

No. 619,790.

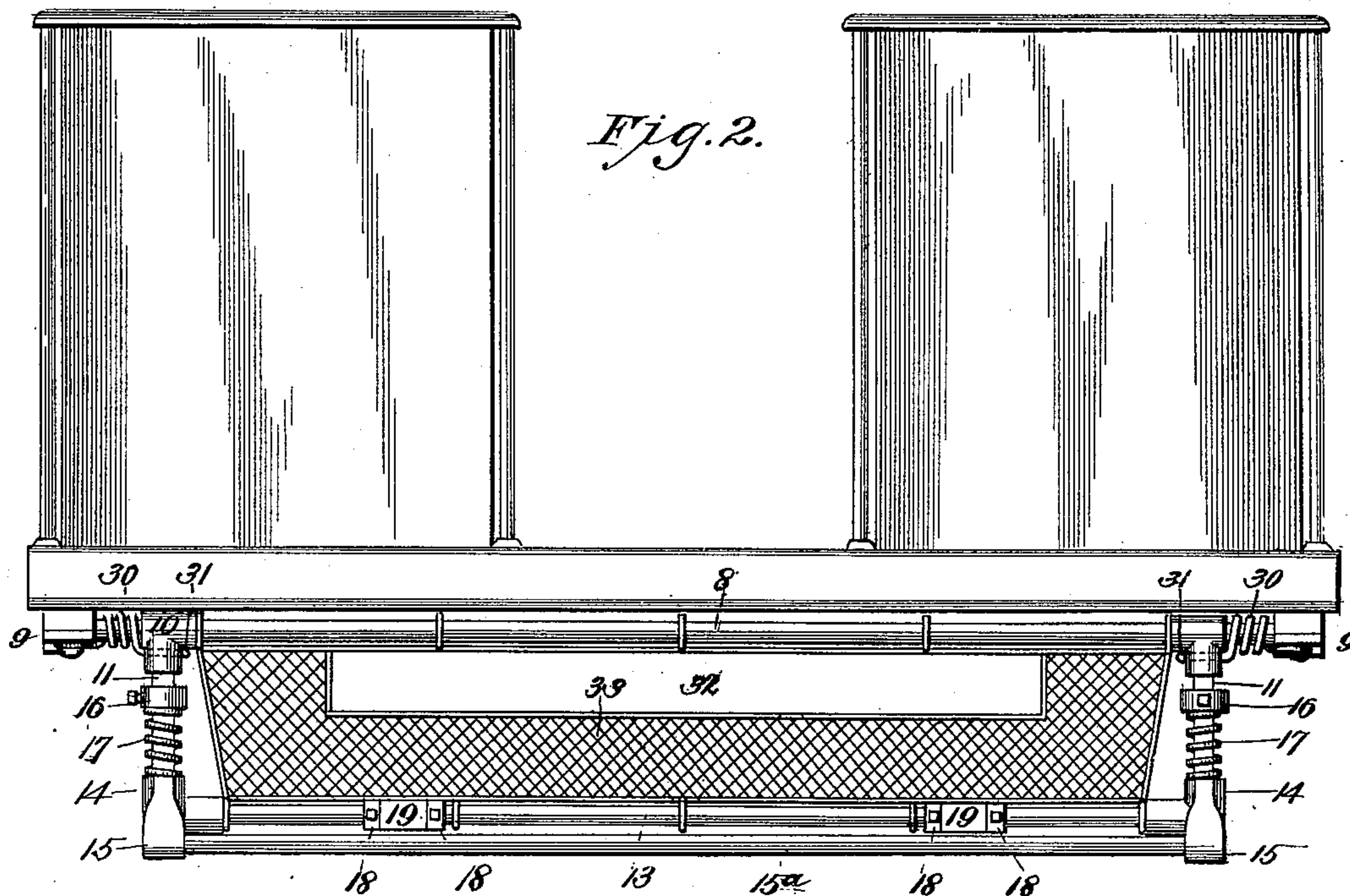
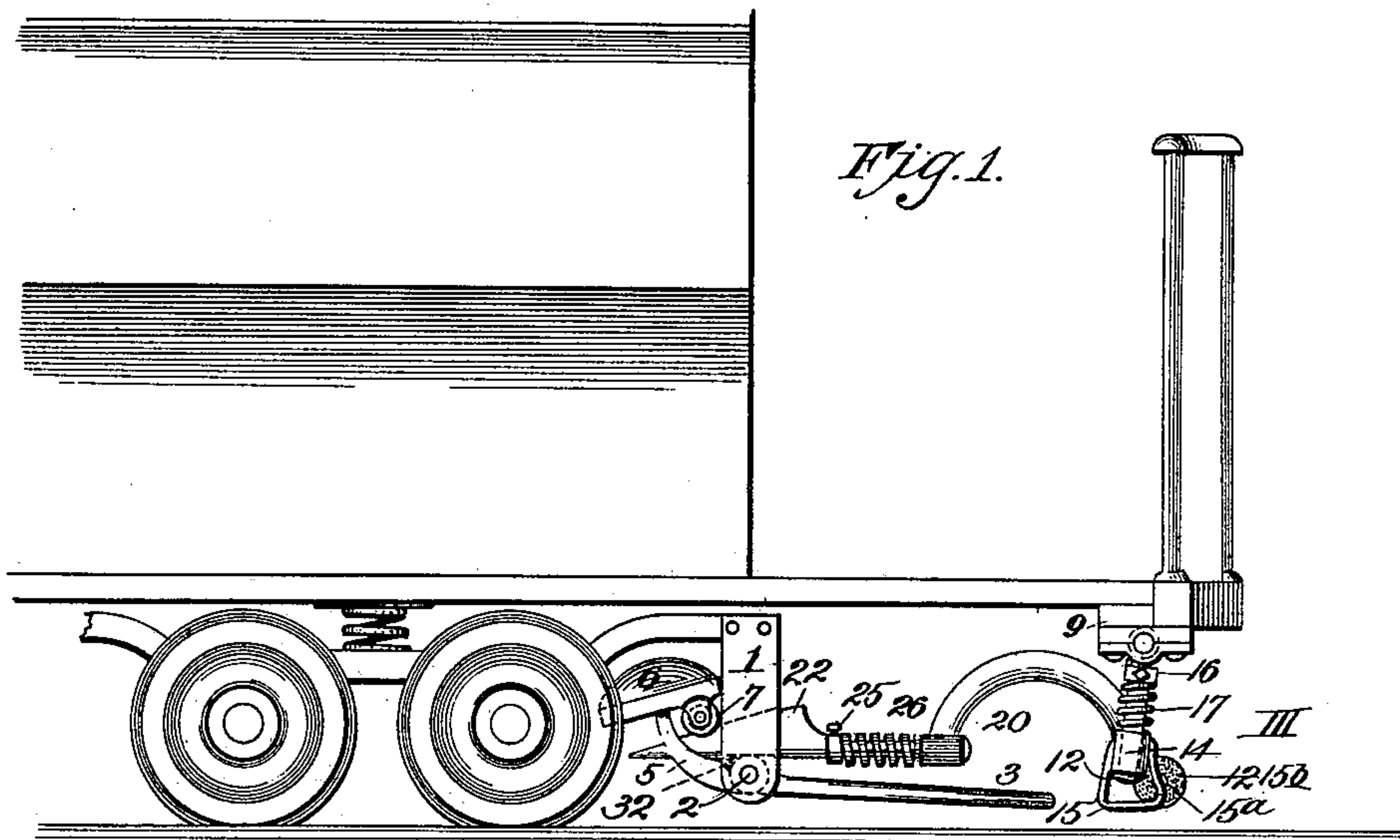
Patented Feb. 21, 1899.

G. RITTENHOUSE & D. PHELPS.  
STREET CAR FENDER.

(No Model.)

(Application filed Mar. 18, 1898.)

2 Sheets—Sheet 1.



*Witnesses:*

*M. R. Remley.*  
*F. L. Thrasher*

*Inventors.*  
*G. Rittenhouse and D. Phelps.*

*By Higdon Fischer & Thorpe*  
*Attys.*

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Fig. 3.

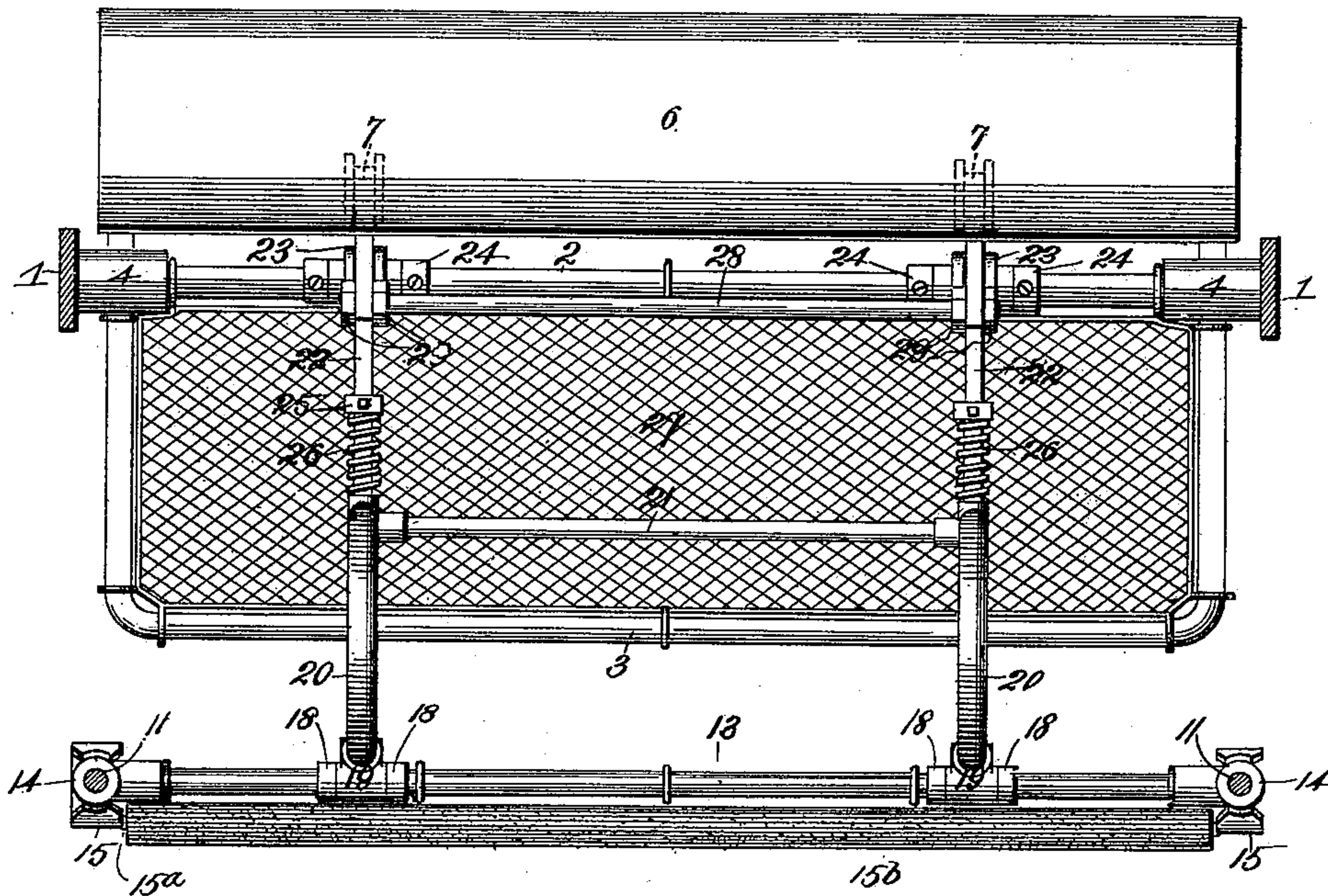
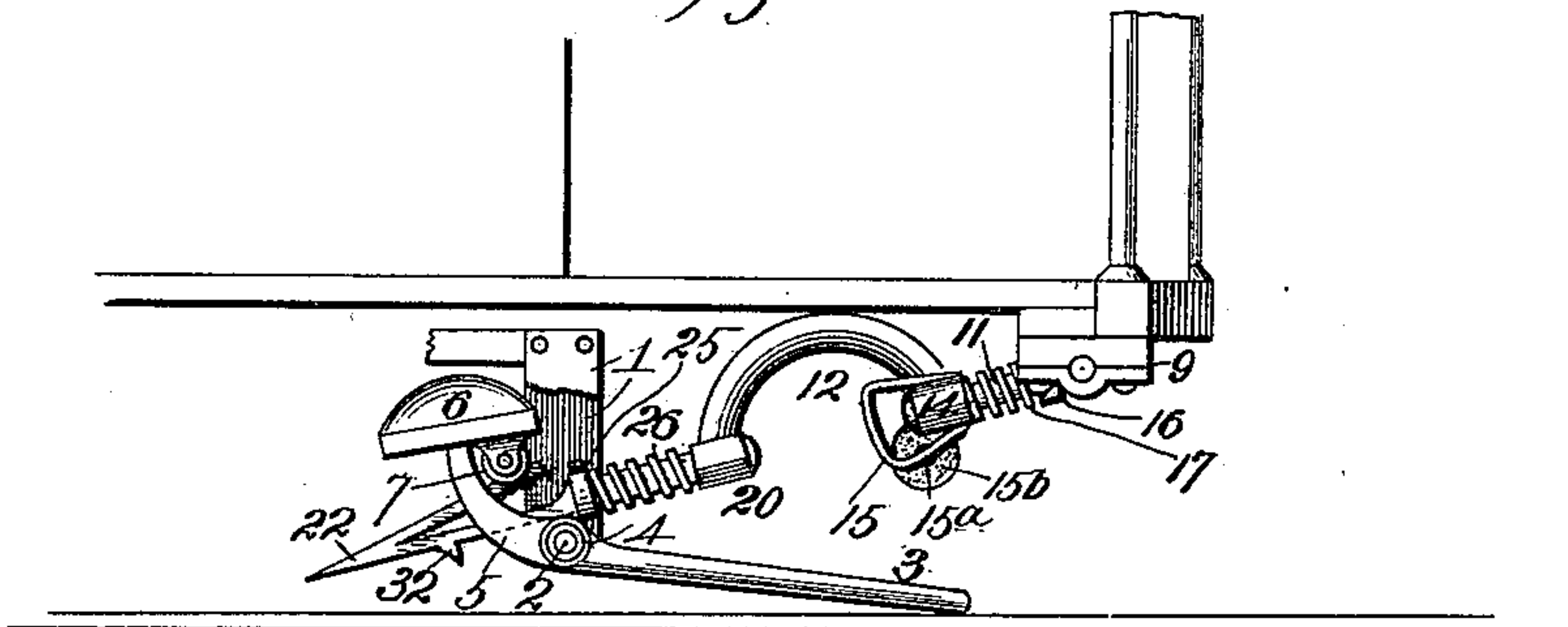


Fig. 4.



Witnesses:

M. R. Remley.  
F. S. Thrasher.

Inventors

G. Rittenhouse and D. Phelps.

By, *Hugdon Fischer Thorpe*  
attys.



# UNITED STATES PATENT OFFICE.

GEORGE RITTENHOUSE AND DANIEL PHELPS, OF KANSAS CITY, MISSOURI.

## STREET-CAR FENDER.

SPECIFICATION forming part of Letters Patent No. 619,790, dated February 21, 1899.

Application filed March 18, 1898. Serial No. 674,383. (No model.)

*To all whom it may concern:*

Be it known that we, GEORGE RITTENHOUSE and DANIEL PHELPS, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Street-Car Fenders, of which the following is a specification.

Our invention relates to fenders for street-railway cars, and more particularly to a fender which operates automatically, and consequently is always ready for action; and it consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed.

The general nature, objects, and scope of the invention will be understood from the description, taken in connection with the accompanying drawings, in which—

Figure 1 represents a side elevation of a car provided with a fender embodying our invention, said fender occupying its normal or operative position. Fig. 2 is a front view of the same on a somewhat larger scale. Fig. 3 is a horizontal section taken on the dotted line III of Fig. 1. Fig. 4 is a side view illustrating the position of the parts as a person prostrate on the track or an article thereon is struck.

In the said drawings, 1 designates a pair of vertically-pendent bars which are carried preferably by the front end of the advance truck of the car, and 2 a shaft connecting the lower ends of said bars.

3 designates a U-shaped frame (see Fig. 3) having its side arms provided with sleeves 4 in order to obtain a wide bearing on the shaft 2 and having the rear ends curved upwardly, as at 5, and carrying a weight 6, said weight being sufficient to just about counter-balance the front part of said frame and hold it elevated above the track and its bed, as shown in Fig. 1, and said weight at its under side is provided at a suitable point or points with one or more curved rollers 7.

8 designates a shaft which extends transversely of the dashboard of the car and is mounted in bearings 9, and journaled upon said shaft just inward of said bearings are T-couplings 10, carrying pendently the rods 11, provided with heads 12 at their lower ends.

13 designates a cross-rod which is provided with T-couplings at its ends, through which extend said rods 11, the heads of said rods being of such diameter that they limit the

downward movement of said couplings upon said rod, as shown in Figs. 1 and 4.

The couplings 14 are provided with U-shaped shoes or guards 15, which encircle, practically, the headed ends of said rods and have their bridge or lower portions sloping slightly forward and upward, so that if the car should tip to an unusual extent, as sometimes happens, they will contact with the ground, and thus protect the headed rods, and at the same time, by reason of their sloping base portions, swing the frame pivotally on shaft 8 rearward, as it is undesirable that said frame swing forward at any time, and connecting the advanced portions of said shoes in about the plane of the heads of said rods is a rod 15<sup>a</sup>, which is adapted to carry a rubber tube 15<sup>b</sup> or equivalent device for direct contact with the person or object struck, in order to prevent bruising or injuring it, if possible. In order to hold this "guard-frame"—as we shall hereinafter term the structure comprising cross-rods 13 15<sup>a</sup>, shoes 15, and tube or cushion 15<sup>b</sup>—depressed with a yielding power, so that it will be in position for contact with a very small object, we secure adjustably upon the rods 11 collars 16 and upon said rods and bearing at their opposite ends against said collars and the couplings 14 the expansive springs 17. By this arrangement the dipping of the car is accommodated by the contraction of the pendent swinging frame, the lower part or guard-frame sliding upward upon said rods 11 and, as the car-platform rises to its normal position, downward again by the reactionary power of springs 17, as will be readily understood. Secured upon rod 13 at a suitable point are collars 18, arranged in pairs, and journaled upon said rod between said collars are T-couplings 19, having rearwardly-projecting tubes 20 secured thereto and an overhanging frame 3 and connected near their rear ends by cross-bars 21. These tubes 20, if projecting from the lower end of the swinging frame, should by preference be arched (see Figs. 1 and 4) in order that the frame may swing back to its original position without crowding a person on the scoop or pick-up frame.

22 designates a pair of wedges which rest upon the grooved rollers 23 upon the shaft 2 and against the under side of the grooved



roller 7, hereinbefore referred to, to the end that said wedges may reciprocate with the greatest freedom of movement, said rollers reducing friction to the minimum. The anti-friction-rollers 23 are held in place upon the shaft by means of adjustable collars 24 upon said shaft. The cylindrical stems of the wedges fit telescopically in the tubes 20 and carry adjustable collars 25 and expansive springs 26, said springs encircling said rods and bearing at their opposite ends against the rear ends of said tubes and said collars, to the end that the telescopic frame shall be normally distended. These springs, however, will be of such power that they will not yield as the wedges are forced rearward and raise the weight 6, thereby depressing the front end of said frame 3, unless there happens to be an inequality or irregularity in the surface of the track with which the depressed forward end of frame 3 comes in contact before the wedges have moved the required distance and therefore before the swinging frame has assumed a position which will permit a person or other bulky object to roll back under said frame and upon the frame 3, which performs the function of a scoop to reliably gather up the person or object and support it out of danger until the car can be stopped, and in order that it may effectually support it the frame is provided forward of shaft 2 with a mattress, preferably of woven wire or netting, as shown at 27.

The wedges are braced by the tie-rod 28, which is preferably engaged by nuts 29 at opposite sides of the wedges, as shown at Fig. 3, though it may be prevented from lateral movement or bending by any other suitable means.

From the foregoing it will be obvious that as a person prostrate upon the track is struck by the pendent swinging frame the latter yields and swings to the position illustrated in Fig. 4 and by such movement forces the wedges rearwardly between rollers 23 and 7 and instantly depresses the front end of "scoop" or "pick-up" frame 3, upon which the person rolls. The weight of the person tends, if possible, to elevate the weight 6 still higher, and thereby relieve the wedge-frame entirely of pressure, which therefore instantly slides back to its original position, as shown in Fig. 1, this action being caused by the gravitative tendency of the swinging frame to which the front end of said wedge-frame is pivotally connected. The person upon the scoop is encircled at this time at his upper side by the bent portion of the wedge-frame, so that he affords no obstruction to the return or forward movement of the wedges and the descent of said swinging frame. It is to be understood, however, that by suitably proportioning the parts this wedge-frame may be arranged so as to operate at such a distance above the scoop that the bending of the frame will be entirely unnecessary. Whether the frame is bent or not will depend largely upon

circumstances—that is to say, will depend largely upon the height of the car-platform from the ground.

In order to absolutely insure the return movement of the swinging frame and of the wedges instantly after the person or object is caught up by the scoop, we preferably mount a pair of springs 30 upon the rod 8, one end of which bear against the bearings 9 or some other rigid point and their opposite ends against the rear side of the swinging frame below its pivotal point, as shown at 31. As, however, these springs may tend to throw the frame too far forward, the wedges are preferably provided with depending lugs 32, which by striking against the rear sides of rollers 23 are limited in their advance movement, and therefore effectually prevent the springs from swinging said frame too far forward, as will be readily understood.

To prevent a person from any possibility of having a limb broken by the operation of the swinging frame by having such limb projecting through the space below the car, but above the cross-bar 13, said swinging frame is provided with a flexible guard 33, of wire-netting, preferably, and said guard is provided with an elongated opening or slot 34, through which the coupling draw-head (not shown) projects, said opening being elongated in order that the coupling-head may be accommodated as the cars swing around a curve.

It may be found desirable to construct the wedge of spring metal and of skeleton form, as shown in Fig. 4, as by such construction the wedge may yield in case the scoop or pick-up frame is prevented from moving downward the usual distance. This resilient construction of the wedges accomplishes the same object as the telescopic wedge-frame, as will be understood.

From the above description it will be apparent that we have produced a car-fender which practically eliminates danger of serious injury to a person if struck when prostrate by a car, which is positive and reliable in operation, and which, being entirely automatic in its action, depends not on the will or presence of mind of any man in order that it shall properly perform its function. This latter feature is exceedingly important, as it is well known that a large per cent. of the accidents occur when the gripman or motorman is entirely unprepared and has not time, even if he retains his presence of mind, to set his safety appliances. Most street-railway accidents occur by the carelessness or absent-mindedness of persons whom the gripman or motorman is warranted in believing know of the car's approach and by persons crossing the track from behind another car. In such cases the gripman or motorman has absolutely no time to set his safety appliances even if the car is thus equipped.

It is to be understood, of course, that changes in the form, proportion, and detail construction or organization of the parts, or



the substitution of mechanical equivalents will not be considered a departure from the spirit and scope or sacrifice any of the advantages of the invention.

5 Having thus described the invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A street-car fender, comprising a swinging frame pendent from the front end of the car, a pivoted "scoop" or "pick-up" frame provided with a weight at its rear end to hold its front end normally elevated, and a reciprocatory wedge-frame, which, as it moves rearwardly, raises said weight and depresses the front end of the "scoop" or "pick-up" frame, substantially as described.

2. A street-car fender, comprising a swinging frame pendent from the front end of the car, a pivoted "scoop" or "pick-up" frame provided with a weight at its rear end, a reciprocatory wedge-frame pivoted to the swinging frame and adapted, as it is moved rearwardly by the operation of the swinging frame, to raise the weight and depress the front end of the "scoop" or "pick-up" frame, substantially as described.

3. A street-car fender, comprising a swinging frame pendent from the front end of the car, a shaft carrying rollers, a "scoop" or "pick-up" frame pivotally mounted on said shaft and provided at its rear end with a weight having antifriction-rollers, and a reciprocatory wedge-frame actuated by the swinging frame, and engaging at its upper and lower sides the rollers of the weight and the shaft, substantially as and for the purpose described.

4. A street-car fender, comprising a swinging frame pendent from the front end of the car, a pivoted "scoop" or "pick-up" frame rearward of the swinging frame and held nor-

mally with its front end elevated, a reciprocatory frame consisting of telescopic members, and a spring for holding said frame normally distended; said reciprocatory frame being actuated by the swinging frame and adapted to depress the front end of the "scoop" or "pick-up" frame when moved rearwardly, substantially as and for the purpose described.

5. A street-car fender, comprising a swinging frame pendent from the front end of the car, and consisting of two members, one mounted slidingly on the other, springs for distending said frame, a pivoted "scoop" or "pick-up" frame having its front end held elevated, and a wedge-frame actuated by the swinging frame and adapted, as forced rearward, to cause the depression of the front end of the "scoop" or "pick-up" frame, substantially as described.

6. A street-car fender, comprising a swinging frame pendent from the front end of the car, and consisting of two members, one mounted slidingly on the other, springs for distending said frame, a pivoted "scoop" or "pick-up" frame having its front end held elevated, a wedge-frame actuated by the swinging frame and adapted, as forced rearward, to cause the depression of the front end of the "scoop" or "pick-up" frame, springs which tend to force the swinging frame forward at all times, and lugs upon the wedge-frame, to limit the forward movement of the swinging frame, substantially as and for the purpose described.

In testimony whereof we affix our signatures in the presence of two witnesses.

GEORGE RITTENHOUSE.  
DANIEL PHELPS.

Witnesses:

M. R. REMLEY,  
F. S. THRASHER.