

(No Model.)

A. J. HOLLINGSWORTH & J. A. WEAVER.
FENDER FOR STREET RAILWAY CARS.

No. 525,902.

Patented Sept. 11, 1894.

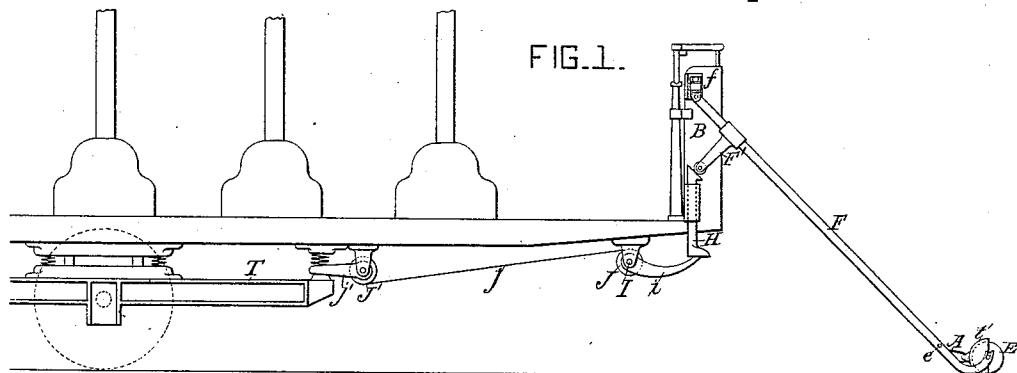


FIG. 2.

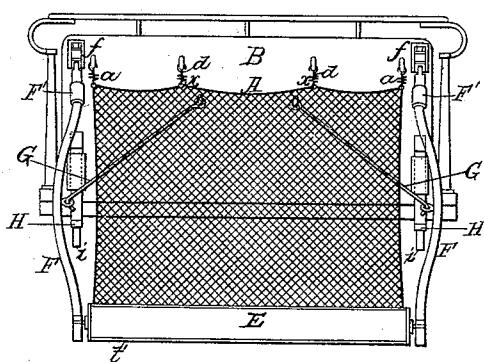


FIG. 3.

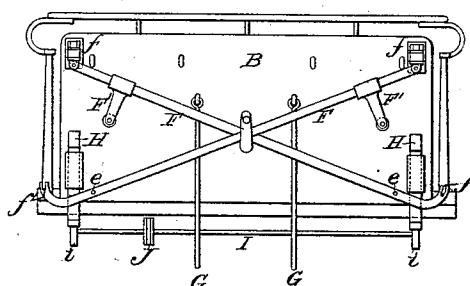


FIG. 4.

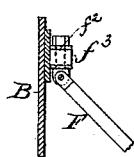


FIG. 5.

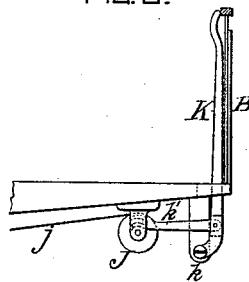
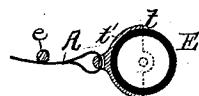


FIG. 6.



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UNITED STATES PATENT OFFICE.

ALFRED J. HOLLINGSWORTH, OF WEST NEW BRIGHTON, AND JOSEPH A. WEAVER, OF NEW YORK, N. Y.

FENDER FOR STREET-RAILWAY CARS.

SPECIFICATION forming part of Letters Patent No. 525,902, dated September 11, 1894.

Application filed March 10, 1894. Serial No. 503,133. (No model.)

To all whom it may concern:

Be it known that we, ALFRED J. HOLLINGSWORTH, of West New Brighton, Staten Island, and JOSEPH A. WEAVER, of New York city, 5 New York, citizens of the United States, have invented Improvements in Fenders for Street-Railway Cars, of which the following is a specification.

Our invention consists of an improved fender for street railway cars such as are operated by cable or electric motors.

In the accompanying drawings, Figure 1 is a view illustrating a portion of the forward end of a street railway car embodying our 15 improvements and with the fender in place. Fig. 2 is a front view of the fender and front dasher of the street railway car. Fig. 3 is a corresponding view, but showing the fender frame folded up, and other parts detached. 20 Figs. 4, 5 and 6 are views of details.

Our invention relates more particularly to that class of street car fenders in which a net or equivalent is employed projecting from the front of the car, and one of the objects of our invention is to so construct the 25 device that on the one hand it will not interfere with the coupling together of the car, and that on the other hand it may conveniently be applied to either end of the car. 30 For this purpose we make the net part of the fender detachable, together with the front bottom bar or bars, and make the side bars to fold up.

Referring to Figs. 1, 2 and 3, A is the net 35 of any suitable construction, which, at its upper end, is connected at a suitable number of points α to the front dash-board B of the car, by means of springs a . In connection with these springs, we prefer to use central 40 cords d such as will allow of a certain amount of pull upon the springs to make the net as yielding as necessary but will take up the strain when the springs are pulled out beyond a definite limit.

The lower end of the net A is passed underneath a cross bar e and connected to the cross buffer bar E, these two bars being carried at the lower ends of side-bars F which are pivoted at their upper end f by means of 45 several joints to the front dasher of the street car. The cross bar e is detachably connected

to the side bars F but in such a way as to constitute a brace for these side bars. On the other hand the buffer bar E has journals at its ends which are fitted into slots f' at the 55 lower ends of the side bars F in such a way that so long as the net A is connected to the buffer bar the latter will be held by the net with its journals in the slots f' , but when the net is detached from the car at the springs a , 60 the buffer bar E can be readily detached and the net rolled up on it and stowed away in any convenient part of the car where it will not occupy much room, or it may be applied to the other end of the car or to another car 65 provided with the side bars F. The cross bar or brace e may also be detached from the side bars and taken away with the net and buffer bar. This buffer bar is preferably formed somewhat like a pneumatic tire, as 70 shown in Fig. 6, an inflated closed tube t being cemented to a metal trough-shaped back- 75 ing t' , the ends of which trough-shaped back are provided with the journals to enter the slots f' of the side bars, as heretofore de- scribed.

The swivel joint by which the upper end of each side bar F is connected to the front dasher of the car may be of any suitable or convenient construction. In Fig. 4 I have 80 illustrated a common form which may be employed and which consists of a vertical swivel pin f^2 passing through a bearing f^3 in the dash-board and having pivoted to its lower end the side bar F. The side bars which 85 carry the net in the manner described are held out at a suitable angle at the end of the car by means of braces F' which may find their bearing on suitable abutments pro- 90 vided on the front of the car, but not otherwise connected therewith, so as to allow of the side bars F being folded up as indicated in Fig. 3 for instance when the net and cross bars are removed. Diagonal braces G piv- 95 otally hung to the front of the car are also provided to engage with and brace the side bars F when the latter are in position to hold the net as shown in Fig. 2, but so that they can be detached from the side bars to permit of the folding up described, and as illustrated 100 in Fig. 3.

If the front dasher of the car be curved, as is

commonly the case, the side bars F will preferably be curved, as indicated in Fig. 2, for example, in order that they may fold up to the front dasher as closely as may be (Fig. 3).

5 A further object of our invention is to so construct the fender that its lower edge may be always automatically maintained at a definite height from the surface of the ground notwithstanding the rocking of the car body 10 so commonly experienced, particularly with cars operated by cable or electric motors. For this purpose we have hinged the fender (consisting in this instance of the net and side and bottom bars) to the front of the car 15 at f, so that the front end of the fender may rise and fall to a suitable extent upon such hinges, and we so connect the fender with the car and the truck upon which it is mounted upon springs, that when the car body swings 20 or rocks upon the truck, the fender will be caused to proportionately swing upon its hinges, but in an opposite direction to the swing of the front end of the car and so keep the lower edge of the fender at a practically 25 uniform distance from the ground. In other words, the fender is so connected to the car body and truck that when the front of the car swings downward, the front edge of the fender will be caused to rise proportionately, 30 and when on the reverse rocking of the car the front end of the latter rises the front edge of the fender will correspondingly fall.

The following is a convenient construction 35 of connecting mechanism between the fender, car body and truck whereby the action described is accomplished, but we do not wish to limit ourselves to this special construction. The braces F' instead of resting upon fixed abutments on the front of the car, bear, 40 preferably with anti-friction rollers, upon vertically movable abutments consisting of vertically movable bars H provided with cam or wedge-shaped upper ends upon which the braces F' bear. These bearing bars H are 45 supported at their lower ends upon arms i carried by a transverse shaft I in bearings on the under side of the car. Upon this shaft is mounted a roller or drum J, upon which is partly coiled and to which is fastened the end 50 of a cord or chain j, whose other end is partly coiled upon and secured to a corresponding pulley J' upon a shaft mounted in bearings on the under side of the car. This shaft carries an arm j' which rests upon an abutment 55 upon the truck T of the car. As will be readily understood this construction will give the

operation heretofore described when the car oscillates or rocks upon its springs from front to back, as commonly happens when the car is running.

We prefer to provide means whereby, when desired, the grip-man or motor-man may be able to raise the front end of the fender to a sufficient extent to enable it to pass over any specially high obstruction in the middle of 65 the track but which is not high enough to strike the running gear of the car. For this purpose we provide a lever K, Fig. 5, pivoted at k to hangers on the under side of the car, and having connected to it a connecting rod 70 k' slotted at its outer end and fitting over a pin on the drum J or a crank on the shaft I, so that by pulling the lever K backward, the lower end of the fender may be raised, through the medium of the arms i on the 75 cross shaft I, raising the bearing bars H.

We claim as our invention—

1. A street railway car having a fender consisting of folding side-bars and detachable cross bars and detachable net, substantially 80 as set forth.

2. A fender for street railway cars, consisting of side-bars swiveled at their upper ends to the front of the car and adapted at their lower ends to receive a detachable cross brace 85 and buffer bar, with a net adapted to be connected at its upper end to the front of the car, and at its lower end to the buffer bar, substantially as set forth.

3. A fender for street railway cars consisting of side-bars pivoted at their upper ends to the front of the car and carrying braces to rest upon but not otherwise connected with abutments on the front of the car, in combination with detachable cross-bars and a net, 95 substantially as set forth.

4. The combination of the truck and body of a street car with a fender pivoted to the front of the car, vertically sliding abutments upon which the pivoted fender is supported, 100 and devices connecting the said abutments with the car body and truck, substantially as and for the purpose set forth.

In testimony whereof we have signed our names to this specification in the presence of 105 two subscribing witnesses.

ALFRED J. HOLLINGSWORTH.
JOSEPH A. WEAVER.

Witnesses:

EDITH J. GRISWOLD,
HUBERT HOWSON.