

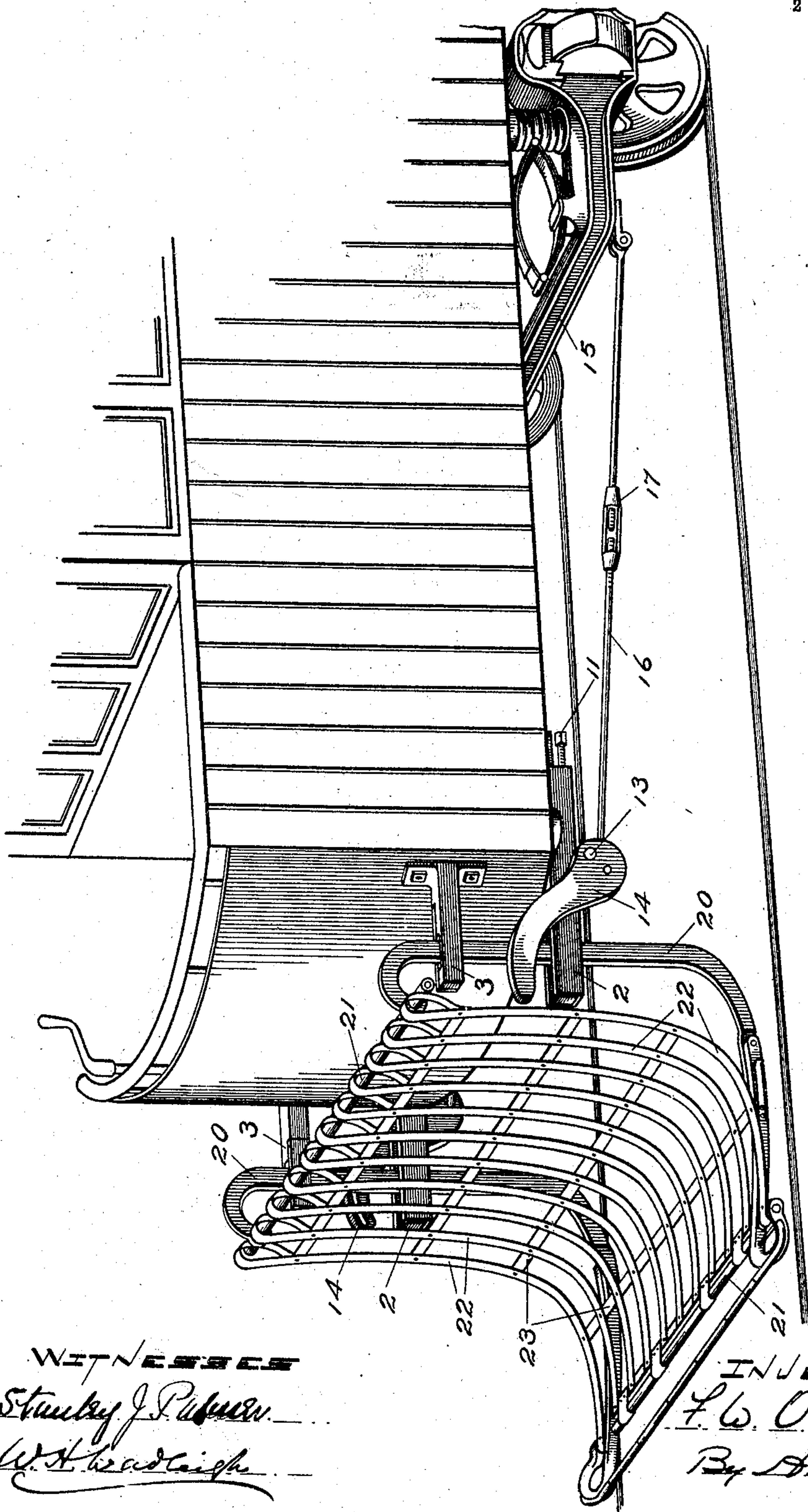
No. 806,561.

PATENTED DEC. 5, 1905.

F. W. O'CONNOR.  
CAR FENDER.

APPLICATION FILED JUNE 27, 1904.

2 SHEETS—SHEET 1.



WITNESSES  
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W. H. Bradleigh

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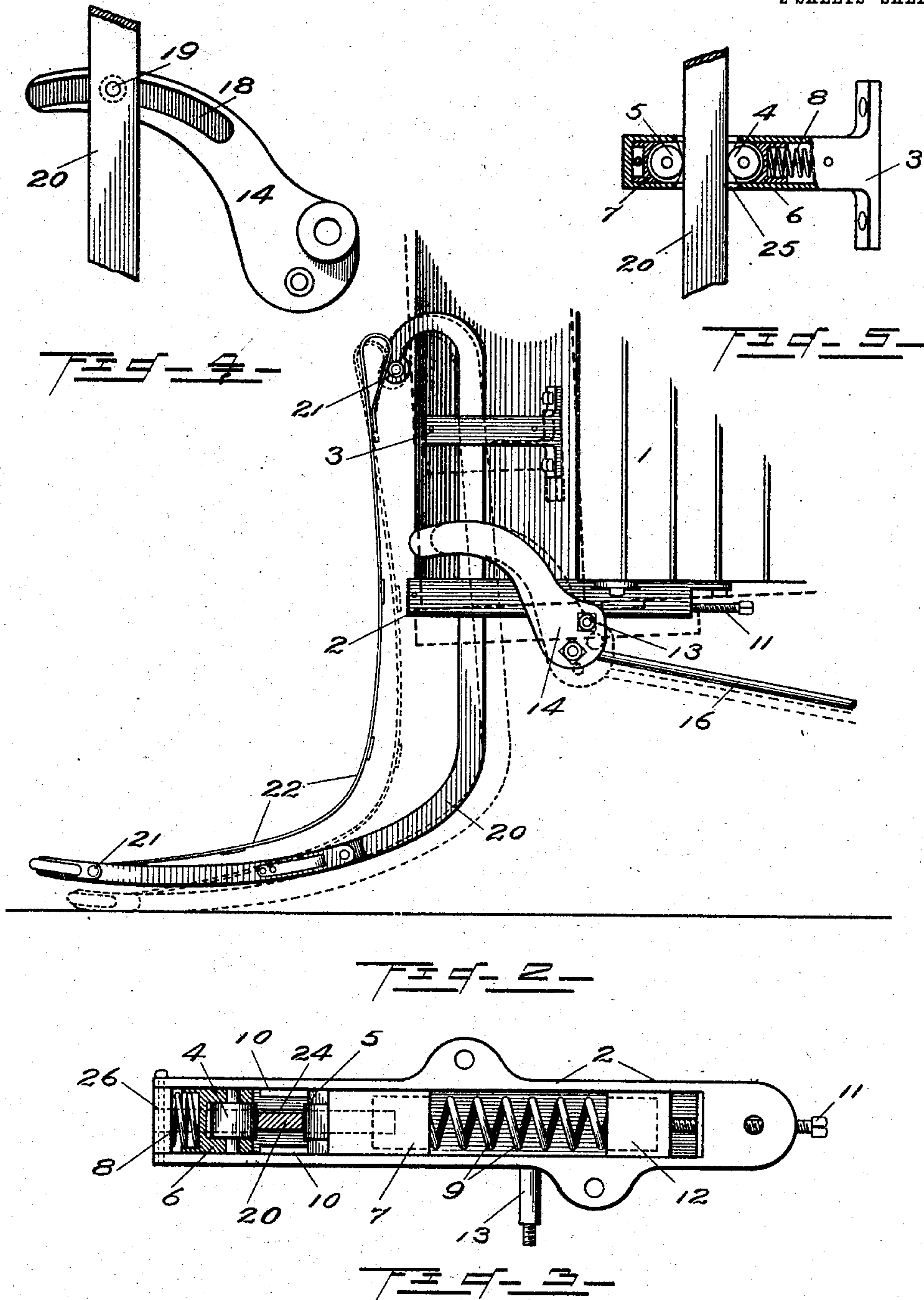
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# UNITED STATES PATENT OFFICE.

FREDRICK WILLIAM O'CONNOR, OF TORONTO, CANADA.

## CAR-FENDER.

No. 806,561.

Specification of Letters Patent.

Patented Dec. 5, 1905.

Application filed June 27, 1904. Serial No. 214,293.

*To all whom it may concern:*

Be it known that I, FREDRICK WILLIAM O'CONNOR, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Car-Fenders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form part of this specification.

The present invention relates to an improved car-fender general in its application and particularly valuable to the present electrically-propelled or trolley car.

The characteristic features of the present invention are an automatically-actuated fender comprising a positive vertical adjustment, in which the operative elements maintain the fender at a fixed elevation above the road-bed and compensate for the variable height of the car from the road-bed, owing to an increase or decrease of the load or the oscillation of the car due to the unevenness of the rails, the latter particularly in the instance of "single-truck cars." By the foregoing it is obvious that the clearance between the fender and the roadway can with safety be reduced to a minimum, which is a desideratum, thereby permitting of a greater rate of speed without the liability to injure the fender through forceful contact with the roadway. The efficiency of the fender as a life-saver is further increased owing to the manner in which it operates on meeting an obstruction on the roadway. When in forceful contact with any obstruction, the fender recedes simultaneously with a downward movement, thus lessening the impact and preventing the obstruction passing beneath.

The invention consists in part of the application of, antifriction-rolls to reduce the friction of the primal operating elements to a minimum, of the facility with which the fender can be adjusted for any desired clearance above the roadway, and of the manner in which the fender proper is supported, permitting of being readily removed and replaced.

I attain the foregoing by the construction and arrangement of parts shown in the accompanying drawings, in which similar figures of reference refer to like parts throughout.

Figure 1 is a general view in perspective of the car and fender attached embodying the said improvements. Fig. 2 is a side eleva-

tion of the fender in its normal position, and to more clearly illustrate the action which has more immediately to do with increasing the efficiency of the fender is shown in dotted lines the relative positions of the car and fender. Fig. 3 is a plan view in detail of the lower support, showing the mechanism contained therein. Fig. 4 is a view in detail of the actuating-cam; and Fig 5 is a side elevation, in partial section, of the upper support.

Broadly speaking, in appearance the design of the fender proper is of a conventional type, being that found most serviceable to attain the end in view, and in this instance it is shown attached to a single-truck car.

Adjacent to the sides of the body of the car 1 and projecting slightly forward of the dash are a pair of supporting-arms 2 and 3. The lower supports 2 are bolted or otherwise secured to the under side of the platform, and the upper supports 3 are in like manner secured to the dash or front of the car. The supporting-arms 2 and 3 are comprised of hollow casings, preferably rectangular in cross-section, and the mechanism contained therein is similar in so far that each support is provided with a pair of rolls 4 and 5, pivoted in blocks 6 and 7, respectively. The blocks 6 are adapted to slide longitudinally and abut against a short spiral spring 8, whereby any lost motion is eliminated. In the instance of the supports 3 the blocks 7 are stationary, while the similar blocks of the supports 2 are adapted to slide longitudinally and abut against an additional spiral spring 9, opposed to the aforesaid spring 8 and of greater proportions, as shown. To limit the forward movement of the blocks 7 of the supports 2, there are lugs 10, and to regulate the pressure of the spring 9 there is an adjustable screw 11, acting upon a sliding block 12, as shown.

Pivoted on the studs 13 are the cams 14, each preferably independently operated by the car-truck 15, through the medium of a pivoted connecting-rod 16. The fixed height of the fender above the roadway is provided with adjustment by varying the length of the said connecting-rod by means of a turnbuckle 17. Referring to Fig. 4, it will be seen that the action of the cam 14 in either direction is positive. The operating-surfaces are contained within the curved recess 18, in which operates a roll pivoted on the stud 19, and the outer extremity of said recess 18 is open to admit



of the free ingress and egress of the aforesaid roll when removing or replacing the fender. The configuration of the operating-surfaces of the cam conform to a curve that will maintain the fender at a uniform height above the roadway when operated from the car-truck and compensate for any variation in the position of the car above the roadway.

The fender is provided with a substantial frame comprising side bars 20, connected by longitudinal cross-braces 21, said braces extending slightly beyond the line of the side bars. Attached to the braces 21 is the flexible screen forming the protective portion of the fender. The screen is constructed, preferably, of light iron bands 22, secured at their extremities to the aforesaid braces 21 and provided with a number of like iron bands 23, attached to and crosswise of the former.

Further detail in the construction of and the form given to the several parts of the fender can be readily understood by referring to the drawings.

Adapted to reciprocate vertically between the rolls 4 and 5 of the supports 2 and 3, there is the upright portion of the side bars 20. To guide the said bars in their vertical movement, there are elongated slots 24 and 25 in the supports 2 and 3, respectively. The slots 24 of the supports 2 are extended lengthwise sufficiently to allow of the fender swinging backward when in contact with any obstruction and cushion the force of the impact by the depression of the springs 9. The supports 3 serve as a fulcrum during the longitudinal movement of the fender.

To facilitate the removing and replacing of the fender proper, it is essential to release the side bars without the necessity of detaching the supports. This is accomplished by withdrawing the blocks 6 of the supports 2 after removing the end piece 26, the slots 24 in this instance extending to the outer extremities of the supports. In the instance of the supports 3 one of the sides is adapted to be readily removed.

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

1. In a car-fender, the combination with a vertically-adjustable frame supporting a flexible screen, of supporting-arms for carrying said frame, and a cam operating through the medium of a connecting-rod from the car-truck, whereby the fender is maintained at a uniform height above the roadway, for the purpose hereinbefore set forth.

2. In a car-fender, the combination with a vertically-adjustable frame supporting a flexible screen and susceptible of swinging longitudinally, of upper and lower supporting-arms, said lower arms provided with cushioning-springs, and a cam operating through the medium of a connecting-rod from the car-truck, whereby the fender is maintained at a uniform height above the roadway, for the purpose hereinbefore set forth.

3. In a car-fender, the combination with a vertically-adjustable frame supporting a flexible screen and susceptible of swinging longitudinally, of upper and lower supporting-arms adapted to receive the frame in elongated slots therein, and provided with rolls, said lower supports provided with cushioning-springs, and a cam pivoted on said lower supports and adapted to operate by means of a connecting-rod from the car-truck, whereby the fender is maintained at a uniform height above the roadway, for the purpose hereinbefore set forth.

4. In a car-fender, the combination with a vertically-adjustable fender-frame supporting a flexible screen, of independently-actuated cams, pivoted connecting-rods between the said cams and the car-truck, and supporting-arms adapted to retain said fender-frame, for the purpose hereinbefore set forth.

FREDRICK WILLIAM O'CONNOR.

Witnesses:

H. DIXON,  
WM. O'CONNOR.