

No. 713,162.

Patented Nov. 11, 1902.

E. SHERWOOD.
FENDER FOR VEHICLES.

(Application filed May 14, 1901.)

(No Model.)

2 Sheets—Sheet 1.

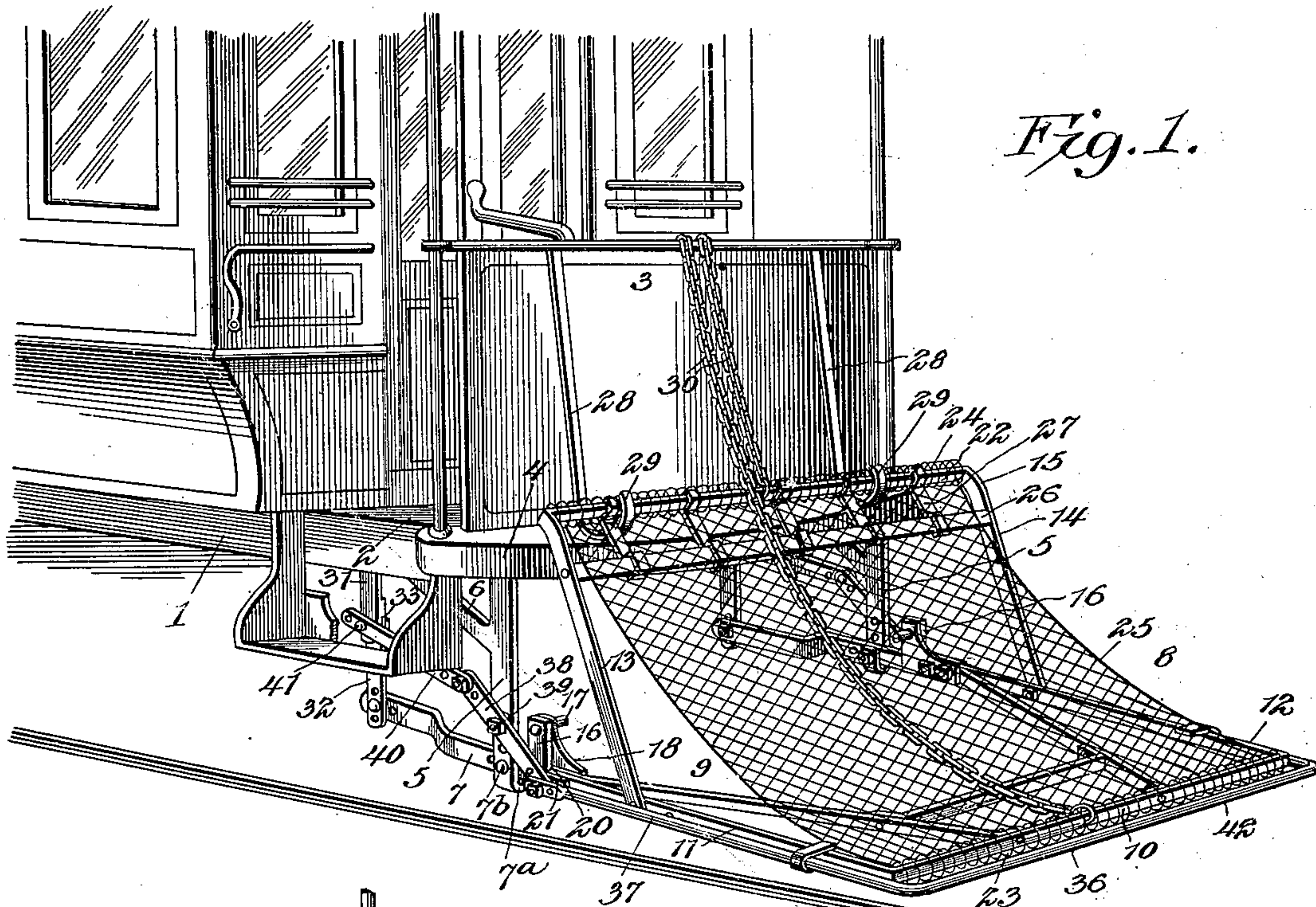


Fig. 2.

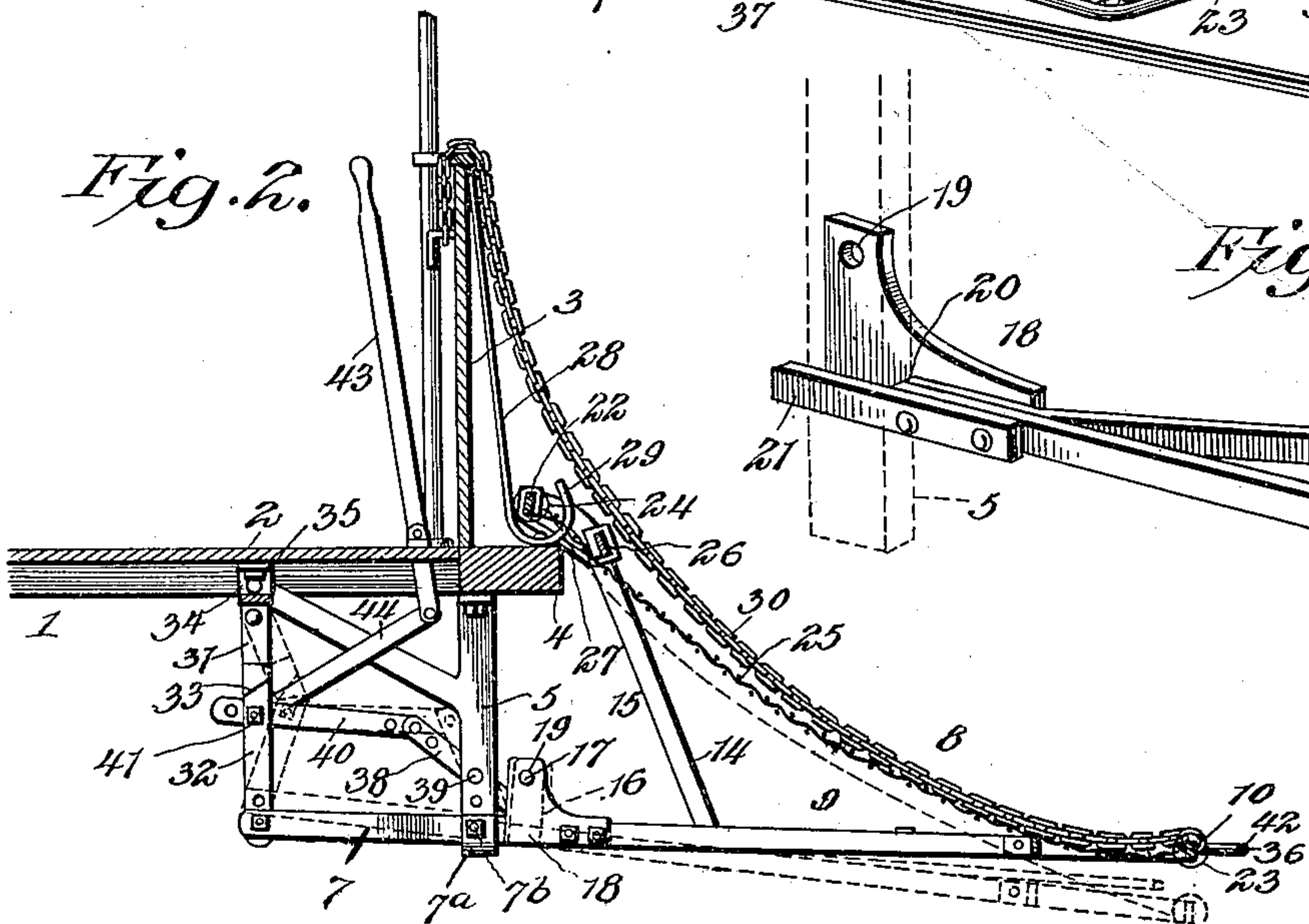
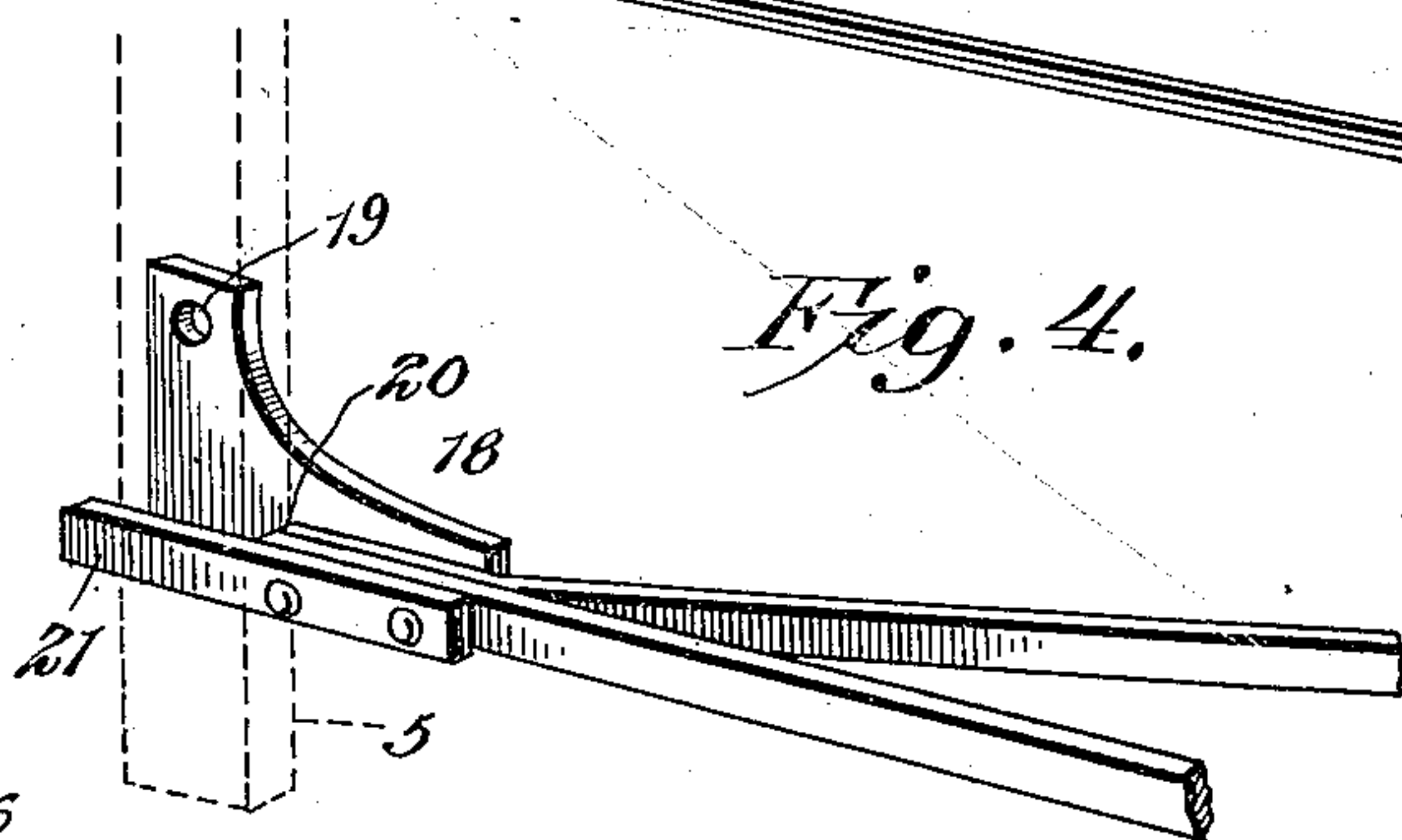


Fig. 4.



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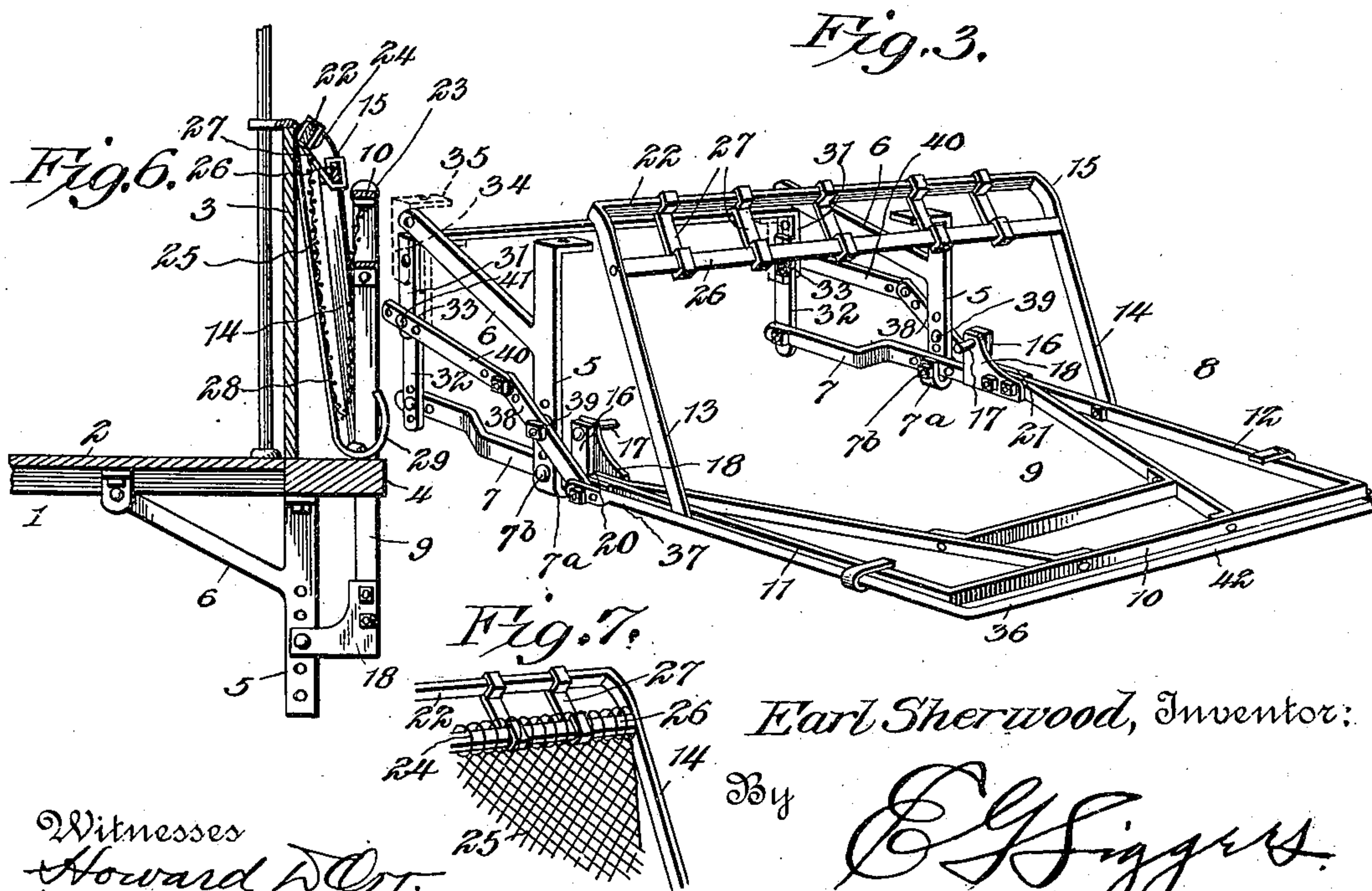
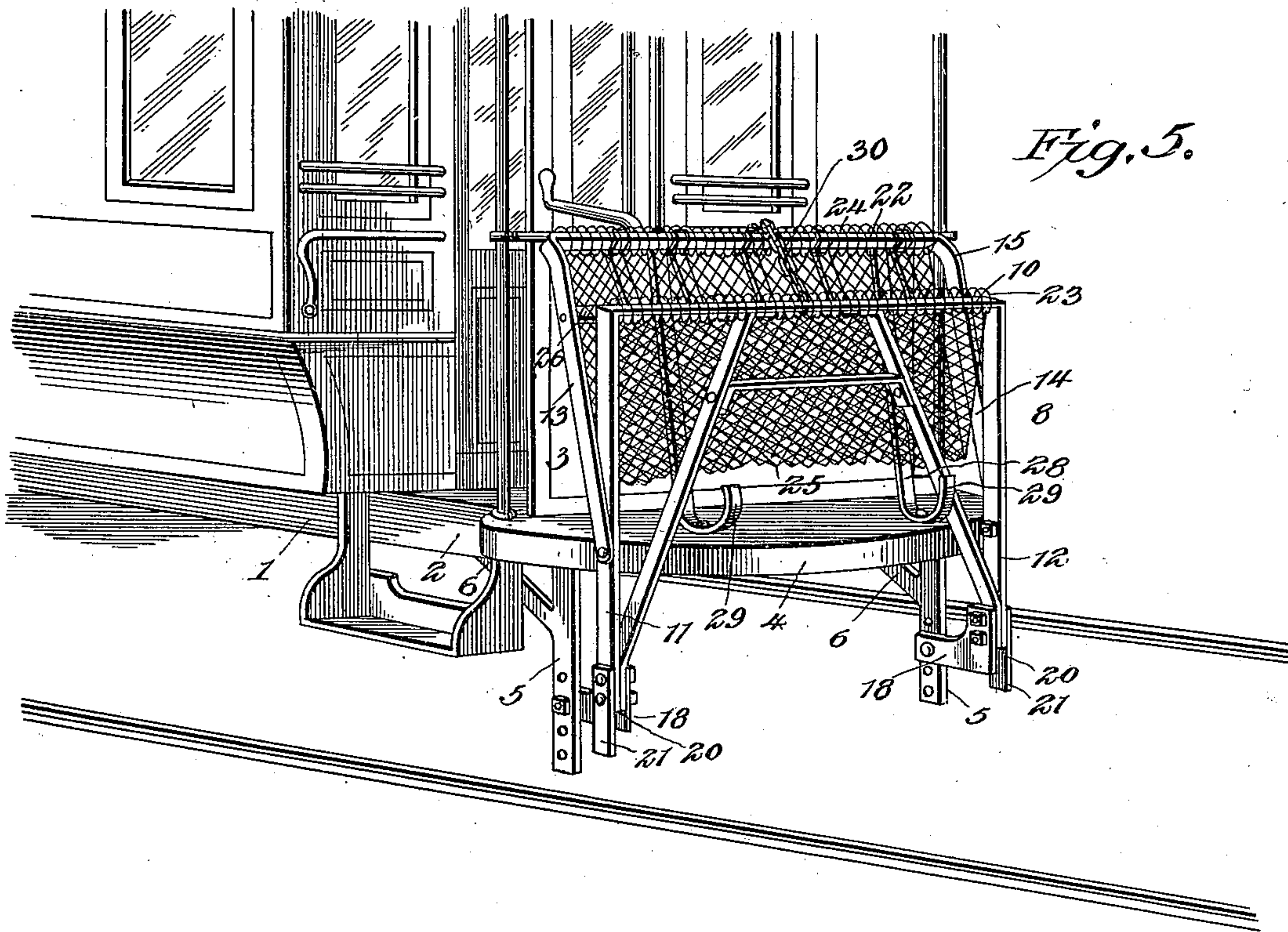
Witnesses
Howard D. Ott
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2 Sheets—Sheet 2.



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UNITED STATES PATENT OFFICE.

EARL SHERWOOD, OF BROOKLYN, NEW YORK.

FENDER FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 713,162, dated November 11, 1902.

Application filed May 14, 1901. Serial No. 60,215. (No model.)

To all whom it may concern:

Be it known that I, EARL SHERWOOD, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Fender for Vehicles, of which the following is a specification.

This invention relates to certain new and useful improvements in fenders for cars or other vehicles, and contemplates more particularly the improvement of that type of fender illustrated in certain former patents granted to me—notably, No. 594,434, dated November 30, 1897, and No. 650,491, dated May 29, 1900.

The object of the invention in its primary aspect is to produce a fender of the character described which while pivotally supported at a point below the deck extension or dashboard of the car will be disposed when thrown to its upright position in advance of the bumper, but related thereto in a manner which will cause the fender to assume an elevated position above the bumper and adjacent to the dashboard, so that the central portion of the curved face of the bumper will extend beyond the fender. The purpose of this relation of parts is to permit two cars to be coupled without necessity for removing the fenders therefrom, inasmuch as the fenders when elevated occupy positions well within the plane of the protruding center of the bumper, and all danger of breakage or derangement of the fenders by the abutting of cars equipped with fenders is thereby prevented.

A further object of the invention is to facilitate the assumption of the described position by the fender by pivoting the back frame of the fender at a point intermediate of the front and rear ends of the horizontal frame thereof and by providing supporting and guiding members which insure the proper movement of the back frame when the fender is elevated out of its operative position.

It is also the object of this invention to greatly simplify the fender-supporting mechanism and to mount the fender thereon in a manner which will permit it to be entirely removed in its elevated position only—that is to say, in a position above its normally operative position—the secure retention of the

fender against displacement under normal conditions being provided for by the automatic locking of the fender against removal whenever it is presented in that horizontal position wherein it is designed to serve as a protection against injury to life or limb.

A still further object of the invention is to equip the device with a novel automatic trip mechanism which when the fender is brought into contact with an obstruction will automatically depress the fender to its lowest possible position, and thereby prevent the object struck from passing under the fender as the car proceeds.

A further object is to so simplify the general construction of the fender as to make it applicable not only for use upon street-cars and similar vehicles, but also on the lighter motor-vehicles which have come to be known as “automobiles,” the interchangeability of the fender with vehicles of various types necessitating such slight variation as will fall within the province of a mechanic.

The invention further consists in certain details of construction and arrangement, all as will hereinafter more fully appear as the necessity for their accomplishment is developed in the succeeding description of that preferred embodiment of the invention illustrated in the accompanying drawings.

In said drawings, Figure 1 is a perspective view of a portion of a car equipped with a fender constructed in accordance with my invention, the fender being shown in its normal position. Fig. 2 is a central vertical sectional view through the subject-matter of Fig. 1. Fig. 3 is a perspective view of the fender and its mounting complete with the exception of the spiral shoes or buffers and the netting. Fig. 4 is a detail perspective view of one of the shoes of the horizontal fender-frame and its immediately-connected parts. Fig. 5 is a view similar to Fig. 1, showing a somewhat modified construction resulting in the elimination of the trip mechanism and the pivotal mounting of the fender-frame directly upon the hangers instead of upon the pivoted tail pieces or bars, the fender being shown in its elevated position. Fig. 6 is a sectional view of the subject-matter of Fig. 5, and Fig. 7 is a slightly-modified arrangement of the upper end of the netting.

Like numerals of reference refer to corresponding parts throughout the views.

Referring now more particularly to the subject-matter illustrated in Figs. 1, 2, 3, and 4, 1 indicates the floor or deck of a car extended to form a platform 2, protected by a dashboard 3, beyond which the platform is extended to form what is known in the art as a "bumper" 4, having its front edge curved, 10 as shown. Pendent from the platform of the car are a pair of hangers 5, equipped with integral or otherwise formed braces 6 and pivotally supporting adjacent to their lower ends a pair of levers which by reason of their 15 peculiar function in the present organization will be termed the "tail pieces or bars" 7 of the fender 8, the lower extremities of the hangers being preferably upturned to form rests 7^a for these tail-bars and to provide a 20 two-sided bearing for the fulcrum-bolts 7^b.

The fender 8 in the preferred embodiment thereof is of that general construction illustrated in my Patent No. 650,491, inasmuch as it comprehends a horizontal fender-frame 25 9, suitably braced and comprising a front bar 10 and a pair of side bars 11 and 12, to the latter of which the lower ends of pendent side bars 13 and 14 of the back frame 15 are pivoted. An essential difference between the 30 construction shown in the patent and that herein illustrated is that the frame 15 of the fender, instead of being pivotally mounted or hinged at the rear end of the horizontal fender-frame 9, is, on the contrary, pivotally connected to the side bars 11 and 12 considerably 35 in advance of the pivotal mounting of said frame—that is to say, the back frame 15 of the fender is pivotally mounted upon the horizontal frame 9 thereof in a plane intermediate of the front and rear ends of the latter 40 for a purpose which will be hereinafter made apparent.

It has been premised that one of the primary objects of this invention is to secure an 45 exceedingly simple yet durable and effective mounting of the fender, and as the fender-supporting hangers 5 are designed to be located under the carsome simple means must be provided for throwing the fender to a 50 vertical plane sufficiently in advance of the bumper 4 to permit of the elevation of the fender to an upright position when not intended for immediate use. For this reason I have constructed the tail pieces or members 55 7 separate from the fender-frame and have formed their front ends with upstanding supporting-arms 16, provided at their upper ends with stout pintles or studs 17, extending toward each other and designed for pivotal engagement, respectively, with what may be 60 termed a "fender-shoe" 18, one of which is carried by the rear end of each side bar 11 and 12. These fender-shoes 18 are preferably constructed in the form of right-angular 65 castings having one extremity bolted or otherwise secured to the fender-frame, as indicated in Fig. 4, and provided at their ends oppo-

site their connection with the fender with openings 19, through which the pintles or studs 17 extend. The upstanding portions of 70 the shoes 18 and of the tail-bars 7 are preferably of the same length, so that when the fender-frame 9 is in its normal position it will lie in substantially the horizontal plane of the tail-bars, the latter becoming, in effect, rear- 75 ward extensions of the horizontal fender-frame 9. Ordinarily this relation of parts is maintained by the abutting of the shoulder 20, extending from one side of the shoe 18, with the front edge of the adjacent tail-bar 80 7. The manner in which this shoulder is produced is immaterial, since its function is merely to prevent the fender-frame 9 from swinging below an alined position with respect to the tail-bars; but, as shown in the 85 accompanying drawings, these shoulders may be formed by the rear ends of the side bars 11 and 12 of the frame 9 and possibly also by the rear ends of certain of the brace-bars of said frame. 90

As shown more particularly in Fig. 3 of the drawings, the shoes 18 of the horizontal fender-frame are disposed against the inner faces of the upstanding supporting-arms 16 of the 95 tail-bars 7, and as the pintles or studs 17 extend inwardly or toward each other it is evident that unless preventive means were employed it would be possible to completely detach the fender from the car by springing the side bars 11 and 12 inwardly to a sufficient extent to disengage the shoes 18 from the studs 100 17. As already stated, however, one of the objects of my invention is to prevent such detachment of the fender-frame in a given position of the latter—to wit, in the operative position thereof—as it is essential that accidental 105 detachment of the fender upon contact with a heavy body be provided against. I therefore secure locking-plates 21 in rigid relation to the shoes 18 and, in effect, constituting parts 110 of said shoes. These locking-plates are preferably located parallel with the normally horizontal portions of the shoes and extend beyond the shoulders 20 a sufficient distance to insure the location of these locking-plates opposite the outer faces of the tail-bars or other 115 supporting members when the fender-frame is in its normal position. Thus when the fender-frame is in the position shown in Fig. 3 there will be a distinct interlocking of the 120 fender-frame with its supports, inasmuch as each of said supports will be disposed intermediate of the shoe and the locking-plate, and it will be impossible to detach the shoes from the studs 17 by reason of the fact that 125 the inward springing of the side bars 11 and 12 will be prevented by the contact of the locking-plates 21 with the outer sides of the tail-bars 7. It is of course evident that the shoe proper and the locking-plate 21 might 130 be formed in a single casting, and in drawing the claims I shall therefore make use of the expression "shoe provided with locking members," and by this I mean to be understood

as defining an equivalent of the shoe proper and the plate 21, which by their engagement with opposite sides of the supporting member constitute such an interlocking connection as will prevent the detachment of the shoe from its pintle or stud while the fender is in a given position. It should be noted, however, that while this interlocking engagement of the parts is effective when the fender is in its normal position it is rendered ineffective by the elevation of the horizontal fender-frame 9, this result being produced in consequence of the location of the locking-plates 21 and the studs 17 in different horizontal planes. Thus when the frame is elevated it swings from the studs 17 as axes and the locking-plates 21 move in arcuate paths and recede from engagement with the tail-bars or other supports, so that after the frame has been elevated to a sufficient distance to render this interlocking connection ineffective the frame-bars 11 and 12 may be sprung inwardly to effect the detachment of the shoes 18 from the supporting-studs.

There is another and quite distinct advantage accruing from the use of the angular fender-supporting shoes 18, which is that while the pivotal mounting of the fender-frame may be located underneath the car said frame may nevertheless assume a vertical position in advance of the bumper 4 when swung to its upright position. Thus, as shown in Figs. 5 and 6, the upward swinging of the fender causes the normally vertical arm or portion of the shoe 18 to assume a horizontal position, and the fender-frame is thus thrown into a vertical plane a distance in advance of its fulcrum equal to the length of said arm or portion of the shoe. (See more particularly Fig. 6.) It should also be observed, however, that while this vertical position of the fender-frame is in advance of the bumper it is not in advance of the central or middle portion of the bumper 4, since, on the contrary, the latter extends between and beyond the side bars 11 and 12 of the frame 9, and thereby permits said bumper to come into contact with the bumper of another car without danger of injury to the raised fender.

Obviously the elevation of the fender-frame will result in the folding of the frames 9 and 15, and it is to facilitate the assumption of their proper positions by these parts that the back frame 15 has been pivotally connected to the horizontal frame 9 in a plane intermediate of the front and rear ends of the latter. The front bar 10 of the frame 9 and the upper bar 22 of the back frame 15 are each surrounded in a manner well understood in the art by spiral buffers 23 and 24, and the space intermediate of the ends of the two frames is occupied by a suitable netting 25, designed, as usual, to sustain the weight of a person thrown backward by contact with the forward edge or buffer of the fender. The opposite ends of the netting 25 are usually and perhaps preferably connected to the spiral

buffers 23 and 24; but it may be desired in some instances to connect the upper edge of the netting to the transverse guard-bar 26, extending between the pendent side bars 13 and 14 at a sufficient distance below the upper ends thereof to contact normally with the face of the vehicle-bumper, the purpose of this bar being to assist in holding the back frame away from the face of the bumper, so that the projecting central portion of the latter will not interfere with the netting. When the upper edge of the netting is secured to this guard-bar, the space between the latter and the bar 22 is preferably occupied by a series of strips 27. (See Fig. 7.)

The described arrangement of the frames 9 and 15 obviously necessitates the vertical movement of the latter when the frame 9 is swung to its upright position, and unless suitable guiding means is provided this movement of the back frame might be more or less irregular, while the contact of the bumper 4 with the dashboard would serve to mar the appearance of the latter. Therefore, as shown in Figs. 1 and 2 more particularly and also in certain of the other figures, the back frame 15 is provided with a pair of supporting and guiding members 28, extending from the upper edge of the dashboard 3 to the bumper 4 at a point in advance of the dashboard and provided at their lower ends with supporting-hooks 29, within which the buffer-covered bar 22 is normally located. In the normal position of the fender the bar 22 or the spiral buffer 24, covering the same, is located within the supporting-hooks and disposed against the upstanding frame-guides 28, and when the fender is raised—as, for instance, through the medium of a lifting chain or chains—the back frame 15 will be elevated and will be guided in its upward movement by such guiding strips or members.

As stated in my patents hereinbefore identified, it is preferable to provide tripping means for automatically depressing the fender somewhat below its normal position when it encounters an obstruction; but while the tripping mechanism which I have heretofore originated is efficient it is highly desirable to simplify the construction in order to get a higher degree of efficiency and to reduce the cost of manufacture and of repairs. It is for this reason that I provide in my present construction a pair of tail pieces or bars 7, fulcrumed upon the hangers 5 and carrying the fender-frame at their forward ends. Normally the rear ends of these tail-bars are sustained against vertical movement (which is necessary to the depression of the front end of the fender) by a pair of toggle members 31 and 32, a pair of these members being provided for each tail-bar 7. The members 31 and 32 of each pair of toggle members are provided with a break or lock joint 33. Each member 31 is pivoted at its upper end to a depending ear 34 of a supporting-bracket 35, and the lower end of each member 32 is like-

wise pivotally connected to the rear extremity of the adjacent tail-bar. (See Figs. 2 and 3.) Now as it has been explained that the shoulder 20 prevents the fender-frame from dropping out of alinement with the tail-bars it follows that, so far as the depression of the fender is concerned, the frame 9 and the tail-bars are rigidly connected. Therefore the depression of the front end of the fender must be accompanied by the elevation of the rear ends of the tail-bars 7, and this is impossible unless the toggle formed by the members 31 and 32 is flexed, by which is meant the lateral movement of the toggle-joint to a position out of alinement with the pivotal connections at the opposite ends of the toggle. To effect this actuation of the toggle retaining or holding means, which normally sustains the fender-frame, I provide a rectangular trip-frame 36, (see Figs. 1 and 3,) disposed just outside of the fender-frame 9 and having the rear ends of its side arms 37 pivotally connected to the adjacent extremities of trip-levers 38 medially fulcrumed, as indicated at 39, upon the hangers 5 and connected at their opposite ends through links 40 with the joints of the frame-sustaining toggles, as indicated at 41. As the front guard-bar 42 of the trip-frame 36 is disposed slightly in advance of the spiral buffer 23, it will be the first portion of the apparatus to come in contact with a person or other obstruction upon the track. The force of such contact will drive the trip-frame rearwardly, swing the trip-levers 38 upon their fulcrums, and draw the fulcrums of the toggle devices inwardly. The result of this communication of movement will be to elevate the rear ends of the tail-bars 7 and to automatically depress the front end of the fender to a position close above the tracks, and thereby insure the deposit of a person struck upon the netting of the fender, where he will be sustained unharmed until the vehicle is brought to a stop. In addition to this automatic means for depressing the fender the latter may be likewise depressed manually through the medium of a hand-lever 43, extending upwardly through the platform just inside of the dashboard and having its lower end connected to the joints of the toggles, as by links 44. (See Fig. 2.) It will of course be understood, however, that this lever may be located either inside or outside of the dashboard and, in fact, at any desired point upon the car structure, so long as it is within easy reach of the proper attendant, and also that instead of a hand-lever a foot-lever, push-rod, or any other equivalent form of actuator might be substituted.

It will be noted that in the drawings I have shown simple means for effecting the various adjustments of the connections of the fender to accommodate it for use in various relations—as, for instance, upon vehicles of various sizes—and it will be evident that while the fender is especially adapted for use upon

street-cars and other similar public vehicles it is equally applicable for use upon automobiles or other light road-vehicles, to which the present construction could be readily adapted by bending or deflecting the side bars of the fender and trip frames to facilitate their connection with mountings within the somewhat-constricted limits of this last-named class of vehicles.

Inasmuch as a primary feature of the invention resides in the provision of angular shoes for throwing the fender into a vertical position in advance of its fulcrum and in providing means for locking the frame against removal while in its operative position, the trip mechanism may be entirely omitted in some instances. For instance, in Figs. 5 and 6 I have shown the shoes 18 pivotally connected directly to the hangers 5 instead of to the pivoted tail-bars, it being obvious that the effect of the employment of these angular shoes upon the locking-plates 21 is preserved whether the frame is supported from the tail-bar or the fixed supporting member or hanger.

From the foregoing it will be observed that I have produced a simple, durable, and ingenious fender for cars or other vehicles embodying various novel features and simplified constructions; but while the illustrated embodiment of the invention is believed at this time to be preferable I wish to be distinctly understood as reserving to myself the right to effect such changes, modifications, and variations thereof as may be properly embraced within the scope of the protection prayed.

What I claim is—

1. The combination with a support, of a vertically-movable fender detachably connected to the support and arranged for lateral or sidewise movement to effect its detachment, and means for locking the fender against such sidewise movement while in its normal position, said means being arranged for release by the elevation of the fender-frame, whereby said frame when elevated may be detached from its support.

2. The combination with a support, of a fender-frame having a detachable pivotal connection with the support, and a locking member extending from the fender-frame to engage the support in the normal position of the frame, and disposed to be moved out of operative relation with the support by the raising of the fender.

3. The combination with a support, of a fender-frame having a detachable pivotal connection with the support at one side thereof, and capable of detachment by the sidewise movement of that part of the frame with which the connection is effected, and a locking member extending from the fender and engaging the support to prevent the detachment of the fender when the latter is in its normal position.

4. The combination with a support, of a fender-frame having locking members normally disposed in different vertical planes

upon opposite sides of the support, and a detachable pivotal connection between the support and one of the locking members, whereby the detachment of the frame may be effected or prevented in different positions thereof.

5. The combination of a support having laterally-disposed studs, of a fender-frame provided with right-angular shoes terminally pivoted upon the studs, and locking-plates disposed in line with the frame and arranged to lie at the sides of the supports opposite the studs.

6. The combination with a pair of supports having studs extending from their opposed faces, of a fender-frame having side bars swung from said studs and capable of being sprung out of engagement therewith, and locking members extending from said side bars and engaging the supports at the sides thereof opposite the studs when the fender is in its normal position.

7. The combination with a pair of supports having oppositely-extending studs, of a fender-frame having side bars capable of being sprung laterally and provided with right-angular shoes terminally pivoted upon the studs, and locking-plates extending from the angles of said shoes and disposed at the sides of the supports opposite the shoes to prevent said shoes from being sprung out of engagement with the studs while the fender is in its normal position.

8. The combination with a support, of a swinging fender-frame, a back frame hinged to the fender-frame intermediate of the ends of the latter, guide-strips disposed above the fender-frame to guide the back frame in its movement, supporting-hooks at the lower ends of the guide-strips for the reception of a bar of the back frame, and means for elevating the fender-frame.

9. The combination with a vehicle having a dashboard and bumper, of hangers below the vehicle, a fender-frame provided with angular shoes pivoted to the hangers, a back frame hinged to the fender-frame intermediate of the ends of the latter, guide-strips disposed vertically in advance of the dashboard and above the bumper for the guidance of the back frame, and hooks located at the lower ends of said guide-strips, said hooks being designed to receive a bar of the back frame in a vertical position of the fender.

10. The combination with a support and tail-bars pivoted intermediate of their ends to said support, of a fender-frame pivoted at its rear end to the front ends of the tail-bars, means for preventing the independent swinging of the fender-frame below the plane of the tail-bars, and means for swinging the tail-bars to depress the fender.

11. The combination with a support and tail-bars pivotally connected at their ends to said support, of a fender-frame pivoted at its rear end to the front ends of the tail-bars, means preventing independent swinging of

the fender-frame below the plane of the tail-bars, and toggle mechanism for swinging the tail-bars to depress the fender.

12. The combination with a support and tail-bars pivoted thereon, of a fender-frame pivoted at its rear end to the front ends of the tail-bars, means preventing the independent swinging of the frame below the plane of the tail-bars, a trip-frame extended beyond the fender, and means for oscillating the tail-bars through the movement of the trip-frame to depress the fender.

13. The combination with a support, of pivoted tail-bars carried thereby, a fender-frame pivoted to one end of the tail-bars, toggle mechanism operatively connected to the opposite ends of the tail-bars, and a trip-frame extended beyond the fender-frame and operatively connected with the toggle mechanism.

14. The combination with a support and tail-bars pivoted thereon and provided with upstanding ends, a fender-frame provided with angular shoes pivotally connected to the upstanding ends of the tail-bars, a trip-frame, and means for operating the tail-bars through the movement of the trip-frame.

15. The combination with a support and pivoted tail-bars provided with upstanding ends, of a fender-frame provided with angular shoes pivoted to the upstanding ends of the tail-bars, toggle mechanism disposed to operate the tail-bars for the purpose of depressing the fender-frame, a trip-frame extended in advance of the fender-frame, and trip-levers fulcrumed upon the support and connected to the trip-frame and toggle mechanism, respectively.

16. The combination with a vehicle having a bumper and dashboard, of hangers disposed below the bumper, tail-bars pivoted to the hangers and provided with upstanding ends, a fender-frame having angular shoes pivoted to said upstanding ends, toggle members disposed to sustain the rear ends of the tail-bars in their normal positions, trip-levers operatively connected to the toggle-joints between the members, a trip-frame connected to said trip-levers, a back frame hinged to the trip-frame intermediate of the ends of the latter, and means for supporting and guiding the back frame in its upward movement.

17. The combination with a suitable support, of a swinging fender-frame, toggle mechanism located in rear of said support for operating the said frame, a trip-frame operatively related to the toggle mechanism and extended in advance of the fender-frame, and means for manually operating the toggle mechanism to depress the fender-frame, said means being connected to the toggle mechanism independently of the trip-frame.

18. The combination with a vehicle, of a fender-frame mounted below the same, toggle mechanism for controlling the position of the fender-frame, a trip-frame extending in advance of the fender-frame and operatively related to the toggle mechanism, and an op-

erating-lever extending through the floor of the vehicle and likewise connected to the toggle mechanism at the joint between the members thereof.

5 19. The combination with a support and tail-bars pivoted thereon, of a fender-frame pivoted at its rear end to the front ends of the tail-bars, a trip-frame extended in advance of the fender, and trip-levers fulcrumed
10 upon the support and operatively connected to the trip-frame and tail-bars, respectively, to effect the depression of the fender through the movement of the trip-frame.

20. The combination with a support and

tail-bars pivoted thereon, of a fender-frame 15 pivoted at its rear end to the front ends of the tail-bars, toggle mechanism for operating the tail-bars to depress the fender, a plurality of independent devices for operating the toggle mechanism, and means for swinging the 20 fender independently of said tail-bars.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EARL SHERWOOD.

Witnesses:

JOHN H. SIGGERS,
E. G. SIGGERS.