April 8, 1947. A. L. NELSON 2,418,787

CONVERTIBLE SEAT STRUCTURE

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FIG.1.

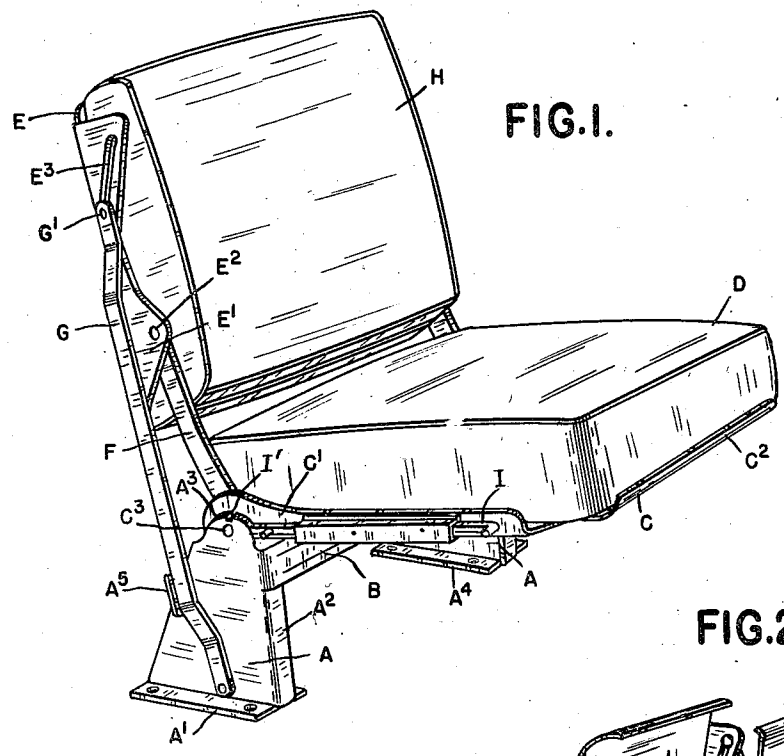


FIG.2.

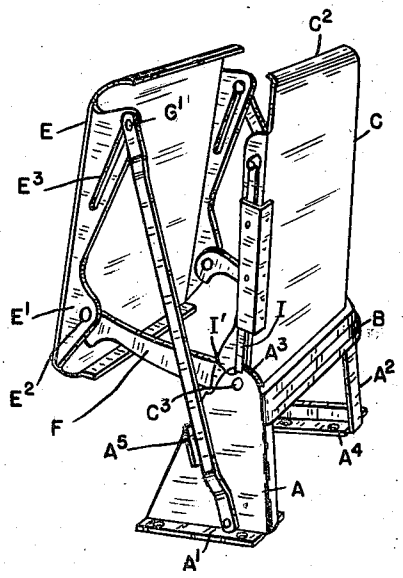
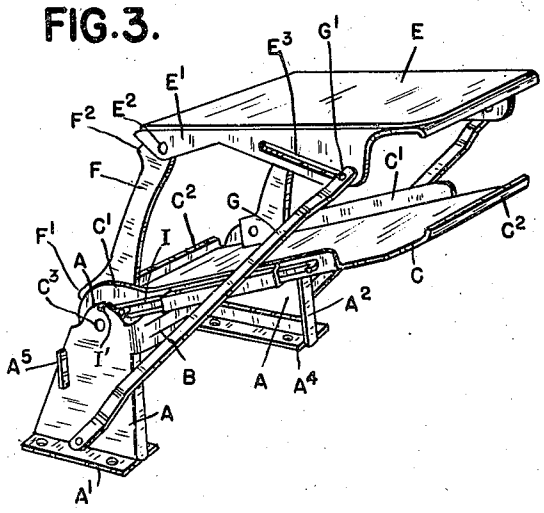


FIG.3.



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FIG. 5.

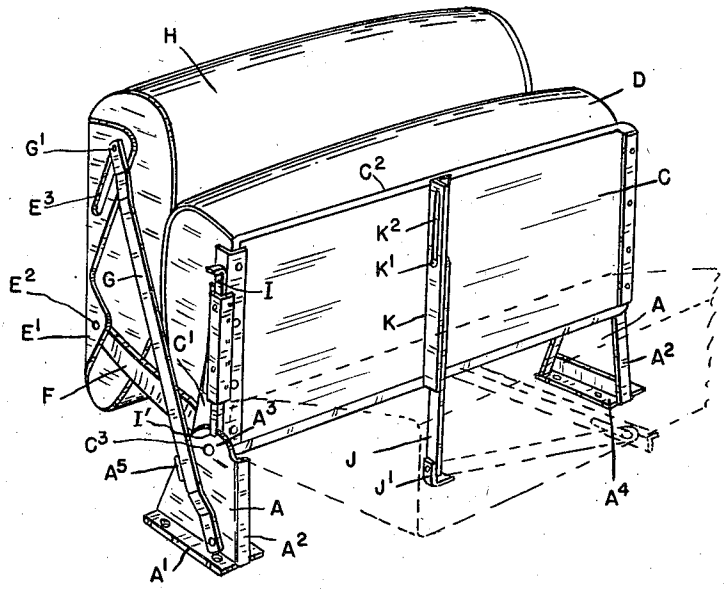
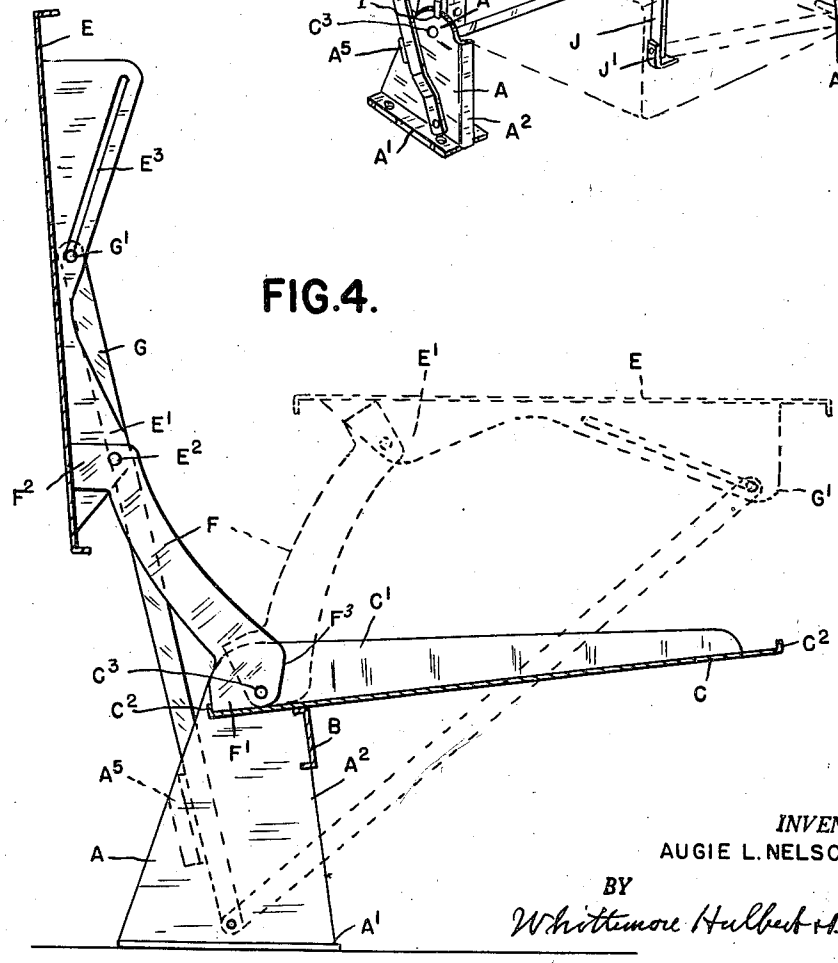


FIG. 4.



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CONVERTIBLE SEAT STRUCTURE

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4 Claims. (Cl. 155—41)

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The invention relates to seats particularly designed for use on vehicles of various types.

It is the object of the invention to obtain a construction which is capable of being arranged in a number of different positions including, one, a normal position for use by a seated occupant; two, a position where both the seat and the back are turned to clear the floor space; and, three, a position which forms an elevated platform on which the occupant may stand. To this end the invention consists in the construction as hereinafter set forth.

In the drawings:

Fig. 1 is a perspective view of the seat in normal position;

Fig. 2 is a similar view showing the frame without the seat and back cushions in a position for clearing the floor;

Fig. 3 is a view similar to Fig. 2 with the parts in position to form an elevated platform;

Fig. 4 is a sectional side elevation illustrating the swinging movement of the links into different positions of adjustment;

Fig. 5 is a perspective view showing a modified construction.

The frame for my improved seat is chiefly formed of pressed sheet metal members which when assembled will form a rigid structure in each of its positions of adjustment. This frame comprises a pair of side members A each having an angle flange A′ projecting outward from the base thereof, inwardly turned angle flanges A^2 at the opposite vertical edges and a segment A^3 at the upper end centrally apertured for a pivot. The two members A are cross connected by a bar B preferably of channel section which bar is welded or otherwise rigidly secured to the edge flanges A^2 near the upper ends thereof. The flanges A′ are apertured for bolts which form a rigid attachment to the floor of the vehicle and to provide still further rigidity an angle bar A^4 is secured to the inner side of each member and is also bolted to the floor. C is a plate forming a support for the seat cushion D, said plate being provided with opposite upwardly extending side flanges C′ and front and rear flanges C^2. The side flanges C′ are attached to the members A by bolts C^3 extending through aperatures in the members A and forming a pivotal connection. The position of the pivots is such that when the

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plate C extends forward it will rest upon the cross bar B to be held in a substantially horizontal position slightly inclined upward toward the front. E is a back plate which is connected to the member C by links F. These links are preferably secured by the same bolts C^3 that secure the flanges C′ to the members A. The opposite end of each link F is pivotally connected to a side flange E′ to the member E by bolts or screws E^2. G is a brace rod pivotally attached at its lower end to the member A while its upper end is connected by a bolt G′ with a slotted bearing E^3 in the flange E′. The slot extends rearward and downward from near the forward end of the flange E′ and permits movement of the pivot bolt G′ along the same in certain adjustments of the frame. The proportion of the links F and rods G is such that in the position shown in Fig. 1 both of these members extend upward and slightly rearward with the pivot G′ at the inner end of the slot E^3. Stop flanges A^5 secured to the members A will limit the rearward movement of the rod G to hold the parts in a position where the back cushion H attached to the plate E inclines slightly rearward. The links F are provided with stop portions F′, F^2 and F^3. The stop portions F′ and F^3 are adapted to bear against the plate C and limit the free angular movement of said links with respect to said plate to less than 90°. The stop portion F^2 limits the rearward turning movement of the back member E on its pivots E^2. Thus, in the position shown in Fig. 3 and in dotted lines, Fig. 4, the back member E is in superposed relation to the seat member C, the links F being swung forward to the limit imposed by the stops F^3 and the brace rod G having its bolt G′ at the forward end of the slot E^3. This forms a rigid standing platform. In the position shown in full lines, Fig. 4, and also in Fig. 1, links F are swung to the rearward limit of free movement imposed by the stops F′ and the bolts G′ of the rods G are at the lower end of the slot E^3. Finally in the position shown in Figs. 2 and 5, the seat C is swung to upright position which permits the links F to swing downward lowering the back member E while the brace members G have their bolts G′ at the upper ends of the slots E^3.

With the construction as thus described, it will be understood that the frame is normally in the

position as shown in Fig. 1 which forms a seat. If the occupant desires to stand, it is only necessary to lift the forward edge of the plate C^2 turning it rearward upon the pivot C^3 until it assumes a vertical position. During this rearward swinging movement the links F turn downward and the pivot G' travels outward in the slot E^3 thereby permitting the back plate E and cushion H to drop downward. Thus, at the completion of the movement the cushions H and D are arranged parallel to each other with their upper edges in substantially the same horizontal plane. Also, all of these parts are in rear of the members A leaving the floor space in front of said members unobstructed. The parts may be locked in the position shown in Fig. 2 by a sliding bolt I attached to one of the flanges C' and adapted to engage a keeper notch I' at the top of the segment A^3.

If an elevated platform is desired, the cushion H and plate E are swung forward from the position shown in Fig. 1 continuing the movement until the parts assume the position shown in Fig. 3. Here it will be noted that both the links F and rods G incline forward from pivotal connections to the members A. The forward movement is, however, limited when the pivots G' reach the forward ends of the slots E^3 and in this position the plate E is horizontal. It will, therefore, form a stable platform on which the occupant may stand.

Fig. 5 illustrates a wider seat intended for two or more occupants. With such construction, it may be necessary to provide additional support and I have illustrated a central folding brace for this purpose. As shown, J is a brace bar pivotally attached at its lower end to a floor bracket J' and at its upper end pivotally attached to a central cross bar K on the bottom of the seat. The screw K' forms the pivotal attachment and this engages a slotted bearing K^2 in the bar K so that when the seat is turned up this screw will slide to the lower end of the slot, while in the normal position it slides to the outer end. Thus the center of the seat will be supported to prevent sagging.

What I claim as my invention is:

1. A structure for alternatively forming a seat and a rigid standing platform comprising a frame, a seat member and a back member, said seat member being pivotally connected at its rear end to said frame and resting thereon in a normal substantially horizontal position from which it may be swung on said pivotal connection to an upright position, said back member having one position in normal relation to said seat member and another position in superposed relation thereto to constitute a standing platform, and a linkage for supporting said back member in each of said positions to be movable from the one to the other, said linkage including a pair of links between said seat member and back member on opposite sides thereof and having stop portions for limiting the free angular movement with respect to said seat member to a predetermined degree, a pair of brace members pivotally connected at their lower ends to said frame at points below the pivotal connection to said seat member and at their upper ends having a pivotal and limited sliding connection with the upper portion of said back member, and stops on said frame for limiting the rearward swinging movement of said brace members.

2. A structure for alternatively forming a seat and a rigid standing platform comprising a frame, a seat member pivotally connected at its rear end to said frame and resting thereon in a normal substantially horizontal position from which it may be swung on its pivotal connection to an upright position, a back member having three positions, one in normal relation to the down-turned seat member, another in superposed relation thereto to constitute a standing platform, and the third in parallelism with the upturned seat member, and a linkage for supporting said back member in each of said positions including a pair of links pivotally connected at their lower ends to said seat member on opposite sides thereof and having stop portions for limiting their free angular movement with respect to said seat member to a predetermined degree, the upper ends of said links being pivotally connected to the lower portion of said back member, a pair of brace members having their lower ends pivotally connected to said frame at points below the pivotal connection of said seat member and having at their upper ends pivotal and limited sliding connections with the upper portion of said back member, and stops on said frame for limiting the rearward swinging movement of said brace members.

3. A structure for alternatively forming a seat and a rigid standing platform comprising a frame, a seat member pivotally connected at its rear end to said frame to swing from a normal substantially horizontal position to an upright position, a back member, and a linkage between said frame, back member and seat including a pair of links pivotally connected at their lower ends to said seat member and having stop portions for limiting the free angular movement thereof, the upper end of said links being pivotally connected to the lower portion of said back member, a pair of brace members pivotally connected at their lower ends to said frame at points below the pivotal connection with said seat member and at their upper ends having a limited sliding pivotal connection with the upper portion of said back member, and stops on said frame for limiting the rearward swinging movement of said brace members; whereby in the down-turned position of said seat member said back is held in normal relation thereto while the forward swinging movement of said links and brace members will arrange said back member in superposed relation to said seat member and will rigidly support the same for a standing platform and whereby the turning of said seat member into its upright position will lower said back member into parallelism therewith.

4. A structure for alternatively forming a seat and a rigid standing platform comprising a frame, a seat member pivotally connected at its rear end to said frame to swing from a normal substantially horizontal position to an upright position, a back member, and a linkage between said frame, back member and seat including a pair of links pivotally connected at their lower ends to said seat member and having stop portions for limiting the free angular movement thereof, the upper ends of said links being pivotally connected to the lower portion of said back member, a pair of brace members pivotally connected at their lower ends to said frame at points below the pivotal connection with said seat member and at their upper ends having a limited sliding pivotal connection with the upper portion of said back member, stops on said frame for limiting the rearward swinging movement of said

brace members; whereby in the downturned position of said seat member said back is held in normal relation thereto while the forward swinging movement of said links and brace members will arrange said back member in superposed relation to said seat member and will rigidly support the same for a standing platform and whereby the turning of said seat member into its upright position will lower said back member into parallelism therewith, and means for locking said seat member in its upright position.

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