

April 27, 1954

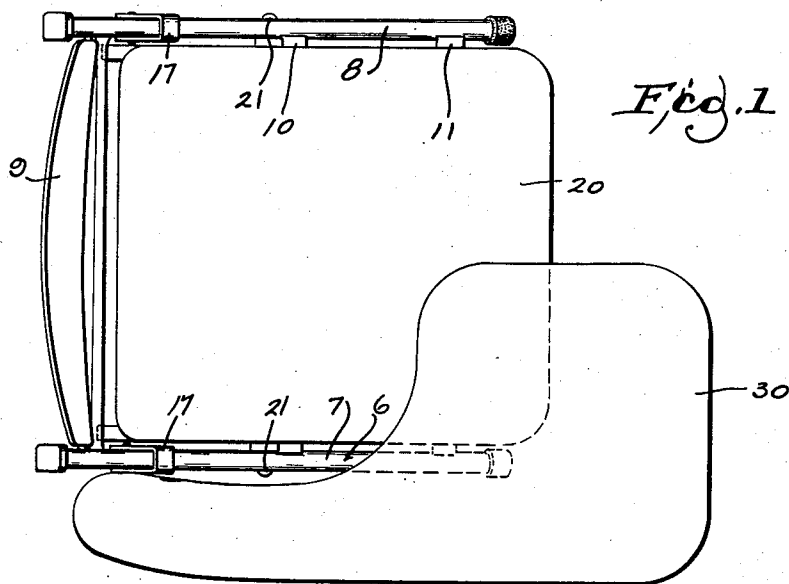
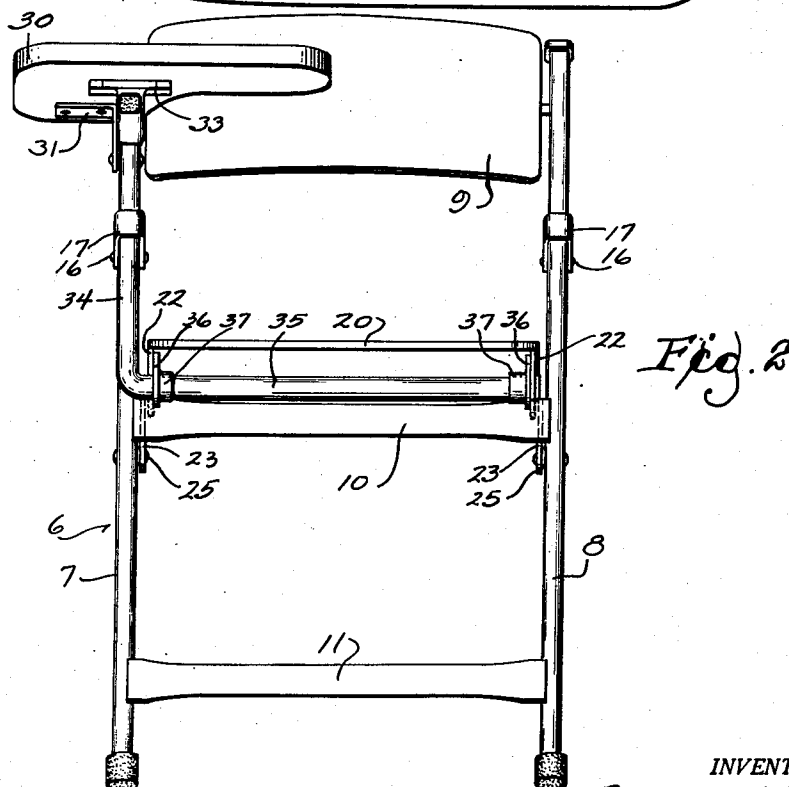
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FOLDING CHAIR WITH TABLET ARM

Filed May 16, 1952

2 Sheets-Sheet 1



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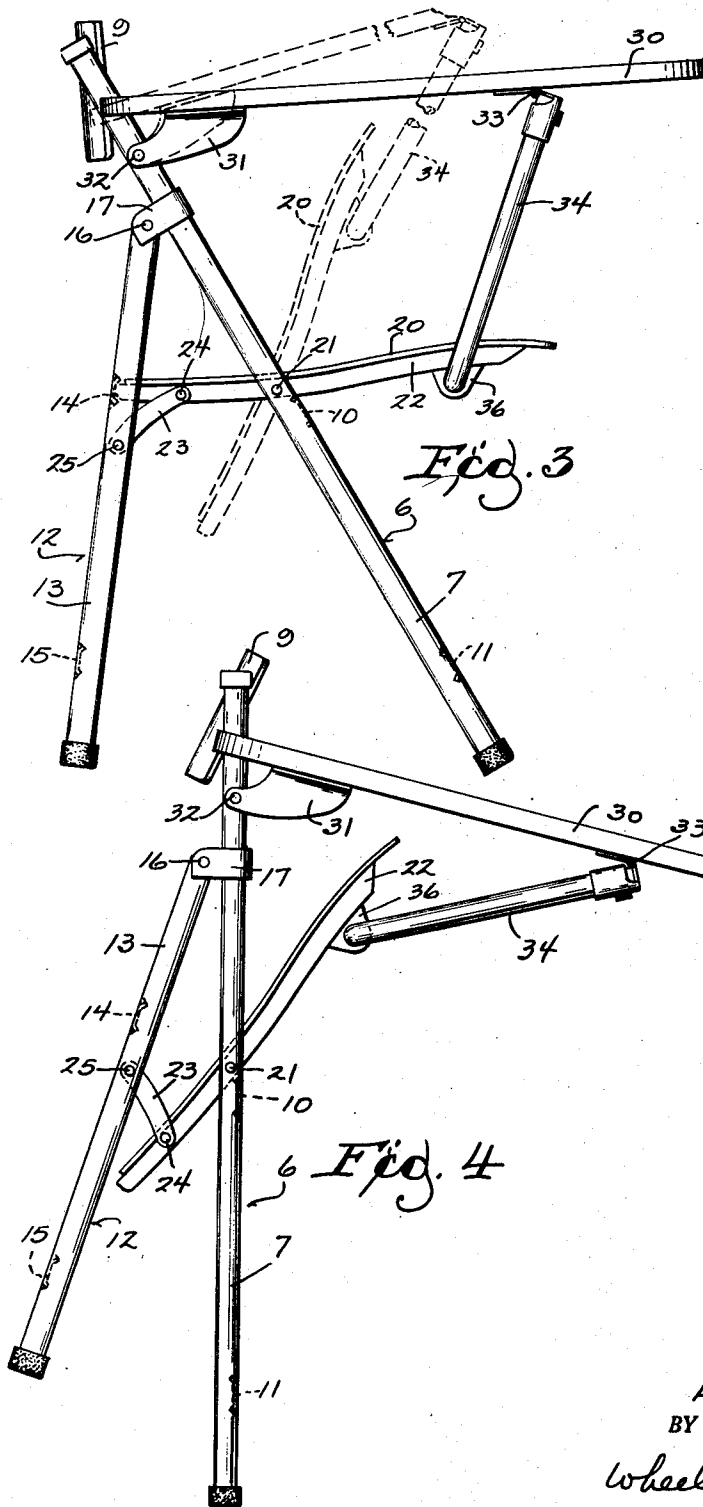
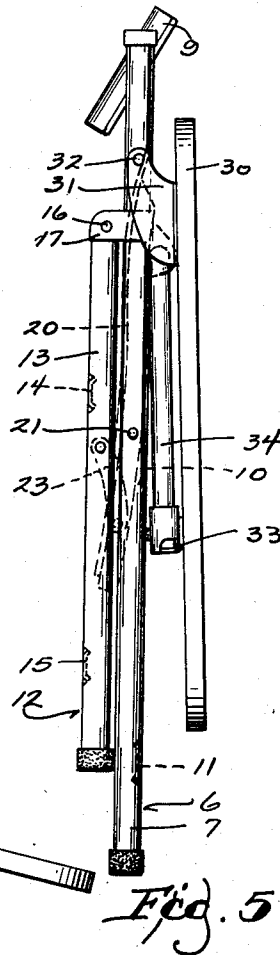
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FOLDING CHAIR WITH TABLET ARM

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3 Claims. (Cl. 155-125)

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This invention relates to a folding chair with tablet arm.

A primary feature of the invention consists in the arrangement whereby the chair legs and seat and tablet arm are all interconnected in such a way that the folding of the seat will mechanically affect the folding of the legs and tablet arm without requiring separate manipulation of the latter. In conventional folding chairs having tablet arms, it has been necessary to manipulate separately the support for the tablet arm in order to permit the arm to be folded. In the present arrangement, the fulcrums and linkage are so connected from the seat to the rear legs and from the seat to the tablet arm that when the seat is positioned for use, the rear legs are rigidly maintained in bracing position and the tablet arm is rigidly supported. Yet, when the seat is folded upon its pivotal connection with the main frame, its final movement automatically draws inwardly the rear or bracing legs and draws the tablet arm downwardly to folded position.

In the drawings:

Fig. 1 is a view showing my improved chair in plan.

Fig. 2 shows my chair in front elevation.

Fig. 3 is a view in side elevation of the chair shown in Figs. 1 and 2.

Fig. 4 is a view in side elevation showing the parts in process of being folded.

Fig. 5 is a view in side elevation of the completely folded chair.

The chair is of the type in which the main frame 6 comprises laterally spaced members 7 and 8 which provide the forward legs for the chair and also extend upwardly above the seat to support the back rest 9. The side members of the main frame are cross-connected by the transverse members 10 and 11.

The rear legs are provided by a sub-frame at 12 comprising uprights 13 connected by cross members 14, 15. The uprights 13 are pivoted at 16 to clamps 17 mounted on the main frame members 7 and 8. As thus far described, the structure is quite conventional. It is also conventional for the seat 20 to be pivoted between the members 7 and 8 of the main frame on pintles 21 for movement between the folded position in which the seat 20 is shown in dotted lines in Fig. 5 and the position of use in which the seat is shown in Figs. 1 to 3.

Beneath the seat there are re-enforcing flanges 22 extending forwardly and rearwardly along the side margins of the seat. Pivotally connected to these flanges near the rear of the seat are the

links 23 which are desirably curved as best shown in Figs. 3 and 4. Rivets 24 may be used as pintles to provide the pivotal connection between the links and the seat. The links 23 are also pivoted by means of rivets or the like at 25 to the side members 13 of the sub-frame 12. With the seat in a generally horizontal position for use as shown in Fig. 3, the flanges 22 may rest on the transverse member 10 of the main frame 6, the links 23 holding the sub-frame in a position to brace the main frame and, at the same time, tending to hold the seat securely against displacement under the weight of a user.

The tablet arm 30, which may have the usual shape in plan, as best shown in Fig. 1, has a fitting 31 pivotally connected by a rivet or the like at 32 with the side members 7 of the main frame 6 to support the tablet arm at a level convenient for use. Near its forward end the tablet arm is connected with one leaf of a hinge 33, the other leaf of which is connected with a rigid supporting post 34 which may be formed in one piece with rock shaft 35. Ears at 36 connected with the re-enforcing flanges 22 of the seat, are provided with bearing collars at 37 in which the rock shaft 35 is mounted to oscillate.

It will be observed that the supporting arm or post 34 extends forwardly as well as upwardly from the rock shaft when the chair is opened for use, as shown in Fig. 3. The geometry of the chair is important to the result, the distances between the very centers of pivotal movement being such that the parts can move freely from the position of use shown in Fig. 3 through the intermediate position of Fig. 4 to the fully folded position of Fig. 5. When it is desired to fold the chair, the operator has only to lift the seat 20 with respect to the main frame 6. The initial upward movement of the seat will necessarily raise the tablet arm 30. The tablet arm will continue to move upwardly with the seat until the supporting arm or post 34 is in line with the seat. Beyond this point, the continued upward folding movement of the seat will cause a lowering, instead of a raising, of the tablet arm, as shown in Fig. 4.

Meantime, the rear end of the seat has moved from its initial position above the connecting links 23 to a position below the links as shown in Fig. 4. The continued folding movement of the seat beyond this point effects an inward movement of the sub-frame 12 toward the main frame 6. In the final position of the parts, as shown in Fig. 5, the sub-frame 12 is completely collapsed upon the main frame, in immediate proximity thereto, and the tablet arm 30 is also

collapsed upon the main frame into approximate parallelism therewith.

It will be observed that there is a double toggle link action between the seat and the tablet arm support 34 and between the seat and its own sub-frame connecting linkage 23. In both cases, the opening and folding movement of the seat requires the seat to move across dead center with respect to the associated tablet arm support 34 and the links 23. When the seat is positioned for use, its rear end is engaged in the cross brace 14 of sub-frame 12 which provides the rear legs, the cross brace having the form of a shallow channel as shown in Fig. 3. As the seat is moved pivotally toward closed position, the toggle lever relationship between the seat and the links 23 requires a slight increase of spacing between the seat pivot 21 and the link pivots 25. As a result, the sub-frame 12 must move slightly to the rear, thereby removing cross brace 14 from the path of movement of the seat. In an intermediate position of the parts the several pivots 25, 24, and 21 will be aligned and thereafter the continued folding movement of the seat will draw the sub-frame inwardly.

Similarly, with respect to the tablet arm, it will be necessary for the arm to move upwardly until the pintle of hinge 33 and the axis of oscillation of the rock shaft 35 and the seat pintle 21 are all aligned in the same plane. Thereafter, continued folding movement of the seat will bring the tablet arm downwardly instead of forcing it upwardly.

The fitting 31 at the rear of the tablet arm supports the tablet arm in a position offset from the pintle rivet 32, the offset corresponding to the space required by the tablet arm support post 34 in the folded position of the parts shown in Fig. 5.

As a result of this structure, the chair folds and opens with the greatest ease and smoothness and is extremely stable in use and extremely compact when folded. The seat itself is the only part which needs be manipulated either in the opening or the folding of the chair, since it transmits motion to the sub-frame and the tablet arm and, in the open position of use, it holds these parts securely fixed in their proper relative positions.

I claim:

1. In a folding chair of the type comprising a foldable frame provided with legs, the combination with such frame, of a seat having a pivotal connection with the frame and movable on such pivotal connection from a position of use upwardly to a position of storage substantially parallel to said frame, said frame having seat engageable stop means defining said position of use, a tablet arm having a pivotal connection with the frame and movable on such connection from a generally horizontal position of use to a depending storage position substantially parallel to said frame, and a support having a pivotal connection with a forward portion of the seat and laterally offset to clear the side thereof and extending upwardly and pivotally connected with the tablet arm at a point remote from the pivotal connection of such arm with the frame, said arm being displaced upwardly in the initial folding

movement of the seat and downwardly in the final seat movement, the pivotal connection of the seat and support crossing a line drawn from the frame-connection of the seat to the tablet arm-connection of the support as the seat is moved between storage and use positions.

2. A folding chair comprising a main frame providing forward legs and extending thence upwardly and rearwardly, a sub-frame providing rear legs and extending upwardly therefrom in bracing relationship to the main frame and having adjacent its upper end a pivotal connection with the main frame, a seat pivoted intermediate its ends to the main frame and movable upon its pivot between a position of use and a position of substantial parallelism with the main frame, stop means engaged in the opening of the seat to define said position of use, a tablet arm having a pivotal connection with an upper portion of the main frame and movable between a storage position in which it is nearly parallel to the main frame and a position of use in which it extends forwardly from the main frame above the level of the seat, and a support pivotally connected with a forward portion of the seat and extending beside the seat upwardly and forwardly and having a pivotal connection at its upper end with a forward portion of the tablet arm, whereby the tablet arm is rigidly supported from the seat when the latter is in its position of use, the initial movement of the seat from its said position of use toward its storage position being adapted to move the tablet arm upwardly until the pivotal connection between the tablet arm support and the seat crosses a line drawn from the pivotal connection of the seat with the main frame to the pivotal connection of the support with the tablet arm, continued movement of the seat toward its storage position thereupon transmitting through said support a downward swinging movement to the tablet arm until the seat and the tablet arm are nearly parallel in their respective storage positions, the pivotal connection of the support with the tablet arm being then below the pivotal connection of the seat with said main frame by the distance by which the length of said support exceeds the distance between the point of connection of the support with the seat and the pivotal connection of the seat with said main frame.

3. The device of claim 2 in which the tablet arm is provided with a fitting providing the pivotal connection between the arm and main frame and offsetting the tablet arm from said pivotal connection by a distance sufficient to accommodate the tablet arm support in the aforesaid storage position of the seat, whereby the support lies between the main frame and the tablet arm and in approximate parallelism with both in said storage position.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,864,750	Moore	June 28, 1932
2,452,182	Clawson	Oct. 26, 1948