Jan. 24, 1950 W. W. FORD 2,495,654

CHAIR BACK STRUCTURE

Filed Oct. 16, 1948

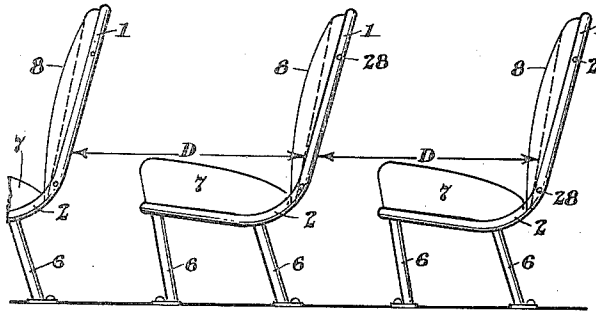


Fig. 1

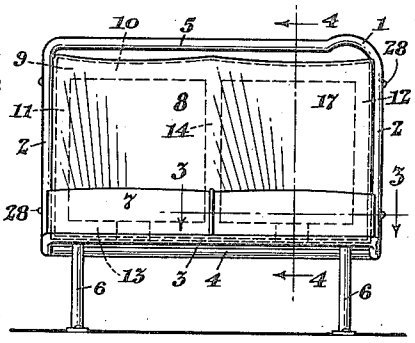


Fig. 2

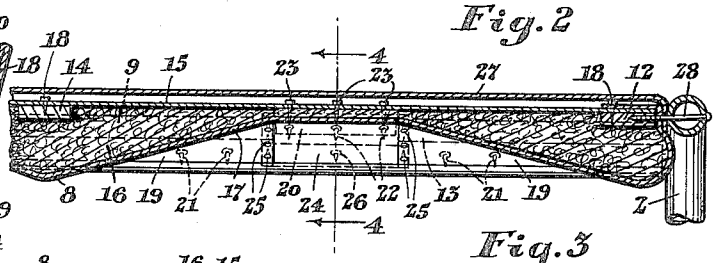


Fig. 3

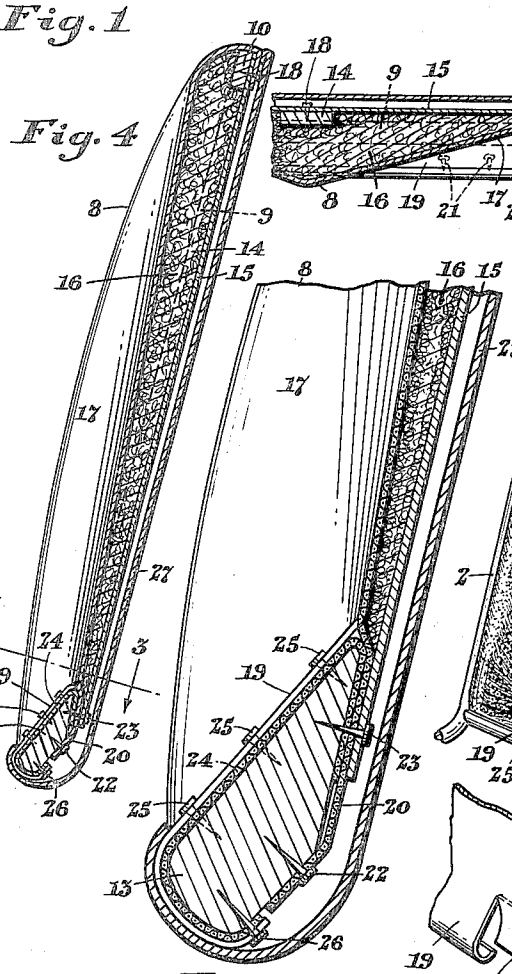


Fig. 4

Fig. 5

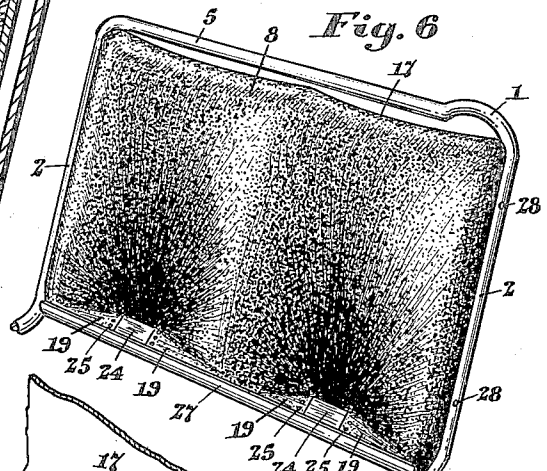


Fig. 6

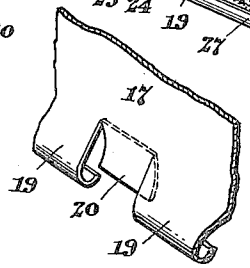


Fig. 7

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CHAIR BACK STRUCTURE

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Application October 16, 1948, Serial No. 54,871

6 Claims. (Cl. 155—184)

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The present invention relates to chairs and more particularly to chairs of the type installed in motorbusses, airplanes and other vehicles. This invention is in the nature of a modification of the invention disclosed in pending application Serial No. 14,058, filed March 10, 1948, by Alfred C. Hoven and Benjamin J. Oom, and by them assigned to my assignee.

The primary objects of the invention are to provide a simplified construction for reducing the thickness of an upholstered chair back in the lower middle region thereof thus to increase the distance between the front of the chair seat and the front surface of the chair back at knee level, and thus to permit installation of more chairs in a given space while at the same time maintaining a constant prescribed distance at knee level from the back surface of one chair back to the front surface of the back of the next chair to the rear; and to provide such an upholstered chair back construction which is neat in appearance, comfortable for one or more chair occupants, and reasonably economical in construction.

An illustrative embodiment of the invention is shown in the accompanying drawing, wherein:

Figure 1 is a side elevational view of three chairs, one thereof being shown fragmentarily, said chairs being installed one behind another as in a motorbus or the like;

Figure 2 is a front elevational view of a single chair adapted to accommodate two persons;

Figure 3 is an enlarged, fragmentary horizontal sectional view of the chair shown in Figure 2, taken on line 3—3 of said Figure 2;

Figure 4 is an enlarged vertical sectional view of the chair back per se taken on line 4—4 of Figure 2, and also as viewed from line 4—4 of Figure 3;

Figure 5 is a fragmentary vertical sectional view of the chair back showing parts at the lower portion of Figure 4 in further enlargement;

Figure 6 is a perspective view of the chair back per se; and

Figure 7 is a fragmentary perspective view of a lower marginal portion of the upholstery covering for the chair back.

Referring now in detail to this drawing wherein like parts are designated by the same numerals in the several views, the chairs there shown are each mounted upon a chair frame generally designated 1 fabricated of metal tubing cut, bent and welded to provide side supports 2 connected by a lower front rail 3, a lower rear cross-tie 4, an upper "grab" rail 5, and spaced pairs of supporting legs 6. An upholstered chair seat 7 is mounted

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on the lower portions of the side supports 2 and on the front rail 3 and cross-tie 4, and an upholstered chair back 8 is secured to the upper portions of the side supports 2.

The chair shown and described is primarily intended for installation in a motorbus of the intracity transit type, and it is the so-called transverse type of chair, i. e. adapted for installation between a side wall and center aisle of a bus transverse the direction of travel of the bus. Such chairs are customarily lined up one behind another from front to rear of the vehicle and it is desirable that as many such chairs be installed in the vehicle as space will permit. However, there are restrictions, in many places imposed by law, setting minimum distances between chairs. Such distance is customarily measured in the middle of an individual seat at knee level, from the back of one chair back to the front of the chair back to the rear thereof, as indicated by the dimension lines D in Figure 1. (The minimum permissible distance D may for example be 26½ inches.) It is desirable, therefore that the chair backs be made as thin as possible at knee level and at the same time be sufficiently padded in their upper regions to provide comfort for the occupants.

According to the present invention the chair back 8 shown is built upon a back frame generally designated 9 and comprising a top rail 10, side rails 11, 12, a bottom rail 13, and a center stile 14 dividing the frame into two substantially rectangular parts each having an opening therethrough extending near the lower edge of the frame. As best seen in Figures 4 and 5 the bottom rail 13 extends forwardly beyond the front surfaces of the side rails 11, 12 and has its front surface inclined rearwardly-upwardly.

A closure panel 15 of cardboard or other suitable material is disposed adjacent the rear surface of the back frame 9 and serves as a closure for both of the openings through the frame 9. Padding 16 of cotton or other suitable upholstering material is disposed over the front surface of the panel 15 and frame 9. An upholstery covering 17 of leather or the like is disposed over the padding 16, and the top and side marginal edges of the covering 17 are drawn rearwardly around the top rail 10 and side rails 11, 12 of the frame 9 and are secured to the frame as by means of tacks or nails 18 which also secure the top and side borders of the cardboard panel 15 to the frame.

The bottom marginal edge of the upholstery covering 17 is divided by spaced vertical slits in such a manner that the halves of the covering

which overlie the respective rectangular halves of the frame 9 are each provided with side flaps 19 and middle flaps 20 (see Figure 7). The side flaps 19 are drawn rearwardly around the padding 16 and bottom rail 13 of the frame and are secured as by tacks or nails 21 (see Figure 3) to the rear surface of the frame in a similar manner as the top and side marginal edges of the upholstery covering. The middle flaps 20 of the bottom marginal edge of the upholstery covering, instead of being passed around the front of the bottom rail, are drawn taut and secured directly to the rear of the bottom rail 13 as by tacks or nails 22, thus compressing the padding 16 in the spaced apart lower middle regions of the two halves of the back and reducing the thickness of each half of the back in its lower middle region, while the upper portions of the back retain their original thickness for the increased comfort of the chair occupants. It will be seen that the middle flaps 20 pass downwardly between the bottom rail 13 and the cardboard panel 15, and tacks or nails 23 may be provided for additionally securing both the flaps 20 and the cardboard panel 15 to the bottom rail 13.

If desired, and as shown in Figures 3, 4 and 5, a fragment of upholstery covering 24 may be disposed around the bottom rail 13 adjacent each middle flap 20, for concealing the parts of the bottom rail 13 which would otherwise be exposed by drawing the middle flaps 20 directly to the rear of the bottom rail. Such fragments 24 of upholstery material are shown secured to the front of the bottom rail 13 by means of tacks or nails 25 which also pass through the inner edges of the side flaps 19 thus giving a neatly tailored appearance to the bottom of the chair back, and the ends of the fragments 24 are secured to the rear of the bottom rail 13 by tacks or nails 26 and by the tacks or nails 23 which also secure the middle flaps 20 and the cardboard panel 15 to said bottom rail 13.

An ornamental panel 27 of polished or enameled sheet metal or the like is applied to the rear and bottom of the chair back, and the chair back is mounted on the chair frame 1 as by means of screws 28 passing through apertures in the side supports 2 of the chair frame and threaded in the back frame 9. The screws 28 may also pass through apertures in the ornamental panel 27 to thus secure this panel to the back frame 9.

If desired the back frame 9 may comprise a unitary sheet of plywood or the like provided with openings therethrough near the lower edge thereof, through which openings would pass rearwardly and downwardly the middle flaps 20 of the upholstery covering's bottom marginal edge. Said openings would thus correspond functionally to the openings defined by the top, side and bottom rails and center stiles of the back frame, illustrated in the drawing.

It will readily be seen that the invention provides for a reduction in the thickness of a chair back at knee level, and it will frequently be found that the cumulative reduction in a row of such chairs will permit the inclusion of an additional chair in the prescribed space within a vehicle. The invention has been illustrated in connection with a two-passenger chair, but it will readily be seen that the invention is equally applicable to an individual chair having a single substantially rectangular back frame or to an elongated chair having its back frame divided so as to define chairs for two or more persons.

While but one specific embodiment of the invention has been illustrated, it will be understood that numerous details may be altered or omitted without departing from the spirit of the invention as the same is defined by the following claims.

I claim:

1. In a chair back, a substantially rectangular frame having an opening therethrough near its lower edge, padding disposed over the front surface of the frame, an upholstery covering disposed over the padding and having its top and side marginal edges drawn rearwardly around the top and side edges of the frame and secured to the rear of the frame, and the bottom marginal edge of the upholstery covering having at least a portion thereof drawn taut rearwardly through the frame's opening and secured to the rear surface of the frame for reducing the thickness of the back in its lower region, and a closure panel secured to the rear surface of the frame and closing the opening therethrough.

2. In a chair back, a substantially rectangular frame having an opening therethrough near the middle of its lower edge, padding disposed over the front surface of the frame, an upholstery covering disposed over the padding and having its top and side marginal edges drawn rearwardly around the top and side edges of the frame and secured to the rear of the frame, the bottom marginal edge of said upholstery covering being divided by spaced vertical slits into side flaps and a middle flap, said side flaps being drawn rearwardly around the lower edge of the frame and secured to the rear of the frame, and said middle flap being drawn taut rearwardly through the frame's opening and secured to the rear surface of the frame for reducing the thickness of the back in its lower middle region, and a closure panel secured to the rear surface of the frame and closing the opening therethrough.

3. In a chair back, a substantially rectangular frame having a top rail, side rails and a bottom rail, a back panel secured to the rear surface of the frame, padding disposed over the front surfaces of the back panel and the frame, an upholstery covering disposed over the padding and having its top and side marginal edges drawn rearwardly around the top and side rails of the frame and secured to the rear of the frame, and the bottom marginal edge of the upholstery covering having at least a portion thereof drawn taut between the frame and the back panel and secured directly to the rear of the bottom rail for reducing the thickness of the back in its lower region.

4. In a chair back, a substantially rectangular frame having a top rail, side rails and a bottom rail, a back panel secured to the rear surface of the frame, padding disposed over the front surfaces of the back panel and the frame, an upholstery covering disposed over the padding and having its top and side marginal edges drawn rearwardly around the top and side rails of the frame and secured to the rear of the frame, and the bottom marginal edge of the upholstery covering being divided by spaced vertical slits into side flaps and a middle flap, said side flaps being drawn rearwardly around the bottom rail of the frame and secured to the rear of said bottom rail, and said middle flap being drawn taut between the frame and the back panel and secured directly to the rear of the bottom rail for reducing the thickness of the back in its lower middle region.

5. In a chair back, a substantially rectangular frame having a top rail, side rails, and a bottom rail extending forwardly beyond the front surfaces of the side rails and having its front surface inclined rearwardly-upwardly, a back panel secured to the rear surface of the frame, padding disposed over the front surfaces of the back panel and the frame, an upholstery covering disposed over the padding and having its top and side marginal edges drawn rearwardly around the top and side rails of the frame and secured to the rear of the frame, and the bottom marginal edge of the upholstery covering being divided by spaced vertical slits into side flaps and a middle flap, said side flaps being drawn rearwardly around the padding and the bottom rail of the frame and secured to the rear of said bottom rail, and said middle flap being drawn taut between the frame and the back panel and secured directly to the rear of the bottom rail for compressing the padding and reducing the thickness of the back in its lower middle region.

6. A chair back for a vehicle chair for two

passengers, comprising: a substantially rectangular two-part frame comprising a top rail, side rail, a bottom rail, and a center stile dividing the frame in two parts; a single sheet back panel secured to the rear surface of the frame; padding disposed over the front surfaces of the back panel and the frame; a single upholstery covering disposed over the padding and having its top and side marginal edges drawn rearwardly around the top and side rails of the frame and secured to the rear of the frame; and the bottom marginal edge of the upholstery covering being divided by spaced vertical slits into side flaps and a middle flap for each of the frame's two parts, said side flaps being drawn rearwardly around the bottom rail of the frame and secured to the rear of said bottom rail, and said middle flaps being drawn taut and secured directly to the rear of the bottom rail for reducing the thickness of the back in spaced apart portions of its lower region.

WAYNE W. FORD.

No references cited.