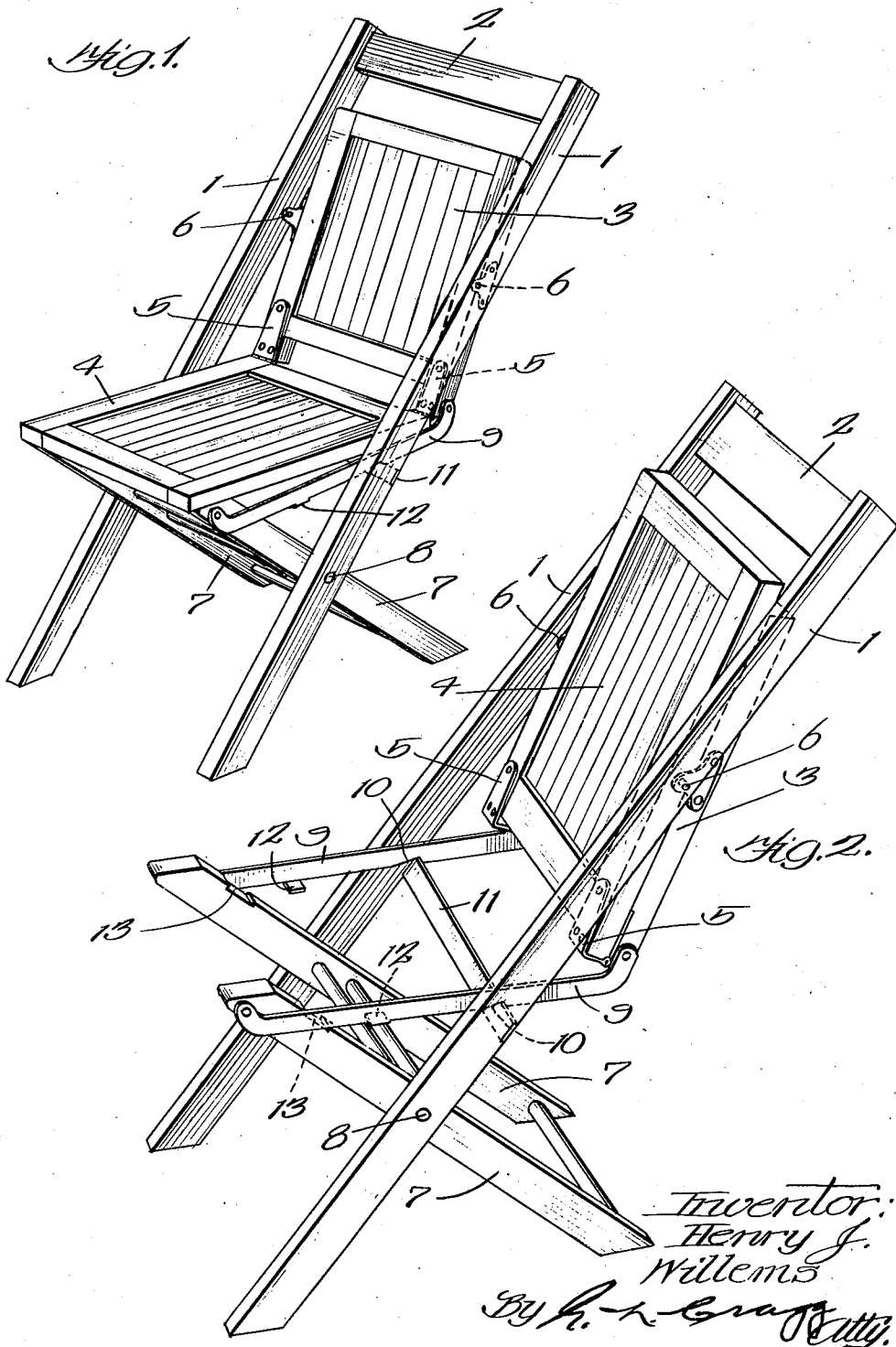


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FOLDING CHAIR.  
APPLICATION FILED DEC. 30, 1920.

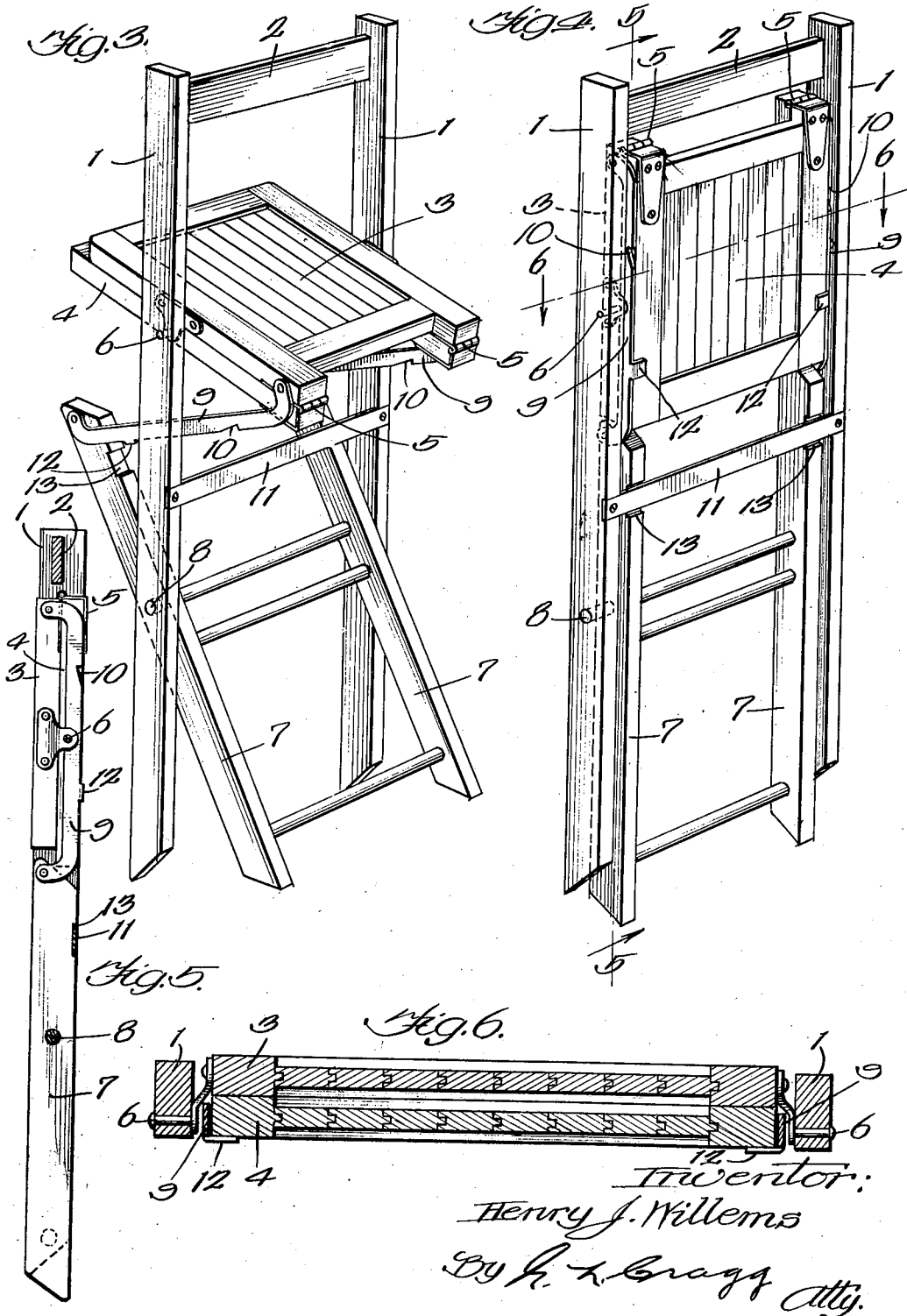
Patented Dec. 13, 1921.  
2 SHEETS—SHEET 1.



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Inventor:  
Henry J. Willems  
By H. K. Cragg atty.

# UNITED STATES PATENT OFFICE.

HENRY J. WILLEMS, OF KENOSHA, WISCONSIN.

## FOLDING CHAIR.

1,399,835.

Specification of Letters Patent. Patented Dec. 13, 1921.

Application filed December 30, 1920. Serial No. 434,035.

*To all whom it may concern:*

Be it known that I, HENRY J. WILLEMS, citizen of the United States, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented a certain new and useful Improvement in Folding Chairs, of which the following is a full, clear, concise, and exact description.

My invention relates to folding chairs and has for its object an improved construction of such a chair that enables the chair to be folded into compact space and which permits the seat to be folded back when the chair is otherwise unfolded without impairing the support for the seat when in unfolded adjustment.

In carrying out my invention I employ two long rails which are preferably connected at their upper ends, a chair seat, a chair back with the lower end of which the rear end of the chair seat is in swinging connection, this chair back being itself in swinging connection between its top and bottom sides with upper portions of said long rails to occupy either an unfolded position with its top side uppermost or a folded position with its bottom side uppermost, short cross rails preferably between the long rails and in swinging connection with said long rails below said seat and back so as to be foldable to lie substantially in the plane or level of the long rails, the forward portion of said seat being separably supportable upon the upper ends of the short rails when the chair is unfolded, and a link structure in swinging connection with the lower portion of the chair back and with portions of the short rails above the places of connection of these short rails with the long rails, this link structure being in holding engagement with the bottom of the seat when the chair is folded, there being a portion upon at least one of the long rails that is in holding engagement with said link structure when the chair is unfolded to limit the angular displacement between the long and short rails and to define the unfolded position of the back and which portion engages the rear side of a short rail when the chair is folded.

I will explain my invention more fully by reference to the accompanying drawings showing the preferred embodiment thereof and in which Figure 1 is a perspective view of a chair of my invention in unfolded adjustment; Fig. 2 is a view similar to Fig. 1, on a larger scale, with the chair seat folded

back; Fig. 3 is a perspective view showing certain relative positions of the parts of the chair that may be occupied in folding or unfolding the same; Fig. 4 is a perspective view showing the chair in folded adjustment; Fig. 5 is a sectional view on line 5—5 of Fig. 4; and Fig. 6 is a view on line 6—6 of Fig. 4.

Like parts are indicated by similar characters of reference throughout the different figures.

The two long rails 1, 1 are preferably straight and are desirably united at their upper portions by means of a cross rail 2. A chair back 3 has its lower end in swinging or hinged connection with the rear end of the chair seat 4, hinges 5 being preferably employed to assemble this back and seat. The chair back 3 is itself in swinging connection at 6 between its bottom and top sides with upper portions of the long rails whereby the back may occupy either an unfolded position with its top side below and adjacent the cross rail 2 or a folded position with its bottom side uppermost, and below and adjacent said cross rail. Short cross rails 7, which are also preferably straight, are disposed between the long rails and have swinging connection at 8 with the long rails below the chair seat and chair back so that these short rails may be foldable to lie substantially in the plane of the long rails, the chair seat and chair back being so proportioned and disposed that they together may be folded to lie also in this plane.

The forward portion of the chair seat 4 merely rests upon the upper end of the rails 7 when the chair is unfolded, this chair seat being thus separably supportable upon the upper ends of the short rails in order that the seat may be folded back without folding any other portions of the chair if it is desired to afford leg room to make it more convenient for a person to walk between rows of chairs that are made in accordance with my invention.

I employ a link structure, preferably including two links 9, in swinging connection with the upper ends of the short rails and above the places of connection of these short rails and above the places of connection of these short rails with the long rails, these links being also in swinging connection with the lower portion of the chair back whereby the short rails are forced to move into the plane of the long rails as the chair back is

folded into inverted position. These links are desirably notched at 10 to be engageable with the strut or other formation 11 carried by the long rails, this engagement occurring 5 when the chair is unfolded and being provided to limit the angular displacement between the long and short rails and defining a given or predetermined unfolded adjustment of the chair. The strut or formation 10 11 upon the long rails 1 serves to engage the rear sides of the upper portions of the short rails when the chair is folded to limit the folding movement of the short rails and to maintain these short rails substantially in the plane or level of the long rails when the chair is folded; and in order that the short rails may be completely flush with the long rails when the chair is folded, I provide 15 notches 13 in the upper ends of the short rails that may receive the strut. The links 20 9 are provided with inset ears or lugs 12 that are in holding engagement with the bottom of the chair when the chair is folded so as to limit the folding adjusting movement 25 of the chair bottom and chair back and to maintain these parts of the chair substantially in the plane of the long rails when the chair is folded.

As will be observed by reference to Fig. 5, 30 the chair may be folded in a very compact shape with none of the parts thereof projecting to any material extent beyond the long rails, a result which I am able to secure without sacrificing the breadth of the base 35 which supports the chair seat when the chair is unfolded.

In folding the chair the seat portion 4 is first swung upon its hinges 5 to the position shown in Fig. 2 in which the seat is placed 40 parallel with the back 3. The chair back and seat are then together turned in a counter-clockwise direction upon their pivots 6, Fig. 3 illustrating the back and seat in the process of being so turned. The turning 45 movement is continued until the adjustment shown in Fig. 4 is effected, in which the back and seat are disposed between the two long rails 1 as are also the short cross rails 7, the links 9 having moved these short rails to 50 their closed position between the long rails.

While I have herein shown and particularly described the preferred embodiment of my invention I do not wish to be limited to the precise details of construction shown as 55 changes may readily be made without departing from the spirit of my invention, but having thus described my invention I claim as new and desire to secure by Letters Patent the following:—

60 1. In a folding chair, the combination with two long rails; of a cross rail uniting upper portions of the long rails; a chair seat; a chair back with the lower end of which the rear end of the chair seat is in

swinging connection, this chair back being 65 itself in swinging connection, between its top and bottom sides, with upper portions of said long rails to occupy either an unfolded position with its top side below and adjacent 70 said cross rail or a folded position with its bottom side uppermost and below and adjacent said cross rail; short crossing rails between the long rails and in swinging connection with said long rails below said seat and back so as to be foldable to lie substantially 75 in the plane of the long rails, the forward portion of said seat being separately supportable upon the upper ends of the short rails, when the chair is unfolded; a link structure in swinging connection with the 80 upper ends of the short rails and the lower portion of the chair back and in holding engagement with the bottom of the seat when the chair is folded; and a strut between the side rails that is in holding engagement 85 with said link structure when the chair is unfolded to limit the angular displacement between the long and short rails and to define the unfolded position of the back and which strut engages the rear sides of the 90 upper portions of short rails when the chair is folded.

2. In a folding chair, the combination with two long rails; a chair seat; a chair back with the lower end of which the rear 95 end of the chair seat is in swinging connection, this chair back being itself in swinging connection between its top and bottom sides with upper portions of said long rails to occupy either an unfolded position with its 100 top side uppermost or a folded position with its bottom side uppermost; short cross rails between the long rails and in swinging connection with said long rails below said seat and back so as to be foldable to lie substantially 105 in the plane of the long rails, the forward portion of said seat being separably supportable upon the upper ends of the short rails when the chair is unfolded; and a link structure in swinging connection with the 110 upper portion of the chair back and with portions of the short rails above the places of connection of these short rails with the long rails, this link structure being in holding engagement with the bottom of the seat 115 when the chair is folded, there being a portion upon at least one of the long rails that is in holding engagement with said link structure when the chair is unfolded to limit the angular displacement between the long 120 and short rails and to define the unfolded position of the back and which portion engages the rear side of a short rail when the chair is folded.

In witness whereof, I hereunto subscribe 125 my name this 22nd day of December A. D., 1920.

HENRY J. WILLEMS,