(No Model.) 2 Sheets—Sheet 1.

P. JONES.

CAR FENDER.

No. 597,216. Patented Jan. 11, 1898.

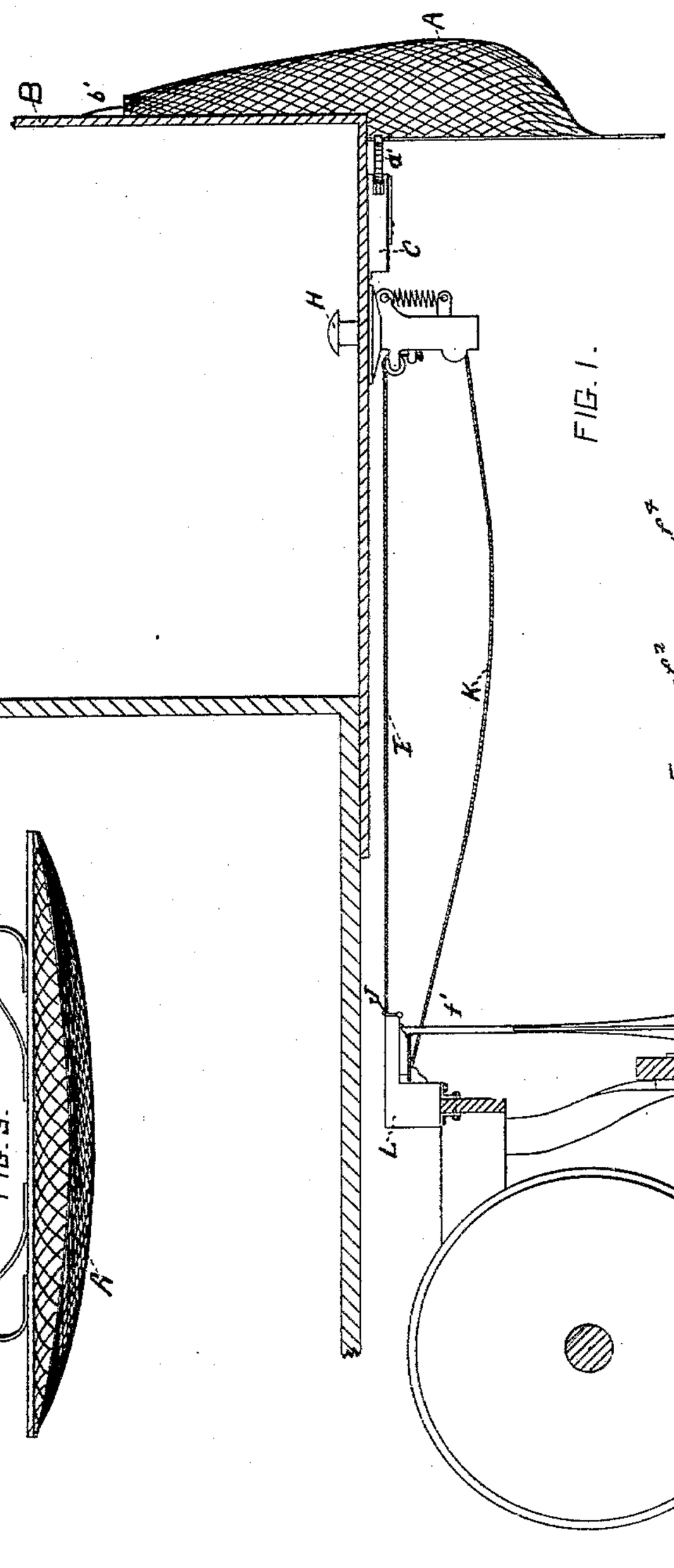

FIG. 1.

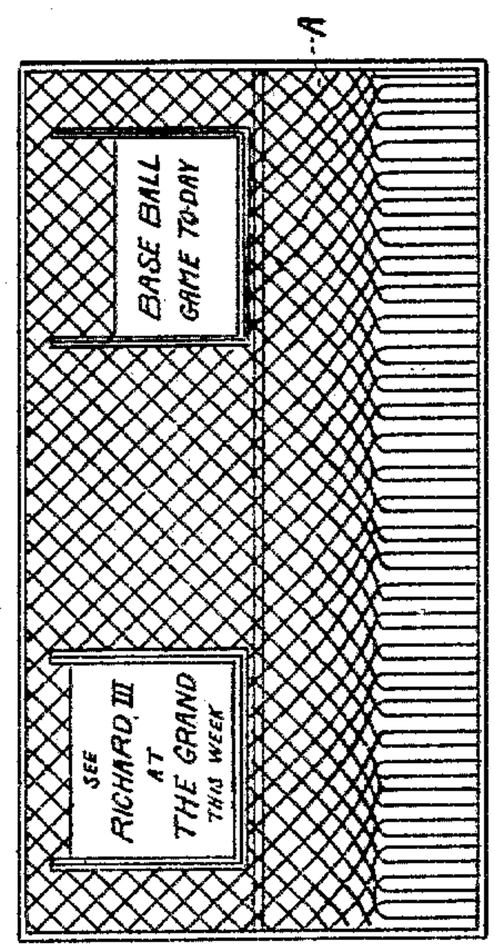

FIG. 2.

FIG. 3.

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(No Model.) 2 Sheets—Sheet 2.

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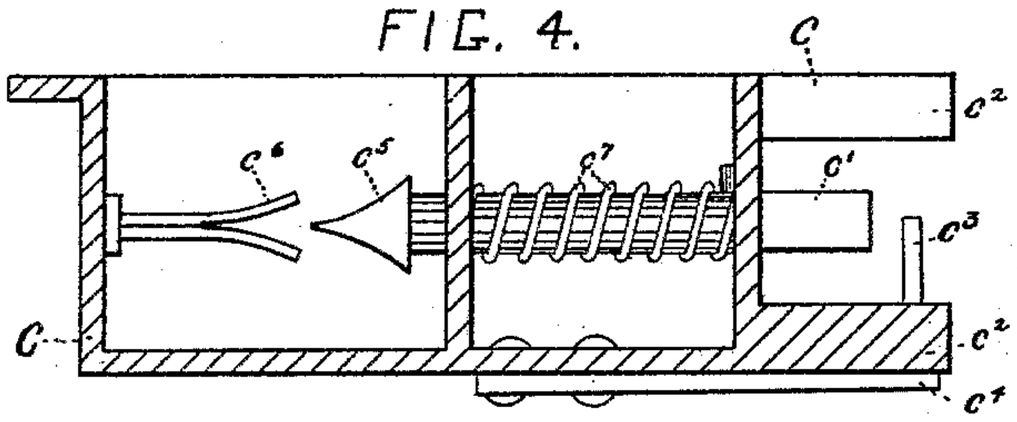
CAR FENDER.

No. 597,216. Patented Jan. 11, 1898.

FIG. 4.



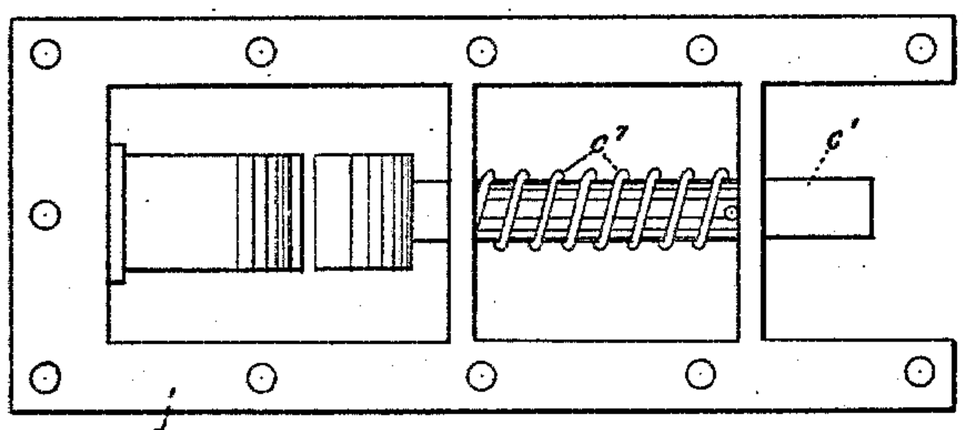


FIG. 5.

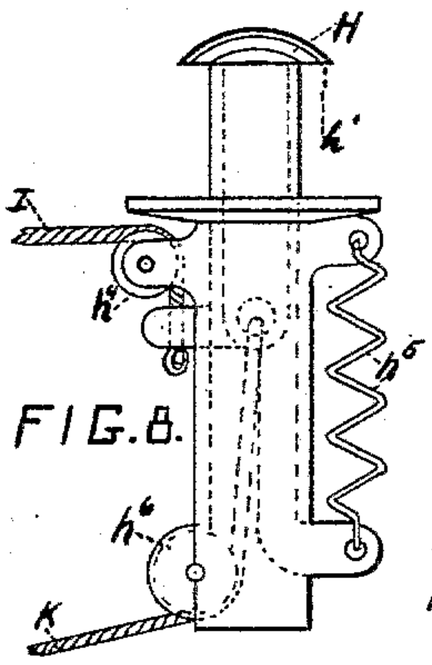


FIG. 8.

FIG. 9.

FIG. 10.

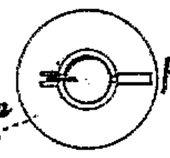


FIG. 11

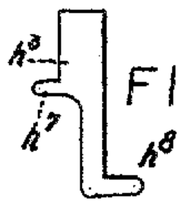


FIG. 12.

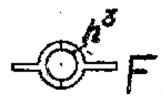


FIG. 13.

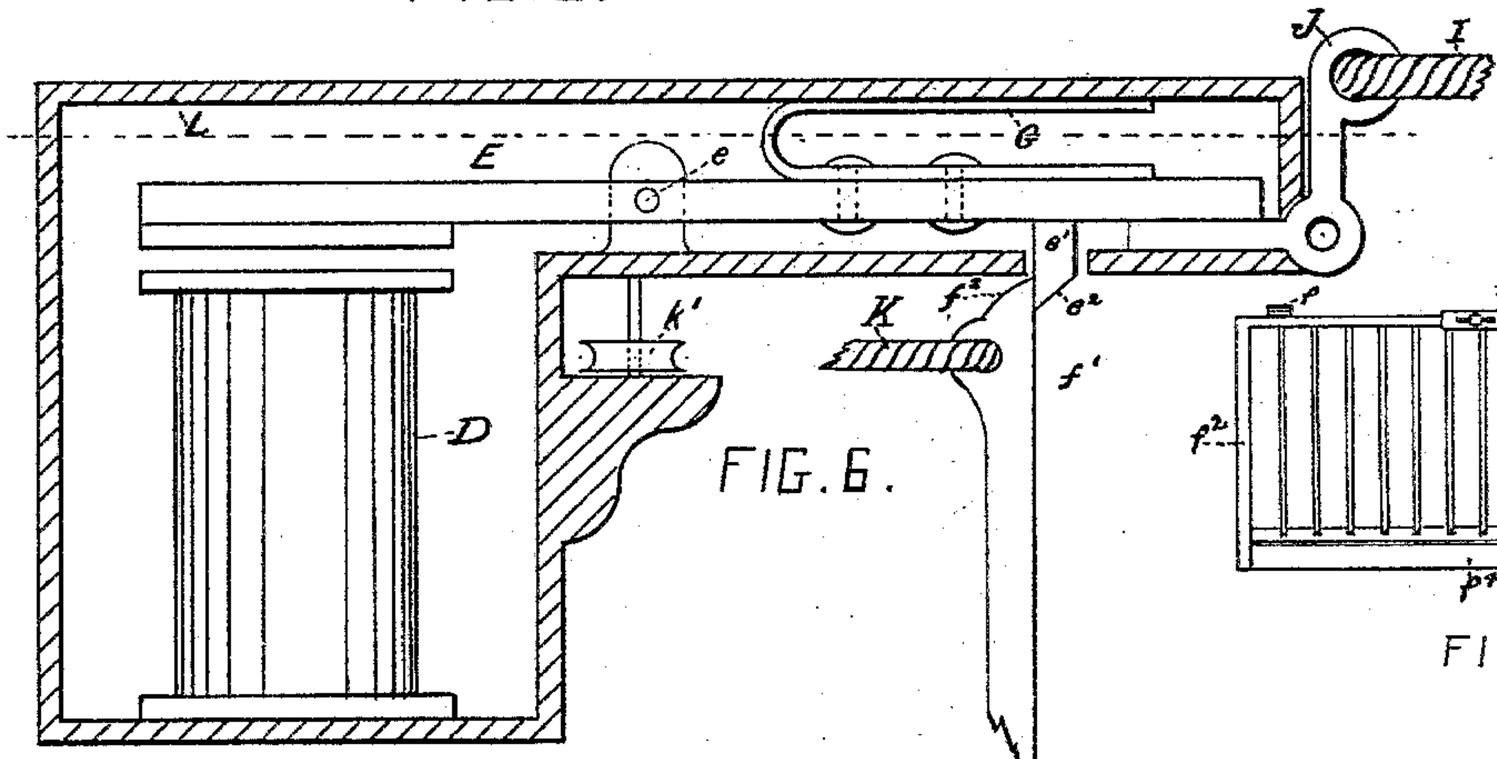


FIG. 6.

FIG. 14.

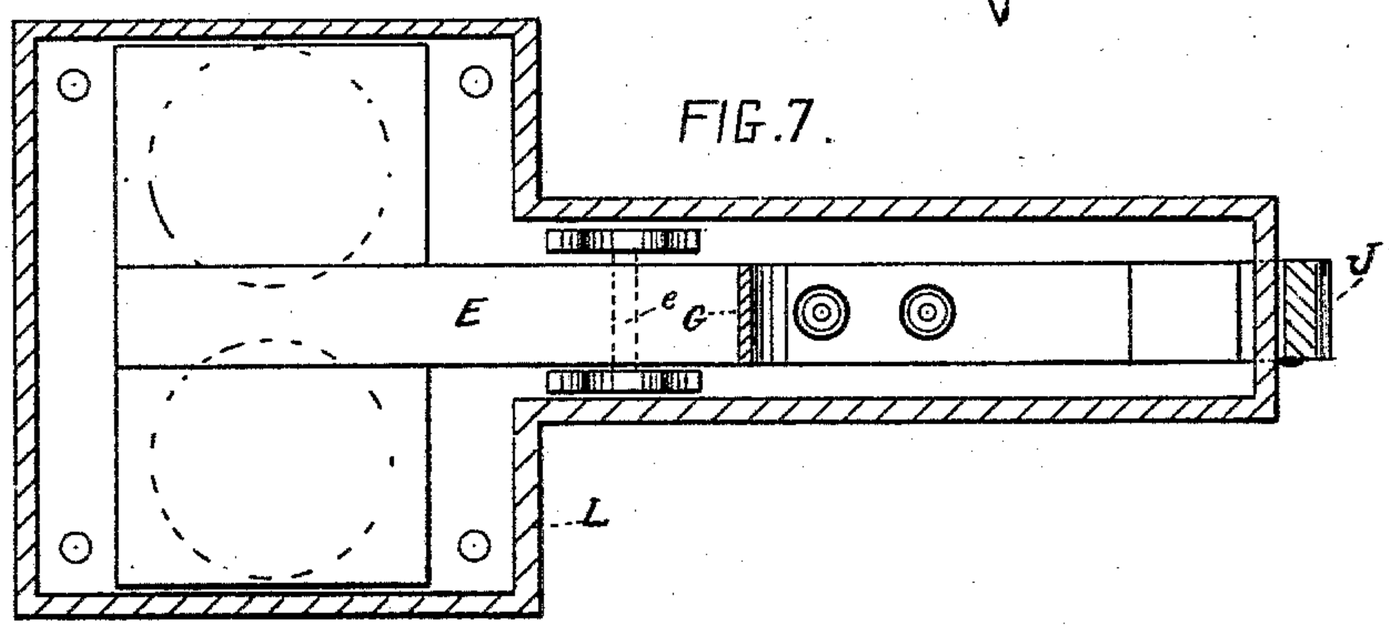


FIG. 7.

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PAUL JONES, OF CINCINNATI, OHIO.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 597,216, dated January 11, 1898.

Application filed April 24, 1897. Serial No. 633,572. (No model.)

To all whom it may concern:

Be it known that I, PAUL JONES, a citizen of the United States, residing at 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 more particularly to electrically-actuated car-fenders.

In Letters Patent No. 578,106, granted me March 2, 1897, I have shown and described an improvement in which a scoop-frame hinged to hangers carried by the car-body is automatically dropped by pressure on a buffer-frame carried by the car-platform. The car-body is subject to a vertical rocking movement, which upon a rough track is of considerable extent, and when the scoop-frame is secured to the body of the car it must be mounted so that its normal position is some distance above the ground in order to allow sufficient leeway for the maximum rocking movement. It must also be mounted in advance of the truck and its length is limited. The result is that the scoop-frame must drop some distance before it reaches its operative position and that the incline between its pivotal point and its front end is comparatively steep. It is obvious that, other things being equal, the safety factor will be greatest in that device which has the least distance to travel after being tripped to reach its operative position and in which the most time is allowed between the tripping and the engagement with the scoop-frame. It is also obvious that the scoop-frame which is most gradually inclined from rear to front will receive a person with less shock and danger of injury than a frame which is more sharply inclined, as the latter is likely to roll or push the body along the ground, with great danger to limbs and life. The gradually-inclined scoop will also hold and carry the person much more safely than the sharply-inclined frame.

The objects of my present invention are to provide a car-fender in which the scoop-frame has the smallest distance to drop which will permit clearance of ordinary inequalities in the road-bed, in which the scoop-frame is mounted as far in the rear of the buffer-frame as the ordinary construction of cars will permit, in which the inclination of the scoop-frame is as gradual as safety may require, to provide a more sensitive buffer-frame, to provide improved tripping mechanism, to provide resetting mechanism which may be operated from the car, to provide improved mechanism for closing the electric circuit by which the tripping mechanism is actuated, to provide improved means for releasing the scoop-frame, and to improve the details of construction of the various parts.

My invention consists in the parts and combination and arrangement of parts hereinafter described and claimed.

In the drawings, Figure 1 is a broken vertical section of a car equipped with my invention. Fig. 2 is a front elevation of a preferred form of buffer-frame. Fig. 3 is a top plan corresponding to Fig. 2. Fig. 4 is a vertical section showing in detail the means for closing the electric circuit. Fig. 5 is a top plan corresponding to Fig. 4. Fig. 6 is a vertical section showing the means for dropping the scoop. Fig. 7 is a horizontal section on line 7 7 of Fig. 6. Fig. 8 is an elevation showing the tripping mechanism for dropping or setting the scoop from the platform. Figs. 9, 10, 11, 12, and 13 are details of the different parts of the tripping mechanism. Fig. 14 is a top plan of the scoop-frame.

A, Fig. 1, is a buffer-frame hinged to springs b' b', secured to the car-frame B. The buffer-frame A to a point below the bottom of the car-platform is composed of latticed wire. From said points the wires run vertically to the bottom of the frame, which sets about six inches above the ground, as shown in Fig. 2. The upper part of the wire fabric is curved to substantially follow the curvature of the dashboard, but bulges forward, still retaining lateral curvature, until it reaches a point below the bottom of the platform, where it curves rearwardly until it reaches the rear line of the frame, and then extends downwardly in a vertical plane. If the buffer should strike a person who had already fallen, it is essential that the lower part of the frame should offer sufficient resistance to actuate the tripping mechanism, but should be sufficiently yielding to enable the buffer-frame to bend backward and allow the body to pass under it. By making the lower part of the buffer-frame straight instead of laterally curved and

extending the lower ends of the wires vertically without interlocking I am enabled to secure sufficient elasticity without hinges or other appliances.

While I have here shown the buffer-frame as constructed of latticed wire, I do not confine myself to this material, as the same result may be obtained, if the form and principle of construction be preserved, with thin metal strips or other elastic material latticed or otherwise arranged.

The buffer-frame is held yieldingly in front of the car-platform by springs a', which with the springs b' and the yielding fabric of the buffer-frame afford a cushion sufficiently elastic to prevent injury to a person who may come in contact therewith. The rear portion of the springs a' bear against plungers c', mounted in contact-boxes C, and are held between ears c^2, extending forwardly from the contact-boxes, by means of pins c^3, carried by springs c^4. The rear ends of the plungers carry electrical contact-points c^5, adapted to engage with U-shaped contact-pieces c^6. The lips of the contact-piece c^6 are flexible and close enough together to give good contact before the plungers reach their limit of inward movement. The plungers are surrounded by coiled springs c^7, adapted to force the plungers outward and break the contact when the pressure is released. The outer end of the plunger is of such length that it may be driven inward until it is flush with the contact-box without injury to the electric contacts. When driven to this point, the springs a' engage with the box and the plunger cannot be driven farther. The contact-pieces c^5 and c^6 are thus protected from injury in the case of collision. The contact-piece c^6 is electrically connected with one wire of the main circuit and c^5 with an electromagnet D, which is in turn connected with the other wire of the main.

E is an armature-lever fulcrumed at e and carrying a catch e', preferably beveled at e^2.

G is a spring normally holding the armature out of contact with the magnet.

F is a scoop-frame pivotally connected with the car-truck at f and provided with an arm f', the free end of which is provided with a beveled edge f^2 and is adapted to engage with and be held by the catch e'. The scoop-frame is normally held in its idle position by the catch e' and arm f'; but pressure upon the buffer-frame forces the springs a' against the plungers c', thereby closing the electric current, which includes magnet D, at c^5 c^6. The armature is thereby drawn toward the magnet, thus raising catch e' and releasing arm f', which allows the scoop-frame to drop.

The action above described is automatic; but for the purpose of adapting the device for operation by the motorman I provide the following mechanism: H is a foot-piece projecting above the floor of the car-platform in easy reach of the motorman and having a stem h'. The stem h' is seated in a hollow sliding piece or plunger h^3, which rests in a socket h^2, seated in the platform-floor. The plunger h^3 is provided with arms h^7 and h^8. A cord I is secured to the arm h^7, passes over a sheave h^4, and is connected with a crank-lever J, one arm of which takes under the armature-lever E. By pressing upon the foot-piece H the plunger h^3 and its arm h^7 are forced downward, drawing the cord I over the sheave h^4 and actuating lever J, which lifts the armature-lever E, releasing arm f' of the scoop-frame. The plunger is returned to its normal position by a spring h^5.

For the purpose of resetting the scoop-frame the foot-piece H is connected with a cord K, which passes around a sheave k', mounted in the rear of the catch e', and is secured to the arm f' of the scoop-frame. The cord K is sufficiently slack to permit the scoop-frame to drop. To reset the scoop-frame, the operator lifts the foot-piece, thereby drawing up the cord, until the arm f' takes behind catch e', when the foot-piece is returned to its position.

The scoop-frame preferably consists of a rigid outer frame f^2, with a series of strips or wires f^3 extending across the bottom of the frame. The bars of this frame extend above the bottom strips sufficiently to form a wall adapted to retain any object which may be caught in the scoop. The front end of the frame is provided with a shoe f^4, adapted to slide on the ground and take under any object which is to be caught by the scoop. By this construction I am enabled to rivet or bolt the bottom strips to the bottom of the outer frame, thereby avoiding any projections which are liable to bruise a person or catch upon his clothing.

I claim—

1. In combination with a car, a scoop-frame pivotally secured to the truck-frame; an electromagnet; an armature-lever; a catch carried by the armature-lever, normally holding the scoop-frame in its idle position; a fender-frame secured to the platform; springs secured to the fender; plungers adapted to be actuated by the springs and carrying electric contact-points adapted to engage other contact-points and close a circuit including the magnet, thereby actuating the armature-lever and releasing the scoop-frame, substantially as and for the purpose set forth.

2. In combination with a car, the fender, A; plungers, c', carrying electric contacts, c^5; springs, c^7, normally holding the plungers in their idle position; springs, a', engaging with the plungers; electric contact, c^6; the scoop-frame, F, having arm, f'; the magnet, D; the armature-lever, E; the catch, e', carried by the armature-lever and adapted to engage with the arm, f'; and an electric circuit, including the magnet, and the contact-points, whereby pressure on the fender-frame actuates the plungers, thereby closing the circuit and releasing the scoop-frame, substantially as and for the purpose set forth.

3. In combination with a car, a pivoted scoop-frame, a lever carrying a catch normally holding the scoop-frame in its idle position; a foot-piece seated in the car-platform, an arm adapted to be actuated by the foot-piece, tripping mechanism adapted to actuate the catch-carrying lever; a cord connecting the arm and the tripping mechanism, and a cord connected with the foot-piece and the scoop-frame adapted to return the latter to its idle position, substantially as and for the purpose set forth.

4. The combination with the scoop-frame of a car, of tripping mechanism, normally holding the scoop-frame in its idle position; the foot-piece, H; the plunger, h^3, having arm, h^7, and a cord connecting the arm, h^7, with the tripping mechanism, substantially as and for the purpose set forth.

5. A flexible buffer-frame, adapted to be attached to a car-platform, bellied in its upper portion, but verging in its lower portion into a straight part integral with the bellied portion, thereby permitting it to bend rearwardly and pass over an obstruction upon the track, substantially as and for the purpose set forth.

6. A flexible buffer-frame, adapted to be attached to a car-platform, laterally and vertically bellied in its upper portion, but verging into a straight part integral with the bellied portion, thereby permitting it to bend rearwardly and pass over an obstruction on the track, substantially as and for the purpose set forth.

7. A flexible buffer-frame adapted to be attached to a car-platform, bellied in its upper portion, but verging in its lower portion into a straight part integral with the bellied portion thereby permitting it to bend rearwardly and pass over an obstruction on the track, in combination with a normally-sustained scoop-frame hung beneath the car and mechanism adapted to be operated by the buffer-frame to release the scoop-frame, substantially as and for the purpose set forth.

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