

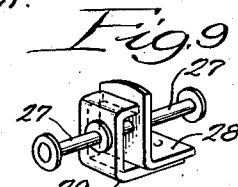
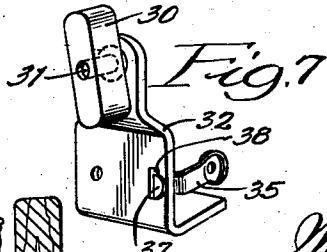
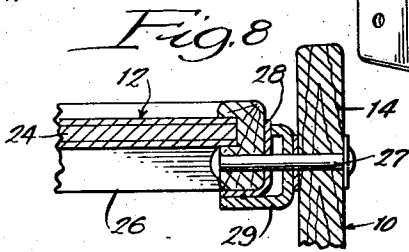
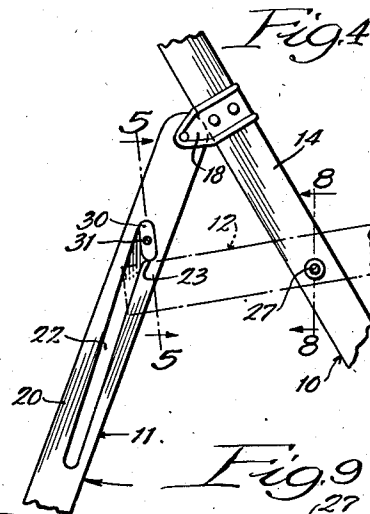
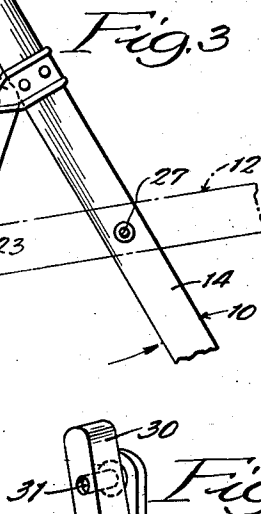
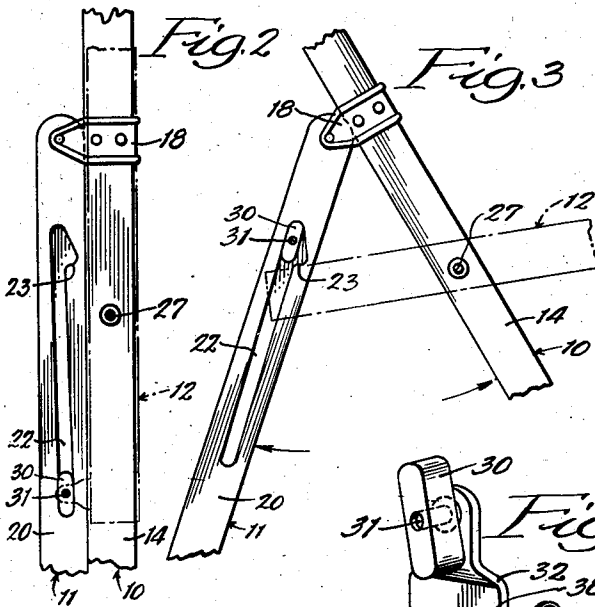
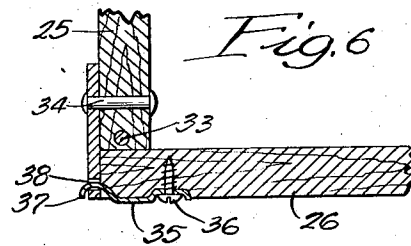
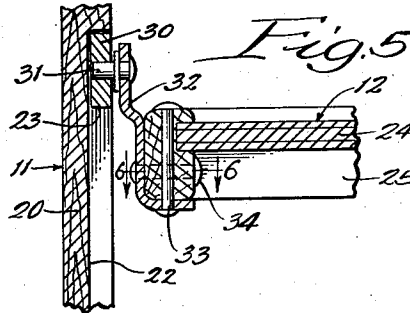
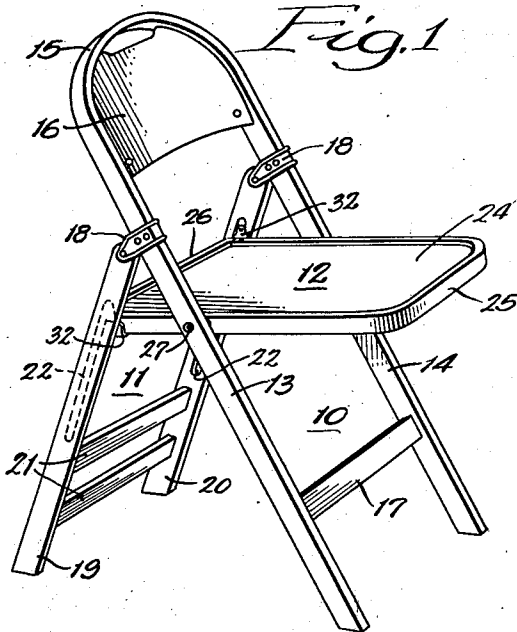
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W. E. CLARIN

2,381,574

LOCKING DEVICE FOR FOLDING CHAIRS

Filed May 6, 1943



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UNITED STATES PATENT OFFICE

2,381,574

LOCKING DEVICE FOR FOLDING CHAIRS

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4 Claims. (Cl. 155-142)

This invention relates to a locking device for pivotably connected foldable and collapsible members, particularly as applied to chairs, commonly known as the Y type. Chairs of this kind, heretofore in extensive use, have been without adequate means for effectively locking the seat in its horizontal position and the legs in their extended relationship. Consequently, when such a chair is subjected to some abnormal or extraordinary use it often collapses. Especially has this been a hazard when a person has attempted to stand on the seat with the weight rearwardly of the axis of the pivotal connection of the seat to the legs, or when a person has tilted the chair back on its rear legs. Such strains often cause a chair of this kind to collapse, not infrequently resulting in injuries to persons and damage to the chair.

The main objects of this invention, therefore, are to provide an improved form and interconnection of the parts of a folding chair, whereby the seat and legs will be locked automatically and positively in their extended positions, when the chair is unfolded; to provide such an improved interlocking mechanism for the chair parts that the interlocking relationship is easily and automatically released when an effort is made to fold the chair; and to provide an improved chair construction with a mechanism of this kind which is very simple and economical to manufacture, and which is positive and facile in operation.

In the particular embodiment herein shown:

Fig. 1 is a perspective view of the chair in its unfolded position;

Fig. 2 is a fragmentary elevation taken from the inside of one of the legs with the parts folded or collapsed;

Fig. 3 is a similar view with the legs in their extended relationship and with the seat shown in dotted outline just before the locking member engages its coacting shoulder;

Fig. 4 is a view similar to Fig. 3 except that the legs are fully extended, the seat likewise being shown in dotted outline, and the locking member is moved into engagement with its coacting shoulder;

Fig. 5 is an enlarged cross-sectional view taken on the line 5-5 of Fig. 4 showing the locking members in their locked positions;

Fig. 6 is a cross-sectional view taken on the line 6-6 of Fig. 5 showing how the pin plates are anchored to the corners of the seat;

Fig. 7 is a perspective view of one of the plates secured to the rear corners of the seat and which carries the pin whereon is pivoted the block which constitutes a part of the locking mechanism;

Fig. 8 is a cross sectional view taken on the line 8-8 of Fig. 4 showing the pivotal connection of the seat to the front legs; and

Fig. 9 is a perspective view of the metal parts which make the pivotal connection shown in Fig. 8.

In the construction, wherewith this improved locking device has been related, the chair comprises a pair of front legs 10, a pair of rear legs 11, and a seat 12, which are pivotally connected together and held in their unfolded or seating position by a locking mechanism hereinafter described.

The front legs 10 in the structure herein illustrated, comprise a pair of strips 13 and 14 which are of such a length as to extend a considerable distance above the pivotal connection of the seat 12 and are connected together at their upper ends by the curved section 15. A back rest 16 is secured in the arcuate portion formed by the section 15. This back rest also serves as a reinforcing member to insure the necessary rigidity for the upper ends of the leg strips 13 and 14. The lower ends of the leg strips 13 and 14 are connected by a reinforcing bar 17. This further insures the rigidity of these strips and provides a foot rest. Brackets 18 are rigidly secured to the respective leg strips 13 and 14 at points above the pivotal connection of the seat 12. These brackets extend rearwardly to provide a pivotal support for the rear legs 11.

The rear legs 11 comprise a pair of strips 19 and 20 similar to the strips 13 and 14, but considerably shorter. The upper ends of these leg strips 19 and 20 are pivoted by suitable pins to the brackets 18. Transverse reinforcing members 21 connect together the lower ends of the strips 19 and 20 so as to provide the necessary rigidity to the rear legs 11.

The inner or opposed faces of the leg strips 19 and 20 each have a slot 22 extending lengthwise thereof slightly above the middle portion of the legs. The upper ends of these slots terminate in enlargements which provide shoulders 23 and which constitute one of the parts of the interlocking mechanism hereinafter to be described.

The seat 12 as shown in this embodiment comprises a panel 24 preferably of veneer construction supported between reinforcing strips 25 and 26. The strip 25 extends across the front and along the sides of the panel 24 whereas the strip 26 extends across the rear of the panel between the ends of the strip 25. The seat is pivotally supported on the front legs 10 by means of pivot pins 27 on which are mounted the angle-shaped reinforcing, spacer members 28 and 29.

The locking mechanism, coacting with the shoulders 23 on the legs 11, comprises a pair of blocks or members 30 pivotally supported on pins or trunnions 31 carried by the plates 32 one of which is secured to each of the rear corners of the seat 12.

The block or member 30 is of elongated form designed to slidably fit in a leg slot 22. It has its ends rounded and is of a length slightly less than the distance between the upper end of the slot 22 and the offset shoulder 23.

The plates 32 are secured to the rear corners of the seat 12 by means of pins or rivets 33 and 34 as will be noted from Figs. 5 and 6. The plates are further anchored in place by means of strap members 35. These straps have their inner ends secured to the back of the seat strip 26 by means of screws 36 and have their outer ends provided with hooks 37 which extend through recesses 38 formed in the plates 32 adjacent the rear edges thereof.

The size, shape and pivotal mounting of the blocks or members 30 results in these members shifting into and out of engagement with the shoulders 23 as the legs of the chair are pulled into their final, fully extended position or are first shifted out of such fully extended position. This swinging or locking of the blocks or members 30 is caused by the rocking contact of the upper ends of the members 30 with the upper ends of the slots 22 under the influence of the relative shifting of the front and rear legs near the extreme of their extended relationship.

The position of these blocks or members 30 just before they swing into or out of the enlargement for engagement or disengagement with the shoulders 23 is shown in Fig. 3. The position of these blocks or members 30 in their engagement with the shoulders 23 for locking the seat and legs in their unfolded and extended position is shown in Fig. 4.

It will be apparent from the foregoing description that a chair provided with a locking means of this kind is very secure against accidental collapse. This could not occur even by reason of all of the weight of a person being placed on the seat rearwardly of the pivotal connection with the front legs 10, as would be the case of one standing on the chair seat. Neither could it occur by reason of one tilting back on the rear legs 11.

Even though the chair parts are thus securely locked in their extended positions, the locking mechanism is released by a very slight rearward pressure on the forward edge of the chair seat or a pulling forward on the curved back section 15 with even a slight pressure against the forward edge of the seat 12. This will cause the blocks or members 30 to shift out of contact with the shoulders 23 and permit their continued downward movement in the slots 22 as the seat and the consequent swinging of the legs are shifted toward their folded positions, as indicated in Fig. 2.

Since certain changes may be made in the foregoing apparatus and different embodiments of the invention may be made without departing

from the scope thereof, it is intended that all matter described hereinbefore or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. A foldable chair comprising pairs of legs hingedly connected together and shiftable into and out of collapsed and extended relationship, one pair of said legs having slots extending longitudinally thereof and enlarged at one end to form offset shoulders, a seat pivoted on one of said pair of legs shiftable relative to the other said pair of legs, and means slidable in said slots and pivotally connected to pins mounted on said seat so as to be shiftable transversely of said slots into and out of engagement with said shoulders when said members engage the adjacent ends of said slots, thereby releasably locking said seat and legs in their extended positions.

2. A foldable chair comprising pairs of front and rear legs hingedly connected together and shiftable into and out of collapsed and extended relationships, each of said rear legs having formed in one face thereof a longitudinal slot the upper end of which is enlarged to provide an offset shoulder, a seat pivotally attached between said front legs, and members pivotally mounted on said seat and slidably retained in said rear leg slots, said members being shiftable into engagement with said shoulders when said members engage the upper ends of said slots for releasably locking said seat in its horizontal position and said pairs of legs are in their extended relationship.

3. A foldable chair comprising pairs of front and rear legs hingedly connected together and shiftable into and out of collapsed and extended relationships, said rear legs having formed in the opposed faces thereof longitudinal slots the upper ends of which are enlarged to provide offset shoulders, a seat pivotally mounted inwardly of its rear edge between said front legs, outwardly disposed pins on the rear corners of said seat, and blocks pivotally mounted on said pins and slidably retained in the adjacent slots, said blocks being shiftable relative to said seat for engagement with said shoulders when said blocks engage the upper ends of said slots for locking said seat in its horizontal position and said pairs of legs are in their extended relationship.

4. The combination of a pair of relatively movable supporting members, one of which has a slot formed therein and enlarged at one end to provide an offset shoulder, a third member pivoted on the other of said pair of members and shiftable relative to said one supporting member, and a block slidable in said slot and pivotally connected to a pin mounted on said third member whereby one end of said block is shiftable into and out of engagement with said shoulder when the opposite end of said block engages the adjacent end of said slot for releasably locking said members relative to each other.

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