

No. 898,146.

PATENTED SEPT. 8, 1908.

E. H. SCHULZE.
STREET CAR FENDER.

APPLICATION FILED AUG. 24, 1907.

2 SHEETS—SHEET 1.

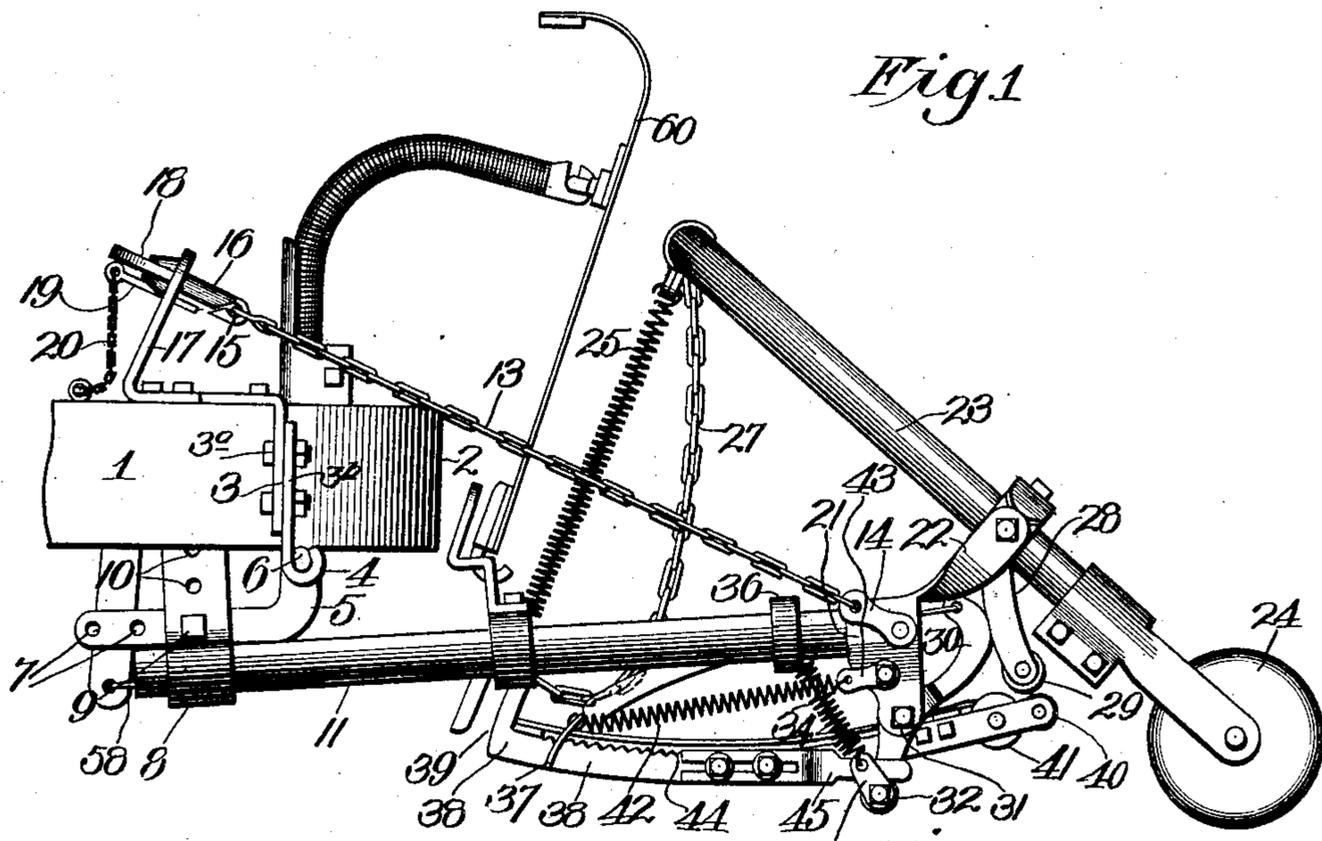


Fig. 1

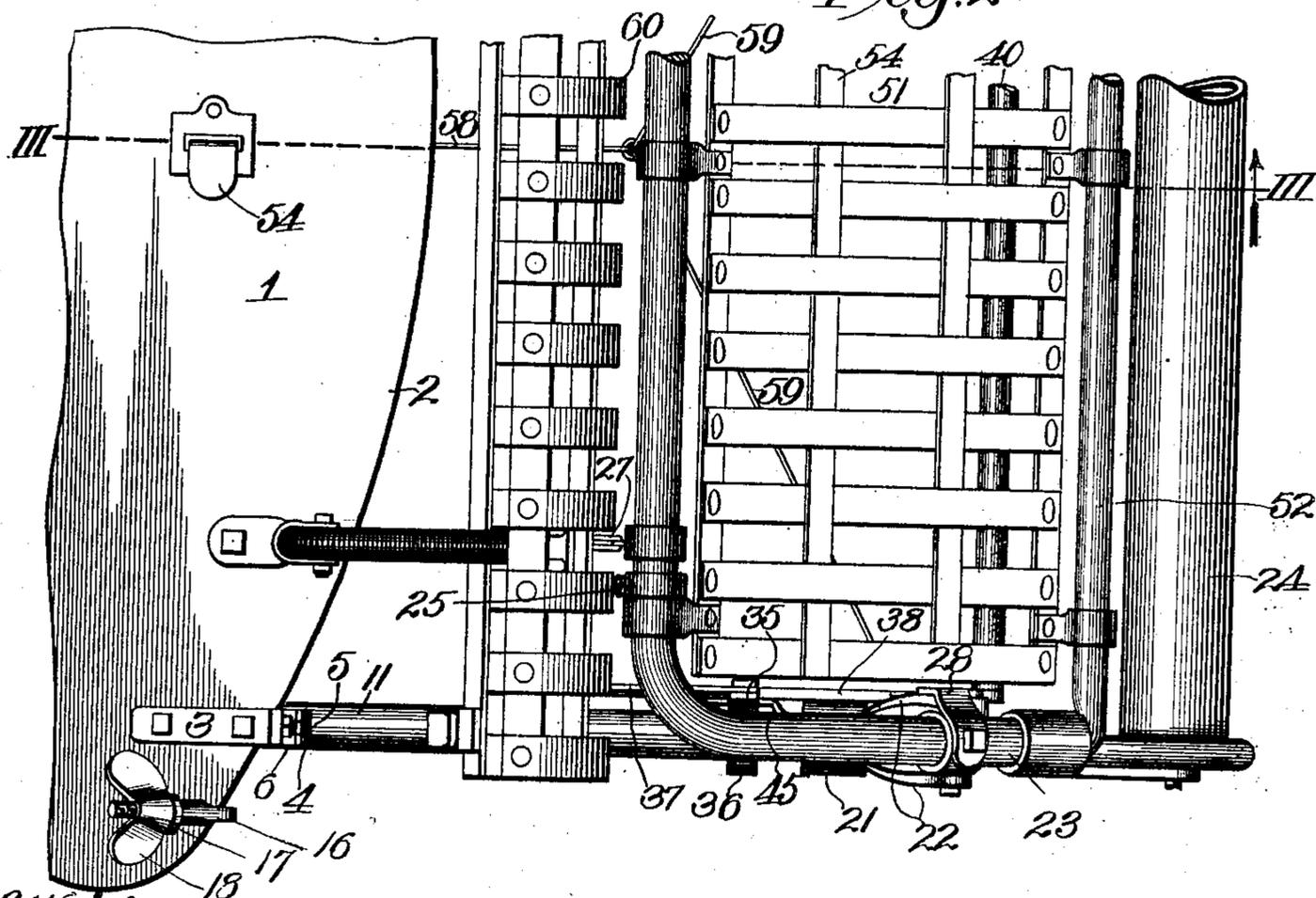


Fig. 2

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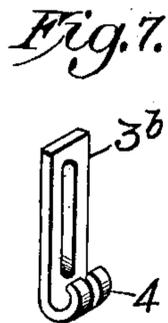
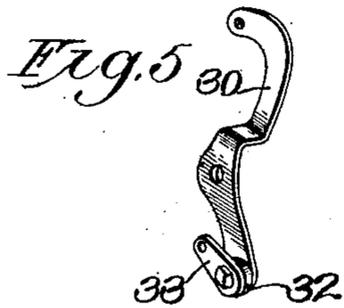
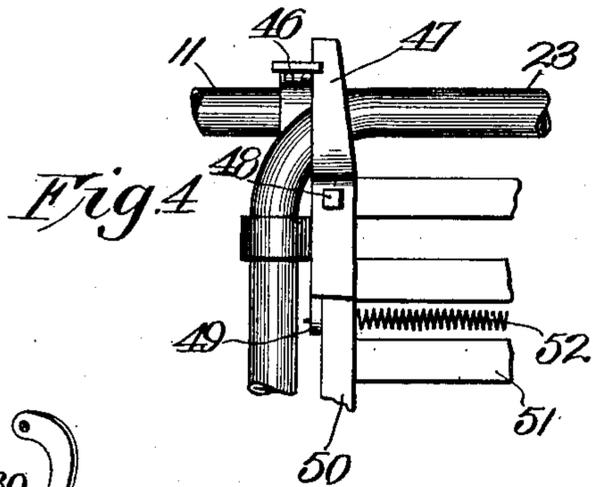
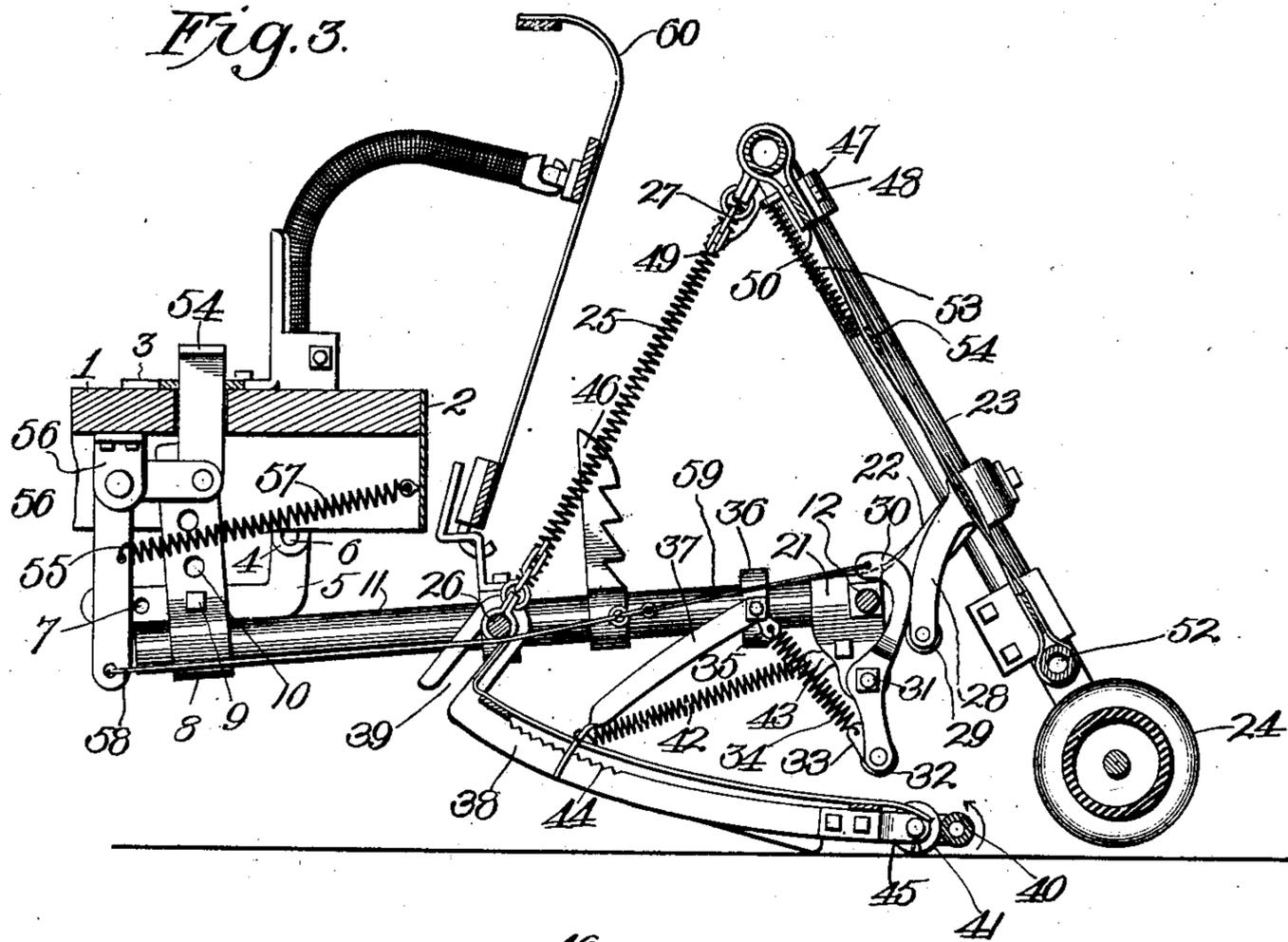
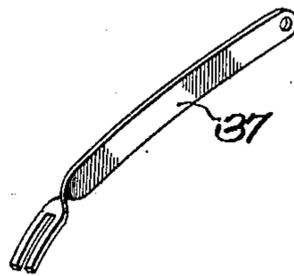


Fig. 6.



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UNITED STATES PATENT OFFICE.

ERNIST H. SCHULZE, OF KANSAS CITY, MISSOURI.

STREET-CAR FENDER.

No. 898,146.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed August 24, 1907. Serial No. 390,054.

To all whom it may concern:

Be it known that I, ERNIST H. SCHULZE, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Street-Car Fenders, of which the following is a specification.

This invention relates to street car fenders of that type having a tilting fender to trip and catch a person erect on the trackway and an auxiliary fender to drop to the trackway and pick up a person recumbent thereon, and my object is to produce a device in which downward movement of the front end of the main fender shall result in like movement of the auxiliary fender in order to absolutely guard against the possibility of the main fender swinging upward at its front end and passing over a person recumbent on the track before the front end of the auxiliary fender has attained operative position, that is, has fallen upon the trackway.

A further object is to produce means whereby the person running the car, may effect the dropping to operative position of the auxiliary fender in the event that the object,—such as a small child,—is lying on the trackway and would be passed over by the main fender without effecting downward movement of its front end.

A still further object is to provide means for preventing the main fender from reverse operation in the event that it has tripped up and caught a person, even though the weight of the latter is so distributed that it tends to reverse such operation of said fender before its rear end has been depressed its full distance.

A still further object is to provide means for automatically locking the auxiliary fender with its front end upon the trackway after it has attained such position through the automatic tilting movement of the main fender or such tilting movement when effected by the person running the car.

To these ends and others as hereinafter appear, the invention consists in certain novel and peculiar features of construction and combinations of parts as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawings, in which:—

Figure 1, is a side view of the front end of a car equipped with a fender embodying my invention. Fig. 2, is a plan view of a part of

the fender. Fig. 3, is a vertical section taken on the line III—III of Fig. 2. Fig. 4, is a plan view of a portion of the supporting frame and the main fender and means for locking the latter with its rear end depressed. Fig. 5, is a detail perspective view of one of the rock-bars forming part of the device. Fig. 6, is a detail perspective view of one of the pivoted braces forming part of the device. Fig. 7, is a detail perspective view of one of a pair of bars adjustable to adapt the fender to car platforms of varying heights.

In the said drawings, 1 indicates a platform of an electric or other car with its end 2 curved and forming the bumper.

3 is a pair of inverted-L shaped brackets having their horizontal arms secured to the platform and their vertical arms depending and provided with a pair of bolts 3^a engaging slotted bars 3^b terminating in upwardly disposed vertically biturcated hooks 4, the said bars 3^b being vertically adjustable to accommodate the fender to platforms of varying height.

5 is a pair of angle plates having their upwardly-disposed arms engaging the bifurcations of the hooks and provided with pivot pins 6 detachably supported by said hooks, the horizontal arms of said plates being provided with a longitudinal series of perforations 7.

8 is a pair of substantially-U-shape brackets through which plates 5 extend, and 9 are detachable pins extending through holes 10 of said brackets and alined holes 7 of plates 5.

The supporting frame is constructed as follows: 11 indicates side bars extending through and secured in brackets 8 and underlying angle plates 5 so that there shall be no pivotal movement of the latter independent of said bars, and 12 is a cross-rod connecting the front ends of bars 11. This supporting-frame is pivotally supported at its rear end on hooks 4 and is held with its front end at the desired elevation by means of a pair of extensible as well as contractible connections (one only appearing, as the other is omitted from Fig. 3) consisting, preferably, of chains 13, links 14 pivotally connecting the front ends of the chains with the outer ends of cross-rod 12, and bolts 16 attached at 15 to the rear ends of the chains and extending slidingly through brackets 17 secured to the platform, wing-nuts 18 engaging the bolts and bearing against the brackets to secure the former at the desired points of adjust-

ment, and to guard against accidental turning movement of the wing-nuts, pins 19 extend through the same and the brackets (see Fig. 1) and are attached to chains 20 to guard
5 against loss when not in use.

The construction thus far described is a duplicate of that shown in my patent for street car fender #829675 issued August 28, 1906.

10 Secured to the front corners of the supporting-frame are a pair of brackets 21 of substantially U-form and projecting upwardly and forwardly from said frame are arms 22 to provide pivotal supports for the
15 main fender 23, the weight of said fender being so disposed that its front end equipped with the usual or any preferred large roller 24, is depressed. Retractable springs 25 connect the rear end of the main fender with the
20 cross-bar 26 of the supporting-frame, and offer a yielding resistance to further downward movement of the front end of the main fender, and one or more flexible connections such as a chain 27 (partly shown in Fig. 3)
25 also connects the rear end of the main fender with said cross-bar to positively limit the downward movement of the front end of said fender after it has nearly reached the trackway, as shown in Fig. 3. To cause the down-
30 ward movement of the front end of the fender to trip the auxiliary fender hereinafter described, it is provided with depending arms 28 equipped with rollers 29 at their lower ends and outer sides, said rollers occupying
35 the same vertical plane as a pair of rock-bars 30 pivoted at 31 to and disposed at the inner sides of brackets 21, and provided at their outer sides with rollers 32, and outward of the rollers with pivoted links 33 connected
40 by retractile springs 34 with links 35 pivoted to the inner sides of collars 36 secured on the sides of the supporting-frame, these retractile springs tending to hold the upper ends of rock-bars 30 yieldingly forward as shown in
45 Fig. 1.

Pivoted to the inner sides of collars 36 coincidentally with links 35 are downwardly and rearwardly extending braces 37 having their lower ends forked and seated astride
50 the side bars of the auxiliary fender 38, said fender corresponding in all essential particulars to the fender of the aforesaid patent and terminating at its rear corners in similar hooks 39 pivotally engaging the cross-bar 26
55 of the supporting-frame, it being further noted that the transverse roller 40 of the auxiliary fender is engaged by rollers 41 carried by the auxiliary fender and adapted when the said fender is down to be turned by frictional engagement with the trackway and
60 compel roller 40 to revolve in the direction indicated by the arrow in Fig. 3, and thus reliably pick up anything on the trackway which it encounters while the car is in fairly
65 rapid motion, and to guard against upward

movement of the front end of said fender the braces are connected near their lower ends by retractile springs 42 with links 43 pivoted to brackets 21.

It will be noticed in this connection that
70 the upper edges of the side bars of the auxiliary fender are serrated as at 44 to prevent any possibility of the braces slipping rearward when the roller 40 encounters a heavy
75 object, it being further noted that the springs 42 instantly swing braces 37 forward on the auxiliary fender when the latter swings downward, the said fender being equipped with
80 brackets 45 at its opposite sides to receive the rock-bars 30, below their pivotal points and overlie the rollers 32 to support the said fender in its elevated position.

From the foregoing it will be apparent that when the roller 24 strikes an object on the trackway, fender 23 will be rocked
85 against the resistance of springs 25 and cause rollers 29 to press rearwardly against the upper portions of the rock-bars 30 so as to pivotally operate the same against the resistance of springs 34 and withdraw their rollers
90 32 from under brackets 45. As the auxiliary fender is thus tripped its front end starts downward and such movement is accelerated by the downward pressure applied upon it by
95 the braces 37 through the instrumentality of springs 42, the said braces clamping the auxiliary fender in its depressed position, as hereinbefore explained.

It will be noted of course that the retractile springs 34 returns the rock-bars 30 to
100 their original positions with respect to the supporting frame as soon as the main fender swings back to its original position, it being further noted that if such fender swings back
105 beyond such position, as it will invariably do in the event that the object struck falls upon it back of its pivotal point, it cannot rerock toward its original position and thus throw
110 such object again upon the trackway, because of the automatic operation of the following mechanism: 46 is a stationary toothed catch projecting upward from one side of the supporting frame, 47 a latch pivoted at 48 to the main fender and projecting
115 laterally beyond the same and provided at its inner end with a lug 49 depending between the cross bar of said fender and the rear cross bar 50 of the resilient bed 51 of said fender, said bed being secured at its
120 front end to the cross bar 52 of the fender and corresponding in all essential particulars to the bed of the fender of the patent hereinbefore referred to. 53 is a retractile spring attached at its rear end to an arm on the lug
125 49 and at its front end to the cross piece 54 of said bed for the purpose of holding the outer end of the latch pressed yieldingly rearward so that when the main fender is rocked by the
130 imposition thereon of a preponderating weight rearward of its pivotal point, the

latch will engage the catch and thus prevent a rerocking motion of said fender and consequently prevent the same from pitching the object forward onto the trackway, it being noticed in this connection that the catch 46 is provided with a plurality of teeth in order that it may be engaged by the latch should the main fender rock a sufficient distance to dispose the latch in the plane of the topmost tooth of the catch, though ordinarily the fender will rock until it strikes the underlying side bars of the supporting frame, in which event the lowest tooth of the catch will be engaged by the latch.

It frequently occurs with this class of fenders that a person is picked up in such a manner that the main fender fails to rock back its full distance and in such cases it almost instantly reverses its rocking movement and rolls or pitches the person caught to the trackway and then the retractile springs 25 again reverse such movement and raise the roller 24 to such an extent that it passes over the person or object. With my improved construction this danger is practically eliminated by providing a locking mechanism accommodating a variable rocking movement of the main fender and this provision is very desirable because serious injury is apt to follow a fall upon the trackway due to being pitched from the fender or from rolling therefrom.

In the event that a small child falls upon the trackway in such a position that the roller 24 in its ordinary position will pass over it and therefore not effect the lowering of the auxiliary fender, the latter is tripped by the motorman or other person in charge and to accomplish this purpose the following mechanism is provided: 54 is a depressible foot-bar extending slidably through the platform and pivoted at its lower end to a bell-crank lever 55 supported by a bracket 56 secured to the platform, a retractile spring 57 connecting the lever with a part of the platform so as to hold the foot-bar normally elevated. The lower end of the lever is connected to a forwardly extending flexible connection 58 provided with branches 59 connected to the upper ends of rock-bars 30, so that when the motorman steps upon the foot-bar and depresses the same, the rock-bars 30 are operated and withdraw rollers 32 from below brackets 45 and thus permit the auxiliary fender by gravity and the cooperating action of springs 42 to instantly drop to the trackway for the purpose of picking up the child or other object lying on the trackway.

After a person caught by the main fender is removed, the conductor or other person grasps latch 47 and disengages it from the catch so as to permit the main fender to resume its original position. The braces 37 are then pulled upward to permit the aux-

iliary fender to be raised, and in this action the beveled upper edges of the brackets 45 strike rollers 32 and force the same forward against the resistance of springs 34 until said brackets are above the plane of the rollers when the springs rerock the rock bars and dispose the rollers under said brackets. The fender is then ready for a second operation.

The fender is equipped with a resilient shield or guard 60 between the main fender and the front end of the car to receive the impact of a person or object picked up by such fender. This shield or guard corresponds in all essential particulars to that shown in the aforesaid patent and therefore needs no detailed description.

From the above description it will be apparent that I have produced a car fender possessing the features of advantage enumerated as desirable and I wish it to be understood that I do not desire to be restricted to the exact details of construction recited as obvious modifications will suggest themselves to one skilled in the art.

Having thus described the invention what I claim as new and desire to secure by Letters-Patent, is:—

1. A street car fender comprising a supporting frame, a fender pivotally supported at its rear end, means holding its front end elevated normally, and a second fender rockingly mounted on the supporting frame and adapted when its front end is swung downward to effect the release of the front end of the first-named fender by tripping the said holding means from engagement with said first-named fender.

2. A street car fender comprising a supporting frame, a fender pivotally supported at its rear end, means holding its front end elevated normally, a second fender rockingly mounted on the supporting frame and adapted when its front end is swung downward to effect the release of the front end of the first-named fender by tripping the said holding means from engagement with the first-named fender, and means to prevent accidental upward movement of the front end of the first-named fender after its release from said holding means.

3. A street car fender, comprising a supporting frame, a fender pivotally supported at its rear end, means holding its front end normally elevated, a second fender rockingly mounted on the supporting frame and adapted when its front end is swung downward to effect the release of the front end of the first-named fender by tripping the said holding means from engagement with the first-named fender, and a spring-actuated brace to prevent accidental upward movement of the front end of the first-named fender after its release from said holding means.

4. A street car fender, comprising a supporting frame, a fender pivoted at its rear

end to the supporting frame, means holding the front end of said fender normally elevated, and movable means connected to said holding means and adapted to be operated manually to disengage said holding means from the front end of the fender.

5. A street car fender, comprising a supporting frame, a fender pivoted at its rear end to the supporting frame, means holding the front end of said fender normally elevated, movable means connected to said holding means and adapted to be operated manually to disengage said holding means from the fender, and means to automatically prevent accidental upward swinging movement of said fender after it is released.

6. A street car fender, comprising a supporting frame, a fender pivoted at its rear end to the supporting frame, means holding the front end of said fender normally elevated, movable means connected to said holding means and adapted to be operated manually to disengage said holding means from the fender, and spring-actuated braces for automatically clamping said fender against upward movement after it is released.

7. A street car fender, comprising a supporting frame, a fender pivoted at its rear end thereto, a rock-bar carried by the supporting frame and having its lower end pressed yieldingly rearward and underlying part of the fender to hold the front end of the latter elevated.

8. In a street car fender, a supporting frame, a fender pivoted at its rear end thereto, a rock-bar carried by the supporting frame and having its lower end pressed yieldingly rearward and underlying part of the fender to hold the front end of the latter elevated, and manually operative means for operating said rock-bar to move its lower end forward to permit the front end of the fender to move downward.

9. A street car fender, comprising a supporting frame, a fender pivoted at its rear end thereto, a rock-bar carried by the supporting frame and having its lower end pressed yieldingly rearward and underlying part of the fender to hold the front end of the latter elevated, manually operative means for operating said rock-bar to move its lower end forward to permit the front end of the fender to move downward, and a pivoted brace carried by the supporting frame and adapted to prevent the front end of said fender from accidentally moving upward after it is released.

10. A street car fender, comprising a supporting frame, a fender pivoted at its rear end thereto, a rock-bar carried by the supporting frame and having its lower end pressed yieldingly rearward and underlying part of the fender to hold the front end of the latter elevated, and a second fender above and forward of the first and rockingly mount-

ed on the supporting frame and adapted when its front end is moved downward to operate said rock-bar to withdraw its lower end from engagement with the first-named fender to permit the latter to swing downward.

11. A street car fender, comprising a supporting frame, rock bars carried thereby, means holding the lower ends of said rock bars pressed yieldingly rearward, a fender pivoted at its rear end to the supporting frame and normally held elevated at its front end by the rock bars, braces pivotally carried by the supporting frame and engaging the fender, means to rock the rock bars and cause them to release the fender to permit its front end to drop, and springs engaging the braces to swing them forwardly of the fender as it falls to lock the latter against accidental upward movement at its front end.

12. A street car fender, comprising a supporting frame, rock-bars carried thereby, means holding the lower ends of said rock-bars pressed yieldingly rearward, a fender pivoted at its rear end to the supporting frame and normally held elevated at its front end by the rock bars, braces pivotally carried by the supporting frame and having their free ends forked and engaging the fender, means for operating the rock bars to effect the release of the fender to permit the latter to fall, and springs engaging the braces and adapted to cause their free ends to swing forwardly and downwardly and slide upon the fender to clamp the latter against accidental upward movement at its front end.

13. A street car fender, comprising a supporting frame, rock-bars carried thereby and provided with laterally projecting parts at their lower ends, means for holding the lower ends of the rock bars pressed yieldingly rearward, a fender pivoted at its rear end on the supporting frame, and extending forwardly between the rock-bars and provided with brackets resting on said laterally projecting parts, and means for rocking said rock bars to withdraw said laterally projecting parts forwardly from under said brackets.

14. A street car fender, comprising a supporting frame, rock-bars carried thereby and provided with laterally projecting parts at their lower ends, means for holding the lower ends of the rock bars pressed yieldingly rearward, a fender pivoted at its rear end on the supporting frame, and extending forwardly between the rock-bars and provided with brackets resting on said laterally projecting parts, means for rocking said rock-bars to withdraw said laterally projecting parts forwardly from under said brackets, and means for automatically clamping the fender from upward movement at its front end after it has been released from the rock-bars.

15. A street car fender, comprising a supporting frame, rock-bars carried thereby and

provided with laterally projecting parts at their lower ends, means for holding the lower ends of the rock-bars pressed yieldingly rearward, a fender pivoted at its rear end on the supporting frame and extending forwardly between the rock-bars and provided with brackets resting on said laterally projecting parts, a second fender forward of and overlying the first-named fender and rockingly mounted on the supporting frame, and means carried by said fender and adapted when the same rocks downwardly at its front end to operate said rock bars and effect the release of the first-named fender.

16. A street car fender, comprising a supporting frame, rock-bars carried thereby and provided with laterally projecting parts at their lower ends, means for holding the lower ends of the rock-bars pressed yieldingly rearward, a fender pivoted at its rear end on the supporting frame and extending forwardly between the rock-bars and provided with brackets resting on said laterally projecting parts, a second fender forward of and overlying the first-named fender and rockingly mounted on the supporting frame, means carried by said fender and adapted when the same rocks downwardly at its front end to operate said rock-bars and effect the release of the first-named fender, and spring-actuated braces carried by the supporting frame for automatically clamping the first-named fender against accidental upward movement at its front end.

17. A street car fender, comprising a supporting frame, rock-bars carried thereby and provided with laterally projecting parts at their lower ends, means for holding the lower ends of the rock-bars pressed yieldingly rearward, a fender pivoted at its rear end on the supporting frame and extending forwardly between the rock bars and provided with brackets resting on said laterally projecting parts, a second fender forward of and overlying the first-named fender and rockingly mounted on the supporting frame and adapted when its front end swings downward to operate the rock-bars and release the first-named fender, and means for yieldingly resisting downward movement of the front end of said second fender.

18. A street car fender, comprising a supporting frame, rock-bars carried thereby and provided with laterally projecting parts at their lower ends, means for holding the lower ends of the rock bars pressed yieldingly rearward, a fender pivoted at its rear end on the supporting frame and extending forwardly between the rock bars and provided with brackets resting on said laterally projecting parts, a second fender forward of and overlying the first-named fender and rockingly mounted on the supporting frame and adapted when its front end swings downward to operate the rock bars and release the first-named fender, means for yieldingly resisting downward movement of the front end of said second fender, and means to positively limit such downward movement.

19. A street car fender comprising a supporting frame, a fender rockingly mounted on the supporting frame, a plural-toothed catch projecting upward from the supporting-frame, a latch pivoted to the fender rearward of its pivotal point, and a spring holding said latch pressed yieldingly rearward so that it shall engage one of the teeth of said catch when the rear end of said fender swings downward a sufficient distance.

20. The combination with a car, of a supporting frame carried thereby, rock-bars mounted on the supporting frame and provided with lateral projections at their lower ends, springs holding said ends pressed yieldingly rearward, a fender pivoted at its rear end on the supporting frame and provided with forwardly projecting parts resting on the lateral projections of the rock bars, a lever pivotally carried by the car, a flexible connection between the lever and said rock-bars, and a vertically movable foot-bar extending up through the car platform and adapted when depressed to rock the lever and effect the withdrawal of the laterally projecting parts of the rock-bars from below the forwardly projecting parts of the fender.

In testimony whereof I affix my signature, in the presence of two witnesses.

ERNIST H. SCHULZE.

Witnesses:

H. C. RODGERS,
G. Y. THORPE.