIG. 2. The fixed mounting links 30 contact the inner surfaces of side walls 16.

Pivoted to the inner sides of links 30, at the front ends of the latter, by means of pivot pins 40, are front seat carrier links 41 which incline upwardly and rearwardly. Pivoted to rear ends of links 30, as at 42, are rearwardly and upwardly inclined rear seat carrier links 43 which may be somewhat longer than links 41. The upper ends of links 41, 43 are offset inwardly, and pivotally connected by means of pivot pins 44, 45 respectively, to a seat mounting link 46 which is fixed, as by rivets, bolts or the like fasteners 47, to the outside of side walls 34 of the seat rail 32. The seat mounting links 46 run parallel to the walls 34. Each seat mounting link 46 has a rear extension 48 projecting rearwardly of pivot pin 45 and is located beneath the lower end of the back rail 33.

Pivoted to the rear ends of extensions 48 of seat mounting links 46, as by pivots 50, are short connecting links 51 which incline forwardly and upwardly and are located in spaced outer relation to the seat mounting link.

Fixed to the inside of each side wall 16, above the seat rail, is a fixed pivot bracket 60. Each bracket 60 has upper and lower flanges 61 contacting the inner surface of wall 16, and fixed thereto by rivets, bolts or the like fastening elements 62. Flanges 61 are interconnected by an inwardly offset channel or web 63 having a wall 64 parallel to and spaced inwardly from wall 16. Wall 64 is formed with a keyhole or slot 65 having a larger upper end 66 and a lower downwardly extending narrow slot portion 67 having a lower semi-circular edge 68. Wall 64 is spaced outwardly of wall 37 of the back rail 33.

Fixed to the outer side of each wall 37, is a back mounting link 70. Link 70 is fixed to wall 37 by rivets, bolts or other fasteners 71. The lower end 72 of link 71 is

offset outwardly, and is located in a plane between the planes of links 51 and walls 16. Said lower end 72 is pivoted as at 73, to the upper end of link 51. Back mounting link 70 inclines downwardly and forwardly.

Fixed to the upper end of each link 70 is a horizontal pivot pin 75 projecting outwardly and provided with a shank 76 and a flanged outer head 77. The shank 76 of pivot pin 75 is received in slot 67 and rotatably contacts semi-circular edge 68. The head 77 may pass through the enlarged upper end 66 of hole 65 to facilitate the assembly.

The back rail 33 is thus pivoted to the support 13. By pressing or leaning against the back 33 of the chair, causing the back to rotate rearward on its pivot 75, the seat 32 is moved upward and forward to the reclining position of the chair, the angle between the seat and back being determined by the amount of rearward rotation of the back.

The linkage may be returned to its original chair sitting position by applying pressure rearwardly on the seat.

It will be noted that the linkage is so arranged that the weight of the occupant on the seat counterbalances the pressure against the back, permitting the chair to remain in any reclined position without use of special friction devices or counterbalancing springs. The linkage is also balanced to maintain its normal sitting position and will recline only when pressure is exerted against the upper portion of the back.

The front end 80 of the seat rail 32 may be T-shaped with side extensions to contact the front edges 81 of side walls 16 to stop the parts in sitting position. Also a stop pin 82 may be fixed to a front upward extension 83 on the fixed mounting link 30 to limit the movement of the parts toward fully reclining position by contact with the forward edge of front carrier link 41. Another stop pin 84 may be fixed to the fixed mounting link 30 to contact the rear edge of front carrier link 41 to stop movement of the parts toward sitting position of the chair, if the seat is not T-shaped at its front end.

It will be noted that the fixed pivot brackets 60 could be fixed to or be made integral with the fixed mounting links 30, if desired.

It will thus be seen that there is provided an apparatus in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

I claim:

In combination, a chair support, a mounting member fixed to said support, front and rear carrier links pivoted at their lower ends to said fixed mounting member, a chair seat, a seat mounting link fixed to said chair seat, the upper ends of said carrier links being non-slidably pivoted to said seat mounting link, said mounting member, carrier links and seat mounting link substantially forming a parallelogram, said seat mounting member having a rear extension fixed with respect thereto and extending rearwardly of the pivotal connection of said rear carrier link to said seat mounting member, a back mounting member inclined downwardly and forwardly to a point above said rear extension, a chair back mounted on said back mounting member, means to releasably and pivotally mount said back mounting member on said support, a connecting link pivoted at its lower end to said rear extension, and being inclined forwardly and upwardly in all positions of adjustment of said chair seat and back and being pivoted at its upper end to the lower end of said back mounting member and means to stop rotation of said carrier links in opposite directions, in positions in which said carrier links are inclined upwardly and rearwardly.

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