

(No Model.)

3 Sheets—Sheet 1.

C. E. STRUCK.
CAR FENDER.

No. 525,167.

Patented Aug. 28, 1894.

Fig. 1.

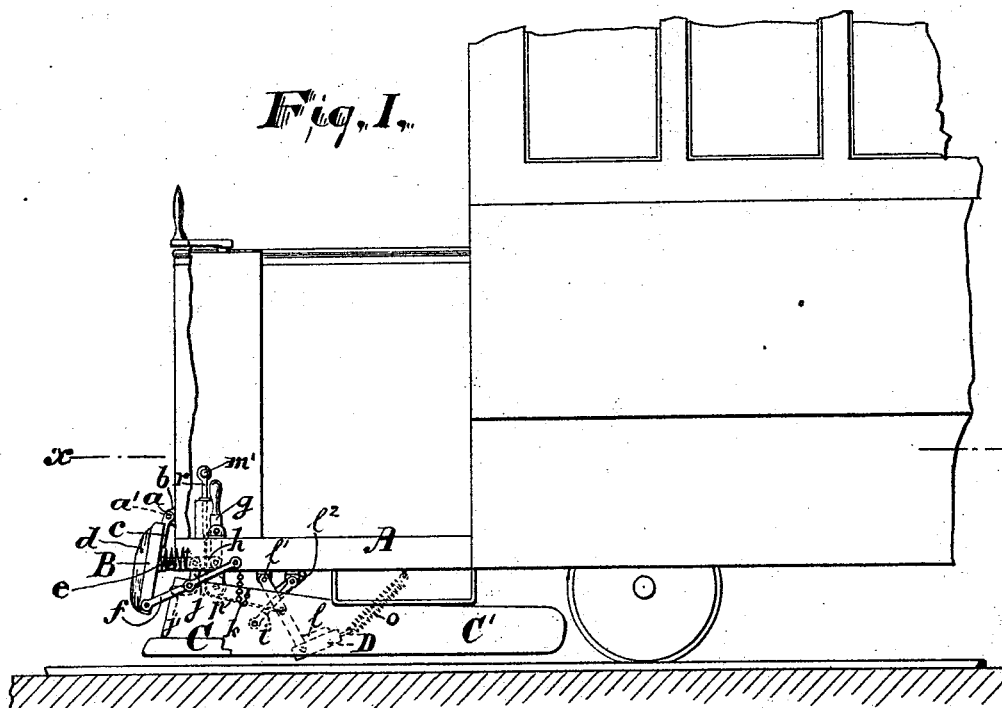
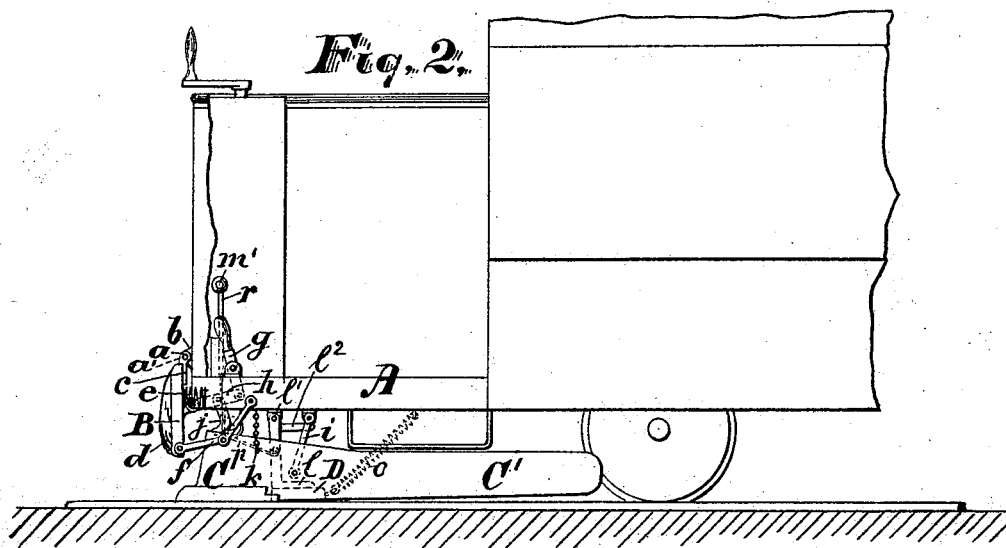


Fig. 2.



Witnesses

Inventor

Robert Zollinger
Louisa Browne.

Charles E. Struck.

By Drake & Co. Attys.

(No Model.)

3 Sheets—Sheet 2.

C. E. STRUCK.
CAR FENDER.

No. 525,167.

Patented Aug. 28, 1894.

Fig. 3.

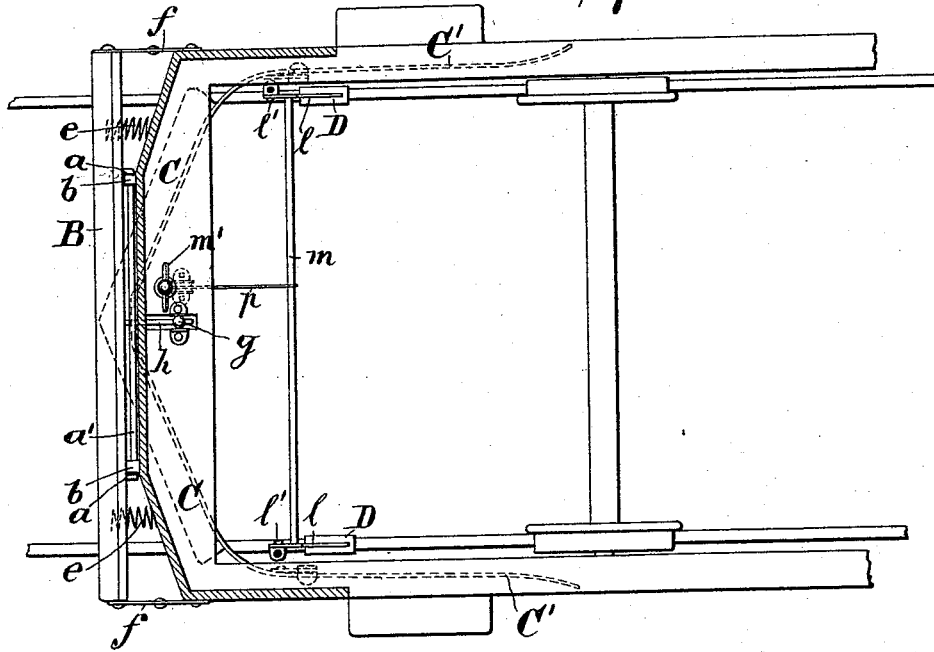


Fig. 4.

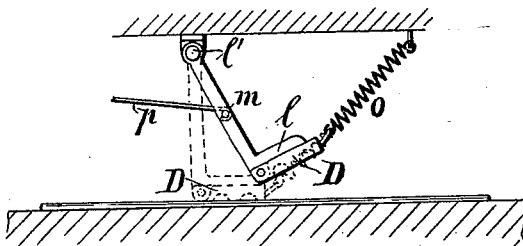
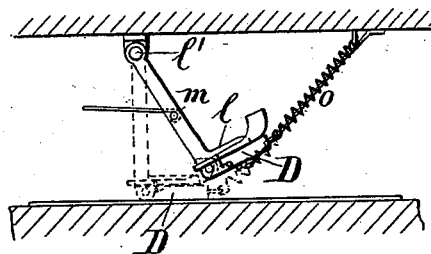


Fig. 5.



Witnesses

Inventor

Robert Loeberger
Louisa Browne.

Charles E. Struck.

By Drake & Co. Attys.

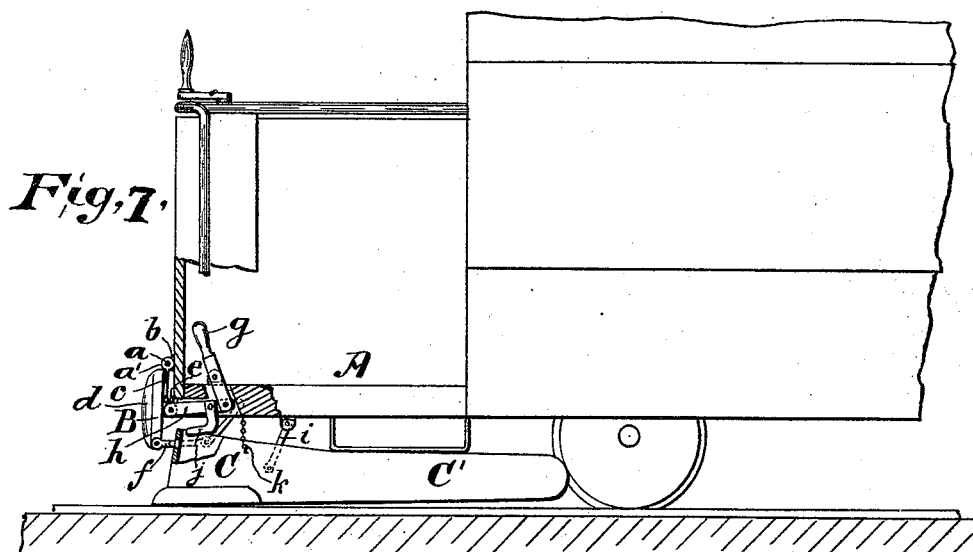
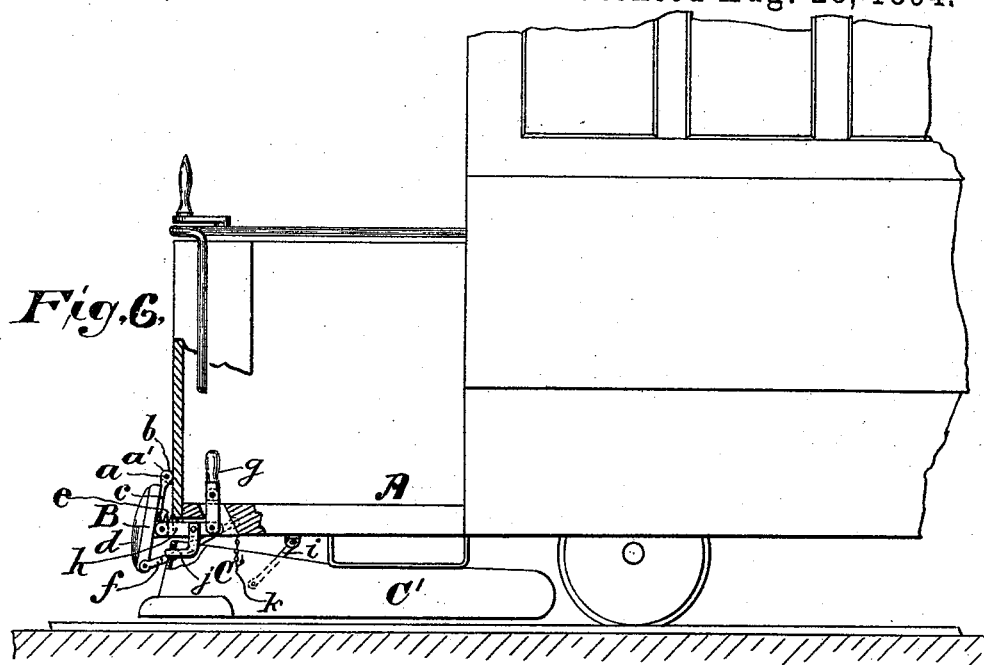
(No Model.)

3 Sheets—Sheet 3.

C. E. STRUCK.
CAR FENDER.

No. 525,167.

Patented Aug. 28, 1894.



WITNESSES:

INVENTOR :

Robert Fallenger
Louisa Browne.

Charles E. Struck.

BY *Drake & Co.*, ATTYS.

UNITED STATES PATENT OFFICE.

CHARLES E. STRUCK, OF NEWARK, NEW JERSEY, ASSIGNOR OF ONE-HALF
TO JOHN A. BALDWIN, OF SAME PLACE.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 525,167, dated August 28, 1894.

Application filed February 1, 1894. Serial No. 498,711. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. STRUCK, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Safety Attachments for Electric, Cable, and Motor Cars; and I do hereby 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 letters of reference marked thereon, which form a part of this specification.

The object of this invention is to prevent injury and loss of life, by means of certain brakes, guards, fenders and other devices attached to the ends of the cars, and under the control of the drivers or motormen, and it is intended to be used more especially in connection with cars propelled by electricity or cables.

The invention consists in the improvements hereinafter described, and finally pointed out in the claims.

Referring to the accompanying drawings, in which similar letters of reference indicate corresponding parts in each of the several figures where they occur, Figure 1 represents in elevation the front section of a car and my improvements in connection therewith. Fig. 2 is a similar view also showing said improvements in operative relation to the track rail. Fig. 3 is a horizontal transverse section taken through line *x* of Fig. 1. Figs. 4 and 5 are detail views (in elevation) of certain of the working parts of the improvement. Figs. 6 and 7 are similar to Figs. 1 and 2, except, that certain parts are shown in section and certain parts are left out in order to show more clearly the parts which remain.

In said drawings, A, designates the bottom frame or platform of a car.

B, designates a bumper, pivotally secured at *a*, to the front of the platform, at either or both ends of the car, by means of a rod, *a'*, working in suitable bearings, *b*, and rigidly secured to arms, *c*, which are firmly fastened to said bumper as indicated in Figs. 1 and 2. Said bumper is intended to be made of any suitable material and faced with a soft and

yielding cushion *d*. Interposed between said bumper and the platform, are springs, *e*, which also serve the purpose of a yielding cushion, and to hold the bumper into its normal position, as will be understood upon reference to Figs. 1 and 2. The lower edge of the bumper is connected with the platform at each end, by a knuckle joint, *f*, the action of which will be readily understood upon reference to the same figures. Pivotally connecting with said bumper, at or near the center thereof, is a lever, *g*, one arm of which projects through and above the platform, the other arm connecting with the bumper by means of a connecting rod, *h*, the arm projecting through the platform, as above stated, is under the immediate control of the driver or motorman.

C, designates a guard or fender, which is pivotally connected to and beneath the platform, by means of arms *i*, at each side. It is also detachably connected to said platform at the center by means of a trip-hook, *j*, rigidly attached to said connecting rod, *h*, and engaging an eye or recess, *j'*, at the top of said guard or fender, C. It is further connected to said platform, by means of chains, *k*, at each end, which are especially intended to limit the backward movement of said guard or fender in the event of its coming into contact with the track or any other object when the car is in motion. Said guard or fender is provided with wings, *C'*, one at each side, or end, the extremities of which extend rearward to about the center of the forward truck, and curve outwardly, the purpose of which is to force a person with whom the wings might come in contact entirely away from and out of all danger of being crushed by the wheels, as will be understood.

D, designates brakes, which are pivotally secured at the forward ends to arms or elbows, *l*, at each side immediately above the track rail; said arms being pivotally connected with the platform of the car, as indicated at *l'*, in Figs. 1, 2, 4 and 5. Said arms or elbows, *l*, are held in the proper relation to one another and braced by means of a rod, *m*, the ends of which are rigidly secured to said arms. Said brakes, D, are held normally out of contact with the track rails, by means of springs, *o*, which connect therewith and to the plat-

form or the framework of the car, as indicated in Figs. 1 and 2. Said arms or elbows, *l*, are also provided with braces or stops, *l'*, which engage with the under side of the platform, to limit the upward movement of the said brakes, as will be understood upon reference to said Figs. 1, 2, 4 and 5. Said brakes are operated by the driver or motorman by means of a cord, wire, or chain, *p*, which connects with an arm, *r*, rigidly secured to said rod, *m*, and to a handle *m'*, arranged above the platform, and within easy reach of said motorman. Said cord, wire or chain may however be connected with a lever arranged to be operated by foot or hand, as will be readily understood upon reference to Figs. 1, 2, and 3.

The operation of the devices is as follows:—The car being in motion, and the improvements hereinbefore described being in their normal position as indicated in Fig. 1, should the bumper, *B*, come into contact with a human being, the concussion occasioned thereby would trip the hook, *j*, and allow the guard or fender, *C*, to instantly fall near or upon the track rails, as indicated in Fig. 2. Should the person struck by the bumper be thrown off the tracks all might be well but, should he or she be knocked down and fall between the rails or upon the track, and the car not be stopped in time to avoid further contact with the person, it would still be impossible for the latter to get beneath and be crushed or injured by the wheels or truck of the car, as the guard, *C*, would tend to carry the person forward until the car came to a full stop, and so no serious injury would be likely to result from the mishap. Again, should the motorman or driver observe a person lying upon or between the tracks ahead of the car, so that the bumper would not strike him or her, he can trip the hook with his foot by pressing against the lever, *g*, thereby releasing the guard, *C*, and instantly letting it down upon the track, thus preventing the wheels from coming in contact with and crushing the person so lying upon the track or inflicting any serious injury even though the guard should come in contact with him or her. At the same time, by operating the ordinary as well as the improved brakes, the car will be brought to a stop at the earliest moment.

It will be seen from the foregoing, that the guard *C*, coming into contact with the track rails, acts as a powerful brake to aid in overcoming the momentum of the car; moreover,

the improved brakes being also arranged to come in contact with the track rails instead of the wheels, serve the same purpose and aid greatly in bringing the car to a stop with the least possible delay, thereby reducing the danger to human life to a minimum as well as to reduce the liability of coming in contact with any other obstacle. In other words it gives the motorman or driver the best possible control over his car.

The guard, *C*, is readily raised into its normal position by the driver or motorman, by means of the ordinary car hook or other appropriate implement.

Having thus described my invention, what I claim as new, and wish to secure by Letters Patent, is—

1. The combination with the platform of a car, of a bumper (as *B*), pivotally secured to the car in front of said platform, and a knuckle (as *f*), connecting the lower extremity of said bumper with said platform, as described and for the purposes set forth.

2. The combination with the platform of a car, of brakes (as *D*), arms or elbows (as *l*), pivotally connecting with said brakes and with the said platform, springs (as *o*), a cord (as *p*) and an arm (as *r*), connecting with said cord, as described and for the purposes set forth.

3. The combination with the brakes *D*, of arms, *l*, pivotally connecting said brakes with the platform of the car and stops, *l'*, arranged as described and for the purposes set forth.

4. The combination with the platform of a car, of a bumper (as *B*) pivotally secured to the front portion of said platform, a guard or finger (as *C*) pivotally connected with the car beneath the platform, the top of which guard is provided with a recess, a lever (as *g*) projecting through the platform, a rod (as *h*) connecting the bumper and the lever, and a trip hook (as *j*) secured to the rod and adapted to engage with the guard at the recess, whereby the hook may be disengaged from the guard by the movement of the bumper or by the movement of the lever, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 23d day of January, 1894.

CHARLES E. STRUCK.

Witnesses:

OLIVER DRAKE,
ROBERT SOLLBERGER.