

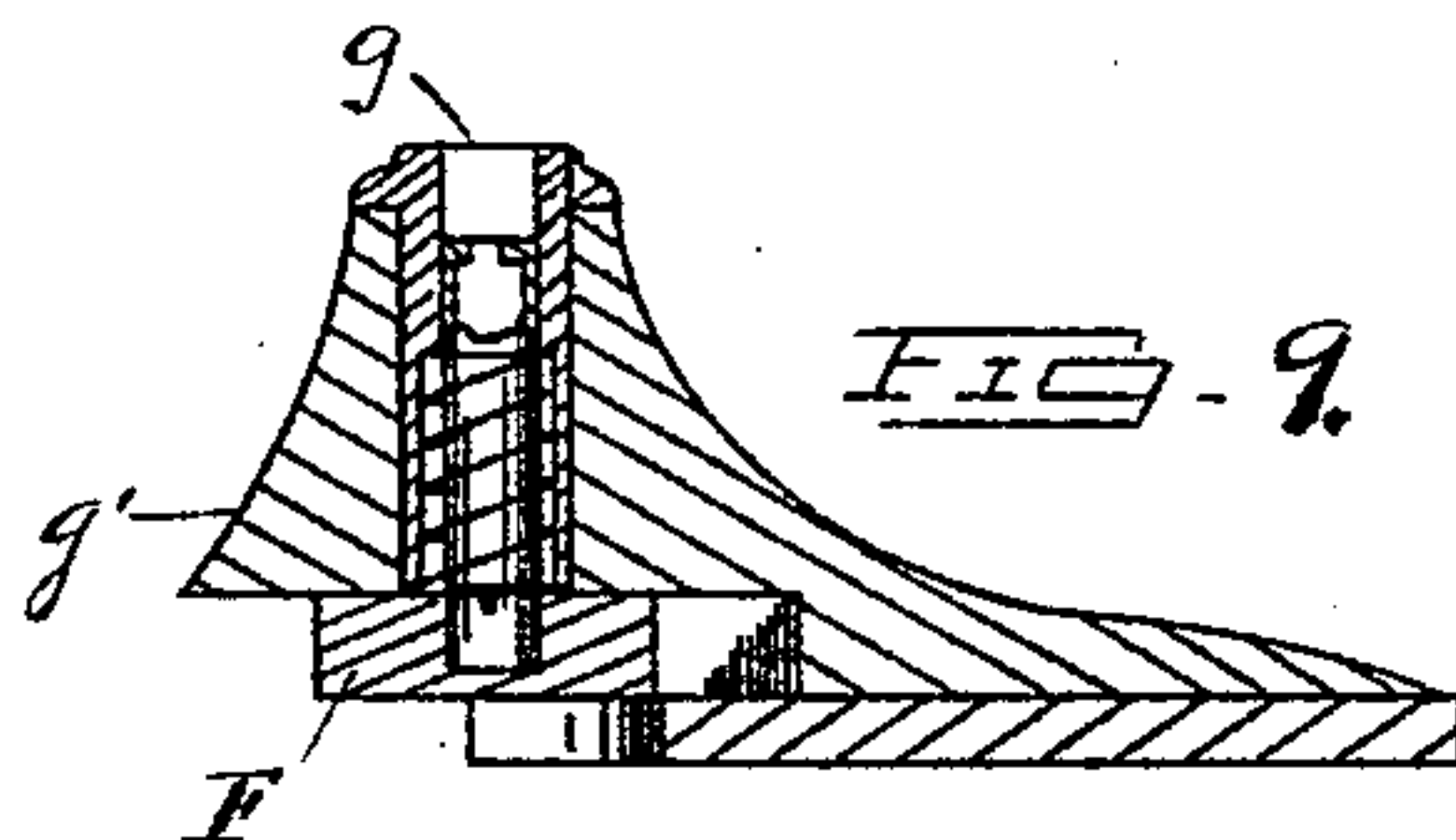
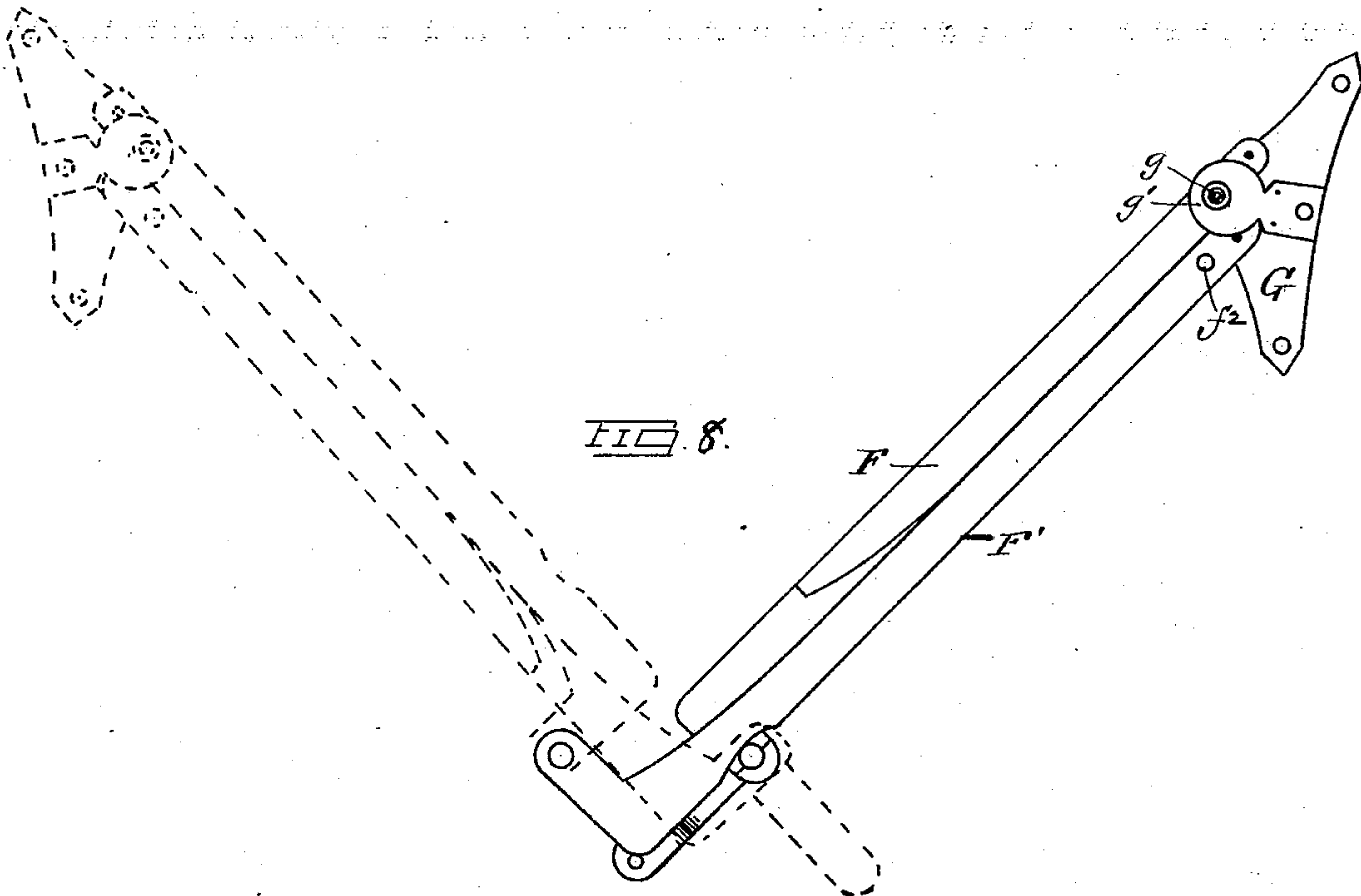
(No Model.)

2 Sheets—Sheet 2.

W. M. NORCROSS.
CAR SEAT.

No. 436,313.

Patented Sept. 9, 1890.



WITNESSES

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CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 436,313, dated September 9, 1890.

Application filed December 12, 1889. Serial No. 333,499. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. NORCROSS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Car-Seats; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to car-seats, and has for its object the provision of improved means for shifting or turning the back and at the same time tilting the seat proper so as to elevate the front edge thereof.

The invention consists in the construction and combination of parts hereinafter set forth and pointed out in the claims.

The accompanying drawings illustrate the invention.

Figure 1 is a transverse sectional view of a car-seat, showing my improvements applied to one end thereof. Fig. 2 is a longitudinal sectional view of one end of the seat, showing my improvements applied thereto. Fig. 3 is a detail view, on an enlarged scale, of the fulcrum-plate and lower end of the levers connected thereto. Fig. 4 is a reverse view of the lower ends of the levers. Fig. 5 is an edge view of the levers and fulcrum-plate. Fig. 6 is a face view of the fulcrum-plate detached. Fig. 7 is an elevation of a rocker detached, showing two slots. Fig. 8 is an enlarged elevation of the arms and the locking device therefor. Fig. 9 is an enlarged sectional view of the locking device.

Similar letters of reference indicate corresponding parts in all the figures where they occur.

A is the seat-frame, B the seat proper, and C the back. The arms of the seat are marked a , the rocker-supports a' , and the seat-frame or end plates a^2 . These parts may be of any desired construction.

D D are the rockers, which are formed with rounded portions d near the ends on the

under side and provided with central enlargements D' , in which one or more slots d' are provided. In the upper faces of the rockers and about central therein are provided angular depressions, into which similarly shaped projections on the under side of the seat proper B project, and whereby the seat B is held and moved or shifted with the movement of the rockers.

On the inner sides of the end plates or seat-frame a^2 are secured fulcrum-plates E, in which are provided apertures e , which take pivot-pins on the back levers, as will presently be explained.

F F' are the back levers, which are preferably of bell-crank form, having long arms extending up to and hinged to the back, and short arms, for purposes presently to be explained. The levers F F' have pivot-pins f at one of the ends of their short arms, which pins have bearings in the apertures e in the fulcrum-plate. These apertures e may be elongated laterally, so that the levers F F' need not be cut away to accommodate each other, as shown in Figs. 3 and 5, but may extend the full width clear down to the right-angle arms, as will be readily understood. This lever F' carries a bracket F* extending inward under the seat, which bears a wrist-pin f^* on its inner end for engagement in a slot d' in the rocker. The levers are fitted upon each other snugly, and the short arms at their lower ends are provided with oppositely-set angle-pieces, which enable the levers to be crossed at this point, so that the action of the levers when the back is raised will be to turn it and bring it into position on the other edge of the seat, while at the same time the wrist f^* operates upon the rocker to tilt the opposite edge of the seat upward and thus always give a sufficiently elevated front edge to the seat to insure comfort to the occupant.

Stops e^* may be provided upon the fulcrum-plate to limit the movement of the levers, which stops will be so located as to insure the proper position of the back when it is turned one way or the other. Stops may also, if desired, be provided upon the upright portions of the arms, suitably located to co-act in unity of contact with the stops on the

fulcrum-plates when the back is in position for occupancy.

Plates G are attached to the ends of the back, and the levers F F' are pivoted to it in such position as to be relatively reversed as to points of attachment with reference to their lower ends, and so as to bring one or the other of them under the spring-bolt *g* when the back is in position for occupancy, which bolt will then engage an aperture *f*² in one or the other of the levers and hold the back from being turned until it is purposely released. To prevent unwarranted disturbance the bolt may be locked in its engagement so as to be released only by the application of a key by an authorized person.

The operation of the device will be readily understood from the description already given. When the back is turned from one side of the seat to the other the pins *ff* on levers F F', having a fixed bearing in the fulcrum-plate E, will cause the projecting end F* of lever F, which rides in the slot in the rocker, to throw the rocker and its attached seat in direction opposite to the movement of the back, and thus tilt the front of the seat, as shown in Fig. 1. In either position of the back, whether it is turned to one side or the other of the seat, the crossed levers F F' will lie edge to edge in the same plane, as indicated in full and in dotted lines in Fig. 3. The bolt *g* on plate G will lock one or the other of the arms and hold the back in the desired position. The bolt is supported in a bracket *g*, which projects over the center of the plate.

It is apparent that the levers F F' can be crossed without having the short arms upon their lower ends and still be fulcrumed in the narrow limits of the fulcrum-plate and effect substantially the same result; but the short arms will, I believe, be found to be the best construction and give the most satisfactory operation.

I may use one or two slots *d'* in the rocker and shift the wrist *f** from one to the other when two are provided, and thus vary the pitch of the seat B; but for all practical purposes one slot will be sufficient.

Other changes in construction and arrangement of parts will suggest themselves to those skilled in the manufacture and construction of these articles.

The fulcrum-plate may be omitted and the levers pivoted directly to the seat-frame, particularly where the seat-frame is made of metal.

Very many important advantages arise from constructing the back levers, as herein proposed, and placing them edge to edge. It is evident that the entire width of space occupied by the two levers is the thickness of one of said levers only, whereas in the ordinary crossed levers used in car-seats the thickness of both levers must be taken into account at each end. By thus reducing the space occupied by the levers it is evident

that a longer space is given for the cushion and a much more compact and capacious seat is afforded without increasing the space occupied thereby. The levers being pivoted close together at both the bottom and the top, being crossed right at the bottom and lying edge to edge do not cover so great an arc in turning the seat back as where the levers are not so arranged, and the consequence is that the width of the seat is reduced and space economized and also the length of the seat-arm is very decidedly reduced and the entrance-space to the seats enlarged.

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

1. The combination of the back levers having short right-angle arms at the lower ends crossed upon each other, said levers lying edge to edge in the same vertical plane when the back is in position, and pivoted to the seat-frame at their lower ends and to the back at their upper ends, as set forth.

2. The combination, with a rocker by which the seat proper is supported and moved, having a vertical slot in the lower side thereof, of back levers crossing each other at their lower ends and lying in the same vertical plane, said levers being pivoted to the seat-frame on the same horizontal line, and one of them having an angular projection on its lower end working in the slot in the rocker, as set forth.

3. The combination, with a fulcrum-plate having pivot-receiving apertures, of the back levers having short angle-arms crossed upon each other, said levers lying edge to edge in the same plane when the back is in position, and provided at their ends with pivots engaging said apertures, and pivoted at their upper ends to the back of the seat, as set forth.

4. The combination, with a fulcrum-plate having pivot-receiving apertures, of back levers having crossed lower ends with pivots engaging said apertures and pivoted at their upper ends to the seat-back, one of said levers bearing a wrist-pin, and a seat-rocker having a slot in which said wrist-pin is engaged, as set forth.

5. The combination, with a swinging or reversible back having a plate G secured on its end and provided with a bolt *g* above said plate, of two levers pivoted to said plate at the side of said bolt at one end and at the seat-frame at the other, and one coming under the bolt and being engaged thereby when the back is turned one way and the other when the back is turned the other way, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM M. NORCROSS.

Witnesses:

THOMAS D. MOWLDS,
FREDK. J. LAMBERT.