

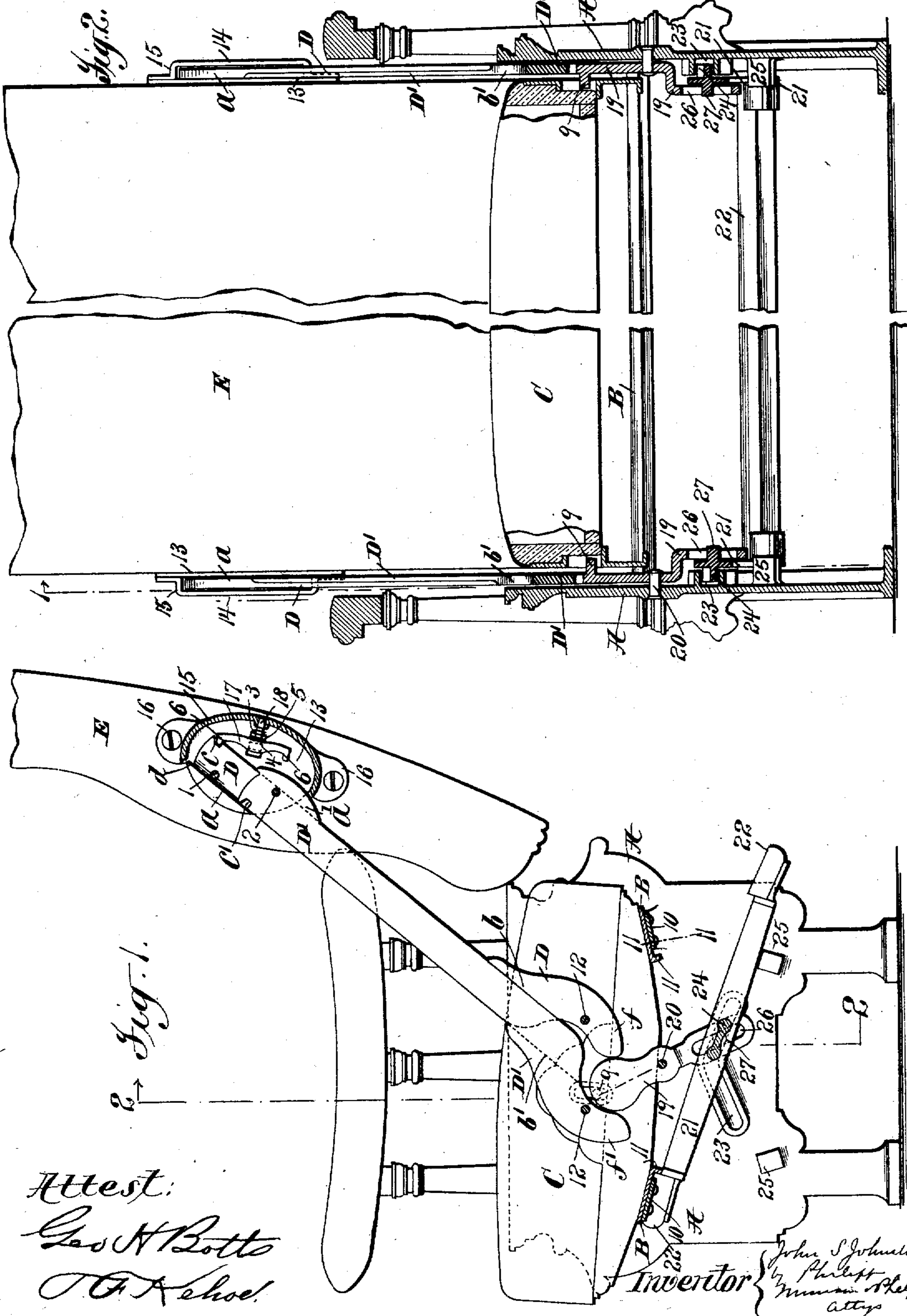
(No Model.)

3 Sheets—Sheet 1.

J. S. JOHNSTON.
CAR SEAT.

No. 542,411.

Patented July 9, 1895.



Attest:
Geo H Botta
J A Schoe

Inventor } John S Johnston
 } By Philip
 } Munroe Kelly
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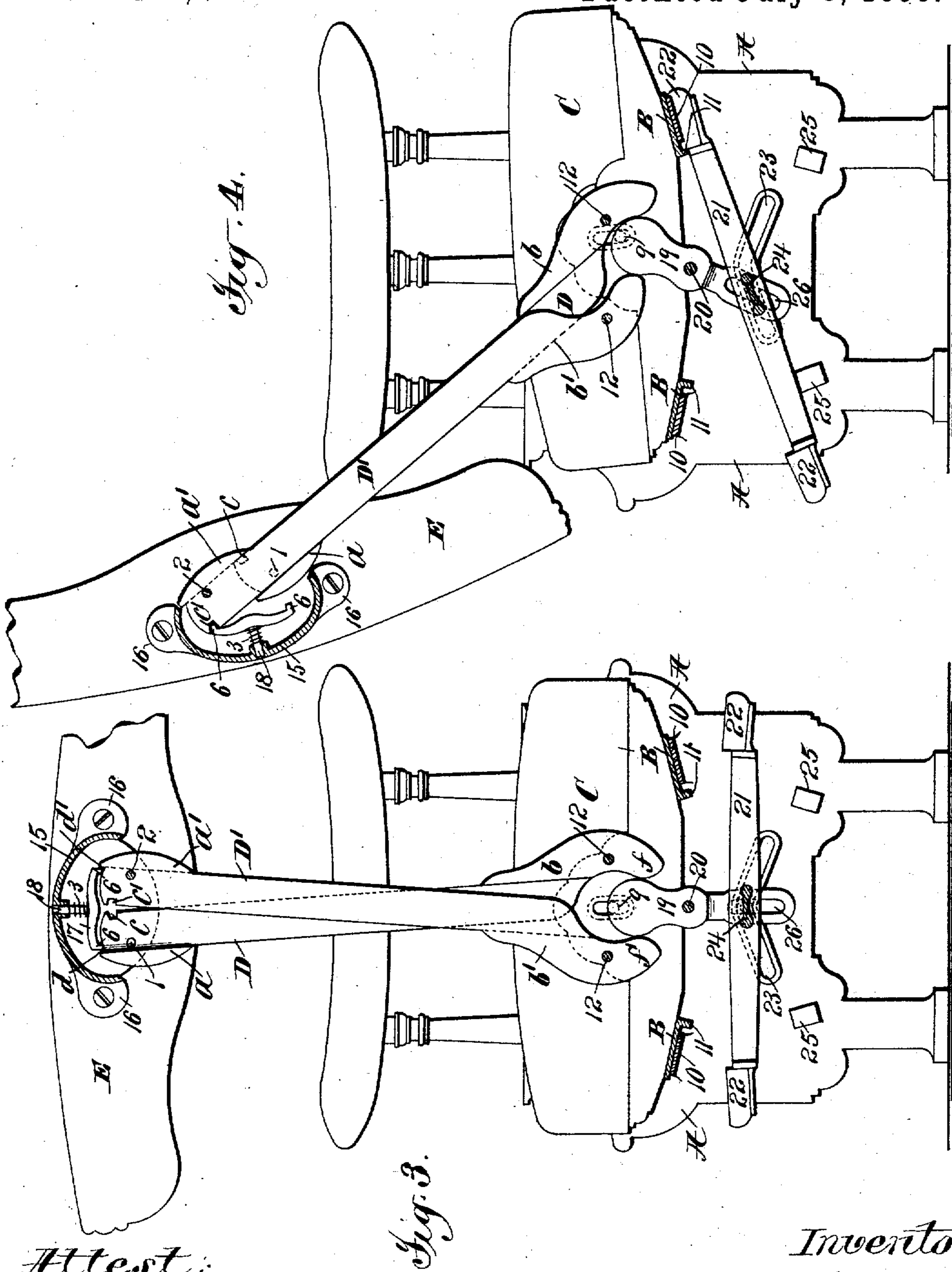
(No Model.)

3 Sheets—Sheet 2.

J. S. JOHNSTON.
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No. 542,411.

Patented July 9, 1895.



Attest:

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D. A. Schoe

Inventor:

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by Philipp Museum Phelps
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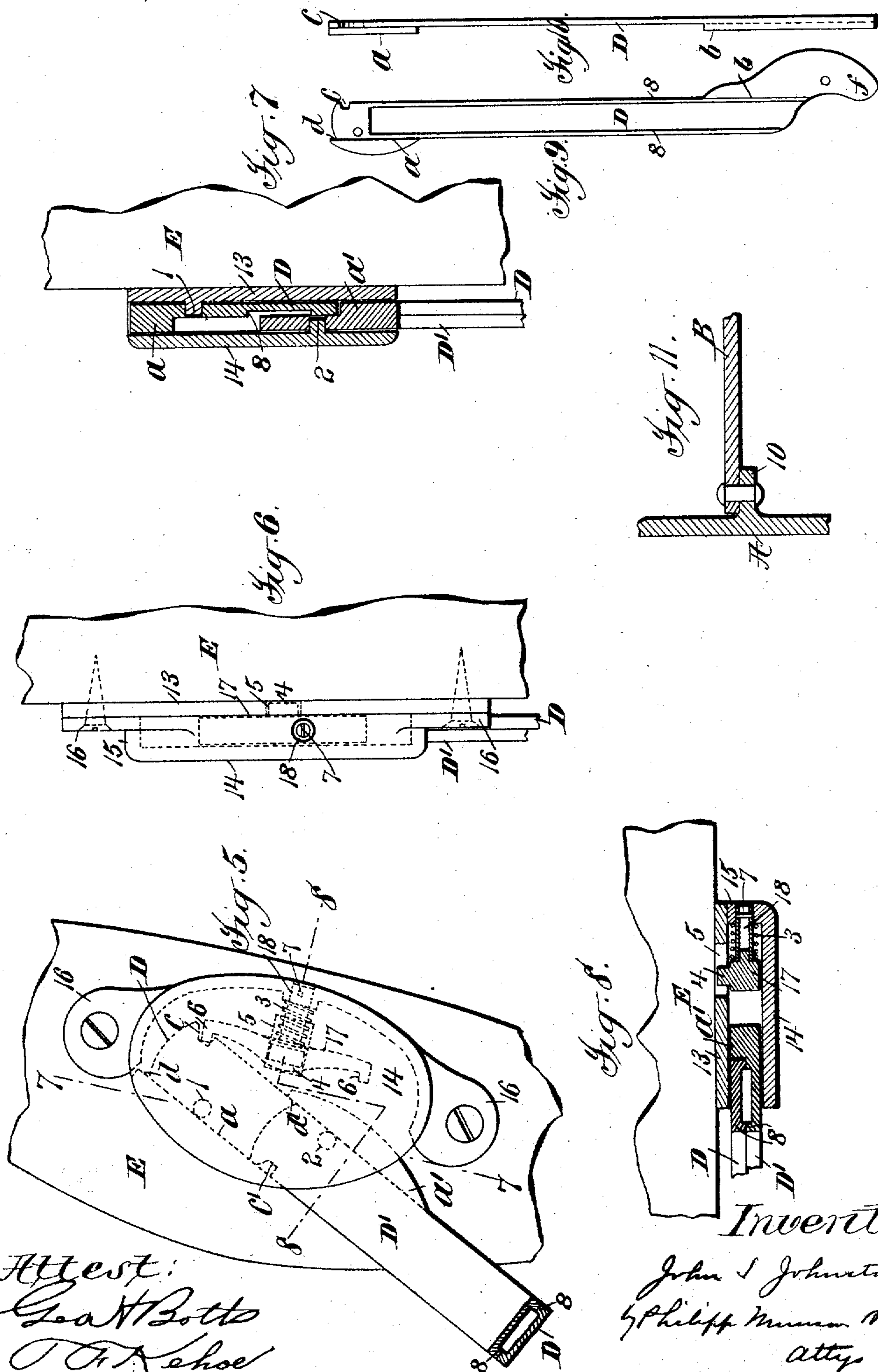
(No Model.)

3 Sheets—Sheet 3.

J. S. JOHNSTON.
CAR SEAT.

No. 542,411.

Patented July 9, 1895.



Attest:
Geo. H. Bots
O. A. Kehoe

Inventor.
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att'y

UNITED STATES PATENT OFFICE.

JOHN S. JOHNSTON, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE POTTIER & STYMUS COMPANY, OF NEW YORK, N. Y.

CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 542,411, dated July 9, 1895.

Application filed October 13, 1894. Serial No. 525,799. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. JOHNSTON, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Car-Seats and Similar Constructions, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to provide an improved car-seat of that class in which the back may be shifted for facing in opposite directions, the invention relating especially to an improved construction of arms, by which the back is reversed or changed from one facing direction to another, and to an improved foot-rest of general application in this class of constructions, which is automatically shifted with the back and thus brought into position for use on the rear side of the seat to which it is applied, while on the front side it is carried out of the way of the feet of the occupant of the seat.

The invention also includes improved constructions for shifting the seat proper when the back is reversed and devices for locking the back-reversing arms.

For a full understanding of the invention a detailed description of a construction embodying all the features of the same in their preferred form will now be given in connection with the accompanying drawings, forming a part of this specification, and the features forming the invention then specifically pointed out in the claims.

In the drawings, Figure 1 is a vertical section of the seat, taken inside the frame on the line 1 of Fig. 2. Fig. 2 is a vertical section on the line 2 of Fig. 1. Fig. 3 is a view similar to Fig. 1, showing the seat in its central position during reversal. Fig. 4 is a similar section showing the seat reversed from the position shown in Fig. 1. Fig. 5 is an enlarged detail of the upper ends of the reversing-arms and locking devices. Fig. 6 is an edge view of the same. Figs. 7 and 8 are sections on respectively the lines 7 and 8 of Fig. 5. Figs. 9 and 10 are respectively side and edge views of the arms. Fig. 11 is a detail section on the line 11 of Fig. 1.

Referring to said drawings, A represents the

side frames of the seat, provided with sills B, on which the seat C rests, the sills and seat being inclined, as usual in such constructions, so as to change the incline of the seat as the latter is shifted.

Each of the sills B preferably consists of an iron plate extending the length of the seat and secured at opposite ends by being bolted to lips 10, formed on the side frames A, the sills being preferably provided with flanges 11 on their inner edges, for a purpose to be described hereinafter.

Pivoted to the side frames A by pivots 12, and preferably at each end of the seat, are a pair of reversing-arms D D', the upper ends of which are pivoted to the seat-back, as follows: At each end the back E has secured thereto a plate 13, on which is the pivot 1 for the arm D, and over this plate extends the cap 14, having a supporting-flange 15 and ears 16, by which it is secured to the plate 13 and back. This cap 14 is provided with an inwardly-extending pivot 2 for the arm D', the upper ends of the two arms D D' thus being mounted within the space between the cap 14 and back covered by the former, while by the pivoting of the arms, one on the back plate and the other on the cap, each of the arms is permitted to overlie the pivot of the other arm, so that the arms may lie side by side throughout their entire length without reducing the width of the arms or cutting away the pivots.

As will be seen from the drawings, the arms D D' in the preferred construction shown are duplicates, being reversed in assembling, so as to be pivoted to the side frames and back on opposite sides of the vertical center and cross each other, as shown in the general views, and their construction is as follows, referring particularly to the detail views, Figs. 9 and 10:

The arms have straight portions extending from the seat to the back, these straight portions intersecting and lying one upon the other in the normal positions of the arms, so that, being of equal width, there appears from the side to be but a single arm in either normal position of the back, as shown in Figs. 1 and 4, the bent pivoting portions at the lower ends lying opposite the seat C. These intersecting straight portions of the arms are of such width and the arms pivoted at such points

that in reversing the seat the arms are not separated at their inner edges and all danger of catching the fingers between them is thus avoided, as shown clearly in Fig. 3.

5 Each of the arms is provided with two stops for the other arm, so that each arm provides a support for the other arm in the two normal positions, and the arms and back are thus supported without any support on the seat-frame other than the pivots 12. In order that
10 the two arms may lie one upon the other with their edges in the same plane in the normal position of the back these stops are in line with the opposite edges of the arms. These
15 stops may be formed in any suitable manner, either by securing stop pieces or pins to the arms or by forming the stops integral therewith, as by bending or reducing the thickness of the arms; but the construction shown is
20 preferred, in which the arms are reduced in thickness throughout the greater portion of their length, so as to form shoulders at the upper and lower ends, these shoulders extending parallel with and in line with the opposite
25 edges of each arm, so that they form extended bearing-surfaces for the edges of the other arm.

The arm D has shoulders *a b*, and the arm D' is provided with corresponding shoulders
30 *a' b'*. These shoulders *a a'* not only form stops, but also fill the spaces at the front of the cap 14 above the other arms in the normal position of the back, as shown in Figs. 1, 2, and 4, thus improving the appearance of
35 the construction. With these arms any suitable locking device may be used or no locking devices provided. In the preferred construction shown the arms D D' are also provided, respectively, with locking-notches *c c'*,
40 and at its outer edge each arm is preferably constructed to form notches *d d'* on the respective arms D D' for holding the back in central position during reversal.

The locking devices coacting with the
45 notches *c c'* and *d d'* preferably consist of a bar 17 carried by a hollow stem 18 mounted to slide in the flange 15 and normally spring-pressed inward by a spring 3. The bar 17
50 thus lies inside the cap 14 opposite the ends of the arms D D', and it is held in position and guided by a pin 4 on the inner side, running in a slot 5 in the plate 13. This bar 17 is provided at opposite ends with projections
55 6, one of which engages in one of the locking-notches *c c'* of the arms D D' in either normal position of the back and locks the latter against movement, this locking being automatic in shifting the back, the spring 18 forcing the bar 17 against the arms D D', so that
60 the catch 6 passes into the notch in one of the arms when the latter is brought opposite the catch by the full reversal of the back. Any suitable construction may be used by which the hollow stem 16 of the bar 17 may
65 be drawn outward so as to lock the seat; but in the construction shown this hollow stem 18 carries a pin 7, and a key is used which is

adapted to enter the hollow stem and is slotted to form a bayonet-joint, so that, when
70 turned slightly after insertion, the pin is held and the stem may be drawn outward with the bar 17, releasing the catch and unlocking the arms. When the arms are in their central
75 position, the catches 6 at opposite ends of the bars 17 engage the notches *d d'*, as shown in Fig. 3, and hold the back and seat in central position; but the catches do not lock the back
80 in this position, but permit it to be fully reversed by pressure upon the back. The notches *d d'* may be omitted in case it is not desired to provide means for holding the seat
in central position.

The straight portions of the arms, which lie upon each other in the normal positions of the
85 back, may be plain flat bars of metal; but in order to avoid friction and wear of the arms, as well as to lighten the construction, it is preferable to use bars of the form shown reduced in thickness, so as to engage only at their
90 edges by shoulders 8, sufficient strength of construction thus being secured, while at the same time reducing the friction and wear to a minimum.

The construction thus far described forms in itself a part of the invention independently
95 of the foot-rest, now to be described, or the shifting of the seat; but the invention includes also a shiftable foot-rest and an improved device for shifting the seat proper,
100 which will now be explained.

If the seat were not to be shifted and no foot-rest were to be used it will be understood
105 that the arms D D' might terminate at the pivots 12; but in the construction shown these arms are provided with extensions *f f'* below the pivots 12, and these extensions engage the upper ends of the levers 19, one of these at
110 each end of the frame preferably being employed, these levers being pivoted to the frame at 20 and carrying at their upper ends pins 9, which engage slots in the end frames of the seat C, so as to shift the latter with the levers
115 19. These levers 19 also actuate the shiftable foot-rest, which will now be described.

The foot-rest may be of any suitable construction, but preferably is formed of a metal
120 frame consisting of side bars 21, on the opposite ends of which are mounted wooden bars 22, which form the foot-rest bars, and this frame is shifted transversely to the seat in accordance with the facing direction of the
125 seat and preferably has a sliding connection with some convenient portion of the seat-frame and is arranged to be actuated by the back-levers, so as to shift the foot-rest as the back is reversed. The sliding connection between the foot-rest and frame is preferably
130 some form of pin-and-slot connection, the slot being so formed as to secure the desired movement of the foot-rest as it is moved backward and forward.

It is desirable that the foot-rest should not only be projected at the rear of the seat and withdrawn from the front of the seat when

the back is reversed, but that the foot-rest should also be carried out of the way of the feet of the occupant of the seat and lowered into convenient position at the rear of the seat for use. In the construction shown this result is secured by tilting the foot-rest at the same time that it is shifted transversely to the seat, so as to raise the side of the foot-rest at the front of the seat and lower the side of the foot-rest at the rear of the seat. This end is attained by providing the side frame A of the seat with slots 23, which may be cut through the side frames, but preferably are formed, as shown, upon the inner sides of the frame, so as not to show upon the outside of the seat, these slots receiving lugs 24, secured to each of the side bars 21 of the foot-rest, these lugs being of such form as to hold the foot-rest steady in the position to which it is shifted, while passing readily the central part of the slots 23. The slots 23 are of sufficient length to permit the rest to be shifted back and forth, so as to project the requisite distance beyond either side of the seat, these slots being inclined downward in opposite directions from the center of their length, each of the inclined portions of the slot being of sufficient length to receive the lug 24, this double-inclined slot securing the tilting of the foot-rest in shifting, as previously described. The portions of the double-inclined slot are shown in the drawings as straight, and this form is preferred to a curved slot, but it will be understood that the form of the slot is immaterial, so long as it is so constructed as to tilt the foot-rest as desired.

Stops 25 on the side frames A are preferably provided, which support the sides of the foot-rest, so as to prevent the strain of the foot-pressure being brought upon the lugs 24. The side of the foot-rest not in use is brought up against the sill 10, as shown in Figs. 1 and 4, and to secure a level bearing surface for the foot-rest against the sills, independently of the wear of the wooden rest-bars, the flanges 11, previously described, are used, which engage the metal bars 21.

The foot-rest may be shifted automatically on the reversal of the back by any suitable means, and these means will vary with the construction of the seat to which it is applied. With back-reversing arms of the class shown the levers 19 are preferably employed, these levers being provided with slots 26, which engage studs 27 projecting inwardly from the bars 21 of the foot-rest, so that as these levers 19 are oscillated by the projections $f f'$ of the arms D D' in reversing the back the foot-rest is shifted, as shown.

The operation of the construction will be clear from Figs. 1, 3, and 4, showing all parts of the seat in the two normal positions and in the central position in reversing.

It will be seen from Fig. 3 that in reversing as the studs 24 pass the central portion of the slots 23 both sides of the foot-rest are raised some distance from the floor, so as to give free

access beneath the seat for sweeping, &c., and the seat is held in this position, as previously described, by the catches 6 on the bar 17 engaging the notches $d d'$ of the arms D D' with sufficient firmness for this purpose, although not preventing the seat being entirely thrown over by the exertion of slight force by the operator. A car may be cleaned very conveniently, therefore, by simply throwing the backs into the central position, (shown in Fig. 3,) thus raising the foot-rests.

It will be understood that the foot-rest described herein may be used with other back-shifting constructions and in itself forms a part of the invention, as claimed. The two features of the improved back-reversing construction and the shiftable foot-rest, however, are preferably used together, forming a complete car-seat of improved construction.

It will be understood also that modifications may be made in the construction shown as embodying the invention without departing therefrom, and the invention is not limited to the exact construction shown. While the invention has been illustrated and described as applied to car-seats and is of especial value as applied thereto, it is applicable also to other seats and similar constructions employing a reversible member or shiftable foot-rest.

I am aware of the application of William P. Stymus, Jr., and August F. Kreutzberg, Serial No. 516,808, filed July 7, 1894, and I do not claim the reversing-arms constructed and arranged as shown and described herein, except in connection with the special means of pivoting the same to the back, as defined by the claims, whereby each of the arms is pivoted out of the plane of movement of the other arm.

I do not claim, broadly, the reversing-arms having edge locking-notches in combination with locking devices engaging said notches and moving edgewise of the arms for locking and unlocking the latter, but only with a sliding spring-pressed member, as defined by the claims.

What is claimed is—

1. The combination with a seat frame and back, of reversing arms pivoted to the seat frame and back, and lying in parallel planes, the back pivot of the inner arm extending inwardly from said arm, and a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, substantially as described.

2. The combination with a seat frame and back, of reversing arms pivoted to the seat frame and back on opposite sides of the vertical center and lying in parallel planes, the back pivot of the inner arm extending inwardly from said arm, and a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, substantially as described.

3. The combination with a seat frame and back, of reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, the portions of said arms between the seat and back lying in parallel planes and overlapping each other and being of such width as to avoid separation at their inner edges during reversing, the back pivot of the inner arm extending inwardly from said arm, and a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, substantially as described.

4. The combination with a seat frame and back, of reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, the portions of said arms between the seat and back being of equal width and lying in parallel planes and one upon the other in the normal position of the back, the width of said portions being such as to avoid separation at their inner edges during reversing, the back pivot of the inner arm extending inwardly from said arm, and a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, substantially as described.

5. The combination with a seat frame and back, of reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, each of said arms having stops on opposite sides of the line of intersection with the other arm adapted to arrest the movement of and support the latter, the portions of said arms between the seat and back lying in parallel planes and overlapping each other and being of such width as to avoid separation at their inner edges during reversing, the back pivot of the inner arm extending inwardly from said arm, and a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, substantially as described.

6. The combination with a seat frame and back, of reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, the portions of said arms above the seat lying in parallel planes and being straight and of equal width, said straight portions overlapping and being of such width as to avoid separation at their inner edges during reversing, each of said arms having stops at opposite ends for the other arm in line with the opposite edges of said straight portions, the back pivot of the inner arm extending inwardly from said arm, and a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, substantially as described.

7. The combination with a seat frame and back, of reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, each of said arms having stops

on opposite sides of the line of intersection with the other arm adapted to arrest the movement of and support the latter, the portions of said arms between the seat and back lying in parallel planes and overlapping each other and being of such width as to avoid separation at their inner edges during reversing, the back pivot of the inner arm extending inwardly from said arm, a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, a foot rest, and connections for shifting said foot rest by said arms, substantially as described.

8. The combination with a seat frame and back, of reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, each of said arms having stops on opposite sides of the line of intersection with the other arm adapted to arrest the movement of and support the latter, the portions of said arms between the seat and back lying in parallel planes and overlapping each other and being of such width as to avoid separation at their inner edges during reversing, the back pivot of the inner arm extending inwardly from said arm, a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, a foot rest and seat, and connections for shifting said foot rest and seat by said arms, substantially as described.

9. The combination with the seat frame and back, of reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, each of said arms having stops on opposite sides of the line of intersection with the other arm adapted to arrest the movement of and support the latter, the portions of said arms between the seat and back lying in parallel planes and overlapping each other and being of such width as to avoid separation at their inner edges during reversing, the back pivot of the inner arm extending inwardly from said arm, a cap on the back outside the arms in which the outer arm is pivoted, whereby each of said arms is pivoted out of the plane of movement of the other arm, and locking devices for the arms, substantially as described.

10. The combination with a shiftable seat back, of a foot rest having rest bars at the front and rear of the seat, and connections between the back and foot rest for moving said foot rest when the back is shifted, to carry the rest bar at the front of the seat out of the way of the occupant of the seat and carry the rest bar at the rear of the seat into position ready for use, substantially as described.

11. The combination with a shiftable seat back, of a foot rest having rest bars at the front and rear of the seat, connections between the back and foot rest for moving said foot rest when the back is shifted, to carry the rest bar at the front of the seat out of the

way of the occupant of the seat and carry the rest bar at the rear of the seat into position for use, and supports on the frame for the rear side of the foot rest, substantially as described.

12. The combination with a shiftable seat back, of a foot rest having rest bars at the front and rear of the seat, and connections between the back and foot rest for raising the rest bar at the front of the seat and lowering the rest bar at the rear of the seat when the back is shifted, substantially as described.

13. The combination with a shiftable seat back, of a foot rest having rest bars at the front and rear of the seat, and connections between the back and foot rest for withdrawing and raising the rest bar at the front of the seat and projecting and lowering the rest bar at the rear of the seat when the back is shifted, substantially as described.

14. The combination with a shiftable seat back, of a foot rest having side bars provided with a sliding connection with the seat frame and rest bars at the front and rear of the seat, and connections between the back and foot rest for shifting the foot rest transversely to the seat when the back is shifted, substantially as described.

15. The combination with a shiftable seat back, of a foot rest having side bars provided with a slotted sliding connection with the seat frame and rest bars at the front and rear of the seat, and connections between the back and foot rest for shifting the foot rest transversely to the seat when the back is shifted, substantially as described.

16. The combination with a seat frame and back, of a foot rest having side bars and rest bars at the front and rear of the seat, said side bars having an inclined slot connection with the seat frame, whereby one rest bar is lowered and the other raised as the foot rest is shifted transversely to the seat, and connections between the back and foot rest for shifting the foot rest transversely to the seat as the back is shifted, substantially as described.

17. The combination with a seat frame and shiftable seat back, of oscillating arms for shifting said back, a shiftable foot rest having rest bars at the front and rear of the seat, and a lever actuated by the arms and engaging the foot rest for shifting the latter when the back is shifted, substantially as described.

18. The combination with a seat frame and shiftable seat back, of oscillating arms for shifting said back, a shiftable foot rest having rest bars at the front and rear of the seat, a shiftable seat, and a lever actuated by the arms and engaging the foot rest and seat for shifting the seat and foot rest when the back is shifted, substantially as described.

19. The combination with a seat frame and shiftable seat back, of a pair of oscillating arms pivoted to the seat frame at one end of the back for shifting the latter, a shiftable seat, and a lever engaging the seat for shift-

ing the latter and actuated in one direction by one of the arms and in the opposite direction by the other arm, substantially as described. 70

20. The combination with a seat frame and shiftable seat back and seat, of a pair of oscillating arms at one end of the back for shifting said back, and having extensions below their frame pivots a lever mounted on the frame between said extensions, and a pin and slot connection between said seat and lever, substantially as described. 75

21. The combination with a seat frame and back, of back shifting arms, a foot rest having side bars 21 and rest bars 22, a sliding slotted connection between the foot rest and frame, and connections between said foot rest and the back shifting arms, substantially as described. 80 85

22. The combination with a seat frame and back, of back shifting arms, a foot rest having side bars 21 and rest bars 22, a sliding slotted connections between the foot rest and frame, connection between said foot rest and the back shifting arms, and supports 25 on the frame for the rear side of the foot rest, substantially as described. 90

23. The combination with a seat frame and back, of back shifting arms, a foot rest having side bars 21 and rest bars 22, double inclined slots 23 and lugs 24 forming a sliding slotted connection between the foot rest and frame, and connections between said foot rest and back shifting arms, substantially as described. 95 100

24. The combination with a seat frame and back, of back shifting arms, a foot rest having side bars 21 and rest bars 22, double inclined slots 23 and lugs 24 forming a sliding slotted connection between the foot rest and frame, and levers 19 actuated by the back shifting arms and connected with the foot rest, substantially as described. 105 110

25. The combination with a seat frame and back, of back shifting arms having extensions f, f' , a foot rest having side bars 21 and rest bars 22, double inclined slots 23 and lugs 24 forming a sliding slotted connection between the foot rest and frame, and levers 19 mounted between said extensions f, f' , and connected with the foot rest, substantially as described. 115

26. The combination with a seat frame and back, of back shifting arms having extensions f, f' , a foot rest having side bars 21 and rest bars 22, double inclined slots 23 and lugs 24 forming a sliding slotted connection between the foot rest and frame, sliding seat C, and levers 19 mounted between said extensions f, f' , and connected with the foot rest and seat, substantially as described. 120 125

27. The combination with seat frame A having metal sills B provided with flanges 11, of the shiftable foot rest having metal side bars 21 and wooden rest bars 22 engaging respectively said flanges and sills, substantially as described. 130

28. The combination with a seat frame and

back, of back reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, and having extensions *f, f'* below the frame pivots, a foot rest having side bars 21 and rest bars 22, a sliding connection between said foot rest and frame, and levers 19 mounted between said extensions and connected with the foot rest, substantially as described.

29. The combination with a seat frame and back, of back reversing arms pivoted to the seat frame and back on opposite sides of the vertical center, and having extensions *f, f'* below the frame pivots, a foot rest having side bars 21 and rest bars 22, double inclined slots 23 and lugs 24 forming a sliding connection between said foot rest and frame, and levers 19 mounted between said extensions and connected with the foot rest, substantially as described.

30. The combination with a seat frame and back, of reversing arms having edge locking notches *c, c'*, and spring pressed bar 17 sliding edgewise of the arms and having locking catches 6 at opposite ends, substantially as described.

31. The combination with a seat frame and back, of reversing arms having locking notches *c, c'*, and holding notches *d, d'*, and sliding spring pressed bar 17 having locking catches 6 at opposite ends, substantially as described.

32. The combination with a seat frame, and

back, of reversing arms having locking notches *c, c'* and holding notches *d, d'*, sliding spring pressed bar 17 having locking catches 6 at opposite ends, and stem 18 constructed to be engaged by a key for withdrawing the bar, substantially as described.

33. The combination with a seat frame and back, of reversing arms *D, D'* having locking notches *c, c'*, cap 14 on the back covering the ends of the arms, and having flange 15, and sliding spring pressed bar 17 having locking catches 6 at opposite ends and stem 18 mounted in said flange and constructed to be engaged by a key for withdrawing the bar, substantially as described.

34. The combination with a seat frame, of a foot rest having side bars 21 and rest bars 22, and double inclined slots 23 and lugs 24 forming a sliding slotted connection between the foot rest and frame, substantially as described.

35. The combination with a seat frame and back, of reversing arms *D, D'*, cap 14 on the back in which the outer arm is pivoted, and shoulders *a, a'* on the arms closing the front of said cap, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN S. JOHNSTON.

Witnesses:

FRANK R. PENTZ,

FRANK FRIEDLEBEN.