

No. 654,352.

W. M. NORCROSS.
CAR SEAT.

Patented July 24, 1900.

(Application filed May 6, 1899.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1^a.

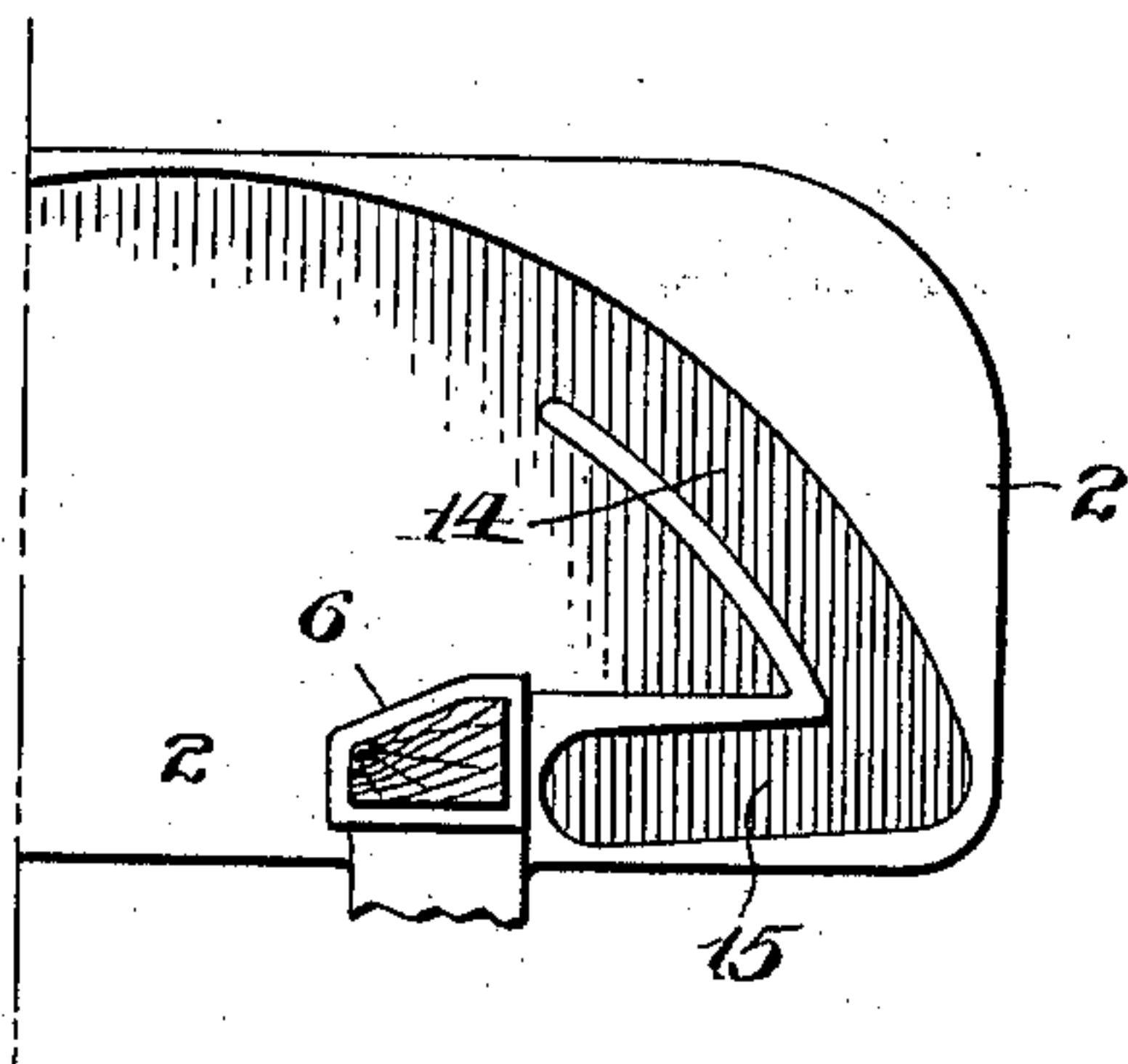
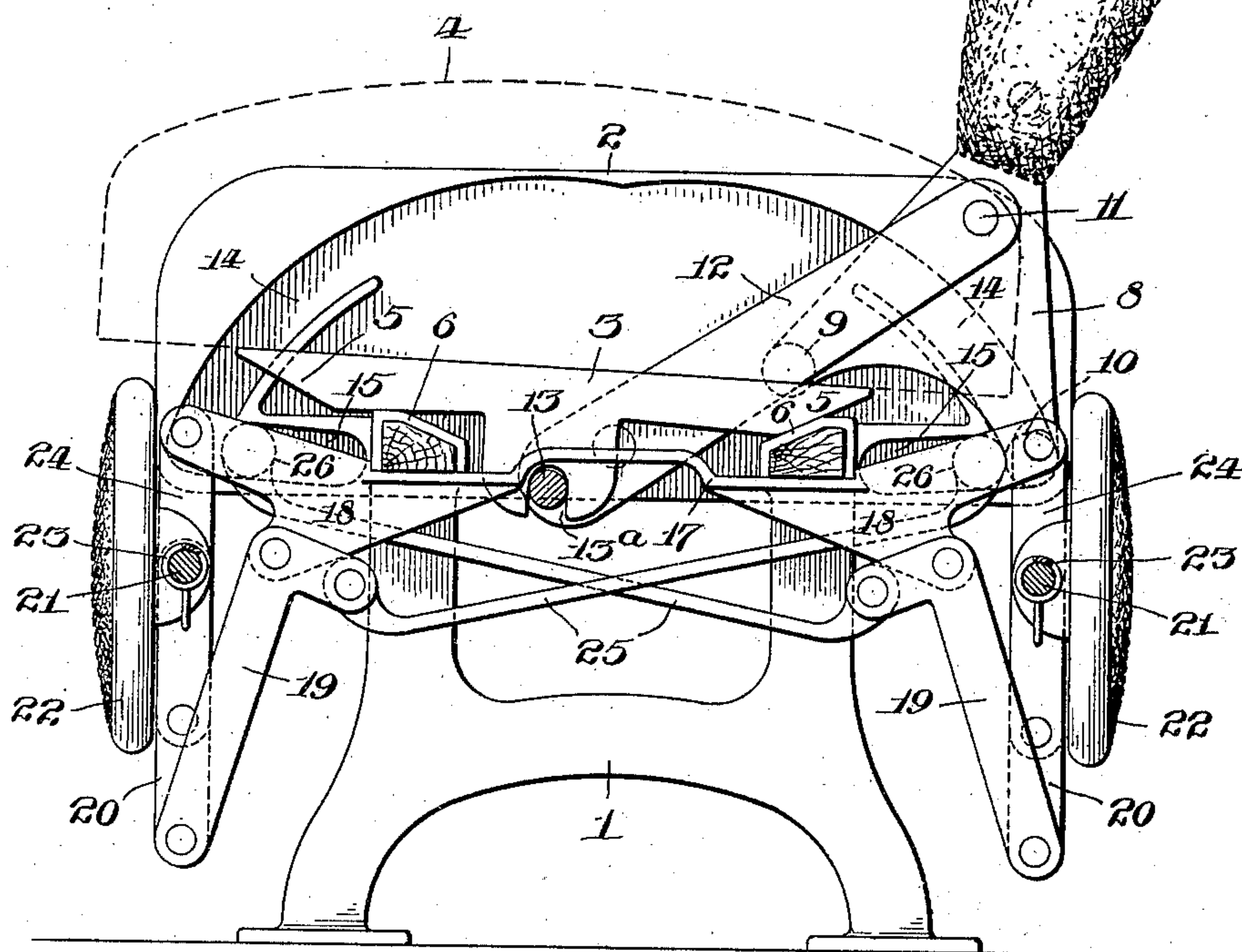


Fig. 1.



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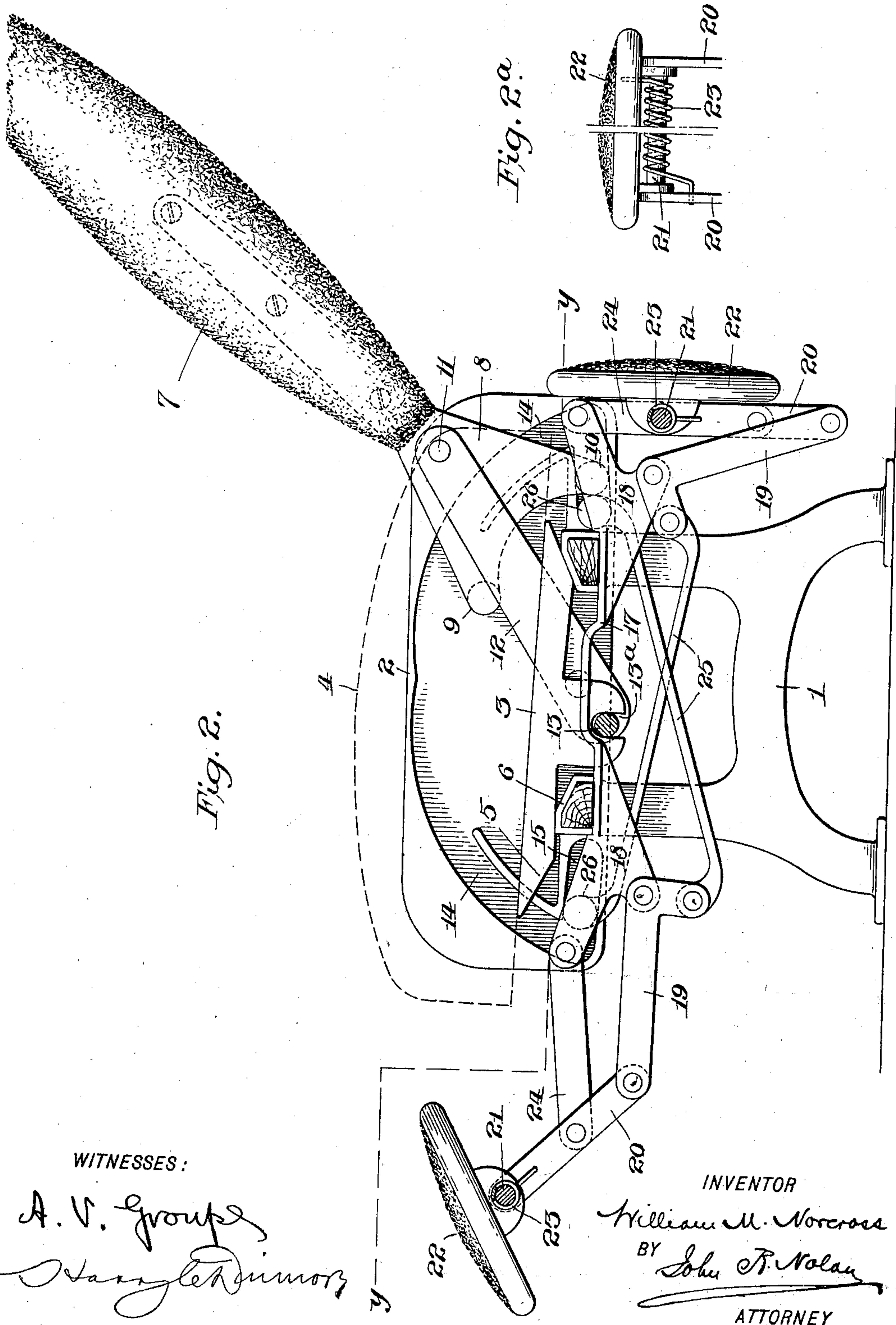


Fig. 2.

Fig. 2a.

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3 Sheets—Sheet 3.

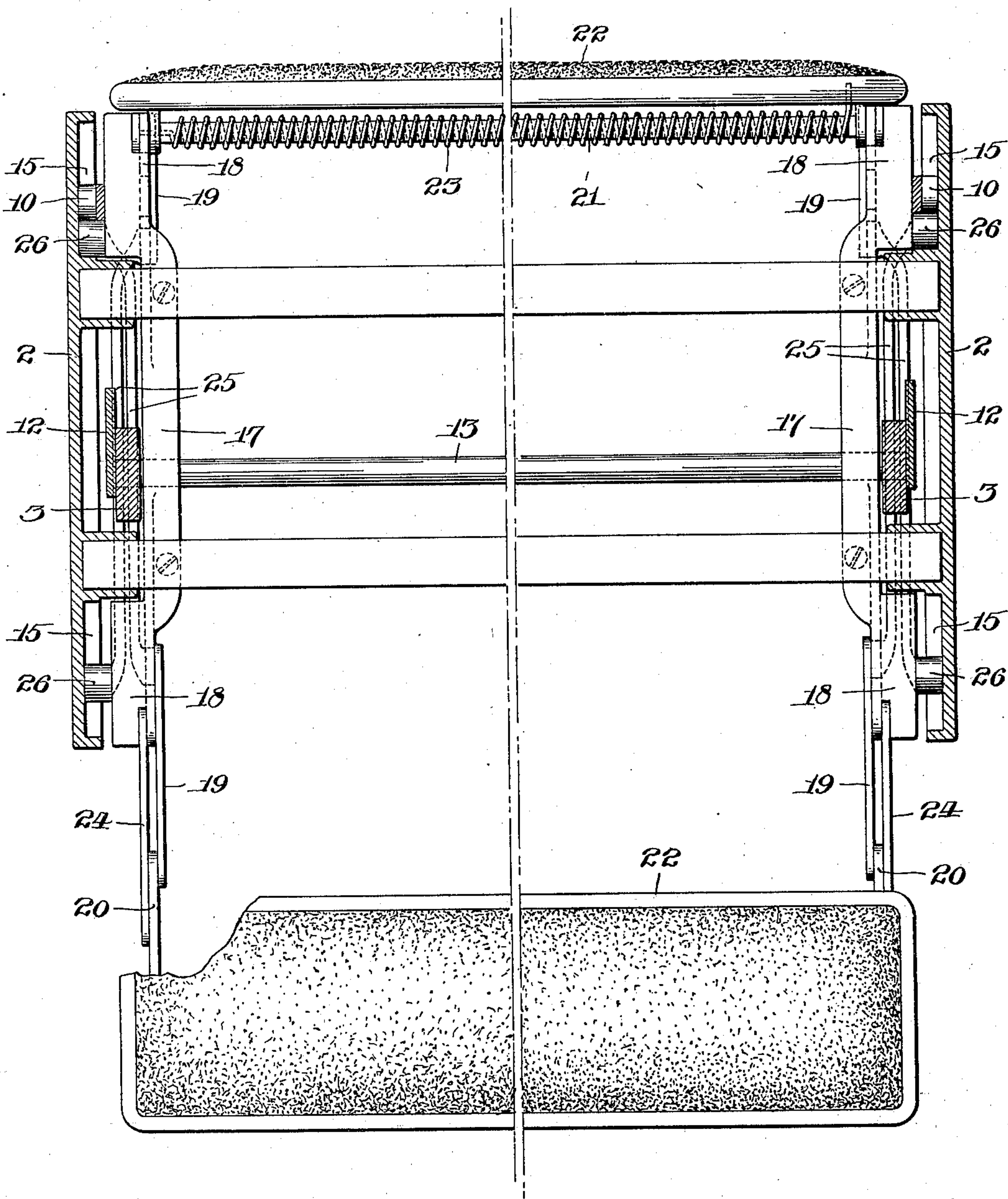


Fig. 3.

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WILLIAM M. NORCROSS, OF PHILADELPHIA, PENNSYLVANIA.

CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 654,352, dated July 24, 1900.

Application filed May 6, 1899. Serial No. 715,803. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. NORCROSS, a citizen of the United States, residing at the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Car-Seats, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to car-seats, and more especially to that class wherein the seat and back sections are so relatively arranged and connected that the latter may be shifted or swung from side to side of the former as occasion may require and the seat-section at the same time be inclined and forwardly projected in respect to the position of the back.

The invention is in the nature of an improvement on the car-seat set out in my Letters Patent of the United States No. 610,719, dated September 13, 1898, to which reference may be had, my object herein being to afford provisions whereby the said seat may be converted into a reclining-chair at the will of the occupant irrespective of the direction the seat may be facing. To that end I combine in a novel and effective manner with the car-seat certain leg (or foot) rest sections, which are so mounted and organized with relation to the back that the positions of the sections will be automatically controlled thereby. Thus when the back occupies its usual inclined position relative to the seat (regardless of the direction the seat may be facing) the said rest-sections will be closed or retracted. When the back is further tilted or inclined, the forward section will be projected and elevated to afford the occupant of the seat a convenient leg or foot rest, the elevation of which will be determined by the angle or inclination of the back, and when the back is shifted to the opposite side of the seat and likewise inclined the positions of the rest-sections will be reversed. In this way a reversible reclining-seat is provided.

Accordingly my invention comprises novel features of construction and organization of parts, which will be hereinafter particularly described and claimed, it being understood that I do not confine myself to the precise mechanism herein shown and described, as

the same may be considerably modified without departing from the fair spirit of the invention.

In the annexed drawings, Figure 1 is a longitudinal vertical section, partly in elevation, of a car-seat embodying my improvement, the leg-rests being shown in retracted position. Fig. 1^a is a detail of a portion of one of the frame members. Fig. 2 is a view similar to Fig. 1, illustrating the parts in the relative positions they occupy when one of the leg-rests is projected. Fig. 2^a is a detail of one of the leg-rest sections and adjuncts. Fig. 3 is a horizontal section as on the line *y y* of Fig. 2.

1-1 are suitable end frames on which are formed or secured the transverse members 2, and 3 are the usual rockers that sustain the seat-section 4. These rockers comprise slides with oppositely beveled or inclined portions 5, that bear upon the fixed socket casings or supports 6 on the frame, whereby when the rockers are slid to and fro they, together with the seat-section, are correspondingly projected and tilted. The rockers are actuated by and during the adjustment of the back-section 7. This section is provided at each end with a depending arm 8, which lies adjacent to the inner side of the frame member and is provided with two studs or projections 9 10, located at points equidistant from the median line of the back and arm. The arm is pivotally connected at a fixed point thereon below the back-section, as at 11, to the upper end of a lever 12, that is fulcrumed on the frame member, so that as said lever is swung to and fro the back will be bodily lifted and carried thereby from side to side of the seat. The lower arms of the levers on the respective frames are connected by a rod 13, which insures their concerted movement. This rod engages slots or sockets 13^a in the respective rockers, and thus during the shifting of the back from side to side reciprocates the rockers to effect the requisite adjustment and inclination of the seat-section.

On the inner side of each of the frame members are two reverse-cams 14 14, with which the studs or projections on the proximate arm are adapted, alternately, to coact as the back is swung from side to side, and thereby positively guide and steady the back in its ad-

justment, the lower edge of the back being bodily elevated by the lever sufficiently to clear the arched cushion of the seat. The lower extremities of the cams communicate
 5 with guideways 15, which extend toward and adjacent to the casings 6 6, respectively, and constitute, in effect, continuations of the respective cams for a purpose below explained. The lower or inner walls of the cams are fore-
 10 shortened to afford an extended open space or gap on each side of the median line of the seat for the passage below the cams of the rearward stud on the lever as the back is tilted in its traverse. The upper walls of the
 15 cams meet about the median line of the seat-frame, or substantially so, to the end that just before the escape of the rearward stud from the lower wall of the cam with which it is engaged the forward stud will coact with the
 20 upper wall of the opposite cam, and thus insure a stable support for the back as it is swung across the center of the seat.

Adjacent to and parallel with each of the frame members is a bridge-bar 17, that is rigidly affixed to the socket-casings or elsewhere
 25 on the end frame. This bar is provided with expanded end portions 18, which afford suitably-located supports for bell-crank levers 19 19, respectively. A corresponding lever and
 30 connections therefor are disposed at each end of each of the bridge-bars, as shown, and therefore a description of one lever, with its connections, will suffice. The longer arm of the lever is pivotally connected with the lower
 35 end of a bar 20, on the upper or free end of which is supported one end of a rod 21, that extends parallel with one side of the seat. This rod connects the two bars 20 at the respective ends of the seat and insures their
 40 movement as a unit. On the rod is pivotally supported a section 22, which constitutes a leg-rest. This rest is sustained yieldingly in place by a torsional spring 23, which, encircling the rod, is secured to the leg-rest
 45 and to one of the end bars. When the rest is projected, (as below described,) the spring maintains the same in horizontal position, or nearly so.

Each of the bars 20 is connected with the
 50 adjacent end of the bridge-bar by a link 24, whereby when the crank-lever is properly actuated the leg-rest will be swung downwardly adjacent to the side of the seat or be projected forwardly thereof in position to receive
 55 the legs of the occupant.

The lever is actuated through the medium of an inclined push-bar 25, the lower end of which is pivotally connected with the shorter arm of the lever, while the upper end extends toward the opposite side of the seat and
 60 is provided with a laterally-disposed stud or projection 26, that is fitted to one of the guideways 15 in the adjacent frame member.

There are two leg-rests, one at each side of
 65 the seat. These rests are correspondingly supported and operated, the push-bars therefor crossing each other below the seat-section

and being connected with the opposite guideways in the frame members. The positions
 70 of the leg rests in respect to the seat are controlled by the adjustment or inclination of the back. Normally they occupy the closed or retracted positions represented in Fig. 1, wherein, as will be observed, they, together
 75 with the bars and links, occupy a vertical position, and the upper ends of the push-bars are at the respective junctions of the cams and guideways. In this view the seat is shown as facing toward the left, the back being in
 80 what may be termed its "normal inclined position"—that is, the right-hand stud or projection on the arm 8 is at the bottom of the proximate cam. This stud or projection thus bears against the opposing end of the push-
 85 bar which is connected with the forward leg-rest, the vertical position of the latter and its bar and link serving as a temporary lock to prevent, under ordinary conditions, the further rearward inclination of the back. If,
 90 however, this leg-rest be sharply pulled outward sufficiently to throw the bar and link out of parallelism and rearward pressure be thereupon exerted against the back, the right-
 95 hand stud or projection on the arm 8 will enter the right-hand guideway, and, bearing against the opposed projection on the push-bar, will advance the latter in a manner to project and elevate the forward leg-rest, as
 100 seen in Fig. 2. Thus it will be seen that the occupant of the seat may be leaning back more or less, and at the same time regulating his weight on the leg-rest, determine the degree of inclination of the seat-back and the
 105 elevation of the leg-rest. If the back-section be swung to the opposite side of the seat, the left-hand stud on the arm will enter the adjacent guideway and act upon the opposing push-bar to project the then-forward leg-rest into operative position, the previously-
 110 projected leg-rest assuming, by gravity, its closed or normal position upon the removal of the opposing stud from the push-bar during the adjustment of the back.

It will be understood that when the back in its traverse occupies the central or vertical
 115 position both studs bear against the upper walls of the respective cams and that as the movement is continued the advancing stud continues in engagement with the upper wall of the cam, while the rearward stud swings
 120 downward below the same, thereby effecting the gradual inclination of the back and permitting the engagement of the advancing stud with the guideway at the end of the cam, also, that as the back is swung from
 125 side to side the studs coact with the two oppositely-disposed cams in alternate succession.

I claim—

1. In a car-seat, the combination, with the
 130 frame and the back, of a depending arm on said back, a lever pivoted to said frame and having a fixed pivotal connection with the arm, a cam connection between said frame

and arm, whereby as the back is swung upon the lever from side to side of the seat the back is guided and adjusted in respect to the seat by said pivotal and cam connections, and means whereby the back and its arm when swung to either side of the seat may be tilted rearwardly upon the lever independently of the cam connection.

2. In a car-seat, the combination, with the frame and the back, of a depending arm on said back, a lever pivoted to said frame and having a fixed pivotal connection with the arm, a cam connection between said frame and arm, whereby as the back is swung upon the lever from side to side of the seat the back is guided and adjusted in respect to the seat by said pivotal and cam connections, normally-retracted foot-rests at or adjacent the respective sides of the seat, and means whereby the said rests are alternately actuated by the adjustment of the back.

3. In a car-seat, the combination with the frame, the back, and means whereby the back may be shifted from side to side of the seat, of normally-retracted rests at or adjacent the respective sides of the seat, and means whereby the back when shifted to a certain angle at either side of the seat will not affect the positions of said rests, but when the back is tilted beyond such angle the forward rest will be projected.

4. In a car-seat, the combination with the frame, the back, and means whereby the back may be shifted from side to side of the seat, of normally-retracted rests at or adjacent the respective sides of the seat, lever mechanism connected with said rests, oppositely-disposed independently-movable push-bars connected with said mechanism, and means whereby said bars are alternately actuated by the adjustment of the back in a manner to project the forward rest and release the rearward rest.

5. In a car-seat, the combination with the frame, the tiltable back, and means for supporting and adjusting the latter, of a rest at or adjacent the front of said seat, a lever, operative connections between the same and the rest, a push-bar pivotally connected at its forward end with said lever, and loosely supported at its inner or rearward end so as to have free longitudinal movement within certain limits independently of the back, and means whereby said bar is advanced when the back is tilted beyond a certain angle.

6. In a car-seat, the combination with the frame, the tiltable back, and means for supporting and adjusting the latter, of a rest at or adjacent the front of said seat, a lever, a bar pivotally connected therewith and with said rest, a guide or link for said bar, and separable means intermediate the lever and the back adapted to abut against each other and project the said rest when the back is tilted, and to be separated when the back is moved in a reverse direction.

7. In a car-seat, the combination with the frame, the back, and means whereby it may be shifted from side to side of the seat, and in either position of adjustment tilted rearward, of rests, levers adjacent thereto, bar-and-link connections between the adjacent levers and rests, push-rods pivotally connected with the respective levers and extended toward opposite sides of the seat, and means whereby said bars are independently actuated by the adjustment of the back.

8. In a car-seat, the combination with the frame provided with a lateral cam, and with a guide communicating with said cam, of a seat-back, a depending arm thereon, means on said arm to coact with said cam and guide, a rest at or adjacent the front of the seat, and operative connections between said rest and the guide.

9. In a car-seat, the combination with the frame provided with lateral cams having guides leading therefrom respectively, of a seat-back, an arm thereon provided with two cam-engaging portions to coact with said cams and guides as described, rests at or adjacent the respective sides of the seat, and operative connections between said rests and the guides respectively.

10. In a car-seat, the combination with the frame provided with two reverse-cams, the lower extremities of which communicate with inwardly-extending guideways, of a seat-back, a depending arm thereon provided with studs adapted to coact with said cams, and guideways, a lever pivoted to said frame and arm, crank-levers, a bridge or support therefor, oppositely-disposed rest-sections, supporting-bars therefor pivotally connected with said crank-levers, link connections for said bars, and oppositely-disposed push-bars connected with said crank-levers and operatively engaged with said guideways.

11. In a car-seat, the combination with the frame provided with two reverse-cams, the lower extremities of which communicate with inwardly-extending guideways, a seat-section, and an adjustable support therefor, of a back, a depending arm thereon provided with studs adapted to coact with said cams and guideways, a lever pivoted to said frame and arm and operatively connected with the seat-support, crank-levers, a bridge or support therefor, oppositely-disposed rest-sections, supporting-bars therefor pivotally connected with said crank-levers, link connections for said bars, and oppositely-extending push-bars connected with said crank-levers and with the said guideways.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

WILLIAM M. NORCROSS.

Witnesses:

ANDREW V. GROUPE,
JOHN R. NOLAN.