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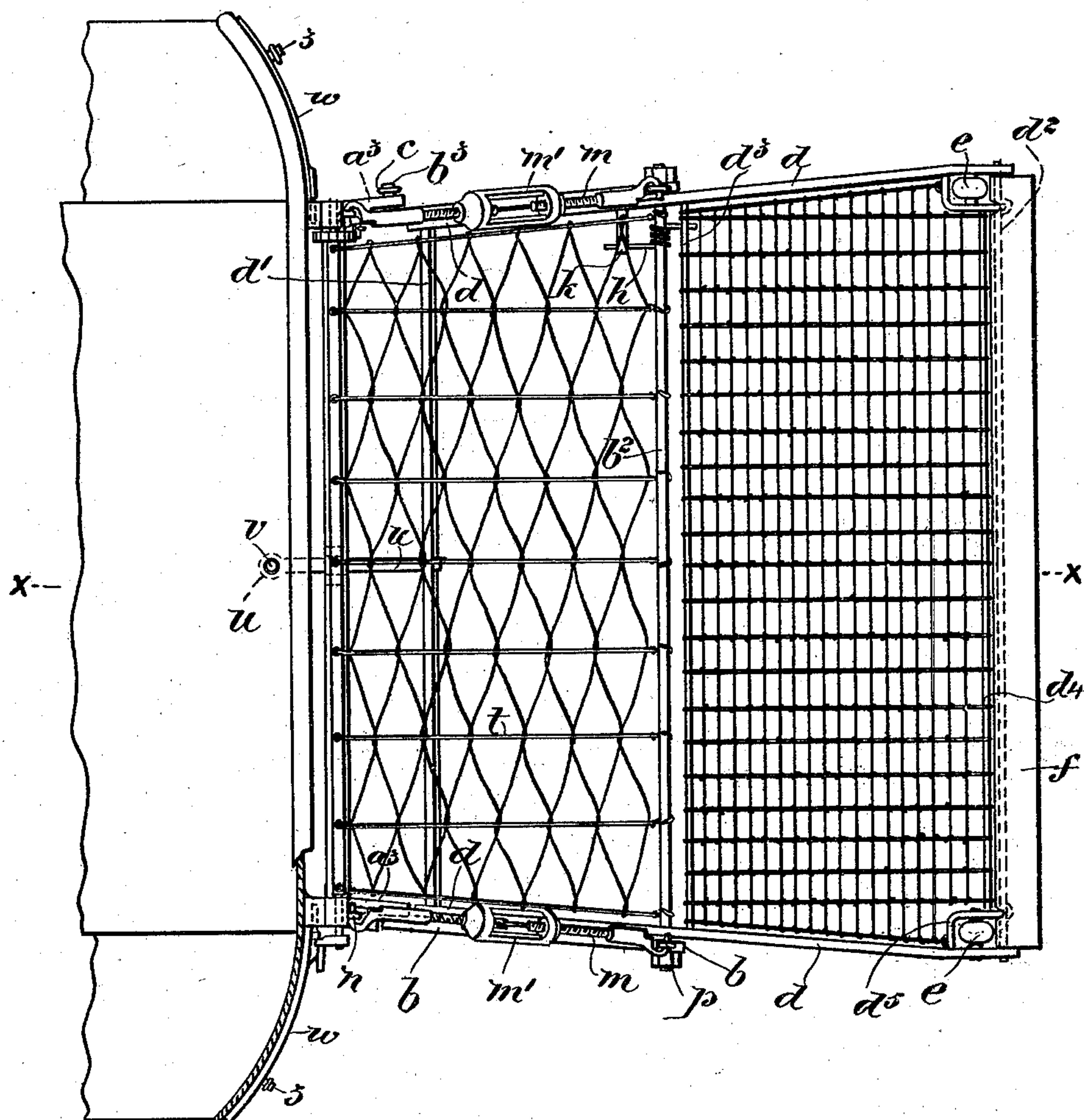
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J. D. LAMB & J. E. CHAPMAN.  
STREET CAR FENDER.

No. 547,218.

Patented Oct. 1, 1895.

—Fig. 7—



Witnesses

Wm. M. Seal

R. C. Kimber

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James Dominique Lamb  
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James Edwin Chapman

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(No Model.)

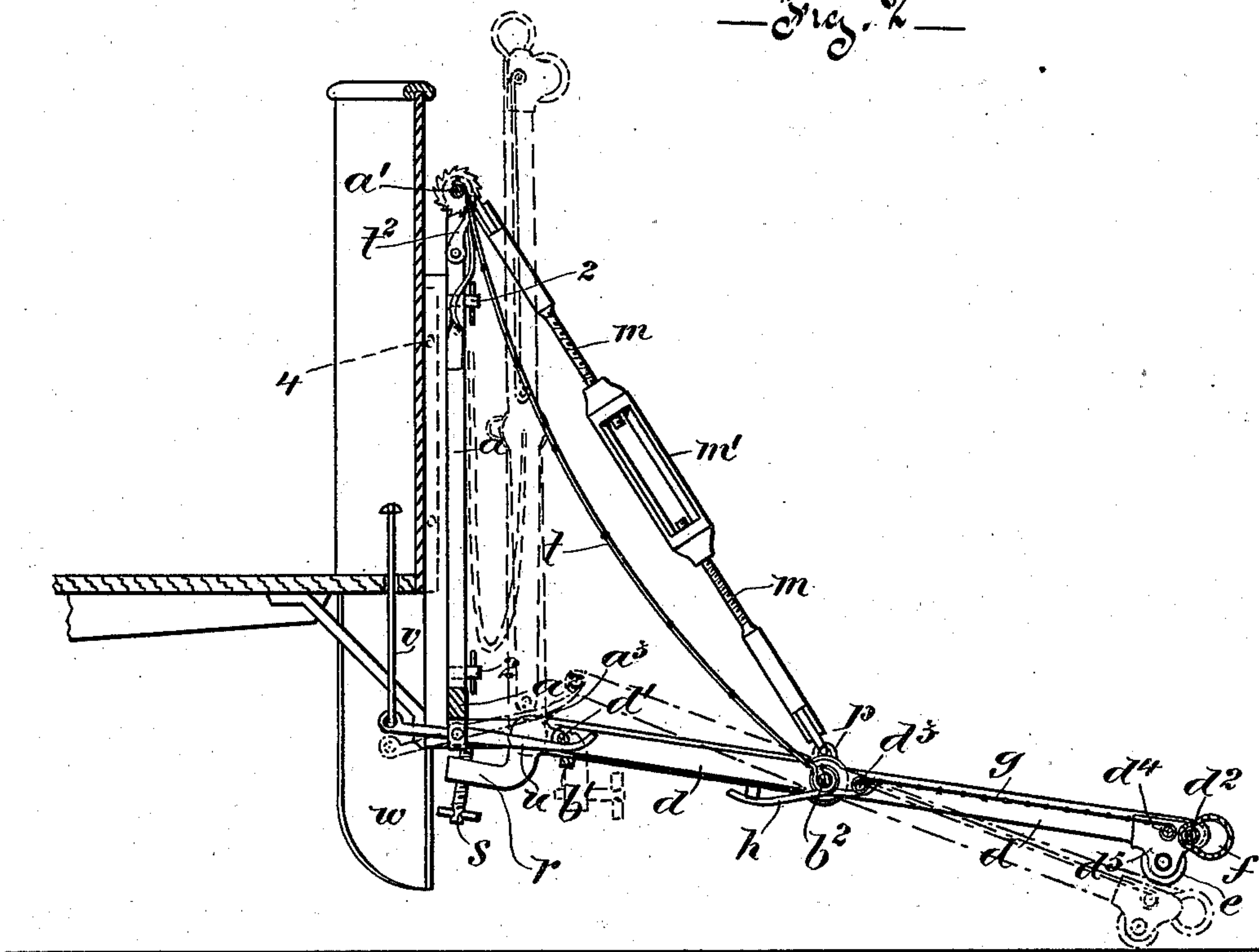
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—Fig. 2—



Witnesses

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(No Model.)

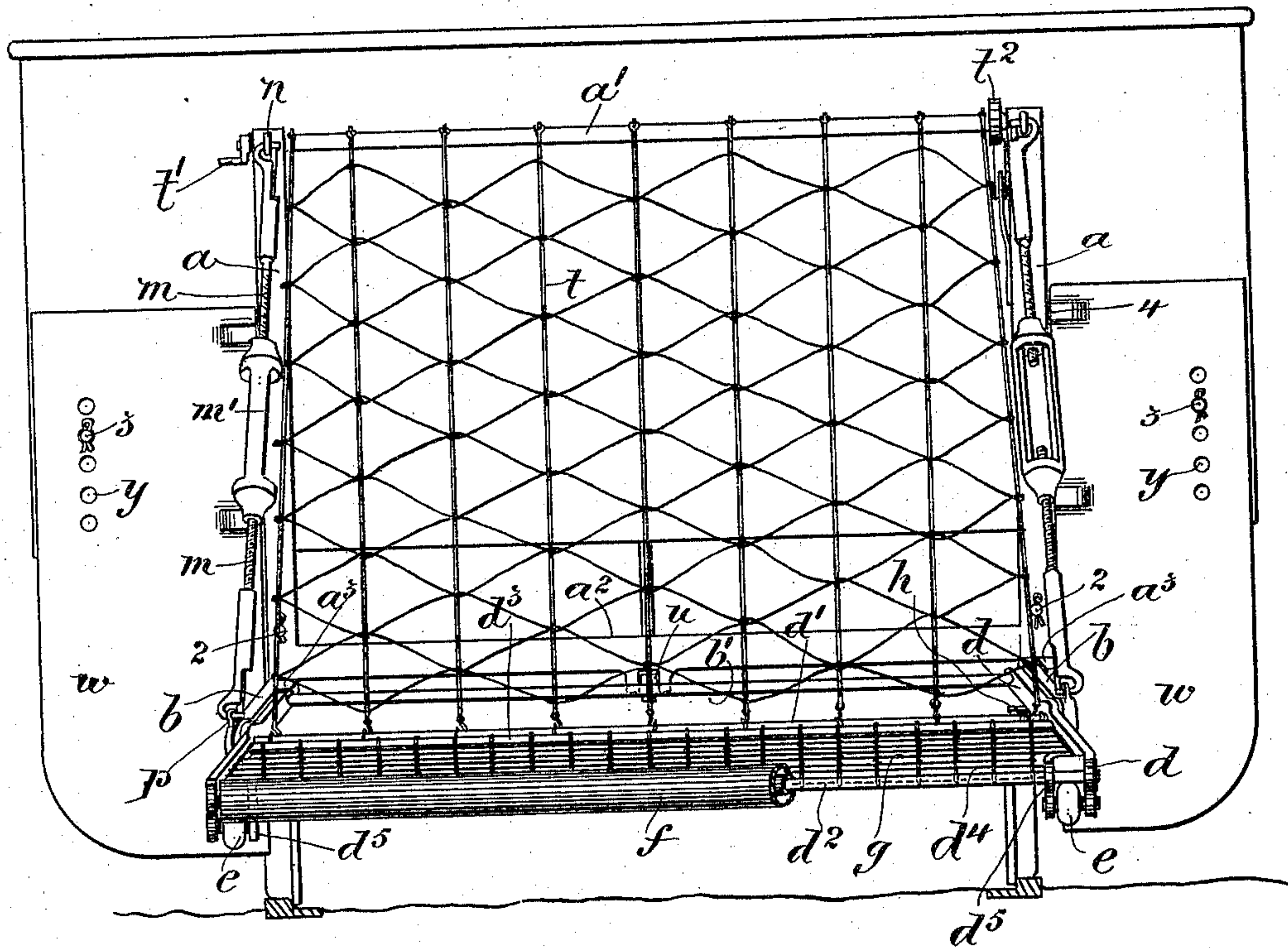
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J. D. LAMB & J. E. CHAPMAN.  
STREET CAR FENDER.

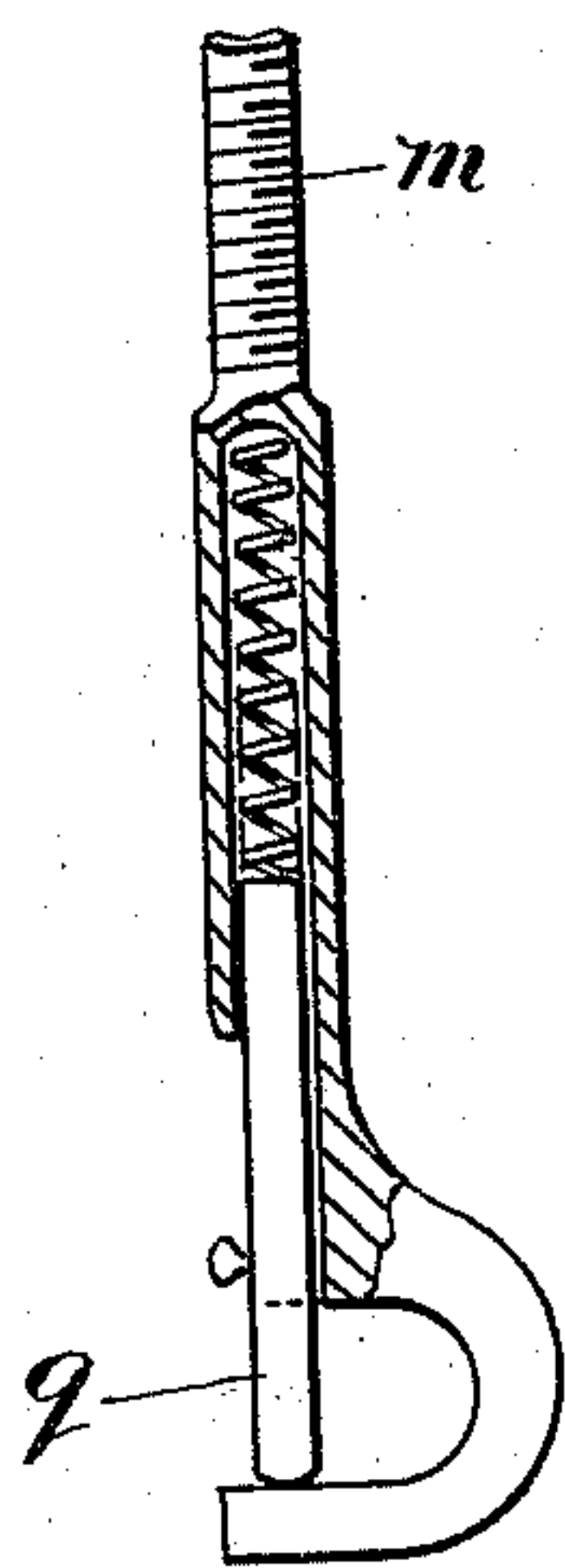
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— Sig. 3 —



—Fig. 4—



Witnesses

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# UNITED STATES PATENT OFFICE.

JAMES D. LAMB AND JAMES E. CHAPMAN, OF MONTREAL, CANADA, ASSIGNORS  
OF ONE-TWENTIETH TO JOHN JAMES DURACK, OF SAME PLACE.

## STREET-CAR FENDER.

SPECIFICATION forming part of Letters Patent No. 547,218, dated October 1, 1895.

Application filed November 17, 1894. Serial No. 529,207. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES DOMINIQUE LAMB, post-office clerk, and JAMES EDWIN CHAPMAN, clerk, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Street-Car Fenders; and we do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to fenders of a detachable form, and has for its object the general improvement of the operating parts thereof with a view to rendering them more effective in operation, to also allow the fender to be readily folded up when desired, detached and transferred from one end of the car to the other as well as allowing of a better adjustment of the protective parts relatively to the road-level.

The invention consists of the several devices and combinations of parts hereinafter described and claimed, and for full comprehension thereof reference must be had to the annexed drawings, forming a part of this specification, in which like symbols indicate corresponding parts, and wherein—

Figure 1 is a plan view of the fender and auxiliary parts attached to a car; Fig 2, a longitudinal vertical section of the fender on line  $x x$ , Fig. 1; Fig 3, a front elevation thereof and auxiliary parts, and Fig. 4 a detail part-sectional view of hooked ends of the hanger-rods.

The fender proper preferably comprises a stationary back piece, an intermediate section, and a movable front portion, with a flexible receiver or net carried by the back piece and intermediate section, the stationary back piece being attached to the car-front in any suitable way, the intermediate section being pivotally connected with the back piece to allow of its adjustment to different positions relatively to the road-level and the front portion being also pivotally connected with the intermediate section to allow of its being lowered from a normally-elevated position into contact with the road, either automatically or by the motorman.

To render the fender more effective, we prefer to employ as an auxiliary thereto side

guards or wings to prevent any possibility of a person hit by the fender, but not caught thereby, from falling sidewise beneath the front portions of the car unprotected by the fender proper.

The stationary back piece is in the form of a rectangular frame preferably having vertical bars  $a$  and upper and lower connecting-bars  $a'$   $a^2$ , while arms  $a^3$  project frontward from the lower corners thereof. The back piece is detachably connected to the car in any usual manner, such as by means of projecting fingers 2, fitting eyes 1 in the vertical bars  $a$  and held in place by pins passed through slits in such fingers, as shown. The intermediate section is also in rectangular frame form and preferably made up of side arms  $b$  and rear and front connecting-bars  $b'$   $b^2$ , the arms  $b$  having at their rear ends laterally-projecting pivot-pins  $b^3$ , adapted to enter eyes in the ends of the arms  $a^3$  of the back piece and so effect a pivotal connection therewith, being detachably held together by means of cotter-pins  $c$  or other like fastenings passed through slits in the pivot-pins.

The front portion is preferably made up of side arms  $d$ , centrally fulcrumed on the front bar or rod  $b^2$  of the intermediate section, rear connecting-rod  $d'$ , front connecting-rod  $d^2$ , and intermediate connecting-rods  $d^3$   $d^4$ , the latter  $d^4$  being connected with the arms through right-angled bearers  $d^5$ , interposed between its ends and the arms, in order to afford space for small rollers  $e$ , presently to be described.

The front rod  $d^2$  preferably carries a pneumatic cushion  $f$ , so as to reduce the force of the blow received by a person struck by the fender, and in order to protect the cushion from contact with the road we use the rollers  $e$  just mentioned. These rollers  $e$  are of globular or spherical form and pivoted low enough in the bearers  $d^5$  that when the front portion of the fender is lowered they will come into contact with the ground and prevent the cushion  $f$  reaching it, while their spherical form avoids any chance of injury to the fender when the car is rounding a curve in the line and the fender in contact with the ground, since the rollers offer no resistance to lateral travel. Netting  $g$  is stretched between the intermediate connect-



ing-rods  $d^3$   $d^4$  of the front portion of the fender, and this front portion is held normally elevated and with its rear end bearing upon the rear connecting-rod of the intermediate section, preferably by means of a spring  $h$ , coiled about the rod  $b^3$  and having one end attached to the rear intermediate rod  $d^3$  and the other end bearing beneath a finger projection  $k$  from the under side of one of the side arms  $b$  of the intermediate section. The intermediate section and with it, of course, the depressible front portion which together may be properly called a receiver-frame, is preferably supported and also prevented from rising above the desired position by means of expansible hanger-rods comprising rod-sections  $m$  and intermediate adjustable coupling  $m'$ , having screw-thread connection therewith, the outer free ends of the rods being hooked to take into eyes  $n$  at the top corners of the back piece and eyes  $p$  at the outer ends of the side arms of the intermediate section, and also having spring-operated finger-bolts  $q$  for closing the hook-openings, after the hooks have been passed through the eyes, to prevent them slipping out of place. By shortening or lengthening these hanger-rods the height of the intermediate section and with it that of the front portion of the fender relatively to the road-level can be regulated, or, if desired, this regulation can be secured and the intermediate section supported, but not prevented from rising above the desired level, (this being effected by the hanger-rods, as before mentioned,) by forming a downward and rearward extension of the rear end of one or both of the side arms of the intermediate section, as shown at  $r$  in Fig. 2, which extension or extensions can carry adjusting-screws  $s$  to bear beneath the under side of the arms  $a^3$  of the stationary back pieces. A flexible receiver or net  $t$  has its lower end hooked onto the connecting-rod  $b^2$  of the intermediate section and its upper end preferably secured to the periphery of the upper connected rod  $a'$  in the form of a rotatable drum or take-up carried in upper ends of the back piece and operated by means of a crank-handle  $t'$ , so that as the intermediate section is altered in position any undue slack of the net can be taken up and the net maintained in a taut condition, any suitable pawl-and-ratchet device, as indicated at  $t^2$ , being used to hold the drum against rotation in a direction tending to slacken the net.

In operation, the front portion of the fender being normally elevated only by the force of the spring  $h$ , it follows that in the event of the cushioned front edge coming in contact with an obstruction it will automatically yield in a downward direction until the rollers touch the ground, thus avoiding any chance of the obstruction or person passing under the fender. To place the depressible front portion under control of the motorman, however, we fulcrum a lever  $u$  in the lower bar of the stationary back piece, so that one end

of same will be located beneath the rear connecting-rod  $d'$  of the depressible front portion and the other beneath the car-platform, so as to be depressible through a vertical rod  $v$ , passing through the platform, and upon the depression thereof the rear end of the front portion will be elevated and the front cushioned edge lowered.

As an auxiliary protection against persons falling beneath the front side portions of the car unprotected by the fender proper we attach lateral wing-plates or vertical guards  $w$ , which may be made of sheet metal or in the form of net frames, preferably secured to the vertical side arms of the stationary back piece and the dashboard, so as to be adjustable vertically to different heights relatively to the road-level, the adjustment being secured by means of two series of eyes  $y$  in the wing-plates, either pair of which is adapted to be fitted over pins 3, carried by the dashboard and the lateral projections 4, inserted in slots in the sides of the back piece.

To fold up the fender, the hanger-rods  $m$   $m'$  are unhooked from the fender and the latter turned upon the shaft or axis  $d'$  to the position shown in Fig. 2, where it can be retained by any suitable holdfast.

What we claim is as follows:

1. A car fender having a stationary back piece and intermediate section pivotally connected therewith, a forwardly projecting frame section pivotally supported about midway of its length and its front end adjustable vertically to different heights relatively to the road level with means for supporting and a lever for operating and adjusting said forwardly projecting frame section.

2. A car fender having a stationary back piece and intermediate section pivotally connected therewith, an oscillatory forwardly projecting frame section pivotally supported about midway of its length and its front end adjustable vertically to different heights relatively to the road level with means for supporting it at its pivoting point and a lever device engaging its rear end for operating and adjusting said forwardly projecting frame section.

3. In a car fender, the combination of a stationary back piece with means for securing it to the car, an intermediate section pivotally connected with said back piece, a depressible front portion pivotally connected with said intermediate section, a flexible receiver or net extending between the upper end of said back piece and the forward end of the intermediate section and the said front portion being partially covered by netting, with means for supporting said intermediate section and depressible front portion.

4. In a car fender, the combination of a stationary back piece with means for securing it to the car, and intermediate section pivotally connected with said back piece, a depressible front portion pivotally connected with said intermediate section, a flexible re-



ceiver or net extending between the upper end of said back piece and the forward end of the intermediate section, and said front portion being partially covered by netting with means for adjustably supporting said depressible front portion.

5. In a car fender, the combination of a stationary back piece with means for securing it to the car, an intermediate section pivotally connected with said back piece, a depressible front portion pivotally connected with said intermediate section, a flexible receiver or net extending between the upper end of said back piece and the forward end of the intermediate section, and said front portion being partially covered by netting with means for adjustably supporting said intermediate section and yieldingly supporting said depressible front portion.

6. In a car fender, the combination of a stationary back piece with means for securing it to the car, an intermediate section pivotally connected with said back piece; a depressible front portion pivotally connected with said intermediate section, a flexible receiver or net extending between the upper end of said back piece and the forward end of the intermediate section, and said front portion being partially covered by netting, means for supporting said intermediate section and depressible front portion and means for operating said front portion for the purpose set forth.

7. In combination with a car fender having a stationary back piece, vertically adjustable laterally projecting auxiliary projecting guards or wing plates *w* secured to said back

piece and to the dash board of the car for the purpose set forth.

8. In a car fender having a stationary back piece an adjustable section pivotally connected therewith and a depressible front portion pivotally connected with the adjustable section extensible hanger rods comprising rod sections *m* and adjustable couplings *m'* for supporting and adjusting the shaft or axis upon which such depressible front portion is pivoted for the purpose set forth.

9. In a car fender having a stationary back piece an intermediate section pivotally connected therewith and an adjustable frame portion pivotally connected with such intermediate section, rearward extensions from said intermediate section, and adjusting screws carried thereby and adapted to bear beneath said stationary back piece, for the purpose set forth.

10. In a car fender having a stationary back piece an adjustable forwardly projecting receiver frame pivotally connected therewith, extensible hanger rods for supporting and adjusting the adjustable forwardly projecting receiver frame, rearward extensions from said section and adjusting screws carried thereby and adapted to bear beneath said stationary back piece, for the purpose set forth.

Montreal, November 8, 1894.

JAMES D. LAMB.

JAMES E. CHAPMAN.

In presence of—

WILL P. McFEAT,  
FRED J. SEARS.