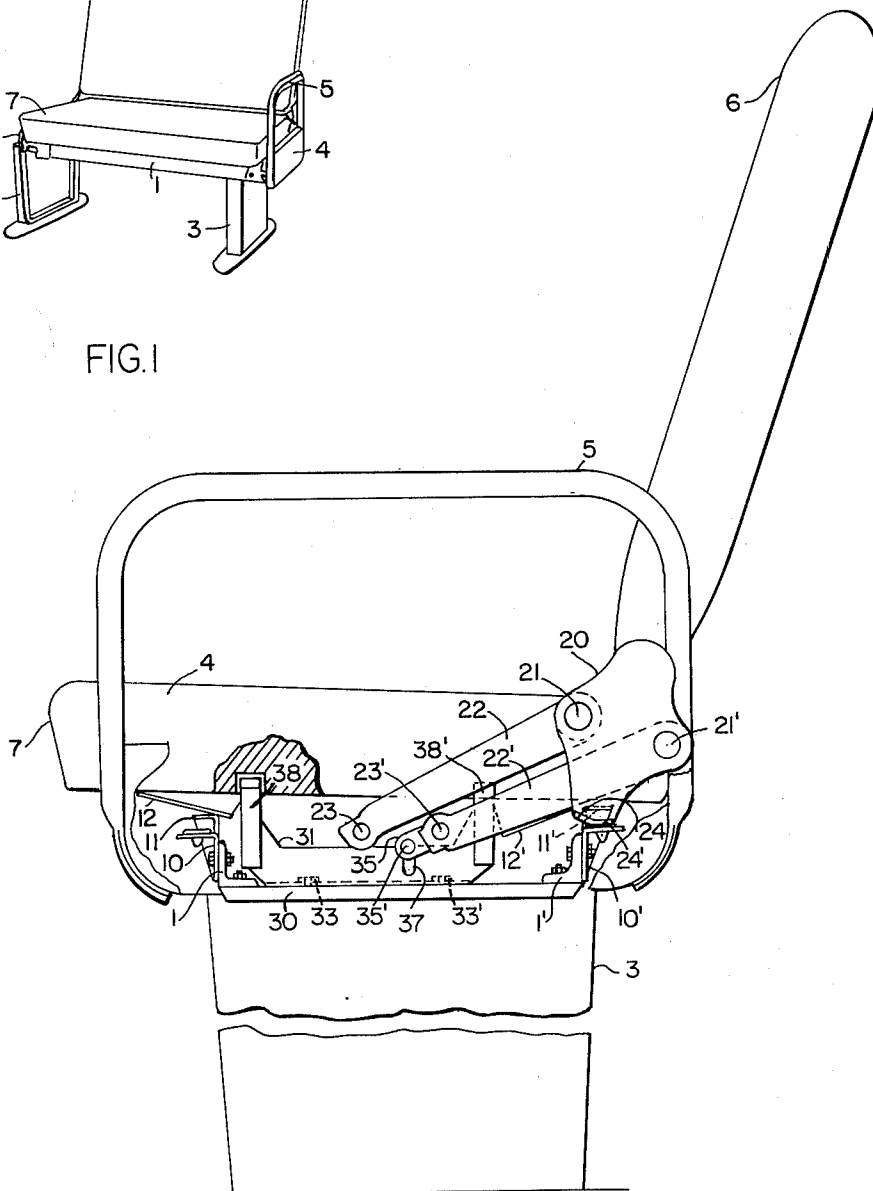
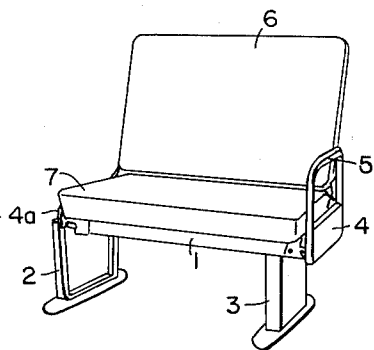


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REVERSING THE INCLINATION OF SEAT CUSHION
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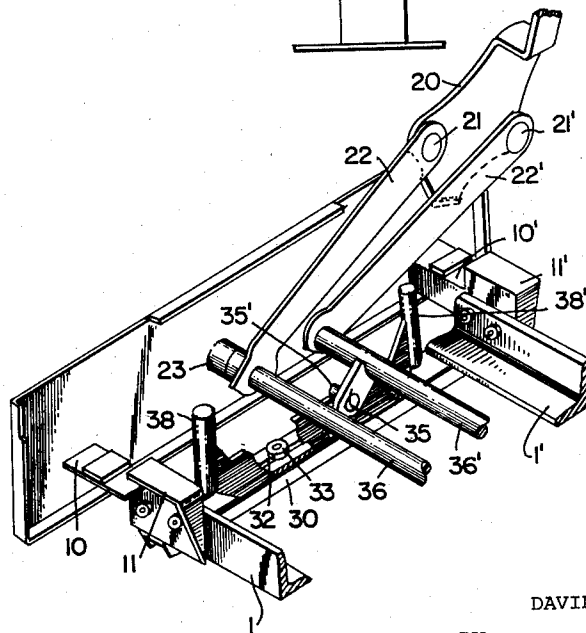
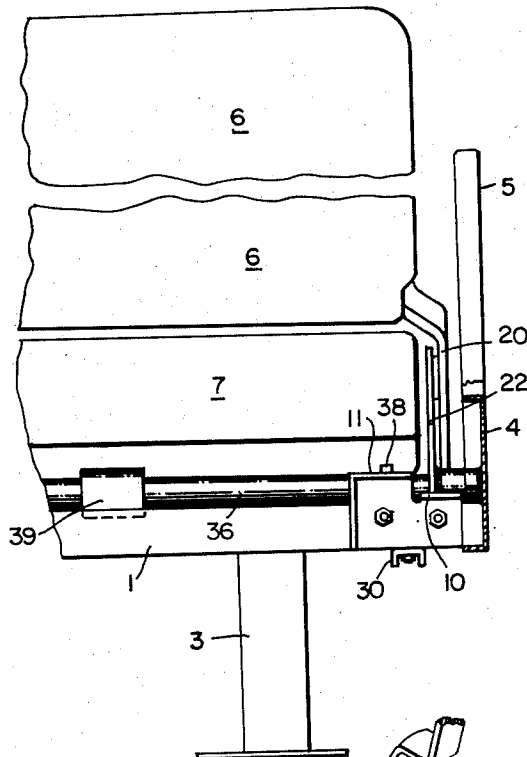
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WALK-OVER SEAT FOR VEHICLES WITH MEANS FOR REVERSING THE INCLINATION OF SEAT CUSHION

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3 Claims. (Cl. 297-103)

This invention relates to vehicle chairs or seats, and more particularly pertains to vehicle chairs of the walk-over type which permit the direction towards which the chair faces to be reversed.

Various arrangements have been suggested for reversing the position of the back rest on a vehicle chair, especially a railroad seat. There has been a need for a reliable and smooth acting reversing mechanism of uncomplicated design that would support and permit reversing of the back rest and at the same time adjust or reverse the angle of the seat to a comfortable sitting position. If the seat is not so adjustable it remains horizontal and is uncomfortable.

The improved walk-over chair design of this invention has the customary supporting base, back rest, back rest reversing and supporting mechanism and seat. The seat is movably mounted on the base on wedges such that when the seat is moved forward or backward the leading edge of the seat is slightly elevated and the rear edge is slightly depressed. The forward and backward motion of the seat is achieved by a sliding-block linked to the back rest reversing mechanism to move in a direction opposite to the motion of the back rest. A sliding-block is mounted on a suitable horizontal rail at either end of the base. The sliding-blocks have upwardly extending pins that engage but do not support the seat. Since the sliding-blocks do not support the seat, the sliding-blocks and supporting rails can be of light construction. The blocks are free and travel smoothly so that an undue force does not have to be exerted by the back rest reversing mechanism to move the seat.

The drawings attached to and forming a part of this specification and the following description made with reference thereto will serve to make this invention clear.

In the drawings:

FIG. 1 is a perspective view of the improved vehicle chair of this invention;

FIG. 2 is a side view broken away to show some of the linkage members;

FIG. 3 is a partial front view of the aisle side of the chair; and

FIG. 4 is an enlarged view in perspective of the back rest reversing mechanism and the seat sliding-block shifting mechanism.

Identical parts in the drawings have the same numbers throughout.

Referring to FIG. 1, the chair in general comprises a base 1 supported by a leg 2 at the inner edge and a leg 3 on the aisle side that is slightly inwardly spaced to allow foot room. The base supports end brackets 4 and 4a. Bracket 4 carries arm rest 5. The back rest is shown at 6 and the seat at 7.

The mechanisms for the inner and aisle sides of the seat are identical and the mechanism of the aisle side will by-and-large be the one described. Referring to FIGS. 2, 3 and 4, the seat is supported from the end brackets 4 and 4a by two longitudinal front and rear angle-iron frame members 1 and 1' attached by bolts to angle-iron lugs 10 and 10' which are spaced to the outside of frame members 1 and 1' and provide upper supporting surfaces to be described later. Seat supporting lugs 11

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and 11' are attached to frame members 1 and 1' adjacent the ends and provide upper sliding surfaces.

Seat 7 has attached at either edge wedge-shape members or chocks 12 and 12' that slidably rest upon and are supported by the sliding surfaces provided by lugs 11 and 11'.

The back rest is supported as follows: a bracket 20 is rigidly attached to the back rest and contains two pivots 20 and 21' equally spaced on either side of the center line. Two arms 22 and 22' of equal length are rotatably mounted thereon. The other ends of arms 22 and 22' are rotatably attached to pivots 23 and 23' mounted on end bracket 4 and equally spaced on either side of the longitudinal center line of the chair. Bracket 20 extends downwardly from pivots 21 and 21' and terminates in two slightly inclined stopping edges 24 and 24' that engage the arresting surfaces of lugs 10 and 10' respectively. This stopping arrangement holds the back rest in the desired position on either side and prevents either of arms 22 or 22' from being forced against the lower pivot points of the other arm. Rubber pads or cushions may be placed on the upper surfaces of lugs 10 and 10' if desired. It can be seen that back rest 6 can be reversed by swinging it up and over the other side with the arms 22 and 22' remaining in a parallel relationship. Other similar reversing mechanisms can be used if desired.

Shifting of the position and inclination of seat 7 is accomplished as follows: frame members 1 and 1' have attached thereto near their extremities a lower transverse rail 30. Rail 30 supports a sliding block 31 constructed of angle iron. In FIG. 4, the upwardly extending wall of sliding block 31 is broken away to show a slot 32 in the bottom edge thereof. Sliding block 31 is mounted on rail 30 by means of two bolts 33 and 33' rigidly affixed to rail 30 and extending upwardly through slot 32.

A crank arm 35 is rigidly mounted on the lower end of either arm 22 or 22', as shown arm 22', at the pivot point and rotates with the arm. An extended shaft 36 is used to attach crank arm 35. The other end of crank arm 35 carries a pin 35' that fits into a vertical slot 37 in the upwardly extending edge of sliding block 31. The arrangement is such that upon turning of the arm the block moves in the opposite direction from the upper part of the arm. It can be seen that rotation of crank arm 35 by movement of arm 22' will cause sliding block 31 to move horizontally along rail 30 in a direction opposite to that of the back rest.

Attached to the ends of sliding block 31 are upwardly extending pins 38 and 38'. These engage the underside of seat 7, being restrained by suitable ledges or boreholes that permit vertical movement of seat 7 relative to sliding block 31 but restrain the pins for horizontal motion.

It will be apparent that when back rest 6 is shifted from one side to the other the reversing and supporting linkage causes sliding block 31 to move in the opposite direction carrying with it seat 7. The forward edge of seat 7 rides up in the direction of motion on chocks 12 and 12'. Upon reversal of the back rest, the inclination of the seat is reversed to a comfortable seating position slightly downwardly inclined towards the back rest in its new position.

For stability and to improve the synchronous operation of the chair, it is preferred to attach two rotatable longitudinal tie rods 36 and 36' to arms 22 and 22' and to the corresponding arms at the other end of the chair at their lower pivot points. These tie rods can then be used to carry the crank arms as shown. With this arrangement seat 7 can then be secured to the tie rods by means of a loose clip or bracket 39.

In summary, the walk-over chair of this invention comprises a base carrying sliding-blocks at each end which are adapted for forward and backward motion relative

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thereto. A seat is engaged by the sliding blocks and is adapted for vertical motion relative to the blocks but is moved horizontally thereby. The back rest of the seat is reversible relative to the base in the customary manner and the reversing linkage therefore carries a connecting link or crank arm which attaches to the sliding block to impart the forward and backward motion in a direction opposite to the motion of the top of the back rest. The seat carries cams which upon forward or backward motion slightly elevate the leading edge of the seat and lower the back edge of the seat to a comfortable sitting position.

Having described this invention, what is sought to be protected by Letters Patent is succinctly set forth in the following claims.

What is claimed is:

1. In a walk-over chair, the combination of (1) a base having end brackets each of which has an inner horizontal supporting surface and a seat engaging lug at either end; (2) a back rest reversible relative to said base; (3) sliding blocks mounted on each inner horizontal supporting surface of said end brackets and adapted to ride on and move only horizontally with respect to the horizontal supporting surfaces; (4) a seat above said sliding blocks and engaged thereby for horizontal motion therewith but with relative vertical motion therebetween, said seat having chocks that engage and ride up on the forward seat engaging lugs of said end brackets when said seat is moving there towards; (5) and at each end of said base a reversing and supporting linkage having two parallel arms of equal length pivotably mounted at one end on said end brackets above said inner horizontal supporting surface and pivotably attached at the other end therefore to the end of said back rest by a supporting bracket, and a downwardly extending crank arm attached to the lower end of one of said two parallel arms and adapted to rotate therewith, said crank arm engaging said sliding block and causing it to move horizontally upon reversal of said back

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rest in the opposite direction, whereby upon reversal of said back-rest the inclination of said seat is changed to a comfortable sitting position slightly downwardly inclined towards said back rest.

2. The walk-over chair of claim 1 comprising in addition thereto two horizontal connecting rods extending across the width of said base and mounted on said end brackets at the lower pivot points of said two parallel arms on each side and moveable therewith, and mounting means underneath said seat attaching said seat to said horizontal connecting rods.

3. The walk-over chair of claim 1 wherein said sliding blocks are constructed of angle iron with one leg thereof riding on the horizontal surface and the other extending upwardly, said leg riding on the horizontal surface being slotted to receive attaching bolts affixed to the horizontal surface, and said crank arm at each end engaging a vertical slot in the upward extending leg of the sliding block at that end by means of a pin affixed to said crank arm.

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