

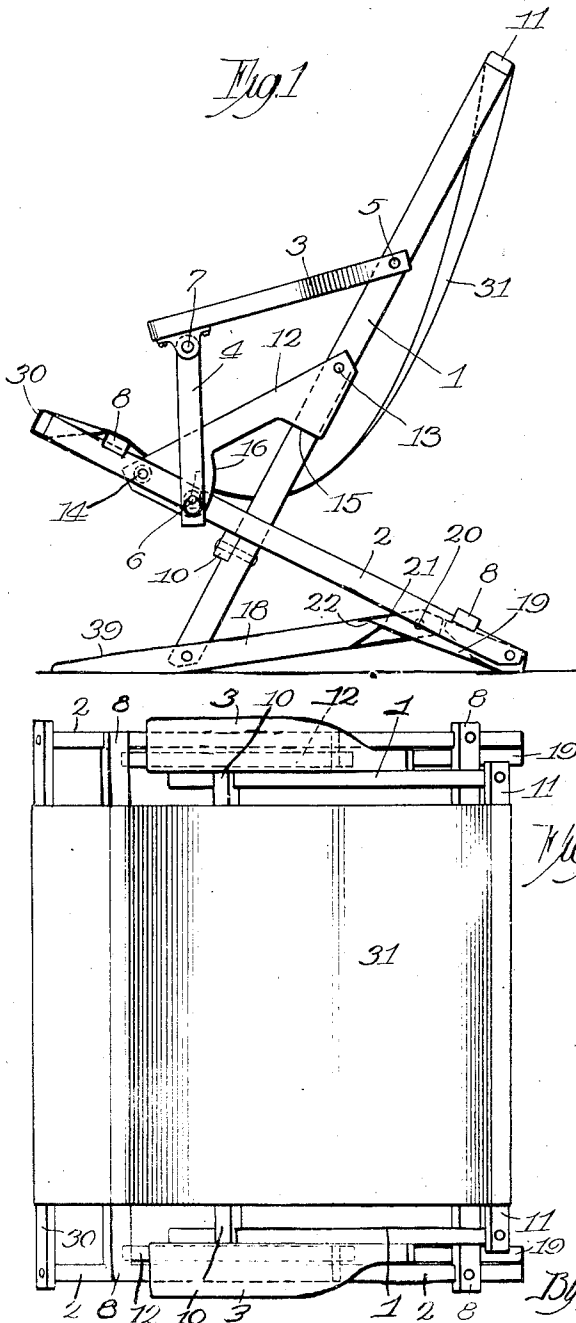
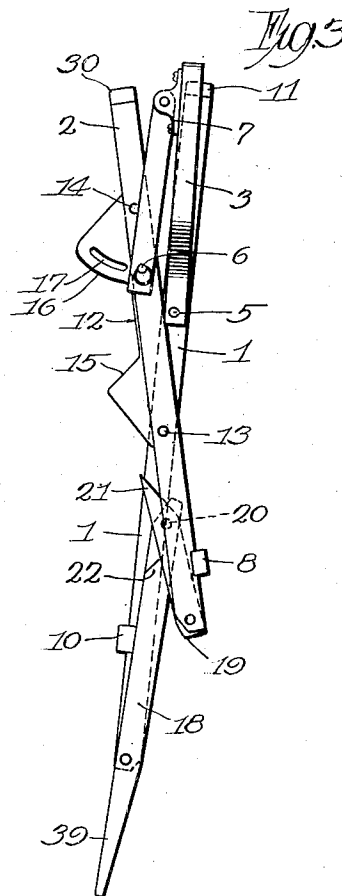
June 12, 1928.

L. O. BERGMANN
FOLDING ROCKING CHAIR

1,673,387

Filed May 3, 1926

2 Sheets-Sheet 1



Inventor:
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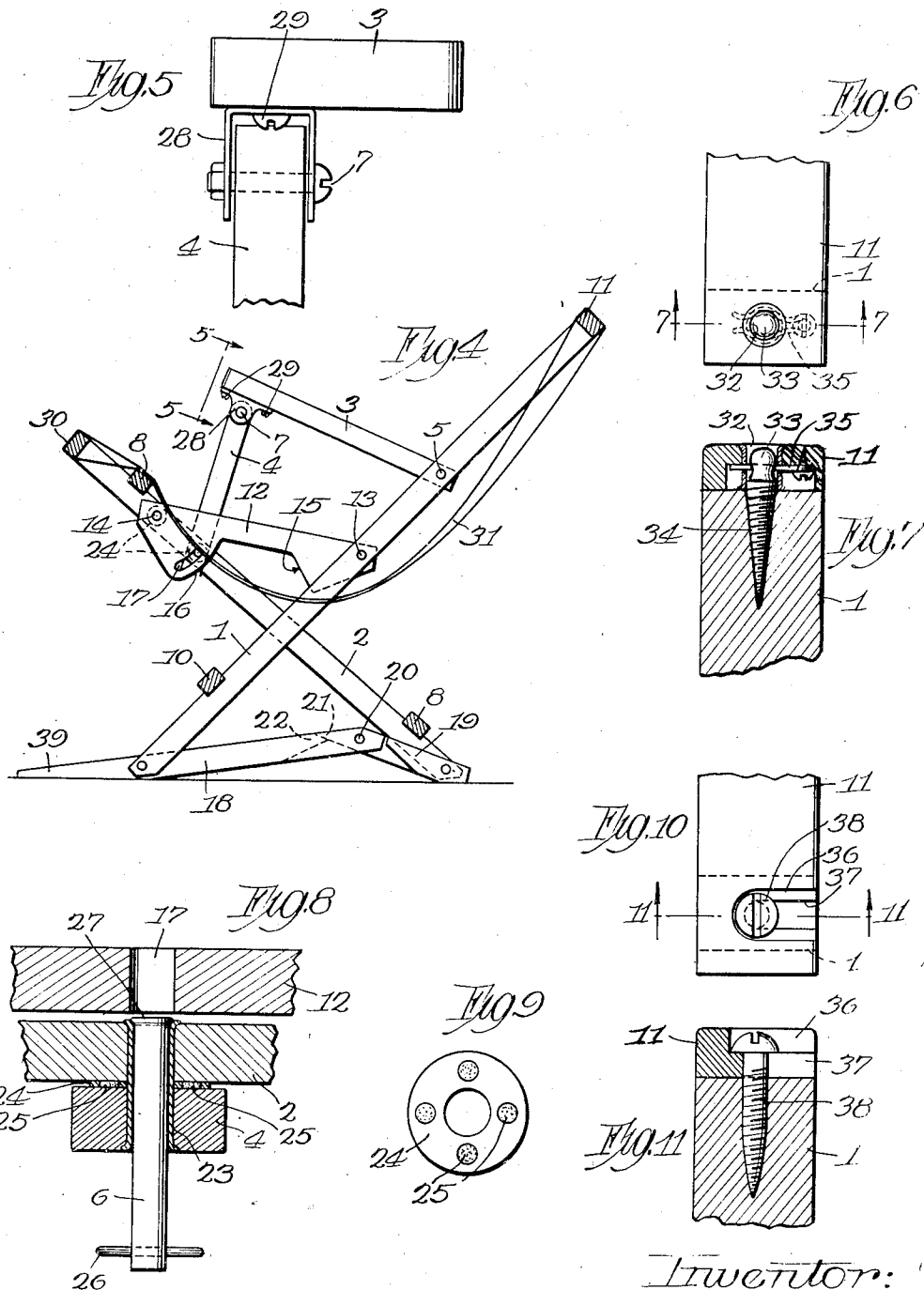
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UNITED STATES PATENT OFFICE.

LEO O. BERGMANN, OF COLOMA, MICHIGAN.

FOLDING ROCKING-CHAIR.

Application filed May 3, 1926. Serial No. 106,324.

This invention relates to folding rocking chairs of the kind in which the folding side frames are formed by members which are pivotally connected together, in such a manner that the chair is not only adapted to be folded up, when not in use, but is also capable of a rocking motion while occupied.

Generally stated, the object of the invention is to provide a novel and improved construction of the foregoing general character, having certain details of construction, and involving certain novel combinations, tending to increase the general efficiency and the desirability of a folding rocking chair of this particular character.

To these and other useful ends, the invention consists in matters and things hereinafter set forth and claimed and shown in the accompanying drawings in which:

Fig. 1 is a side elevation of a folding rocking chair embodying the principles of the invention, showing the same in its forward rocking position.

Fig. 2 is a plan of said chair, as shown in Fig. 1.

Fig. 3 is a side elevation showing the chair folded up for storage.

Fig. 4 is a vertical longitudinal section of said chair, showing it in its rear rocking position.

Fig. 5 is an enlarged detail fragmentary view, on line 5—5 in Fig. 4.

Fig. 6 is an enlarged detail view of a portion of the chair.

Fig. 7 is a section on line 7—7 in Fig. 6.

Fig. 8 is an enlarged detail section of another portion of the chair.

Fig. 9 is a side elevation of the washer shown in Fig. 8.

Fig. 10 is a view similar to Fig. 6, showing another form of the invention.

Fig. 11 is a section on line 11—11 in Fig. 10.

As thus illustrated, the invention comprises the upright rear side members 1, rearwardly inclined, and the forwardly inclined front side members 2 as shown. The side members 1 are connected to the side members 2 through the medium of the arms 3 and links 4, the arms being pivoted on the members 5, and the links 4 being pivoted on the members 2 at 6, and the arms and links being pivotally connected together by a sheet metal bracket hinge 7 as shown. The members 2 are disposed outside of the members 1, as shown, and these members 2 are con-

nected together to form a rigid rectangular frame by means of the cross bars 8 and 9 as shown. A cross bar 10 connects the lower portions of the members 4 together, and a top cross bar 11 connects the upper ends of the members 1 together. The members 1 and 2 are also connected together through the medium of a link 12 which is pivoted on the members 1 at 13, and which is pivoted on the members 2 at 14 as shown. To prevent the fingers from being squeezed between the adjacent edges of the members 1 and the links 12, the latter have their rear ends provided with guards 15, and to prevent squeezing of the fingers between these members and the links 12 said links have their front end portions provided with guards 16 as shown. To limit the rocking motion of the chair the guards 16 are provided with slots 17 curved about the pivots 14, through which the pivots 6 extend, so that each end of the slots 17 forms a stop to limit the forward and backward rocking motion of the chair. The lower ends of the members 1 are pivoted on the base members 18 and the lower ends of the members 2 are pivoted on the shorter base members 19, the members 18 and 19 being pivotally connected together at 20, forming toggle joints and the end portions 21 of the members 19 engaging the stops 22 on the members 18, thus holding the toggle joints 20 raised a distance from the floor when the chair is in use, but with this construction the entire chair can be folded up as shown in Fig. 3 of the drawings.

As a matter of further and special improvement, the pivots 6 are in the form of pins as shown in Fig. 8 which are slidable endwise into the slots 17 previously mentioned. The pivot 6 also has a sleeve 23 that forms a pivot proper between the link 4 and the member 2, at each side of the chair, and a washer 24 is interposed between the link 4 and the member 2, at each side of the chair, to prevent squeaking. This is accomplished, preferably, by providing the washer with holes 25 filled with paraffin or some other lubricant, before they are inserted in place. The cotter pin 26 is inserted through the outer end of the pin 6, and the inner end of the latter is riveted over at 27 as shown, so that it cannot be pulled out of the pivot joint thus formed, but when it is desired to fold the chair, then the pins 6 are pulled out as shown in Fig. 8, and when it is desired to

use the chair the pins 6 are then pushed back into the slot 17 to limit the rocking motion of the chair.

It will also be seen that the pivot 7 is formed by a sheet metal bracket 28 which is secured by screws 29 to the under side of the arm 3, and the downwardly bent ears of which are connected by the pivot bolt 7 to the upper end of the link 4, at each side of the chair, thus providing a hinge joint which is strong and serviceable, and which permits free movement of the link 4 relative to the arm 3 in either direction, this hinge joint imposing no limitation on such movement in the rocking motion of the chair, which prevents squeezing of the fingers.

As a matter of further and special improvement, it will be seen that the members 11 and 30 are removable, these members supporting the flexible member or fabric 31 which forms the seat of the chair, which extends over the member 8 previously mentioned. The members 11 and 30 can be made removable in any suitable manner, as by the construction shown in Figs. 6 and 7, or by the construction shown in Figs. 10 and 11 of the drawings. In Figs. 6 and 7 the member 11, for example, is provided with a socket opening 32 to receive the rounded head 33 of the screw 34 which is fastened in the upper end portion of the member 1, at each side of the chair. The member 11 has a spring device 35 therein, extending across the socket, to engage the head 33, and to snap into the neck of this head, when the member 11 is pressed downward into position. As shown in Figs. 10 and 11, the member 11 is simply provided with a recess 36 near each end thereof, and with a slot 37 in the bottom of this recess, to receive the screws 38 which are fastened in the upper ends of the members 1 of the chair. This permits the member 11 to be pushed out from under the heads of the screws 38 by loosening the latter, or by leaving them a little loose, in a manner that can be readily understood, and, of course, the same separable fastening means shown in Figs. 6 and 7, or shown in Figs. 10 and 11, or any suitable means for this purpose, can be employed as the separable connections between the end portions of the member 30 and the front ends of the members 2 of the chair. With this construction, therefore, the members 11 and 30 can be taken off easily, and the cloth or other flexible means 31 can then be slipped off, by withdrawing the said members from the loops formed in the cloth, and fresh cloth can then be supplied in place thereof, thus making it very easy to renew the cloth seat of the chair, without the necessity of using tools.

As another feature of improvement, it will be seen that the members 18 have front end extensions 39 which extend forward a distance in front of the lower ends of the

front legs of the chair, which lower ends are well back under the seat of the chair, thus preventing the chair from tipping over forward. The portions 39 obviously serve also to prevent the toggle joints from rising when the chair is in use. When the chair is folded, the more or less flat structure thus formed terminates at one end in the extensions 39 as shown in Fig. 3 of the drawings.

It will be understood, of course, that the washer 24 may be used in any of the pivot joints, being indicated in dotted lines, for example, in the joint formed by the pivot 14 of the chair (see Figs. 1 and 4 of the drawings). For convenience the washer 24 is shown as applied to the pivot joint formed by the pin 6 and the sleeve 23 as previously described. It will be understood that this washer can be used in any joint on the chair that is liable to squeak.

As shown, the upper ends of the links 4 are rounded to prevent the joint from imposing any limitation on the rocking motion of the chair, but it is obvious that any relative formation of the parts may be employed which will accomplish this purpose.

The cross bars 8 and 30, of course, form a rigid seat portion, and form the front portion of the seat, and the flexible member 31 is hung on this seat portion and the upper end portion of the back of the frame in the manner explained, and the member 31 is flexible to permit the rocking motion of the chair, and to permit the articulated supporting means formed by the members 18 and 19 to fold up, or to break joint upwardly, when the chair is folded.

It will also be understood, of course, that the guards, such as 15 or 16, can be employed elsewhere on the chair, if desired, or wherever two parts which are pivoted together would produce a shearing pressure on the fingers, if accidentally inserted between the members. With the construction as shown, there is practically no danger of anything of this kind except between the lower edges of the links 12 and the members to which these links are pivoted, and hence the guards are only shown at these points, but they can be used elsewhere on the chair if desired or necessary.

By rocking motion, or rocking chair, is meant, of course, a chair which has an easy rocking motion forward and back like an ordinary chair with rockers.

Without disclaiming anything, and without prejudice to any novelty disclosed, what I claim as my invention is:

1. In a folding rocking chair, the combination of pivotally connected elements forming a folding frame comprising a stiff back and front legs rigid therewith and capable of back and forth rocking motion when in use, articulated supporting means formed by two laterally overlapping front and rear

members pivoted together through the overlap at each side of the chair, upon which the legs of the chair are pivoted adapted to remain stationary on the floor during such forward and back rocking motion, adapted to fold and break joint upwardly when the frame is folded, a seat portion rigid with the rear legs, and a flexible seat and back member hung on said seat portion and the back of the frame, with links connecting the front leg members to the members forming the rear legs, said links having guards to prevent pinching of the fingers between the lower edges of the links and the adjacent frame members, together with means to so limit the forward and backward rocking motion of the chair that said guards are effective for said purpose.

2. In a folding rocking chair, the combination of pivotally connected elements forming a folding frame comprising a stiff back and front legs rigid therewith and capable of back and forth rocking motion when in use, articulated supporting means formed by two laterally overlapping front and rear members pivoted together through the overlap at each side of the chair, upon which the legs of the chair are pivoted adapted to remain stationary on the floor during such forward and back rocking motion, adapted to fold and break joint upwardly when the frame is folded, a seat portion rigid with the rear legs, and a flexible seat and back member hung on said seat portion and the back of the frame, with links connecting the front leg members to the members forming the rear legs, arm links extending downward, and rocking motion limiting devices applied to the lower ends of said arm links and said first mentioned links and the rear leg members, each of said devices comprising a pin slidable endwise in the adjacent portions of the arm links and the rear leg members, said first mentioned links having slots to receive the inner ends of said pins, the opposite ends of each slot forming stops to engage the pin and thereby limit the forward and backward rocking motion of the chair.

3. A structure as specified in claim 2, each of said slidable pins having a sleeve forming the pivot joint, taking the shearing strain off said pin.

4. A structure as specified in claim 2, each motion limiting device having a washer having holes to contain a lubricant to prevent squeaking.

5. In a folding rocking chair, the combination of pivotally connected elements forming a folding frame comprising a stiff back and front legs rigid therewith, and capable of back and forth rocking motion when in use, articulated supporting means formed by two laterally overlapping front and rear members pivoted together through the overlap at each side of the chair, upon which the legs of the chair are pivoted, adapted to remain stationary on the floor during such forward and back rocking motion, forming toggle joints adapted to fold and break joint upwardly when the frame is folded, a seat portion rigid with the rear legs, extending forward of the lower ends of the front legs, and a flexible seat and back member hung on said seat portion and back of the frame, said articulated supporting means being extended forward a distance to bear on the floor at points a substantial distance in front of the lower ends of the front legs under said seat portion, thereby to prevent the chair from tipping over when it rocks forward, serving also to keep the toggle joints from rising during rocking motion of the chair, said seat and back member being flexible to permit folding of said frame and said articulated supporting means in the desired manner, with said front extensions of the articulated supporting means extending beyond and in extension of the front legs and forming one extreme end of the flattened structure formed by the folded chair.

6. In a folding rocking chair, the combination of pivotally connected elements forming a folding frame comprising a stiff back and front legs rigid therewith, having means whereby the chair is capable of back and forth rocking motion when in use, and including arms pivoted on the front leg members, together with links pivoted on the rear leg members, and hinge joints between the said arms and the upper ends of said links, each of said hinge joints comprising a bracket secured to the under side of the arm, with downwardly extending ears, and with a pivot extending through said ears and the upper end of the link between said ears, the upper ends of said links being formed to rotate freely a distance in either direction close to the under side of the arm to prevent the hinge joints from imposing any limitation on either the rocking or folding motion of the chair, and means to limit the rocking motion.

7. In a folding rocking chair, elements pivoted together to form the folding and rocking chair frame, a seat for the frame, and a guard on one element at each side of the seat in position to prevent pinching of the fingers between this element and another element pivoted thereto, said guard having an edge disposed at an angle to the length of each of said two elements, extending from the edge of the one element to and across the opposing edge of the other element, together with means to limit the rocking motion in a manner to enable said guard to serve its purpose.

8. In a folding rocking chair, elements pivoted together to form the folding and rocking chair frame, with a seat and a back

thereon, having a pivot about which the front edge of the seat tilts freely up and down and forward and back, another pivot about which the upper end of the back freely tilts forward and back, rocking motion limiting means comprising a segmental slot in one element, and an endwise slidable pin carried by another element and arranged to enter said slot and move back and forth therein during the rocking motion, and to be withdrawn therefrom when the chair is folded, the pin when in said slot cooperating with the ends of the slot to limit the rocking motion of the chair, and the pin when withdrawn from said slot permitting the chair to be folded.

9. In a folding chair adapted to rock back and forth freely, with a motion similar to an ordinary rocking chair, the combination of frame members forming front legs rigid with a stiff back, frame members forming a seat rigid with rear legs, means movably connecting the first mentioned members with the second mentioned members, combining therewith to form a folding and rocking frame, rear toggle member supports upon which the rear legs are pivoted, front toggle members upon which the front legs are pivoted, the rear toggle members having laterally overlapping pivotal toggle joint connections with the front toggle members, stops on

said members to limit the downward movement of the toggle joints, serving to keep the toggle joints raised a distance from the floor, and front extensions for said front toggle members, said extensions bearing upon the floor a substantial distance in front of the lower ends of the front legs to prevent said toggle joints from rising during the rocking motion of the chair, and to prevent the chair from tipping over when rocked forward.

10. In a folding rocking chair, the combination of members forming front legs rigid with a stiff back, other members forming a seat rigid with rear legs, pivotal supporting means for the legs, to support the chair on the floor, side links pivotally connecting the first mentioned members with the second mentioned members, guard means on said links extending across the adjacent edge of the first mentioned members, guard means on said links extending across the adjacent edge of the second mentioned members, means limiting the rocking motion of the chair, serving to always keep a portion of each guard means above its allotted said edge, thereby to prevent pinching of the fingers between said links and said members.

Specification signed this 30th day of April, 1926.

LEO O. BERGMANN.