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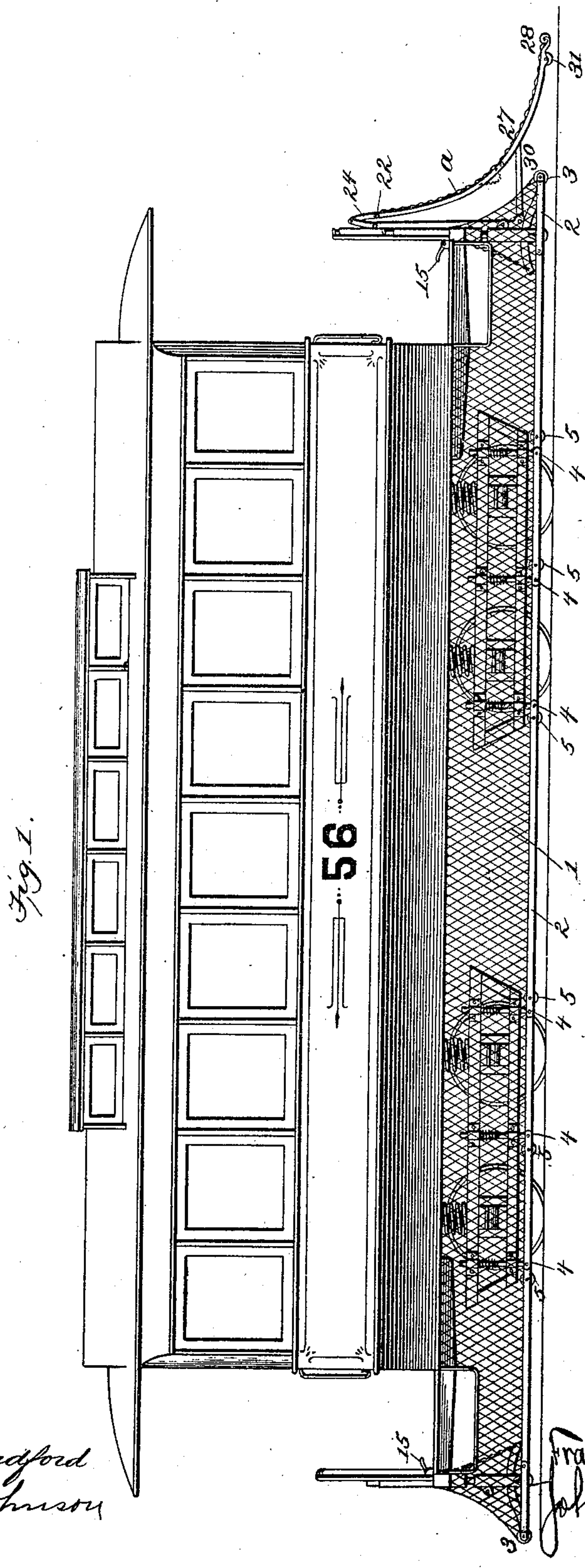
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F. H. HOMAN.

WHEEL FENDER AND SAFETY ATTACHMENT FOR STREET CARS.

No. 522,115.

Patented June 26, 1894.



Witnesses:

Edwin L. Bradford
A. Roland Johnson

Inventor.

Frank H. Homan
By
Johnson & Johnson
His Attorneys

(No Model.)

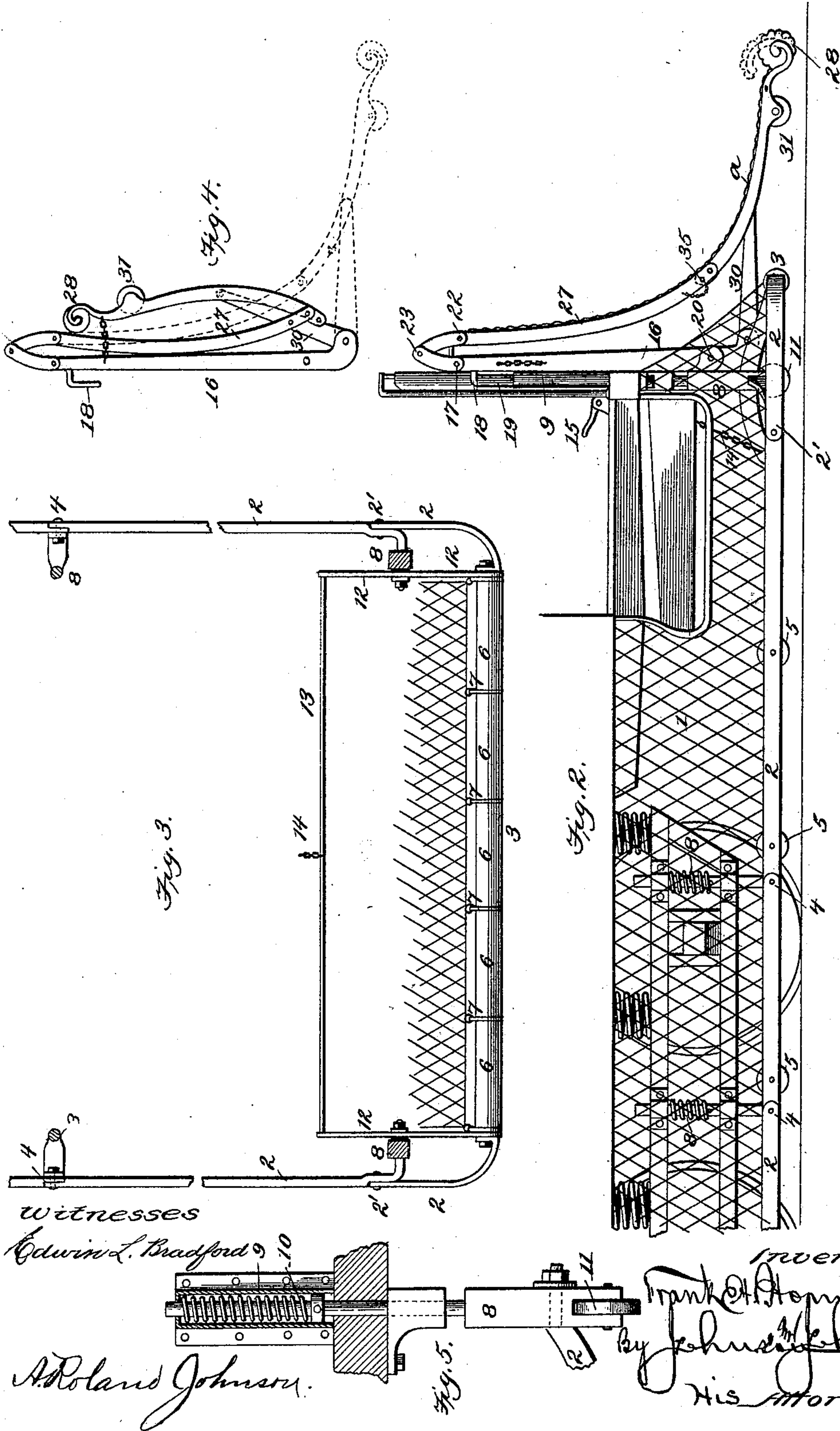
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3 Sheets—Sheet 3.

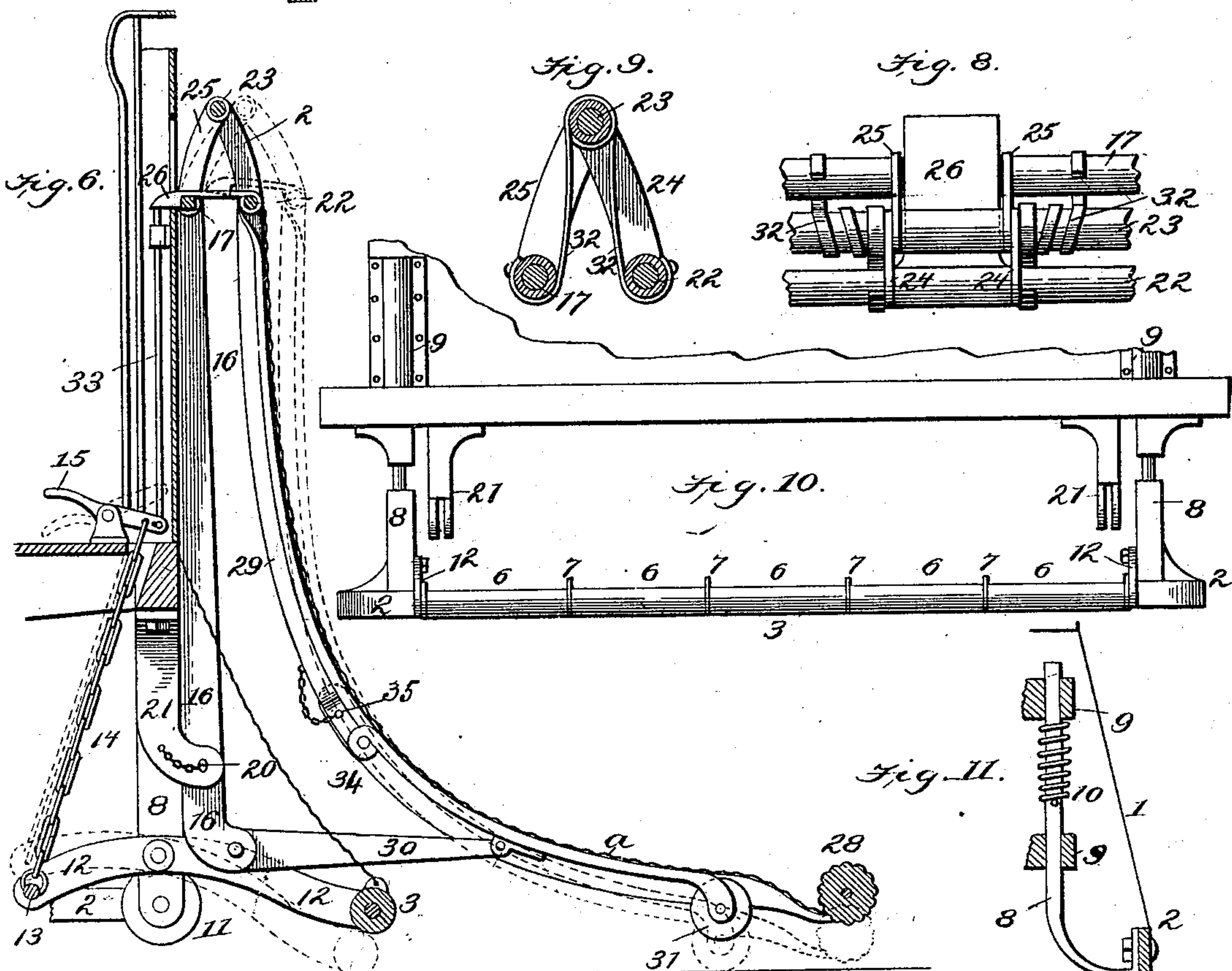
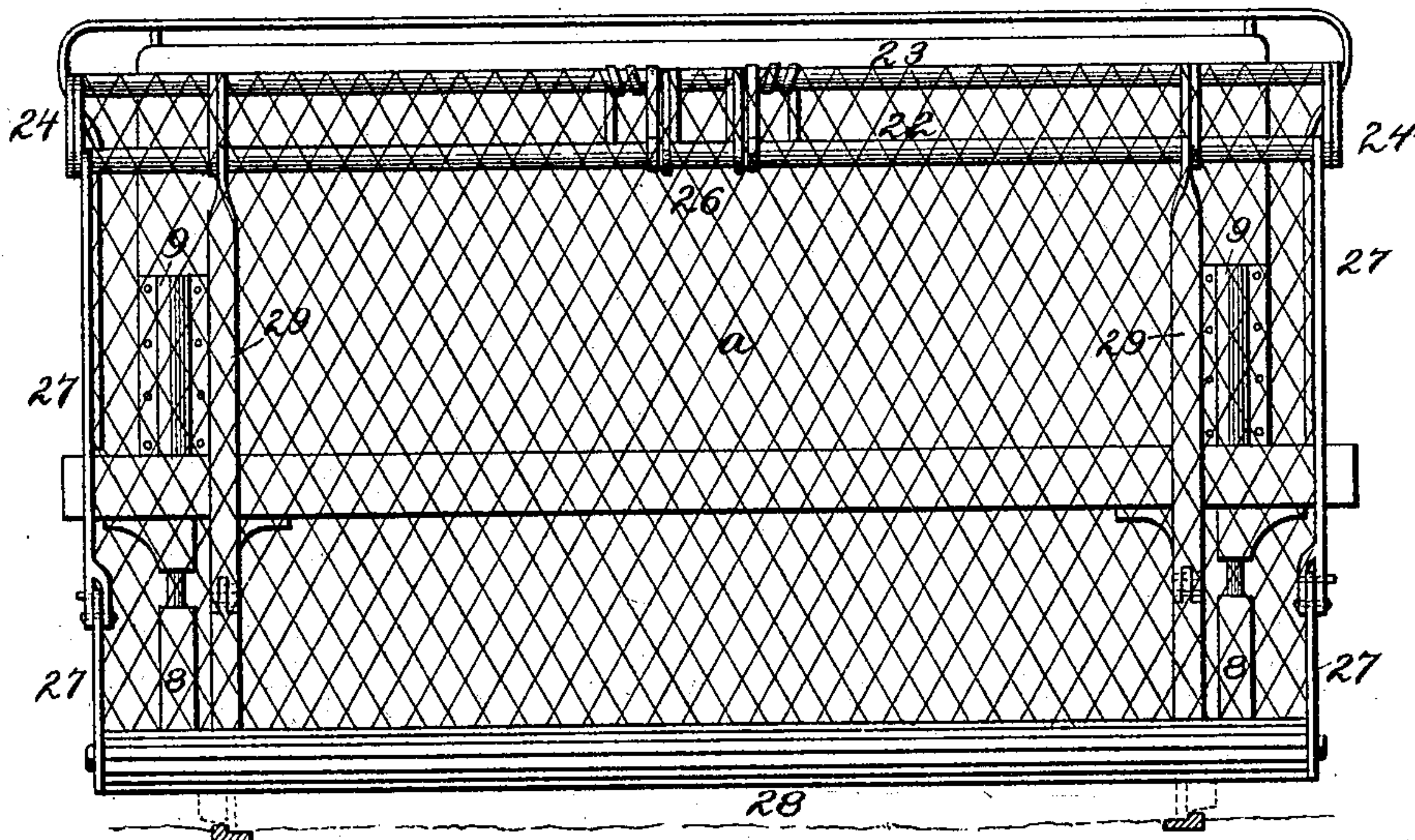
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Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANK H. HOMAN, OF PATCHOGUE, NEW YORK.

WHEEL-FENDER AND SAFETY ATTACHMENT FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 522,115, dated June 26, 1894.

Application filed January 24, 1894. Serial No. 497,904. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. HOMAN, a citizen of the United States, residing at Patchogue, in the county of Suffolk and State of New York, have invented certain new and useful Improvements in Wheel-Fenders and Safety Attachments for Street-Cars, of which the following is a specification.

My invention consists of certain novel means and appliances for street cars, whereby persons, when accidentally struck or overtaken by the car, or falling in getting off or on, will be prevented from being caught by the wheels, or other parts and dragged beneath the car and seriously injured or killed. This provision completely incloses and forms a fender for the sides and ends of the car below the platforms. At the front end of the car this fender provision is supplemented by a safety take-up device designed to catch, pick up and safely hold the person struck and thrown upon it. The fender device at each end of the car is provided with means of depressing it in contact with the ground; while at the same time it is adapted to yield vertically at any point along its lower edge in passing over stones or other like obstructions which might get under it. The supplemental safety take-up device is also adapted to be depressed upon the ground and by the same movement which depresses the roll-end part of the fender device, so that should the take-up device fail to take up the person, the fender device would nevertheless be depressed upon the ground and prevent the person getting under the car, or coming in contact with the wheels. The fender device is permanently attached around the bottom and to the dash board of the car; while the take-up device is adapted for attachment to either end of the car and to be folded up out of the way when the car is not in use. The fender roll is depressed by the action of a foot-lever device; while the safety device is depressed by the action of springs whose function may be rendered active by the action of the foot device. A catch serves to hold the take-up device in its raised or normal position. The action of the foot-lever device positively depresses the fender-roll and may at the same time release the catch which holds the take-up device in its raised position, so that the latter is forced

down by the action of springs. In these, among other particulars, I have produced safety appliances for street cars which I will now describe and in connection with the accompanying drawings will point out in the claims concluding this specification the parts and combinations of parts which constitute my invention.

Referring to the drawings: Figure 1 represents in side elevation a street car provided with my improved fender and safety devices. Fig. 2 is a similar view of a portion of the car having the fender and take-up devices. Fig. 3 shows in top view one of the fender-rolls, its fender connecting frame bars and operating levers. Fig. 4 shows the take-up devices in folded position. Fig. 5 shows in sectional detail one of the fender spring pressed hangers which hold the fender frame down at the end of the car; Fig. 6 an enlarged sectional view of the fender and supplemental take-up devices and their connection with the end of the car. Fig. 7 is a front view showing the supplemental take-up device. Fig. 8 is a detail top view of the latch of the supplemental safety take-up device; and Fig. 9 is a cross section showing the springs which serve to depress the safety take-up device when the latch is tripped by the foot device. Fig. 10 is a front view of the fender-roll, and its connections; and Fig. 11 is a detailed view of one of the spring pressed hangers of the fender frame.

For the purpose of informing those skilled in the art of the nature of my invention I have in the accompanying drawings shown a street car having the same, and these drawings read in connection with the following description will enable persons skilled in the art to make and use the said invention, which however it will be understood is not limited to the form or to the precise construction shown.

The fender which is connected to and depends from the car floor, incloses the wheels and the space around the sides and ends of the car. It is made of wire fabric 1 which has around its lower edge at each side of the car, a bar 2 which, with a roll 3 connected and mounted in the ends of these bars, at each end of the car, constitutes a hanging yielding frame running about two inches from the ground and standing out at the side from the

wheel frames and from the dash-boards. I prefer to make these side bars in sections connected by pivots 4 and provide them with rolls 5 to allow them readily to rise and pass over stones which might get under them. The rolls 3, 3 connecting these bars, stand across the track rails, and are preferably made of rubber in tubular sections 6 loosely fitted between washers 7, upon a rod secured in the ends of the side-bars 2 as shown in Figs. 3 and 10. The normal positions of these rolls is on a level with the fender-bars, and the wire fabric is secured to said bars and along the upper side of said rolls by being looped to the ends of washers 7 placed between the roll sections, so that the wire fabric extends down from the platform to the rolls, which stand out beyond the dash, so as to form an inclined fender covering the space under the car as seen in Figs. 1, 2, and 6.

As the tendency of the fender netting is to contract and pull up the bottom bar, I provide spring pressed hangers 8 which are connected to the wheel frames on each side of the car and to the corners at each end of the car and these hangers are connected to the netting bars 2, and constantly tend to press them down and keep them in place. The hangers for this purpose are formed with stems fitted in guides 9 and have coiled springs 10 Figs. 5 and 11, which press the hangers down and allow them to rise with the fender-bars should stones or other obstructions get under them. In Fig. 11 one of these hangers is shown in detail as they are mounted in the wheel-frames and are curved outward at their lower ends to hold the fender-netting out from the wheels. It will be noted that the end corner hangers, one of which is shown in Fig. 5, is fitted in a guide 9 on the platform and has a roll 11 at its lower end; and referring to Figs. 3 and 6 it will be seen that, while the fender roll 3 is mounted in short end sections of the fender-bars 2, said roll is also mounted at each end in a lever 12, which is pivoted to the corner hangers 8, 8, see Fig. 3, and that these levers 12 at their inner ends are united together by a cross rod 13, which is connected by a chain 14 to a treadle-lever 15 pivoted on the platform. The normal position of the fender rolls 3, is on a plane with the fender-bars 2, and is so maintained in such normal position by the tendency of the fender-netting to contract, so that on the motorman depressing the treadle, the chain 14 is pulled up and with it the inner ends of the levers 12, thereby depressing the outer ends of said levers and forcing roll 3 to the ground in case of accident to persons in front of the car, as shown by dotted lines in Fig. 6. In this action the fender-netting will give sufficiently to allow the roll to be depressed, the short fender-bar sections 2, 2 moving upon their pivots 2', Fig. 3, as the roll is operated.

As I have thus described my invention it forms an effective protection against persons who may fall or be knocked down, being run

over and dragged under the wheels, but the person would be pushed along by the fender until the car was stopped, and would thus be liable to injury. To avoid this I supplement the fender at the front end of the car with a safety take-up device to catch and hold the person struck by it. This safety take-up device is a separate structure adapted for attachment to the dash-board of the car and is used only on its front end. It consists of a frame which may be, as shown, constructed of two vertical hanger-bars 16, which are fixed at their upper ends to a horizontal rod 17 having a length sufficient to extend beyond said hangers at each end of the dash-board as seen in Fig. 7. These hanger-bars at their upper ends, are provided with hooks 18 as in Fig. 4 adapted to engage sockets 19 as in Fig. 2 at the top of the dash-board; while at their lower ends the said bars are connected by cotter-pins 20, to brackets 21, Figs. 6 and 10, depending from the platform so that by these or similar connections, the frame is hung upon the front side of the dash-board so that it can be removed by drawing out the cotter-pins 20, and lifting the hooks out of the sockets, to change the device to the other end of the car which is provided at both ends with sockets and brackets for this purpose. The take-up device is hung upon the rod 17 of this frame and consists of two horizontal rods 22 and 23 which are connected by links 24 and 25 to each other and to the said rod 17 at the ends and middle of said rods, so that the links are free to be opened and closed on the rods like a rule-joint as in Figs. 6, 7, 8, and 9. These three rods are of equal length and occupy a triangular relation to each other, the two lower ones being in a horizontal plane so that a latch 26 Figs. 6 and 8 on the outer rod 22, at the middle of its length will engage the rod 17, which, it will be understood is fixed and on which the other rods are hung by the links, so that the action of the latch 26 when engaged, is to hold the links in their closed position, as in Fig. 6. The latch rod 22 has connected at each end a bar 27 see Figs. 2 and 7, curving downward and frontward over the fender and extending some distance in front of it, and connected at their lower ends by a cross-roll 28 preferably of rubber whose normal position is about on a horizontal plane with the normal position of the fender roll. A wire netting *a* is connected with and covers the space between these end bars 27, the rod 22 and the cross-roll 28, so as to form a sort of basket as seen in Figs. 6 and 7. Two other bars 29, 29 are hung upon the cross-rod 22, and curve downward and frontward like the end bars 27, between the said end bars and to these intermediate bars at their undersides near their lower ends, are pivotally connected braces 30 which are pivoted to the hanger bars 16, 16, below the platform brackets 21 and serve to support the take-up device in its normal position as in Fig. 6. These intermediate bars 29 have rolls 31 at their lower

ends near the cross-roll 28, which run upon the track-rails when the take-up device is depressed, so as to bring the take-up cross-roll close to the ground. When the latch 26 is engaged with the dash-board rod 17 as shown in Fig. 6, the co-operation with said latch of the braces 30, acts to maintain the take-up device in its normal position. When the latch is released the take-up device is depressed by the action of the spring 32, which I prefer to so connect with the three rods as in Fig. 9 to act by torsion to open the links, thereby throwing the take-up device forward at its upper end and downward at its lower end. For this purpose the springs 32 are coiled upon the upper rod 23 and secured to the lower rods so as to exert a spreading force upon the lower rods. This take-up device may be released and depressed independent of the fender-roll, but I prefer to depress both these roll devices simultaneously and for this purpose I have shown the treadle 15 for depressing the fender roll 3, as being connected by a trip-rod 33 Fig. 6, to the latch 26 so as to release it by the same action of the treadle which depresses the fender-roll, and thus bring into action the take-up and the fender-device to render doubly sure that no person will be run over by the car.

It will be understood that the take-up device can be quickly removed to make room in storing the cars, but to provide for compact storage, the frame-bars of the take-up may be jointed at a point 34 above the fender roll, so as to permit the lower part of the take-up device to be folded up in front of the dashboard, as seen in Fig. 4, with the braces, which, being pivoted to the intermediate bars 29, 29, will fold upward under the netting and the upturned part may be fastened to the dash board by a chain and hook, or otherwise. To keep the jointed parts rigidly connected when in use, the pivoted joining may be lapped and fastened by a cotter-pin 35 passing through the lapped parts as seen in Figs. 2 and 6, or in any suitable way.

The motorman seeing danger to a person in front of the car puts his foot on the treadle 15 which depresses the fender roll through its connected levers 12 and trips the latch 26 allowing the take-up to be instantly depressed by its connected springs 32, the car being stopped by the usual brake appliances.

While I have shown and described the safety take-up device as having a cross-roll, a series of small rubber rolls or ribs arranged in the form of a turned up scroll may be used, as shown by dotted lines in Fig. 2, but whether the roll or the scroll be used, it will rise above the wire netting so that a person having fallen thereon will be safely held.

The netting should be light and the frame at its lower edge sufficiently strong to resist the pressure of the spring pressed hangers to keep the netting down.

While I prefer to use the rule-joint connection of the take-up device with the dash-board,

and the arrangement of the springs so as to act by torsion force upon such joint, yet it is obvious that other arrangements of equivalent devices may be used so long as they effect the same function and purpose in their relation to the said take-up device. It is also evident that immaterial departures may be permitted from the general construction and arrangement of parts contributing toward my invention, and for this reason I do not wish to be understood as limiting myself thereto in precise detail and construction.

I claim as my invention—

1. A fender of netting for street cars inclosing the wheels and space beneath the floor, having an edge bar of pivotally connected sections provided with rolls and connected by a cross-roll at each end of the car, substantially as described.

2. A fender of netting for street cars inclosing the wheels and space beneath the floor, having an edge bar of pivotally connected sections and connected by a cross-roll at each end of the car, in combination with spring pressed hangers for keeping the netting down, substantially as described.

3. The combination, with a netting fender inclosing the wheels and space beneath the floor, of a cross-roll at each end of the car connecting said netting, and means for depressing said cross-rolls, substantially as described.

4. A fender netting for street cars having edge bars and rolls at each end of the car connecting the pivoted ends of said fender-bars, in combination with levers connecting each end of the roll, and a treadle connecting said levers for depressing said rolls, substantially as described.

5. A car fender netting having edge frames, in combination, with cross-rolls at each end of the car, levers connecting each end of said cross-rolls and spring pressed hangers; the said parts connected with and carried by said netting frame, substantially as described.

6. A car fender netting having an edge frame and cross-rolls mounted in pivoted sections of said frame at each end of the car, and means for depressing said rolls, substantially as described.

7. In a wheel fender for cars, the combination with the car of the netting hanging all around the frame and a cross-roll connecting the netting at each end of the car, with levers pivoted at each side of the car and connected to the ends of the rolls, and treadles and chains connecting the said levers at each end of the car, substantially as described.

8. The combination with a street car of a take-up safety device, the rods 17, 22 and 23, by which said take-up device is jointed upon the dash-board, a latch on the safety device adapted to engage a fixed part on the dash, and springs arranged to depress the safety device when the latch is released, substantially as described.

9. A safety take-up device for street cars,

consisting of a frame constructed on the hang-
er-bars 16 and the top cross-rod 17, hooked to
the top of the dash-board and pinned to
brackets beneath the floor, and the curved
5 bars 27 and 29 having the cross-roll 28 and
the netting, and loosely hung upon the rod
22, and connected to the pivoted braces 30,
the links 24 and 25, the springs connecting
the said rods 17, 22 and 23, and the latch,
10 substantially as described.

10. The combination with a street car, of a
safety take-up device, consisting of the frame-
bars 27, 27, the roll connecting their lower
ends, the frame-bars 29, 29 and the netting a,
15 the rod 22 connecting the upper ends of said
frame-bars, means for jointing said rod to the
car dash, means for supporting the lower ends
of the frame-bars, upon the car, springs con-
nected to depress said frame-bars, and a latch
20 for holding said safety take-up device in its
normal position, substantially as described.

11. The combination, with a street car, of a
fender-netting inclosing the wheels and the
space beneath the floor and provided with a
25 cross-roll at each end of the car, a take-up
safety device supplementing said fender-roll,
and means connected for simultaneously de-
pressing both the fender-roll and the take-up
safety-device, substantially as described.

30 12. The combination, with a street car, of a
fender netting inclosing the wheels and the
space beneath the floor, and provided with a
cross-roll at each end of the car, a take-up
safety device supplementing said fender-roll
35 and having a jointed connection with the
dash-board, a latch for holding said take-up
safety device in its normal position, a treadle
connected to depress the fender-roll and a
trip device connecting said treadle and latch

for releasing the take-up safety device, where- 40
by both devices are depressed simultaneously,
substantially as described.

13. The combination, with a street car, of a
take-up safety device consisting of a suitable
frame having a netting and a cross-roll and 45
hung upon the rod 22 at the top of the dash-
board, the links 24 and 25 connecting the rod
23 and the dash-board, the latch 26 adapted
to connect the said rod 22 with a fixed part
of the dash and the torsion springs connect- 50
ing the said fixed part with the said rods,
substantially as described, for the purpose
specified.

14. The combination, with a street car, of a
take-up safety device, means for mounting it 55
upon the dash-board, consisting of the fixed
rod 17 and the rods 22 and 23, their connect-
ing links 24 and 25, and the pivoted braces
30, the torsion springs 32 and the latch upon
the rod 22 adapted to engage the said fixed 60
rod, substantially as described.

15. The combination, with a street car, of a
take-up safety device composed of the bars
27, 27, 29, 29, the rods 22, 23 connecting said
bars at their upper ends and the roll connect- 65
ing the bars 27, 27 at their lower ends, the
said bars being jointed whereby to fold the
lower portion of the device, the braces piv-
otally connecting the said folding part and
the links connecting the said rods 22, 23 with 70
a fixed part of the dash-board, and a device
for engaging said rod 22 with said fixed part
and releasing said engagement, substantially
as described.

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Witnesses:

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