Nov. 22, 1966 E. S. ROSMARIN 3,287,059

RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

Filed Nov. 17, 1964 8 Sheets-Sheet 1

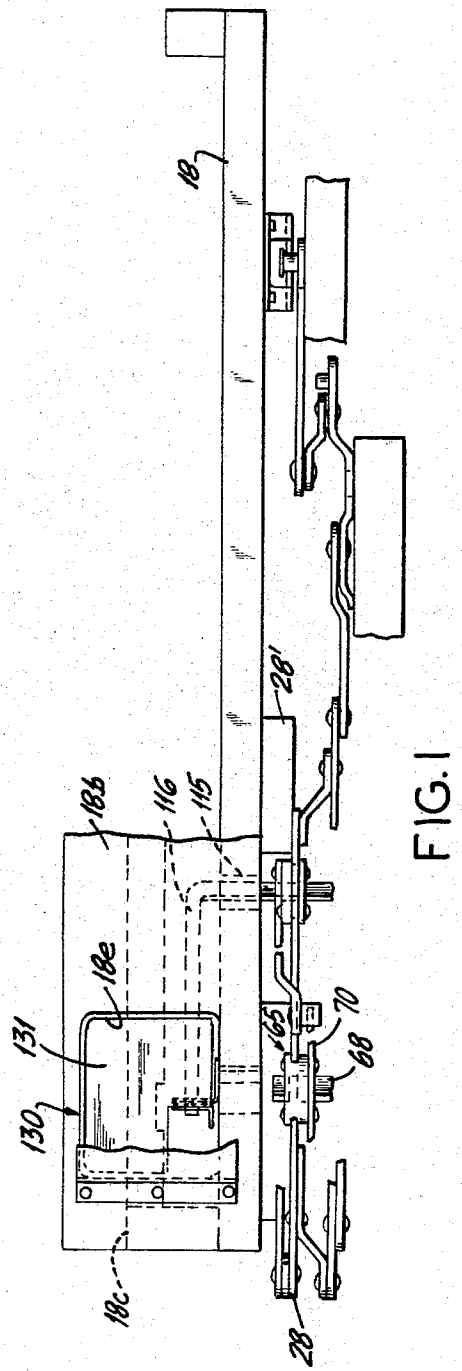


FIG. 1

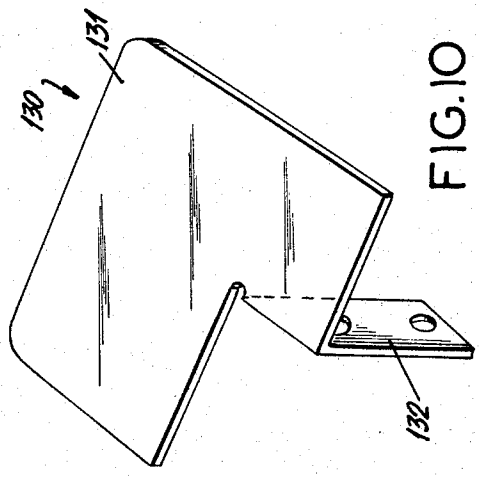


FIG. 10

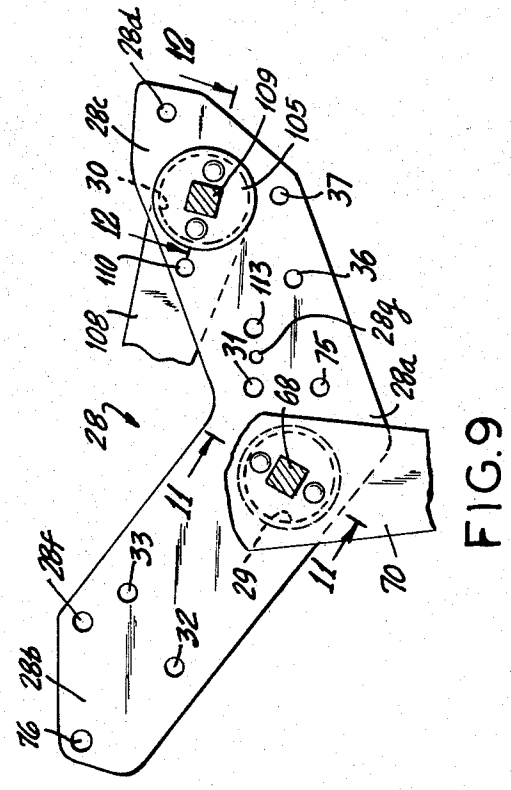


FIG. 9

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Nov. 22, 1966 E. S. ROSMARIN 3,287,059

RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

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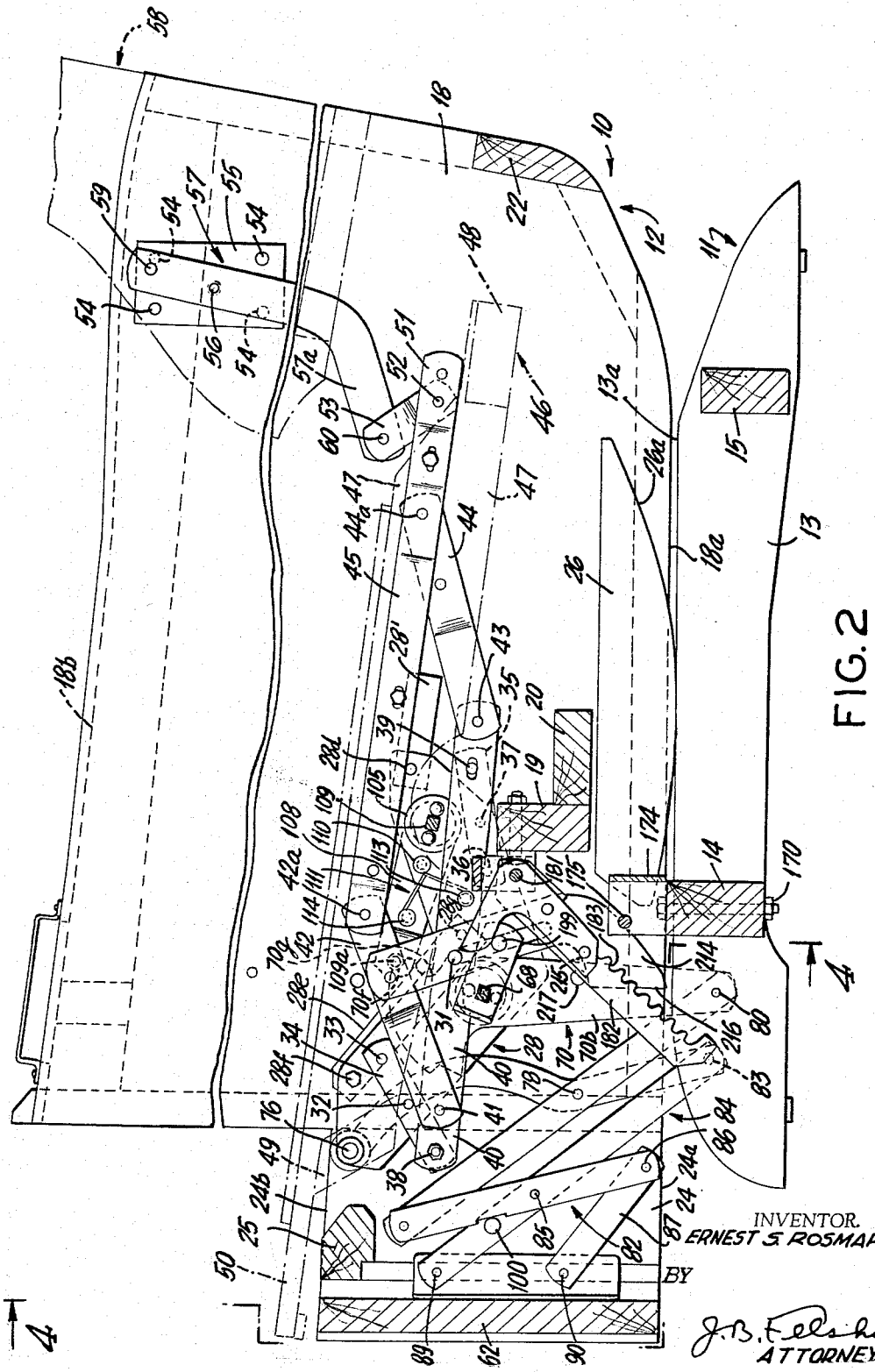


FIG. 2

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RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

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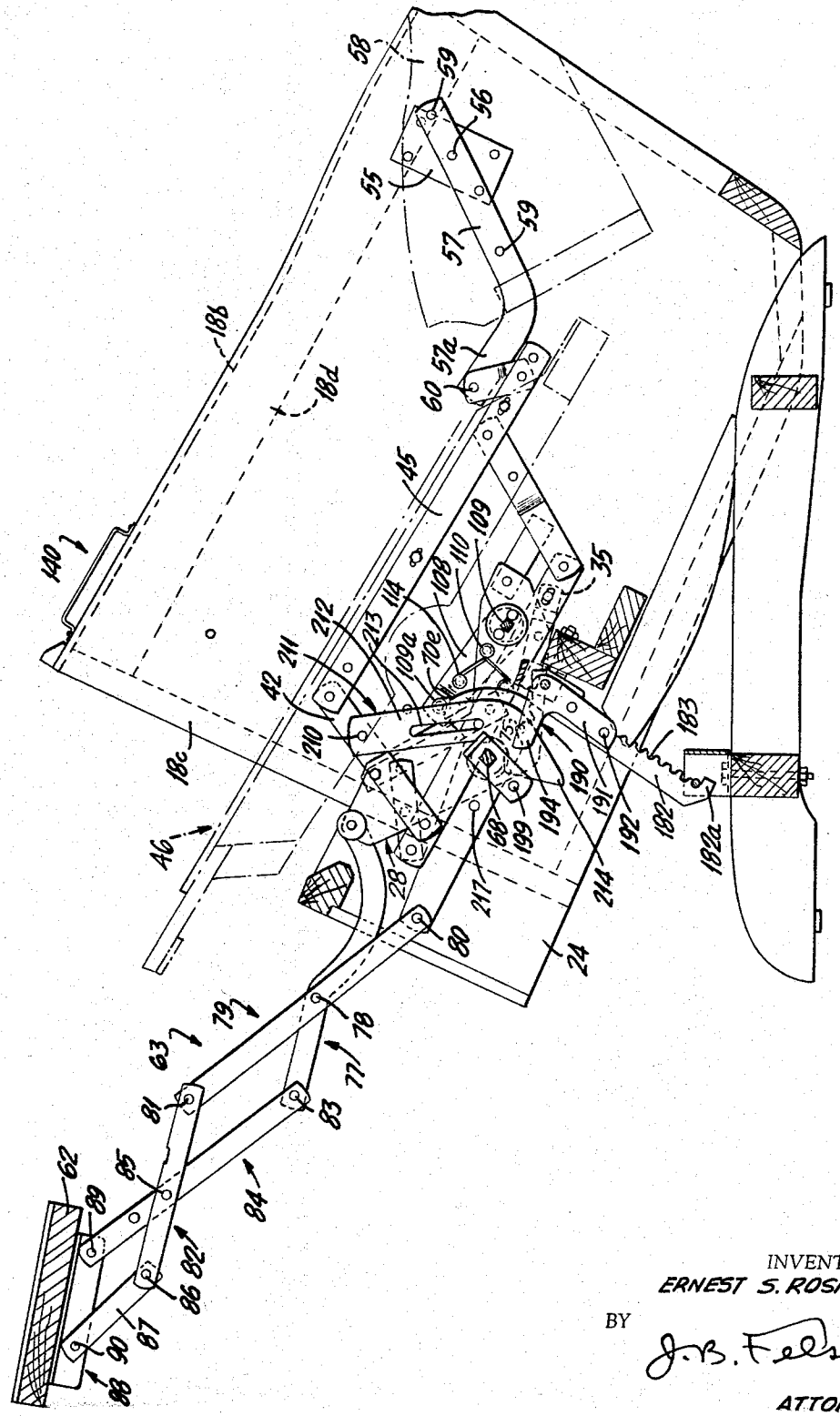


FIG. 3

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RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

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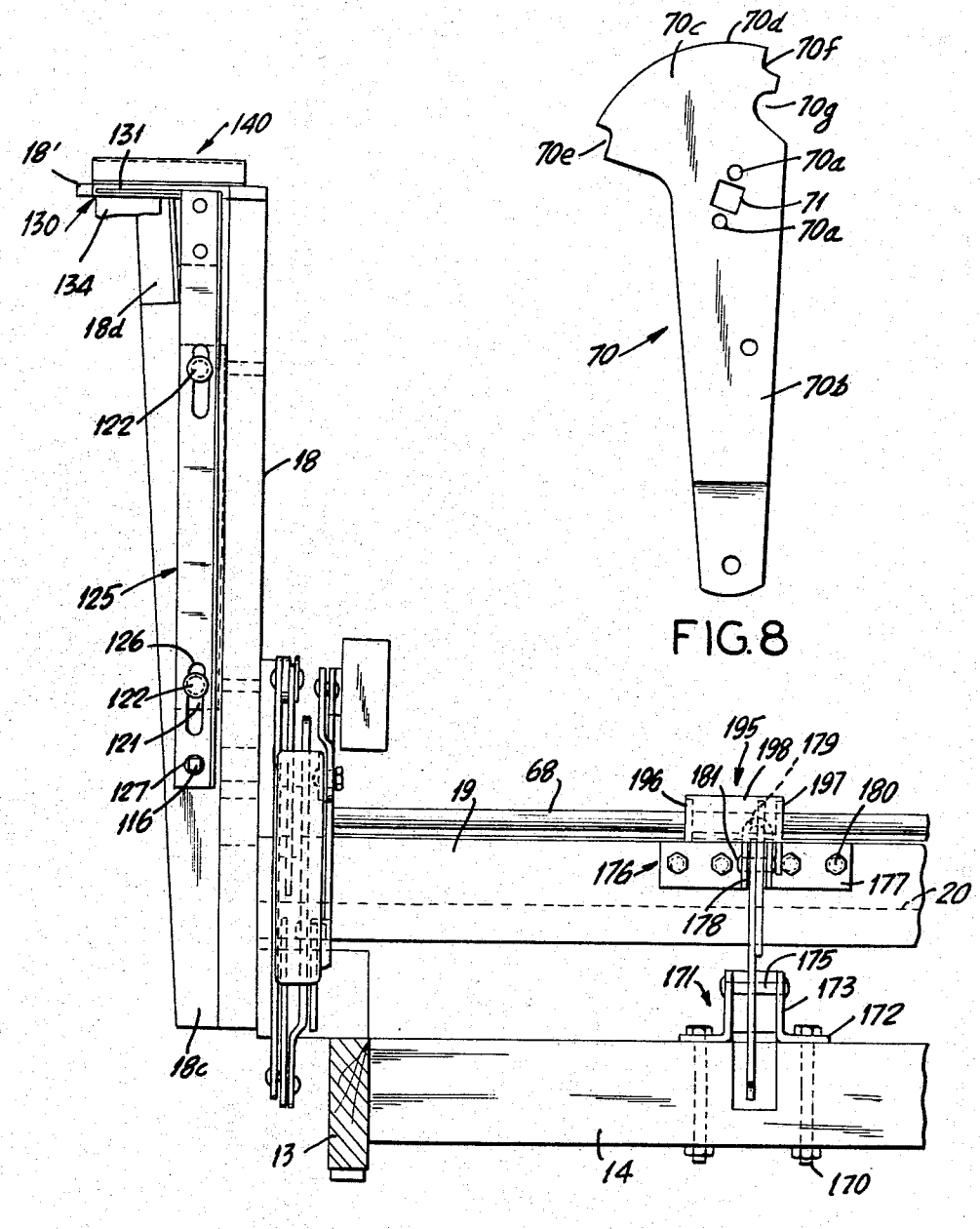


FIG. 8

FIG. 4

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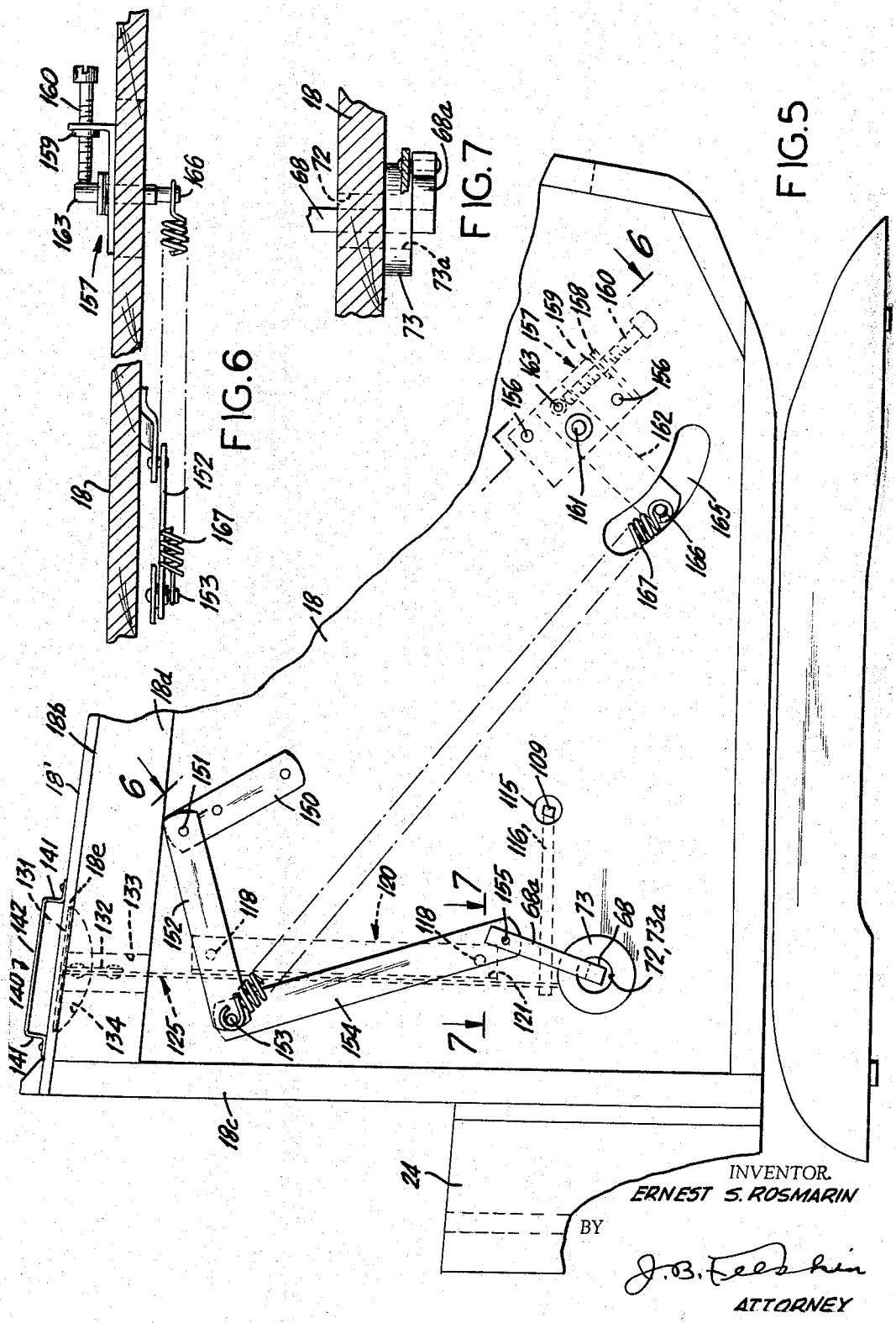
BY J. B. Fellshin

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Nov. 22, 1966 E. S. ROSMARIN 3,287,059

RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

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RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

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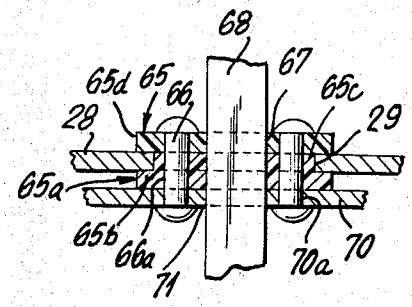


FIG. 11

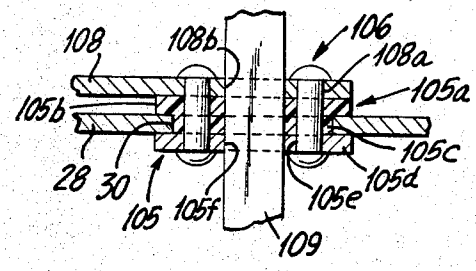


FIG. 12

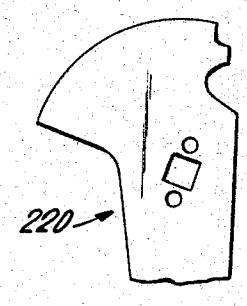


FIG. 13

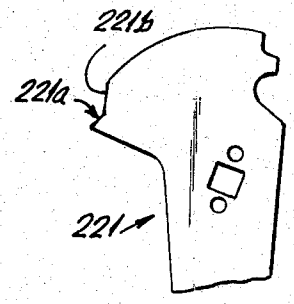


FIG. 14

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RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

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FIG. 16

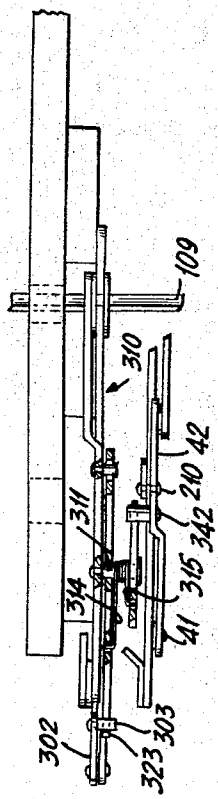
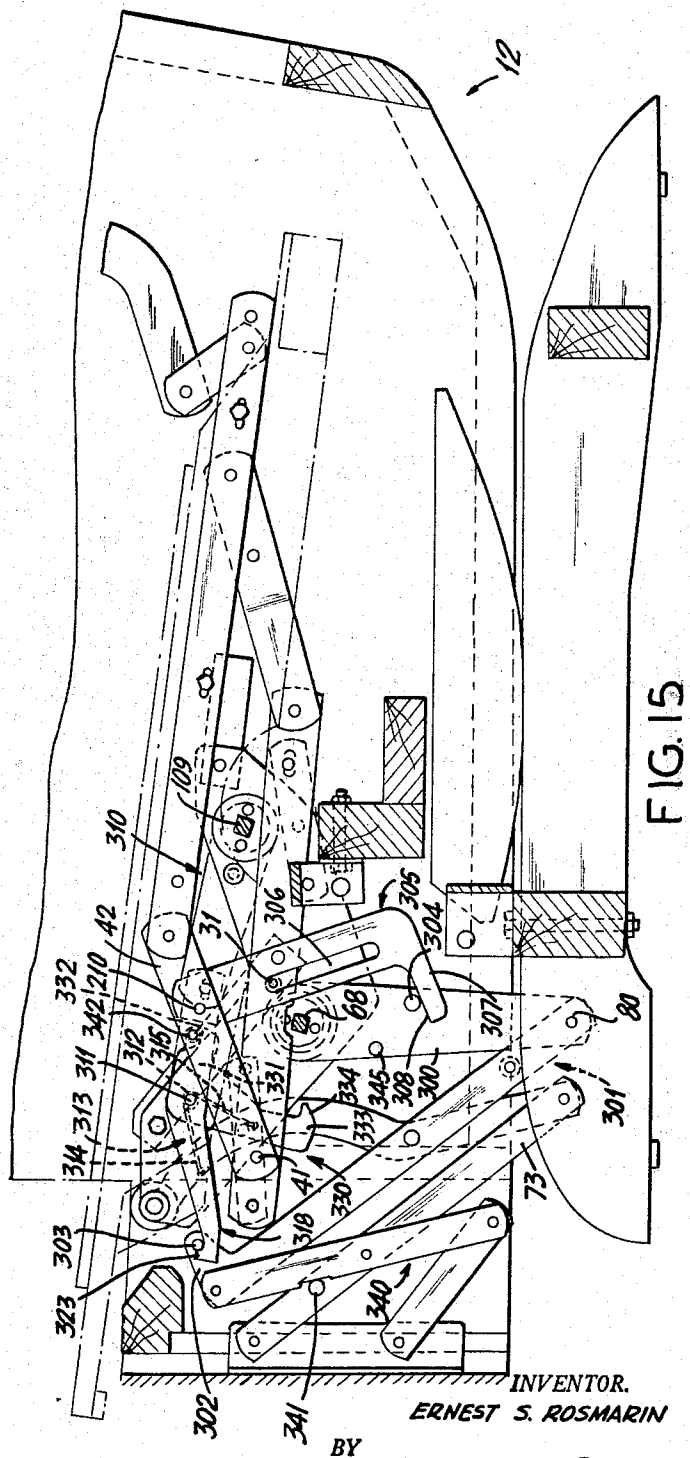


FIG. 15



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RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

Filed Nov. 17, 1964 8 Sheets-Sheet 8

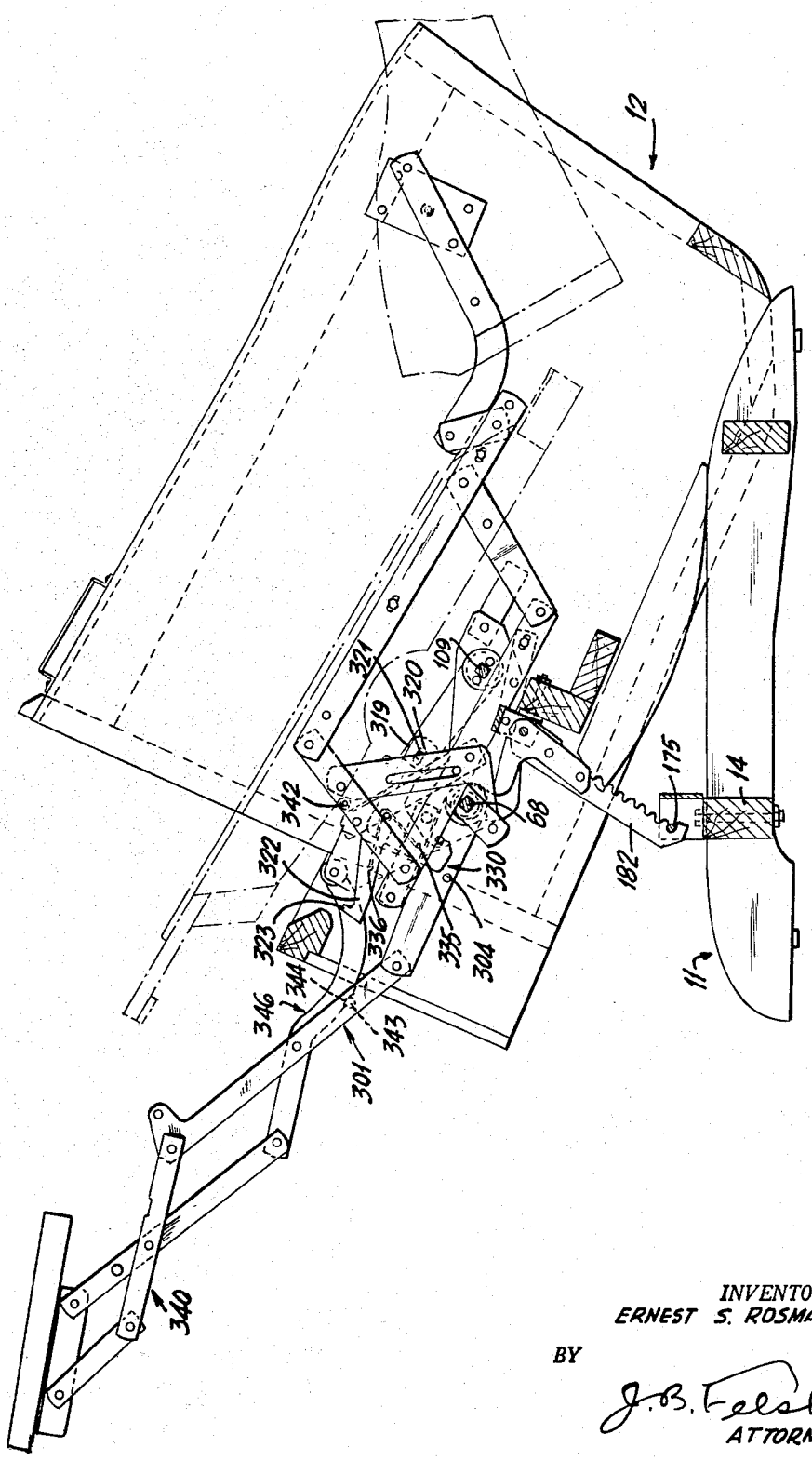


FIG. 17

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United States Patent Office 3,287,059
Patented Nov. 22, 1966

3,287,059

RECLINER ROCKER LOUNGERS AND HARDWARE THEREFOR

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Filed Nov. 17, 1964, Ser. No. 411,776
8 Claims. (Cl. 297—69)

This invention relates to recliner rocker loungers and hardware therefor.

An object of this invention is to provide a recliner rocker lounger of the character described and hardware therefor, having the following features:

(1) The chair back and seat are locked relative to the side arms of the chair during the rocking motion of the chair (lounger).

(2) Reclining positions can be obtained only after the footrest is extended.

(3) Raising of the footrest is semi-automatic, that is, upward pressure against a release mechanism unlocks a footrest drive linkage, which is spring actuated, by means of a toggle arrangement, providing nearly constant pressure throughout an opening cycle during which the footrest moves from closed or retracted to fully extended position.

(4) The footrest is locked in open or extended position; and closing of the footrest by pressure of the user's legs down against the footrest, requires release of locking mechanism by the user. When the chair seat and back are reclined, the footrest can be lowered but not locked in lowered positions. It is necessary to return the back and seat to normal sitting position before the footrest can be locked in lowered position. Means is provided to fully close the footrest and ensure locking of the footrest in fully closed position until the release mechanism is again actuated by the occupant of the chair.

(5) In a modified construction, the footrest is locked in open or extended position as occupant of chair begins to recline backrest and seat, and the footrest remains locked until occupant returns to original sitting position. In such position, pressure of the legs on the footrest will lower the footrest (without necessity to again release the locking mechanism), to a closed position where it locks automatically.

(6) Once the footrest is released, a serrated latch engages a locking pin, thereby preventing forward rocking, but permitting the chair to be rocked back to any one of a number of predetermined positions, until it reaches a rearmost position. The serrated latch is gravity actuated without use of any springs.

Another object of this invention is to provide a rugged and durable device of the character described which shall be relatively inexpensive to manufacture, easy to manipulate, and yet 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 claims.

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

FIG. 1 is a partial top view showing one side of a recliner lounger and hardware therefor, embodying the invention;

FIG. 2 is a side, elevational cross-sectional view of the lounger and illustrating the hardware on one side of the lounger, in the sitting position of the seat and back, with the footrest fully retracted or closed and locked in retracted position;

FIG. 3 is a view similar to FIG. 2, but showing the footrest fully extended, with the rocker fully rocked back and locked against forward rocking, and with the seat and back in reclining position;

FIG. 4 is a partical cross-sectional view taken on line **4—4** of FIG. 2;

FIG. 5 is a side elevational view of the semi-automatic footrest raising mechanism;

FIG. 6 is a cross-sectional view taken on line **6—6** of FIG. 5;

FIG. 7 is a cross-sectional view taken on line **7—7** of FIG. 5;

FIG. 8 is a side view of the footrest linkage drive link;

FIG. 9 is a side elevational view of the fixed mounting plate; with its bushings and members rotating with said bushings;

FIG. 10 is a perspective view of the footrest release member;

FIG. 11 is a cross-sectional view taken on line **11—11** of FIG. 9;

FIG. 12 is a cross-sectional view taken on line **12—12** of FIG. 9;

FIGS. 13 and 14 are front views of the drive link illustrating variations thereof;

FIG. 15 is a view similar to FIG. 2 and illustrating a modified form of the invention, but omitting the means for releasably locking the rocker against rocking movement;

FIG. 16 is a partial top plan view of the structure of FIG. 15; and

FIG. 17 is a view similar to FIG. 3 of the modified structure of FIG. 15, but including the rocker lock means.

Referring now in detail to the drawing, **10** designates a recliner rocker lounger embodying the invention. Said lounger **10** comprises a base support or platform **11** on which is mounted for rocking movement, a rocker or chair support **12**. The platform **11** comprises parallel side runners **13** interconnected by a front cross-rail **14** and a rear cross-rail **15**.

The chair support **12** comprises parallel side walls or side arms **18** interconnected by a cross-rail **19** in a vertical plane and a cross-rail **20** extending rearwardly from the lower end of cross-rail **19**. Said side arms **18** are also interconnected by a rear cross-rail **22**. Fixed to the lower ends of the front edges of the side arms **18** in any suitable manner (not shown) are extensions **24** in the planes of said side arms. Said extensions **24** are interconnected by a cross-rail **25**. The lower edges **24***a* of extensions **24** are at the level of the lower edges **18***a* of side arms **18**. The upper edges **24***b* of extensions **24** are disposed below the upper ends **18***b* of side arms **18**.

Fixed to the top edges **18***b* of side arms **18** are top arm plates **18**[1], extending outwardly therefrom, and fixed to the front edges of the side arms are front boards **18***c* also extending outwardly therefrom, thereby forming spaces which may be enclosed in any suitable manner.

A wood rail **18***d* is attached to the underside of arm plate **18**[1] and is spaced from the adjacent wall **18**.

Fixed to the inner surfaces of side arms **18**, at their lower ends thereof, are rockers **26** having curved under-edges **26***a* contacting the upper edges **13***a* of platform runners **13**. Usual platform springs (not shown) interconnect the platform **11** with the chair support **12** and these tend to bias the support toward a normal upright position of the support.

Fixed to the inner surfaces of side walls or arms **18**, are similar, opposed mounting plates **28** (FIGS. 2, 3, and 9). Each mounting plate **28** is of V shape, generally having an apex portion **28***a* and arms **28***b*, **28***c* extending therefrom. The mounting plates are each attached to a side arm by means of a rear scab or block **28**[1] interspaced between said plate and the side arm and fixed by means of a bolt **28***d*; and by a front scab or block **28***e* interspaced between said plate and said arm and fixed by means of rivets or bolts **28***f* and **28***g*. Scab **28***e* is inclined forwardly and upwardly and lies along arm **28***b* of the mounting plate. Bolt **28***f* goes through plate **28**.

Each mounting plate is formed with a circular opening **29** adjacent to the apex **28***a*, and with a similar circular opening **30** near the upper rear end of arm **28***c*. Fixed to each plate adjacent to, and to the right of opening **29**, is a pin **31**, for the purpose hereinafter appearing. Fixed to each plate **28**, by means of a pair of rivets **32**, **33**, is a mounting bracket **34** inclined downwardly and forwardly beyond and below arm **28***b* of mounting plate **28**. A second mounting bracket **35** is fixed to each mounting plate **28** by means of rivets **36**, **37** and inclined rearwardly and upwardly and projects beyond and beneath arm **28***b* of the mounting plate. Fixed to the lower forward end of bracket **34** by rivet **38**, and to the rear upper end of bracket **35** by rivet **39**, is an arm mounting bar **40**.

Pivoted to each mounting bar **40** adjacent its forward end, as at **41**, is a front seat link **42** inclined upwardly and rearwardly. Pivoted to the rear end of each mounting bar **40**, as at **43**, is a rear seat link **44**. Pivoted to the upper rear ends of each pair of seat links **42**, **44**, as at **42***a*, **44***a*, respectively, is a seat mounting bar or link **45**. Supported by and mounted on the two bars **45**, is a seat frame **46**. Seat frame **46** may comprise side members **47** connected by a rear cross-rail **48** and a front cross-rail **49**. The seat frame projects forwardly to overlie the space beneath the side extensions **24**, and is located, when the seat is in upright position, above said side extensions, as at **50**.

Seat mounting bars **45** extend rearwardly beyond the rear seat links, at at **51**. Pivoted to each rear extension **51**, as at **52**, is a short forwardly and upwardly inclined link **53**, for the purpose hereinafter appearing.

Fixed to the inner side of each side arm **18**, near the rear upper corner thereof, as by rivets **54**, is a bracket **55**. Pivoted to each bracket **55**, as at **56**, is a backrest mounting bar **57**. The backrest or chair back **58** is fixed to the backrest mounting bar **57** as by rivets **59**, and is hence pivoted to the chair support or rocker **12**. Each bar **57** has a forwardly and downwardly inclined extension **57***a* pivoted, as at **60**, to the upper end of short link **53**.

The backrest **58** may recline rearwardly to cause seat mounting bar to be pushed forwardly thereby causing seat links **42**, **44** to swing upwardly and forwardly (in a counterclockwise direction looking at FIGS. 2 and 3) to raise the seat and move it forwardly. The seat mounting bar **45**, front and rear seat links **42**, **44** and fixed bar **40** form almost a parallelogram.

The recliner rocker lounger **10** is provided with a footrest or leg rest member **62** and lazy tong mechanism **63** connecting said member to the chair support **12**. To this end, there is rotatably mounted in circular opening **29**, a rotary bushing **65**. Saaid bushing **65** comprises an annular bushing part **65***a* having circular portion **65***b* contacting the inner side of mounting plate **28**, and an integral circular hub **65***c* fitting within opening **29**. A

circular disc retainer part **65***d* contacts the rear of plate **28** and hub **65***c*, and is fixed to the bushing part **65***a* by a pair of parallel rivets **66** passing through parallel openings **66***a* in parts **65***a*, **65***d*. Parts **65***a*, **65***d* are preferably made of nylon or any other suitable anti-friction material such as hard plastic. The rivets **66** are on opposite sides of the axis of opening **29**. The bushing **65** (parts **65***a* and **65***d*) are formed with axial square registering holes **67** through which extends a square shaft **68**.

It will be understood that the seat and back supporting hardware and the footrest projecting mechanism is illustrated for one side only of the chair. This hardware is similar at both sides and symmetrically disposed, so that only one side is illustrated and one side will be described. The shaft **68** hence passes through the square holes in the bushings on the mounting plates **28** at opposite sides of the chair.

Mounted on said square shaft **68** is a drive lever **70** formed with a square hole **71** registering with holes **67** and through which, said shaft passes. Drive lever **70** contacts portion **65***b* of bushing part **65***a* and is fixed thereto, and to part **65***d* by said rivets **66**, which also pass through rivet holes **70***a* registering with rivet holes **66***a*. Thus, rotation of the shaft **68** causes rotation of the drive lever **70**. Shaft **68** passes through a suitable opening **72** in the side arm or wall **18** at the right side of chair (looking at the front of the chair), and has an arm portion **68***a* bent at right angles to the shaft and located at the outer side of said wall. A block **73** of wood may be attached to the outer side of said wall **18** and it is formed with an opening **73***a* registering with opening **72** so that the shaft **68** can pass therethrough. Arm **68***a* is parallel to wall **18**, and when the footrest is retracted, is inclined upwardly and rearwardly, as shown in FIGS. 5 and 7.

The drive lever **70**, in the retracted position of the footrest (FIG. 2), comprises an arm **70***c* having an arcuate outer edge **70***d* formed at one end with a corner notch **70***e*, at its other end with a corner notch **70***f*. At the rear edge of arm **70***c* is a notch **70***g* adapted to engage a pin **75** fixed to mounting plate **28**, when said drive lever is rotated forwardly and upwardly (in a clockwise direction from position of FIG. 2 to position of FIG. 3) to stop rotation of said drive lever in said direction.

Pivoted to the upper, forward end of arm **28***b* of mounting plate **28**, as on pivot **76** is a lever **77** inclined downwardly and rearwardly, in the retracted footrest position of FIG. 2. Pivoted to lever **77**, mediately the ends thereof, as at **78**, is a lever **79** crossing lever **77**. The lower end of lever **79** is pivoted as at **80** to the lower end of arm **70***b* of drive lever **70**. Pivoted to the upper end of lever **79**, as at **81**, is a lever **82**. Pivoted to the lower end of lever **77**, as at **83**, is the lower end of a lever **84** which crosses lever **82** and is interpivoted thereto, as at **85**. Pivoted to the lower end of lever **82** (looking at FIG. 2), as at **86**, is a short link **87**.

Fixed to the rear of footrest **62** is a footrest angle iron **88**, to which the upper end of lever **84** is pivoted, as at **89**, and to which link **87** is pivoted, as at **90**. In the retracted position of the footrest, said footrest **62** is in vertical position, beneath the forwardly projecting portion **50** of the seat frame (see FIG. 2). In such retracted position, a pin **100** on lever **84**, between pivots **85** and **89**, contacts an edge of lever **82** to fully close the lazy-tong mechanism.

Means is provided to lock the footrest projecting mechanism against opening, until a release mechanism hereinafter described, is released. To this end, a bushing **105** is rotatably mounted in opening **30** of mounting plate **28**. Bushing **105** comprises a bushing part **105***a* having an annular portion **105***b* contacting the outer side of plate **28** and from which projects a bushing part or hub **105***c* rotatably received in said opening **30**. An annular disc retainer part **105***d* contacts the inner surface of

plate **28** and is fixed to part **105***a* by means of a pair of parallel rivets **106** disposed on opposite sides of the axis of the bushing and passing through parallel openings **105***e* in said bushing. A footrest locking lever **108** is fixed to said bushing by said rivets **106**, said rivets passing through openings **108***a* formed in said lever, and registering with openings **105***e*.

Bushing **105** is formed with an axial square opening **105***f*, and lever **108** is formed with a square hole **108***b* registering therewith. A square shaft **109** passes through said openings **105***f*, **108***b* and rotates with the bushing. Bushing **105** is also made of anti-friction material such as nylon or other hard plastic material.

In the retracted position of the footrest, lever **108** extends forwardly. Mounted on the forward end of said lever **108** is a stud **109***a* engaged in notch **70***f* of lever **70** to prevent rotation of latter in a clockwise direction (looking at FIG. 2). Fixed to mounting plate **28** is a pin **110** on which is mounted the coil portion of torsion spring **111**. One end arm of said spring engages beneath a pin **113** also fixed to said mounting plate **28**, and the other end arm of said spring engages a pin **114** on said lever **108**. The torsion spring is thus so arranged as to bias the lever **108** in a counter-clockwise direction (FIG. 2) to retain the locking stud **109***a* within the notch **70***f*.

Means is provided for releasing stud **109***a* from notch **70***f*, to permit rotation of drive lever **70** to project the footrest from the position of FIG. 2 to the position of FIG. 3, by means described hereinafter.

To this end, shaft **109** extends through a hole **115** on the left wall or side arm **18** (looking toward the front of the chair), and extending from said shaft is an arm **116** bent at right angles to said shaft and located at the outer side of said wall.

Fixed to the outer side of said last mentioned wall **18**, as by bolts **118**, is a vertical angle iron **120** which has a vertical flange **121** carrying a pair of spaced headed pins **122**. Slidably contacting the front surface of said flange **121**, is a vertical release plate attach link **125** formed with slots **126** through which pins **122** pass.

Thus, member **125** may slide up and down relative to the side arms of the chair. Arm **116** of shaft **109** passes through a round opening **127** in the lower end of said member.

Attached to the upper end of sliding member **125**, is a footrest release plate **130** (FIGS. 1, 4, 5 and 10). Said plate **130** comprises a top flat wall portion **131** from which an integral tongue **132** projects downwardly and is attached to the upper end of member **125**. The upper end of member **125** passes partially through a groove **133** in board **18***d*. Wall portion **131** is disposed within an opening **18***e* in top plate **18**[1]. A piece of wood **134** is attached to the underside of the outer end of wall **131** so that the occupant of the chair may reach below piece **134** with his right hand to permit upward pressing of plate **130** to lift member **125**, to thereby rotate shaft **109** through the connection of arm **116** within hole **127** of said member **125**. Rotation of shaft **109** (accompanied by rotation of bushings **105**), causes rotation of lever **108** to bring stud **109***a* out of notch **70***f*, and thereby releases drive lever **70** for clockwise rotation.

A cover member **140** is attached to the top of plate **18**[1]. Said cover **140** has front and rear flanges **141** screwed to the top plate and interconnected by a top wall **142** spaced above opening **18***e*.

Means is provided to automatically rotate shaft **68** upon release of drive lever **70**, whereby to project said footrest. To this end there is fixed to the outer side of wall **18**, at the right side of the chair, when looking toward the front of the chair, a bracket **150**. Pivoted thereto as at **151** is a toggle link **152**. Pivoted to the forward end of toggle link **152**, as by pivot pin **153**, is a second toggle link **154**, the lower end of which is pivoted to the upper end of arm **68***a* as at **155**.

Attached to the inner side of said wall **18** as by rivets **156** is an L-shaped bracket **157** having a flange **158** perpendicular to said wall. Welded to flange **158** is a nut **159**. The threaded opening in said nut registers with an opening in flange **158**. A screw **160** passes through the opening in flange **158** and is screwed through the nut **159**. Screw **160** has a slotted head at one end. Said screw is inclined upwardly and forwardly. Fixed to the part of bracket **157** which is fixed to the wall **18**, is a pivot pin **161** on which is pivoted a lever **162**. On one end of the lever **162** is a pin **163** which is abutted by the upper end of screw **160**, so that turning of the screw in one direction will cause rotation of the lever **162** in a counter-clockwise direction, looking at FIG. 5, to adjust the tension of the spring.

Adjacent wall **18** is formed with an arcuate slot **165**. On the lower end of lever **162** is a pin **166** passing through said slot **165**. A coil tension spring **167** located at the outer side of said adjacent wall **18**, interconnects pin **166** with pin **153**. The coil spring **167** is inclined upwardly and forwardly and substantially bisects the angle between toggle links **152**, **154**.

Upon releasing the locking link or lever **108**, coil spring **167** will cause movement of the toggle links **152**, **154** to thereby cause rotation of arm **68***a* and hence of shaft **68** in a clockwise direction. Such rotation of said shaft **68** will cause rotation of the drive lever **70** to cause the footrest to be projected.

However, when lever **108** is raised thereby tensioning spring **111**, stud **109***a* will be disposed above the arcuate edge **70***d* of the drive lever. When the footrest is fully projected, stud **109***a* will be snapped down into notch **70***e* and notch **70***g* will engage the stop pin **75** to limit rotation of the drive lever in a direction to project the footrest. Engagement of the stud **109***a* in notch **70***e* will prevent the footrest from coming down until the release plate **130** is again pressed upwardly to lift stud **109***a* up out of notch **70***e*. Upon lifting of the stud **109***a* out of notch **70***e*, downward pressure by the legs of the occupant on the footrest will lower the footrest.

Nearly constant pressure is maintained throughout the opening cycle from closed or retracted to fully extended position of the footrest due to the toggle arrangement of links **152**, **154** and the spring **167**. When the spring is under greatest tension, the effect of the toggle links on arm **68***a* for a given pull at the apex, is less, and becomes greater as the spring shortens and decreases in tension. As the toggle links come closer to alignment (as the angle therebetween approaches closer to 180°) the outward resultant force increases. Since the tension on the spring during such action decreases, a more or less constant pressure on arm **68***a* is maintained. Means is provided to prevent forward rocking movement of the chair support **12** when the footrest is projected, while permitting rearward rocking motion until said support is rocked back to its fully rearwardly rocked position. To this end, there is fixed to the middle of front cross-rail **14** of the platform **11**, as by bolts **170**, a bracket **171** having bottom outwardly extending flange **172** engaged by said bolts and vertical spaced walls **173** interconnected by a rear vertical web **174**. Walls **173** are interconnected by a fixed cross-pin **175**.

Attached to the front side of cross-rail **19** of the chair support, at the middle thereof, is a bracket **176**, having outwardly extending, coplanar wings **177** from which parallel flanges **178** extend forwardly. Flanges **178** are interconnected by a top curved portion **179**. Wings **177** are fixed to the rail **19** by bolts **180**. Flanges **178** are interconnected by a horizontal cross-pin **181**. Pivoted to pin **181** is a ratchet bar **182** having notches **183** at its rear edge, engageable with the fixed cross-pin **175**. The notches **183** are so designed that when said ratchet bar engages the pin **175**, the chair support can rock back until pin **175** reaches the lowermost notch and contacts an extension **182***a* on said ratchet bar. However the notches **183** are such that the chair sup-

port cannot rock forwardly unless the ratchet bar is swung up and away from pin **175**.

Means is provided to raise the ratchet bar **182** when the footrest is retracted (FIG. 2) and to again engage the ratchet bar with pin **175** when the footrest is projected, so that the chair support **12** can only rock back to a rearward rocking position but cannot rock forwardly, when the footrest is projected, and the chair support is free to rock back and forth only when the footrest is retracted. To this end there is attached to ratchet bar **182**, a bell crank lever **190**, the apex of which has the pivot pin **181** passing therethrough. Lever **190** has one arm **191** lying alongside ratchet bar **182** and fixed thereto by rivets **192**. Extending from the apex forwardly thereof is a second arm **194** of the bell crank lever **190** having a curved front underedge.

Fixed on square shaft **68** at the middle thereof, is a yoke **195** having flanges **196**, **197** interconnected by a web **198**. Flange **197** has a square opening receiving the shaft **68** therethrough in a close fit. Flange **196** has an enlarged round hole through which square shaft **68** passes. Flange **197** has greater radial length than flange **196** and carries a pin **199** spaced from arm **194** of bellcrank lever **190** when the footrest is projected, but which engages beneath said arm as the footrest is projected to rotate said bellcrank, and hence ratchet bar **182**, in a clockwise direction (FIG. 2) to disengage said ratchet bar from pin **175**. The serrated ratchet bar **182** is gravity actuated and moves without necessity for springs.

Means is provided to lock the seat and backrest to the chair support **12** during rocking motion of the chair, when the footrest is fully retracted, so that the seat and back can only be reclined when the chair support is locked against rocking. To this end there is pivoted to the front seat link **42**, as at **210**, an interlock lever **211**. Said lever **211** has a straight upper portion **212** formed with a longitudinal slot **213** through which the pin **31** on mounting plate **28**, passes. In the retracted position of the footrest (FIG. 2), with the ratchet bar **182** swung away from pin **175**, so that the chair support is free to rock, pin **31** is at the upper end of slot **213**. Said interlock lever **211** has at its lower end, a forwardly and downwardly curved hook portion **214** formed with an upper edge **215** and a front edge **216**. In the position of FIG. 2, a pin **217** fixed to the drive link **70** engages said upper edge **215** of the hook portion of the interlock lever to prevent said lever from being pulled upwardly. Thus, said pin **217** prevents the front seat link **42** from being rotated in a counterclockwise direction about pivot **41**. The seat is hence locked against movement.

However, when the drive link is swung forwardly to allow ratchet bar **182** to engage pin **175**, pin **217** moves away from the hooked portion **214** of the interlock lever, disengaging hook edge **215**, and thereby permitting reclining movement of the seat and backrest.

When the seat and backrest are reclined, the footrest can be lowered but not locked, because pin **217** will strike the front edge **216** of the hooked portion of the interlock lever. It is necessary to return the backrest and seat to normal sitting position, so that the interlock lever will be moved all the way down, to permit the pin or stud **217** on the drive link to clear above the hook extension **214** and engage edge **215**, in order to lock the seat and backrest against reclining movement.

Two variations in the design of the drive link upper portion are illustrated in FIGS. 13 and 14. In FIG. 13, the drive link **220** is similar to drive link **70** except that notch **70***e* has been eliminated. With such construction reasonable pressure by the occupant of the rocker, in excess of weight of legs, will lower the footrest without necessity for occupant pressing release plate **130** upwardly.

In FIG. 14, there is illustrated a drive link **221**, similar to drive link **70**, except that notch **70***e* is replaced by a notch **221***a* having a tapered edge **221***b*, so that excessive pressure on the footrest such as a second person sitting on the extended footrest would cause disengagement of stud **109***a*, permitting the footrest to close without actuation of plate **130**. In FIGS. 15–17 there is shown a modified construction of FIGS. 1–14 except for changes hereinafter pointed out.

The chair **10** comprises a platform **11** and rocker **12** similar to that shown in FIG. 2. The hardware which connects the support side walls **18** to the seat and backrest are also the same as in FIG. 2. The mechanism to lock the rocker against rocking movement are also the same as in FIG. 2. The mechanisms shown in FIGS. 5, 6, 7 are also employed for the construction of FIGS. 15–17. The mounting plates **28**, the bushings **65** and **105** are also employed in FIGS. 15–17, as well as shafts **68** and **109**.

However in FIGS. 15–17, a main drive lever **300** replaces main drive lever **70**. It is mounted on said square shaft **68** and is attached to bushing **65**, the same way that lever **70** is mounted on said square shaft and attached to said bushing. Drive lever **300** is pivoted at its lower end, as at **80**, to the lower end of a lever **301**. The footrest and its lazy-tong projecting mechanism is the same as in FIG. 2, except that said lever **301** replaces lever **79** and differs therefrom by being provided, adjacent its upper, forward end with a lug **302** which is inclined upwardly and rearwardly when the footrest is retracted. Lug **302** carries a pin **303** for the purpose hereinafter appearing. Drive link **300** carries in a pin **304** (same as pin **217** on drive link **70**).

Interlock lever **211** of FIG. 2 is replaced by an interlock lever **305** pivoted to pin **210** on front seat link **42**. Said interlock lever **305** has a slot **306** (to receive pin **31** on plate **28**) same as slot **213** of member **211**, and an offset arm **307** similar to arm **214** of said member but narrow in width thereby eliminating the front edge **216** of the offset arm. Offset arm **307** does have an upper edge **308** to engage pin **304** on the drive link to prevent reclining movement of the seat and back of the chair while the footrest is retracted, and the rocker may rock because the rachet (not shown in FIG. 15) is released from the locking pin (same as in FIG. 2).

In FIGS. 15–17, locking lever **108** is replaced by a lever **310** mounted on square shaft **109** and attached to bushing **106** in the same way that lever **108** is mounted on said square shaft and fixed to said bushing.

Fixed to mounting plate **28** is a pin **311** on which is mounted the coil portion **312** of a torsion spring **313**. Said torsion spring **313** has arms **314**, **315** for the purpose hereinafter appearing. Pivoted to pivot pin **311** is a footrest locking lever **318** having an arm **319** extending toward locking lever **310** and formed with a slot **320** slidably receiving a pin **321** on locking lever **310**. Said locking lever **318** has an arm **322** projecting forwardly and formed with an upwardly extending hook **323** at its outer end engaging pin **303** when the footrest is retracted and collapsed.

Also pivoted on pivot pin **311** is a locking lever **330** of L shape having one arm **331** projecting rearwardly and having a notch **332** at the outer end of its upper edge. Said lever **330** also has a downwardly extending arm **333** formed at its lower end with a rearwardly projecting hook or lug **334**. Arm **333** has a hole **335** to receive the outer offset end of arm **315** of the torsion spring **313**. Arm **322** of locking lever **318** has a hole **336** to receive the outer offset end of arm **314** of said torsion spring. Thus, torsion spring **313** tends to rotate locking lever **330** in a counter-clockwise direction relative to lever **318**.

The operation of the apparatus of FIGS. 15–17 will now be described. The footrest linkage is prevented from opening by engagement of hooked portion **323** of lever **318** with stud or pin **303** mounted on the footrest intermediate lever **301**. Pressure of the torsion spring **313**

causes locking lever **318** to remain in engagement with stud **303**. Square shaft **109** extends between right and left side bushings **105**, through hole **115** in side arm **18** and is bent at 90° angle to form the extension **116** (see FIG. 5) which engages in hole **127** in slotted attaching link **125** which is attached to the release member **130**.

Upward pressure by the chair occupant against plate **131** of release member **130** lifts attach link **125** upwards, thereby rotating square shaft **109**, hence rotating lever **310** in a clockwise direction, looking at FIGS. 15, 17. This action, through the pin and slot connection **321, 320**, will cause lever **318** to rotate in a counterclockwise direction to disengage hook **323** from stud or pin **303**. Square shaft **68** is now free to rotate clockwise under tension of spring **167** and toggle linkage **152, 154** acting on offset arm **68***a* of said shaft (see FIG. 5). Such action of square shaft **68** will cause the footrest to be projected from the position of FIG. 15 to the position of FIG. 17.

Upward or projecting movement of the footrest is limited by engagement of pin **343** on lever **301** with lower edge of lever **346** (which corresponds with lever **77** of FIG. 3). As the occupant causes the backrest and seat to take a reclined position relative to the rocker support or chair frame by applying pressure against the backrest of the chair, the front carrier or seat link **42** is caused to rotate counterclockwise around its lower pivot pin **41**, thus moving a stud or pin **342** thereon away from the rearward extension edge **332** or the arm **331** of locking lever **330** to permit said lever **330** (under influence of spring **313**) to rotate in a counterclockwise direction (FIG. 15). In the position of FIG. 15, pin **342** retains lever **330** against rotation because said pin contacts said extension edge **332**. Rotation of lever **330** will cause it to engage a stud or pin **345** on drive link **300**, just inside of hook **334**, when the footrest is fully extended, to lock the footrest in fully extended position, until the occupant of the chair returns the seat and backrest to sitting position. In such position, pin or stud **342** will rotate lever **330** in a clockwise direction to release the footrest for downward or retracting movement when sufficient pressure of the leg against the footrest will overcome effect of the footrest actuating spring **167** and the toggle mechanism **152, 154**, and allow the footrest to be returned to its closed position, without necessity for pressing release member **130** upwardly. In the closed position of the footrest, stud **303** will engage itself with hook end **323** of lever **318**, thus causing the footrest to remain locked in its retracted position.

Also, as the footrest is retracted, with the seat and back in sitting position, offset arm **307** of member **305** will engage stud **304** on drive lever **300** to prevent reclining movement of the seat and backrest.

The ratchet **182** of FIG. 17 operates the same as in FIGS. 2 and 3, and locks the rocker against forward rocking when the footrest is extended, and is released when the footrest is retracted, to permit free rocking movement back and forth.

It will be thus seen that there is provided a combination device in which the several objects of the present 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 embodiments 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:

1. In combination, a chair support, a footrest, means to project said footrest relative to said support, from a fully retracted to a projected position of said footrest, spring means to actuate said projecting means to project said footrest from said fully retracted to said projected position, releasable means to lock said projecting means in the fully retracted position of said footrest to prevent projection of said footrest, and manually controlled means to release said locking means to permit said spring means to actuate said projecting means and project said footrest from said fully retracted to said projected position thereof, said spring means being in its greatest loaded condition in the fully retracted position of said footrest and decreasing in load from its greatest loaded condition as said footrest is projected from its fully retracted position.

2. The combination of claim **1**, and means controlled by said lock means, to lock said footrest in projected position and means whereby said release means may actuate said lock means to release said means for locking the footrest in projected position, whereby to permit retraction of said footrest from projected position.

3. The combination of claim **2**, body support means movably connected to said support, means to prevent movement of said body support means when said footrest is in retracted position, and to release said body support means for movement relative to said support, upon projecting said footrest.

4. In combination, a chair support, a drive member pivoted thereto, a footrest member, lazy tong mechanism connecting said footrest member to said chair support and to said drive member to project said footrest member from a fully retracted to a projected position upon rotating said drive member in one direction from an initial position, a locking member pivoted to said support, means controlled by said locking member to lock said drive member against rotation in said one direction from said initial position, manually actuable means to cause the locking member to release said lock means to permit said drive member to be rotated in said one direction from said initial position, and spring means to rotate said drive member in said one direction from said initial position upon actuation of said release means, said spring means being in its greatest loaded condition in the fully retracted position of said footrest, and decreasing in load from its greatest loaded condition as said footrest is projected from the fully retracted position thereof.

5. The combination of claim **4**, and means to prevent rotation of said drive member in an opposite direction, to releasably lock said footrest in projected position.

6. The combination of claim **5**, and means to release the footrest member when it is locked in projected position, thereby permitting rotation of said drive member in an opposite direction to cause retraction of said footrest member.

7. The combination of claim **4**, said spring means comprising a first toggle link pivoted to said chair support, a second toggle link pivoted to said first toggle link and forming an angle therewith, a coil tension spring anchored at one end to said chair support and at its other end to the pivotal point interpivoting said toggle links, and located in the angle therebetween, and means connected to said drive member for rotation therewith, and to said second toggle link, for rotating said drive member.

8. In combination, a platform, a chair support rockingly mounted on said platform, a drive member rotatably mounted on said support, a footrest, lazy tong mechanism connecting said footrest to said support and to said drive member, spring means to rotate said drive member in one direction from an initial position thereof to extend said lazy tong mechanism to project said footrest from fully retracted to projected position, releasable means to lock said drive member against rotation in said one direction in its said initial position, manually controlled means to release said locking means, means to lock said support against forward rocking when said footrest is projected, and means to release said last lock means upon rotating said drive member in an opposite direction to retract said footrest, so that said support may freely rock when said footrest is retracted.

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