

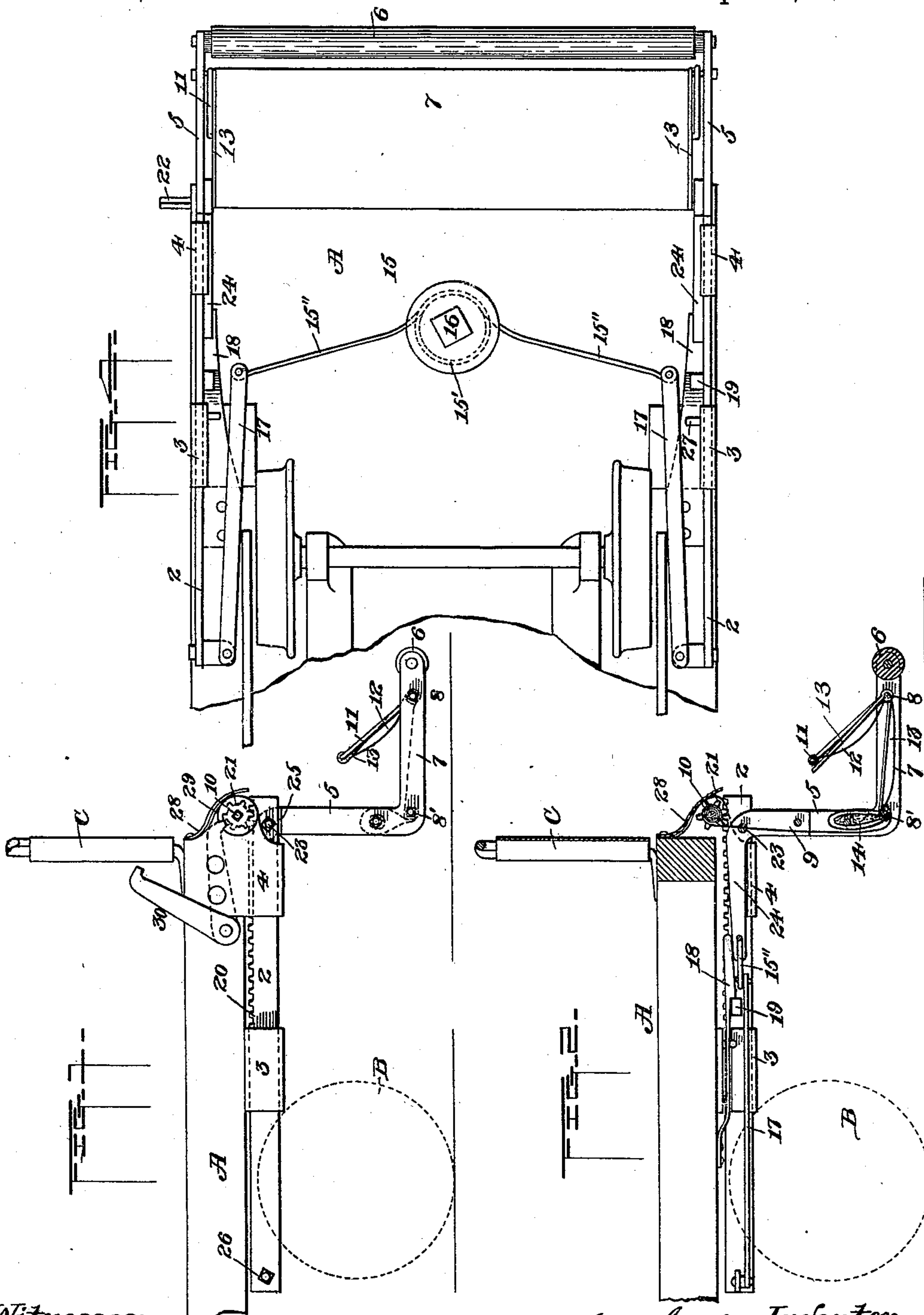
(No Model.)

2 Sheets—Sheet 1.

O. CULLISON.  
CAR FENDER.

No. 536,852.

Patented Apr. 2, 1895.



Witnesses;  
Jos. H. Milane,  
Chas. W. Parker.

O. Cullison Inventor  
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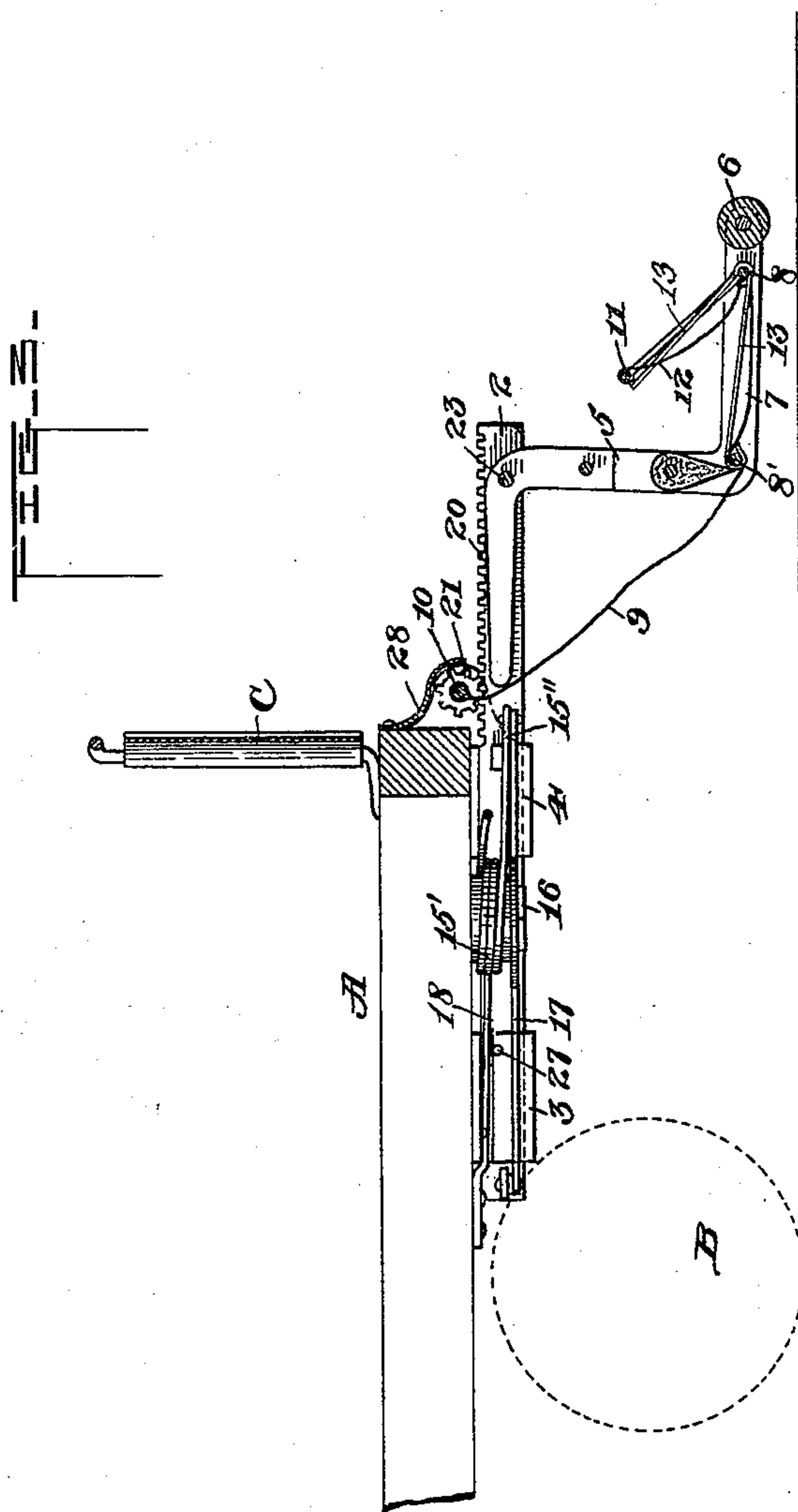
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# UNITED STATES PATENT OFFICE.

OBEDIAH CULLISON, OF YORK, PENNSYLVANIA.

## CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 536,852, dated April 2, 1895.

Application filed October 19, 1894. Serial No. 526,401. (No model.)

*To all whom it may concern:*

Be it known that I, OBEDIAH CULLISON, a citizen of the United States, residing at York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Car-Fenders; 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.

A successful car fender for use upon tram cars should possess certain characteristics, among which may be mentioned the following: It should be so constructed and operated as to trip a person who might be struck thereby, and cause him to fall toward the car and upon the fender, rather than upon the track in front of the fender; and further it should be entirely automatic in its operations, so that it is in no wise dependent upon the action of the motor-man or the grip-man for its action.

My invention has for its object to produce a car-fender which shall possess the above-described, and other desirable characteristics; and to this end it consists of a fender adapted to be carried at the end of a tram or other car, combined with a mechanism for throwing or projecting forward the fender, and a trip which sets off this mechanism, and is operated whenever the fender meets with an obstruction.

The invention further consists in the improvements upon the fender proper, upon its operating mechanism, the aforesaid trip, and upon other parts of the device, all of which improvements will be hereinafter set forth and described in detail; and in order that my invention may be the better understood, I have illustrated an embodiment thereof in the accompanying drawings, without however thereby limiting myself to all of the details of construction and arrangement therein shown, since the principle of the invention, in part or in whole, may be carried out by means of apparatus different from that shown.

In such drawings,—Figure 1 is a side view of a car equipped with my invention. Fig. 2 is a longitudinal sectional view showing the parts in their normal or rearmost position. Fig. 3 is a longitudinal sectional view show-

ing the parts thrown forward, as when an obstruction has been encountered by the fender. Fig. 4 is a bottom or inverted plan view.

As my invention is applicable to cars of many different styles and constructions, I have, for the sake of simplicity in illustration, represented it upon a flat or platform car.

In the drawings, A, represents the platform, B, the wheels, and C, the front dash-board of such a car. It will be understood that, so far as these parts are concerned, all details of construction have been omitted.

The fender proper is mounted upon and supported by the sliding bars 2, 2, which are suitably supported by the car, being shown as mounted in the brackets 3 and 4, arranged below the platform and near its sides or edges. These brackets form strong supports in which the bars may be moved in the direction of their length.

The fender is supported at the forward ends of these bars and moves forward and back with them. It consists, preferably, of the angular or L-shaped frame pieces or side bars 5, 5, which are secured at their upper ends to the bars 2, and between which are arranged the other parts of the fender. At the front ends of these side bars is a roller or bar 6, which being the part of the fender which projects the farthest forward is properly padded so as not to injure a person should he be struck thereby.

In rear of the roller 6, is a yielding support upon which the body of a person may fall and be carried should it be struck by the fender. This support may be of any suitable material and construction, such as leather, rubber-cloth, wire netting, or a padded frame; but I prefer that it should be formed into two parts, as shown, viz:—a horizontal portion 7, of flexible fabric arranged directly back of the roller 6, and supported by the cross bars 8 and 8', to which it is preferably secured; and an inclined portion, 9, of flexible fabric arranged in rear of the part, 7, and secured at its lower forward edge either to the part, 7, or to the cross bar, 8', as may be preferred; and at its rear upper end to some support, such as the cross bar 10, arranged at or close to the front end of the car. In order to break the force of a fall upon the fender, I arrange



a spring or yielding cushion directly back of the roller, 6, and a cushion at about the rear edge of the horizontal part, 7, of the support. The forward cushion or guard consists, by preference, of a sort of platform formed of a light frame, 11, pivoted upon the cross-bar, 8, and covered with some soft flexible material, 12, and held yieldingly in an inclined position by the springs 13. The rear cushion, 14, may be of tubular elastic material such as rubber fabric. These cushions or guards are not essential, but serve to prevent shock and injury to the person falling upon the fender.

The mechanism by which the bars, 2, are thrown forward is mounted on the underside of the platform of the car. It consists of a spring, 15, having the central coiled portion, 15',—mounted upon a suitable support, 16,—and the two arms, 15'', which extend outward toward the sides of the car, and are connected with the rear ends of the bars, 2, by the links 17.

The bars, 2, and the fender are normally held in their rearmost or retracted positions, and in order to hold them thus, I arrange the spring catches, 18, so as to engage with the lugs or projections, 19, upon the bars, when they are moved back under the platform. In order to move the sliding bars back against the action of the spring, 15, and into engagement with the catches, 18, I form the bars with the rack portions, 20, and mount the pinions, 21, upon the shaft, 10, so that they are in engagement with these racks. One end, 22, of the shaft, 10, is shaped so that a crank handle may be applied thereto, so that the bars may be easily moved back.

It is desirable that the fender should be automatically projected or thrown forward whenever it meets with an obstruction, such as a person, and to accomplish this it is necessary that there should be provided some form of trip mechanism for releasing the bars, 2, from the catches, 18, and permitting the spring, 15, to operate. To this end I cause the fender proper to act as a trip. The side pieces, 5, are pivoted, at 23, to the forward ends of the bars 2, and beyond these pivots they are continued in the form of arms, 24, which lie close to the inner sides of the bars 2, so that, when the bars are moved back, the ends of these arms are under the catches, 18.

It will be seen that whenever the fender is rocked backward upon its pivots, 23, the arms, 24, are thrown up so that they will move the catches and cause them to disengage the slide bars and permit them and the fender to be projected forward; and it will be further seen that whenever the fender meets with an obstruction, such as the body of a person, it will be caused to rock back slightly on its pivots and trip the catches, the front edge of the fender at the same time approaching closer to the ground or track than it normally is, which is advantageous, since this tends to prevent the fender rising over a person or the

limbs of a person which may be extended from the body. The spring catches, 18, serve not only to hold the sliding bars, 2, but they also, by bearing upon the arms, 24, when the fender is in its normal or rear position, throw or rock the fender forward upon its pivots, and hold it in this position, so that it is always ready to act as a trip or set off for the actuating mechanism which projects the fender.

The extent to which the fender is permitted to rock upon its pivots is limited by the shoulders, 25, formed upon the fender frame pieces, 5, and arranged a short distance below the under edges of the bars, 2. It will be observed that the fender proper,—as a whole,—has thus a limited movement upon the sliding bars by which it is supported, so that it can act directly upon the catches to release the bars from them, without the intervention of complicated mechanism. This movement of the fender is a rocking one, upon the pivots, 23, but it will be understood that the same result could be easily accomplished by so mounting the fender that it would have a sliding instead of a rocking motion. The steps, 26, limit the extent to which the bars, 2, may be moved forward, and the stops, 27, upon the brackets 3, serve to limit the movements of the spring catches, 18.

I prefer that the flexible rear portion or apron, 9, of the fender should be secured along its rear edge to the rotatable shaft 10, upon which are mounted the pinions, 21, so that when the shaft is turned to move back the sliding bars and the fender, the screen or apron will be wound up, and when the fender is shot forward it is unwound.

A flap or deflector, 28, made of suitable material, is secured to the front of the car and extends over the shaft, 10, and serves to protect the portion of the apron, 9, wound upon the shaft, from rain and snow. This is especially serviceable in cold weather as otherwise the flexible apron might become wet and then freeze solid to the shaft and prevent the working of the fender.

Upon one end of the shaft 10, there is shown a notched disk, 29, with which a locking pawl, 30, is arranged to engage, so as to securely hold or lock the parts of the fender in their innermost or retracted positions. This is desirable when the cars are stored, or are serving as trailers; but it is especially advantageous when a car is operating upon a road which is more or less blocked with snow, because, if the fender were not locked, it would be set off and thrown forward whenever it encountered a snow bank or mass, and under such circumstances it is best that the fender should be arranged as far to the rear as possible.

There may be a suitable opening formed in the inclined apron or screen, 9, to permit the coupling of cars provided with my invention. Such opening may be closed by a flap or otherwise if found desirable, when not used.



The position which the fender occupies, that is to say, whether set high or low, or far in advance of or close to the car, will depend upon the shape of the side frame pieces, 5, and the length of the sliding bars, 2; and the relative proportions of these parts may be varied to suit the circumstances of each particular equipment.

The metallic parts of the apparatus where they are liable to be struck by a person caught upon the fender may be protected by guards or padding, if this be thought desirable.

If it be desirable to remove the fender from the car this can be easily done by removing the bolts which constitute the pivots, 23, and disconnecting the apron 9, from the shaft, 10.

The roller 6 is arranged as close to the ground or track as it is safe to do without too great danger of its striking by reason of the rocking of the car while in motion, which might result in setting off the fender-operating mechanism.

It is probable that the motion of the car alone would so trip a person,—standing upon or moving directly across the track,—as to throw him upon the screen thereof; but to insure a person being thus thrown instead of being thrown down in front of the fender, especially when he is moving in the direction the car is going,—as when attempting to escape being struck thereby,—it is necessary that the fender should have imparted to it a sudden forward motion in addition to that which it receives from being carried by the car. This carries the legs of the person struck, forward, and from under the body, which falls upon the fender and is carried thereby. The first contact of the fender with the person operates to trip or release the operating mechanism when, as has been set forth, the fender is instantly thrown forward under the body of the person.

I am aware that it has been proposed to provide the axle of a tram car with a pinion and to combine therewith a fender provided with a sliding frame which is formed with two racks, the frame being movable to bring one or the other of the said racks into engagement with the pinion to move the fender forward or backward; but such device is entirely different from that which I have shown and am claiming, in that the operating bar which is provided with the pinions that engage with the rack bars of the fender is entirely independent of the running gear of the car, so that my fender is operative whether the car be standing still or in motion, the forward and backward movements of the fender being in nowise dependent upon the motion of the car.

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

1. The combination with a car, of the sliding bars supported on the car and having the

rack portions, the pinions which engage with the rack portions of the bars, means whereby the pinions may be turned to move the bars in one direction, an automatic spring actuating mechanism for moving the bars in the other direction, a catch for holding the bars from being moved by the said automatic mechanism, and a trip for releasing from the said catches, substantially as set forth.

2. The combination with a car, of the movable bars supported upon the car near one end, a fender carried by the bars, and movable to a limited extent toward the tracks, independently of the said bars, the mechanism for moving forward the fender and bars, the catches arranged to hold them back, and the trip arm or arms connected directly with the fender and movable therewith, arranged to disengage the said catches, substantially as set forth.

3. The combination with a car, of the sliding bars, the mechanism for moving them forward, the catches for holding them retracted, the fender supported at the forward ends of the bars, the fender having the angular or L-shaped side frame pieces, 5, which are pivoted at their upper ends to the bars, whereby when the forward end of the fender meets with an obstruction the fender rocks upon the said pivots toward the track, and the arms connected with the upper ends of the frame pieces, 5, and extending into position to engage with the said catches, whereby when the fender is rocked upon its pivots the said arms operate as trips to disengage the catches and permit the mechanism to move forward the fender, substantially as set forth.

4. The combination with a car, of the sliding rack bars, 2, provided with the lugs or projections, 19, the spring catches, 18, arranged to engage with the projections when the bars are moved back, a spring connected with the bars and tending to move them forward, the fender pivoted at the forward ends of the bars, and the arms secured to the fender and arranged, when the bars are moved back, to lie in position to trip the catches when the fender is moved on its pivots, substantially as set forth.

5. The combination with a car, of the sliding rack bars, 2, the shaft, 10, the pinions mounted upon the shaft and in engagement with the racks on the bars, a fender carried by the bars, and a flexible apron secured at one edge to the fender and at the other to the shaft, whereby when the fender is moved backward the apron is rolled up on the shaft, substantially as set forth.

6. The combination with a car, of a fender arranged to be moved forward and back, a flexible apron connected thereto, a shaft on which the apron is wound when the fender is moved back, and a deflector or flap by which the portion of the apron wound upon the shaft is protected, substantially as set forth.

7. The combination with the car, of the sliding rack bars, 2, a cross shaft provided with



pinions which engage with the rack portions  
of the said bar, and also with a notched disk,  
29, a fender carried by the said bars, mechan-  
ism tending to move forward the bars and the  
5 fender, a catch for holding them in a rearward  
position, a trip for releasing from the catch  
upon the fender striking an object, and a lock  
for positively holding the fender and bars in  
their rearmost positions, consisting of a pawl,

30, adapted to engage with the said notched ro  
disk, substantially as set forth.

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

OBE. CULLISON.

Witnesses:

FRANK FRYSDINGER,  
EDWD. CHAPIN.