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FOLDING CHAIR

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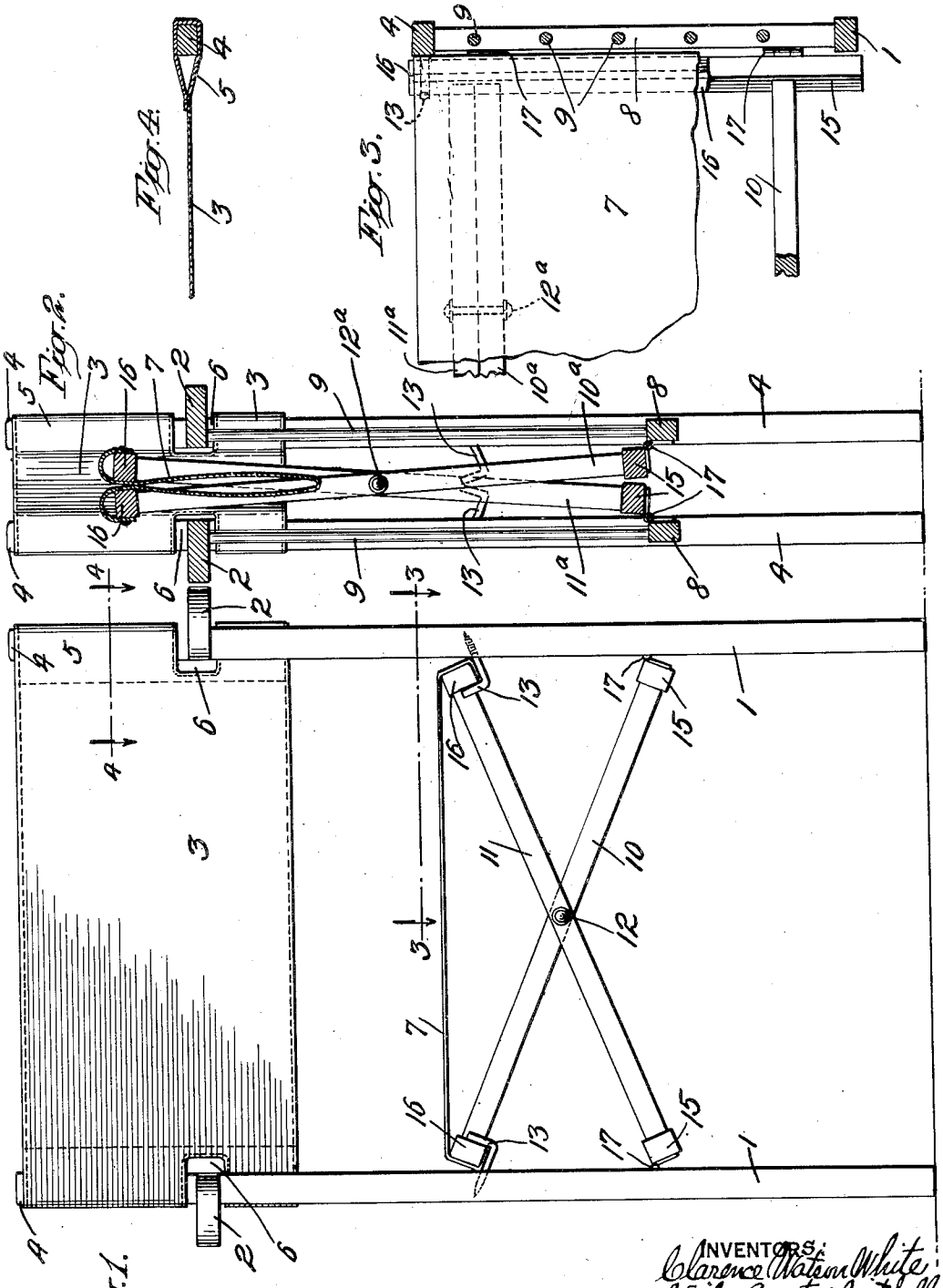


Fig. 1.

Fig. 4.

Fig. 3.

Fig. 2.

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FOLDING CHAIR

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This invention refers to certain new and useful improvements in folding chairs or stools, especially of the camp, lawn, or porch variety, though we are not restricted as to the purpose of their use or their class; a leading and paramount object being to cheapen and promote the ease of their manufacture, and produce a strong and rigid combination, adapted more particularly for an arm chair, which can be folded and unfolded a great number of times without wearing out or weakening or becoming unserviceable through any deterioration in the relative integrity of the parts. The general combination may be adapted if desired for use with rockers to furnish a rocking chair.

The invention may therefore be said to consist essentially in the general combination of the mechanical folding features; and also in numerous details and peculiarities in the construction, combination and arrangement of parts, substantially as will be hereinafter described and claimed.

In the accompanying drawings illustrating our invention:

Figure 1 is a front elevation of our improved folding arm chair, when in its open and unfolded position and ready for ordinary use.

Figure 2 is an edge elevation of the same when folded together to occupy as small a compass as possible for convenience in transportation or storage, certain parts being sectioned on a vertical line to bring out details of construction and arrangement more clearly and especially to show the rear parts in greater detail.

Figure 3 is a partial horizontal sectional plan view on the line 3, 3, of Figure 1.

Figure 4 is a detail horizontal section on the line 4, 4, of Figure 1.

Like characters of reference denote like parts throughout all the different figures of the drawings.

The main frame of the chair comprises two vertical parallel identical side frames connected above by a flexible folding back; and between these side frames is a folding seat frame hinged to the side frames and supporting a flexible folding seat or stool.

The side frames each consist of a taller or longer rear post 4 and a shorter front post 1. The front and rear posts of each side frame are rigidly connected by one or more horizontal lower rails 8 and an upper wide or flat strip 2, serving as an arm for the chair. Between the arms 2 and the lower rails 8 are series of round rods 9 secured to arms 2 and rails 8, as shown in Figures 2 and 3. The rods 9 strengthen the sides, besides giving a finished appearance thereto, and afford a light open construction of strength and durability. Obviously these details of the side frames may vary widely, but it is desirable that each side frame should consist of an integral strongly built combination of parts so that the chair as a whole may have upstanding and unshakable qualities for service.

The arms 2 are at a convenient distance below the upper ends of the rear posts 4, and are so placed as to constitute suitable arm rests for the occupant of the chair. The rear posts 4 are connected by a folding sheet of canvas or other material 3, tacked to the posts if desired, whose vertical opposite edges are formed with loops or pockets 5 calculated to loosely contain the posts. Further, the looped opposite edges of back 5 are slotted at 6 to accommodate the joints of the rear ends of arms 2 with posts 4.

When the chair is open or extended, and the side frames are in the position where they are normally widest apart, as shown in Figure 1, the back 3 will be stretched taut across the chair in a vertical position and will furnish an effective back rest for the sitter in the chair, besides serving as a strap to connect the rear posts of the chair. On the other hand when the chair is collapsed and folded, the side frames will be brought close together as shown in Figure 2, with the seat and its frame folded between them, in which position the back 3 will naturally infold itself between the frames so as to be out of the way. The loose pockets 5 enables the back 3 to easily adjust itself in the folding and unfolding of the chair. The canvas, leather, or cloth fabric of the back 3 may be heavy or light in weight or otherwise, accordingly as may be desired, and may be in one or more

pieces and colored or decorated or figured to embellish the appearance of the chair.

Between the side frames, which are adjustable towards and away from each other as we have described, is a stool or seat frame for supporting a flexible canvas, leather, or other seat 7, which occupies a normal horizontal position when in use, as in Figure 1, and is infolded between the frame members carrying it when the chair is closed up for non-use, as portrayed in Figure 2.

The seat frame is composed of two front cross bars 10 and 11 pivoted together centrally at 12. These bars 10 and 11 lie in a vertical plane, and are movable into different positions on a central pivot 12. Opposite to these front cross bars is a pair of similar rear cross bars 10*a* and 11*a* which are pivoted together centrally at 12*a*, the front and rear cross bars being similar in all respects in form and function. The lower outer ends of the front bars 10 and 11 and of the rear bars 10*a* and 11*a* are respectively connected rigidly together by horizontal side bars 15, which in turn are hinged by means of hinges 17 at two or more points to the lower rails 8 of the side frames, see Figure 3. And the upper outer ends of the front bars 10 and 11 and of the rear bars 10*a* and 11*a* are also connected rigidly together by the horizontal bars 16. To these bars 16, 16, the opposite edges of canvas seat 7 are tightly fastened. When this seat frame is unfolded the bars 16 abut against the side frames and the seat 7 reaches from one side frame to the other in a taut horizontal position. When the bars of the seat frame are brought nearer together by turning them on their pivots until the bars are more nearly parallel with each other and in a vertical position, the seat frame accommodates itself comfortably between the closed up side frames, as in Figure 2. Viewing these front and rear interpivoted bars and their connections from above, instead of from front and rear, it will be seen that the seat frame is composed of two rectangular centrally pivoted frames, which can be raised on their pivots into an approximately vertical position or spread out into an approximately horizontal position, carrying with them the flexible seat member, which is horizontal at one time, reaching from one side frame to the other, and serving then in its seat function, and at another time dropping easily into its idle position when not in use.

When the seat frame unfolds from its idle vertical position in Figure 2 to its active horizontal position in Figure 1, the cross pieces 16 that hold canvas seat 7 strike against the side frames, but for the sake of firmness in the chair it is necessary that the weight on the seat should not cause the seat to be depressed too much as this would cause the pieces 16 to travel outwardly too far and strain the side frames. This is prevented to some extent by the rigidity of the side frames, but actually under the weight of a person there is a tendency to spread the frame unevenly and also to put a greater tension on the cloth seat. We avoid this too great strain by using supporting members or stops on the side frames on which the seat frame is brought to a stop and may temporarily rest when the chair is unfolded and the seat 7 is in its horizontal active position supporting a person.

The supporting members or stops thus referred to may have many forms. One form used in order to carry the seat frame in its extended position when the seat proper 7 is stretched out horizontally for use, and enables the seat 7 to sustain the weight of the sitter, a function which is so essential, provides that the posts 1 and 4 should have stopping projections or rests thereon, upon which the seat frame rails 16 may come to rest and lie when the seat frame is thus extended. These supporting members or stopping projections may take many convenient suitable forms, but we preferably use angular hooks or stops 13 that are screwed or driven into the inside faces of the posts. These hooks or stops 13 are usually right-angled when the rails 16 are square, and may be secured at an angle so as to receive the edges of the rails, the right angle of the hook or stop in this angular position receiving neatly the somewhat inclined edge of the rails 16 when the latter are in this position, as seen in Figure 1. Of course the rails 16 may have any shape, and the hooks or stops 13 any corresponding or other shape.

Of course these details of stop or rest devices on the side frames for sustaining the weight of the seat frame and the occupant of the seat may vary widely, and as it is quite essential to prevent any undue spread in the side frames we reserve the liberty of creating and placing these stops or supports in the most approved and effective way.

The use and function of the chair are evident from the foregoing without the necessity of giving much additional detail. The invention provides a substantial arm chair, or camp stool, when unfolded. It stands firmly and the parts brace each other so as to prevent lateral vibration and crushing. An important feature is the seat frame that is hinged or movably connected permanently to the side frames, at the bottom of the chair but not at the top, the upper part of the seat frame being entirely free from any connection with the side frames except as it temporarily rests in service on certain supports on the side frames: and it will be seen that the upper portion of the seat frame when the seat is unfolded into service position will brace between the side frames and rest solidly thereon or on certain stops, supports or hooks projecting from said side frames so that the

flexible seat when level can uphold a considerable burden without flinching. When the chair is to be folded the custodian may take hold of the seat 7 near its middle or at the end and lift it far enough to disengage the rails 16 from the rests or hooks 13. Then if the side frames be pressed together and the seat 7 allowed to drop between or over the folded seat frame, all as shown in Figure 2, the parts of the chair will be caused to occupy a small space and compass, and in this condition may be easily moved about and put away.

Many changes in the details may be made without departing from the substance of the invention; and we therefore reserve the liberty of varying from the precise embodiment offered with quite a range of changes embraced under the terms of the claims.

What we claim is:

1. In a folding chair, the combination of side frames, a back loosely connected therewith, a seat-carrying frame composed of two rectangular interpivoted frames hinged to the side frames, hooks on the side frames adapted to engage and support the rectangular frames in open position, together with a flexible seat that is foldably secured to said rectangular frames.

2. In a folding arm chair of the class described, the combination with side frames having arms, a flexible back loosely connected to said side frames, of a seat frame composed essentially of a pair of interpivoted rectangular frames hinged to the side frames, a flexible seat secured on said seat frame, and hooks fastened in the side frames to be temporarily engaged by the extended seat frame to support the seat in its active stretched position.

3. In a folding chair, the combination of side frames, a seat-carrying frame composed of interpivoted frames hinged at the bottom to the side frames, angular hooks on the side frames adapted to engage and support the said seat frames in open position, together with a flexible seat that is foldably secured to the said seat frames.

4. In a folding chair, the combination of side frames, a back secured thereto, a seat-carrying frame composed essentially of interpivoted frames, means for hinging the lower portion of these frames to the bottom of the side frames but leaving the upper portion of the seat-carrying frame without any connection with the side frames, angular inclined hooks on the side frames adapted to engage and support the seat frames in their unfolded position, together with a flexible seat that is foldably secured to said seat frames.

5. In a folding chair, the combination of side frames, a back connected therewith, a seat frame composed of two substantially rectangular inter-pivoted frames having their lower portions hinged to said side frames, and fixed frame-engaging abutment stops on the side frames cooperating with the seat frame and automatically disengaged therefrom upon folding of the seat, the upper portions of said inter-pivoted frames being movable upwardly toward each other and freely away from said side frames in folding.

In testimony whereof we hereunto affix our signatures.

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