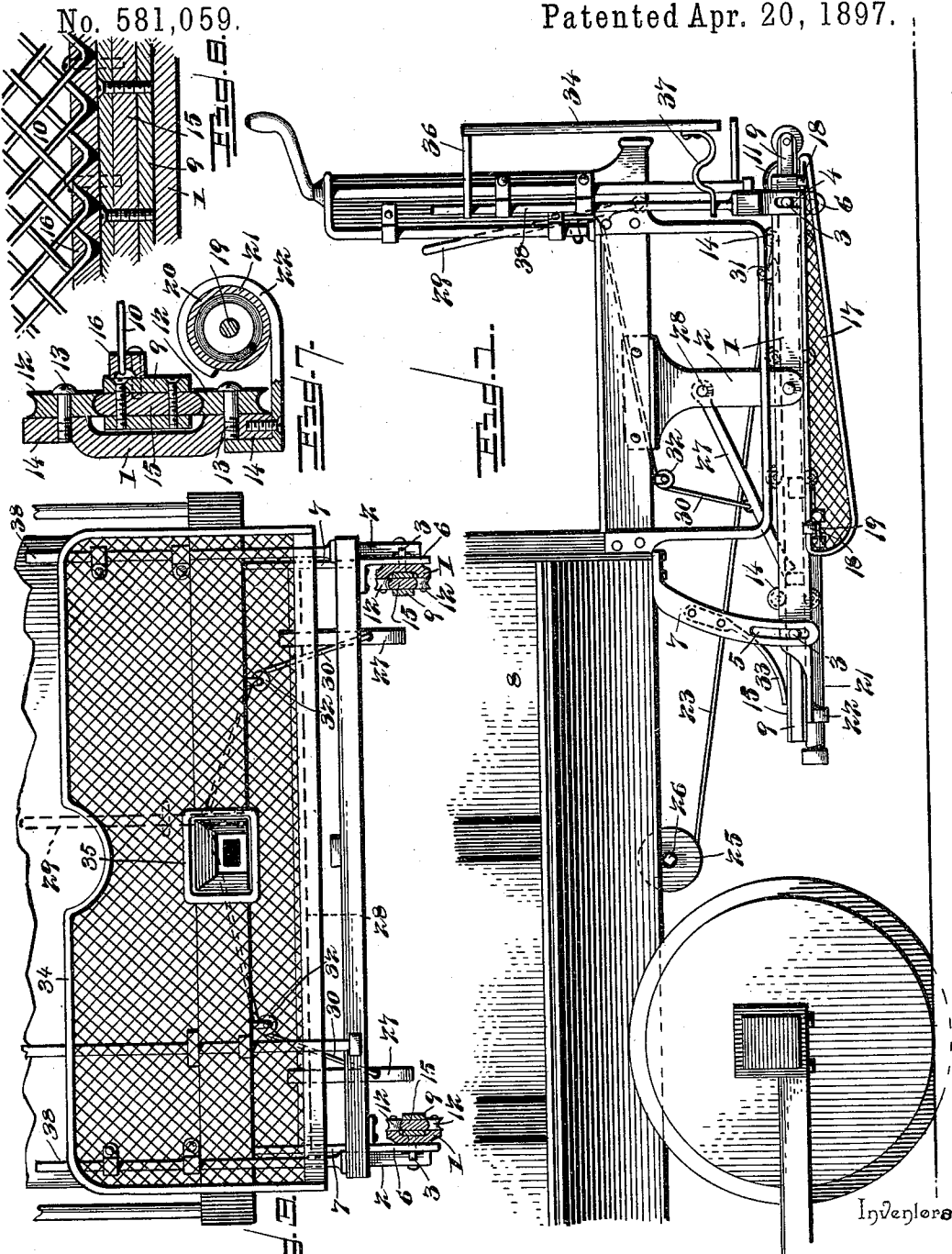


(No Model.)

3 Sheets—Sheet 1.

E. M. CARHART & E. K. ALDRICH.
CAR FENDER.

Patented Apr. 20, 1897.



Witnesses
E. H. Stewart
J. F. Riley

Edwin M. Carhart
By their Attorneys, *Edward K. Aldrich*

Cash & Co.

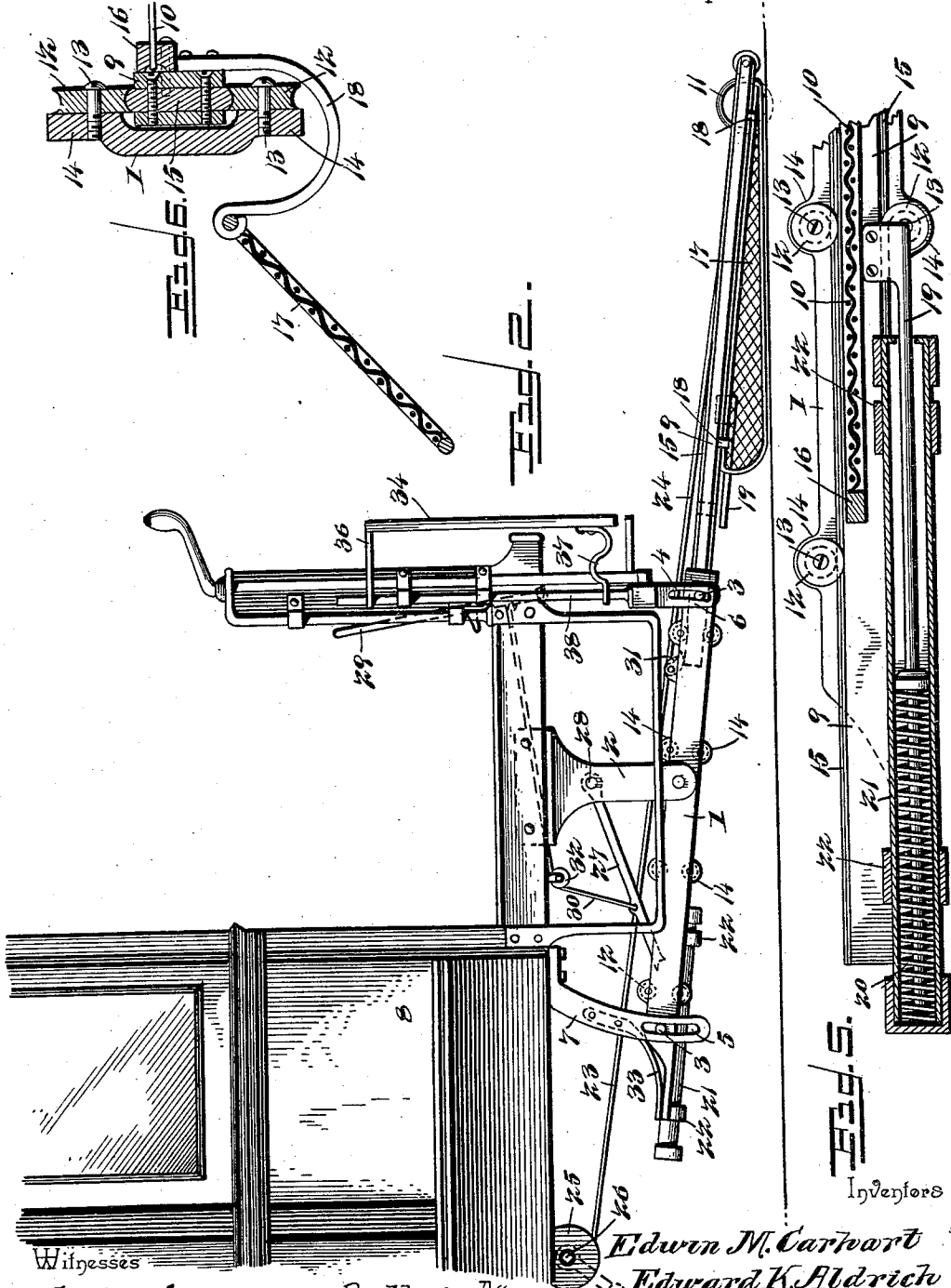
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3 Sheets—Sheet 2

E. M. CARHART & E. K. ALDRICH.
CAR FENDER.

No. 581,059.

Patented Apr. 20, 1897.



Witnesses
E. E. Stewart
J. F. Riley

By their Attorneys,

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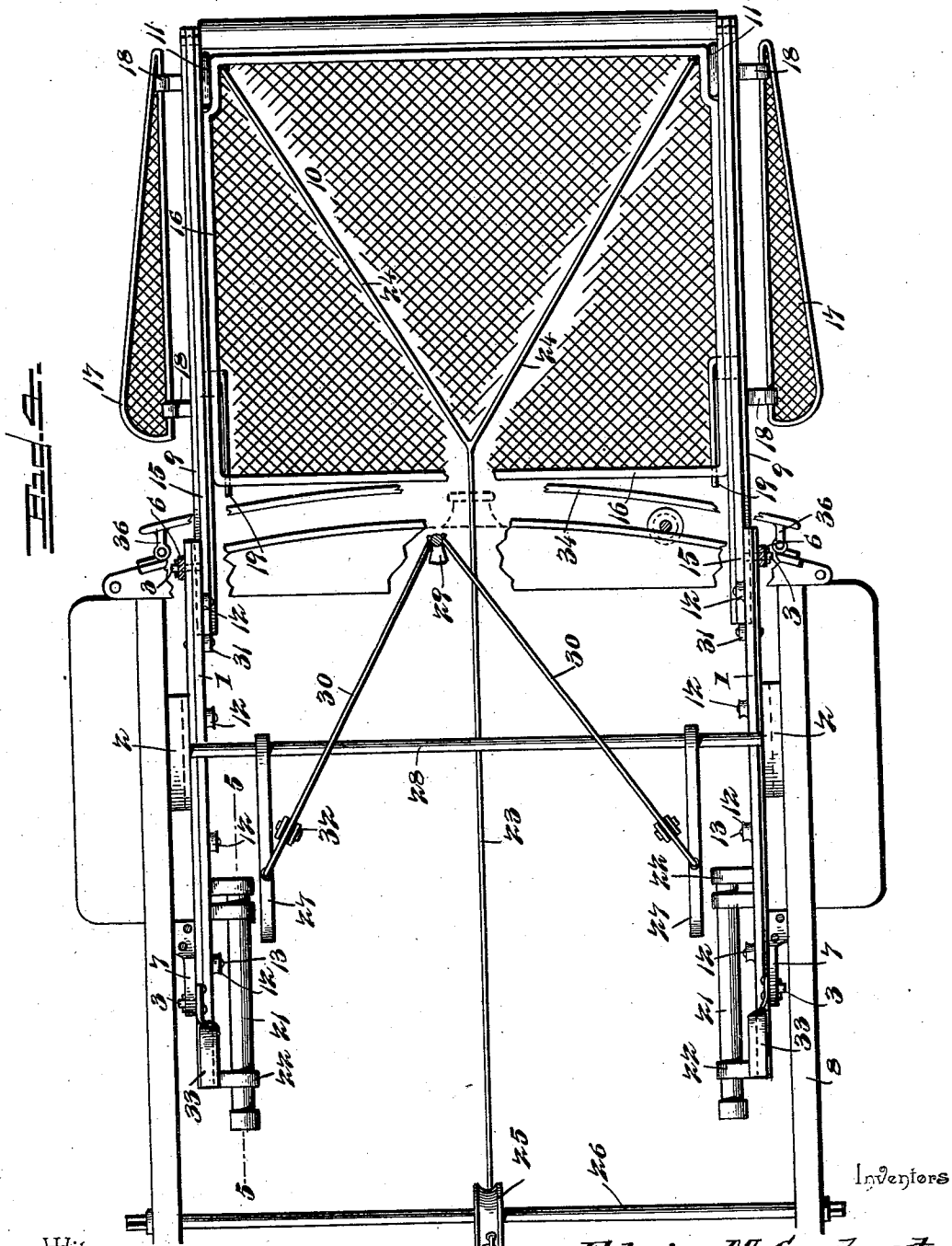
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3 Sheets—Sheet 3.

E. M. CARHART & E. K. ALDRICH.
CAR FENDER.

No. 581,059.

Patented Apr. 20, 1897.



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UNITED STATES PATENT OFFICE.

EDWIN M. CARHART AND EDWARD K. ALDRICH, OF PROVIDENCE, RHODE ISLAND.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 581,059, dated April 20, 1897.

Application filed February 5, 1897. Serial No. 622,150. (No model.)

To all whom it may concern:

Be it known that we, EDWIN M. CARHART and EDWARD K. ALDRICH, citizens of the United States, residing at Providence, in the county of Providence and State of Rhode Island, have invented a new and useful Car-Fender, of which the following is a specification.

The invention relates to improvements in car-fenders.

The object of the present invention is to improve the construction of the car-fender shown and described in Patent No. 540,632, granted to Edwin M. Carhart June 11, 1895, and to provide simple and efficient means for returning the fender to its normal position beneath the platform of a car after it has been extended in front of the same, and to enable the car-fender to be instantly operated by a motorman at will without releasing the brake-crank or controller-crank or analogous operating mechanism and thereby leave his hands perfectly free for the control of the car.

A further object of the invention is to improve the construction of the locking devices for retaining the fender beneath the platform of a car and for holding it in its extended position.

Another object of the invention is to improve the construction of dashboard-fenders and to provide one which, while preventing a person from coming in contact with and being injured by the bumpers, draw-head, or other portion of the car, will also be capable of automatic vertical adjustment in order to be positioned properly relative to the draw-bar, so as not to interfere with the coupling of two cars.

The invention consists in the construction and novel combination and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and pointed out in the claims hereto appended.

In the accompanying drawings, Figure 1 is a side elevation of a car provided with a car-fender constructed in accordance with this invention, the fender being arranged beneath the car. Fig. 2 is a similar view, the car-fender being extended in advance of the car. Fig. 3 is a front elevation partly in section.

Fig. 4 is a plan view. Fig. 5 is a sectional view on line 5 5 of Fig. 4. Fig. 6 is a detail sectional view illustrating the manner of mounting the side guards. Fig. 7 is a similar view illustrating the manner of mounting the tubular casings which form the housings for the side springs. Fig. 8 is a detail sectional view illustrating the manner of connecting the slides to the sides of the fender.

Similar numerals of reference designate corresponding parts in the several figures of the drawings.

1 designates a pair of longitudinal guide-bars pivotally mounted between their ends on hangers 2 and capable of tilting, such tilting movement being limited by pins 3, arranged in curved slots 4 and 5 of depending guide-bars 6 and 7. The hangers 2, which are located at opposite sides of the platform of a car 8, depend therefrom, as clearly shown in Figs. 1 and 2 of the accompanying drawings.

The longitudinal guide-bars 1 are provided with ways receiving slides 9 of a netted fender 10, which is capable of longitudinal movement to extend it from its position beneath the car to a position in advance of the same and to return it beneath the said car. The fender is normally arranged beneath the car, as illustrated in Fig. 1 of the accompanying drawings, and it is thrown outward to the position shown in Fig. 2 when an occasion for its use arises. The tilting movement of the longitudinal guide-bars permits the fender, which is provided with suitable truck-wheels 11, to have a limited vertical movement to accommodate itself to any inequalities of the road-bed.

The ways of the guide-bar are preferably formed by grooved rollers 12, which are journaled on suitable fastening devices 13, and the guide-bars 1 are provided at intervals at their upper and lower edges with projecting perforated ears 14 for the reception of the fastening devices on which the grooved pulleys are journaled.

The slides 9, which may be constructed in any suitable manner, preferably consist of three thicknesses of metal, the middle strip or bar 15 being of greater width and thickness than the side bars or strips, and the pro-

jecting longitudinal edges of the central bar 15 are rounded to conform to the configuration of the grooved rollers 12, between which it is arranged. The side bars of the fender-frame 16 are secured to the slides, as illustrated in Figs. 6 to 8, inclusive, of the drawings.

The fender is provided with inclined side guards 17, which move backward and forward with it, and they are supported by curved brackets 18, which are substantially U-shaped, and which extend under the guide-bars 1. The inner sides of the brackets 18 are secured to the slides and thereby connected with the fender, and the outer sides of the brackets are sufficiently offset from the longitudinal guide-bars to cause the side guards to clear the hangers and the depending guide-bars.

The fender is provided at opposite sides with rearwardly-extending rods 19, which, when the fender is moved inward beneath the car, engage coiled springs 20, and the latter are thereby compressed, as illustrated in Fig. 5 of the accompanying drawings, and are adapted, when the fender is released, to throw the same outward to its position in front of the car. The springs 20, which are supported by rods, are housed within cylindrical casings 21, and the casings, which are located at the rear portions of the longitudinal guide-bars 1, are supported by inwardly-extending brackets 22, which are secured to the said guide-bars 1. The brackets 21 consist of L-shaped arms, which embrace the lower edges of the guide-bars 1, and curved inner portions, which receive and embrace the tubular casings 21.

In order to enable the fender to be readily returned to its normal position beneath the car, it is connected with a chain, rope, or cable 23, provided at its front end with two branches 24 and having its rear end connected to a pulley 25 of a windlass-shaft 26. The terminals of the branches 24 are attached to the fender at the front thereof, and the windlass-shaft, which extends entirely across the car and projects from opposite sides thereof, has its terminals squared and adapted to receive a movable crank-handle, by means of which the shaft 26 is rotated to wind up the chain, rope, or cable and draw the fender backward to its position beneath the car. By this construction the fender is readily returned to its normal position and the springs, which throw the fender forward to its extended position, are readily compressed.

The fender is held in its folded position beneath the car by a pair of pawls or arms 27, which are mounted on a transverse shaft or pintle 28 and which extend downward and rearward in position to engage the back of the fender-frame. The transverse shaft or pintle is journaled on or otherwise attached to the hangers 2 of the car, and the arms or pawls 27 may be fixed to and turned with the rod or shaft, or may be journaled thereon, as

desired. This locking mechanism is operated to release the fender by means of a lever 29, located at the inner side of the dashboard, fulcrumed at its lower end on the car, and connected between its ends with the pawls or arms by means of chains, ropes, or cables 30, whereby when the lever 29 is thrown forward the pawls or arms 27 will be swung upward. The lever is adapted to be operated by the foot or knee of the motorman, and it leaves his hands perfectly free to control the car. When the pawls or arms 27 are swung upward, the springs 20 throw the fender outward instantly, and it is locked in its extended position by cams 31. The chains, ropes, or other flexible connections which extend from the operating-lever to the pawls or arms 27 pass over pulleys 32, which are located above the said arms or pawls in position to give them a direct upward swing when the lever 29 is operated.

The cams 31, which are located at opposite sides of the fender, are pivotally mounted on the longitudinal guide-bars 1, and automatically engage the slides of the fender to lock the latter against inward movement, and these cams have to be thrown out of engagement with the slides when it is desired to return the fender to its position beneath the car.

When the fender is moved inward beneath the car, it is returned to a horizontal position by springs 33, secured to the guide-bars 7 and extending rearward therefrom and adapted to engage the guide-bars 1 when the fender is folded.

When the fender is extended, its weight causes the longitudinal guide-bars to assume the inclined position illustrated in Fig. 2 of the accompanying drawings.

The car is provided with a vertically-adjustable dash-fender 34, which is provided with a central opening 35, located opposite the bumper-head of the car, and the vertical adjustment of the dash-fender enables the opening 35 to be readily brought opposite the car-bumper. The dash-fender is provided at its top with arms or springs 36 and at its bottom with springs 37, the arms and springs being provided at their rear or inner ends with perforations receiving vertical guide-rods 38. The springs 36 and 37 cushion the dash-fender and prevent a person striking the said fender from being injured. They also permit the fender to yield to avoid damage to them when two cars are coupled.

It will be seen that the fender is applicable to electric and similar street-railway cars, that it is positive and reliable in operation, and that it may be instantly operated by the foot or knee of a motorman, and that it will leave his hands free to control the car. It will also be apparent that the fender, when extended, is arranged in an effective position for catching a person, and that a person falling into it will be cushioned against injury.

Changes in the form, proportion, and minor details of construction may be resorted to

without departing from the spirit or sacrificing any of the advantages of this invention.

What is claimed is—

1. The combination with a car, of longitudinal guide-bars mounted thereon, grooved pulleys arranged in pairs at the upper and lower edges of the guide-bars, a spring-actuated fender provided at opposite sides with slides composed of a central bar having rounded projecting edges to engage the grooved pulleys, and side bars located at opposite sides of the central bar, and means for locking the fender in its folded and operative positions, substantially as described.

2. The combination with a car, of longitudinal guide-bars mounted thereon and provided with upper and lower grooved pulleys, a fender provided with slides arranged in the grooves of the pulleys, the substantially U-shaped outwardly-extending brackets mounted on the fender, and the side guards secured to the outer portions of the brackets, substantially as described.

3. The combination with a car, of longitudinal guide-bars mounted thereon, a spring-actuated fender slidingly mounted on the guide-rods, a pair of upwardly-swinging rearwardly-inclined pawls mounted on the car and arranged to engage the back of the fender to lock the same against outward movement, an upwardly-extending operating-lever fulcrumed on the car adapted to swing backward and forward and arranged to be engaged

by the foot or knee of the operator, pulleys mounted on the car and located above the pawls and flexible connections extending upward from the pawls, passing over the pulleys and connected to the lever, whereby the pawls are swung upward when the lever is operated, substantially as described.

4. The combination with a car, of longitudinal guide-rods pivotally mounted thereon, a spring-actuated fender slidingly connected with the guide-bars and adapted to tilt the latter when it is thrown forward, means for limiting the tilting of the guide-bars, and a spring engaging the guide-bars at the back thereof, whereby the fender is returned to a horizontal position when it is arranged beneath the car, substantially as described.

5. The combination with a car provided with vertical guide-rods, of a dash-fender having an opening to receive the bumper and slidingly mounted on the guide-rods, whereby it is capable of adjustment to bring the opening opposite the bumper, and springs arranged at the bottom and top of the fender to cushion the same, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

EDWIN M. CARHART.

EDWARD K. ALDRICH.

Witnesses:

THOMAS HUTCHINSON,
CHAS. T. MAXFIELD.