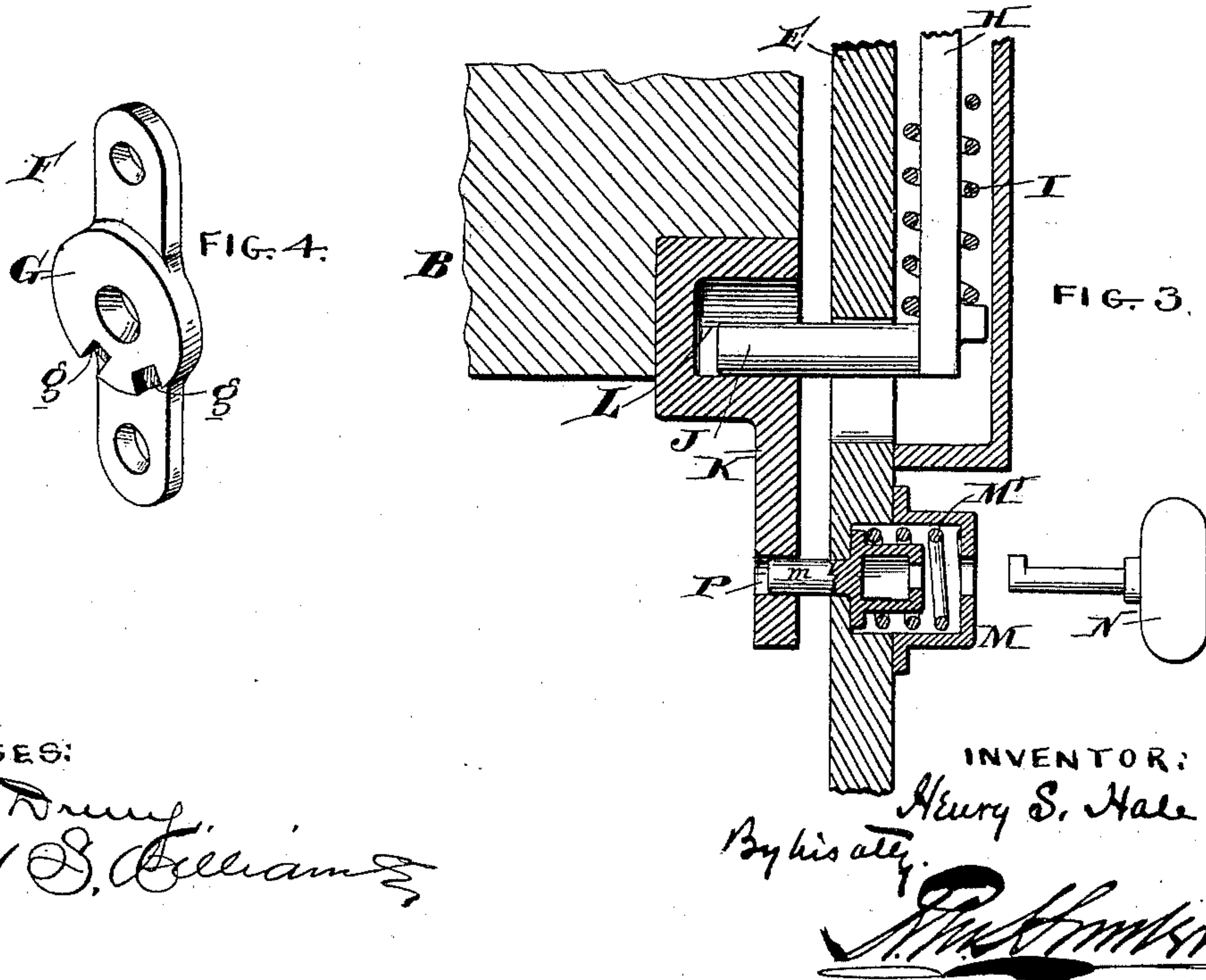
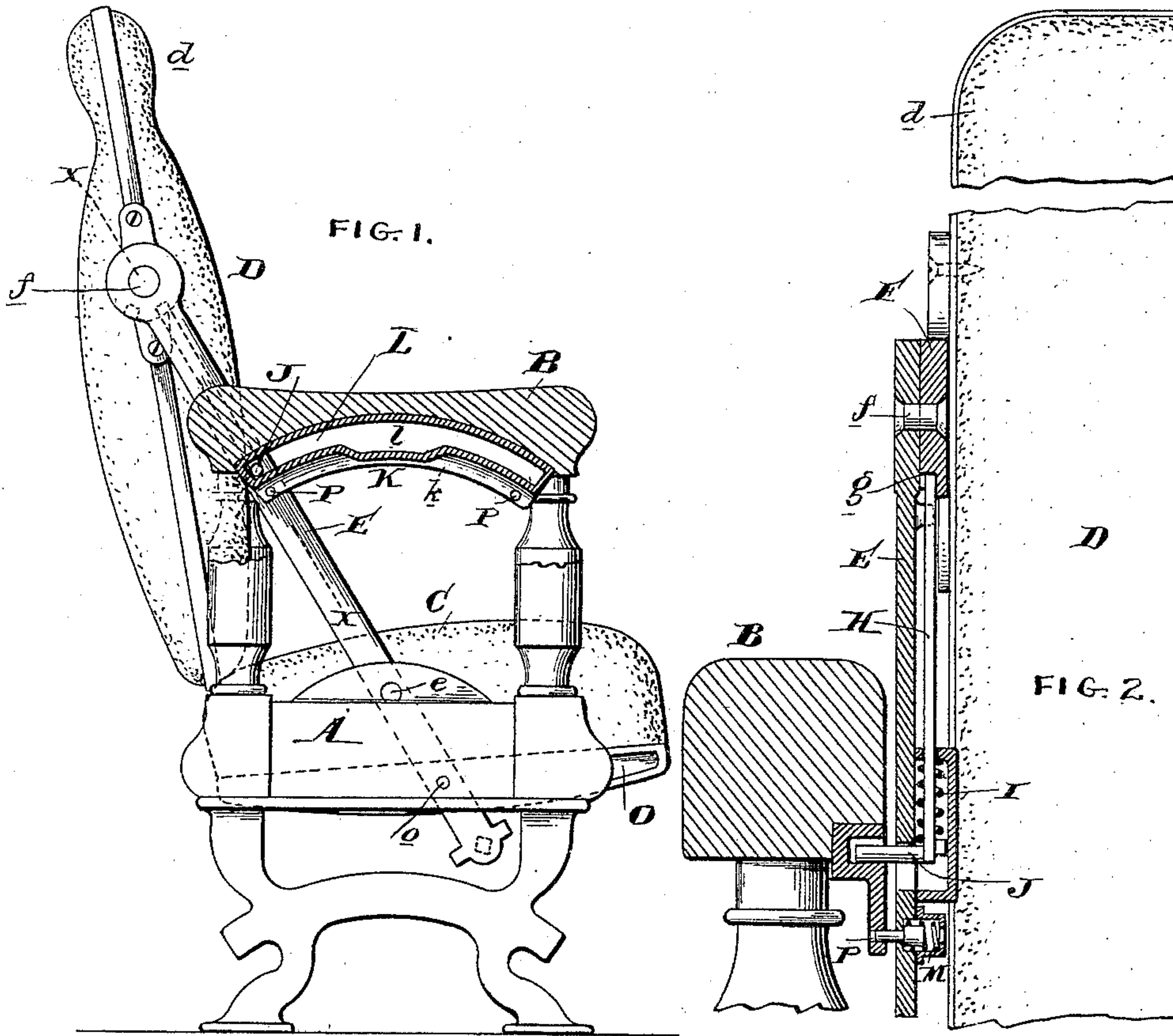


(No Model.)

H. S. HALE.
CAR SEAT.

No. 432,703.

Patented July 22, 1890.



WITNESSES:

Henry D. Dreyer,
David S. Williams,

INVENTOR:

Henry S. Hale
By his atty.

[Signature]

UNITED STATES PATENT OFFICE.

HENRY S. HALE, OF PHILADELPHIA, PENNSYLVANIA.

CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 432,703, dated July 22, 1890.

Application filed May 8, 1889. Serial No. 310,016. (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 relates to railway-car seats; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

My invention has particular reference to car-seats, and embodies a construction in which the seat-back is shifted without being turned over or reversed in reversing the seat as an entirety.

In carrying out my invention I pivot the seat-back to the main frame by means of hinge-arms, upon which the seat-back swings from one side of the seat to the other, and the seat-back is locked to one of these arms by means of a bolt carried by the arm and engaging with the seat-back or a plate thereon. This bolt is operated by a projecting portion extending into a cam-slot upon the car-seat arm in the manner hereinafter described, so that the seat-back is locked to the hinge-arms in its extreme positions, and is unlocked and its inclination changed while it is being shifted from one side of the seat to the other.

My invention furthermore consists in improvements in the means for locking the hinge-arms against movement to prevent the promiscuous shifting of the seat-backs by the passengers of the train.

In the drawings, Figure 1 is a side elevation of a railway-car seat embodying my invention, with the seat-arm in section. Fig. 2 is a sectional view of the same through the line X X of Fig. 1. Fig. 3 is an enlarged view of a portion of Fig. 3, and Fig. 4 is a perspective view of the lock-plate carried by the seat-back.

A is the main frame having the seat-arms B. C is the seat-cushion, which is preferably supported upon the shifting frames O, moved by pins o on the hinge-arms to change the inclination of the cushion when the seat-back is shifted from one side to the other; but the specific devices for accomplishing this are in no way a part of the present invention.

D is the seat-back, which may be provided with a head-rest portion d.

E are the hinge-arms, pivoted to the main frame at e and to the seat-back at f, at a point above the middle of the back, so that it may hang and move by gravity.

F is a plate carried by the seat-back, and has a circular portion G, provided with locking-recesses g, located on the lower surface near together and at different inclinations. One or both of the hinge-arms E is pivoted to this plate F at f.

H is a locking-bolt carried by this hinge-arm E in suitable guides and combined with a spring I to normally depress it. The upper end of this bolt H is adapted to engage with the recesses or notches g in the plate F and the lower end is provided with a laterally-extending pin or projection J.

K is a plate secured to the seat-arm and having a groove L curved from the pivot-point l as a center. Into this groove the pin J projects. The groove L is provided at or near its center with a depressed cam portion l for operating the locking-bolt H. The lower part of the plate K is made flat and provided with holes P at its extreme ends, into which the locking-bolt for the hinge-arm enters. The plate K holds the bolt back while reversing the seat.

M is a spring lock or bolt carried by the hinge-arm E, operated by a key N and adapted to engage in holes or recesses P at the ends of the plate K or on the seat-arms to lock the hinge-arm against movement. It consists of the bolt m and spring M.

From the foregoing description of the mechanism the operation of the car-seat will now be readily understood, considering the parts as shown in Fig. 1, with the seat-back locked in position by the spring-bolt M engaging in the left-hand hole or recess P. Now, to reverse the seat, this bolt is withdrawn by the key N and the hinge-arm is then free to swing with the seat-back. The tendency of the spring I is to depress the bolt H; but the pin J, fitting into the groove L, holds the bolt up so that its end engages in the notch g of the plate F, locking the seat-back rigidly to the hinge-arm. It is apparent that these parts will remain thus

locked together while moving until the pin J reaches the cam or depressed portion *l* of the groove L, when, by the action of gravity and the spring I, the bolt will be depressed and withdrawn from the notch *g*, allowing the seat-back to swing over to the proper inclination, which will bring the other notch *g* of the plate E in line with the end of the bolt H. As the hinge-arm is moved farther, the pin J is forced out of the cam or recessed part *l*, and thus projects its end into this notch *g*, again locking the seat-back to the hinge-arm. When the hinge-arm reaches its extreme position, the spring-bolt M engages with the hole P, relocking the hinge-arm against movement by the passengers.

While I prefer to use the spring I to depress the locking-bolt H, it is apparent that the depression of the bolt, by making the spring act or the locking-bolt H to move it away from the plate F, the end of said bolt will not wear upon the rim of said plate and mar its finish. This is important, as the metal used in this work is malleable castings, bronzed or plated.

The shifting of the seat-back simultaneously causes a shifting of the cushion through the mediation of the hinge arms and pin, as before described in the general description of the construction. It is immaterial what kind of locks are used to prevent the hinge-arms being moved, though I prefer to employ a spring-bolt such as shown; nor do I limit myself to the other mere details of construction here shown, as it is evident that they may be varied in many ways without departing from the principles of my invention.

I do not claim, broadly, the combination of a seat frame and back with arms pivoted to the frame and back, the said frame and arms being provided the one with a locking-bolt adapted to be forced into engagement with the back and the other with a cam for operating the locking-bolt; but

What I claim as new, and desire to secure by Letters Patent, is—

1. In a car-seat, the combination of a main frame, a pivoted swinging seat-back, hinge-arms pivoted at one end to said main frame and at the other to the seat above its middle, a locking-bolt carried by said hinge-arm to lock the seat-back rigidly to said hinge-arm, having an extension adapted to be actuated by a cam on the main frame, a stationary cam part carried by the main frame to automatically shift the locking-bolt when reversing the seat, notches or recesses upon said main frame, and a spring-bolt carried by the hinge-arm and adapted to engage in said notches to lock the hinge-arm to the main frame in its extreme positions.

2. In a car-seat, the combination of the main frame, the seat-back, hinge-arms pivoted to said main frame at one end and to the seat-back above its middle at the other, a locking-bolt carried by said hinge-arm and adapt-

ed to engage a notch in said seat-back and having an extension adapted to be actuated by a cam on the main frame, a spring to normally depress said bolt, and a cam-groove on the seat-arm having a depressed central portion adapted to operate said bolt, causing it to enter or leave the notch in the seat-back to lock the seat-back to the hinge-arms in their extreme positions and unlock the seat while being moved from one side of the car-seat to the other.

3. In a car-seat, the combination of the main frame, the swinging seat-back provided with two notches upon its side, arranged closely together, opening toward the bottom of the back, hinge-arms pivoted to said seat-back at one end and to the main frame at the other, a locking-bolt carried by said hinge-arm, having an extension adapted to be actuated by a cam on the main frame, and a fixed cam portion upon the main frame, having an upwardly-extending operating-face to operate said bolt to unlock the seat-arm while being swung from one side to the other of the seat and to relock it upon reaching or approaching its extreme position.

4. In a car-seat, the combination of the main frame, a swinging seat-back, hinge-arms pivoted at one end to said seat-back and at the other to the main frame, a bolt carried by said hinge-arm to lock the seat-back rigidly to said arms, having a portion adapted to fit into a curved groove on the main frame, a curved groove to guide said bolt, located on the main frame and having a recessed or depressed portion at its middle to allow said bolt to fall and unlock the seat-back during movement, and a spring to normally withdraw the bolt from the seat-back to release it.

5. In a car-seat, the combination of the main frame, a pivoted swinging seat-back having two similar faces, a shifting seat-cushion, hinge-arms pivoted to the main frame and at their upper ends to the seat-back and also having a connection with the seat-cushion, whereby the back and cushion are simultaneously shifted in opposite directions, a lock carried by the hinge-arms to lock said seat-back in two positions upon said hinge-arms, having an extension adapted to be actuated by a cam device on the main frame, and a cam device on the main frame to positively move the bolt to lock the back to the hinge-arms at the extremities of the movements of said hinge-arms.

6. In a car-seat, the combination of the main frame, a pivoted swinging and non-reversible seat-back having two similar faces and provided with notches for the locking-bolt, hinge-arms pivoted at one end to the main frame and at the other to the seat-back, a sliding locking-bolt carried by one of the hinge-arms on its side adjacent to the back to engage with the notches carried by the seat-back and occupying less space than the distance between the back and hinge-arm, whereby the seat-back may be shifted across the

hinge-arms to either side thereof and locked without being reversed, and cam devices secured to the main frame, with which the locking-bolt engages to hold said bolt in the notches when the back is in either of its extreme positions.

7. In a car-seat, the combination of the main frame, a pivoted swinging seat-back having two faces, hinge-arms pivoted at one end to the main frame and at the other to the seat-back, a sliding locking-bolt carried by the hinge-arms and engaging with notches carried by the seat-back and which is actuated by cam devices on the main frame, a spring to withdraw the bolt from the notches, and cam devices secured to the main frame in the path of the bolt to automatically permit the spring to move it when shifting the seat-back and hinge-arms, whereby the seat-back may be shifted and locked without being reversed.

8. In a car-seat, the combination of the

main frame, a pivoted swinging non-reversible seat-back having two similar faces and notches at its hinge-point, hinge-arms pivoted at one end to the main frame of the seat and at the other to the seat-back, a sliding bolt carried by said hinge-arm to engage with said notches to lock the seat-back in different positions on the hinge-arms, a spring to withdraw said bolt from said notches to unlock the seat-back, and cam devices carried by the main frame and acting on the bolt at the extreme positions of the hinge-arms to positively force it into engagement with the notches to lock the back to the hinge-arms in different positions.

In testimony of which invention I hereunto set my hand.

HENRY S. HALE.

Witnesses:

GEO. W. REED,

ALPHONSUS J. DUNN.