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VEHICLE CHAIR

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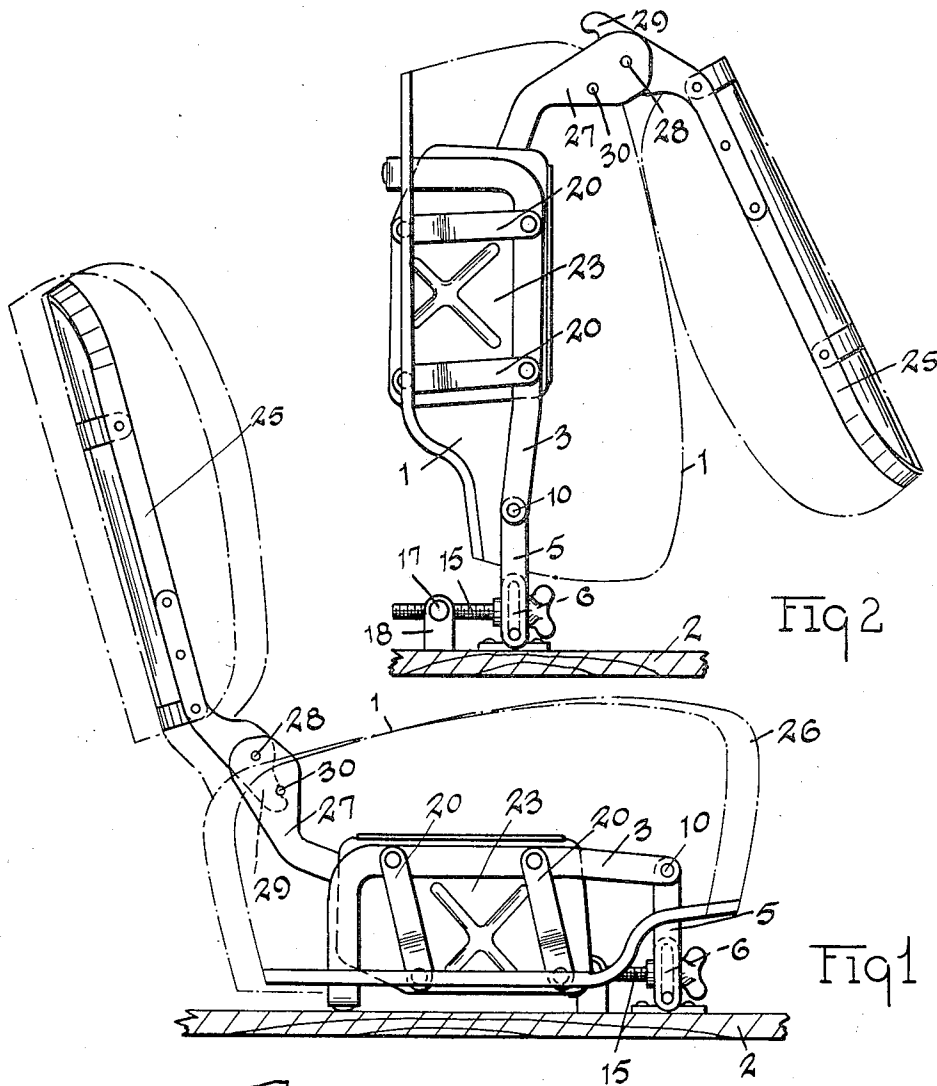
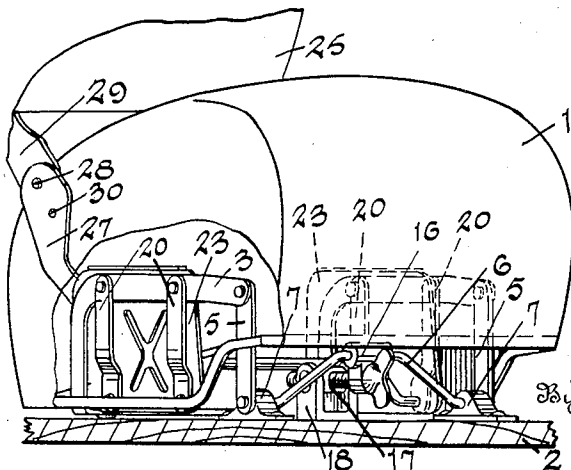


Fig 3

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UNITED STATES PATENT OFFICE

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VEHICLE CHAIR

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1 Claim. (Cl. 155—9)

Our invention has for its object to provide an efficient shock absorbing tiltable chair. The invention particularly relates to the provision of means for absorbing shocks such as is found where the chair is used in vehicles. The chair is also so constructed that it may be readily tilted forward and back for the purpose of economizing space when the chair is not in use. Provision is also made whereby the location of the chair may be adjusted with reference to other objects, such as the steering wheels in automobiles.

The invention is of particular value when used in connection with automobiles, since it provides an efficient means for absorbing the shocks due to changes in speed which occurs when the automobile strikes protuberances in the road, the vertical shocks being absorbed by the springs of the chair as well as by the springs of the automobile. Also, the construction not only absorbs the shocks in automobile driving, but is tiltable forward to enable the passengers to move quite freely within the confines of an automobile body and, further, it may be readily adjusted with reference to other chairs or seats or to the steering wheel of an automobile. The invention, however, may be embodied in chairs used for a variety of purposes.

The invention embodies other features and advantages which appear from the following description and upon examination of the drawing. Structures containing the invention may partake of different forms and may be varied in their details and embody the invention. To illustrate a practical application of the invention, we have selected a vehicle chair as an example of the various chairs and various details thereof that contain the invention, and shall describe the selected structure hereinafter, it being understood that variations may be made and that certain features of our invention may be used to advantage without the corresponding use of other features and without departing from the spirit of the invention. The particular structure selected is shown in the accompanying drawing.

Fig. 1 is a side view of the supporting structure of the chair when the chair is in one position. Fig. 2 is a side view of the chair when the chair is folded and when it is tilted so as to locate the seat and the back in substantially upright positions. Fig. 3 is a perspective view, illustrating the duplication of the supporting parts of the structure.

The chair, selected as an example of embodiments of our invention and shown in the drawing, is supported in such a manner that forward

and backward movements are permitted relative to the floor on which the chair is located, but such movements will be yieldingly resisted by the weight of the chair or by the weight of the person and the chair when someone is seated in the chair. By reason of the yieldingly resisted movement of the chair, all shocks, caused by the change in the movement of the support of the chair, will be absorbed. The body of the chair is suspended on links which swing forward or rearward and, in either case, raise the chair upward. The upward movement is resisted by the weight on the links which absorb the shock of the change of movement of the floor, or other support, on which the chair may be located, such as on the floor of an automobile.

As shown in the drawing, the chair 1 is supported on a floor 2. The chair 1 has a frame 3 formed of a bent bar that rests upon the floor 2. Where the chair is used in a vehicle it is, preferably, adjustably and pivotally supported on the floor to enable adjustment of the chair with reference to other parts of the vehicle and also enable forward tilting movements of the chair to give more room at the rear of the chair. The bent bar that forms the frame 3 extends from one side of the chair to the other side, it being provided with portions that extend substantially horizontally along midpoints of the sides of the chair and portions that extend vertical to the floor 2, and a portion that extends transversely along the floor 2 underneath the chair and thus integrally interconnects the side portions of the frame 3. The transversely extending part rests on the floor and may be lifted from the floor or adjusted along the floor.

The ends of the bar that forms the frame 3 are pivotally connected to the arms 5 which form parts of the bell crank lever for adjusting the chair with reference to the floor 2. The bell crank lever comprises a bent rod 6 that is supported, for oscillatory movements, in brackets 7 that are secured to the floor 2. The forward end of the frame 3 is supported by the arms 5 and the rod 6. The arms 5 are of a sufficient length and are so connected to the frame 3 that the chair may be swung on the pivot pins 10 that interconnect the ends of the frame 3 and the arms 5 and so that the seat of the chair may be placed in an upright position, substantially as shown in Fig. 2. This may be done notwithstanding any adjustment in the position of the chair. The rod 6, as illustrated in Fig. 3, is bent substantially V-shape to form laterally inclined leg portions. The ends of the

rod 6 are connected to the arms 5 and are pivotally supported in the brackets 7.

To adjust the chair with respect to the floor, the rod 6 is angularly moved by means of the screw 15, that is, rotatably supported in a stirrup 16 which is connected to the bent rod 6 at a point where the rod 6 is located remote from its axis of rotation in the bracket 7. The screw 15 extends through a nut or threaded block 17 which is rotatably supported in a bracket 18 that is also secured to the floor. The stirrup 16 is so connected to the screw 15 that, while the screw 15 may be rotated in the stirrup 16, longitudinal movements of the stirrup along the screw is prevented. Consequently, the screw 15, when rotated, operates on the bent rod 6 to swing the arms 5 and shift the chair, together with its shock absorbing means, along the floor, the arms 5 also forming a rigid, though adjustable, tilting supporting means.

The chair is supported for absorbing shocks transmitted, through the supporting floor, by means of the links 20, which depend from the horizontally disposed portions of the frame 3 that extend along midpoints of the sides of the chair bottom. Consequently, the chair 1 may oscillate back and forth without tilting the chair body with respect to the floor. The links 20 have a length sufficient to absorb the shock of a change in movement in the body of the vehicle. The shock produced by sudden vertical movements of the body of the vehicle are ordinarily absorbed by the springs of the vehicle and the upholstering springs of the chair, but the forward and backward movements, due to the spring suspension, produces a tiring effect on passengers unless these latter movements are also absorbed. The quick change in speed caused by the vehicles striking objects in the road causes in effect quick variations in movement or speed of the car body, and in effect back and forward movements of the car floor, relative to the body of the chair. This is due to the inertia of the chair. The links 20 permit such forward and backward relative movements of the floor and cause swinging return movements of the chair relative to the floor subsequent to each of such forward and backward relative movements of the floor. Such swinging movement of the chair is yieldingly resisted by the weight of the individual and, consequently, the shocks that induce such forward and backward movements, are absorbed. The lower ends of the

links 20 are connected to the lower edge of the bottom of the chair. The chair may be provided with side plates 23 which are connected to the body of the chair. Preferably, the links 20 are of the same length and freely swing below the horizontal side portions of the frame 3 which is supported by the adjustable arm 5 and by the vertically disposed portions of the frame. Thus the back and seat will be supported to absorb all shocks that would tire the user of the chair.

The back 25 is suitably connected to the seat 26 by means of a pair of jointed arms 27 which are connected to opposite sides of each of the back 25 and the seat 26. The joints of the arms 27 are, preferably, knife blade joints, the joints being provided with pivot pins 28 and limiting stops 29 and 30 formed, in each case, one on the part of the joint that is connected to the back, and the other on the part of the joint that is connected to the seat. In the particular form shown, one of the parts of the joint has a finger 29 and the other part of the joint has a pin 30 that engages the finger 29 to limit the angular rearward movement of the back 25 about the pivot pin 28. The back 25, however, may be tilted forward onto the seat 26 to fold the chair. Then, if desired, the back and seat may be tilted forward with respect to the floor to support the back and seat in substantially vertical positions, as illustrated in Fig. 2. Thus, the chair may be moved bodily forward by the swinging movements that may be induced about the ends of the arms 5 which are secured in their adjusted positions by the screw 15, and the back may be folded down on the seat to reduce the floor space occupied by the chair.

We claim:

In a vehicle chair, a frame comprising a bar, the bar having parts located on opposite sides of the bottom of the chair and a part extending crosswise beneath the bottom of the chair and supported on the vehicle, arms connected to the vehicle and pivotally connected to the ends of the bar for pivotally supporting the ends of the bar and for pivotal movements of the body of the chair, two pairs of links connected to the said parts of the bar located at the sides of the bottom of the chair, and to the chair bottom at a point below the parts of the bar to which the links are connected for oscillatable movements of the body of the chair.

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