

No. 656,219.

Patented Aug. 21, 1900.

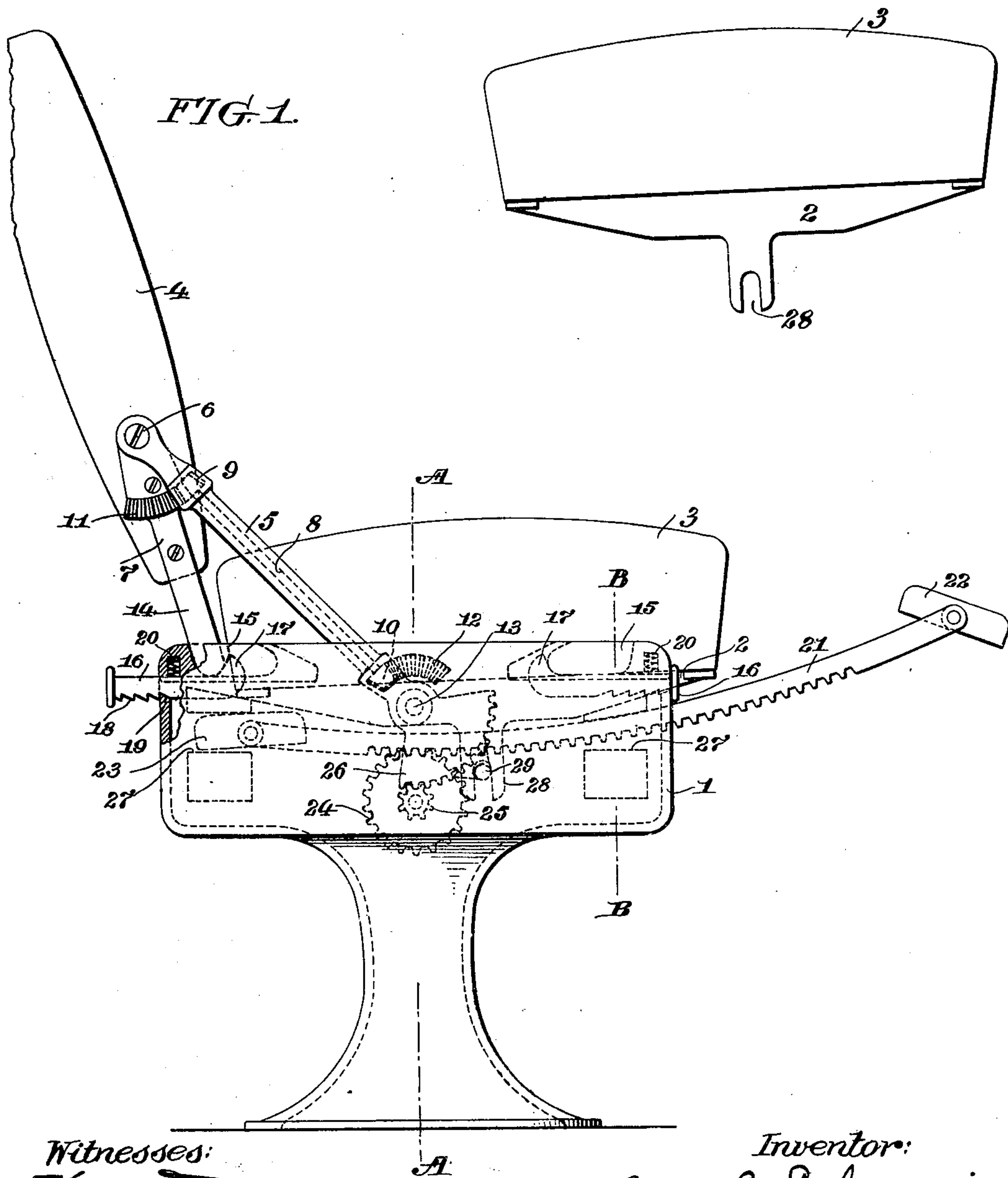
W. L. SCHELLENBACH.
SEAT STRUCTURE.

(Application filed July 22, 1899.)

(No Model.)

3 Sheets—Sheet 1.

FIG. 3.



Witnesses:
Henry Drury
R. M. Kelly.

Inventor:
Wm. L. Schellenbach
By his atty
[Signature]

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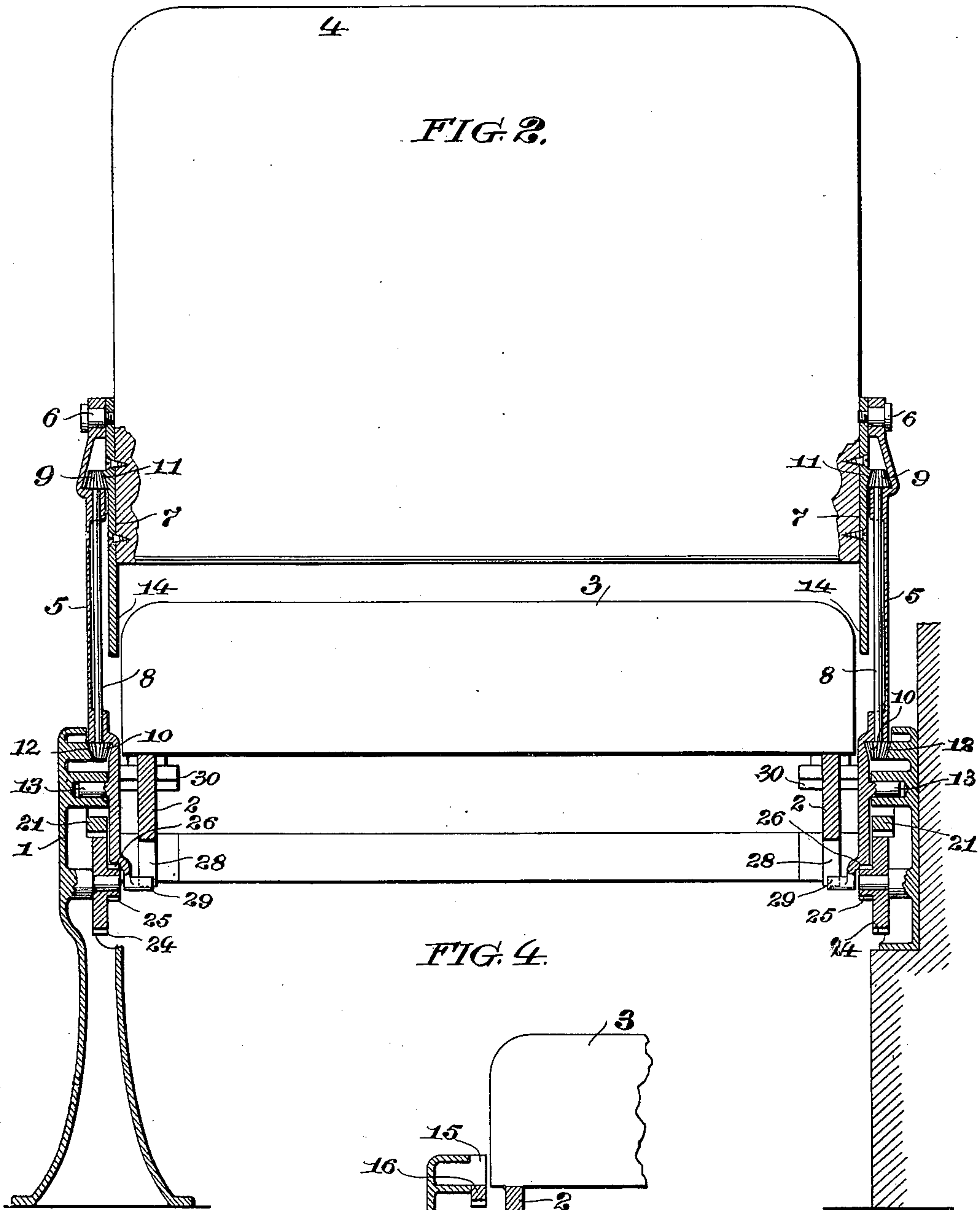
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R. M. Kelly.

Inventor:
W. L. Schellenbach
By *[Signature]*

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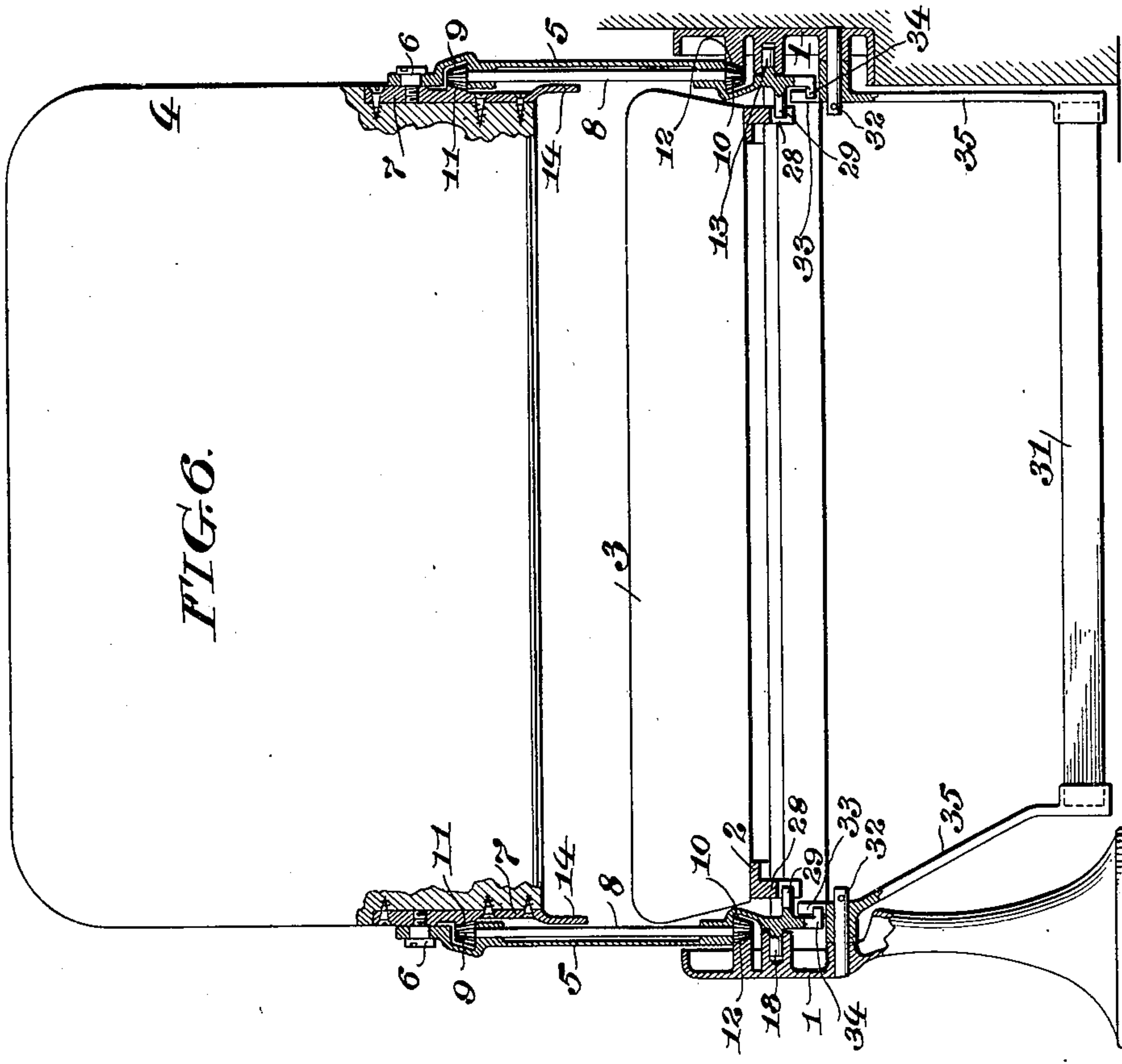
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3 Sheets—Sheet 3.



Witnesses:

Harry Denny
R. M. Kelly.

Inventor:

Wm L. Schellbach

By Intally

John A. Thompson

UNITED STATES PATENT OFFICE.

WILLIAM L. SCHELLENBACH, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR
TO THE HALE & KILBURN MANUFACTURING COMPANY, OF SAME PLACE.

SEAT STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 656,219, dated August 21, 1900.

Application filed July 22, 1899. Serial No. 724,774. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. SCHELLENBACH, of the city and county of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Seat Structures, of which the following is a specification.

My invention relates to seat structures specially adapted for car-seats; and it consists of the improvements which are fully set forth in the following specification and are shown in the accompanying drawings.

A part of my improvements relates to a seat structure having a shifting back, and consists of improvements in the means for shifting the back and causing it to maintain the proper angle of inclination. In carrying out this part of my invention I connect the shifting seat-back with the stationary frame by movable shifting side arms, to which the seat-back is pivoted, and by means of suitable power-transmitting devices between the stationary frame and the seat-back the latter is rocked on its pivotal connections with the side arms and is caused to assume the proper inclination. In the specific embodiment of this part of my invention, as hereinafter set forth, these power-transmitting connections consist of rotary shafts journaled in the side arms and geared to the seat-back and stationary frames, respectively.

Another part of my invention relates to the means of supporting the seat-back with reference to the stationary frame by means of supporting devices between the back and frame and embraces the feature of the adjustability of said supports, whereby the angular inclination of the seat-back may be varied and the seat may at will be transformed into a reclining-seat.

Another part of my invention relates to an improved foot-rest construction especially adapted for reclining-seats and to the means for shifting said foot-rest and regulating its position to suit to the position of the seat-back.

My invention also embraces various combinations of parts and improvements of construction which are all fully set forth and claimed hereinafter.

In the drawings, Figure 1 is a side elevation of a seat structure embodying my inven-

tion. Fig. 2 is a longitudinal vertical sectional view on line A A, Fig. 1, with the seat-back shifted to the intermediate position. Fig. 3 is a side elevation of the seat-cushion frame and cushion. Fig. 4 is a vertical sectional view on the line B B, Fig. 1. Fig. 5 is a side elevation illustrating a different form of my invention, and Fig. 6 is a longitudinal vertical sectional view of the same with the seat-back shifted to the intermediate position.

1 1 are the side frames, which, with the pedestal or base, constitute the stationary frame of the seat structure.

2 is the seat-cushion frame, which carries the seat-cushion 3.

4 is the seat-back.

5 5 are movable side arms pivoted at one end to the side frames 1 1 and at the other end to the end of the seat-back near the base. In the construction shown the arms 5 5 are connected by the pivots 6 6 with the metal frames 7 7, secured to the ends of the seat-back.

Journaled longitudinally in the arms 5 5 are shafts 8 8, provided at their ends with bevel-gears 9 10, engaging racks 11 12 on the seat-back and side frames, respectively.

As the seat-back is shifted by swinging the arms 5 5 on their pivots 13 13, the shafts 8 are rotated by the gearing 10 12, and motion is imparted through the gearing 9 11 to the seat-back, which is rocked upon the pivots 6 6 and caused to assume the proper angle, as shown in Fig. 1.

The seat-back is supported in its positions at either side of the seat-frame by fingers 14 14, carried by the seat-back and fitting notches or seats 15 15 at each end of the side frame.

It is sometimes desirable to increase the inclination of the seat-back and use the structure as a reclining-seat. For this purpose the notches 15 15 are made adjustable, so that the point of support for the fingers 14 14 may be shifted. In the construction shown in Figs. 1, 2, and 4 the notches 15 15 are extended to a substantial extent inwardly, and adjustable supports 16 are employed, extending into the notches and forming by their projections 17 the inner ends of the support-

ing-sockets for the fingers 14. (Dotted lines in Fig. 1.) By adjusting these pieces 16 the inner supports for the fingers may be moved inwardly and the seat-back caused to assume a greater angle of inclination. This is permitted by so arranging the gears 10 and 12 that they will move out of mesh when the side arms 5 5 are in extreme shifted positions. The pieces 16 may be adjusted and locked in position by any suitable means. As shown, they are provided with a series of teeth 18, adapted to engage a tooth 19 on the side frame. A spring 20, acting on the piece 16, serves to hold it in engagement with the tooth 19 while permitting longitudinal adjustment.

When the seat structure is used as a reclining-seat, it is desirable that it should be provided with foot-rests, and such a construction is shown in Figs. 1, 2, and 4. I employ a transversely and bodily movable foot-rest carrier, which, as shown, consists of bars 21 21, guided on the side frames 1 1 and carrying the foot-rests 22 23 at their ends. As the seat-back is shifted the carriers 21 21 are shifted transversely in the frames 1 1, so as to project at the front of the seat, as shown in Fig. 1, with the foot-rest 22 in position to sustain the feet of the occupant of the seat. When the seat-back is shifted to the other side, these movements are reversed, and the bars 21 21 are projected at the opposite side, with the foot-rest 23 in operative position. Suitable means may be employed for moving the carrier when the seat-back is shifted. In the particular construction shown the carrier consists of curved racks engaging toothed wheels 24, journaled in the side frames 1 1 and carrying pinions 25, which engage toothed segments 26 on extensions of the rocking arms 5. When the foot-rest at one side is fully projected, the opposite foot-rest is preferably withdrawn under the seat-cushion, so as to form no obstruction at the rear of the seat. In the construction shown the foot-rests 22 23 are pivoted to the ends of the carriers 21 21, and the foot-rest at the back passes into sockets 27 in the side frames.

Suitable means are employed for shifting the seat-cushion when the seat-back is shifted. In the construction shown the seat-cushion frame 2 is provided on each side with a notched projection 28, which engages a pin 29, carried by the rocking arm 5, as by the segment extension 26. As the arms 5 are rocked in shifting the seat-back the seat-cushion is shifted longitudinally on the guides 30 of the side frame by the action of the pins 29 in the notches 28.

In Figs. 5 and 6 I have shown a rocking foot-rest 31, which is operated by the rocking arms 5 5. In this case the foot-rest is carried by arms 35, pivoted, as at 32, to the side frames 1 1 and provided with notches 33 33, which engage pins 34 on extensions of the arms 5 5. As the arms 5 5 are rocked in shifting the seat-back the arms 35 35 and foot-

rest 31 are rocked, so that the foot-rest will at all times assume a position at the back of the seat, leaving the front free and unobstructed.

The details of construction which have been shown may be varied without departing from the invention.

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. In a seat structure, the combination with the stationary frame, and shifting seat-back, of movable shifting side arms, between the stationary frame and seat-back, to which said seat-back is pivoted, power-transmitting connections between said stationary frame and seat-back to cause the seat-back to rock on its pivotal connection with the side arms when said side arms are rocked, and independently-adjustable supports between the seat-back and stationary frame at each side for supporting the seat-back when it is shifted with provision for adjustment to vary its angular position.

2. In a seat structure, the combination with the stationary frame, of a shifting seat-back, a foot-rest movable transversely with reference to the stationary frame when the seat-back is shifted, and oppositely-acting power-transmitting connections between the seat-back and foot-rest for moving the foot-rest in a direction opposite to that in which the seat-back moves, whereby the foot-rest is always brought into a position at the front of the seat structure opposite to the position occupied by the seat-back.

3. In a seat structure, the combination of a stationary frame, a shifting seat-back, movable shifting arms, between the seat-back and stationary frame, to which the seat-back is pivoted, rotary shafts carried by said shifting arms, and gearing between said shafts and the seat-back and stationary frame respectively.

4. The combination in a seat structure, of the stationary frame and shifting seat-back, with the arms 5, 5, pivoted to the seat-back and stationary frame respectively, the shafts 8, 8, journaled in said arms, and the gearing 9, 11 and 10, 12 between the shafts and the seat-back and stationary frame respectively, substantially as and for the purposes described.

5. In a seat structure, the combination of a stationary frame, a shifting seat-back, movable shifting arms between the stationary frame and the seat-back, a foot-rest carrier movable bodily transversely to the stationary frame, a foot-rest carried by said foot-rest carrier on each side, and power-transmitting devices for bodily shifting said foot-rest carrier, when the seat-back is shifted, to project the carrier and foot-rest at the side of the seat opposite to that at which the seat-back is located.

6. In a seat structure, the combination with the stationary frame, of a shifting seat-back, a foot-rest movable transversely with refer-

ence to the stationary frame when the seat-back is shifted, and power devices for shifting said foot-rest to move it bodily into a position at the front of the seat structure at the side opposite to that occupied by the seat-back.

7. In a seat structure, the combination with the stationary frame, a foot-rest carrier movable bodily and transversely with reference to the stationary frame so as to project beyond it at either end, in a more or less elevated position at the front of the seat and a foot-rest carried by said bodily-movable foot-rest carrier at each end and forming a support for the legs or feet of the occupant of said seat.

8. In a seat structure, the combination with the stationary frame, of a shifting seat-back, a foot-rest carrier movable bodily and transversely with reference to the stationary frame, when the seat-back is shifted, so as to project beyond the stationary frame at either side, a foot-rest carried by said foot rest carrier at either end, and power-transmitting devices for shifting said foot-rest carrier to move it bodily into a position with the foot-rest at one end projecting at the front of the seat structure at the side opposite to that occupied by the seat-back.

9. In a seat structure, the combination with the stationary frame, of the transversely and bodily movable shifting toothed bars, 21, 21, a foot-rest carried thereby, a shifting seat-back, means to shift said toothed bars, and power-transmitting connections between the seat-back and the means to shift said toothed bars 21, 21, to shift said bars transversely and bodily with reference to the stationary frame and to project them beyond the seat-frame.

10. In a seat structure, the combination with the stationary frame, of the transversely and bodily movable shifting toothed bars, 21, 21, a foot-rest carried thereby, means to shift said toothed bars, a shifting seat-back, movable shifting side arms between the stationary frame and seat-back, and power-transmitting connections between the shifting side arms and the means to shift said toothed bars 21, 21 to shift said bars transversely and bodily with reference to the stationary frame and to project them beyond the seat-frame.

11. In a seat structure, the combination with the rocking side arms, of the transversely and bodily movable shifting toothed bars 21, 21, a foot-rest carried by said bars, means to shift said toothed bars, and power-transmitting connections between the rocking side arms and means to shift said toothed bars to shift said bars transversely and bodily with reference to the stationary frame and project them beyond the seat-frame.

12. In a seat structure, the combination with the rocking side arms, of transversely and bodily movable shifting toothed bars 21, 21, pinions 24, 24 engaging said bars and acting to shift them bodily and transversely with reference to the stationary frame and to project them beyond the seat-frame, a foot-rest carried by said toothed bars, and power-transmitting connections between said side arms and the pinions 24, 24.

In testimony of which invention I have hereunto set my hand.

WM. L. SCHELLENBACH.

Witnesses:

HENRY S. HALE,
THOMAS R. COOK.