

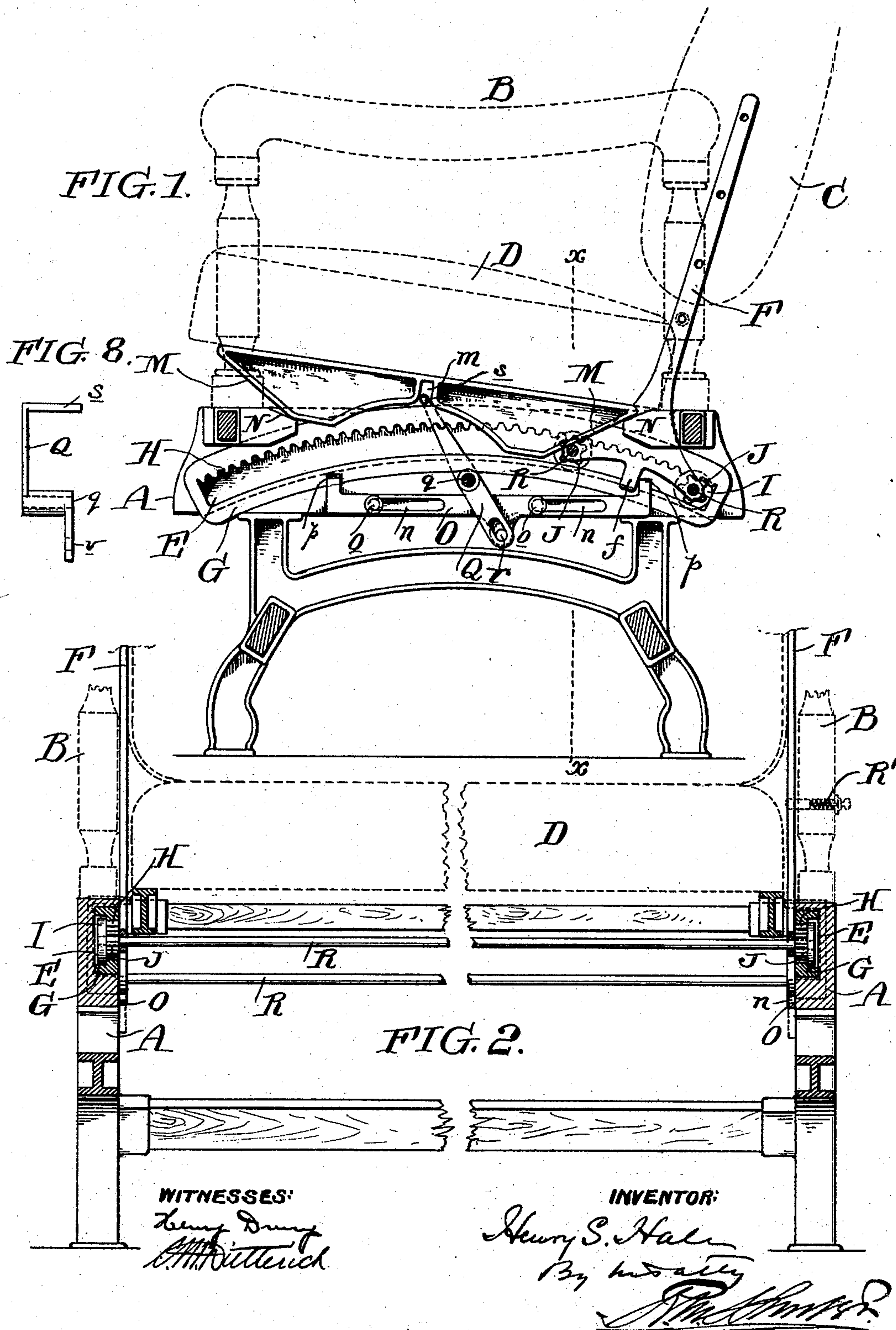
(No Model.)

2 Sheets—Sheet 1.

H. S. HALE.
RAILWAY CAR SEAT.

No. 505,246.

Patented Sept. 19, 1893.



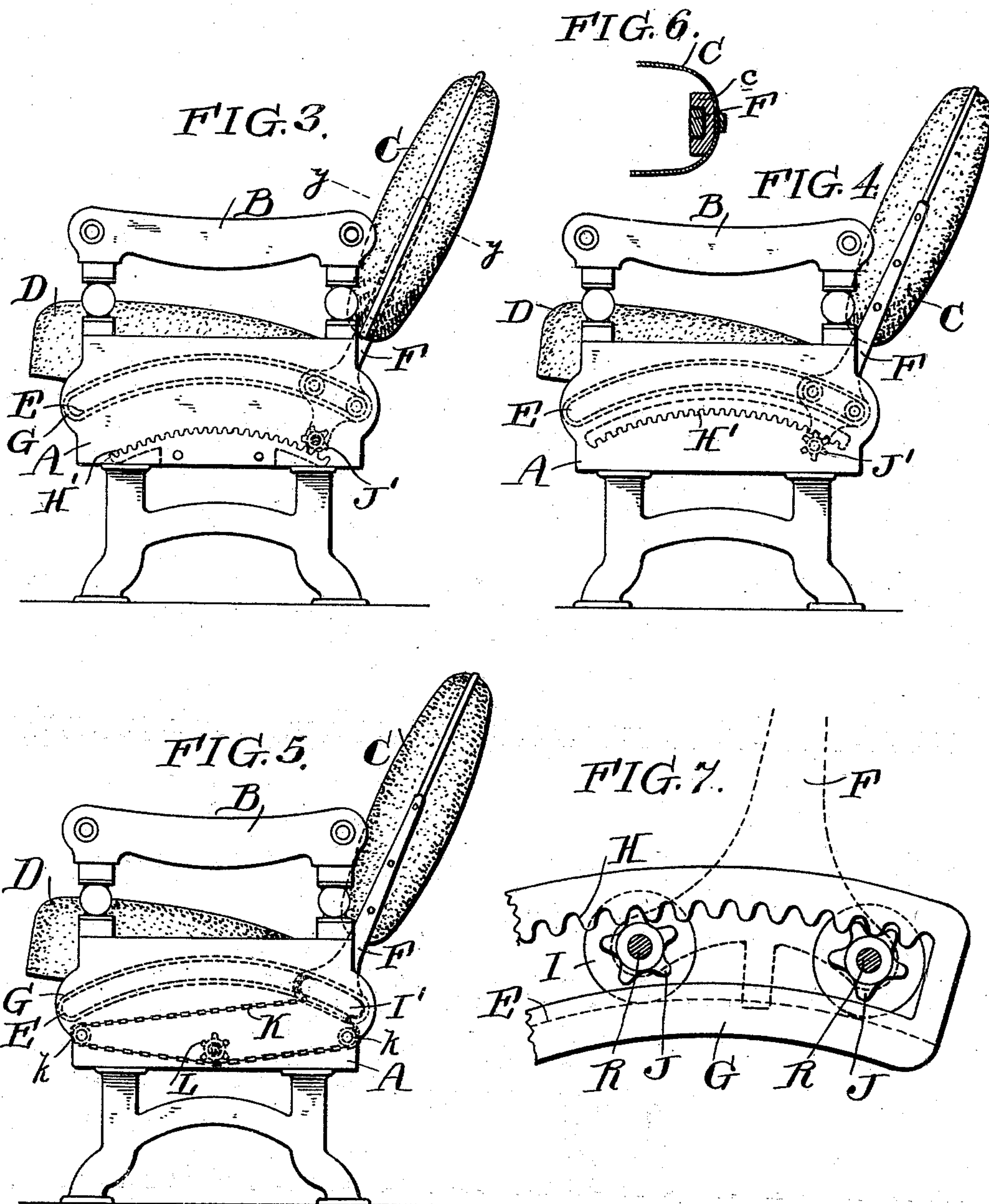
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WITNESSES:

Henry D. Dwyer
C. M. Dittler

INVENTOR:

Henry S. Hale
By his attorney
[Signature]

UNITED STATES PATENT OFFICE.

HENRY S. HALE, OF PHILADELPHIA, PENNSYLVANIA.

RAILWAY-CAR SEAT.

SPECIFICATION forming part of Letters Patent No. 505,246, dated September 19, 1893.

Application filed January 26, 1893. Serial No. 459,772. (No model.)

To all whom it may concern:

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

My invention relates to seats for railway cars, &c., and consists of certain improvements which are fully set forth in the following specification and are shown in the accompanying drawings which form a part thereof.

My invention relates particularly to seats having a shifting back, which may be moved from one edge of the seat to the other for the purpose of reversing the direction of the seat as is usual in the seats employed in railway cars; and it is my object to provide a seat of this character with improved devices for shifting the seat back so that it may be shifted from one position to the other with the greatest ease.

It is also an object of my invention in attaining these advantages to improve the appearance of the seat by dispensing with the striker arms, such as are usually employed, and to conceal from view all metal parts and connections.

My invention also includes the combination with my improved shifting seat back, of a tilting seat cushion and improved devices for automatically changing the inclination of the seat cushion when the seat back is shifted.

In carrying out my invention I employ a seat frame having guideways upon its sides, a seat back, and side arms connected with the seat back and having their lower ends guided in the side guide ways of the seat frame so as to be movable bodily therein from one end of the guide way to the other to permit the shifting of the seat back from one edge of the seat frame to the other. The side arms which carry the seat back move bodily in the guide ways and are preferably connected by power devices which cause both arms to move together so that the seat back may be shifted with great ease.

For the purpose of concealing the side arms and also to permit the seat back to be detached from the side arms, I provide the seat back with recesses or grooves upon its ends to receive the side arms and conceal them within

the ends of the back. If desired, however, the seat back may be pivoted to the side arms so that it may be turned or reversed upon them when they are shifted.

I shall now refer to the accompanying drawings for the purpose of describing the construction and mode of operation of my improved car seat.

In the drawings: Figure 1 is a transverse vertical section of a car seat embodying my invention. Fig. 2 is a longitudinal vertical sectional view of the same on the line $x-x$ of Fig. 1. Figs. 3, 4 and 5 are end elevations of car seats embodying my invention and illustrating modifications thereof. Fig. 6 is a cross sectional view of the seat back on the line $y-y$ of Fig. 3. Fig. 7 is a detail view of a portion of the guide way and shifting side arm. Fig. 8 is a detail view of one of the parts employed for tilting the seat cushion when the seat back is shifted.

A is the ordinary seat frame which may be of the usual construction provided with stationary arm rests B.

C is the seat back.

D is the seat cushion, which may be made a tilting seat cushion or not as may be desired.

The seat frame A is provided upon the inner faces of its side arms with guide ways E extending across the side arms and preferably curved on the arc of a circle.

F are the side arms which are connected at their upper ends with the ends of the seat back C so that the side arms carry and support the seat back. The lower ends of the side arms F are guided in the guideways E on the sides of the seat frame A and are free to move bodily in those guides from one end thereof to the other, carrying the seat back on their upper ends and thus shifting it from one edge to the other of the seat frame.

I have shown in the drawings a number of different specific constructions which may be employed in carrying out this invention.

In Figs. 1 and 2 the guideways E are formed in curved slotted metal plates G carried by the side frames below the cushion and the curved metal plates are provided each with a curved toothed rack H. The ends of the side arms F extend down on the inner side of the plates G and carry shafts R journaled

at their ends in the side arms and projecting into the slots of the plates G. I are idler rollers carried by the extremities of the shafts R adjacent to the guideways E upon which they are adapted to run. In the drawings I have shown the side arms each carrying a pair of idler rollers I. A single idler roller may however be employed. J are cogs carried by the shafts R and engaging with the tooth rack H. When the arms F are shifted the cogs J are rotated in the rack H and travel from one end of the rack to the other. This is more particularly shown in the detail view of Fig. 7. Since the corresponding cogs J on the opposite side arms F are carried by a common shaft R, they must necessarily rotate together, so that whenever either side arm F is positively moved, motion is transmitted through the cogs J and shaft R to the other side arm F and the two side arms move together. The seat back may therefore be shifted with great ease and with the expenditure of very little force.

In the construction shown in Figs. 1 and 2 I have shown each side arm F provided with two cogs J, with the opposite cogs connected by shafts R in the manner described. It is apparent, however, that a single cog J for each arm may be employed if desired. The shifting side arms F may be positively locked to the stationary arm rests B by the usual spring lock R' if desired. (See Fig. 2.)

In the modification shown in Fig. 3 instead of employing the toothed rack H formed upon the guide plate G, I have shown a separate toothed rack H' carried by the side frame below the guide plate G and the cog J' carried by an extension of the arm F and engaging with the toothed rack. The cogs J' on each arm F are connected by a common shaft as in the construction of Figs. 1 and 2. In the modified construction shown in Fig. 4, the toothed rack H' is inverted.

In Fig. 5 I have shown a construction in which instead of the idlers I a lug or slide I' is employed projecting into the curved guide ways G and guided therein. The ends of the side frames F are connected with a chain K passing about idlers k carried by the side frames and around toothed cogs L carried upon a common shaft journaled in the sides of the frame A.

In each of these modified constructions the operation is substantially the same as that previously described. The motion imparted to one side arm is transmitted to the other side arms through the cogs, racks or chains. These parts thus constitute power transmitting connections between the two side arms.

For the purpose of concealing the upper ends of the side arms F to which the seat back C is connected, the ends of the seat back may be provided with grooves c extending up vertically within the body of the seat back and beneath the outer surface and the ends of the arms may be passed up into the grooves c as is indicated in Fig. 6. The seat back C

may thus be slipped upon the upper ends of the arms F which pass up into the grooves c within the body of the back adjacent to its ends. With this construction the seat back may be readily removed from the arms whenever it may be desired, as for the purpose of cleaning or repairing it. If desired, however, the side arms F may be connected externally with the ends of the back C, and the seat back may be pivoted to the ends of the arms so that it may be turned or reversed when it is shifted, in the manner well known. The side arms F, F with their connection R below the seat cushion constitute a shifting U shaped frame which carries the seat back.

As has been heretofore stated, my improved construction for shifting the seat back may be used either with a stationary or tilting seat cushion. When however, it is used with a tilting seat cushion, proper connections are employed to cause the seat cushion to be automatically tilted by the shifting of the seat back. In Fig. 1 I have shown a construction for this purpose. The seat cushion D is provided on its bottom with cam frames M which are adapted to rest upon supports N adjacent to the edges of the seat frame and thus impart an inclination to the surface of the seat. O is a slide bar carried by the seat frame by means of pins o extending through slots n in the bar so as to permit the bar to be shifted. The bar is provided upon its ends with lugs or projections p. Q is a lever pivoted as at q to the side frame and connected with the shifting bar O, preferably by a pin and slot connection r and having its free end extending outside of the guideway E through a slot in the frame A and provided with a pin s which fits into a recess m in the base of the frame of the seat cushion D. The lower end of the shifting arm F is provided with a projection f adapted to strike either lug or projection p of the shifting bar O when the side arm is shifting from one position to another, so as to shift the bar O and thereby rock the lever Q upon its pivot q, so as to cause the free end of the lever acting in the recess m to move the seat cushion. When the seat cushion is so moved the cam face M rides upon the rest N and the seat cushion is thereby caused to assume an inclination. Ordinarily the seat frame A will be provided with a sliding bar O and lever Q upon each side for each side arm F.

I do not limit myself to the minor details of construction here shown as it is evident that they may be varied without departing from the principles of my invention.

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

1. In a railway car seat, the combination with the seat frame and seat cushion, of guideways located in the sides of the seat frame below the seat cushion, movable side arms having their lower ends below the seat cushion guided in the guideways of the side frames

and movable bodily therein from one end to the other, a connection between the lower ends of said movable side arms below the seat cushion whereby said side arms are moved together, the connection shifting with them, and a seat back carried by said side arms.

2. In a railway car seat, the combination with the seat frame and seat cushion carried thereby, of guideways located in the sides of the seat frame below the cushion, a shifting U shaped frame guided in said side guideways and movable bodily from one end thereof to the other, consisting of side arms and a transverse connection between their lower portions below the seat cushion, and a seat back carried by the side arms.

3. The combination of a seat frame having guideways upon its sides, a seat back, side arms connected with the seat back, toothed racks carried by the sides of the seat frame, cogs carried by the side arms and engaging the racks, and idlers carried by the lower ends of the side arms and guided in the guideways, whereby the side arms may be moved bodily from one end to the other in the guideways for the purpose of shifting the seat back.

4. The combination of a seat frame having guideways upon its sides, a seat back, side arms connected with the seat back, toothed racks carried by the sides of the seat frame, cogs carried by the side arms and engaging the racks, idlers carried by the lower ends of the side arms and guided in the guideways, whereby the side arms may be moved bodily from one end to the other in the guideways for the purpose of shifting the seat back, and a common shaft connecting the cogs.

5. The combination with the seat frame, of stationary toothed racks carried by the sides of the seat frame, a seat back, rotatable cogs carried by the seat back and traveling in the toothed racks, and a connection between the cogs whereby they rotate together.

6. The combination with the seat frame of stationary curved toothed racks carried by the side of the seat frame, a seat back, side arms carrying the seat back and rotatable cogs carried by the side arms and traveling in the toothed racks, and a common shaft connecting the cogs.

7. The combination of the seat frame having curved guideways on its sides, a seat back, shifting side arms carrying the seat back and guided in the curved guideways of the seat frame, curved toothed racks carried by the side frame, a shaft journaled in the lower ends of the side arms, and cogs carried by the shaft and traveling in the racks.

8. The combination of the seat frame, the

curved slotted guide plates G having the toothed racks H, the seat back, the side arms F carrying the seat back, the shafts R journaled in the lower ends of the side arms, the idlers I carried by the shafts and guided in the guide plates G and the cogs J carried by the shafts and traveling in the racks H.

9. The combination with the seat frame provided with guides on its sides, a shifting seat back, arms carried by the shifting seat back and guided in said guides, a rotatable shaft carried by said side arms, a toothed cog carried by one end of the shaft, a stationary rack carried by the seat frame with which the cog engages so as to be rotated by it and thereby rotate its shaft, and a rotatable guide piece carried by the other end of the shaft and rotated by it.

10. In a railway car seat, the combination with the seat frame and tilting seat cushion, of guideways located in the sides of the seat frame below the seat cushion, shifting side arms having their lower ends below the seat cushion guided in the guideways of the side frame and movable bodily from one end of said guideway to the other, a seat back carried by the shifting side arms, and operative connections between the shifting side arms and tilting seat cushion.

11. In a railway car seat, the combination with the seat frame and tilting seat cushion, of guideways located in the sides of the seat frame below the seat cushion, shifting side arms having their lower ends below the seat cushion guided in the guideways of the side frame and movable bodily from one end of said guideway to the other, a connection between said side arms extending transversely below the seat cushion and shifting bodily with the side arms, a seat back carried by the shifting side arms, and operative connections between the shifting side arms and tilting seat cushion.

12. The combination of a seat frame having guideways on its sides, shifting side arms guided in the guideways on the sides of the seat frame and movable bodily from one end to the other thereof, a seat back carried by the side arms, a tilting seat cushion, slide bars carried by the seat frame, and operated by the shifting side arms, and connections between the slide bars and tilting seat to tilt the seat when the side arms are shifted.

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

HENRY S. HALE.

Witnesses:

ERNEST HOWARD HUNTER,
O. M. DIETTERICH.