

(No Model.)

2 Sheets—Sheet 1.

W. P. STYMUS, Jr. & A. F. KREUTZBERG.
CAR SEAT.

No. 542,398.

Patented July 9, 1895.

Fig. 2.

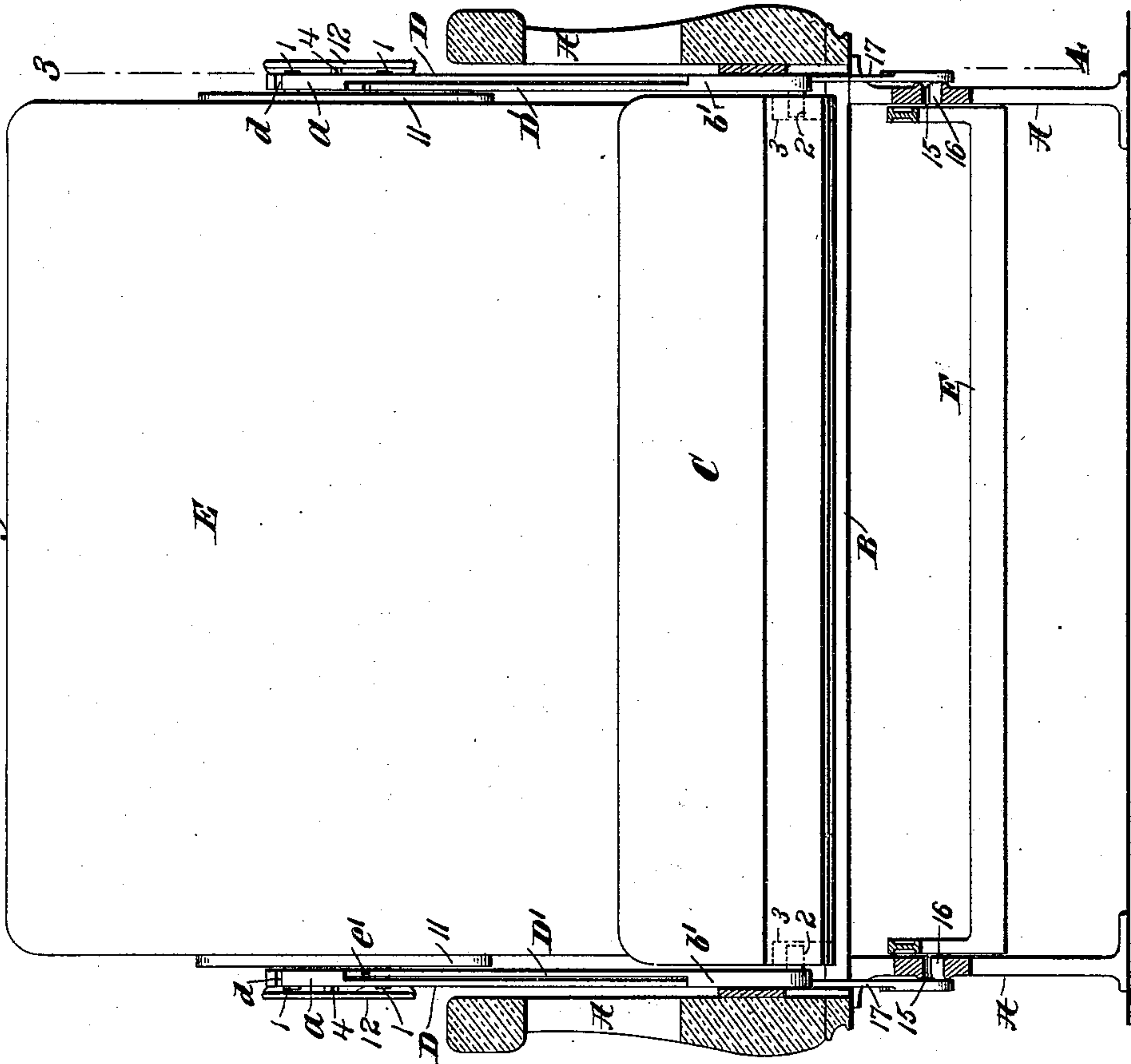
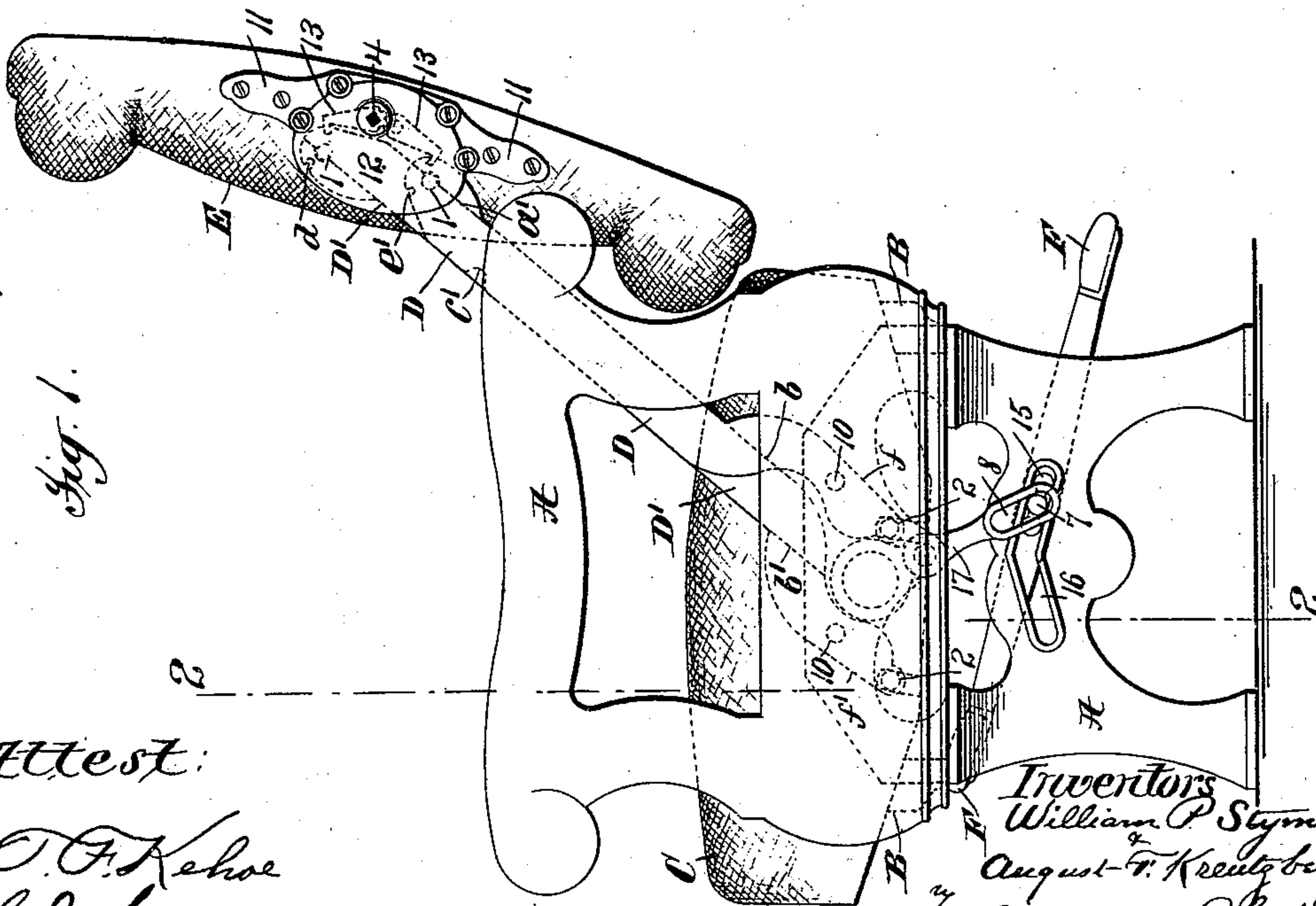


Fig. 1.



Attest:

O. F. Kehoe
C. J. Sawyer

Inventors
William P. Stymus Jr.
August F. Kreutzberg
Cheff. Munson & Phelps
Attys.

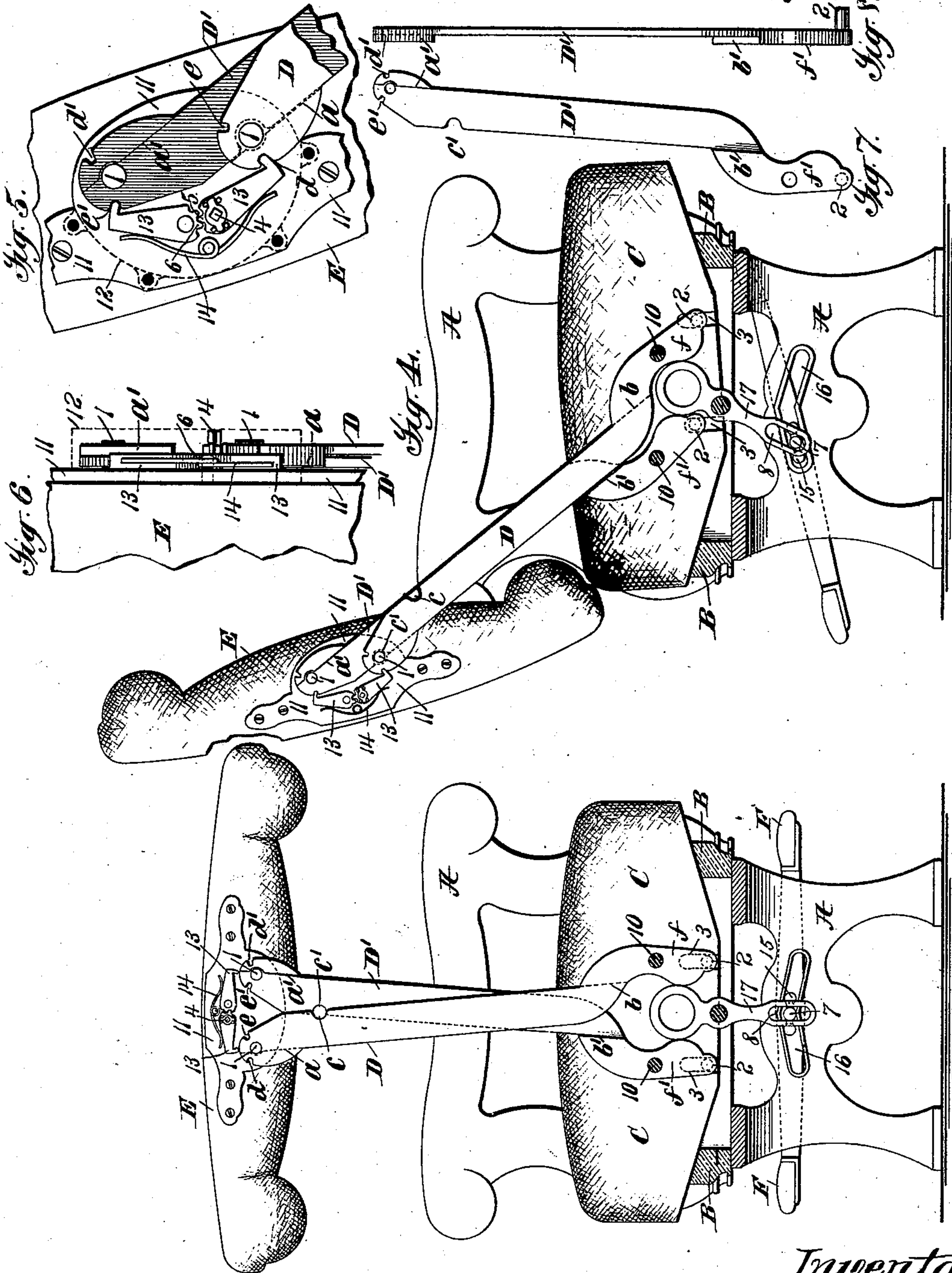
(No Model.)

2 Sheets—Sheet 2.

W. P. STYMUS, Jr. & A. F. KREUTZBERG.
CAR SEAT.

No. 542,398.

Patented July 9, 1895.



Attest:

T. F. Kehoe
C. J. Sawyer

Fig. 3.

Inventors
William P. Stymus Jr
August F. Kreutzberg
by
Chas. M. Mendenhall & Phelps
Attys

UNITED STATES PATENT OFFICE.

WILLIAM P. STYMUS, JR., AND AUGUST F. KREUTZBERG, OF NEW YORK,
N. Y., ASSIGNORS TO THE POTTIER & STYMUS COMPANY, OF SAME
PLACE.

CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 542,398, dated July 9, 1895.

Application filed July 7, 1894. Serial No. 516,808. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM P. STYMUS, Jr., and AUGUST F. KREUTZBERG, citizens of the United States, residing in the city, county, and State of New York, 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 is supported by arms lying in parallel planes and so arranged as to reverse the back in shifting it for facing in opposite directions, the especial object of the invention being to provide an improved construction by which danger of catching the fingers between the arms in reversing shall be avoided, and, further, to provide such a construction in which the two arms shall lie side by side in either normal position of the seat, so as to have the appearance of but a single arm. The first result is attained by the use of pairs of reversing arms so constructed that they are not separated at their inner edges between the seat and back in reversing, thus affording no space for the fingers to enter, and these arms preferably are of the same width and lie one upon the other above the seat in either normal position of the back, so as to have practically the appearance of one arm when looked at from the side. These arms are preferably so combined with the seat as to shift the latter in reversing the back, as usual in such constructions, and they are also preferably used in combination with a foot-rest shifted by the arms in reversing the seat, so as to bring the rest in position for use at either side of the seat, according to the direction in which the back is faced.

The invention includes also improved locking devices by which the back is automatically secured in either normal position when shifted.

For a full understanding of the invention a detailed description of a construction embodying all the features of the invention in the preferred form will now be given, reference being had to the accompanying draw-

ings, forming a part of this specification, and the features forming the invention will then be specifically pointed out in the claims.

Referring to said drawings, Figure 1 is a side view of the seat, showing the back in one of its normal positions. Fig. 2 is a vertical section of the same on the line 2 of Fig. 1, looking to the right. Fig. 3 is a vertical cross-section taken inside the frame on the line 3 4 of Fig. 2, showing the seat in its central position during reversal. Fig. 4 is a similar section showing the back reversed from the position shown in Fig. 1. Figs. 5 and 6 are, respectively, side and edge views on an enlarged scale, showing the locking devices. Figs. 7 and 8 are, respectively, side and edge views of one of the arms.

Referring to said drawings, A represents the frame of an ordinary car-seat provided with seat-sills B, on which the seat C rests, the sills and seats being inclined, as usual in such constructions, so as to change the incline of the seat as it is shifted. Pivoted to the side frames A by pivots 10, at each end of the seat, are a pair of arms D D', the upper ends of which are pivoted to the seat-back E, the back being shown as provided with a plate 11, having projecting studs 1, forming pivots for the arms. It will be understood, however, that the back may be pivotally mounted on the arms in any other suitable manner. The arms are pivoted to the seat frame and back on opposite sides of the vertical center, as shown clearly in Fig. 3, lines joining the pivots of the two arms thus crossing each other.

As will be seen from the drawings, the arms D D' in the preferred construction shown are duplicates, being reversed in assembling, and their construction is as follows, referring particularly to Fig. 7 and 8: 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 position 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, the bent pivoting portions at the lower ends lying opposite the seat. 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 avoided. Each of the arms is provided with two stops for the other arm, so that each arm provides a support at one end for the other arm in the two normal positions. In order that the two arms may lie one upon the other in the normal positions of the back, these stops are in line with the opposite edges of the arms. These 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 by bending or reducing the thickness of the arm; but the construction shown is preferred, in which, as shown clearly in Figs. 7 and 8, the arm is reduced in thickness throughout the greater portion of its length, so as to form shoulders at its upper and lower ends, these shoulders extending parallel and in line with the opposite edges of the arm, so that they form extended bearing-surfaces for the inner edges of the other arm. The arm D has shoulders *a b*, and upon one edge, just below the shoulder *a*, is provided with a notch *c*, for a purpose presently explained, and on opposite sides, at the end, with locking-notches *d e*. The arm D' is provided with corresponding shoulders *a' b'* and notches *c' d' e'*.

If the seat is not to be shifted or no foot-rest is to be used, it will be understood that the arms D D' may terminate at the pivots 10, but in the construction shown, which includes the features of a shifting-seat and foot-rest, these arms D D' are provided with extensions *f f'* below the pivots 10, and these extensions carry pins 2, which enter slots 3 in the ends of the seat, so as to shift the latter as the back is reversed, and these extensions *f f'* also actuate the foot-rest, as presently to be described.

The function of the notches *c c'* is to permit the arms D D' to come into the same plane and lie exactly one upon the other throughout their width when the seat-back is in either of its normal positions, these notches receiving the portion of the pivot-pin 1 of the other arm that lies outside the shoulder *a*. It will be understood that these notches are not absolutely essential, as the same results may be secured otherwise, but the construction shown is simple and efficient.

The locking devices coacting with the notches *d e* and *d' e'* consist of a pair of catch-levers 13, spring-pressed by spring 14, so as to hold the hook-catches at the ends of the levers normally in the notches *e d'* or *d e'* on opposite sides of the two arms D D'. These catch-levers 13 are rocked on their pivots to release the arms when the seat is to be reversed by rocking one of the levers by a key inserted on the squared arbor 4, this lever actuating the other lever by a toe 5, projecting between toes 6 on the latter, so that the two levers move together. As shown in Fig.

1, the upper ends of the arms D D' and the locking-levers are covered by a cap 12, provided with a keyhole, through which the key is passed to the arbor 4. It will be understood that any other suitable locking device may be used, and that if a locking device not requiring the notches *d e* and *d' e'* be used the construction of the arms D D' may be further simplified. The locking device shown, however, is simple and efficient and in itself forms a feature of the present invention.

The foot-rest F is provided at its opposite ends with bowls 15, which pass through cam-slots 16, inclined downward from both sides to the center of the frame, the foot-rest thus being mounted in the slots. These bowls 15 carry projecting studs 7, which enter slots 8 in levers 17, pivoted to the frame and provided at their upper ends with heads lying between and engaged by the extensions *f f'*, so that the levers 17 are rocked in opposite directions by these extensions as the arms D D' are shifted to reverse the back.

The operation of the construction will be understood from a brief description in connection with the drawings. When the seat is to be reversed from the position shown in Fig. 1, the levers 13 must be rocked to the right in Fig. 1 by a key on arbor 4, so as to remove the hooks from the notches *e d'* in the ends of arms D D', and as the back is swung over the arms D D' slide on each other as the seat is moved, but even in the central position shown in Fig. 3 are not separated above the seat, so as to permit of the catching of the fingers. In the position shown in Fig. 1 the arm D is supported by resting against shoulder *a'* on the arm D' and the arm D' by resting against the shoulder *b* on the arm D; but as the reversal of the back is completed from the position shown in Fig. 3 and brought into the position shown in Fig. 4 the arm D' comes to rest against the shoulder *a* of the arm D and the arm D against the shoulder *b'* of the arm D', and as the back reaches its fully reversed position the spring-pressed levers 13 spring into the notches *d e'* in the ends of the arms and lock the latter in this reversed position, as shown in Fig. 4. The shifting of the seat C and of the foot-rest F in reversing the back will be clear from the drawings, the seat C being moved to one side or the other on the inclined sills B, so as to cause it to project at what is the front of the seat in each position and at the same time change the angle of the seat, this result being accomplished by the pins 2, working in the slots 3 in the seat, and the rocking of the lever 17 carries the bowls 15 up and down in the slots 16, so as to shift the foot-rest and withdraw it from the front of the seat and project it at an angle at the back of the seat, in accordance with the direction in which the seat is facing, as usual in such constructions.

It will be understood that modifications may be made in the construction shown as em-

bodying the invention without departing from the latter, and the invention is not to be limited to this exact construction.

While the invention has been illustrated and described as applied to car-seats, it will be understood that it is applicable also to other seats and similar constructions employing a reversible member.

We are aware of the application of John S. Johnston, No. 525,799, filed October 13, 1894, and make no claim to the foot-rest shown and described herein, except in combination with the reversing-arms constructed and arranged as defined by the claims.

What is claimed is—

1. The combination with a seat frame and back, of reversing arms, each 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 the reversing operation, substantially as described.

2. The combination with a seat frame and back, of reversing arms, each 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 positions of the back, the width of said portions being such as to avoid separation at their inner edges during the reversing operation, substantially as described.

3. The combination with a seat frame and back, of reversing arms, each pivoted to the seat frame and back on opposite sides of the vertical center, said arms having straight portions extending from the seat to the back and bent outward at their lower ends opposite the seat for connection to the seat frame, the straight portions of said arms lying in parallel planes and overlapping and being of such width as to avoid separation at their inner edges during the reversing operation, substantially as described.

4. The combination with a seat frame and back, of reversing arms, each pivoted to the seat frame and back on opposite sides of the vertical center, said arms having straight portions of equal width extending from the seat to the back and bent outward at their lower ends opposite the seat for connection to the seat frame, the straight portions of said arms lying in parallel planes and one upon the other in the normal position of the seat and being of such width as to avoid separation at their inner edges during the reversing operation, substantially as described.

5. The combination with a seat frame and back, of reversing arms, each pivoted to said frame and back on opposite sides of the vertical center and having a stop adapted to arrest the movement of and support the other arm, 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 the reversing operation, substantially as described.

6. The combination with a seat frame and back, of reversing arms, each pivoted to said frame and back on opposite sides of the vertical center and having two stops thereon 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 the reversing operation, substantially as described.

7. The combination with a seat frame and back, of reversing arms, each pivoted to said frame and back on opposite sides of the vertical center and having two stops thereon 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 the reversing operation, and connections for shifting the seat by the movement of said arms, substantially as described.

8. The combination with a seat frame and back, of reversing arms, each pivoted to said frame and back on opposite sides of the vertical center and having two stops thereon 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 the reversing operation, a foot rest, and connections for shifting said foot rest to opposite sides of the seat by the movement of said arms, substantially as described.

9. The combination with a seat frame and back, of reversing arms, each pivoted to said frame and back on opposite sides of the vertical center and having two stops thereon 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 the reversing operation, a foot rest, and connections for shifting the seat and said foot rest in opposite directions by the movement of said arms, substantially as described.

10. The combination with a seat frame and back, of the reversing arms D, D' having straight intersecting central portions lying in parallel planes and extending from the seat to the back, and each provided with stops at opposite ends for the other arm, substantially as described.

11. The combination with a seat frame and

back, of reversing arms D, D' having straight intersecting central portions of equal width lying in parallel planes and extending from the seat to the back, and each provided with stops at opposite ends for the other arm in line with the opposite edges of said straight portions, substantially as described.

12. The combination with a seat frame and back, of the reversing arms D, D', having straight intersecting central portions of equal width lying in parallel planes and extending from the seat to the back, and pivoted to the back in line with the outer edges of said straight portions, each of said arms having stops at opposite ends for the other arm in line with the opposite edges of said straight portions, and notches on their inner edges to receive the back pivot of the other arm, substantially as described.

13. The combination with a seat frame and back, of the reversing arms D, D' having straight intersecting central portions lying in parallel planes and reduced to form shoulders *a, b* and *a', b'* at the opposite ends in line with the opposite edges of said straight portions, substantially as described.

14. The combination with a seat frame and back, of the reversing arms D, D' having straight intersecting central portions lying in parallel planes and forming the shoulders *a, b* and *a', b'* at the opposite ends in line with the opposite edges of said straight portions, and having edge notches *c, c'* receiving the pivots by which the arms are connected to the said back, substantially as described.

15. The combination with a seat frame and back, of the reversing arms D, D' having straight intersecting central portions lying in parallel planes and provided with stops at the opposite ends in line with the opposite edges of said straight portions, and having the end locking notches *d, e* and *d', e'*, and locking devices engaging said notches and running edgewise of the arms, substantially as described.

16. The combination with a seat frame and back, of reversing arms having intersecting central portions, and each provided with stops on opposite sides of said intersecting portions and with edge locking notches at the ends at which said arms are attached to the seat back,

and locking devices engaging said notches and moving edgewise of the arms for locking and unlocking the latter, substantially as described.

17. The combination with a seat frame and back, of reversing arms having edge locking notches, spring pressed catch levers 13 pivoted to move edgewise of the arms and engaging said notches, one of said levers being adapted to be rocked against the spring pressure by a key for locking and unlocking said arms, and connections between said lever and the other lever for releasing the latter, substantially as described.

18. The combination with a seat frame and back, of the reversing arms D, D' having straight intersecting central portions lying in parallel planes and stops at the opposite ends in line with the opposite edges of said straight portions, and having projections *f, f'* for shifting the seat, substantially as described.

19. The combination with a seat frame and back, of the reversing arms D, D' having straight intersecting central portions lying in parallel planes and stops at the opposite ends in line with the opposite edges of said straight portions, and having projections *f, f'* for shifting the seat, a foot rest, and connections by which said foot rest is shifted by the projections *f, f'* in reversing the seat, substantially as described.

20. The combination with a seat frame and back, of the reversing arms D, D' having straight intersecting central portions reduced to form the shoulders *a, b*, and *a', b'* at opposite ends in line with the opposite edges of said straight portions, and having seat shifting projections *f, f'*, levers 17 actuated by said projections, foot rest F having bowls 15, inclined notches 16 in the frame, and studs 7 on the foot rest engaging levers 17, substantially as described.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

WILLIAM P. STYMUS, JR.
A. F. KREUTZBERG.

Witnesses:

GEO. CANMAN,
FRANK FRIEDLEBEN.