

No. 829,675.

PATENTED AUG. 28, 1906.

E. H. SCHULZE.
STREET CAR FENDER.
APPLICATION FILED JAN. 27, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

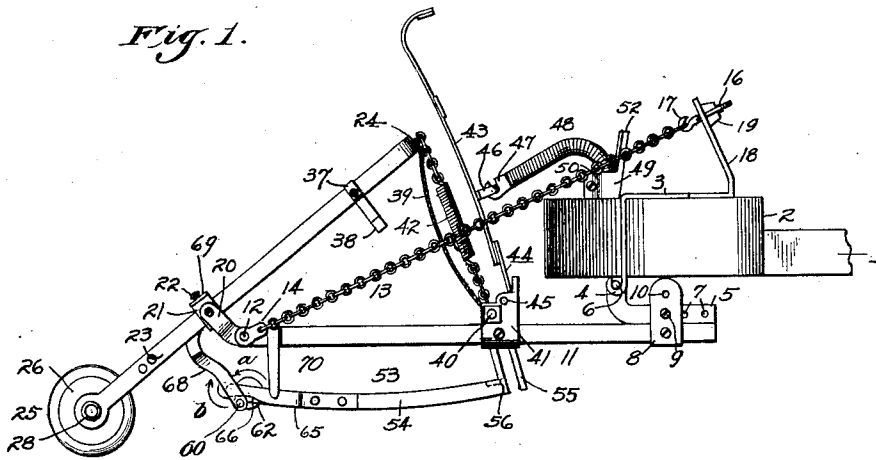
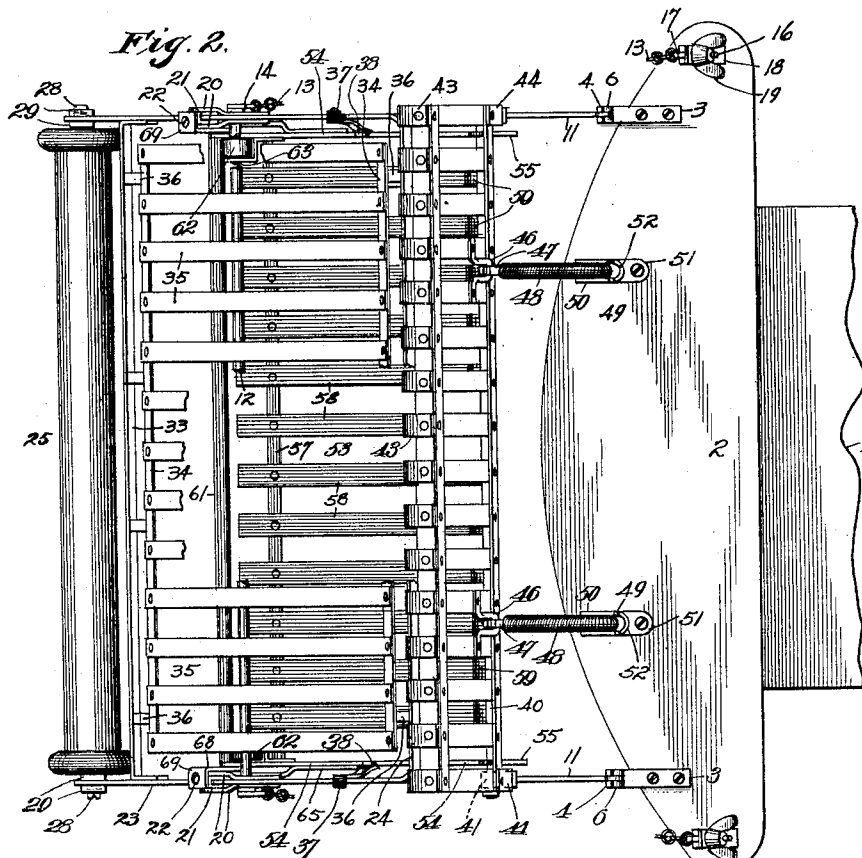


Fig. 2.



Witnesses:

A. M. Vinton
H. B. Rodgers

Inventor:
E. H. Schulze.

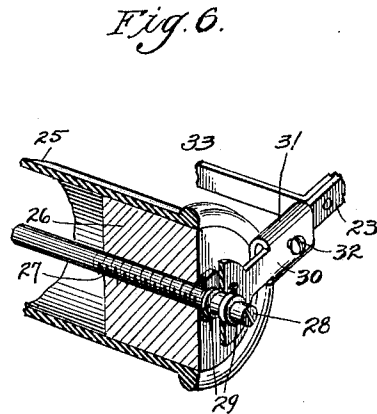
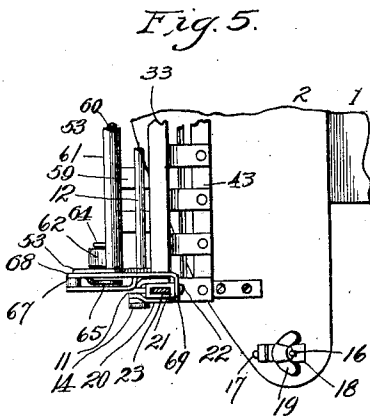
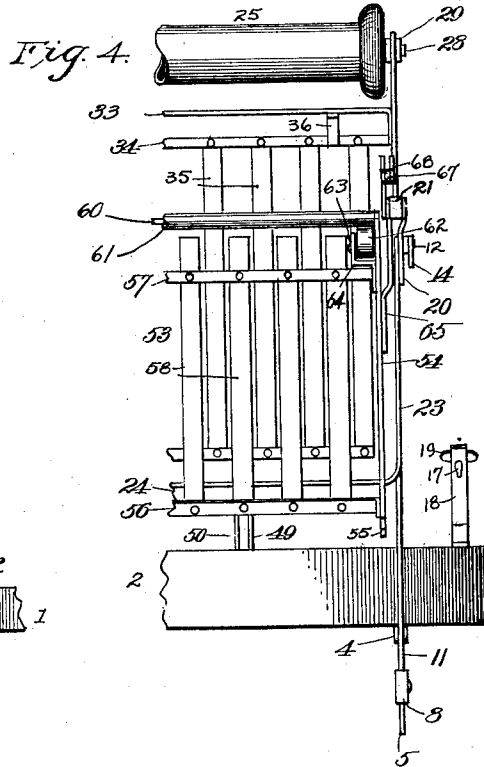
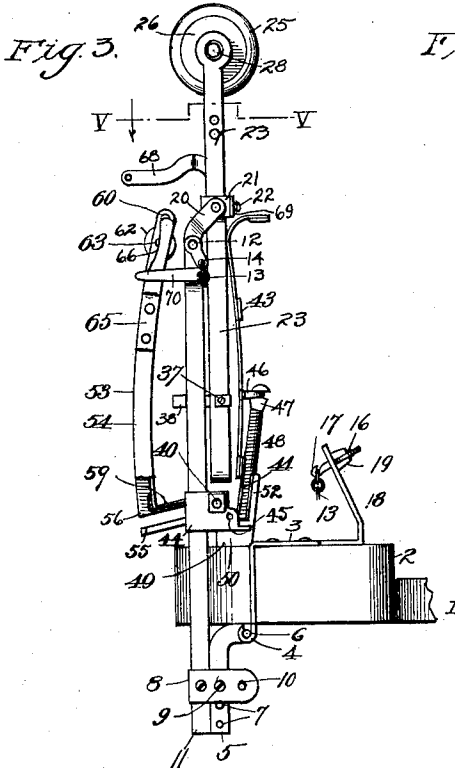
By George J. Thorpe
Att'y.

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2 SHEETS-SHEET 2.



Witnesses:

A. M. [Signature]
A. C. Rodgers.

Inventor:
E. H. Schulze.

By George [Signature]
att.

UNITED STATES PATENT OFFICE.

ERNIST H. SCHULZE, OF KANSAS CITY, MISSOURI.

STREET-CAR FENDER.

No. 829,675.

Specification of Letters Patent.

Patented Aug. 28, 1906.

Application filed January 27, 1906. Serial No. 298,195.

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 on which patent was issued to me December 5, 1905, No. 806,294, and my object is to generally improve the construction of fenders of such type.

A further object is to equip such fenders with a secondary or auxiliary fender designed to pick up any object by which the front end of the main fender is pushed upward and over which such end passes.

With these objects in view and others as hereinafter appear the invention consists in certain novel and peculiar features of construction and organization, 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 a fender embodying my invention arranged in operative relation to a car. Fig. 2 is a top plan view of the same with certain parts broken away to disclose more clearly the secondary or auxiliary fender below. Fig. 3 is a side view with the fender folded or occupying its inoperative position. Fig. 4 is a front view of the same. Fig. 5 is a horizontal section on the line V V of Fig. 3. Fig. 6 is an enlarged sectional perspective view showing the construction of the roller at the front end of the main fender and a modified construction of the fender-frame whereby said roller may be more readily detached from said frame.

In the said drawings, 1 indicates a platform of an electric or other car, and 2 the segmental bumper thereof.

3 indicates a pair of inverted-L-shaped brackets having their horizontal arms secured rigidly to the upper side of the bumper by preference and their vertical arms depending to about the plane of the lower side of the bumper and terminating in upwardly-disposed vertically-bifurcated hooks 4.

5 represents 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 pro-

vided with a longitudinal series of perforations 7.

8 represents U-shaped brackets through which arms 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 supporting angle-plates 5, so that there may be no pivotal movement of the latter independent of said bars, and 12 indicates 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 extensible and contractible connections consisting, preferably, of chains 13, links 14, connecting the front ends of the chains pivotally with the outer ends of cross-rod 12, and bolts 16, having their front ends terminating in hooks 17, engaging the rear ends of said chains. Bolts 16 extend through brackets 18, bolted upon the bumper, and are engaged by wing-nuts 19, bearing against the rear sides of said brackets to secure the bolts at the desired point of adjustment. The bolts may be locked against accidental turning movement by any suitable means—such, for instance, as shown in the patent aforesaid—and to hold the supporting-frame in its folded or inoperative position, as shown in Figs. 3 and 4, any suitable means may be provided, though I prefer to employ the means illustrated and described in said patent. A pair of brackets are formed, preferably, of sets of plates 20, secured in any suitable manner to the front ends of bars 11 of the supporting-frame, the front ends of said brackets embracing opposite sides of and forming a pivotal support for the sleeves 21, secured at the desired point of adjustment by said screws 22 on the side bars 23 of a U-shaped frame, said side bars being connected to a cross-bar 24 at their rear ends. In the preferred construction said frame is made of a single strip of metal and forms the frame of the main fender. The front ends of the fender-frame are connected by a transverse roller 25, which is preferably hollow and made of rubber or equivalent material. The preferred construction is to have the roller mounted at its ends on cylindrical blocks 26, of wood or metal, having axial passages 27,

one of which is threaded, and said blocks are secured on a rod 28, journaled at its ends in the forward ends of sides 23. As only sufficient adjustment is necessary to permit the tubular roller to be kept taut, it is obvious
 5 that the adjusting screw or rod 28 should be provided with collars or enlargements 29 at opposite sides of the corresponding side of the fender-frame, as shown in Fig. 6. To
 10 permit the roller to be more easily detached from the fender-frame when desirable or necessary, I contemplate providing said frame with forward extensions 30, which will form the journals for screws 28, said extensions being formed with sleeve portions 31 to fit over
 15 the front ends of the sides of the fender and provided with set-screws or their equivalents 32 to engage said sides, and thus secure the collar reliably in place. To stiffen the front
 20 end of the fender-frame, I preferably connect the side bars 23 thereof just rearward of the roller by the brace 33.

The bed of the fender may be of any suitable or preferred type, but preferably consists of cross-bars 34, connected by longitudinal
 25 slats 35.

36 indicates brackets connecting bars 34 with brace 33 and the cross-bar 24 of the fender-frame.

37 indicates hooks projecting downward from the side bars of the fender-frame rearward of its pivotal point, said hooks terminating in bevel or ratchet teeth, as at 38, in order that when the rear end of the fender
 35 swings downward said teeth may upon striking the side bars of the support be pushed aside thereby and after passing to a lower plane than said bars snap back under them, so as to lock the fender in a substantially
 40 horizontal position, which position it is supposed to occupy after catching a person and remain in such position until the hooks are sprung from engagement with the supporting-frame.

39 indicates a flexible but notextensible connection, such as a chain or cable, between the rear end of the fender-frame and the cross-rod 40, carried by the U-shaped brackets 41, secured on the supporting-frame,
 50 said connection being adapted to straighten out and arrest downward movement of the roller 25 just before the same can come in contact with the trackway. To hold the roller normally elevated several inches above
 55 the trackway with slack in said connection, I provide a retractile connection 42 between the rear end of the fender and said cross-rod 40.

43 indicates a resilient shield or guard, preferably of the type shown in my patent
 60 hereinbefore referred to, said shield or guard being interposed between the fender and the front end of the car and having downwardly-projecting arms 44, pivotally engaging cross-pins 45, carried by the brackets 41, the rear
 65 walls of said brackets serving to positively

limit the rearward pivotal movement of arms 44, further rearward movement of the shield or guard occurring because of its resiliency under the impact of the object against its face. 70

46 indicates a pair of loops secured to the rear end of said shield or guard 43, and engaging said loops are upwardly-disposed hooks 47 at the front end of a pair of stiff coil-springs 48, the opposite ends of said
 75 springs being clamped tightly between the forwardly-projecting arms 50 of clamp-brackets 49, said brackets having rearwardly-projecting arms 51, secured to the bumper, and upwardly-projecting arms 52 to prevent the
 80 springs bulging materially to the rear when the fender is in folded position. (See Fig. 3.) The function of these springs is not only to hold the shield or guard pressed forwardly, as shown in Fig. 1, with a yielding pressure,
 85 but likewise is to exert a continuous upward pull on said shield or guard when the latter occupies its operative position in order to assist the operator in raising the fender to its folded position. 90

The parts thus far described, except in particulars hereinafter pointed out in the claims, are substantially the same as in my patent hereinbefore referred to.

53 indicates a secondary or auxiliary fender, the same being constructed as follows:
 95 54 indicates a pair of side bars terminating at their rear ends in downwardly-disposed hooks 55, engaging cross-rod 40 and forming the pivotal support for the rear end of fender 53. 56 indicates a cross-bar connecting the rear end of side bars 54 at their junction with hooks 55, and 57 is a front cross-bar for said auxiliary fender, said cross-bar being connected by longitudinal slats 58,
 100 59 forming the bed of said auxiliary fender, said slats at their rear ends being provided with upwardly-projecting arms 59 to prevent a small person picked up by the auxiliary fender in the manner hereinafter described from rolling off the rear end of the same and falling in the path of the wheels of the car. The extreme front ends of sides 54 of the auxiliary fender are connected by a cross-rod 60, on which fits a rubber or equivalent roller 61, and said roller is frictionally engaged by the rollers 62, journaled on pins 63, connecting side bars 54 with the brackets 64, secured to the inner sides of said side bars just rearward of roll 61, the diameter of the rollers 62 being such that when the auxiliary fender drops they will come in contact with the trackway and by such engagement roll in the direction indicated by the arrow
 110 *a*, Fig. 1, and thereby turn roller 61 in the direction indicated by the arrow *b*, said figure, in order that said roller 61 shall have a tendency to lift the object upward and rearward upon the auxiliary fender. 65 indicates brackets secured to the outer side of 130

the auxiliary fender and provided with cavities 66 in the under side, the forwardly-projecting ends of said brackets when the fender is in operative position resting upon the anti-friction-rollers 67, journaled in the bifurcated lower end of the bracket 68, disposed inward of the side bars of the main fender-frame and terminating in outwardly-projecting arms 69, which rest on sleeves 21 and are secured thereto by the screws 22.

In practice the parts occupy the positions shown most clearly in Fig. 1, so that the fender on striking a person standing on or crossing the track shall be caught in a manner common to fenders of this class. Fenders of this type in general use are efficient and reliable except in the case of small children, who if standing are usually knocked down in front of the fender, because their centers of gravity are approximately the same as that of the roller 25. This roller in the continued advance of the car almost invariably passes over the child knocked down and the inevitable result follows.

With a fender equipped with my improvement the upward movement of the roller 25, induced by striking and riding over a person on the track, would instantly result in precipitating by gravity the front end of the auxiliary fender to the ground, because the upward movement of the main fender would draw rollers 67 from under brackets 65. In this position the person or object over which said roller 25 passed would obviously be scooped up by the auxiliary fender, the upwardly-projecting portions 59 at the rear end of the latter preventing such person or object from falling off in front of the wheels of the car. It will thus be seen that the upward movement of roller 25 acts to trip the auxiliary fender and permit the front end of the latter to drop to the trackway, as above stated, the rollers 62 through their engagement with the trackway and with roller 61 imparting movement to the latter in the manner hereinbefore explained.

To restore the auxiliary fender to its original position, the front end of the main fender is swung upward to withdraw brackets 68 from the path of the front end of the auxiliary fender. The latter is then lifted to the required height and the main fender is permitted to assume its original position and in so doing redispense rollers 67 in the cavities 66 of brackets 65 of the auxiliary fender. The action described is accomplished in a very few seconds.

When the main fender properly catches a person, his weight is imposed thereon rearward of the pivotal point of the fender, and consequently operates the fender until its hooks 37 engage side bars 11 of the supporting-frame and locks the fender in a substantially horizontal position. It is disposed in the same position when the fender is to be

folded to inoperative position. The operator then grasps the front end of the main fender and raises it with pins 6 as the axis of movement from the position shown in Fig. 1 to the position shown in Fig. 3 and secures it in such position by any suitable means. He at the same time or afterward grasps the auxiliary fender and swings it to the position shown in Fig. 3 with rod 40 as the axis of movement. The auxiliary fender is retained in position by the spring-hooks 70, projecting from the supporting-frame, said hooks being of the same character as hooks 37. The operation described is reversed in lowering the fender to operative position.

From the above description it will be apparent that I have produced a fender possessing the desirable features enumerated in the statement of invention and which obviously may be modified in minor particulars without departing from the principle of construction involved.

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 mounted on the supporting-frame, an auxiliary fender supported at its rear end, and a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender.

2. A street-car fender, comprising a supporting-frame, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end and detachably supported at its front end at a suitable height below the main fender, and means whereby upward movement of the front end of the main fender releases the front end of the auxiliary fender and permits the latter to drop at such end upon the trackway.

3. A street-car fender, comprising a supporting-frame, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end and provided with an upwardly-projecting portion at its rear end, and a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender.

4. A street-car fender, comprising a supporting-frame, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end and detachably supported at its front end at a suitable height below the main fender, and also provided with an upwardly-projecting portion at its rear end, and means whereby upward movement of the front end of the main fender releases the front end of the auxiliary fender and permits the latter to drop at such end upon the trackway.

5. A street-car fender, comprising a supporting-frame, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end, a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender, and a guard suitably pivoted in rear of the main fender.

6. A street-car fender, comprising a supporting-frame, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end, a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender, and a yieldable guard independently supported by the supporting-frame in rear of the main fender.

7. A street-car fender, comprising a supporting-frame, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end and provided with an upward projecting portion at its rear end, a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender, and a guard suitably pivoted in rear of the main fender.

8. The combination with a car, of a supporting-frame pivotally carried by the car, means connecting the car with the forward portion of the frame to support said portion at the desired elevation, a fender pivotally mounted on said supporting-frame, an auxiliary fender supported at its rear end, and a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender.

9. The combination with a car, of a supporting-frame pivotally carried by the car, means connecting the car with the forward portion of the frame to support said portion at the desired elevation, a fender pivotally mounted on said supporting-frame, an auxiliary fender supported at its rear end, a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender, and a guard suitably pivoted in rear of the main fender.

10. The combination with a car of a supporting-frame pivotally carried by the car, means connecting the car with the forward portion of the frame to support said portion at the desired elevation, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end and provided at such end with an upwardly-projecting portion, a connection between the front

end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender, and a guard suitably pivoted in rear of the main fender.

11. The combination with a car of a supporting-frame pivotally carried by the car, flexible means connecting the car with the forward portion of the frame to support said portion at the desired elevation, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end, and a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender.

12. The combination with a car, of a supporting-frame pivotally carried by the car, flexible means connecting the car with the forward portion of the frame to support said portion at the desired elevation, means for varying the length of said connection, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end, and a connection between the front end of the auxiliary fender and the main fender whereby upward movement of the front end of the latter shall release the front end of the auxiliary fender.

13. A street-car fender, comprising a supporting-frame, a main fender pivotally mounted thereon, an auxiliary fender pivoted to said supporting-frame rearward of the pivotal point of the main fender, brackets depending from the main fender, and devices carried by said brackets and underlying parts of the auxiliary fender and adapted to swing from under the latter when the front end of the main fender rises.

14. In a street-car fender, a supporting-frame having hooks, and an auxiliary fender pivotally mounted on said supporting-frame and adapted to be engaged by said hooks and held reliably in a certain relation to the supporting-frame.

15. The combination with a car of a supporting-frame pivotally supported by and projecting forwardly from the car, means for supporting the front end of said frame at the desired elevation, and an auxiliary fender pivotally mounted on the supporting-frame, and means carried by the supporting-frame for detachably holding the front end of the auxiliary fender in a certain position with relation to the supporting-frame.

16. A street-car fender, comprising a supporting-frame, a main fender pivotally mounted therein, an auxiliary fender pivotally mounted on the supporting-frame rearward of the pivotal point of the main fender, means movable with the main fender for normally supporting the front end of the auxiliary fender above the trackway, and one or more rollers mounted on the front end of the

auxiliary fender and adapted to track upon the trackway when the auxiliary fender is released by the main fender and drops to the ground.

5 17. A street-car fender, comprising a supporting-frame, a main fender pivotally mounted thereon, an auxiliary fender pivotally mounted on the supporting-frame rearward of the pivotal point of the main fender, means movable with the main fender for normally supporting the front end of the auxiliary fender above the trackway, one or more rollers mounted on the front end of the auxiliary fender and adapted to track upon the trackway when the auxiliary fender is released by the main fender and drops to the ground, and a transverse roller mounted at the front end of the auxiliary fender and frictionally engaging said roller or rollers.

20 18. In a street-car fender, a supporting-

frame, a fender pivotally mounted on the supporting-frame, an auxiliary fender supported at its rear end, a transverse roller at the front end of the auxiliary fender, rollers journaled on the auxiliary fender near each end of and frictionally engaged with the first-named roller and depending below the same, and a connection between the auxiliary and main fenders whereby upward movement of the front end of the latter shall release the auxiliary fender and permit the latter to drop until its last-named rollers engage the trackway.

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

ERNIST H. SCHULZE.

Witnesses:

JAMES H. ROBINSON,
G. Y. THORPE.