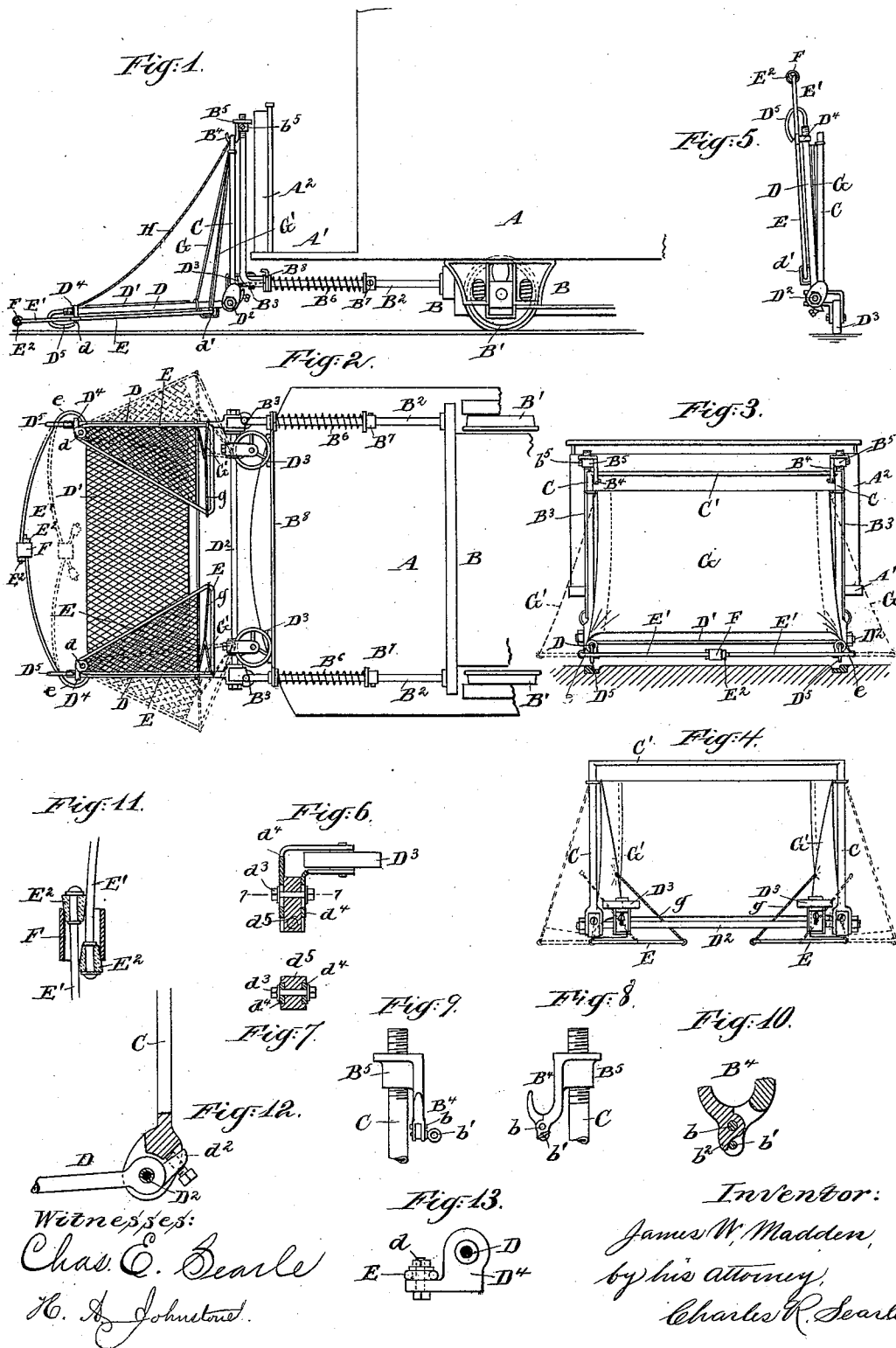


(No Model.)

J. W. MADDEN.  
CAR FENDER.

No. 549,518.

Patented Nov. 12, 1895.



# UNITED STATES PATENT OFFICE.

JAMES WHEATON MADDEN, OF BROOKLYN, NEW YORK.

## CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 549,518, dated November 12, 1895.

Application filed January 31, 1895. Serial No. 536,804. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES WHEATON MADDEN, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented a certain new and useful Improvement in Fenders for Street-Railway Cars, of which the following is a specification.

My invention belongs to that class in which the fender projects forward in the form of a nearly level platform lying as close to the road-bed as practicable.

The fender is supported on rods extending forward from the truck. Light arms extending across at the front connect to wings lying in the plane of the fender, adapted to spread horizontally when the arms strike a person or other object, and thus reduce the liability of the person to roll under the car-wheels.

An apron stretched upon a frame hinged to the rear of the fender extends nearly as high as the dashboard of the car and is provided with flexible strips attached to the wings, so as to move outward with the latter and automatically fold back into place when the horizontal wings are returned.

The fender-platform and the frame may be folded together, and when so folded are supported on small wheels, upon which the whole may be rolled to another car or to the opposite end of the same car and again applied.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is a side elevation of the device in place. Fig. 2 is a plan view from below. Fig. 3 is a front elevation. Fig. 4 is a rear elevation of the fender alone. Fig. 5 is an edge view showing the fender folded and conditioned for transfer to the opposite end of the car. Figs. 6, 7, 8, 9, 10, 11, 12, and 13 show details on a larger scale. Fig. 6 is a vertical section. Fig. 7 is a longitudinal section on the line 7 7 in Fig. 6. Fig. 8 is a side view. Fig. 9 is a front elevation. Fig. 10 is a vertical section. Fig. 11 is a horizontal section. Fig. 12 is a vertical section through the hinge, and Fig. 13 is an end view.

Similar letters of reference indicate the same parts in all the figures where they appear.

A is the body of the car.

A' is the platform and A<sup>2</sup> the dashboard.

B indicates the truck and the framing inclosing the motor or other mechanism and carrying the wheels B', which support the car.

B<sup>2</sup> B<sup>2</sup> are rods, or preferably tubes, firmly secured to the framing B and extending horizontally forward under the platform A'. They are turned upward at B<sup>3</sup> nearly as high as the dashboard and carry detaching-hooks B<sup>4</sup>, attached to nuts B<sup>5</sup>, which may be adjusted vertically on the upright ends B<sup>3</sup> of the tubes and secured by set-screws b<sup>5</sup>.

Helical buffer-springs B<sup>6</sup> are mounted on the portions B<sup>2</sup> of the tubes between adjustable stops B<sup>7</sup> and a sliding cross-piece B<sup>8</sup>, extending transversely of the car and adapted to receive and soften the impact of a blow transmitted through the fender.

C is a frame consisting of two upright bars joined at the upper ends by a transverse bar C', by which the fender is suspended upon the hooks B<sup>4</sup>. The lower ends of the bars C are knuckled to receive the corresponding ends of two bars or tubular rods D, extending forward nearly horizontally and joined together by a strong wire-netting D', forming the main body or platform of the fender, and also by a hollow cross-bar D<sup>2</sup>, forming the center of the knuckles and provided with two small wheels D<sup>3</sup> D<sup>3</sup>, mounted adjustably at such height as to bear fairly against the cross-piece B<sup>8</sup> and reduce the friction caused by slight movements, and also transmit the shock of impact to the springs B<sup>6</sup> and soften the blow to the person struck.

The front ends of the bars D are screw-threaded and receive nuts D<sup>4</sup>, carrying pivots d, upon which are mounted the wings E. The latter are frames triangular, as shown, formed of light tubing bent to shape the inclosed space covered with wire-netting. Guard-arms E', formed by an extension of the frames, curve forward across the front, the ends extending a little past each other and inclosed in a short thimble or tube F. Each end is provided with a conical rubber plug E<sup>2</sup>, which engages frictionally with the inner surface of the thimble F and the adjacent portion of the opposite arm E'. Thus conditioned a slight resistance offered to either arm E' while the car is in motion will overcome the friction of

the rubber plugs and turn the wings E on the centers  $d$  outward into the position shown by dotted lines in Figs. 2 and 3, effectually preventing the person or object struck from rolling under the car-wheels.

The arms E' extend outward from the centers  $d$  in a curve of short radius, as indicated at  $e$ , and return again before curving across the front, forming a guard at those points which striking an object tend to turn the wings, as before described, and throw the object aside and away from the track.

A loop  $d'$ , set in the under side of each arm D near the rear, supports the wings at these points with liberty to slide freely in and out when the occasion requires.

A light rod, bent upon itself, as shown, secured to the end of each arm D, forms a spring-runner D<sup>5</sup>, which will strike and slide upon the track when the fender is depressed by any force, preventing accidental displacement and breakage.

G is an apron, of canvas or other strong and flexible material, secured to a cord or small rope stretched across the frame C a short distance below the bar C'. It reaches downward and forward to a similar rope stretched between the bars D at the rear of the netting D' and serves to protect the person struck by the fender against injury by being thrown violently against the dashboard of the car. A triangular strip G' of the same or similar material is stitched on each side, a little in from the edge, and lies ordinarily folded behind and concealed by the apron. Each lower outer corner is made fast to the frame of one of the wings E on the outside edge at the rear, so that when the wing is extended it carries the strip with it, as shown by the dotted lines in Figs. 2, 3, and 4. Cords  $g$ , attached one to the inner angle of each wing and made fast to a point near the mid-width of each strip G' at about the mid-height, serve to draw the strips inward into the folded condition when the wings E are drawn inward.

The hinged joints or knuckles connecting the frame C and the fender-bars D are made adjustable, as shown in Fig. 12, to allow the front end of the fender to be set higher or lower, as may be deemed necessary or expedient. The adjustment is made by a set-screw tapped through a lug  $d^2$  on the part D striking a surface on the part C.

Each wheel D<sup>3</sup> may be raised or lowered by slacking the screw  $d^3$  and sliding the slotted frames  $d^4$  up or down, as required, in the ways cut on the block  $d$  on the cross-bar D<sup>2</sup>.

The points of the hooks B<sup>4</sup> are hinged at  $b$  and held in the upright position by a pin  $b'$ , thrust through below the center, forming an abutment for a lug  $b^2$  on the movable point, as shown in Figs. 8, 9, and 10.

To remove the fender the motorman or other attendant raises the part D, with its attachments, into an upright position against the frame C. This brings the wheels D<sup>3</sup> in

contact with the road-bed, and on removing the pins  $b'$  and turning down the points of the hooks B<sup>4</sup> the whole may be rolled away upon the wheels for attachment to another car, or to the opposite end of the same car by a reversal of the steps just described.

It is a cord attached to the fender-platform near the front, leading to a point about midway on the bar C', within easy reach of the motorman, enabling him to fold the fender when it is in danger of collision with vehicles crossing the track or other cars on the same track.

Modifications may be made by any skilled mechanic without departing from the spirit of the invention, and the forms and proportions may be varied within wide limits.

I prefer, on account of the greater lightness and rigidity of such construction, to use tubes in place of solid rods where such may be employed, and it will be understood that the rods and bars described in this specification are intended in practice to be ordinary wrought-iron tubing of suitable dimensions.

I claim as my invention—

1. A horizontally moving wing, lying in a plane parallel with the fender platform and pivoted to the latter, in combination therewith and with an arm extending transversely of the track in advance of said fender platform, and directly connected to and forming part of said wing, adapted to turn the latter outwardly when the arm strikes an object in its path, all arranged to serve with a railroad car substantially as herein specified.

2. Arms extending transversely of the track, in combination with horizontal wings mounted on the fender and adapted to be extended laterally when either of said arms strikes an object in its path, and with means as the thimble F and rubber plugs E<sup>2</sup> for holding the arms in easily broken engagement with each other, substantially as herein specified.

3. Arms extending transversely of the track, in combination with horizontal wings mounted on the fender and adapted to be extended laterally by the act of striking the arms against an object, and with the apron G and strips G' attached to said wings, and adapted to be extended therewith, all substantially as herein specified.

4. The wings E, turning on the centers  $d$ , carried on the fender platform, in combination with the apron G, strips G' attached to the apron and to the said wings, and with the cords  $g$  attached to said strips and wings, all arranged to serve substantially as herein specified.

5. The frame C, C', and fender platform D, D', hinged together to fold one upon the other, in combination with the wheels D<sup>3</sup> carried on the said platform, sliding cross-piece B<sup>8</sup>, rods B<sup>2</sup> and springs B<sup>6</sup> carried by the car truck, all arranged so that the said wheels perform the double function of transmitting the shock

of impact to the springs and supporting the fender when the latter is folded and detached from the car, substantially as herein specified.

6. The frame C, C', and fender platform D, 5 D', hinged together to fold one upon the other, in combination with the wheels D<sup>3</sup> carried on the said platform, sliding cross-piece B<sup>3</sup>, rods B<sup>3</sup> and springs B<sup>6</sup> carried by the car truck, and the detaching hooks B<sup>4</sup> carried on the 10 rods and adapted to engage and release the said frame, all substantially as herein specified.

7. The frame C, C', and fender platform D, D', hinged thereto, wings E pivoted on the

said platform, transverse arms E' connected 15 to the wings, the apron G and attached strips G', cords g connecting said strips and wings, and the wheels D<sup>3</sup> carried on the said platform and adapted to support the weight and aid in transferring the whole, substantially 20 as herein specified.

In testimony that I claim the invention above set forth I have affixed my signature in presence of two witnesses.

JAMES WHEATON MADDEN.

Witnesses:

JOS. G. HUNTINGTON,

ALFRED W. HUNTINGTON.