

(No Model.)

2 Sheets—Sheet 1.

R. THOMSON.
CAR FENDER.

No. 524,918.

Patented Aug. 21, 1894.

Fig. 1

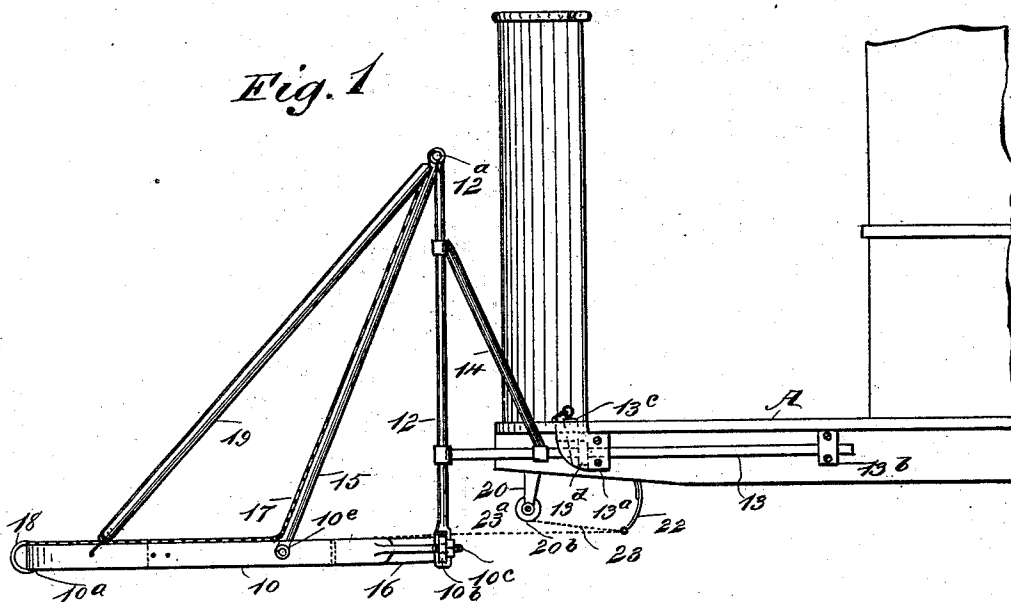
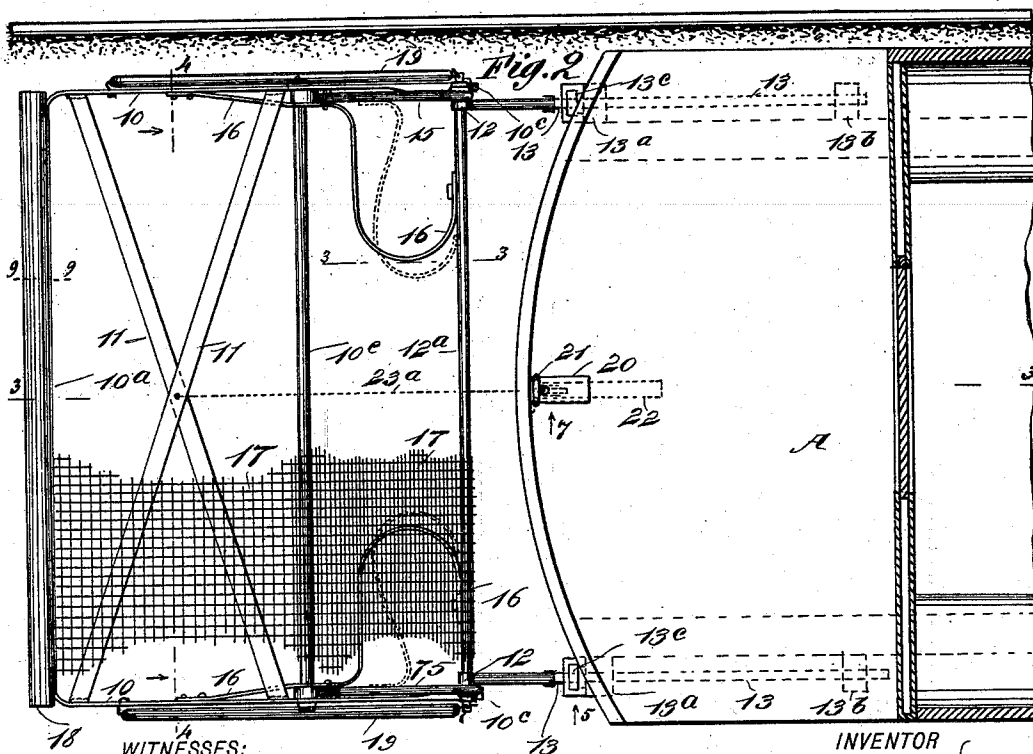


Fig. 2



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ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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Fig. 3

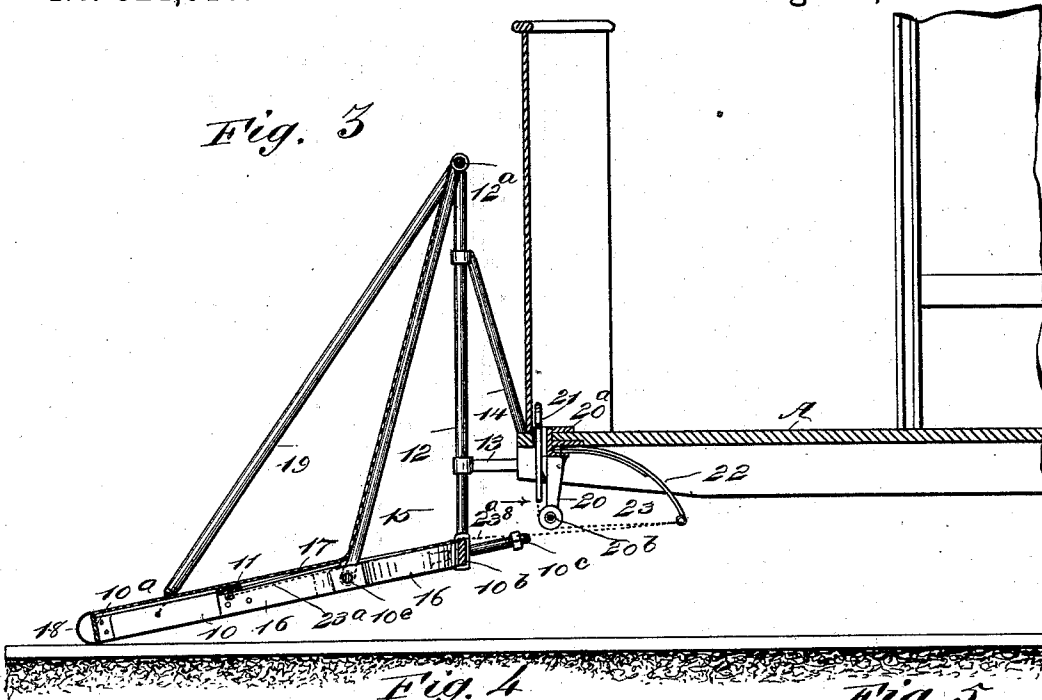


Fig. 4

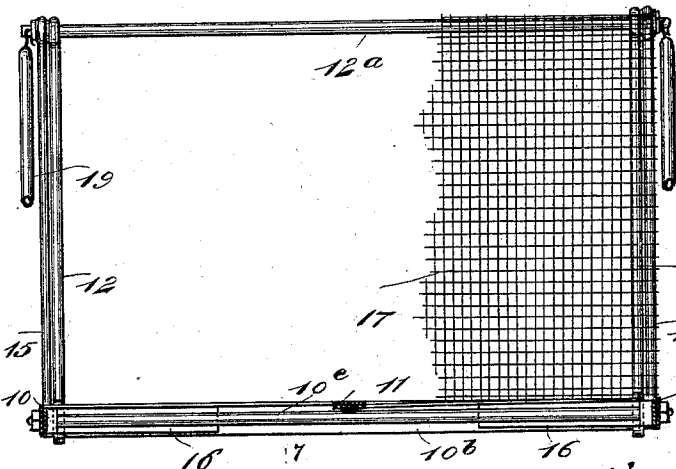


Fig. 5

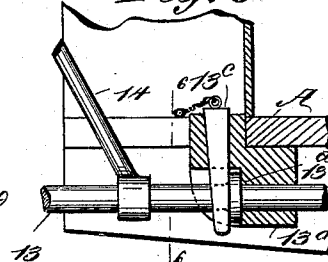


Fig. 6

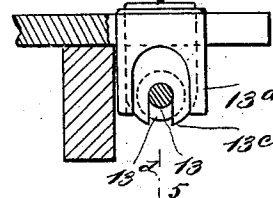


Fig. 7

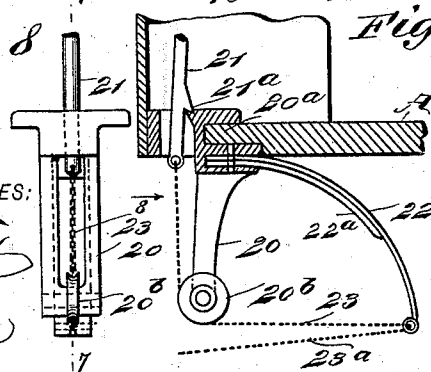


Fig. 8

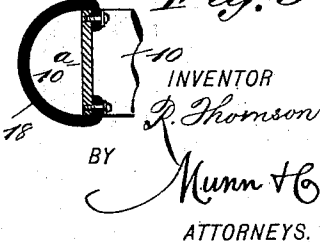
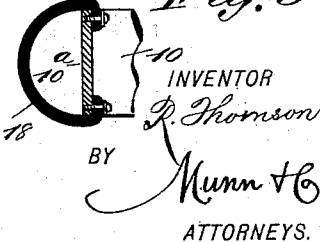


Fig. 9



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UNITED STATES PATENT OFFICE.

ROBERT THOMSON, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-FOURTH
TO JOSEPH NORWOOD, OF SAME PLACE.

CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 524,918, dated August 21, 1894.

Application filed February 8, 1894. Serial No. 499,544. (No model.)

To all whom it may concern:

Be it known that I, ROBERT THOMSON, of Brooklyn, in the county of Kings and State of New York, have invented a new and useful
5 Improved Car-Fender, of which the following is a full, clear, and exact description.

My invention relates to improvements in car fender devices, for affording protection to the life and limbs of pedestrians or passengers that may be endangered by contact with the wheels of progressively moving cars.

The objects of my invention are, to provide a novel, simple and practical device of the character indicated, which will be adapted
15 for a convenient and secure removable attachment upon either end of a car, and when in place, furnish an adjustable and yielding apron that will be brought into contact with a person in front of it, pick up the person
20 without injury, and afford safe support to the party on it until the car is stopped.

To these ends, my invention consists in the construction and combination of parts, as is hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views shown.

Figure 1 is a side view of the improvement, in position on the end of a car shown in part. Fig. 2 is a plan view of the parts shown in Fig. 1. Fig. 3 is a sectional side view, on the line 3—3 in Fig. 2. Fig. 4 is a transverse sectional view on the line 4—4 in Fig. 2. Fig. 5
35 is an enlarged partly sectional side view of details taken opposite the arrow 5 in Fig. 2, and on the line 5—5 in Fig. 6. Fig. 6 is a transverse sectional view on the line 6—6 in Fig. 5. Fig. 7 is an enlarged, longitudinal partly sectional view of details located opposite the arrow 7 in Fig. 2, and taken on the line 7—7 in Fig. 8. Fig. 8 is a front view of parts located opposite the arrow 8 in Figs. 3
40 and 7; and Fig. 9 is an enlarged transverse sectional view of a front portion of the device, on the line 9—9 in Fig. 2.

A thin plate metal frame is provided, comprising a strip of preferably elastic, strong
50 material, that is bent twice at an equal and suitable distance from the longitudinal cen-

ter at right angles and in the same direction, so as to produce two parallel limbs 10 and a front cross bar 10^a. The frame portions 10, 10^a, are stiffened by the crossed braces 11, 55 that are arranged in X-shape, and have their ends affixed upon the limbs 10, as indicated in Fig. 2, and these crossed braces which are secured together where they engage each other, are located near the front of the frame. 60 The corners formed by bending the limbs 10, from the front transverse bar 10^a, are rounded as shown in Fig. 2, and these integral parts together form what is preferably termed a border frame. 65

Two similar standards 12, are furnished for the frame of the device, these parts consisting of two cylindrical bars of proper length for effective service, each having a rectangular slot transversely formed near the lower 70 end, for the reception of the flattened ends of a transverse bar 10^b, that is a rear member of the substantially rectangular frame before mentioned the side limbs 10 of which are provided with bolt extensions 10^c at their rear 75 ends, which are threaded on their extremities for the reception of nuts, and are slid freely through aligned perforations formed in the standards and frame-bar 10^b, at each end.

The structural portions that have been described form the fender frame and are sustained in position so as to project from the front end of a car A, by detachable connections that are of a similar construction at each side of the car, each support comprising 85 a horizontal arm 13, which is clamped by boxes to the longitudinal frame timbers of the car, at two points sufficiently separated to retain the arms stably in place, these clamping boxes 13^a, 13^b, being so formed that 90 they will allow the arms to be longitudinally adjusted as occasion may require. The arms 13 are affixed upon the standards 12 at a correct distance from the lower ends of the latter named parts. 95

It is intended to utilize the improved safety device at either end of the car that may happen to be front in service, it being necessary to facilitate such a change that the arms 13 be made removable from their supporting 100 boxes. To this end, the forward boxes 13^a are specially formed as plainly shown in Figs.

5 and 6; the boxes mentioned being alike at each end of the car, a description of those on one side will suffice for both. The box 13^a represented in the figures named, consists of a substantially L-shaped metal block that is secured below and at the front of the car platform, having a longitudinal perforation formed in it near the lower edge and at the transverse center, an open recess being forwardly formed in the block from which the longitudinal perforation extends. The part of the box body or block that projects upwardly in front of the car dasher is vertically slotted in rectangular form, and said slot being slightly converged between its front and rear walls toward the bottom, intersects the open recess of the block so that a keeper wedge 13^c may be slid from above into the upright wedge-shaped slot, and being closely fitted when fully inserted, will thus be supported in position with its lower half projected within the recess, as shown in Figs. 5 and 6. A collar 13^d is formed on each arm 13, at an equal distance from the frame standards 12, that is sufficient to permit the arms to forwardly extend for a proper support of the fender frame, a brace bar 14 being diagonally extended downwardly and rearwardly from each standard near its top to engage one of the arms 13, said braces having their engaged ends firmly secured to the parts they serve to sustain. The thickness of each collar 13^d is so proportioned that they will be clamped in place by the wedges 13^c when the latter are fully inserted, to permit which the lower ends of the wedges are open slotted at their transverse centers, which will allow them to pass down over the arms 13, that enter the wedge slots, as indicated in Fig. 6, said wedges being usually shackled by chains to prevent accidental displacement.

To enable the transfer of the improved car fender from one end of the car to the other end, as may be necessary if there is no provision made to turn the car at the ends of the road, duplicate sets of boxes 13^a, 13^b are furnished, which are secured upon the car at each end, as has been explained.

The border frame is afforded suspensory support by the hanger rods 15, which are of an equal length, are preferably given a cylindrical form, and have rounded flattened and laterally perforated bosses formed on their ends to permit them to be pivoted upon the end portions of a top transverse frame bar 12^a that passes through the transversely perforated upper ends of the standards 12, and the rods 15 are thereon loosely secured by any preferred means.

The points of attachment of the hanger rods 15 on the limbs 10 of the fender frame are equally distant from the rear frame bar 10^b, and nearer to said transverse piece than to the front bar 10^a, their relative length and degree of forward and downward inclination adapting these rods to normally support the parts 10, 10^a of the frame in a horizontal po-

sition. The lower ends of the hanger rods have contact with the limbs 10 on their inner surfaces, and the rods are sustained in pivotal connection with said limbs by the cross bar 10^c, that is loosely secured by its ends in the perforated bosses of the hanger rods and firmly fastened in the limbs 10 of the border frame, so that the latter will receive additional strength from the cross bar.

Upon the inner sides of the frame limbs 10, the similar plate springs 16, are secured by their front ends that are located below the braces 11, and as shown in Figs. 2 and 3, the thin flat bodies of the springs 16 are penetrated by the cross bar 10^c, and further secured by rivets or bolts to the limbs 10 at the rear of and near to the cross bar. From the points of attachment of the springs 16 to the limbs 10 just mentioned, said springs are inwardly projected, forming curved corners where they are bent, and at a suitable and equal distance from the limbs 10, the plate springs 16 are curve-bent to produce a half circular portion on each, returning their rear ends toward the sides of the border frame, which end portions are firmly secured upon the front side of the rear frame bar 10^b, as shown in Figs. 2 and 3, thus producing elastic bow springs that are adapted to have resilient action when the border frame is pressed from the front, and elastically yield to torsional strain if said frame is loaded upon its upper surface.

The top of the fender frame is covered with elastic woven wire fabric 17, that is secured upon the border frame, and also extended from the cross bar 10^c upwardly, having its side edges attached upon the hanger rods 15, thus providing a yielding cushion-like support for a person thrown upon it.

At the front of the border frame of the device, a semi-tubular elastic cushion piece 18 is attached upon the cross bar 10^a, as plainly shown in Figs. 3 and 9, this piece serving to prevent injury to the limbs of a party who may be struck while on the railway track. Two similar elastic tubular guard pieces 19 are provided, which have connection with the top cross bar 12^a, and thence are downwardly and forwardly extended to engage with the border frame limbs 10, near the front frame bar 10^a, and preferably the ends of the guard pieces are furnished with hooks that afford means to detachably secure these parts to the top frame bar and limbs mentioned.

In the car platform near its transverse center, and at the rear of the upright dasher, a longitudinal slot is formed for the reception of the upper end of the depending arm 20, which is shaped to hook upon the rear edge of the slot, as represented at 20^a in Fig. 7, and have secure contact at the rear in the slot, the transversely grooved rear portion of the head of the arm serving to sustain the arm against rearward vibration at its lower end when it is slid completely rearward in

the slot of the platform and thereto secured. There is sufficient space at the front of the arm 20, in the slot it occupies, to permit the free insertion of a latch-bar 21, which bar has a tooth 21^a formed on its rear side for a latching engagement with a similar tooth on the front of the arm 20, at its upper end, as clearly shown in Fig. 7. A retracting plate spring 22 is secured by its upper end to the arm 20, preferably as shown in Fig. 7, which indicates the introduction of the spring end within a slot in the arm formed from its rear side, the arm and spring being riveted together. The free lower end of the plate spring 22 is scrolled, and upwardly slotted at the transverse center to afford room for the insertion and free movement of a chain 23, that rests on a transverse cylindrical bolt which is supported by the scroll of the spring end. On the lower terminal of the arm 20, a grooved pulley 20^b is pivotally secured, it being located in a vertical slot formed in the arm, as shown in Fig. 8. One end of the chain or wire rope 23 is attached to an eye formed on the lower end of the latch bar 21, and thence is downwardly extended to engage the grooved pulley 20^b on the lower portion of its edge, from which the flexible connection trends rearwardly to be attached by its rear end to the cross bolt in the lower slotted end of the spring 22. Another chain 23^a is secured to said bolt and forwardly extended to have its front end attached to the cross braces 11, at their point of contact with each other, as shown in Figs. 2 and 3.

The retracting plate spring 22 may be reinforced in its upper portion by the shorter plate spring 22^a, that is lapped upon its front side as shown, and is thereto attached by the means provided to secure the main portion of said spring to the arm 20. The flexible connection 23, is drawn sufficiently taut to bend the spring 22 forwardly at its lower end when the arm 20 is latched fast to the bar 21, which adjustment is effected with the border frame of the device in a horizontal position and the chain 23^a drawn taut.

As shown in Figs. 2 and 3, the latch bar 21, has a handle loop formed on its upper end, for its convenient manipulation, said loop preventing the bar from sliding entirely out of the slot of the platform in a downward direction.

The normal position of parts when the improved fender is not in service is shown in Fig. 1, the border frame of the device being then projected fully forward by the bow springs 16, that then assume the condition indicated by full lines in Fig. 2.

If the car having the improvement is accidentally caused to collide with a person on the railroad track, the elastic cushion 18 on the front transverse bar 10^a of the fender will receive the impact of the stroke, which cushion by its yielding, will absorb a portion of the force of concussion, and prevent a frac-

ture of the lower limbs of the person struck. The continued forward movement of the car, and inertia of the party that has been hit by the fender bar will cause the border frame of the fender to slide rearwardly, compressing the bow springs 16 so that they will take the form represented by dotted lines in Fig. 2, and as the rearward movement of the border frame and parts on its top surface will rock the hanger rods 15 rearwardly a corresponding degree, their nearer approach to a perpendicular plane will tend to rock the border frame of the fender into an inclined plane, the front edge approaching the railroad track, as represented in Fig. 3.

When the brakeman or motorman in charge of the front of the car having the improvement notices a child or person prostrate or otherwise located on the track, he can instantly detach the latch bar 21 by a stroke of his foot, which will permit the full force of the spring 22 to be exerted on the projected lower portion of the fender, and as this spring is stronger than the bow springs 16, the latter will be compressed and the border frame rocked downwardly at the front, to pick up the recumbent body of the child or adult that may be on the track.

By providing the tubular guard pieces 19, the person accidentally thrown upon the fender will be measurably prevented from rolling off the fender at the sides, and as the border frame of the device is intended to be made of a greater width than the railroad track proper, if a party struck should fall off at the side of the fender, no injury from the car wheels will result.

It is claimed for this improvement, that by its peculiar construction, injury to the lower limbs of a person hit by the device will be to a great extent avoided, and that when a party is picked up, or falls upon the fender, no serious injury can be inflicted, the shock of contact being largely absorbed by the bow springs 16, and resilient cover of the fender frame.

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

1. The combination, with a car fender and two braced arms rearwardly extended from standards on the fender, of two sets of clamping boxes at the ends of the car along its sides, and keeper wedges adapted to slide into slots of the front boxes and clamp upon collars on the arms, substantially as described.

2. In a car fender, the combination with the border frame arranged to rock and slide on supported upright standards, of two bow springs within the frame, and hanger rods adapted to swing from the tops of the standards and pivoted at their lower ends to the frame, substantially as described.

3. In a car fender, the combination with two upright standards, and two braced arms

connectible with a car frame, of a border frame slidably secured to the lower part of the standards, two bow springs within the frame that normally project it forward, an elastic cover, and two pivoted hanger rods for the frame, substantially as described.

4. In a car fender, the combination, with a slidably supported and spring-cushioned frame, of two elastic guard pieces diagonally arranged at the sides of the frame, substantially as described.

5. In a car fender, the combination with a border frame spring-supported to slide rearwardly and rock downwardly, of a retracting plate spring device on the end of the car, and flexibly connected to the border frame and adapted to depress the front of the frame

when said spring retracts, substantially as described.

6. In a car fender, the combination, with a frame that is spring-cushioned and supported to slide rearwardly and rock downwardly at the front, of a co-acting spring device comprising a pendent arm on the car, a latch bar therefor adapted to hold the arm in place, a plate spring, a flexible connection between the free end of said spring and the lower end of the latch bar, and another flexible connection extended from the end of the spring to a part of the frame, substantially as described.

ROBERT THOMSON.

Witnesses:

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WM. P. PATTON.