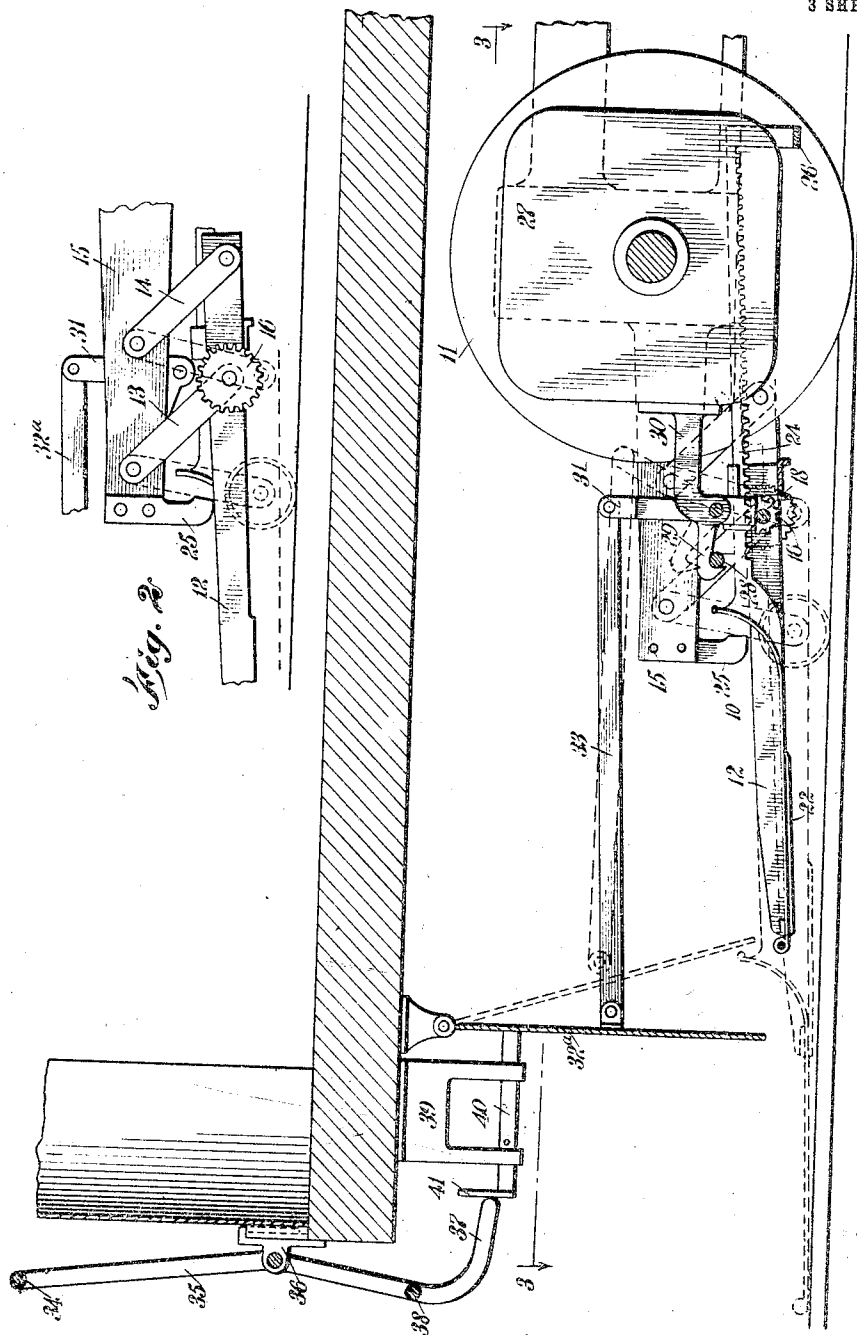


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F. E. HUTCHINGS.
WHEEL GUARD FOR CARS.
APPLICATION FILED DEC. 17, 1909.

Patented Jan. 10, 1911.

3 SHEETS—SHEET 1.



WITNESSES:
T. D. Smith
C. W. Fairbank

Fig. 1

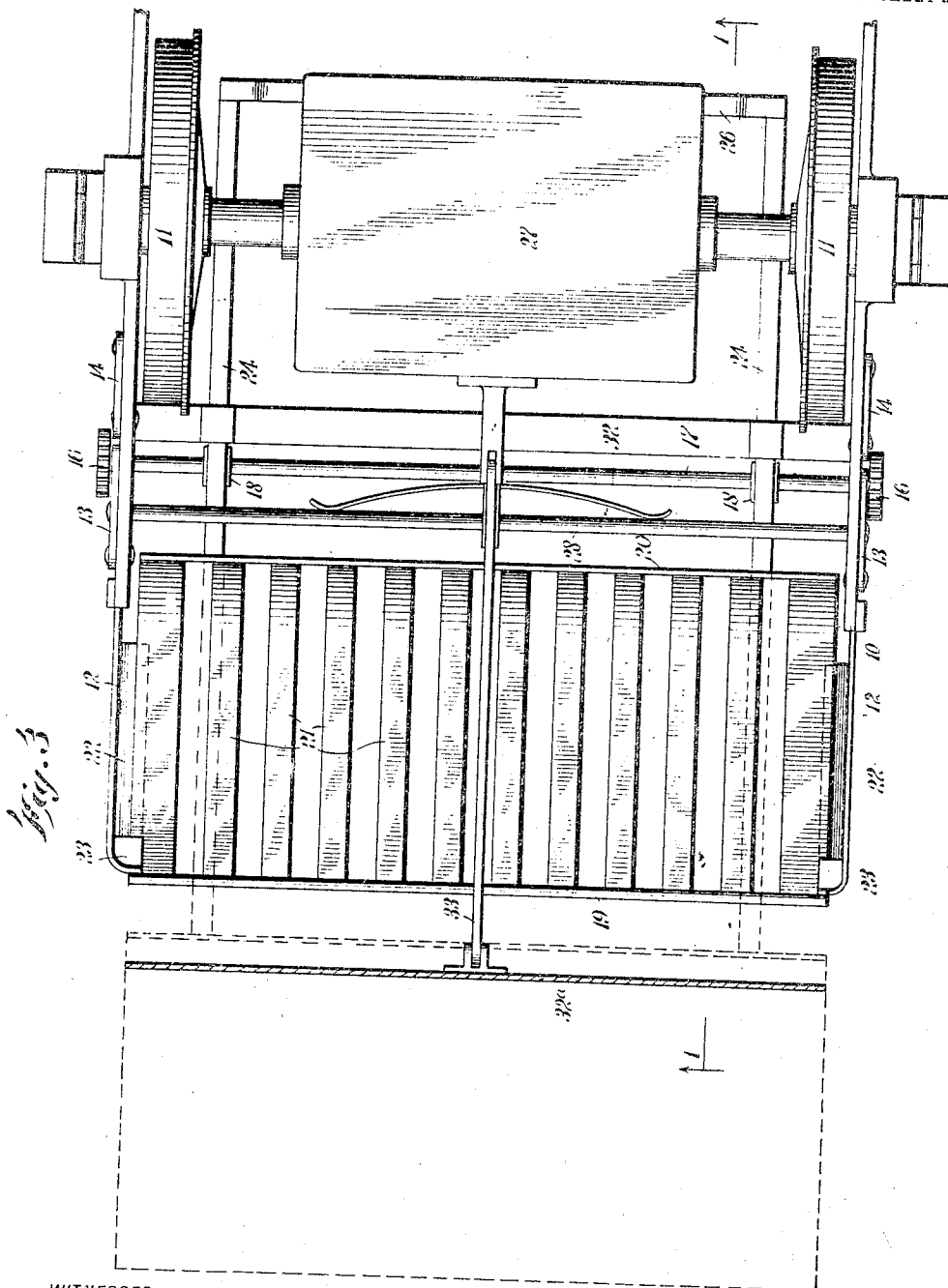
INVENTOR
Frederick E. Hutchings
BY *Munn & Co*
ATTORNEYS

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WITNESSES:

F. D. Smith

C. W. Fairbank

INVENTOR

Frederick E. Hutchings

BY

Mason & Co

ATTORNEYS

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3 SHEETS-SHEET 3.

Fig. 4

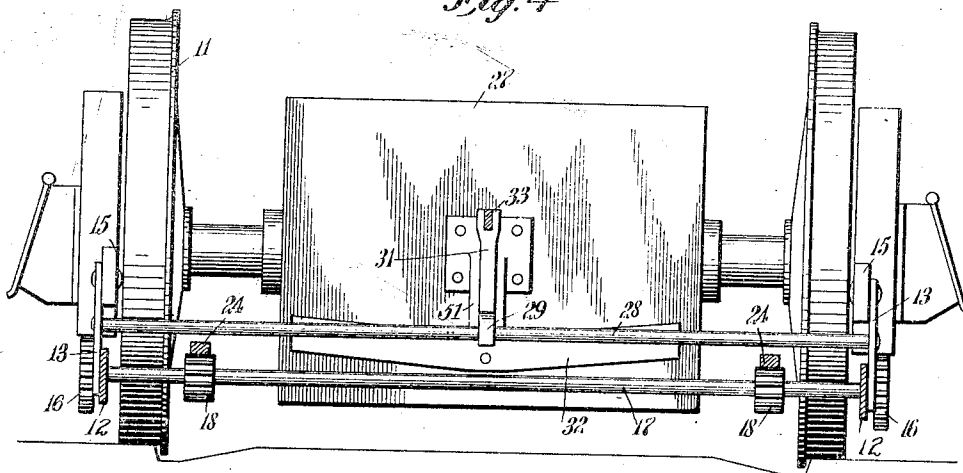


Fig. 5

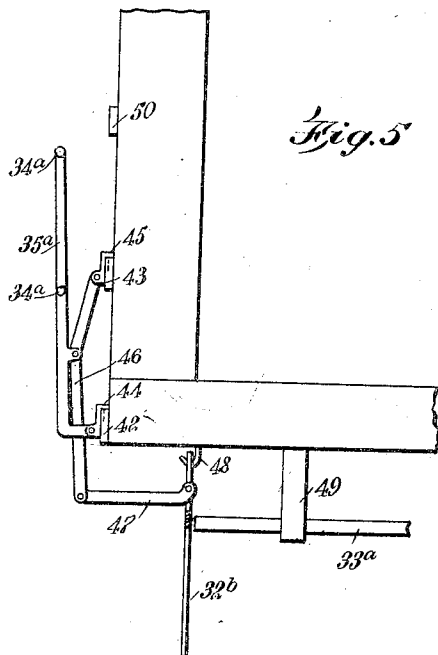
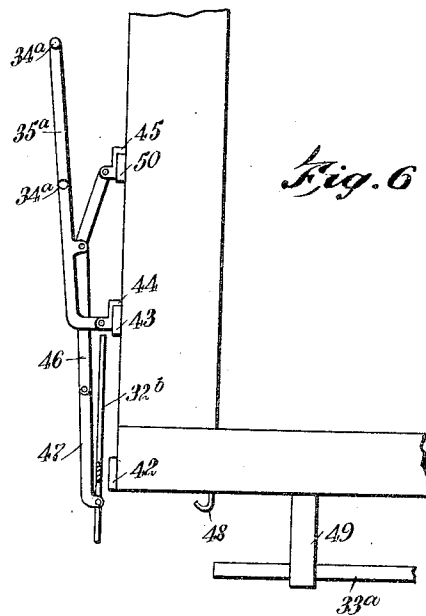


Fig. 6



WITNESSES:

F. R. Smith
C. W. Fairbank

INVENTOR

Frederick E. Hutchings

BY

Munn & Co.

ATTORNEYS

UNITED STATES PATENT OFFICE.

FREDERICK E. HUTCHINGS, OF NEW YORK, N. Y.

WHEEL-GUARD FOR CARS.

980,958.

Specification of Letters Patent.

Patented Jan. 10, 1911.

Application filed December 17, 1909. Serial No. 533,527.

To all whom it may concern:

Be it known that I, FREDERICK E. HUTCHINGS, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Wheel-Guard for Cars, of which the following is a full, clear, and exact description.

10 This invention relates to certain improvements in wheel guards or fenders for street cars, automobiles or other vehicles, and more particularly to that type of car or fender which is automatically moved to operative position upon encountering a person or other obstruction on the track or in front of the vehicle.

15 In its preferred form, my improved fender is of the basket or cradle type, and is adapted to move forwardly and downwardly to operative position.

20 One object of my invention is to improve the mechanism for lowering and advancing the fender upon its release. To accomplish this, I support the fender upon parallel links and under spring tension. The release of the spring permits the links to swing to such a position that an operating member engages with the ground or track, and serves as the means for advancing the fender.

25 A second object of my invention is to improve the mechanism for releasing the fender should a person come in contact with the front of the body of the car or with the bumper of the car, or should he be lying prostrate on the track in front of the car. To accomplish this second object, I provide a swinging gate or trip beneath the car body and provide a second trip mechanism in the form of one or more hand rails across the front of the car above the platform and operatively connected to the first-mentioned trip.

30 Other objects of my invention and important features of the construction will be hereinafter set forth in detail, and the scope of the invention defined in the claims.

35 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

40 Figure 1 is a vertical section through the front portion of a car provided with my improved fender and tripping mechanism therefor, the parts being shown in dotted

lines in advanced or operative position, and said section being taken on the line 1--1 of Fig. 3; Fig. 2 is a side elevation of certain of the parts shown in Fig. 1; Fig. 3 is a top plan view of the fender, certain of the parts being shown in section, and the view being taken on the line 3--3 of Fig. 1; Fig. 4 is a front elevation of the device shown in Figs. 1, 2 and 3, parts being in section. Fig. 5 is a side elevation similar to a portion of Fig. 3, but showing a different form of tripping mechanism, the parts being in position for operation; and Fig. 6 is a view similar to Fig. 5, but showing the parts in raised or inoperative position.

45 The cradle or basket proper of my improved fender may be formed in any suitable manner; the details of construction are not important, as the main features of my invention relate to the means for tripping or operating the fender.

50 In the specific form illustrated, I provide a fender 10, disposed substantially in a horizontal plane beneath the frame of the car and directly in front of the car wheels 11. The fender is provided with two parallel side arms 12, 12, which extend rearwardly a considerable distance beyond the rear edge of the fender proper. These rear ends are each pivotally secured to the lower ends of two links 13 and 14, and the upper ends of these links are pivotally secured to a brace or bracket 15 rigid with the car truck. The two links 13 and 14 are of such length that when they extend down vertically, their lower ends come adjacent the ground or the track, as illustrated in dotted lines in Figs. 1 and 2, but when the links are swung rearwardly, they lift the arms 12 upwardly while maintaining said arms substantially in their horizontal position. The forward link 13 on each side carries a wheel 16, which engages directly with the ground or track when the link is swung downwardly, and the peripheries of these wheels are roughened or formed with teeth, so that said wheels will be caused to rotate by their engagement with the ground or track. The two wheels 16, 16 are fixedly mounted upon opposite ends of a shaft 17 which connects links 13 and is rotatable therein, and intermediate the ends of this shaft are secured two pinions 18, 18. The body of the fender proper is formed of front and rear transverse members 19 and 20, connected together by a plurality of

straps, bands or bars 21. This fender proper, although it is supported by the side arms 12 is, however, unattached to said arms and is capable of forward sliding motion in respect thereto. As shown particularly in Fig. 3, each arm has an inwardly-directed flange 22, disposed beneath the fender proper and serving as a guide or support, and also has a flange 23, for engaging with the upper side of the fender and preventing the latter from rising vertically. The front and rear bars 19 and 20 of the fender are secured to two rearwardly-extending rack bars 24, the teeth of which engage with the pinions 18, 18. The rear portion of the fender inclines upwardly, as is shown particularly in Fig. 1, and the bracket 15, which carries the links 13 and 14, also carries a lug or stop 25 for normally engaging in front of this upwardly-extending portion of the fender, so as to prevent the latter from sliding forwardly. In the operation of this portion of the construction, the parts normally occupy the position indicated in solid line in Figs. 1 to 4, inclusive, of the drawings. Upon the releasing of the links 13 and 14 by the tripping mechanism hereinafter described in detail, the links are permitted to swing downwardly so that the wheels 16 will come in contact with the ground and the upper rear edge of the fender will be brought below the stop 25. The wheels 16 by their engagement with the ground are caused to rotate and this rotation is transmitted through the shaft 17 to the pinions 18. The rotation of these pinions forces the fender forwardly to its lowered and advanced position, so as to receive any person, obstacle or body which may be upon the track. As the fender is held forwardly only by the engagement of the wheels 16 with the ground, it is evident that it may be forced rearwardly by engaging with a person and the shock to the person struck by the fender, will be reduced. The fender does not rise materially in being forced rearwardly, so that there is no possibility of the fender swinging upwardly and passing over the body. To further insure against the upward movement of the front edge of the fender, the rear ends of the rack bars 24, 24 may be connected by a transverse bar 26, which is disposed beneath the motor casing 27 when the rack bars and the fender are advanced.

For holding the fender in its rearward position and with the wheels 16 out of engagement with the ground, I provide a rod 28 which connects the two forward links 13, 13. A hook 29 is pivoted upon a bracket 30 carried by the motor casing and normally holds the links 13 and the parts connected thereto in their rearward position. The hook 29 is preferably in the form of a bell crank lever, and the upper end 31 of this lever

extends vertically from the pivot on the bracket, so that a rearward movement of said upper end will swing the hook upwardly and release the fender. A spring 32 is preferably employed for normally tending to force the fender forwardly and against the action of the hook 29. This spring is shown particularly in Fig. 3, and is represented as engaging directly with the rod 28 adjacent opposite ends of the latter so as to advance both side edges of the fender simultaneously. The center portion of the spring may be supported by a bracket 31 extending forwardly from the motor casing 27.

In order to trip the fender, I provide means disposed adjacent the front end of the car above the platform, and also disposed beneath the platform. In the specific form illustrated particularly in Fig. 1, I employ a gate or trip 32^a pivoted to the under surface of the car and connected intermediate its upper and lower edges to a link 33 which extends rearwardly and is pivoted to the upper portion 31 of the bell crank lever. The lower edge of the trip 32^a is disposed at only a short distance above the ground, so that no object of any material size can pass beneath the gate without swinging the latter rearwardly and releasing the fender. A hand rail 34 extends across the front of the car above the platform and is supported by arms 35, which are pivoted to brackets on the front end of the car platform. These brackets are preferably in the form of plates 36, which fit within sockets on the platform, so that they may be raised out of said sockets and the hand rail and the parts attached thereto removed from the car without the employment of any special tools. Each arm 35 extends below the pivots and is provided with a rearwardly-extending end 37. These lower end portions may also be connected by a hand rail 38, similar to the hand rail 34, if desired. Depending from the under side of the platform are brackets 39, which carry horizontally-movable slides 40. The rear ends of these slides engage with the front side of the trip 32^a, and the forward ends of said slides have upwardly-extending contact plates 41, which receive the rear extensions 37 of the side arms. Any rearward movement of the slides swings the trip and any rearward movement of the lower ends of the arms 35 moves the slides and thus swings the trip 32^a. Should a person be standing erect upon the track when the car strikes him, he would instinctively seize the hand rail 34 to keep from falling. The movement of the hand rail away from the body of the car, as the person fell, would spring the trip. In case the person struck the hand rail 38 or came in contact with the lower portion of either of the arms 35, that in itself would operate the trip. In case a person was lying prostrate on the track, he

would come in direct contact with the lower edge of the trip 32^a and operate the latter to release the fender.

In the specific form illustrated in Figs. 5 and 6, I provide side arms 35^a, connected by two or more hand rails 34^a. The car adjacent the front end of the platform is provided with a socket 42, and at a short distance above the platform there is provided a second socket 43. The side arms 35^a are pivoted to brackets 44, normally fitted to the sockets 42. Brackets 45 are normally fitted to the sockets 43, and levers 46 are pivoted to these brackets and depend therefrom. Each lever 46 is pivotally and slidably connected to its corresponding side arm, and at its lower end each lever is pivotally connected to a link 47, which latter is pivotally connected to the upper portion of the trip 32^b. This trip is pivotally or detachably secured to a bracket 48 on the under surface of the car. It will readily be seen that any rearward movement of the side arms 35^a or the hand rails 34^a, will swing rearwardly the lower ends of the levers 46 and swing the trip 32^b, so that the latter will force the link 33^a rearwardly. This link 33^a is preferably not directly connected to the trip but is supported to slide in a bracket 49 and terminates adjacent the rear surface of the trip. At its rear end it is attached to a bell crank lever in the same manner as is the bar 33 shown in Fig. 1.

In case it is not desired to employ this mechanism for operating the trip, the parts may be moved from the position shown in Fig. 5 to the position shown in Fig. 6. In this case, the bracket 45 will enter an upper socket 50, while the bracket 44 enters the socket 43. The links 47 will drop to a depending position from the lower ends of the levers 46, and the trip 32^b may be inverted and the edge which is normally down will be held in engagement with the front side of the car platform, all as clearly shown in Fig. 6.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In combination, a car fender, side arms supporting the same, parallel links for supporting said side arms, and means for moving said fender forwardly in respect to said side arms.

2. In combination, two parallel links swinging in the same plane and having their ends secured to stationary pivots, a substantially horizontal arm pivotally secured to the lower ends of said links, a fender body carried by said arm, and means for moving said fender body forwardly in respect to said arm.

3. In combination, two pairs of depending parallel links, the two links of each pair swinging in the same plane and in the direc-

tion of motion of the car, side arms pivotally connected to the lower ends of said links, a fender body carried by said arms and means for moving said fender body forwardly in respect to said side arms.

4. In combination, two pairs of depending parallel links, the two links of each pair swinging in the same plane and in the direction of motion of the car, side arms pivotally connected to the lower ends of said links, and a fender body carried by said arms and movable forwardly in respect to said arms.

5. In combination, two pairs of depending parallel links, the two links of each pair swinging in the same plane and in the direction of motion of the car, side arms pivotally connected to the lower ends of said links, a fender body carried by said arms, and means movable into engagement with the track or ground upon the movement of said links to one limiting position and serving to move said fender body forwardly in respect to said arms.

6. In combination, two pairs of depending parallel links, the two links of each pair swinging in the same plane and in the direction of motion of the car, side arms pivotally connected to the lower ends of said links, a fender body carried by said arms, pinions carried by certain of said links, rack bars connected to said fender body and in engagement with said pinions, and means for rotating said pinions to advance the fender body.

7. In combination, two pairs of depending parallel links, the two links of each pair swinging in the same plane and in the direction of motion of the car, side arms pivotally connected to the lower ends of said links, a fender body carried by said arms, pinions carried by certain of said links, rack bars connected to said fender body and in engagement with said pinions, and wheels carried by certain of said links for engagement with the ground and operating to rotate said pinions and advance the fender body.

8. In combination, a fender body adapted to move downwardly and forwardly to operative position, a pivoted trip gate secured to the under side of the car, means connecting said trip gate and said fender body for releasing the latter, and a hand rail across the front of the body and operatively connected to said trip gate.

9. In combination, two side arms pivoted to the front of a car, a hand rail connecting said arms, a trip gate depending from the under side of the car, a fender body normally disposed in inoperative position but movable to operative position, and means whereby the movement of either the hand rail or the trip gate releases said fender body and permits of said movement of the latter.

10. In combination, a trip gate pivotally

secured to the under side of the car body, a hand rail extending across the front of the car body above the platform thereof, pivoted arms for supporting said hand rail, 5 movable members connecting said arms and said trip gate, a fender body, and means whereby a movement of either said trip gate or said hand rail releases said fender body and permits the latter to move to operative 10 position.

11. In combination, a car fender, parallel links supported by the car and depending therefrom, means carried by said links for supporting said fender, and means brought 15 into operation by a predetermined movement of the links for moving said fender forwardly in respect to the links.

12. In combination, a car fender, side arms supporting the same, means for locking said side arms in a predetermined position, a trip for releasing said side arms and permitting of a predetermined movement 20 thereof, and means brought into operation by said movement of the side arms, for advancing said fender in respect to said arms.

13. In combination, a fender body, a roller movable into or out of engagement with a track or the ground, connections between said fender body and said roller for advancing 25 the fender body upon the rotation of the roller, means for normally holding said roller out of engagement with the ground and means extending across the front of the car for releasing said last-mentioned means 30 upon the engagement of a person therewith.

14. In combination, a fender adapted to occupy operative or inoperative positions, means for normally holding said fender in inoperative position, a hand rail extending 35 across the front of the car and operatively connected to said holding means, and means

for supporting said hand rail in operative or inoperative position.

15. In combination, a fender body movable to operative or inoperative position, 45 means for normally holding it in inoperative position, a hand rail extending across the front of the car, a trip disposed beneath the car, and operative connections between said holding means and said hand rail and said 50 trip for controlling the former by a movement of either of the latter.

16. In combination, a fender body movable to operative or inoperative position, means for normally holding it in inoperative 55 position, a hand rail extending across the front of the car, a trip disposed beneath the car, operative connections between said holding means and said hand rail and said trip for controlling the former by a movement 60 of either of the latter, and means for supporting said hand rail and said trip in inoperative position upon the front of the car.

17. In combination, a fender body adapted to move to operative or inoperative position, means for normally holding said fender in inoperative position, arms pivotally supported on the front of the car and extending upwardly therefrom, a hand rail 65 connecting said arms at their upper ends, and means for releasing said holding means upon a rearward movement of said hand rail.

In testimony whereof I have signed my 75 name to this specification in the presence of two subscribing witnesses.

FREDERICK E. HUTCHINGS.

Witnesses:

C. W. FAIRBANK,

PHILIP D. ROLLHAUS.