Nov. 22, 1960 A. LORENZ 2,961,035

ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

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Fig. 1.

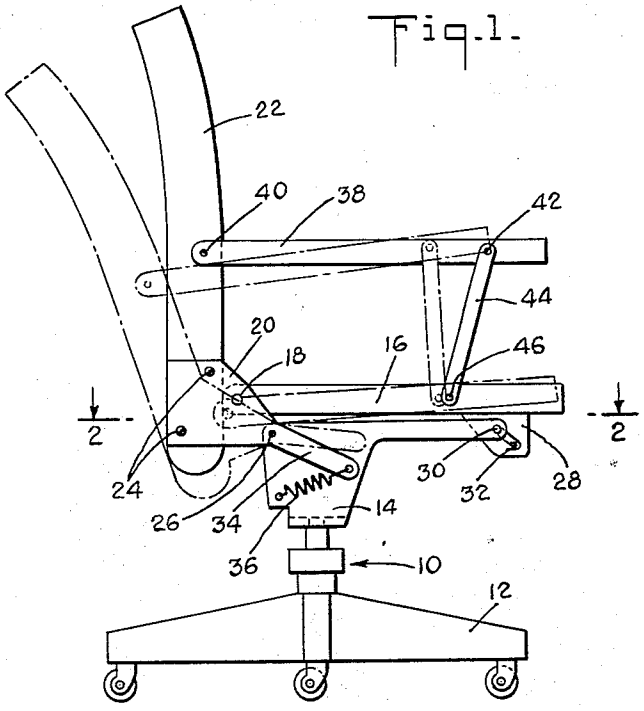
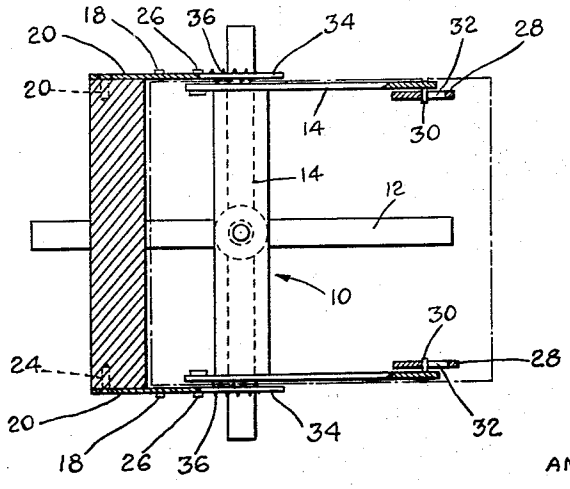


Fig. 2.



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FIG. 3.

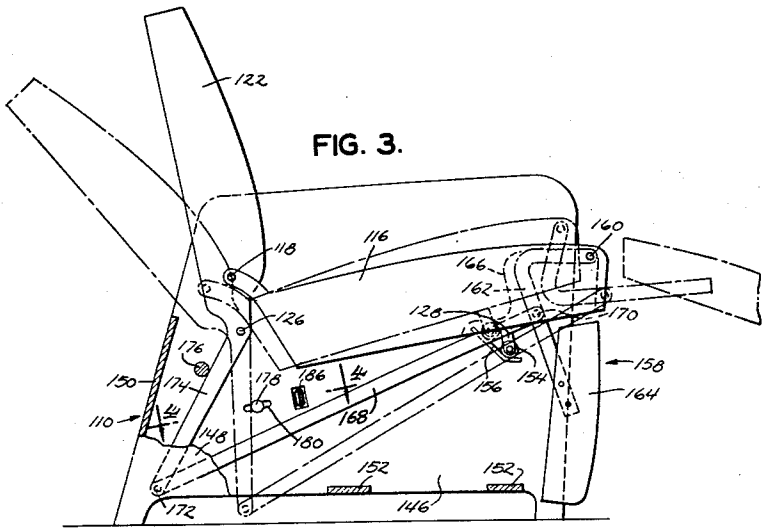
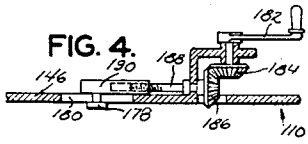


FIG. 4.



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Fig. 5.

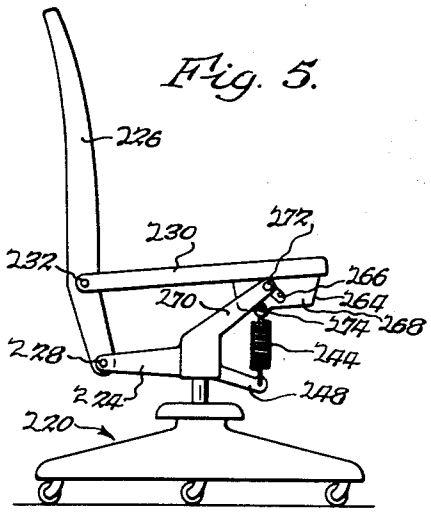


Fig. 6.

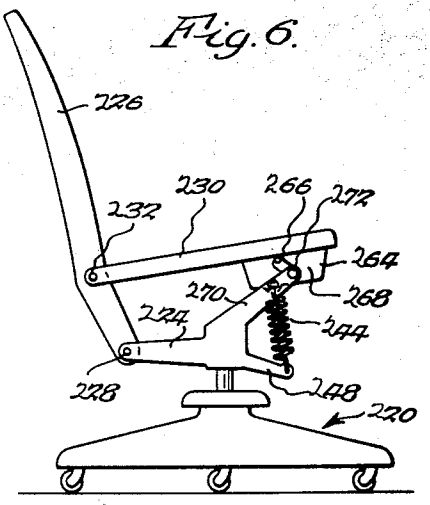


Fig. 7.

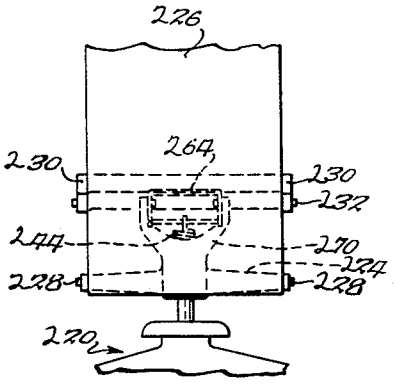
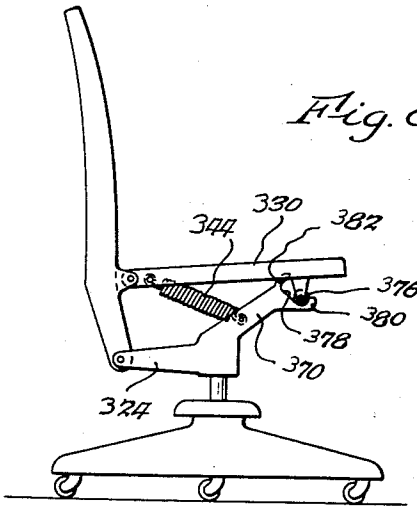


Fig. 8.



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2,961,035

ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

Anton Lorenz, Ocean Ridge, Boynton Beach, Fla.

Filed May 26, 1954, Ser. No. 432,398

4 Claims. (Cl. 155—106)

This application is a continuation-in-part of my copending patent applications Serial No. 97,370 filed on June 6, 1949 for "A Reclining Article of Furniture," now abandoned and Serial No. 385,985 filed on October 14, 1953 for "An Article of Repose for Supporting the Body of a Person," now Patent No. 2,827,108, granted March 18, 1958.

This invention relates to articles of furniture, and more particularly to reclining articles of furniture wherein the seat and the back-rest form movable members of a constrained linkage.

An object of the present invention is to provide a reclining article of furniture which may be readily manufactured at low costs.

Another object of the present invention is to improve on the art of reclining articles of furniture as now ordinarily made.

Other objects and structural details of the invention will be apparent from the following description when read in conjunction with the accompanying drawings forming part of this specification, wherein:

Fig. 1 is a side elevational view of a reclining chair according to the invention,

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1,

Fig. 3 is a side elevational view of an armchair according to the invention, a portion of a side frame being broken away,

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3,

Fig. 5 is a side elevational view of a desk chair according to the invention,

Fig. 6 is a side elevational view of the desk chair shown in Fig. 6, wherein, however, the movable members of the chair are in a reclined position,

Fig. 7 is a fragmentary rear elevational view of the chair shown in Fig. 6, and

Fig. 8 is a side elevational view of another embodiment of a reclining desk chair according to the invention.

Referring now to Figs. 1 and 2, **10** generally indicates a support comprising a pedestal **12** and a supporting member or chair iron **14** rotatably mounted thereon.

On each side of the chair the rear end portion of a seat **16** is pivoted at **18** to a lug **20** of a back-rest **22**. Each lug **20** rigidly connected with the body of the back-rest **22** by screws **24** is swingably mounted on the supporting member **14** at **26** at a point spaced from and below the pivotal connection **18** between the seat **16** and the back-rest **22**.

On each side of the chair a lug **28** projects downwardly from the front end portion of the seat **16**. Each lug **28** is provided with a slot **32** slidably engaged with a pin **30** carried by the supporting member **14**. The pin **30** and slot **32** constitute guiding means slidably engaged with each other for guiding the seat during movements of the movable members of the chair from the sitting position shown in full lines into a reclined position shown in dash and dot lines in Fig. 1 and vice versa. The guiding surface of said slot **32** is upwardly inclined in backward direction for causing a lifting of the front portion of the seat during a movement of the movable members of the article from the sitting position into the reclined position.

Each lug **20** of the back-rest **22** carries an extension **34** rigidly connected therewith. In the embodiment shown in Figs. 1 and 2 the extension **34** is integral with the lug **20**. A tension spring **36** stretched between each extension **34** and the supporting member **14** acts as biasing means for yieldingly opposing a reclining movement of the movable members of the chair. Said springs **36** tend to return the movable members of the chair from a reclined position into the sitting position.

The sitting position of the movable members of the chair is limited by an abutment of the pin **30** against the left-hand end of the slot **32**; the extreme reclined position of the movable members of the chair is limited by an abutment of the pin **30** against the right-hand end of the slot **32**.

On each side of the chair the rear end portion of an arm-rest **38** is pivoted to the back-rest **22** at **40**. The front end portion of said arm-rest **38** is pivoted at **42** to the upper end of a link **44**, the lower end of which is pivoted to the seat **16** at **46**.

According to the embodiment shown in Figs. 3 and 4, the support **110** of an arm-chair comprises side frames **148** and **146** connected with each other by the rear wall **150** and transverse bars **152**. The side frames **146** and **148** of the support **110** include the arm-rests of the armchair.

The rear end portion of the seat **116** is pivoted to the back-rest **122** at **118**. The back-rest **122** is swingably mounted on the support **110** at **126** at a point remote from and below the pivotal connection **118** between the seat **116** and the back-rest **122**.

A lug **128** projecting from the lower surface of the seat **116** carries a roller **154** which may roll along a guiding member **156** secured to the support **110**. The guiding surface of said guiding member **156** engaged with the roller **154** is upwardly inclined in backward direction.

A leg-rest generally indicated by **158** is swingably mounted on the front portion of the seat **116** at **160**. The leg-rest **158** comprises a link **162** and a member **164** rigidly connected with each other. The upper end portion of the link **162** extends into a recess **166** of the seat **116**. The right-hand end of a controlling link **168** is pivoted to the leg-rest **158** at **170**; the left-hand end of the controlling link **168** is pivoted at **172** to an extension or arm **174** rigidly connected with the back-rest **122**.

The sitting position of the movable members of the chair shown in full lines in Fig. 3 is limited by an abutment of the downward extension **174** of the back-rest **122** against a stop **176** secured to the support **110**. The extreme reclined position of the movable members of the chair shown in dash and dot lines in Fig. 3 is limited by a stop **178** arranged for abutment with the other side of the extension **174** of the back-rest **122**. Said stop **178** is in slidable engagement with a slot **180** of the side frame **146** of the support **110**. As best shown in Fig. 4, said stop **178** may be adjusted in various positions by means of a handle **182** connected to a bevel gear **184** in mesh with a bevel gear **186** arranged on a shaft **188** provided with a threaded portion engaged with a threaded bore of a member **190** carrying the stop **178**.

The leg-rest **158** and the controlling link **168** connected to the extension **174** of the back-rest act as biasing means for yieldingly opposing a reclining movement of the movable members of the chair. The load of the leg-rest acting through the medium of the controlling link **168** on the extension **174** of the back-rest **122** has a tendency to return the movable members of the chair from the reclined position shown in dash and dot lines into the sitting position shown in full lines.

According to the embodiment shown in Figs. 5–7, the lower end of a back-rest 226 is pivoted at 228 to the member 224 of a support 220. The seat 230 pivoted to the back-rest 226 at 232 carries a bracket 264 having an upwardly and backwardly inclined slot 266 in each of its two side walls 268. On each side of the chair an upwardly and forwardly projecting extension 270 of the supporting member 224 carries a pin 272 slidably engaged with the slot 266 of the side wall 268 of the bracket 264 attached to the seat 230.

A return spring 244 is stretched between a downward extension 248 of the supporting member 224 and a transverse rod connected with the side walls 268 of the bracket 264.

The sitting position of the movable members of the chair shown in Fig. 5 is limited by an engagement of the pin 272 with the upper end of the slot 266. The extreme reclined position of the movable members of the chair shown in Fig. 6 is limited by an engagement of the pin 272 with the lower end of the slot 266.

During a movement of the movable members of the chair from the sitting position of Fig. 5 into the reclined position of Fig. 6, the front end portion of the seat 230 is lifted.

The embodiment shown in Fig. 8 substantially corresponds to the embodiment shown in Figs. 5–7. However instead of the pin and slot connection shown in Figs. 5–7, the seat 330 of Fig. 8 carries a roller 376 which moves along an upwardly and backwardly inclined surface 378 of an upward extension 370 of the supporting member 324. The return spring 344 is stretched between the upward extension 370 of the member 324 and the rear portion of the seat 330. The sitting position is limited by an abutment of the roller 376 against a stop 380 arranged on the extension 370; the extreme reclined position is limited by an abutment of said roller 376 against another stop 382 arranged on the extension 370.

I have described preferred embodiments of my invention, but it is understood that this disclosure is for the purpose of illustration and that various omissions or changes in shape, proportion and arrangement of parts, as well as the substitution of equivalent elements for those herein shown and described may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

For example each of the embodiments shown in the drawings may be equipped with locking means for holding the movable members of the article in a desired position.

What I claim is:

1. An improved chair comprising a support, a back-rest disposed in a substantially upright sitting position and pivoted on said support for reclining movement, a seat pivoted adjacent its rearward end at a seat pivot on said back-rest and at a point spaced above the pivot of said back-rest on said support, said seat pivot being in a position to translate through a rearward and downward arc in response to said reclining movement to lower said rearward end of said seat, and slidably interengaged cooperating means on the forward portion of said seat and on said support, said cooperating means including a guide extending rearwardly and upwardly from its lower end to its upper end and a pin disposed in said guide and movable therealong, said pin being disposed adjacent one end of said guide when said back-rest is in said upright sitting position, said pin translating toward the other end of said guide in response to said reclining movement of said back-rest about its pivot on said support to elevate said forward portion of said seat, said reclining movement of said back-rest being simultaneously effective to cause said seat pivot on said back-rest to move through said rearward and downward arc, the elevation of said forward portion of said seat and the movement of said seat pivot through said rearward and downward arc causing a compound inclining movement of said seat to increase the angle between said seat and back-rest as a function of said reclining movement.

2. An improved chair comprising a support, a back-rest disposed in a substantially upright sitting position and pivoted on said support for reclining movement, a seat pivoted adjacent its rearward end at a seat pivot to said back-rest and at a point spaced above the pivot of said back-rest on said support, said seat pivot being in a position to translate through a rearward and downward arc in response to said reclining movement to lower said rearward end of said seat, slidably interengaged cooperating means on the forward portion of said seat and on said support, said cooperating means including a guide extending rearwardly and upwardly from its lower end to its upper end and a pin disposed in said guide and movable therealong, said pin being disposed adjacent one end of said guide when said back-rest is in said upright sitting position, said pin translating toward the other end of said guide in response to said reclining movement of said back-rest about its pivot on said support to elevate said forward portion of said seat, said reclining movement of said back-rest being simultaneously effective to cause said seat pivot on said back-rest to move through said rearward and downward arc, the elevation of said forward portion of said seat and the movement of said seat pivot through said rearward and downward arc causing a compound inclining movement of said seat to increase the angle between said seat and back-rest as a function of said reclining movement, and means operatively connected to said support and effective to urge said back-rest into said upright sitting position with said pin adjacent said one end of said guide.

3. An improved chair comprising a support, a back-rest disposed in a substantially upright sitting position and pivoted on said support for reclining movement, a seat pivoted adjacent its rearward end at a seat pivot on said back-rest and at a point spaced from the pivot of said back-rest on said support, said seat pivot being in a position to translate through a rearward and downward arc in response to said reclining movement to lower said rearward end of said seat, slidably interengaged cooperating means on the forward portion of said seat and on said support, said cooperating means including a guide extending rearwardly and upwardly from its lower end to its upper end and a pin disposed in said guide and movable therealong, said pin being disposed adjacent one end of said guide when said back-rest is in said upright sitting position, said pin translating toward the other end of said guide in response to said reclining movement of said back-rest about its pivot on said support to elevate said forward portion of said seat, said reclining movement of said back-rest being simultaneously effective to cause said seat pivot on said back-rest, to move through said rearward and downward arc to lower said rearward end of said seat, the elevation of said forward portion of said seat and the movement of said seat pivot through said rearward and downward arc causing a compound inclining movement of said seat to increase the angle between said seat and back-rest as a function of said reclining movement, a spring operatively connected to said seat and said support and effective to urge said back-rest into said upright sitting position with said pin adjacent said one end of said guide.

4. An improved chair comprising a support, a back-rest disposed in a substantially upright sitting position and pivoted on said support for reclining movement, a seat pivoted adjacent its rearward end at a seat pivot on said back-rest and at a point spaced from the pivot of said back-rest on said support, said seat pivot being in a position to translate through a rearward and downward arc in response to said reclining movement to lower said rearward end of said seat, slidably interengaged cooperating means on the forward portion of said seat and on said support, said cooperating means including a guide extending rearwardly and upwardly from its lower end to its

upper end and a pin disposed in said guide and movable therealong, said pin being disposed adjacent one end of said guide when said back-rest is in said upright sitting position, said pin translating toward the other end of said guide in response to said reclining movement of said back-rest about its pivot on said support to elevate said forward portion of said seat, said reclining movement of said back-rest being simultaneously effective to cause said seat pivot on said back-rest to move through said rearward and downward arc to lower said rearward end of said seat, the elevation of said forward portion of said seat and the movement of said seat pivot through said rearward and downward arc causing a compound inclining movement of said seat to increase the angle between said seat and back-rest as a function of said reclining movement, and means operatively connected to said support and effective to urge said back-rest into said upright sitting position with said pin adjacent said other end of said guide, said last-named means including a leg-rest disposed beneath

the forward portion of said seat, and link means operatively connected to said leg-rest and to said seat and back-rest whereby said leg-rest serves in part as a counterbalance to maintain said back-rest in said upright sitting position until positively urged by the chair occupant into a reclining position.

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