

No. 619,011.

Patented Feb. 7, 1899.

B. B. CUTLER.
STREET CAR FENDER.
(Application filed Sept. 19, 1898.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

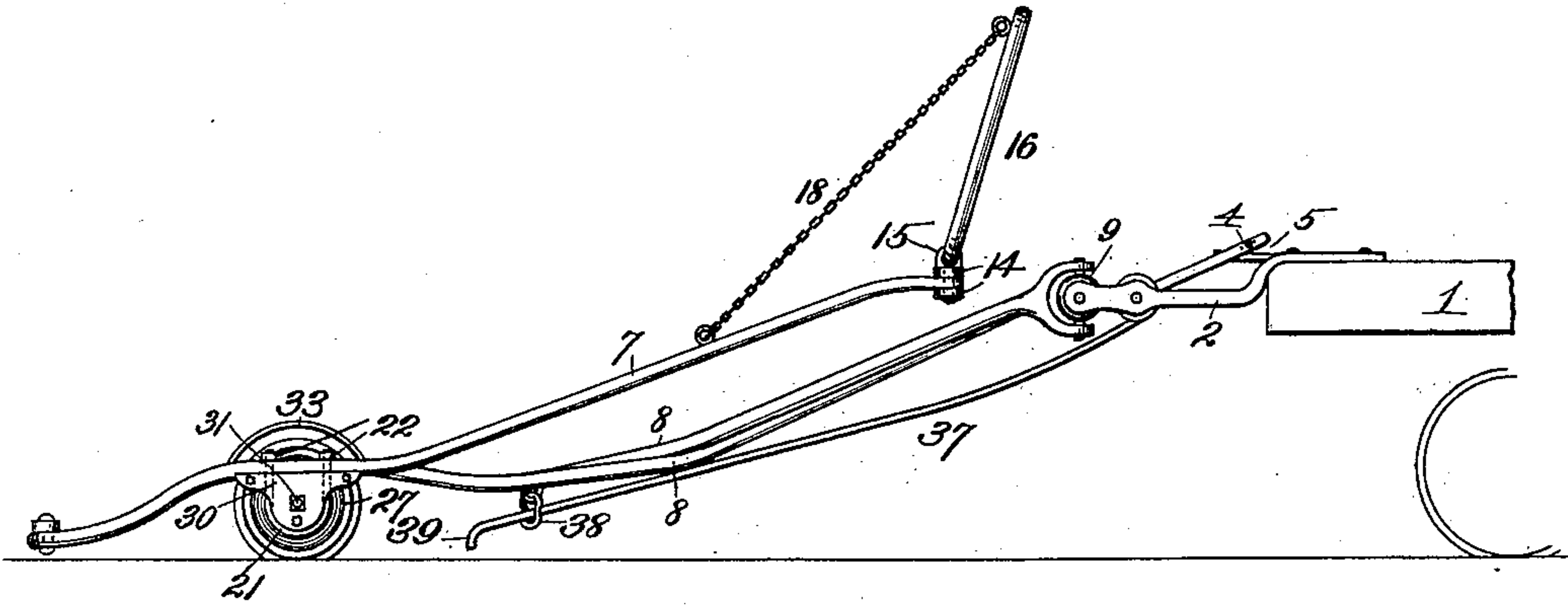
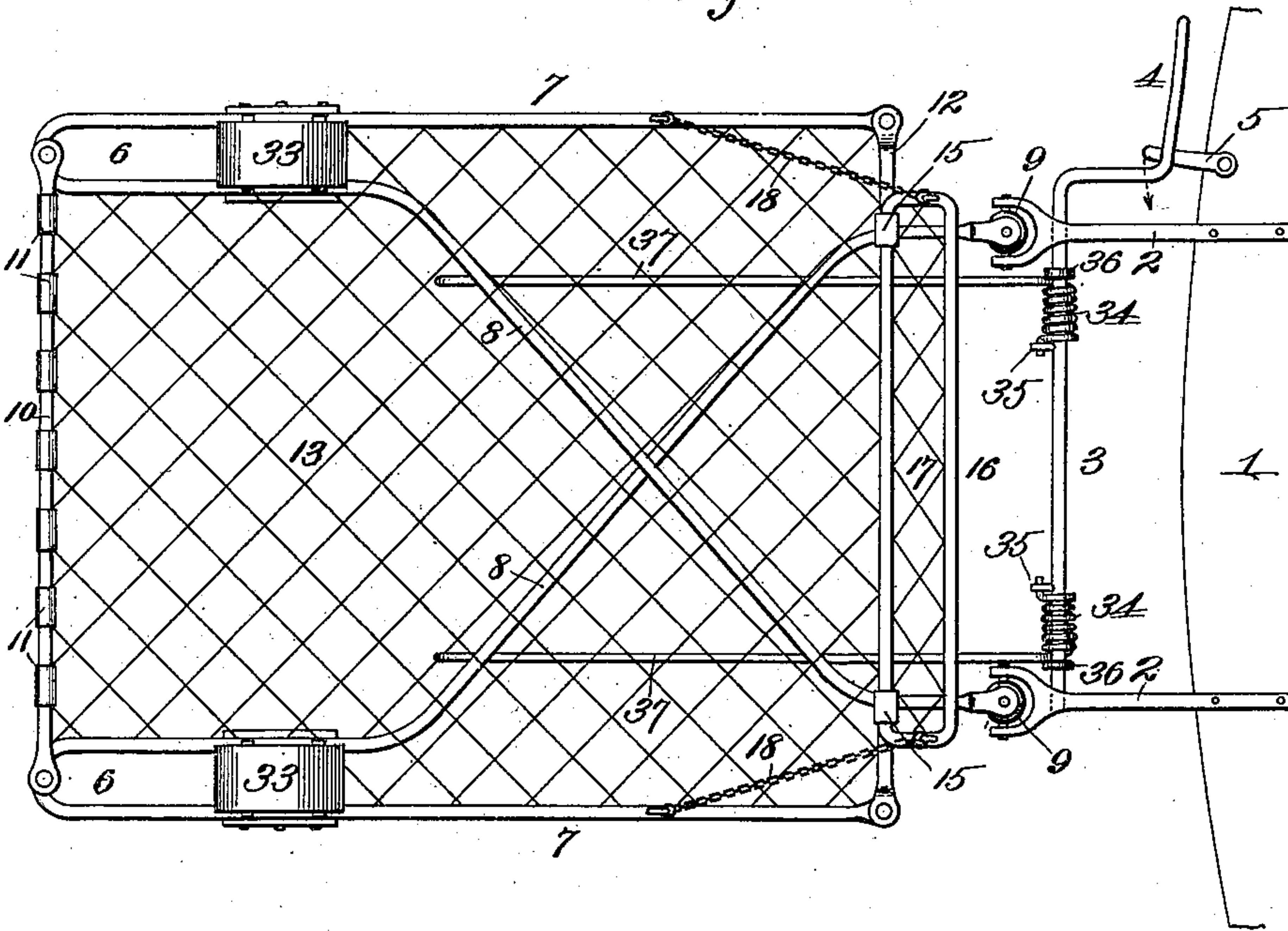


Fig. 2.



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Fig. 3.

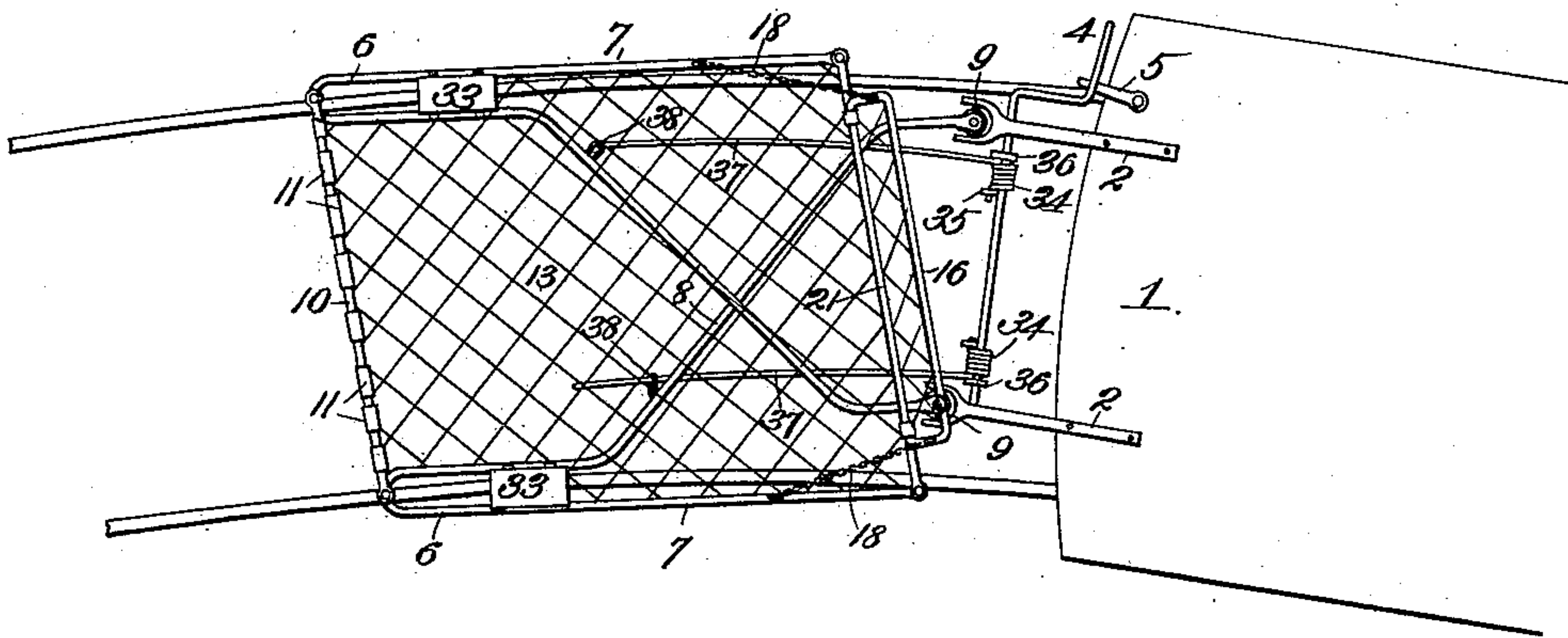


Fig. 4.

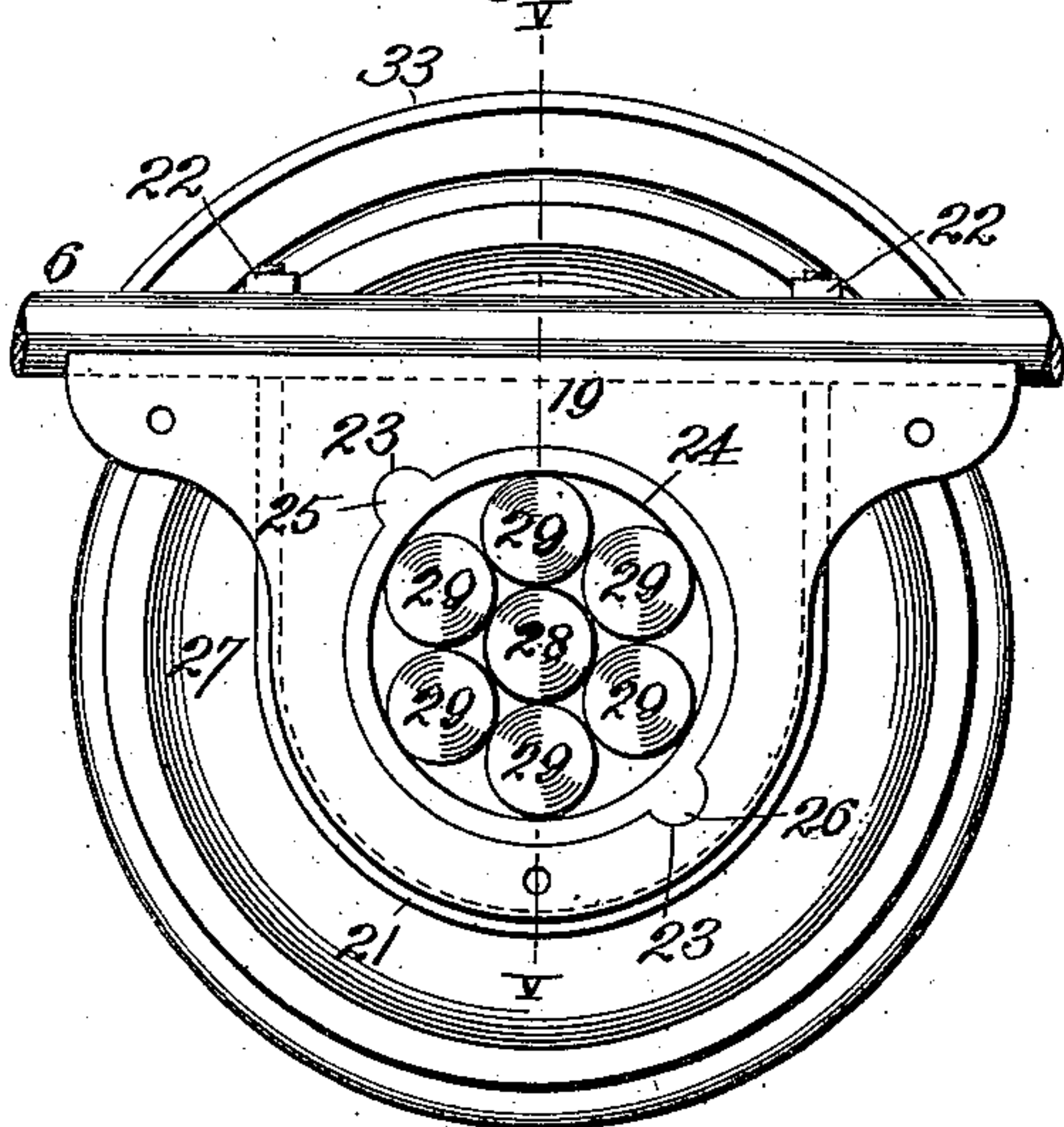


Fig. 5.

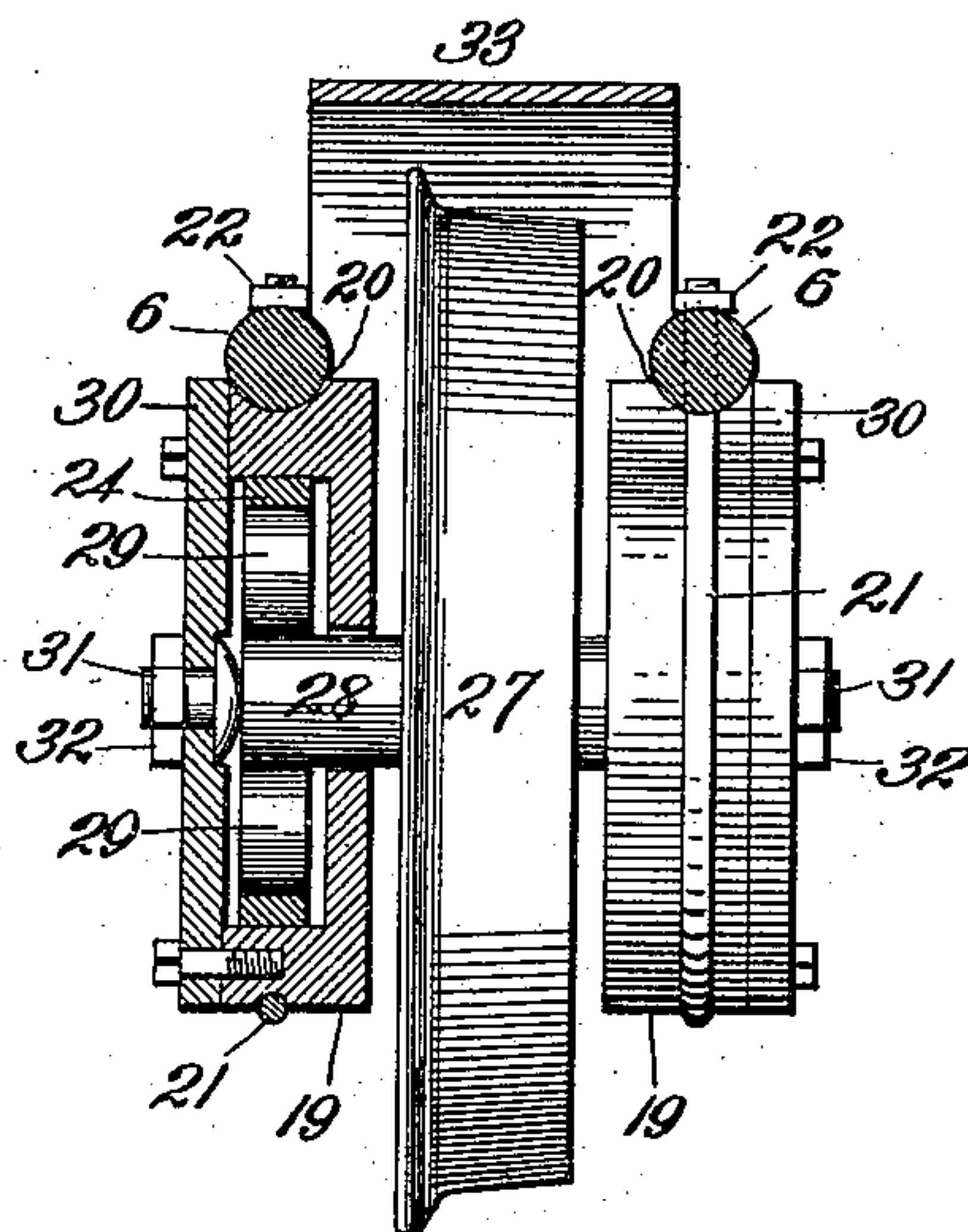
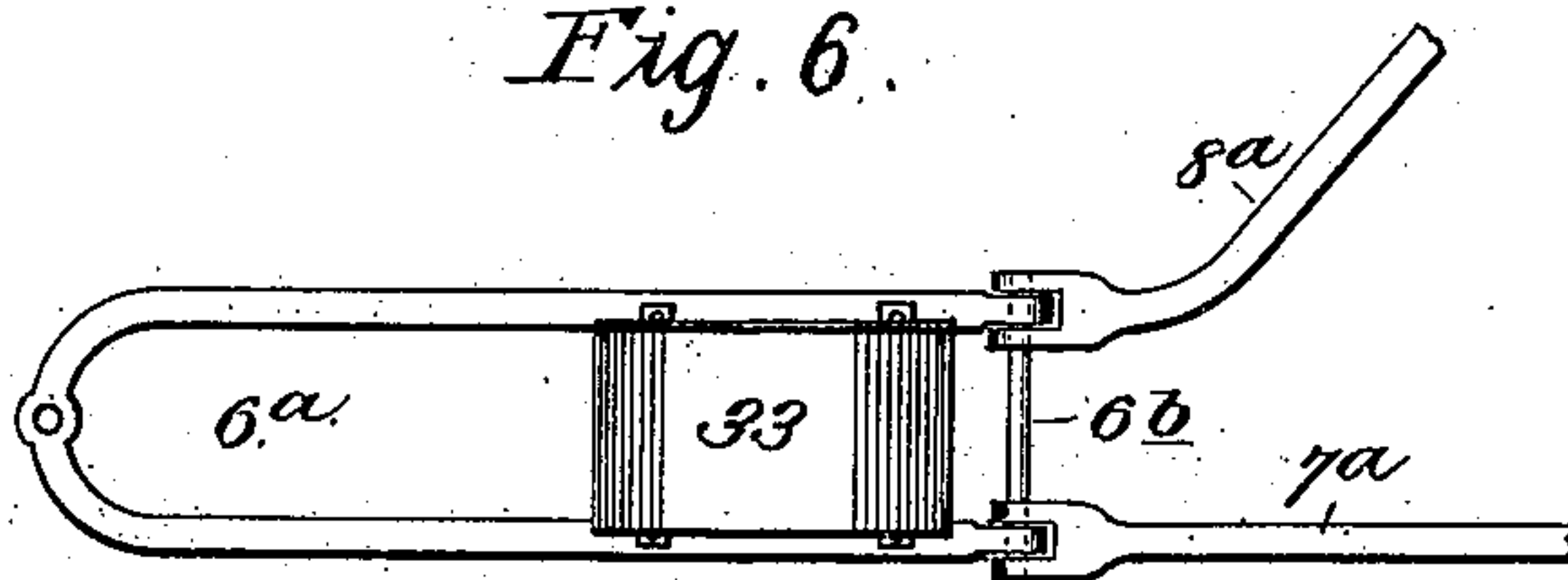


Fig. 6.



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UNITED STATES PATENT OFFICE.

BURNAM B. CUTLER, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-HALF
TO J. E. GILMORE AND E. B. GILMORE, OF SAME PLACE.

STREET-CAR FENDER.

SPECIFICATION forming part of Letters Patent No. 619,011, dated February 7, 1899.

Application filed September 19, 1898. Serial No. 691,318. (No model.)

To all whom it may concern:

Be it known that I, BURNAM B. CUTLER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Street-Car Fenders, of which the following is a specification.

My invention relates to car-fenders; and my object is to produce a device of this character which is positive and reliable in operation, can be folded up out of the way when necessary, and embodies simplicity, strength, and cheapness in its manufacture.

With these general objects in view the invention consists in certain novel and peculiar features of construction and combinations of parts, as will be hereinafter described and claimed, and in order that the invention may be fully understood reference is to be had to the accompanying drawings, in which—

Figure 1 represents a side elevation of a car-fender embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is a plan view as positioned when rounding a curve. Fig. 4 is an enlarged side view illustrating the wheel-journal construction, the face-plate being omitted. Fig. 5 is a sectional elevation of the same, taken on the line V V of Fig. 4. Fig. 6 is a plan view of a modified form of construction of the fender-frame.

In the said drawings, 1 designates the car-platform; 2, a pair of parallel bars projecting forward therefrom; 3, a transverse shaft journaled in said bars and provided with a crank-handle 4 at one end, and 5 a stop-arm for said crank-handle, pivoted to the car-platform.

The frame of the fender is constructed as follows—that is to say: A pair of rods or bars are bent to form the longitudinal parallel loops 6, the parallel rearwardly-projecting arms 7, and the intersecting oblique arms 8, the latter being bent a short distance from their rear ends to form short parallel portions, which are connected by a universal joint 9 with the front ends of bars 2. The said rods are furthermore bent so that the front ends of the loops shall be contiguous to the track-surface and the arms shall incline upward and rearward therefrom, the oblique or intersecting arms 8 being depressed considerably below the plane of arms 7 and then extending

upward to the joint 9, almost parallel with said arms 7. (See Fig. 9.) The object of this construction will hereinafter appear.

The front ends of the loops 6 are pivotally connected by a cross-bar 10, and secured thereon are a plurality of rubber cushions or buffers, in order that a person or other object may not be severely bruised if struck by the fender. The rear ends of the arms 7 are pivotally connected by a cross-bar 12 and those parts of the rectangular frame formed by and between the arms 7. The inner sides of loops 6 and bars 10 and 12 are connected by a sheet of wire-netting 13 or equivalent material. It will be understood that as a heavy body falls upon the netting 13 it will naturally sag down to some extent. Consequently the arms 8 are depressed, as hereinbefore described, sufficiently to avoid contact with and consequent injury to said body.

14 designates bolts secured in and extending through the cross-bar 12 and provided with sleeve-heads 15, in which is pivoted the lower side of a rectangular guard-frame 16, having a body 17 of netting and supported in a rearwardly-inclined position normally by means of the chains 18, secured at their opposite ends to the upper corners of frame 16 and to arms 7.

19 designates a pair of boxings provided with grooves 20 in their upper sides to fit snugly against the under sides of loops 6, and 21 designates a pair of U-shaped stirrups which fit in external grooves of boxings 19 and also extend up through said boxings and the arms of said loops, nuts 22 engaging the upper ends of said stirrups to clamp the boxings reliably in position. Each boxing is provided with a pair of diametrically opposite grooves 23, communicating with its central opening, and a case-hardened steel ring 24 fits within said opening and is provided with a pair of diametrically opposite lugs 25 26, snugly engaging said grooves.

27 designates a pair of small flanged track-wheels to support the front end of the fender and arranged within the loop 6 thereof, and 28 short shafts upon which said wheels are rigidly secured. Said shafts project into said boxings and are journaled upon and between a circular series of bearing-rollers 29, which

run within and upon the case-hardened track-rings 24.

In practice the wear always occurs upon the upper side of the ring, due to the weight of the fender, and when said ring is worn appreciably it can be removed and replaced with the positions of the lugs reversed. By this arrangement the former lower wear-surface is made to receive the wear of the journal-rollers and the life of the ring thereby lengthened, as will be readily understood. When the ring is worn completely out, it can be cheaply and easily replaced with a new one.

30 designates the face-plates bolted to the boxings to prevent the dislocation of rings 24 and rollers 29, and secured centrally in said face-plates are round-headed bolts 31, their rounded heads being disposed inwardly to receive the end thrust of the shaft 28, and said bolts are secured reliably in position by clamping-nuts 32. By this arrangement it is obvious that practically a ball-bearing is provided for the ends of the shafts, which therefore operate with a minimum degree of friction and at the minimum cost of construction, as said bolts can be easily and cheaply removed and replaced when necessary.

The fender-wheels 27 are covered by a segmental guard or arch 33 in order that an object falling upon the fender may not be injured by contact with the moving wheels.

34 designates a pair of stiff coil-springs, which are mounted upon shaft 3 and bear at their inner ends against pins 35, projecting from said shaft. The opposite ends of said springs are extended forward to provide the approximately parallel spring-arms 37, which extend loosely and slidingly through pendent loops 38 of oblique arms 8 and terminate in hooks 39 at their front ends.

When the fender is to be positioned for use, the wheels of course rest upon the track in advance of the car, and the crank-arm 4 is grasped and turned in the proper direction to tension the springs 34 and thereby compel the arms 37 of said springs to hold the fender depressed with a yielding pressure, in order that the wheels may be compelled to follow the track closely and the fender be always in position for instant use. The shaft 3 is secured in such position by swinging the pivoted stop 5 in the direction opposite to that indicated by the arrow, Fig. 2, until it is below the crank-arm, and thereby prevents the latter from revolving back to its original position under the action of the tension-springs. When it is desired to throw the fender to its inoperative position, said stop 5 is swung in the direction indicated by the arrow, Fig. 2, and the shaft permitted to rotate back to its original position, so as to remove the tension from said springs. The guard 16 is then folded forwardly upon the fender and the latter is raised bodily upon the universal-joint connection 9 and may be supported in such position by resting against the car-dashboard (not shown) or in any other suitable manner.

When folded to this position, a second car may be coupled to the one provided with the fender, it being advisable, of course, to provide a motor-car with a fender at each end, as said cars usually run with their opposite ends forward every alternate trip.

As it may be desirable to fold the fender in a more compact bundle, I contemplate constructing them as illustrated in Fig. 6. In this figure the loop 6^a, corresponding to loop 6 of the other figures, is pivoted to work in a vertical plane upon rod 6^b, connecting the front ends of arms 7^a and 8^a, corresponding, respectively, to arms 7 and 8. By this arrangement it is clear that the loop or extreme front end of the fender may be folded back upon the rear portion and then the fender be raised bodily upon the joint 9, as hereinbefore explained. When so folded, the fender will not project above the top of the dashboard, and consequently will not obstruct the view of the motorman.

Owing to the fact that the tension-spring arms are slidingly connected to the fender and the latter is composed of parts pivoted together at its corners, there will be no difficulty in rounding curves with the fender in operative position, as the frame of the same simply adjusts itself to the new conditions presented, which require the track-wheels of the fender to travel at an angle to the track-wheels of the car. This new position of the parts is illustrated in Fig. 3, where it will be noticed that the spring-arm 37 at the inner side of the curve projects forward some distance through the engaging loop 38 and that the hook-terminal of the other spring-arm is engaged with its loop 38, and thereby prevents any further twisting movement of the fender, the position shown representing the fender rounding a curve of the smallest possible radius. The hook-terminals of said spring-arm limit the twisting or lateral movement of the fender. Otherwise there would be nothing to prevent the total disengagement of said arms from the fender, which would obviously permit the latter to jump the track.

From the above description it will be apparent that I have produced a car-fender which embodies the features of advantage enumerated as desirable in the statement of invention, and it is to be understood, of course, that changes in the detail construction, form, arrangement, or proportion of the parts may be resorted to without departing from the spirit and scope or sacrificing any of the advantages of the invention.

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

1. A car-fender, comprising a pair of bars secured to the car, a fender pivoted to said bars so as to swing horizontally and vertically, track-wheels supporting the front end of said fender, a shaft, springs mounted thereon and provided with arms engaging the fender-frame, means for tensioning said springs by

operating said shaft, and a stop to prevent the back rotation of said shaft, substantially as described.

2. A car-fender, comprising a pair of bars 5 secured to the car, a fender pivoted thereto so as to work horizontally and vertically, and consisting of longitudinal loops 6, longitudinal arms 7, oblique intersecting arms 8 depressed below the plane of arms 7, cross-bars 10 pivotally connecting said loops and said arms 7, and a body of wire-netting, and track-wheels supporting said fender, substantially as described.

3. A car-fender, comprising a pair of bars 15 secured to the car, a fender pivoted thereto so as to work horizontally or vertically, and consisting of longitudinal loops 6, longitudinal arms 7, oblique intersecting arms 8 depressed below the plane of arms 7, cross-bars 20 pivotally connecting said loops and said arms 7, and a body of wire-netting, track-wheels supporting said fender, and springs holding said track-wheels down with a yielding pressure, substantially as described.

25 4. A car-fender, comprising a pair of bars secured to the car, a fender pivoted thereto so as to work horizontally or vertically, and consisting of longitudinal loops 6, longitudinal arms 7, oblique intersecting arms 8 depressed below the plane of arms 7, cross-bars 30 pivotally connecting said loops and provided with rubber cushions or buffers and a cross-bar connecting arms 7, and a body of wire-netting, track-wheels supporting said fender, 35 springs holding said track-wheels down with a yielding pressure, a pivoted guard-frame upon the cross-bar connecting arms 7, and chains supporting the same, substantially as described.

40 5. A car-fender, comprising a pair of bars secured to the car, a substantially rectangular fender, consisting of parts pivoted together at its corners, and pivoted to said bars so as to swing in a horizontal or a vertical 45 plane, loops depending from said fender, springs suitably supported, and provided with arms projecting forward through said loops and terminating in hooks to prevent withdrawal from said loops, and means to 50 remove the tension from said springs and

permit the fender to be swung upward upon its pivotal connection with said bars, substantially as described.

6. In a car-fender, a suitable frame, boxings stirruped thereto and provided with 55 openings and grooves communicating therewith, case-hardened wear-rings fitting in said openings and provided with diametrically opposite lugs engaging said grooves, track-wheels between said boxings provided with 60 shafts projecting therein, antifriction-rollers traveling upon said shaft and said rings, face-plates for said boxings, and arched guards over said wheels, substantially as described.

7. In a car-fender, a suitable frame, boxings depending therefrom, face-plates secured to the outer sides of said boxings, shafts projecting into said boxings and terminating adjacent to said face-plates and boxing, wheels 65 mounted rigidly on said shafts, bolts 31, extending centrally through said face-plates and having the rounded surfaces of their heads bearing against the ends of said shafts, and a clamping-nut engaging the outer or threaded 70 ends of said bolts, and bearing against the outer faces of said face-plates, substantially as described.

8. A car-fender consisting of a pair of bars secured to the car-platform, a cross-bar 12, side arms 7^a pivoted at their rear ends to said 80 cross-bar, oblique intersecting arms 8^a depressed below the plane of arms 7^a, and pivoted at their rear ends to said bars, a pair of loops 6^a pivotally connected to work in a vertical plane at their rear ends to the front ends 85 of arms 7^a and 8^a, a cross-bar 10 pivotally connecting the front ends of said loops, boxings carried by said loops, shafts journaled in said boxings, wheels mounted rigidly on said shafts and adapted to run on the track-rails, and a 90 wire-netting connecting bars 10 and 12, and arms 7^a and loops 6^a, substantially as described.

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

BURNAM B. CUTLER.

Witnesses:

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F. S. THRASHER.