

(No Model.)

2 Sheets—Sheet 1.

A. DE F. DIMICK.
SIDE GUARD FOR OPEN CARS.

No. 569,786.

Patented Oct. 20, 1896.

Fig. 1.

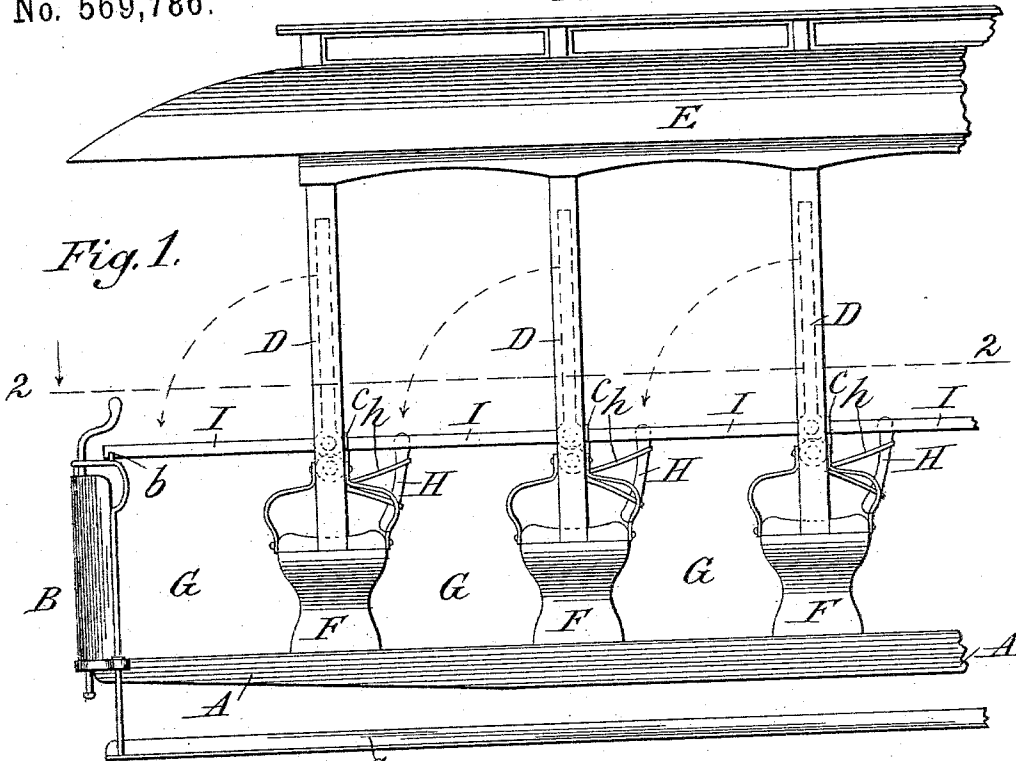
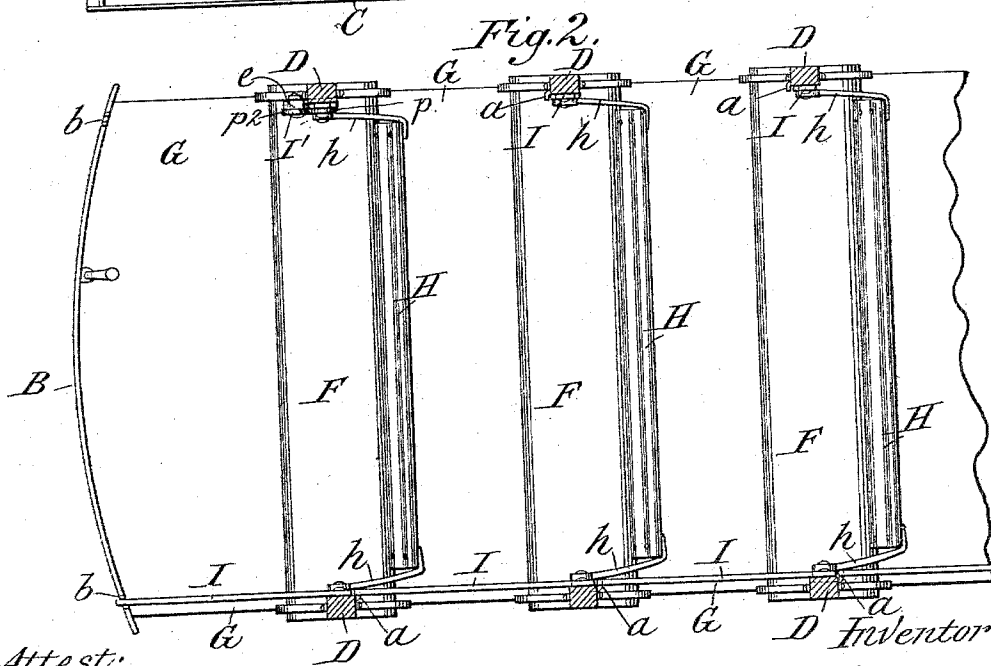


Fig. 2.



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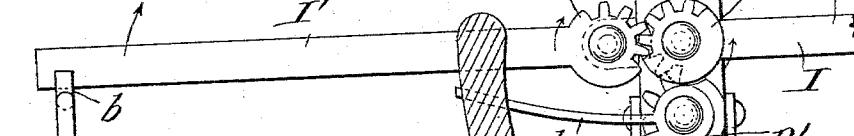
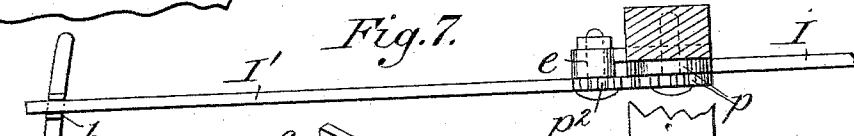
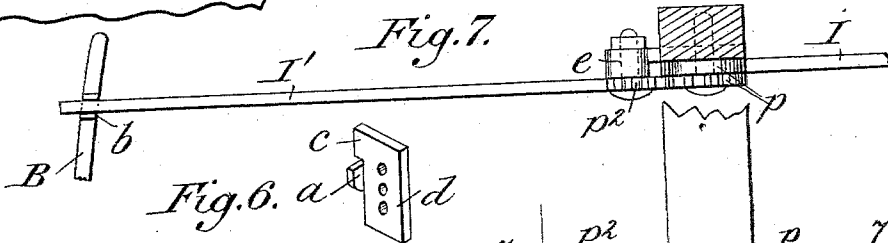
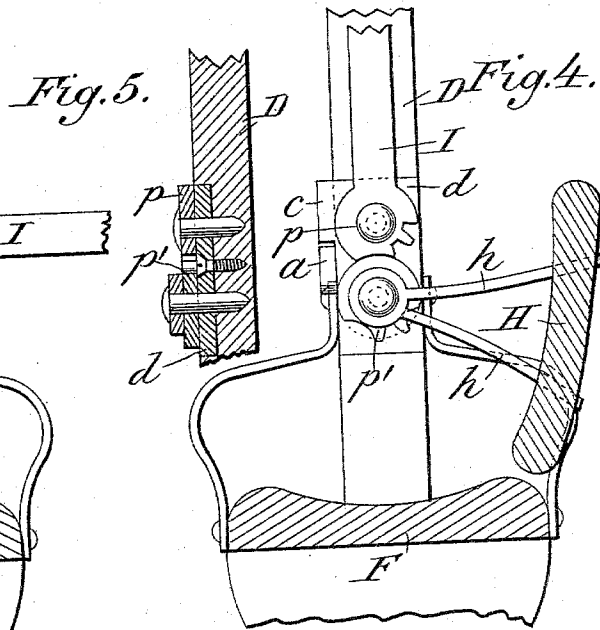
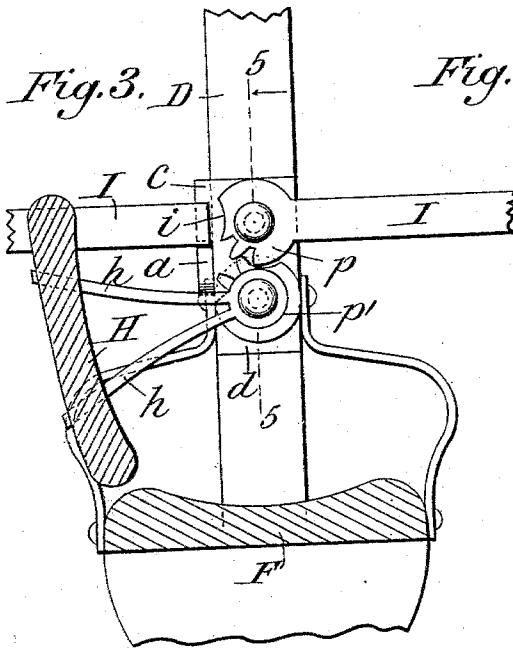
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UNITED STATES PATENT OFFICE.

AUGUSTUS DE FOE DIMICK, OF WAKEFIELD, MASSACHUSETTS.

SIDE GUARD FOR OPEN CARS.

SPECIFICATION forming part of Letters Patent No. 569,786, dated October 20, 1896.

Application filed August 27, 1895. Serial No. 560,640. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS DE FOE DIMICK, a citizen of the United States, residing at Wakefield, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Side Guards for Open Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates more especially to double-ended open-sided passenger-cars for street and other railways; that is to say, such cars as have entrance and exit openings on the sides, either at the ends only or all along the sides, and are adapted to travel in one direction with one end foremost and in the opposite direction with the opposite end foremost, either on the same or an adjoining track, without reversing the position of the car. Perhaps the most serious objection to the use of such cars is the liability of accidents to passengers leaving the cars by the exits on the side next to the adjoining track. So many such accidents have happened that in many places cars having both sides open are prohibited by legislative or municipal enactment, and wherever this is the case expensive and unsightly turn-tables or switches are required to turn the cars end for end at the termini of the lines. Attempts have been heretofore made to provide guards for the side openings of these cars, so as to avoid the expense and other objections to the use of turn-tables and switches. Some of these guards consist of long rails that have to be shifted from side to side of the cars at the end of the route. Others are permanently arranged at either side of the car and adapted to be thrown into open or closed position by the driver or conductor from the platform. Still others consist of permanent side rails arranged to be raised and lowered, and in one instance pivoted guard-arms have been arranged on either side of the cars and adapted to be automatically thrown into open or closed position by changing the position of the reversible seats. It is to this last-named type that my invention more especially relates, though not limited thereto in all respects; and it has for its object to provide perma-

nent side guards that are adapted to be operated automatically by the necessary reversal of the seats, and that will not interfere with passengers standing on, or the conductors passing along, the side step of the car, and that are pivoted on the inner sides of the side posts of the car so as to fold upward alongside said posts out of the way when not in closed position, and that are so connected to the reversible seats that in all the movements of the seats the connection is intact, so that the guards are at all times controlled by and moved with the reversible part of said seats. I obtained these objects by the construction and arrangement shown in the accompanying drawings, and described and claimed herein.

In the drawings, Figure 1 is a side elevation of a portion of an open-sided double-ended car, or what is commonly known as a "summer car." Fig. 2 is a plan view of the interior of the car, the roof being removed and the side posts sectioned on the line 2 2, Fig. 1. Fig. 3 is an enlarged detail elevation of one of my improved side guards and the means by which it is automatically operated when the seat is reversed, the guard being shown in closed position. Fig. 4 is a similar view of the same parts, the guard being shown in open position. Fig. 5 is a detail section taken lengthwise of one of the side posts of the car, the line of cut intersecting the pivots of the seat-arm and the side guard. Fig. 6 is a perspective view of one of the plates which are let into the side posts and to which the guards and seat-arms are pivotally secured, said view showing in particular the brackets for limiting the downward movement of the guards and for staying their outer ends against lateral movement. Fig. 7 is a plan view, and Fig. 8 is a side elevation, of an arrangement of oppositely-movable guards for closing the openings in front and rear of any seat.

Similar letters denote like parts in the several views.

A is the body of the car, the design and construction of which are entirely immaterial to my invention, which is applicable to any and all styles.

B is the usual dashboard. Only one end of the car is shown, but it is to be understood that the other end has a similar con-

trivance, being known as a "double-ender," or one that is adapted to travel in either direction without reversing its position.

C is the side step, with which all such cars are provided, and D are the side posts, supporting the roof E.

F F are the seats, and G G indicate the side entrance and exit openings between the seats and between the two end seats and the dashboard B.

In all double-ended cars the seats must be and are reversible, and many kinds of reversible seats are known and used. I have chosen for illustration herein the kind most commonly employed in practice—viz., those where the seats proper are fixed and immovable and merely have reversible backs H, said backs being secured to arms *h*, that are pivoted to the side posts in the center of the width of the seats, so that the backs will be in proper position relative to the seats in either position of adjustment. I would have it understood, however, that my invention is not restricted to the use of this style of reversible seats, but is applicable to any variety of reversible seats having a part that moves when the seats are reversed.

I I indicate movable guide arms or rails. In the present embodiment of the invention they consist of plain, flat metallic bars, pivoted at their lower ends to the side posts D, a metallic plate *d* being preferably rabbeted to the posts at the pivotal point of the guards to afford a proper bearing for the same, as well as for the pivots of the reversible seat-arms.

As will be seen by reference to Fig. 2 and to the dotted lines in Fig. 1, these guards are adapted when in open or raised position to extend longitudinally upward from their pivots and to lie flat against the inner sides of the side posts, and they are so proportioned in length relative to the width of the side openings G as to extend from one of the side posts to another or from the end side posts to the dashboard at either end, so as to completely close the openings against entrance or exit from the car at such points. For the purpose of operating these pivoted guards by means of the reversible seat-backs I connect them to the arms *h* of the seats by means of gearing, consisting in the present instance of a stop-motion or mutilated pinion *p* on and concentric with the pivot of each of the guard-arms, and on each arm of each of the reversible seat-backs I form or secure a corresponding pinion *p'*, said pinions meshing with each other, as shown in the several figures. It is to be understood that each of the side posts D on each side of the car is to be provided with one of these pivoted guards, and the gearing between said guards and the reversible seat-backs is so arranged that when the guards are in raised or open position on one side of the car they will be lowered or in closed position on the other side, thus always presenting one side of the car with free open-

ings for the entrance and exit of passengers and the other side closed. Although I show herein gearing consisting of intermeshing stop-motion pinions, I may use any other form of gearing so long as the characteristic feature of the present form is maintained, that is to say, so long as the guard-arms are connected to and positively actuated and at all times controlled by the movement of the reversible seat-backs. It is of course desirable that the guard-arms when in closed position should be locked, so as to prevent passengers from lifting them to leave the car or enter it from the side. The specific form of gearing shown herein—viz., the mutilated or stop-motion pinions—is particularly adapted to the present requirements for the reason that it provides for locking the guards in both their closed and open positions.

Upon reference to Fig. 3 it will be seen that the pinion *p* on the end of the guard I has a cut-away portion *i*. When the guard is in its raised or open position, this cut-away portion or "shoe," as it is technically called, slides upon the plain periphery of the pinion *p'* on the seat-arm and securely locks the guard and holds it extending upward lengthwise of the posts D and flat against the inner side of the same. If preferred, another cut-away portion or shoe corresponding to *i* may be formed on the pinion *p* at the opposite side of its gear-teeth to engage with the plain periphery of the pinion *p'* when the arm is in its lowest position, but I prefer to secure the same effect by simply lengthening the teeth of the pinion *p'* or making them extend slightly beyond the periphery of the pitch-line of said pinion, as shown in Figs. 3 and 5, whereby when the parts are in position shown in Fig. 3 the rear tooth of the pinion *p'* will engage the tooth of the pinion *p* near its outer end, thus effectually locking the guard-arms against any upward movement except when the reversible seat-back is shifted, thereby causing the teeth of the pinion *p'* to resume their proper positions in the interdental spaces of the pinion *p*. Of course this is only one form of locking device, of which there may be others selected, if desired. In the form of gearing shown herein the pinions *p* and *p'* are of equal size. It is not necessary, however, that the pinions should be of equal size, but in any event they should be so proportioned that a complete overturning of the seat-back would only cause the guard-arms to describe a quarter of a circle, and the relative arrangement of the sets of gears at opposite ends of the seats must be such that when the guards on one side of the car are in lowered position those on the other side will be raised.

As before described, the guard-arms extend from one of the side posts to the adjacent one, and it is desirable that there should be some provision against the lateral displacement of the free ends of these arms. I provide for this by forming on the plates *d* small brackets or extensions *c*, which are overlapped by the

ends of the guards when in lowered position. I also provide a stop for limiting the downward movement of the free end of the arms I by making another small bracket, *a*, project laterally and inwardly from the plates *d* just below the rearwardly-extending brackets *c*.

Upon reference to Fig. 1 it will be noted that the guard-arms in passing from their open to their closed positions swing downwardly and forwardly, so that their free ends reach to the side posts in front of the seats at which the guards are pivoted. This provides for closing all the openings on either side of the car except that between the rear seat and the rear dashboard. For the purpose of closing this opening at the same time with the others I provide an additional guard-arm I' and arrange it to move downwardly and backwardly at the same time that the other arm on that side post moves downwardly and forwardly. In order to effect this opposite movement of the two guard-arms, I pivot the arms I' in a lug or extension *e* of the plate *d* and arrange its pinion *p*² to mesh with the pinion *p* of the other guard-arm, I, instead of gearing it directly with the pinion *p*' on the arm of the seat-back. Upon reference to Fig. 8 the effect of this arrangement will be apparent, the arrows indicating the direction of movement of the several pinions. It will be understood, of course, that it is only necessary to provide these additional rearwardly-moving guard-arms at one corner of each end of the car on opposite sides. In order to provide against the front and rear end guards being pushed sidewise, I form notches or lugs *b* on the upper edge of the dashboards, into which notches the ends of the arms engage when in their lowered position.

The construction being as above described, the operation of the device is very simple. Assuming the guards on the side of the car next the adjoining track as the car goes in one direction to be down, so as to close all the openings on that side, and the car having arrived at the end of the route and switched on the adjoining track to go in the opposite direction with its other end foremost, the seats must of course be reversed, so that the passengers may face in the direction the car is traveling. This reversal of the seats will, by the means hereinbefore described, cause all the guards on the closed side of the car to rise and open the entrances on that side, and those on what is now the side next to the adjoining track to descend, thus closing the entrance and exit openings on that side.

I do not wish to be understood as limiting my claims to the details of construction herein illustrated and described, for I regard the invention as embracing, broadly, the combination of a reversible seat with a movable guard, however arranged and located, and a gear connection between the two whereby the guard is positively operated by changing the position of the seat; also the arrange-

ment of a pivoted guard, however operated, on the inner side of the side posts of the car, so as to fold upward alongside of the posts out of the way when opened; also other combinations subordinate to the above but not necessarily limited to the employment of the particular construction of parts herein disclosed. For example, other forms of gearing may be employed (with or without the locking feature) so long as the characteristic feature of the gearing shown herein is retained—viz., that of connecting the guard positively to the reversible seat, so that the guard shall move concurrently with the seat and be at all times connected with and controlled thereby.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. In an open-sided car having reversible seats, the combination of movable side guards, and a gear connection between said guards and the reversible portion of the seats; substantially as described.

2. In an open-sided car having reversible seats, the combination of movable side guards, a gear connection between said guards and the reversible portion of the seats, and a locking device for locking said guards in open or closed position; substantially as described.

3. In an open-sided car having reversible seats, the combination of movable side guards, pivoted on the inner side of the side posts, a gear connection between said guards and the reversible portion of the seats; substantially as described.

4. In an open-sided car having reversible seats, the combination of the movable side guards, pivoted to the side posts, a gear connection between said guards and the reversible portion of the seats, and brackets on the adjacent side posts to limit the downward movement of the free ends of the guards; substantially as described.

5. In an open-sided car having seats with reversible backs, the combination of movable side guards, a gear connection between said guards and the reversible seat-backs; substantially as described.

6. In an open-sided car having seats with reversible backs, the combination of movable side guards, pivoted to the side posts, and a gear connection between the arms of the reversible backs and said guards; substantially as described.

7. In an open-sided car having seats with reversible backs, the combination of movable side guards, pivoted to the side posts, gears connected with the arms of the seats and concentric with the pivots of the seat-arms, and gears on the guards meshing with the seat-arm gears; substantially as described.

8. In an open-sided car having seats with reversible backs, the combination of movable side guards, pivoted to the side posts, gears on the arms of the seats concentric with the

pivots of the seat-arms, and mutilated or stop-motion gears on the guards concentric with their pivots; substantially as described.

9. In an open-sided car having seats with
5 reversible backs, the combination of movable side guards being pivoted at their lower ends on the inner side of the side posts, and adapted when in open position to extend upward and lie flat against the said side posts, and means
10 connecting said guards and the reversible

portion of the seats, so that a reversal of the seats will turn the guards downward on their pivots into closed position; substantially as described.

In testimony whereof I affix my signature 15
in presence of two witnesses.

AUGUSTUS DE FOE DIMICK.

Witnesses:

J. A. GOLDSBOROUGH,

S. G. HOPKINS.