J. D. LAWRENCE.

FOLDING CHAIR.

APPLICATION FILED MAY 29, 1915.

1,180,052

Patented Apr. 18, 1916.

Fig. 1

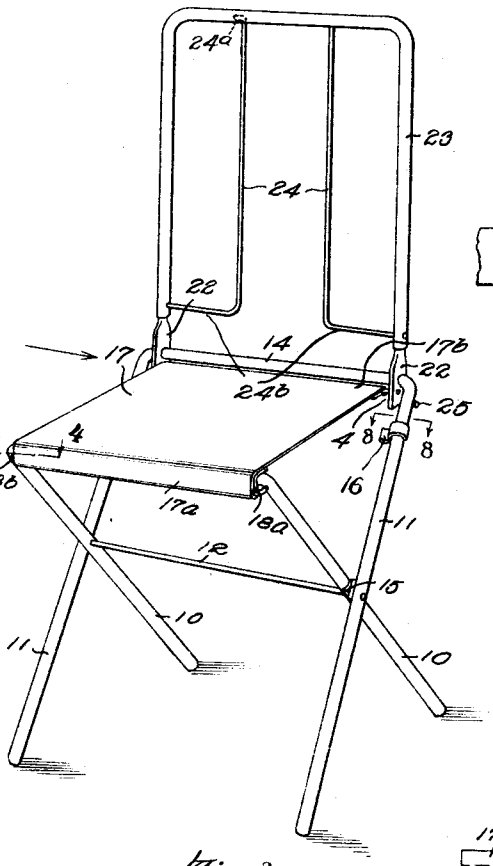


Fig. 10

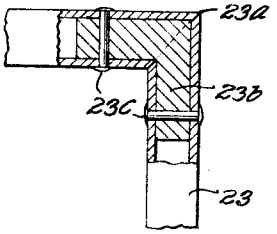


Fig. 6

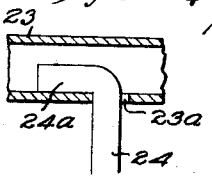


Fig. 8



Fig. 7

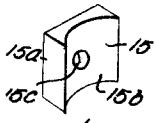


Fig. 2

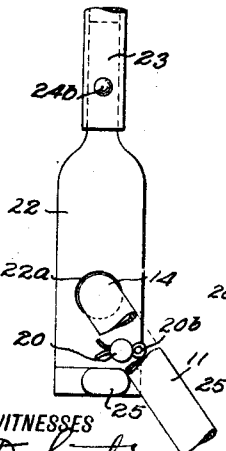


Fig. 3

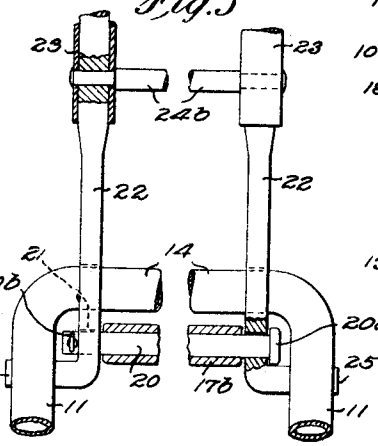


Fig. 4

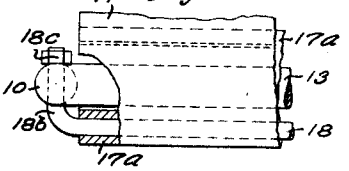


Fig. 5

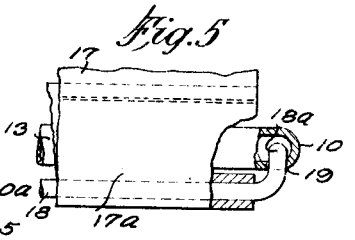


Fig. 9



WITNESSES

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JOHN DAVID LAWRENCE, OF PRINCETON, NEW JERSEY.

FOLDING CHAIR.

1,180,052. Specification of Letters Patent. Patented Apr. 18, 1916.

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To all whom it may concern:

Be it known that I, JOHN DAVID LAWRENCE, a citizen of the United States, and a resident of Princeton, in the county of Mercer and State of New Jersey, have invented a new and Improved Folding Chair, of which the following is a full, clear, and exact description.

This invention relates to furniture and has particular reference to folding chairs or stools.

Among the objects of the invention is to provide a novel design for the manufacture of a chair mainly from tubular metal whereby the chair will be not only cheaper but stronger than the usual forms of folding chairs.

Another object of the invention is to provide improved facilities for renewing the fabric seat portion of a folding chair and at the same time prolonging the life of said seat.

A still further object of the invention is to provide features of improvement in folding chairs which render them more convenient and reliable in use with respect to the facilities for prompt opening or unfolding thereof.

The foregoing and many other objects of the invention will hereinafter be more fully described and claimed and illustrated in the drawings forming a part of this specification in which like characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a perspective view of a preferred type of folding chair made in accordance with this invention; Fig. 2 is a side elevation of a detail of the joint between the back and the main frame looking in the direction of the arrow, Fig. 1; Fig. 3 is a fragmentary front elevation of both of the joint members; Fig. 4 is a horizontal sectional detail substantially on the line 4—4 of Fig. 1, indicating one end of the seat holding bar; Fig. 5 is a similar view but at the other end of the same bar; Fig. 6 is a vertical sectional detail showing the manner of connecting the back rods to the tubular frame of the back; Fig. 7 is a perspective view of one of the bearing blocks between the main portions of the frame; Fig. 8 is a transverse section through the leg portions when folded, the plane of the section being indicated by the line 8—8 of Fig. 1; Fig. 9 is a detail view of that end of the seat holding bar shown in Fig. 5; and Fig. 10 is a modification indicating how the tubular U-shaped members of the chair may be assembled in sections.

The several parts of this device may be made of any suitable materials, and the relative sizes and proportions, as well as the general design of the mechanism, may be varied to a considerable extent without departing from the spirit of the invention hereinafter more fully described and claimed.

Referring more particularly to the drawings, I show a preferred type of chair comprising legs 10 and 11 pivoted together in pairs approximately midway of their ends upon a rod 12 around which the legs are adapted to fold into approximately the same plane. The legs of each pair are connected preferably by an integral cross bar, the legs 10 and their cross bar 13 being adapted to swing within or between the legs 11 and their cross bar 14. At the joint between each leg 10 and the adjacent leg 11 I provide a pair of spacers or washers 15 shown best in Fig. 7, each comprising a flat face 15^a and a concave face 15^b, the concave face receiving the cylindrical leg and the two plane faces of the adjacent spacers 15 coöperating with each other. The pivot rod 12 passes through a central hole 15^c in each block. These spacers insure sufficient space being provided between adjacent legs to provide free movement into open or folded position without binding or unnecessary friction, and the special form of spacing blocks is well adapted for the purpose, making a construction neat in appearance as well as of satisfactory practical operation.

Secured to either of the legs 11 at any convenient point between the pivot rod 12 and the cross bar 14 is a lug 16 clamped to the leg 11 by means of a set screw 16′ or its equivalent. The lug projects inwardly and serves to limit the movement of the legs 10 while folding, preventing them from swinging beyond the plane of the legs 11 as indicated in Fig. 8.

The seat 17 comprises preferably a strip of fabric or similar flexible material of peculiar adaptability as to attachment to or de-

tachment from the metal portions of the structure. The seat is formed at its front edge with a loop 17^a and at its rear edge with a similar, though narrower, loop 17^b. An anchoring or securing bar 18 shown in detail in Figs. 4, 5 and 9 extends through the loop 17^a and has a hook-shaped or angularly-turned end 18^a projecting rearwardly and downwardly through a hole 19 formed in the front face of the leg which may be described as the left leg 10 with respect to the person seated upon the chair, and the opposite end 18^b of the bar 18 is turned substantially at a right angle and extends rearwardly through a hole drilled entirely through the upper end of the right hand leg 10 where it is secured detachably by means of a nut 18^c screwed thereon. The anchoring bar 18 lies, therefore, just below the front portion of the cross bar 13 and the loop 17^a is wide enough to provide a double thickness of the seat fabric where it extends over and rests upon the cross bar 13, as clearly shown in Figs. 4 and 5. This double thickness not only provides a cushioning effect over this bar 13 adding comfort to the person seating upon the chair, but reinforces and strengthens it, thereby prolonging the life of the seat.

The rear edge or loop portion 17^b of the seat is detachably connected in place by means of a strong rod 20 extending therethrough and having its ends secured in holes 21 formed through the lower ends of a pair of frogs 22 constituting a part of the back structure. The rod 20 has at one end a head 20^a which lies against the outer face of the adjacent frog 22 and has its other end projecting beyond the outer face of the opposite frog where it is detachably secured by any suitable means such, for instance, as a cotter pin 20^b. In addition to the frogs 22, the back comprises a U-shaped tubular member 23 of the same general form and nature as the legs, but preferably of lighter material, into the open ends of which the frogs are projected and secured by any suitable means. The means shown herein for locking the frogs in the ends of the main tubular back member 23 comprises a pair of heavy wires 24 each having its upper end 24^a turned at an angle or hook-shaped and extended through a hole 23^a in the top portion of the member 23 and having its lower end 24^b extending laterally and outwardly through the lower end of the member 23 and the extension of the frog located therein as shown in Fig. 3. The frogs have transverse holes 22^a through which the bar 14 of the legs 11 extends, forming a main pivot for the back. The rod 20 is connected to the frogs below the pivot 14 and hence the strain upon the seat when the chair is occupied serves to positively hold the back in its upright position and with the laterally projecting legs 25 thereof engaging against the rear faces of the upper ends of the legs 11. The lugs just mentioned limit the upward and rearward swinging of the back but allow the back to swing forwardly and downwardly freely when the chair is unoccupied or when the chair is to be folded. During the folding of the chair the upper portion of the legs 10, together with the loop portion 17^a of the seat, swings rearwardly between the legs 11 and below the cross bar 14, the bar 13 swinging closely below the bar 14 when the back is swung forwardly and downwardly into approximately the same plane as the leg portions, the rod 20 at such time being carried rearwardly and upwardly by the frogs swinging around their pivot 14, this folding movement of the legs 10 being limited as above stated by the lugs 16. To unfold the chair, the back is grasped and swung into or toward its upright position, the action of the frogs bearing upon the upper portion of the legs 10 causing them to move forwardly toward their proper normal position. The action is very easy, sure and simple, and the chair throughout is exceedingly light and strong. The manner of connecting the seat provides for the easy renewal thereof in case of damage or wear of the seat without the use of special tools. The chairs being made of standard sizes and with the seats manufactured of lengths corresponding thereto, a single workman, either skilled or unskilled may easily reseat hundreds of chairs in a single day, making the chairs practically as good as new.

As shown in Fig. 10, instead of forming the U-shaped frame members each in a single piece, the vertical and transverse portions thereof may be connected as separate parts with their adjacent ends mitered as shown at 23^c. Each angle may further be reinforced by employing an angular core 23^b extending into each portion of the tubing on opposite sides of the angle. This provides a very strong angle construction, and the same may be further strengthened, if desired, by fastening devices such as rivets 23^c passing through the several parts as shown. It will be understood in this connection that all of the U-shaped members of the chair or any portion of them may be constructed as indicated in Fig. 10, or they may be formed as previously described and illustrated in the first set of figures.

I claim:

1. In a folding chair, the combination of supporting legs, a flexible seat member having pockets formed in its front and rear edges, cross bars connecting the respective pairs of legs, the front seat pocket bearing upon and extending below the front cross bar, separable means passing through the pocket and secured to the upper ends of the

legs, a rack connected to the rear cross bar, and means securing the pocket at the rear edge of the seat to the back.

2. In a chair, the combination of two pairs of legs, a cross bar connecting the upper ends of each pair of legs, a flexible seat including a pocket at its front edge of sufficient width to lie in double thickness upon the front cross bar, and means passing through the pocket and detachably securing the same to the upper ends of the adjacent pair of legs.

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