# United States Patent

**Re**

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[54] **MECHANISM FOR ROCKER/RECLINING CHAIR AND FOR RECLINING CHAIR**


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[52] **U.S. Cl.** .....**297/85**, 297/DIG. 7, 297/270

[51] **Int. Cl.** .....**A47c 3/03**

[58] **Field of Search** .....297/85, 310, 270, DIG. 7



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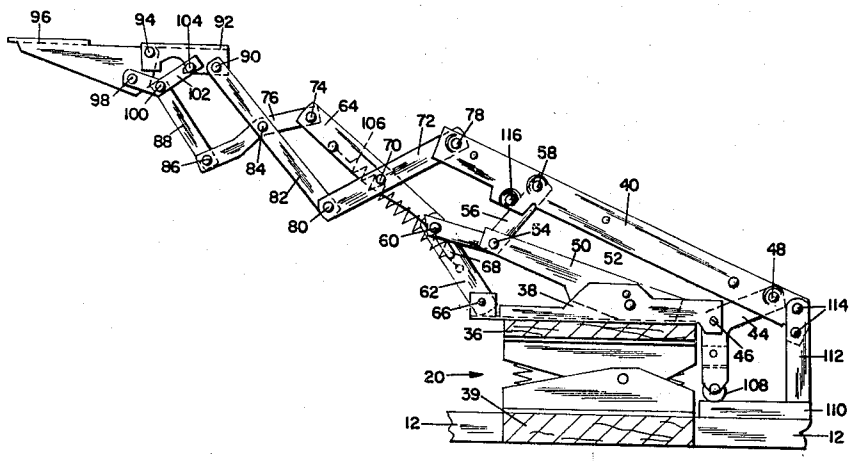
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[57] **ABSTRACT**

A multipurpose rocker recliner including a base and a chassis and a rocker-spring mechanism and a body-supporting unit and hardware means incorporating first stop means for restraining the body-supporting unit against rocking in positions between intermediate reclined and fully reclined positions and second stop means for restraining the body-supporting unit against tipping in the fully reclined position and third stop means for maintaining the foot stool in retracted position when in the fully upright position and for precluding assumption of a reclined position of the body-supporting unit without a concomitant projection of the foot stool into extended position.


**4 Claims, 5 Drawing Figures**



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SHEET 1 OF 3

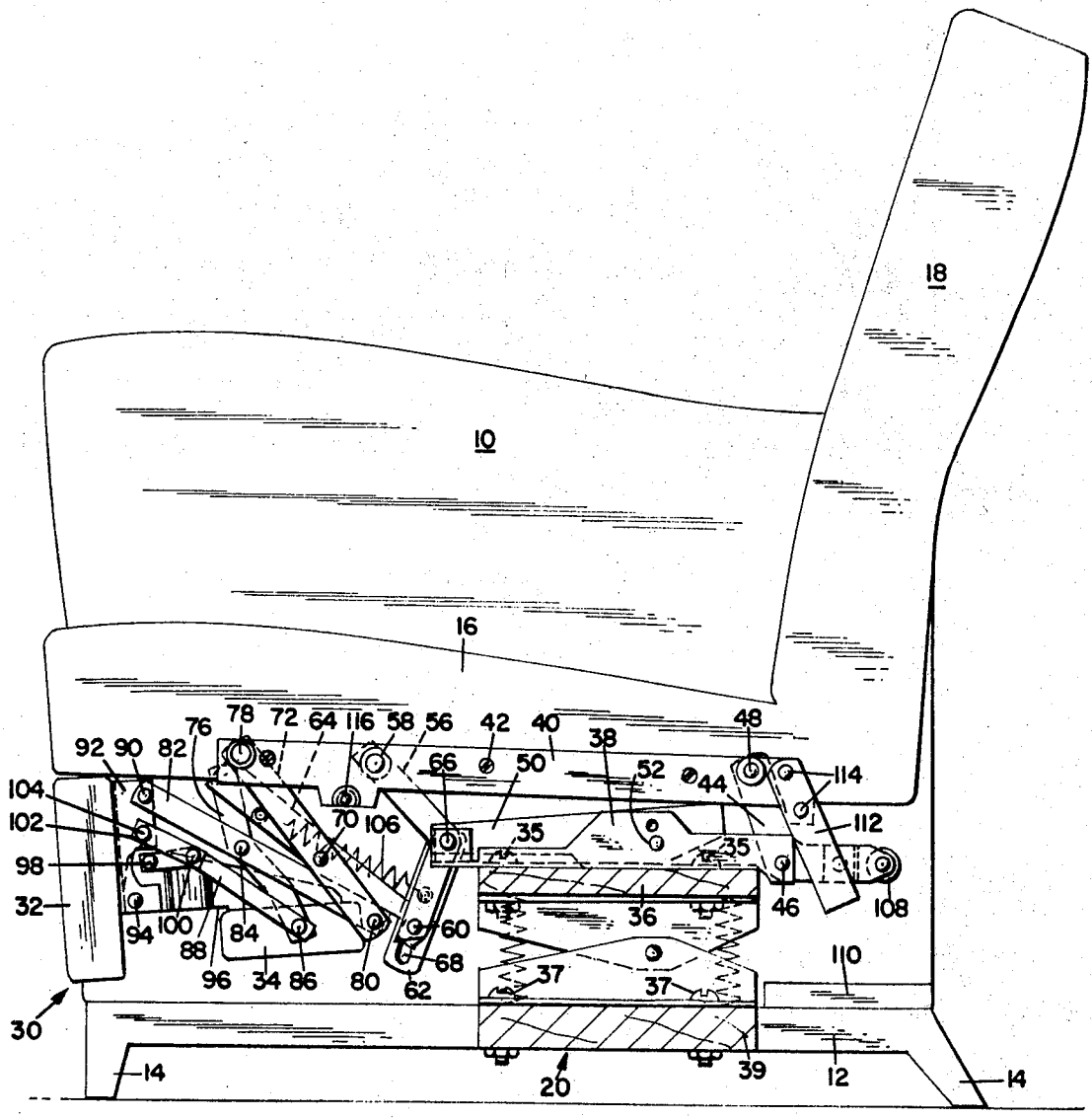



FIG. 1

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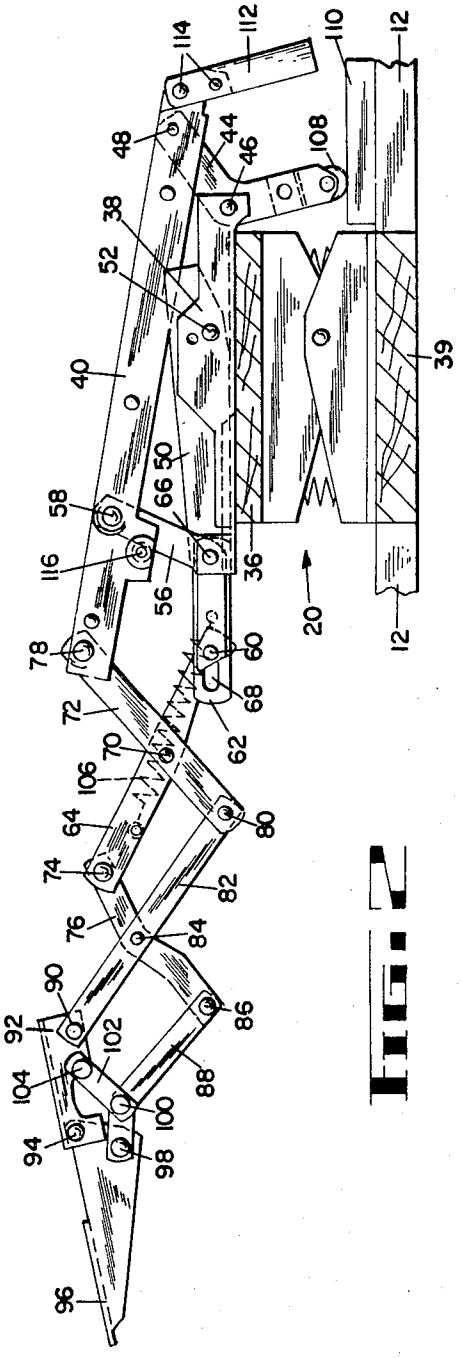



FIG. 2

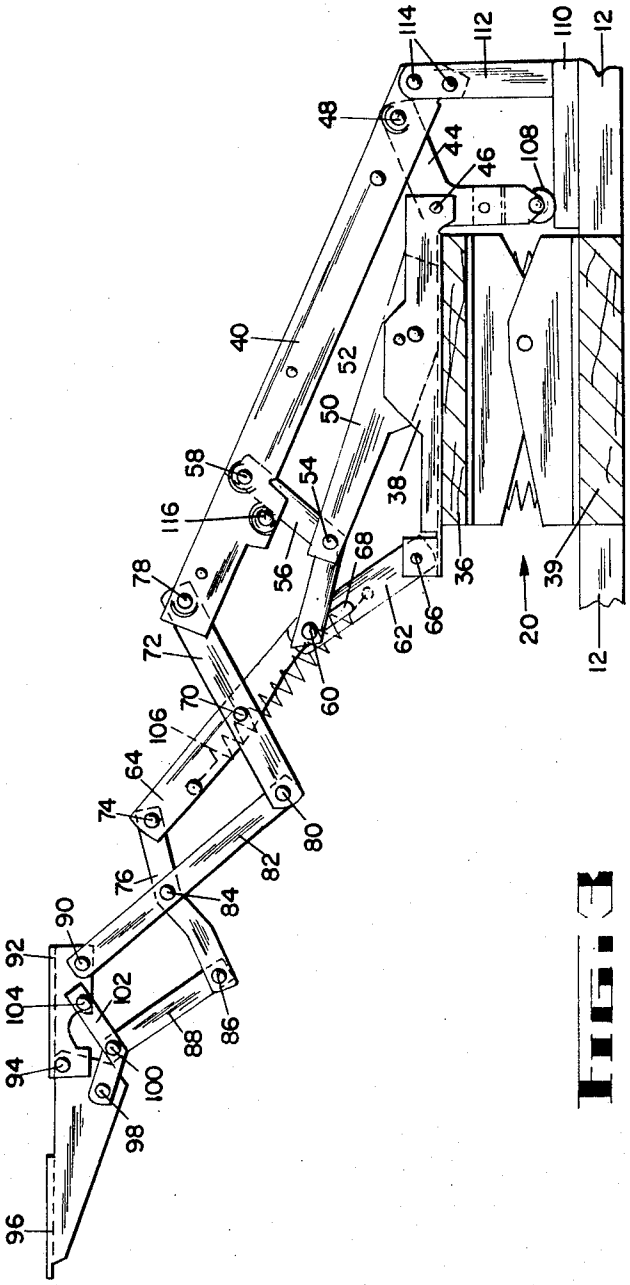



FIG. 3

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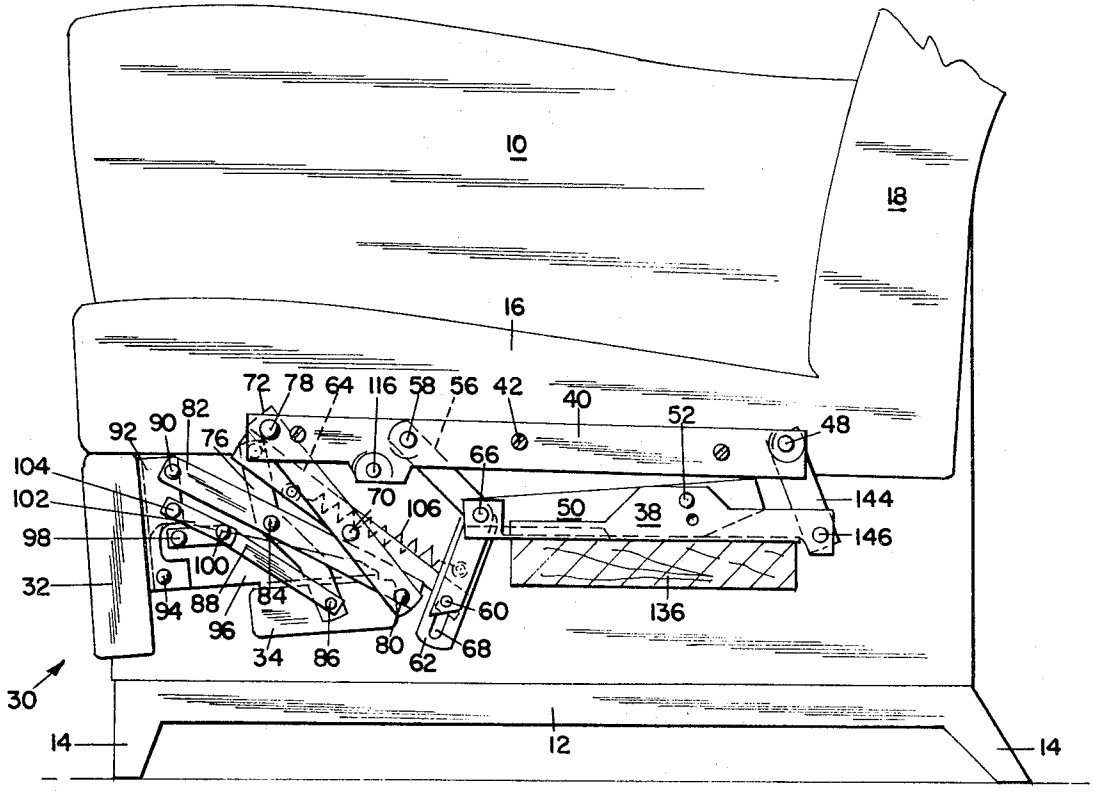



FIG. 4

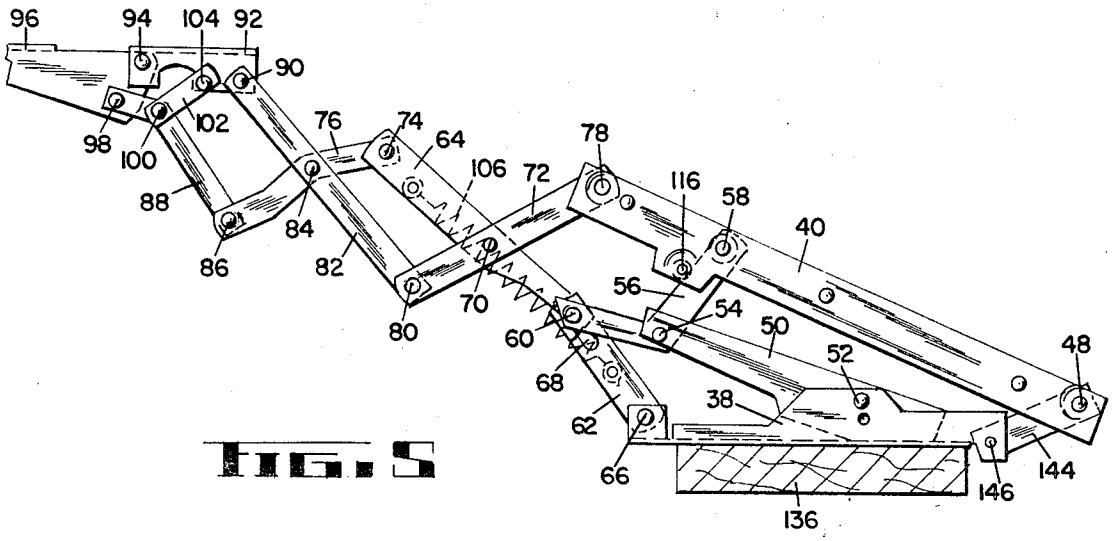



FIG. 5

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# MECHANISM FOR ROCKER/RECLINING CHAIR AND FOR RECLINING CHAIR

## BACKGROUND OF THE INVENTION

1. Field of the Invention

Rocker/reclining chairs wherein a leg rest or foot stool is moved in concert with movements of a body-supporting unit relative to a fixed chassis.

2. Description of the Prior Art

To my knowledge, prior to my invention, there has been no mechanism which can be quickly and easily converted for use either with a rocker/reclining chair or with a reclining chair. Nor has provision been made to completely and positively limit the range and speed of movements of the leg rest and body-supporting components of a chair, either of the rocker/reclining type or of the reclining type.

Too, with the prior art rocker/reclining chairs, no positive means is provided for precluding accidental tipping of the chair while the occupant is in a fully reclining position.

## SUMMARY OF THE INVENTION

A primary object of the invention is to provide means for precluding accidental tipping of a rocker/reclining chair while it is in a fully reclining position.

A further object is to provide a mechanism which may be quickly, easily and economically converted for use with a rocker/reclining type of chair, or with a reclining type of chair.

Another object is to provide means for completely and positively limiting the range and speed of movement of the leg rest and body-supporting components of a chair, either of the rocker/reclining type or of the reclining type.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view, in longitudinal section, of a rocker/reclining chair embodying the invention, the chair being shown in upright position;

FIG. 2 is an elevational view of the linkage mechanism of the chair of FIG. 1, the mechanism being shown in intermediate reclining or TV-position;

FIG. 3 is an elevational view similar to FIG. 2, the mechanism being shown in fully reclining position;

FIG. 4 is a view, in longitudinal section, of a reclining chair embodying the invention, the chair being shown in upright position; and

FIG. 5 is an elevational view of the linkage mechanism of the chair of FIG. 4, the mechanism being shown in fully reclining position.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

In FIGS. 1–3, I have shown the invention as incorporated in a rocker/reclining chair; in FIGS. 4 and 5, I have shown the invention as incorporated in a reclining chair.

With reference first to the embodiment of FIGS. 1–3, a combination rocker/reclining chair comprises a chassis **10** fixed to a base **12** supported upwardly of the floor by legs **14**, and a body-supporting unit including a seat **16** and a backrest **18** and being rockably supported with respect to the base and the chassis by such as conventional rocker blocks with rocker springs disposed at each side of the chair, or such as a rocker-spring mechanism, generally indicated by **20**, disposed centrally of the chair.

The body-supporting unit is operatively connected to rocker-spring mechanism **20** by means of a pair of linkage mechanisms, there being one at each side of the body-supporting unit inwardly of the respective adjacent side of the chassis so as to be concealed from view. Only one such linkage mechanism is herein defined, they being identical.

A leg supporting unit or foot stool **30** may be of the one-part type or the two-part type such as shown herein. The two-part type is constituted by a large foot stool **32** and a small foot stool **34** pivotally interconnected. The foot stool, whichever its type, is mounted, by means of said linkage mechanism, relative to the forward area of seat **16**, for movements between a fully retracted position, as viewed in FIG. **1**, and a fully extended position, as viewed in FIGS. **2** and **3**.



With the chair in the fully upright position, the foot stool is in the fully retracted position. Then the large foot stool **32** is positioned substantially flush with or in the vertical plane of the forward end of seat **16**, while the cooperant pivotally connected small foot stool **34** extends rearwardly from adjacent the lower extremity of the large foot stool wherefore it is concealed from view below the seat and rearwardly of the large foot stool.

When large foot stool **32** is elevated and advanced to an extended position, cooperant small foot stool **34** is moved therewith accordingly and is in an axially aligned position forwardly thereof, as viewed in FIGS. **2** and **3**.

The linkage mechanisms are stationarily mounted as by bolts **35** or the like on a cross rail **36** depending from the body-supporting unit extending transversely relative to and between and fixed to the upper surface of the rocker-spring mechanism **20**, the lower surface of the rocker-spring mechanism being stationarily mounted as by bolts **37** or the like, on a bottom cross rail **39** fastened at its opposite ends to base **12**.

A generally horizontally disposed baseplate **38**, extending along the front-to-rear chair axis, is stationarily fixed by means of the bolts **35** to the upper planar surface of cross rail **36**.

A seat plate **40**, similarly extending along the front-to-rear chair axis, is stationarily secured to the adjacent side rail of seat **16** as by screws **42** or the like.

The body-supporting unit and the footstool are operatively connected to baseplate **38** and to each other by means now to be described.

A first L-link **44** is pivoted at **46** at its approximate midsection to the rearward end of baseplate **38** and at its upper end at **48** to seat plate **40** adjacent the rearward end of the latter.

A rise bar **50** is pivoted adjacent its rearward end at **52** to the approximate midsection of baseplate **38**, and is pivoted adjacent its forward end at **54** to a second L-link **56**.

Second L-link **56** is pivoted at **58** at its upper end to seat plate **40** and is pivoted at its lower end at **60** to one end of a slotted link **62** and to the rearward end of a first long link **64**.

Slotted link **62** is pivoted at **66** at its opposite end to forward end of baseplate **38** and has a slot **68** therein adjacent its forward end in which pivot **60** is slidable, for purposes to appear.

First long link **64** is pivoted at its approximate midsection at **70** to the approximate midsection of a first elevator link **72** and is pivoted at its forward end at **74** to the rearward end of a second elevator link **76**.

First elevator link **72** is pivoted at its upper end at **78** to seat plate **40** adjacent the forward end thereof and is pivoted at its lower end at **80** to the lower rearward end of a second long link **82**.

Second elevator link **76** is pivoted at its approximate midsection at **84** to the approximate midsection of second long link **82** and is pivoted at its lower end at **86** to the lower rearward end of a small foot stool link **88**.

Second long link **82** is pivoted at its forward end at **90** to one end of a large foot stool support plate **92** to which large foot stool **32** is fixed, and large foot stool support plate **92** is pivoted at its opposite end at **94** to a small foot stool support plate **96** to which small foot stool **34** is fixed.

Small foot stool link **82** is pivoted at its forward end at **98** to small foot stool support plate **96** and is pivoted at **100** rearwardly of its forward end to the lower end of a connecting link **102** pivoted at its opposite end at **104** to large foot stool support plate **92**.

A tension spring **106** is fixed at one end to slotted link **62** and is fixed at its opposite end to first long link **64**, the spring acting much in the manner of a buffing device to control the speed with which the foot stool is extended and to buffer the tilting of the chair as it approaches the fully reclined position and additionally to insure that the foot stool remains retracted when the chair is in the upright position and the occupant is rocking.

The functions of slotted link **62** are three fold: (1) it precludes extension of the foot stool beyond a desired limit as dictated by pivot pin **60** reaching the forward extremity of slot **68**; (2) it precludes reclining of the chair without a concomitant extension of the foot stool; and (3) it precludes retraction of the foot stool while the chair is in a fully reclined position.

Any rocking movement of the body-supporting unit, while the chair is in any reclining position, is precluded when a roller **108** provided on the free end of first L-link **44** contacts the upper surface of a bearing block **110** fixed to base **12**.

When the chair is in the upright position of FIG. **1**, roller **108** is disposed upwardly of the bearing block wherefore the body-supporting unit may be rocked.

When the chair is moved to either of the reclining positions of FIGS. **2** or **3**, the roller swings downwardly into contact with the bearing block to preclude rocking.

The upper end of a stop link **112** is fixed as by rivets **114** or the like to the rear end of seat plate **40** and extends downwardly therefrom.

When the chair is in the fully reclining position of FIG. **3**, the lower end of stop link **112** contacts the upper surface of bearing block **110**, thereby effectively precluding any accidental tipping of the chair from such fully reclining position.

A stop pin **116** on seat plate **40**, when contacted by a leading edge of second L-link **56**, limits the range of outward movement of the foot stool, while the lower surface of rise bar **50**, when it contacts baseplate **38**, limits the range of downward movement of the body-supporting unit.

In use, when the chair is moved from an upright, FIG. **1**, position to an intermediate reclining, FIG. **2**, position, rise bar **50** remains in a generally horizontal position in contact with baseplate **38**, roller **108** swings downwardly into contact with bearing block **110** and the large and small foot stools are extended, the speed of such extension being controlled by spring **106**, while second L-link **56** contacts stop pin **116** to preclude further foot stool extension.

When the chair is moved from an intermediate reclined, FIG. **2**, position, to a fully reclined, FIG. **3**, position, rise bar **50** pivots relatively to baseplate **38**; pivot pin **60** moves to the forward extremity of slot **68** in slotted link **62** to preclude closing of the foot stool while in the fully reclined position, and stop link **112** contacts bearing block **110** to preclude accidental tipping of the chair. During this movement from intermediate to fully reclined position, roller **108** remains in contact with the bearing block, merely rolling therealong.

The mechanism just described may be quickly and easily modified for use with a reclining chair without the rocking feature by the simple expedient of repositioning pivot **52**, removing stop link **112**, and removing the lower roller-bearing end of first L-link **44**.

Such a modified linkage is shown in FIGS. **4** and **5**, which illustrate a reclining chair without the rocking feature.

Herein, the mechanisms are fixed to a cross rail **136** which extends between, and is fastened at its opposite ends to, the arms of the chair chassis. The pivot **52** has been moved upwardly, the stop link **112** has been removed, and first L-link **44** has been replaced by a straight link **144** wherefore the roller **108** is also omitted.

I claim:

**1**. A multiple-position rocker/recliner comprising in combination:

A. a base;

B. a rocker-spring mechanism mounted on the base for rocking movement about a transverse rocking axis;

C. a body-supporting unit including a seat and backrest rockably supported between the base by the rocker-spring mechanism;

D. hardware means

1. mounting the body-supporting unit with respect to the base

a. for two-part reclining movement relative thereto between fully upright and intermediate reclining and fully reclined positions, and

b. for rocking movement with the body-supporting unit about the rocking axis in the fully upright position

2. and including

a. means providing a transverse reclining axis about which the body-supporting unit reclines from the fully upright position to intermediate reclined and fully reclined positions

b. first stop means

i. mounted for movement with the body-supporting unit about the reclining axis, and

ii. positioned for engaging the base in the intermediate reclined and fully reclined positions and throughout movement therebetween, and

iii. operative, through such engagement, for restraining rocking movement of the body-supporting unit about the rocking axis, and

c. second stop means

i. mounted for movement with he body supporting unit about the reclining axis, and

ii. positioned for confrontation with he base in the fully reclined position, and

iii. and operative, through such engagement, for restraining the body-supporting unit against tipping.

**2**. The rocker/recliner of claim **1** including:

A. a footstool shiftable between a retracted position and an extended position,

B. and in the hardware means

1. linkage means for interconnecting the body-supporting unit and the footstool

a. for maintaining the foot stool in retracted position when in the fully upright position, and

b. for precluding assumption of a reclined position of the body supporting unit without a concomitant projection of the foot stool into extended position.

**3**. In a chair mechanism selectively adaptable for use in a recliner including a base and a body-supporting unit comprising a seat and a back supported upwardly of the base and a footstool shiftable between retracted and extended positions and for use in a rocker/recliner including a base and a rocker spring mechanism mounted on the base for rocking movement about a transverse rocking axis and a body supporting unit comprising a seat and a back rockably supported relative to the base by the rocker spring mechanism and a footstool shiftable between retracted and extended positions, the improvement comprising:

hardware means mounting the body-supporting unit with respect to the base for two-part reclining movement relative thereto between chair fully upright and chair intermediate reclined and chair fully reclined positions,

means providing a transverse reclining axis about which the body-supporting unit moves between chair fully upright position and chair intermediate reclined and chair fully reclined positions, and

linkage means for interconnecting the body-supporting unit and footstool and maintaining the footstool in retracted position when in the chair fully upright position and for precluding assumption of a chair reclined position of the body-supporting unit without a concomitant projection of the footstool into extended position.

**4**. The chair mechanism according to claim **3** for use in a rocker/recliner, including

first stop means

i. mounted for movement with the body-supporting unit about the reclining axis, and

ii. positioned for engaging the base in the intermediate reclined and fully reclined positions and throughout movement therebetween, and

iii. operative, through such engagement, for restraining rocking movement of the body-supporting unit about the rocking axis, and

second stop means

i. mounted for movement with the body supporting unit about the reclining axis, and

ii. positioned for confrontation with the base in the fully reclined position, and

iii. and operative, through such engagement, for restraining the body-supporting unit against tipping.

* * * * *