United States Patent

[11] **3,608,958**

[72] Inventors **Edward M. Knabusch; Edwin J. Shoemaker, both of Monroe, Mich.**

[21] Appl. No. **847,330**
[22] Filed **Aug. 4, 1969**
[45] Patented **Sept. 28, 1971**
[73] Assignee **La-Z-Boy Chair Company**

[54] **MULTIPLE SEAT UNIT OF THE RECLINING AND ROCKING TYPE**
10 Claims, 28 Drawing Figs.

[52] **U.S. Cl.** **297/69,** 297/269, 297/272
[51] **Int. Cl.** **A47c 1/02,** A47c 3/02
[50] **Field of Search** 297/94–104, 694, 269, 232–233, 248, 257, 429, 115, 116

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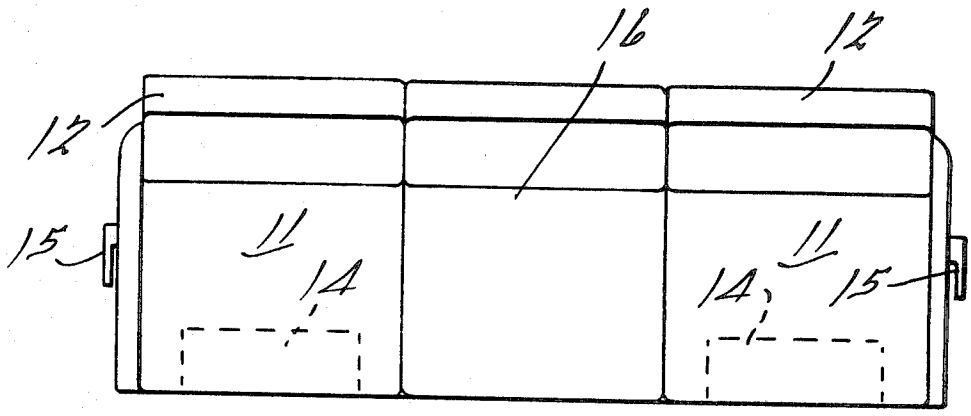
Primary Examiner—Paul H. Gillian
Attorney—Harness, Dickey & Pierce

ABSTRACT: The multiple seat unit of a rocking or reclining type chair employs linkage mechanism therefor and for the leg rest which is similar to that used in a single unit chair construction. Some modification is required to the unit and mechanisms when two or more seating areas are provided for supporting the mechanisms between the side and center member of the unit. The end seating areas of a unit have tilting backs, movable seats and adjustable leg rests which operate independently of each other. The rocking type of multiple seating unit is a single construction which may be retained from rocking by locking it in tilted position at each side of the unit. The rocking unit will have a seating capacity for two or more occupants while the reclining unit for a plurality of occupants has only the end units which are reclinable and provided with leg rests, the seating portion therebetween has a rigid back and seat without leg rests.



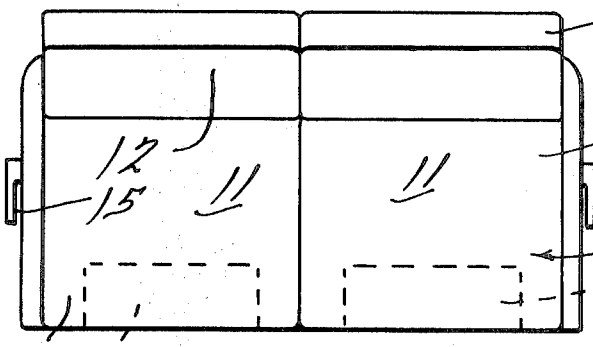
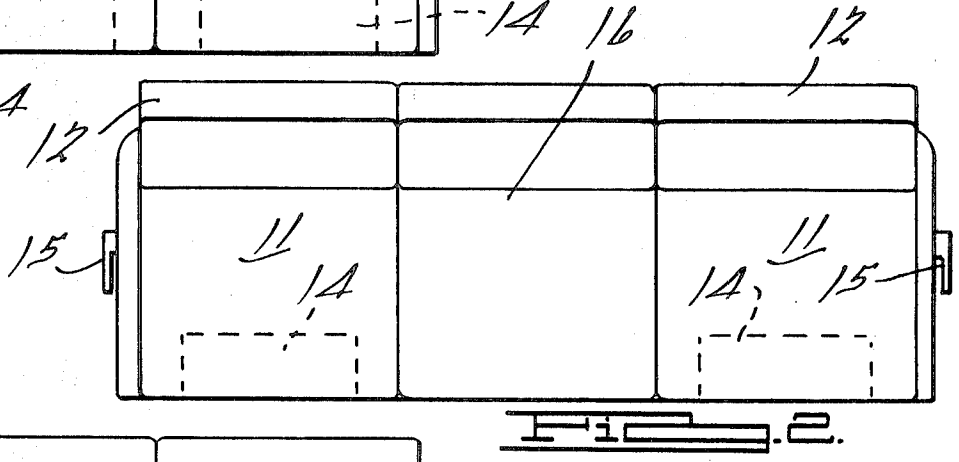


FIG. 1.



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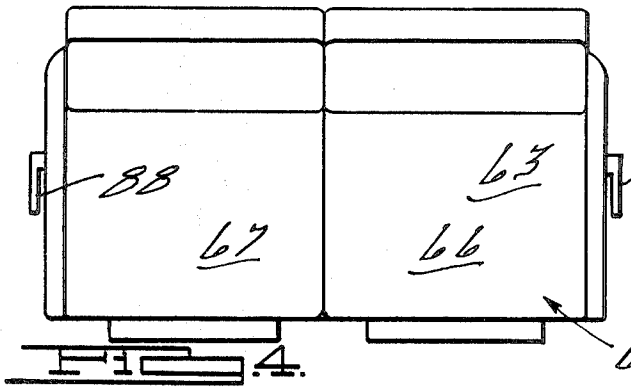

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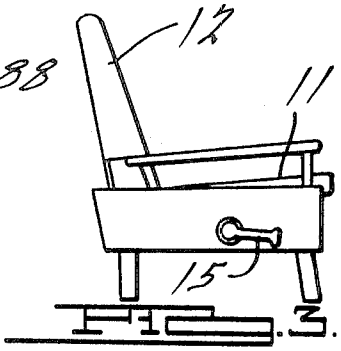

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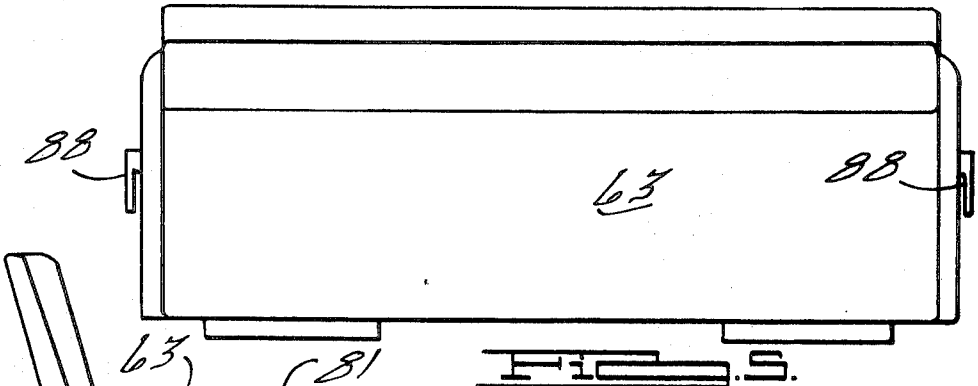

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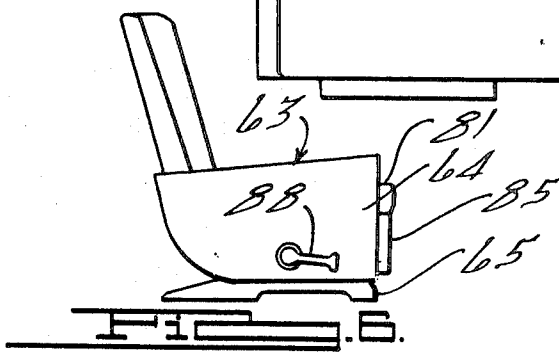

FIG. 6.

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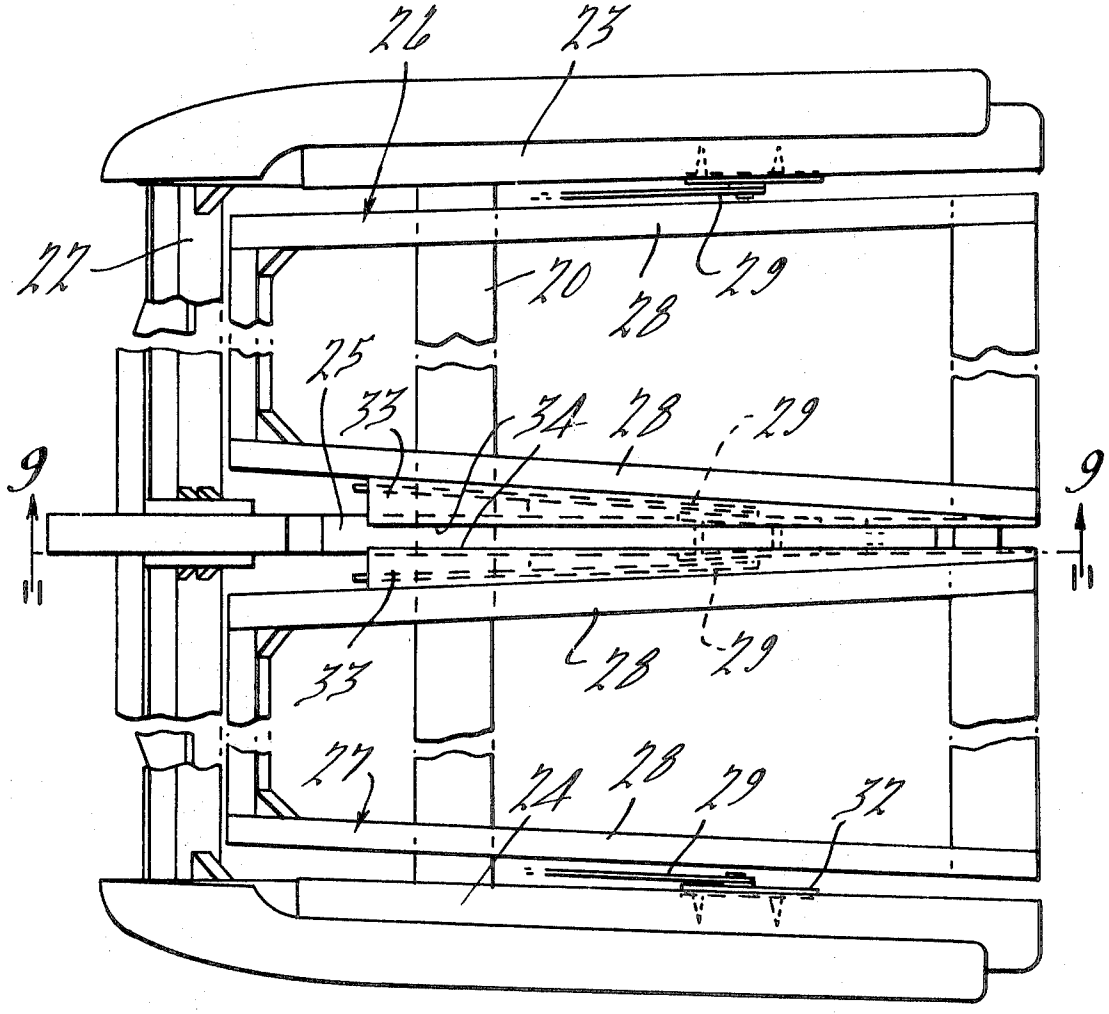

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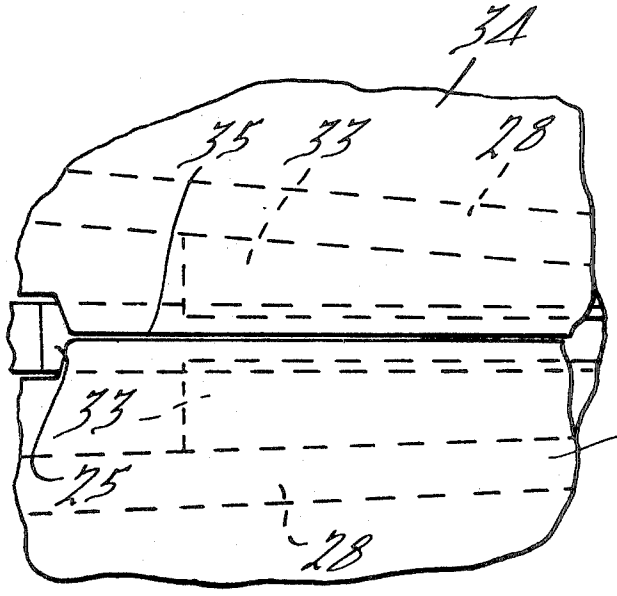

FIG. 8.

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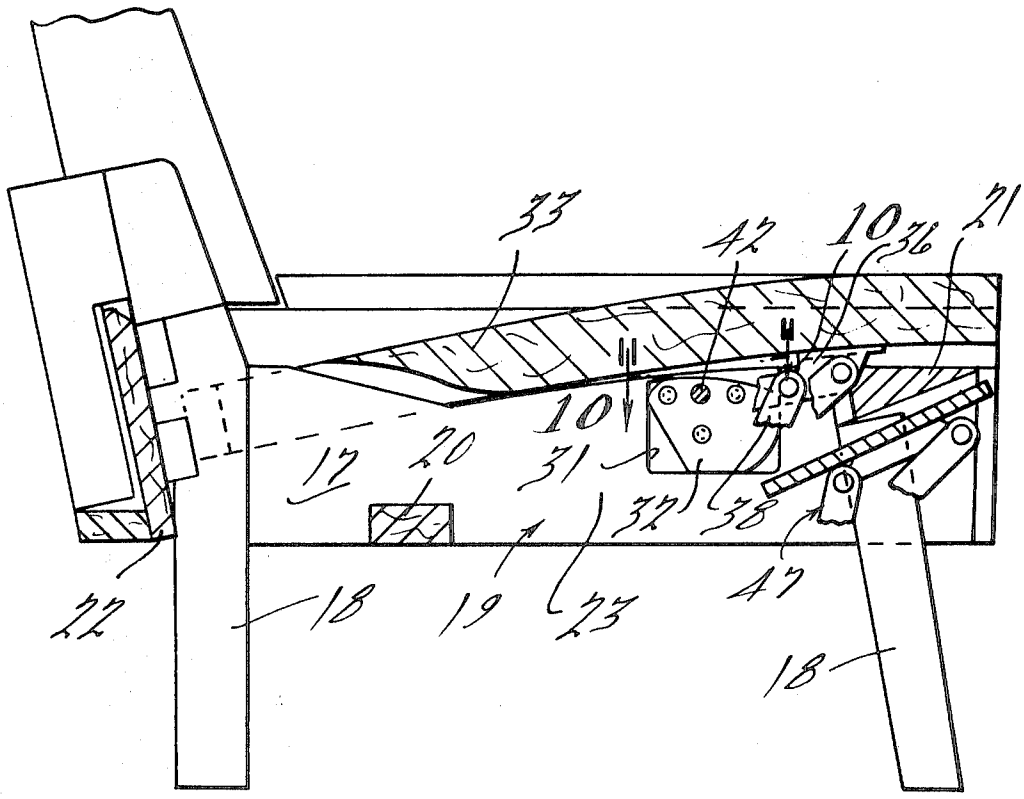

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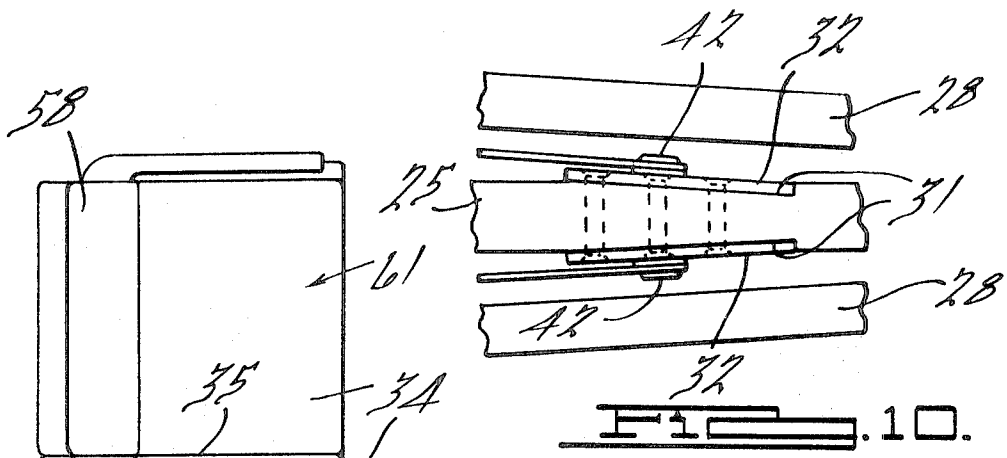

FIG. 10.

FIG. 11.

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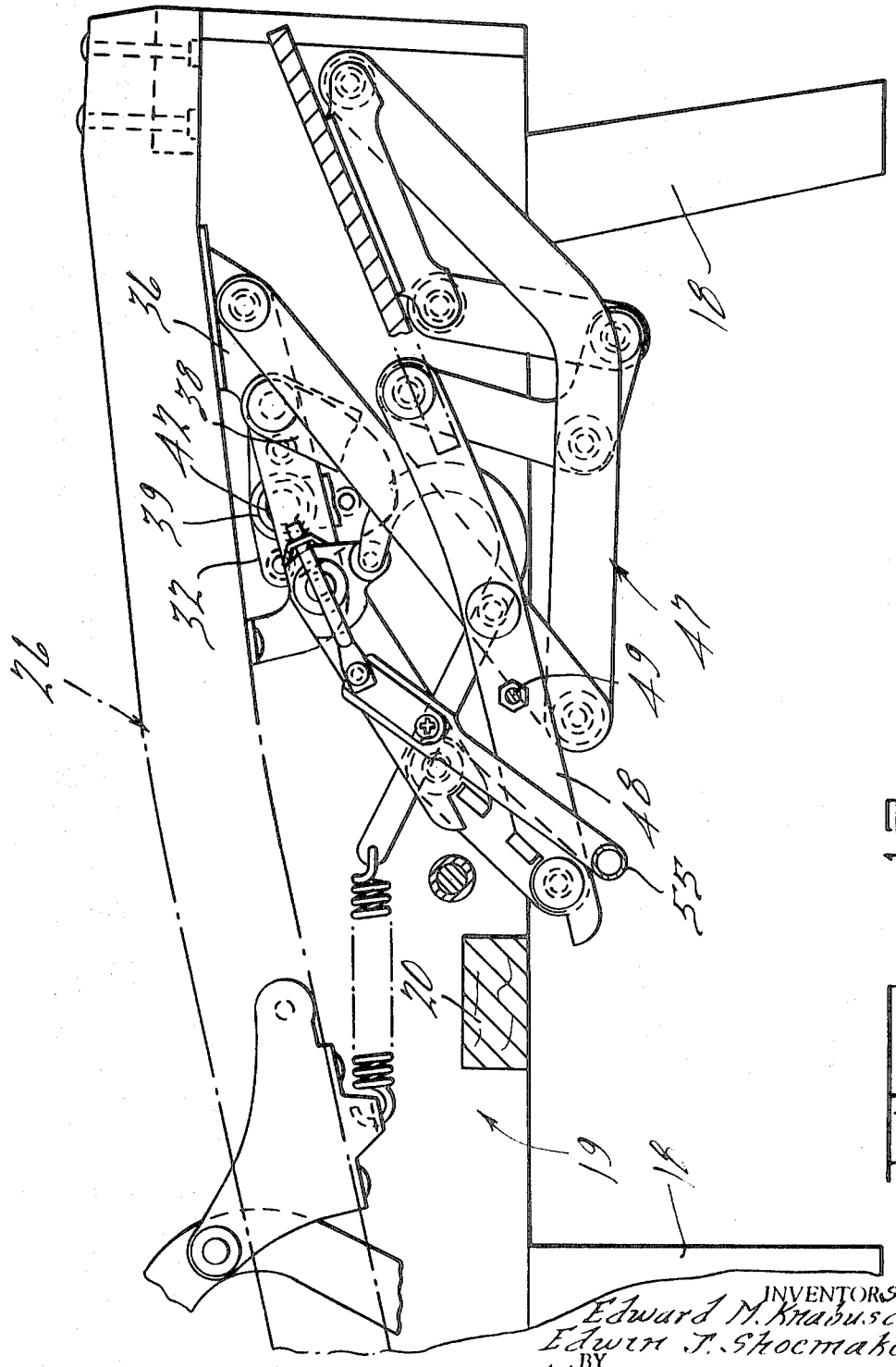

FIG. 12.

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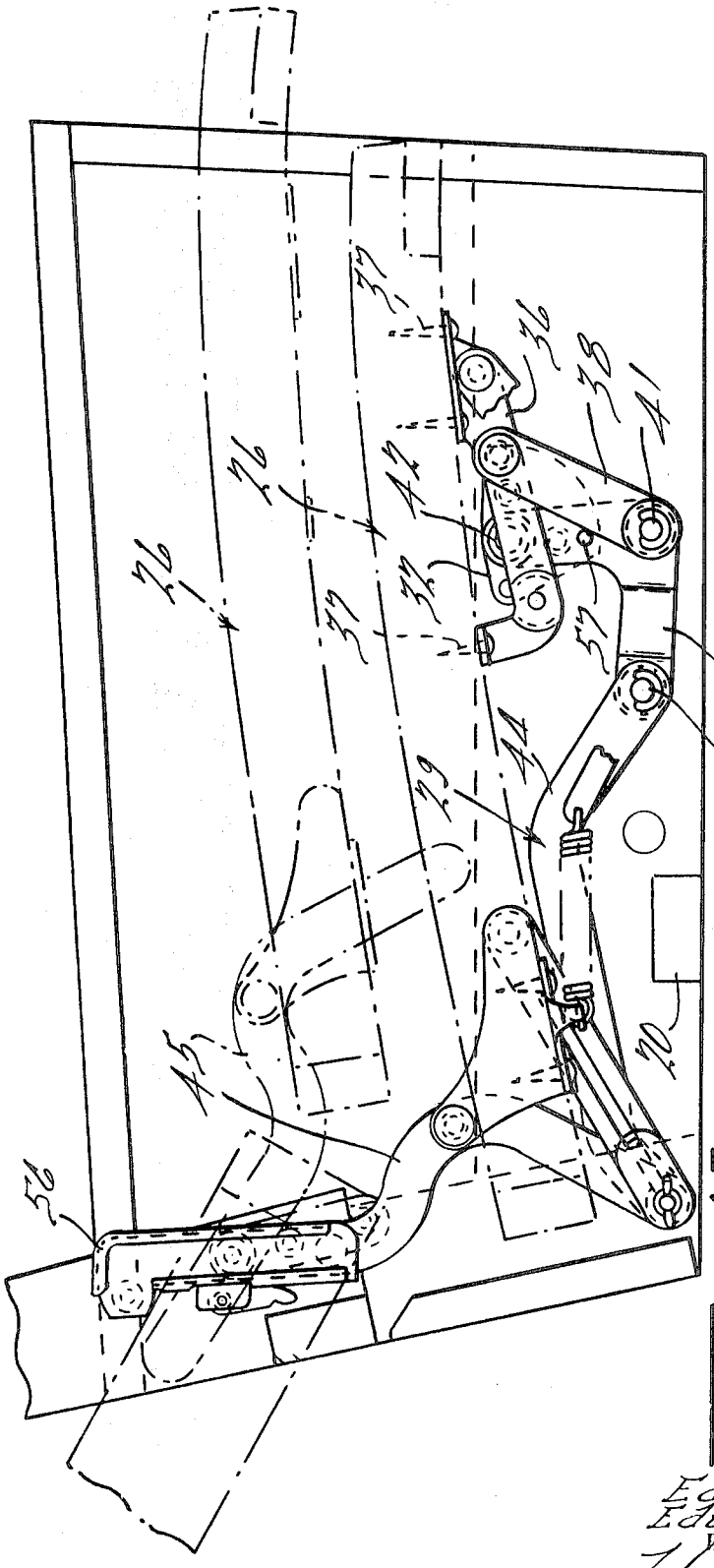

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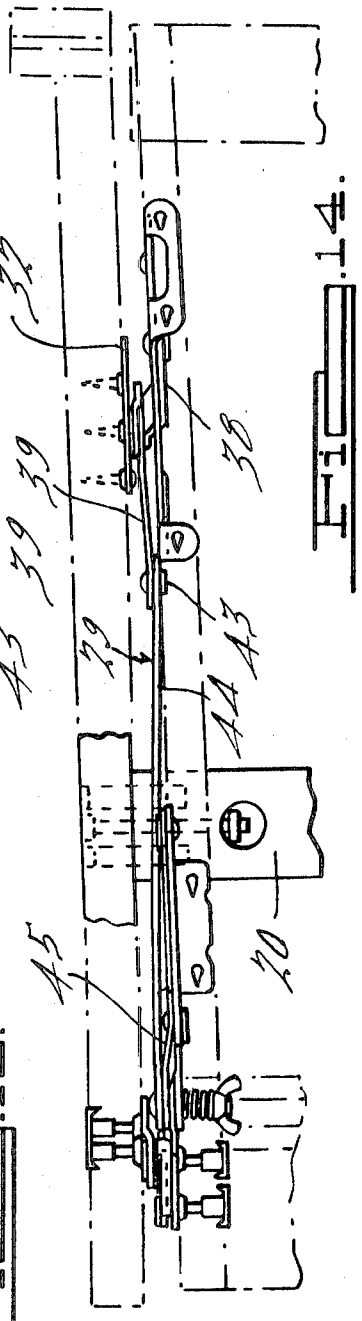

Fig. 14.

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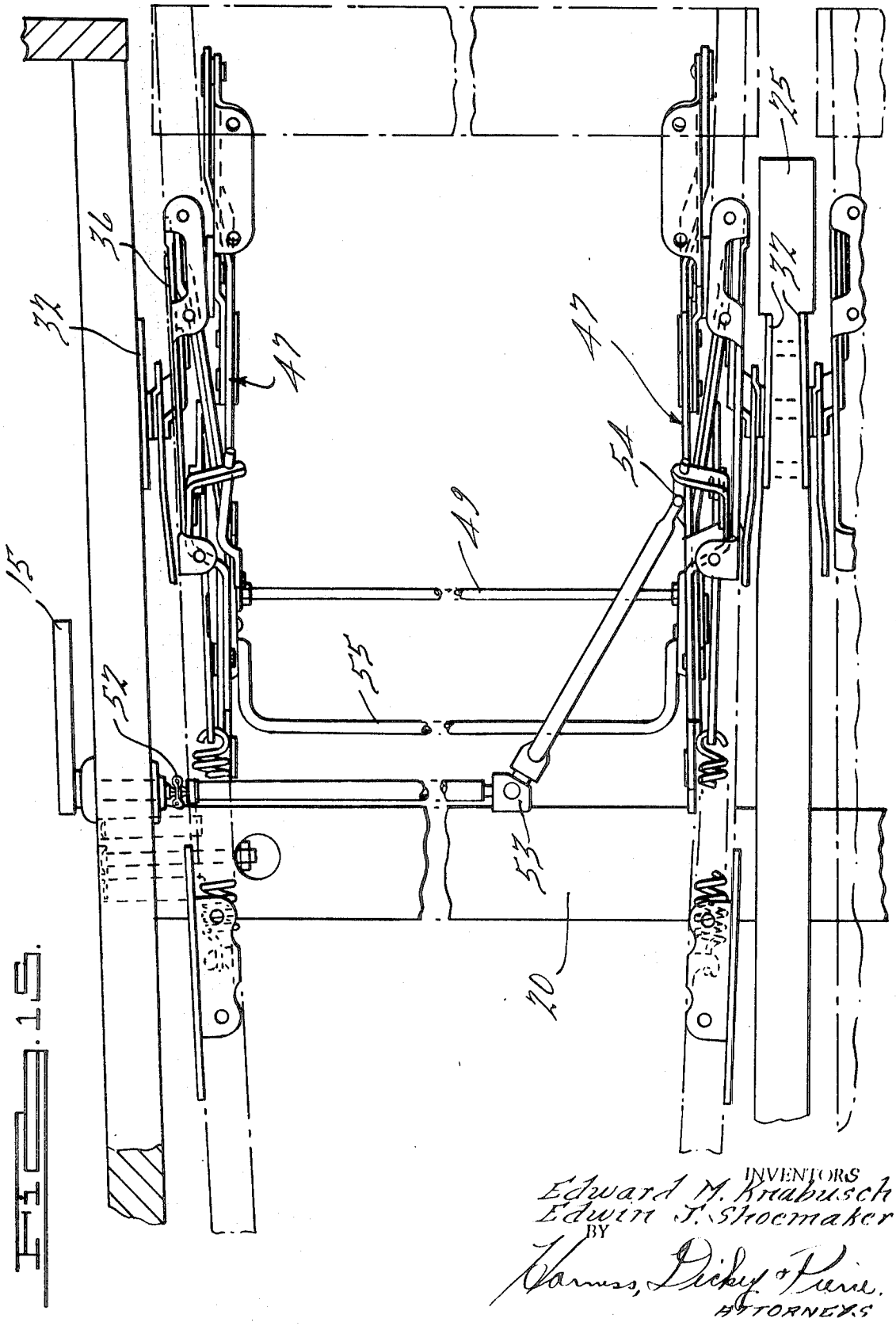

FIG. 15.

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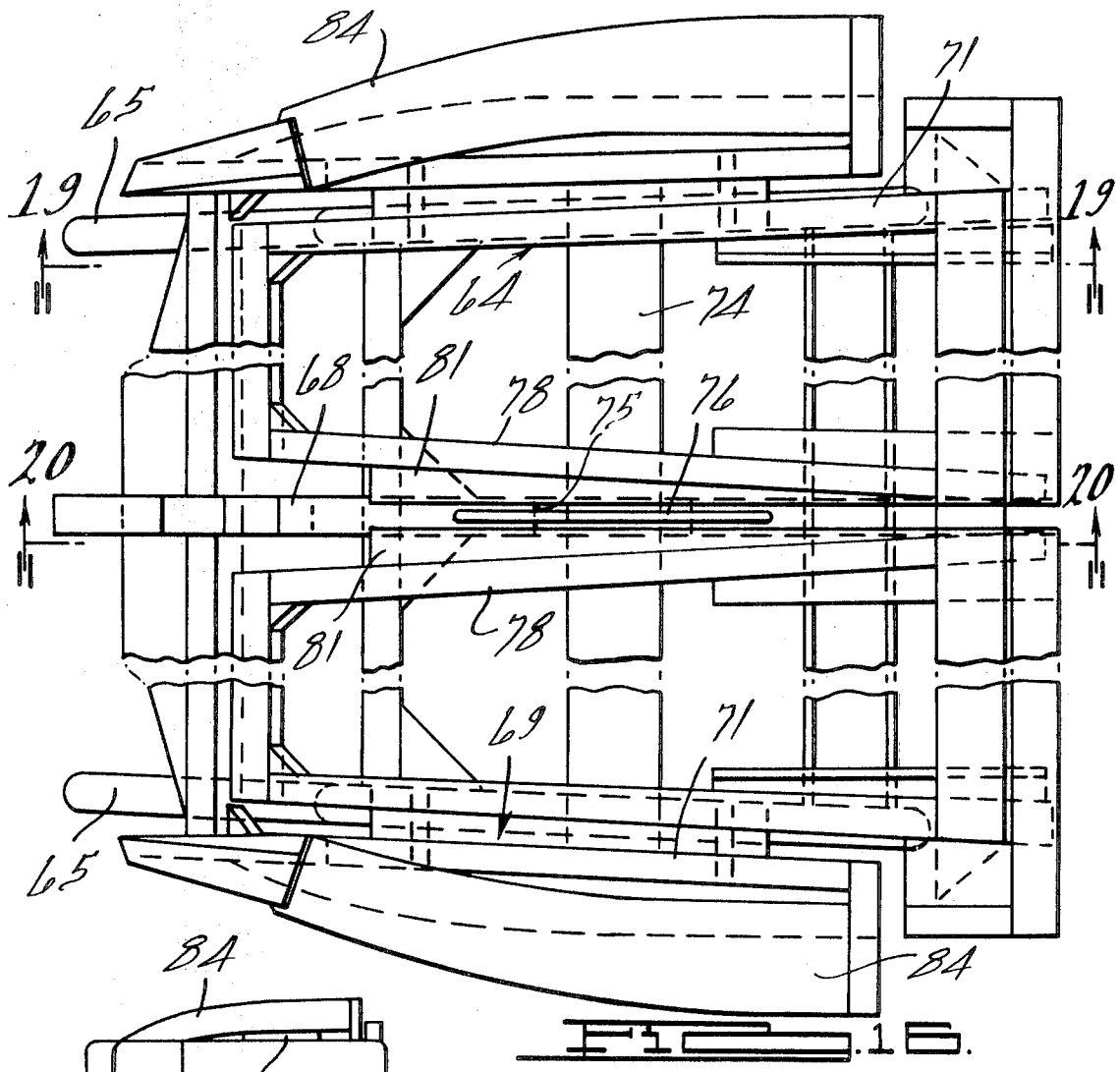

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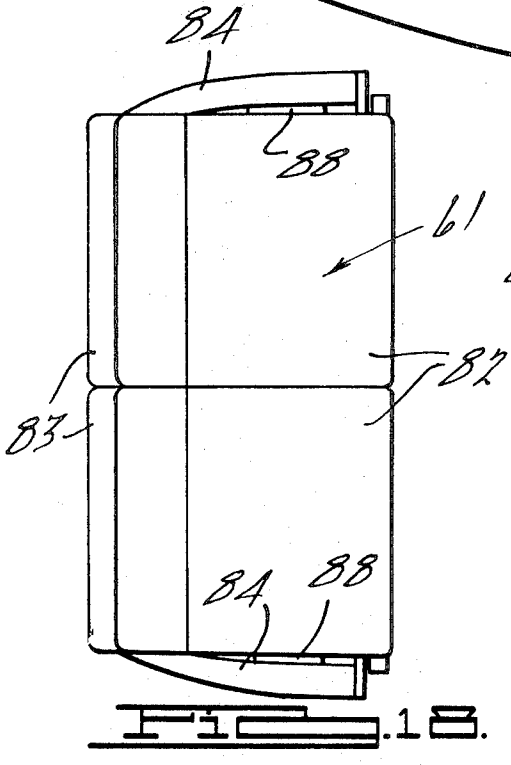

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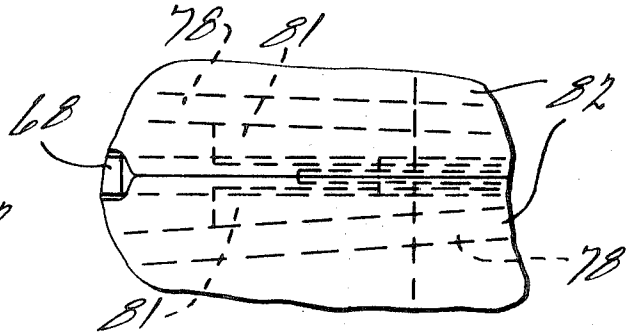

FIG. 17.

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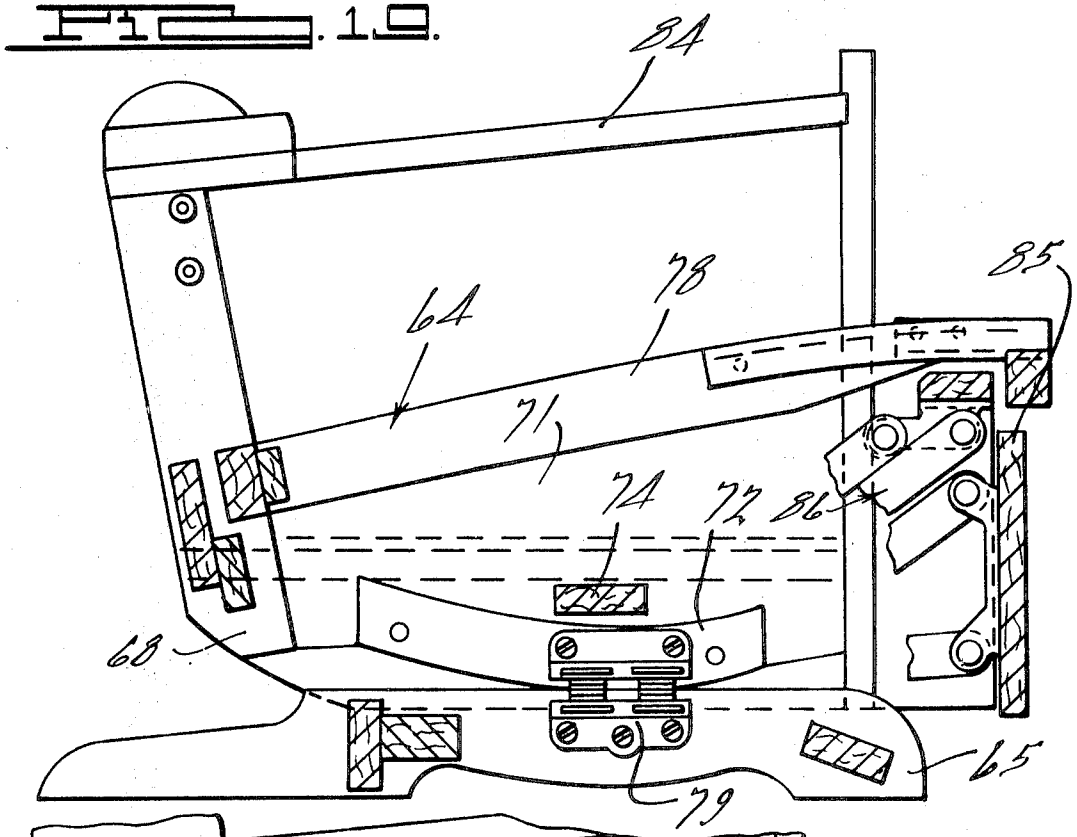
FIG. 19.



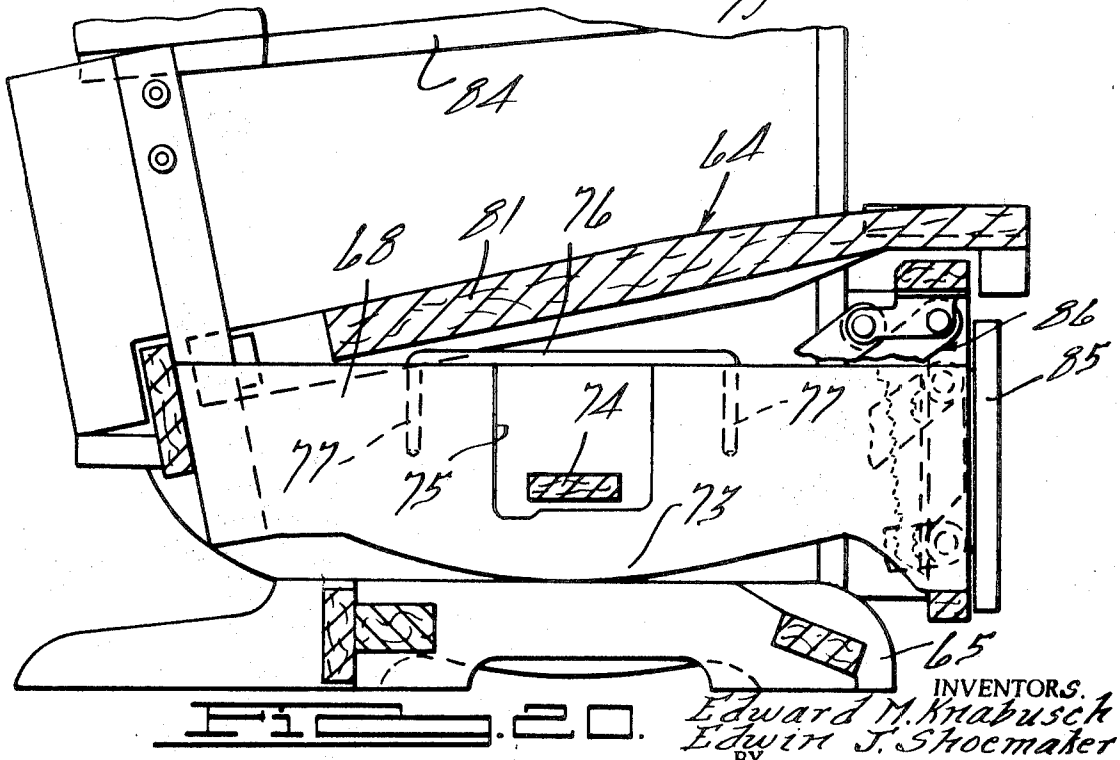


FIG. 20.

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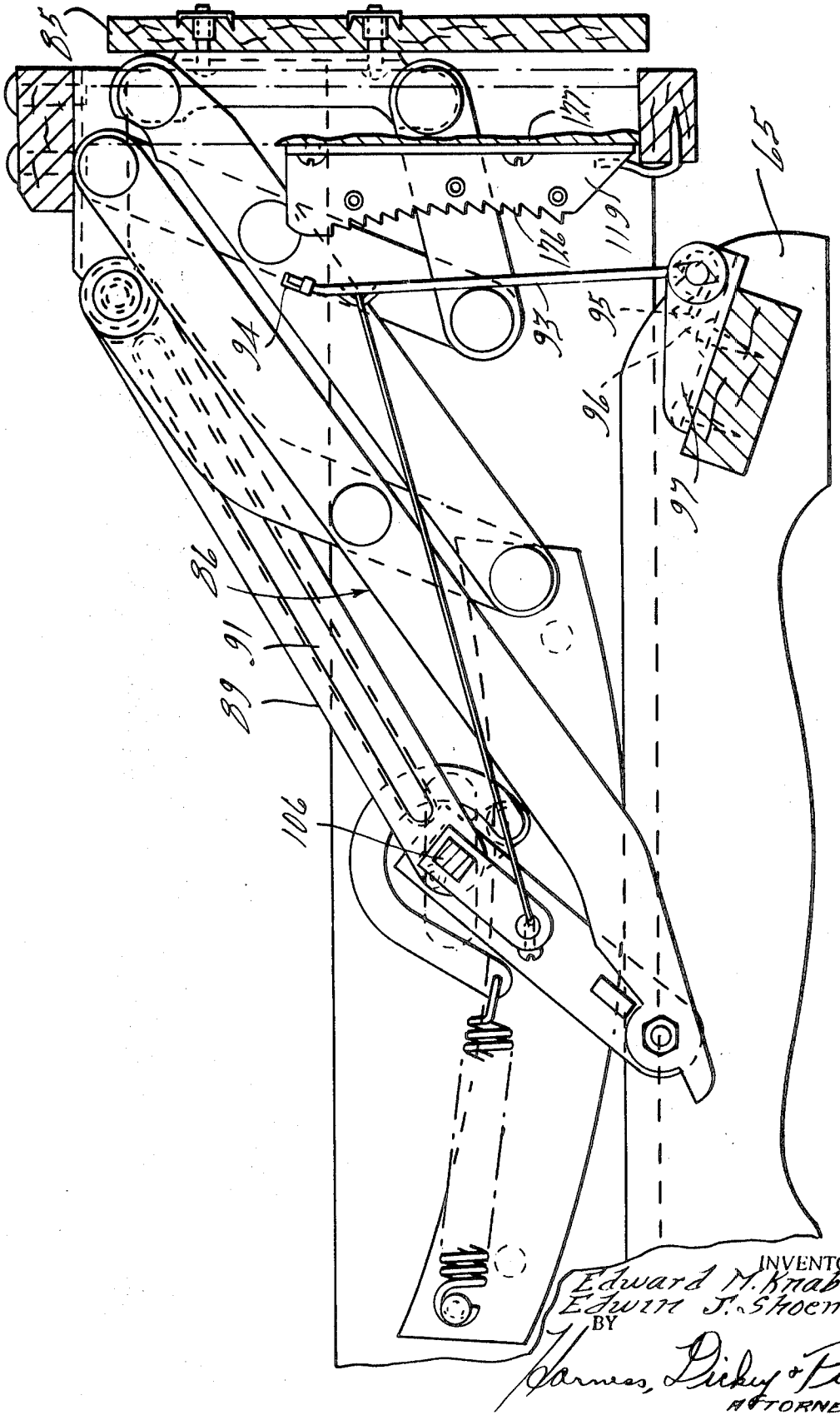

Fig. 21.

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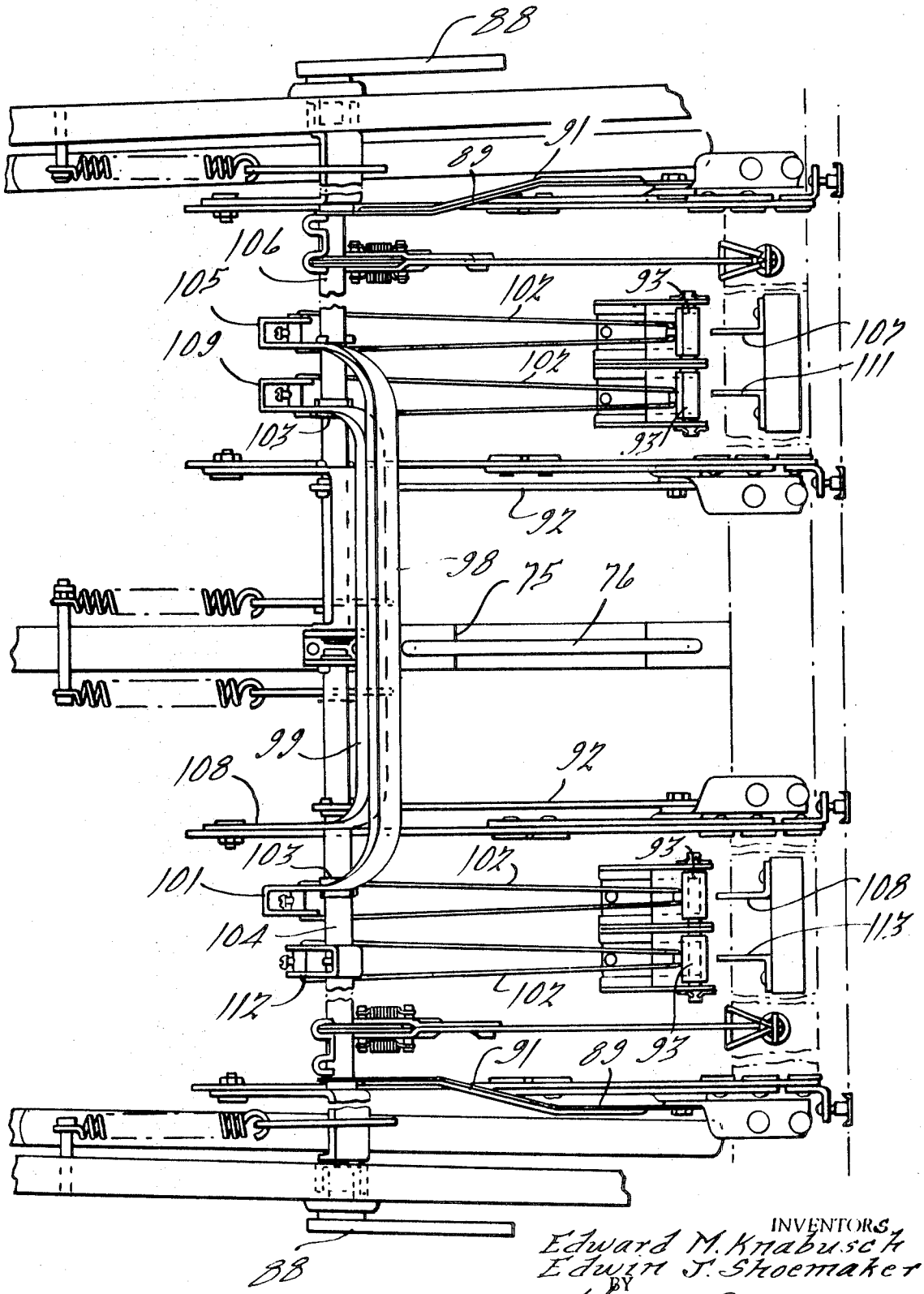

FIG. 22.

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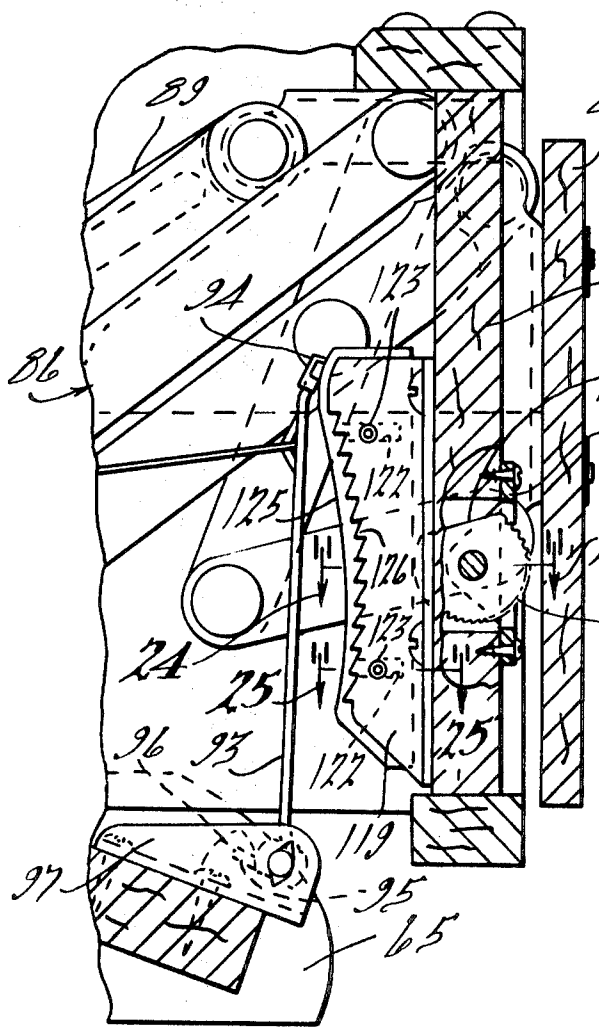

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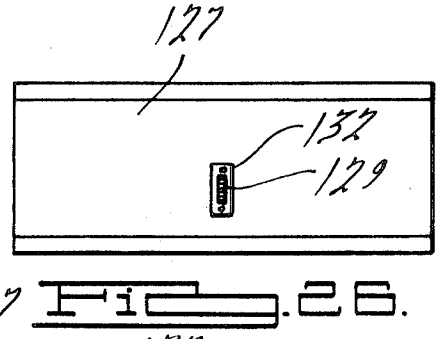

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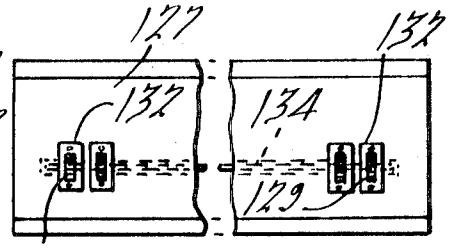

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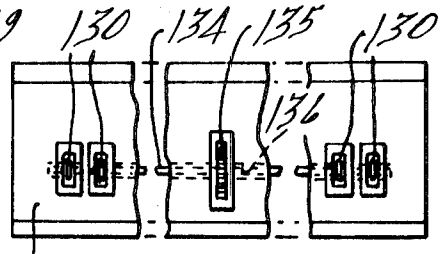

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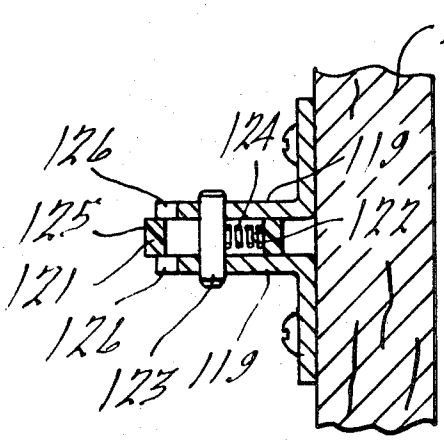

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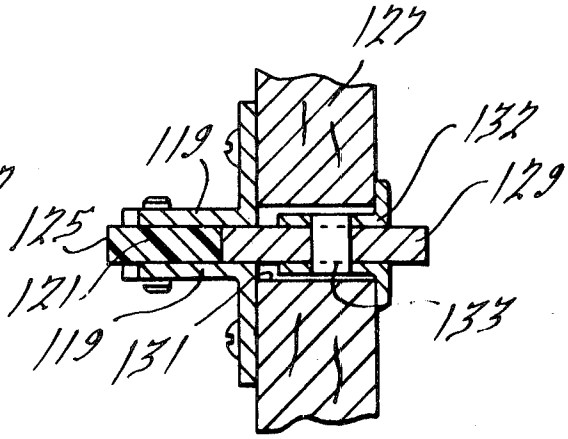

FIG. 24.

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MULTIPLE SEAT UNIT OF THE RECLINING AND ROCKING TYPE

BACKGROUND OF THE INVENTION

Reference may be had to the E. M. Knabusch et al. U. S. Pats. No. 3,325,210 and 3,357,739 for disclosures of chairs of single seating types having link mechanisms thereon which permits the chair frame to rock or the back and seat frames to move as a unit with leg rests employed therewith.

SUMMARY OF THE INVENTION

The multiple seat unit of the present invention has a base frame on which a chair unit may have its back frame reclined and seat frame advanced or on which a unit back and seat frame may rock. Two, three or more seating areas may be provided for the multiple seats units. In the reclining unit the end seating areas have the reclining back frames, the advancing seat frame and the projectable legs rests while the seating area or areas therebetween have a fixed back and seat frame and no leg rests. The multiple rocket unit has a unit seat and back and leg rests only provided for the end seating areas. The linkage mechanisms for the units are substantially the same as that showing in the above patents. The novelty of the invention resides in the provision of a multiple seat unit having the rocking or reclining features with the leg reset applied to the end seating areas.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a multiple seating unit of the reclining type embodying features of the present invention;

FIG. 2 is a plan view of structure, similar to that illustrated in FIG. 1, showing a three seating area unit;

FIG. 3 is an end view of the structure illustrated in FIGS. 1 and 2;

FIG. 4 is a plan view of structure, similar that illustrated in FIG. 1, showing a rocking type of chair having two seating areas;

FIG. 5 is a view of structure, similar to that illustrated in FIg. 4, showing a rocking type of chair having a three seating area;

FIG. 6 is an end vie of the structure illustrated in figs. 4 and 5;

FIG. 7 is an enlarged broken plan view of a base and seat frames employed in a unit of the reclining type having two seating areas;

FIG. 8 is an enlarged broken plan view of a structure illustrated in FIG. 7, showing the seat frames upholstered;

FIg. 9 is a sectional view of a structure illustrated in FIg. 7 along the line 9—9 thereof;

FIg. 10 is an enlarged broken plan view of the structure illustrated in FIG. 9, at the point where brackets are secured to the central supporting element;

FIg. 11 is a reduced plan view of a finished unit having two seating areas of the type illustrated in FIGs. 7 to 10 inclusive;

FIG. 12 is a view of the structure illustrated in FIg. 1, showing a leg rest mechanism applied to one side of the seat unit with the back in upright position;

FIg. 13 is a view of the structure illustrated in FIg. 12, with the back shown in reclining position and a back and seat link mechanism applied to one side of the seat and the leg rest mechanism omitted

FIG. 14 is a plan view of the structure illustrated in FIG. 13;

FIg. 15 is a view of structure, similar to that illustrated in FIG. 14, showing the central and the outside support the link mechanisms;

FIG. 16 is a view of structure, similar to that illustrated in FIG. 7, showing the frame structure of a multiple seat unit of the rocking type;

FIG. 17 is a broken view of the structure illustrated in FIG. 16 showing the relation of the seat frames when upholstered;

FIG. 18 is a plan view of a completed rocking unit, the frame of which is illustrated in FIG. 16;

FIG. 19 is a sectional view of the structure illustrated in FIG. 16, taken on the line 19—19 thereof;

FIg. 20 is a sectional view of the structure illustrated in FIG. 16, taken on the line 20—20 thereof;

FIG. 21 is an enlarged broken view of the the structure illustrated in FIG. 19, showing a link mechanism of the leg rest panel;

FIG. 22 is a plan view of the leg rest link mechanism and interconnecting cross braces which lock the rocker in tilted position at both sides of the chair;

FIG. 23 is an enlarged broken view of structure, similar to that illustrated in FIG. 20, showing a lockout mechanism which prevents the rocker unit from being locked in tilted position;

FIG. 24 is an enlarged broken sectional view of the structure illustrated in FIg. 23, taken on the line 24—24 thereof;

FIg. 25 is an enlarged broken sectional view of the structure illustrated in FIG. 23, taken on the line 25—25 thereof;

FIg. 26 is a front view of the seat frame with the leg rest omitted showing the lockout mechanism applied to a single seat unit;

FIG. 27 is a front view of structure, similar to Fig. 26, showing a multiseat unit having one form of lockout mechanism applied thereto, and

FIG. 28 is a view of structure, similar to that illustrated in FIG. 27, showing a single actuator for a multiple seat lockout.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A seating unit 11 is illustrated in FIG. 1, of the reclining type, that is to say, a unit in which the two back frames 12 can tilt backwardly independent of each other as the associated seat frame 13 moves forwardly. Leg rests 14 are independently manipulated by operating handles 15 located at opposite sides of the chair frame. In FIG. 2, the same units are illustrated applied to a chair having three or more seating areas. The back frames 12, seat frames 13, leg rests 14 and operating handles 15 are separated by a fixed unit 16 having one or more seating areas. Each end unit has back frames, seat frames and leg rests movable independently of each other and the fixed seating unit therebetween.

A base frame 17 is illustrated in FIGs. 7 to 10 having legs 18 which support a rectangular frame 19. The frame 19 has front and rear members 21 and 22 joined by side members 23 and 24 which are braced by a member 20. A central member 25 supported between and perpendicular to the front and rear members 21 and 22 adds further strength of the construction. It will be noted that the side members 23 and 24 converge toward each other at the rear and that seat frames 26 and 27 have the side rails 28 converging rearwardly. A back frame link mechanism 29 follows the slop of the seat frame side rails and sloping notches 31 are provided in opposite sides of the central member 25 for the reception of supporting brackets 32 for the forward end of the linking mechanisms 29.

The adjacent side rails 28 of the seat frames 26 and 27 have a filler block applied thereto to provided spaced parallel edges above the central member 25 to permit the upholstering and trim material 34 to have the sides disposed adjacent to each other along a line 35, as illustrated in FIG. 8. The seat frames 26 and 27 have a bracket 36 attached to the underside thereof by screws 37. The bracket 36 has a link 38 pivoted thereto which is pivoted to a bellcrank link 39 by a pivot 41. The upwardly extending arm of the bellcrank link is secured by a pivot 42 to a bracket 32 at the side members 23 and 24 and to the brackets 32 on the central member 25 of the chair frame. The horizontal arm of the bellcrank 39 is connected by a pivot 43 to a link 44 which is pivoted to the end of a back frame link 45. This construction is substantially the same as that shown in the above-mentioned U.S. Pat. No. 3,357,739 by which the seat back frame when tilted backwardly will raise the seat frame and advance it forwardly, as clearly illustrated in FIg. 13. The back frame link mechanisms 29 do not interfere in any manner with leg rest link mechanisms 47 which are supported on the seat frames 26 and 27 by the brackets 36. A main operating link 48 of the leg rest link mechanisms 47 at each side of a seating area is interconnected by a stabilizing rod 49 to prevent any relative side motion therebetween, otherwise the structure is the same as above described in U.S. Pat. No. 3,357,739.

The leg rest link mechanisms **47** are operated by a handle **15** at each end of the chair frame which drives through universal joints **52**, **53** and **54** for operating the inner set of link mechanisms for the leg rest and drives back through a U-shaped bar **55** for operating the link mechanisms **47** on the end seating areas in a manner pointed out in the patent. With this arrangement, the foot rest mechanism is supported on the seat frame for moving upwardly and forwardly therewith when the back frame is tilted backwardly from an upright position to a rearward position, as illustrated in FIg. **13**. This maintains the foot rest in desired relationship with the seat frame in all positions thereof. The links **45** which support the back frame for pivotal movement engage separate links **56** attached thereto which permits the back frame to be removed from the links **45** and form a compact unit for shipment when the back frame is nested between the arms on the seat frame as disclosed in the E. M. Knabusch application for Letters Patent, Ser. No. 746,058, filed July 19, 1968, for "Detachable Chair Back." The link **38** pivoted to the bellcrank links **39** is carried forwardly by an extending stop finger **57** when the seat is moved upwardly and forwardly. With this arrangement, either of the seat frames **26** and **27** will be moved upwardly and forwardly when its associated back frame is reclined to a degree conforming to the degree of tilt to the back frame. The operation of the back and seat frames at the ends of the reclining multiple seat units are entirely independent of each other and a central section. A reclining unit having two seating areas **61** and **62** is illustrated in FIg. **11**.

In FIGS. **4** to **6**, a seat **63** of multiple seating area rocking type has a seating unit **64** which rocks upon a base unit **65**. The unit has two seating areas **66** and **67** while the rocking unit illustrated in FIG. **5** has three or more seating areas. Between the seating areas **66** and **67** and the seating areas therebetween a central supporting member **68** is provided in the rockable frame **69** as illustrated in FIG. **16**. Outer side elements **71** of the rocker frame have rocking elements **72** secured thereto while the central frame member **68** has a bottom rocking section **73** formed thereon. A bracing element **74** extends between the outer side frame elements **71** and passes through an opening **75** in the central member **68** which permits the member to rock relative thereto. The opening **75** weakens the member **68** to a substantial degree and a U-shaped rod **76** spans the top open portion thereof when the right angle ends **77** are forced into apertures from the top of the member **68**. Seat frames **78** are of standard construction and are secured in fixed relation to the back frames central members **68** and side elements **71** to form a unit which is rockable upon the base **65**. Spring units **79** interconnect the rockable frame **69** with the base frame **65** in the conventional manner. The seat frames converge toward the rear filler blocks **81** are secured to the adjacent faces of the inner side rails thereof to permit the seat frames to be upholstered in the manner pointed out hereinabove. With this arrangement, seat cushions **82**, backs **83** and arm rests **84** are all in unit relation to each other.

A leg rest panel **85** is supported in vertical retracted position beneath the front ends of the end seat cushions **82** on link mechanisms **86** operated by the turning of a square shaft by a handle **88** from the left and right-hand side of a rocking multiple seat unit. The lever system as illustrated in detail in the patents to E. M. Knabusch et al., U.S. Pat. Nos. 3,096,121 and 3,099,487 are shown herein with the addition of a bracing member **89** having a reinforcing rib **91** on the outboard link mechanisms and a bracing member **92** on the inboard link mechanisms. The end latching bars **93** has a hardened tip **94** secured thereon and a projecting finger **95** at the bottom of the latching bars **93** engages a snubbing clock **96** within a supporting bracket **97**. The rockable seat **63**, whether for two or more occupants, is a unit which rocks upon the base **65**, the same as the seat for a single occupant as shown in the patents mentioned above for the rocking type chair. The leg rest units are provided for the left and right-hand seating areas, there being no leg rest provided on the central seating areas between the two outboard seating areas.

It will be noted in FIG. **22** that the two leg rest link mechanisms **86** interconnected by U-shaped cross braces **98** and **99**. The right-hand end of the cross brace **98** is formed into a bracket **101** for operating a wire element **102** for releasing or actuating the latching bar **93**. The end of the cross brace **98** and bracket **101** pivots on a plastic sleeve **103** having a cylindrical outer surface and a square inner surface to mate with a square cross shaft **104**. The opposite end of the cross brace **98** has a square hole therein and an extending bracket **105** which are secured to a square cross shaft **106** on the adjacent leg rest link mechanism **86** which is aligned with the square shaft **104**. Thus, when the shaft **106** is rotated to extend the leg rest on the left-hand side of the multiple rocking unit, the wire element **102** will be actuated to latch the locking bar **93** on the base frame to a tooth bracket **107** on the left-hand side of the rockable seat frame. The operation of the bracket **105** and the cross brace **98** will actuate the bracket **101** and wire element **102** to move a locking bar **93** into engagement with a tooth bracket **108** on the right-hand side of the rockable unit to have both end seating area latched in a desired tilted position even though only one leg rest is in extended position.

The cross bar **99** has an operating extension **108** thereon fixed to the square shaft **104** which is operated by the handle **88** on the right-hand side of the rockable unit. The opposite or left-hand end of the cross brace **99** is pivotally attached to the square shaft **106** by a sleeve **103** in pivotal relation thereto. The pivoted end of the cross brace **99** has an extending bracket **109** which operates a wire element **102** for controlling the position of the end of the left-hand bar **93** engages the teeth on a bracket **111** supported on the rockable unit. The shaft **104** has a bracket **112** operating the wire element **102** which actuates the end of the locking bar **93** which is in a position to engage the teeth on a bracket **113** is supported on the rockable unit so that when the leg rest on the right-hand mechanism is extended the rockable frame will be latched in a tilted position on both sides of the frame by the tooth brackets **111** and **113**. By latching both sides of the rockable frame in a desired tilted position any racking of the frame, which would occur if only one side thereof were latched is avoided. With this arrangement, when the rockable unit has the leg rested extended for one seating area the rocking unit can be tilted to a desired inclined position and be released from this position upon the operation of the same handle **88** to retract the leg rest and to release the locking bars **93** from the tooth brackets at both sides of the frame. Thus, the multiple rocking unit may rock as an ordinary rocking chair or either the right or left-hand outboard seating areas or both may have the leg rest thereof extended and by so doing the rockable unit can no longer rock but can be tilted to a desired angular position and be latched in this position on both sides of the rockable unit. If both leg rests are extended, then both of the handles **88** must be actuated to retract the leg rests before the late bars can be released to permit the rockable unit to again rock. If only one leg rest has been extended, the handle operating that leg rest must be actuated to retract the leg rest and release the locking bars at both sides of the frame to permit the frame again rock.

Referring more specifically to FIGS. **23** to **28** wherein lockout structure is illustrated which permits the rockable unit to rock even though the leg rests are extended. With this arrangement, a pair of tooth brackets **119** having a plate **121** disposed therebetween is made of any material but is herein illustrated as being made of a plastic material such as Nylon. The plate has a pair of slots **122** therein through which roll pins **123** supported by the brackets **119** extend. A spring **124** is disposed between the bottom of each slot and the roll pins for retracting the plate to have an outer surface **125** thereof to move to the base of teeth **126** of the brackets **119**. When the outer surface **125** extends beyond the teeth **126**, the end of the locking bar **93** will engage the face **125** and be prevented from engaging the teeth **126** of the bracket **119** which will permit the rocking frame to rock on the base whether or not the leg rest are extended.

A panel 127 is supported at the front of the frame against which the leg rest panel 85 substantially engages when in retracted position. The panel 85 covers an operating cam 129 which is mounted in a slot 131 in the panel 127 which receives a supporting bracket 132 to which the cam is secured by a stub shaft 133. The cam is circular in form except for a flat side 134 which when disposed in vertical position permits the plate 121 to be retracted thereagainst by the springs 124. When the plate is retracted, the teeth 126 are exposed and may be engaged by the end of the latching bar 93 for retaining the rockable units in a tilted position. It is only necessary to slightly advance the leg rest to have the cam 129 available so that it can be adjusted to either have its cam face disposed in a vertical plane or to move it from such a plane so that the circular portion of the cam will move the plate 121 outwardly beyond the ends of the teeth 126, as illustrated in FIG. 23, to permit the rocking unit to rock in all positions of the leg rest. The arrangement of the supporting bracket 132 and the cam 129 on the front panel 127 is illustrated more specifically in FIg. 25.

When two leg rests are employed in the multiple rocking unit the end portions of the front panel 127 has a pair of brackets 132 and cams 129 mounted thereon, as illustrated in Fig. 27. The cams 129 are drivingly interconnected when mounted on a square shaft 134 located in a transverse groove in the rear face of the panel 127. Upon operating any one of the cams 129 all of the latching bars 93 will be prevented from engaging the teeth 126 of the brackets and latching the rockable unit in tilted position or will permit the latching bars to secure the unit in any tilted positions when all of the flat faces of the cams 129 are disposed in vertical position. In FIG. 28, cam fingers 130 having an arcuate and a flat portion are disposed back of the panel 127 on the square shaft 124 with an operating wheel 135 thereon which extend through a slot 136 in the center of panel 127. When the rockable unit is to be permitted to rock when the leg rest is extended, the operating wheel 135 is actuated by one of the occupants to extend the outer surface 125 of the plates 121 forwardly of the teeth of the brackets 119 when the cam portion of the fingers 130 engage the plates 121.

We claim:

1. In a furniture seating unit of the multiple seating area type, back frame means and seat frame means providing a continuous surface for multiple seating areas, arms at the end of the seating areas, a unit supporting means, means interconnecting said back and seat frame means at the ends and central area thereof to said unit-supporting means, said connecting means permitting said back frame means to move relative to said unit supporting means for reclining said back frame means independent extensible leg rests, linkage means for mounting the leg rests below the endmost seating area of said setting unit and means for operating said linkage means mounted at the end of the seating unit for manipulation said linkage means and independently extending the leg rests a substantial distance forwardly of the seat frame means for supporting the legs of an occupant.

2. In a furniture seating unit as recited in claim 1, Wherein the back frame means and the seat frame means providing the multiple seating area is a unit having rocking means on the end and central areas by which the frame is rocked on said unit supporting means.

3. In a furniture seating unit as recited in claim 2, wherein mechanisms are provided for the leg rest means which are independently operated by handle means on the outermost sides of the unit chair frame means, latching means actuated by each of the handles for interrupting the rocking of the seating unit when the leg rests are extended for retaining the back frame means in tilted position, and means for interconnecting the leg rest mechanism for latching both sides of the unit against rocking when either of the leg rests are extended.

4. In a furniture seating unit as recited in claim 3, wherein means are provided for preventing the latching of the seating unit against rocking after the leg rest has been extended.

5. In a furniture seating units as recited in claim 4, wherein a crossmember is provided on the seat frame means having a cutout section to receive a brace member extending between the sides of the seat frame means about which it is rockable and reinforcing means at the top of the central member for bridging the cutout portion thereof.

6. In a furniture seating unit as recited in claim 1, wherein linkage means connects the back frame means to the unit supporting means and additional linkage means operated by the linkage means of the back frame means and connected to said seat frame means and unit supporting means for advancing and raising the seat frame means by the movement of the associated back frame means to provide independent reclining positions therefor.

7. In a furniture seating unit as recited in claim 7, wherein leg rest mechanisms are carried by the seat frame means, and handle means at each side of the support means for operating said mechanism and extending either of the leg rests forwardly of the seat frame means.

8. In a furniture seating unit as recited in claim 7, wherein a central supporting member provided on the unit support means secures the inboard portions of the linkage means for the back frame and seat frame means.

9. In a furniture seating unit, wherein the seat frame means converge toward the rear, and wherein filler blocks are provided on the side of the seat frame means adjacent to the central member which extends thereover in spaced relation to each other to permit the seat frame means to be covered with a trim material and disposed in adjacent relation along a line normal to the front of the seat frame means.

10. In a unit furniture seating unit of the rockable type as base, a chair frame having rockers thereon which rock on said base, a leg rest supported by said frame, linkage mechanisms at one side of the chair frame for extending the leg rest forwardly thereof, a bracket having latching teeth supported on said chair frame. A latching bar on the base for engaging the teeth of the bracket when the leg rest mechanism is actuated and means retaining said latch bar from engaging said teeth when said rest is extended permitting the chair frame and extended leg rest to rock as a unit.

UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,608,958 Dated September 28, 1971

Inventor(s) Edward M. Knabusch and Edwin J. Shoemaker

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Col. 1, line 19, "legs" should be --leg--; Col. 1, line 26, "reset" should be --rest--; Col. 1, line 39, "vie" should be --view--; Col. 2, line 23, before the period insert --mechanism--; Col. 2, line 44, "of" should be --to--; Col. 2, line 48, "slop" should be --slope--; Col. 2, line 53, after "filler" insert --33--; same line, "provided" should be --provide--; Col. 2, line 65, after "frame" insert --supporting--; Col. 3, line 13, "separate" should be --separable--; Col. 3, line 51, after "rear" insert --and--; Col. 3, line 68, "clock" should be --block--; Col. 4, line 2, after "86" insert --are--; Col. 4, line 20, "area" should be --areas--; Col. 4, line 31, "left-hand" should be --latching--; same line, after "93" insert --which--; Col. 4, line 35, after "113", cancel "is"; Col. 4, line 42, "rested" should be --rest--; Col. 4, line 54, "late" should be --latch--; Col. 4, line 59, before "again" insert --to--; Col. 4, line 75, "rest" should be --rests--.

Col. 5, line 51, "area" should be --areas--; Col. 5, line 53, "manipulation" should be --manipulating--; Col. 6, line 17, "units" should be --unit--; Col. 6, line 25, after "means" insert a --, --; Col. 6, line 40, after "unit" before the comma, insert --as recited in claim 8--; Col. 6, line 47, "as" should be --a--; Col. 6, line 49, before "linkage" insert --for supporting said leg rests, an operating handle for actuating the--; Col. 6, line 52, after "frame" cancel ". A" and substitute --, a--; Col. 6, line 53, after "actuated" insert a --, --.

Signed and sealed this 24th day of October 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

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