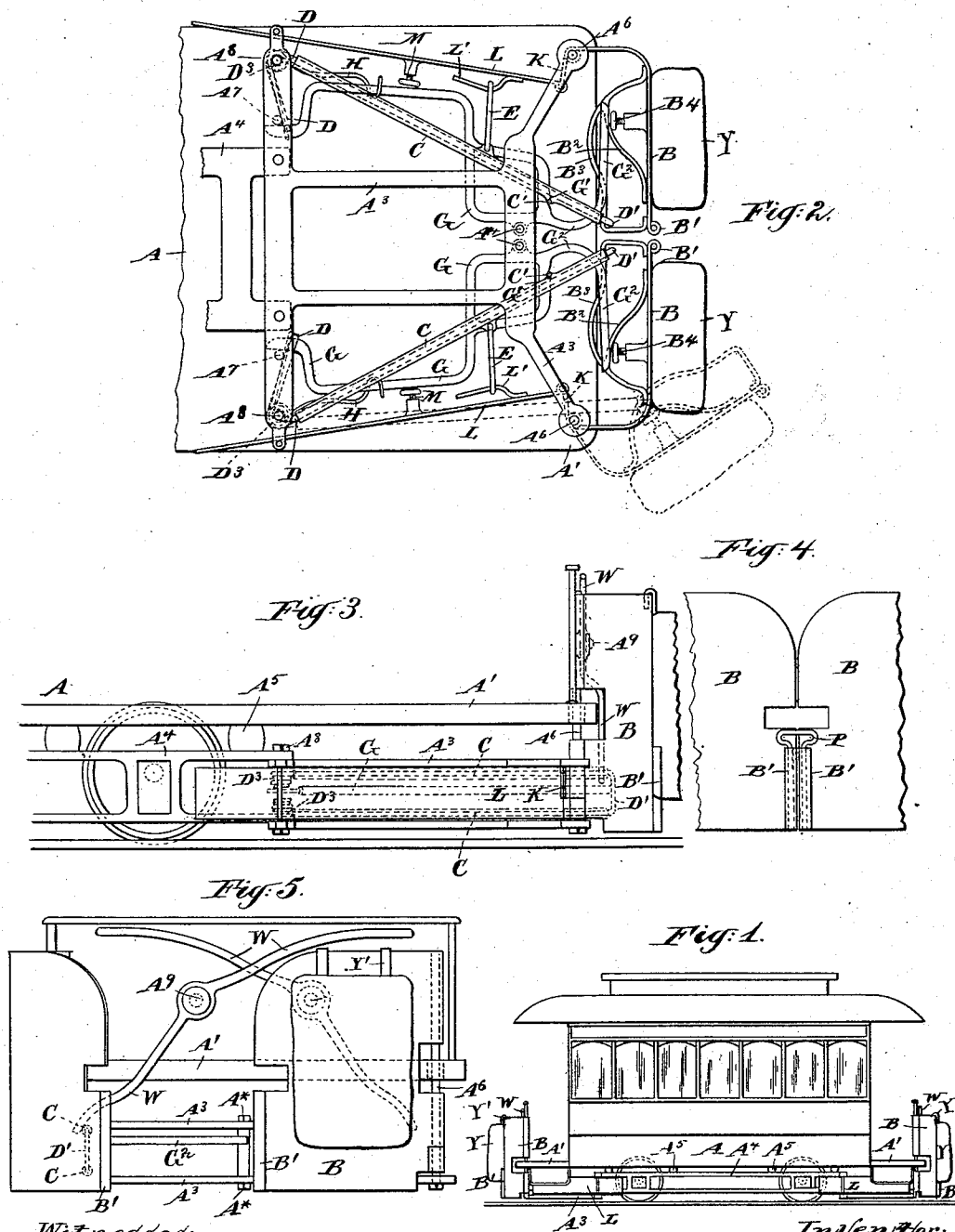


J. W. MADDEN.
CAR FENDER.

Patented May 28, 1895.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES WHEATON MADDEN, OF BROOKLYN, NEW YORK.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 539,901, dated May 28, 1895.

Application filed August 22, 1894. Serial No. 520,960. (No model.)

To all whom it may concern:

Be it known that I, JAMES WHEATON MADDEN, of Brooklyn, Kings county, in the State of New York, have invented a certain new and useful Improvement in Fenders for Trolley-Cars and Similar Carriages, of which the following is a specification.

The improvement relates to that class of devices adapted to apply on the forward end of a car to reduce the risk of killing persons or animals who may be struck. The improvement is based on that set forth in the patent to me, dated May 29, 1894, No. 520,739. I have devised important improvements in the details by which I hold the fender at or near the desired level and allow the car to oscillate to a greater degree, provide detachable pads or cushions to serve on the fronts of the wings, and provide convenient means for instantly re-setting the wings by the attendant after each operation without leaving his place. The wings may be locked out of action to facilitate the crowding of the cars together in a shed. The capacity for convenient removal and replacing of the cushions, among other advantages, facilitates the compacting of the cars together in storing when out of use.

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 general side elevation of a car with my invention applied at each end. The remaining figures show portions on a larger scale. Fig. 2 is a plan view. Fig. 3 is a corresponding side elevation. Fig. 4 is a front elevation of the central portion of the wings, showing the parts in the condition in which they will usually run over the road. Fig. 5 is a front view showing one wing expanded or opened outward, the position which it will assume after that wing has struck a person or object and been caused to act.

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

It will be understood that the wheels, brakes, &c., may be of the ordinary and approved construction.

A is the body of the car, A' an end, and A² the steps.

A³ is a rigid frame mounted under the car

to support the parts. It is supported by, and constitutes practically an extension of a truck frame A⁴, which latter is carried on the axle-boxes supported by the wheels.

The car A, with its ends and steps, is connected by springs A⁵ which, in addition to their functions of softening the vertical concussions, allow the car body to oscillate or tilt forward and backward.

B, B, indicate wings adapted to turn horizontally on the bolts A⁶. These bolts are firmly set in the framing A³, and extend loosely upward through holes properly bushed with metal in the car-end, A'. Each wing B takes hold of its respective bolt A⁶ at a sufficient distance above and below the bearing in the car-end to allow the car to tilt or oscillate so as to move the end bearing upward and downward to as great an extent as is liable to occur in practice without moving the wing vertically at all.

B', B', are vertical tubes set in the wings B, B, at the inner edge, adapted to receive a properly forked or staple-formed bolt P. When this bolt is inserted the wings cannot sweep apart, but are retained in their folded positions. In this condition these wings only perform the important function of softening the shock when the car strikes any person or object. When the staple-bolt P is drawn up and completely removed, as is the condition for the most complete use of my fender, the wings may be actuated by the mechanism, and caused to throw off or aid in throwing off persons or objects from the track.

B², B², are approximately triangular horizontal yokes, welded or otherwise rigidly set in the inner faces of each wing B, adapted to receive a force to open the wings or give them their sweeping motion, and B³, B³, are larger yokes, similarly set on the wings respectively and receiving the action of the same devices in the opposite direction, to fold or close the wings.

C, C, are swinging tubes of iron or steel, arranged in pairs, one above another above the frame A³, and C', C', are vertical bars welded or otherwise firmly attached to the tubes C, C. These perform the function of connecting the tubes of each pair together and also of engaging with a suitable hook or offset to be presently described, to hold the

levers C, D, out of action under ordinary conditions. Each pair of tubes C, C, incloses stout springs D, D, which are connected at the front by a vertical portion D', which latter is made integral with the parallel parts D, D, and perform the important functions of connecting them together as a unit, and of imparting the action of the springs to the yokes B², B³, respectively. The springs D, D, extend rearward through the tubes C, C, and are coiled around the corresponding bolt A⁸, and abut by their extended ends D² against a post A⁷ set in the frame A in the position indicated. The coils are marked D³. They correspond in construction and effect with the parts correspondingly lettered in my previous patent referred to. Each acts on its respective wing B, through the medium of the yokes B², B³, each serving by the elastic force of the coils D³ to urge the wings open by their action on the outer surfaces of the yokes B², or serving by the force imparted by the attendant, to act on the inner surface of the corresponding yoke B³. The attendant acts through levers W, of which there is one for each wing, each turning on a pivot A⁹, fixed on the car, the upper end of a lever W being seized by the hand of the attendant, and the lower end of the said lever acting on the corresponding pair of tubes C, C. The strength of the attendant exerted through this lever brings the parts again into their properly folded condition after a sweeping motion of either wing B. I will refer to the pair of tubes and the corresponding springs on each side when necessary as the spring lever C, D.

I dispense with the wheel described in my previous patent of May, 1894, referred to, but I use frames G corresponding closely in form and effect to the parts correspondingly marked in said patent. These are counterparts of each other, and a description of one will suffice for both. I will use super-numerals as G' when necessary to designate certain parts of each. Each is pivoted on one of two upright bolts or posts A⁴ set in the framing A³ near the center line of the car. Each is provided with an offset G' which, when the parts are in condition for use, is engaged by the vertical cross-bar C' of the corresponding spring lever C, D, and holds it reliably. Each is provided with an arm G² which reaches forward near the center line of the car, a sufficient distance, and then extends laterally outward from the center. Its extreme end bears on an extended head of a screw B⁴ set adjustably in the inner surface of the wing B. When in the use of the car the wing B strikes against any person or object with sufficient force to deflect it inward toward the center of the car, the action of the screw-head B⁴ against the end G² turns the frame G on its center A¹⁴ and disengages the offset G' from the vertical bar C' after which the spring D acts promptly by pressing its vertical portion D' against the yoke B² and causing the wing B to make a forcible sweep to remove the person or other

object from the track and throw it vigorously aside. Each side of the mechanism works independently of the other. It will rarely happen that a person or object will strike so exactly in the center that one wing will not act more effectively than the other and throw the person or object to that side of the road.

Each frame G extends rearward and is subject to the gentle force of a hook-ended spring H which is represented as coiled around the corresponding post A⁸ and abutting by its extended end against the post A⁷. The extended end of the frame G is allowed to strike against the same post to gage its position and prevent its moving too far when the wing has made a sweep.

K and L are side fenders corresponding to the parts similarly lettered in my previous patent referred to. Each part K is centered on the corresponding bolt A⁶ and is knuckled to the part L. Each of the latter carries on its inner face, a hook L', which is engaged by a link E pivoted on the corresponding pair of tubes C, C. Each side fender L carries also a broad headed screw M which is arranged to stand in contact or nearly in contact with the adjacent portion of the rearward extension of the frame G. When the apparatus is adjusted for use, these side fenders K, L, are drawn inward. When by striking against any object or person on the track the spring lever C, D, on either side is released and a sweeping action of the corresponding fender B occurs, the last portion of the motion of the lever C, D, will act on the part L and force the corresponding side fender parts K L outward.

Y, Y are removable cushions, which may be of hair, excelsior, or other yielding material, incased in leather, canvas or other suitable covering, and provided each with two iron straps Y', each hook-formed at its upper end. When the parts are adjusted for use one of these cushions Y is engaged on the front of each wing B by means of its hook straps Y'. They are easily removed and stored in any convenient place when the cars are to be arranged compactly together in the car-house.

To adjust my mechanism for use, the levers W are operated successively, and the wings B, B, are folded one by one into the position for work, and engaged by the locking of the corresponding vertical bar C' with the offset G'. Now the cushions Y, Y, being placed in position and caused to hang by their hook straps Y' the car serves all day. With proper care a collision with any person or object will be rare, but when such does occur the force of the impact liberates the mechanism on the corresponding side, and the wing B on that side performs its sweep, throwing the person or object out to one side of the road. If it is judged expedient the car may be allowed to continue its course without stopping, the attendant simply reaching over and operating the lever W to bring the wing B back into its required folded position, where it will be again engaged by the offset G', and all will proceed as

before. At the end of the day, or whenever the car is put out of use and requires to be stored compactly with other cars, a certain number on each track in the car house, first, the staple-bolt P is inserted in the corresponding tubes B' locking the wings together; second, the cushions Y are lifted off and placed within the car, or in any other convenient position, and then the cars may be stored close together with the faces of the wings B of one car presented close to or in actual contact with the wings B of the adjacent car, economizing the space which would be occupied by the cushions if they were permanently attached. If, as will frequently occur, in storing the cars, two cars are allowed to strike together with considerable force, the pressure on the wings B will not liberate the mechanism, because their action is now prevented by the staple-bolts P.

Modifications may be made without departing from the principle or sacrificing the advantages of the invention. I have shown a notch in the inner edge of each wing B. This allows a coupling to be inserted in case it shall be required to couple two or more cars together. This may be omitted. I have shown the frame A³ as bolted to the truck A⁴. It may be secured in any other way, or it may be forged or otherwise made integral therewith. It is sufficient that it is supported upon the truck and allows the car to oscillate independently.

I claim as my invention—

1. In a fender for railroad cars having horizontally turning wings B, operating means C, D, and the frame G, having an offset G', for holding the wings in the folded condition and allowing them to be released by pressure against the front of the wings, the frame A³ carried on the wheels and supporting the mechanism, with provisions as the bolts A⁶ on

one part playing through a hole in the other part, arranged to allow the car to oscillate or rock independently of the fender and its operating mechanism, all substantially as herein specified.

2. In a fender for railroad cars having horizontally turning wings B, operating means C, D, and the frame G having an offset G' for holding the wings in the folded condition and allowing them to be released by pressure against the front of the wings, the combination therewith of the hand levers W acting on such wings, arranged to restore the parts to position for work after each use, substantially as herein specified.

3. In a fender for railroad cars having horizontally turning wings B, operating means C, D, and the frame G having an offset G' for holding the wings in the folded condition and allowing them to be released by pressure against the front of the wings, the combination therewith of the eyes B' on said wings, and the staple-bolt P, adapted to engage in such wings and lock the said wings out of action at will, substantially as herein specified.

4. In a fender for railroad cars having horizontally turning wings B, operating means C, D, and the frame G having an offset G' for holding the wings in the folded condition and allowing them to be released by pressure against the front of the wings, the combination therewith of the cushions Y provided with straps Y', hook-formed at their upper ends, adapted to be engaged and removed at will, substantially as herein specified.

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

JAMES WHEATON MADDEN.

Witnesses:

CHARLES R. SEARLE,
M. F. BOYLE.