

(No Model.)

D. BENTLEY.
AUTOMATIC CAR FENDER.

No. 563,642.

Patented July 7, 1896.

FIG. 1.

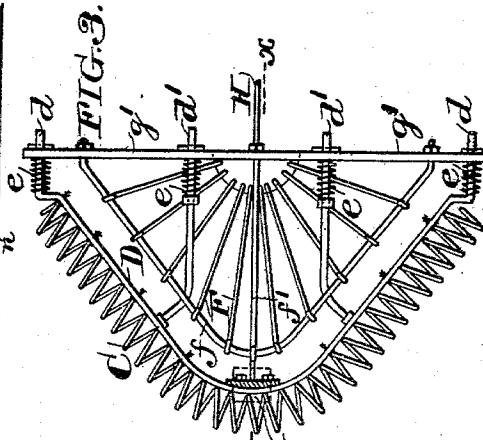
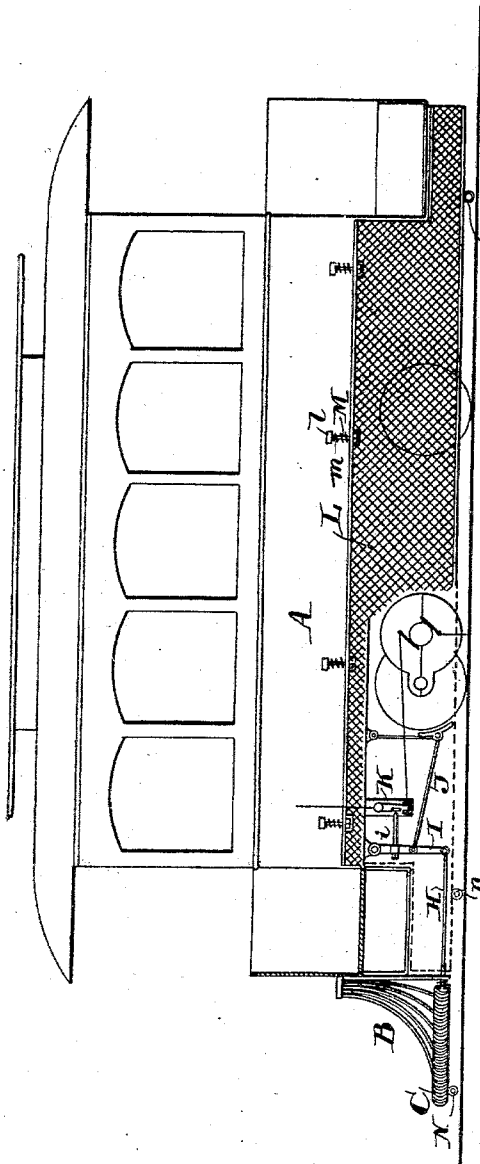


FIG. 4.

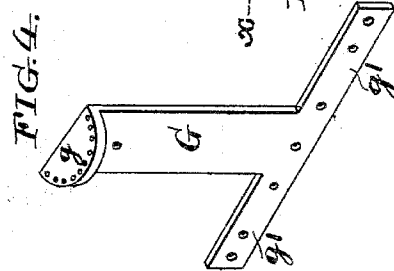
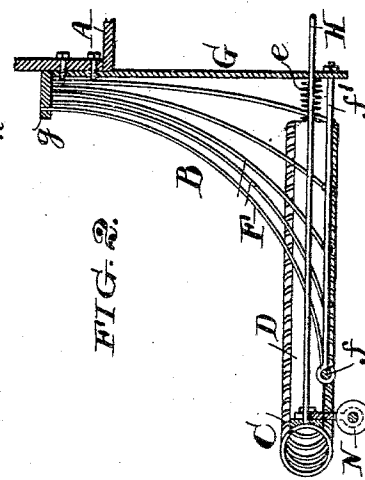


FIG. 2.



WITNESSES:

H. J. Park
Henry Drury

INVENTOR:

David Bentley
by his Attorney
Andrew O'Neill

UNITED STATES PATENT OFFICE.

DAVID BENTLEY, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 563,642, dated July 7, 1896.

Application filed September 14, 1895. Serial No. 562,528. (No model.)

To all whom it may concern:

Be it known that I, DAVID BENTLEY, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Automatic Electric Trolley-Fenders; and I do 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, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of my invention is to construct a fender for electric railways that will be inexpensive to make and effective in practice, my invention consisting principally in constructing the fender with a yielding front or guard, so that when an obstruction is met with this guard is pushed back, throwing off the power and applying the brakes.

In the accompanying drawings, Figure 1 is a side elevation of a car with a portion of the side-guard netting broken away to show the operating mechanism of the fender. Fig. 2 is a sectional view of the fender on the line *xx* of Fig. 3. Fig. 3 is an inverted plan view of the fender, and Fig. 4 is a perspective view of the bracket which supports the wirework of the fender.

A is the car-body.

B is the fender, the construction of which I will now proceed to describe.

G is a bracket, which is suitably made to be attached or fixed to the front end of the car and has the top projecting ledge *g* and the arms *g'* at the bottom. From the ledge *g* extend, preferably, curved wire strips *F*, which are fixed to the partially-curved rim *f*, which is fixed to the arms *g'* of the bracket G.

f' is a center brace-rod for the rim *f*. This part of the construction of the fender, it will be observed, is rigidly fixed to the car-body. (See Fig. 2.)

I will now proceed to describe the yielding guard-rail, which is the essential part of the fender. Extending around the rim *f*, in front of it and some distance away from it, is a strip or band D, to which is secured the coiled-wire guard-rail C. The ends *d* of the strip D are held by the arms *g'* of the bracket, and

this rim D is further supported by the rods *d'*. Springs *e* are suitably located on this rim D and rods *d'*, as shown, to hold this rim in its normal position slightly away from the rigid portion of the fender.

The braking mechanism is as follows: Located about central in the fender and extending backward from the rim D is a rod H, which connects with a pivoted lever I, to which is connected a rod J, which extends to the brake-shoes. The lever I has a pin *i*, which is arranged to strike the switch K. Located suitably is the line of the feed-wire to the motor. N is a small roller fixed to the nose of the fender, about four inches in diameter and about six inches broad, more or less, and is to prevent the fender striking the ground when the car is in motion and a rocking action of the car is made. For further safety I place on each side of the car the wire guards L, which are hung from the lugs *l* by bolts M, a spring *m* being interposed between the frame of the guards and these lugs, so that the guards are yielding in a vertical direction. I also place small rollers *n* on these guard-frames, so as to prevent their striking the ground should the car have a rocking motion.

The operation of the fenders is as follows: When the car is in motion and the fender strikes an obstruction, the coiled-wire guard C receives the concussion and the front-guard rim D is pushed back against the action of the springs, the rod H moving the lever I on its center, which in turn pushes the rod J, moving the brake-shoes on the wheels, and also causes the pin *i* to throw the switch K and break the circuit to the motor, thereby causing the car to be instantly and automatically stopped.

I wish it to be understood that I do not adhere strictly to the minute details of construction that I have shown and described, as I am aware that the shape and the general manner of setting up the fender may be modified in various ways without departing from the spirit of my invention.

What I claim is—

1. A fender for electric railways having a rigid portion composed of the wires *F*, bracket, G, and rods *f*, and *f'* and a yielding portion composed of the coiled-wire guard C, strip, D, braces, *d'* and springs, *e*, said yielding por-

tion being supported by the said bracket, G, and having also rod, H, and roller, N, said rod, H, being connected with suitable mechanism to shut off the current and apply the

brakes, as set forth.

2. In a car-fender, the combination with a rigid portion composed of an inverted-T-shaped bracket adapted to be suspended from the front of a car, a bent rod connected at its ends to the base portion of said bracket, rods connected at their lower ends to said bent rod and converging upwardly and backwardly therefrom and connected at their upper ends to the upper portion of said bracket, and horizontal brace-rods connecting said bent rod rigidly with the base portion of said bracket; of a yielding portion composed of a bent strip D carrying the coiled-wire guard C and connected to the base portion of said bracket by the rounded ends *d* of said bent strip D, and rods *d'* held in openings in said base portion, and adapted to slide horizontally therein; coil-springs surrounding said rounded ends *d* and said rods *d'*, normally holding said yielding portion forward; and a rod connected at its forward end to said yielding portion, and connected at its rear end to devices for stopping the forward movement of the car, substantially as described.

3. In a car-fender, the combination with a rigid portion composed of an inverted-T-shaped bracket adapted to be suspended from the front of the car, a bent rod connected at its ends to the base portion of said bracket, rods connected at their lower ends to said bent rod and converging upwardly and backwardly therefrom and connected at their upper ends to the upper portion of said bracket; of a yielding portion composed of a bent strip D carrying the coiled-wire guard C and con-

nected to the base portion of said bracket by the rounded ends *d* of said bent strip D and rods *d'*, held in openings in said base portion, and adapted to slide horizontally therein; coil-springs surrounding said rounded ends *d* and said rods *d'*, normally holding said yielding portion forward; and a rod connected at its forward end to said yielding portion, and connected at its rear end to devices for stopping the forward movement of the car, substantially as described.

4. In a car-fender, the combination with a rigid portion composed of an inverted-T-shaped bracket adapted to be suspended from the front of the car, and having an overhanging flange on the top thereof, a bent rod rigidly connected at its ends to the base portion of said bracket, curved upwardly and backwardly converging rods connecting said bent rod with said overhanging flange, and horizontal brace-rods connecting said bent rod with the base portion of said bracket; of a yielding guard-rail connected to the base portion of said bracket, and adapted to move horizontally with relation thereto, and supported in front of said bent rod; springs normally holding said guard-rail forward, and a horizontal rod connected to said yielding guard-rail at its forward end, and connected at its rear end to devices carried by the car for shutting off the current from the motor, and applying the brakes, simultaneously, substantially as described.

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

DAVID BENTLEY.

Witnesses:

WILLIAM HENRY POOL,
CHARLES W. SPARHAWK.