May 15, 1951 A. C. HOVEN ET AL 2,553,042

CHAIR

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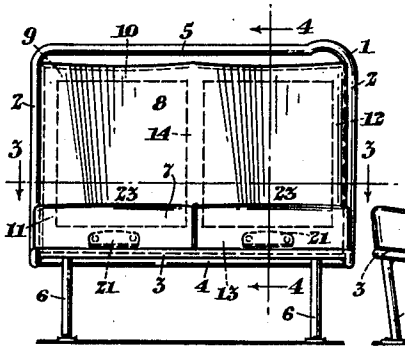


Fig. 1

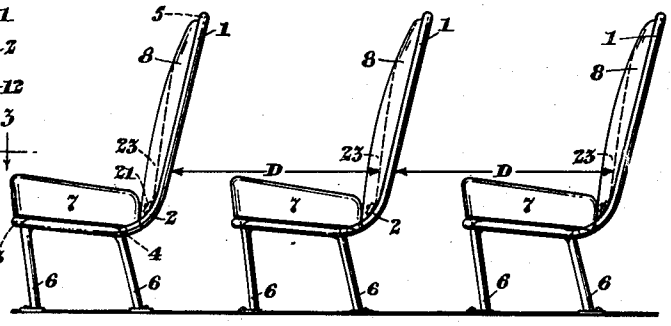


Fig. 2

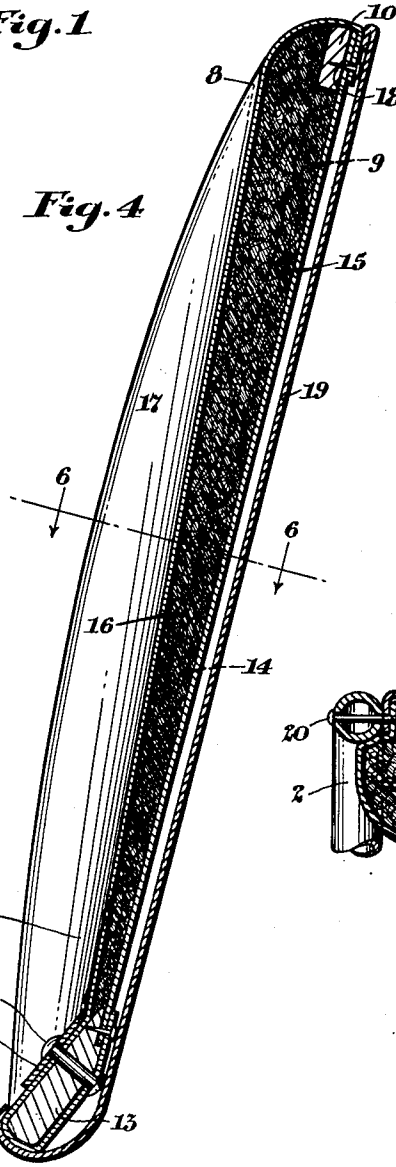


Fig. 4

Fig. 3

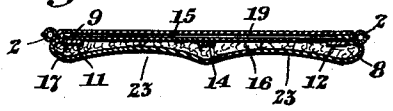
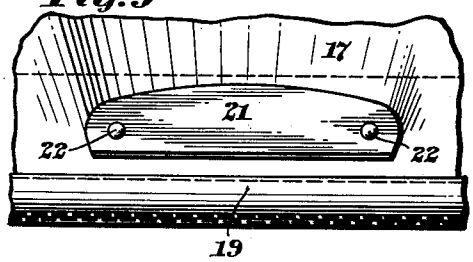


Fig. 5



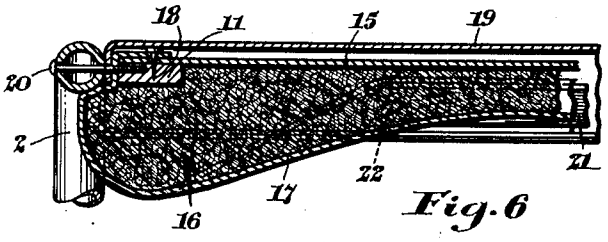


Fig. 6

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CHAIR

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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.

The primary objects of the invention are to provide an upholstered chair back the lower middle region of which is reduced in thickness 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 upholstered chair backs which are neat in appearance, comfortable for one or more chair occupants and reasonably economical in manufacture.

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

Figure 1 is a front elevational view of a vehicle chair for two passengers, particularly adapted for installation in a motorbus or the like;

Figure 2 is a side elevational view of three chairs of the type shown in Figure 1, the chairs being placed one behind another from front to rear in a motorbus or the like;

Figure 3 is a horizontal sectional view through the chair back, taken on line 3—3 of Figure 1;

Figure 4 is an enlarged vertical sectional view of the chair back taken on line 4—4 of Figure 1;

Figure 5 is a fragmentary front elevational view of the lower middle region of one half of the chair back; and

Figure 6 is a fragmentary, horizontal sectional view of the chair back and the chair supporting frame, taken on line 6—6 of Figure 4.

Referring now in detail to this drawing the two-passenger or double chair there shown is 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 double chair seat 7 is mounted on the lower portions of the side supports 2 and the front rail 3 and cross-tie 4, and an upholstered double 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.

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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 2. (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 double chair back 8 shown is built upon a double back frame generally designated 9, which may comprise a single sheet of plywood or the like but which preferably comprises a top rail 10, side rails 11, 12, a bottom rail 13, and a center stile 14 dividing the double back frame into two substantially rectangular single back frames. As best seen in Figure 4 the bottom rail 13 is inclined rearwardly and upwardly relative to the other parts of the back frames.

A panel 15 of cardboard or other suitable material is disposed adjacent the rear surface of the double back frame 9 and 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 marginal edges of the covering 17 are drawn rearwardly around the edges of the frame and secured to the frame as by means of tacks or nails 18 which also secure the borders of the cardboard panel 15 to the frame. An ornamental panel 19 of polished or enameled sheet metal or the like is applied to the rear of the double chair back, and the double chair back 8 is mounted on the chair frame 1 as by means of screws 20 (see Figure 6) passing through apertures in the side supports 2 of the chair frame and threaded in the back frame 9. The screws 20 may also pass through apertures in the ornamental panel 19 to thus secure this panel to the back frame 9.

In order to reduce the thickness of the back in the lower middle region of each single passenger chair, we provide a plate 21 of sheet metal or the like, secured as by rivets 22 to the bottom rail 13 of each of the single back frames, with

the upholstery covering 17 between the plate 21 and the bottom rail 13 of the frame. This plate 21 presses the upholstery covering 17 rearwardly thus further compressing the padding 16 in this lower middle region of the individual back and reducing the thickness thereof, while the upper and side portions of the back retain their original thickness for the increased comfort of the chair occupant.

The upper edge of the plate 21 is rounded so that there are no sharp creases or folds in the upholstery covering 16. It will be seen that when two plates 21 are employed in a two passenger chair as shown in Figures 1 and 3, the spaced pockets 23 formed by the plates 21 are separated by a raised central portion of the back which defines two spaces for occupancy by two individuals, and which also provides for added comfort. (See Figure 3.)

Although the drawing shows the invention applied only to a two-passenger or double chair, it is manifestly applicable to chairs designed for more than two occupants, and also to one-passenger or single chairs. In the latter case, the marginal edges of the upholstery covering are drawn rearwardly around and secured to a substantially rectangular back frame of approximately one-half the length of the double back frame shown, and the plate 21 which is shorter than the frame is attached to the bottom rail in the middle thereof, thus to further compress the padding in the lower middle region of the chair back and reduce the thickness thereof while the upper and side portions of the back retain their original thickness.

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 a prescribed space within a vehicle.

While but one specific embodiment of the invention has been herein shown and described, 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.

We claim:

1. A chair back for a vehicle chair for two passengers, comprising: a substantially rectangular two-part frame comprising a top rail, side rails, 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 surface of the back panel and the frame; a single upholstery covering disposed over the padding and having its marginal edges drawn rearwardly around the frame and secured to the rear thereof; and a pair of plates secured to the front surface of the bottom rail of the frame in the approximate middles of the frame's two parts and with the upholstery covering between the plates and the rail, said plates securing the lower portion of the upholstery covering in rearwardly depressed pockets to reduce the thickness of the back in spaced apart portions of its lower region.

2. In a chair back, a substantially rectangular frame, a back panel secured to the frame, padding disposed over the front surface of the back panel, an upholstery covering disposed over the padding and having its marginal edges drawn rearwardly around the edges of the frame and secured to the frame thus to cover and compress the padding, and a plate secured to the medial portion of the front surface of the bottom of the frame with the upholstery covering between the plate and the frame, said plate being shorter than the frame and securing the lower middle portion of the upholstery covering in rearwardly pressed position thus to further compress the padding in the lower middle region of the back and reduce the thickness of the back in said region.

3. In a chair back, a substantially rectangular frame, a back panel secured to the frame, padding disposed over the front surface of the back panel, an upholstery covering disposed over the padding and having its marginal edges drawn rearwardly around the edges of the frame and secured to the frame thus to cover and compress the padding, and a plate secured to the medial portion of the front surface of the bottom of the frame with the upholstery covering between the plate and the frame, said plate being shorter than the frame and having a rounded upper edge securing the lower middle portion of the upholstery covering in rearwardly pressed position thus to further compress the padding in the lower middle region of the back and reduce the thickness of the back in said region.

4. In a chair back, a substantially rectangular frame comprising a top rail, side rails, and a bottom rail the front surface of which is inclined rearwardly-upwardly, a back panel secured to the frame, padding disposed over the front surface of the back panel, an upholstery covering disposed over the padding and having its marginal edges drawn rearwardly around the edges of the frame and secured to the frame thus to cover and compress the padding, and a plate secured to the medial portion of the front surface of the bottom rail of the frame with the upholstery covering between the plate and the frame, said plate being shorter than the frame and securing the lower middle portion of the upholstery covering in rearwardly pressed position thus to further compress the padding in the lower middle region of the back and reduce the thickness of the back in said region.

5. In a chair back, a substantially rectangular frame comprising a top rail, side rails, and a bottom rail the front surface of which is inclined rearwardly-upwardly, a back panel secured to the frame, padding disposed over the front surface of the back panel, an upholstery covering disposed over the padding and having its marginal edges drawn rearwardly around the edges of the frame and secured to the frame thus to cover and compress the padding, and a plate secured to the medial portion of the front surface of the bottom rail of the frame with the upholstery covering between the plate and the frame, said plate being shorter than the frame and having a rounded upper edge securing the lower middle portion of the upholstery covering in rearwardly pressed position thus to further compress the padding in the lower middle region of the back and reduce the thickness of the back in said region.

6. A row of chairs arranged in a vehicle or the like in forwardly-facing, front to rear alignment, each chair having a seat and an upholstered chair back, the upholstery of each back being maintained at substantially normal thickness at the lower sides of the back while being substantially reduced in thickness in the lower middle region of said back in order to reduce the overall length of said row of chairs without increasing

the distance from the lower middle back of one chair back to the lower middle front of the next chain back to the rear, measured at substantially the knee-level of the chair.

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