

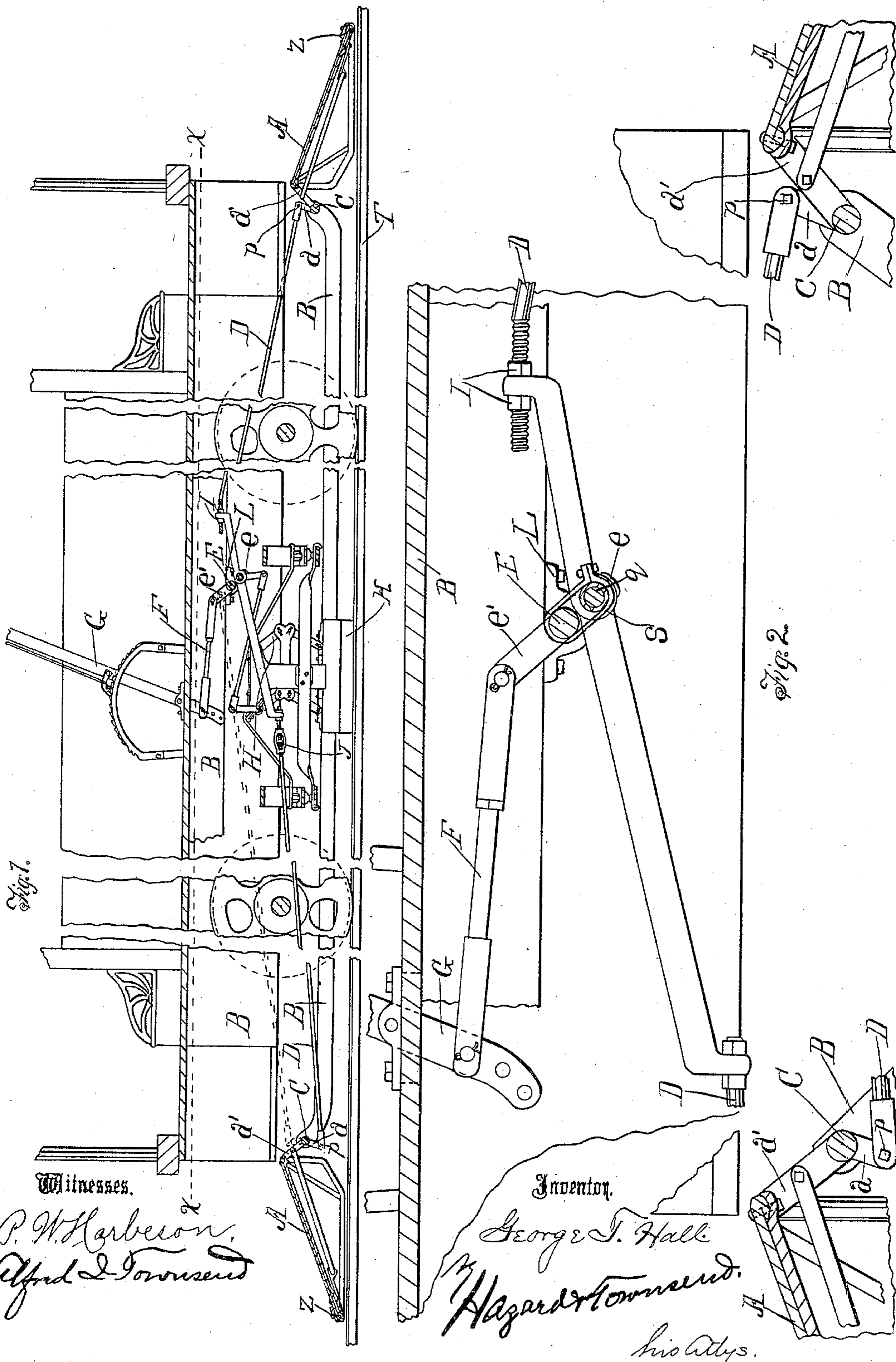
(No Model.)

2 Sheets—Sheet 1.

G. T. HALL.
STREET CAR FENDER.

No. 488,276.

Patented Dec. 20, 1892.



Witnesses.
P. W. Harbison,
Alfred L. Townsend

Inventor,
George T. Hall
Hazard & Townsend,
his Atlys.

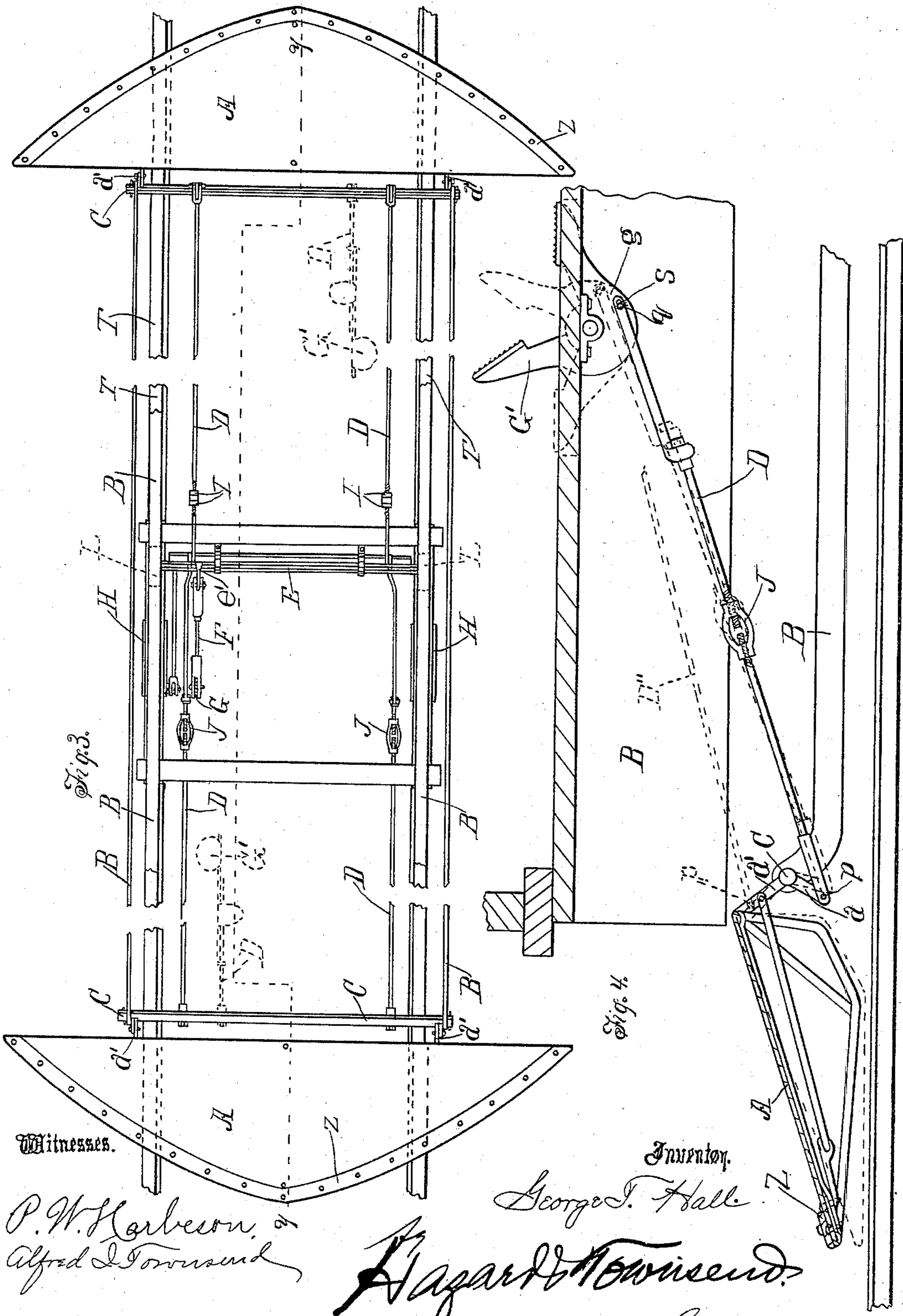
(No Model.)

2 Sheets—Sheet 2.

G. T. HALL.
STREET CAR FENDER.

No. 488,276.

Patented Dec. 20, 1892.



Witnesses.

P. W. Harbison,
Alfred I. Townsend

Inventor.

George T. Hall.

Hayard & Townsend.

his attys.

UNITED STATES PATENT OFFICE.

GEORGE T. HALL, OF MONROVIA, ASSIGNOR OF ONE-HALF TO E. F. SPENCE,
OF LOS ANGELES, CALIFORNIA; ANNA M. SPENCE EXECUTRIX OF SAID
E. F. SPENCE, DECEASED.

STREET-CAR FENDER.

SPECIFICATION forming part of Letters Patent No. 488,276, dated December 20, 1892.

Application filed April 5, 1892. Serial No. 427,789. (No model.)

To all whom it may concern:

Be it known that I, GEORGE T. HALL, a citizen of the United States, residing at Monrovia, in the county of Los Angeles and State of California, have invented a new and useful Improvement in Street-Car Fenders, of which the following is a specification.

My invention consists in certain improvements upon the street car fender patented to me in United States Letters Patent dated February 10, 1891, No. 446,227 which shows in combination with the car, a forwardly extending fender provided with a rigid arm and pivoted to the car to allow vertical movement of such fender, and mechanism arranged to engage such arm.

My present invention pertains especially to the mechanism for giving the vertical movement to the fender but it also includes certain combinations of parts whereby the fender and brake may be operated at the same time by the same lever.

The principal and most valuable feature of my present invention consists in the peculiar construction and arrangement of the immediate means for operating the fender whereby my invention is made more practical in actual operation than is accomplished by the form shown in my said former patent in which the rigid arm which controls the movement of the fender is arranged to move up and down and a combination of levers is employed to operate the fender through the medium of the vertical movement of the rigid arm.

My present invention consists essentially in the combination of the car; the fender pivoted to the car to allow vertical movement of such fender; a connecting rod arranged to reciprocate longitudinal of the car and pivoted immediately or through intermediate means to the fender at a point above or below the axis of the pivot which sustains the fender, and suitable means hereinafter particularly set forth for reciprocating the connecting rod longitudinal of the car.

My invention is specially adapted to be operated at the same time the emergency brake of the car is thrown on and in the drawings

is shown in combination with the brake-operating lever for that purpose, but it may be arranged to be used independent of the brake mechanism and I have illustrated it so arranged in one of the figures of the drawings.

In the drawings, Figure 1 is a fragmentary vertical longitudinal section of a street car having my invention applied thereto. The section is taken through the middle of the fender and near the wheels at one side of the car. It will be understood that the mechanism shown except the operating lever is practically duplicated for the other side of the car. *y—y* Fig. 3 indicates the line of section. Fig. 2 is a fragmentary detail of the fender operating mechanism. Fig. 3 is a fragmentary plan view of the car, the wheels and floor being removed and the brake mechanism not shown in detail. *x—x* Fig. 1 indicates the line at which the floor of the car is removed for this view. Fig. 4 is a fragmentary longitudinal sectional view of my invention arranged to be operated by a foot lever independent of the brake.

It is to be understood that springs or other suitable means for balancing the fender may be provided for this fender in a manner equivalent to that shown in my said patent but illustration thereof herein has not been deemed necessary on account of said former illustration.

A is the fender.

B is the car to which the fender is pivoted by the fender shaft C journaled to the frame of the car.

D is a reciprocating connecting rod pivoted at one end to the fender either immediately or through intermediate means and connected at the other end with suitable means for reciprocating the rod. In Fig. 1 these means comprise the crank *e* of the crank shaft E, such crank-shaft E journaled to the car, the crank arm *e'* fixed to the crank-shaft and projecting therefrom opposite the crank arm *e*; the lever-and crank-connecting rod F pivoted at one end to the crank arm *e'* and at the other end to the operating lever G, and such operating lever G pivoted to the car. This

arrangement and combination of parts is well adapted for cable cars where the operator stands mid-way of the car. And in Figs. 1 2 and 3 I have shown the fenders at both ends of the car and connected with the same operating lever which is also connected with the emergency brake mechanism H by suitable means so that the action of throwing on the emergency brake will depress the fender and hold it down so that the person or object upon the track cannot pass underneath the fender.

The fender is of a practical V shape high in the middle and sloping thence laterally and of considerable greater width than the track so as to preclude the possibility of any one passing beneath the wheels when the fender is pressed down by the operation of the lever.

In Figs. 1 and 3 the fenders at both ends of the car are shown adapted to be operated by the one brake operating lever G but in Fig. 4 a foot lever G' is shown pivoted to the car at one end thereof and pivoted to the connecting rod D and fender A at one end of the car and not operatively connected with those at the other end of the car. This form is designed more especially for electric cars but it is applicable to all street cars. In this Fig. 4 the solid lines show the fender elevated and in the position it is ordinarily held in, whereby danger of contact with the track at abrupt changes of grade is avoided, and dotted lines indicate the position of the fender and operative parts when the fender is depressed. In this view I have also indicated in dotted lines a connecting rod D'', attached direct to the supporting brace or arm a' of the fender instead of to the crank arm a. These dotted lines indicating the rod D'' do not show the full length of the connecting rod but it will be understood by mechanics that it is to be pivoted to the operating lever G'. The pivot connecting the connecting rods to the fender arm or crank arm is indicated by p.

In Fig. 1 the fenders are shown depressed and the emergency brake h applied to the track T. In this view both of the connecting rods D are shown pivoted to the same crank arm e of the crank shaft E. This is done to show that it is immaterial whether the arm a is arranged above or below the pivot C of the fender.

Dotted lines at the left of Fig. 1 indicate that the connecting rod may be arranged above the pivot C and that when so arranged, the other end of such rod must be attached to the crank arm e' above the crank shaft E instead of to the crank arm e as shown in solid lines.

Suitable means such as the set nuts I or turnbuckle J are provided to admit of adjustment of the length of the connecting rod so that the relative position of the fender and the operating lever can be changed to bring the lever into convenient position for operation.

In Fig. 3 dotted lines show the operating

foot levers in the position they would occupy in electric cars.

The operation of the device is practically the same as that described in my said patent. viz;—in case the motor or car-man or driver sees any one on the track in danger of being run over, he applies the emergency brake and, in case the fender is connected therewith as indicated in Figs. 1 2 and 3 the fender is thereby forced down and held sufficiently close to the track to prevent the person from being dragged beneath it and beneath the car. In case the fender is arranged as indicated in Fig. 4, i. e. independent of any brake mechanism, the car-man or driver steps upon the foot plate of the operating lever G' thus depressing the fender and at the same time applies the brake. The rear end of the connecting rod is pivoted to the arm such as e or g by a pivot q which passes through a slot S in the end of the connecting rod to allow a slight play of the parts.

L indicates the journal of the crank shaft E, said journal being attached to the body or frame of the car.

Duplicates of the brake-and-fender operating mechanism shown in Fig. 1 may be located at the opposite ends of the car omitting all connection between them so that the operation of the brake-lever at one end of the car will operate the brake and the fender at that end of the car but will not operate the fender at the other end of the car. This form is designed to be used where two motor controlling appliances are provided for the car, one at each end as is common in electric cars.

Z indicates a strip of rubber secured on the top of the front end of the fender to avoid injury to the person struck.

Now, having described my invention, what I claim as new and desire to secure by Letters Patent is;—

1. The combination set forth of the car, the fender pivoted to the car to allow vertical movement of such fender; a connecting rod arranged to reciprocate longitudinally of the car and pivoted immediately or through intermediate means to the fender at a point above or below the axis of the pivot which sustains the fender; the crank e of the crank-shaft E pivoted to the reciprocating rod; such crank-shaft journaled to the car and provided with the crank arm e' projecting therefrom opposite the crank arm e; the lever-and-crank connecting rod F pivoted at one end to the crank arm e' and at the other end to the operating lever G, and such operating lever, pivoted to the car.

2. The combination set forth of the car, the fender pivoted to the car to allow vertical movement of such fender; a connecting rod arranged to reciprocate longitudinal of the car and pivoted immediately or through intermediate means to the fender at a point above or below the axis of the pivot which sustains the fender; the crank e of the crank-

shaft E pivoted to the reciprocating rod; such crank-shaft journaled to the car and provided with the crank arm *e'* projecting therefrom opposite the crank arm *e*; the lever-and-crank
5 connecting rod F pivoted at one end to the crank arm *e'* and at the other end to the operating lever G; such operating lever, pivoted to the car, and the brake-operating mechanism connected with the crank arm *e*.

GEO. T. HALL.

Witnesses:

JAMES R. TOWNSEND,
ALFRED I. TOWNSEND.