July 16, 1929. J. SILVERMAN 1,721,138

FOLDING CHAIR

Filed March 3, 1927 2 Sheets-Sheet 1

Fig 1.

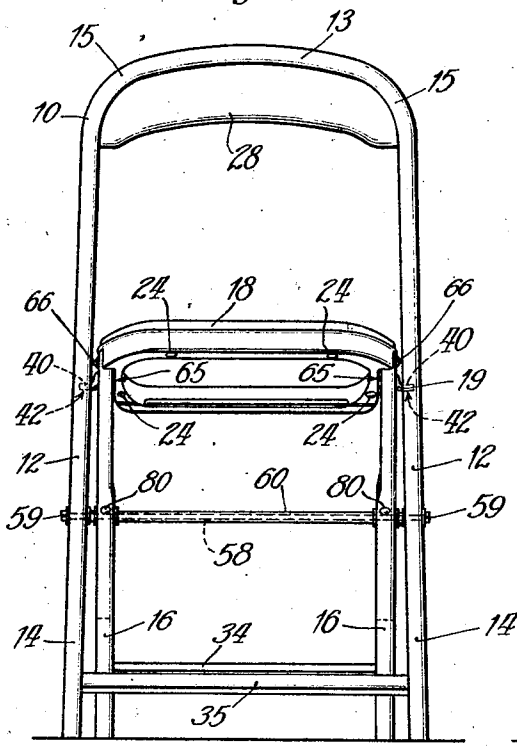


Fig 2.

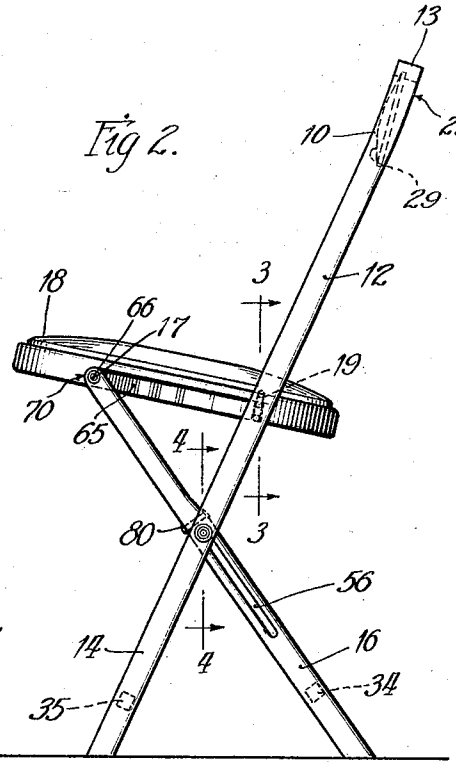


Fig 3.

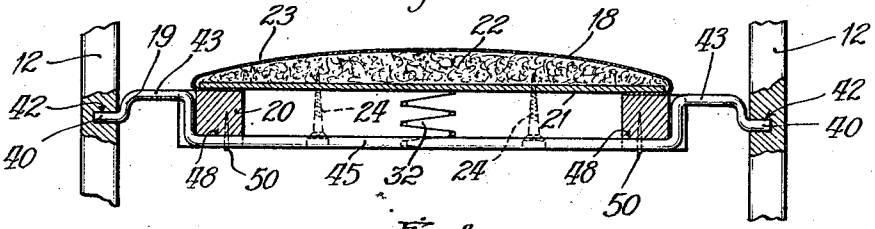
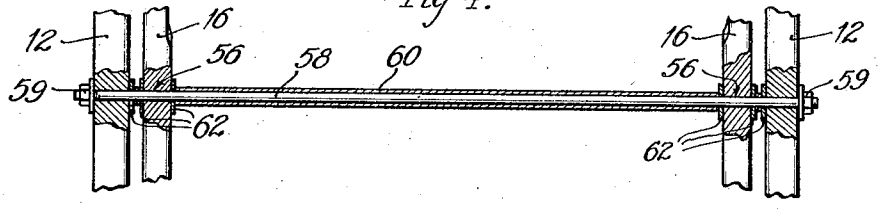


Fig 4.



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Fig 5.

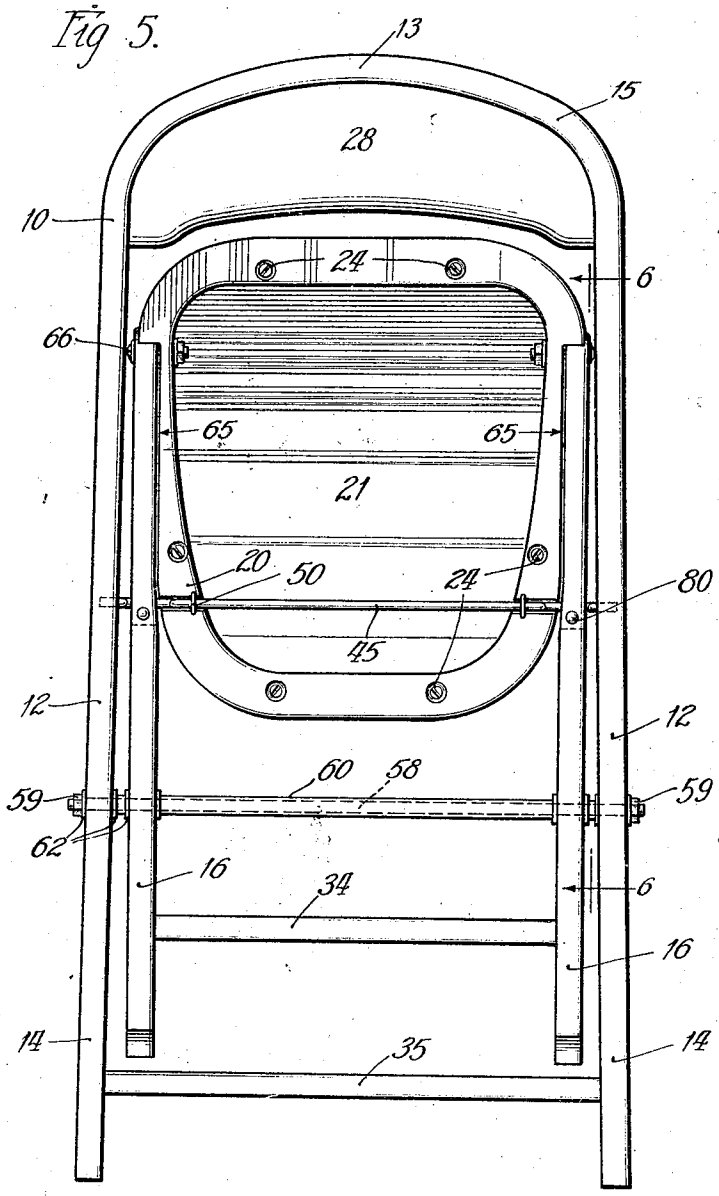
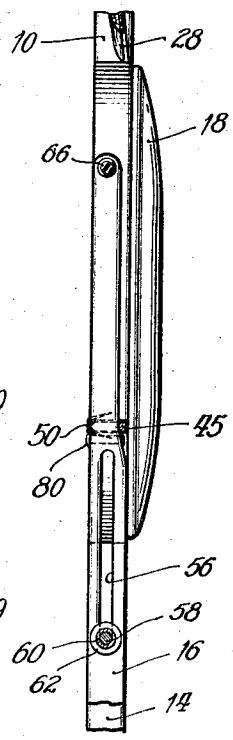


Fig 6.



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Patented July 16, 1929. 1,721,138

UNITED STATES PATENT OFFICE.

JOSEPH SILVERMAN, OF CHICAGO, ILLINOIS.

FOLDING CHAIR.

Application filed March 3, 1927. Serial No. 172,322.

This invention relates to folding chairs and its objects are the provision of a generally improved and simplified construction that may be economically produced, conveniently assembled, and which will fold compactly and have great strength.

The present invention provides an improved pivotal mounting of the seat to and between the leg forming sides of the frame which pivotal mounting has economy in production, facility in assembly, great strength, freedom of action and which will permit compact folding of the seat and swinging legs of the chair into the plane of the frame of the chair.

The invention further provides an improved pivotal connection and joint between the swinging legs and the seat which will also lend itself to the folding of the seat and swinging legs into the plane of the frame and a connection and joint between the seat and swinging legs also having freedom of action and great strength and in which the stresses produced in the use of the chair are imposed directly upon the swinging legs with a minimum stress upon the pivot means between these legs and the seat.

The present invention still further provides a pivotal and sliding connection of the swinging legs of the chair to and between the leg forming sides of the frame, which also has freedom of action and lends itself to the compact folding of the seat and swinging legs into the plane of the frame.

The invention is illustrated in the accompanying drawings in which:

Figure 1 is a front elevational view of the chair in open position for use;

Fig. 2 is a side elevational view of the chair in open position;

Fig. 3 is a vertical cross section taken on the line 3—3 of Fig. 2;

Fig. 4 is a vertical cross section taken on the line 4—4 of Fig. 2;

Fig. 5 is a front elevational view of the chair in folded position; and

Fig. 6 is a vertical section through the chair in folded position and taken on the line 6—6 of Fig. 5.

Referring to the drawings, the chair shown comprises an inverted generally U-shaped frame 10 having parallel sides 12, closed at one end at 13 and open at their opposite or lower ends at 14. The lower ends of the sides 12 form one pair of legs of the chair and their opposite ends may be rounded at 15 into the closed end 13.

A pair of swinging legs 16 have pivoted and sliding connection between their ends to and between the leg forming sides 12 of the frame 10.

A seat 18 is pivoted at 17 to the upper ends of the legs 16 and this seat 18 has fixed pivotal connection at 19 between and to the opposite sides 12 of the frame 10.

The seat 18 comprises a frame 20 shaped to the desired configuration, for example, to the generally square, rounded back and rounded front corner configuration shown. The seat proper comprises a base board 21 the upper surface of which is padded at 22 and suitably covered at 23. Suitable wood screws 24, the heads of which may be countersunk into the bottom surface of the open frame 20 pass up through the frame and into the base board 21 and secure the seat proper upon the top of the seat frame 20.

The frame 10 is preferably formed of band wood or the like to facilitate shaping to the desired configuration and the upper closed end of the frame 10 may be rounded forwardly slightly at 25. The closed top 13 of the frame 10 may be provided with a relatively short back 28, which may be padded and finished as desired and secured in a suitable groove 29 internally around the top rounded part 13 of the frame 10.

The seat frame 20 is also preferably formed of band wood or the like to permit shaping it to the desired configuration. The oposite ends of the frame 20 may be closed through a finger joint at 32 and the structure of the present invention enables forming the pivotal and sliding connection of the swinging legs between the sides of the frame and the pivotal connection between the upper ends of the swinging legs and the seat after completion of the seat and without the necessity of ever opening the seat frame.

The legs 16 may be of band wood or other suitable wood construction and the lower ends of the legs 14 and 16 may be braced transversely by suitable cross braces 35 and 34, respectively. The cross braces 34 and 35 may be of similar wood construction and their ends may be joined to the legs 16 and 14, respectively by means of mortise and tenon or other suitable joints.

The fixed pivotal mountings of the seat

18 to and between the sides 12 of the frame 10 comprises the rod 19, the opposite coaxial ends 40 of which fit rotatably in transversely aligned sockets 42 in the inner surfaces of the sides 12 of the frame 10. The ends 40 of the rod 19 are free to turn in the sockets 42 and inwardly of each end 40 the rod is offset rearwardly at 43 as viewed when the chair is folded as shown in Figs. 5 and 6. This rearward offsetting at 43, is preferably one half the width of the frame sides 12 so that these rearwardly offset portions 43 of the rod 19 will lie substantially flush with the back of the frame 10 and in the plane of the frame 10 when the chair is folded as shown in Fig. 6.

Between the side offset portions 43 the central part of the rod 19 is offset forwardly at 45 as viewed when the chair is folded as shown in Fig. 6. The offset 45 obviously extends downwardly while the offsets 43 extend upwardly when the chair is open for use. The forward or downward offsetting at 45 is preferably substantially equal to the thickness of the seat frame 20 and at the same time substantially equal to the width of the sides 12 of the frame 10, so that when the chair is folded as shown in Fig. 6 the offset 45 will lie substantially flush with the front of the frame 10 and in the plane thereof.

The central offset portion 45 of the rod 40 extends transversely across the bottom of the seat frame and fits in notches 48 formed in the sides of the seat frame. These notches 48 permit the intermediate part of the rod 19 to lie flush with the bottom of the frame 20. Suitable staples 50 or suitable straps, plates or other securing means may be provided for securing the intermediate portion 45 of the rod 19 in the notches 48 and to the bottom of the seat frame 20. The offset portions 43 preferably lie substantially flush with the top of the seat frame 20, the depth or thickness of which is substantially equal to the width of the frame sides 12 so that when the chair is folded the seat frame 20 and rod 19 will lie between the opposite sides of the frame 10 and in the plane thereof.

The legs 16 are slotted longitudinally at 56 and a transverse rod 58 passes through these slots 56 and forms a pivotal and sliding connection between the legs 16 and the sides 12 of the frame 10. The opposite ends of the rod 58 extend through the sides 12 and engage in suitable nuts 59, the rod 58 thereby having relatively fixed anchorage at its opposite ends in the sides 12. A spacing sleeve 60 surrounds the rod 58 between the legs 16 and suitable spacing sleeves may be provided on the rod 58 between the legs 16 and sides 12, suitable washers 62 being preferably provided between these spacing sleeves and the leg and frame portions between which they are interposed.

The opposite sides of the seat frame 20 are scarfed outwardly and downwardly at 65 to receive the upper ends of the legs 16 which are pivoted at 17 to the sides of the frame 20 and in the upper or outer ends of the scarfs 65. The pivots 17 may comprise bolts 66 passing through the upper ends of the legs 16 and through the sides of the frame 20 and engaging at their inner ends in suitable nuts disposed within the frame 20. The depth of each scarf 65 is preferably substantially equal to the width of the upper end of the adjacent leg 16 and the width of each scarf 65 is preferably substantially equal to the thickness of the upper end of the adjacent leg 16, so that when the chair is folded the upper ends of the legs 16 will be confined within the width of the seat frame and also within the thickness of the seat frame and thereby within the plane of the frame 10. When folded the outer surfaces of the upper ends of the legs 16 lie substantially flush with the sides of the seat frame 20 and the other outer edges lie substantially flush with the bottom of the seat frame. The ends of the scarfs 65 adjacent the pivots 66 are preferably rounded at 70 and the upper ends of the legs 16 are correspondingly rounded to provide a knuckle action between the seat and the upper ends of the legs 16. This action at the joint imposes the stresses produced in the use of the chair directly upon the upper ends of the swinging legs 16 with a minimum stress upon the pivot bolts 66.

Suitable reinforcing bolts 80 may be provided through the legs 16 adjacent the upper ends of the slots 56 and the folding of the chair may be limited by engagement of the legs 16 with the offsets 43 in the rod 19, these offsets 43 being of widths to receive the legs 16 and permit them to lie within the plane of the frame 10 in the folded position of the chair.

To fold the chair, the outer end of the seat 18 may be grasped and swung upwardly into position between the sides 12 and in the plane of the frame 10 about the ends 40 of the rod 19 as a pivot. This upward swinging of the seat is accompanied by a closing of the upper ends of the legs 16 about the pivot 66 into the scarfs 65 and by a closing of the legs 16 into the plane of the frame 10 and in position between the sides 12. The upward movement of the pivots 66 about the pivoted ends of the rod 19 is permitted by an accompanying sliding movement of the legs 16 upwardly over the rod 58 through the slotted connections 56 therewith. The lower ends of the legs 16 are in folding the chair thereby drawn or moved up from the upper ends of the legs 14 and in the folded posi-

tion of the chair are spaced thereabove and above the cross brace 35 as shown in Fig. 5.

I claim:—

1. In a folding chair, a chair frame, a seat including a seat frame, a cross rod pivoting said seat in said chair frame, a pair of legs having sliding pivotal connection with said chair frame, the seat frame being scarfed downwardly and outwardly to receive the upper ends of said legs and pivotal connections between said legs and the seat frame, the upper ends of said legs being rounded and the adjacent ends of the scarfs in the seat frame being correspondingly rounded to provide a free acting joint and to impose the stresses directly upon said legs without undue stresses upon the pivotal connections between said legs and the seat frame, when the chair is unfolded, and the cross rod pivoting the seat in the chair frame having crank portions adjacent said scarfs for receiving the legs when the chair is folded.

2. In a folding chair, a frame having leg-forming sides, a rod extending between said sides and rotatably journaled at its opposite ends therein, a seat on said rod and pivotally connected to the frame therethrough, said rod being offset down across the bottom of the seat, and a pair of legs having sliding pivotal connection with the frame and pivotal connection with the seat, said rod being offset at opposite sides of the seat to receive said legs and permit said legs, seat and connections to all lie in substantially the common plane of the frame when the chair is folded.

3. In a folding chair, a frame having leg-forming sides, a rod extending between said sides, and rotatably journaled at its opposite ends therein, a seat on said rod and pivotally connected to the frame therethrough, and a pair of legs having sliding pivotal connection with the frame and pivotal connection with the seat, said rod being offset at opposite sides to receive said legs and permit same to lie in substantially the plane of the frame when the chair is folded.

4. In a folding chair, a frame having leg-forming sides, a rod extending between said sides and rotatably journaled at its opposite ends therein, said rod being offset centrally to lie substantially flush with the front of the frame when the chair is folded, offsets in said rod at opposite sides of said first offset to lie substantially flush with the back of the frame when the chair is folded, a seat on the centrally offset portion of said rod to swing between the sides of the frame and into substantially the plane thereof when the chair is folded, and a pair of legs movable into substantially the side offset of said rod and into the plane of the frame when folded.

5. In a folding chair, a frame having leg-forming sides, a rod extending between said sides and rotatably journaled at its opposite ends therein, said rod being offset centrally to lie substantially flush with the front of the frame when the chair is folded, offsets in said rod at opposite sides of said first offset to lie substantially flush with the back of the frame when the chair is folded, a seat on the centrally offset portion of said rod to swing between the sides of the frame and into substantially the plane thereof when the chair is folded, and a pair of legs movable into substantially the side offset of said rod and into the plane of the frame when folded, the seat including a seat frame scarfed outwardly and downwardly to receive the upper ends of said legs, pivotal connecting means between the seat frame and said legs, and sliding pivotal connections between the legs and the sides of the chair frame.

In witness whereof, I hereunto subscribe my name this 26th day of February, 1927.

JOSEPH SILVERMAN.