

(No Model.)

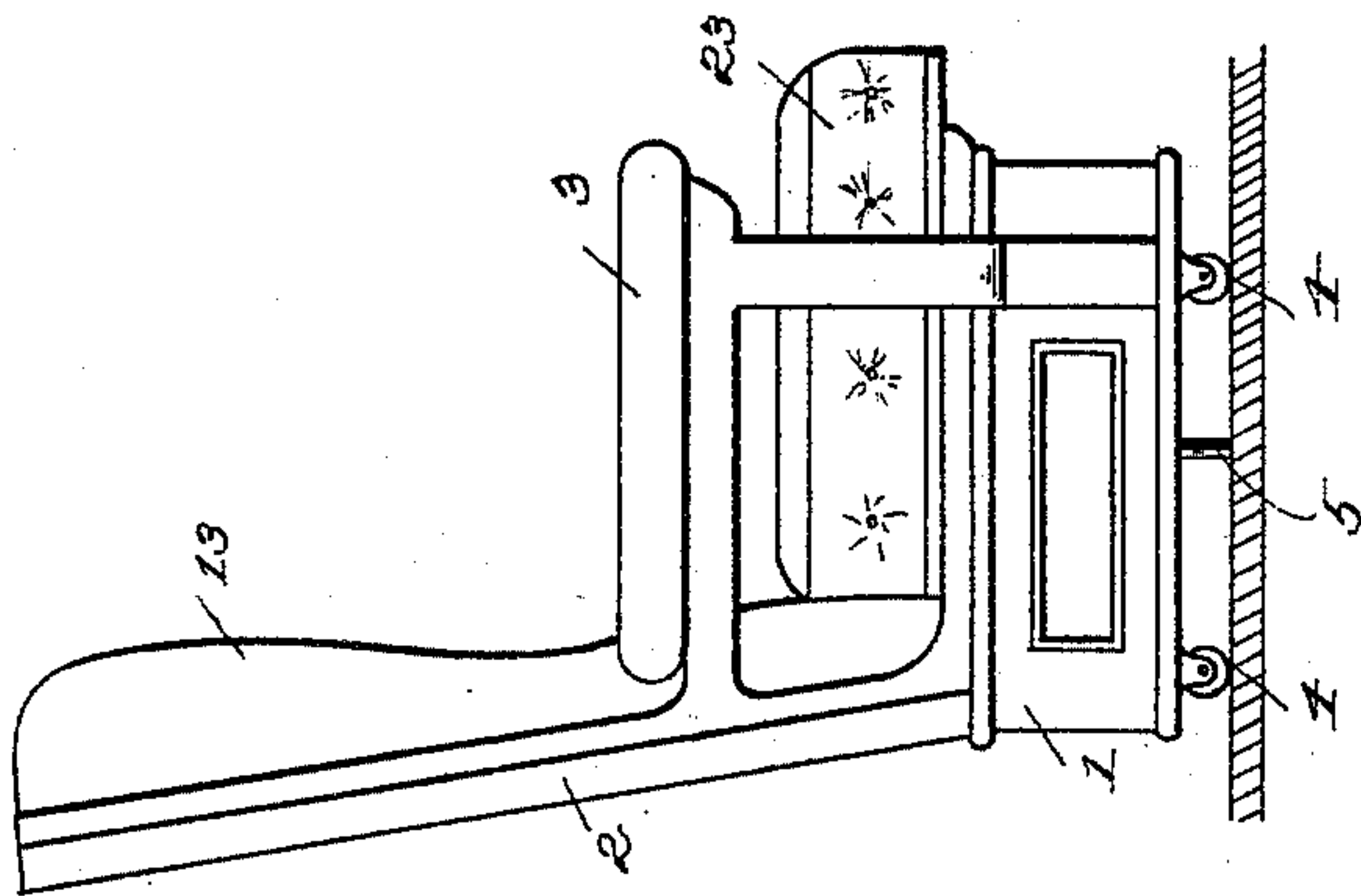
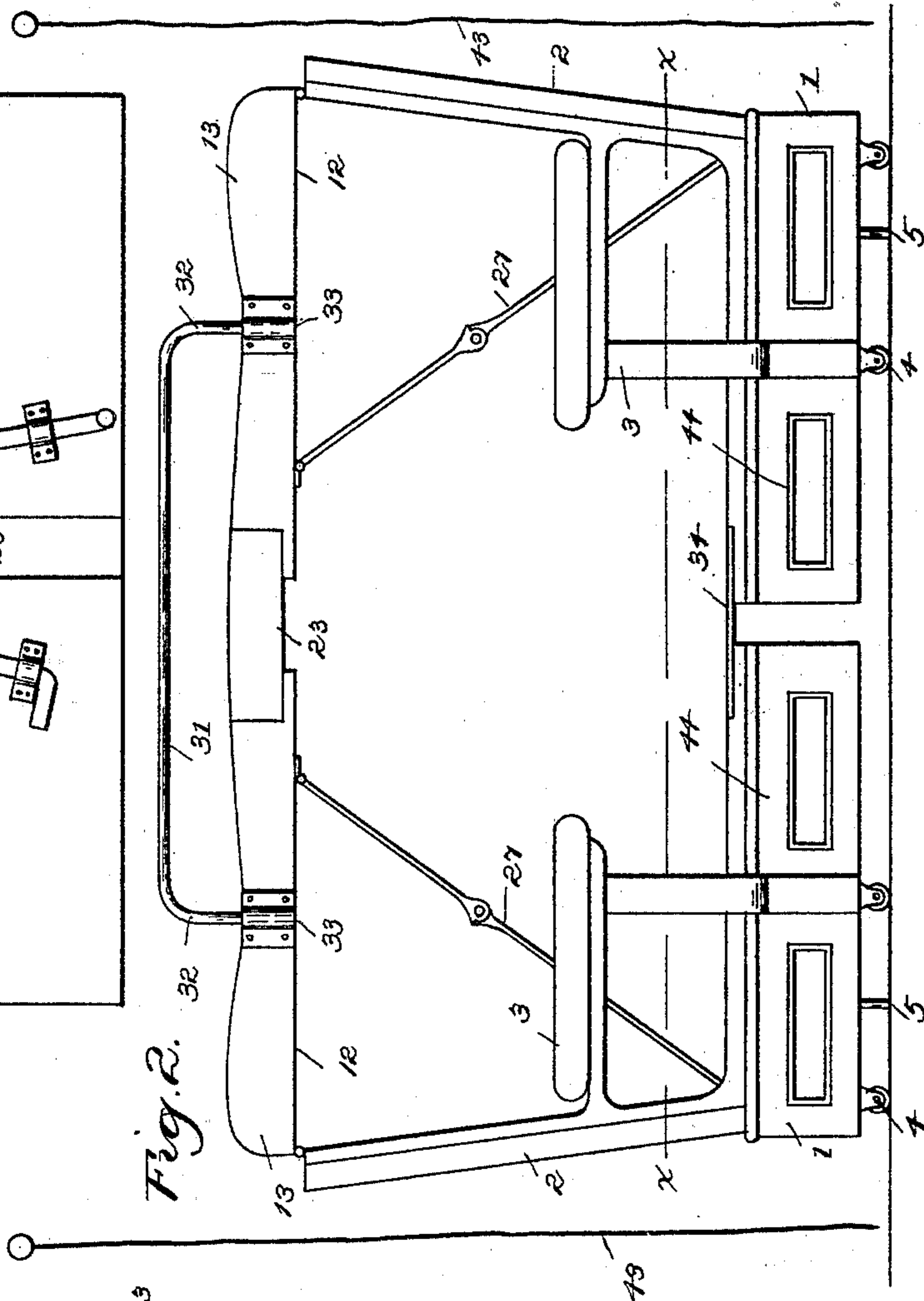
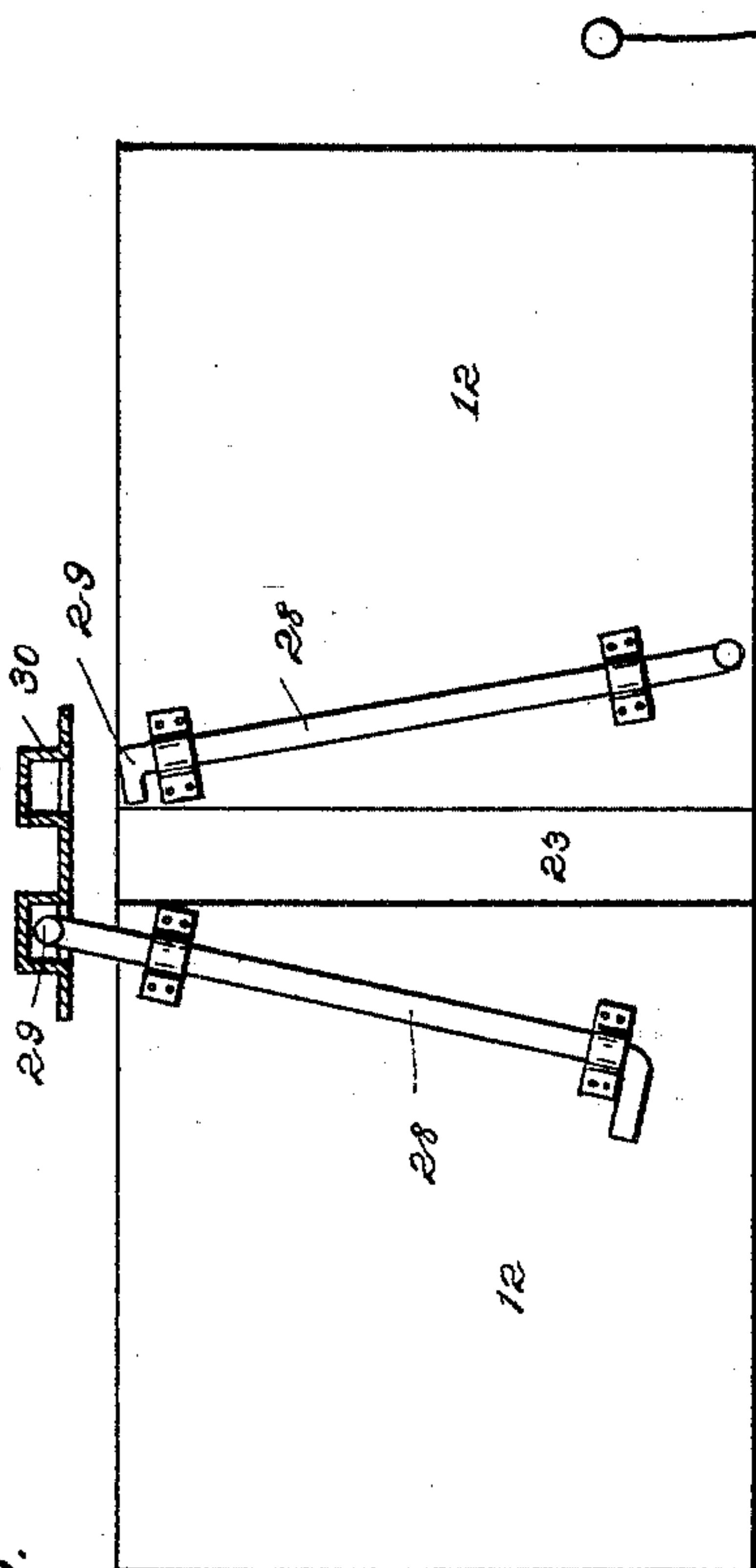
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J. KREHBIEL.

## CONVERTIBLE SEAT AND BERTH FOR CARS.

No. 498,013.

Patented May 23, 1893.



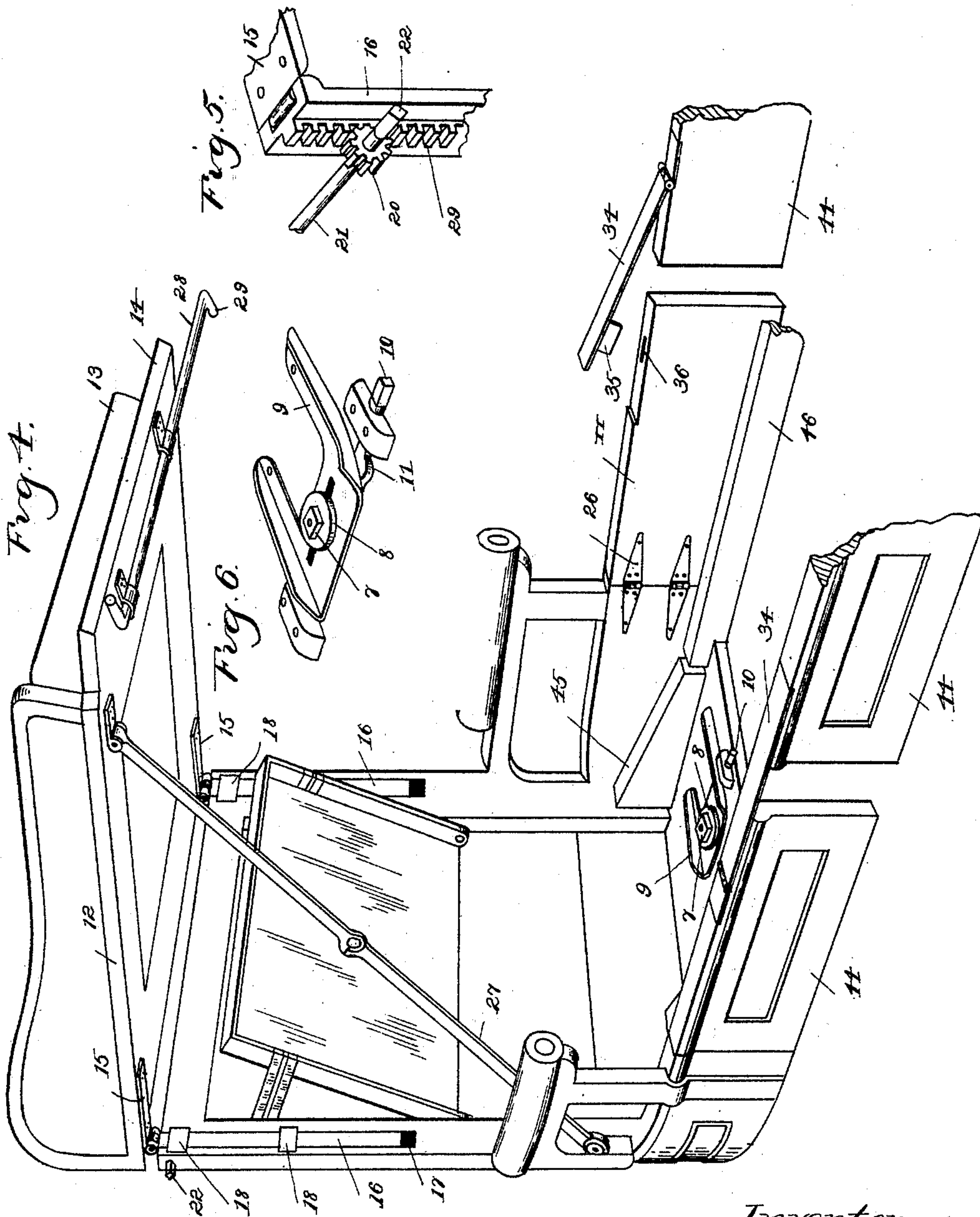
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CONVERTIBLE SEAT AND BERTH FOR CARS.

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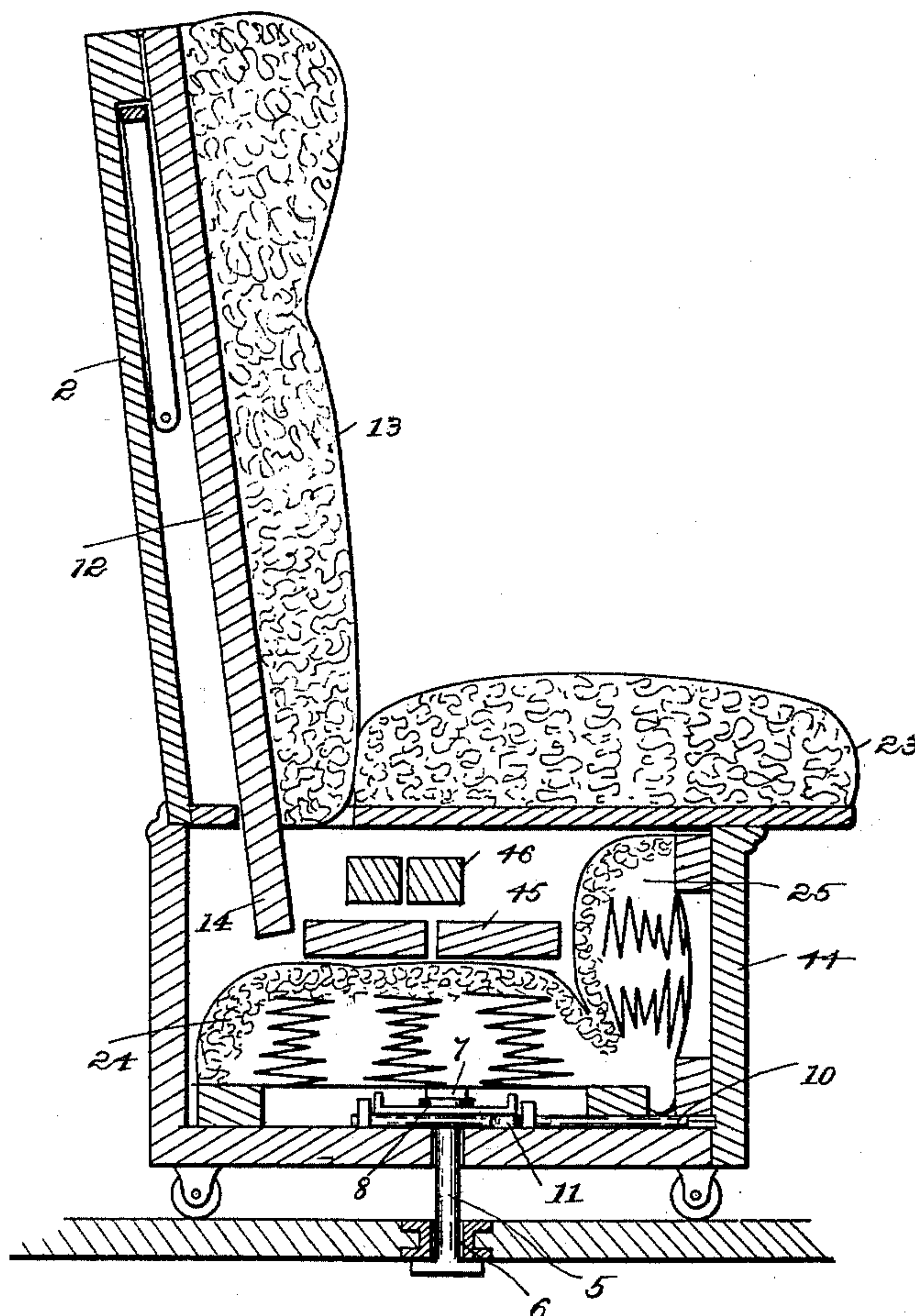
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*Fig. 7.*



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Fig. 8.

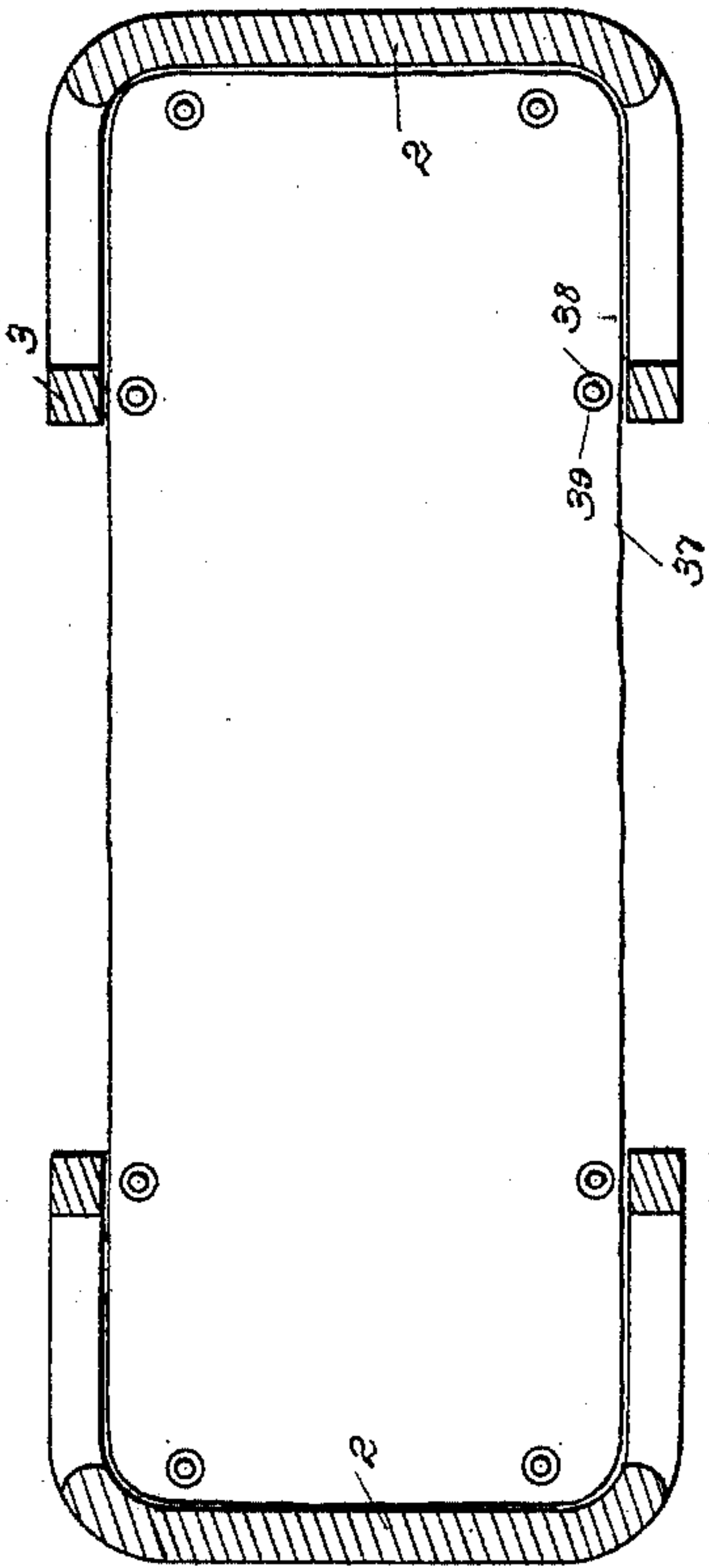


Fig. 10.

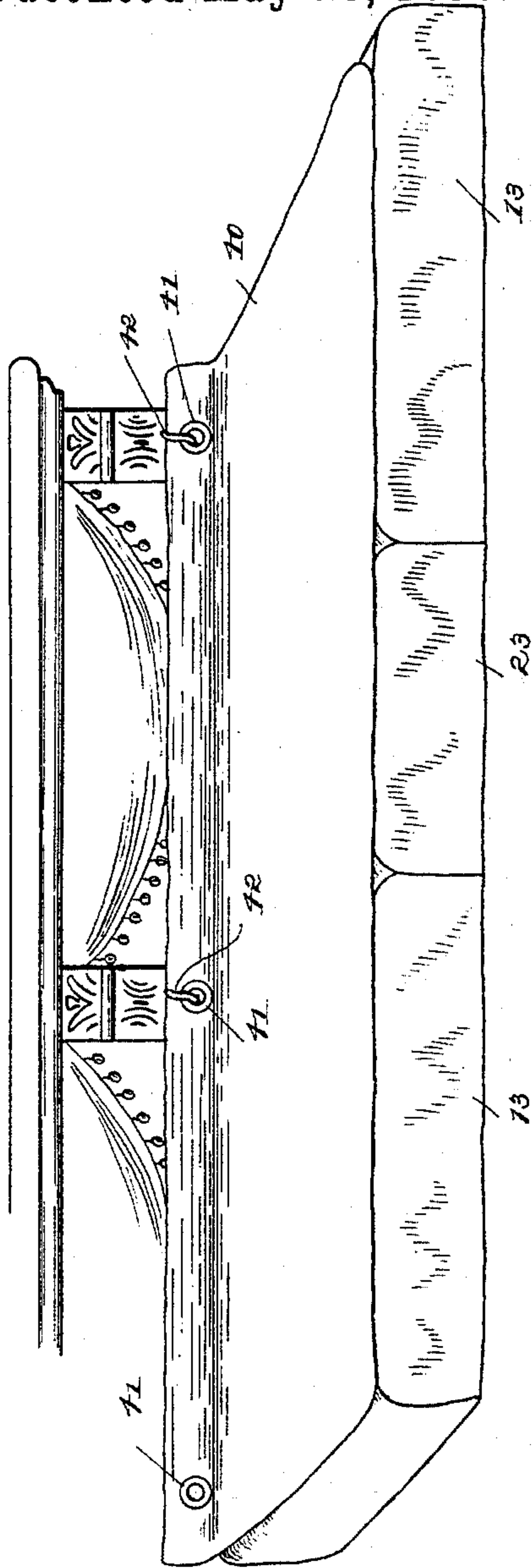
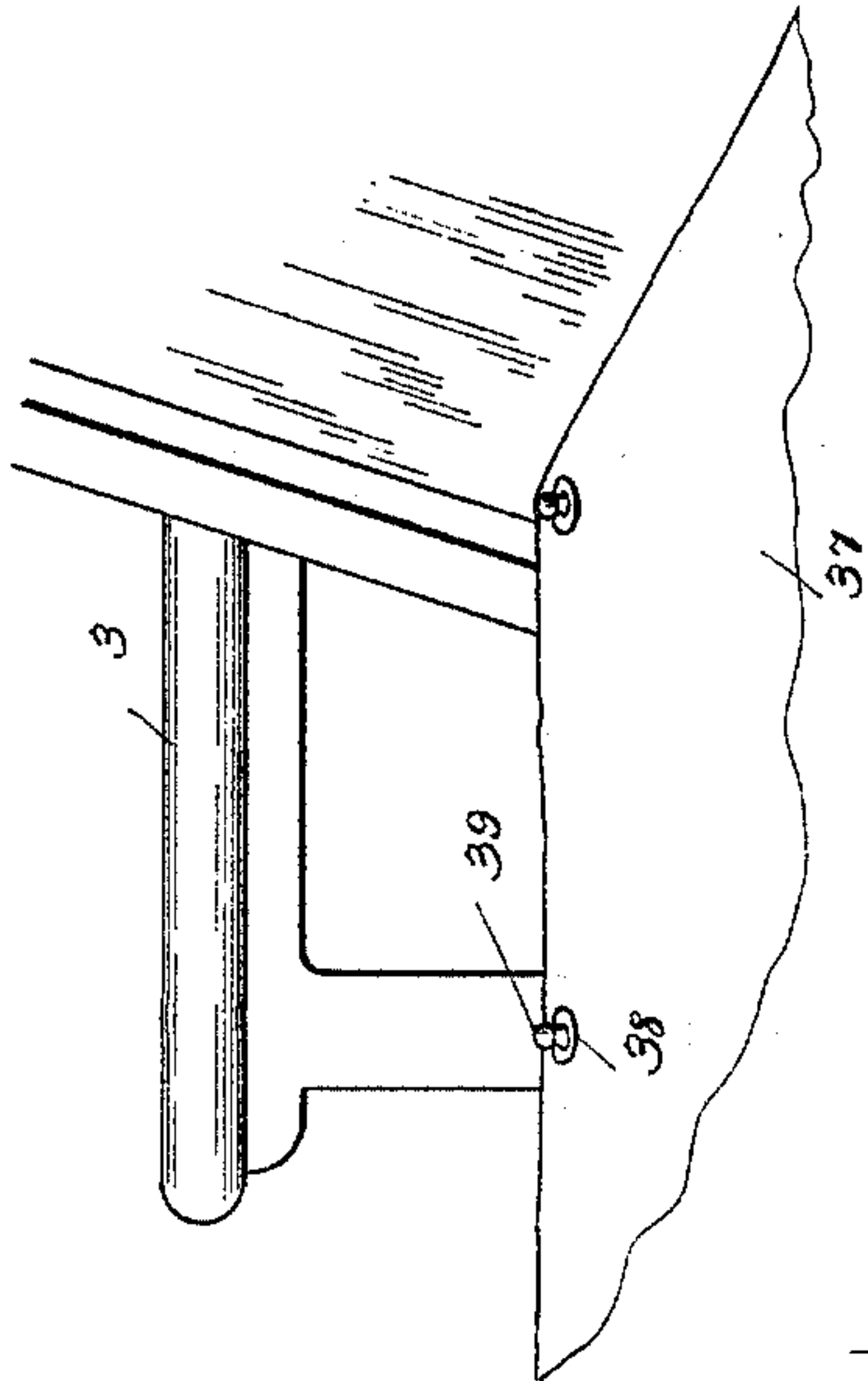


Fig. 9.



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# UNITED STATES PATENT OFFICE.

JOHN KREHBIEL, OF CLEVELAND, OHIO.

## CONVERTIBLE SEAT AND BERTH FOR CARS.

SPECIFICATION forming part of Letters Patent No. 498,013, dated May 23, 1893.

Application filed September 13, 1892. Serial No. 445,748. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN KREHBIEL, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Convertible Seats and Berths for Railway Use, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to new and useful improvements in a convertible seat and berth for railway cars.

The invention consists in so constructing a seat that it is movable in the car, that is, adapted to be adjusted to different positions for day use and so constructed that two opposite seats may be connected together and be converted into a sleeping berth or berths for night use.

20 The invention further consists in the peculiar construction of the parts whereby the berths, both upper and lower are constructed from each pair of seats, and further in the peculiar construction, arrangement and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a side elevation of my improved seat. Fig. 2 is a similar side elevation showing the two opposite seats connected together and arranged as upper and lower berths. Fig. 3 is a bottom plan view of the upper berth. Fig. 4 is a perspective view of one of the seats, showing it arranged as made up for a berth, with the mattress of the lower section removed. Fig. 5 is a detached perspective view of the hinge and elevating device for the seat back when used as the upper berth. Fig. 6 is a detached perspective view of the tension device for the securing bolt of the seat. Fig. 7 is a vertical, central, longitudinal section through the seat. Fig. 8 is a horizontal section on line *xx* in Fig. 2, the lower berth being made up. Fig. 9 is a detached perspective view showing the manner of attaching the rubber cloth cover for the lower berth and Fig. 10 is a similar view of the upper berth.

Heretofore railway cars designed for day and night use have been constructed with stationary seats which were convertible into berths. In most cases the upper berth was

formed by a hinged section in the upper part of the car.

My invention broadly consists in making so-called chair cars, *i. e.*, a car having movable seats, convertible into a sleeping car, and in the peculiar construction of a convertible seat and berth:

1 is a seat frame having the usual back 2 and arms 3. This seat frame is supported preferably upon casters 4. It also has preferably but a limited movement in the car. To effect this limited movement I employ a clamping bolt 5 (Fig. 7) passing through a slot 6 in the bottom of the car and through the bottom of the seat frame, having a clamping nut 7 at the upper end which bears upon a thick rubber washer 8, which in turn bears upon the plate 9 pivoted at one end to the seat frame.

10 is a shaft journaled in suitable bearings and extending beneath plate 9. It is provided with an enlargement or cam 11 beneath the plate 9 and a squared portion at the end to which a crank (not shown) may be applied to turn the same. The effect of turning the shaft is to press the cam 11 against the underside of the plate 9 and to press the rubber washer 8 against the nut 7, clamping the seat firmly in its adjusted position. In this condition of the parts the seat may be turned upon its pivot, but cannot be slid longitudinally of the slot 6. The seat may thus be turned toward the window or toward the aisle or two adjacent seats may be made to face each other, thus for day use making practically a chair car of desirable construction. When the cam is turned downward so as to loosen the washer the seat may be moved longitudinally of the slot as well as being turned on its pivot and thus giving further adjustment for different arrangements of the seats in the car. It is preferable to have the seat clamped in any of its adjusted positions so as to prevent rattling of the bolt and connections.

12 is a seat back which is provided with an upholstering 13, which upholstering is so constructed as to leave an extension 14 at the end. This extension when in use as a seat projects into the body portion of the seat frame, as shown in Fig. 7. The seat back is provided with a hooked plate 15 which en-



gages with a horizontal pin at the top of the bar 16 which slidably engages into a groove 17 on the inner face of the back 2 of the seat.

18 are straps forming guides for the bar 16, this construction forming a detachable hinge between the frame back and seat back, so that the latter may be detached for cleaning purposes the same as the seat proper.

19 is a rack formed on the inner faces of the bars 16 and 20 are pinions meshing with the racks secured to the shaft 21, which extends through the frame and is provided with a squared end 22, to which a crank may be attached for turning the shaft for raising and lowering the bar 16, thus enabling me to raise and lower the hinged end of the seat back to adjust it when it is in use as the upper berth, as shown in Fig. 4.

23 is the upholstered seat proper resting upon the seat frame in the usual manner.

Within the body of the seat is removably secured the end mattress section 24, so constructed that it may be turned with its end portion 25 extending upward parallel with the front of the seat, as shown in Fig. 7. The front of the seat may be removable or may be hinged to the seat frame and the form which I preferably employ is that shown in Fig. 4, in which the front is made in two parts 44, connected at the ends by hinges 26.

When the seat is to be made into a berth, the two opposite seats are moved to face each other and tightly clamped into position, as shown in Figs. 2 and 4. The seats proper 23 are removed and the seat back 12 turned upon its hinge upwardly until it is substantially parallel with the floor, being held in such position in any suitable manner, preferably by means of the hinged brace 27. This hinged brace is preferably at the outer edge of the seat. To support the inner edge I employ the sliding shafts 28 on the under side of the seat back, that shaft having the offsets 29 adapted to engage into sockets 30 in the side of the car when turned at right angles to the normal condition, as plainly shown in Fig. 3, thus not only serving as a support for the inner edge of the outer end of the upper berth, but also locking the upper berth to the side of the car to prevent possibility of lateral movement. One of the upholstered seats 23 is now placed upon the extensions 14 (see Fig. 2) and forms with the upholstered portions of the seat back complementary parts of the mattress for the upper berth. I preferably use a side rail 31 for the upper berth having downward extending arms 32 detachably engaging in sockets 33, as shown in Fig. 2. The sections 44 of the front of the seat frame are turned into parallel relation with each other and the ends of these sections of the adjoining seats are connected together by connecting straps 34, having pins 35 engaging in sockets 36. Thus it will be seen that the two opposite seats are connected together in a single frame to form the necessary berths. The end section 25 of the mattress is removed and inclined blocks

45 which are stowed in the seat frame, as shown in Fig. 7 are set in the bottom of the seat, while notched strips 46 extend across the space between the bottoms of the adjoining seats. The two end sections of the mattress are now placed in position upon the inclined blocks and the connecting strips and the remaining seat cushion placed between their ends, the three sections forming the mattress for the lower berth. The blocks 45 may be adjusted longitudinally to give a greater or less inclination of one end of the mattress, so that the occupant may have his head raised or lowered as desired. Both mattresses are now covered with the usual blankets and over this I preferably extend a rubber cloth cover 37 in the lower berth, having eyelets 38 and engaging hooks 39, forming a smooth clean covering for the entire mattress, and which I have found to make much more comfortable sleeping than where the occupant lies directly upon the blankets. Upon the upper berth a similar cloth 40 covers the blankets having eyelets 41 and engaging hooks 42.

The berths may be separated from each other in any desired manner, the means I preferably employ consisting of curtains 43 at each end. These curtains may be made of cloth with metallic lining and firmly secured in position, so that each berth will be as private as may be desired.

What I claim as my invention is—

1. In a sleeping car, the combination with a car, of a convertible chair constructed and adapted to be converted into sleeping berths, a pivotal sliding connection between the chair and car, and a lock for said connection substantially as described.

2. In a sleeping car, the combination with a car, of convertible chairs, means for connecting the chairs together in pairs to form a sleeping berth pivoted adjustable connections between chairs and car, and locks for said connection substantially as described.

3. In a convertible chair and sleeping car, the combination of movable seats, means for securing them to the car body in their adjusted position and locking means connected with one of the seats for connecting them together in pairs to form a sleeping berth frame, substantially as described.

4. In a convertible chair and sleeping car, the combination of movable seats, means for securing them to the car body in pairs oppositely arranged, and locking means carried by one of the seats for connecting the pairs together, each pair being constructed and adapted to be converted into sleeping berths, substantially as described.

5. In a convertible chair and sleeping car, the combination of movable seats arranged in pairs, locking means for connecting them together, means for converting each pair into a sleeping berth frame, and a detachable connection between said frame and the car superstructure, substantially as described.

6. In a convertible day and sleeping car,



the combination of seats, having seat backs hinged thereto and adapted to be supported in a horizontal position from the top of the frame back, to form ends of the upper berth and separable upholstered seats adapted to form the middle section thereof, substantially as described.

7. In a convertible day and sleeping car, an upper berth comprising the seat backs hinged to the frame back and adapted to be supported in a horizontal position from the top thereof, and having extensions on their edges, and an upholstered middle section removably supported on said extensions, substantially as described.

8. In a convertible seat and sleeping berth, the combination with a convertible seat section, of a mattress or upholstered bed, and means for adjusting an end of the mattress consisting of detached and separated inclined blocks adapted to be placed below the mattress and on the seat section, substantially as described.

9. In a convertible seat and sleeping berth, the combination of the seat backs hinged to the frame and adapted to be moved and supported in a horizontal position, a middle section between the ends thereof, and means for raising or lowering the hinged end of the backs, substantially as described.

10. In a convertible seat and berth, the combination of the seat back hinged to the frame

and adapted to be moved and supported in a horizontal position to form the end sections of the upper berth, and of jointed folding braces hinged at opposite ends to the frame and the end sections, substantially as described.

11. In a convertible seat and berth, the combination with a movable chair frame of the seat backs hinged to the frame and adapted to be moved and supported in a horizontal position to form the end sections of the upper berth, and of a locking connection from said sections to the side of the car to lock the same from oscillation, substantially as described.

12. In a sleeping berth, the combination of the oppositely arranged movable seat frames, of strips connecting the frames and a mattress supported on said strips, substantially as described.

13. In a sleeping berth, the combination of the oppositely arranged seat frame, of removable front boards therefor, strips connecting the frames and resting at their ends upon the bottom of the seat frame, and of mattress sections resting upon said strips, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN KREHBIEL.

Witnesses:

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