

(No Model.)

F. S. DAVIDGE.  
CAR FENDER.

No. 599,770.

Patented Mar. 1, 1898.

Fig. 1.

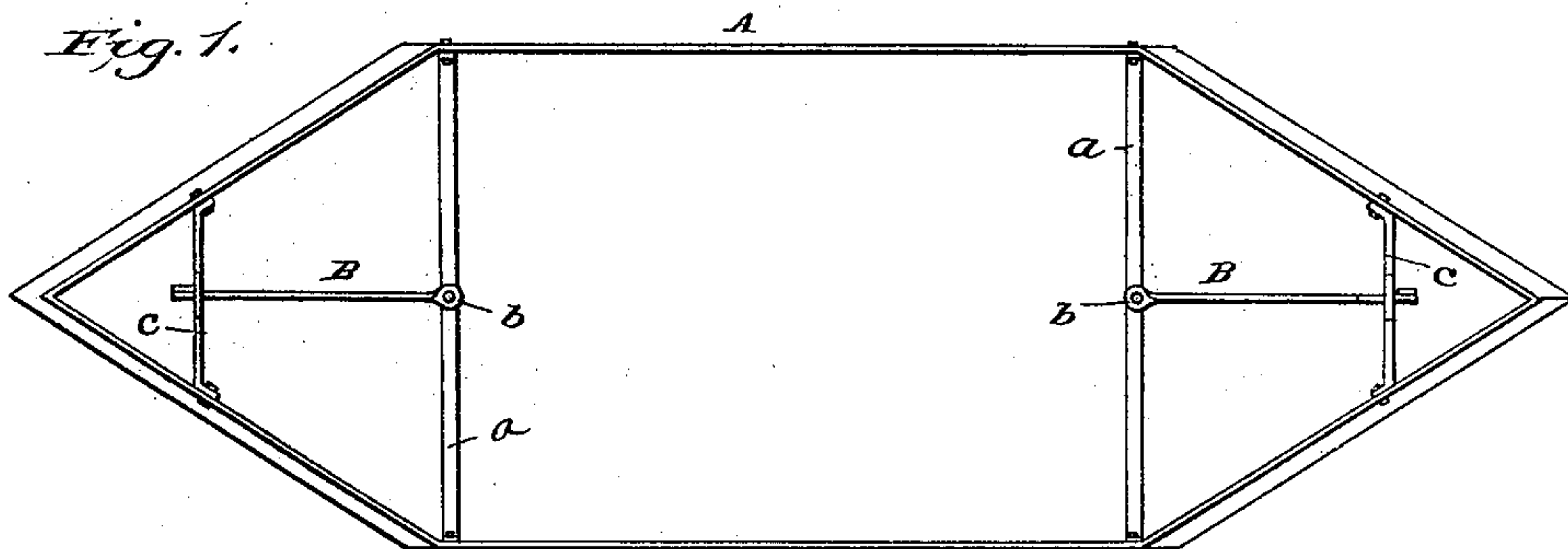


Fig. 2.

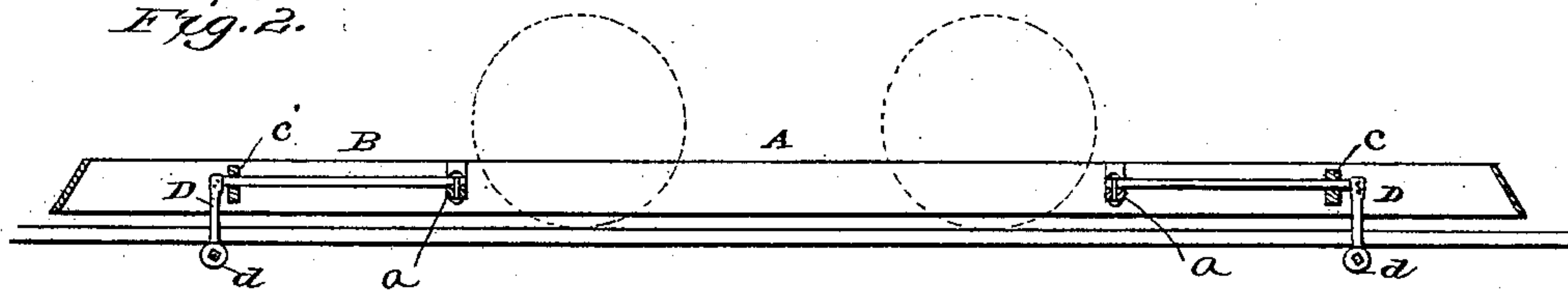


Fig. 3.

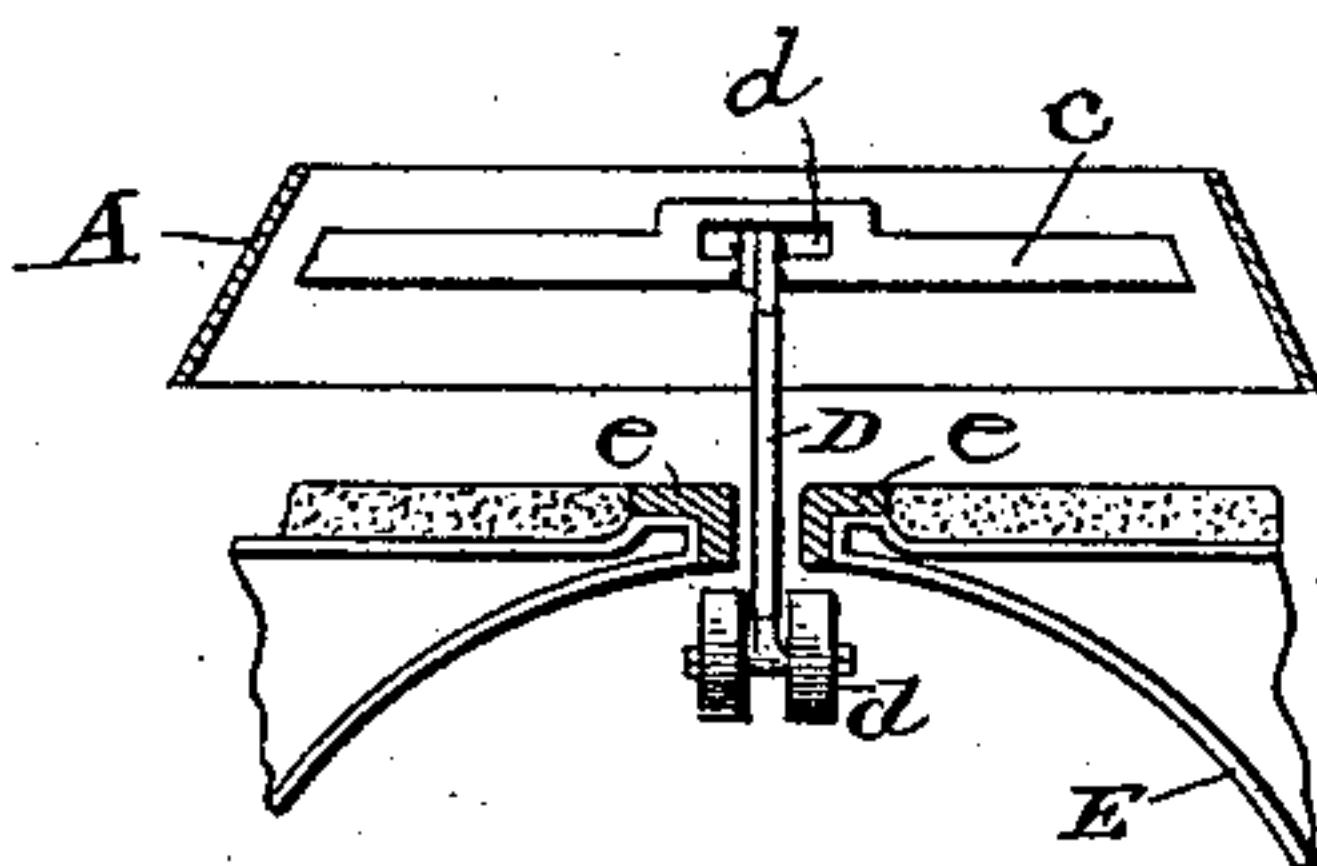
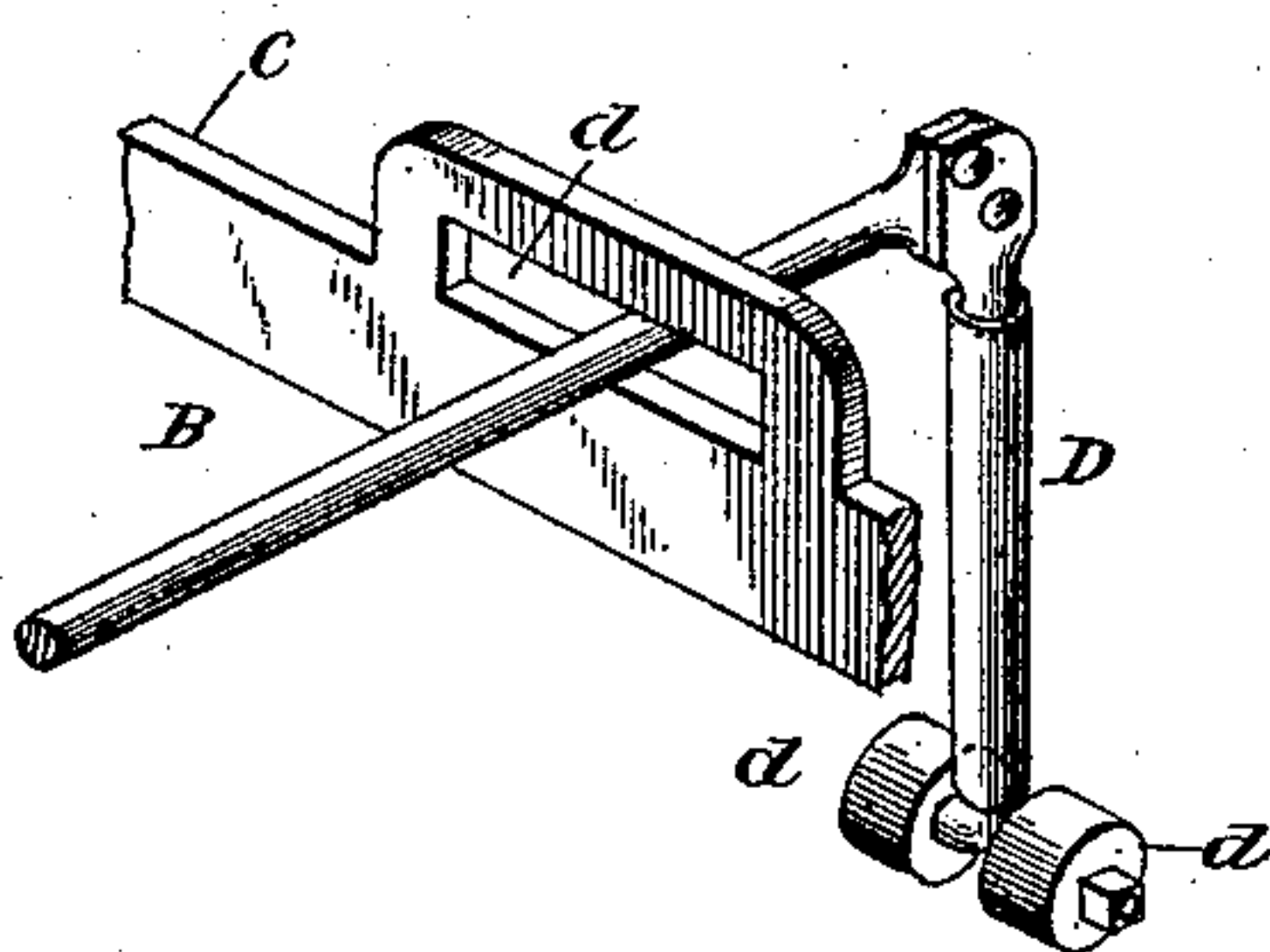


Fig. 4.



Witnesses:

Harry S. Pomeroy.

W. M. Fairbank

Inventor.

Francis S. Davidge,

By

Sumner Goldsborough  
Atty.

# UNITED STATES PATENT OFFICE.

FRANCIS STEWART DAVIDGE, OF WASHINGTON, DISTRICT OF COLUMBIA.

## CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 599,770, dated March 1, 1898.

Application filed April 19, 1894. Serial No. 508,173. (No model.)

*To all whom it may concern:*

Be it known that I, FRANCIS STEWART DAVIDGE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Fenders for Tramway-Cars; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in fenders for tramway-cars, and particularly for cars running upon a road-bed having a slotted longitudinal conduit for a propelling-cable or underground electric trolley conductors.

Prior to my invention, as is well known, tramway-cars have been provided with fenders designed to clear the trackway of obstacles to the car's progress and to prevent loss of life of persons struck by the car and thrown in front of it upon the track. A customary form of such a fender consists of a frame suspended from the car-trucks below the body of the car and in proximity to the level of the rails, said frame extending in front of the car-wheels usually in the form of an acute angle. The theory upon which this familiar construction is based is that the inclined sides of the angular portion of the fender will throw the person or other obstacle to the right or left out of the path of movement of the advancing wheel-trucks, and that the close proximity of the lower surface of the fender to the level of the track will in any event insure against the possibility of the object or body struck being drawn or wedged in between the fender and trackway. Experience shows, however, that in practice this usual fender is far from being uniformly effective and that most serious accidents and loss of life occur despite its employment. This is due to the fact that heretofore no means have been provided for absolutely insuring the maintenance of a constant relationship of distance between the trackway and fender, so that it would become impossible for the fender to rise and by increasing the intervening space admit the object or person upon the track. In my invention I have supplied this deficiency, and

the characteristic feature of my improvement is that the fender has a sliding connection with the road-bed or trackway of such a kind as not to impede the normal advance of the car, but at all times to prevent the fender from rising and increasing the intervening space. To this end in my preferred construction I provide the fender with a depending rod or rods or analogous connections which pass through the conduit-slot and are provided at their lower ends within the conduit with side projections transverse to the slot and which may consist of suitable friction-rollers just clearing the upper wall of the conduit, but adapted to come into immediate contact therewith should the fender attempt to rise above its normal level.

It will be understood that I do not confine my invention to any particular form of fender-frame or to any particular mode of attachment or location of the connection between the fender and road-bed, provided the connection is such as to keep the relationship of the fender to the road-bed constant, as described. For purposes of illustration, however, and as a suitable embodiment of my invention I have illustrated my improvements as applied to a construction of fender-frame of a well-known general contour.

In the drawings, Figure 1 represents a top plan view of a fender provided with my improvements. Fig. 2 represents a central longitudinal section thereof, partly in elevation, and illustrates the relationship of the dependent connection to the conduit-slot. Fig. 3 represents a cross-section through the fender and conduit on the line 3 3 of Fig. 1, and Fig. 4 represents in perspective a detail view of the dependent connection.

Similar letters of reference indicate similar parts throughout the several views.

Referring to the drawings, A indicates any customary or usual form of fender-frame adapted to inclose the wheels and trucks of a tramway-car and to be suspended from the truck-frames or wheel-axles in the usual manner.

At any suitable point of the fender—for instance, upon the cross-piece *a*—is pivoted at *b* the inner end of a bar B, the outer end of the bar being supported by a second cross-



piece *c*, having a guide-slot *d* to permit of the requisite horizontal oscillation of the bar in passing around curves. At the forward end of the bar is connected an auxiliary bar provided with a loose sleeve *D* and having at its lower end friction-rollers *d*, mounted to revolve freely upon side projections upon the bar.

It will be noted, particularly by reference to Fig. 3, that the normal position of the friction-rollers *d* is slightly below the inner surface or roof of the conduit *E*, containing the cable-rope or trolley conductors, and that the bar passes between the slot-irons *e* of the conduit, so that while the friction-rollers are normally out of contact with the conduit and therefore exercise no frictional wear upon it a slight tendency of the fender to rise would be immediately resisted by the frictional rollers coming in contact with the roof of the conduit at both sides of the slot. The connection, therefore, between the fender and the conduit is such that it is impossible for the fender to rise appreciably above its normal distance from the road-bed.

The function of the sleeve *D* is to prevent frictional wear upon the depending bar itself. As the sleeve is freely revoluble upon the bar, the wear upon the sleeve is distributed with practical uniformity over its circumference, thereby increasing its durability. Moreover, the sleeve serves as a friction-roller when it contacts with the slot-irons in passing a curve or the like.

It will of course be noted that I have duplicated the connection between the fender and the conduit-slot at each end of the car, so that the fender will be equally effective whether the car is traveling in the one direction or in the other.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A fender for tramway-cars for slotted conduits, provided with a depending connection passing through the conduit-slot and having at its lower end transverse projections

provided with friction-rollers; substantially as described.

2. A fender for tramway-cars for slotted conduits, provided with a depending connection passing through the conduit-slot and projecting at its lower end transversely to said slot, said depending connection being pivoted to the fender so as to be capable of lateral movement in a horizontal plane; substantially as described.

3. A fender for tramway-cars for slotted conduits, provided with a depending bar passing through the conduit-slot and projecting at its lower end transversely to said slot, said depending bar being pivoted to the fender so as to be capable of lateral movement in a horizontal plane, and having a protecting-sleeve loosely encircling it; substantially as described.

4. A fender for tramway-cars for slotted conduits, consisting of a bar extending lengthwise of the car and pivoted at one end to the fender so as to be capable of lateral movement, said bar being supported at its opposite end within a guide forming part of the fender, a depending bar passing through the conduit-slot and provided at its lower end with transverse projections having friction-rollers; substantially as described.

5. A fender for tramway-cars for slotted conduits, consisting of a bar extending lengthwise of the car and pivoted at one end to the fender so as to be capable of lateral movement, said bar being supported at its opposite end within a guide forming part of the fender, a depending bar passing through the conduit-slot and provided at its lower end with transverse projections having friction-rollers, and a sleeve loosely mounted on the depending bar; substantially as described.

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

FRANCIS STEWART DAVIDGE.

Witnesses:

JOHN C. PENNIE,

J. A. GOLDSBOROUGH.