

(No Model.)

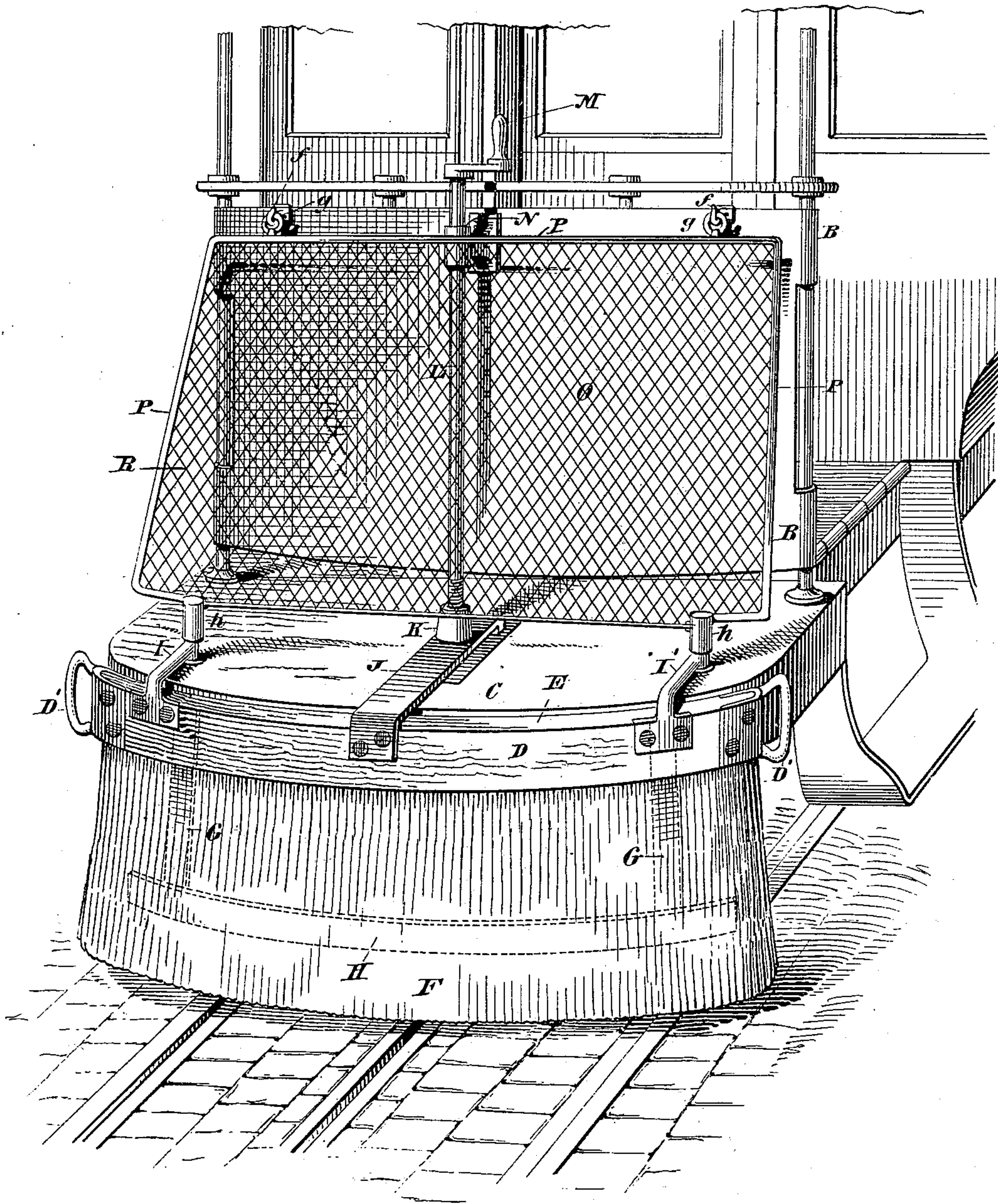
3 Sheets—Sheet 1.

G. H. MOLLER.
SAFETY FENDER FOR CARS.

No. 557,334.

Patented Mar. 31, 1896.

Fig. 1.



WITNESSES:

Gustav Dietrich
John Reklunbeck

INVENTOR

George H. Moller

BY

Augustus Dietrich
his ATTORNEY.

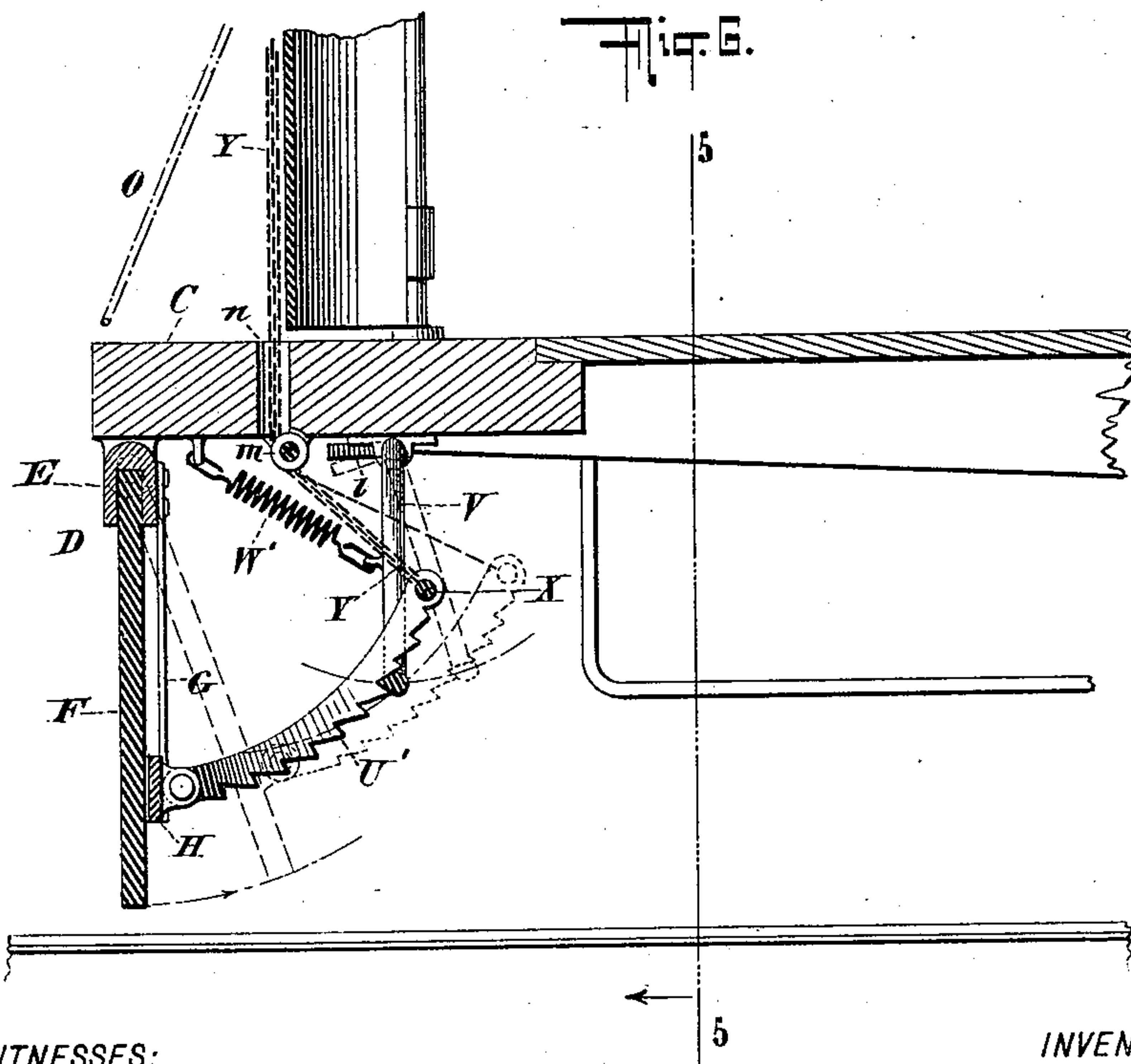
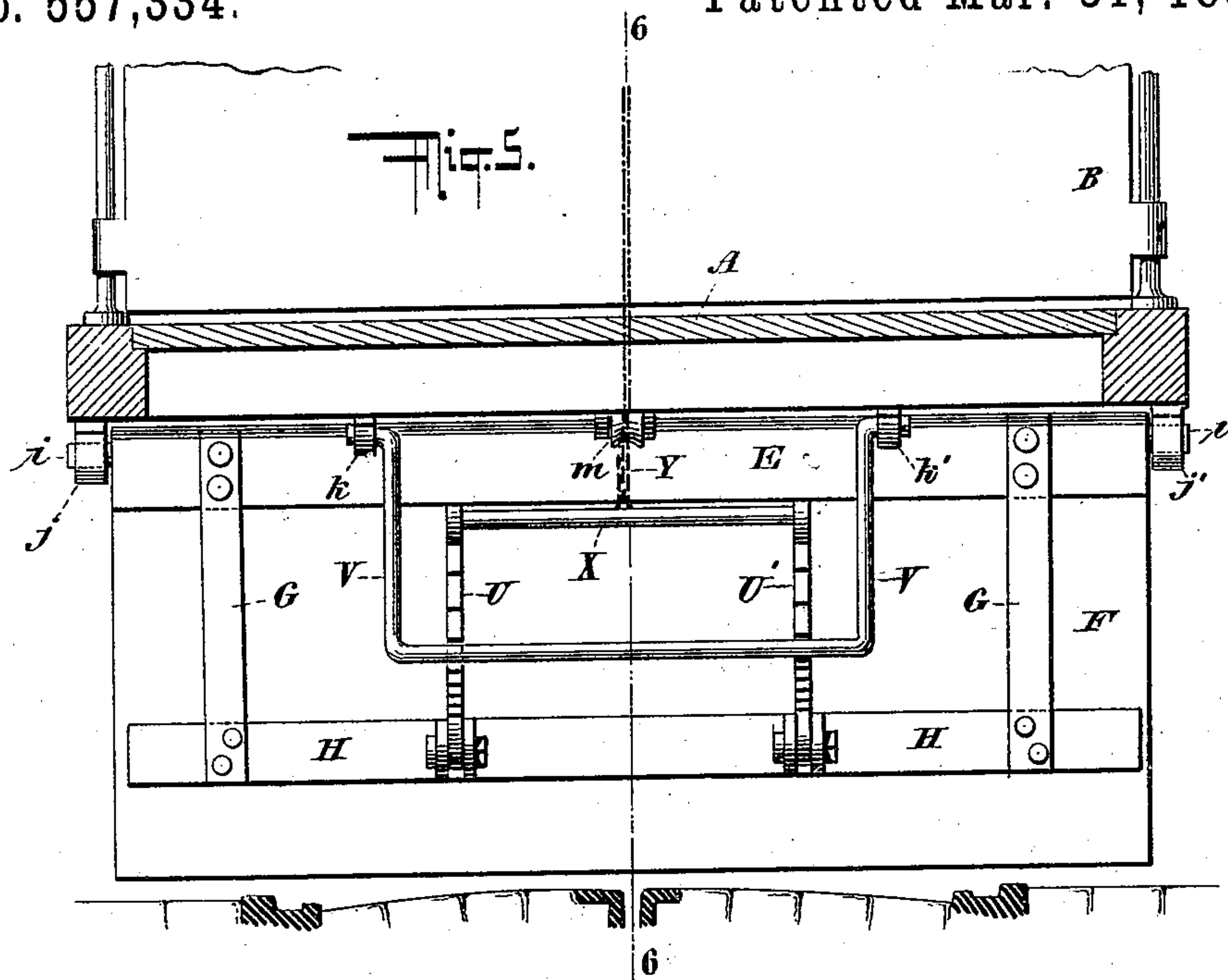
(No Model.)

3 Sheets—Sheet 2.

G. H. MOLLER.
SAFETY FENDER FOR CARS.

No. 557,334.

Patented Mar. 31, 1896.



WITNESSES:

Gustav Dietrich
John Kuhlbeck

INVENTOR

George H. Moller

BY

Gustav Dietrich
his ATTORNEY.

(No Model.)

3 Sheets—Sheet 3.

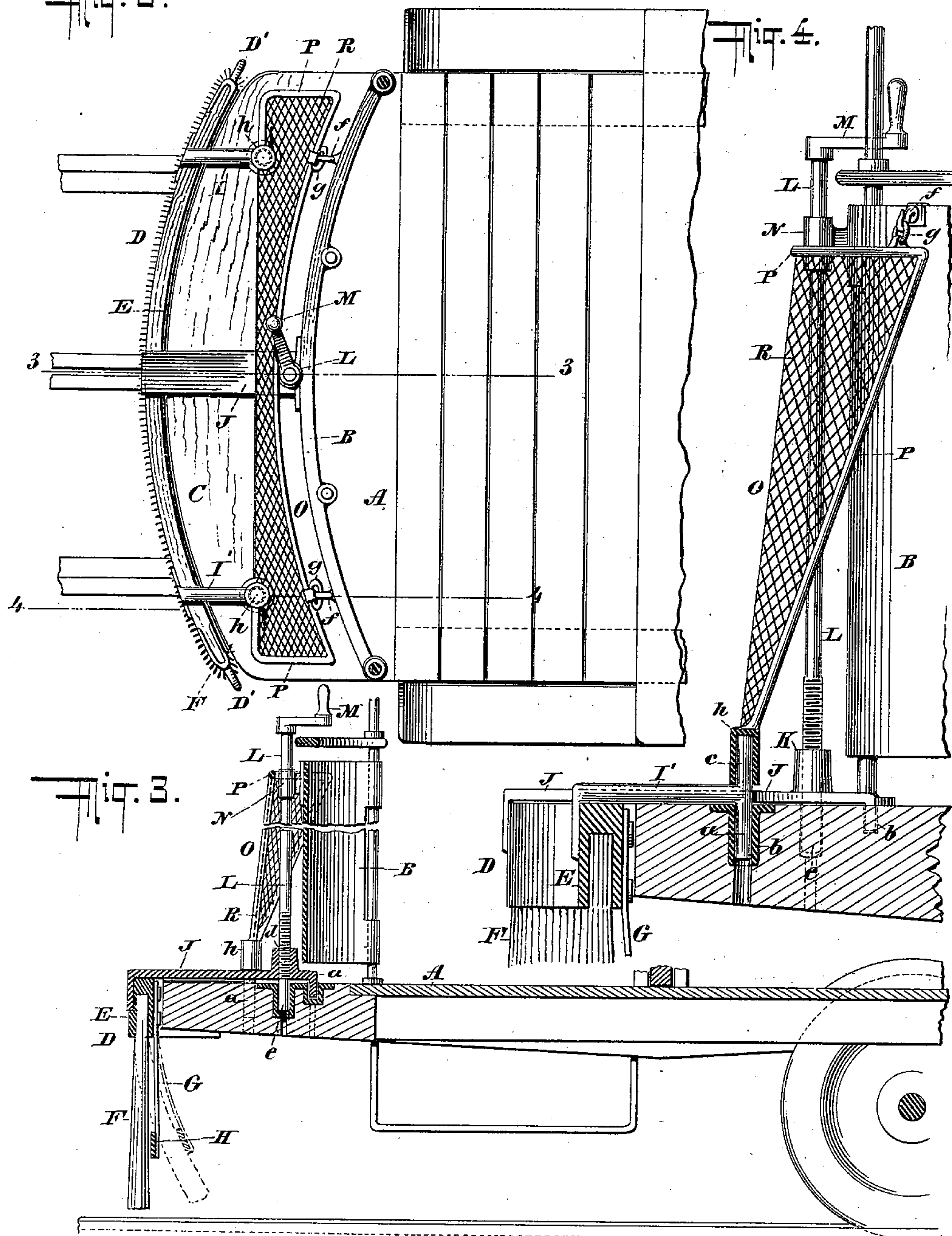
G. H. MOLLER.
SAFETY FENDER FOR CARS.

No. 557,334.

Patented Mar. 31, 1896.

Fig. 2.

Fig. 4.



WITNESSES:

INVENTOR

WITNESSES:
Gustav Dietrich.
John Kehlbeck.

George H. Moller

BY.

BY: *Conguestus Sitter* of
his ATTORNEY.

UNITED STATES PATENT OFFICE.

GEORGE H. MOLLER, OF NEW YORK, N. Y., ASSIGNOR TO HAROLD G. MOLLER,
OF SAME PLACE.

SAFETY-FENDER FOR CARS.

SPECIFICATION forming part of Letters Patent No. 557,334, dated March 31, 1896.

Application filed August 7, 1895. Serial No. 558,467. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. MOLLER, a citizen of the United States, residing at the city of New York, in the county and State of New York, have invented certain new and useful Improvements in Safety-Fenders for Cars, of which the following is a full, clear, and exact description.

My invention relates to safety-fenders adapted for use on trolley, cable, and other cars; and it has for its object more particularly to provide a light and serviceable fender which may be easily attached to or removed from the car, or removed from one end and then attached to the other end where the car is compelled to go back over its route without being turned.

The invention consists in the novel details of construction hereinafter described, and more particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, wherein like letters of reference indicate like parts, Figure 1 is a perspective view showing my improved fender attached to a car. Fig. 2 is a plan view thereof. Fig. 3 is a section taken on the line 3 3 of Fig. 2. Fig. 4 is an enlarged detail section taken on the line 4 4 of Fig. 2. Fig. 5 is a sectional view illustrating a modification, the same being taken on the line 5 5 of Fig. 6, looking in the direction of the arrow; and Fig. 6 is a horizontal section of the same.

In the drawings, A designates the car-platform, B the dashboard, and C the projecting portion of the platform; D, the fender, consisting of a frame E of non-yielding material—such as wood, iron, &c.—having secured thereto a yielding depending guard F, made of a sheet of rubber, or a series of resilient spring-fingers arranged side by side and secured therein. At the back of the frame, a short distance from each end thereof, is secured by means of bolts or other suitable fastenings a depending arm G, and to the extreme ends of these arms G is secured a band of stiff spring metal H. The said band H is supported a short distance above the ground at the rear of the guard F by the depending arms G, and as the same and the band H are made con-

siderably less resilient than the guard they serve as a reinforce therefor. By this construction it will be apparent that I obtain a guard which is very yielding and elastic between the platform and the point where the band H strikes the same, somewhat less yielding and elastic between said last-mentioned point and the extreme lower edge of the guard, and very stiff and yielding but slightly directly in front of the band H, which in practice should be so adjusted as to come in contact with a person lying prone on the ground in the path of the car.

The entire fender is supported upon the projecting portion C of the car-platform by means of rearwardly-extending arms I I' and an arm or plate J, all of which are secured to the top of the frame E and provided with bent-over ends *a*, which are adapted to fit into sockets *b* in the platform. The arms I I' are further provided at their inner ends with upwardly-projecting pins or studs *c*.

Upon the upper side of the arm or plate J, near its inner end, is a hub or boss K having a centrally-located screw-threaded aperture *d* therein, and directly beneath the same, in the projecting portion of the car-platform, is a circular recess *e*.

L is a rod provided at its upper end with a crank M and supported near its top in and by a bearing N secured to the dashboard, while its extreme lower end, which extends through the hub K and plate J, is adapted to fit into and be supported within the circular recess *e* in the car-platform, and a short distance from the extreme lower end of said rod is a threaded portion which is adapted to work within the hub K. By turning this rod L the entire fender may be raised or lowered sufficiently to just clear the ground, and be then maintained thereby in its adjusted position.

Supported in front of the dashboard, and at an angle thereto, is a screen O, which consists of a rectangular frame P having a net R of rope or wire secured thereon. This screen O is supported at its upper edge by means of hooks *f* secured to the top of the dashboard, which are adapted to receive the rings or loops *g* secured to the upper edge of

the screen O, while its lower edge is held firmly in place by means of hoods or caps *h* secured to the lower edge of the frame P and adapted to be fitted upon the upwardly-projecting studs *c* of the arms I I'. This screen O serves to protect the mechanism above the platform, and at the same time prevents persons from being thrown against the dashboard.

To remove the fender, it simply becomes necessary to lift off the screen O, release the screw of its engagement with the hub K on the arm or plate J, and then raise the fender D by means of the handles D' secured to the ends of the frame E. Thereupon the same and the screen O may be placed in position at the opposite end of the car, which is, of course, also provided with sockets and retaining means, as above described.

In the modification illustrated by Figs. 5 and 6 the frame E of the fender is provided at each end with a trunnion *i*, adapted to be supported in journals *j, j'* secured to the under side of the platform, the same being so constructed as to permit of the fender D being lifted out of the same when it is desired to attach it to the other end of the car.

To the under side of the platform, directly behind the fender D, are secured two journals *k k'*, within which are supported the ends of a U-shaped support V having projecting toes *l* at its upper end adapted to strike against the under side of the platform to prevent said support V swinging forwardly, and two springs W W' having their upper ends secured to the platform and their lower ends secured to the vertical portions of the support V. U U' are two segmental racks, the teeth of which are held in engagement with the horizontal portion of the support V, said racks having their lower ends pivotally secured to the band H of the reinforce and their upper ends connected by a cross-bar X, to the middle of which is secured one end of a chain Y, and the other end, after passing over a pulley secured to the under side of the platform and extending through a slot *n* in the platform, is yieldingly secured above the latter within easy reach of the grip or motor man. By means of the chain Y the fender D may be raised or lowered to and then secured in any desired position, and as the support V for the segmental racks is rearwardly movable the fender D will, when it strikes an object in the path of the car, yield rearwardly at the moment of impact, and immediately thereafter be returned to its normal position by means of the springs W W'.

It will be observed that I have shown the frame E of the fender in both constructions formed to correspond in outline with the edge of the car-platform. I do not, however, wish to limit myself thereto, as the same may be curved to a much greater extent or made to a point in the center—viz., of V shape—nor do I wish to limit or confine myself to the

material employed to form the guard F, as the same may be made of sheet-rubber, metal rods or wire, reed or ratan—in fact, of any substance possessing resilient qualities similar to those above named—and then provided with the reinforce shown and described.

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

1. In combination with a car-body, an inclined screen or net, a fender consisting of a frame having a yielding guard secured therein and a rearwardly-yielding reinforce for said guard, and means for raising and lowering said fender and securing the same to its adjusted position, substantially as specified.

2. In combination with a car-body, an inclined screen or net, a fender consisting of a frame, having a depending, yielding guard secured therein and a yielding reinforce for said depending, yielding guard, and means for raising and lowering said fender and securing the same to its adjusted position, substantially as specified.

3. In combination with a car-body, an inclined screen or net, a fender consisting of a non-yielding frame having a depending, resilient guard secured thereto and a resilient reinforce arranged behind said guard, and means for raising and lowering said fender and securing the same to its adjusted position, substantially as specified.

4. In combination with a car-platform having a projecting end provided with a series of sockets, a screen or net supported and secured upon said projecting end at an angle to the dashboard, a fender consisting of a non-yielding frame having rearwardly-extending arms secured thereto provided with bent-over ends adapted to be supported in the sockets aforesaid, a depending, resilient guard secured in the under side of said frame, and a less resilient reinforce arranged behind said guard and secured at the rear of the frame or back, and means for raising and lowering said fender and securing the same to its adjusted position, substantially as specified.

5. In combination with a car-platform having a projecting end and a dashboard secured thereon, a series of sockets and a circular recess in said projecting end, and a pair of hooks and a journal on the dashboard, a fender having handles thereon and rearwardly-extending arms secured near the ends thereof, provided with bent-over ends and upwardly-projecting studs, and a rearwardly-extending arm or plate provided with a bent-over end and a screw-threaded hub or boss, a rod having a crank at its upper end, threaded near its lower end extending through said hub or boss and supported in and by the circular recess in the platform and the journal on the dashboard, and a screen or net having eyes on its upper edge and hoods at its lower edge adapted to be supported and retained

by the hooks on the dashboard, and the studs on the rearwardly-extending arms of the fender, substantially as specified.

6. A safety-fender for cars comprising a
5 non-yielding frame, having a depending,
yielding guard secured therein, a pair of depending resilient arms secured to the rear of the frame or back, having a resilient band secured to the lower ends of said arms adapted
10 to reinforce said depending, yielding guard,

and means for adjustably and detachably securing the same upon a car-platform, substantially as specified.

Signed at the city of New York, in the county and State of New York, this 6th day 15 of August, 1895.

GEO. H. MOLLER.

Witnesses:

GUSTAVE DIETERICH,
JOHN KEHLENBECK.