

March 26, 1940.

A. LORENZ ET AL.
FOLDABLE RECLINING CHAIR

2,195,091

Filed April 18, 1938

2 Sheets-Sheet 1

Fig. 1

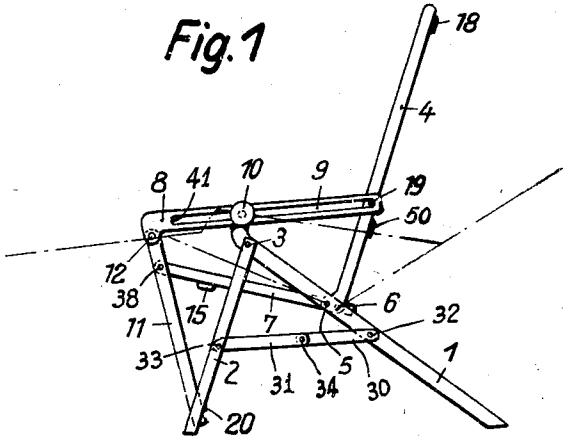


Fig. 2

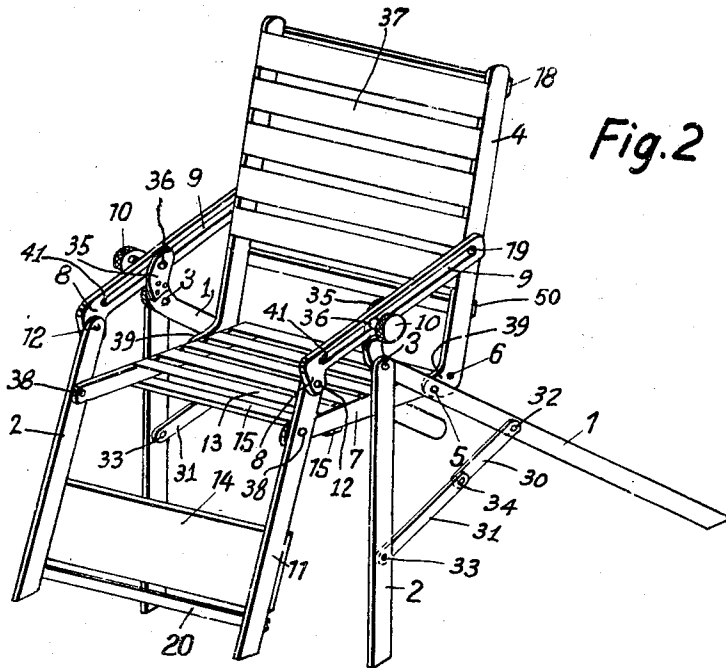
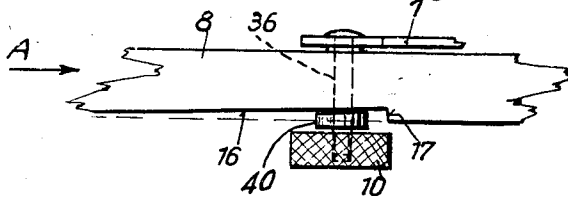


Fig. 3



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Fig. 4a

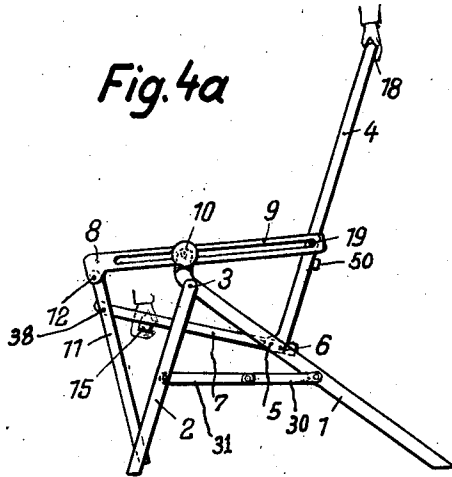


Fig. 4b

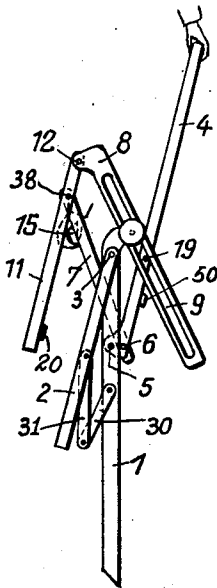


Fig. 4c

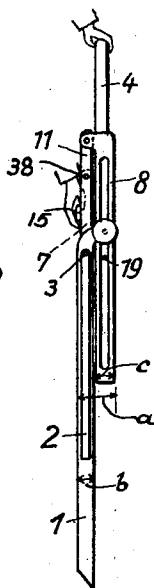


Fig. 5b

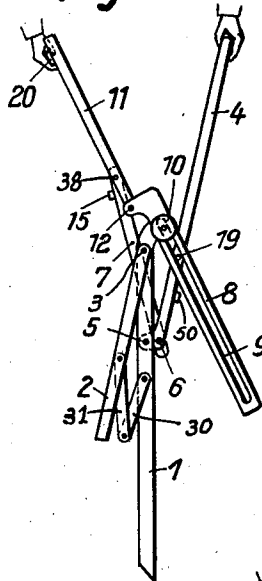


Fig. 5c

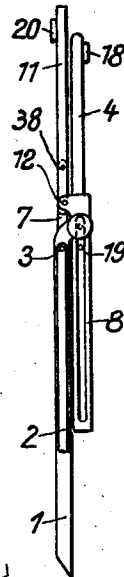
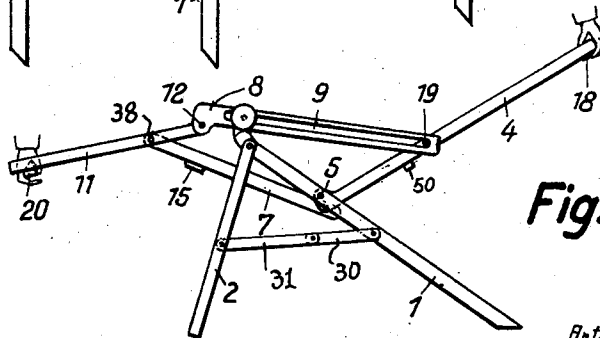


Fig. 5a



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UNITED STATES PATENT OFFICE

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FOLDABLE RECLINING CHAIR

Anton Lorenz and Hans Luckhardt, Berlin,
GermanyApplication April 18, 1938, Serial No. 202,599
In Germany April 29, 1937

5 Claims. (Cl. 155-110)

Our invention relates to a reclining chair, and more particularly to a foldable reclining chair, in which a leg-rest, a seat, a back-rest and connecting link-means are pivotally interconnected with each other to form a polygonal structure with unequal sides and wherein said polygonal structure is movably connected to said support.

One object of our invention is to provide a foldable reclining chair of the above described type, in which the members of the polygonal structure may be folded upon each other in two parallel planes.

Another object of our invention is to provide a foldable reclining chair of the above described type, in which the members of the polygonal structure may be folded upon each other in two parallel planes, and in which the members of a foldable support are positioned in one of said planes, when the chair is folded.

A further object of our invention is to provide such a foldable reclining chair with a novel locking device for locking the movable parts of the polygonal structure in any desired position, so that the user of the chair may gradually shift the movable parts of the polygonal structure from any adjusted position into any other more reclined position by gradually loosening said locking device and pressing his back against said back-rest, while he rests on the chair.

In order to carry out our invention into practice, we provide a foldable reclining chair comprising a support, and a polygonal structure, the members of said polygonal structure being formed of a leg-rest, a seat, a back-rest and connecting link-means, said seat extending between points of said leg-rest and back-rest and being pivoted thereto, said connecting link-means extending between different points of said leg-rest and back-rest and being pivoted thereto, said polygonal structure having sides of unequal length and being movably connected to said support, and at least one pivot point between adjacent members of said polygonal structure being movable arranged along one of said members. In a preferred embodiment of our invention the connecting link-means form the arm-rests on each side of the chair and are provided with slots; one point of the polygonal structure is pivoted to the support; pins are secured to the support on each side of the chair and are in movable engagement with said slots for controlling the movement of the members of the polygonal structure, when the latter is swung about its pivot point on the support; the pivot points between the back-rest and the arm-rests are also slidably arranged in

said slots; and clamping means are adjustably arranged on at least one of said pins and cooperate with an inclined surface of the arm-rest for a gradual adjustment of the members of the polygonal structure to more reclined positions.

The above mentioned objects and advantages as well as other objects and advantages of our inventions will appear from the following description of the preferred embodiment thereof shown on the accompanying drawings, in which:

Fig. 1 is a side elevational view of the foldable reclining chair in sitting position,

Fig. 2 is a perspective view of the foldable reclining chair shown in Fig. 1,

Fig. 3 is a fragmentary top plan view of an arm-rest of the chair, illustrating the locking device in an enlarged scale,

Figs. 4a-4c are side elevational views of the chair illustrating subsequent positions of the parts of the chair, when the folding of the chair is started from a sitting position, and

Figs. 5a-5c are side elevational views of the chair illustrating subsequent positions of the parts of the chair, when the folding of the chair is started from a reclining position.

Referring now to Figs. 1 and 2, the support of the chair consists of two pairs of uprights 1 and 2, one pair being arranged on each side of the chair. The upright 2 is hinged to the uprights 1 at 3. Links 30 and 31 hinged to the uprights 1 and 2 respectively at 32 and 33 and pivotally connected with each other at 34 prevent the uprights 1 and 2 from spreading, if they are in the supporting position shown in Figs. 1 and 2. A plate 35 of curved shape is secured to the upper end of each upright 1 and carries a pin or pivot 36 for a purpose to be described later on.

11 indicates the leg-rest, which is provided with a strip 14 of fabric or the like attached thereto. 7 indicates the seat having a plurality of strips 13 of fabric or the like secured thereto. 4 indicates the back-rest, which is provided with a plurality of strips 37 of fabric or the like attached thereto. 8 indicates connecting links, which form the arm-rests of the chair in the embodiment shown in the drawings. One arm-rest is arranged on each side of the chair, and each arm-rest is provided with a slot 9. The front end of the seat 7 is hinged to the leg-rest 11 at an intermediate point 33 thereof, the rear end of the seat is hinged to the back-rest 4 at 6, and the front end of each arm-rest 8 is hinged to the upper end of the leg-rest 11 at 12. The back-rest 4 is provided with pivots 19 on each side of the chair. Said pivots are positioned at

intermediate points of the back-rest and are in slidable engagement with said slots 9 of the arm-rests, so that the distance between the pivots 12 and 19 may be changed, if desired.

5 The leg-rest 11, the seat 7, the back-rest 4 and the arm-rests 8 form a polygonal structure having sides of unequal length, the shortest side being the upper part of the leg-rest 11 between the pivots 12 and 38. The back-rest 4 has an

10 extension 39 on each side of the chair, and said extension is pivoted to the upright 1 at 5, so that the polygonal structure may be rotated about said pivot 5, if it is desired to bring the movable parts thereof from the sitting position shown in

15 full lines in Fig. 1 into a reclining position shown in dash and dotted lines in Fig. 1. The movements of the members of the polygonal structure during said adjustment are controlled by the pins 36, which are in slidable engagement with

20 the guiding slots 9 of the arm-rests 8.

In order to lock the movable parts of the polygonal structure in any adjusted position, the pins 36 have a threaded end extending outwardly from the arm-rest, and a clamping knob 10 or

25 the like is screwed on this end for pressing a clamping disc 40 loosely arranged on said pin 36 against the surface of the arm-rest. If the disc 40 is pressed against the arm-rest, the polygonal structure is locked.

30 As best shown in Fig. 3, the side of the arm-rest 8 facing the clamping disc 40 has an inclined surface 16, which permits a gradual change from the sitting position or an intermediate reclining position into a more reclined position of the polygonal structure while the user of the chair rests thereon. Assume, the parts of the chair are locked in an intermediate reclining position, when the clamping disc is tightly

35 pressed against the recess 15 in the position shown in Fig. 3. Now, if the user of the chair wishes a gradual change from said position into a more reclined position until he reaches a comfortable reclining position, he gradually loosens the clamping knob 10 and presses his back

40 against the back-rest 4, whereby the arm-rest 8 is gradually shifted in the direction of the arrow A, until the user stops the loosening of the knob 10 after having reached the desired reclining position and the inclined surface 16 co-

45 operating with the clamping means 10, 40 prevents a further movement of the arm-rest 8, so that the polygonal structure is locked in the adjusted intermediate reclining position.

The shoulder 17 formed by the inclined surface 16 limits the sitting position of the polygonal structure, when the clamping disc 40 abuts against said shoulder. The extreme reclining position of the polygonal structure is limited by an engagement of the pin 36 with the front end

50 41 of the slot 9.

55 Transverse bars 20, 15, 50 and 18 are secured to the side bars of the leg-rest 11, seat 15 and back-rest 4 respectively, and connect the two polygons on each side of the chair with each other. The transverse bars 20, 15 and 18 may be used as handles, when the chair is folded as

60 will be described hereinafter.

65 Figs. 4a-4c illustrate the folding of the chair, when its parts are in sitting position. In this case, the transverse bars 15 and 18 are used as handles. After the clamping means 10, 40 are loosened, first the back-rest 4 is swung forwardly about its pivot 5, whereby the pivot 19 slides along the slot 9, until the pivot 19 reaches a

70 position in which the sum of the distances be-

tween the pivots 12 and 38 and the pivots 38 and 6 of one pair of adjacent members of the polygonal structure is equal to the sum of the distances between the pivots 6 and 19 and the pivots 19 and 12 of the other pair of adjacent

5 members of the polygonal structure as indicated by Fig. 4b. Then, the leg-rest 11, the seat 7, the back-rest 4 and the arm-rests 8 may be folded in two parallel planes as shown in Fig. 4c. In this connection it may be noted, that the pivots

10 5, 12 and 36 are offset. If the chair is folded, the upright 1 is in the same plane as the leg-rest 11 and the seat 7, and the upright 2 may be swung about its pivot 3, so that it comes into the same plane as the upright 1 and the entire width a

15 of the folded chair is equal to the sum of the width b and c of two members of the chair only.

Figs. 5a-5c illustrate the folding of the chair, when its parts are in a reclined position. In this case, the bars 20 and 18 are used as handles,

20 and the back-rest is swung about the pivot 5 into such a position, that the distance between the pivots 38 and 6 of one member of the polygonal structure is equal to the sum of the distances between the pivots of three adjacent mem-

25 bers of the polygonal structure, i. e. the distances between the pivots 38 and 12, between the pivots 12 and 19 and between the pivots 19 and 6 as indicated by Fig. 5b. Said Fig. 5b also shows, that during this type of folding the pin 36 slides

30 forwardly in the slot 9. If the chair is folded as shown in Fig. 5c, the parts of the chair are in two planes as is true of the folded chair shown in Fig. 4c, with the only exception that the leg-rest 11 projects upwardly. If desired,

35 this type of folding may also be employed, when the chair is in sitting position.

We have described a preferred embodiment of our invention, but it is clear that numerous changes and omissions may be made without de-

40 parting from the spirit of our invention.

What we claim is:

1. A foldable reclining chair, comprising: a pair of uprights on each side of the chair, the uprights of each pair being pivotally connected

45 with each other; a pivot secured to the upper end of one of said uprights on each side of the chair; two polygons one at each side of the chair; and means connecting said polygons with each other, the members of said polygons forming the upper part of a leg-rest, a seat, the lower part of a back-rest and a pair of arm-rests, one arm-rest being arranged on each side of the chair, said seat extending between intermediate points of the leg-rest and lower points of the

50 back-rest and being pivoted thereto, said arm-rests extending between upper points of said leg-rest and intermediate points of said back-rest and being pivoted thereto, pivot means connected to at least one member of each polygon

55 for hinging to one of said uprights on each side of the chair, each arm-rest being provided with a slot, said pivots on the upper ends of the uprights being in movable engagement with said slots, and the pivots between said back-rest and

60 said arm-rests being in slidable engagement with said slots.

2. A foldable reclining chair as claimed in claim 1, in which at least one of the two arm-rests is provided with an inclined surface, and clamping means for cooperating with said inclined surface, said clamping means being arranged on the pivot engaged with the slot of said arm-rest.

3. A foldable reclining chair as claimed in 75

claim 1, on each side of the chair two diagonally opposite pivots of the polygon and the pivot secured to the upright and engaged with said slot of the arm-rest being offset, and said slot being
 5 of a length to permit the movement of the pivot of the back-rest in said slot to such a point, that the sum of the distances between the pivots of one pair of adjacent members of the polygon is equal to the sum of the distances between the
 10 pivots of the other pair of adjacent members of the polygon.

4. A foldable reclining chair as claimed in claim 1, on each side of the chair two opposite pivots of the polygon and the pivot secured to the upright and engaged with said slot of the
 15 arm-rest being offset, and said slot being of a length to permit the movement of the pivot of the back-rest in said slot to such a point, that the sum of the distances between the pivots of three adjacent members of the polygon is equal
 20 to the distance between the pivots of the fourth member of the polygon.

5. A foldable reclining chair, comprising a pair of uprights on each side of the chair, the
 25 uprights of each pair being pivotally connected with each other, two polygons one at each side

of the chair, means connecting said polygons with each other, the members of said polygons forming the upper part of a leg-rest, a seat, the lower part of a back-rest and a pair of connecting links, one connecting link being arranged on
 5 each side of the chair, said seat extending between intermediate points of the leg-rest and lower points of the back-rest and being pivoted thereto, said connecting links extending between upper points of said leg-rest and intermediate
 10 points of said back-rest and being pivoted thereto, each polygon having sides of unequal length, the shortest side being formed by the portion of the leg-rest extending between the seat and the connecting link, pivot means connected to at
 15 least one member of each polygon for hinging to one of said uprights on each side of the chair, one of the pivotal connections of each polygon being adjustable for varying the length between two points of the polygon during the folding of
 20 the chair, and a pin and slot connection arranged between one member of each polygon and an upright.

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