

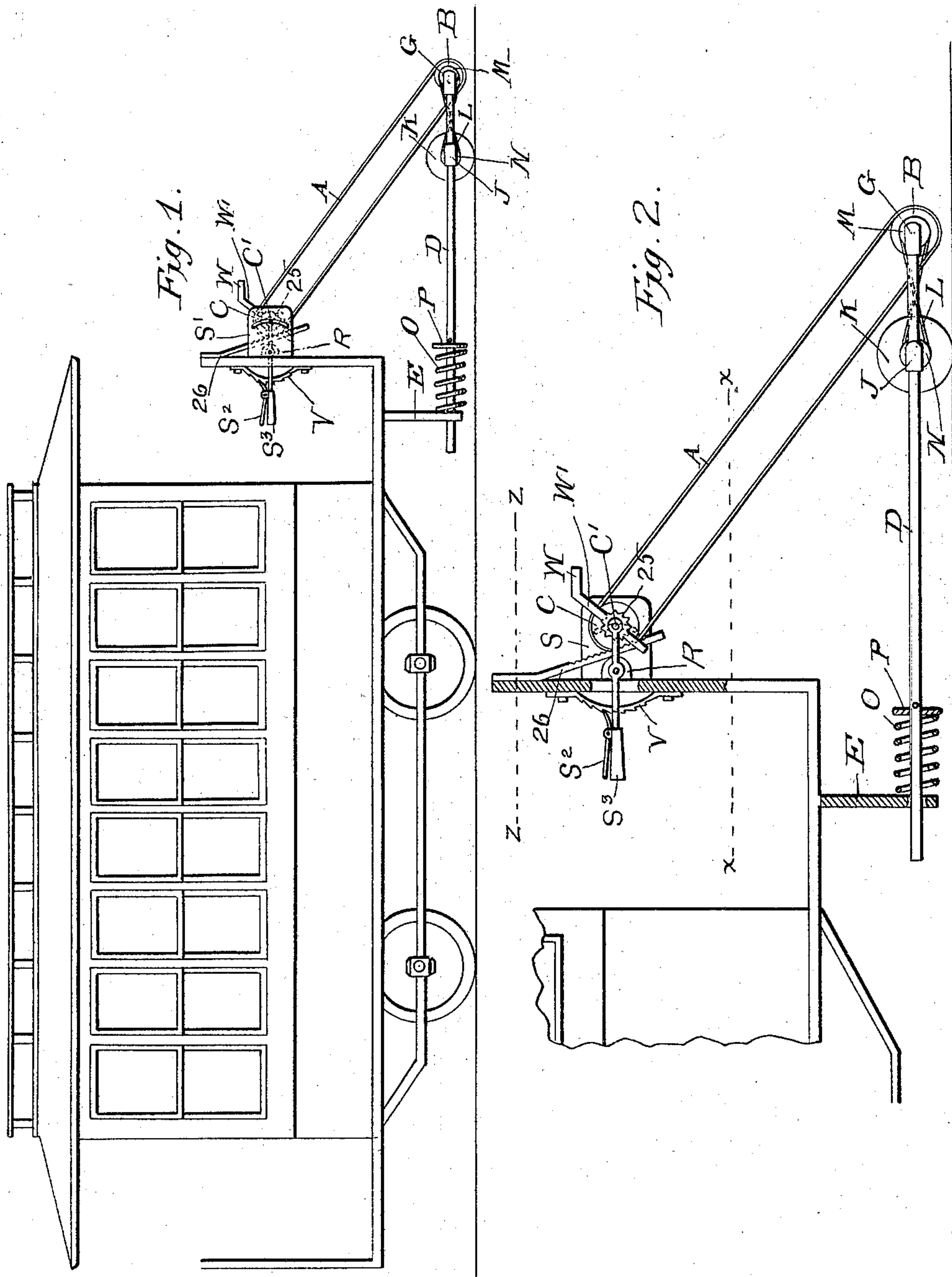
(No Model.)

2 Sheets—Sheet 1.

A. P. ANDERSON.  
SAFETY GUARD FOR STREET CARS.

No. 533,263.

Patented Jan. 29, 1895.



Witnesses:

Albert B. Blackwood.

A. P. Doolittle

Inventor.

Andrew P. Anderson  
by M. R. Doolittle & Co.

Attorneys.

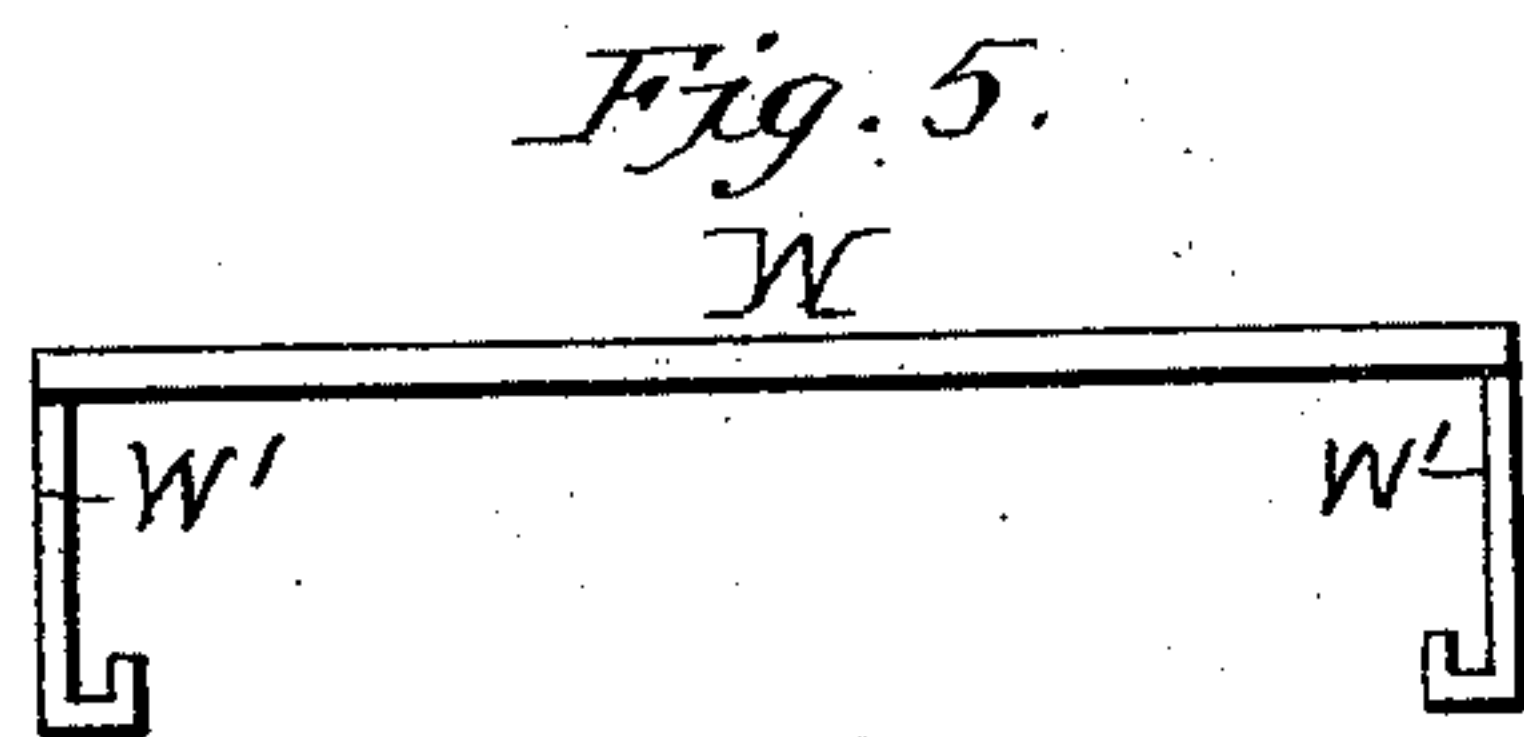
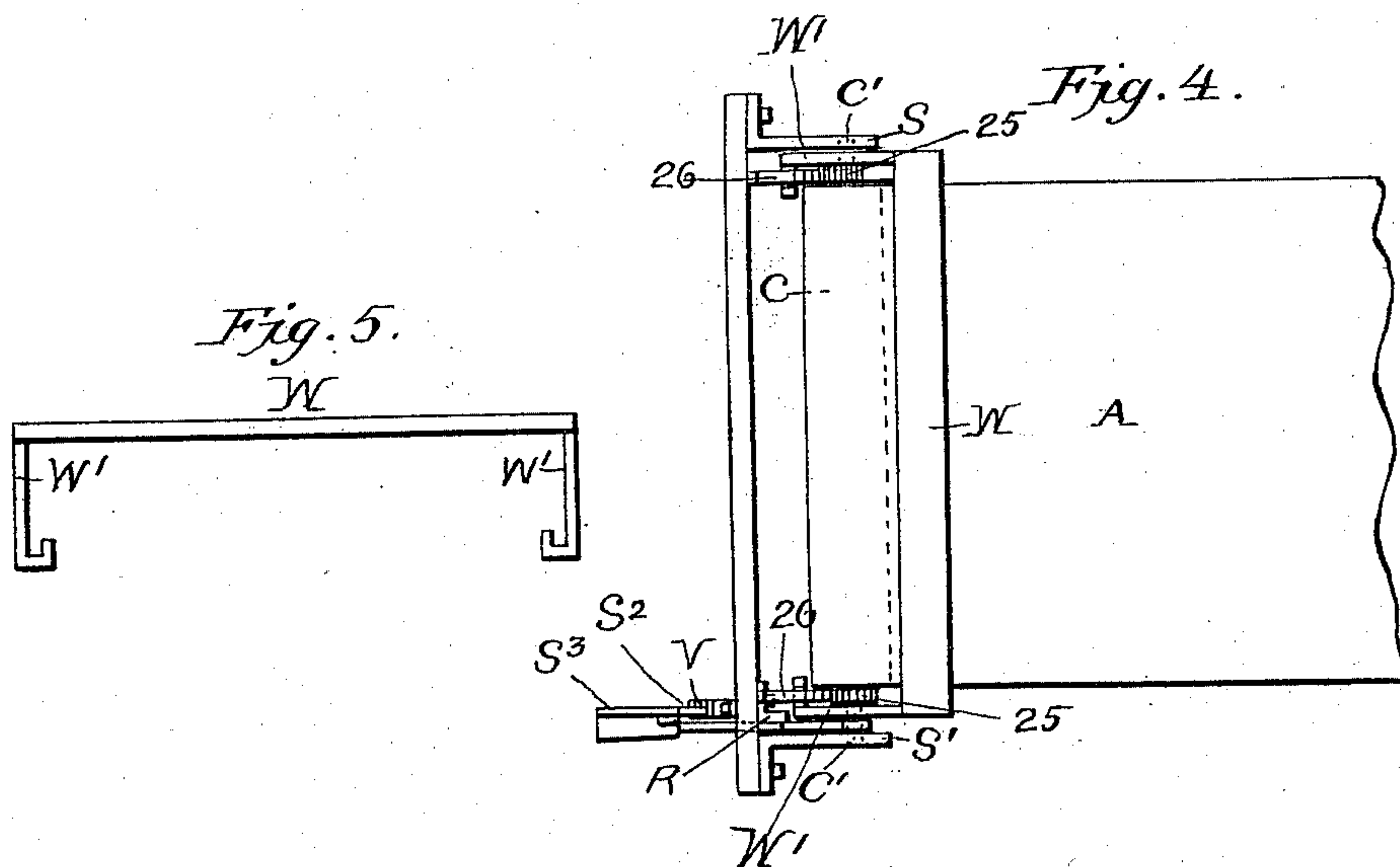
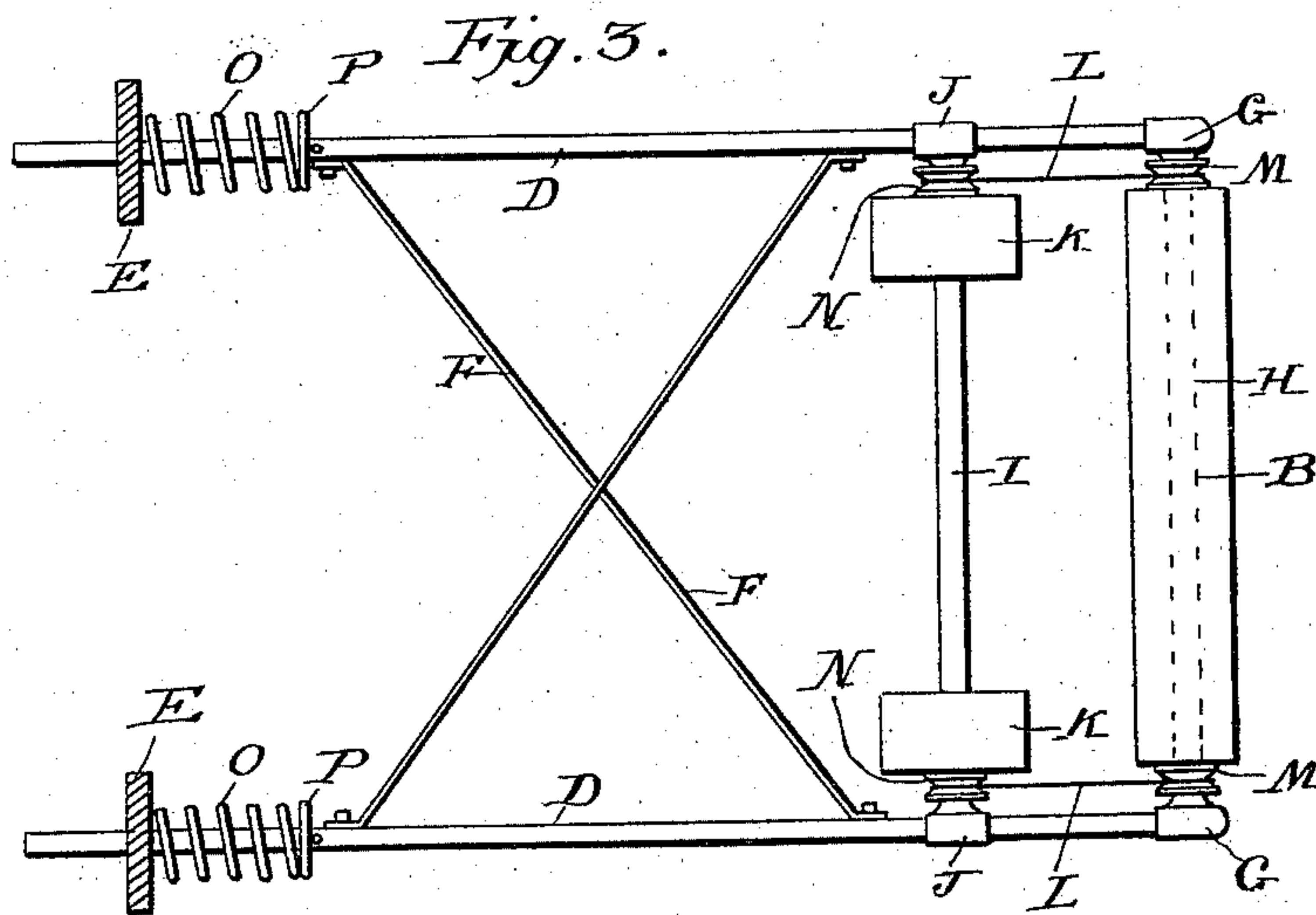
(No Model.)

2 Sheets—Sheet 2.

A. P. ANDERSON.  
SAFETY GUARD FOR STREET CARS.

No. 533,263.

Patented Jan. 29, 1895.



Witnesses:

Albert B. Blackwood.

A. P. Doolittle

Inventor.

Andrew P. Anderson  
by M. A. Doolittle & Son

Attorneys



# UNITED STATES PATENT OFFICE.

ANDREW P. ANDERSON, OF WILKINSBURG, PENNSYLVANIA.

## SAFETY-GUARD FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 533,263, dated January 29, 1895.

Application filed October 16, 1894. Serial No. 526,080. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW P. ANDERSON, a citizen of the United States, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Safety-Guards for Street-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 improvements in safety guards or fenders for electric, cable and other street railway cars.

It is highly desirable that a car fender should be so constructed that while it will in no way obstruct or impede the progress and operation of the car, it shall at the same time, when the car strikes a person or other object on the track, so operate as to prevent such object from being thrown, tumbled, or rolled upon the track and caught beneath the fender and the wheels of the car, and in the case of a person to thus prevent serious injury by reason of the collision.

My invention has this object in view, and to this end it consists of the parts and combinations of parts, substantially as hereinafter described and set forth in the claims.

The form in which I have put my invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view in elevation of a street car with the device applied to the front of the car. Fig. 2 is a side view in elevation, partly in section, of the particular means constituting and operating the fender; Fig. 3, a plan of the lower part of the fender, on line *xx* of Fig. 2; Fig. 4, a plan of the upper part on line *zz*, of Fig. 2, and Fig. 5, a detail view of the head board and its supports.

In general terms the invention consists of a fender composed preferably of brush work on a plain, flexible surface and in the form of an inclined endless apron mounted on rollers at the front of the car, means for giving the fender its continuous travel, means for raising and lowering the fender and its operating mechanism to and from the track, and holding it in the position raised or lowered, means for automatically raising the lower end of the fender to lift the object

struck from off the track, and means for relieving the shock of contact of the object struck and the fender.

Referring to the drawings for specific details of these means, A designates the endless apron, which I prefer to make of leather with its outer surface covered with a net work of wire brush. The under surface of the leather presents a smooth contact with the carrying rollers, and the wire brush work affords a holding surface for the person or other object struck whereby it is held and prevented from sliding down on to the track before it is removed therefrom. Stout canvas might be substituted for the leather and the material and the form of the bushing may be varied. The apron is designed to be as wide as the track and is carried by an upper and lower roller. B is the lower roller and C is the upper one. The upper roller is set back from the lower one so as to give the apron an inclined position. The apron receives its continuous motion from the lower roller, B, and the upper roller, C, is turned by the apron.

The supports, connections and operative mechanism for the lower, roller, indicated in the drawings, more clearly in Fig. 3, are as follows:—D, D are two horizontal tubular rods the inner ends of which are supported in slotted hangers, E, secured to the bottom of the car floor. Thus supported, the forward or outer ends of the rods, D, admit of being raised. The rods, D, are connected by crossed bars, F, thus affording a strong frame for the supports of the parts attached thereto. The outer ends of the rods, D, are provided with boxes or bearings, G, in which is journaled a transverse revolving shaft, H, on which is placed and rigidly secured so as to turn therewith, the lower roller, B. A short distance to the rear of shaft, H, is a cross shaft, I, journaled in opposite bearings, J, on rods, D, and on this shaft, I, is secured two drive wheels, K, which are adapted to run on the track of the road bed of the track. Rotary motion is transmitted from the rear shaft, I, carrying the drive wheels, to the front shaft, H, carrying the lower apron roller, by means of belts or chains, L, working over pulleys or sprockets, M, on the front shaft, and pulleys or sprocket wheels, N, on the rear driving shaft. The belts are crossed so as to give



the front shaft and the apron a motion contrary to that of the drive wheels whereby the apron is carried upward, and the object falling in it in the same direction so as to lift  
 5 such object off the track. Coiled springs, O, are placed on rods, D, and confined in place between hangers, E, and washers, P, to permit the fender to yield somewhat when struck by a person or other object on the track, and  
 10 to thus break the force of the blow. Referring now to the means for raising and lowering the fender, the upper roller, C, is carried on a shaft, C', which is supported and turns in bearings carried by supports, S, S'. Ex-  
 15 tending from the car platform, through the dash board, T, and through a bearing, R, on the outer side of said dash board is a lever, S<sup>3</sup>. V is a half circular ratchet plate secured to the dash board, and with which a spring  
 20 pawl, S<sup>2</sup>, on the lever, S<sup>3</sup>, is adapted to engage. By means of the lever, S<sup>3</sup>, and the pawl, the fender can be raised from the ground, and set, so as not be operated except when lowered by the same means to permit  
 25 the drive wheels to rest on the track, or road bed. The fender is also raised and automatically set by the means and in the manner now to be described.

W is a stop-board extending transversely  
 30 across the face of the apron at its upper end above the roller, C, and carried by supports, W', rising from the upper shaft, C'.

The shaft C', is provided at each end with a cog wheel, 25. These cog wheels are adapted  
 35 to engage with movable gear rods, 26, secured at one end to the dash board, and extending outwardly and downwardly therefrom, their lower ends resting on the supports, W'.

40 To operate the device, it being supposed that the fender is held above the ground by engagement of the lifting lever and pawl with the ratchet plate, the lever is released and the fender falls by its own weight until  
 45 the drive wheels are in contact with the track, or road bed. As the car is moving, the motion is at once communicated to the front lower shaft through the belts or chains and the lower roller, endless apron, and upper  
 50 roller at once set in motion.

Should a person fall on or against the fender, the revolving apron would force him against the stop-board, W. This contact with the stop-board throws the cog wheels, 25,  
 55 into engagement with the gear-rods, 26. The gear rods being fastened at their upper ends to the dash board while their lower ends rest in the right-angled projections on the lower ends of the supports, W', it will be seen that  
 60 when the stop-board is pressed backward it throws the supports or arms, W', forward and raises the free ends of the gear-rods so as to cause the cog wheels, 25, to engage therewith.

As the rotation of the shaft continues, the  
 65 gear rod acts as a lever to raise the fender from the ground, and consequently the per-

son carried thereby. Immediately the fender is raised from the track, its revolving action is stopped, and it would fall to the ground again, did not the spring pawl, S<sup>2</sup>, on the lever, 70 S<sup>3</sup>, immediately engage with the teeth on the ratchet plate, V, on the turning back of the shaft, C', to which said lever is connected.

I do not desire to limit myself altogether to the particular means shown in the drawings 75 for driving the revolving net or apron, as a chain wheel might be placed on the car wheel axle, and connected by a chain belt to the forward lower roller shaft, and other forms of belts than chains as well as other forms of 80 wheels than chain or sprocket wheels, may be employed, without materially departing from the spirit of my invention.

Having thus described my invention, what I claim is— 85

1. In combination with a street car of a lever thereon, a fender moved vertically by said lever, a continuous revolving net extending the width of the car, top and bottom rollers for its support, shafts carrying said rollers 90 and mechanism for revolving said shafts, substantially as described.

2. The combination with a car of a fender frame composed of longitudinal tubular rods, bearings on said rods, transversely-extending 95 shafts, journaled in said bearings, a continuous revolving net, supports for said net, mechanism for actuating the net, and means for raising and lowering the fender, substantially as described. 100

3. In combination with the supporting frame, hangers from the bottom of the car to which said frame is attached, the drive wheels and lower roller carried by said frame, an upper shaft and supports from the car for said 105 shaft, a roller on said shaft, an apron carried by said upper and lower rollers, and springs on said supporting frame held against said hangers, whereby the force of contact of the object struck with the fender is relieved, sub- 110 stantially as described.

4. The combination with the fender and its supporting rollers and shafts, of the dash board of the car, the ratchet plate thereon, the lever provided with a pawl to engage said 115 plate, the said lever at its outer end engaging with and forming a bearing for one end of the upper roller shaft, whereby the fender may be raised and lowered and set by said lever, substantially as described. 120

5. The lower frame for carrying the fender, composed of the tubular, horizontal rods, and the connecting crossed rods, in combination with the slotted hangers in which the inner ends of said rods are placed, the revolving 125 cross shaft at the outer end of said rods, the roller on said shaft, the revolving shaft at the rear of said forward shaft and bearings for the same on said rods, drive wheels on the latter shaft, and means for communicating mo- 130 tion from the said rear shaft to the forward shaft, substantially as described.



6. The combination with the fender and its  
rollers and shafts, of the car, the ratchet-  
plate thereon, the lever provided with a pawl  
to engage said plate, the said lever at its outer  
5 end engaging with one end of the upper roller  
shaft, the stop-board carried by the supports  
rising from said upper shaft, the gear-rods,  
the cog wheels on said upper shaft adapted

to engage with said gear-rods, substantially  
as described. 10

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

ANDREW P. ANDERSON.

Witnesses:

W. G. DOOLITTLE,  
JOHN M. PRESCOTT, Jr.