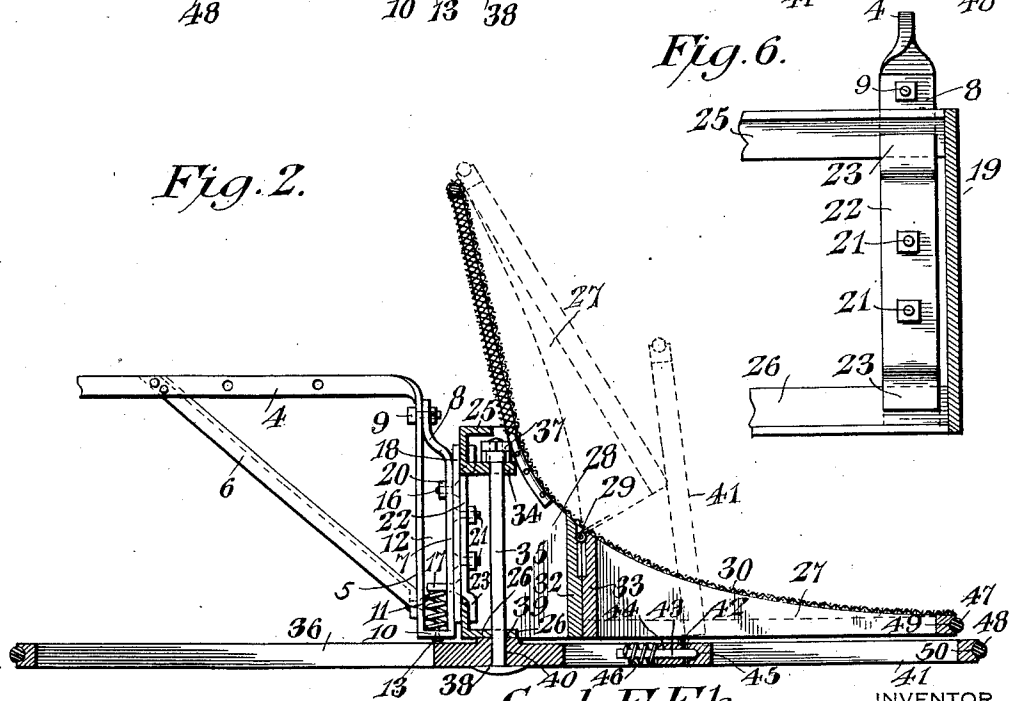
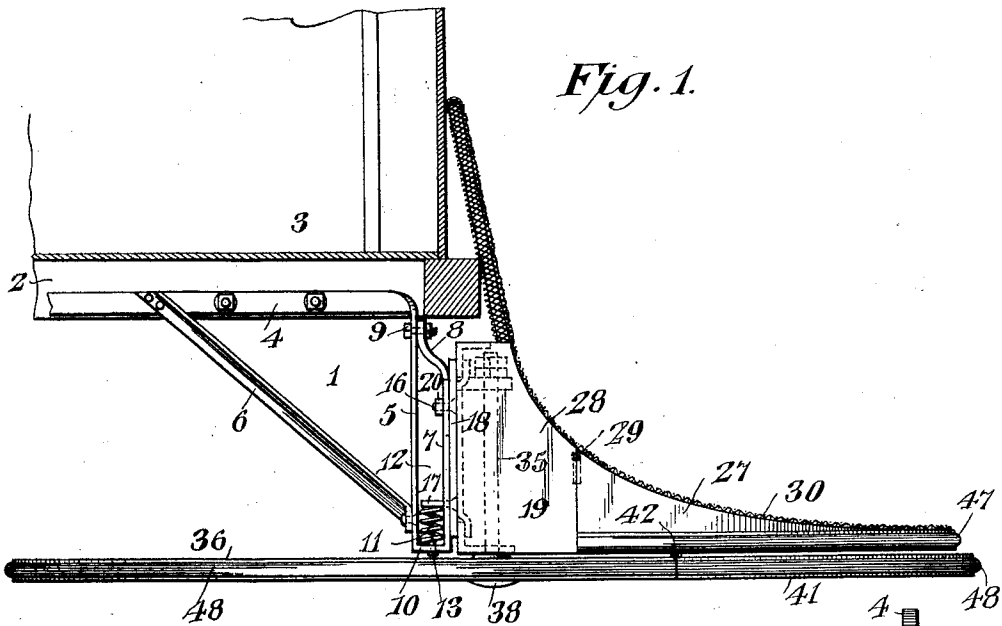


C. F. EKMAN.
STREET CAR FENDER.
APPLICATION FILED JUNE 24, 1913.

1,100,359.

Patented June 16, 1914.

2 SHEETS—SHEET 1.



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H. F. Riley

Carl F. Ekman, INVENTOR

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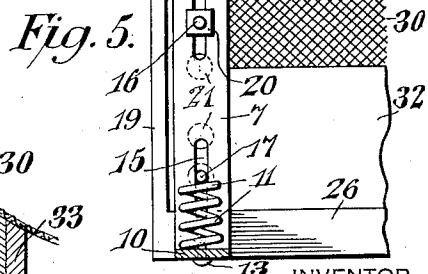
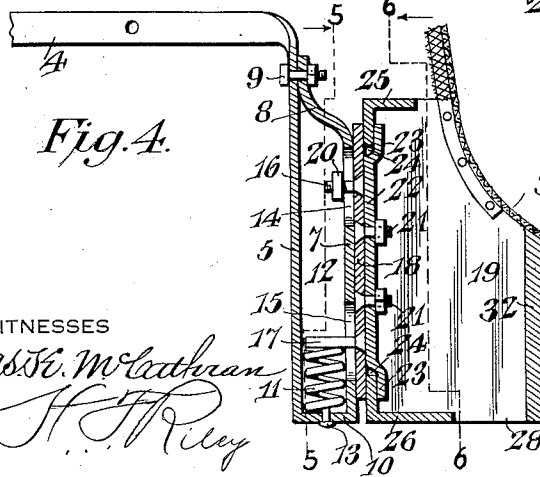
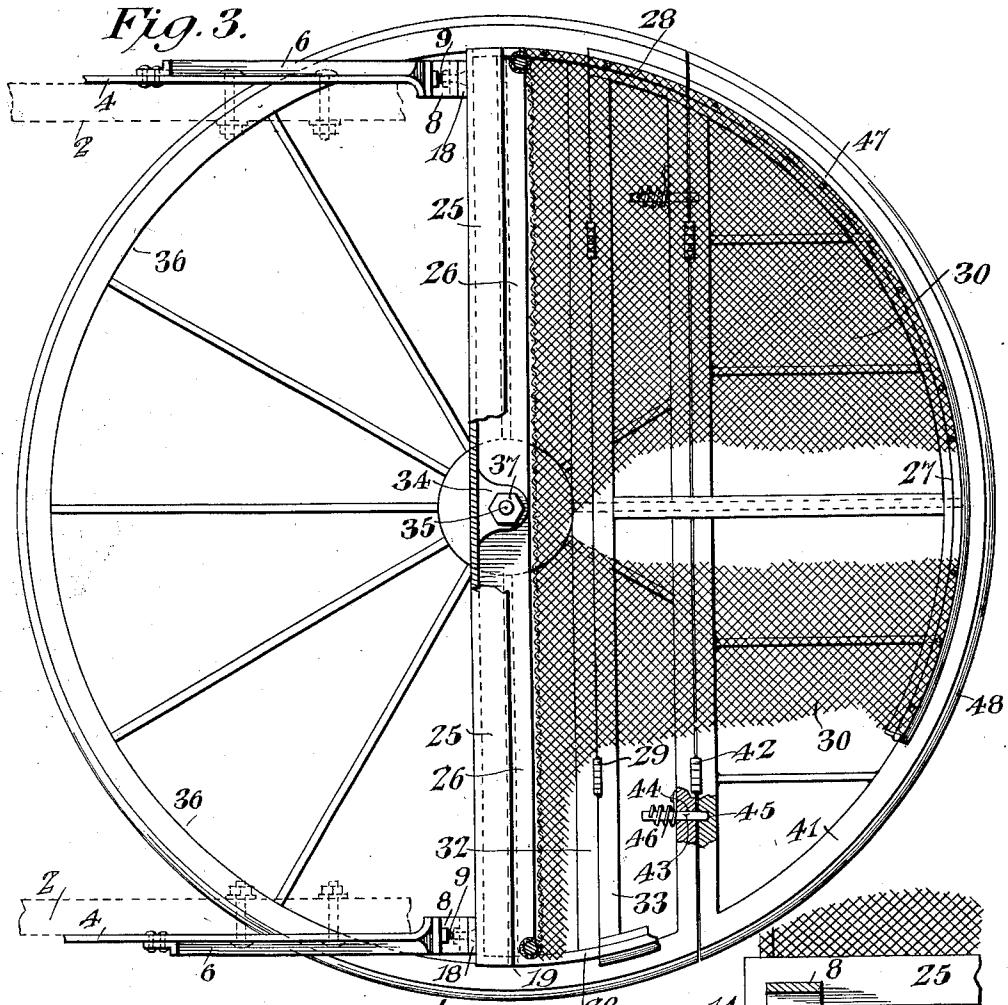
ATTORNEY

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2 SHEETS-SHEET 2.



WITNESSES
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STREET-CAR FENDER.

1,100,359.

Specification of Letters Patent.

Patented June 16, 1914.

Application filed June 24, 1913. Serial No. 775,562.

To all whom it may concern:

Be it known that I, CARL F. EKMAN, a citizen of the United States, residing at Oskaloosa, in the county of Mahaska and State of Iowa, have invented a new and useful Street-Car Fender, of which the following is a specification.

The invention relates to improvements in street car fenders.

10 The object of the present invention is to improve the construction of street car fenders, more especially that shown and described in Patent No. 678,232, granted to me July 9, 1901, and to provide a simple, practical and comparatively inexpensive street
15 car fender of strong and durable construction, adapted to be readily applied to street cars, and capable of preventing serious injury to persons accidentally struck by moving cars, and comprising a relatively stationary fender receptacle into which a person
20 may be thrown when struck, and a rotary guard wheel having a cushioned periphery and adapted unless the person struck happens to be directly in front of the car to rotate and cause him to be pushed to one side out of the path of movement of the car.

30 A further object of the invention is to provide a yielding mounting for the two-part fender, and to enable the same to be compactly folded to save space in a car barn or other place.

35 With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that
40 various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

45 In the drawings:—Figure 1 is a side elevation of a car fender, constructed in accordance with this invention and shown applied to a portion of a car, the latter being in section. Fig. 2 is a vertical longitudinal sectional view of the car fender. Fig. 3 is a plan view of the same, partly broken away to illustrate the construction of the rotary sectional guard wheel. Fig. 4 is a
50 vertical longitudinal sectional view of one side of the car fender. Fig. 5 is a transverse

sectional view of one side of the car fender, taken on the line 5—5 of Fig. 4. Fig. 6 is a similar view on the line 6—6 of Fig. 4.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

In the accompanying drawings in which is illustrated the preferred embodiment of the invention, 1—1 designate a pair of approximately triangular supporting brackets bolted or otherwise secured to the timbers 2 of the frame of a street car 3, and comprising a horizontal top bar 4, a front vertical bar 5 and an inclined brace 6, extending upwardly and rearwardly from the bottom of the front portion of the supporting bracket to the rear portion of the top bar 4 and having its terminals riveted or otherwise secured to the contiguous portions of the bracket. The top horizontal bar 4 and the front vertical bar 5 of each bracket are preferably constructed of a single piece of bar metal or other suitable material, bent at right angles to form the said top and front bars 4 and 5 and extended at the lower end of the vertical bar 5 to form a spaced vertical bar 7. The material is bent forwardly at right angles at the lower end of the vertical bar 5 and is then bent upwardly at right angles to form the said bar 7, which has its upper terminal portion 8 inclined and extended upwardly and rearwardly to the vertical bar 5 and secured to the same by a bolt 9, or other suitable fastening device. The integral horizontal portion 10, which connects the lower ends of the bars 5 and 7, is straight and forms a seat for a coiled spring 11. The spaced bars 5 and 7 of the front portion of the bracket 1 form an intervening vertical space 12, and the said spring 11, which is arranged in the lower portion of such space 12, has its lower end 13 piercing the connecting bottom portion 10 and headed or riveted to the same, but any other suitable means may be employed for securing the coiled springs within the vertical spaces of the front portions of the supporting brackets. The flat faces of metal of the bars 5 and 7 of the front portion of the bracket are arranged in planes transverse of the car, and the metal has a quarter bend at the upper end of the bar 5 to arrange the flat faces of the top bar 4 in vertical longitudinal planes so as to fit flat against the sides of the timbers of the frame of the car.

The bars 5 and 7 constitute the front and

rear sides of the front portions of the supporting brackets, and the front or outer sides or bars 7 are provided with upper and lower vertical slots 14 and 15 for the reception of upper horizontal bolts 16 and lower horizontal projections 17 of vertical attaching bars 18 of the frame 19 of the car fender. The bolts 16, which have threaded rear portions, are provided with nuts 20 arranged in the spaces 12 and located at the rear faces of the outer or front bars 7, as clearly illustrated in Fig. 4 of the drawings. By this construction, the fender is slidably and detachably connected with the supporting brackets, and the fender may be readily detached by removing the nuts 20 of the bolts 16. The horizontal rearwardly extending projections 17, which operate in the lower vertical slots, are supported upon the cushioning springs 11, which yieldably support the fender in an elevated position above the rails.

Any suitable means may be employed for enabling the fender to be depressed by the foot of the motorman, and as such means does not constitute any portion of the present invention, illustration thereof is deemed unnecessary.

The coiled springs 11, which are arranged vertically, are preferably of a diameter to practically fill the lower end of the vertical space 12, and they automatically raise the fender after the same has been depressed and is relieved of pressure. The vertical attaching bar 18 is secured by bolts 21, or other suitable fastening devices to a vertical bar or plate 22, fitted flat against the plate or bar 18 and having its upper and lower terminals 23 bent outwardly from the terminals of the bar 18 to form recesses 24 for the reception of upper and lower horizontal transverse bars 25 and 26 of the fender frame. The bolts 16, which pierce the bar 18, have their heads fitted against the bar 22, and the lugs or projections 17, which rest upon the upper ends of the cushioning springs, are preferably formed by bolts, which pierce the lower portions of the bars 18 and have their heads fitted against the bars or plates 22, but any other suitable fastening means may, of course, be employed, and the lugs or projections, which are supported by the cushioning springs, may be applied to the fender in any other suitable manner.

The fender frame, which is substantially semi-circular, is composed of front and rear sections 27 and 28, connected by suitable hinges 29, which permit the front portion of the fender to swing upwardly, as illustrated in dotted lines in Fig. 2 of the drawings, to arrange the fender compactly when the cars are placed in a barn, or when it is desired to compactly arrange them for any other purpose. The fender frame prefer-

ably tapers forwardly, as illustrated in the aforesaid patent, and while it may be constructed of any suitable material and be braced in any preferred manner, it is preferably equipped at the back with the upper and lower spaced horizontal bars 25 and 26. These bars 25 and 26 are preferably constructed of angle metal and have vertical wings or flanges projecting into the upper recesses 24 formed by the terminal portions of the bars or plates 18 and 22.

The fender frame is covered with wire netting or other suitable material having sufficient fullness to create a concavity and provide a basket or receptacle 30 into which a person struck by a moving car may be thrown. The hinges 29 for connecting the front and rear sections of the fender frame preferably have their leaves secured to transverse bars or members 32 and 33, extending across the front and rear sections of the fender frame and arranged contiguous to each other when the fender is in its normal or operative position, as clearly illustrated in Fig. 2 of the drawings. The upper transverse bar 25 is provided with a central horizontal lug 34, projecting forwardly from the flange or wing, which is arranged in a vertical plane, and the said lug is provided with a bearing for the reception of a vertically disposed shaft 35, forming a pivot for a rotary guard wheel 36. The shaft 35, which has its upper end threaded for the reception of a nut 37, is provided at its lower end with a head 38, and it extends through a bearing opening 39 of the horizontal flange or wing of the lower angle bar 26. The lower end of the shaft projects below the fender frame and extends through an opening 40 in the central or hub portion of the guard wheel 36. The guard wheel 36, which is adapted to rotate to cause a person to be pushed to one side out of the path of movement of the car, is preferably provided with a hinged segmental section 41, adapted to be swung upwardly, as illustrated in dotted lines in Fig. 2 of the drawings, when it is desired to arrange the fender compactly. The hinges 42, which connect the section 41 with the body portion of the rotary guard wheel, are arranged at the top of the latter, and the hinged section is preferably maintained in rigid relation with the body portion of the guard wheel by means of spring actuated bolts 43, mounted in suitable bores or openings 44 of the body portion of the guard wheel and having projecting outer portions extending into sockets 45, located at the inner hinged edge of the section 41.

The spring actuated bolts may be mounted in any desired manner and the coiled springs 46 are shown in the accompanying drawings as being disposed on the bolts and connected at one end to the same and at the

other end to the body portion of the guard wheel. The curved or peripheral edge of the segmental or approximately semicircular fender frame and the periphery of the rotary guard wheel are equipped with cushions 47 and 48 of rubber or other suitable material, preferably seated in grooves 49 and 50 of the fender frame and the guard wheel, as shown, but any other preferred form of cushion may, of course, be employed.

The guard wheel is disposed immediately below the fender, and is of such diameter as to cause its periphery to project slightly beyond the cushion of the said fender. If a person standing between the tracks is struck by a rapidly moving car equipped with the present device he will under ordinary circumstances be pushed out of harm's way by reason of the free rotation of the guard wheel. Should, however, the person be standing directly in front of the axis wheel, he will be struck by the soft cushion and will be thrown into the basket or receptacle of the fender in which he will be held without injury until the car has stopped.

What is claimed is:—

1. A car fender of the class described including spaced vertical supporting brackets, springs mounted in the brackets, and a depressible fender located in advance of and slidably connected with the said brackets and having rearwardly projecting portions extending through the front of the brackets and yieldably supported by the said springs, whereby the fender is normally maintained in an elevated position.

2. A car fender of the class described including opposite supporting brackets having spaced vertical front and rear bars forming vertical openings, coiled springs secured in the said openings, a depressible fender located in advance of the brackets and slidably connected with the front bars of the same and provided with lugs or projections extending into the said openings and yieldably supported by the coiled springs.

3. A car fender of the class described including spaced supporting brackets having upper attaching portions and provided with depending vertical portions having front and rear sides, the front sides being provided with upper and lower vertical slots, a depressible fender having lugs or projections extending through the lower vertical slots and yieldably supported by the said springs, and fastening means operating in the upper slots and slidably connecting the fender with the supporting brackets.

4. A car fender of the class described including spaced supporting brackets, each comprising a top horizontal attaching bar, a rear vertical bar formed integral with and depending from the attaching bar, and a front substantially vertical bar integral with the rear vertical bar and connected with the same at the bottom thereof and secured at its upper end to the same, said vertical bars being arranged in spaced relation, and an inclined brace extending from the rear vertical bar to the horizontal top attaching bar, springs arranged in the spaces between the front and rear vertical bars, and a depressible fender slidably connected with the supporting brackets and having portions yieldably supported by the said springs.

5. A car fender of the class described including spaced supporting brackets provided with slots, a fender having a frame provided with upper and lower transverse bars, front and rear vertical attaching bars fitted together and connecting the upper and lower transverse bars and having spaced terminals forming recesses to receive the said transverse bars, and fastening devices piercing the rear vertical attaching bars and extending through the slots of the supporting brackets and slidably and detachably securing the fender to the said brackets.

6. A car fender of the class described including supporting brackets, a fender provided with a frame having spaced upper and lower transverse bars, the upper transverse bar being provided with a bearing lug and the lower transverse bar having a bearing opening, means for connecting the transverse bars with the supporting brackets, a vertical shaft mounted in the bearing lug and in the said bearing opening, and a rotary guard wheel pivoted beneath the fender by the said shaft.

7. A car fender of the class described including a substantially segmental foldable fender having a frame composed of front and rear sections hinged together, a rotary guard wheel composed of a body portion and a hinged segmental section foldable upwardly, and fastening means for securing the hinged segmental section in rigid relation with the body portion of the guard wheel.

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

CARL FERDINANT EKMAN.

Witnesses:

M. J. SILVER,
ROY E. ROWLAND.