Oct. 8, 1935. J. P. MOLLING ET AL 2,016,385

FOLDING CHAIR

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Fig. 2

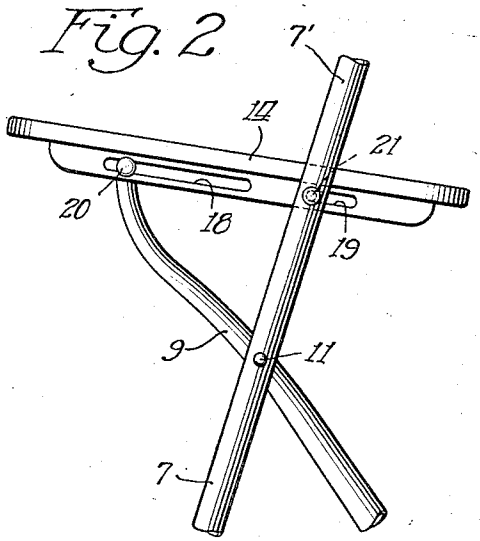

Fig. 1

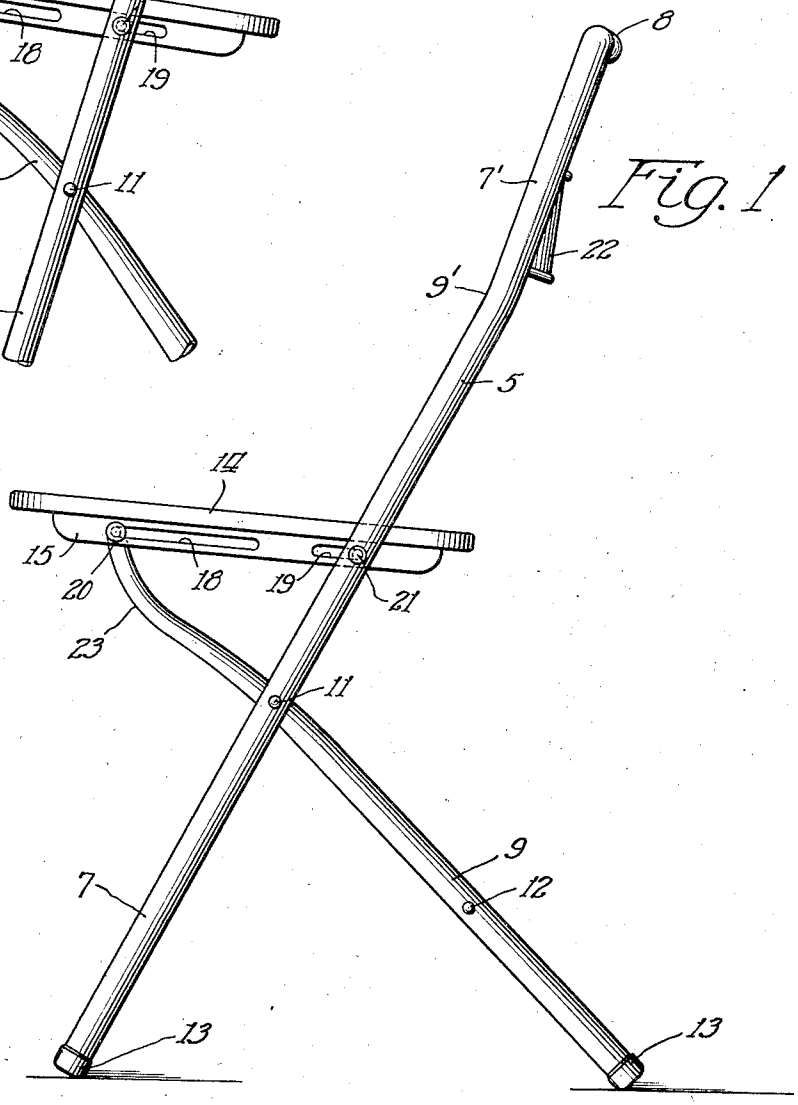

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Fig. 3

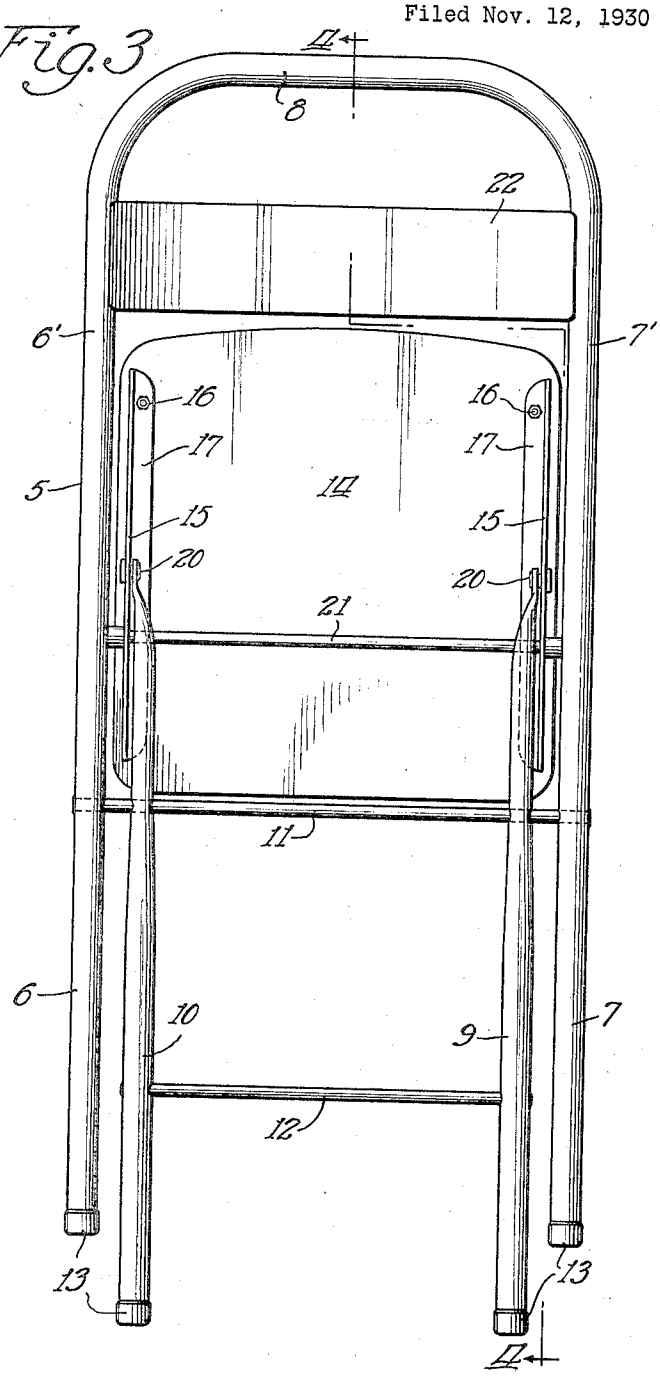
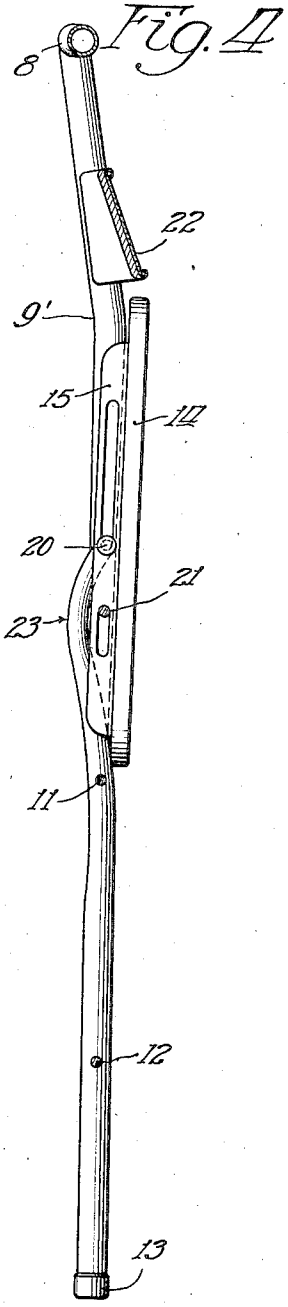


Fig. 4



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UNITED STATES PATENT OFFICE

2,016,385

FOLDING CHAIR

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Application November 12, 1930, Serial No. 495,059

4 Claims. (Cl. 155—143)

This invention relates to an improved folding chair structure, and more particularly to the type of folding chair which is often referred to as a bridge chair or card table chair.

It is the object of the invention to provide a strong and rigid folding chair of comparatively light weight construction and low cost of manufacture, while at the same time providing a chair of greater comfort than has heretofore been obtainable in the said type of folding chairs.

Other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawings (two sheets) in which a folding chair embodying a selected form of the invention is illustrated.

In the drawings:

Fig. 1 is a side elevation showing the chair in extended or unfolded position;

Fig. 2 is a fragmentary side elevation showing the parts in partly folded relation;

Fig. 3 is a front elevation of the chair when folded, and

Fig. 4 is a section on the line 4—4 of Fig. 3.

Referring now to the drawings, the improved chair herein disclosed includes a main frame member 5 which is formed of tubular metal bent to substantially inverted U-shape so as to provide front legs 6 and 7, and a back member comprising side portions 6' and 7' and a connecting portion 8 which extends between the side members 6' and 7'. As clearly shown in Fig. 1, the side portions 6' and 7' of the back are bent as indicated at 9' so as to extend more nearly vertical than the leg portions 6 and 7, thereby to position the top member 8 in a comfortable back rest position relative to the seat of the chair. The forwardly offset relation of the upper portion of the chair back is also advantageous in that the upper portion of the back rest does not project rearwardly to such an extent that a comparatively small space between the chair and the wall of a room or other object is obstructed so as to prevent a person from passing between the object and the back of the chair. It is, of course, understood that a person desiring to pass between the chair and an object back of the chair can readily step over the projecting rear legs, wherefore the latter do not materially obstruct such space.

Rear legs 9 and 10, also of tubular metal construction, are pivotally connected to the front legs intermediate the lengths of both the front and rear legs, by means of a pivot member 11 which is anchored at its ends in the front legs 6 and 7, as clearly indicated in Fig. 3. The pivot member 11 extends through the respective rear legs 9 and 10 and serves to tie the legs of the U-shaped frame member together adjacent their free ends and also to maintain the same in permanently spaced relation. The rear legs 9 and 10 are rigidly tied together adjacent their lower ends by a tie rod 12, which may also be anchored to the legs so as to serve as a spacer for maintaining the legs in properly spaced relation. Suitable cap members 13 may be attached to the lower ends of the legs to prevent scratching or otherwise marring the floor on which the chair is placed.

A seat 14 of suitable construction, for instance, ply wood with a leather or otherwise covered padded top, is provided and mounted on the upper ends of the legs so as to be foldable from normal seat position as shown in Fig. 1 to folded position as shown in Fig. 4. For so mounting the seat 14, the same is provided with depending flange members 15, 15 at its opposite sides, the same being secured to the bottom of the seat by suitable fastening means, such as indicated at 16, which extend through inwardly extending flanges such as 17 which are disposed against the bottom of the seat; in this instance, the depending flanges 15 and the attaching flanges 17 constituting the flanges of a strip of angle iron. The side flanges 15 are provided with a pair of substantially aligned but relatively independent slots 18 and 19 adjacent the front and rear ends respectively of the seat. The rear legs 9 and 10 are connected to the seat adjacent its front edge through the agency of pivot studs 20 which are anchored in the upper ends of the respective legs and which extend outwardly through the slots 18 in the respective flanges 15. Thus, it will be seen that the seat, adjacent its front edge, is pivotally and laterally movably connected to the upper ends of the rear legs 9 and 10. Adjacent its rear end, the seat is mounted on the front legs 6 and 7 for pivotal and lateral movement relative thereto through the agency of a seat-supporting pivot rod 21 which extends through the relatively short slots 19 in the flanges 15, 15 and is anchored at its ends in the side members of the inverted U-shaped frame, i. e., in the upper ends of the front legs 6 and 7.

A back rest member 22 extends between and is permanently mounted in the side members 6' and 7' of the chair back, the back rest being arched to comfortably fit the back of the person occupying the chair. Also, in order to secure the greatest degree of comfort, the back rest 22 is disposed in a position which may be consid-

ered unusually low in the back of a chair of the type herein involved. The distance from the bottom edge of the back rest to the top of the seat of the chair when the latter is in extended or unfolded position, as shown in Fig. 1, is, in this instance, less than the distance between the seat-supporting pivot rod 21 and the front edge of the seat.

The improved chair described above may be adjusted to its folded or collapsed position, as illustrated in Figs. 3 and 4, by lifting upwardly and urging towards each other the back of the chair and the front edge of the seat 14. The initial portion of the folding movement usually results in shifting of the seat 14 on the supporting pivot rod 21 to the position shown in Fig. 2, followed by pivotal movement of the seat around the pivot rod 21 and relative lateral movement between the seat and the upper ends of the rear legs 9 and 10. The slots 19 are of such length that the distance between the front ends thereof and the front edge of the seat is somewhat less than the distance between the pivot rod 21 and the lower edge of the back rest 22. Hence, upon continued pivotal movement of the seat around the pivot rod 21, the seat may be brought into folded position between the side members of the U-shaped frame and beneath the back rest, as clearly shown in Fig. 4.

The slots 18 in the depending flanges 15 are preferably of such length that in the folding movement of the chair, the pivot studs 20 will engage the ends of the slots 18 somewhat before the fully closed position of the seat is reached. Since the engaged ends of the slots 18 swing on a short radius about the pivot rod 21 and the pivot studs 20 swing on a relatively long radius about the leg pivot rod 11 below the pivot rod 21, it will be evident that the distance between the pivot rod 21 and the pivot studs 20 will decrease as the pivot studs 20 approach alignment with the pivot rods 21 and 11. Inasmuch as the ends of the slots 18 are engaged by the studs 20 before fully folded position is reached, it will be seen that there will result a binding or clamping action between the leg pivot rod 11, the pivot rod 21, and the pivot studs 20. Slight resiliency of the pivot rods 11 and 21 and possibly of the upper end portions 23 of the rear legs facilitates the attainment of said clamping action. Such binding or clamping action is effective to maintain the chair in folded condition. As shown in Fig. 4, the axis of the leg pivot rod 11, the seat pivot rod 21 and pivot studs 20 are in substantial alignment when the chair is fully folded.

The upper ends of the rear legs 9 and 10 are preferably reduced in diameter by compressing the tubes of which the legs are formed without stretching the same longitudinally, thereby to increase the thickness of the wall of the tube so as to maintain the strength of the larger leg portions 9 and 10 in the reduced-diameter upper end portions. At their extreme upper ends, the legs 9 and 10 are collapsed to provide flattened end portions, as clearly shown in Fig. 3, for facilitating the mounting of the pivot studs 20 in the legs. The reduced-diameter upper leg portions are also offset forwardly in an arcuate manner, as indicated at 23, to clear the seat pivot rod 21 when the chair is in folded position, as shown in Fig. 4.

A chair constructed as above described is easily and quickly foldable into the position illustrated in Fig. 4, wherein it is contained almost entirely within the confines of the U-shaped main frame member. The tubular construction of the various parts offers a high degree of strength and rigidity without an objectionable amount of weight, so that the structure is highly desirable because of its ease of folding and handling. It should also be noted that the seat is of unusually large area, inasmuch as it extends across almost the entire space between the side members of the U-shaped frame, while being of substantially the same depth as width. Comfort is promoted by reason of the unusually low arrangement of the back rest 22, this being made possible by the described manner of mounting of the seat on the legs.

Changes may be made in the above described construction without departing from the spirit of the invention, the scope of which should be determined by reference to the following claims, the same being construed as broadly as possible consistent with the state of the art.

We claim as our invention:

1. A folding chair comprising an inverted U-shaped member, the side members of which constitute front legs and back rest portions, rear legs pivoted respectively to the leg portions of said side members and disposed inwardly thereof, pivot means extending inwardly from said side members above the axis of the pivot connection between said front and rear legs, pivot means carried by the upper ends of said rear legs, a seat having depending side flanges each provided with longitudinally spaced front and rear slots respectively receiving said rear leg pivot means and said side member pivot means, said seat being thereby pivotally and slidably movable on said rear leg and on said side member pivot means as an incident to the operation of folding or unfolding the chair, and the spacing of said slots being such as to restrict the sliding movement of said seat to somewhat less than the full extent required by the relation of the respective pivot means with the pivotal connection between the legs for unrestricted folding to thereby effect a resilient binding action of the elements for holding the chair in folded condition.

2. In a folding chair of the class described, the combination of main and auxiliary frame side members pivotally connected intermediate their lengths and respectively having front leg and back rest portions and rear leg and front seat supporting portions, a rigid seat structure having at each side a side-member with a pair of longitudinally aligned and relatively spaced slots formed therein and extending forwardly and rearwardly of the seat, and means for mounting the seat on said main and auxiliary frame side members comprising at each side a supporting pivot carried by said front seat-supporting portion and entering one of said slots, and another supporting pivot carried by said main frame side member above its pivotal connection with said auxiliary frame side member and entering the other of said slots, said seat being thereby mounted on said frame side members for rearward sliding and pivotal folding movement relative to the main frame side member and for relative forward sliding and pivotal folding movement relative to the auxiliary frame side member, whereby, when the seat is folded, said supporting pivots are located close to each other and adjacent to a central position intermediate the front and rear edges of the seat.

3. In a folding chair of the class described, the combination of main and auxiliary frame side members pivotally connected intermediate their lengths and respectively having front leg and back

rest portions and rear leg and front seat-supporting portions, a rigid seat structure having at each side a side-member with a pair of longitudinally aligned and relatively spaced slots formed therein and extending forwardly and rearwardly of the seat, and means for mounting the seat on said main and auxiliary frame side members comprising at each side a supporting pivot carried by said front seat-supporting portion and entering one of said slots, and another supporting pivot carried by said main frame side member above its pivotal connection with said auxiliary frame side member and entering the other of said slots, said seat being thereby mounted on said frame side members for rearward sliding and pivotal folding movement relative to the main frame side member and for relative forward sliding and pivotal folding movement relative to the auxiliary frame side member, whereby, when the seat is folded, said supporting pivots are located close to each other and adjacent to a central position intermediate the front and rear edges of the seat, the arrangement also being such that when the chair is folded, said supporting pivots and the pivotal connection between said main and auxiliary frame side members are approximately aligned with the frame side members and the supporting pivots engage the adjacent slot ends to effect a clamping action for holding the chair in folded condition.

4. A folding chair comprising a main frame having side members constituting front leg and upwardly extending back-rest-forming portions, an auxiliary frame comprising rear legs, said frames being pivoted together intermediate their lengths so as to be foldable approximately into coplanar relation, a seat, means for mounting said seat on said frames so as to permit said folding movement of the frames and folding of the seat substantially into the plane of the frames when folded, said means comprising front pivot means extending inwardly from said auxiliary frame leg members above the pivotal connection between the said frames, rear pivot means extending inwardly from said main frame side members above said pivotal connection, said seat having depending side flanges adjacent each of its side edges, each flange being provided with longitudinally extending, relatively independent front and rear slots for respectively pivotally and slidably receiving said front and rear pivot means, the arrangement being such that the rear portion of the seat is pivotally and rearwardly or downwardly movable relative to said main frame side members and the front portion is pivotally and forwardly or upwardly movable relative to said rear legs as an incident to folding of the chair, and a back rest member extending transversely between said side member back-rest-forming portions, the lower edge of said transverse back rest member being spaced upwardly from the axis of said rear pivot means a distance which is less than the distance between said axis and the front edge of the seat when the chair is unfolded but greater when the chair is folded.

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