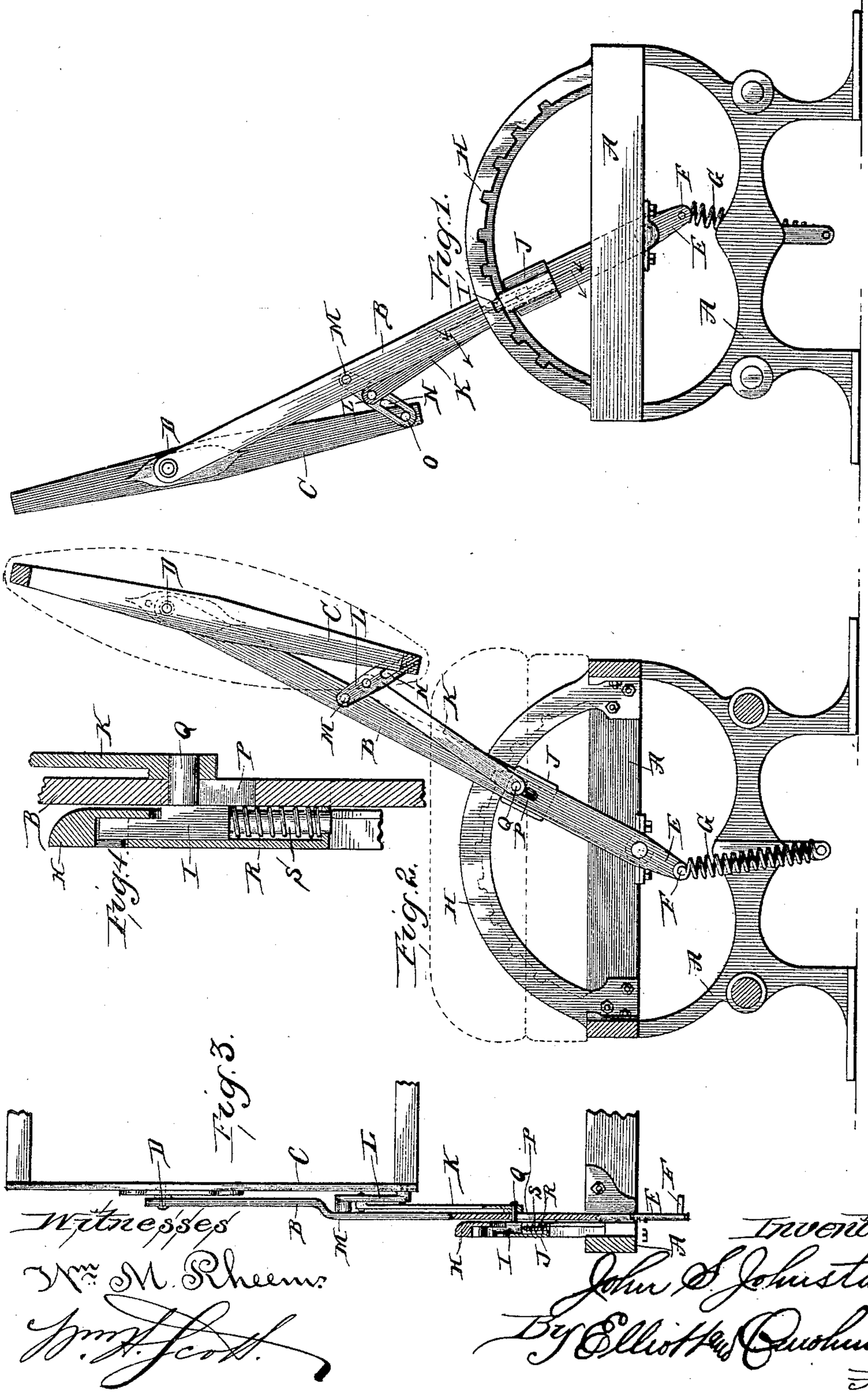
(No Model.)

J. S. JOHNSTON.

CAR SEAT.

No. 450,672. Patented Apr. 21, 1891.



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UNITED STATES PATENT OFFICE.

JOHN S. JOHNSTON, OF CHICAGO, ILLINOIS.

CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 450,672, dated April 21, 1891.

Application filed September 6, 1890. Serial No. 364,102. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. JOHNSTON, a citizen of the United States, residing in the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Seats, of which the following is a specification.

This invention relates to improvements in that class of car-seats known as "reversible reclining-seats," in which the seat-back may be reversed, so as to change the facing direction of the seat, and recline in either direction from its normal upright position.

Heretofore in seats of this character it has been customary to have the locking devices operated by levers, push-pieces, or similar devices generally and necessarily inconveniently located for operation by the occupant of the seat, and frequently requiring more strength and skill to operate them than is possessed by women and children, and, in fact, by a great many men, which not only causes inconvenience to the passengers, but also occupies the time of the conductor, porter, or other train attendant in adjusting the seats to the satisfaction of the passengers.

The prime object of this invention is to have the locking devices for the back so simple, effectual, and easy of manipulation as to practically require no skill or strength in changing the position of the chair-back, whereby is avoided all annoyance to passengers and the loss of time by train-attendants in adjusting the seat.

Another object is to have the locking devices operated wholly by the movement of the chair-back upon its pivots, whereby all operating-levers and push-pieces heretofore employed for releasing the lock devices are dispensed with.

A further object is to have the locking devices of such a character and so connected with the seat-back as to not only limit the outward movement of the lower edge of the back under the weight of the occupant of the seat, but which cannot be released as long as the seat is occupied, except by the occupant of the seat, and then only at a time when the seat-back is relieved of the occupant's weight.

These objects are obtained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of a car-seat embodying my invention; Fig. 2, a transverse vertical section thereof; Fig. 3, a front elevation, partly in section, more clearly showing the connection of the various parts; and Fig. 4, an enlarged detailed section through the locking devices, taken on the line 4 4 of Fig. 1, looking in the direction indicated by the arrows.

Similar letters of reference indicate the same parts in the same figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the seat-frame, from which the side arms are omitted, and to which at each end and at the center of width thereof is pivotally secured a supporting-bar B, between which is hung the back C, upon pivots D, preferably located a little above the center of height of the back, so that when the supporting-bars are in their normal upright position, slightly inclined to either side of a vertical line through the pivots of the bars, the lower edge of the back will have a tendency to swing outwardly. The lower ends E of the supporting-bars are extended a short distance below the pivots of the bars, and are connected by a transverse rod F, to which at the center of length thereof is secured one end of a coil-spring G, the opposite end of which is attached to the seat-frame or a suitable point upon the floor immediately beneath the pivots of the supporting-bars, so that it offers a resistance to the swinging of said bars on their pivots in either direction, and therefore serves to automatically return the bars and chair-back from a reclined to their normal upright position whenever the locking devices are released, thus relieving the operator of the necessity for lifting the chair-back.

The locking devices for securing the back in any adjusted position comprises a segmental toothed rack H at either one or both ends of the seat, secured to the frame A and formed on the arc of a circle struck from the axis of the pivots of the supporting-bars, with which rack engages a slide-bolt I, working in a suitable casing J, secured to the side bar below the rack on which the teeth are internally arranged. This lock-bolt is operated by a connecting bar or rod K, pivotally secured

thereto at one end and at its opposite end also pivotally secured to a link L, pivoted at one end M to the bar B and having a slot N in its opposite end, in which works a pin O upon the lower corner of the seat-back. Thus by reason of the connection of the rod K with the link L at a point intermediate the ends of the link the outward tendency of the lower edge of the back, which causes the link to swing upon its pivotal connection M with the supporting-bar, tends to lift the rod K, and consequently the lock-bolt I, with which it is connected, thereby causing the lock-bolt to normally engage the teeth of the rack H, the bolt being guided in its movement by the casing J, in which it is contained, the supporting-bar being slotted, as shown at P, to permit the free movement of the pivot-pin Q, connecting the bolt and rod K, as illustrated more clearly in Fig. 4.

The upward tendency of the lock-bolt into engagement with the rack under the influence of the outward swinging of the lower edge of the back may be promoted by providing a coil-spring R, sleeved upon the shank S of the bolt and confined between a shoulder or other protection from the bolt and the bottom of the casing in which the bolt works.

Obviously the engagement of the lock-bolt with the rack serves as a stop for limiting the outward swing of the lower edge of the back under the influence of gravity or the weight of the occupant of the seat, whether the back is in an upright or reclined position; but when it is desired to change the position of the back, either from an upright to an inclined position, or vice versa, in either direction, it is only necessary to draw inwardly upon the lower edge of the back or push outwardly upon the upper edge of the back, causing the back to swing upon its pivots D, when the lock-bolt, through the medium of the link-and-rod connection, will be forced downwardly out of engagement with the rack, leaving the supporting-bars free to be moved in either direction. The pin-and-slot connection between the lower edge of the back and the link is for the purpose of permitting the inward swing of the lower edge of the back, either in changing the position of the chair from an upright to an inclined position, or vice versa, or in reversing the chair, in which action the lower edge of the back simply swings across the center, so that when the seat is facing in the reverse direction the reverse side of the back will be used.

It will be readily understood that as long as the seat is occupied the position of the back cannot be changed except by or with the assistance of the occupant of the seat, and then only when the back is relieved of the occupant's weight, for at all other times the weight of the occupant upon the seat-back will serve to hold the locking devices in position against accidental or surreptitious unlocking.

A car-seat made in accordance with my invention embodies numerous advantages in addition to cheapness and durability, chief among which is the ease with which the position of the chair can be changed and the dispensing with all levers, push-pieces, and similar devices for operating the locking devices of the seat.

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

1. In a car-seat, the combination, with the pivoted supporting-bars and the back pivotally secured thereto, of locking devices for said bars connected with the back and operated by the swinging of the back upon its pivots, substantially as described.

2. In a car-seat, the combination, with the pivoted supporting-bars and the back pivotally secured thereto, of the toothed rack secured to the seat-frame, and a lock-bolt carried by one of the supporting-bars adapted and arranged to engage said rack, said bolt being connected with and operated by the swinging of the back upon its pivots, substantially as described.

3. In a car-seat, the combination, with the pivoted supporting-bars and the back pivotally secured thereto, of a toothed rack secured to the seat-frame, a lock-bolt carried by one of the supporting-bars and adapted and arranged to engage said rack, a link pivotally secured at its ends, respectively, to the lower edge of the back and said supporting-bar, and a rod connecting said link and lock-bolt, substantially as described.

4. In a car-seat, the combination, with the pivoted supporting-bars and the back pivotally secured thereto, of a toothed rack secured to the seat-frame and a spring-actuated lock-bolt carried by one of said supporting-bars and normally engaging the rack, said bolt being connected with and operated by the swinging of the back upon its pivots, substantially as described.

5. In a car-seat, the combination, with the pivoted supporting-bars and the back pivotally secured thereto, of a toothed rack secured to the seat-frame, a spring-actuated lock-bolt carried by one of the supporting-bars and normally engaging the rack, a link pivotally connected at its ends, respectively, with the lower edge of the back and side supporting-bar, and a rod connecting said link and the lock-bolt, substantially as described.

6. In a car-seat, the combination, with the pivoted supporting-bars provided with the extension below the pivots thereof, a coil-spring connecting at one end with said extensions and at its opposite end with the seat-frame or the floor, and the back pivotally secured to side supporting-bars, of locking devices for said bars connected with and operated by the swinging of the back upon its pivots, substantially as described.

7. In a car-seat, the combination, with the pivoted supporting-bars provided with the extensions below the pivots thereof, a coil-spring

connected at one end with said extensions and at its opposite end with the seat-frame or the floor, and the back pivotally secured to said supporting-bars, of a toothed rack secured to the seat-frame and a lock-bolt carried by one of the supporting-bars and adapted and arranged to engage said rack, said bolt being connected with and operated by the swinging of the back upon its pivots, substantially as described.

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