

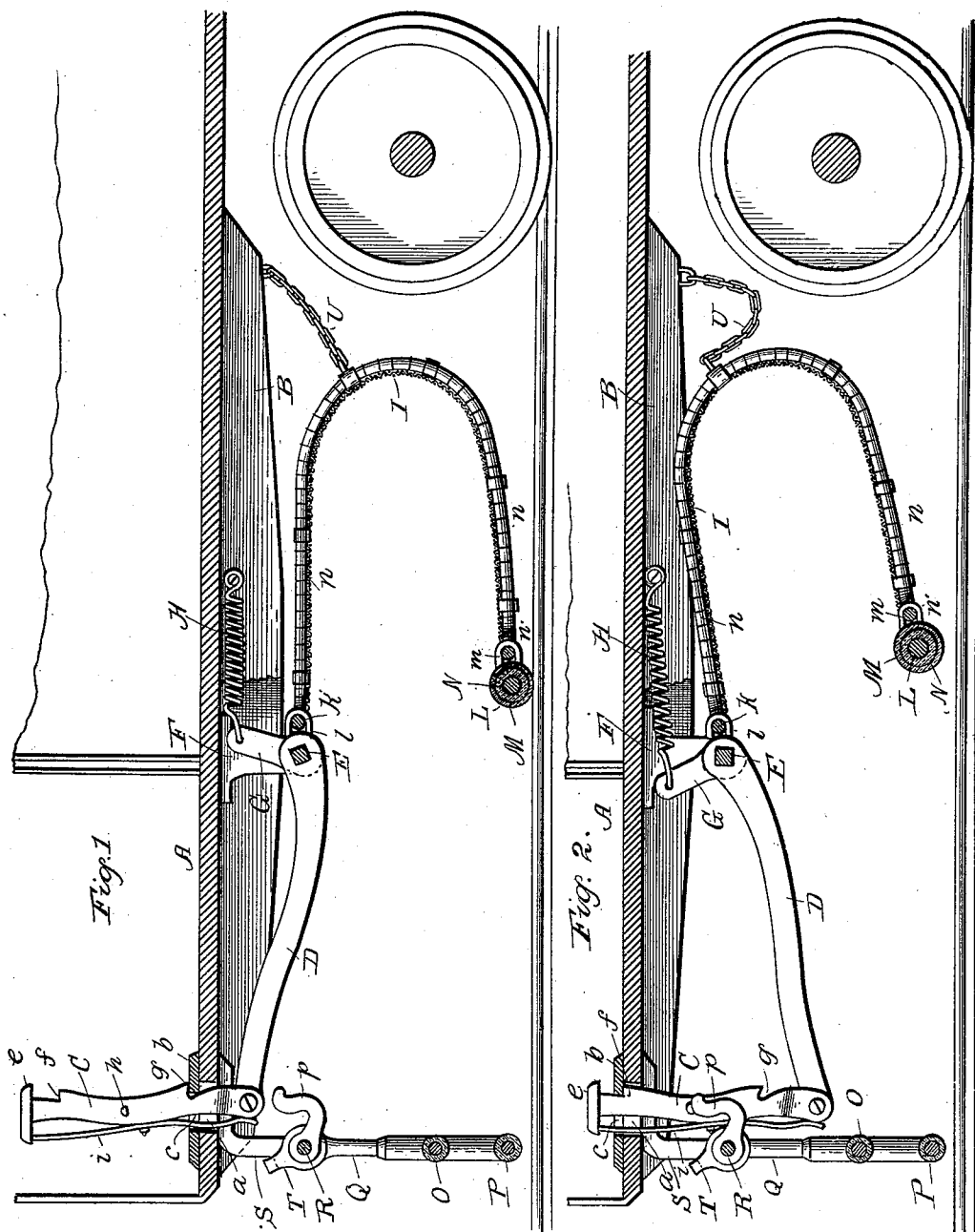
(No Model.)

2 Sheets—Sheet 1

T. O'BRIEN.
CAR FENDER.

No. 538,179.

Patented Apr. 23, 1895.



Witnesses
Victor J. Evans.
J. M. Coppenhaver

Inventor
Thomas O'Brien
by W. A. Redmond Attorney

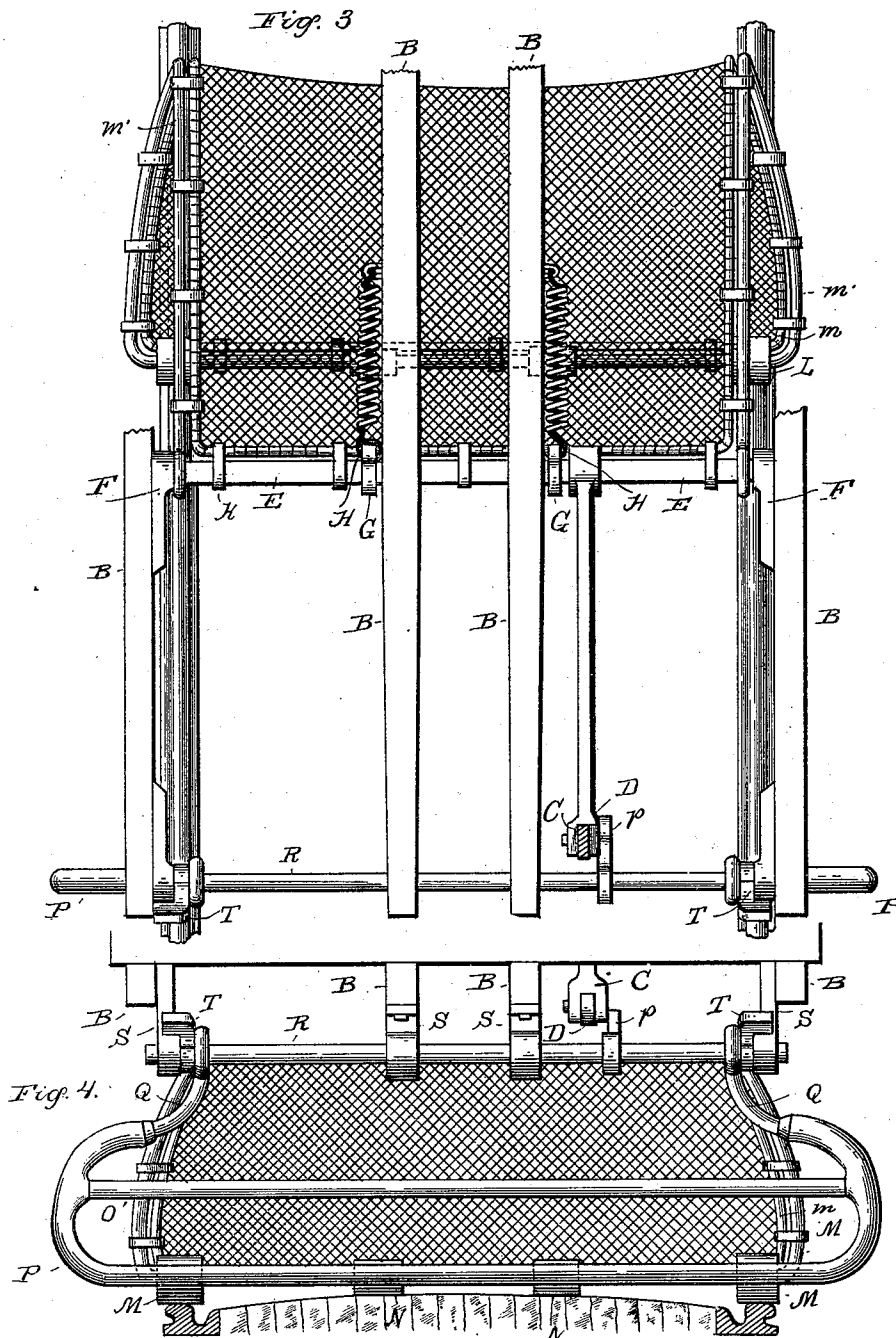
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2 Sheets—Sheet 2

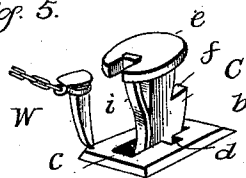
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Master



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UNITED STATES PATENT OFFICE.

THOMAS O'BRIEN, OF WASHINGTON; DISTRICT OF COLUMBIA.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 538,179, dated April 23, 1895.

Application filed January 23, 1895. Serial No. 535,966. (No model.)

To all whom it may concern:

Be it known that I, THOMAS O'BRIEN, a citizen of the United States, residing at Brightwood, (Washington,) in the District of Columbia, have invented certain new and useful Improvements in Car-Fenders; 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.

This invention relates, generally, to car fenders and particularly to fenders for cars operated by cable, electric, steam or power other than animal power, and it has for its object to provide a simple, durable and comparatively inexpensive device mounted on the end of the car and carrying a net adapted to automatically drop into position to receive and retain any object which may happen to be on the track in front of the car, and it consists of the parts and combinations of parts hereinafter described and claimed.

In the accompanying drawings forming a part of this specification—Figure 1 is a longitudinal, vertical section showing my improved fender in its lowered position; Fig. 2, a similar view showing it in its raised position; Fig. 3, a plan view; Fig. 4, a front elevation, and Fig. 5 a detail view.

Similar letters refer to similar parts throughout the several views.

A represents the floor of the platform of a car and B the central longitudinal beams which support the platform from the body of the car. In the platform an opening *a* is formed near the dashboard over which is secured a metal plate, *b*, having an elongated slot, *c*, formed therein in the side wall of which is formed a lateral notch or recess, *d*, as best shown in Fig. 5.

Through the opening in the platform and the slot, *c*, a flat bar, *C*, extends, the upper end of which is provided with a head or cap, *e*, to limit the downward movement of the bar and to prevent it passing or falling through the slot, *c*. The bar, *C*, is formed with a notch, *f*, on its rear edge immediately below its head, *e*, and with a similar notch, *g*, near its lower end, the object of which is to hold the bar in its lowered and raised positions, respectively, through their engagement with the rear-end of the slot, *c*, in the plate, *b*.

The rear edge of the bar *C* is held in contact with the rear end of the slot, *c*, in order to cause the notches to engage the plate by means of a flat spring, *i*, which is rigidly secured at its center to the front edge of the bar and the free ends of which are bent so as to normally stand away from the bar, but in position to exert their strength on said ends when pressed inwardly by the end of the slot, *c*, during the vertical movement of the bar and while the same is in either its raised or lowered position. Below the notch, *f*, of bar, *C*, a laterally projecting pin, *h*, is secured to the side of the bar whose movement with the bar is permitted by the notch or recess, *d*, in the slot, *c*. The bar, *C*, is curved inwardly on its rear edge between the notches, *f* and *g*, therein, and its front edge is formed with an outward curve as clearly shown in Figs. 1 and 2, in order to permit of a slight tilting movement of the same to disengage the notches from the plate which movement is imparted by the mechanism hereinafter described.

At the lower end of the bar, *C*, the free end of a rod, *D*, is pivotally attached, the other end of said rod being rigidly secured to a shaft *E* mounted in suitable bearings formed in brackets *F* secured to the adjacent faces of the longitudinal side beams of the car. The shaft *E* may be a round bar of metal on which the rod *D* is mounted and secured by keys or set screws, but I prefer, and have illustrated, a square shaft and a rod having an enlarged end formed with a square opening fitting snugly on the shaft, thereby doing away with any liability of the rod working loose on the shaft, as it would be liable to do if screws or keys were employed, owing to the jarring of the same during the running of the car.

On the shaft *E* at each side of the rod *D* is mounted a crank arm, *G*, which projects therefrom at, substantially, a right angle to said rod, the free end of each of said arms being connected to the end of a spiral or coiled spring *H*, the other end of which is fastened or connected to the side of the central longitudinal beam *B* of the car. The springs *H* are expanded when attached to the arms *G* and their tendency is to draw on or exert their strength to pull back on the said arms

at all times, thus tending to turn the shaft E and raise the end of rod D and through the latter lifting the bar C vertically.

To the shaft E is attached the upper bar, *k*, of the frame of a wire net, I, said bar being attached to the shaft rigidly and immovably by means of steel straps, *l*, so that any movement of the shaft will be imparted to the net connected therewith. The frame of the net consists of the top and bottom bars, *k* and *m*, and the end or side bars *n* connected thereto, the wire netting, I, being connected or fastened to said bars in the usual or any desired manner, and said bottom bar, *m*, being rigidly secured to a bar L by steel straps *n'*, similar to straps, *l*, above described, and said side bars to bars *m'* bent to conform to the side bars and secured to shaft E, but said bars, *k* and *m*, may be done away with and the netting and its side bars connected directly to said shaft E and bar L, if desired. The side bars, *n*, of the frame of the netting are curved backwardly toward the wheels of the car and then curved forward to a point nearly in line with the upper end of the netting, but on a plane below it, and flaring away from each other at their lower ends so that the bottom portion of the netting and frame is carried out over the rails of the track and the end rubber rollers M mounted on bar L, when the netting is down, rest on the rails thereof in front of the front wheels of the track. The bar L also carries two middle rubber rollers N of less diameter than rollers M which may or may not rest on the road bed between the rails according to the height of the same and which enables the bar to pass over, without jarring any small objects which it may encounter.

The tripping mechanism consists of a suitable open frame formed of the bars O and P extending across the track and suspended from the front end of the platform by the bars Q attached to the upwardly, and inwardly turned ends of bar P, said bars Q being screwed to the ends of bar P so as to be adjustable vertically thereon and are rigidly attached to a shaft R having its bearings in brackets S secured to the side beams of the car, the forward throw or swing of said frame being limited by an adjustable stop arm T secured on the shaft R near each, or if preferred to one end, only, thereof which is arranged to come in contact with the forward edge of the bracket S when the frame is swung forward to a perpendicular line, but offers no resistance to the backward swing of the frame.

On the shaft R at a point slightly to one side of the vertical plane of the side of the bar, C, and in line with the pin *h* on said bar, I secure a cam, *p*, which extends rearwardly from said shaft and then upwardly, curving slightly rearwardly to its end which is rounded off, the end of said cam being in contact with the pin when the bar C is in its lowered position, as shown in Fig. 2.

Chains, U, are connected to the beams of the car and to the frame of the netting so as to prevent injury to the latter should the car be backed while the fender frame is down or in its lowered position.

In operation the fender frame is raised by forcing the bar C down through the slotted plate, *b*, till its notch, *f*, is caused to engage said plate by the spring *i*, as shown in Fig. 2, thus, through rod D, and shaft E, raising or swinging the fender frame up and away from the track and against the pressure of the springs H exerted on the shaft through the crank arms G. The lowering of the bar, C, brings its pin *h* in position to be struck by the cam when the tripping frame is swung backward and as the cam exerts its pressure on the pin in an upwardly inclined direction it swings outwardly or tilts the upper end of said bar, overcoming the pressure of spring *i* thereon, and disengages the notch *f* from plate *b* thus releasing the bar and permitting the springs H, through the arms G, shaft E and rod D, to quickly raise said bar in the slot *c* and at the same time instantly lower the fender frame till the rollers M rest on the rails of the track. Thus it will be observed that the fender is instantaneously dropped into position to catch any object bulky enough to operate the tripping frame by coming in contact therewith, and that it assumes such position without the aid of the person or persons in charge of the car, and may be instantly raised up and into position to be again dropped by the tripping frame by merely forcing the bar C down again.

The bars forming the tripping frame may be covered with rubber or cloth or any suitable material tending to reduce the shock of contact therewith. A key, W, may be used to lock the bar C in its lowered position by passing said key through a slot in the head of the bar and into slot, *c*, thus compressing the end of spring *i* and preventing disengagement of notch *f* from the plate *b*.

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

1. The combination, in a car fender, of a pivoted fender frame, a spring actuated locking bar for locking said fender frame in its raised and lowered positions, and means for automatically releasing said bar to lower said fender frame, substantially as described.

2. The combination, in a car fender, of a pivoted fender frame, a vertically movable notched locking bar connected to said fender frame and adapted to lock the same in its raised and lowered positions, a spring for imparting a vertical movement to said bar, and a tripping mechanism for tilting said bar to lower said fender frame, substantially as described.

3. The combination, in a car fender, of a fender frame pivotally suspended from the car, a vertical movable notched locking bar for locking said fender frame in its raised

and lowered positions, a rod loosely connected to said locking bar and rigidly connected to said fender frame, and a tripping mechanism for releasing said locking bar when the fender frame is in its raised position, substantially as described.

4. The combination, in a car fender, of a fender frame pivotally suspended from the car, springs adapted to accelerate the downward movement of said fender frame, a notched locking bar pivotally connected at one end to said fender frame for automatically locking the same in its raised and lowered positions, and means for automatically releasing said bar when the fender frame is in its raised position, substantially as described.

5. The combination, with the swinging fender frame of a car fender, of a notched locking bar, a slotted plate for said bar, a spring for holding said bar in engagement with said plate, and a tripping mechanism for disengaging said bar from the plate, substantially as described.

6. The combination, in an automatic car fender, with a swinging fender frame, of a locking bar having notches therein, a slotted

plate for said bar, a spring for holding said bar in engagement with said plate, means connecting said fender frame and bar and a tripping mechanism comprising a swinging frame, and a cam thereon for engaging and tilting said bar, whereby the bar will be released, substantially as described.

7. The combination, in an automatic car fender, of a swinging fender frame, a square shaft rigidly connected to the upper end of said fender frame, rollers mounted at the lower end of said fender frame, crank arms attached to said shaft, springs connected at one end to said arms and at the other to the car, a rod rigidly connected to said shaft, a locking bar pivotally attached to the free end of said rod, means for locking said bar in position, and a tripping mechanism carrying a cam adapted to engage and tilt said bar, substantially as described.

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

THOMAS O'BRIEN.

Witnesses:

HEATH SUTHERLAND,
VICTOR J. EVANS.