

(No Model.)

4 Sheets—Sheet 2

A. O. CUNNINGHAM.
CAR FENDER AND SAFETY ATTACHMENT.

No. 560,843.

Patented May 26, 1896.

FIG. 2.

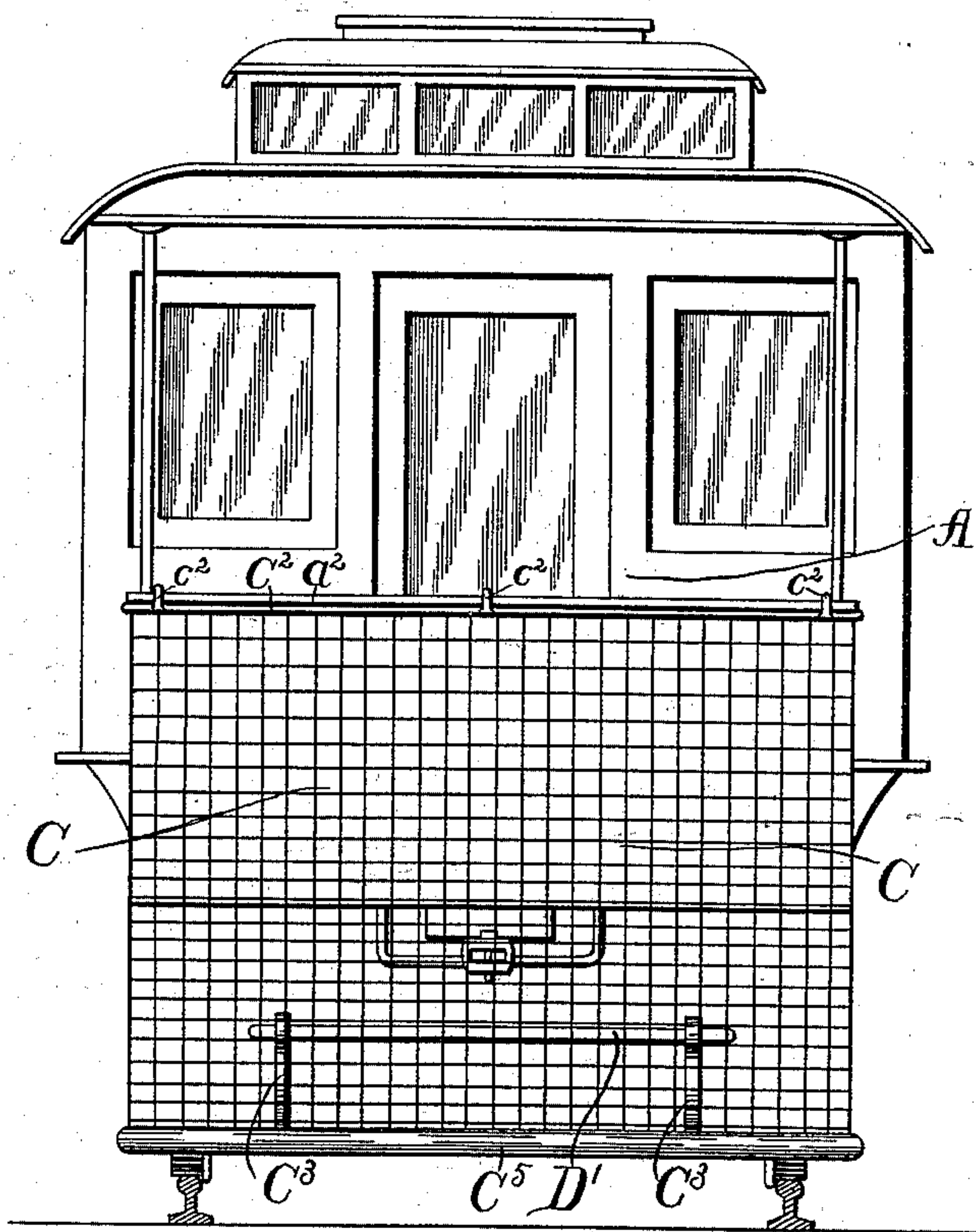


FIG. 7.

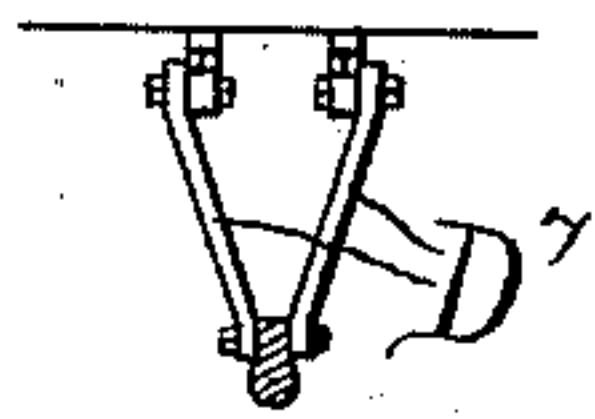
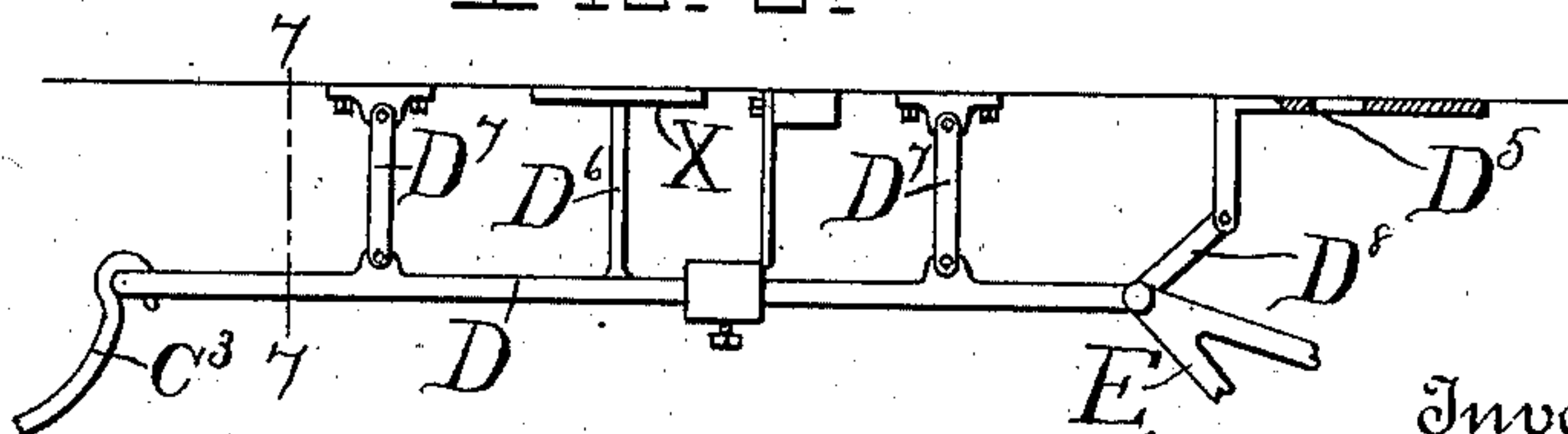


FIG. 6.



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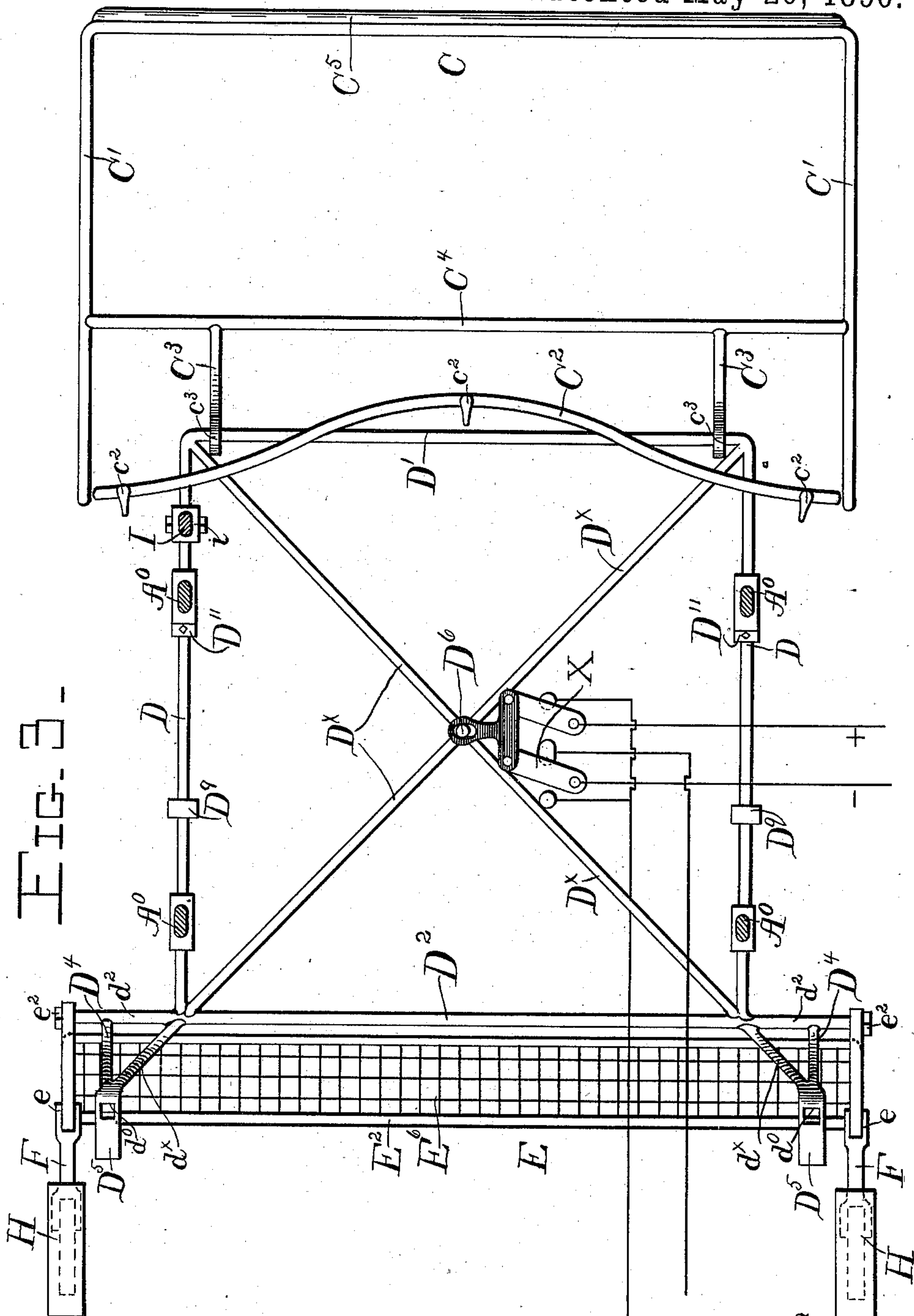
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4 Sheets—Sheet 3.

A. O. CUNNINGHAM.
CAR FENDER AND SAFETY ATTACHMENT.

No. 560,843.

Patented May 26, 1896.



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UNITED STATES PATENT OFFICE.

ANDREW OSWALD CUNNINGHAM, OF NEW ORLEANS, LOUISIANA, ASSIGNOR
OF TWO-THIRDS TO W. MORGAN GURLEY AND F. RIVERS RICHARDSON,
OF SAME PLACE.

CAR-FENDER AND SAFETY ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 560,843, dated May 26, 1896.

Application filed February 8, 1896. Serial No. 578,585. (No model.)

To all whom it may concern:

Be it known that I, ANDREW OSWALD CUNNINGHAM, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in a Car-Fender and Safety Attachment; 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.

My invention relates to improvements on safety devices for street-railway cars, and has for its object to provide, in connection with suitable wheel-guards, a suitable fender for the front of the car and means for automatically stopping the forward motion of the car when the front fender strikes an object standing or lying upon the track.

My invention consists in the novel devices hereinafter described and claimed.

Reference is had to the accompanying drawings, wherein the same parts are indicated by the same letters throughout the several views.

Figure 1 represents a side elevation of a street-car provided with my safety devices. Fig. 2 represents an end view of the same, as seen from the left in Fig. 1. Fig. 3 is a diagrammatic plan view of the fender-frame and the frame for supporting the rear of the fender and operating the car-stopping devices, the netting of the fender being omitted. Fig. 4 is a side elevation of the fender and its connections shown in Fig. 3, the floor of the car being shown in section. Fig. 5 is a vertical section through the fender connections, taken on the line 5 5 of Fig. 4 and looking to the right in said figure, the wheel-guard being shown in its lowest position, as indicated by dotted lines in said Fig. 4. Fig. 6 shows a side view, and Fig. 7 a sectional view, of a modification of my device, in which the operating-frame beneath the car swings instead of sliding.

A designates the body of the car, which may be of any suitable or desired construction and mounted upon a suitable truck.

As my invention may be applied to any ordinary form of street-railway car, I will not describe in detail the construction of the car itself, except so far as is necessary to the understanding of my invention.

A' represents the floor of the car.

A² represents the dashboard of the platform, which is provided with the usual rail or beading a².

B B represent side fenders, which consist of frames provided with rope or wire netting, and are suspended from the sides of the car by means of hooks or hangers a, bolted or otherwise secured to the sides of the car, upon which hooks or hangers the squared rods b, forming the upper part of the frame of the said side fenders, are hung, as shown most clearly in Figs. 1 and 5. These side fenders B extend the whole length of the car and are shaped to fit under the steps thereof, as shown in Fig. 1, and the rods b by which they are hung being squared and fitting snugly in the hangers, as shown in Fig. 5, prevent any great amount of swinging of the said side fenders when the car runs over uneven places in the track.

C represents the end or front fender, which is adapted to be attached to either end of the car, according to the direction of the motion thereof.

C' represents the bottom rod or frame of the fender, the front of which is provided with a cushion C⁵, of rubber or other soft material, to break the force of a blow, or this cushion may be a pneumatic tube, if desired.

C² represents the upper rod of the frame of the fender, and this rod is bent to conform to the shape of the front of the dashboard of the car and is provided with a plurality of hooks or hangers c², which hook over the rail or beading a² on the upper edge of the said dashboard and by means of which the said rod is supported. Rope netting is stretched between the rod C² and the lower frame C' in any suitable manner—for instance, as shown in Figs. 1 and 2 of the drawings.

A cross-rod C⁴ extends transversely of the lower frame C' and connects the two rearwardly-extending legs thereof, as shown in

Fig. 3, and a pair of bent rods C^3 extend upward from said cross-rod and terminate in hooks c^3 . (See Figs. 3 and 4.)

A frame composed of the side rods D D , the front rod D' , the rear rod D^2 , and the cross-rods D^x (see Fig. 3) is supported beneath the car near its front end, or rather near each end, by means of hangers A^0 , bolted beneath the floor of the car. The side rods D of this frame pass through these hangers A^0 and are adapted to slide therein in the direction of the length of the car. The ends of the rod D^2 extend outward beyond the side rods D , forming arms or projections d^2 .

E represents a guard for the front of the wheels. This guard is composed of end pieces E' E' , extending forward at their bottoms, as shown at E^2 . These end pieces are connected by cross-rods E^3 , E^4 , and E^5 , which pass through said end pieces and are secured by nuts e^3 , e^4 , and e^5 . Between these rods rope or wire netting E^6 is stretched to catch any object which may get under the car-body and prevent its getting under the wheels. The end pieces E of the wheel-guard are pivoted at e to one end of the links F , the opposite end of the said links being pivotally connected at h to the brackets or hangers H , bolted or otherwise fastened beneath the car. The upper ends of these end pieces E are pivotally mounted, as at e^2 , upon the ends of the projections d^2 of the cross-rod D^2 of the sliding frame, and a longitudinal movement of the said frame will raise or lower the wheel-guard, as will be hereinafter more fully described. A pair of rounded lugs e' are provided on the rod E^5 of the wheel-guard and are adapted to rest on the rails when the wheel-guard is lowered.

D^4 (see Figs. 3, 4, and 5) are a pair of upwardly-curved arms which carry slides D^5 , each of said slides having an aperture d^0 therethrough. A pair of upwardly-curved arms d^x , forming prolongations of the cross-rods D^x , also connect with the slides D^5 and act as braces therefor.

A^3 is a sand box or hopper which may be of any suitable construction, and has a chute or spout A^4 leading from its bottom down to within a short distance of the rail. There are two of these hoppers at each end of the car, one on each side of the car above the rail, as shown in dotted lines in Fig. 5, and the slides D^5 are adapted to move in slots in the bottom thereof to open or close the said bottom, as will be hereinafter more fully described.

D^6 is an upright arm or stud, which is rigidly mounted upon the sliding frame at the intersection of the cross-rods D^x . This upright arm or stud is adapted to engage at its upper end a reversing-switch mounted beneath the floor of the car. This reversing-switch may be of any appropriate or suitable kind and adapted to any sort of motive power, and for the sake of illustration merely I have shown at X the simplest known form of switch

for reversing the electric current through a motor.

I is a hand-lever which is fulcrumed at i in a slot in the floor of the platform of the car, and is pivotally connected, as at i' , to one of the side rods D of the sliding frame. By means of this lever the said frame may be thrown forward into its normal position after having been pushed backward by the fender striking an object. Instead of this frame sliding in fixed hangers I may have the said frame suspended beneath the car by means of pivoted links D^7 , as shown in Figs. 6 and 7, in which case the slides D^5 will be connected to the frame by pivoted links D^8 instead of being rigidly connected to said frame, and the said frame will swing longitudinally instead of sliding.

In order to prevent the constant jolting of the car from causing the frame to slide or swing backward, I may provide a flat spring A^5 , bolted to a block or cross-piece beneath the car, and a block D^9 , held by a set-screw upon the side rod D of the frame. When in the normal position, the lower end of the spring A^5 will bear against the rear side of the block D^9 and hold the frame in position, but a violent stroke of the front fender against an object will push the said block past the end of the spring and the frame will run backward. A set-collar D'' may also be provided for holding the frame against sliding too far forward, as shown in Fig. 4.

It will be seen that when the fender strikes an object the frame will be thrown back against the action of the spring A^5 , which spring, after the frame has run back to its fullest extent, will have no further action upon the frame until the said frame has been run forward again and the spring drops behind the block D^9 .

The operation of my invention is as follows: The car being equipped with my safety devices and having the fender hung in place upon the front end, the hooks c^2 on the upper rod of the fender being hung over the rail or beading a^2 of the dashboard C^2 , and the hooks c^3 on the upwardly-curved arms C^3 , connected to the cross-rod C^4 of the base-frame C' , being hung over the front rod D' of the sliding frame beneath the car, the car is supposed to be moving forward. The normal position of the sliding frame and the front fender and wheel-guard is that shown in full lines in Fig. 4. Should the front of the fender C strike an object of any appreciable weight, the force of the shock will push the base-frame C' backward, which will in turn cause the sliding frame to run backward. Now when this happens the said sliding frame will simultaneously cause the wheel-guard to drop upon the track and by carrying the stud D^6 backward reverse the motion of the car. At the same time the slide D^5 will move backward, bringing the aperture d^0 therethrough directly beneath

the sand-hopper A³, allowing sand to run down upon the rails of the track to lessen or prevent the slipping of the wheels, which would be likely to occur, due to the sudden reversing of the direction of their motion. The parts will then occupy the position shown in dotted lines in Fig. 4. After the devices have automatically reversed the motion of the car the motorman can then shut off the current from the motor, and the car will come to a standstill.

It will be seen that should a car equipped with my safety devices strike a person standing or lying on the track the force of the blow will cause my devices to instantaneously reverse the motion of the car, and thus stop the same before the wheels run upon the person's body. In this way the life of the person will be saved in many instances where it would ordinarily be sacrificed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A safety attachment for street-railway cars comprising a frame mounted in bearings beneath the front of the car, and adapted to slide in said bearings; a fender having a base-frame provided with hooks adapted to hang upon the front of said slidable frame; track-sanding devices, and devices for reversing the movement of the car, carried by said car and adapted to be automatically operated by said frame in sliding backward when an obstacle is struck by said front fender, substantially as described.

2. In an apparatus of the character described, the combination with a metallic frame suspended in bearings beneath the front of the car, and adapted to slide longitudinally in said bearings; of a fender having a base-frame adapted to hang upon the front of said slidable frame; track-sanding devices, devices for reversing the movement of the car, and guards for the front of the wheels, all carried by said car and adapted to be automatically operated by said frame in sliding backward when an obstacle is struck by said front fender, substantially as described.

3. In an apparatus of the character described, the combination with a metallic frame suspended in bearings beneath the front of the car, and adapted to slide longitudinally of the car in said bearings; of a fender having a base-frame adapted to hang upon the front of said frame; a pair of outwardly-extending arms on said frame; a wheel-guard pivotally suspended beneath the car-body in front of the wheels thereof, and pivotally connected to said outwardly-ex-

tending arms, adapted to be raised and lowered by the sliding of said frame; track-sanding devices, and devices for reversing the movement of the car carried by said car and adapted to be automatically operated by said frame in sliding, substantially as described.

4. In an apparatus of the character described, the combination with a metallic frame suspended in bearings beneath the front of the car, and adapted to slide longitudinally of the car in said bearings; of a fender having a top rod adapted to hang upon the top of the dashboard of the car and a base-frame having a pair of curved arms terminating in hooks adapted to hang upon the front of said frame; a pair of outwardly-extending arms on said frame; a wheel-guard pivotally suspended beneath the car-body in front of the wheels thereof, and pivotally connected to said outwardly-extending arms, adapted to be operated by the sliding of said frame; sand-boxes carried by the car; chutes leading from said sand-boxes to the track-rails; perforated slides carried by the rear end of said frame working in slots in the bottom of said sand-boxes, normally closing said sand-box but adapted to open the same when said frame slides backward; and an arm mounted on said frame and adapted to engage and operate devices carried by said car for reversing the movement thereof, substantially as described.

5. In an apparatus of the character described, the combination with a metallic frame suspended in bearings beneath the front of the car, and adapted to slide longitudinally in said bearings; of a fender having a base-frame provided with a pair of curved arms terminating in hooks adapted to hang upon the front of said frame; a pair of outwardly-extending arms on the rear end of said frame; a wheel-guard pivotally suspended beneath the car-body in front of the wheels thereof, and pivotally connected to said outwardly-extending arms; track-sanding devices, and devices for reversing the movement of the car; all adapted to be automatically operated by said frame in sliding backward; and a flat spring mounted beneath the floor of the car, normally holding said frame forward, but adapted to release said frame when the latter slides backward, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW OSWALD CUNNINGHAM.

Witnesses:

F. RIVERS RICHARDSON,
A. A. PERKINS.