

No. 817,320.

PATENTED APR. 10, 1906.

D. HOULAHAN.
STREET CAR FENDER.

APPLICATION FILED APR. 21, 1905.

3 SHEETS—SHEET 1.

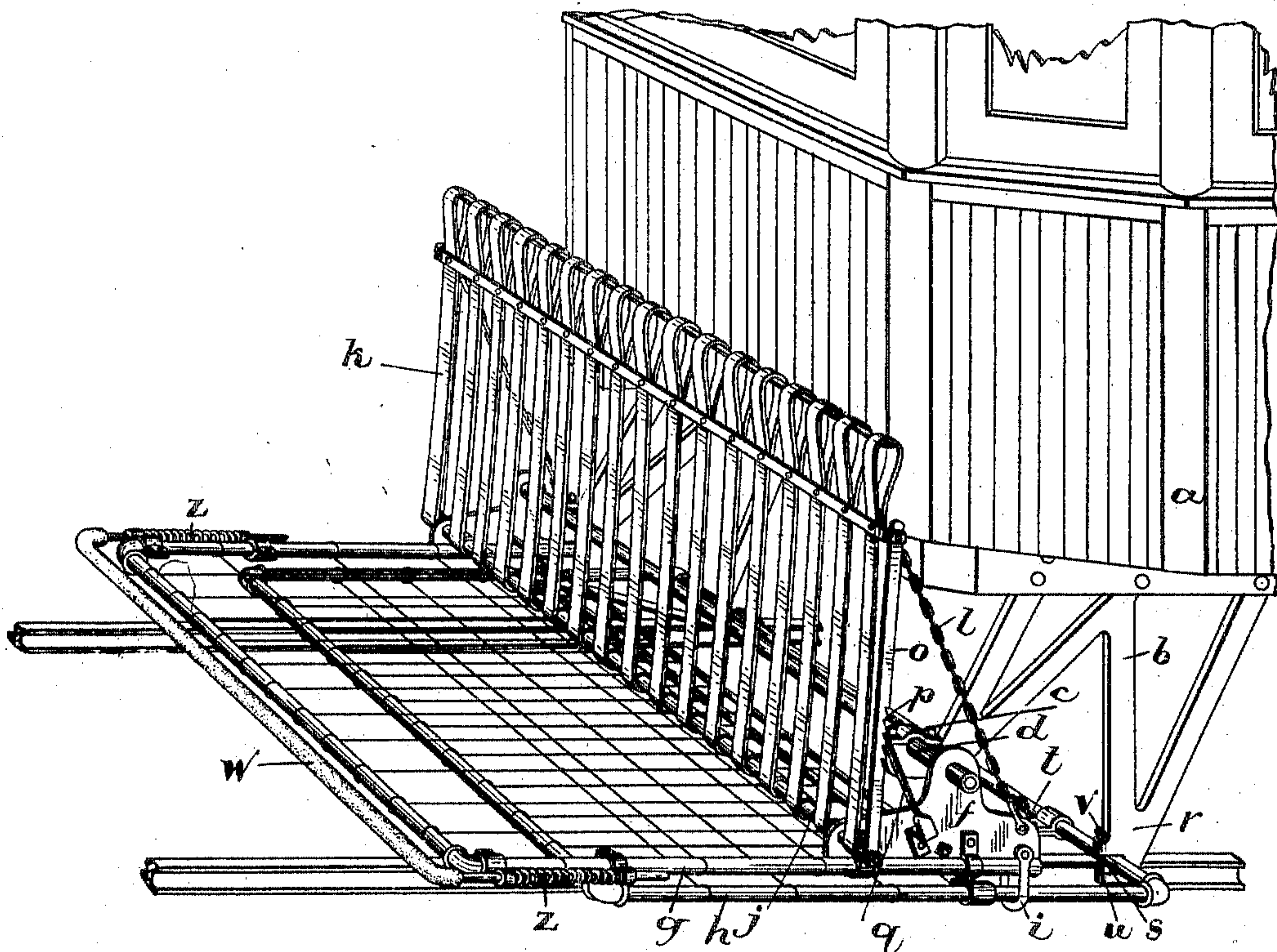


Fig. 1.

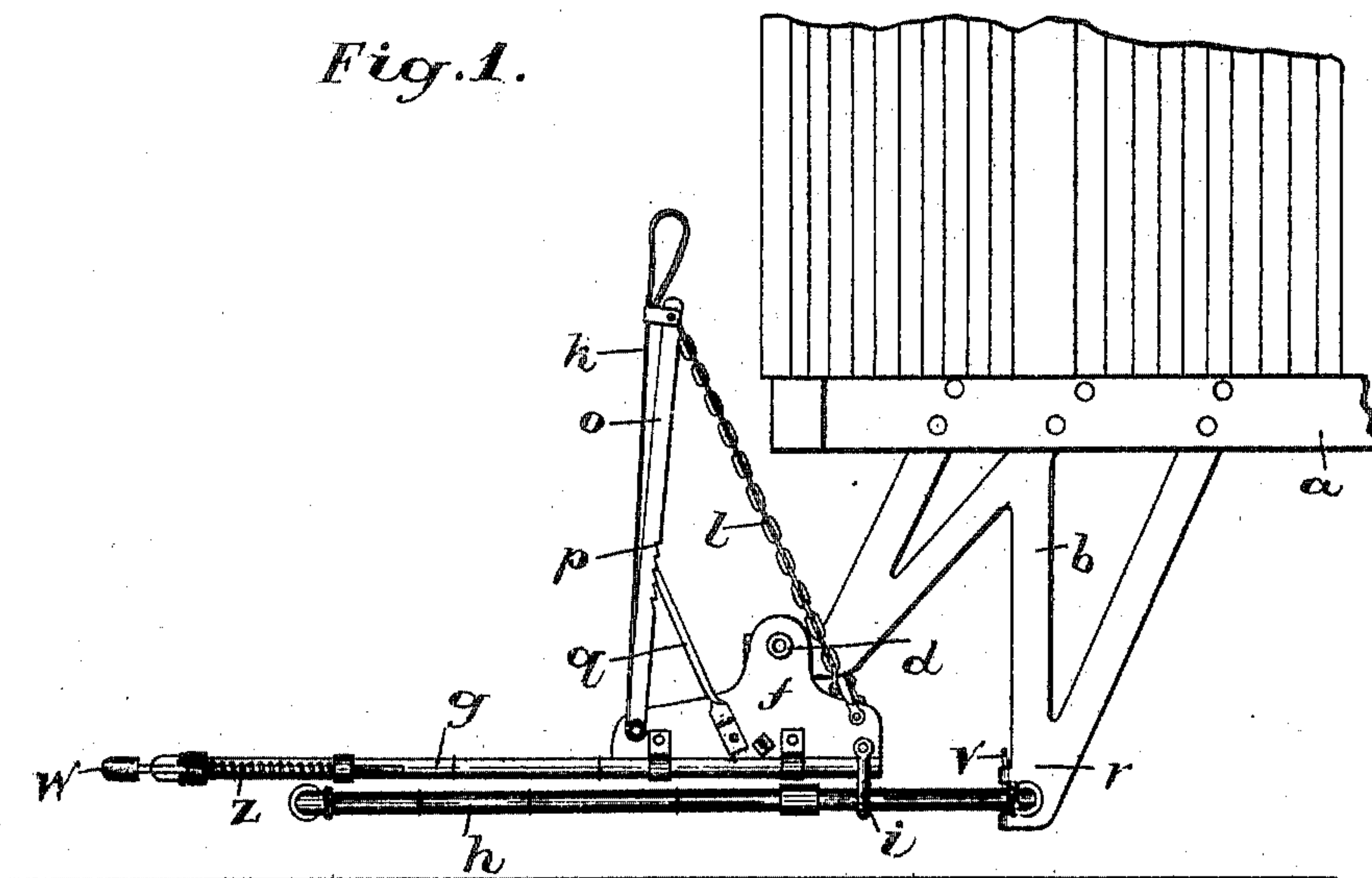


Fig. 2.

Witnesses.

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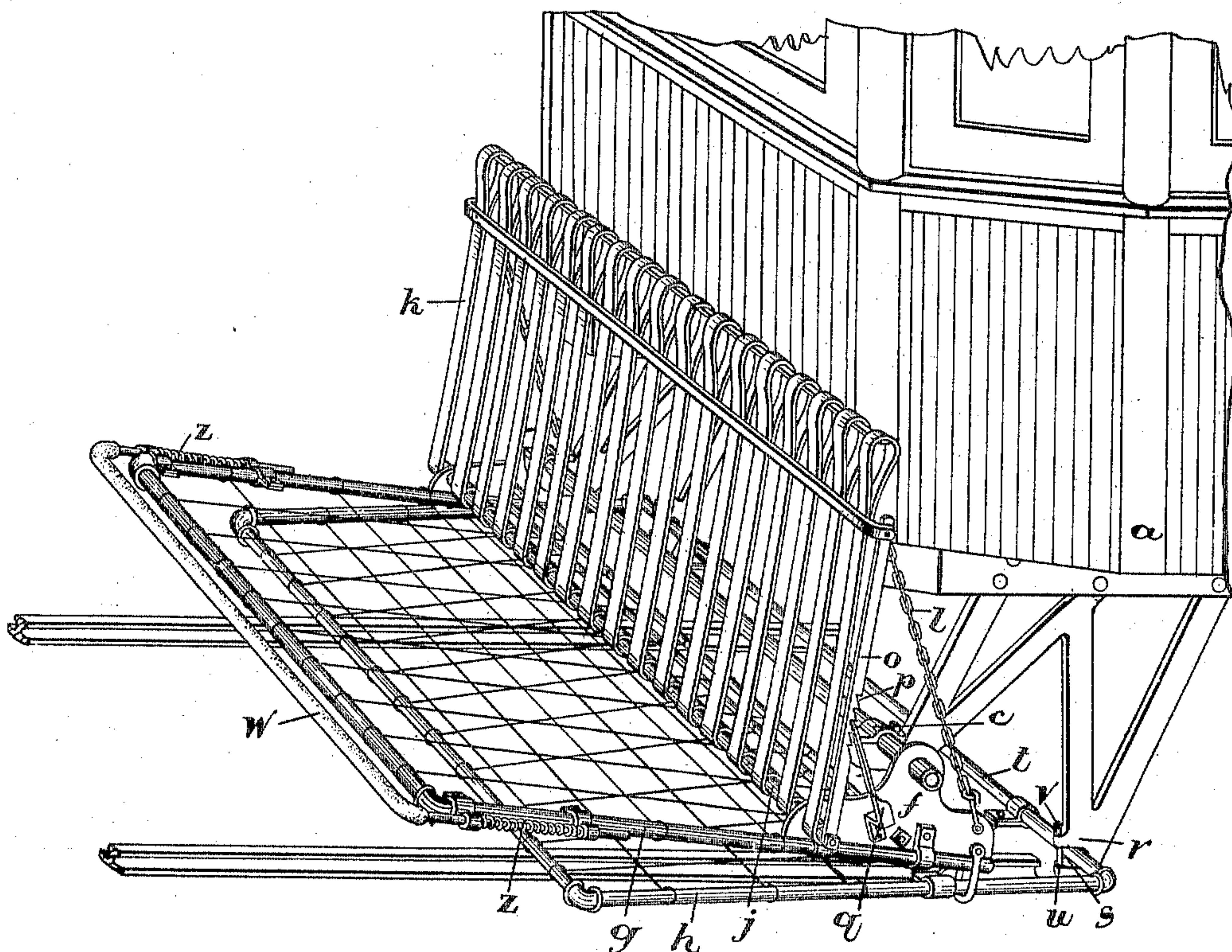


Fig. 3.

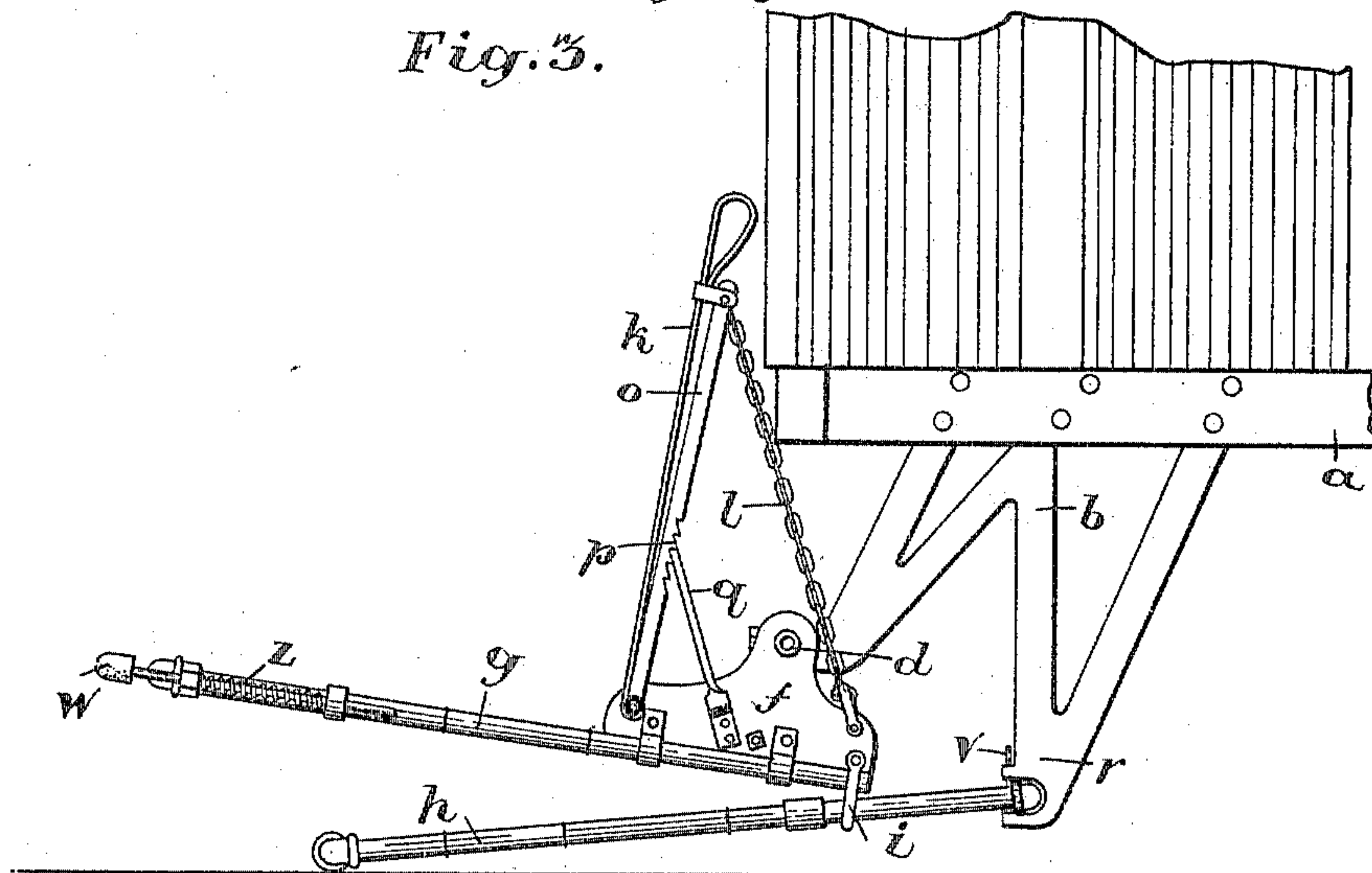


Fig. 4.

Witnesses.

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3 SHEETS—SHEET 3.

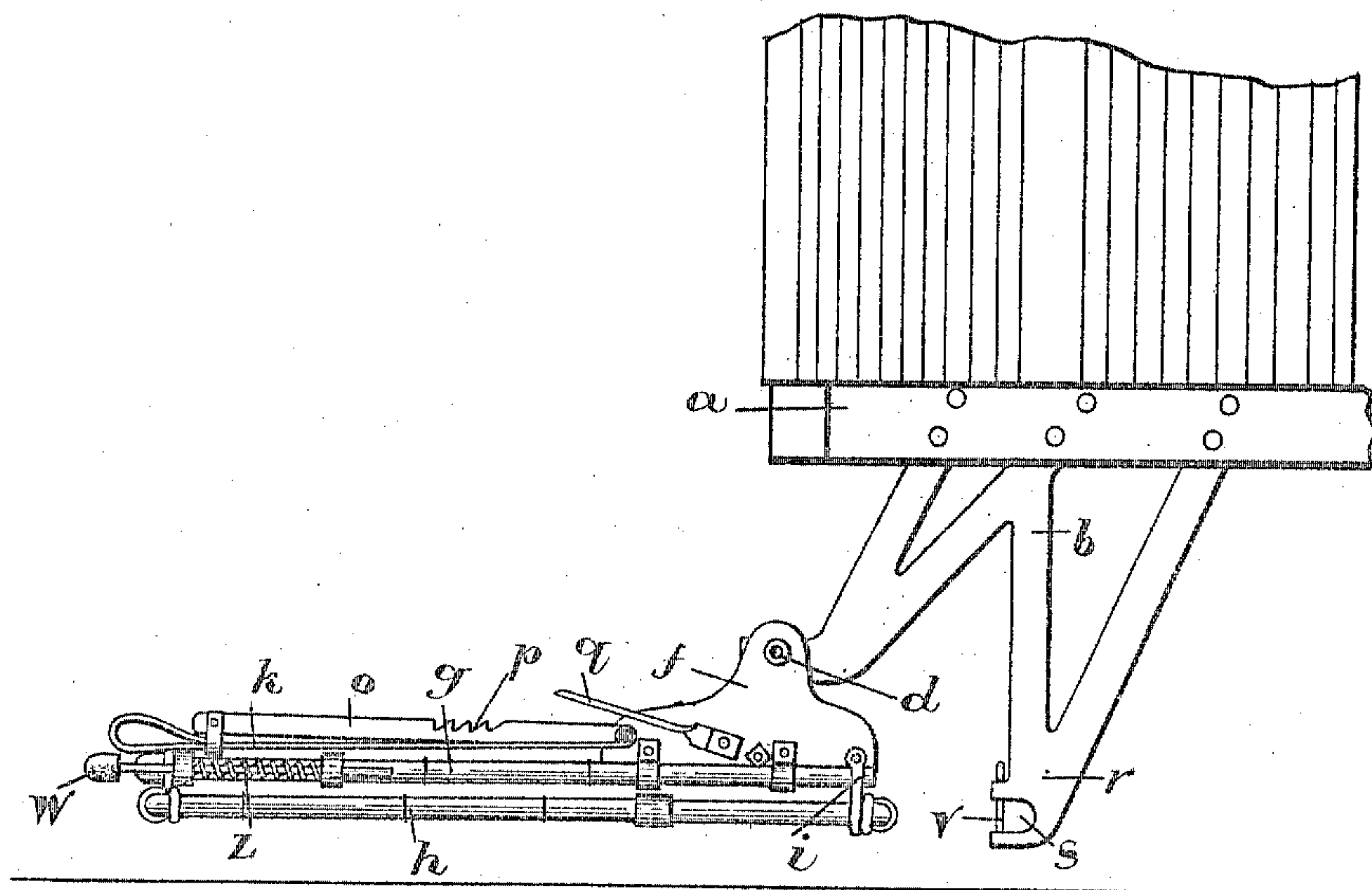


Fig. 5.

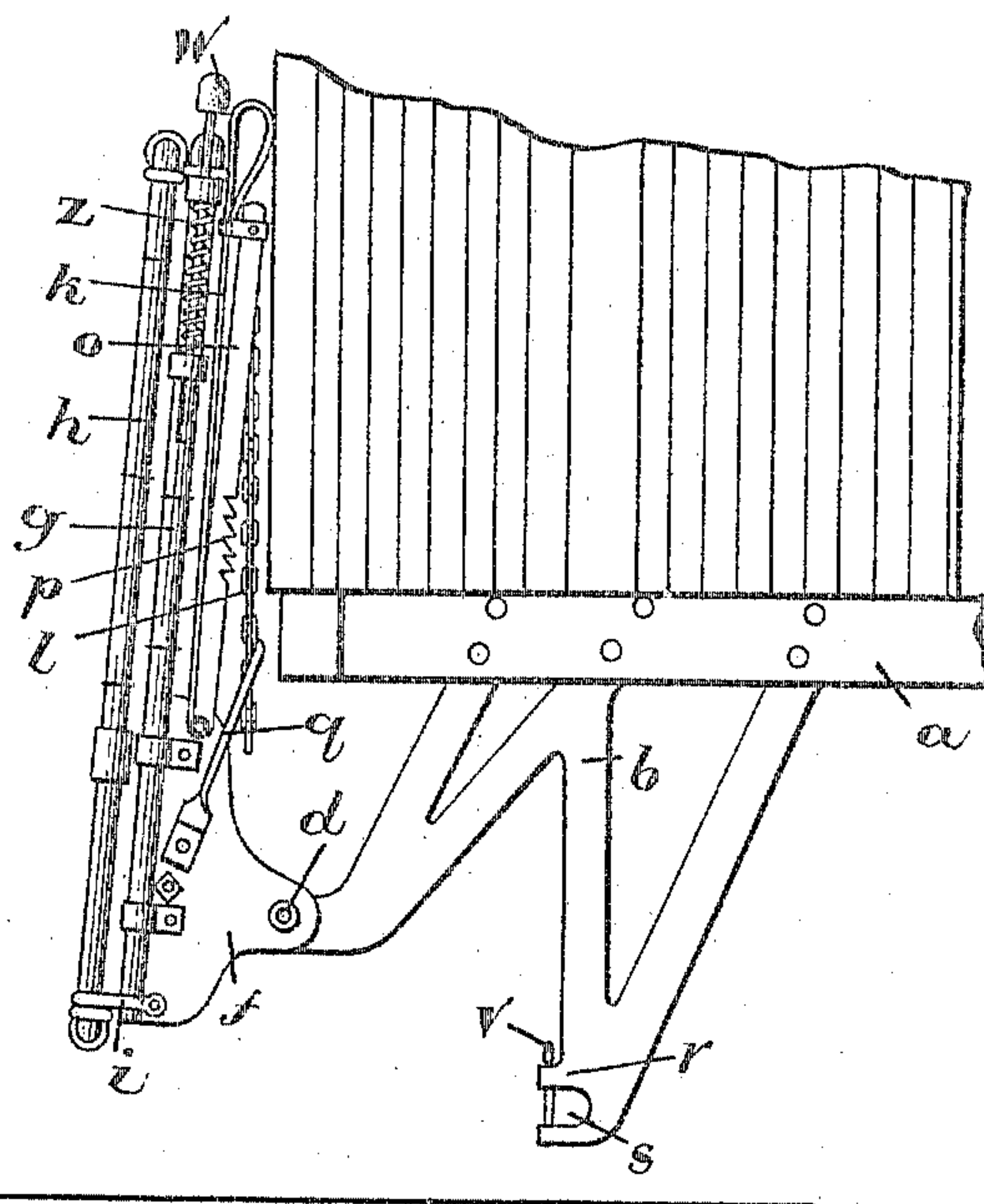


Fig. 6.

Witnesses.

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UNITED STATES PATENT OFFICE.

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STREET-CAR FENDER.

No. 817,320.

Specification of Letters Patent.

Patented April 10, 1906.

Application filed April 21, 1905. Serial No. 256,720½.

To all whom it may concern:

Be it known that I, DENIS HOULAHAN, of the city of Toronto, in the county of York and Province of Ontario, Canada, have invented certain new and useful Improvements in Street-Car Fenders; and I hereby declare that the following is a clear, full, and exact description of the same.

This invention relates to a car-fender which may be described generally as comprising two platform-sections one located above the other and so attached to the car structure that under normal conditions they will be carried parallel with and slightly above the pavement or road-bed and so arranged that under abnormal conditions the forward or free end of the lower section will move into contact with the pavement.

The invention also relates to the peculiar construction and arrangement of the platform-sections and to the manner in which they are supported from the car structure and to the provision made for folding them into a vertical position against the car, and it further relates to the construction and attachment of the fender-back and to the means for holding it either in an upright or permitting it to be lowered into a horizontal position.

For a full understanding of the invention reference is to be had to the following description and to the accompanying drawings, illustrating the same, in which—

Figure 1 is a perspective view of the fender attached to a car structure. In this view the fender platform-sections and the fender-back are shown in their normal position. Fig. 2 is a side elevation with the fender platform-sections and fender-back in the same position as in the former view. Fig. 3 is a similar view to Fig. 1, showing the position of the fender platform-sections when actuated to prevent an obstacle passing beneath the car. Fig. 4 is a side elevation of the parts when in the position shown in Fig. 3. Fig. 5 is a side elevation showing the fender platform-sections and fender-back preparatory to being raised into a vertical position against the car structure. Fig. 6 is a view of the fender when raised into a vertical position.

Like letters of reference refer to like parts throughout the specification and drawings.

Rigidly fastened to the car structure *a* are

the supporting-brackets *b* for the car-fender. A double-truck car is practically free of oscillating motion as it travels upon the track-rails, and the supporting-brackets can usually be attached to the car-body; but in the case of a single-truck car it is preferable to attach them to the truck-guards, so that they will not be affected by the oscillation of the car-body, which is particularly noticeable when the car is running at a high rate of speed. The supporting-brackets *b* are provided with bearings *c* for the rock-shaft *d*, to which is rigidly connected two supporting-plates *f* on the outer side of the bearings *c*. The upper platform-section *g* is rigidly connected to the supporting-plates *f*, so as to be normally carried by them in a horizontal position parallel with and slightly above the level of the track-rails or pavement, and the lower platform-section *h* is suspended by links *i*, connected to the supporting-plates *f*, and when in the position shown in Figs. 1 and 2 of the drawings one of its cross-bars *t* is oscillatingly held by the supporting-brackets *b*, as hereinafter described.

Journaled in the supporting-plates *f* is the shaft *j* for the fender-back *k*, normally maintained in an upright position to cover the opening between the car structure and the top of the upper platform-section *g*, and connected to the top of the platform-back and to the supporting-plates *f* are chains or other stay members *l* to hold the fender-back in the position shown in Figs. 1 and 2, the stay members *l* being detachably connected to the supporting-plates by hooks or other fastening means, so that they may be released to allow the fender-back to be lowered upon the upper platform-section *g* for storage and other purposes. To vary the inclination of the fender-back to the upper platform-section *g*, the side bars *o* of the fender-back are provided with ratchet-teeth *p* to be engaged by the detent-bars *q*, connected to the supporting-plates *f*. By reference to the drawings it will be noticed that the supporting-brackets *b* have extensions *r*, with recesses *s* in their front faces, into which enters the cross-bar *t* of the lower platform-section *h*, and formed vertically through the extensions *r* are bolt-apertures *u* to receive the detent-bolts *v*, which when positioned extend across the recesses *s* and lock the platform-bar *t* in such recesses,

so that when the platform-section *h* is in the position shown in Figs. 1 and 2 it may oscillate to that shown in Fig. 3, in which position its free end comes into contact with the track-rails or pavement. In the event of an obstacle getting between the forward part of the upper platform-section *g* and the pavement or track-rails it will lift the portion of the upper section in front of the rock-shaft into the position shown, Fig. 3, and lower those portions of said upper section and supporting-plates *f* in rear of the rock-shaft, so that the free end of the lower section will descend by gravity into contact with the track-rails or pavement, the links *i* descending with the rear end of the supporting-plates to permit of the downward movement of the lower platform-section *h*. When the lower platform-section *h* is in the position shown in Fig. 3, the obstacle is positively prevented from passing under the car by the platform-section *h*, which will move it along the track-rails or pavement until the motion of the car is arrested. When the obstacle is removed from beneath the upper platform-section, the latter will return by gravity to a horizontal plane and cause the links *i* to raise the lower platform-section into a similar plane. To fold the platform-sections into a vertical position against the car structure, the locking-bolts *v* are removed, and the lower platform-section *h* is drawn forward until the cross-bar *t* is in contact with the links *i*, and the fender-back *k* is then lowered upon the top surface of the upper platform-section *g*, and the platform-sections and fender-back may then be raised into a vertical position against the front of the car structure *a* to economize space for car-storage purposes or when two or more cars are coupled together. At the front of the upper platform-section *g* is a spring-tensioned buffer *w*, normally projecting in advance of the upper platform-section and arranged to recede rearwardly when it collides with an obstacle to cushion the impact of the collision, the buffer returning to its normal position under the influence of the tension-springs *z* when relieved of contact with such obstacle.

The operation of the device is as follows: During the advance of the car the spring-tensioned buffer *w* will come into contact with any obstacle in the path of car and recede against the upper platform *g* to cushion the impact of the collision. Should the obstacle fall upon the fender, it will be carried by the platform-sections, which will remain in the position shown in Figs. 1 and 2, until the progress of the car can be arrested. The fender-back being of a resilient nature will not only prevent the obstacle passing beneath the car through the opening formed between the platform-section and the bottom of the car structure, but will also cushion the fall of such obstacle as it moves toward the front of the car structure. Should the obstacle fall

upon the pavement or road-bed and not be gathered upon but should pass beneath the feeder-platform, it will lift the forward part of the upper platform-section and lower its rear end and the supporting-plates and the links to allow the free end of the lower platform-section to fall by gravity toward the track-rails, the movement of which is accelerated by the rear end of the upper platform-section *g* coming into contact with the lower platform-section. The pressure of the rear end of the upper platform-section upon the lower platform-section being equal to the pressure of the obstacle against the upper platform-section will hold the lower platform-section rigidly in its inclined position, so that under no ordinary conditions could it be displaced from contact with the pavement while the obstacle remains beneath the upper platform-section.

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

1. A street-car fender comprising two platform-sections carried one above the other, the upper section arranged to pass over and to be upwardly displaced by an obstacle lying in the path of the fender and the lower section arranged to move by gravity into contact with the pavement when the upper section is displaced and means connected to the upper section to slidably support the lower section in a horizontal position and permit it to lower as the upper section is upwardly displaced.

2. A car-fender comprising two platform-sections to be normally carried in a substantially horizontal plane one above the other, a rock-shaft for the upper platform-section by which it can be oscillatingly connected to the car structure, and means connected to the upper platform-section to slidably support the lower platform-section, said means permitting it to lower it as it moves between its normal and operative positions.

3. A car-fender comprising two oscillating platform-sections arranged to be normally carried in a substantially horizontal plane, means to oscillatingly connect the platform-sections to the car structure, and means carried by the upper platform-section to normally support the lower section in a substantially horizontal plane and permit it to lower by gravity as it moves into an inclined position.

4. A car-fender comprising two platform-sections to be normally carried in a substantially horizontal plane, one above the other, a rock-shaft for the upper platform-section by which it is to be oscillatingly connected to the car structure, links connected to the upper platform-section in a horizontal plane to normally support the lower platform-section and allow it to move between its normal and operative positions, and a fender-back articu-

latingly connected to the upper platform-section and arranged to be carried either in a horizontal or a vertical plane.

5. A car-fender comprising two platform-sections to be normally carried in a substantially horizontal plane, one above the other, a rock-shaft for the upper platform-section by which it is to be oscillatingly connected to the car structure, links connected to the upper platform-section in a horizontal plane to normally support the lower platform-section and allow it to move between its normal and operative positions, a fender-back articulatingly connected to the upper platform-section and arranged to be carried in a horizontal or a vertical plane, and means to hold the fender-back in its upright position.

6. A car-fender comprising two platform-sections to be normally carried in a substantially horizontal plane one above the other, a rock-shaft for the upper platform-section by which it is to be oscillatingly connected to the car structure, links connected to the upper platform-section in a horizontal plane to normally support the lower platform-section and allow it to move between its normal and operative positions, a fender-back articulatingly connected to the upper platform-section and arranged to be carried in a horizontal or a vertical plane, means to hold the fender-back in its upright position, and means for adjusting the vertical inclination of the fender-back relatively to the fender-platform.

7. The combination of a car structure having a fender-supporting means, and a car-fender comprising two platform-sections to be normally carried in a horizontal plane one above the other, a rock-shaft for the upper platform-section by which it can be oscillatingly connected to the fender-supporting means, means connected to the upper platform-section to slidably support the lower platform-section and to allow it to oscillate as it moves between its normal and operative positions and means for oscillatingly connecting the lower platform-section to the fender-supporting means.

8. The combination of a car structure having a fender-supporting means, and a car-fender comprising two platform-sections to be normally carried in a horizontal plane one above the other, a rock-shaft for the upper platform-section by which it can be oscillatingly connected to the fender-supporting means, means connected to the upper platform-section to slidably support the lower platform-section and to allow it to oscillate as it moves between its normal and operative positions, means for oscillatingly connecting the lower platform-section to the fender-supporting means, a fender-back articulatingly connected to the upper platform-section and arranged to move between its horizontal and vertical positions, and means for holding the fender-back in its upright position.

9. The combination of a car structure having a fender-supporting means, and a car-fender comprising two platform-sections to be normally carried in a horizontal plane one above the other, a rock-shaft for the upper platform-section by which it can be oscillatingly connected to the fender-supporting means, means connected to the upper platform-section to slidably support the lower platform-section and to allow it to oscillate as it moves between its normal and operative positions, means for oscillatingly connecting the lower platform-section to the fender-supporting means, a fender-back articulatingly connected to the upper platform-section and arranged to move between its horizontal and vertical positions, means for holding the fender-back in its upright position, and means for adjusting the inclination of the fender-back relatively to the fender-platform.

10. The combination of a car structure having a fender-supporting means, and a car-fender comprising two platform-sections to be normally carried in a horizontal plane one above the other, a rock-shaft for the upper platform-section by which it can be oscillatingly connected to the fender-supporting means, means connected to the upper platform-section to slidably support the lower platform-section and to allow it to oscillate as it moves between its normal and operative positions, means for oscillatingly connecting the lower platform-section to the fender-supporting means, and a spring-tensioned buffer for the forward edge of the upper platform-section.

11. The combination of a car structure having a fender-supporting means, and a car-fender comprising two platform-sections to be normally carried in a horizontal plane one above the other, a rock-shaft for the upper platform-section by which it can be oscillatingly connected to the fender-supporting means, means connected to the upper platform-section to slidably support the lower platform-section and to allow it to oscillate as it moves between its normal and operative positions, means for oscillatingly connecting the lower platform-section to the fender-supporting means, a fender-back articulatingly connected to the upper platform-section and arranged to move between its horizontal and vertical positions, means for holding the fender-back in its upright position, and a spring-tensioned buffer for the forward edge of the upper platform-section.

12. The combination of a car structure having a fender-supporting means, and a car-fender comprising two platform-sections to be normally carried in a horizontal plane one above the other, a rock-shaft for the upper platform-section by which it can be oscillatingly connected to the fender-supporting means, means connected to the upper platform-section to slidably support the lower

platform-section and to allow it to oscillate as it moves between its normal and operative positions, means for oscillatingly connecting the lower platform-section to the fender-supporting means, a fender-back articulatingly connected to the upper platform-section and arranged to move between its horizontal and vertical positions, means for holding the fender-back in its upright position, means for

adjusting the inclination of the fender-back relatively to the fender-platform, and a spring-tensioned buffer for the forward edge of the upper platform-section.

Toronto, March 31, A. D. 1905.

D. HOULAHAN.

In presence of—

C. H. RICHES,

L. F. BROCK.