W. T. WATSON.

CAR FENDER.

APPLICATION FILED JULY 31, 1909.

962,278.

Patented June 21, 1910.

3 SHEETS—SHEET 1.

Fig. 1

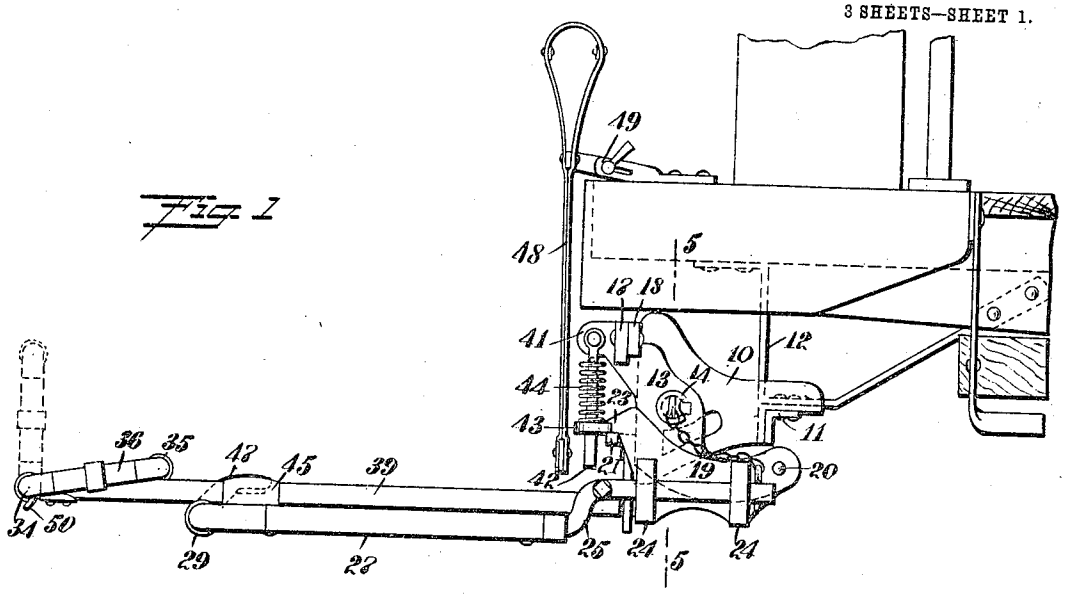



Fig. 2

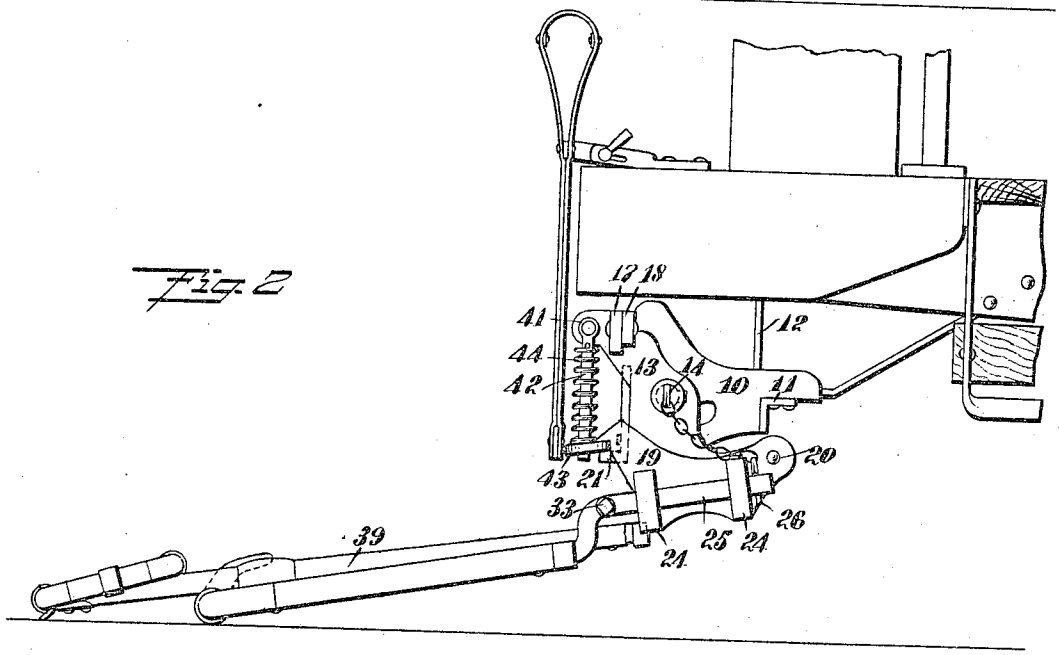
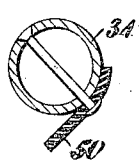



Fig. 3




WITNESSES

E. G. Bromley.

C. W. Fairbanks

INVENTOR

William Thomas Watson

BY Munn & Co

ATTORNEYS

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS WASHINGTON, D. C.

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3 SHEETS—SHEET 2.

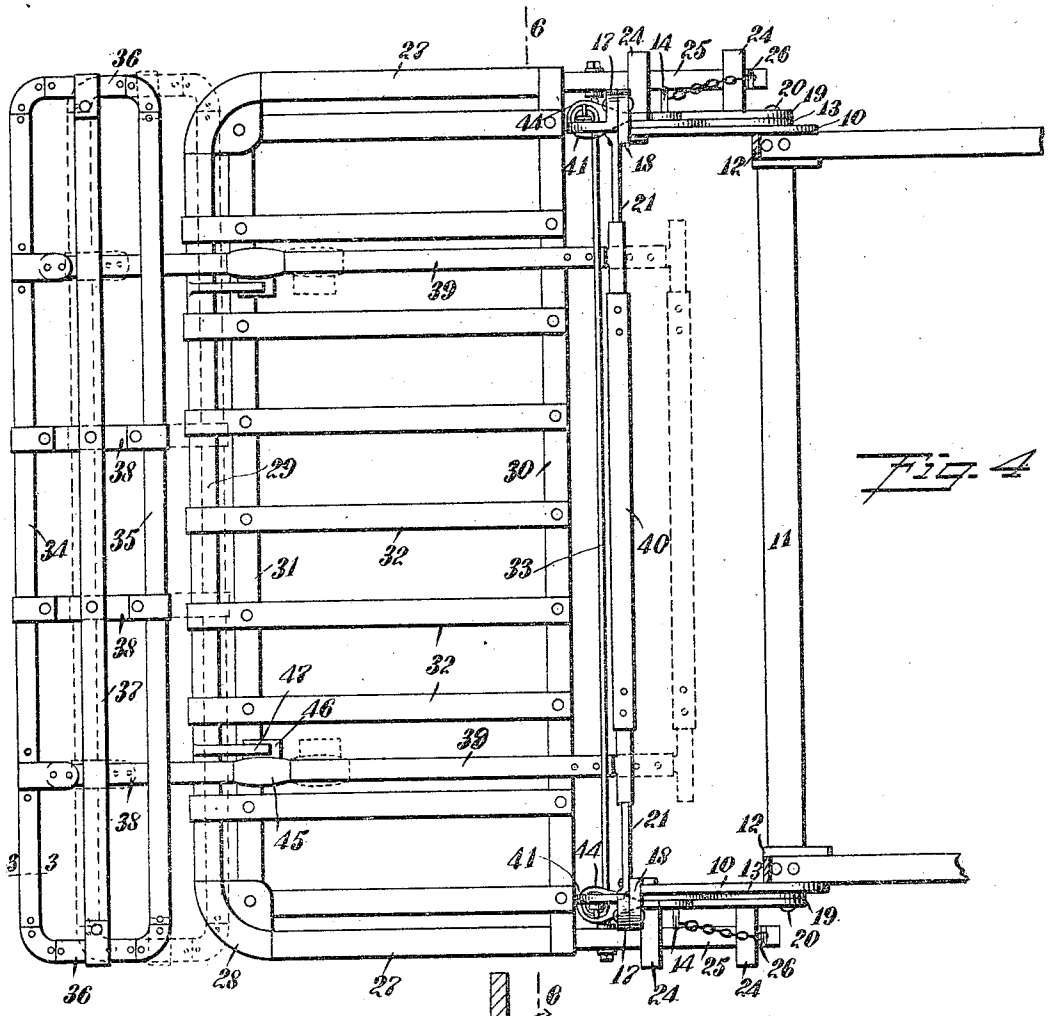

Fig. 4

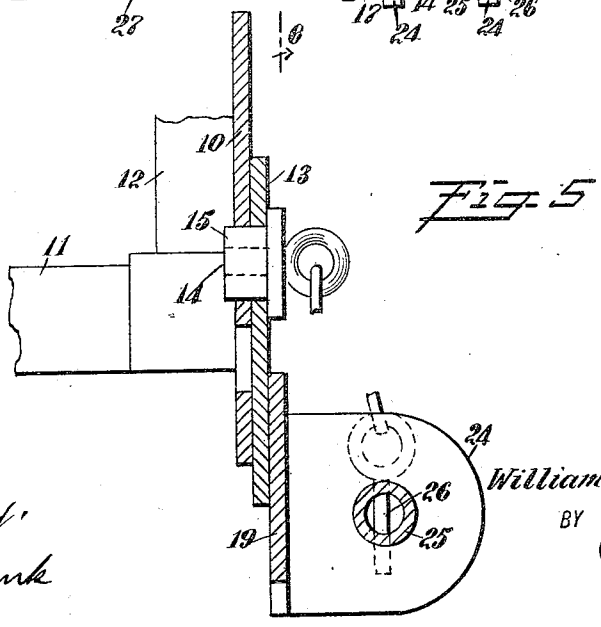

Fig. 5

WITNESSES

E. G. Bromley.

C. W. Fairbanks

INVENTOR

William Thomas Watson

BY Munn & Co

ATTORNEYS

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

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3 SHEETS—SHEET 3.

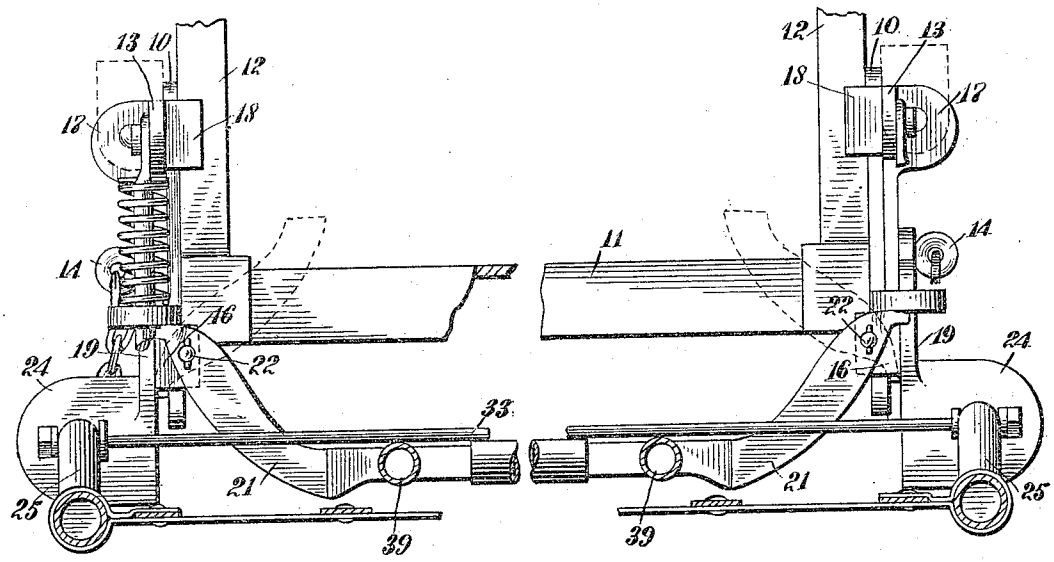


Fig. 6

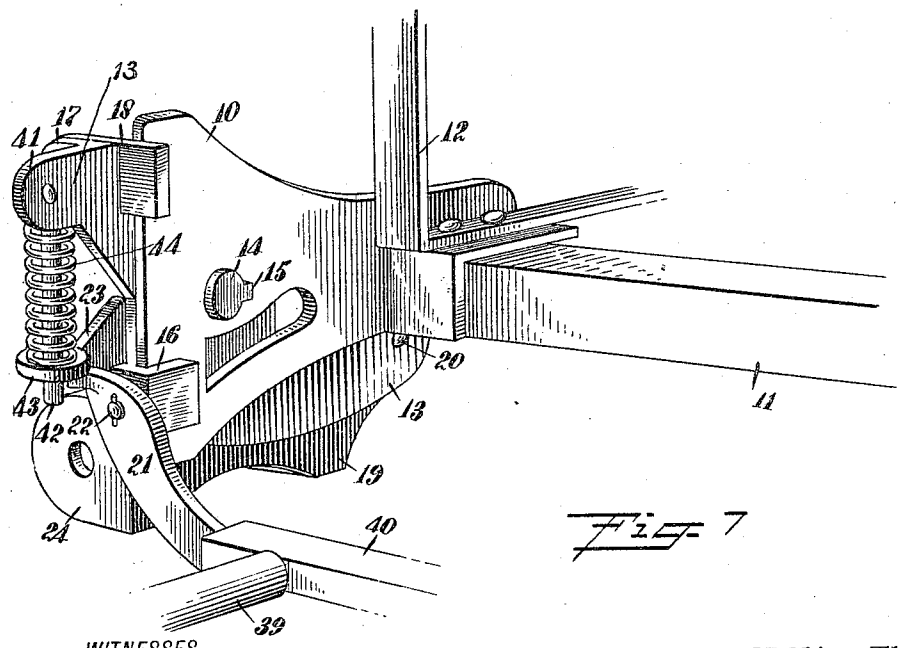


Fig. 7

WITNESSES

E. G. Bromley.

C. W. Fairbanks

INVENTOR

William Thomas Watson

BY Munn & Co

ATTORNEYS

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

# UNITED STATES PATENT OFFICE.

WILLIAM THOMAS WATSON, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

## CAR-FENDER.

962,278. Specification of Letters Patent. **Patented June 21, 1910.**

Application filed July 31, 1909. Serial No. 510,598.

*To all whom it may concern:*

Be it known that I, WILLIAM THOMAS WATSON, a subject of the King of Great Britain, and a resident of Vancouver, in the Province of British Columbia and Dominion of Canada, have invented a new and Improved Car-Fender, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in car fenders, and more particularly to that type of fender in which a cradle, basket or crate is so supported that it may be moved to operative or inoperative position.

The main object of my invention is to so construct the fender that it will remain in a raised position and out of engagement with the track until said fender comes in contact with an obstruction, at which time the fender will be released and automatically dropped to pick up the obstacle, be it a fallen person, animal or other body.

In my previous Patent, Number 728,637, I provide a fender and a trip bar in advance thereof and adapted to raise and pass over the obstruction, and in so doing to release the fender and permit the latter to drop.

In my present construction, I provide a trip bar but so mount it that it moves rearwardly upon contacting with an obstruction and in so doing, releases the fender.

Another important feature of my invention is the provision of means for forcibly lowering the fender when the latter is released.

A further feature is the means employed for insuring the simultaneous release of the fender supports at both sides.

Various other features of my invention will be set forth more fully hereinafter and particularly pointed out in the claims.

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—

Figure 1 is a side elevation of a portion of a car provided with a fender constructed and supported in accordance with my invention, the fender being in raised position; Fig. 2 is a side elevation similar to Fig. 1 but showing the cradle and trip section in their released or lowered position; Fig. 3 is a sectional detail taken on the line 3—3 of Fig. 4; Fig. 4 is a top plan view of my improved fender and support; Fig. 5 is a sectional detail taken on the line 5—5 of Fig. 1; Fig. 6 is a transverse section on the line 6—6 of Fig. 4; and Fig. 7 is a perspective view of the support for one end of the cradle.

My improved car fender may be secured to a street car or to any other similar vehicle adjacent the front end thereof and preferably to the under side of the platform. The body portion of the fender, that is, the portion which picks up persons, animals or other bodies on the track and supports them until the car comes to a stop, may be constructed in any well-known and approved manner, as the main features of the construction or car proper, constitute no portion of my present invention.

The main features of my present invention relate to the means for supporting the fender and for automatically dropping the same into engagement with the track when the fender encounters an obstacle. In my improved construction, the cradle is carried by two cradle plates, which latter are normally supported by two trip dogs. The trip dogs have portions normally tending to swing toward each other to release the cradle carriers and permit the cradle to drop. The trip section has a trip bar or rod disposed intermediate these two dogs and contacting with both of them to positively prevent their swinging toward each other and to thus prevent the cradle from being released. The trip section is connected to the trip rod, so that should the trip section come into contact with any obstruction on the track, it will be forced rearwardly and the trip rod will pass out from between the two trip dogs and permit the latter to swing and release the cradle. The dropping of the cradle is facilitated by the action of springs and the trip section is so connected to the cradle that it is dropped with the latter.

In my improved fender I employ two hanger plates rigidly secured to a portion of the car adjacent the front end thereof and at opposite sides, and to each hanger plate is pivotally secured a carrier plate. To each carrier plate I pivotally connect the cradle carrier, which latter is held in predetermined position in respect to its carrier plate by the trip dogs. In the specific form illustrated,

I employ two hanger plates 10, rigidly secured to an angle iron beam 11 of the car and supported from above by suitable steel braces. Each hanger plate extends forwardly from the beam 11 and in contact with its outer side is a carrier plate 13.

The carrier plate is pivotally secured to the hanger plate by a pivot pin 14 which extends through registering apertures in the two plates. The pivot pin has a lug or flange 15 upon one side thereof adjacent the inner end, and the two apertures have corresponding enlargements through which this lug may pass. Upon placing the carrier plate in its proper position in respect to the hanger plate, the pin 14 may be inserted and rotated through approximately ninety degrees, to lock the two plates together. The entire weight of the cradle is carried by the two cradle plates and normally tends to rotate these plates about the pins 14. To prevent such rotation, each carrier plate has a laterally and rearwardly-extending flange, hook, projection or lug 16, which engages with the edge of the hanger plate and limits the downward movement of the front end of the carrier plate. The carrier plate adjacent its upper edge has an outwardly-extending flange 17 to which is pivotally secured a stop dog 18. This dog when dropped into a horizontal position, as most clearly illustrated in Fig. 7, engages with the front edge of the hanger plate above the pin 14 and prevents rotation of the carrier plate in the opposite direction. Thus, the carrier plate is locked against rotation in either direction in respect to the hanger plate, but by swinging the stop dog upwardly and outwardly, the carrier plate may be rotated through approximately ninety degrees, to bring the cradle from an approximately horizontal position to an approximately vertical position adjacent the front of the body of the car. The carrier plates are not moved in respect to the hanger plates except when it is desired to raise the cradle and secure it in an upright and inoperative position, or when it is desired to remove the cradle entirely.

Pivotally secured to each carrier plate is a cradle carrier 19, which is normally held against movement in respect to the carrier plate but is so locked that it may be released to drop the cradle whenever the trip section of the fender encounters an obstacle. The cradle carrier is pivoted to the carrier plate by a pivot pin 20 adjacent the rear end and constituting the trip section. The front end of the cradle carrier 19 extends beyond the front edge of the carrier plate 13, and adjacent a trip dog 21 pivoted to the latter. The trip dog has a long arm and a short arm and is pivoted adjacent the front end of the carrier plate so that its short arm extends into the downward path of the front end of the cradle carrier. As shown, the trip dog 21 is pivoted to the transverse lug or extension 16 of the carrier plate by a pivot pin 22, and the dog swings in a vertical plane. The long arm of the dog normally extends downwardly and toward the center of the car, while the short arm extends past the outer surface of the carrier plate and terminates directly below a front extension 23 of the cradle carrier. The two dogs 21 extend toward each other and extend downwardly and their outer ends support the weight of the cradle and the cradle carriers. Thus, the outer ends of the dogs tend to swing downwardly, and the inner and longer ends tend to swing upwardly, but by means of the trip rod hereinafter more particularly referred to, these inner ends of the dogs are prevented from swinging upwardly and toward each other, and, therefore, the outer ends are prevented from swinging downwardly, so that they support the cradle carriers. Each cradle carrier has two outwardly-extending brackets 24, 24, perforated to receive the cradle suspension pieces 25. These suspension pieces are in the form of tubes or rods which extend rearwardly through the two brackets and forwardly along the sides of the cradle. The cradle may be readily removed from the cradle carrier by moving the cradle suspension pieces 25 forwardly out of the brackets. This movement is normally prevented by pins 26 extending through the rear ends of the cradle suspension pieces and connected by a chain to the adjacent pivot pin 14.

The cradle suspension pieces 25 may support any suitable form of cradle as my present invention does not reside in the detail construction of the cradle proper. The specific form illustrated includes side bars 27, 27, telescoping with the front ends of the cradle suspension pieces 25 and connected by corner brackets 28 to a front transverse member 29. The side members 27 are also connected by a rear member 30 and one or more intermediate members 31. Extending longitudinally of the cradle are a plurality of straps, slats or bars 32 constituting the body of the cradle. The front transverse member 29 is formed of rigid tubing the same as the side members 27, but the remaining members of the cradle are preferably flexible and, to a certain extent, resilient, so as to present a yielding surface. In order to hold the cradle suspension pieces 25 and the rear ends of the side members 27 of the cradle in predetermined relationship when the cradle is removed from the cradle carrier, I preferably connect the two suspension pieces 25 by a tie-rod 33. This tie-rod not only tends to strengthen the cradle but it tends to reinforce the hangers, as the suspension pieces

cannot be drawn toward each other by a heavy body in the cradle, and thus cannot exert lateral strain on the hangers.

The hangers, carrier plates, cradle carriers and suspension pieces, are so proportioned as to normally hold the cradle in an approximately horizontal position, or at least with the front edge of the cradle spaced above the car tracks or above the ground, but the particular position of the cradle and the particular position which it normally occupies, will depend to a certain extent upon the details of the cradle employed.

In connection with the cradle, I provide a trip section disposed in advance of the front edge of the cradle and so mounted as to move rearwardly and release the trip dogs 21. This trip section is illustrated as including a tubular frame having front and back members 34 and 35 and side members 36, 36. The oppositely-disposed members of the frame are connected by suitable transverse and longitudinal strap pieces 37 and 38, similar to the strap members 31 and 32 of the cradle proper. The front edge of this trip section is always in advance of the cradle proper and is movable relatively to the latter. The trip section is supported by two rearwardly-extending bars 39, 39, which, at their rear ends, are connected to a transversely-extending trip bar 40. This bar is normally disposed between the two dogs 21, and is of such length that when the two dogs have their inner and longer depending ends in engagement with the ends of the trip bar, the latter positively prevents the inner ends of the dogs from swinging upwardly. As the bar is below the pivotal centers of the dogs, it is evident that the opposed ends of the dogs will move toward each other in swinging upwardly to the level of the pivotal centers, but the trip bar being placed between the two dogs and in engagement with each when they are below their pivotal centers, positvely prevents the latter from an upward movement. The trip section, its supporting bars 39 and the trip bar 40, are supported directly upon the cradle and are free to move rearwardly should the free edge of the trip section engage with any obstruction, for instance, a person. The instant the free edge of the trip section comes into engagement with any obstruction, the trip section is moved rearwardly from the position shown in solid lines to the position shown in dotted lines in Fig. 4. This rearward movement brings the trip bar out from between the two dogs 21, 21, and the inner ends of the latter are free to swing upwardly under the weight of the cradle and cradle carriers which rest upon the outer ends of the dogs. The release of the cradle carriers permits the free ends of the latter to swing downwardly and permits the entire cradle and trip section to swing from the position shown in Fig. 1 downwardly into engagement with the track, which position is shown in Fig. 2.

It is evident that the action of gravity will bring the cradle downwardly to the desired position, but in order to facilitate the movement and bring it about with the greatest rapidity so that the front edge of the cradle will reach the track before the obstruction can pass under the cradle, I preferably employ heavy springs upon each side. These springs tend to aid the action of gravity and render the operation more positive.

In the specific form illustrated, each carrier plate 13 is provided with a forward extension 41, to which is pivotally connected a depending rod 42. The rod passes through an aperture in a lug, bracket or extension 43, rigid with the cradle carrier 19, and this lug, bracket or extension constitutes the base plate for a coil spring 44. The upper end of the spring engages with a pin extending through the rod 42, and the spring is normally under compression, so that it tends to force the front end of its corresponding cradle carrier downwardly.

The trip section may be made rigid wth the side bars 39, but, as illustrated, I hinge or pivotally connect these side bars to the free edge of the trip section so that the latter may swing, as indicated in dotted lines in Fig. 1. This permits the trip section to be swung forwardly in advance of the front ends of the side bars 39, to bring it at a greater distance from the front edge of the cradle proper, if desired. For holding the trip section against lateral movement and to prevent forward movement, I provide each side bar 39 with a collar constituting a guide clamp 45, having an outwardly-extending lug 46 normally disposed beneath a rearwardly-extending hook 47 carried by the front transverse member 29 of the cradle. The hooks prevent the lateral movement, as well as the forward movement, and tend to prevent the trip section from tilting in respect to the cradle. As the trip section moves rearwardly, the lugs or flanges 46 move rearwardly from beneath the hooks, as illustrated in dotted lines in Fig. 4.

The front transverse member 34 of the trip section is of tubular form, so that it presents no sharp edges to cut or injure a person caught by the fender. In order to prevent the person from slipping beneath the trip section without engaging with the latter with sufficient force to operate the trip, the lower edge of the member 34 is preferably provided with a forwardly and downwardly-extending strip or panel 50 of leather, rubber or similar material. This panel tends to increase the resistance should the trip pass over a person and will tend to catch on the person's clothing and insure

the rearward movement and proper operation of the trip. Although the trip bar 40 is primarily intended to be operated by the rearward movement of the trip section, yet it is evident that suitable mechanism may be provided auxiliary to the trip section, so that the motorman by operating a suitable lever or treadle, may force the bar 40 out of engagement with the dogs 21 and thus drop the cradle before it reaches a person on the track. The cradle so constructed will thus be subjected to automatic or manual operation.

In connection with the cradle and its supports above described, I may, if desired, employ a back 48 for preventing a person from violently contacting with the front end of the car body and for preventing him from passing off the rear edge of the cradle. This back may be of any suitable character and may be adjustably supported by brackets 49 or in any other suitable manner.

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

1. In a car fender, the combination of depending substantially rigid hangers, fender supports pivotally secured thereto but normally locked against movement, fender carriers pivoted to said fender supports, and a fender carried by said fender carriers.

2. In a car fender, the combination of pivotally-supported fender carriers, a fender having rearwardly-extending members secured thereto, locking means for preventing the upward movement of said fender, a spring normally tending to force said fender downward, and a movable locking means for normally holding said fender against downward movement.

3. In a car fender, the combination of pivotally-supported fender carriers, a fender having rearwardly-extending members secured thereto, locking means for preventing the upward movement of said fender, a spring normally tending to force said fender downward, a movable locking means for normally holding said fender against downward movement, and a trip section extending in advance of said fender for operating said first-mentioned locking means.

4. In a car fender, the combination of pivoted cradle carriers, a cradle secured thereto, two trip dogs in engagement with said carriers for supporting the latter and maintaining the cradle in raised position, a trip bar in engagement with both of said dogs, and means for moving said trip bar out of engagement with said dogs to release both simultaneously and permit the dropping of the cradle.

5. In a car fender, the combination of movable cradle carriers, a cradle secured thereto, two pivoted dogs each having one end normally supporting its corresponding cradle carrier, the opposite ends of said dogs normally tending to swing toward each other, and a trip bar disposed intermediate said dogs and normally preventing said swinging movement.

6. In a car fender, the combination of movable cradle carriers, a cradle secured thereto, two pivoted dogs each having one end normally supporting its corresponding cradle carrier, the opposite ends of said dogs normally tending to swing toward each other, a trip bar disposed intermediate said dogs and normally preventing said swinging movement, and means in advance of the cradle and operatively connected to said trip bar and movable rearwardly upon encountering an obstruction.

7. In a car fender, the combination of cradle carriers pivoted adjacent their rear ends and each adapted to swing in a vertical plane and each having outwardly-extending brackets, a cradle having cradle suspension pieces detachably secured to said brackets, and means in engagement with the front ends of said cradle carriers for normally supporting the latter.

8. The combination with a car, of a cradle pivotally secured thereto, a plurality of independently-movable locking members for normally holding said cradle in a predetermined position, and means for releasing said locking members simultaneously.

9. The combination with a car, of a fender pivotally secured thereto, two independently movable pivoted dogs for normally holding said fender in a predetermined position, and releasing means for permitting the simultaneous movement of said dogs.

10. The combination with a car, of a cradle pivotally supported therefrom, two independently movable locking members for supporting separate portions of said cradle, and means for releasing said members simultaneously.

11. The combination with a car, of a cradle pivotally supported therefrom, two independently movable locking members for supporting separate portions of said cradle, and a trip section in advance of said cradle and movable to release said members simultaneously.

12. The combination with a car, of a cradle pivotally supported therefrom, two independently movable locking members for supporting separate portions of said cradle, and a trip section in advance of said cradle and movable rearwardly to release said members simultaneously.

13. The combination with a car, of two cradle carriers, two locking members for normally preventing movement of said carriers, and a trip bar normally in engagement with both of said locking members to hold them in operative position, and means for moving said bar out of engagement with said lock-

ing members to permit the movement of the locking members and cradle carriers.

14. In a car fender, the combination of pivoted cradle carriers, a cradle secured thereto, means for independently supporting said cradle carriers, a trip section in advance of said cradle, and a bar adjacent the rear of said cradle and connected to said cradle carriers for releasing said cradle carriers simultaneously.

15. In combination, a pivotally supported car fender, means for normally holding the fender in raised position, a trip section in advance of said fender, guides on said fender, and lugs carried by said trip section and normally disposed beneath said guides for preventing an upward movement of the trip section.

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

WILLIAM THOMAS WATSON.

Witnesses:
A. E. GALPIN,
GEO. N. WEST.