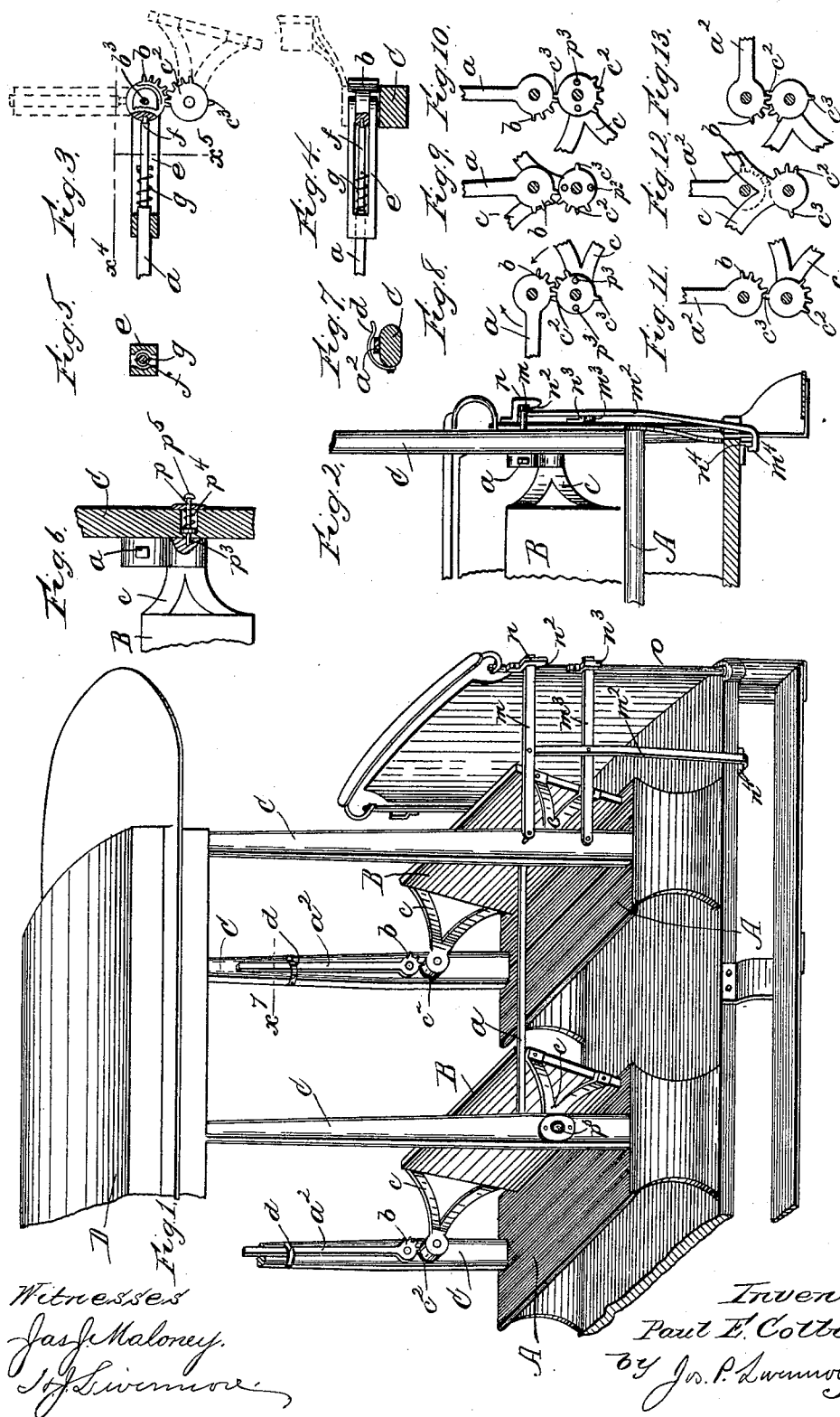


(No Model.)

P. E. COLLINS.
CAR GATE.

No. 581,536.

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Witnesses
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UNITED STATES PATENT OFFICE.

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CAR-GATE.

SPECIFICATION forming part of Letters Patent No. 581,536, dated April 27, 1897.

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To all whom it may concern:

Be it known that I, PAUL E. COLLINS, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Car-Gates, of which the following description, in connection with accompanying drawings, is a specification.

Like letters on the drawings represent like parts.

10 This invention relates to a gate or guard for the platform of a street-car or the entire side of an open street-car, and is embodied in mechanism whereby the gates at one side of the car are closed while those at the other
15 side of the car are opened by a single operation, such, for example, as that of turning the seat-backs of an open car.

The present invention consists, mainly, in the combination, with a pivotally-supported
20 gate-bar provided with a mutilated gear or toothed segment, of an independently-pivoted actuating gear or segment coöperating therewith to turn the said gate-bar, and also in the combination of gate-bars pivotally supported
25 at opposite sides of a vehicle and provided with toothed segments, of connected actuating-segments coöperating with those on the gate-bars and constructed to cause one of said gate-bars to move from the horizontal to
30 the vertical position and the other from the vertical to the horizontal position in a movement of said connected actuating-gears through substantially one-half of a complete rotation.

35 The invention further consists in the combination of the gate-bar and a pivoted actuator therefor, with a detachable connection whereby said bar may be disengaged from said actuator and turned independently thereof,
40 and in various details of construction which will be hereinafter described.

Figure 1 is a perspective view of a portion of a street-car provided with gates and actuating mechanism therefor embodying this invention; Fig. 2, a transverse vertical section of a portion thereof, showing the platform-gate mechanism in elevation; Fig. 3, an elevation of a portion of one of the gate-bars and the actuating mechanism therefor, portions
45 being broken away and shown in section; Fig. 4, a sectional plan on line x^4 , Fig. 3; Fig. 5, a sectional detail on line x^5 , Fig. 3; Fig. 6,

a sectional detail showing a locking device for the gate-actuating mechanism to be referred to; Fig. 7, a sectional detail on line x^7 ,
55 Fig. 1; Figs. 8, 9, and 10, details showing a gate-bar and its actuating mechanism in different position, and Figs. 11, 12, and 13 similar views showing the corresponding positions of the gate-bar and actuating mechanism at
60 the other side of the car.

The invention is shown as applied to an open street-car of usual construction provided with the usual stationary seats A and reversible seat-backs B, which are pivotally
65 connected with posts or uprights C, which sustain the roof D.

In order to guard or close the spaces between the seat-posts at one side of the car, so as to necessitate the passengers entering or
70 leaving at the other side, the car is provided with movable gates a a^2 , pivotally supported upon the uprights C just above the pivotal supports for the seat-backs B. The side of the car at which the gates are to be closed depends upon the direction in which the car is
75 traveling, being usually the left-hand side when, as is commonly the case, the car travels on the track that is at the right hand when facing from the rear toward the front of the
80 car. In order to insure the opening of the gates at one side and the closing thereof at the other side of the car in accordance with the direction in which the car is traveling, the gate-bars a a^2 are, as shown in this instance,
85 actuated by the reversible seat-backs B, the gate-bars being each provided with a mutilated gear b , or, in other words, having their pivoted ends provided with gear-teeth extending a portion of the way around their periph-
90 ery, about one-quarter around being sufficient, as the bars require to be turned through an angle of ninety degrees only—namely, back and forth between the horizontal and vertical position. The pivoted seat-back
95 brackets or supporting-arms c are provided with corresponding toothed portions c^2 on their periphery which coöperate with the teeth on the gate-bars, as will be best understood from Figs. 8 to 13. With the seat-back
100 in a given position the gate at one side (for example, a , Fig. 1) should be in horizontal or closed position and the gate a^2 at the other side in vertical or open position, and the turn-

ing over of the seat-back should reverse the position of the said gates, turning the one a up to vertical or open position and the one a^2 down to the closed position.

- 5 Fig. 8 represents the position of the gears at the side where the gate is closed, and Fig. 9 represents the position when the seat-back is turned half-way over, and Fig. 10 the position when the seat-back is wholly reversed, 10 leaving the gate at that side open.

When the gate is closed, as indicated in Fig. 8, the toothed segments are in mesh, so that the beginning of the rotary or pivotal movement of the seat-back bracket c in the 15 direction of the arrow causes a corresponding pivotal movement of the gate-bar a , but by the time that the seat-back is turned about one-half way over and the gate-bar a turned to substantially vertical position, as shown in 20 Fig. 9, the teeth run out of mesh, so that in the remainder of the turning of the seat-back the bar receives no further movement. The seat-back bracket is, however, provided with an additional tooth c^3 , which at the comple- 25 tion of the reversal of the seat-back engages the endmost tooth of the segment b on the gate-bar, as best shown in Fig. 10, giving the gate-bar a slight additional movement, as will be recognized by comparing Figs. 9 and 30 10, and positively locking the gate-bar against return movement from the vertical to the horizontal position until the seat-back is again reversed from the Fig. 10 to the Fig. 8 position, in which movement it will turn about half-way 35 over—that is, from a position shown in Fig. 10 to that shown in Fig. 9—without moving the gate-bar, and will then have its toothed segment come into mesh with that of the gate-bar, so that in the remainder of the movement from 40 the position shown in Fig. 9 to that shown in Fig. 8 the gate-bar will be turned from the vertical to the horizontal position. The gears at the other end of the seat are of the same character, but in reversed position, as indicated in Figs. 11, 12, and 13, which show the 45 positions at the opposite end of the seat corresponding to those shown in Figs. 8, 9, and 10, the bar a^2 being held in vertical position by the tooth c^3 at the time when the bar a is held in horizontal position by the intermeshing of the toothed segments, and said bar a^2 being turned by the intermeshing of the 50 toothed segments from vertical to horizontal position in the movement of said seat-back from position shown in Fig. 11 to that shown in Fig. 13, the movement of the bar taking place in the movement of the seat-back from the position shown in Fig. 12 to that shown in Fig. 13. Thus whichever position the seat- 60 back may be in the gate-bar at one end is positively held closed and that at the other end is positively held open.

In order to more securely hold the gate-bars in their vertical or open position and to prevent possibility of their falling back after the teeth run out of mesh in opening the gate- 65 bars—i. e., for example, in the movement of

the seat-back from the position shown in Fig. 9 to that shown in Fig. 10—the uprights C are provided with clips or holders d , as best 70 shown in Fig. 7, which are yielding and frictionally hold the gate-bars when turned to the position shown in Fig. 9 when the gear-teeth run out of mesh, the said gate-bars being thrown more fully under the clip by the tooth 75 c^3 as the seat-back completes its movement.

In order to provide for the opening of the gates independently of the movement of the seat-backs, as may be desirable when it is 80 safe to have both sides of the car open, as in traveling on a single track, or, for example, or when it may be desirable, as at the terminus of a line, to let the passengers out on the side where the gates were closed during the 85 run of the car, the said gate-bars are, in accordance with this invention, detachably connected with their actuating hubs, as best shown in Figs. 3, 4, and 5. As shown in said 90 figures, the bar a is supported in a socket e , free to turn on the pivot or axis b^3 of the toothed segment b independently thereof, but being adapted to be locked to said toothed segment, as by a bolt f entering a recess in the periphery of the segment, as shown in 95 Fig. 3. The said bolt may be, as shown, a portion of the gate-bar itself, which is longitudinally movable in the socket-piece e and acted upon by a spring g , tending to press its 100 end against the periphery of the toothed sector b , so that it will drop into the recess therein when the said recess is in line with the end of the bar. When thus locked together, the bar a accompanies the movements of and is 105 controlled by the toothed segments, as before described.

If, however, it is necessary to open the gate-bar a without turning the corresponding toothed segment b , the bolt f may be with- 110 drawn from the socket in said toothed segment, when the bar a and its socket e may be swung around upon the pivot b^3 to the open position, as shown in dotted lines, Fig. 3. It will then remain with the bolt pressing against the periphery of the toothed segment, and 115 when the latter is moved to the proper position to open the gate by the reversal of the seat-back the recess in the toothed segment will come in line with the bolt and be engaged thereby, so that the gate-bar will be 120 operated by the toothed segment the same as if rigidly connected therewith.

As herein shown, the gate-bars in closing or turning from vertical to the horizontal position move forward, or, in other words, the closed gates extend from each seat to the next 125 seat in front whichever way the car is going. Consequently the gate-bar for the front seat extends forward therefrom to the dasher and closes the side of the front platform, as is required, but the gate-bar for the rear seat 130 extends to the next seat in advance and therefore does not close the side of the rear platform. In order to provide for closing the rear platform, the gate-bar which is at the rear

end of the car when closed—that is, the gate-bar *a*, Fig. 1—is connected with a spindle, which extends through the post C and has fixed upon it at the outside of the post an auxiliary bar *m*, projecting in the opposite direction from the bar *a*, so that when the latter projects horizontally forward the bar *m* projects horizontally rearward, and when the bar *a* extends vertically upward inside of the post C the bar *m* extends vertically downward at the outside of said post. In order to hold the bar *m* securely in case passengers should lean upon or against it, its rear or free end when in horizontal position passes within a lug or bracket *n*, connected with the dashboard-post *o* and provided with a shoulder *n*², as best shown in Fig. 2, on which the end of the bar *m* rests when turned to horizontal position to close that side of the platform. There is sufficient space between the tip of the shoulder *n*² and the post *o* to permit the bar to pass, after which it will spring laterally outward, so as to rest upon the shoulder, and when the gate is to be opened the attendant will spring the end of the bar inward, so as to disengage it from the shoulder to permit the opening movement.

In order to afford greater security, the bar *m* is shown as pivotally connected with a bar *m*², which is pivotally connected with a second bar *m*³, parallel with the bar *m* and pivoted below it on the seat-post C and cooperating with a bracket *n*³ on the dashboard-post *o* to prevent the said bar *m*³ from yielding outwardly.

In order to further strengthen the platform-gate against yielding outwardly, the lower end of the bar *m*² is provided with a lateral upturning finger or hook *m*⁴, which engages with a rib *n*⁴, fastened to the under side of the platform, as clearly shown in Fig. 2, thus preventing the lower end of the bar *m*² from yielding laterally. The bar *m*² is pivoted at the outside of the bar *m*³ and at the inside of the bar *m*, and when the latter is turned downward by the actuation of the toothed segment *b*, with which it is connected by the spindle passing through the post C, it causes the bar *m*³ to have a similar movement, the bar *m*² moving downward with a parallel motion until the three bars come in line with one another at the outer side of the post *c*, thus leaving that side of the platform uninterrupted.

In order to prevent passengers or unauthorized persons from moving the seat-backs or gate-bars, the seat-backs are shown as provided with a locking device, which may be a bolt *p*, as shown in Fig. 6, which enters a recess *p*³ in the hub portion of the seat-bracket *c*,

being impelled thereto by a spring *p*⁴. The bolt is provided with a knob or handle *p*⁵, by which it may be operated to withdraw the bolt from the recess *p*³, when the seat will be free to turn, and when reversed the bolt will drop into the opposite recess *p*³, locking the seat-back against further movement until the bolt is again withdrawn.

I claim—

1. The combination of a reversible seat-back provided on its ends with mutilated segmental gears, of independently-pivoted gate-bars, one at each end of said seat-back provided with mutilated segmental gears cooperating with those of the seat-back, said segmental gears being adapted to run out of engagement, whereby the gate-bars are actuated during a portion only of the movement of the reversible seat-back, substantially as and for the purpose described.

2. The combination of the pivoted gate-bar provided with a toothed segment, of a pivoted seat-back bracket provided with a corresponding toothed segment meshing with that on the gate-bar, and with an additional tooth or projection that engages with the toothed segment of the gate-bar when out of mesh with the toothed segment of the seat-back, substantially as and for the purpose described.

3. The combination of a gate-bar and a pivotally-movable actuating-hub therefor, said gate-bar being loosely connected with said hub for independent angular movement thereon, and a fastening device for connecting said hub and gate-bar together, substantially as described.

4. The combination of the gate-bar-carrying hub, and gate-bar socket-piece independently mounted on the axis thereof with the gate-bar supported in said socket and a bolt whereby the socket and hub may be fastened together or disconnected for independent movement, substantially as and for the purpose described.

5. The combination of the parallel pivoted gate-bars *m m*³ with the connecting-bar *m*² pivotally connected therewith at intermediate points in their length and provided with a finger *m*⁴, and the rib *n*⁴ cooperating with said connecting-bar *m*², substantially as and for the purpose described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PAUL E. COLLINS.

Witnesses:

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