Nov. 19, 1940. C. H. UTLEY 2,221,932

FOLDING CHAIR STRUCTURE

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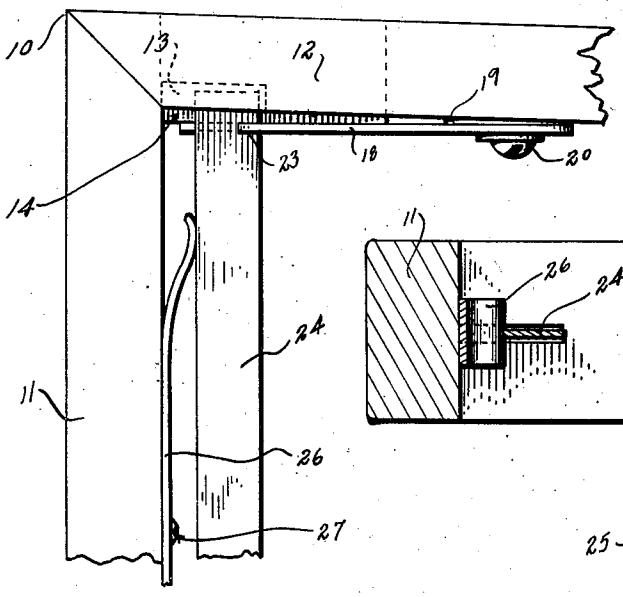


Fig. 1.

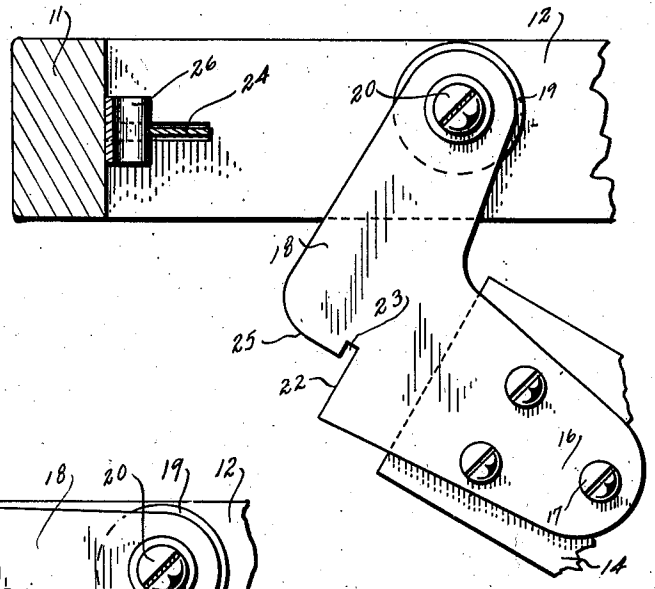


Fig. 3.

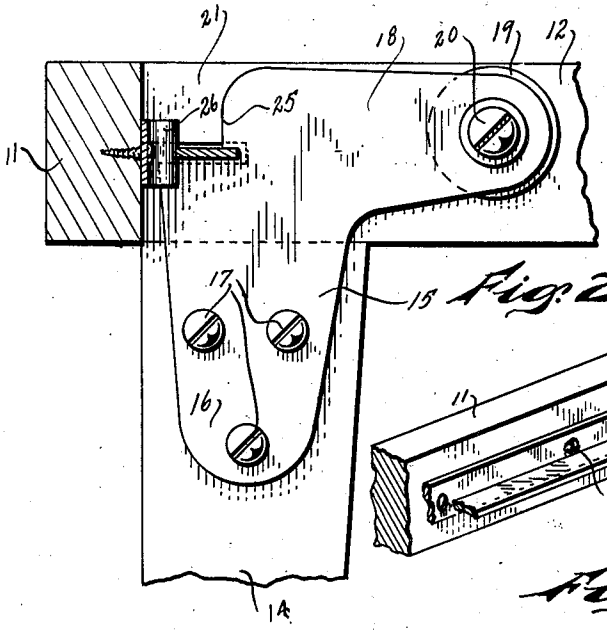


Fig. 2.

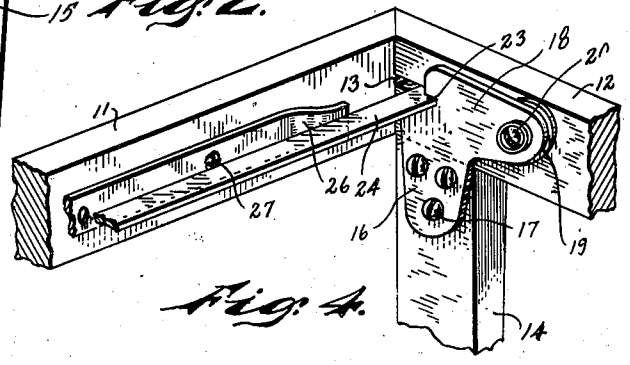


Fig. 4.

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FOLDING CHAIR STRUCTURE

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2 Claims. (Cl. 155—141)

This invention relates to devices for mounting and securing the folding legs of chairs in operative position, and for quickly releasing them to permit the folding of the legs, ordinarily used upon chairs in which the seat is also pivoted upon the back unit of the chair, although my invention may be used with or without such construction.

The invention has for an object to lower the cost of the production of the hardware required for such chairs, as well as to simplify the assembly of the unit. An important aim is to minimize or eliminate the requirement of operative connections between the devices, and especially to simplify the construction by which the parts are retained in place upon the chair, both in operative and folded position.

I am aware of prior folding chair leg latch devices, of which an example is shown in the patent to Allerding, 1,970,266, and it is an important aim of my invention to simplify the assembly of the latch bar in coactive relation to the spring and leg with a minimum of difficulty and simple operative connections. It is also an aim to minimize the mortising of the chair frame required, so that a device materially less expensive is provided, having all of the advantages of prior devices of this type.

Additional objects, advantages and features of invention reside in the construction, arrangement and combination of parts involved in the embodiment of the invention, as will be understood from the following description and accompanying drawing, wherein

Figure 1 is a fragmentary top view of a chair seat frame showing one front corner of the chair.

Figure 2 is a cross section of the chair frame at the front edge.

Figure 3 is a similar view showing the chair leg in released position.

Figure 4 is a perspective view of the corner of the frame, with the chair leg in chair-supporting position.

There is illustrated in Figures 1 to 4, a conventional chair seat frame 10, including the front bar 11 and side bar 12, it being understood that a complete seat would include two of the bars 12, one at right and one at left, connected to any usual rear portion of a chair frame on which the bars 12 may be pivoted, if desired, the front and side bars 11 and 12 may be secured together at the corners of the seat frame in rigid relation in any usual manner. Formed on the inner side of the side bar 12, immediately adjacent the bar 11, there is a horizontal groove or slot 13, of comparatively slight depth, and also of slight width vertically. A leg 14 is provided, of conventional design, upon which there is attached an L-shaped sheet metal plate 15, having a depending arm 16 secured by screws 17 to the upper end of the leg 14, while a rearwardly extending arm 18 of the plate 15 is pivoted on the inner side of the side bar 12 of the chair seat frame. A suitable washer 19 is provided between the arm 18 and the bar 12 of the chair, and if desired, this washer may be thickened at the forward part, or set in a correspondingly formed recess, so that its inner face will be at right angles to the axis of the plate 15 parallel to the front bar 11, the pivot of the arm 18 consisting of a suitable screw 20 engaged through the arm and the washer and in the bar 12 of the chair frame. The junction of the arms 16 and 18 of the plate 15 is broadened, and at the outer part of this junction the material of the plate is cut away for a distance from the front edge of the arm 16, to accommodate a latch bar, as will be described, this cut-away portion stopping at a horizontal edge or shoulder 22, and a notch or slot 23 being formed in the metal of the inner side of the cut-away part 21, this notch 23 extending horizontally so that its lower side forms a continuation of the shoulder 22. The mortised slot 13 in the side bar 12 is arranged at the same level as the shoulder and slot 23 when the leg 14 is moved to erect position, as in Figure 2, and the slot extends from immediately adjacent the bar 11 to a point rearwardly of the notch 23.

A latch or latch-bar 24 is provided, consisting of a flat sheet metal strip or bar which in practice would have a thickness of approximately one-sixteenth of an inch and a breadth of approximately one-half an inch, and a length sufficient to lie with its ends engaged in both of the slots 13 at respective sides of the chair seat frame freely for fore and aft movement, but movable longitudinally sufficiently to disengage at either slot. The cut-away portion of the upper corner of the plate 15 extends rearwardly so that the edge 25 formed at the right-hand side of the cut-away portion as viewed in Figures 2 and 3 will be spaced substantially more than one-half an inch from the inner or rear face of the bar 11 of the chair seat frame.

Secured against the inner face of the bar 11, there is a leaf spring 26, consisting of a quite long bar of flat spring metal, secured by a screw 27 adjacent each end to the face of the bar 11, its extremities beyond the screw 27 being bent rear-

wardly and slightly recurved, so as to bear yieldingly against the forward edge of the latch bar 24, which is disposed in a horizontal plane with its rear edge engaged in the notch 23 and so held by the spring 26. The spring 26 is of such thickness in relation to the extent of the cut-away portion at 21 that when the bar 24 is thrust forwardly, compressing the spring 26, it will clear the edge 25, being thus completely disengaged from the notch 23, so that the member 15 is free to swing downwardly as the chair legs 14 are swung rearwardly toward folded position.

It is an advantage of this construction that extreme nicety of proportion and placement of the parts in assembly is not required, and considerable latitude is permissible without impairing operation of the device. Also, various order of procedure in assembly of the parts of the chair seat frame and legs may be followed without liability of derangement of function of the parts. Thus, the plate 15 with attached leg 14 may be assembled on the side bar 12 before the chair seat frame is made up, and the slot 13 may then be made in coordination with the position of the leg 14 when in erected position, with respect to the bar 12; or, the slot 13 may be made in the side bar and the chair seat frame then assembled and the part 15 and leg assembled on the side bar 12 thereafter. The spring 26 may also be put in place before or after assembly of the chair seat frame. And due to the breadth of such a spring, as well as the nature of its function, the spring may be located further to the right or left than the ideal position, and may be located above or below the exact ideal position with respect to the bar 24 without impairing its function. The bar 24 is preferably put in place after assembly of the chair seat frame and other features described, which may be accomplished by bowing the part 24 sufficiently to allow its ends to be entered in the slots 13, after which its release will permit it to become extended again, so that it engages properly in the slots.

In the operation of the device, after the bar and spring have been put in place, and the legs 14 assembled upon the plate 15 and side bar 12, with the leg in folded or collapsed position, it may be secured in erected position by simply swinging it forwardly, the edge portion 25 engaging against the rear edge of the bar 24 and pressing it forwardly so as to collapse the spring 26 sufficiently to permit the bar 24 to pass toward the notch 23, and as soon as the leg 14 has reached full erect position, the notch 23 will be aligned with the bar 24 which will then be pressed into the notch by the action of the spring 26. For release of the leg, to permit its movement to folding position, it is only necessary for the operator to place his palm against the front side of the front bar 11 of the seat frame, extend his fingers upwardly and rearwardly of the bar 24, and then grip the bar 11 and the bar 24 tightly, which will press the bar 24 forwardly, clearing the notches 23 of the legs and permitting them to be moved to collapsed position by simply pressing the chair forwardly with the ends of the legs resting upon the floor.

The junction of the edge portion 25 with the top edge of the plate 15 is rounded, so as to facilitate the latch action of the device as described.

It will be appreciated that while I have shown and described a specific embodiment of the invention, various changes in arrangement and construction and proportion of parts may be made therein without departing from the spirit of the invention, as more particularly pointed out in the appended claims, wherein I claim:

1. In a folding chair construction, a chair seat frame including side bars and a front bar, horizontal guide slots formed on the side bars, a flat bar of spring material having its ends set in said slots slidably and having a width in a fore-and-aft direction less than the length of the slots, a spring on the front bar of said frame engaging said latch bar to hold it at the rear limit of its movement in said slots, and a leg pivot piece pivoted on each side bar a distance rearwardly of said slots and adapted to swing upwardly behind the front bar and beside said side bars, and being cut away at its forward upper part to receive the said latch bar downwardly therein a distance, and having a rearwardly extending notch extended from said cut away portion at a position to receive the rear edge of said latch bar therein when the respective leg pivot piece has been moved to erect position.

2. The structure of claim 1 in which said spring is a bar of spring strip extending over the major part of the width of the chair seat and having its ends bent rearwardly and rested against said latch bar, and having substantial width at its contacts with the latch bar, whereby to operate continuously on said latch bar.

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