

(No Model.)

J. W. MADDEN.
RAILROAD CAR FENDER.

No. 520,739.

Patented May 29, 1894.

Fig. 1

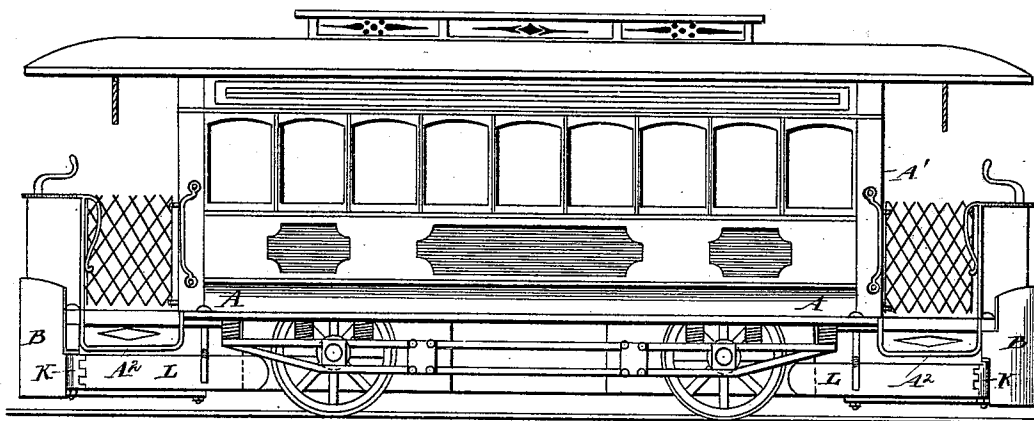


Fig. 2

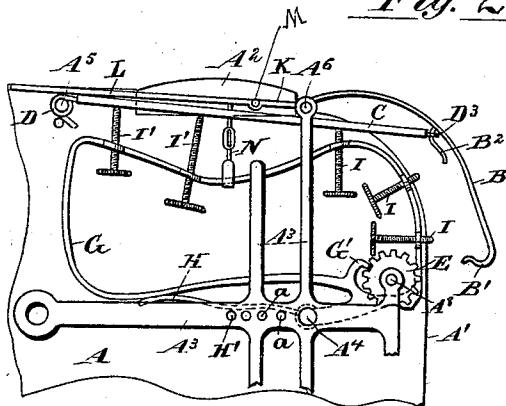


Fig. 3

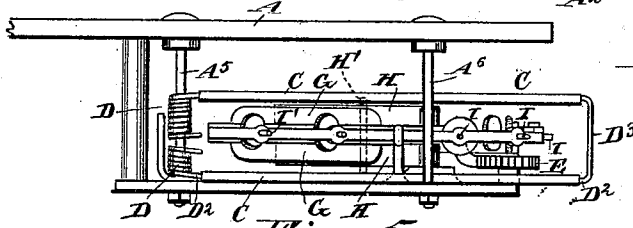
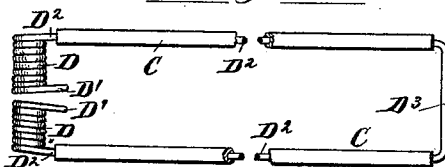


Fig. 4

Fig. 5



Fig. 6



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RAILROAD-CAR FENDER.

SPECIFICATION forming part of Letters Patent No. 520,739, dated May 29, 1894.

Application filed February 3, 1894. Serial No. 498,954. (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, county of Kings, and State of New York, have invented a certain new and useful Improvement in Railroad-Car Fenders, of which the following is a specification.

My improved fender is provided with wings, two at each end, each hinged at a side and extending inward to the center line. They are held and operated by simple mechanism, so conditioned that when any object of moderate resistance, as a person, is struck by either wing, it will liberate a long-acting and peculiarly constructed spring-lever, with the result of not only receiving the contact with a less forcible shock by reason of the slight yielding of the wing, but the wing will be moved vigorously outward so as to sweep the person or other object out of the way. I also provide for defending in a somewhat similar manner a portion of each side at and near the steps, so that when a person or other object is struck the mechanism not only sweeps from the front, but also makes a lesser but effective movement of the surfaces at the sides, both motions tending to completely remove the person or other object from the path. The car should, of course, be stopped as soon as possible, and after the difficulty is over the wings and their operating and holding means should be re-adjusted, ready to serve again in a similar manner.

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 a car with my improvement at each end. The remaining figures show portions on a larger scale. Fig. 2 is a plan view of the bottom of one end of the car in an inverted position. This shows both wings in the ordinary condition for use. Fig. 3 is a corresponding view of a portion with one wing as it appears after the wings and the sides have performed their movement to throw off to one side a person or object which has been struck. Fig. 4 is a side elevation of certain portions of one end, with the wings and side fenders removed to

show the mechanism for holding and operating them. Fig. 5 represents a small portion detached. Fig. 6 is an elevation of one of the operating spring-levers on a large scale. This figure shows the mid-length of the spring-lever removed, and the two ends each correctly shown but brought near together.

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

A is the substantial frame-work of the car, A' an end, and A² a step. These parts may be of the ordinary and long-approved construction, as also may the wheels, brakes and other general appurtenances, as hereinafter described.

A³ is a sufficiently rigid frame of wrought iron, mounted in a horizontal position under each end, and rigidly secured by efficient bolts A⁴, A⁵, A⁶. The bolts A⁶, in addition to connecting the extreme sides of this frame to the floor timbers above, serve as pivots each for a wing B, having a sufficient vertical section, and curved horizontally, as shown. The extreme end of each wing is curved inward, as indicated by B', and adapted to engage slightly as shown in Fig. 2, with the teeth of the corresponding wheel to be presently described. The inner face of each wing is provided with a hook B². Each bolt A⁵ serves as the center for a peculiarly constructed spring-lever.

C, C, indicate straight tubes of gas pipe, or other suitable material, and D, D', &c., represent a slender rod of spring-steel, bent as shown.

D, D, are helically coiled portions which surround the bolt.

D' are ends which engage an efficient stop A⁷, which serves as an abutment for the action of the spring.

D², D², are long straight portions extending loosely through the tubes C, C, and D³ is a vertical portion at the end, widened as shown. Each spring-lever tends to move forcibly outward from the center line of the car.

E, E, are ratchet-wheels, mounted loosely on the short studs A⁸. They are adapted to engage each the widened upright portion D³ of a corresponding spring-lever (see Fig. 2).

G are light frames of steel, or other suitable material, turning on the bolt A⁴, and arranged each to engage in its ordinary position by its hook G' with a tooth of the corresponding wheel E, when these frames are in their ordinary position.

H are gentle springs taking hold of the same bolt A⁴, and abutting against a pin H', which latter may be shifted into any one of the several holes a. These springs exert a force tending to hold the hooks G' of their respective frames G engaged each with its proper wheel E, but under such conditions that either frame G will yield to a moderate force by the flexure of its spring H, and turn sufficiently on its center A⁴ against the tension of its spring H, to set the corresponding wheel E at liberty. So long as all goes right, the parts remain thus engaged, the spring-levers being held by the wheels E, and the wheels being held by the hooks G'. When the car strikes a person or other object with either of the wings B, that wing yields inward and thereby acts on the corresponding frame G through the medium of one or more of a series of screws I, which are tapped through bosses in the frames G, and are capable of being nicely adjusted. The yielding of the wing B inward under the more or less forcible blow produced by the collision serves, as already intimated, first, to reduce the force of the shock by the simple fact of its yielding, and second, and far more important, to turn the corresponding frame G sufficiently on its axis of motion A⁴ to disengage the hook G' and set the wheel E at liberty. This promptly revolves and liberates the corresponding spring-lever C, D, which thereupon moves outward, and acting against the inner face of the wing B forces it outward until the part D³ is arrested by the hook B². The position of these parts after such movement is shown in Fig. 3, the wing B having been forcibly moved outward to a sufficient extent to throw, or contribute largely to throw, to the side of the track any person or object which has been struck, and the frame G having returned under the influence of its spring H and engaged with another tooth of the wheel E. As soon as practicable after such operation of the invention, the car is stopped, and the spring-lever C, D, is forcibly brought back to its previous position and engaged afresh with the wheel E, the wing being again brought into the position shown in Fig. 2 and all is ready to serve as before.

K and L are side plates, hinged together and to the post A. In the ordinary position for work, these parts are deflected inward, as indicated in Fig. 2, and rest against the ends of screws I'. When a collision with a person or object occurs, and the spring-lever C, D, moves outward, it strikes in the last part of its movement against the knuckle or connecting joint M, and moves the parts K and L outward. Fig. 3 shows this condition,

with the parts K and L in a right line, but they may in practice go considerably farther.

N is a restraining link, provided with a turn-buckle, which engages these parts loosely with the corresponding frame G and limits the motion of each. This part N is shown detached in Fig. 5.

The main portion of each frame G may be of little depth, but the surfaces against which the springs H act are extended vertically, as indicated in Fig. 4. The springs H are also made each with considerable vertical depth. I mount these springs one above the other, both being pivoted on the same bolt A⁴, and both abutting against the same pin H'.

I attach importance to the construction of the spring-levers C, D, because it allows them to serve efficiently while relatively light. The elastic portions D, D', &c., would have insufficient rigidity alone. But by incasing the long straight portion D² in the tubes C, the rigidity of these portions is reinforced so that they can serve well.

I claim as my invention—

1. The combination with a car of one or more wings arranged to turn horizontally at the end or ends adapted to sweep aside any person or other object which may be struck, and one or more actuating springs having a force previously accumulated ready to effect such motion when required, and means as the wheels E and turning frames G G', the latter actuated by the forcing inward of the wing for releasing the spring and operating the wings automatically on striking any person or object, all substantially as herein specified.

2. In a car having a fender wing as B adapted to sweep aside any person or object struck, and means as the wheel E and turning frames G G' for holding and liberating such wings, the actuating spring lever constructed as shown with the coil D, ends D', straight portions D², operating end portion D³, in combination with the tubes C inclosing the said straight portions and adapted to stiffen and strengthen them, as herein specified.

3. The combination with a car of one or more wings arranged to turn horizontally at the end or ends, adapted to sweep aside any person or object which may be struck, and one or more actuating springs having a force previously accumulated ready to effect such motion when required and means as the wheels E and turning frames G G', the latter actuated by the forcing inward of the wing for releasing the spring and operating the wings automatically on striking any person or object, and the adjusting screws I adapted to allow for imperfection in the workmanship or the bending or other change of form of the parts and to allow the wings to be liberated by the striking against an object at any point so as to deflect inward any portion of a wing, all substantially as herein specified.

4. In a car, two wings as B B pivoted at the

sides respectively, and adapted to sweep to
the right and left, two sets of operating means
as C D, two holding wheels as E E, and two
turning devices as G G', all combined and
5 arranged for joint operation substantially as
herein specified.

In testimony that I claim the invention

above set forth I affix my signature in pres
ence of two witnesses.

JAMES WHEATON MADDEN.

Witnesses:

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M. F. BOYLE.