(No Model.)

P. JONES.

CAR FENDER.

No. 557,206. Patented Mar. 31, 1896.

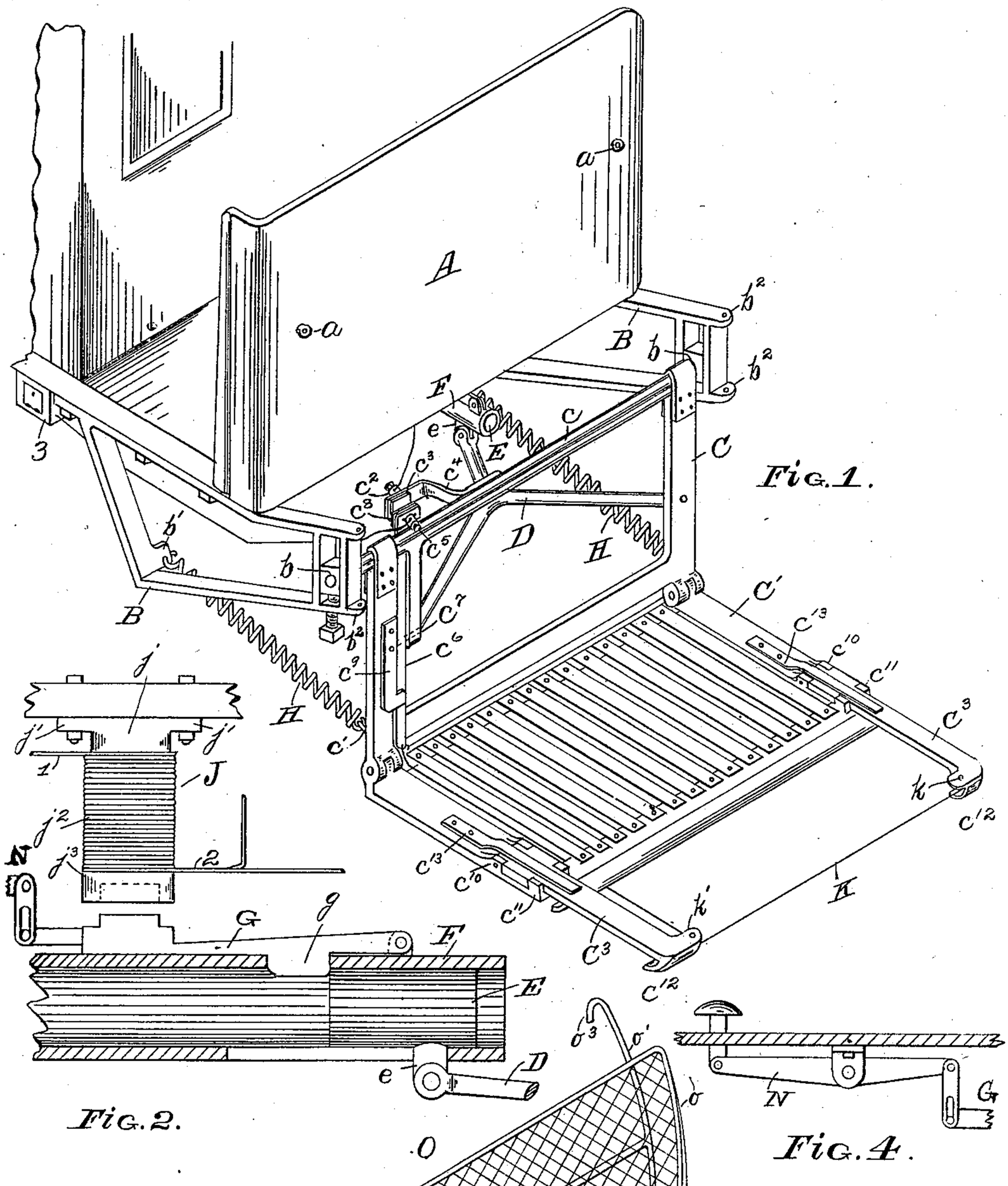

Fig. 1.

Fig. 2.

Fig. 4.

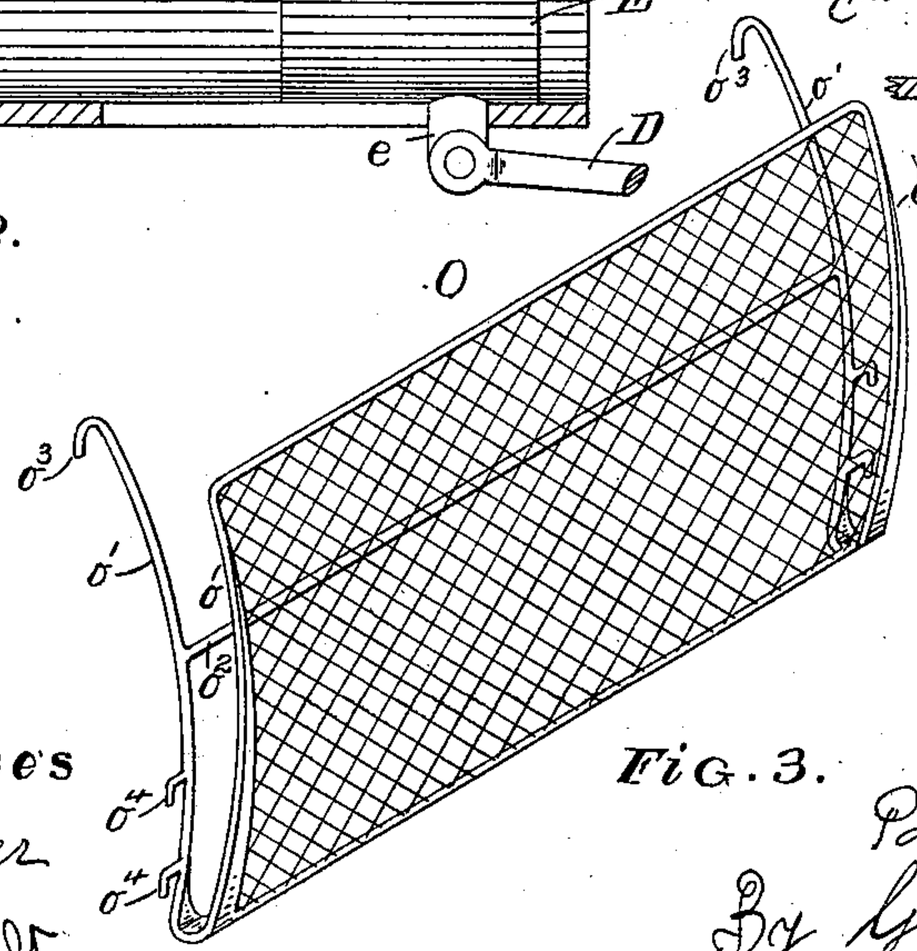

Fig. 3.

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CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 557,206, dated March 31, 1896.

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To all whom it may concern:

Be it known that I, PAUL JONES, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Car-Fenders, of which the following is a specification.

My invention relates to street-car fenders, and particularly to fenders for cars propelled by electricity. Its object is to provide means by which the scoop, which in its normal position is held above the roadway or tracks, is automatically tripped by a person or object coming in front of it and rapidly snapped down upon the tracks or roadway before the person or object is struck by the scoop or front of the fender proper.

There are appliances in use which are automatically thrown down by striking a person or object; but when the car is moving rapidly the limbs of a person are liable to pass under the front end of the scoop before it can reach its lower position. In such case the fender is rather an injury than a protection. The fender to be of any benefit must reach its lowest position before the person is struck by it. I have provided means to hold the fender in the normal position above the roadway and tracks until its sustaining-support is released and means to release it before the person can be struck by the fender. The means by which I attain these ends will be first fully described in connection with the accompanying drawings, and then particularly referred to and pointed out in the claims.

It will be easier to comprehend my invention if it is first understood that the fender is held in its normal position by a detent projecting from an armature in proximity to the core of an electromagnet, which magnet is interposed in an open circuit, the circuit-wires of which tap the main current, which supplies the current to the car-motor, and means to automatically close the circuit through the electromagnet (which may be any of the well-known lifting-magnets) against spring-pressure by a tripping device arranged in advance of the fender-frame or scoop.

Referring to the drawings, in which like parts are indicated by similar reference letters and numerals wherever they occur throughout the various views, Figure 1 is a perspective view of the front end of a car provided with my improvements. Fig. 2 is an enlarged view, partly in vertical central longitudinal section and partly in side elevation, of the fender-sustaining device, the armature, and the electromagnet. Fig. 3 is a perspective view of the removable guard or shield to cover the frame which supports the fender. Fig. 4 is a detailed view of the means by which the motorman may throw up the armature or detent-lever and release the fender.

Underneath the front platform A are secured upon each side brackets or hangers B, in the forward ends of which are boxes, in which boxes are fitted the vertical adjustable bearings *b*, in which are journaled the ends of the supports *c*, upon which the fender-frame is hung. The fender-frame consists of the vertical frame C and the forwardly-projecting scoop C′. The parts C and C′ are united by hinges in order that the part C′ may fold up against the vertical frame C to economize space when the car is put in the barn. D is a Y-shaped link, the forked ends of which are coupled to the rear of each of the side uprights of the frame C. The rearwardly-extending end of the link is coupled to a lug *e*, which projects from a piston E through a longitudinal slot in a tube F, which tube is secured underneath the front platform A.

When the fender is elevated to its normal position, the piston E occupies the position shown in Fig. 2. The piston is held in this position by a detent *g*, which projects from the hinged lever or armature G through a slot in the upper side of the tube F. So long as the piston is held in the forward end of the tube F the fender will remain elevated; but so soon as the lever G is elevated to withdraw its detent *g* out of contact with the piston the coil-springs H, which have their forward ends secured in eyes *c′* in the rear of the upright frame C and their rear ends hooked into lugs *b′* of the hangers B, will rapidly snap the fender to its lowest position.

The electromagnet J has its core *j* secured firmly to the platform by bolts which pass through laterally-extending lugs or flanges *j′*. The spool j^2 is sustained in position by a flange j^3. The wire 1 of the magnet taps one of the wires which furnish the current to the magnet. The other wire, 2, is connected to a

binding-post c^2, which is in electrical connection with the contact-piece c^3, secured upon the face of an arm c^4, which is secured to the fender-support c, the piece c^4 being insulated from the binding-post. A continuation of the wire 2 is connected to a binding-post c^5, which passes through but is insulated from an angle-arm of the spring-pressed lever c^6. This continuation, after passing through a fuse-box 3, is tapped into the opposite wire of the motor. The contact-lever c^6 is pivoted at c^7 between a downwardly-extending arm from the fender-support c and one side of the fender-frame C and extends up back of the support c and has a contact-piece c^8, which comes opposite the contact-piece c^3. These contact-pieces are preferably carbon blocks. On the front of the vertical frame of the fender is secured a latch-spring c^9, which has an angle-arm which extends over the pivoted lever c^6 and normally holds the upper end of the lever against the inner side of the frame-support c, thus separating the contact-blocks c^3 and c^8 and holding the circuit open.

The side pieces of the frame C′ have upwardly-extending lugs c^{10} and c^{11}. Between the lugs c^{10} are pivoted two arms C^3, which pass between the lugs c^{11} and extend forward some distance beyond the front of the fender-frame. The front ends of these arms are provided with shoes c^{12}, which slip over the tracks or ground when the fender is snapped to its lower position. The arms C^3 are held down upon the side frames and between the lugs c^{11} by flat springs c^{13}, which are secured upon the side bars, and their free ends project over the top of the arms C^3.

K is a wire, one end of which is secured at k to a pin passing through the forward end of one of the arms C^3, and from that point it passes around a grooved pulley k' journaled in the opposite arm C^3, and from there extends up and is connected to the lower end of the contact-lever c^6. It will be seen that if the wire K should strike anything on the track when the car is in motion it will be deflected inward, rock the lever c^6 on its pivot, and bring the contact-blocks c^3 and c^8 together, thus closing the circuit through the magnet. The instant the circuit is closed through the magnet the armature-block will be snapped against the core, drawing the detent g out of contact with the piston E, when the springs H will throw the scoop to its lower position before the forward end of the fender would reach the object struck by the wire.

Should the motorman see a person on the track in front of the car in time, the fender may be thrown down by him without closing the circuit through the magnet. The means by which this is accomplished is illustrated in Fig. 4 and consists of a bar N, pivoted in a hanger secured to the under side of the platform. A link from one end of this bar is connected to the lever or armature G, and the opposite end of the bar N is provided with a rod which extends up through the floor of the platform and has a head in convenient reach of the motorman's foot. By pressing this rod down the lever G will be elevated and the piston E released.

The shield O, Fig. 3, consists of a spring-metal frame, the front o of which is curved to present a rounding or convex surface. At its lower end there is a return-bend forming the arms o', which are braced by a cross bar or rod o^2. The arms o' have downturned hooks o^3 at their tops to enter eyes a in the front of the dashboard, and also hooks o^4 at their lower ends to enter perforated lugs b^2, which project forward from the hangers B. When this guard is in position, it will furnish a yielding cushion and prevent any one being injured by striking against the fender or car-front.

It is obvious that the means for sustaining the fender in its normal position against a force exerted to throw it to its lower position may be varied to accommodate my invention to well-known fenders, and that the peculiar tripping mechanism, to be controlled by an electromagnet influenced by the current which controls the car-motor, may also be varied without departing from the spirit or scope of my invention; but I have shown the best means known to me of rapidly and automatically throwing the fender to its lower position before it strikes a person in front of it, and shall therefore consider all mere mechanical changes which accomplish the same result by equivalent means as within the spirit and scope of my invention.

What I claim is—

1. The combination, substantially as hereinbefore set forth, of the front platform, fender-supporting hangers secured thereto, the pivoted fender-frame supported by said hangers, means substantially as shown to sustain the fender in its elevated position against force applied to throw it to its lower position, an electromagnet in the main or line circuit and tripping mechanism such as described, to close the circuit, release the fender-sustaining device and permit the fender to drop to its lowest position.

2. The combination of the front platform, the hangers secured thereunder at each side, the fender-frame pivoted in said hangers, the coil-springs connected to the hangers and fender-frame and exerting their tension to throw the fender to its lowest position, a support fitted to slide in guides secured underneath the car-platform, a bar connecting said support to the fender-frame, a lever having a detent to hold said support in its forward position and the fender elevated, and means such as shown actuated by the line-current to release the support and allow the springs to snap the fender to its lower position, substantially as shown and described.

3. The combination of the front platform, the fender-frame pivoted in hangers secured to said platform, a guide secured underneath the platform, a piston or follower fitted to slide in said guide, a link connecting said fol-

lower to the pivoted fender-frame, a pivoted lever having a detent to pass back of the follower and hold it in its forward position, the end of the lever extending rearwardly and having an armature under the influence of an electromagnet, an electromagnet secured underneath the platform and in the circuit of the line-current, contact-surfaces secured to the fender-frame and held separated by spring-pressure, arms on each side of the fender-scoop extending in front thereof, and a wire secured at one end to one of the arms passing around a pulley journaled in the opposite arm and having its opposite end connected to the movable contact-surfaces, whereby pressure on the wire in front of the fender closes the circuit through the magnet, retracts the detent and releases the fender-frame, substantially as shown and described.

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