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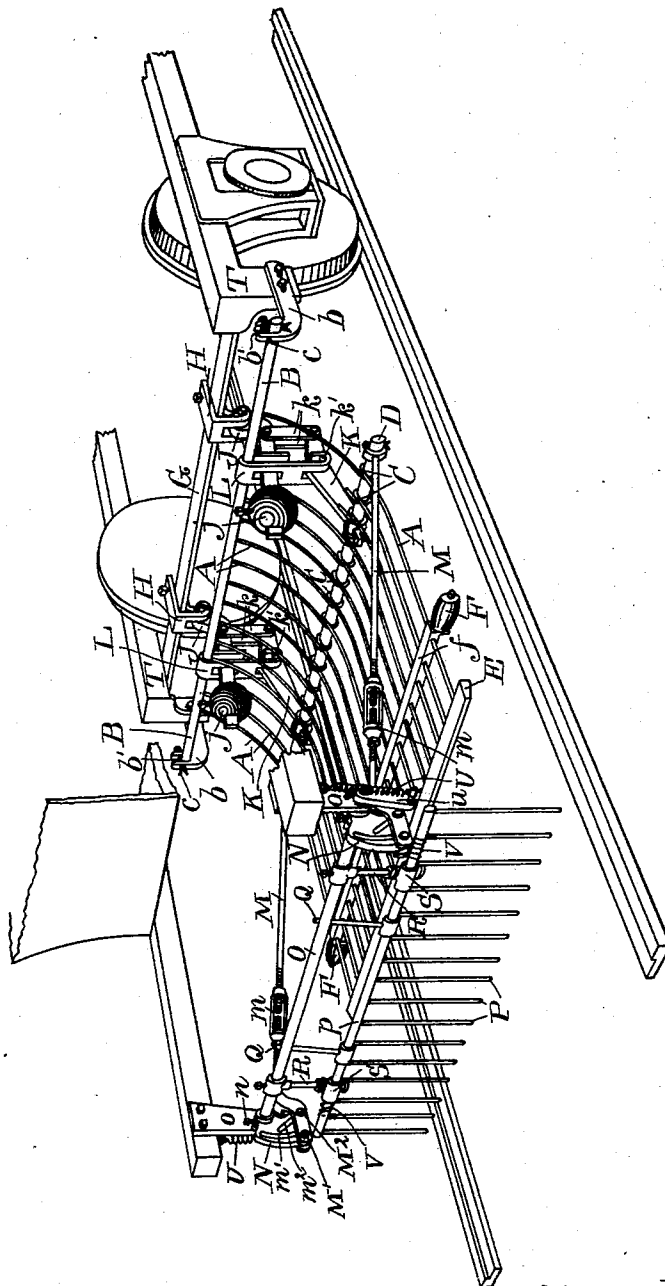
3 Sheets—Sheet 1.

A. D. SIMPSON & A. BIGELMAN.
CAR FENDER.

No. 570,611.

Patented Nov. 3, 1896.

Fig. 1.



Witnesses:
J. W. Fisher
Grace T. Many.

Inventors,
Anson D. Simpson
Augustus Bigelman
by Ward & Cameron
Attorneys

(No Model.)

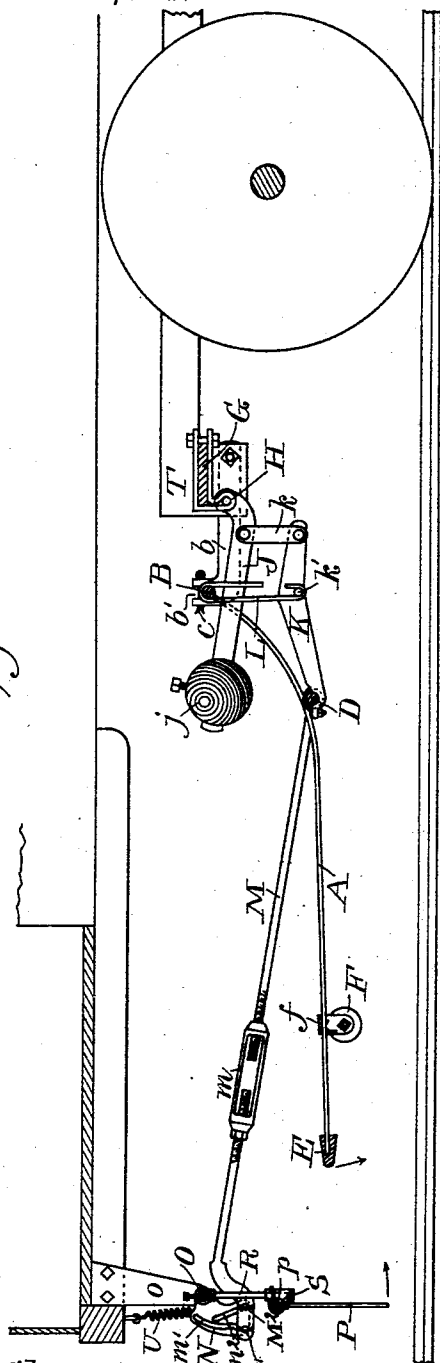
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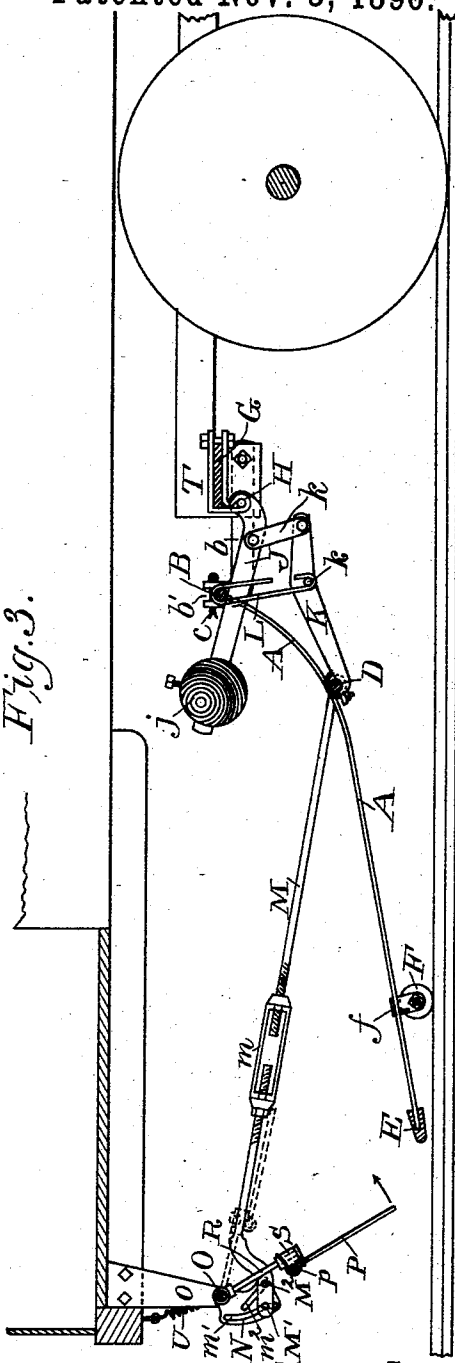
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Fig. 2.



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Fig. 3.



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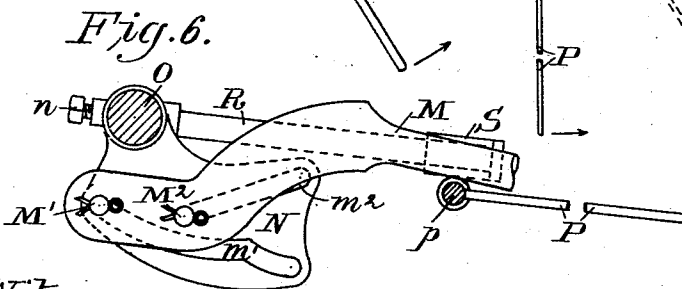
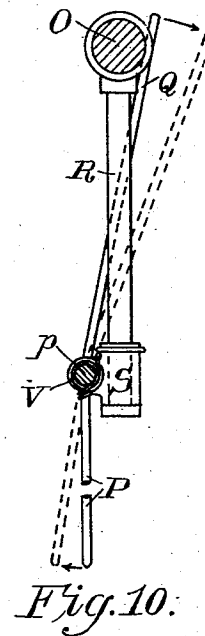
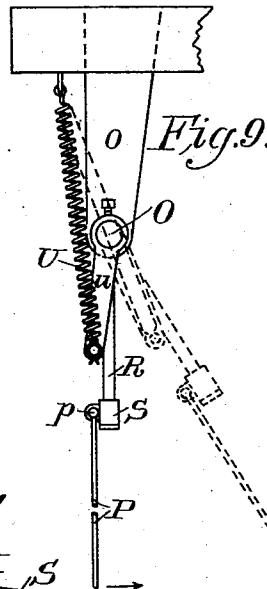
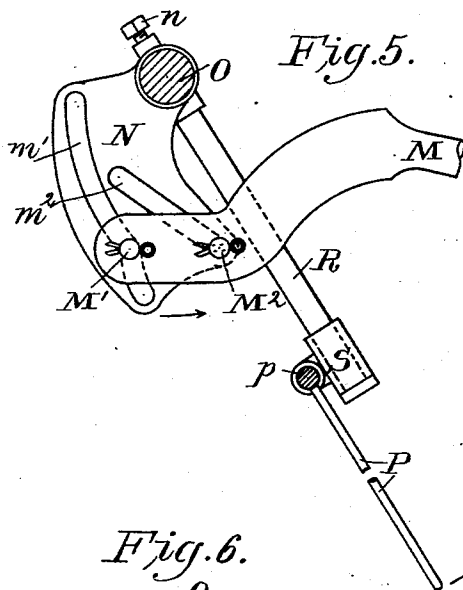
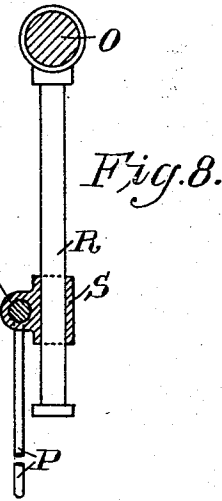
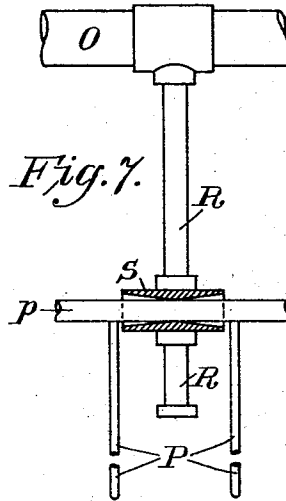
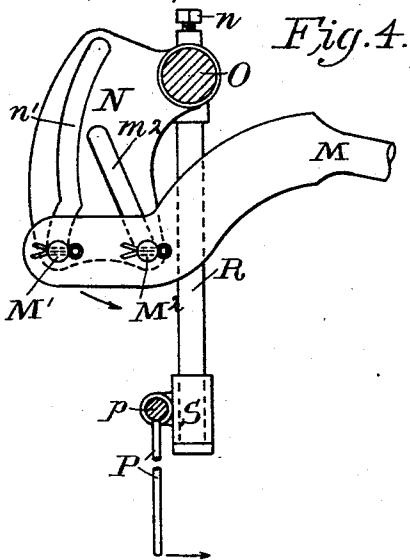
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UNITED STATES PATENT OFFICE.

ANSON D. SIMPSON, OF WEST TROY, AND AUGUSTUS BIGELMAN,
OF TROY, NEW YORK.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 570,611, dated November 3, 1896.

Application filed October 3, 1895. Serial No. 564,509. (No model.)

To all whom it may concern:

Be it known that we, ANSON D. SIMPSON, residing at the village of West Troy, county of Albany, and AUGUSTUS BIGELMAN, residing at the city of Troy, county of Rensselaer, State of New York, citizens of the United States, have invented a certain new and useful Improvement in Street-Car Fenders, of which the following is a specification.

Our invention relates to improvements in mechanism for preventing a pedestrian from being run over by a street-car; and the objects of our invention are to provide a fender adapted to be attached to a street-car beneath the car body, and arranged to automatically depress the forward portion of the fender when an obstruction is met with, and also arranged in such a manner that the vibration of the car shall not affect the operation of the fender or the efficiency of its parts. We attain these objects by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of our invention attached to a car, with part of the car broken away. Fig. 2 is a longitudinal section showing the fender in a normal position. Fig. 3 is a longitudinal section showing the fender depressed. Fig. 4 is a detail view of the cam-block, showing the position of the operating-rod when the fender is in its normal condition. Fig. 5 is a detail view of the cam-block, showing its position when the fender is depressed. Fig. 6 is a detail view of the cam-block, showing its position when the gate is raised. Fig. 7 is a front detail view of the rod R, showing a horizontal section through the sleeve S. Fig. 8 is a side elevation of the rod R, showing a vertical section through the sleeve S. Fig. 9 is a detail side elevation of the gate, and Fig. 10 is a cross-section through the gate.

Similar letters refer to similar parts throughout the several views.

We arrange a series of wires A, having their ends secured within a transverse rod B, provided with a loop C a short distance from the rod, within which loop is secured a transverse rod D. The ends of the wires A are provided with a shoe E, made of wood, and near the shoe we mount the wooden wheels F on

a transverse bar *f*, or in any suitable manner, so adjusted that when the forward part of the fender is depressed the wheels F will come on the track. The wires A are bent downward and forward and form a resilient body suitable for the reception of any obstruction which may accidentally come onto the track. The bar B is secured at each end within brackets *b b*, attached to the truck T of the car. We usually place the bar B within a slotted opening *b'* in the bracket *b*, held in position by a suitable pin *c*, as shown in Fig. 1.

To the strip G on the truck T we secure the hangers H H, to which are pivotally secured beneath the strip G one end of a weighted lever J. The opposite end of said lever is provided with a weight *j*, and near the fulcrum of said lever we arrange, usually on each side thereof, connecting-links *k*, which in turn are secured to one arm of a bell-crank lever K, the other arm of said lever being attached to the transverse rod D. We place a strap L above the rod B, through which the lever J passes, and which holds at its lower end the pivot *k'* of the bell-crank lever K. As thus arranged, the weights *j* act as compensating weights, tending to hold the fender in its normal position. On each side of the fender we secure the operating-rods M M, each usually made in two sections connected by a turn buckle *m* and connecting the ends of the rod D with the cam-blocks N, secured to a rod O, journaled in a hanger *o*, attached to the body of the car, beneath and near the front thereof. The rods M are bifurcated at their ends and provided with two bolts *M'* *M''*, which pass through the cam-shaped slots *m'* *m''*, respectively. We usually secure the cam-blocks N to the rod O by means of a set-screw *n*. The movement of the cam-blocks N will cause the rods M to move, and will depress the fender, bringing the shoe E close to the tracks. For the purpose of causing the fender to be thus lowered when an obstruction is met with, we construct a gate composed of a series of depending wires P, secured to a rod *p*, upon which rod I arrange a sleeve S, which fits and is movable on a vertical rod R, secured to the rod O. The sleeve S is constructed as shown in Fig. 7, having that portion thereof which

encircles the rod P wider at the ends than at its center, allowing for an up-and-down motion of the rod P within the sleeve S, for the purpose of allowing one end of the gate to be raised in order to pass over a stone or similar small obstruction without raising the opposite end thereof. When the car is running fast and vibrating to a great degree, the gate, if it were rigid, would be injured by coming in contact with the ground. By means of the sleeve S moving on the rod R the gate is allowed to give, preventing damage thereto.

When an obstruction is met with and the gate is forced backward toward the car, the cam-blocks N force the rods backward, depressing the fender until the rods and gate assume the position shown in Figs. 3 and 5. In order to provide for the lifting of the gate after the fender has been depressed, we arrange a spiral spring U, attached at one end to the car body and at the other end to the arm u, secured to the end of the rod O. The arm u is so adjusted that when the gate is in a vertical or normal position the spring U tends to cause it to maintain that position; but when sufficient force has been brought against the gate to move it to the rear far enough for the spring U to pass the end of the rod O, as shown in dotted lines in Fig. 9, the resiliency of the spring will cause the gate to be drawn forward and assume the position shown in Fig. 6, thus removing the gate out of the way.

Around the rod P we coil the spring V, one end resting against the sleeve S, as shown in Figs. 1 and 10, so arranged that the resiliency of the spring will tend to prevent the gate from rising toward the front upward. We also secure to the rod P the upwardly-projecting fingers Q, resting against the rear side of the rod O. As thus arranged the gate may be lifted upward and forward against the tension of the spring V, as shown by dotted lines in Fig. 10, for the purpose of reversing the direction of the movement of the car, or for any other reason.

As thus constructed we have a car-fender which may be placed entirely out of the way beneath the platform of the car, so connected therewith that the vibratory motion will not affect to any appreciable extent the operation of the fender, since it is connected at its rear to the car-truck, and the gate in front operating the same is arranged to allow for the vibratory movement of the platform without injuring the mechanism or impairing its efficiency. By attaching the weights we provide a compensating weight, assisting in holding the fender steady. By the arrangement of the cam-block we provide for the depress-

ing of the fender in a positive and speedy manner, and it allows for the movement of the gate, operated by its springs, out of the way of the obstruction without changing the position of the operating-rods.

Our application on car-fenders, filed February 6, 1895, Serial No. 537,527, provides for a fender placed under the platform of a car with a gate and means for operating the same, and the invention herein described is that of an improvement upon the one set forth in said pending application.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. The combination of a fender secured at its rear end to the truck of a car, compensating weights arranged to support said fender, with a gate depending from the body of the car beneath the platform forward of the fender, said gate near each end provided with a sleeve adapted to move vertically upon a rod, said rod connected with a spindle extending across the car, a cam-block attached to each end of said spindle, an operating-rod connecting the cam-shaped openings in said cam-blocks with the fender in such a manner that as the gate is moved backward the fender is depressed, substantially as described and for the purpose set forth.

2. In a car-fender, a means for lowering the fender, consisting of a rod extending across the forward part of the car, a block provided with cam-shaped slots said block attached to each end of said rod, a gate depending from said rod capable of movement in a vertical position, with rods carrying bolts adapted to reciprocate in said slots extending from each of said blocks to said fender, all so connected up that the backward movement of the gate will tend to depress the fender, substantially as described and for the purpose set forth.

3. In a means for depressing a street-car fender, a gate mounted on a rod, a block placed at the end of each rod provided with cam-shaped slots therein, one end of the gate adapted to be raised without appreciably elevating the other end, a spring connected with said gate, its resiliency tending to prevent the gate from moving forward, with rods carrying bolts adapted to reciprocate in said slots connecting the fender with said blocks, all substantially as described and for the purpose set forth.

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Witnesses:

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