

(No Model.)

H. S. HALE.

CAR SEAT.

No. 364,011.

Patented May 31, 1887.

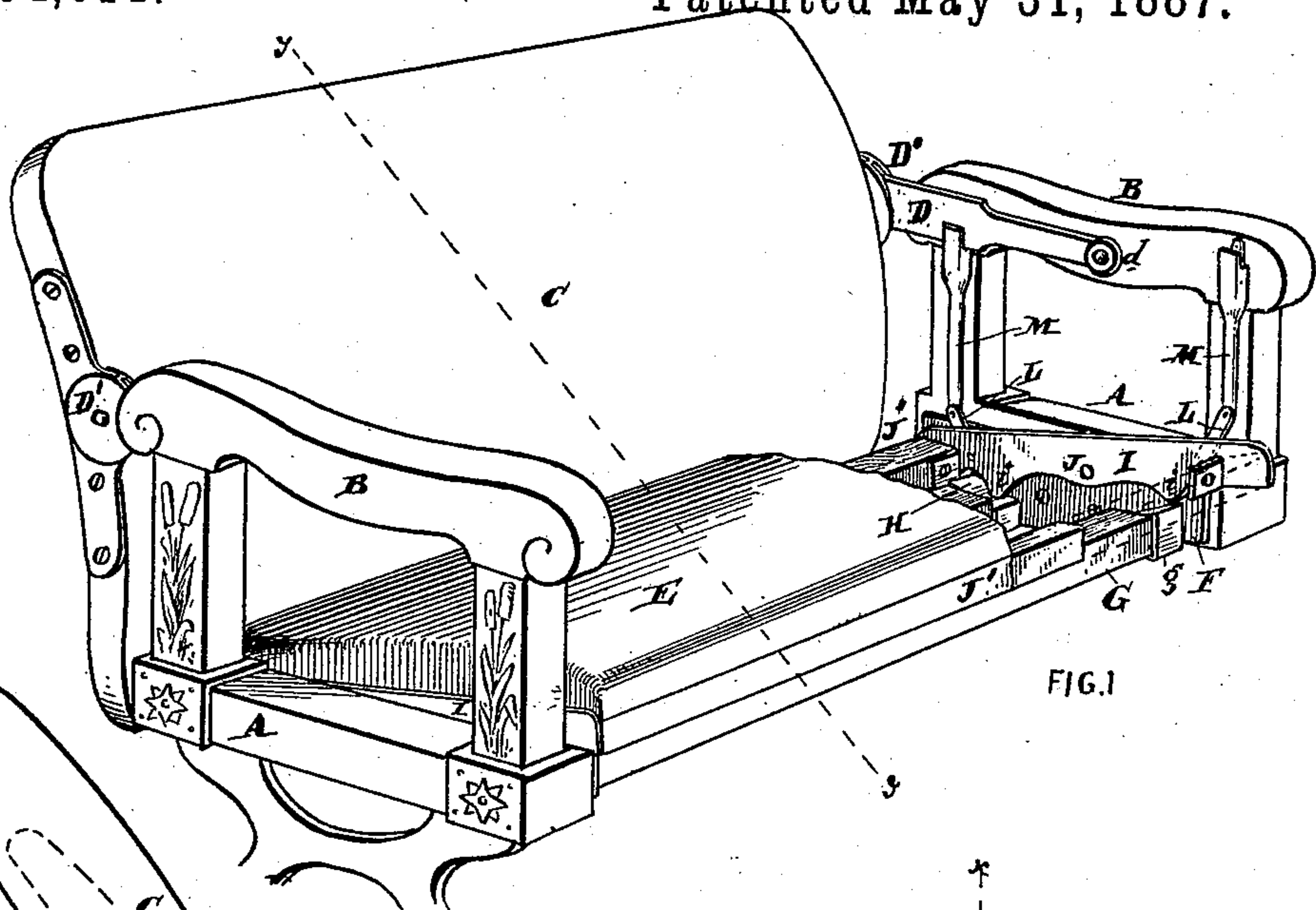


FIG. 1

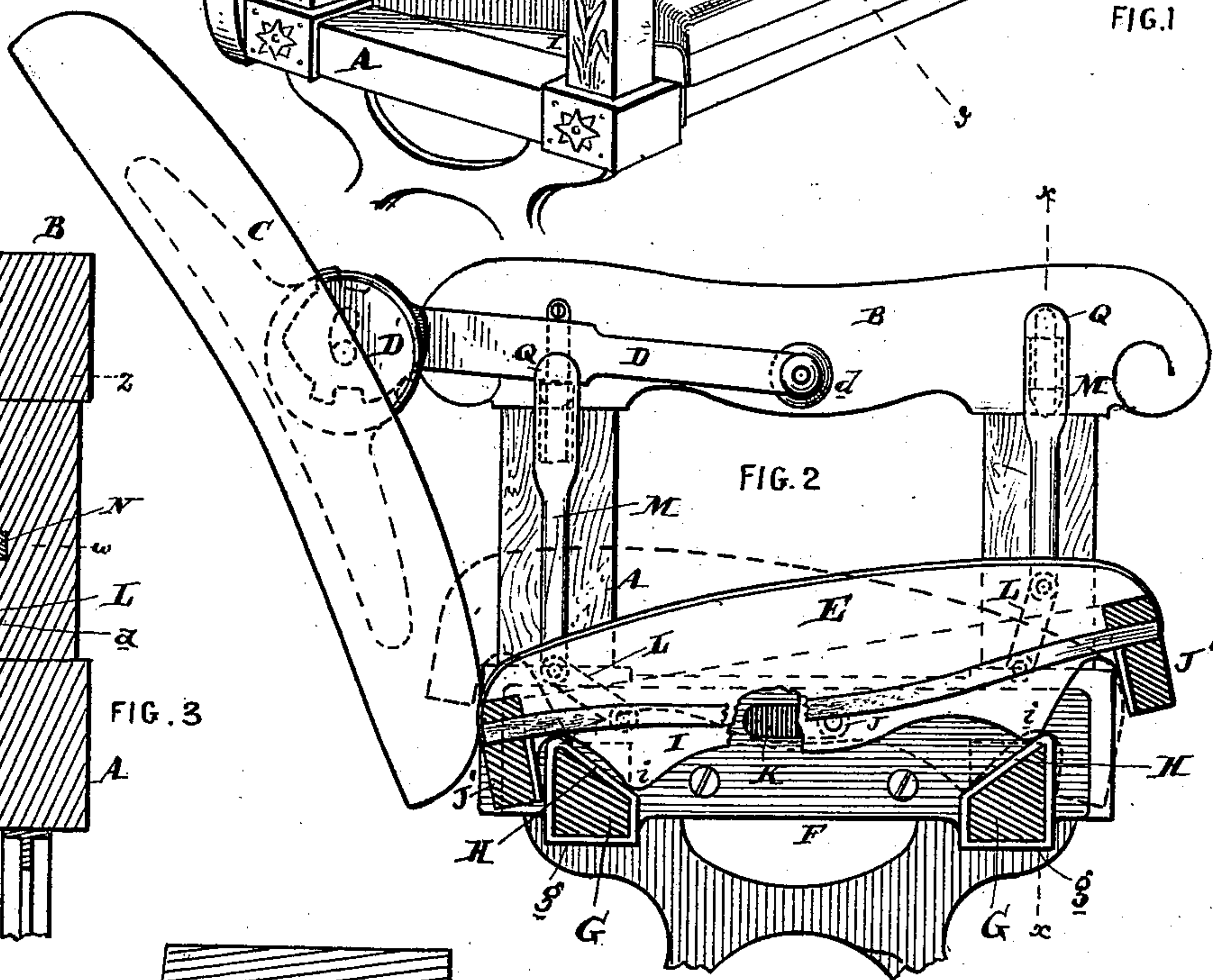


FIG. 2

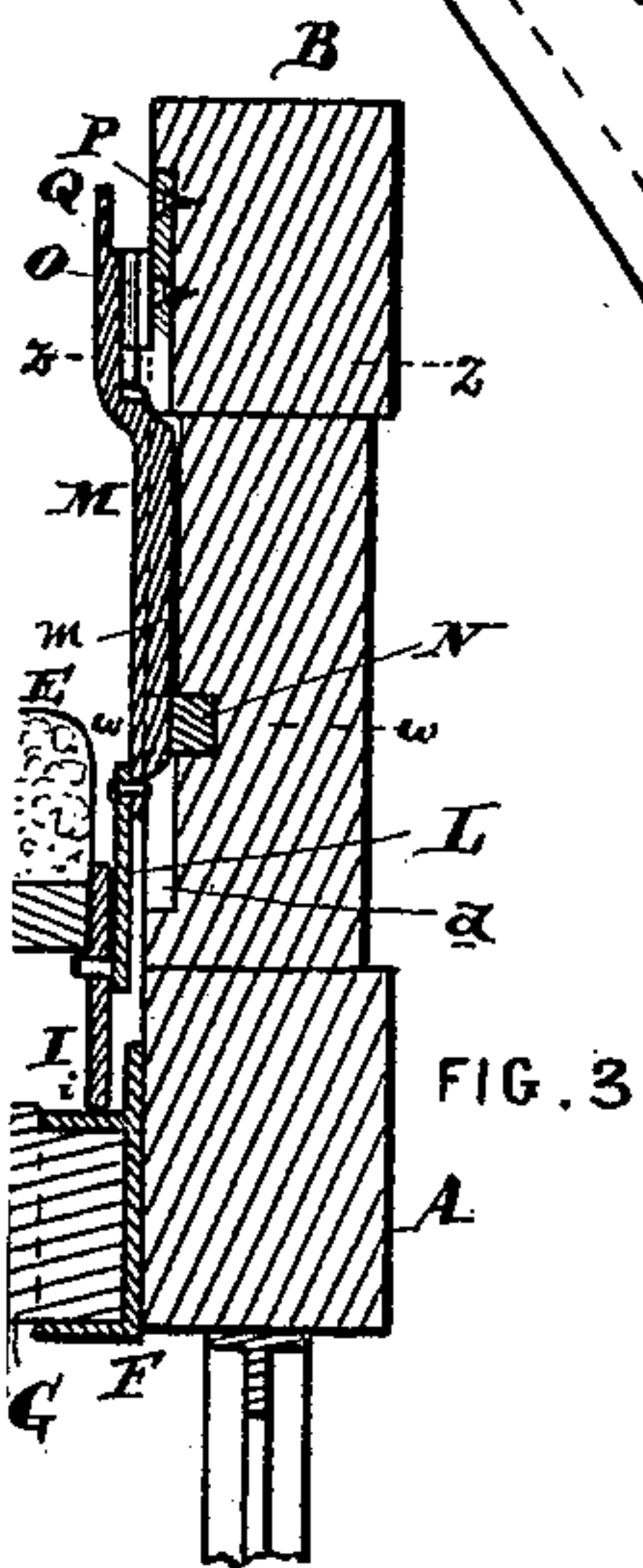


FIG. 3



FIG. 4

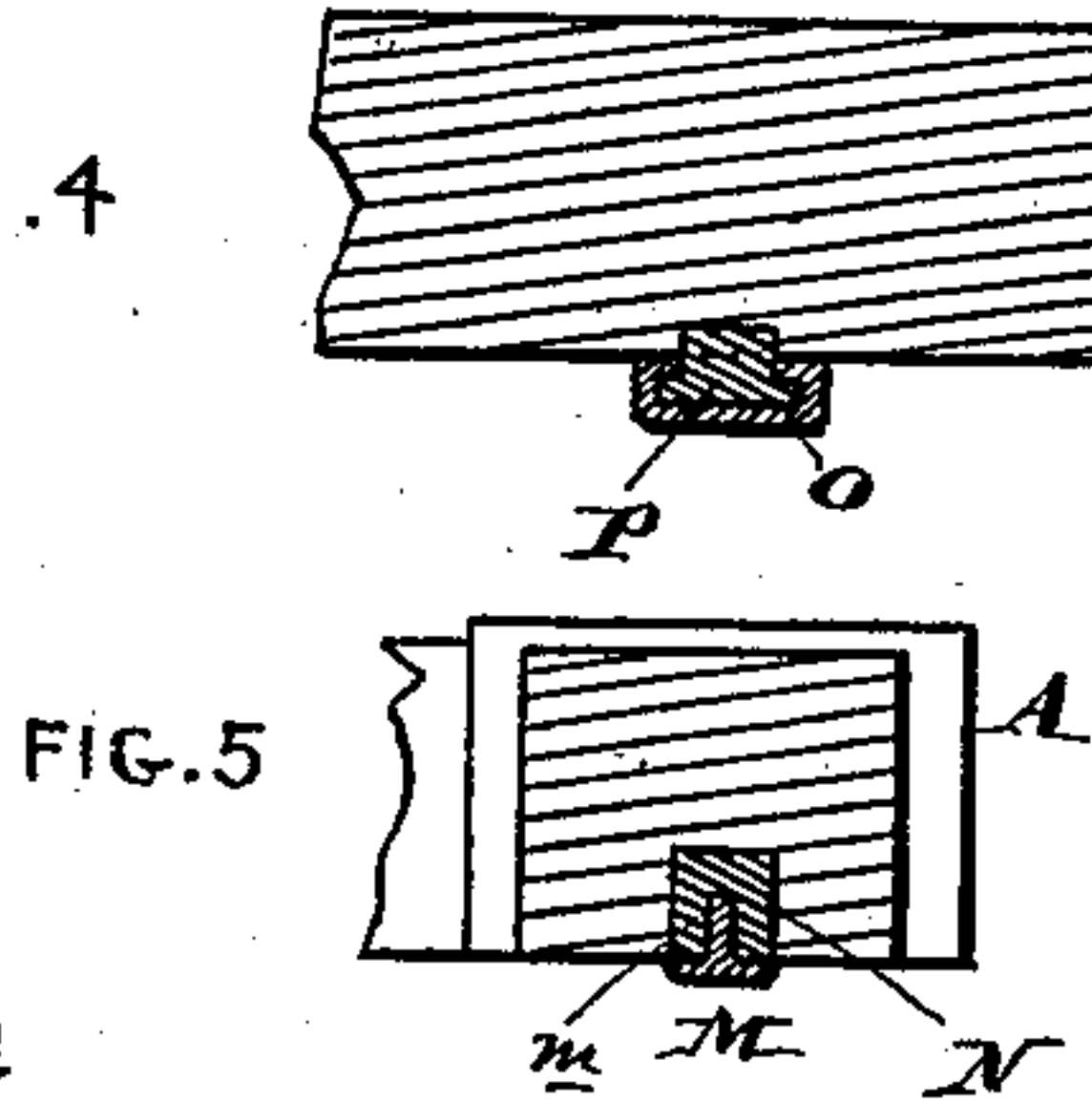


FIG. 5

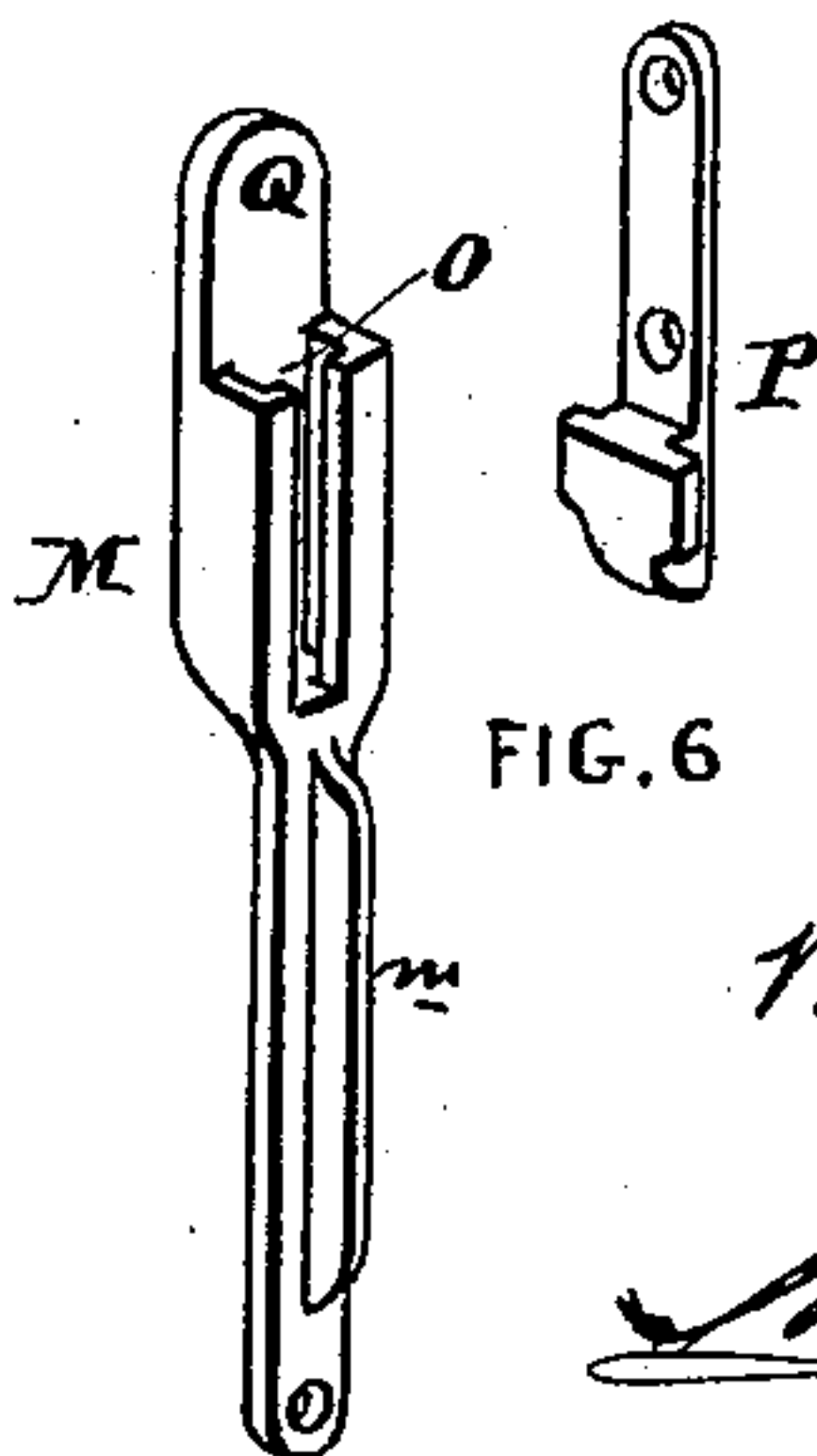


FIG. 6

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By his atty.

*[Signature]*



# UNITED STATES PATENT OFFICE.

HENRY S. HALE, OF PHILADELPHIA, PENNSYLVANIA.

## CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 364,011, dated May 31, 1887.

Application filed April 14, 1886. Serial No. 193,800. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY S. HALE, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Car-Seats, of which the following is a specification.

My invention has reference to seats in general, but more particularly to what are known as "car-seats;" and it consists in certain improvements, all of which is fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

Heretofore seats of this character have been formed with reversible backs, and with seats so arranged that they may be tipped simultaneously with the reversing of the back for the purpose of raising the forward edge of the seat, rendering it more comfortable. This pivot-seat has been rocked or oscillated to assume the raised positions by means of a pivot-and-lever connection actuated by a cam or pinion on the links of the back when in the act of throwing the back for reversing the seat. In addition to this it is also common to pivot the backs to the radial supporting arms or links therefor.

Prior to the date of this invention a patent was granted to me in which the seat was shifted by the striking of the seat-back upon the rear portion of the seat-cushion. The seat was tilted in the act of being shifted by being provided with two inclined or cam faces on the seat which run upon rollers on the seat-frame, and the power part of the cam or inclined faces were also provided with notches, into which the rollers were received to lock the seat in its extreme positions. It has also been proposed to shift the seat by means of levers pivoted to the seat-frame and to the back, and further connected to the seat by means of pins, between which the lower ends of the levers work. By moving the back the seat was shifted, and the work of moving the seat begun with raising the back. The seat was tilted by means of curved guides upon which it rested. It has also been proposed to pivot the seat and connect it on each side of the fulcrum with slides, which are supported at their free end in a casting. These slides were reciprocated in opposite directions by cams secured to the

levers of the back, by which it is connected to the arms. I therefore do not claim any of these devices in this application. Broadly speaking, the shifting and tilting seat operated by the seat-back is not new; but these features, when combined in the manner and with the improvements hereinafter specified, produce decidedly improved results, and a greater simplicity of construction is obtained.

The object of my invention is to form a car-seat in which the seat shall be capable of tipping and moving toward the raised edge or front, and in which the back, while being free and independent of said seat, shall nevertheless actuate said seat to cause it to assume the desired positions.

In carrying out my invention I provide the seat-frame with inclined planes or cam-faces arranged in opposite directions, and upon which the seat-cushion support rests, and which when moved over these inclines is caused to advance toward the front of the seat-frame, and at the same time be tipped so as to raise its forward edge, and consequently the seat or cushion which rests upon said support is caused to take a corresponding movement. This support for the seat is connected to four vertically-sliding plates or rods arranged upon the arms of the seat-frame, which are adapted to receive the seat-back links and be thrust down by the weight of the said back, and it is by this vertical movement that the seat-support is caused to move over the incline plane. This construction may be used with a back rigidly secured to the links, or, what is more preferable, with a back hinged to the links, substantially as shown, and arranged to lock automatically after being thrown in position. (See dotted lines, Fig. 2.)

Referring to the drawings, Figure 1 is a perspective view of a car-seat embodying my invention, with a portion of the cushion and supporting-frame broken away. Fig. 2 is a cross-section of same on line *y y*. Fig. 3 is a cross-section through one of the arms and its close connections on line *x x*. Fig. 4 is a cross-section of the arm, guide, and actuating-slide on line *z z*. Fig. 5 is a cross-section of the same through line *w w*, and Fig. 6 is a perspective view of one of the seat-support-actuating slides and its guide.



A is the fixed frame of the seat, and B is the arm thereof.

C is the back, which is preferably pivoted at D' to the supporting links or arms D at d, which are hinged to the arm B. The frame A is connected by bars G, received on each end by a socket, g, formed upon a casting, F, which is secured to the frame A. The upper parts of these sockets are made with inclined surfaces or planes H.

I are the end plates of the seat-cushion support, and are connected by the supporting-rails J', upon which the seat-cushion E rests. These end plates, I, are provided with projections i, which rest upon the inclined planes H, which planes on each end point in opposite directions. The distance between said projections I on the end plate is equal to the distance between the lowest point in one incline plane and the highest point in the other, whereby when one side of the cushion-support is caused to rise the other side is caused to descend, and this action is induced by a lateral shifting of the said support over the incline planes. If desired, these projections i may be provided with rollers or anti-friction wheels, though in practice they are not found necessary.

To prevent any possibility of the seat-support rising, except in accordance with the inclinations of the inclined planes or cams H and stud or roller J upon the outer face of the plates I, it may work in slots K in the frame-plates F, though in practice this is found to be unnecessary to the perfect working of the device; but its use would prevent accidental vertical displacement of the seat-cushion support. To work the seat-cushion support over the incline planes, whereby it obtains its oscillating as well as reciprocating adjustment, I provide the following mechanism:

Secured to the arm B is a casting or bracket, P, having a T-shaped head, (see Fig. 6,) which acts as a support for the links D of the back C and receives the weight of the said back. Working upon these guides P are the vertically-moving slides M, the upper portion of which is provided with a T-slot, O, to fit upon the T-shaped guides P, and with an upward extension, Q, to hold the link D of the back against lateral displacement. The lower portion of said slide is provided with a rib, m, which works in a corresponding groove, a, in the frame A, and to prevent excessive wear upon the wood-work of the said frame a slotted metallic guide, N, may be let into the said frame, and upon which the slide M works and is guided. These slides M are located in the same position as are now occupied by the locks in ordinary car-seats, and are four in number, and are connected at their bottoms by links L with the car-seats-supporting plates I. If the car-seat back be thrown from the position shown in Fig. 2 to the other side of the seat, the links D in their descent will strike the raised slides M, and the weight of the seat-back will depress the said slides and the seat-

support, and the seat-cushion will assume the position indicated in dotted lines.

By this construction it is seen that the seat-back is entirely separate and distinct and independent of the seat-cushion or its actuating and support device, and yet its weight is utilized to positively actuate the seat proper to cause it to assume the position desired and then lock it in such position. This simplifies the construction and reduces the liability to get out of order, and the ends of the seat arms or frame are unobstructed, thereby admitting of the highest finish and ornamentation and overcoming the effect of a heavy and cumbersome piece of mechanism. A more improved result is obtained by hinging the back C to the links D; but the invention is equally applicable to a back which is rigidly secured to the links or arms D.

The details of construction may be greatly modified without in anywise departing from the spirit of the invention, and therefore, while I prefer the construction shown, I do not limit myself thereto.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a seat, the combination of a fixed frame provided with cam or inclined planes or faces with a seat proper supported thereon and adapted to be retained in a tipped position thereby and a slot and a centrally-located pin or roller connection on the ends to prevent said movable seat portion from being displaced and yet admit of its being freely tipped and shifted, substantially as and for the purpose specified.

2. In a seat, the combination of a fixed frame provided with cam or inclined faces of considerable width and sharply inclined with relation to the seat with a seat proper having end plates formed with extended projections i, which work upon the cam-faces, and recesses between said projections and front and back portions of the seat to receive the cam-faces and act as stops to limit the tilting of the seat proper, the whole being formed to obtain a considerable degree of tilting with but a small shifting movement, substantially as and for the purpose specified.

3. In a seat, the combination of a fixed frame provided with cam or inclined planes or faces of considerable width with a seat proper having narrow projections which work upon said fixed cams, whereby the seat is supported thereon and adapted to assume a tipped position and free to change such position without creating excessive friction, a hinged seat-back, and vertically-moving slide mechanism, substantially as set forth, connecting with the movable-seat portion and in like path of the seat-back or its links, whereby the weight of the seat-back shall reciprocate said seat portion, substantially as and for the purposes specified.

4. In a seat, the combination of a fixed frame provided with cam or inclined planes or faces of considerable width with a seat proper hav-



ing narrow projections which work upon said fixed cams, whereby the seat is supported thereon and adapted to assume a tipped position and free to change such position without  
 5 creating excessive friction, and stops to limit the movement of the seat portion upon the frame and its inclined planes, a hinged seat-back, and vertically-moving slide mechanism, substantially as set forth, connecting with the  
 10 movable-seat portion and in the path of the seat-back or its links, whereby the weight of the seat-back shall reciprocate said seat portion, substantially as and for the purpose specified.

15 5. In a seat, the combination of a fixed frame provided with cams or inclined planes or faces with a seat proper supported thereon and adapted to be retained in a tipped position thereby, a reversible seat-back, links hinged  
 20 to the seat-frame and also to the seat-back, and mechanism, substantially as described, independent of but in the path of said seat-back links, whereby the weight of the seat-back during the latter end of its fall only shall  
 25 reciprocate or move the seat portion over the inclined planes, substantially as and for the purpose specified.

6. The combination of the end frame, A, having the end cam-plates, F, furnished with  
 30 the cam or inclined faces H and socket g, the connecting-bars G, received in the sockets, and the cushion-support formed with rails J' and end plates, I, having projections i, to work upon the cam-faces H, and recesses between  
 35 said projections i and rails J' to receive the sockets g and limit their shifting movement, substantially as and for the purpose specified.

7. In a seat, the combination of a frame provided with cam or inclined planes or faces  
 40 with a seat-cushion support adapted to rest upon said cam or inclined planes and be retained in a tipped position thereby, and a removable seat-cushion, slides supported by the frame and connected to the cushion-sup-  
 45 port, and a seat-back hinged to the frame by links or arms, but independent of the slides, whereby the shifting of the seat-back during the latter end of its fall only causes the slides to be operated to shift the cushion-support  
 50 also, substantially as and for the purpose specified.

8. The combination of wooden frame A, seat-back C, links D, connecting the back with the frame, a movable seat proper, cam-guides  
 55 for said seat to allow of its being shifted and tilted, reciprocating slides working against the wooden frame and adapted to shift the seat proper, said slides being reciprocated by the seat-back or its links, and suitable metallic guides let into the wooden frame to receive  
 60

and guide said reciprocating slides to receive the wear and preserve the wood-work, substantially as and for the purpose specified.

9. In a car-seat, the combination of the reversible seat-back hinged to a fixed frame, a  
 65 shifting and tilting seat proper, cam or inclined-plane guides for said seat, two vertical slides, M, on each end of the fixed frame and extended up in the path of the seat-back or its arms, but independent thereof, and link-  
 70 connections between said vertically-moving slides and seat proper, whereby the seat-back may be raised without shifting the seat proper, but the fall thereof shall shift said seat by depressing the slides and lock the seat in such  
 75 newly-assumed position.

10. In a car-seat, the combination of the reversible seat-back hinged to a fixed frame, a shifting and tilting seat proper, cam or inclined-plane guides for said seat, two vertical  
 80 slides, M, on each end of the fixed frame and extended up in the path of the seat-back or its arms, but independent thereof, and link-connections between said vertically-moving slides and seat proper, their connection with  
 85 the seat proper being nearer together than their connection with the slides, to insure the proper direction of movement to the seat proper, whereby the seat-back may be raised without shifting the seat proper, but the fall  
 90 thereof shall shift said seat by depressing the slides and lock the seat in such newly-assumed position.

11. The combination of a side frame, A, supporting inclined planes H, pointing in op-  
 95 posite directions, seat-cushion supports I, supported upon said inclined planes, seat-cushion E, slides M, connected by links to the supports I, back C, links D therefor, adapted to actuate the slides, and suitable guides and stops  
 100 to support said slides and limit the movement of the links D, substantially as and for the purpose specified.

12. The combination of wooden frame A, seat-back C, links D therefor, a movable seat  
 105 proper, slides connecting with said seat and actuated by the links D and provided with T-shaped slots, and suitable metallic T-shaped guides upon which the slides move and by which they are held in place, and isolated me-  
 110 tallic guides let into the wood-work of the frame to receive the lateral wear due to the reciprocation of the slides near the bottom, substantially as and for the purpose specified.

In testimony of which invention I hereunto  
 115 set my hand.

HENRY S. HALE.

Witnesses:

E. M. BRECKINREED,  
 CHARLES E. LEX, Jr.