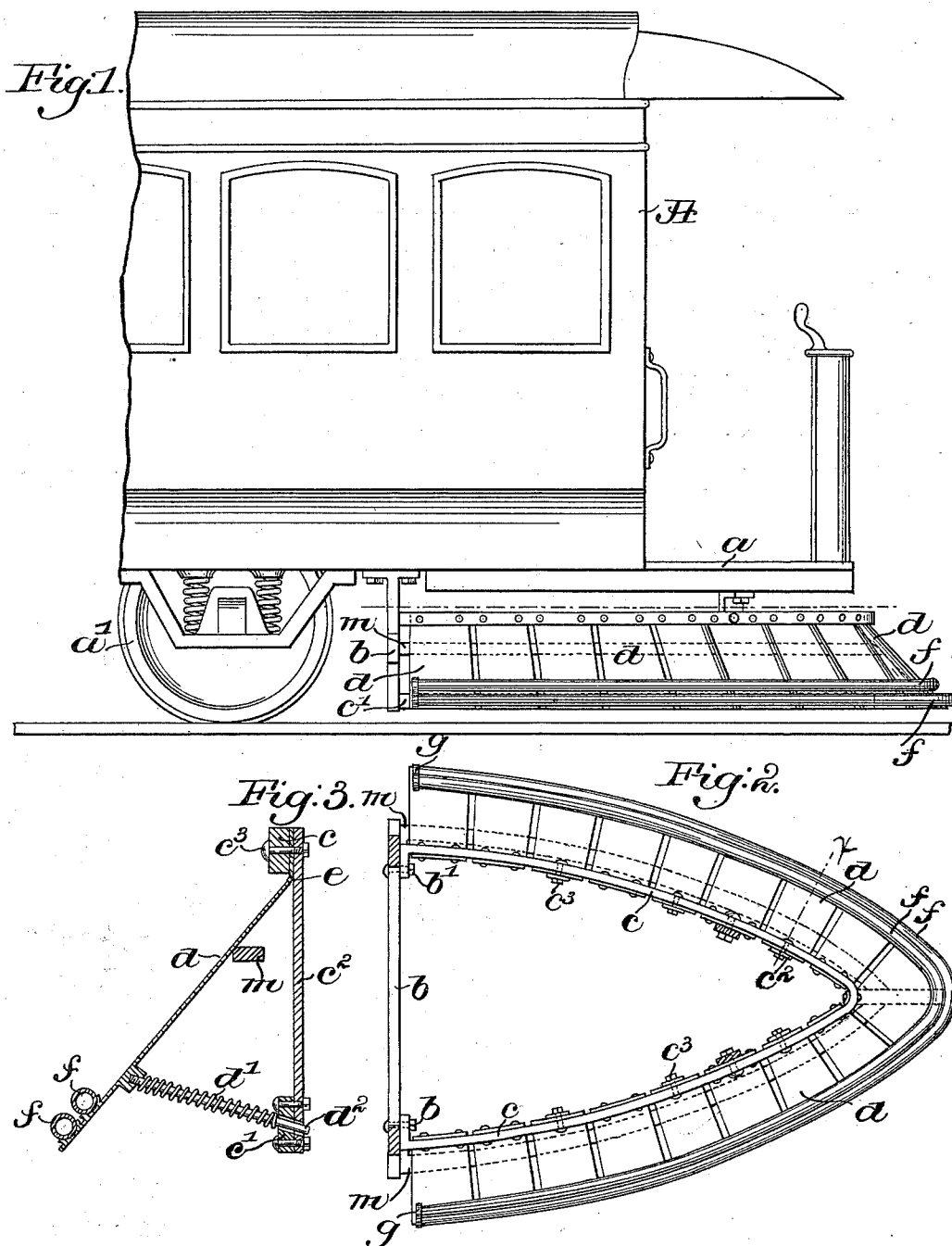


(No Model.)

I. BEAN.
CAR FENDER.

No. 509,646.

Patented Nov. 28, 1893.



Witnesses
Louis N. Souell
Thomas J. Drummond

Inventor.
Ivory Bean
by Crosby & Gregory
Attys.

UNITED STATES PATENT OFFICE.

IVORY BEAN, OF BROOKLINE, MASSACHUSETTS.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 509,646, dated November 28, 1893.

Application filed August 4, 1893. Serial No. 482,339. (No model.)

To all whom it may concern:

Be it known that I, IVORY BEAN, of Brookline, county of Norfolk, State of Massachusetts, have invented an Improvement in Car-Fenders, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to provide a practical and efficient fender for use in connection with cars employed on streets, whereby a person struck by a car cannot get under the same.

In accordance with my invention I provide the car, under and below its platform occupied by the driver, with a fender composed of a series of inclined independently yielding wings or plates. I have also combined with these independently yielding wings or plates an india-rubber buffer or cushion made preferably from tubing applied across the lower ends of the series of plates.

Figure 1, represents part of a street car with one of my improved fenders in place. Fig. 2 is a top or plan view of the fender alone; and Fig. 3 a section on the line x Fig. 2.

The car body A , its platform a , and wheels a' are and may be all as usual. The platform supports from its under side a suitable stand or hanger b to which I have connected by suitable bolts b' two bars c , c' of the general shape it is desired to give to the fender, these two bars being tied together at desired intervals by suitable ties c^2 . The upper bar c has bolted to it by bolts c^3 a series of wings or plates d , preferably of thin springy metal, the lower ends of said wings or plates being extended downwardly and outwardly, as best shown in Fig. 3, the lower ends of the wings being sustained each by a suitable spring, as d' , represented as surrounding a rod d^2 connected at its outer end to the wing and adapted to slide inwardly through a suitable hole in the bar c' whenever the lower end of the wing meets with an obstruction, the force required to be exerted before the wing yields being determined by the strength of the spring d' , and also by the thickness or character of the metal used for the wing. If desired the wing may be hinged at the point e . The lower ends of the wings will be made to travel as closely

as possible to the track without striking it as the car sways, and a wing or plate contacting with a person at any average speed of the car will strike a yielding blow.

To yet further modify the blow of the fender, I have shown and prefer to use one or more india-rubber pipes or tubes f , they being secured in place across the series of wings in any suitable manner, the plates being provided preferably with a sort of a trough, see Fig. 3, to receive the pipe or tube and prevent it slipping up or down, the ends of the pipes being clipped together, as shown, at or near the inner ends of the fender by a clip g .

This invention is not limited to the particular size or shape of the wings or plates so long as they are independent and may yield one more than or independently of the other, as described; nor is this invention limited as to the size of the plate or the material of which it is composed, or to the thickness of the material, nor to the size or shape of the springs. The hanger b has properly secured to it a fulcrum frame m , shown best in Fig. 3, where it is represented in section, the other figures showing the said frame chiefly by dotted lines, it occupying a position between the bars c and c' . The spring plates d bear upon this fulcrum frame and bend over it when any object comes against the lower ends of the plates. The employment of this fulcrum frame enables me to use lighter spring metal with success.

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

1. A car fender composed of a series of bars shaped to form a forwardly extended frame, and a series of independently yielding wings or plates attached at their upper ends to the frame and extended downwardly to a point just above the track, each of said wings or plates being adapted to yield at its lower end, while its upper end remains in fixed position, substantially as described.

2. A car fender composed of bars to form a frame, a series of independently yielding wings or plates, and a yielding cushion applied to and carried by the said plates, substantially as described.

3. In a car fender, a bar, as c , a suitable

support therefor, and a series of independent yielding plates *d*, combined with a fulcrum bar upon which the said plates are adapted to bear and over which they may
5 bend when the lower ends of the plates meet with obstruction, substantially as described.

4. In a car fender, a bar, as *c*, a suitable support therefor, and a series of independent yielding plates *d*, combined with a fulcrum bar upon which the said plates are
10 adapted to bear and over which they may

bend when the lower ends of the plates meet with obstruction, and with a series of springs to support the lower ends of said yielding plates, substantially as described. 15

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

IVORY BEAN.

Witnesses:

JOHN C. EDWARDS,
FREDERICK L. EMERY.