

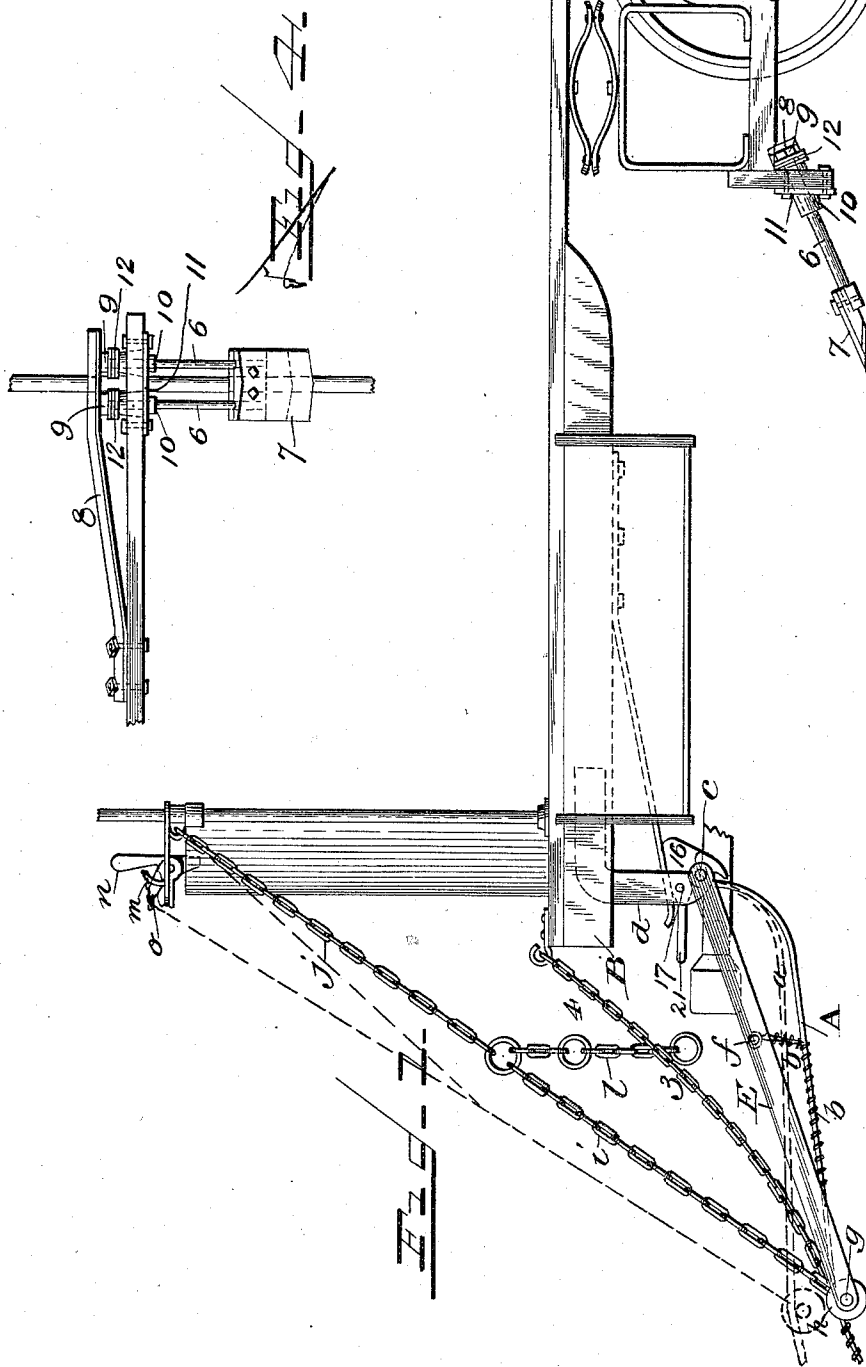
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3 Sheets—Sheet 1.

R. A. BREUL.
STREET CAR FENDER.

No. 545,047.

Patented Aug. 27, 1895.



WITNESSES
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 Elizabeth S Poole

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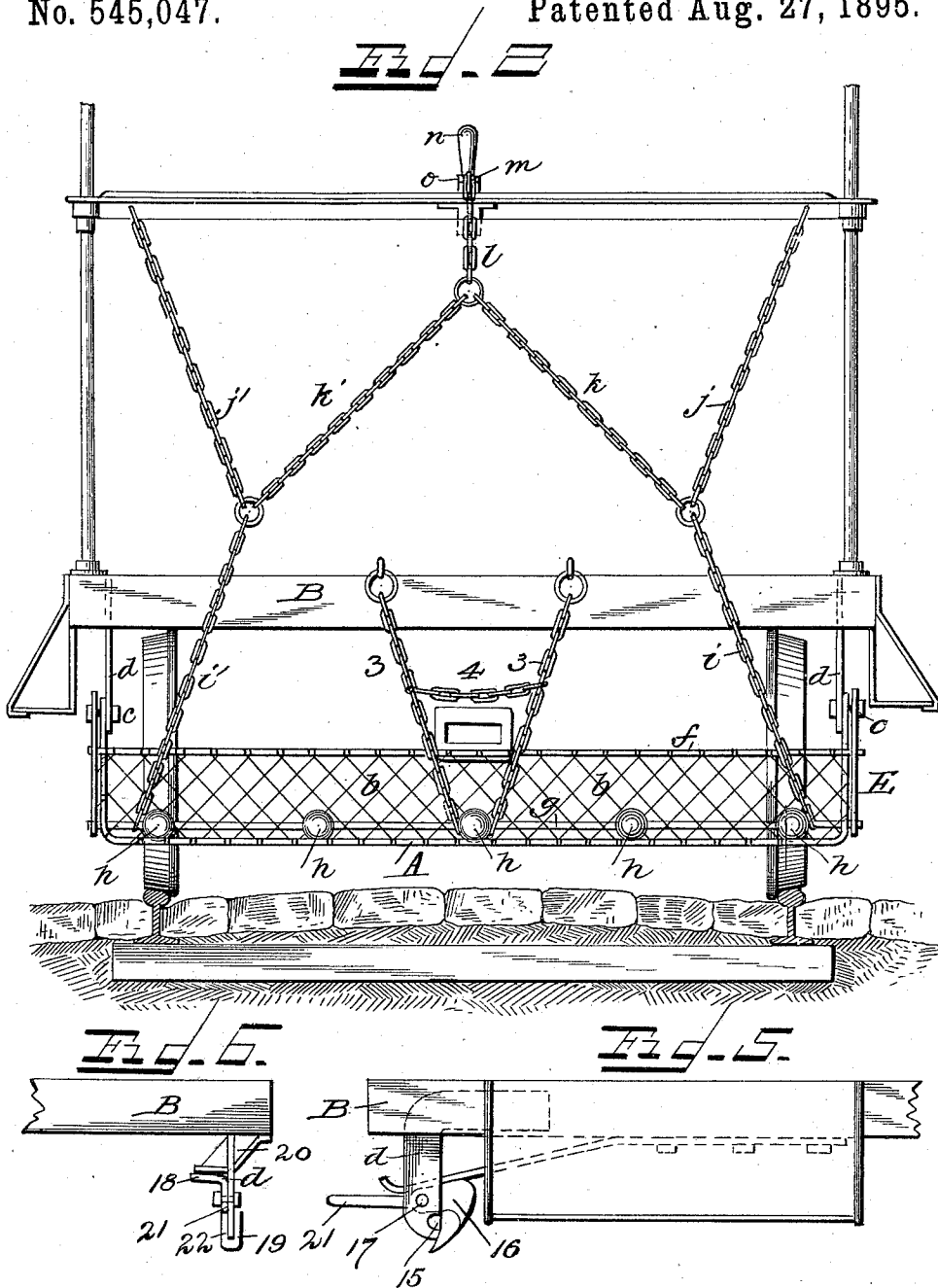
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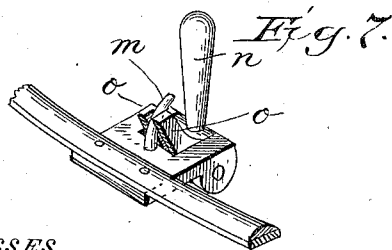
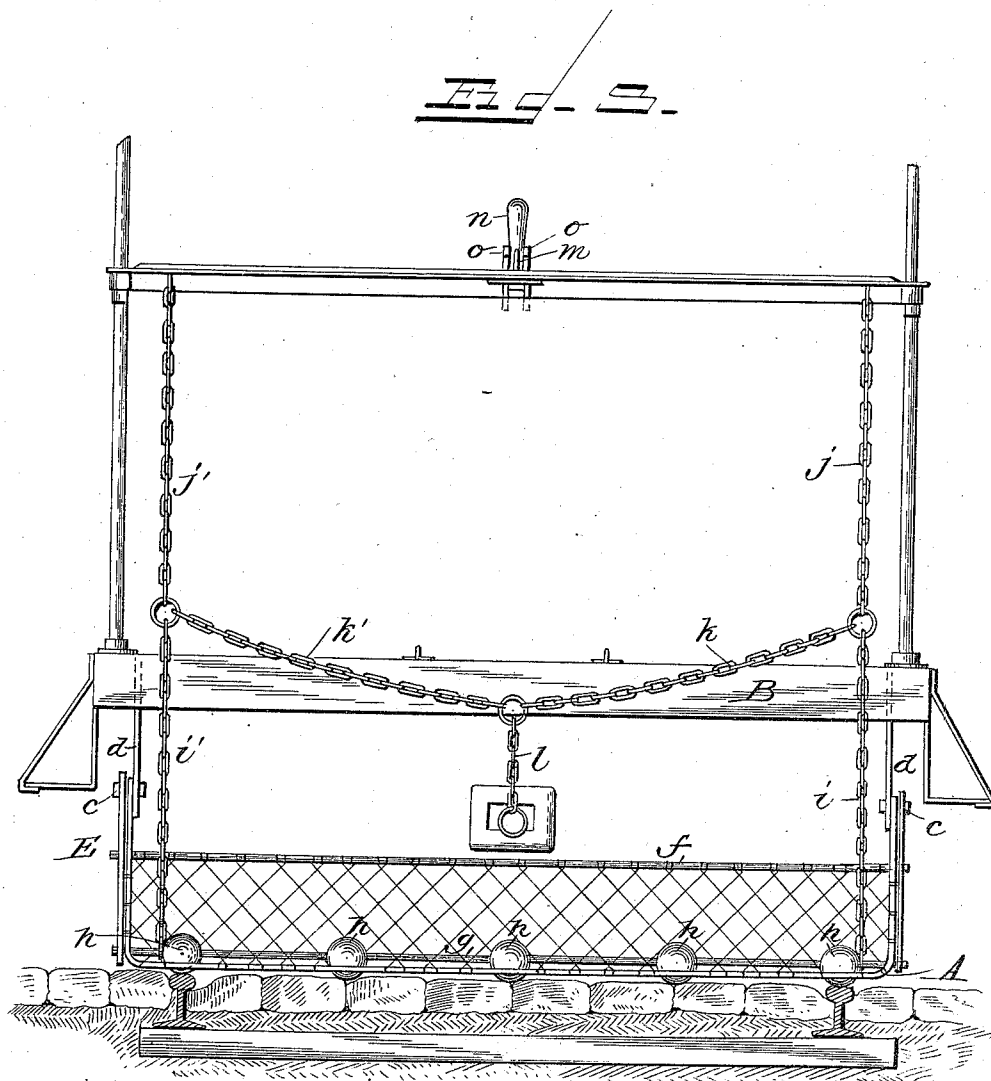
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UNITED STATES PATENT OFFICE.

RICHARD A. BREUL, OF BRIDGEPORT, CONNECTICUT.

STREET-CAR FENDER.

SPECIFICATION forming part of Letters Patent No. 545,047, dated August 27, 1895.

Application filed November 5, 1894. Serial No. 527,956. (No model.)

To all whom it may concern:

Be it known that I, RICHARD A. BREUL, a citizen of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Street-Car Fenders; and I do 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 the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to street-car fenders, and aims to provide means for protecting persons from serious and fatal injury in the event of their being struck by a moving car; also to protect the safety devices from destruction should they, through carelessness or by accident, meet with an unyielding obstruction or object offering great resistance.

The primary object of the invention is to equip the end and each of the front wheels of the car with a fender, so that should a person fall or make a misstep in either alighting or getting upon the car the wheel-fender will prevent the person or limb from getting beneath the wheel.

Another object of the invention is the provision of a fender that will fold readily against the end of the car and be out of the way, and which will not interfere with the coupling or the running of the cars together.

A still further object of the invention is to automatically detach the pivotal connections of the end or main fender from their supports should the said fender be subjected to abnormal strain by impinging against an object offering high or great resistance.

The improvement consists of the novel features and the peculiar construction and combination of the parts which hereinafter will be more fully described and claimed, and which are shown in the accompanying drawings, in which—

Figure 1 is a side elevation showing the application of the invention. Fig. 2 is a front view of the fender, showing its normal position—that is, with the front end elevated about five inches above the rails—and showing the auxiliary fender to protect a per-

son from injurious contact with the draw-bar. Fig. 3 is a view similar to Fig. 2, showing the fender lowered into working position. Fig. 4 is a top plan view of the wheel-fender. Fig. 5 is a side view of the mountings for the pivotal supports of the main fender. Fig. 6 is a front view of the parts shown in Fig. 5. Fig. 7 is a detail view.

The end fender comprises an approximately U-shaped frame A, whose side bars a curve upwardly at their rear ends and are pivotally connected to brackets d attached to and pendent from the sills B of the car. The pivotal connections c, which may be pins, bolts, or similar devices, are fitted in notches 15 in the rear edges of the brackets d and are held in place by counterbalanced dogs 16, pivoted by their horizontal portions at 17 to the brackets. These dogs normally close the open ends of the notches 15 and yield or turn on their pivotal connections 17 on subjecting the pivots c to abnormal strain, such as would result from the fender striking a highly-resisting body, thereby permitting the pivots c to automatically disengage themselves from the fixed mountings or brackets d. The dog comprises a horizontal portion 21, a vertical portion 22, having a lateral extension 18 at its upper end and a recurved portion 19 extending parallel with and forming a continuation of the vertical portion 22. The recurved end terminates about opposite the notch 15 and operates, in conjunction with the part 22, to retain the pivot c in its seat in the notch 15. The parts 19 and 22 occur on opposite sides of the bracket, as shown most clearly in Fig. 6, to provide an equal bearing for the dog on each side of the said bracket d in its retaining action upon the pivot c. By this construction an even bearing of the pivots c is had upon the brackets and the dogs, and any tendency to binding of the pivots c in their mountings is obviated. The dogs are counterbalanced by means of a spring 20, which is secured at one end to a sill or other convenient part of the car, and which has its free end arranged to bear upon the lateral extension 18. Any suitable counterbalancing devices may be provided, but for simplicity and economy of construction the spring 20 is preferred.

The main fender occupies a position in

front of and extends out from the end of the car, and the side bars *a* incline to the horizontal in an upward direction from the front end and are pivotally supported at their inner ends to admit of the folding of the fender when not required for use and the vertical adjustment of the front end of the fender in the manner and for the purpose set forth more fully hereinafter. Braces *E* extend exteriorly to the side bars *a*, and have pivotal connection with the brackets *d* by the same pivots *c* which connect the frame *A* to the said brackets *d*. A cross-bar *g* connects the front ends of the braces *E*, and a second bar *f*, parallel with the bar *g*, connects the said braces at a point between their ends. The bar *g* comes just inside of the bar *a'* and is provided at points in its length with balls or rolling supports *h*, designed to travel upon the ground when the fender is lowered to cause the said fender to ride over slight elevations in the road-bed. The netting *b* is attached at its rear edge to the bar *f* and at its front edge to the bar *a'*, the ends being secured to that portion of the side bars *a* occurring between the bars *f* and *g*. The rear edge of the netting inclines upwardly abruptly, forming an abutment to prevent a person or object falling upon the netting from rolling over the inner or rear edge of the said netting.

The side supports or chains *i j* and *i' j'* sustain the front end of the fender a proper distance above the road-bed. When these supports are lengthened out to their fullest extent the front edge of the fender just grazes the ground or bed, so as to catch a person or limb and prevent its being carried beneath the car. These supports are flexible, to prevent injurious contact with the person. A transverse chain *k k'* is attached at its ends to the side supports midway of their ends and is provided at its middle with a short chain *l*, by means of which the chain *k k'* is drawn up at its middle and the supports deflected from a straight line, so as to lift the front end of the fender a proper distance above the road-bed, say about five inches, which is ample to allow for loading and the vibrations of the car. The free end of the chain *l* is engaged with a hook *m* at the top of the dashboard and within convenient reach of the driver or motorman. A lever *n*, having a projection *o*, is disposed so that when operated its projection will engage with and release the chain *l* from the hook *m* and permit the fender to drop to its lowest position, as shown most clearly in Fig. 1.

An auxiliary fender is provided to prevent injurious contact with the end of the draw-bar 5, and consists of two chains 3 and a cross-chain 4. The chains 3 are attached at their upper ends to the sill of the car and at their lower ends to the bar *g* and gradually approach each other from the top to the bottom. The cross-chain 4 is located above the

draw-bar and is attached at its ends to the chains 3.

The wheel-fender comprises a shield or guard 7, parallel rods 6, attached at their lower ends to the shield and having their upper ends passing loosely through tubular guides 10, attached to or forming part of a plate 11. Nuts 9 are mounted on the threaded ends of the rods 6 and engage with a flat spring 8, by means of which the shield is held yieldingly in proper relation to perform the function for which it is provided. Washers 12 are placed upon the threaded ends of the rods and come between the upper ends of the guides 10 and the nuts 9. The lower end of the shield comes very close to the rail, and should it engage with a frog or any abnormal projection on the rail it will yield and ride over the same.

When the fender is not required for active service, as when housing the cars or coupling two or more cars together, it is folded close against the front end of the car and held in the folded position by means of a hook, catch, or any convenient means. When the car is in service the fender is lowered to its normal position, which is with its front end above the rails and road-bed about five inches, it being sustained in this relation by means of the side supports and the middle suspending devices, as more fully set forth hereinbefore.

When it is required to have the front end of the fender approach very close to the rails and the road-bed, the lever *n* is operated to release the aforesaid middle suspending devices, when the side supports will straighten out and the fender drop to the required position.

It will be understood that the supporting-hook and the releasing-lever *n* may be conveniently located, so as to be readily accessible by the motorman, gripman, or the person in charge of the car-propelling mechanism, to be quickly operated when required for use.

Should the fender strike an object offering great resistance its pivotal connections will be released from their mountings and the fender will slide beneath the front end of the car and drag by means of the side supports. By this provision the demolition of the fender is obviated when it meets with a body offering abnormal resistance or such resistance as would tend to destroy the fender under extraordinary conditions. By this means the life and usefulness of the safety appliance is prolonged.

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

1. A car fender having pivotal connection with the car and adapted to automatically disconnect its pivots from their mountings on the fender striking an object offering great resistance, substantially as specified.

2. In combination with a car, and supports pendent therefrom, and having notches in

their rear edges, of a fender having pivots seated in the said notches, and retaining devices to hold the said pivots in their seats under normal conditions and adapted to yield and permit the said pivots to disengage themselves from the said supports on the fender striking an object offering great resistance, substantially as and for the purpose set forth.

3. In combination with a car, and supports having notches in their rear edges, of a fender having pivot supports seated in the said notches, and counterbalanced retaining dogs to hold the said pivots in their seats under normal conditions, and adapted to yield to permit the said pivots to disengage themselves from their supports on the fender meeting with an object offering great resistance, substantially as specified.

4. In combination with a car, and supports having notches in their rear edges, of a fender having pivot supports seated in the said notches, and pivoted counterbalanced dogs having their ends recurved and adapted to engage with the said pivots on opposite sides of the said notched supports, whereby an even bearing is obtained for the said pivots, substantially as set forth.

5. The combination with a car, and pendent supports having notches in their rear edges, of a fender having pivot supports seated in the said notches, dogs pivoted to the said pendent supports and having their lower ends recurved and having lateral extensions, and springs engaging with the said lateral extensions and exerting a pressure thereon to normally hold the dogs in position to close the open end of the said notches and retain the pivot supports therein, substantially as and for the purpose specified.

6. The combination with a car, of side bars pivoted at their rear ends to the car and having their front ends extended beyond the front end of the car, a cross bar connecting the front ends of the said side bars and provided with rolling supports, and a fender pivoted to the end of the car and adapted to fold independently of the side bars and sup-

ported at its front end when let down by the said cross bar, substantially as set forth.

7. In a car fender the combination of, an approximately U-shaped frame pivoted to the front end of the car, pivoted side braces, front and a middle cross bar connecting the side braces, and a netting attached at its front and rear edges to, respectively, the front bar of the frame and the middle cross bar and at its ends to the side bars of the frame, the rear portion of the said netting curving up abruptly, substantially as described for the purpose specified.

8. The combination with a pivoted car fender, of side supports connecting the front portion of the fender with the dash board, a cross connection attached at its ends to the side supports midway of their ends, and a suspending and releasing mechanism to normally deflect the side supports from a straight line to hold the front end of the fender a proper distance above the road bed, substantially as set forth.

9. The combination with a car, and a fender projecting in advance thereof, of a supplemental fender for the draw bar composed of side chains, one on each side of the said draw bar and a cross chain above the draw bar connecting at its ends with the side chains, substantially as set forth.

10. A wheel fender comprising a plate attached to a cross bar of the truck and having inclined tubular guides, a shield, parallel bars attached at one end to the shield and working through the said guides, and having stops on their upper or rear ends, and a flat spring bearing against the rear ends of the bars to yieldingly hold the shield in operative position, substantially as described for the purpose specified.

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

RICHARD A. BREUL.

Witnesses:

WM. GRIESINGER,
ALFRED GRIESINGER.