

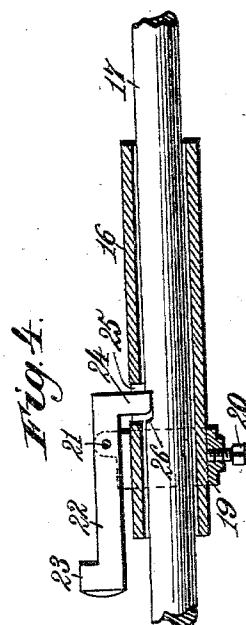
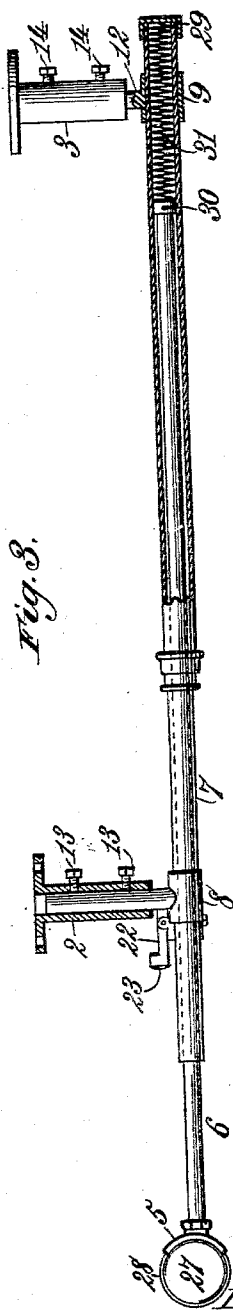
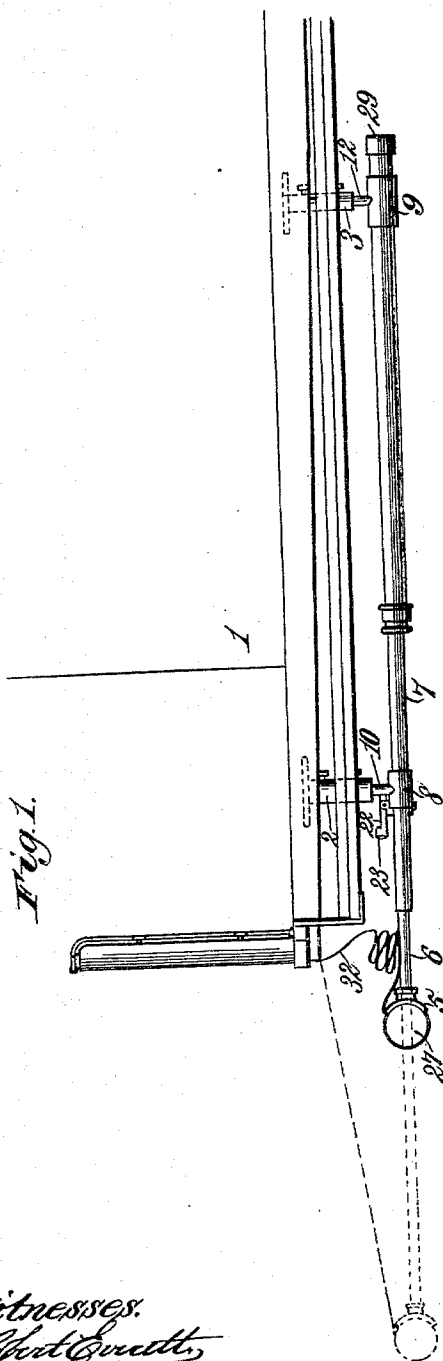
(No Model.)

2 Sheets—Sheet 1.

F. A. BRAGG.
AUTOMATIC CAR FENDER.

No. 545,339.

Patented Aug. 27, 1895.



Witnesses:
John G. Smith,
G. W. Rea,

Inventor.
Frederick A. Bragg.
By James L. Norris,
Atty.

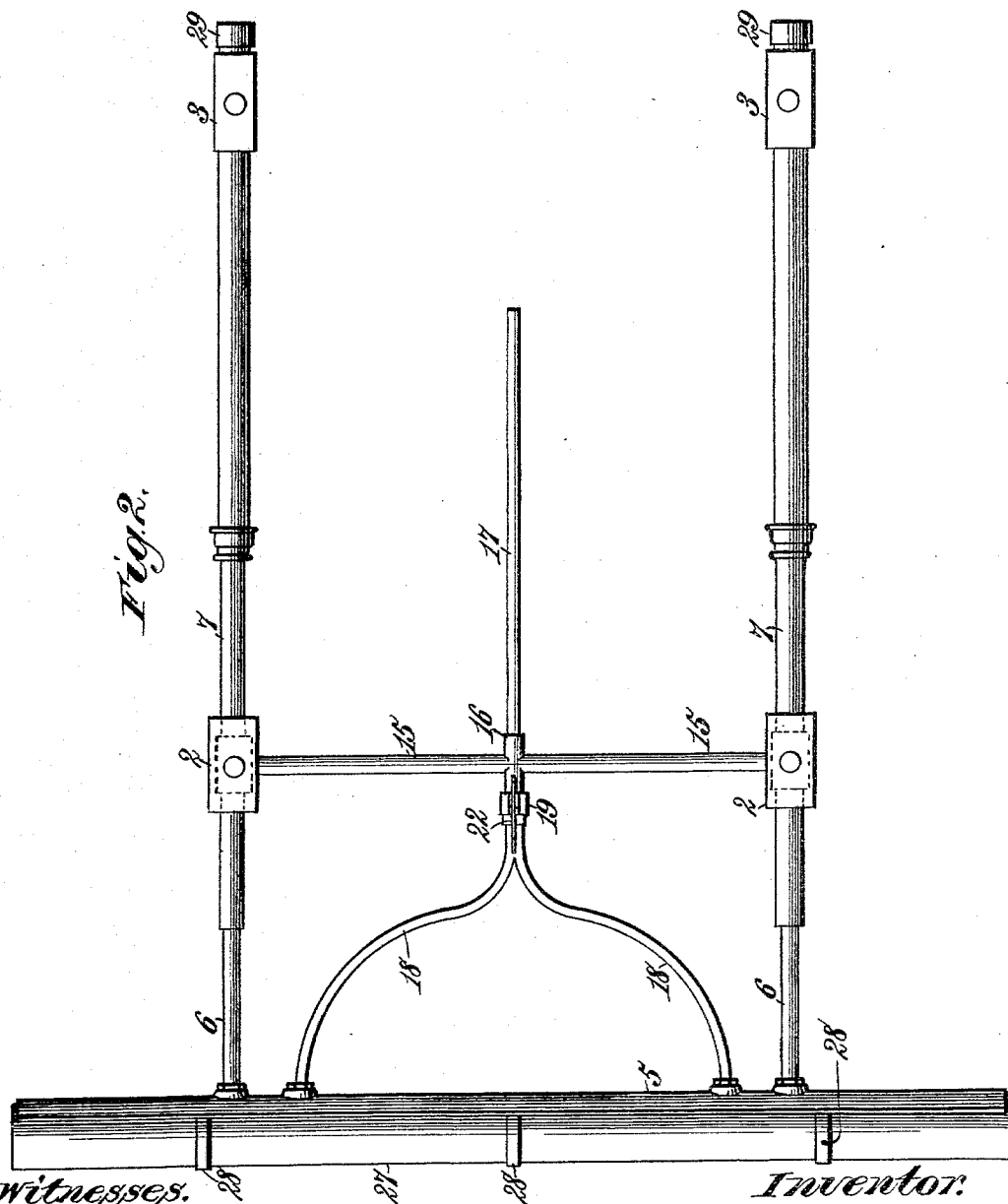
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2 Sheets—Sheet 2.

F. A. BRAGG.
AUTOMATIC CAR FENDER.

No. 545,339.

Patented Aug. 27, 1895.



Witnesses.
Robert Emmett.
G. W. Rea.

Inventor:
Frederick A. Bragg.
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Atty.

UNITED STATES PATENT OFFICE.

FREDERICK A. BRAGG, OF NORTH ADAMS, MASSACHUSETTS, ASSIGNOR OF
ONE-HALF TO JOHN BOYD THACHER, OF ALBANY, NEW YORK.

AUTOMATIC CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 545,339, dated August 27, 1895.

Application filed August 10, 1893. Serial No. 482,825. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. BRAGG, a citizen of the United States, residing at North Adams, in the county of Berkshire and State of Massachusetts, have invented new and useful Improvements in Automatic Car-Fenders, of which the following is a specification.

This invention relates to that class of fenders or appliances employed in front of railway-cars for landing persons or objects on the track into a net suspended in advance of the car-platform. The fenders of ordinary construction normally extend some distance in front of the car-platform and present an unsightly appearance, which is an objection to their general use. The adoption of cable, electric, and other motor systems in cities demands the provision of safety appliances for removing persons or objects from the track with as little damage as possible in emergencies where it is impossible for them to avoid being struck; and the objects of my invention are to accomplish this result and to provide a fender which normally stands retracted, and when a person or object is struck will yield and be automatically released and projected or thrown horizontally forward to land the person or object in a suspended flexible support or net without liability of breaking limbs or other injuries, whereby it is possible to largely reduce or avoid serious accidents resulting from persons being crushed by being knocked beneath the cars, while the fender or safety appliance will normally project but a slight distance in advance of the car-platform.

The invention consists in the features of construction and the combination or arrangement of parts hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is a side elevation showing a portion of a car with my automatic car-fender applied thereto. Fig. 2 is a detail plan view. Fig. 3 is a side elevation of the same partly in section, and Fig. 4 is a detail view of the automatic locking device for holding the fender-frame retracted against the power of its projectile springs.

In order to enable those skilled in the art to make and use my invention, I will now describe the same in detail, referring to the drawings, wherein—

The numeral 1 indicates a portion of a car-body, from the framework of which are suspended the hangers 2 and 3, which, as here shown, are tubular and are fastened to the framework in any suitable manner, preferably by providing the hangers with flanged upper ends bolted to the framework. The fender comprises a concaved cross head or bar 5, to which are rigidly attached a pair of parallel rods or tubes 6, movable longitudinally in tubes 7, which are secured to supporting brackets 8 and 9, having shanks 10 and 12 adapted to be vertically adjusted in the tubular portions of the hangers 2 and 3 for the purpose of varying the distance between the fender-frame and the ground. The shanks 10 and 12 are rigidly secured in any position to which adjusted through the medium of set-bolts 13 and 14 passing through the tubular portions of the hangers and bearing against the shanks. The front brackets 8 are rigidly connected by a cross-piece 15, at the center of which is arranged a tubular socket 16, arranged at right angles to said cross-piece and extending parallel with the rods or tubes 6 in such manner that a horizontal rod 17, connected with the concaved cross-head 5, is adapted to slide longitudinally in the tubular socket. The horizontal rod is preferably connected with the concaved cross-head by bifurcating the front end of the rod to form two arms or members 18, which are rigidly secured to the cross-head in any suitable manner.

The tubular socket 16 is provided with a bearing-block 19, secured in any desired position on the socket by a set-bolt 20, and to the upper end of the bearing-block is pivoted, as at 21, a locking-dog 22. The dog is pivoted near one extremity to provide a weighted end 23 and a locking end 24, which projects through a slot or opening 25 in the tubular socket 16 for the purpose of engaging a locking-notch 26 in the horizontal rod 17.

The cross-head 5 is provided with a horizontal cushion, which, as here illustrated, is composed of an inflated india-rubber or similar elastic tube 27, held in the concaved portion of the cross-head by clamping-bands 28, or other devices suitable for the purpose. The pneumatic tube may be provided with any suitable means for inflating it; but as such devices are well known I do not deem it necessary to illustrate the same.

The rear ends of the horizontal guide-tubes

7 are provided with detachable screw-caps 29, and the inner ends of the rods or tubes 6 are provided with piston-like heads 30, against which bear the front ends of spiral or other
 5 suitable springs 31, having their rear ends bearing against the detachable caps 29. I have illustrated spiral springs, as I regard them suitable for the purpose; but obviously india-rubber, or any other form of spring which
 10 will automatically project the rods or tubes 6 in a forward direction the instant the horizontal rod 17 is released from engagement with the locking-dog 22, may be employed.

The forward portion of the fender is designed to co-operate with a flexible support or net 32, into which the person or object on the track is landed, as will hereinafter appear. The flexible support or net is preferably composed of a sheet of canvas, secured at its
 20 lower edge to the concaved cross-head 5 and at its upper edge to a suitable part of the car in such manner that when the rods or tubes 6 are telescoped in the tube 7 and the fender is thus retracted the sagging part of the flexible support or net will hang in rear of the concaved cross-head, and when the latter is horizontally projected by the action of the springs 31 the flexible support or net will be moved forward at its lower portion and be
 25 held in the proper position for supporting a person or object landed therein by the action of the inflated tube. In practice the fender is held retracted by the locking-dog engaging the locking-notch 26 in the horizontal rod 17, so that the springs 31 are compressed or
 30 placed under tension. If a person or object is struck by the inflated tube 27, the slight jar operates to release the end 24 of the dog 22 from the locking-notch 26 of the rod 17 and
 40 instantly the power of the springs 31 projects the rods or tubes 6 longitudinally in a forward direction, thereby causing the inflated tube to so act on the person or object struck as to land the same in the flexible support or net,
 45 as will be obvious.

The cushioned cross-head 5, rods or tubes 6, and tube 7 constitute a telescopic fender-frame; but I do not wish to be understood as confining myself to the employment of rods
 50 or tubes 6, sliding within tubes 7, as other constructions or arrangement may be adopted for enabling the fender to be retracted and extended or projected forwardly.

The construction described and shown provides a very desirable fender or safety appliance for cable, electric, and other cars propelled by motors, whereby it is possible to remove persons or objects from the track without great danger of serious injury. The construction is such that the fender or safety appliance may normally project but a slight distance in advance of the car-platform; but in this respect I do not confine myself, as to the extent to which the fender projects in advance
 65 of the car-platform will depend largely on its attachment to the car. By providing a fender

which is automatically released and projected longitudinally in advance of the car it is obvious that the fender can be made to normally project a less distance in front of the car than
 70 fenders of ordinary construction.

Having thus described my invention, what I claim is—

1. A fender for cars, comprising a yielding longitudinally sliding frame which normally
 75 stands retracted, and is automatically slid horizontally in advance of the car when released, and a locking device which holds the frame retracted and automatically releases said frame when the latter yieldingly strikes
 80 a person or object, substantially as described.

2. A fender for cars, consisting of a flexible support or net, a spring yielding frame which normally stands retracted and is automatically projected longitudinally in advance of
 85 the car when released, and a locking device which holds the frame retracted, substantially as described.

3. A fender for cars, consisting of a flexible support or net, a spring yielding frame which
 90 normally stands retracted and is automatically projected longitudinally in advance of the car when released, and a locking device which holds the frame retracted and automatically releases said frame when the latter yield-
 95 ingly strikes a person or object, substantially as described.

4. The combination with a car, of a flexible support or net, a longitudinally spring-yielding frame supported by the car, and a gravitating locking dog which holds the frame retracted and automatically releases the latter
 100 on striking a person or object, substantially as described.

5. The combination with a car, of a flexible
 105 support or net, a longitudinally yielding frame suspended from the car, a locking device which normally holds the frame retracted, and means for automatically projecting the frame longitudinally in advance of the car
 110 when the locking device releases said frame, substantially as described.

6. The combination in a car fender, of a cross head carrying a cushion, rods or tubes connected with the cross head, tubes in which
 115 said rods or tubes slide longitudinally, springs acting on the rods or tubes to project them longitudinally, supporting brackets connected by a cross bar having a tubular socket, a rod adapted to slide through said socket and con-
 120 nected with the cushion carrying cross head, and a locking dog carried by the tubular socket and adapted to engage and disengage said rod, substantially as described.

In testimony whereof I have hereunto set my
 125 hand and affixed my seal in presence of two subscribing witnesses.

FREDERICK A. BRAGG. [L. s.]

Witnesses:

JOHN W. LE ROY,
 C. HAROLD ISBELL.