

(No Model.)

2 Sheets—Sheet 1.

E. N. GILFILLAN & J. S. EMMERT.

RECLINING CHAIR.

No. 421,356.

Patented Feb. 11, 1890.

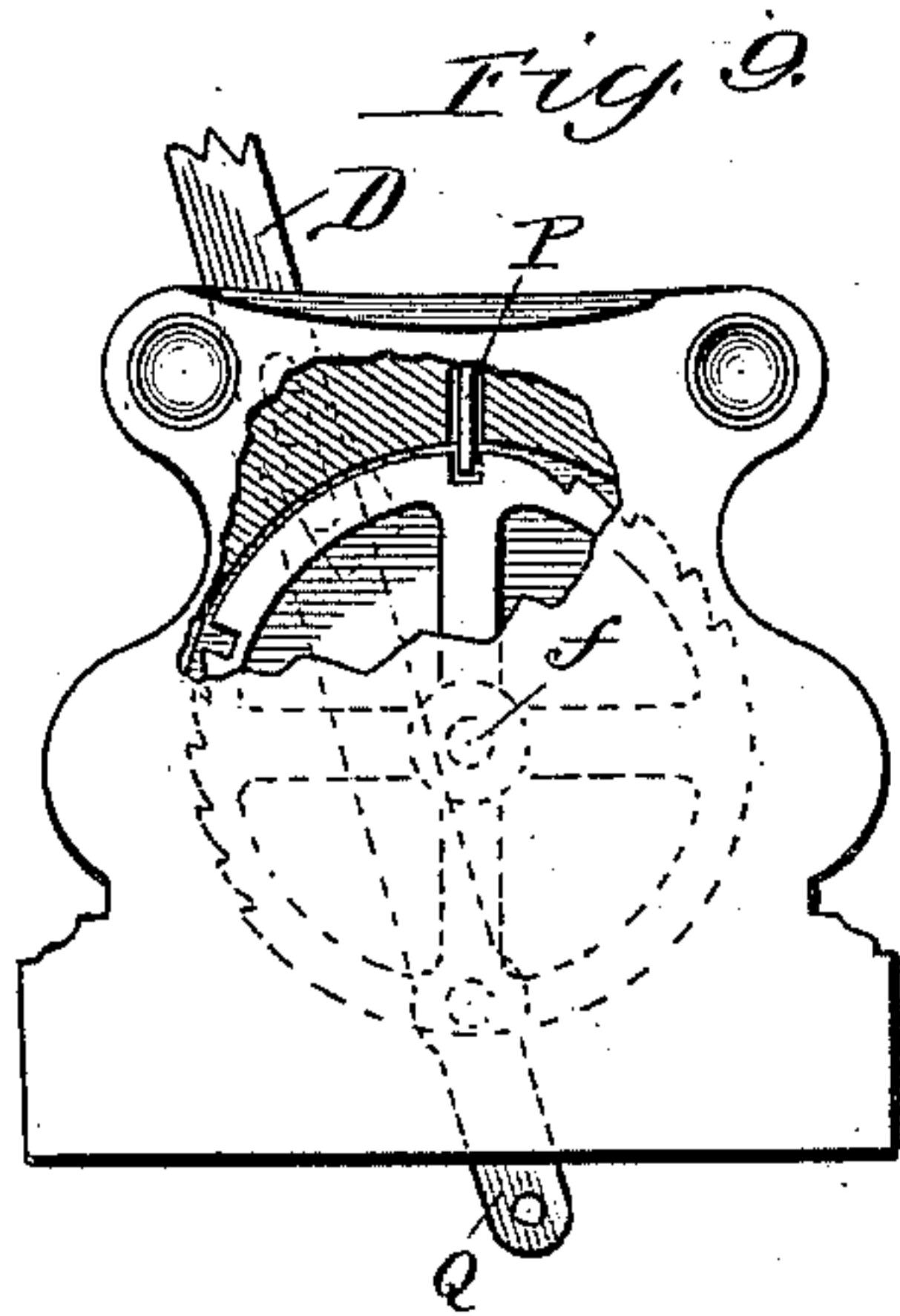
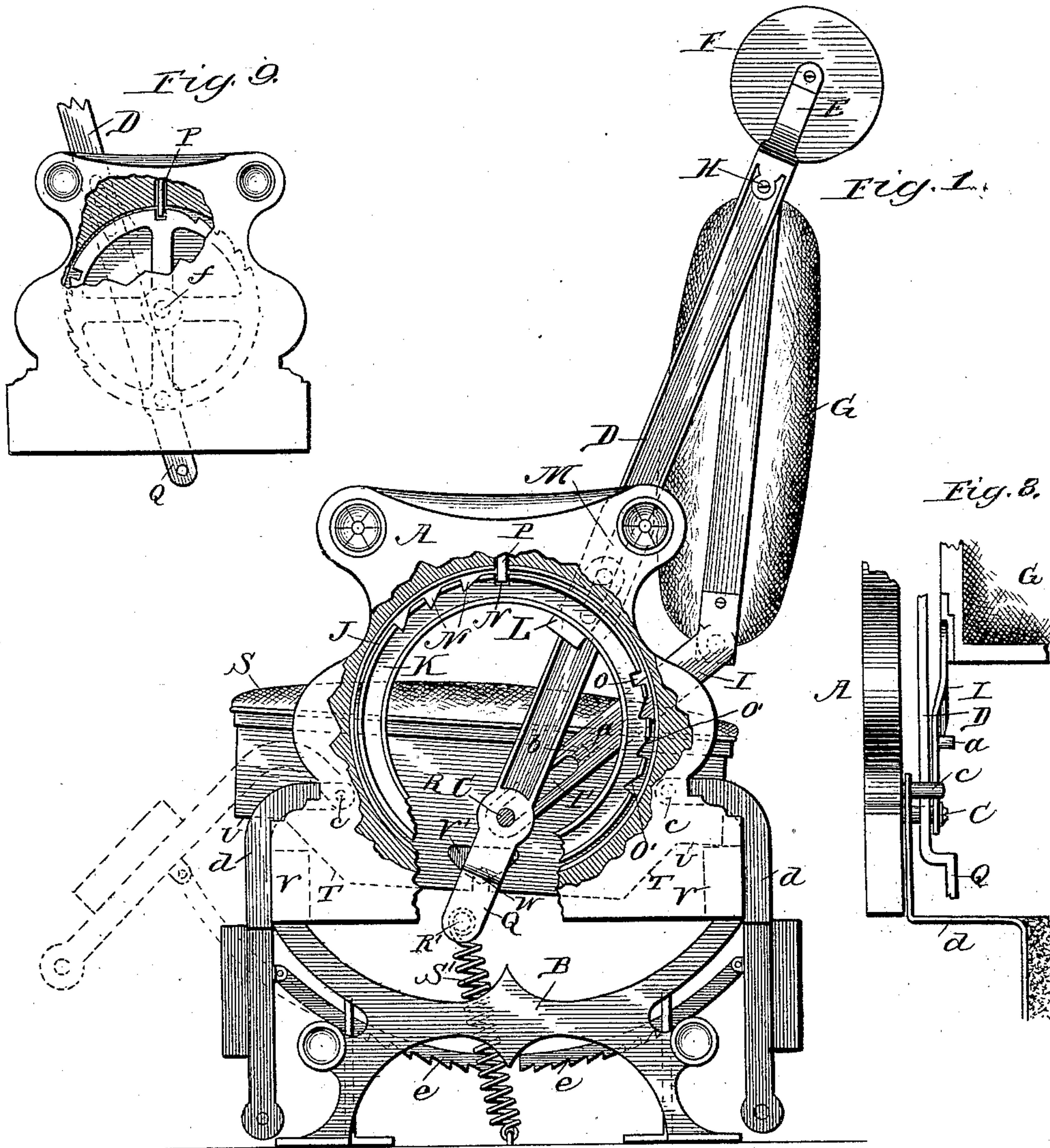


Fig. 8.

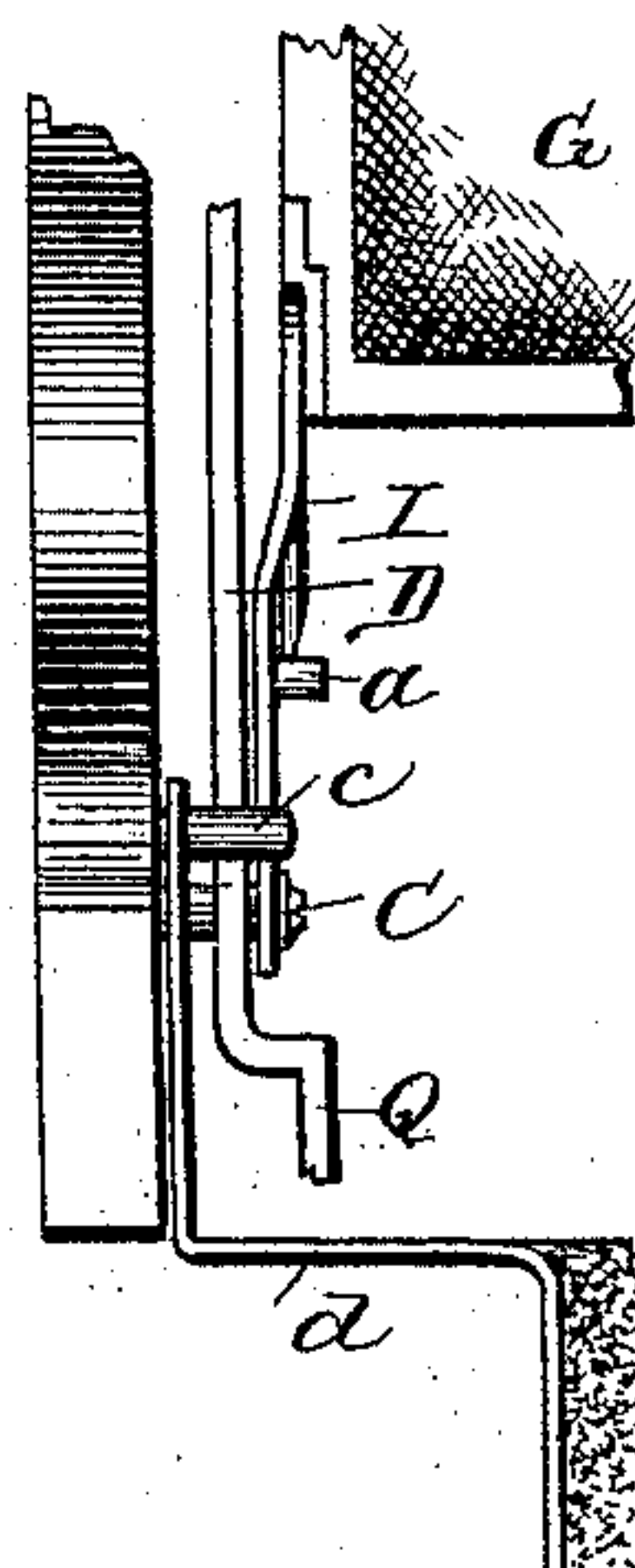
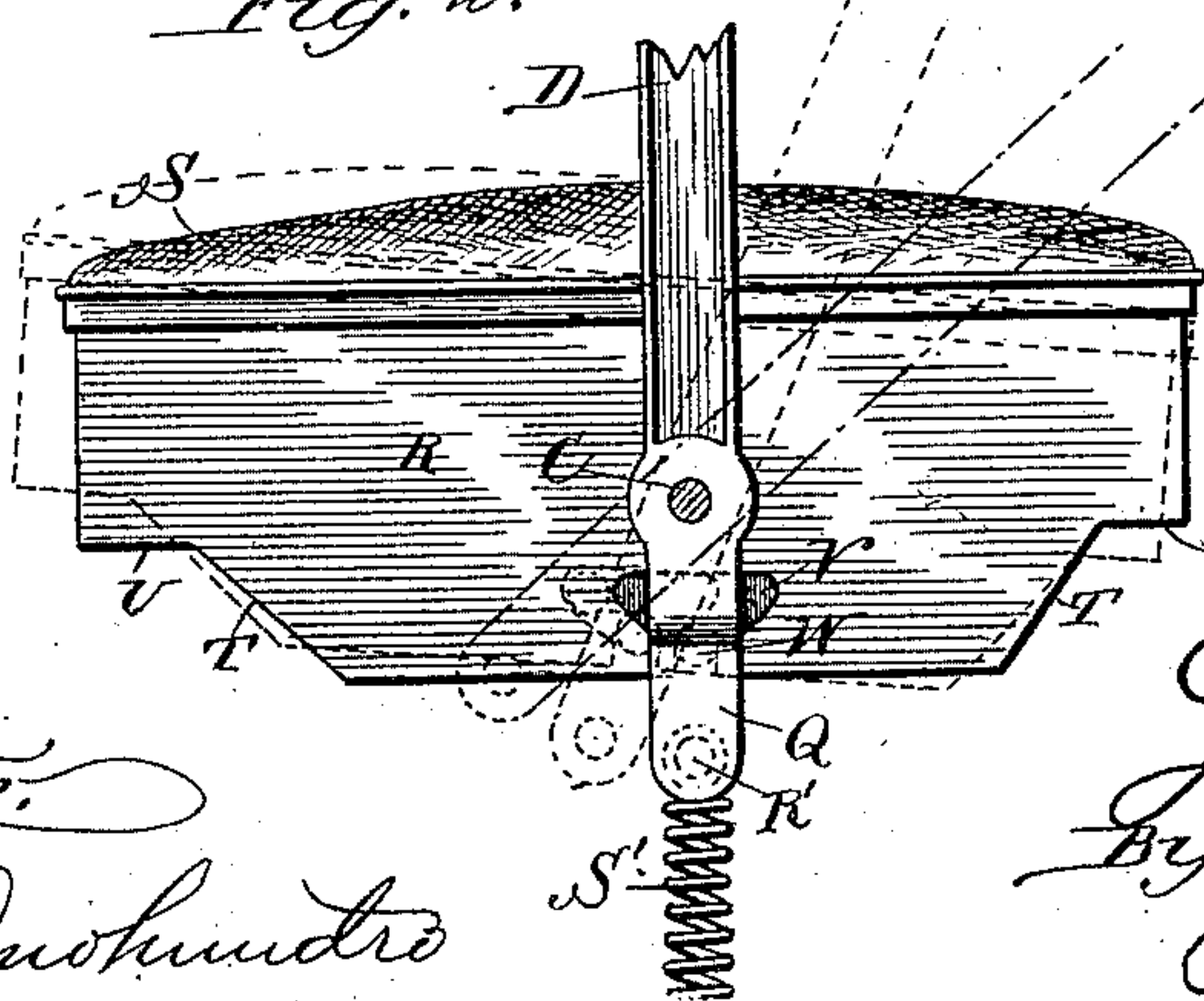


Fig. 2.



Witnesses

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(No Model.)

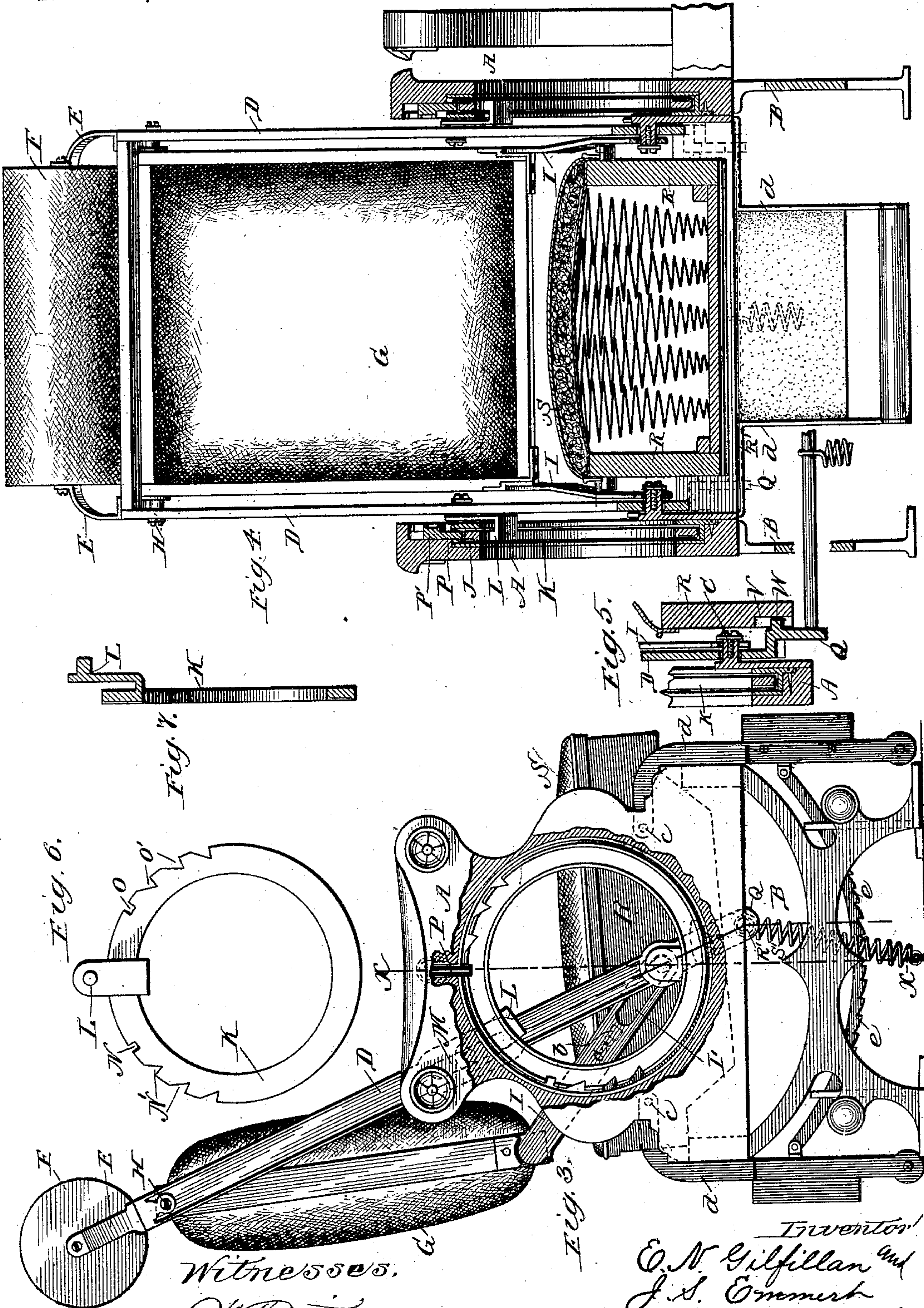
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RECLINING CHAIR.

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UNITED STATES PATENT OFFICE.

ESSINGTON N. GILFILLAN AND JOSEPH S. EMMERT, OF CHICAGO, ILLINOIS,
ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO THE JOHNSTON
CAR SEAT COMPANY, OF SAME PLACE.

RECLINING-CHAIR.

SPECIFICATION forming part of Letters Patent No. 421,356, dated February 11, 1890.

Application filed February 14, 1888. Serial No. 263,936. (No model.)

To all whom it may concern:

Be it known that we, ESSINGTON N. GILFILLAN and JOSEPH S. EMMERT, both of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Reversible Reclining-Chairs, of which the following is a specification.

This invention relates to improvements in reversible chairs in which the back thereof is so supported that it may be reversed as to the seat without being reversed as to itself in changing the facing direction of the chair, and therefore has no relation to that class of reclining-chairs the backs of which have a pivot-connection with their support, and must therefore be revolved in order to be reversed in direction of front.

The prime object of this invention is to have the back of a reversible chair supported in such manner that it may not only be reversed by swinging from one side of the seat to the other, thereby alternately using the opposite faces thereof, but it may also be inclined in either direction from its normal upright positions and automatically returned to its normal upright position whenever relieved of the weight of the occupant.

Another object is to have the support for the back of such a character that it may be locked in any adjusted position to either side of the seat, and to have the locking devices therefor convenient of manipulation by the occupant of the chair while seated or reclining therein.

A further object is to have such a connection between the back and its support that the back will at all times be maintained in a proper relative position to its support, regardless of the inclination thereof, and its lower edge caused to move inwardly during the inclination of the back, so as to better support the back of the occupant.

A still further object is to have a connection between the seat and the support of the back of such a character that the forward edge of the seat will be elevated whenever the support is shifted from one side of the seat to the other in reversing the chair, whereby the edge of the seat in the direction in

which the chair is facing will always be elevated before the chair is ready for occupancy.

These objects are attained by the devices illustrated in the accompanying drawings, in which—

Figure 1 represents a side elevation of a chair embodying my invention, with a portion of the side arm broken away, so as to more clearly show the seat-tilting mechanism; Fig. 2, a detail elevation showing the various movements of the back-supporting bars and the seat; Fig. 3, a side elevation showing the back and seat reversed from the position shown in Fig. 1; Fig. 4, a transverse vertical section on the line X X of Fig. 3; Fig. 5, a detail section through the seat, showing the manner of tilting the same; Fig. 6, a detail face view of the movable notched plate for locking the back in its various positions; Fig. 7, a central vertical section thereof; Fig. 8, a detail view showing the stop for engaging and actuating the back link; Fig. 9, a detail view of a modification of the locking device.

Similar letters of reference indicate the same parts in the several figures of the drawings.

Referring by letter to the accompanying drawings, A indicates the side arms of the chair, preferably composed of wood and supported upon a suitable frame B, resting upon and, if desired, immovably secured to the floor. Pivoted to said arms upon studs C, near the lower edge thereof, are a pair of side supporting-bars D, which extend upwardly therefrom a suitable distance at a slight angle and have mounted between handle-brackets E, secured to the upper ends thereof, a roll or pillow F, which is designed to serve as a head-rest, and may, if desired, be adjustably secured to the said bars, so as to permit of an adjustment thereof relative to the back of the chair; but as the adjustability of this head-rest does not form a part of this invention we have not deemed it necessary to herein illustrate the same. Immediately below this head-rest and pivoted to the side bars is the back G, swinging freely between said bars, and preferably pivoted thereto, as shown at H, at the upper

side edges of the back, so as to hold that edge at all times in close proximity to the head-rest, although the pivot of said back might be located at any point between the center and upper edge thereof and substantially the same result be accomplished. As before stated, this back swings freely between the pivoted supporting-bars, and by reason of the location of its pivot above the center of height thereof tends to assume at all times a vertical position; but the outward movement of the lower edge thereof is limited by the links I, pivoted thereto at the lower corners and having a slot-connection with the pivot of the supporting-bars, so that the normal position of the back is upright, as shown, in either reversed position, but not vertical, as it otherwise would be without some such stop device, as the links I, or their equivalent.

Within each arm, on the inner face thereof, is formed a circular recess J, in which fits an annular plate or ring K, centered in said recess by the periphery thereof working against the walls of the recess, said plate being provided with a radial projection or lug L, engaging an elongated slot M, formed in the supporting-bars of the back, by means of which the said plate is actuated. In the periphery of this plate K, upon one side of the projection L, are formed notches N and N', and upon the opposite side thereof the notches O and O', which notches are adapted to be engaged by a single stationary catch P, located about the center of width of the arms immediately above the said plate and in a vertical line with the pivots of the back-supporting bars. One set of these notches (say those lettered N N') are arranged to be engaged by the catch when the chair faces in one direction, as shown in Fig. 1, and the other set O O' are to be used when the chair faces in the opposite direction, as shown in Fig. 3, the projection and slot-connection between the back-supporting bars and the said plates serving to shift the plate whenever the chair is reversed, so as to bring the proper notches in position for engagement by the catch.

The catch herein shown consists simply of a sliding pin provided with a thumb-piece P, working in a recess in the arm for convenience of manipulation; but it is obvious that any other form of catch might be employed instead thereof and the same result be accomplished. It will also be observed that the notches in the annular plate or ring K are so located that when the back is in its normal upright position the catch engages the square notches N or O, and the back cannot be moved from that position without first disengaging the catch from said notches; but the other notches N' and O' are beveled or inclined on the upper side thereof, (that is to say, the side toward the catch,) so that while the back cannot be further inclined from any position without first disengaging the catch the back is free to be returned from any inclined to

its normal position without manipulation of the catch. In order to produce this latter movement automatically, so that the back will follow the body of the occupant in recovering from a reclining to an upright position, we have elongated the ends of the back-supporting bars beyond their pivot-connection with the side arms, as shown at Q, then connected these extended portions by a cross-rod R', and to the latter have secured one end of one or more coil-springs S', the opposite ends of which may be secured to the floor immediately under the pivot of the supporting-bars or to a stationary portion of the chair-frame. These springs will act as a power upon the said bars to cause them to return to an upright position whenever relieved of the weight of the occupant, regardless of the direction in which the back is inclined; but so far as the operation of these springs is concerned the point of attachment thereof, either to the supporting-bars or to a stationary point, may be varied, so long as the desired result is attained.

Another important feature of our invention is the automatic elevation and projection of the forward edge of the seat S, both for comfort and economy of space, so that not only will the inclining of the chair not be interfered with, but the storage of the foot-rest may be accomplished without discomfort to the occupant of the chair. To this end the ends R of the seat S are cut away at the side edges thereof, so as to form the inclines T, terminating in the horizontal portions U, the latter being at the extreme edge of the ends and normally resting upon cross-bars V at each side of the chair-frame—that is, when the seat is in the horizontal position shown in Fig. 2. These ends also have formed therein, at the center of width and near the lower edge thereof, notches or recesses V', adapted to be engaged by lugs or projections W upon the extended portions of the supporting-bars between the pivots and ends thereof; hence when the said bars are shifted to either side of the center into their normal position the seat will be slid in the opposite direction—that is, in the direction in which the chair is then facing—and as the inclines T are forced against the cross-bars U the forward edges of the seat will be elevated simultaneously with its forward projection, as illustrated in Fig. 2 of the drawings.

The notches V' are enlarged at the upper end thereof, as shown in said figure, so that the lugs W may travel farther therein without moving the seat, and hence the inclining of the back has no effect upon the seat after the former reaches its normal position; but the seat cannot slide back to its horizontal position, because the lugs bear at all times against the forward wall of the said recesses. Thus it will be seen that the forward edge of the seat will always be projected and elevated before the chair is ready for occupancy, and that by reason of the lost motion in the

seat-operating devices the occupant need not rise from the chair in order to incline the back.

In order to prevent the swaying of the back 5 by the motion of the car or the action of the occupant of the seat next in the rear when the chair is unoccupied, we have provided pins *a* upon the inside of the links *I*, which, when the chair is in its normal position, en- 10 gage fixed studs *b*, secured to the ends of the seat in such manner as to prevent a downward movement of the link, and consequently an inner movement of the lower edge of the back; but whenever the chair is reversed the 15 pins on the link will rise upward and pass over the projection on the seat and drop behind the projection on the opposite side of the seat, because they swing upward on the arc of a circle struck from the pivot of the 20 supporting-bars, while the seat simultaneously descends in shifting its position. When the chair is occupied, however, and inclined beyond its normal position, the pins will pass down behind the projections, and 25 the supporting-bars, back, and links will retain their normal relative positions until the links engage stops *c*, projecting from the inside of the arms, at which time the stud *a* has dropped below the projection *b*. The 30 lower edge of the back will then gradually move inwardly toward a parallel position with the supporting-bars during the further inclination of said bars, the slot in the end of said link permitting this movement, the 35 same as in the act of reversing the chair. In practice the foot-rests *d* are preferably hung upon these studs *c*, and are supported when extended by the usual rack-bars *e*.

While we have shown and described the 40 notched plates for locking the back in its various positions as circular and working within recesses in the arms of the chair, we do not desire to limit ourselves to that particular construction, for various other devices 45 might be employed and the same result be obtained—for example, as shown in Fig. 9, the said notched plate, instead of working in a recess, might be centered and entirely supported upon a pivot *f*, secured to the arms of 50 the chair eccentric to the pivot of the supporting-bars, the same as in the preferred construction.

Among the numerous advantages of a chair constructed in accordance with our invention 55 is the suspending and entirely supporting of the back between the pivoted supporting-bars, as a result of which the chair may be reversed by merely pushing upon the bars or back, and the operator be thereby relieved of 60 the necessity of lifting or revolving the back in reversing the chair, and with such a locking device as has been described, employed in connection with said bars for locking the back at any desired angle to either side of 65 the seat, the two faces of the back may be alternately used.

In conclusion, it may be stated that so far

as the pivots of the supporting-bars are concerned it is immaterial whether they are fixed to the side arms or some other stationary 70 portion of the chair, and, in fact, might be pivoted to the seat itself, if a stationary seat be employed, and that these chairs are especially adapted and designed as seats for railway-cars, and when so employed are pref- 75 erably made in pairs, to occupy the space now given to the ordinary stationary seat, for it is in such employment that the fullest benefits are derived from a chair constructed in accordance with our invention, as herein- 80 before set forth.

Having described our invention, what we desire to secure by Letters Patent is—

1. In a reversible reclining-chair, the piv- 85 oted supporting-bars and the back, in combination with a separate notched plate, a pin-and-slot connection between said plates and the bars, and a stationary catch for engaging the notches in said plate, substantially as de- 90 scribed.

2. In a reversible reclining-chair, the piv- oted supporting-bars and the back, in combination with a circular plate, a pin-and-slot connection between said plates and the bars, a stationary catch, and a series of notches in 95 said plate upon each side of its connection with said bars, adapted and arranged to be alternately engaged by said catch, substantially as described.

3. In a reversible reclining-chair, the side 100 arms provided with recesses, the supporting-bars pivoted thereto, and the back, in combination with notched plates centered and working in the recesses in the arms, a pin-and-slot connection between said plate and the 105 supporting-bars, and a catch secured to said arms for engaging the notches in said plate, substantially as described.

4. In a reversible reclining-chair, the sup- 110 porting-bars fixedly pivoted to the chair-frame, the back pivoted thereto, and a link-connection between the lower edge of said back and the bars, in combination with a notched plate or rack and a catch, one of 115 said members being movable and the other fixed, and one secured to the bars and the other to a stationary portion of the chair, substantially as described.

5. In a reversible reclining-chair, the sup- 120 porting-bars fixedly pivoted to the chair-frame, the back pivoted thereto, and a link-connection between the lower edge of said back and the bars, in combination with a notched plate moving with said bars, and sta- 125 tionary catches for engaging the notches in said plates, substantially as described.

6. In a reversible reclining-chair, the piv- 130 oted supporting-bars, the back pivoted thereto, and a link-connection between the lower edge of said back and the bars, in combination with a notched plate, a pin-and-slot connection between said plates and bars, and a stationary catch for engaging the notches in said plate, substantially as described.

7. In a reversible reclining-chair, the pivoted supporting-bars, the back pivoted thereto, and a link-connection between said back and the bars, in combination with a circular plate, a pin-and-slot connection between said plates and the bars, a stationary catch, and series of notches in said plate upon each side of its connection with said bars, adapted and arranged to be alternately engaged by said catch, substantially as described.

8. In a reversible reclining-chair, the pivoted supporting-bars and locking device therefor, the back pivoted thereto toward the upper side edges of said back, and a link-connection between the lower edge of the back and bars, in combination with side arms and stops projecting therefrom for engaging and actuating said links where the bars are inclined beyond their normal position, whereby the lower ends of the back will be forced inwardly, substantially as described.

9. In a reversible reclining-chair, the pivoted supporting-bars, the back pivoted thereto, and links pivoted to the lower edge of said back and having a slot-connection with the bars, in combination with the side arms and a stop projecting therefrom for engaging and actuating said links when said bars are inclined beyond their normal position, substantially as described.

10. In a reversible reclining-chair, the pivoted supporting-bars, the back pivoted thereto, and a stop device for limiting the movement of said back relative to the bars, in combination with a locking device for securing the bars in their inclined positions, and means for automatically returning said bars to their normal upright position, substantially as described.

11. In a reversible reclining-chair, the pivoted supporting-bars, the back pivoted thereto, and a link-connection between the lower edge of said back and the bars, in combination with a locking device for securing the bars in their inclined positions, and springs attached at one end to said bars and fixed at their opposite ends for returning said bars to their normal upright position, substantially as described.

12. In a reversible reclining-chair, the pivoted supporting-bars, the back pivoted thereto, a link-connection between the lower edge of said back and the bars, and a locking device for securing the bars in their inclined

positions, in combination with springs, one end of which engages said bars at a point below their pivots and the opposite of which are secured to a fixed point for returning said bars to their normal upright positions, substantially as described.

13. In a reversible reclining-chair, the pivoted supporting-bars and the back, in combination with a plate provided with notches, all except one of which are inclined at one side thereof, a catch device for engaging said notches, and springs for actuating said bars to automatically return to their normal upright position, substantially as described.

14. In a reversible reclining-chair, the pivoted supporting-bars and the back, in combination with a stationary catch, a movable plate provided with notches on each side of and arranged to be alternately engaged by said catch, all except one of each set of notches being inclined on the side thereof next the catch, and springs for actuating said supporting-bars, whereby said bars will be automatically returned from any inclined to their normal upright positions, substantially as described.

15. In a reversible reclining-chair, the pivoted supporting-bars and the back, in combination with the seat provided with recesses in the ends thereof, cross-bars supporting the same, inclines upon the seat for engaging said cross-bars, and lugs or projections on said supporting-bars projecting into the recesses in the seat for shifting the same when the back is reversed, so as to force the inclines upon the cross-bars, said recesses being enlarged at each side of the center, whereby the back may be inclined without moving the seat, substantially as described.

16. In a reversible reclining-chair, the side arms, the seat, and projections on the ends of said seat, in combination with the pivoted supporting-bars, the back pivoted thereto, a link-connection between the lower edge of said back and the bars, and pins on said links for engaging the projections on the seat when the bars are in their normal position, whereby the lower edge of the back is prevented moving inwardly, substantially as described.

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