

No. 766,906.

PATENTED AUG. 9, 1904.

E. H. SCHULZE.
STREET CAR FENDER.

APPLICATION FILED DEC. 23, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

FIG. 1.

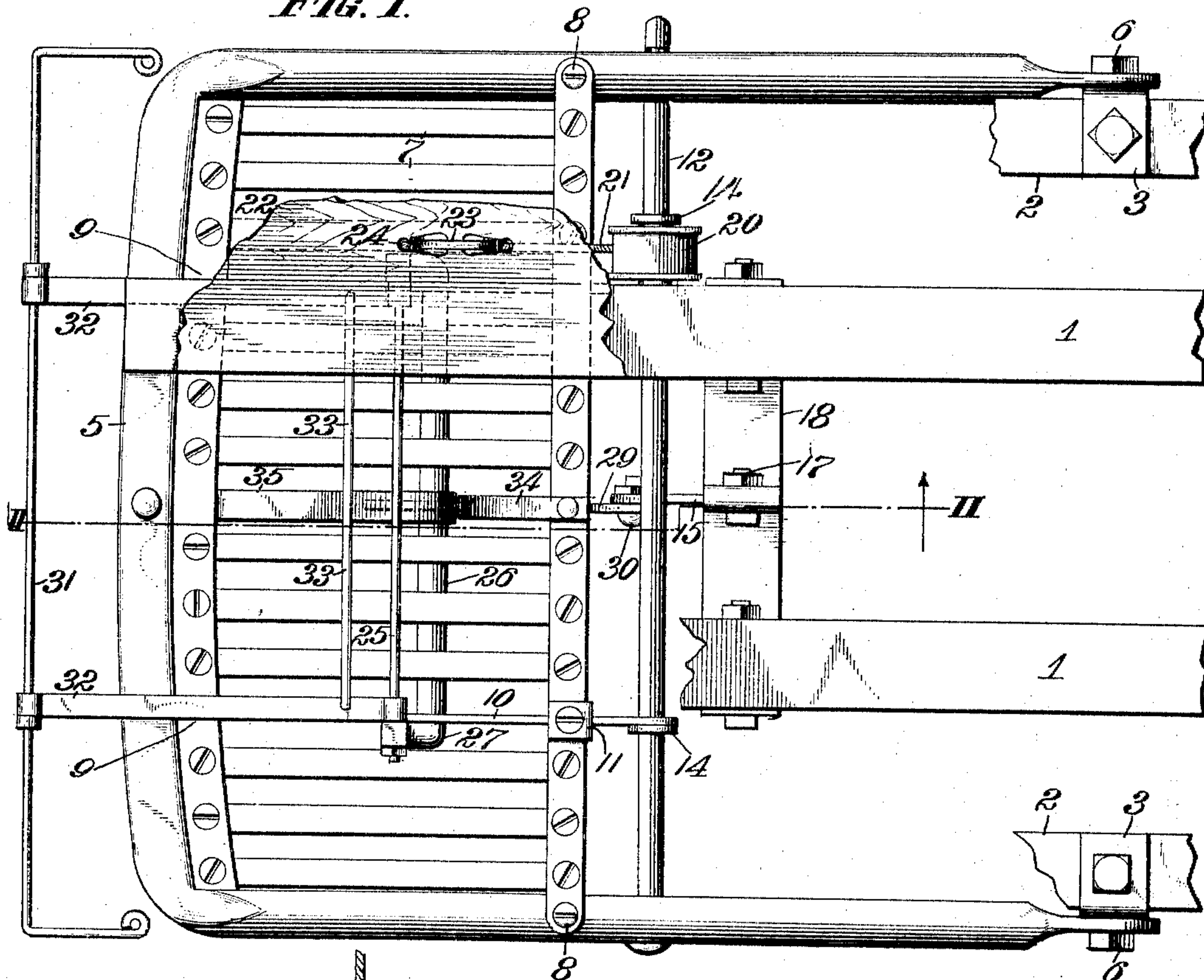
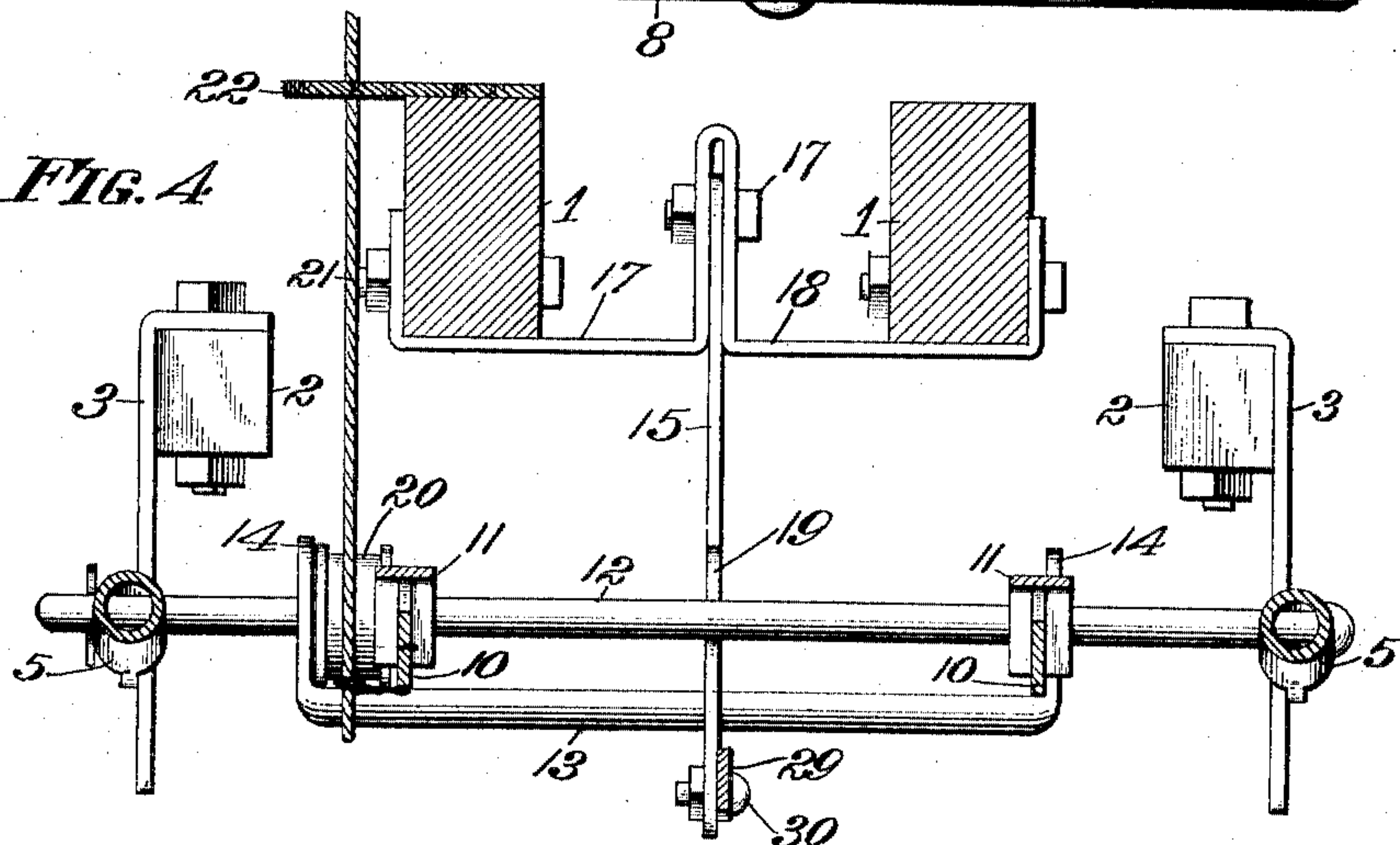


FIG. 4.



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2 SHEETS—SHEET 2.

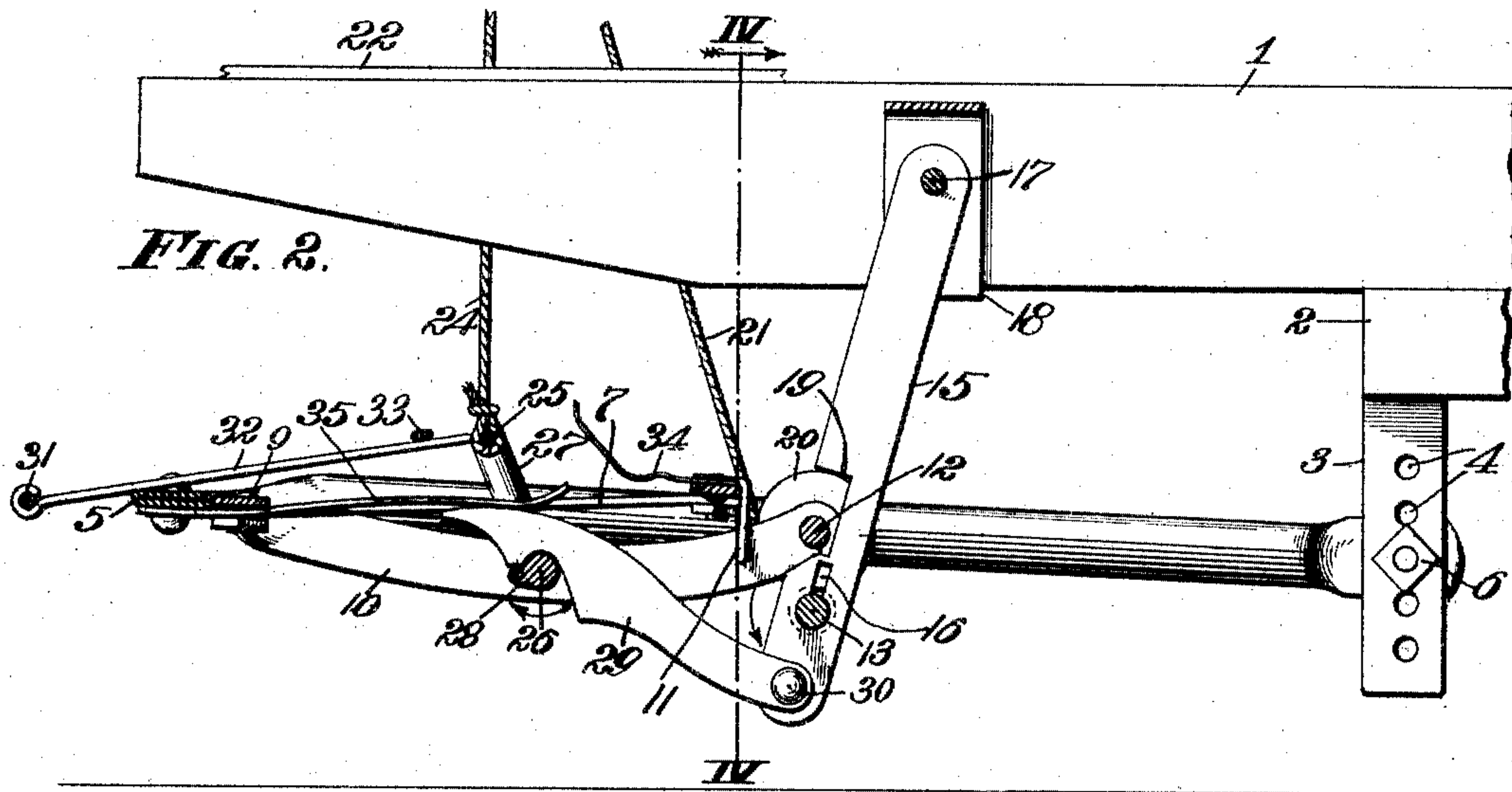
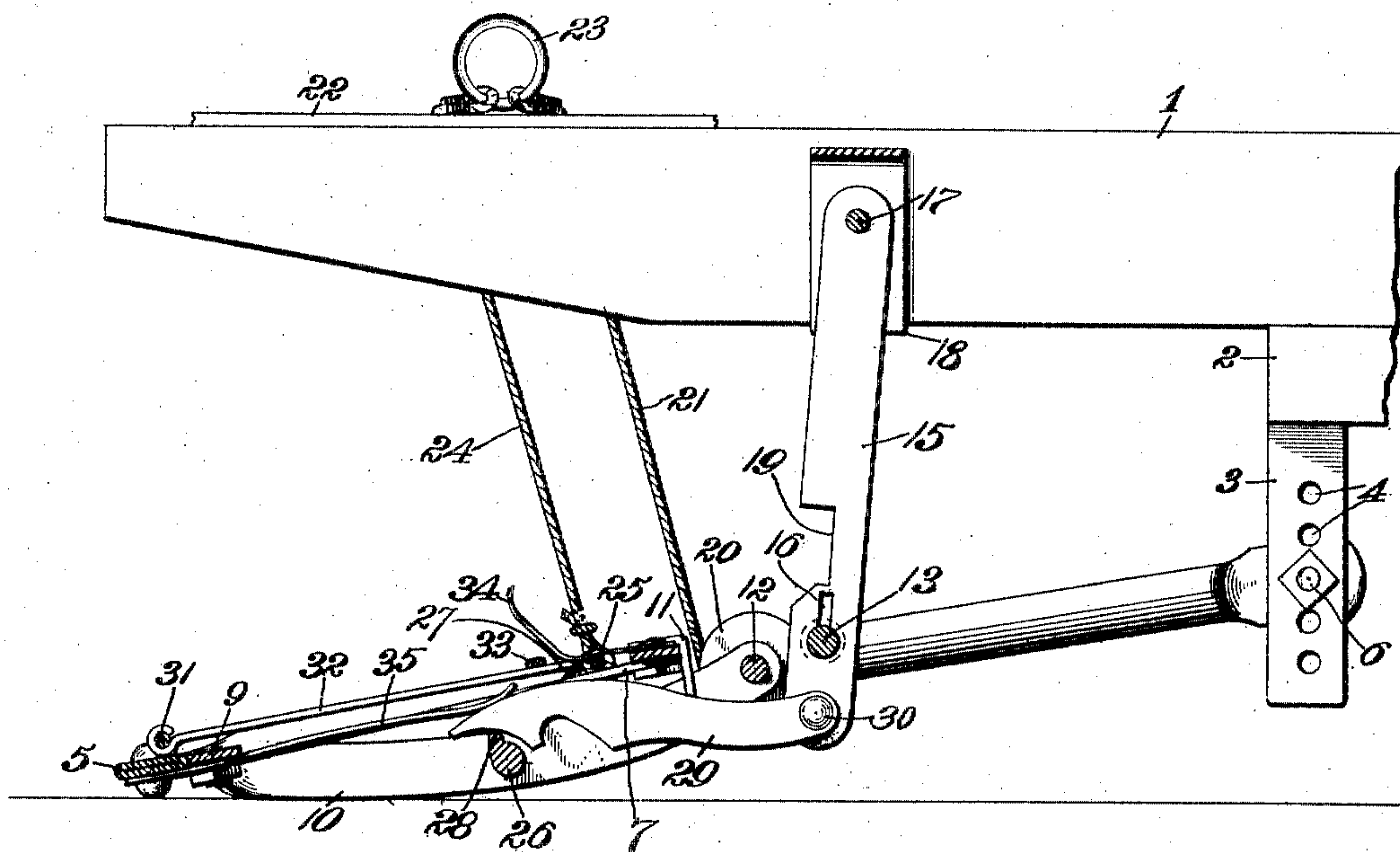


FIG. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

ERNIST H. SCHULZE, OF KANSAS CITY, MISSOURI.

STREET-CAR FENDER.

SPECIFICATION forming part of Letters Patent No. 766,906, dated August 9, 1904.

Application filed December 23, 1903. Serial No. 186,390. (No model.)

To all whom it may concern:

Be it known that I, ERNIST H. SCHULZE, 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 street-car fenders of that type which are adapted by striking an object to be automatically "set" to pick up the object struck or another which may occupy the track; and my object is to produce a fender of this character which operates efficiently and reliably and is of simple, strong, durable, and comparatively cheap construction and which can be easily and cheaply applied to the approved types of street-cars now in use.

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

Figure 1 represents a top plan view of a fender embodying my invention, said figure also showing a small portion of the car-truck to disclose the relation and connection between it and the fender. Fig. 2 is a vertical longitudinal section taken on the line II II of Fig. 1. Fig. 3 is a similar view, but with the fender in its depressed position and ready to pick up an object from the track. Fig. 4 is a cross-section taken on the line IV IV of Fig. 2.

In the said drawings, 1 1 designate part of a street-car truck, and 2 the usual longitudinal side beams of said truck.

3 designates hangers depending from beams 2 and provided with a vertical series of perforations 4.

5 designates a U-shaped frame having its front or bridge bar flattened and its side bars or arms circular in cross-section and terminating in vertically-flattened ends pivotally connected, as at 6, to hangers 3, the pivot-bolts 6 extending through a pair of the perforations 4 of said hangers, the latter having the vertical series of holes to permit of ver-

tical adjustment of the frame to accommodate cars having platforms of varying height.

7 designates a skeleton platform or frame of any suitable construction and having its rear portion secured, as at 8, to the arms of the pivoted frame 5, the front portion of said skeleton frame fitting snugly within the front end of said frame and being secured by bolts 9 to the front ends of bars 10, which bars at times are runners for a purpose hereinafter explained. Said bars underlie the rear cross-bar of the platform and fit in the bifurcated depending arms of angle-brackets 11, secured to said platform, this relation stiffening said bars or runners against lateral movement. The rear ends of the bars or runners are pivotally mounted on a cross-bar 12, connecting the arms of the pivoted frame 5, said cross-bar also passing pivotally through openings in the arms 14 of a rock-shaft 13. The rock-shaft is journaled in the round portion of a keyhole-slot 16 in a swing-bar 15 and, in conjunction with its arms 14 and bars 10, constitutes a toggle connection between the swing-bar and the pick-up frame. The swing-bar is pivotally mounted at its upper end on bolt 17; carried by bracket 18, bolted or otherwise secured to portions 1 of the truck, said bracket being arched at its middle, so as to have an extended bearing on opposite sides of the swing-bar to assist in preventing lateral movement thereof.

The swing-bar is preferably notched, as at 19, to accommodate the cross-bar 12 when the fender occupies its elevated or normal position and is provided with the keyhole-slot hereinbefore mentioned in order that the crank-shaft may be engaged with or disengaged from the swing-bar easily and quickly, said crank-shaft being preferably formed of a single piece of metal forged with its arms flattened in order that they may be readily withdrawn or inserted through said slot.

The cross-rod 12 between one of the rock-shaft arms and one of the bars or runners 10 is equipped with a drum or roller 20, and extending down under said roller rearward of the platform and attached at its lower end to the rock-shaft below the drum is a chain or

cable 21, the said chain or cable also extending up through the flooring 22 of the vestibule of the car, where it is attached to a ring or handle 23 within convenient reach of the motor-
 5 man or other person in control of the car. The upper end of a second cable or chain 24, which also extends through the flooring, is attached to said ring or handle, and its lower end is attached to a cross-bar 25, connecting
 10 the upper ends of the crank-arms 27 of a rocking cam-shaft 26, journaled in the bars or runners 10 below the fender-platform, the said crank-arms projecting up through the platform, as shown clearly in Figs. 1 and 2.
 15 The cam 28 of said shaft is disposed at its front side and adapted as the shaft rotates in the direction indicated by the contiguous arrow, Fig. 2, to elevate the front end of and trip the catch 29 from the cam-shaft. The
 20 catch is pivoted, as at 30, to the lower end of swing-bar 15, which bar in its normal position is pitched downwardly and forwardly at such an angle that it swings rearward to approximately the position shown in Fig. 3,
 25 when the catch is tripped from engagement with the cam-shaft.

The means for operating the cam-shaft, as explained, is a longitudinally-movable trip-frame comprising front cross-bar or bumper
 30 31 and rearwardly-projecting side bars 32, the said bars being braced, by preference, by the cross-bar 33 at a suitable point. In normal position, as hereinbefore explained, the parts of the fender are disposed, as shown in Fig.
 35 2 most clearly, so that when an object is struck by the bumper of the trip-frame the latter is forced rearwardly, this action rotating the cam-shaft in the direction indicated by the arrow, Fig. 2, so as to trip from said
 40 shaft the engaging catch 29.

Before the bumper-bar of the trip-frame has reached the frontend of the pivoted frame
 5 the catch is disengaged from the cam-shaft, and as a result the pivoted frame, with the
 45 connected parts, drops down upon the track, this action instantly rocking the rock-shaft in the direction indicated by the contiguous arrow, Fig. 2, so as to swing bar 15 rearwardly and pull the catch in the same direction to pre-
 50 vent any accidental reengagement of the same with the cam-shaft, the front end of the catch projecting forwardly beyond the cam-shaft to always bear upon the latter and being tapered, as shown, so as to insure the automatic reen-
 55 gagement of the catch when the fender is re-elevated, as hereinbefore explained.

As the pivoted frame equipped with the platform and constituting, in effect, a pivoted
 60 pick-up frame drops the rearward movement of the trip-frame continues until eventually the cross-bar 25 slips under the spring 34, secured to the platform, said spring serving to prevent the trip-frame from jumping forward again as the pick-up frame strikes the track-

way, such forward movement being objec- 65
 tionable because it would tend to throw the object caught off the front end of the frame and would furthermore be liable to injury from the weight of impact with said object. As the pick-up frame drops the bars or run- 70
 75 ners 10 strike the trackway for the purpose of holding the pick-up frame slightly off the track and trackway, so as to clear any irregularities in the latter, such irregularities, of course, as projecting paving-stones or bolt-

heads. From the foregoing it will be apparent that the person struck by the trip-frame would be usually knocked down upon the track and in such recumbent position would either be 80
 85 gathered up by the pick-up frame or would be forced by the latter off the track. After the person or object is removed from the pick-up frame the motorman by grasping the ring or handle 23 reelevates the latter, this
 90 operation first imposing strain in a forward and upward direction on the cam-shaft to disengage the cross-bar 25 thereof from the spring-catch 34. It then distributes the strain on both cables or chains, the front ca- 95
 100 ble or chain continuing the movement of the cam-shaft and the rear one by rolling upwardly and forwardly on the drum or roller moving the latter and the pick-up frame and swinging the rock-shaft forwardly with rod 95
 105 12 as its axis of movement, which action obviously advances the lower end of swing-bar 15 and the catch until the latter by gravity reengages the cam-shaft, a flat spring 35, carried by the platform by preference, serving 100
 to press the front end of the catch downward to insure its reengagement with cam-shaft.

From the above description it will be seen that I have produced an efficient and reliable car-fender and that the same is susceptible of 105
 110 modification in various particulars without departing from the principle of construction involved or sacrificing any of its advantages.

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

1. In a device of the character described, a pivoted pick-up frame, a cross-bar carried thereby forward of the pivotal point, a swing- 115
 120 bar suitably supported, a rock-shaft journaled in the swing-bar, and having arms pivoted to the cross-bar, bars secured to the pick-up frame, and pivoted to the cross-bar, and a connection for holding the pick-up frame ele-
 125 vated and the swing-bar at its forward limit of movement.

2. In a device of the character described, a pivoted pick-up frame, a cross-bar carried thereby forward of the pivotal point, a swing- 125
 130 bar suitably supported, a rock-shaft journaled in the swing-bar, and having arms pivoted to the cross-bar, bars secured to the pick-up

frame, and pivoted to the cross-bar, a connection for holding the pick-up frame elevated and the swing-bar at its forward limit of movement, and means for tripping said connection to effect the automatic descent of the front end of the pick-up frame and rearward movement of the swing-bar.

3. In a device of the character described, a pivoted pick-up frame, a cross-bar carried thereby forward of the pivotal point, a swing-bar suitably supported, a rock-shaft journaled in the swing-bar, and having arms pivoted to the cross-bar, bars secured to the pick-up frame, and pivoted to the cross-bar, a connection for holding the pick-up frame elevated and the swing-bar at its forward limit of movement, and a trip-frame for moving rearward and tripping such connection to effect the automatic descent of the front end of the pick-up frame and rearward movement of the swing-bar.

4. In a device of the character described, a pivoted pick-up frame, a cross-bar carried thereby forward of the pivotal point, a swing-bar suitably supported, a rock-shaft journaled in the swing-bar and having arms pivoted to the cross-bar, bars secured to the pick-up frame, and pivoted to the cross-bar, a connection for holding the pick-up frame elevated and the swing-bar at its forward limit of movement, a trip-frame for moving rearward and tripping such connection to effect the automatic descent of the front end of the pick-up frame and rearward movement of the swing-bar, and means to hold the trip-frame in the position which it assumes after tripping such connection.

5. In a device of the character described, a pivoted pick-up frame, a cross-bar carried thereby forward of the pivotal point, a swing-bar suitably supported, a rock-shaft journaled in the swing-bar, and having arms pivoted to the cross-bar, bars secured to the pick-up frame, and pivoted to the cross-bar, a connection for holding the pick-up frame elevated and the swing-bar at its forward limit of movement, a trip-frame for moving rearward and tripping such connection to effect the automatic descent of the front end of the pick-up frame and rearward movement of the swing-bar, means for holding the trip-frame in the position which it assumes after tripping such connection, and means for simultaneously restoring all of said parts to their original relation.

6. In a device of the character described, a pivoted pick-up frame, a swing-bar, a rock-shaft carried by the swing-bar, bars carried by the pick-up frame, said bars and rock-shaft being connected to form a toggle-joint between the swing-bar and the pick-up frame, and means for locking the toggle-joint in its contracted position so as to hold the pick-up frame elevated.

7. In a device of the character described, a pivoted pick-up frame, a swing-bar, a toggle-joint connection between the swing-bar and the pick-up frame, a roller movable with the connecting-point of the toggle-joint, a cable extending down and under said roller, and having a connection with the swing-bar to swing the same forward at its lower end to effect the contraction of the toggle and the elevation of the pick-up frame.

8. In a device of the character described, a pivoted pick-up frame, a swing-bar, a toggle-joint connection between the swing-bar and the pick-up frame, a roller movable with the connecting-point of the toggle-joint, a cable extending down and under said roller, and having a connection with the swing-bar to swing the same forward at its lower end to effect the contraction of the toggle and the elevation of the pick-up frame, and means for automatically locking the toggle in its contracted position.

9. In a device of the character described, a pivoted pick-up frame, a swing-bar, a toggle connection between the pick-up frame and swing-bar, a cam-shaft movable with and supported from the pick-up frame, a catch carried by the swing-bar and engaging the cam-shaft to lock the toggle contracted, and means to rotate said cam-shaft and cause the cam thereof to trip said catch.

10. In a device of the character described, a pivoted pick-up frame, a swing-bar, a toggle connection between the pick-up frame and swing-bar, a cam-shaft movable with and supported from the pick-up frame and provided with crank-arms, a catch carried by the swing-bar and engaging the cam-shaft, and a trip-frame resting upon the pick-up frame and pivotally connected to the arms of the crank-shaft.

11. In a device of the character described, a pivoted pick-up frame, a swing-bar, a toggle connection between the pick-up frame and swing-bar, a cam-shaft movable with and supported from the pick-up frame and provided with crank-arms, a catch carried by the swing-bar and engaging the cam-shaft, a trip-frame resting upon the pick-up frame and pivotally connected to the arms of the crank-shaft, and a cable so connected that when pulled upwardly it shall turn the cam-shaft and reelevate the pick-up frame and effect the automatic reengagement of the catch with the cam-shaft.

12. In a device of the character described, a pivoted pick-up frame having a cross-bar, a swing-bar, bars projecting rearwardly from the pick-up frame, and secured to the cross-bar, a rock-shaft journaled in the swing-bar and having arms pivotally engaging the cross-bar, a roller on the cross-bar, a cam-shaft suitably journaled and supported from the pick-up frame, and provided with crank-arms,

a connection between the swing-bar and the cam-shaft to hold the pick-up frame elevated, a cable connected to the arms of the cam-shaft, a cable extending down under the roller and
5 connected to the rock-shaft, and means to rotate and cause the cam-shaft to trip said connection and to effect the descent of the pick-up frame.

13. In a device of the character described,
10 a pivoted pick-up frame having a cross-bar, a swing-bar, bars projecting rearwardly from the pick-up frame, and secured to the cross-bar, a rock-shaft journaled in the swing-bar and having arms pivotally engaging the cross-
15 bar, a roller on the cross-bar, a cam-shaft suitably journaled and supported from the pick-up frame and provided with crank-arms, a connection between the swing-bar and the cam-shaft to hold the pick-up frame elevated,
20 a cable connected to the arms of the cam-shaft, a cable extending down under the roller and connected to the rock-shaft, and a trip-frame, resting on the pick-up frame, and pivotally connected at its rear end to the cam-shaft
25 crank-arms.

14. In a device of the character described, a pivoted pick-up frame, a swing-bar, a toggle-joint connection between the swing-bar and the pick-up frame, and a connection between
30 the swing-bar and the pick-up frame for locking the latter elevated.

15. In a device of the character described, a pivoted pick-up frame, a swing-bar, a toggle-joint connection between the swing-bar and
35 the pick-up frame, a connection between the swing-bar and the pick-up frame for locking the latter elevated, and means for tripping

said connection to effect the descent of the front end of the pick-up frame.

16. In a device of the character described, 40 a pick-up frame, pivoted for vertical adjustment at its rear end, a swing-bar pivotally suspended at its upper end, bars or runners underlying and forming a part of the pick-up frame, and means for locking the pick-up 45 frame in its elevated position.

17. In a device of the character described, a pick-up frame, pivoted for vertical adjustment at its rear end, a swing-bar pivotally suspended at its upper end, bars or runners 50 underlying and forming a part of the pick-up frame, means for locking the pick-up frame in its elevated position, and a trip-frame to trip said locking means to effect the descent of the pick-up frame and the backward swing 55 of the swing-bar.

18. In a device of the character described, a pick-up frame pivoted for vertical adjustment at its rear end, a swing-bar pivotally suspended at its upper end, bars or runners 60 underlying and forming a part of the pick-up frame, means for locking the pick-up frame in its elevated position, a trip-frame to trip said locking means to effect the descent of the pick-up frame and the backward swing of the 65 swing-bar, and means to simultaneously restore such parts to their original relation.

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

ERNIST H. SCHULZE.

Witnesses:

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G. Y. THORPE.