Feb. 23, 1932. G. W. HAMBROOK 1,846,392

FOLDING CHAIR

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Fig. 1.

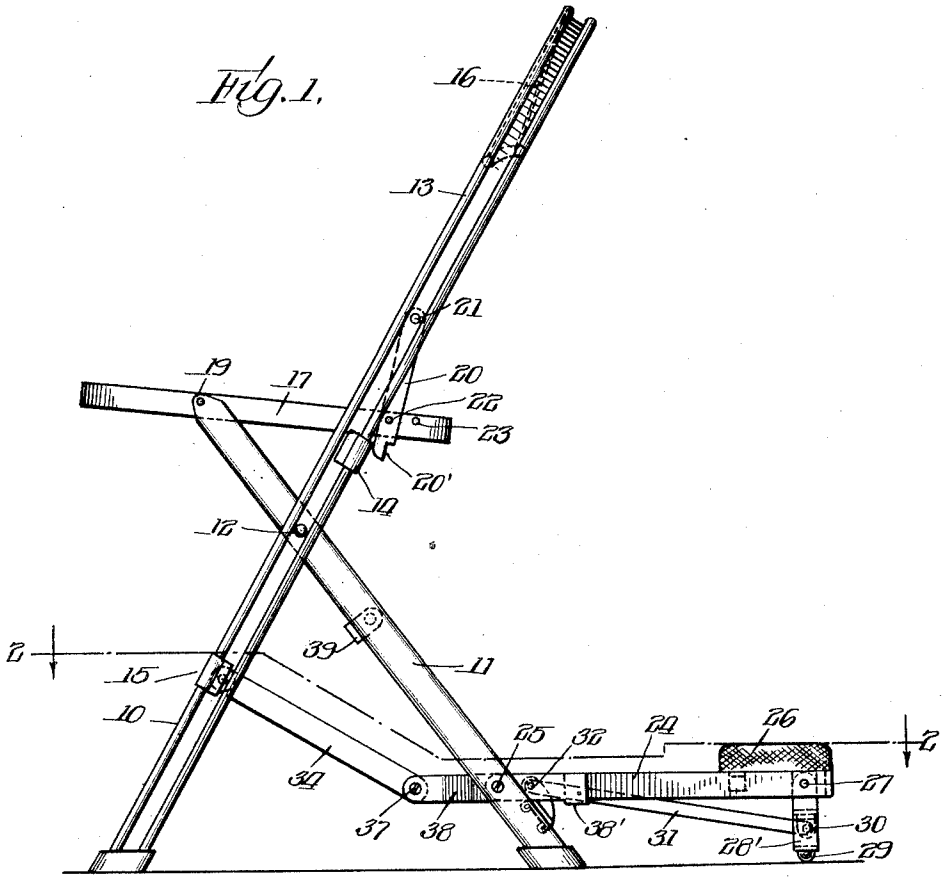
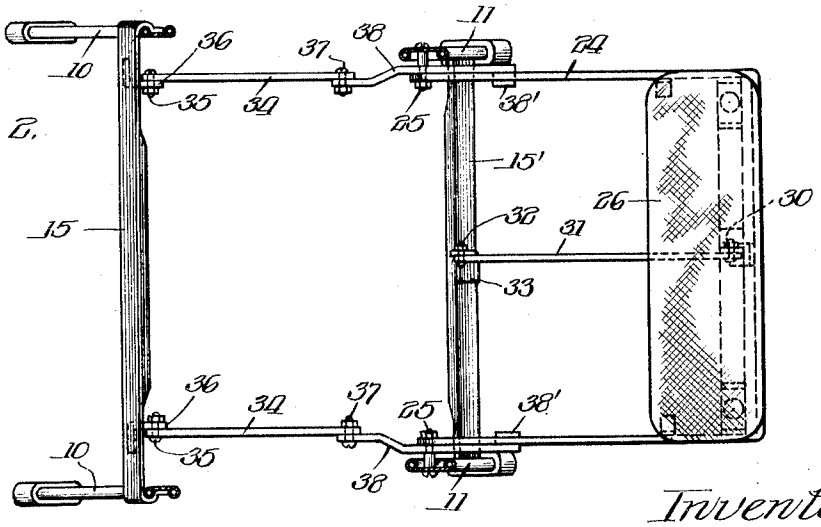


Fig. 2.



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Fig. 3.

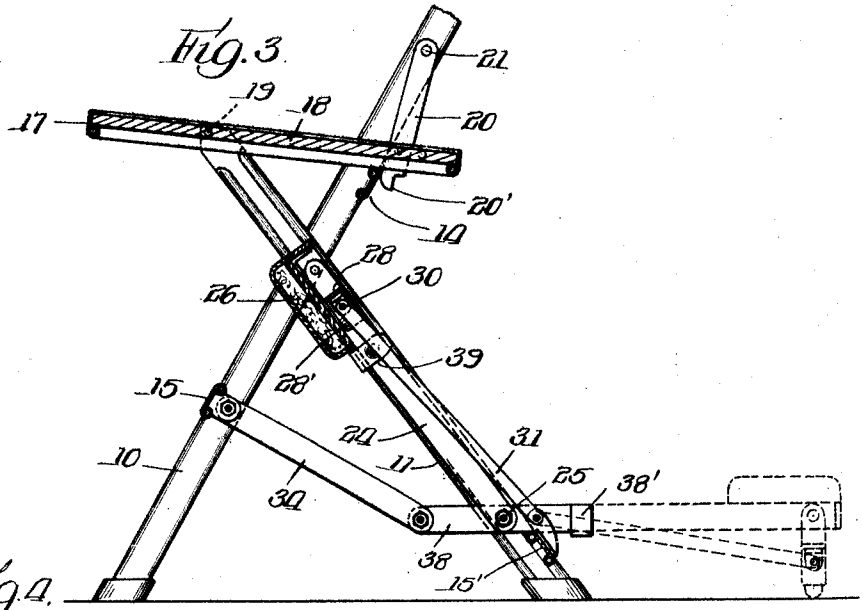


Fig. 4.

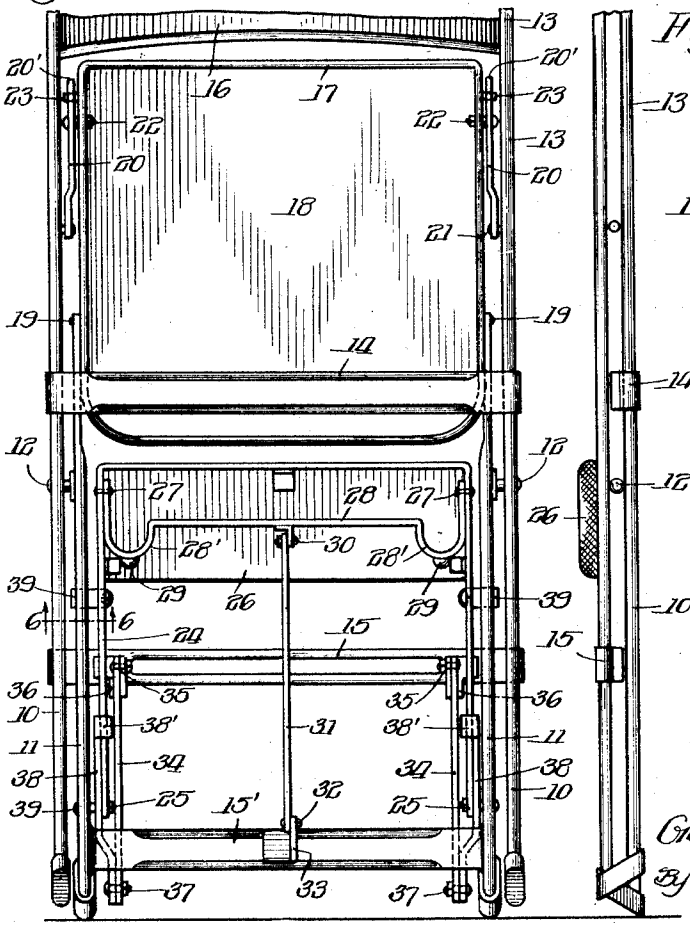
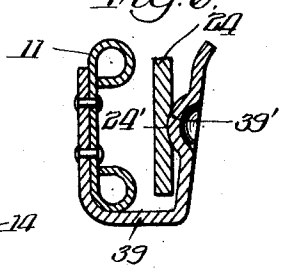


Fig. 5.

Fig. 6.



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UNITED STATES PATENT OFFICE

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FOLDING CHAIR

Application filed July 17, 1930. Serial No. 468,494.

This invention relates to the art of folding chairs, and has reference more particularly to a folding chair designed and adapted for use in churches, mortuary chapels, etc., and commonly known as a "cathedral" chair.

In association with such chairs, it is quite common to provide what is known as a "kneeler"; that is, a low stool placed directly behind each chair to accommodate a kneeling posture. Where such chairs are used in association with the "kneeler" as a separate article, considerable extra time is involved in equipping the audience room and subsequently clearing it over the time involved in merely placing and removing the chairs alone.

It has also heretofore been known to pivotally connect a kneeler attachment to a rear rung of a folding chair so that the attachment might be swung up to a position beneath the seat when not required for use.

The device of the present invention is of the latter type, and one object of the invention has been to provide a construction wherein, as the chair is folded, the kneeling pad or stool will be automatically folded along with the other foldable parts of the chair; and a further object of the invention has been to provide a construction of this type wherein the kneeling pad or stool will be automatically folded to a position between the opposed inner side legs of the chair so as to lie in the same plane with the folded seat and back frame when the chair is fully collapsed. Another object is to provide a construction whereby the kneeler will not only be automatically folded as the chair is folded, but will remain in folded position when the chair is unfolded; and a still further object is to provide a construction wherein, as the chair and kneeler are folded, the latter will be automatically yieldably locked in folded position.

In the accompanying drawings I have illustrated my present improvement as applied to a folding chair substantially identical with that disclosed in Letters Patent to Rosenthal and Clarin, No. 1,600,248, September 21, 1926; but it will be understood that the improvement is equally applicable to many other types of folding chairs and is not limited to the specific structure of the chair herein disclosed.

Referring to the drawings—

Fig. 1 is a side elevation of the chair in unfolded position, also showing the "kneeler" in unfolded or service position.

Fig. 2 is a horizontal section on the line 2—2 of Fig. 1.

Fig. 3 is a vertical front and rear section showing the "kneeler" folded in full lines, and unfolded in dotted lines.

Fig. 4 is a rear elevation of the chair in fully folded position.

Fig. 5 is an edge elevation, viewed from the left, of Fig. 4.

Fig. 6 is an enlarged sectional detail taken on the line 6—6 of Fig. 4.

Referring to the drawings, and first briefly describing the chair structure, 10 and 11 designate two pairs of supporting legs pivotally connected as by pivot bolts 12. The legs 10 are continuous with the upper frame part or back rest 13 as is common in folding chairs of this type. A cross bar 14 connects the legs 10 a slight distance above the pivots 12, a cross bar 15 similarly connects the legs 10 below the pivots 12, and a similar cross bar 15′ connects the legs 11 adjacent to their lower ends; these cross bars functioning mainly as bracing and spacing members for the legs. A panel 16 connects the upper portions of the side frame members of the back rest 13.

The seat as herein shown comprises an outer frame or rim member 17 and a seat board 18 suitably mounted in and held by the seat frame 17. Each of the legs 11 has its upper end pivoted to the forward portion of the rim 17 of the seat, as shown at 19, and links 20 are pivoted at one end to the side frame members of the back rest 13 at 21 and adjacent their other ends to the rear portion of the seat rim 17 as shown at 22. These links are each provided with an integral finger 20′ which, in the unfolded position of the seat, strikes the cross bar 14, as shown in Fig. 1, and thus limits the unfolding movement of the seat, while in the folded position shown in Figs. 4 and 5, each finger 20′ strikes a lug 23 (Fig. 4) in the seat rim and limits the folding movement of the seat.

The chair may be folded by exerting a rearward pressure on the front of the seat and a forward pressure on the upper end of the back rest, the links 20 swinging on their pivots 21 upwardly until they lie parallel with the side frame members of the back rest, at the same time that the legs 10 and 11 swing into parallelism; and similar thrusts on the seat and back rest in the reverse direction readily unfolds the chair.

Coming now to a description of the "kneeler", attachment forming the principal subject matter of the present invention, 24 designates a U-shaped frame, the parallel limbs of which are pivoted at their free ends, as shown at 25 to the lower portions of the legs 11 on the inner sides of the latter. Mounted on and across the opposite end of the frame 24 is a pad or cushion 26. Pivoted at 27 to the side limbs of the frame 24 beneath the pad 26 is a cross bar 28 that, as clearly shown in Fig. 4, has downwardly bent portions 28′ that form pad supporting legs, these legs being preferably equipped with rubber feet 29. Pivoted to the bar 28 at 30 is a leg folding and unfolding link 31, the opposite end of which is pivoted at 32 to a lug 33 mounted on the cross bar 15′.

The above described structure readily permits the kneeling stool to be folded to a position between the legs 11 and beneath the seat, as shown in Figs. 3, 4 and 5, or to be drawn outwardly and downwardly to the service position illustrated in Fig. 1, and by dotted lines in Fig. 3. As the device is folded, the link 31 draws the bar 28 and its legs 28′ to a position between the sides of the frame 24, as shown in Figs. 3 and 4, and during the unfolding movement of the kneeling device, the link 31 acts to swing the bar 28 and its legs 28′ in an outward direction to form a support for the kneeling pad.

To save time and labor when gathering up and storing the chairs after use, I have provided a means for automatically folding the kneeling attachment at the same time that the chair itself is folded. Describing this device, 34 designates each of a pair of links that are pivotally connected at their forward ends, as shown at 35, to pivot lugs 36 attached to the cross bar 15. At their rear ends the links 34 are pivotally connected at 37 to the forward ends of a pair of levers 38, which levers are pivoted intermediate their ends on the pivot bolts 25 by which the frame 24 is jointed to the legs 11. The rear ends of the levers 38 are formed with U-shaped lateral extensions 38′ adapted to embrace the parallel limbs of the kneeler frame 24. By reason of this construction, as the chair itself is folded, the links 34 and levers 38 are collapsed or folded, and this positively swings the kneeler frame 24 upwardly and forwardly to the folded position shown in Figs. 4 and 5. In this position the U-shaped lateral extensions 38′ hold the kneeler frame against falling outwardly. When the chair is again unfolded, the levers 38 swing away from the kneeler frame 34, as shown in Fig. 3, and the frame can then be left in folded position, or unfolded to service position, as circumstances may require.

To additionally lock the kneeler frame in its folded position and prevent it from falling outwardly when the collapsed or folded chair is being handled, I provide a yieldable locking device, best shown in Fig. 6, comprising a U-shaped spring locking clip 39, one limb of which is attached to each leg 11, while the other limb is adapted to have a resilient bearing on the frame 24. Preferably the inner side of the frame bar is formed with a slight depression 24′ that cooperates with a protuberant lug 39′ on the free limb of the clip 39. This suffices to maintain the kneeler frame in folded position, but permits the latter to be readily drawn out by a light pull on the pad. The U-shaped clip 39 also serves to limit the inward movement of the kneeler frame and prevent strain on the link 31 when the chair is in service position with the kneeler frame folded up, as shown by full lines in Fig. 3.

From the foregoing it will be seen that my present invention provides a folding chair well suited to the uses of a cathedral chair in auditoriums and chapels where the ritual of the service may require the occupant at times to assume a kneeling position, since it is equipped with a "kneeler" itself attached to the chair and readily foldable between idle and service positions and also, in the form herein illustrated and described, automatically foldable when the chair itself is folded and, in its folded position, lying substantially entirely between the planes of the front and rear sides of the chair. While I have shown and described one simple and practical mechanical embodiment of the invention, it is manifest that the structural details thereof may be widely varied without involving any departure from the principle of the invention or sacrificing any of the advantages thereof. Hence, I do not limit the invention to the specific embodiment herein presented for purposes of illustration, but reserve all such variations, modifications and mechanical equivalents as fall within the spirit and purview of the claims.

I claim:

1. The combination with a folding chair, of a kneeler attachment pivoted on the rear legs of the chair and adapted to swing downwardly behind the latter, and lever and link connections between an element of said chair and said attachment operative to raise and fold said attachment against said chair as the latter is folded.

2. The combination with a folding chair, of a kneeler attachment pivoted on the rear

legs of the chair and adapted to swing downwardly behind the latter, a lever pivoted to an element of the chair and having means to lift said attachment, a link pivoted to an element of the chair and to said lever and operative to swing said lever in a direction to raise said attachment when the chair is folded.

3. The combination with a folding chair, of a kneeler attachment pivoted on the rear legs of the chair and adapted to swing downwardly behind the latter, a lever pivoted on an element of the chair and having means to lift said attachment, a link pivoted to an element of the chair and to said lever and operative to swing said lever in a direction to raise said attachment when the chair is folded, and means automatically and yieldably locking said attachment in folded position.

4. The combination with a folding chair, of a kneeler attachment pivoted on the rear legs of the chair and adapted to swing downwardly behind the latter, a lever pivoted on a rear leg of the chair and having at its rear end means to lift said attachment, and a link pivoted at one end to a front leg of the chair and at its other end to the front end of said lever and operative to swing said lever in a direction to raise said attachment when the chair is folded.

5. The combination with a folding chair, of a kneeler attachment pivoted on the rear legs of the chair and adapted to swing downwardly behind the latter, a lever pivoted on a rear leg of the chair and having at its rear end means to lift said attachment, a link pivoted at one end to a front leg of the chair and at its other end to the front end of said lever and operative to swing said lever in a direction to raise said attachment when the chair is folded, and a spring clip mounted on a rear leg of the chair automatically engaging said attachment in folded position.

6. The combination with a folding chair, of a kneeler attachment including a U-shaped frame pivoted on the rear legs of the chair and arapted to swing downwardly behind the latter, levers pivoted on the rear legs of the chair and provided at their rear ends with U-shaped lateral extensions embracing the side limbs of said U-shaped frame, links pivoted at one end to the front legs of the chair and at their other ends to the front ends of said levers and operative to swing said levers in a direction to raise said attachment when the chair is folded.

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