

(No Model.)

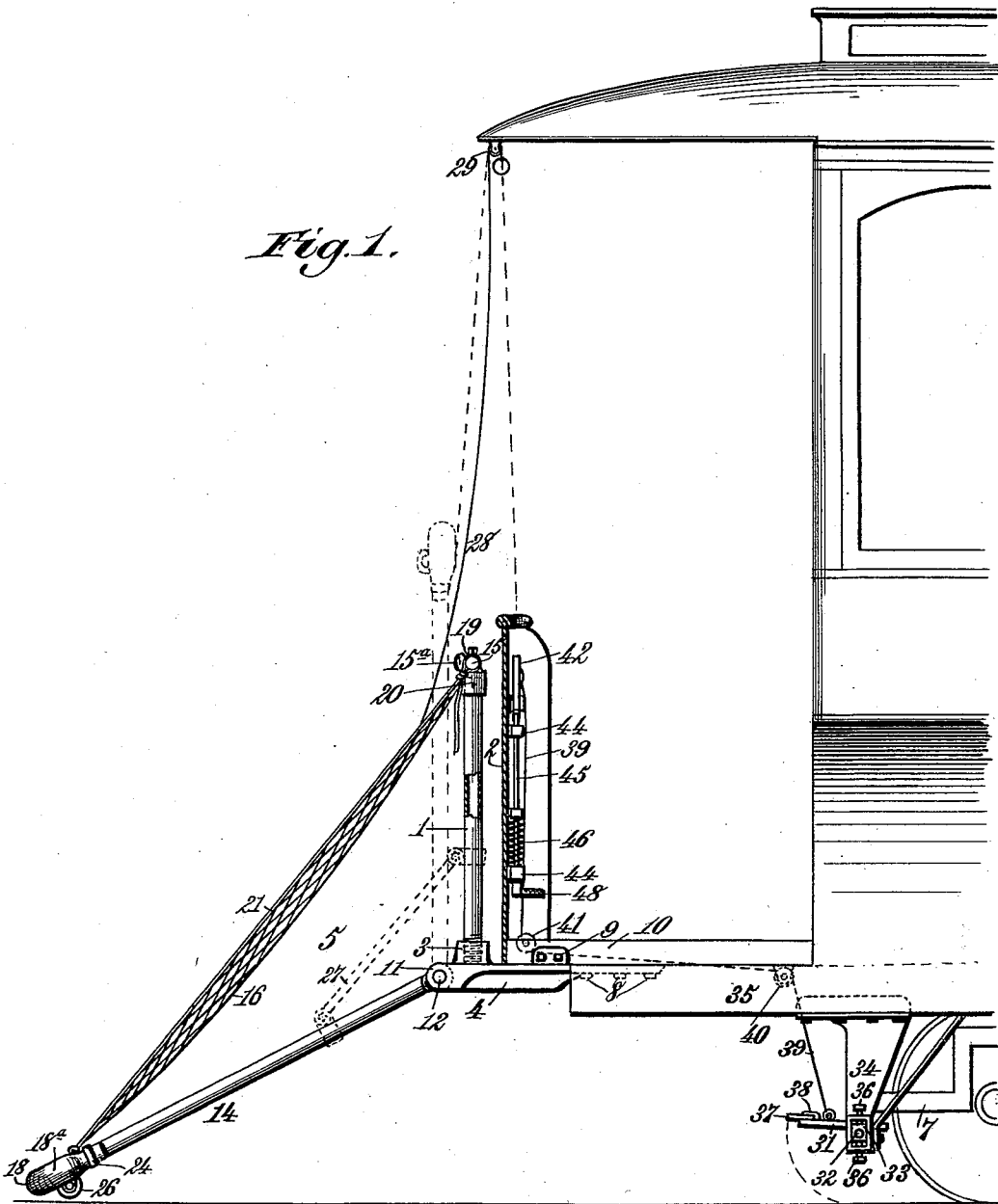
3 Sheets—Sheet 1.

R. BUSTIN.
CAR FENDER.

No. 541,468.

Patented June 25, 1895.

Fig. 1.



Witnesses,
Robert Burnett,
Alfred S. Woodard

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By
James L. Norris.
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(No Model.)

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Fig. 2.

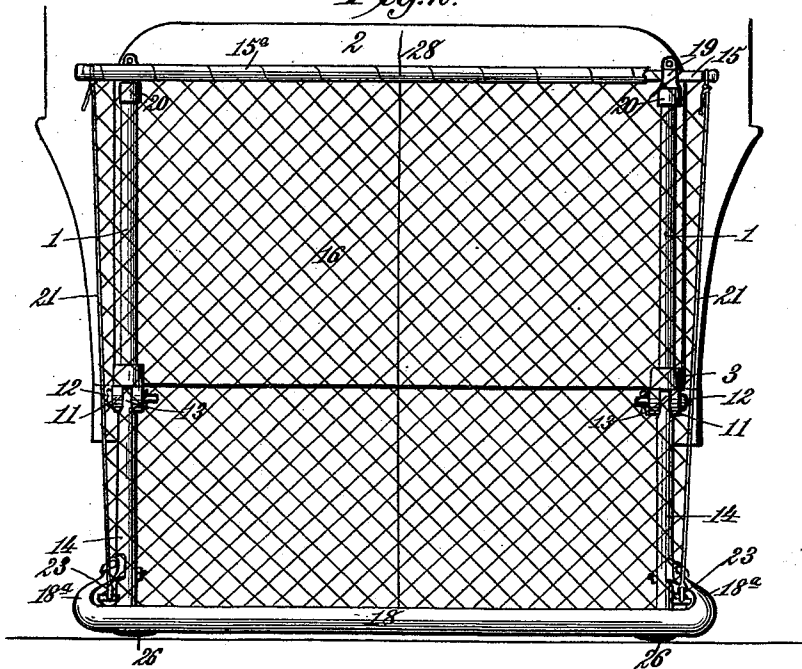


Fig. 3.

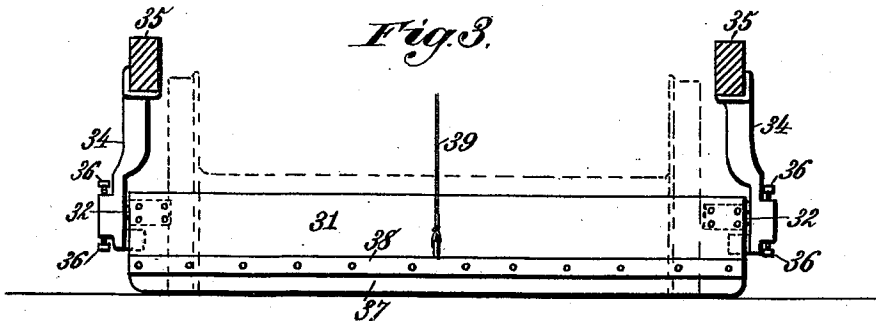


Fig. 4.

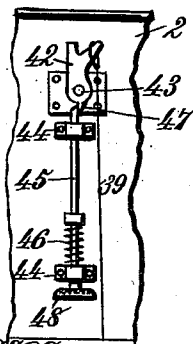
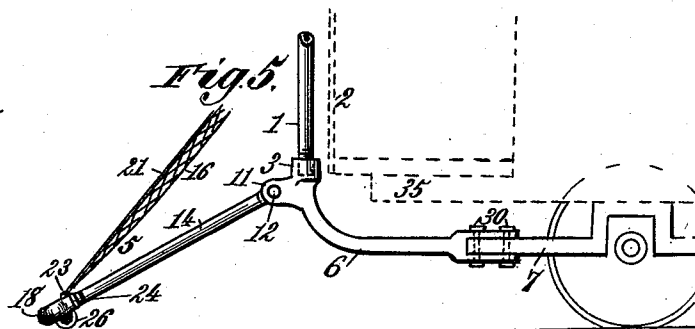


Fig. 5.



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(No Model.)

3 Sheets—Sheet 3.

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Fig. 6.

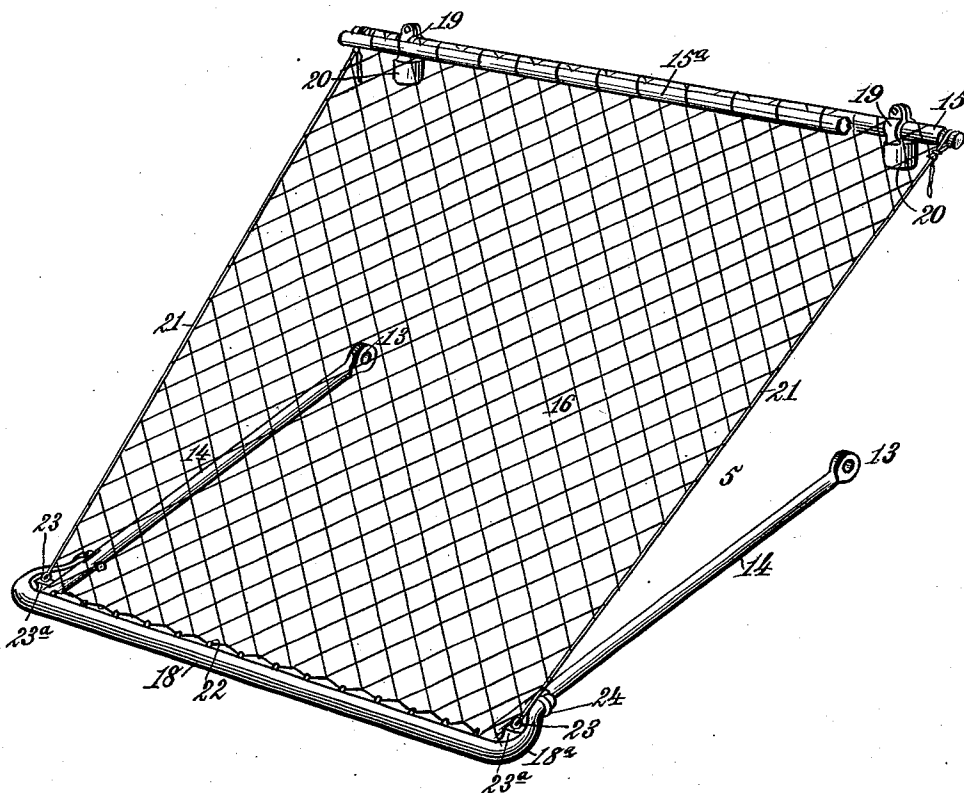
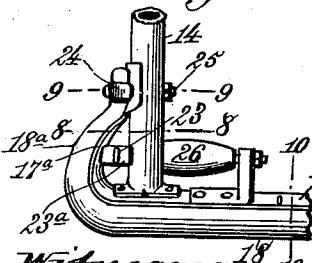


Fig. 7.



Witnesses,
Robert Bustin,
James L. Norris

Fig. 8.

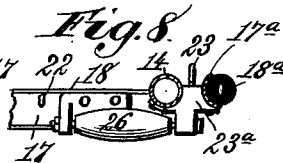


Fig. 9.

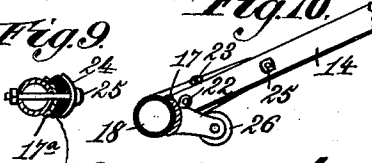


Fig. 10.

Inventor,
Robert Bustin,
By James L. Norris,
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UNITED STATES PATENT OFFICE,

ROBERT BUSTIN, OF ST. JOHN, CANADA, ASSIGNOR OF FIVE-SIXTHS TO ROBERT KELTIE JONES, OF SAME PLACE, AND WESLEY VANWART AND JOHN R. McCONNELL, OF FREDERICTON, CANADA.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 541,468, dated June 25, 1895.

Application filed April 17, 1895. Serial No. 546,124. (No model.)

To all whom it may concern:

Be it known that I, ROBERT BUSTIN, a subject of the Queen of Great Britain, residing at St. John, New Brunswick, Canada, have
5 invented new and useful Improvements in Car-Fenders, of which the following is a specification.

This invention relates to safety fenders and guards for that class of street railway-cars
10 impelled by electricity or by cable-traction or other suitable motive power adapted to the requirements of rapid transit; and it is one of the principal objects of my invention to provide the front of such car with a simply constructed folding fender that can be quickly
15 and easily attached and detached, and which can be applied to either end of the car and be removed from one end to the other, as desired, when the car has reached the end of its route and is to be made ready for the return trip.

It is a further purpose of my invention to provide a fender of strong, durable and comparatively inexpensive construction, capable
25 of being folded substantially parallel with the dash-board or end of a car, and which will safely pick up a person in collision and provide an adequate support that will largely avoid the usual liability to bruises and other
30 injuries incident to railway accidents.

Another object of my invention is to provide a simple and reliable latch and trip mechanism for an improved wheel guard or gate arranged beneath the car and adapted
35 to serve also as a track brake as well as a safety device for any one falling onto the track in rear of the front fender.

My invention consists in features of construction and novel combinations of parts
40 pertaining to safety attachments for cars as hereinafter more particularly described and claimed.

In the annexed drawings, illustrating the invention, Figure 1 is a partly-sectional side
45 elevation showing one end of a street-car with my improved fender supported from the car-body and a wheel guard or gate arranged beneath the car. Fig. 2 is a front view of the fender attached to a car. Fig. 3 is a partly-
50 sectional view showing the wheel-guard in

front elevation. Fig. 4 is a front elevation of the releasing or latching and tripping mechanism for the wheel-guard. Fig. 5 is a view showing how the fender may be supported from a car-truck. Fig. 6 is a perspective of
55 the fender detached from the car. Fig. 7 is a plan of one of the front lower corners of the fender with netting removed. Figs. 8, 9, and 10 are sections on the correspondingly-numbered lines, respectively, indicated in
60 Fig. 7.

Referring to the drawings, the numeral 1 designates a pair of fender-supporting standards that I prefer to carry permanently in a
suitable position at the front of the ordinary
65 end-guards or dash-boards 2 of a street railway car propelled by cable-traction, electricity, or other convenient and appropriate motive power. These standards 1 may be permanently secured at their lower ends in sockets
70 3 formed on the upper sides of a pair of bracket-arms 4 that may be secured to the body of the car, as shown in Fig. 1; or, if it is desired to support the fender 5 in such
75 manner that it will not be subject to the vertical movement or oscillations of the car body, the standards 1 may be carried on bracket-arms 6 Fig. 5, supported by the truck
frame 7 and yet so arranged that the fender may be carried in the required position for
80 effective use.

The bracket-arms 4 may be fastened to the under side of the car body by means of bolts
8 and they are preferably provided with vertical lugs 9 bolted to stringers 10 that form
85 part of the support for the car floor and platforms; but the precise manner of attachment is capable of variation according to circumstances. The forward portion of each bracket-arm projects a suitable distance in advance
90 of the car and is provided with a bifurcated or vertically slotted boss 11 that is transversely perforated for reception of a pivot-pin 12 to be engaged also with an eye 13 on the rear end of each side arm 14 forming part
95 of the fender supporting frame. This pivot-pin 12 may be headed at one end and furnished at the other end with a cotter, or spring-pin or other device for holding the pivot in place; the object being to provide at this
100

point a hinged connection that will allow the fender to be folded up in front of the car, when necessary, and which will enable it to be quickly disconnected or be applied to either end of a car, as desired.

In addition to the standards 1 and side arms 14, the fender supporting frame also comprises an upper cross bar 15 detachably connected with the standards 1 and onto which the upper edge of the fender covering or netting 16 is laced. The lower edge of this netting or fender covering is connected to a lower transverse bar 17 that is preferably trough-shaped for the more convenient attachment and support of a pneumatic cushion or buffer 18 that will obviate or greatly lessen any liability of bruising any person in collision with the fender.

The upper cross-bar 15 is securely held in and by clips 19 formed onto the tops of cap-pieces 20 that are slipped onto the upper ends of the standards 1; and as no fastenings are required for these caps 20 it is obvious that they can be quickly slipped off from the standards whenever it is desired to detach the fender. For holding the upper cross-bar 15 firmly, the clips 19 may be of any suitable or well known construction, preferably bifurcated at the top and secured by bolt and nut, as shown.

When it is desired to dispense with the fender, or detach it from one end of the car and place it in position at the other end, it is only necessary to unhinge the side arms 14, by withdrawing the pivot pins 12, and also slip off the caps 20 from the tops of the standards. The upper-cross bar 15 and the caps 20 are removed together, or in one body, and the cross bar may serve, if desired, as a roller on which it rolls up the fender netting or covering 16 so that the fender can be more conveniently stored.

Although the fender covering may consist of canvas, I prefer to employ a netting 16 made of suitable ropes or cords and sufficiently yielding and elastic to sag somewhat, under the weight of a person caught thereon, and prevent the victim from falling to the ground. The side edges of this netting are provided with stays 21 that may be composed of the best Manila rope, though I prefer to employ for this purpose a good quality of flexible steel wire. These stays 21, whether of rope or wire, or steel wire rope, may be secured to the upper cross-bar 15 in any appropriate, simple and inexpensive manner, as by tying them thereto or causing each stay to take a few hitches around the bar and then return upon itself and be secured by bending. These stays 21 serve to regulate the distance between the upper cross-bar 15 and lower cross-bar 17, so as to give any required inclination to the side arms 14, and they also afford yielding or flexible supports to which the sides of the netting are laced while its top edge is laced onto the upper cross bar 15 and its lower end is laced to eyelets or small eyebolts 22

carried by the lower cross bar 17 of the fender frame. The lower ends of the stays 21 are secured to larger eyebolts 23 that may be formed on or connected with the concaved or trough-shaped lower cross bar 17 in any convenient manner.

As a means for fastening the trough shaped lower cross bar 17 to the side arms 14, the ends of said cross bar are provided, preferably, with outward, rearward and upwardly curved extensions 17^a the extremities of which may be so formed as to partly clasp the fender side arms 14 as shown in Fig. 7 and be bolted, clipped or otherwise secured thereto. The pneumatic buffer 18 is preferably constructed like a piece of stout rubber hose and conforms to the shape and arrangements of the trough shaped supporting bar; and the ends of the said tubular buffer are provided with extensions 18^a that are not hollow and which rest on the corresponding extensions 17^a of the bar 17 and are secured to the side arms 14 by means of suitable yoke-shaped clips 24 and bolts 25, or otherwise. It is preferable to give a certain curvature to the ends 17^a of the lower cross bar 17 and extend the same slightly beyond the outer sides of the lower ends of the side arms 14 in such manner as to avoid sharp angles that would be likely to inflict bodily injury. These curved ends of the bar 17 may be braced by blocks 23^a interposed between the side arms 14 and bar extensions 17^a and to these blocks 23^a the eye-bolts 23 may be secured.

On the under side of the lower cross bar 17, near its ends, are carried rollers or casters 26 Figs. 1, 7, 8 and 10, that are preferably made rounding or approximately conical at the ends, to thereby better avoid slight obstructions on the roadway. These rollers 26 are provided in order to prevent the cross bar 17 from chafing against the road bed or rails under the up and down oscillation of the fender and they are preferably arranged in such position as to travel along at the sides of the rails when the fender is depressed and in such manner as to then support the forward end of the fender at a sufficient elevation to protect it against injury from contact with the rails and roadbed and yet allow the forward end of the fender to come close enough to the ground to prevent a person from being caught under the front lower cross bar that supports the pneumatic buffer. Instead of the rollers 26, there may be employed shoes or runners of any suitable construction adapted to accomplish in some measure the purpose here indicated, but the rollers will be generally preferred.

As it is desirable to combine lightness with strength and economy of structure, in the fender supporting frame, the standards 1 and the side arms 14 may consist of suitable metallic tubing. It may sometimes be desirable to connect the standards 1 and side arms 14 by detachable braces 27 to assist in holding the buffer or cushion 18 downward, but this

will be seldom necessary as the fender though constructed with comparative lightness will yet have sufficient weight to maintain it in proper position and in readiness for instant use when required. If desired there may be attached to the upper edge of the fender, along the front of the upper cross bar 15, a piece of rubber hose or tubing 15^a to form a cushion or protection against any liability to bruising or hurt to a person thrown onto that part of the fender.

As a means for raising the forward portion of the fender, and folding the side arms 14 upward and parallel with the standards 1, there may be attached to any convenient and proper portion of the hinged fender frame a rope 28 extended over a pulley 29 at the top of the car and then carried to a point within reach of the gripman or motor-man, so that when necessary the fender can be easily folded up and held parallel with the end guard or dash board. This will be convenient when cars are run into the shed, or when temporarily out of service and pushed close together.

If it is desired that the fender shall be supported from and wholly carried by the car truck, so as not to partake of the oscillations of car body, the form of the supporting bracket-arms may be changed in some such manner as shown in Fig. 5, where the brackets 6 are given a suitable length and curvature that will permit attachment of their rear ends, by means of bolts 30, to the truck frame 7; and yet enable the forward ends of the said brackets or bracket-arms to have a sufficient elevation and occupy such a position in advance of the car as will be required in order to give the fender the necessary inclination for effective service. It will be seen that though the bracket-arms 4 and 6 differ in form, location and mode of attachment, the bosses 11, constituting the hinged or pivotal points of attachment for the fender side arms 14, are in both cases the same as to elevation and consequently, in either case, the fender netting or covering may have the inclination required and best adapted for supporting a person in collision so that contact with and dragging on the ground will be obviated and a larger measure of safety afforded for the victim.

A fender carried in advance of a car is intended, of course, more especially as a protection for a person falling or knocked down in front of the moving vehicle, and if the fender is properly constructed and arranged it is not likely that the person thus in collision will come in contact with the car wheels. A wheel guard is, however, desirable as a protection for one falling onto the track from the forward end of the car and in rear of the fender or front safety guard.

In Figs. 1 and 3, I have shown a wheel guard or gate consisting, preferably, of a transversely arranged steel plate 31 having its ends provided with pivots 32 supported in vertically adjustable bearings 33 carried by depending brackets 34 that are securely

bolted to the outer side beams 35 of the car body or frame. The pivot bearings 33 are provided with set screws 36 by which the wheel guard or gate 31 can be vertically adjusted with relation to the track rails. Along the lower edge of the plate or guard 31 are secured several thicknesses or layers of heavy rubber or elastic material 37 placed parallel with the face of the guard plate 31 and secured thereto by a steel bar 38 firmly riveted in place. The rubber or elastic edge thus provided at the bottom of the wheel guard is to prevent the clothing, body or limbs of a person from becoming wedged between the guard and the road bed; and the rubber edge will also effectively obviate any danger of the gate throwing the car from the rails.

Attached to the front of the wheel guard or gate 31 is a cord or rope 39 passed over pulleys 40 and 41, and through a perforation in the car floor to a point where it can be controlled by the motorman. On the upper end of this cord or rope 39 is a loop that is engaged with a projecting portion of an oscillatory gravity latch 42 supported on a stud or pivot 43 that may be attached to the inner side of the dashboard 2 or end guard of the car. The dash board 2 may also be provided with guides 44 for a vertically arranged and longitudinally movable bolt 45 provided at its lower end with a spring 46 by which the bolt is forced upward into normal engagement with a lug 47 on the gravity latch 42 with which the cord or rope 39 is normally engaged in such manner as to support the wheel guard or gate 31 in a substantially horizontal position beneath the car and away from the track, as shown in Fig. 1. Now, should there be occasion to use the wheel guard 31 the motorman will press down on a foot plate 48 on the lower end of the bolt 45, thereby releasing the gravity latch 42 which will at once oscillate downward, thereby throwing off the cord or rope 39 and permitting the wheel guard or gate 31 to drop by gravity into an operative position with relation to the track and road bed. By this simple and effective latch and tripping mechanism the pivotally supported wheel guard or gate 31 can be instantly caused to assume an operative position as a protection against contact with the car wheels.

What I claim as my invention is—

1. A detachable and folding fender for street railway cars, consisting of side arms adapted to be detachably hinged at their rear ends to brackets carried by the car, an upper cross bar for detachable connection with standards permanently supported on said brackets, a lower and forward cross bar secured to the forward ends of the side arms, a pneumatic cushion or buffer supported on said lower cross bar, flexible side stays connecting the upper and lower cross bars and adapted to regulate the distance between said bars and give any required inclination to the side arms, and a netting or yielding covering connected to and supported

by said bars and stays, the said fender being adapted for folding upward while connected with a car and the netting capable of being rolled onto the upper cross bar when the fender is detached, substantially as described.

2. In a street car fender, the combination with supporting bracket-arms, and standards projecting from said bracket-arms, of the fender side arms having at their rear ends a detachably hinged connection with said bracket-arms, cap pieces adapted to fit detachably onto the upper ends of the standards, an upper cross bar clipped to said caps and removable therewith, a lower cross bar carried by the forward ends of the hinged fender side arms, a pneumatic cushion or buffer supported by said lower cross bar, flexible side stays that connect the upper and lower cross bars to regulate the distance between said bars and control the inclination of the side arms so as to support the pneumatic buffer at the required elevation above the track, a netting or yielding covering connected to the said upper and lower cross bars and side stays, and a tubular cushion attached to the front of the upper cross bar, substantially as described.

3. In a street car fender, the combination with supporting bracket-arms having tubular standards projecting therefrom, of a detachable fender-frame consisting of tubular side arms having their rear ends detachably hinged to the said bracket-arms, a lower cross bar carried on the forward ends of the said side arms and cushioned to serve as a buffer, an upper cross bar detachably connected with the said standards and protected in front by a cushion, and a netting connecting said upper and lower cross bars, substantially as described.

4. In a street car fender, the combination with the supporting brackets and standards, an upper cross-bar detachably supported on said standards, the fender side arms hinged to said brackets and detachable therefrom, a trough-shaped lower cross bar having outward, rearward and upwardly curved end extension secured to the said fender side arms, a tubular pneumatic cushion or buffer supported in the concavity of the trough-shaped cross bar and having at its ends flattened extensions conforming to the end extensions of said cross bar and secured therewith to the side arms of the fender, bracing blocks secured to and intermediate the said side arms and curved bar extensions, eye-bolts fastened into said blocks, flexible side stays secured to said eye-bolts and to the upper detachable cross bar, and a netting or covering connected to the upper and lower cross bars and to the side stays, substantially as described.

5. In a street car fender, the combination with standards carried permanently in front of the dash board, of an upper cross bar de-

tachably supported on said standards, the hinged or pivotally supported and detachable fender side arms, a lower cross bar carried by the forward ends of the said side arms and supporting a pneumatic cushion, rollers carried by the lower cross bar, flexible side stays connecting the upper and lower cross bars, and a netting laced to said cross bars and stays, substantially as described.

6. In a street car fender, the combination of the detachably hinged side arms, a lower cross bar connected to the forward ends of the said side arms and supporting a pneumatic cushion, a detachable upper cross bar supported by standards on the car, flexible side stays connecting the upper and lower cross bars and arranged to control the distance between said bars and support the lower bar and its cushion at a required elevation, a netting or covering connected with the cross bars and side stays, and a rope or cord connected to the fender frame and extended to the top of the car for use in folding the fender, substantially as described.

7. The combination with a wheel guard pivotally supported beneath a car, and a cord or rope attached to said wheel guard and extended above the car floor, of a gravity latch adapted to engage a loop on the upper end of said cord or rope, and a vertically movable spring bolt normally engaged with said gravity latch to hold it in position for sustaining the wheel guard in a horizontal position, the said bolt being provided with a foot rest whereby the latch may be tripped and caused to release the wheel guard, substantially as described.

8. The combination with a wheel guard pivotally supported beneath a car, means for giving a vertical adjustment to said wheel guard, and a cord or rope attached to said wheel guard and extended above the car floor, of a latching and tripping mechanism for controlling the wheel guard through said cord or rope, substantially as described.

9. The combination with a wheel guard, consisting of a transversely arranged plate having its ends journaled beneath a car and provided along its lower edge with several thicknesses of heavy rubber, of a cord or rope secured to said plate or guard and extended above the car floor, and a latching and tripping mechanism adapted to support or release the upper end of said cord or rope to control the said wheel guard, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT BUSTIN.

Witnesses:

JAMES L. NORRIS,
GEO. W. REA.