

No. 772,965.

PATENTED OCT. 25, 1904.

E. H. SCHULZE.
STREET CAR FENDER.
APPLICATION FILED JUNE 8, 1904.

NO MODEL.

3 SHEETS—SHEET 1.

Fig. 1

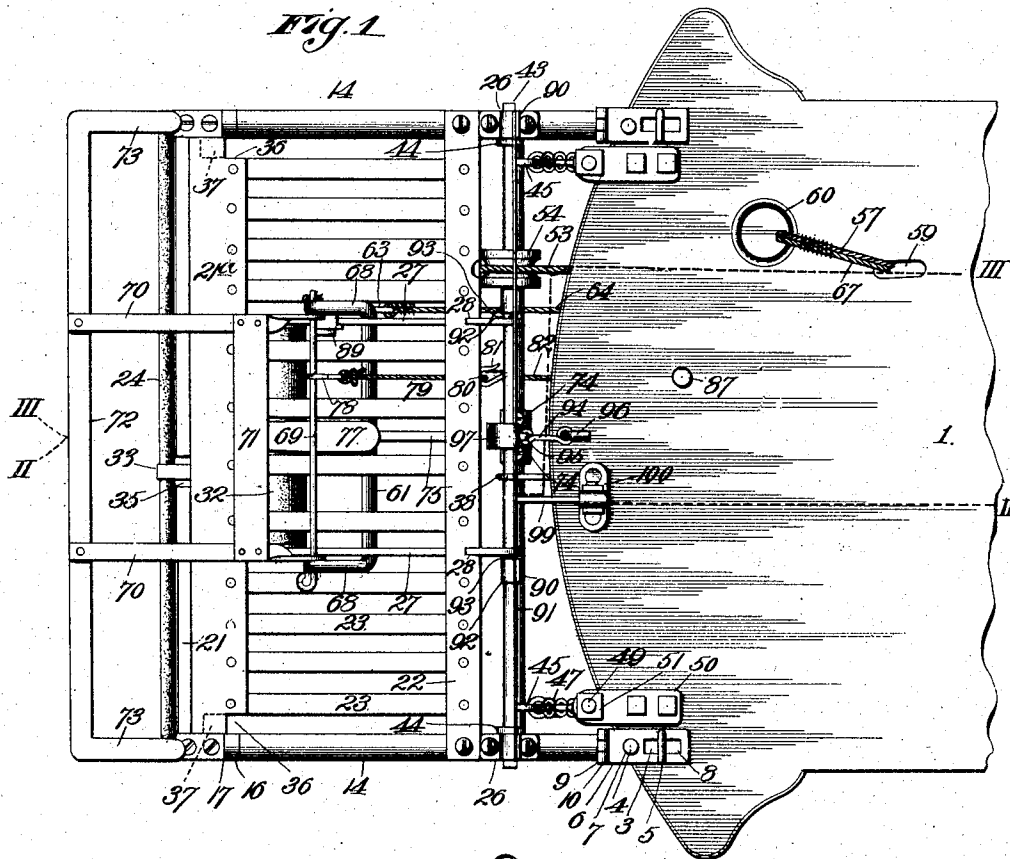
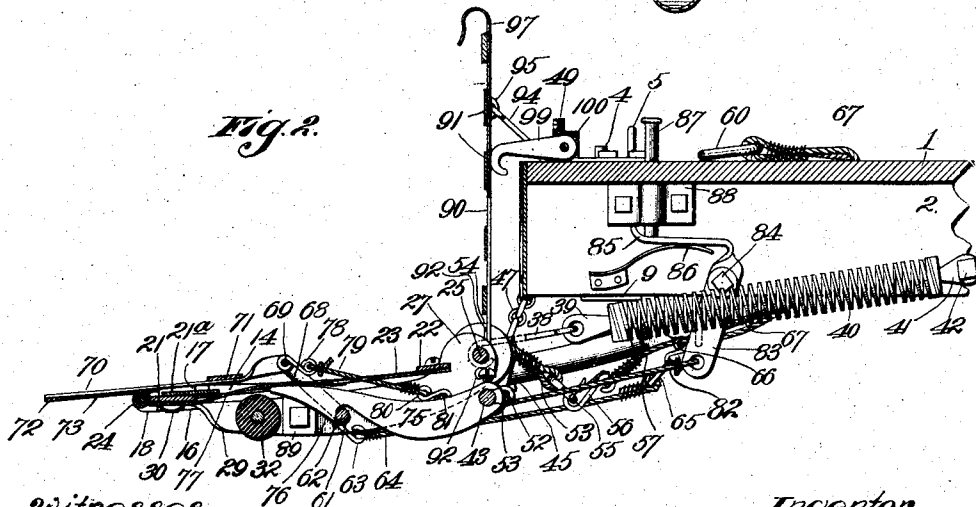


Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

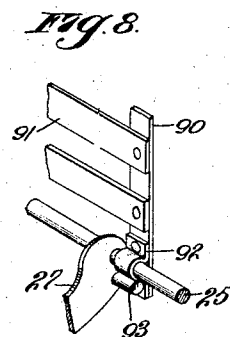
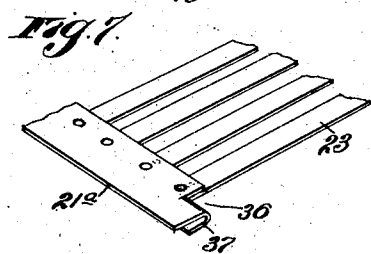
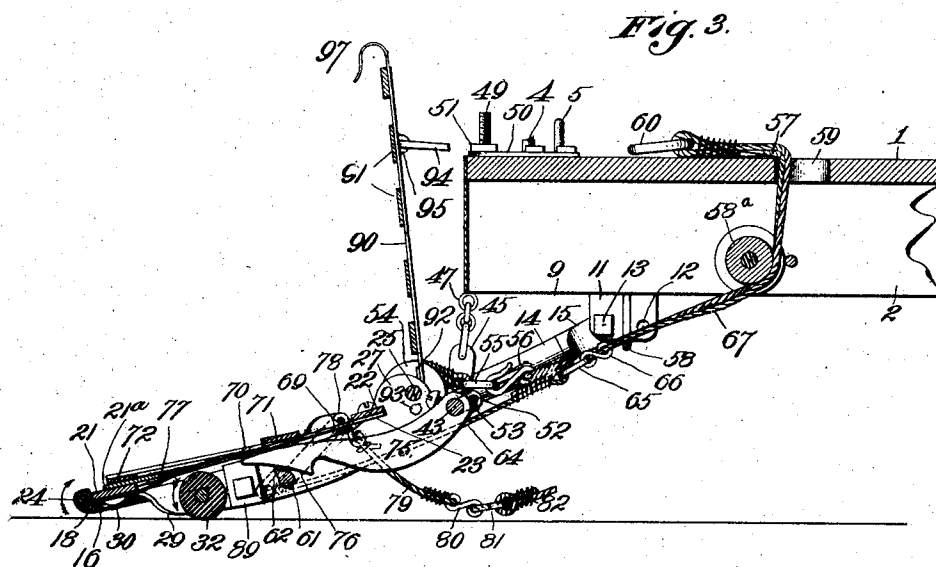
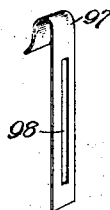


Fig. 9.

Fig. 10.



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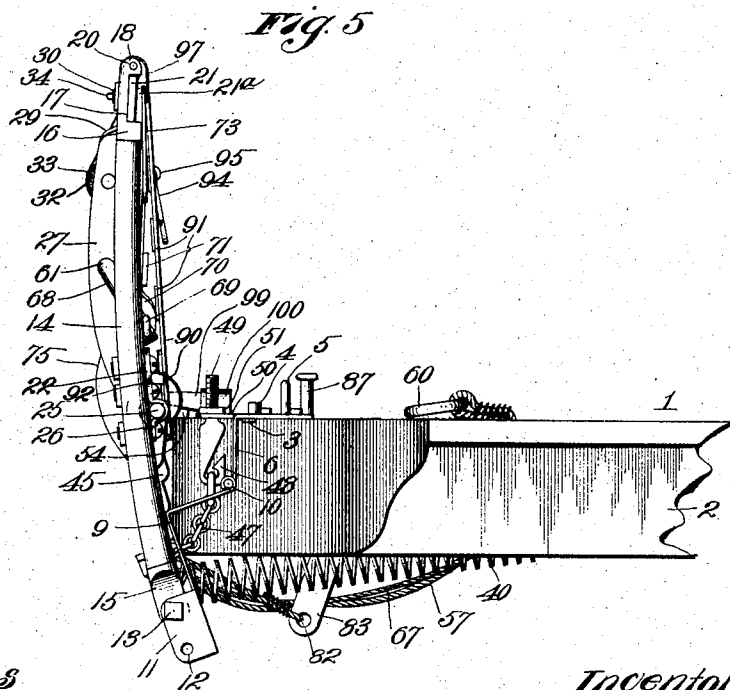
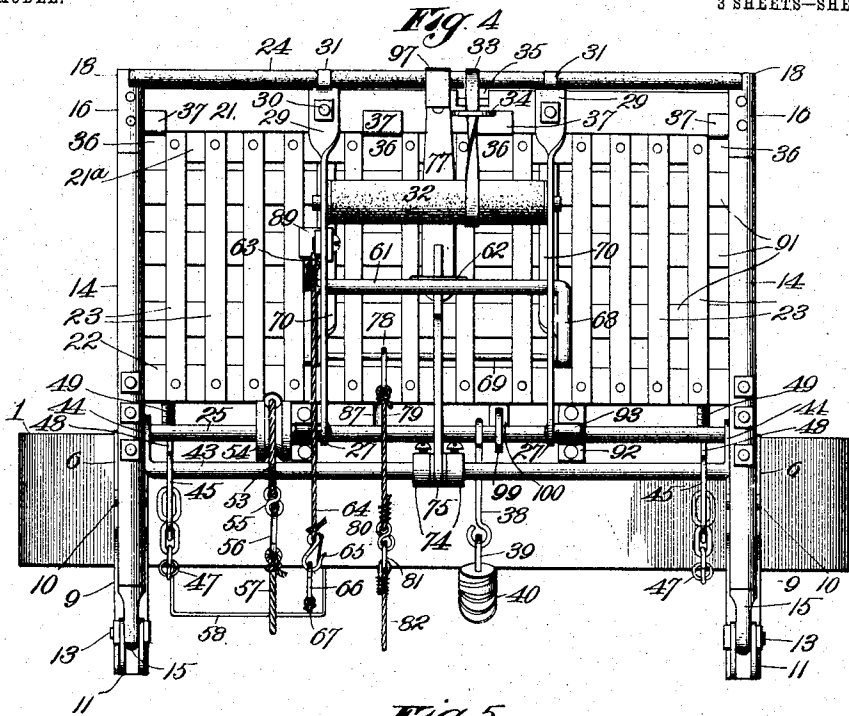
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NO MODEL.

3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ERNEST H. SCHULZE, OF KANSAS CITY, MISSOURI.

STREET-CAR FENDER.

SPECIFICATION forming part of Letters Patent No. 772,965, dated October 25, 1904.

Application filed June 8, 1904. Serial No. 211,681. (No model.)

To all whom it may concern:

Be it known that I, ERNEST 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.

My invention relates to street-car fenders of that type which are adapted to be set to pick up an object from the trackway automatically or by the motorman of the car; and my objects are to produce a fender of the character specified which, first, will operate efficiently and reliably; second, will effect the rescue without materially injuring the person or object; third, can be folded to inoperative position, if desired, at the rear end of the car to permit such car to be coupled to another; fourth, can be attached to or detached from the car in from two to five minutes, and, fifth, is of simple, strong, durable, compact, and comparatively inexpensive construction.

With these objects in view 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 top plan view of a street-car equipped with a fender embodying my invention, said fender being disposed in normal position, and therefore ready to be "set" automatically on striking an object or through the action of the motorman. Fig. 2 is a vertical section taken on the line II II of Fig. 1. Fig. 3 is a section on the line III III of Fig. 1, but with the fender set and ready to pick up an object from the track. Fig. 4 is a front view of the car with the fender folded to inoperative position. Fig. 5 is a side view of the same. Fig. 6 is a sectional perspective view of one of the side bars of the pick-up frame. Fig. 7 is a detail perspective view of part of the trip-frame platform. Fig. 8 is a detail perspective view of part of the trip-frame and guard. Figs. 9 and 10 are detail perspective views of parts hereinafter described.

Referring to the drawings in detail, wherein

like reference characters refer to corresponding parts throughout the several views, 1 designates a platform of an electric or other street-car, and 2 longitudinal stringers underlying the same.

3 designates a pair of plates secured permanently in the upper side of the end or bumper portion of the platform and each provided with an upwardly-projecting pin 4 and an upwardly-projecting turn-button 5.

6 designates a pair of angle-plates so disposed that their upper arms shall rest horizontally on plates 3 and provided with holes 7, engaging pins 4 and longitudinal slots 8, through which the turn-buttons project, said buttons being turned longitudinally when the angle-plates are fitted in position and then turned to extend transversely of said slots to prevent the accidental dislocation of the angle-plates.

9 designates a pair of angle-plates inverted with respect to the first-named angle-plates, so that their horizontal arms shall project rearwardly under the bumper, and said angle-plates have their vertical arms hinged together, as at 10, the horizontal arms terminating in parallel ears 11, provided with one or more apertures 12, pivot-bolt 13 extending through one of said apertures 12 of each angle-plate 9.

14 designates side bars, which are preferably cylindrical in form and tubular, and screwed in the rear ends of said side bars are pins 15, flattened vertically at their rear ends and pivotally mounted on bolts 13 between ears 11.

16 designates pins screwed in the front ends of side bars 14 and provided in their upper sides with recesses 17 and terminating forward of said recesses in lugs 18, the recessed portion having one or more vertical threaded holes 19 and each lug 18 a transverse hole 20.

21 designates a flat cross-bar having its ends fitted and screw-bolted in recesses 17, the screw-bolts engaging the holes 19, and 21^a a bar overlying bar 21. 22 designates a cross-bar connecting the side bars rearward of bar 21^a, and 23 a series of longitudinal plates riveted at their opposite ends to the under sides

of bars 21^a and 22, said side bars, bars 21, 21^a, 22, and 23 constituting, in conjunction with the rubber-covered roller 24, having its ends journaled in holes 20, what I term the "pick-up frame" of the fender.

25 is a cross-bar secured to side bars 14 by caps 26 just rearward of bar 22, and 27 represents longitudinal bars mounted at their rear ends on bar 25 and extending forwardly and below the pick-up frame, lateral movement of the rear ends of said bars being prevented by running them through notches 28 in the rear edge of bar 22, as shown clearly in Fig. 1. Said bars 27 are twisted, as at 29, so that their front ends may fit flatly against and be bolted, as at 30, to the under side of bar 21, and said bars terminate in loops 31, which encircle the roller 24 and form auxiliary bearings to prevent said roller being bent by striking and rolling under a heavy object on the trackway. To sustain largely the weight of the fender and of any object carried upon the same, so as to maintain the roller 24 slightly above the trackway when the fender is in operative position, I provide a roller 32, connecting and journaled at its ends in bars 27, and said roller is connected by the cross-belt 33 with roller 24, so that when roller 33 is turned in the direction indicated by the arrow, Fig. 3, through its contact with the trackway roller 24 shall be revolved more rapidly in the opposite direction, as also indicated in said Fig. 3 by the contiguous arrow, this opposite rotation of roller 24 tending to move and slide the object engaged rearward upon the fender, as will be readily understood. The cross-belt is kept out of contact with the trackway as far as practicable by the guide-loop 34, depending from bar 21, said guide-loop being shown most clearly in Fig. 4, and in this connection it will be noticed that to provide for the proper operation of the cross-belt and yet have the roller 24 almost in contact with the front edge of bar 21 the latter is recessed, as at 35, in its front edge for the passage of said belt. It will also be noticed that bar 21^a is maintained reliably upon bar 21 by slitting the rear edge of the former to form tongues and then bending said tongues forward under bar 21 so as to constitute hooks 37, interlocked with bar 21. By this arrangement it will be apparent that the disengagement of bar 22 from bars 14 permits the platform portion of the pick-up frame to be instantly removed, which of course is of decided advantage should repairs thereon or on any part covered by the same be necessary.

38 is a hook engaging cross-bar 25 and attached for pivotal operation in a vertical plane to a plate 39, carried at the front end of the retractile spring 40, a similar plug 41 at the rear end of the spring being pivoted to a bolt 42, secured to one of the sills 2 of the car, said spring serving to hold the fender

yieldingly in the position shown in Figs. 1 to 3, inclusive—that is, with the angle-plates 9 thrown back against the bumper.

A U-shaped swing-frame comprises a cross-rod 43 and parallel and preferably flattened arms 44, the latter being pivoted on cross-bar 25. 45 designates a pair of links provided with keyhole-slots 46, pivotally mounted at their widest ends on rod 43, said links having the keyhole-slots in order to permit the links to be slipped onto the rod over the flattened arms of the latter in an obvious manner, though, of course, this special formation of the links is unimportant. The links are pivotally connected by chains 47 to the vertical hooks 48, said hooks having threaded stems 49, extending up through plates 50, bolted to and projecting forwardly beyond the bumper into the platform-nuts 51, engaging said threaded stems of the hooks and resting on said plates, so as to sustain the fender a suitable distance above the trackway when the trip-frame, hereinafter referred to, is advanced.

Projecting rigidly from the swing-frame and rearwardly when the latter is in the position just described is a crank 52, and attached to said crank is a cable 53, which extends forwardly under the U-frame, thence upwardly over a pulley 54, journaled on cross-bar 25, and rearwardly therefrom, terminating in a loop 55, engaging a snap-hook 56, carried at the front end of a cable 57, extending rearwardly through a stationary guide-frame 58 pendent from the car-frame, said cable 57 also extending around a guide-pulley 58^a, suitably supported from the car-frame, thence upwardly through opening 59 in the platform to a hand-ring 60 incapable of passing through said opening 59.

61 designates a transverse crank-shaft journaled in bars 27 and provided centrally with a cam or enlargement 62 and at one end by preference with a depending crank 63, connected to the front end of a cable 64, equipped at its rear end with a snap-hook 65, engaging a hook 66 at the free end of cable 67, which cable, like cable 57, extends around guide-pulley 58^a and up through the platform-opening 59 and is attached at its upper end to said ring 60. Said crank-shaft has its cranks 68 normally projecting upward and forward through the skeleton platform of the pick-up frame and carry at their upper ends a cross-rod 69, upon which is pivotally mounted for operation in a vertical plane a trip-frame, the same comprising longitudinal bars 70, connected near their rear ends by the cross-bar 71 and at their front ends by the cross-bar 72, projecting laterally the full width of the pick-up frame and terminating in rearwardly-projecting arms 73, which overlap said pick-up frame.

74 designates a pair of collars secured on the cross-bar of the U-frame and flanking the

forwardly-projecting catch or hook 75, pivoted on said cross-bar, said hook normally fitting over the crank-shaft 61 and upon the cam 62 thereof and forward of said shaft.

5 The lower side of the hook is beveled upwardly, as at 76, in order to act as a guide in effecting the engagement of the catch or hook with said crank-shaft, as hereinafter explained, and pressing downward upon the upper side of said catch or hook, so as to guard against the same jolting from engagement with said crank-shaft, is a spring 77, riveted or otherwise secured at its front end to the under side of cross-bar 21.

15 78 designates a link pivoted to cross-rod 69, and 79 a cable attached to said link at its front end and at its rear end to a similar link 80, engaging a snap-hook 81, carried at the front end of a cable 82, underlying the swing-frame and attached at its rear end to the lower end of a lever 83, pivoted, as at 84, to the car-frame and provided with a forwardly-projecting arm 85, pressed upwardly by the spring 86, secured to the car-frame against the lower end of a depressible foot-rod 87, projecting up through the platform, said rod being mounted in a suitable guide 88, attached to the car-frame, as shown clearly in Fig. 2.

89 is an angle-plate bolted to one of the bars 27 and projecting outwardly from and above the same below the juxtaposed crank 68 of shaft 61, so as to limit the forward rotation of said shaft and prevent the trip-frame being projected too far beyond the pick-up frame.

35 A guard to prevent the person or other object picked up by the fender from being injured by striking against the bumper of the car consists, preferably, of a series of upright bars 90, connected by a series of transverse bars 91, two of the bars 90 by preference being pivoted by caps 92 on cross-bar 25, and said guard is prevented from swinging back beyond a vertical plane by stop-lugs 93, projecting outwardly from bars 27 in the path of the lower portions of said caps 92, as shown most clearly in Fig. 3, and the guard is prevented from falling forward upon the pick-up frame by means of the hook 94, pivoted for movement in a vertical plane to a rearwardly-projecting lug 95 of the guard and engaging a rearwardly-disposed hook 96 of the bumper.

97 designates a hook provided with a slot 98, fitting upon lug 95 and held thereon by the hook 94 and adapted for a purpose hereinafter explained, and 99 designates a forwardly-projecting hook pivoted for movement in a vertical plane to the bracket 100 of the bumper for a purpose which is also hereinafter explained.

60 During the ordinary travel of the car equipped with this fender the latter occupies the position shown clearly in Fig. 2. Should the motorman consider it advisable to drop

the fender because of imminent danger to a person on the track, he depresses foot-rod 87 with his foot, which action overcomes the resistance of spring 86 and operates lever 83, the result being cable 82 rotates crank-shaft 62 backward, so as to simultaneously draw the trip-frame in the same direction and trip the catch or hook 75 against the resistance of spring 77, through the medium of cam 62, from engagement with said shaft. At the instant this takes place the pick-up frame and parts carried thereby drop to the trackway, as shown in Fig. 3, the trip-frame by this time being withdrawn to substantially the position shown in said figure. The instant roller 32 strikes the trackway it revolves and through the medium of the belt rotates roller 24, as hereinbefore described, which roller by such rotation will tend to lift even a very small object and deposit it upon the platform of the pick-up frame. If the car is moving swiftly, the person or object picked up may strike with more or less force against the guard and will be protected thereby from injury, such as would perhaps follow a forcible contact with the bumper. Should the motorman fail to depress rod 87 and a person be struck by the trip-frame, the latter under the impact will instantly be forced backward and through its connection with rod 69 operate the crank-shaft and trip the catch or hook 75 from engagement with said shaft, which action is instantly followed by the dropping of the pick-up frame, this result being followed by the automatic rescue of the person on the trackway. In both cases the downward movement of the cross-bar 25 causes the swing-frame to swing rearwardly until its cross-bar 43 occupies the position shown in Fig. 3 with relation to cross-bar 25. This downward movement of the cross-bar and rearward movement of said frame results in a forward pull upon the cable 53, which obviously shortens the distance between the hand-ring 60 and platform-opening 59. After the rescued person has been removed from the fender the latter is restored to its original position by the motorman grasping ring 60 and pulling upward thereon, this action through the leverage obtained by pulling from the top of pulley 54 resulting in raising the latter, and consequently the pick-up frame, and at the same time through the medium of cable 67 rotates the crank-shaft forwardly and readvances the trip-frame. Incidentally the action of cable 53 results in swinging the swing-frame downwardly and forwardly under the cross-bar of the pick-up frame, so as to force the catch or hook 75 forwardly until it is positively re-engaged by gravity and by spring 77 with the crank-shaft, and therefore locks the fender elevated.

Should it be desired to couple the fender-equipped end of a car with the rear end of a

preceding car, the motorman or conductor by preference first slides the trip-frame rearward and then disconnects hook 94 from hook 96 and folds the guard down upon the platform of the pick-up frame and at the same time slides hook 97 forwardly, so as to clear roller 24, and then reverses such sliding movement to cause the hook to engage the roller and lock the guard in the position described. He then pulls forward upon the fender, so as to stretch spring 40 until the rear end of link 38 occupies the vertical plane of the face of the bumper, this action being permitted because angle-plates 9 yield forwardly at hinge-points 10. The operator while holding the parts in the position just referred to swings the fender vertically upward until the cross-bar 25 is automatically engaged by the pivoted hook 99, which hook serves to lock the fender in its folded position, as shown clearly in Figs. 4 and 5. In this position it is completely removed from the path of the ordinary coupler (not shown) in order that such coupler may be engaged with the coupler of the car in advance in the usual or any preferred manner.

To accommodate cars of varying heights or to support the fender at varying distances from the trackway, it is only necessary to manipulate the nuts 51 in the proper direction to raise or lower the hooks 48, as will be readily understood.

To avoid the expense incidental to equipping cars with fenders at each end and also to facilitate the transference of the fender from one end of the car to the other, each platform will be provided with plates 3 and 50, a foot-rod 87, hooks 96 and 99, spring-actuated lever 83, a guide-frame 58, and a guide-pulley 58^a, and to remove the fender from one end and secure it to the other it is only necessary to remove nuts 51, uncouple the snap-hooks 56 and 65 from links 55 and 66, and then turn the turn-buttons 5 to register with slots 8. The fender can then be removed from position and placed upon the opposite end of the car, being resecured in position by the engagement of the slotted bracket with pins 4 and turn-buttons 5 of the bolts 3 at such end. The operator also by grasping hand-ring 60 draws the cables 57 and 67 up through the hole 59 and slips said cables down through the corresponding slot in the other platform and couples the snap-hook 56 to link 55 and link 66 to snap-hook 65. The spring 40 is then removed from its original position and similarly secured under the platform to which the fender is now attached, and then hook 38 is engaged with the cross-bar 25. The fender can now be set in the position shown in Figs. 1 and 2.

From the above description it will be apparent that I have produced a car-fender possessing the features of advantage enumerated as desirable in the statement of the invention

and which is obviously susceptible of modification as regards the form, proportion, detail construction, and arrangement of the parts without departing from the principle of construction involved or sacrificing any of its advantages.

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

1. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably supported and connected to the car, a catch carried by the swing-frame, means carried by the pick-up frame for engagement by the catch, and means to trip said catch from engagement with said means.

2. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably supported and connected to the car, a catch carried by the swing-frame, means carried by the pick-up frame for engagement by the catch, a movable device carried by the car, and a connection between the same and the means to effect the disengagement of the latter from the catch.

3. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably supported and connected to the car, a catch carried by the swing-frame, means carried by the pick-up frame for engagement by the catch, and a movable trip-frame to effect the disengagement of said means from the catch.

4. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably supported and connected to the car, a catch carried by the swing-frame, means carried by the pick-up frame for engagement by the catch, a lever mounted on the car, and a flexible connection between said lever and said means.

5. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably supported and connected to the car, a catch carried by the swing-frame, means carried by the pick-up frame for engagement by the catch, a lever mounted on the car, a flexible connection between said lever and said means, and a yieldingly-elevated foot-rod for operating said lever to effect the disengagement of said means from the catch.

6. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably supported and connected to the car, a catch carried by the swing-frame, means carried by the pick-up frame for engagement by the catch, means to trip said catch from engagement with said means, and a roller carried by and below the pick-up frame for contact with the trackway.

7. In a device of the character described, the combination with a car, of a pivoted pick-up

frame, a swing-frame suitably supported and connected to the car, a catch carried by the swing-frame, means carried by the pick-up frame for engagement by the catch, means to trip said catch from engagement with said means, a roller carried by and below the pick-up frame for contact with the trackway, and a roller at the front end of the pick-up frame and means whereby rotation of the first-named roller by contact with the trackway shall rotate the other roller in the opposite direction.

8. In a device of the character described, the combination with a car of a pivoted pick-up frame, a swing-frame suitably supported and connected to the car, a catch carried by the swing-frame, means carried by the pick-up frame for engagement by the catch, means to trip said catch from engagement with said means, a roller carried by and below the pick-up frame for contact with the trackway, a roller at the front end of the pick-up frame, and means whereby rotation of the first-named roller by contact with the trackway shall rotate the other roller in the opposite direction, and a cross-belt connection between said rollers.

9. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably pivoted and connected to the car, a catch pivoted to the swing-frame for movement in the vertical plane, a shaft journaled in the pick-up frame and engaged by the catch and provided with a cam portion, and means to rotate said shaft and cause the cam to trip the catch from the shaft.

10. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably pivoted and connected to the car, a catch pivoted to the swing-frame for movement in a vertical plane, a shaft journaled in the pick-up frame and engaged by the catch and provided with a cam portion and with an upwardly-projecting crank, a lever, a flexible connection between said lever and the crank portion of the shaft, and means to operate said lever and swing said crank rearwardly to cause the cam to trip the catch from engagement with the shaft.

11. In a device of the character described, the combination with a car, of a pivoted pick-up frame, a swing-frame suitably pivoted and connected to the car, a catch pivoted to the swing-frame for movement in a vertical plane, a shaft journaled in the pick-up frame and engaged by the catch and provided with a cam portion and with an upwardly-projecting crank, a lever, a flexible connection between said lever and the crank portion of the shaft, means to operate said lever and swing said crank rearwardly to cause the cam to trip the catch from engagement with the shaft, and a slide-frame resting on and projecting beyond the front end of the pick-up frame and pivotally connected at its rear end to said crank.

12. In a device of the character described, the combination with a car of a pick-up frame, swing-plates pivotally carrying the pick-up frame at their lower ends, and means for holding the pick-up frame pressed yieldingly rearward.

13. In a device of the character described, the combination with a car of a pick-up frame, swing-plates pivotally carrying the pick-up frame at their lower ends, means for holding the pick-up frame pressed yieldingly rearward, and flexible connections suspended from the car and supporting the front end of the pick-up frame a suitable distance above the trackway.

14. In a device of the character described, the combination with a car, of a pick-up frame supported for movement toward and from the car and also for pivotal movement in a vertical plane, a swing-frame pivoted on the pick-up frame, a catch carried by the swing-frame, means carried by the pick-up frame and engaged by said catch, to lock the pick-up frame elevated, and a flexible connection between the car and said swing-frame.

15. In a device of the character described, the combination with a car, of a pick-up frame supported for movement toward and from the car and also for pivotal movement in a vertical plane, a swing-frame pivoted on the pick-up frame, a catch carried by the swing-frame, means carried by the pick-up frame and engaged by said catch to lock the pick-up frame elevated, a flexible connection between the car and said swing-frame, and means for tripping the catch from engagement with the first-named means to permit the pick-up frame to swing downward at its front end.

16. In a device of the character described, the combination with a car, of a pick-up frame supported for movement toward and from the car and also for pivotal movement in a vertical plane, a swing-frame pivoted on the pick-up frame, a catch carried by the swing-frame, means carried by the pick-up frame and engaged by said catch to lock the pick-up frame elevated, a flexible connection between the car and said swing-frame, means for tripping the catch from engagement with the first-named means to permit the pick-up frame to swing downward at its front end, and means to reelevate the pick-up frame.

17. In a device of the character described, the combination with a car, of a pick-up frame supported for movement toward and from the car and also for pivotal movement in a vertical plane, a swing-frame pivoted on the pick-up frame, a catch carried by the swing-frame, means carried by the pick-up frame and engaged by said catch to lock the pick-up frame elevated, a flexible connection between the car and said swing-frame, means for tripping the catch from engagement with the first-named means to permit the pick-up frame to swing

downward at its front end, and means to operate the swing-frame and thereby reelevate the pick-up frame and cause the reengagement of the catch and the first-named means.

- 5 18. In a device of the character described, the combination with a car, of a pick-up frame supported for movement toward and from the car and also for pivotal movement in a vertical plane, a swing-frame pivoted on the pick-up frame, a catch carried by the swing-frame, means carried by the pick-up frame and engaged by said catch to lock the pick-up frame elevated, a flexible connection between the car and said swing-frame, means for tripping the catch from engagement with the first-named means to permit the pick-up frame to swing downward at its front end, a crank projecting from the swing-frame, a pulley journaled on the pick-up frame, and a cable engaging said pulley and attached to said arm for swinging the swing-frame back to its original position, and thereby reelevating the pick-up frame and locking it in such position.

19. In a device of the character described, 25 the combination with a car, of a pick-up frame supported for movement toward and from the car and also for pivotal movement in a vertical plane, a swing-frame pivoted on the pick-up frame, a catch carried by the swing-frame, means carried by the pick-up frame and engaged by said catch to lock the pick-up frame elevated, a flexible connection between the car and said swing-frame, a trip-frame connected to said means for moving rearward to disengage the catch therefrom to permit the pick-up frame to swing downward at its front end, a handle, and suitably-guided flexible connections between the handle and the swing-frame and the first-named means 40 for simultaneously reelevating the pick-up frame, readvancing the trip-frame and effecting the reengagement of the catch and said first-named means.

20. In a device of the character described, 45 the combination with a car, of a pivoted pick-up frame, an upright guard pivoted on the pick-up frame, lugs projecting from the pick-up frame in the path of said guard to prevent the latter swinging rearward toward the car, and a hook pivotally carried by the guard and detachably connected to the car to prevent the guard swinging forwardly.

21. In a device of the character described, the combination with a car, of a pick-up frame 55 pivotally supported from the car so as to be foldable upward against the front end of the same, and provided with a cross-bar, a hook for engagement with the cross-bar to secure the pick-up frame in its folded position, a guard pivoted to the pick-up frame and adapted to be folded against the latter, and an adjustable hook carried by the guard and adapted to engage the front end of the pick-up frame to hold said parts flatly together.

22. In a device of the character described, 65 the combination with a car, angle-plates secured thereto, angle-plates hinged to the first-named angle-plates, a pick-up frame pivoted at its rear ends to said last-named angle-plates, means for holding the pick-up frame yieldingly retracted, means for holding its front end elevated a suitable distance, and means for tripping said holding means and permitting the front portion of the pick-up frame to drop to the trackway.

23. In a device of the character described, the combination with a car, angle-plates secured thereto, angle-plates hinged to the first-named angle-plates, a pick-up frame pivoted at its rear end to said last-named angle-plates, means for holding the pick-up frame yieldingly retracted, means for holding its front end elevated a suitable distance, means for tripping said holding means and permitting the front portion of the pick-up frame 85 to drop to the trackway, and a guard pivoted to the pick-up frame and supported forward of the car.

24. In a device of the character described, the combination with a car provided with 90 plates having upwardly-projecting pins and turn-buttons, plates having openings to be engaged by said pins and slots for engagement by the turn-buttons, plates pivotally suspended from the last-named plates, a pick-up frame 95 pivoted at its rear ends to the pivotally-suspended plates, means for holding its front end elevated a suitable distance and means for tripping said holding means and permitting the front portion of the pick-up frame to drop 100 to the trackway.

25. In a device of the character described, the combination with a car provided with plates having upwardly-projecting pins and turn-buttons, plates having openings to be 105 engaged by said pins and slots for engagement by the turn-buttons, plates pivotally suspended from the last-named plates, a pick-up frame pivoted at its rear ends to the pivotally-suspended plates, means for holding 110 its front end elevated a suitable distance, means for tripping said holding means and permitting the front portion of the pick-up frame to drop to the trackway, and means for reelevating the front end of the pick-up frame 115 and for securing it in its elevated position.

26. In a device of the character described, the combination with a car, plates projecting forwardly from the same, hooks having threaded stems extending up through said plates, 120 nuts engaging said threaded stems above the plates, a pick-up frame suitably pivoted, a swing-frame comprising a cross-bar having parallel arms pivoted on the pick-up frame, links pivotally connected to said cross-bar, 125 chains connecting said links and said hooks, a rock-shaft journaled in the pick-up frame and provided with a cam portion, a catch pivoted

at its rear end to the cross-bar of the swing-
frame and engaging said rock-shaft, means
to operate said rock-shaft to cause its cam to
trip the catch and permit the pick-up frame
5 to drop at its front end and swing the arms of
the swing-frame downward and its body por-
tion rearward, and means for simultaneously
elevating the pick-up frame and reversing the
swinging action of the swing-frame and rock-

shaft to effect the reengagement of the latter 10
and the catch.

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

ERNEST H. SCHULZE.

Witnesses:

ED. BRUGGER,
G. Y. THORPE.