Sept. 3, 1957 M. F. BAYER 2,804,910

LOUNGE CHAIR

Filed Jan. 18, 1954 2 Sheets-Sheet 1

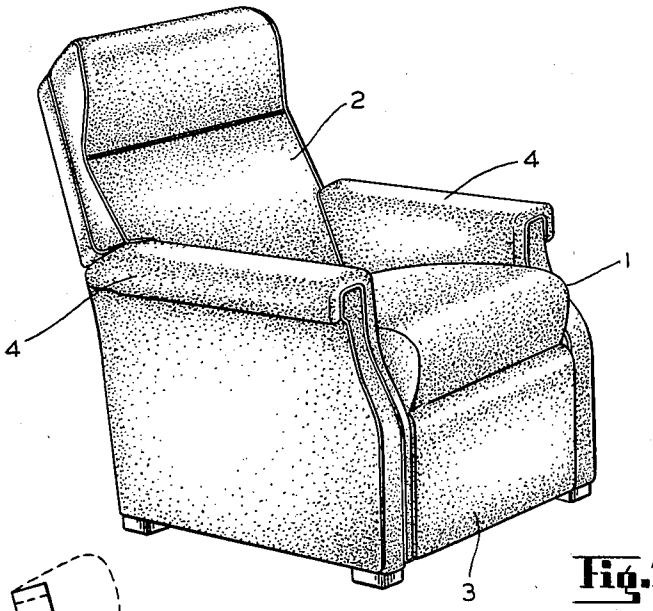


Fig. 1

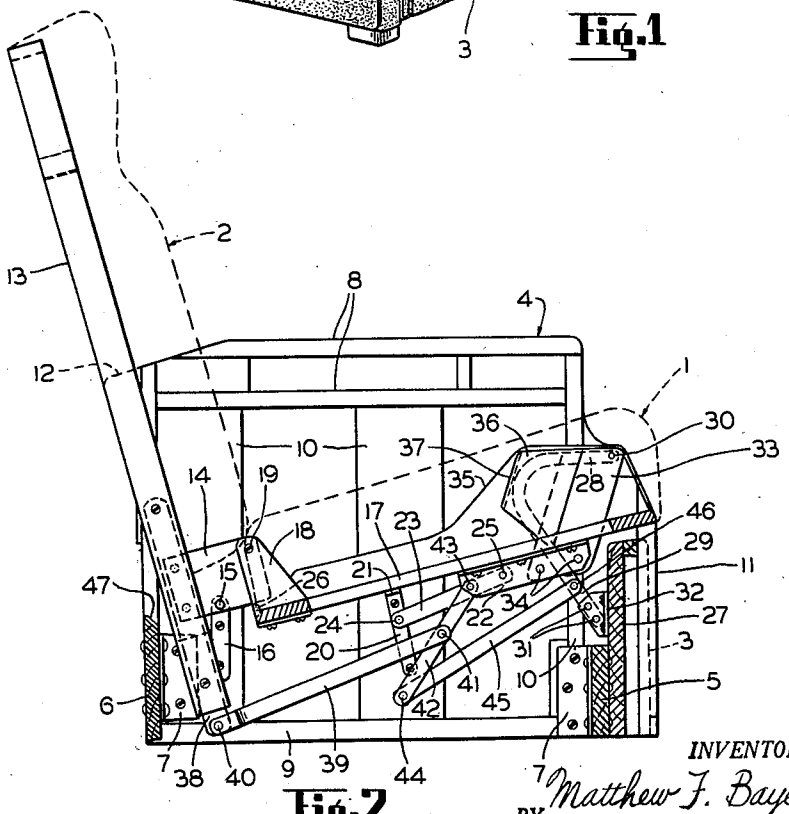


Fig. 2

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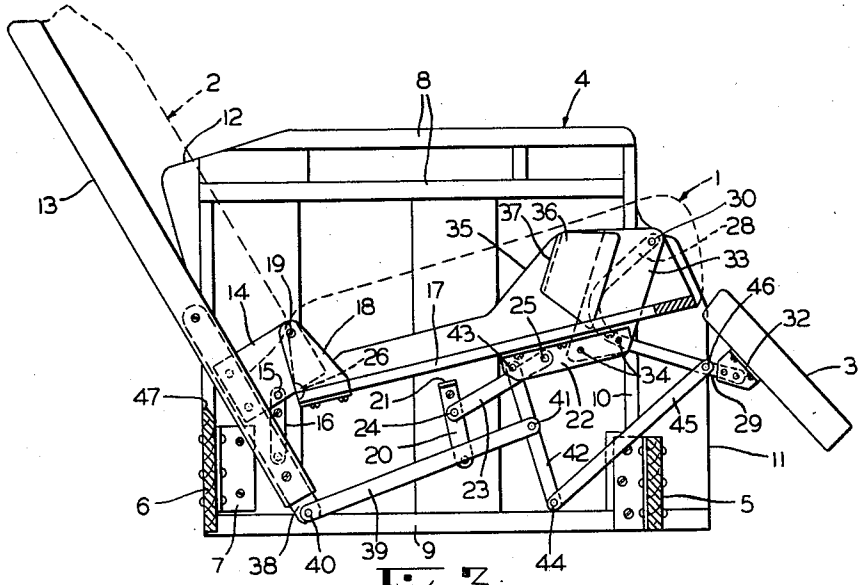


Fig. 3

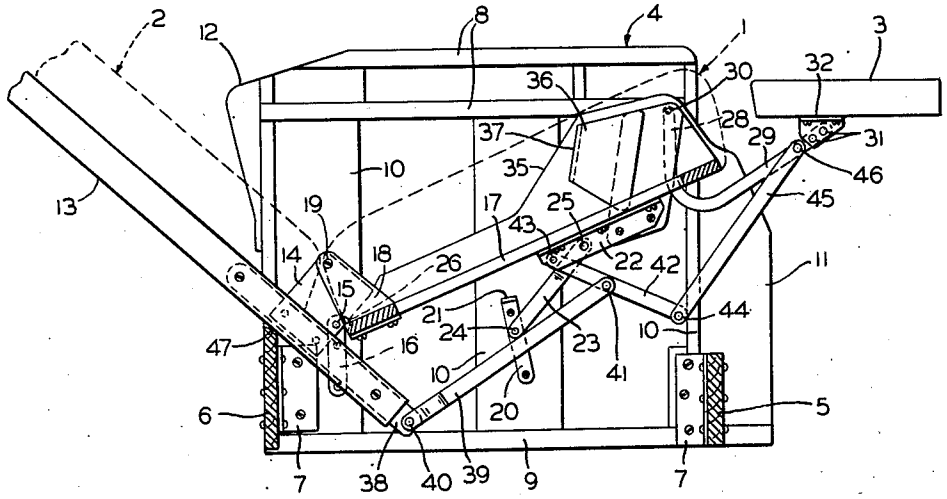


Fig. 4

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LOUNGE CHAIR

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2 Claims. (Cl. 155—106)

This invention relates to an article of furniture known as a lounging chair. Such chairs are sometimes called contour chairs and in general they embody back rest, seat, and leg rest elements mounted on a supporting frame structure in such a way that the back rest may be shifted from a normal up-right chair position to various angular reclining positions, the seat being also shifted from normal, more or less horizontal chair position to forwardly and upwardly inclined position. The leg rest is also automatically shifted from a normal inoperative position, usually in the plane of the front of the chair, to a more or less horizontal, forwardly extended position to support the legs of the occupant of the chair when the chair is adjusted to reclining or lounging position.

Important considerations in the selection of a chair of the character indicated are its cushion characteristics, the ease with which it may be adjusted from the normal chair position to the desired reclining or lounging position, the stability of the parts in the selected position of adjustment, the over-all weight of the chair, and its cost.

This invention is concerned mainly with details of construction having to do with ease of adjustability and stability of the chair structure in its various adjusted positions, it being an important object of the present invention to provide a chair structure of the character described which may be easily adjusted from one position to another by an occupant of the chair, merely by shifting his weight or otherwise exerting pressure in the direction in which it is desired to adjust the chair. It is also an object of this invention to provide an easily adjustable structure which will nevertheless be quite stable in its adjusted position; to provide a chair structure of the character indicated, including an adjustable leg rest and wherein the control mechanism for the adjustable parts is of relatively simple but durable character and which may be produced economically and at low cost; to provide a chair of the character indicated in which the operating mechanism is largely concealed within the structure of the chair; and in general it is the object of the invention to provide an improved chair structure of the character indicated.

Other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawing (two sheets) wherein there is illustrated a chair structure of the character indicated embodying a preferred form of the invention.

In the drawings:

Fig. 1 is a perspective illustration of the improved chair in normal chair position.

Fig. 2 is a section in a vertical plane extending from the front to the back of the chair intermediate its sides, the upholstery being omitted in order to reveal some of the the details of construction; and

Figs. 3 and 4 are sections corresponding to Fig. 2 but showing changed positions of the chair.

The chair structure shown in Fig. 1 comprises an upholstered seat and back rest **1** and **2** respectively, a suitable padded leg rest **3** and a suitably upholstered supporting frame structure having arm rests **4**, **4**. The kind of

cushion construction and the type and character or upholstering is not a part of the present invention and it will, therefore, not be described in detail.

The arm rests and side frames **4** constitute parts of the main supporting frame, the said side frames being rigidly interconnected in suitable spaced relationship by means of front and rear cross members **5** and **6** which are secured to the side frame structures in any acceptable manner, angle plates **7** being here illustrated as forming part of the connections between said cross members **5** and **6** and the respective side frames. In general the side frames are of wood construction including a pair of horizontal upper rails **8**, bottom rails **9**, and vertically extending members **10**. At the front of the chair, the lower portions of the side frames have forward extensions **11**, and the upper portions of said side frames have rearward extensions **12**, which serve to carry the side frames forwardly and rearwardly respectively to the extent required to embrace the movable portions of the chair in normal chair position as shown in Figs. 1 and 2.

The back rest **2** includes a suitable wood frame supporting structure **13** which has rigidly secured to its opposite sides near its lower end, metal mounting plates, one of which is indicated at **14**, said mounting plates being pivotally connected at **15** to suitable mounting brackets such as **16** which are suitably secured to respectively adjacent side frame elements **10**. The pivot **15** constitutes a fixed main pivot about which the back rest frame **13** is pivotally adjustable forwardly and rearwardly of the chair.

The seat **1** includes a suitably constructed frame **17**, preferably of wood construction which has secured to each of its sides adjacent its rear end, upstanding hinge plates or brackets **18** which are connected by hinge pivots such as **19** to portions of the back rest mounting plates **14**. As shown, the axis of the hinge pivots **19** is disposed in elevated relation to the main pivot **15** and in normal chair position of the structure said pivot **19** is disposed somewhat forwardly of said main pivot. **15**. A metal bracket member **20** is secured to one of the frame elements **10** at each side of the chair and each such bracket member **20** includes a horizontally inwardly extending upper end lug **21** on which the seat frame **17** rests in the normal chair position of said seat frame. The stop lug or supporting lug **21** cooperates with the hinge pivot **19** to support the seat in its normal chair position.

On each side of the seat, a forward portion thereof is provided with an angle iron bracket suitably secured to the underside of the seat and having a depending leg **22**. A link **23** has its rear end pivoted as indicated at **24** to a portion of the bracket **20** below its supporting lug **21**, and the front end of said link **23** is pivotally connected as indicated at **25** to said depending bracket leg **22**. The pivot **15**, the hinge connection **19**, the supporting lug **21** and the link **23** at each side of the chair, constitute the elements of the adjustable mounting of the back rest and seat. The back rest **2** may, without manipulating any latches or other devices, be pushed rearwardly about its pivot mounting **15** and the seat **1** will be caused to follow the back rest rearwardly due to the described hinge connection **19**. Such rearward movement of the seat will result in upward movement of the front portion thereof as an incident to the control effected by the guide link **23**. By comparison of the positions illustrated in Figs. 2, 3 and 4, it will be seen that as rearward movement of the back rest progresses toward its extreme lounging position as represented in Fig. 4, elevation of the front of the seat **1** increases to its extreme lounging position as also represented in Fig. 4.

The guide links **23**, in all positions of the chair are disposed at an upwardly and forwardly inclined angle from its rear pivot **24** so that except when the seat rests

on the stop lugs 21, as in Fig. 2, the weight of the front of the chair seat is supported by said guide links 23 which act as supporting struts.

The hinge plates 18 are suitably notched as indicated at 26 to avoid any conflict with the pivot pins 15 in the extreme lounging position of the parts as represented in Fig. 4. The hinge pivot 19 is located so that it is in proximity to the intersections of the planes of the top surfaces of the cushions of the seat and back rests, the approximate location of said top surfaces being indicated in broken lines in Figs. 2, 3 and 4. From comparison of these figures it will be seen that the arrangement serves to maintain the seat and backrest cushions substantially in contact with each other in all adjusted positions of the chair. Hence, although there is relative movement between the back rest and seat, there is no significant opportunity for the clothing of the occupant to be pinched between the seat and back rest cushions.

The leg rest 3 includes a suitable wood frame structure 27. Said leg rest frame is pivotally secured at each side to the upper front portion of the seat frame sides through the agency of a pair of suitably shaped hangers or arms, each of which comprises an upper portion 28 and a lower portion 29. The upper portion 28 of each hanger bar extends forwardly and rearwardly of the chair and has its front end pivotally connected as indicated at 30 to the upper side portion of the seat frame, the rear end of said upper portion 28 being integrally joined by a curved or bent portion to the upper end of the depending hanger arm portion 29. The lower end of said depending portion 29 is rigidly secured as indicated at 31 to a suitable bracket 32 which is fixedly secured to the leg rest frame 27.

The pivot 30 between the front end of the hanger arm 28 and the seat frame is carried by a bracket plate 33 which is rigidly secured to a forward end portion of the seat bracket 22 as shown at 34. At the sides of the seat frame there are provided upwardly extending side walls or flanges such as indicated at 35 for the purpose of positioning an inner-spring construction on the frame. The plates 33 are of stout metal to provide the required supporting strength and they are spaced inwardly from the side flanges 35 so that the hanger arm portions 28 and 29 operate intermediate said plates 33 and said upstanding side flanges 35. Sheet metal cover members 36 are provided to extend the plates 33 rearwardly to cooperate therewith and with the side flanges 35 to provide a confined space in which the hanger arms may move freely without interference from the padding or spring construction of the seat, said extension or shield 36 being suitably secured to the plates 33 as by welding or otherwise. The shield 36 has a rear end flange 37 which serves to maintain the rear portion thereof suitably spaced from the seat side 35. The bent hanger arm structure 28, 29 permits hinging of the leg rest to a forward upper portion of the seat structure so that the leg rest may be swung forwardly and upwardly to an operative position approximately in the horizontal plane of the front edge of the seat when in its extreme reclining position, as represented in Fig. 4. The more or less open U-shaped form of said leg rest hanger permits the hanger to extend around the forward frame portions of the seat structure.

The leg rest is automatically shifted from inoperative position in the plane of the front of the chair as shown in Fig. 2 to its upwardly and forwardly offset operative position as shown in Figs. 3 and 4 by connections to the back rest. For this purpose, the back rest is provided at each side with a suitable metal bar or arm 38, the same being rigidly secured to the sides of the back rest frame. A link 39 has its rear end pivoted as indicated at 40 to the lower end of said back rest arm 38 and its front end pivoted as indicated at 41 to an intermediate portion of a lever or arm 42 which is pivotally secured at its upper end as indicated at 43 to a portion of said bracket 22. The lower end of said lever 42 has pivoted to it at 44 the rear end of a link 45, the front end of which is pivoted as shown at 46 to a portion of the hanger arm 29 near the connection thereof to the leg rest 27. When the back rest is shifted rearwardly the link 39 will, of course, rock the lever 42 forwardly and the link 45 will swing the leg rest hanger arm forwardly about the pivot 30 to thereby adjust the leg forwardly and upwardly.

A suitable stop may be provided wherever desired to determine the extreme lounging position to which the chair parts may be adjusted. The upper edge 47 of the rear main frame cross member 6 may constitute such a stop as represented in Figure 4.

The described connection of the seat to the back rest, and the guide link 23 for controlling elevation of the front of the seat, together with the described link and lever arrangement for actuating the leg rest together with its described hinge connection to the upper front portion of the seat structure, have been found to provide a most satisfactory, easily operable chair structure which, notwithstanding ease of operation, is quite stable. This stability is found to exist for persons of varying weights and heights and in this respect the described structure exhibits an important advantage over many other constructions which exhibit objectionably easy adjustability for tall persons and most difficult adjustability for short persons, apparently due to differences in the manner in which tall and short persons are able to apply pressures to the various parts of the chair.

In the described construction rearward pressure on the back rest effects adjustment of the chair to reclining position and downward pressure exerted against the seat effects return of the parts to normal chair position. It will be observed that in the described construction the relationship of the fixed pivot 15 to the hinge pivot 19 is such that the pivot 19 moves primarily in a horizontal direction, only a minimum vertical movement being present incident to its arc of travel from a position forwardly of the main pivot 15 to a position somewhat rearwardly of said pivot. The front of the seat is, however, subjected to substantial elevation due to the effect of the front guide links 23 which are so arranged that the desired extent of vertical adjustment is obtained. It will be apparent that the extent of upward adjustment of the front of the seat is dependent on the initial angular position of the guide links 23. By arranging them so that the main component of movement of their front end pivots 25 is upwardly as in the arrangement shown, a very acceptable degree of front end vertical rise is obtained. This rise makes it very easy for an occupant of the chair to exert the required forward and downward pressure on the seat to adjust the chair from reclining or lounging position to normal chair position and the occupants weight on the front portion of the seat aids in making this adjustment. The weight of the cantilever supported leg rest also aids in the latter adjustment. The leverages provided in the described arrangement have been found to provide a very stable arrangement, i. e., one which will not be self adjusting with each turn or squirm of the occupant of the chair, but which will nevertheless be sufficiently easy to adjust by the application of pressures as above mentioned to the back rest and seat of the chair.

I claim:

1. A lounging chair having a normally stationary main frame, a back rest, a seat, and a leg rest, said back rest and seat being mounted on said main frame for movement relative to each other and relative to said main frame for adjustment from normal chair position to reclining or lounging position, and said leg rest being movably supported for adjustment from inoperative position in the plane of the front of the chair to operative position offset upwardly and forwardly from the front of the chair, said back rest being pivoted adjacent its lower end on said main frame, an arm rigid with the back rest and

extending downwardly therefrom beyond said pivot mounting of the back rest, a hinge connection between the lower portion of said back rest and the rear portion of said seat, the axis of said hinge connection being disposed above said pivot mounting of said back rest so that rearward movement of said back rest on said pivot will effect rearward shifting of said seat, a link extending forwardly and upwardly of the frame and pivoted at its rear end to said frame and at its forward end to said seat whereby the forward portion of said seat moves upwardly as an incident to said rearward shifting of the seat, a hanger connecting said seat and leg rest, said hanger having an upper portion which is pivoted to the forward upper portion of said seat and which extends rearwardly from said pivot connection, and a depending portion which extends downwardly from the rear end of said upper portion and is connected at its lower end to said leg rest, and a link and lever mechanism connecting said back rest arm, seat and said hanger for automatically adjusting the position of said leg rest as an incident to adjustment of said back rest and seat.

2. A lounging chair having a normally stationary main frame, a back rest, a seat, and a leg rest, said back rest and seat being mounted on said main frame for movement relative to each other and relative to said main frame for adjustment from normal chair position to reclining or lounging position, and said leg rest being movably supported for adjustment from inoperative position in the plane of the front of the chair to operative position offset upwardly and forwardly from the front of the chair, said back rest being pivoted adjacent its lower end on said main frame and having an arm rigid with the back rest and extending downwardly therefrom beyond said pivot mounting of the back rest, a hinge connection between the lower portion of said back rest and the rear portion of said seat, the axis of said hinge connection being disposed above said pivot mounting of said back rest so that rearward movement of said back rest on said pivot will effect rearward shifting of said seat, a link extending forwardly

and upwardly of the frame and pivoted at its rear end to said frame and at its forward end to said seat whereby the forward portion of said seat moves upwardly as an incident to said rearward shifting of the seat, a hanger connecting said seat and leg rest, said hanger comprising rigidly interconnected upper and lower portions, said upper portion extending forwardly and rearwardly of the seat and having a free forward end pivotally connected to said seat adjacent the forward upper portion thereof, said lower portion extending downwardly and forwardly from the rear end of said upper portion and having its lower end connected to said leg rest, a lever pivoted at one end to said seat rearwardly of said leg rest and depending from said seat, a link interconnecting the lower end portion of said lever and said hanger adjacent to the connection of the latter to said leg rest, and a link pivotally connected at one end to the lower end of said back rest arm and at its other end to said lever intermediate its ends, whereby movement imparted to the lower end of said back rest arm upon adjustment of the back rest is multiplied and transmitted to said leg rest to effect adjustment thereof as an incident to adjustment of said back rest.

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