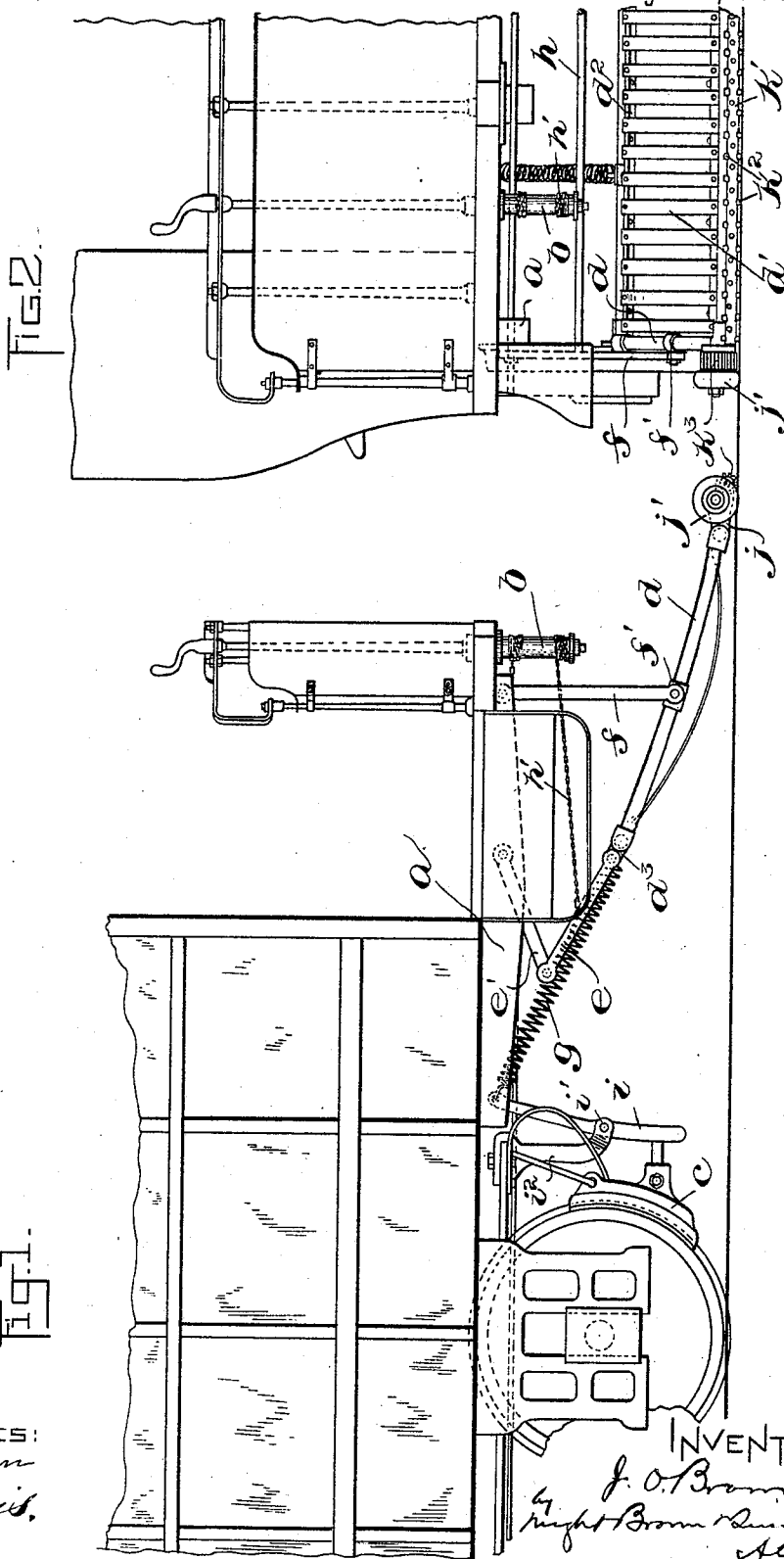


J. O. BROWN.
CAR GUARD OR FENDER.

No. 539,342.

Patented May 14, 1895.



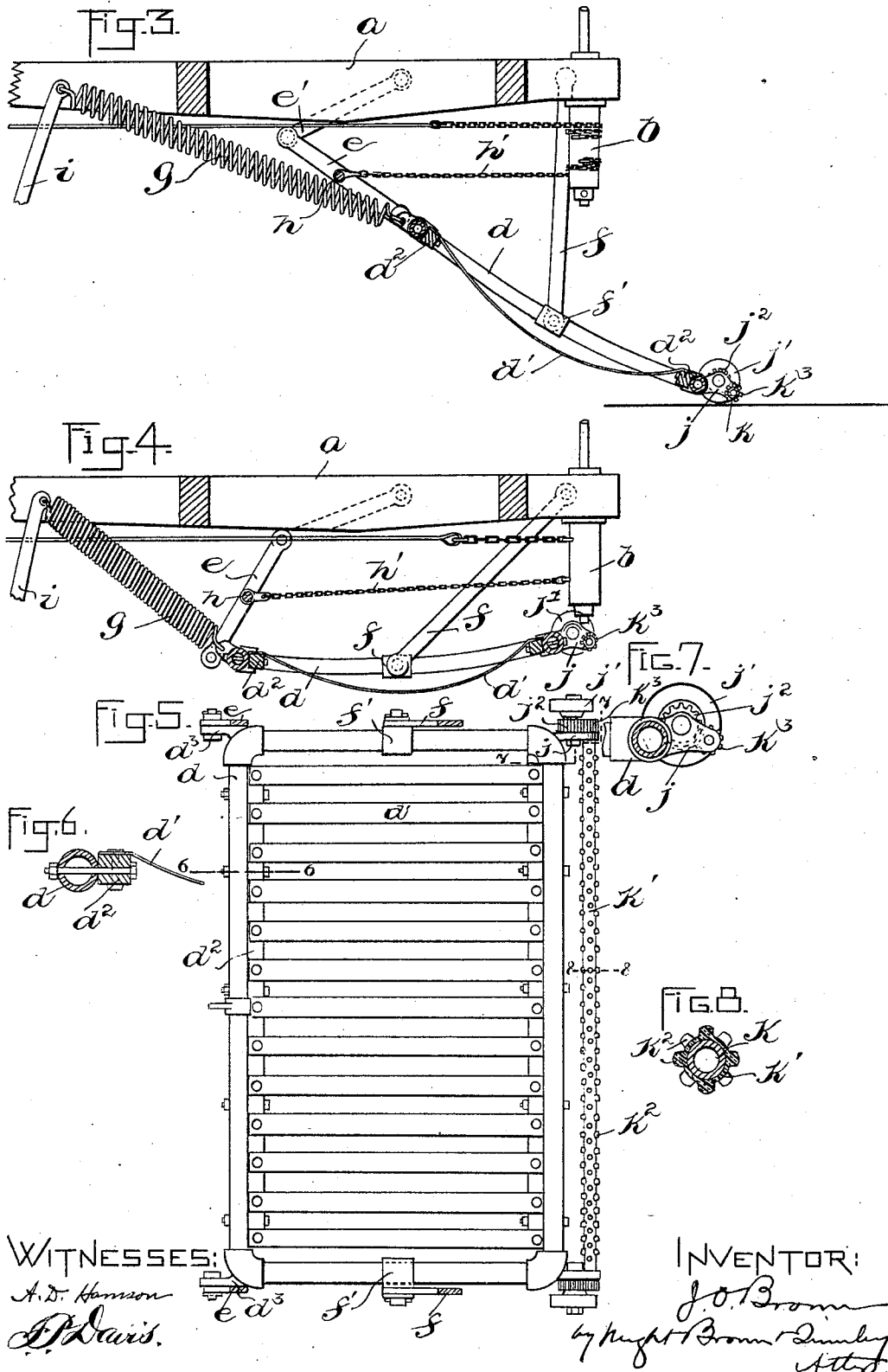
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UNITED STATES PATENT OFFICE.

JAMES O. BROWN, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF, ROLAN E. FOSTER, AND ROBERT B. GRAHAM, TRUSTEES, OF SAME PLACE.

CAR GUARD OR FENDER.

SPECIFICATION forming part of Letters Patent No. 539,342, dated May 14, 1895.

Application filed January 10, 1895. Serial No. 534,446. (No model.)

To all whom it may concern:

Be it known that I, JAMES O. BROWN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Car Guards or Fenders, of which the following is a specification.

The object of the present invention is to provide a car-guard which will normally occupy an elevated position under the car and can be thrown forward and down by the turning of the handle which applies the brake.

To this end, the invention consists in a number of novel combinations of elements recited in the appended claims.

The accompanying drawings illustrate an embodiment of the invention.

Figure 1 shows a side elevation of a portion of a street-car equipped with my improved guard, which is represented as lowered. Fig. 2 shows the same in front elevation. Figs. 3 and 4 show longitudinal sections, one with the guard lowered and the other with it raised. Fig. 5 shows a top plan view of the guard with its supports in section. Figs. 6, 7, and 8 show sections on lines 6 6, 7 7, and 8 8 of Fig. 5.

The letter *a* designates the car-frame, and *b* the brake-windlass, which operates through the usual connections to apply the brake *c*.

The guard is preferably composed of a rectangular frame *d*, preferably of piping, and slats *d'* fastened to strips *d''* which are bolted to the longer sides of the frame *d*. (See Fig. 6.) Lugs *d'''* are provided at the rear corners of the guard, and links *e* are jointed at their lower ends to the said lugs and at their upper ends to links *e'*, which are in turn jointed to the sides of the car-frame, said links *e* and *e'* constituting what may be termed flexible links, since they permit not only free longitudinal movement of the guard but also free vertical movement of the rear end thereof, so that the guard can readily assume the different positions shown in Figs. 3 and 4. Other links *f* are jointed at their lower ends to collars *f'* fastened on the sides of the guard-frame, and at their upper ends to the car-frame; and these latter radius-bars are longer than the radius-bars *e*, so that when the guard swings it will also be rocked. The radius-bars *f* are

rigid from end to end. Hence they may be termed inflexible, their office being to permit a forward and backward swinging movement of the central portion of the guard to which they are attached, without permitting said portion to deviate in its movement from the arc of a circle. A retracting spring *g* is attached at one end to the guard-frame and exerts a rearward and an upward pull on the guard, and thus normally holds the latter in the retracted position shown in Fig. 4, its forward portion being raised. A rod *h* extends between the bars *e*, and a chain *h'* is attached to said rod at one end and to the brake-windlass *b* at the other end, so that by turning said windlass and winding the chain thereon the links *e* will be swung forward and the forward portion of the guard consequently lowered.

The rear end of the spring *g* is attached to a lever *i*, which is pivoted at *i'* to a pendent bracket *i''* and connects at its lower end with the brake *c*, whereby the forward projection of the fender assists in applying the brake.

At the forward corners of the guard, there are provided lugs *j*, which support a pair of wheels *j'* having gears *j''*. A roller formed of an inner metal tube *k* and an outer rubber tube or covering *k'* having numerous small protuberances *k''* is journaled in the lugs *j* and carries gears *k'''* which mesh with the gears *j''*. It will thus be seen that when the wheels *j'* are running on the pavement the roller will be turned in the reverse direction to that in which the car is moving, and hence will tend to carry a body which it may encounter, over into the guard. When the guard is raised, the wheels and roller are idle.

The operation will be readily apparent from the above description, taken in connection with the drawings.

When the guard is not required, it occupies an elevated and retracted position where it is out of the way. When it is required, it can be quickly projected and lowered onto the track; and the guard being co-operative with the brake, it is sure to be thrown to operative position when needed, for the most natural action on the part of the motorman when there is danger of running down a person is to apply the brake. An important ad-

vantage of this arrangement is that no additional performance devolves upon the motor-man.

5 The rod *h* connected at its ends to the links *e* and to the chain at an intermediate point serves to impart to both links an equal movement, so that whether the chain be af-
10 fixed to the rod midway between the links or not, the bars will be moved alike and the fender will have an easy movement endwise of the car without any tendency to move side-
wise.

15 The spring *g* besides acting to retract the guard permits a swinging movement of the guard while it is being retracted, said movement raising the front end of the guard and lowering its rear end, as shown in Fig. 4.

What I claim as my invention is as follows:

20 1. In a street-car, the combination of a guard, inflexible links pivoted to the car and to the central portion of the guard, flexible links connecting the rear end of the guard with the car, whereby a free vertical swing-
25 ing movement of the rear end of the guard is permitted, and means for vibrating the guard to raise and depress its forward end.

30 2. In a street-car, the combination of a guard, inflexible links pivoted to the car and to the central portion of the guard, flexible links connecting the rear end of the guard with the car, whereby a free vertical swing-
35 ing movement of the rear end of the guard is permitted, a retracting spring applied to the guard, and means for swinging the guard forward.

3. In a street-car, the combination of a guard, inflexible links pivoted to the car and

to the central portion of the guard, flexible links connecting the rear end of the guard with the car, whereby a free vertical swing- 40
ing movement of the rear end of the guard is permitted, a retracting spring applied to the guard, and a windlass and chain for drawing said guard forward.

4. In a street-car, the combination with the 45
brake-windlass, of a guard, inflexible links pivoted to the car and to the central portion of the guard, flexible links connecting the rear end of the guard with the car, a chain connecting the guard with said brake-wind- 50
lass, and a retracting spring connected with the said guard.

5. A car-fender comprising a guard, inflexi- 55
ble links pivoted to the car and to the central portion of the guard, flexible links connect-
ing the rear end of the guard with the car, a retracting spring connected with the guard, and means for projecting the guard.

6. The combination, in a street-car, of a brake and brake-windlass; a fender composed 60
of a guard and links supporting the same; a flexible connection between said guard and the brake-windlass; a retracting spring applied to the guard; and a lever connected with the brake and with the retracting spring. 65

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 14th day of December, A. D. 1894.

JAMES O. BROWN.

Witnesses:

C. F. BROWN,
F. P. DAVIS.