

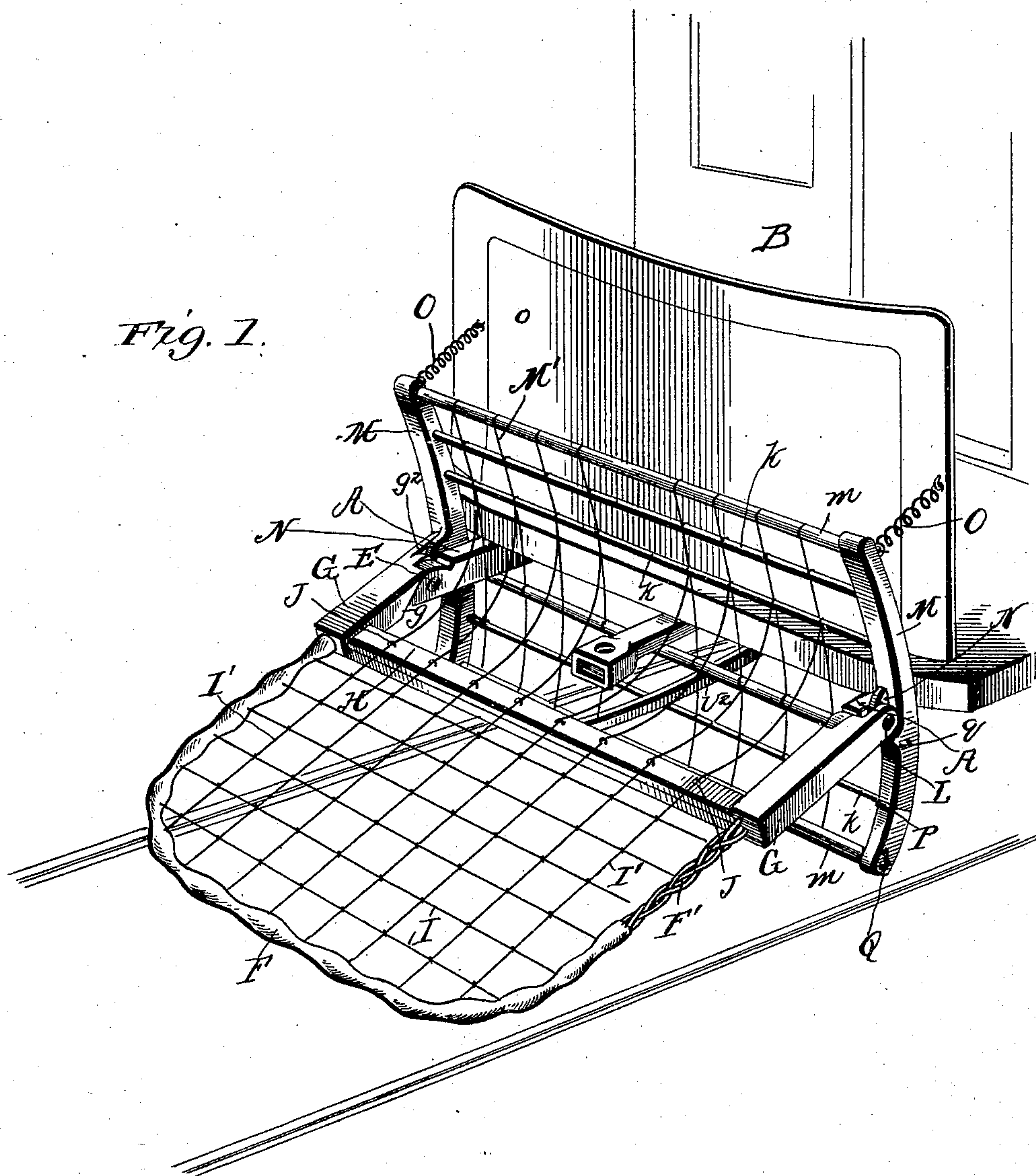
(No Model.)

2 Sheets—Sheet 1.

A. J. KNAUER.  
CAR FENDER.

No. 578,406.

Patented Mar. 9, 1897.



Witnesses:  
L. C. Hills.  
E. A. Bond

Inventor:  
Adolf J. Knauer,  
By Albert Popkin  
Atty.

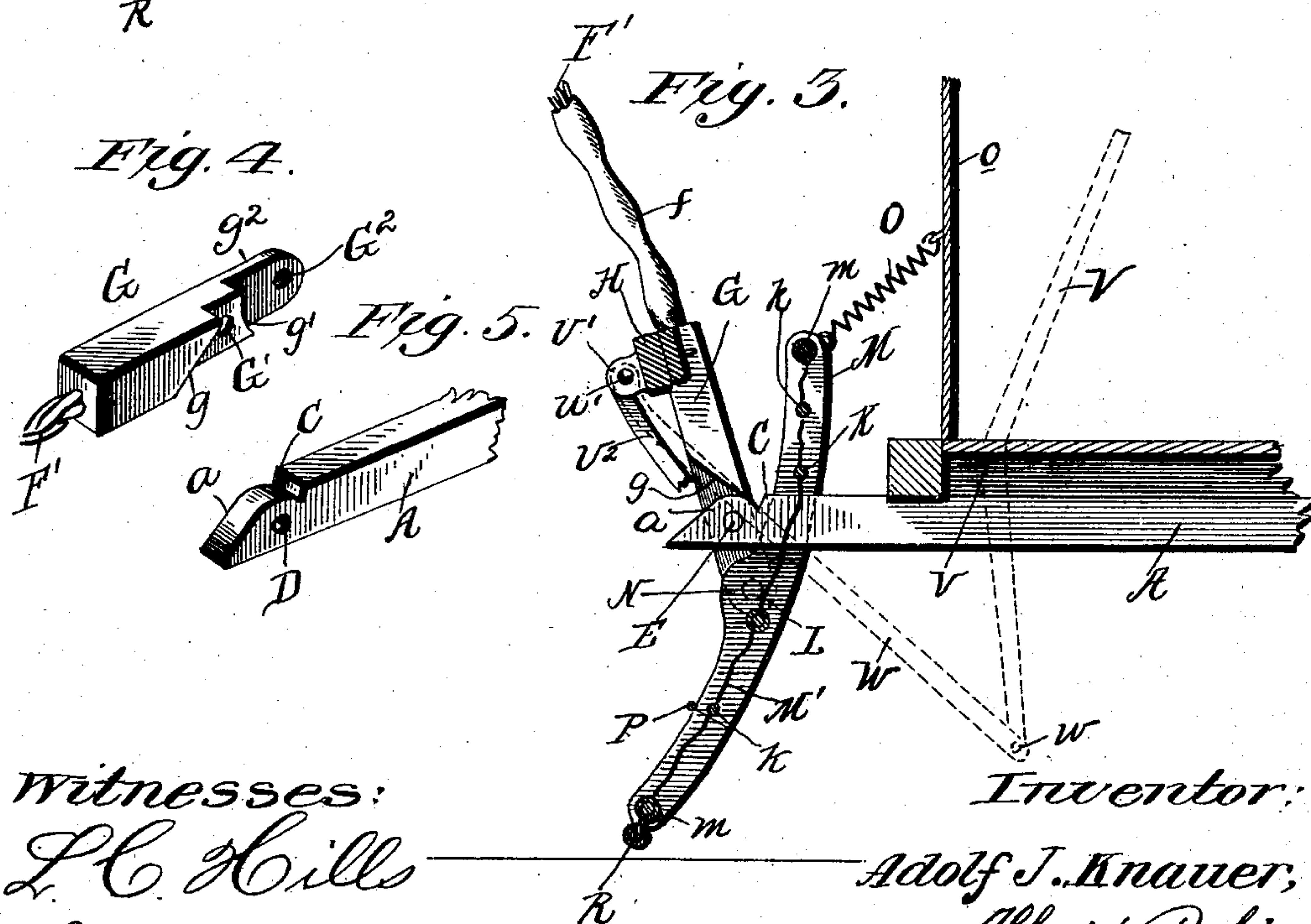
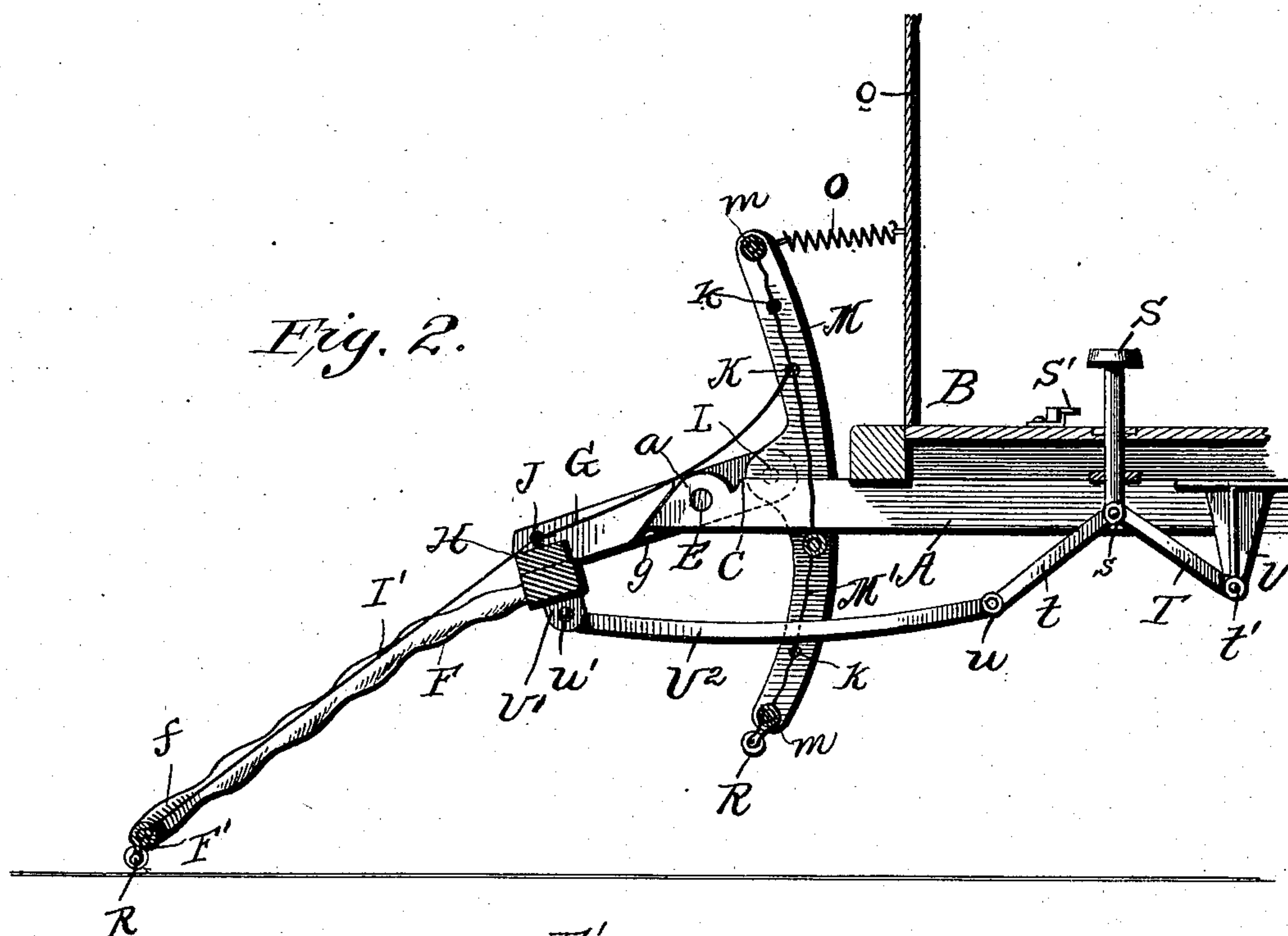
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# UNITED STATES PATENT OFFICE.

ADOLF J. KNAUER, OF PHILADELPHIA, PENNSYLVANIA.

## CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 578,406, dated March 9, 1897.

Application filed May 19, 1896. Serial No. 592,198. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLF J. KNAUER, a citizen of the United States, residing at Philadelphia, (Holmesburg,) in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Car-Fenders; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to certain new and useful improvements in car-fenders of that class in which provision is made for the throwing up of the fender proper by a foot-lever or other means under the control of the motorman or other person on the car.

It has for its object, among others, to provide a simple and cheap construction embodying practically two independent fenders so arranged that when the one is thrown up the other is brought into operative position. The connections whereby this movement is brought about form one of the essential features of the present invention. The fender proper is provided with a surrounding frame of ratan, covered by rubber, felt, or other suitable material. This makes a strong and light frame, one not easily broken by contact with stones or other objects upon the track, as it will yield sufficiently upon the meeting of an obstruction to prevent its breakage, and forms a soft abutment which will not injure the body of a person struck by the fender. The secondary or rear fender is provided with a hinged lower section, which may be folded up when desired, so as to hold it out of operative position even though it might perchance be broken from its connection with its support.

I aim, further, at improvements in the details of construction whereby the device as a whole is made more satisfactory and reliable in its action and the assemblage of the parts materially simplified.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a perspective view of the invention in position on a car. Fig. 2 is a vertical longitudinal section through the same. Fig. 3 is a detail in vertical longitudinal section, showing the fender proper up and the secondary fender down in operative position. Fig. 4 is a perspective view of portion of the connection between the fender proper and the secondary fender. Fig. 5 is a perspective view of one of the arms from which the fenders are supported from the car.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates arms or timbers extending forward from the under side of the car B, from which they are supported in any suitable manner. These arms or timbers have their forward ends rounded upon their upper faces, as seen at *a*, extending to the point as shown best in Fig. 5, and at the rear end of this rounded portion is a shoulder C, for a purpose which will hereinafter appear. A transverse hole D forward of this shoulder receives a pivot-pin E.

The fender proper consists of the surrounding frame F, which is preferably of ratan, as shown, covered with a covering *f* of rubber, felt, or any other suitable soft material, the ratan F' being braided, as seen best in Fig. 1. This surrounding frame is bent into the proper form, and the ends of the ratan are held in any suitable manner in the side arms G. The forward ends of these side arms are connected by the cross-bar H. Transverse cords or the like I have their ends secured to the side portions of the fender-frame, and, together with the cords I', extending at right angles thereto, form a netting of sufficient strength to support the weight of the person or object taken up by the fender. The longitudinal cords I' are extended through staples or the like J on the cross-bar H and are secured at their ends to the cross-rod K of the secondary fender.

The rear ends of the side bars G are formed with the inclined walls *g*, and just to the rear thereof with the transverse holes G', through which pass the pivots E, while to the rear of



these pivot-holes is the shoulder  $g'$ , slightly concaved, as shown, and to the rear of this shoulder is the thinner portion  $g^2$ , having an opening  $G^2$ , through which is designed to pass the pivot or pin L, which connects the same to the side bars of the secondary-fender frame. This secondary fender is composed of the side bars M, which are curved, as shown, and connected at their ends by the cross-rods  $m$ , and, further, by the cross-rods K and  $k$ . Cords  $M'$ , extending at right angles to each other and secured to the cross-rods and to each other and to the side bars, may sometimes be employed to form a netting, but in this instance I have shown cords extending in one direction only. This, however, is immaterial. The side bars M near their centers are provided with the lugs N, through which and through the holes  $G^2$  in the side bars G pass the pivot-pins L. These lugs bear against the concaved shoulders  $g'$  of the side bars G, as seen in Fig. 1, while the inclined faces  $a$  of the bars A act in conjunction with the inclined walls  $g$  of said side bars G, as seen best in Figs. 1 and 2. O are springs connecting the upper ends of the side bars M of the frame of the secondary fender with the dash  $o$  of the car, as shown in Figs. 1, 2, and 3.

The side bars M have their lower portions hinged, as seen at P, so as to be folded up when necessary, and for the purpose of holding these hinged portions in their folded position I have shown hooks Q on the same and staples or eyes or the like  $q$  on the upper portions to receive the same, but it is evident that any other means may be employed for this purpose.

The lower ends of the two fenders are preferably provided with rollers R, as shown, but these may sometimes be omitted.

Any suitable means may be provided for manipulating the fenders from the car. In Fig. 2 I have shown a foot-lever or push-pin S, mounted for vertical movement in suitable guides through the floor of the car and having pivotally connected to its lower end, as at  $s$ , the rods T and  $t$ , the rear end of the former of which is pivoted, as at  $t'$ , on the hanger or bracket U, depending from the under side of the car, while the other end of the rod  $t$  is pivotally connected, as at  $u$ , with one end of the arm or rod  $U^2$ , the other end of which is pivoted, as at  $u'$ , to the lug or bracket  $U'$ , depending from the under side of the cross-bar H of the frame of the main fender. Pressure on this foot-lever forces down the rods T and  $t$  and causes the front or main fender to be thrown up into the position in which it is seen in Fig. 3. A pivoted latch  $S'$  serves to engage over the upper end of the foot-lever and hold it in its depressed position.

In Fig. 3 I have shown by dotted lines another means for accomplishing the same purpose. In this view V is a hand-lever pivoted at  $v$  on the under side of the floor of the car through which it passes, and to the lower end

thereof is pivoted, as at  $w$ , the arm W, the other end of which is pivoted to the lug or bracket  $U'$  on the cross-bar H of the fender-frame.

The operation will be apparent. Normally the front fender is down, as shown in Figs. 1 and 2, and the secondary or rear fender is in the position shown, and any obstruction on the track is picked up and thrown on the front fender, but should, perchance, the object be missed by the front fender or the fender move over it then the motorman or driver immediately throws down the secondary fender into the position shown in Fig. 3 in time to catch the object. The connections between the two fenders and the bars on the car are such that the front fender is thrown up as the rear or secondary fender is thrown down into operative position. It will be observed that the secondary fender is pivotally mounted on the rear extension of the side bars of the front fender and to the rear of the pivot of the latter, so that the upward movement of the front fender serves to aid the rear fender in its downward movement.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

1. The combination with the pivoted main fender mounted on fixed pivots, of the secondary fender arranged at substantially a right angle to the main fender and pivotally mounted on the rear end of the main fender to the rear of the pivot of the latter, substantially as specified.

2. The combination with the pivoted main fender, of the secondary fender disposed at substantially a right angle to the main fender and pivotally mounted thereon to the rear of the pivot thereof for simultaneous movement with the main fender but in the opposite direction whereby the one is thrown up as the other is thrown down, substantially as specified.

3. The combination with a pivoted fender, of a secondary fender pivotally supported solely from the main fender to the rear of the pivot thereof and extended above and below the main fender and having its upper end spring-held, as set forth.

4. The combination with the arms extended forward from the end of a car and having inclined upper front ends, of the fender having side bars formed with inclined walls and mounted on pivots held in said arms and bars, and means for moving the fender on its pivot, and a substantially vertically-disposed secondary fender pivotally supported on the rear ends of said side bars, as set forth.

5. The combination with the arms extending forward from the end of a car and having inclined upper faces at their forward ends, of the fender having its side bars formed with inclined walls and concaved shoulders, and the secondary fender having its side bars



formed with lugs and pivotally mounted on the rear ends of the side bars of the front fender, as set forth.

5 6. A car-fender having its surrounding frame composed of ratan, as set forth.

7. A car-fender having its surrounding frame composed of braided ratan, as shown and described.

10 8. A frame for a car-fender composed of ratan having a soft covering, as set forth.

9. A frame for a car-fender composed of braided ratan covered with a soft material, substantially as shown and described.

15 10. A fender composed of side bars pivotally mounted, a cross-bar connecting the side bars, a frame of ratan having its ends secured in the front ends of the side bars, and a netting secured to said frame and cross-bar, substantially as shown and described.

20 11. The combination of two fenders mounted for simultaneous movement upon independent pivots, the secondary fender being disposed at a right angle to the other and

supported therefrom to the rear of its pivot, substantially as described.

25 12. The combination of two fenders mounted for simultaneous movement upon independent pivots, with the pivot of one of said fenders upon the side bars of the other, and to the rear of the pivot thereof, with the upper end of the secondary fender connected 30 by springs with the front end of a car, substantially as specified.

13. The combination of two fenders mounted at substantially right angles to each other 35 for simultaneous movement, the one being pivotally mounted on the other to the rear of its pivot and extended above and below the same, substantially as specified.

In testimony whereof I affix my signature 40 in presence of two witnesses.

ADOLF J. KNAUER.

Witnesses:

AMOS C. SHALLCROSS,  
H. MAXWELL ROWLAND.