

Nov. 2, 1937.

B. H. DRAKE

2,097,618

CHAIR

Filed Feb. 21, 1936

2 Sheets-Sheet 1

Fig. 1

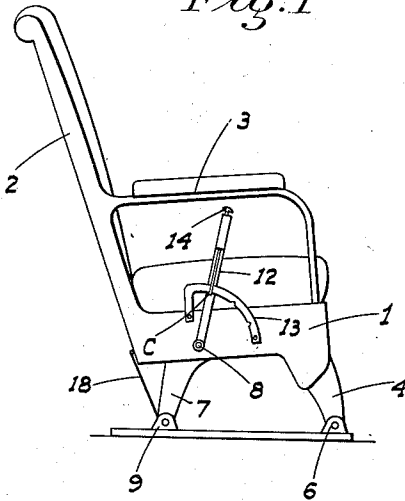


Fig. 2

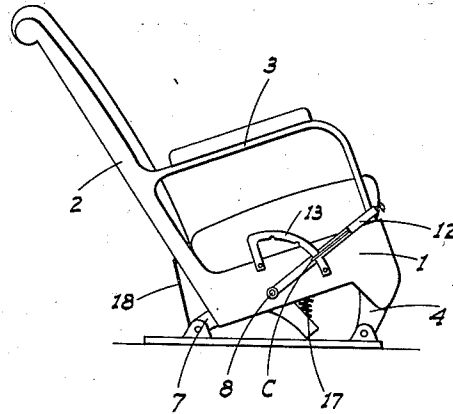
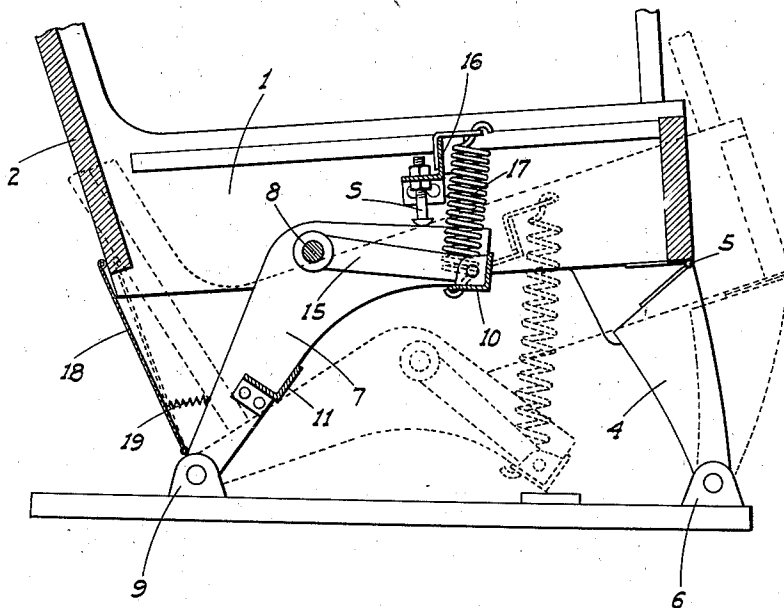


Fig. 3



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Fig. 4

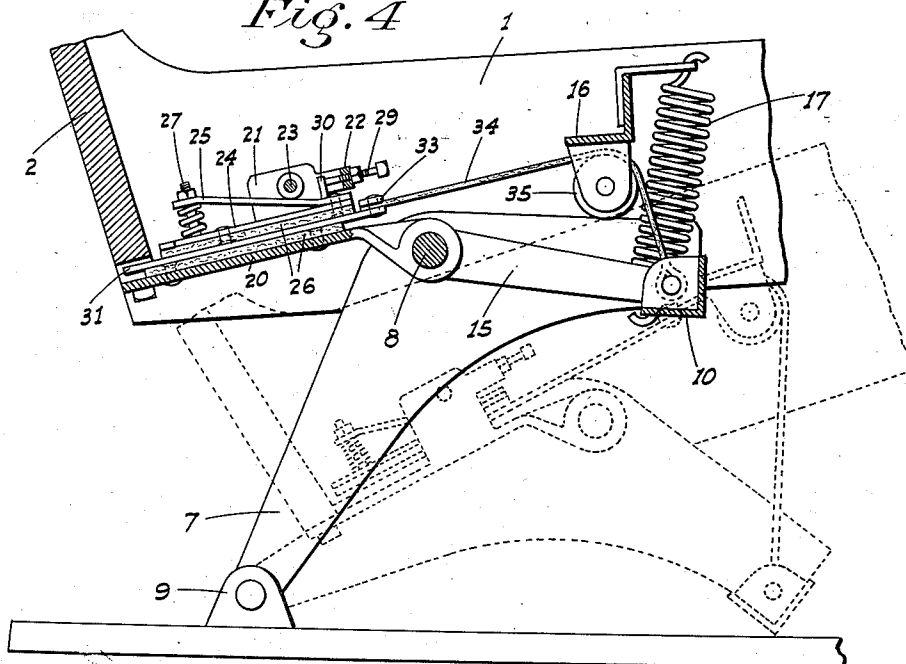
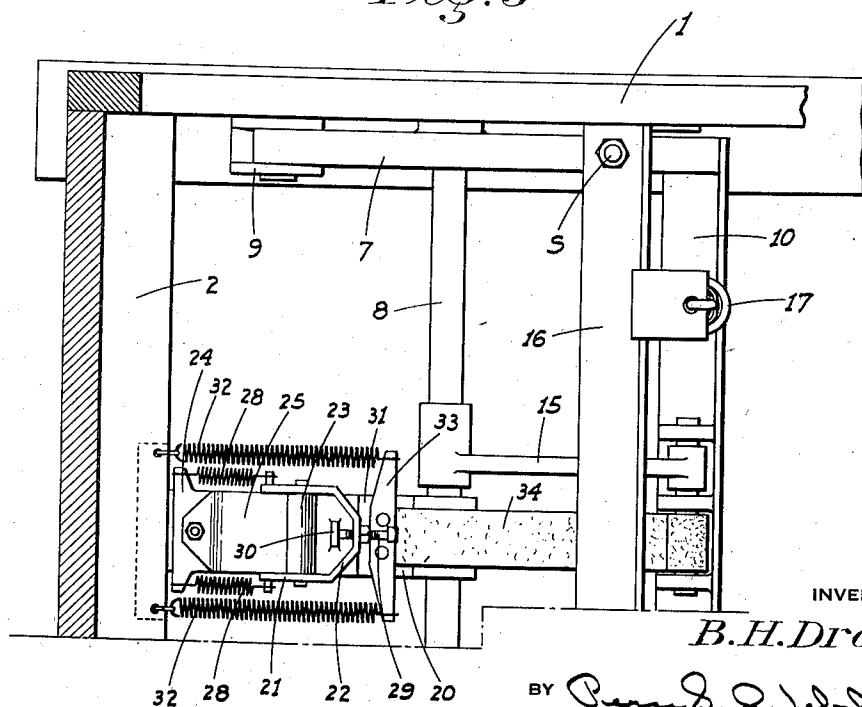


Fig. 5



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2,097,618

CHAIR

Benjamin H. Drake, Stockton, Calif.

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4 Claims. (Cl. 155—116)

This invention relates generally to chairs and is directed particularly to a chair designed for transportation purposes such as in railroad cars, motor buses, and airplanes.

Although the present chair is for transportation use, it is an improvement over and embodies the advantages of the chair illustrated in my recently issued U. S. Patent #2,015,138.

A transportation chair to be practical from a commercial standpoint must be simple and compact in construction, relatively light in weight and if of the selectively reclining type, the chair must be simple of operation from an upright position to a reclining position and vice-versa.

It is therefore the principal object of my invention to provide a transportation chair of the selectively reclining type which is simple in construction, compact, relatively light in weight and which may be easily adjusted from one position to another by a person sitting in the chair.

An additional object of my invention is to provide a transportation chair of the selectively reclining type whose back, when moved to its reclining position, will not materially recede, and therefore, does not inconvenience an occupant in another chair immediately to the rear.

It is also my object to provide an automatic snubber device in connection with the chair in order to prevent the chair from assuming its reclining position too rapidly or with a jar when an exceedingly heavy person is the occupant.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Fig. 1 is a side elevation of my improved chair in an upright position.

Fig. 2 is a similar view, but with the chair in a reclining position.

Fig. 3 is a fragmentary vertical section of the chair, the full lines illustrating the same in upright position and the dotted lines illustrating its reclining position.

Fig. 4 is a fragmentary vertical section of the chair, illustrating in the elevation the snubber as mounted thereon.

Fig. 5 is a plan view of the snubber as mounted on the chair.

Referring now more particularly to the char-

acters of reference on the drawings, and especially to Figures 1-3 inclusive, my improved chair comprises a seat frame 1, having a rigid back 2 upstanding therefrom. Arm rests 3, of usual configuration, extend from the seat frame to the back on each side of the chair.

Spaced front legs 4 are hinged at their upper ends as at 5 to the front portion of the seat frame and are pivoted at their lower ends to brackets 6 secured to the floor or other base beneath the chair. Skirts depend from the seat frame outwardly of the front legs to obscure the hinged portions thereof from view.

The rear portion of the seat frame is supported on spaced legs 7, in the form of a bell crank. A cross shaft 8 extends through the legs intermediate the ends thereof and is journaled in and extends between the sides of the seat frame. The lower ends of these legs 7 are pivoted to brackets 9 secured to the floor. Front and rear cross members 10 and 11 respectively extend between the legs as shown and maintain the same in proper relation to each other.

On one side of the chair, the shaft 8 is extended through the seat frame and is secured to an exteriorly disposed operating lever 12. A notched quadrant 13 is mounted on the seat frame adjacent the lever and serves to lock the lever in any desired position. Catch means C operable from a button 14 at the end of the lever 12, selectively locks the lever to the quadrant.

An arm 15 is rigidly secured to the shaft 8 intermediate its ends and extends forwardly to a pivotal connection with the front cross member 10.

A cross bar 16 is secured to and extends between the sides of the seat frame above the forward ends of the rear legs 7. A pair of tension springs 17 are secured between the cross member 10 and cross bar 16 on both sides of the arm 15. Adjustable stops S are mounted on the cross bar 16 immediately above the forward end of each leg 7 and limit the upward movement thereof caused by the pull of springs 17.

A shield 18 extends the full width of the chair and is pivoted at its lower edge to the lower portion of legs 7; the upper edge of the shield being rounded and frictionally engaging the back of the chair. Springs 19 serve to maintain the shield against the back of the chair.

Operation

In use, the occupant of the chair may easily adjust the chair from an upright position to a reclining position by merely grasping the lever 12,

releasing the catch means from the quadrant 13 by depressing button 14 on top of the lever and then pushing forward on the lever. This causes arm 15 to press the cross member 10 downward carrying with it the forward ends of the rear legs 7.

As the legs, which are of bell crank shape, descend, the shaft 8 is not only carried downward but also moves forward relative to its position when the chair is in an upright position. This is due to the fact that the outer ends of legs 7 are pivoted at 9 and cannot move relative to the floor as do the rear legs of the chair shown in my U. S. Patent #2,015,138.

With the downward and forward movement of the shaft 8, the rear portion of the seat frame is drawn down while at the same time said seat frame is moved forward. With the forward movement of the seat frame, the front legs, hinged to the seat frame as at 5, swing forward about their pivots 6 but maintain the front edge of the chair at substantially the same level as when the chair is in an upright position.

The chair thus assumes the full reclining position indicated in dotted lines in Figure 3. Of course, the chair may be locked in any one of several reclining positions, by locking the lever to the quadrant by the catch means at the desired position.

To return the chair to an upright position from a reclining position, the procedure is merely the reverse of that above described. In either instance the springs 17 tend to counterbalance the weight of the person in the chair and make for ease of operation.

If desired, I may also provide my chair with the snubber illustrated in Figures 4 and 5 and which snubber is constructed in the following manner.

A supporting base 20 is journaled at one end on shaft 8 and is rigidly secured at its other end to the back portion of the seat frame. This base 20 is formed intermediate its ends with upstanding side frames 21 and a front cross yoke 22 extending between the frames above the upper face of the base 20. A roller 23 is journaled between the side frames 21.

A wedge-like shoe, having a flat lower plate 24 and a forwardly sloping upper plate 25, projects between the roller 23 and upper face of the base 20. The adjacent faces of plate 24 and the base 20 are faced as at 26 with frictional material such as woven or moulded material as now commonly used for brake lining. The angle of the forwardly sloping plate is adjustable; an adjusting nut 27 being provided for this purpose.

Tension springs 28 secured between the side frames 21 and the rear end of the shoe urge the shoe forward beneath the roller 23. The amount of forward movement of the shoe may, however, be adjustably restricted by an adjustment bolt 29 threaded through the yoke 22 and engaging against a stop element 30 turned up from the upper shoe plate 25.

A flat metal tongue 31 is slidably interposed between the friction faces 26; said tongue being normally held in retracted position between said faces by means of tension springs 32 extending from the ends of a cross finger 33, on the forward end of the tongue, to the rear portion of the seat frame.

A flexible strap 34 is secured at one end to the forward end of the tongue, extends over a roller 35 mounted on the cross bar 16, and then is fastened by any suitable means to the cross mem-

ber 10 which extends between the inner ends of the rear legs 7 of the chair.

In use, the snubber functions as follows: The bolt 29 is adjusted so that the shoe, drawn forward by springs 28, and wedging beneath roller 23 will exert the desired amount of frictional pressure on the tongue between the two friction faces. When so adjusted, the chair cannot drop back to the reclining position too rapidly due to the fact that as the inner ends of the legs 7 are lowered, the strap 34 must draw the tongue 31 out a certain distance from between the friction faces 26. This retarding or snubbing effect may be adjusted to any desired degree by bolt 29 which limits the wedging effect of the shoe.

When the chair is returned to an upright position springs 32, being stronger than springs 28, draw the tongue back to a retracted position.

Although the snubber is not vitally essential to the operation of my chair—the springs 17 normally counterbalancing the occupant's weight—in some instances, as when a very heavy person occupies the chair, it is advantageous to use the snubber to prevent too rapid a movement and jarring of the chair when the same is adjusted from an upright to a reclining position.

Also if desired, the snubber may be mounted on a chair of the type shown in my U. S. Patent #2,015,138.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

Having thus described my invention, what I claim as new and useful and desire to secure by Letters Patent is:

1. A chair including a seat frame, spaced front legs pivoted at their upper ends to the forward portion of the seat frame and pivoted at their lower ends to the floor, a shaft extending from one side of the seat frame through the other side thereof intermediate the front and back of the frame, spaced rear legs of bell crank shape journaled intermediate their ends on the shaft and pivoted at their lower ends to the floor, a cross member extending between the forward end of the rear legs, a radial arm rigidly secured to the shaft between the legs, said arm being pivoted at its other end to the cross member and a lever secured to the projecting end of the shaft.

2. A chair including a seat frame, spaced front legs pivoted at their upper ends to the forward portion of the seat frame and pivoted at their lower ends to the floor, a shaft extending from one side of the seat frame through the other side thereof intermediate the front and back of the frame, spaced rear legs of bell crank shape journaled intermediate their ends on the shaft and pivoted at their lower ends to the floor, a cross bar connecting the rear legs at their forward end, a radial arm secured on the shaft and on the cross bar, hand means to control the rotation of the shaft, another cross bar extending between the sides of the seat frame above said leg cross bar, and tension springs connecting said cross bars.

3. A chair including a seat frame, spaced front legs pivoted at their upper ends to the forward

portion of the seat frame and pivoted at their lower ends to the floor, a shaft journaled on said seat frame and extending from one side of the seat frame to the other side thereof intermediate the front and back of the frame, hand controlled means to rotate the shaft, spaced rear legs of bell crank shape journaled intermediate their ends on the shaft and pivoted at their lower ends to the floor, and means arranged in connection with the shaft and forward portion of the rear legs to swing the same about their floor pivot with the rotation of the shaft.

4. A chair including a seat frame, spaced front

legs pivoted at their upper ends to the forward portion of the seat frame and pivoted at their lower ends to the floor, a shaft journaled on said seat frame and extending from one side of the seat frame to the other side thereof intermediate the front and back of the frame, hand controlled means to rotate the shaft, spaced rear legs pivoted at their lower ends to the floor, said legs extending upward and surrounding the shaft, and means on the shaft and engaging said rear legs to swing the legs about their floor pivots with rotation of the shaft relative to the seat frame.

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