

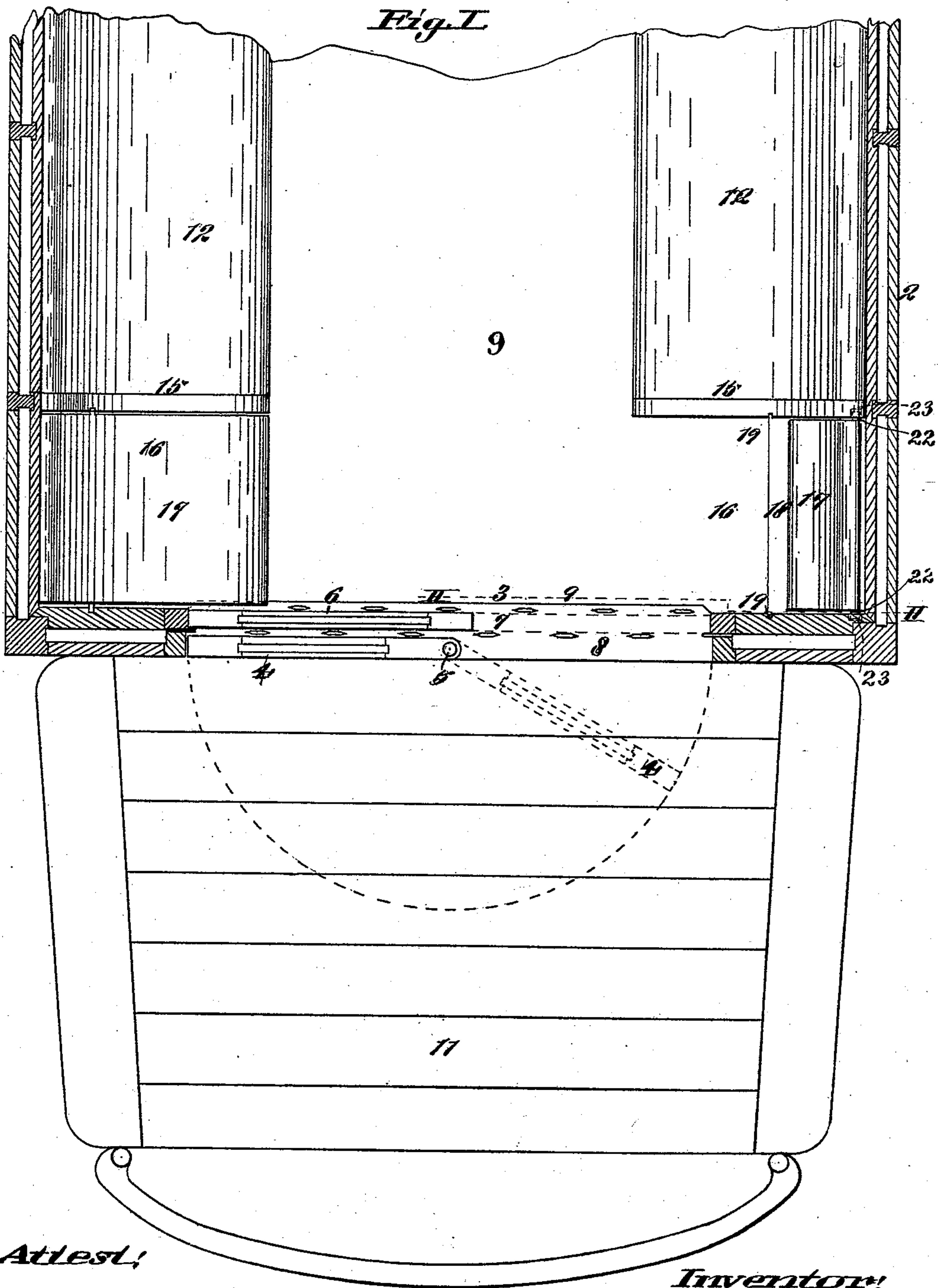
(No Model.)

2 Sheets—Sheet 1.

W. SUTTON.  
FOLDING CAR SEAT.

No. 531,573.

Patented Dec. 25, 1894.



*Attest:*

*Benj. A. Knight.*  
*Harold G. Ellis*

*Inventor:*  
*William Sutton.*  
*By Knight Bros.*  
*Attys.*

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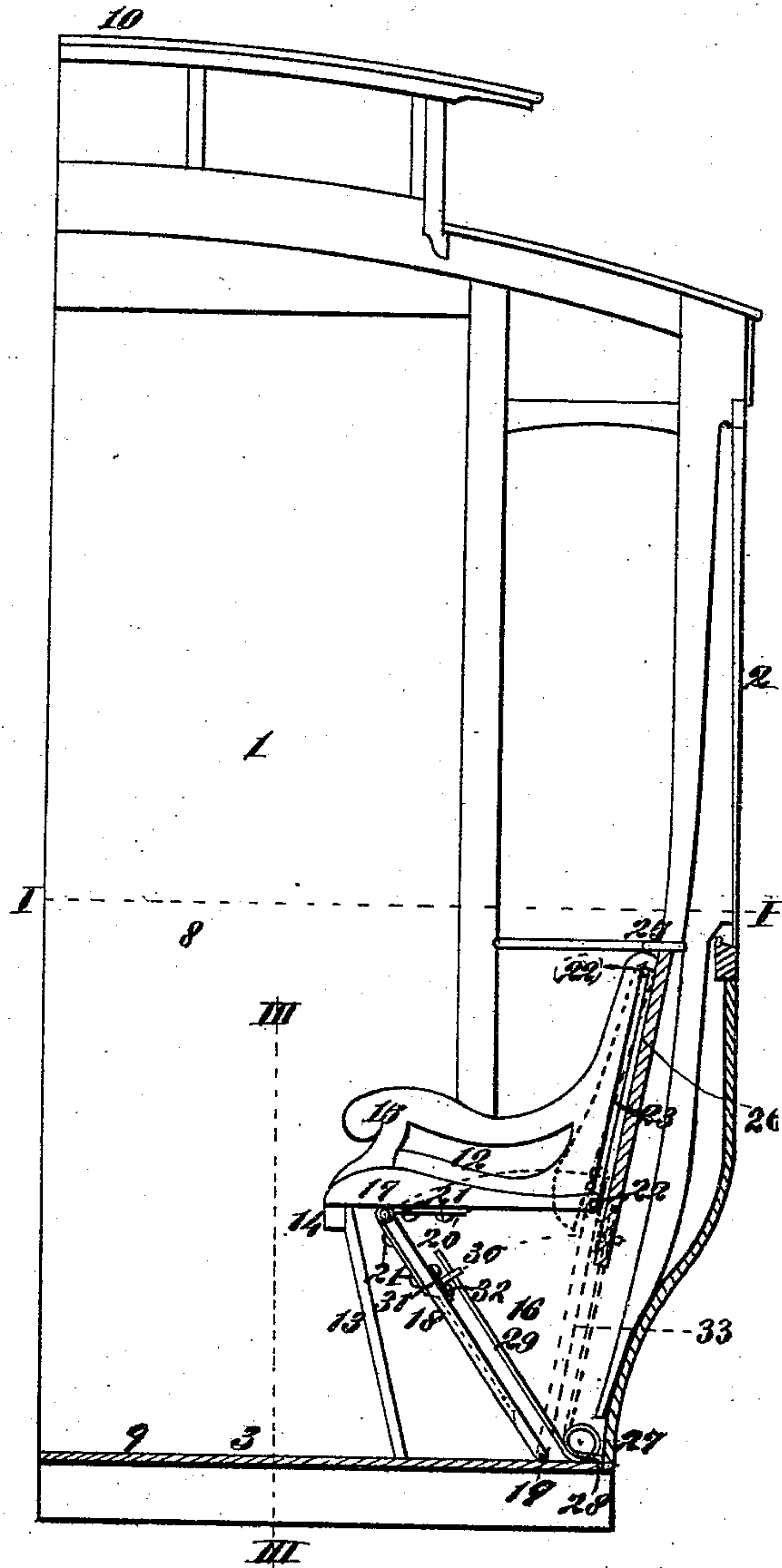
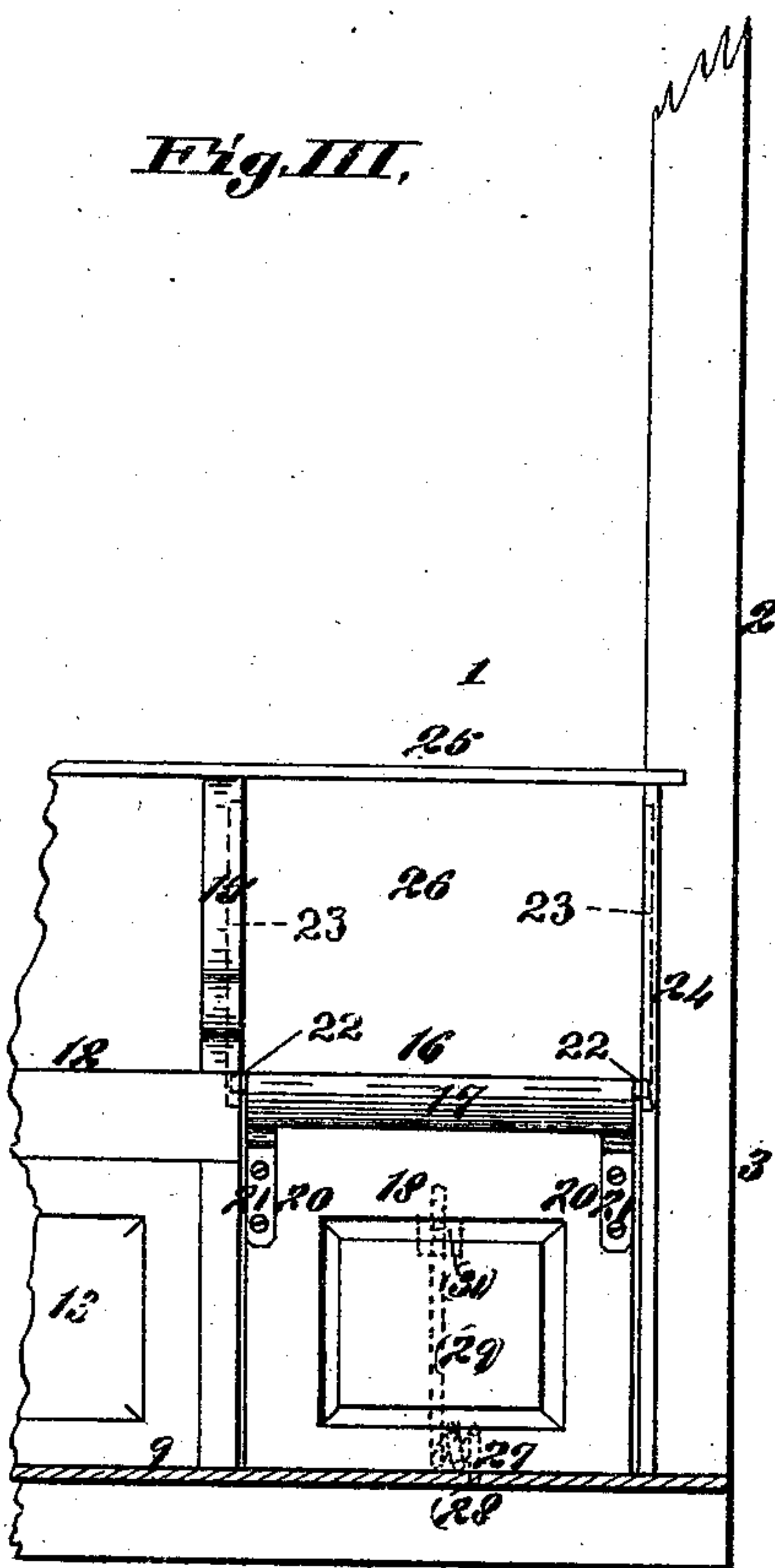
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*Fig. II.*



*Attest:*

*Samuel A. Knight.*  
*Harold G. Ellis*

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# UNITED STATES PATENT OFFICE.

WILLIAM SUTTON, OF ST. LOUIS, MISSOURI.

## FOLDING CAR-SEAT.

SPECIFICATION forming part of Letters Patent No. 531,573, dated December 25, 1894.

Application filed October 30, 1893. Serial No. 489,499. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM SUTTON, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Folding Car-Seats, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to a device for facilitating the entrance and exit of passengers into and out of the car, and their passage to their seats, where the entrance is through that one of the sliding, folding or other double doors at the end of the car, which door at the time being is open and leads to the outside of a double track; and the invention consists in short folding seats next to said door, the said seats having pivotal fulcrum mounts and operative spring attachments, the said spring being automatic in its action after its power becomes dominant by the initial fulcrum tip of the seat, the said folded extension seats arranged to open up the entrance and exit on the side that for the time being is next to the open door: and the invention consists in features of novelty hereinafter fully described and pointed out in the claims.

Figure I is a horizontal section, taken on line I—I, Fig. II, and shows one of the elongated end platforms, combined folding and sliding doors, stationary seats, and folding extension seats. Fig. II is a vertical, detail section, taken on line II—II, Fig. I, and shows one of the stationary seats, and on end thereof, one of the folding extension seats: and Fig. III is a detail, vertical section, taken on line III—III, Fig. II, and shows a detail of one of the stationary seats, and the folding extension seat at the end thereof.

Referring to the drawings:—1 represents the body of a railroad car; 2, its sides; 3, one of its ends, in which the combination swing doors 4 that work on their vertical pivots 5 are hung, and the sliding door 6 runs in its groove way 7, as covered by the Letters Patent issued to me October 31, 1893, to which car my folding car seat may be attached, or said folding seat may be placed in combination with the cars to which my "combined car door and conductor's observatory," Patent No. 499,604, dated June 13, 1893, are attached,

or said extension seat may be used with any other car, and it is especially adapted for use where double end doors are used on double track roads, and the door on the outside of said double track being opened, leaving an open doorway 8 for the exit and entrance of passengers.

9 represents the floor of the car; 10, its roof, and 11 is the conductor's extension observatory platform.

12 represents the stationary seats within the car, which seats are supported by the panel frames 13, that stretch from the floor to the front cleat 14, beneath said seats, against which they rest, and 15 are the end elbow frames of said seats, between which and the end of the car, where passengers enter and alight, are certain spaces 16 in which are located and work the folding seats 17.

Now it will be seen that in cars with double folding or sliding end doors, the double doorway overlaps in some measure the front portions of the stationary side seats. See Figs. I and II. It will also be seen that with said double folding or sliding doors, only one of said doors is required to be opened at any one time, that is next to the outside of the double track, and consequently next to the station or street platforms.

In view of the above fact, I have devised a novel arrangement of folding seats 17, that are located in the spaces 16 between the stationary seats 12 and the entrance doors of the car, the said folding seats being respectively arranged to open up a passage way at the rear entrance to the car on the side on which at the time being the door is opened for the entrance and exit of passengers. For this purpose the stationary side seats 12 are abbreviated at the entrance end of the car, leaving the above mentioned spaces 16, between the ends of said stationary seats and the end of the car. The folding seats 17, occupy said spaces 16 when the seats are lowered for use, and said seats are supported beneath near their front sides by the pivot hinged panel frames 18, the bottom edges of which are secured to the floor 3 by the hinges or pivots 19, on which they turn, and the upper edges of said supporting panels are pivotally secured to said adjustable seats by the hinges 20, and



their attachment screws 21, thus arranging a fulcrum mounted seat, that can be tilted in a certain direction.

22 represents journals that project laterally from the side edges of said folding seats at their rear, and which journals when said seat is folded out or down, rest within the bottoms of the respective guide slots 23, which slots are slightly inclined rearward from the vertical and are respectively countersunk within the elbow frames 15 on one side and within the end standard 24 of the supplemental frame 25, that incloses the head paneling 26 of the seats on the other side. The said respective countersunk slots 23 ascend to near the summit of said elbow frame 15 on the one side and to near the summit of said standard 24 of the head panel frame on the other side. The aforesaid supporting panel frames 18, with said parts to which they are hinged and the adjacent parts they inclose also constitute spring housing chambers 33, which chambers contract and expand with the respective fold and unfold of the seats, but in both positions alike preserve a spring 27 and its operator arm 29, from dirt, dust, moisture, &c.

27 represents spiral springs, the short base arms 28 of which are respectively secured in the car floor, back of said respective hinged supporting panel frames 18. The long upper attachment arms 29 of said springs are seated in the perforate lugs 30 of the holder brackets 31, which brackets are secured to the rear of said panel frame 18 by the screws 32.

The operation of the fulcrum tilting seat, the automatically folding and other coadjutory elements of the device are as follows:— Supposing the two folding seats to be down, as one of them is shown down in Fig. I, and the conductor knowing which is to be the outer track that day, or on that route, and consequently on which side he will open his folding or sliding entrance and exit door. Then as the conductor passes in front of the then vacant seat that is required to be folded to open up the entrance passage, (for the time being) on that side of the car, he presses downward and rearward against the front edge of the fulcrum mounted seat, thus exercising a fulcrum leverage on and against the projecting front edge of said seat and causing said seat to tilt on its pivot hinged connection to the panel frame 18, the said panel frame being itself overhung on its hinged connection at bottom. The said fulcrum pressure against the seat on the part of the conductor, starts the light long rear section of the fulcrum mounted seat (or lever so to speak) on its upward tilt, and the journals 22 on the rear end of said folding seat are thereby elevated from their rests and started upward in their guide slots 23. With said initial start which can be given by the conductor while passing, without stopping, the said journals then under the dominant action of the spring 27 and its operator arm 29, carry the rear end of the fold-

ing seat with them, and thus overcome more and more the acuteness of the adverse angle of opposition of the fulcrum mounted seat bottom itself on said pivoted fulcrum mount, to the then dominant folding operation of the arm 29 of the folding spiral spring 27. In the unfolded position of the fulcrum mounted seat, the balance of the long rear leverage back of said fulcrum mount, in combination with the relative acute angle presentation of the rear of said seat and its journals 22, braces against and is dominant against the folding tendency of the operative arm 29 of the spring 27, and said dominant restraint of the spring when the seat is occupied is increased by the weight of the passenger thereon, as the seat that sustains, rests on a fulcrum mount in which the rear retention leverage is manifold longer than that of the short front leverage, and the presentation of said fulcrum lever is then also as stated in a dominant position to withstand the action of the spring; but this is all changed when the fulcrum balance is changed by the above described upward tilt of the rear end of the fulcrum mounted seat, and although the balance of power at the end of said initial tilt is but slightly in favor of the spring, yet as stated and for the reasons given as said spring 27 automatically exercises its dominant power through its operative arm 29 in the further then automatic tilting and consequent folding of the seat, its dominant power becomes more and more increased both to fold said seat and to retain it in its fold. When on the other hand it is required to again unfold the seat, the said unfolding is more the work of the conductor or other operator, who draws the then pendent front of said seat (shown in broken lines in Fig. II) outward, into its unfolded position (shown in full lines in Fig. III) the journals 22 at the rear of said seats following down their guide slots 23, *en suite*, and the operative arm 29 of the spring 27, being again brought forward by said action, and there again retained by the downward turn thus effected in the long rear portion of the fulcrum mounted seat and its consequent adverse presentation in rebuttal of the spring action over which it has again become dominant. It will also be seen that both when the seats are folded as also when unfolded the hinged supporting panel frames 18, in connection with their attachments and surroundings provide a housing inclosure 33, that protects the springs 27 and their operative arms 29 from dust, dirt, &c.

I claim as my invention—

1. In a folding car-seat, the combination of the folding seat bottom 17, the hinged panel frame 18, pivotally secured to the floor and to said seat, the journals 22, that project laterally from the rear of said seat, the stationary seat 12, the elbow frame 15 provided with a guide slot 23, the supplemental frame 25, having the standard 24 provided with a guide slot 23, and the spring 27 with its operative arm 29,



secured to said panel frame upon which panel frame said spring acts to fold said seat; substantially as described.

2. In a folding car-seat, the combination of  
5 the stationary seat 12, the elbow frame 15, provided with the slot-way 23, the supplemental frame 25, having the standard 24, provided with the slot-way 23, the head paneling 26, the folding seat 17, the frame 18, having  
10 hinged connections to the floor and to the seat, the journals 22 and the automatic spring 27; substantially as described.

3. In a folding car-seat, the combination of  
15 the car having the combined folding doors 4, and sliding door 6, the stationary seats 12, having the elbow frames 15, provided with the slot-ways 23, the supplemental frames 25 having the standards 24, provided with the slot ways 23, the head paneling 26, the fold-  
20 ing seat 17, the hinged panel support 18, and the automatic springs 27 with their operative

arms 29 secured to said hinged panel support; substantially as described.

4. In a folding car-seat, the combination of  
the car having double doors, the stationary 25 seats 12, having the elbow frames 15, and supporting panel frames 13, the said elbow frames 15 provided with the slot ways 23, the supplemental frames 25, having the standards 24, provided with the slot ways 23, the head 30 paneling 26, the folding seat 17, the hinged panel support 18, the hinges or pivots 19, the hinges 20, the journals 22, the automatic operator springs 27, having the base arms 28, and the long driver attachment arms 29, and 35 the holder brackets 31 having the perforate spring arm seat 30; substantially as described.

WILLIAM SUTTON.

In presence of—

BENJN. A. KNIGHT,  
ALBERT M. EBERSOLE.