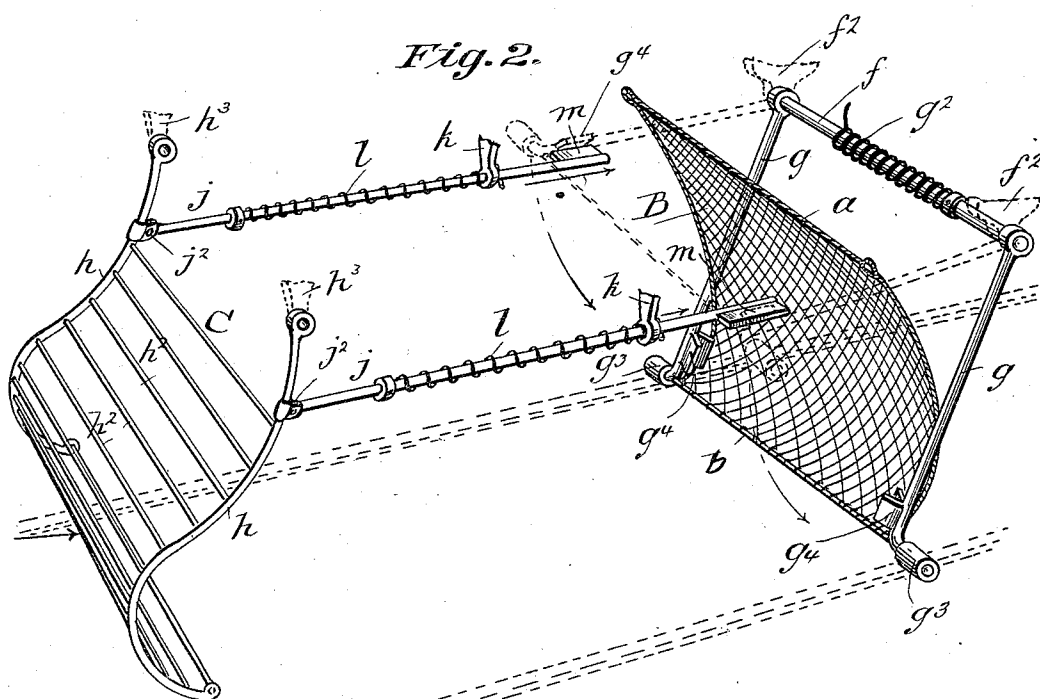
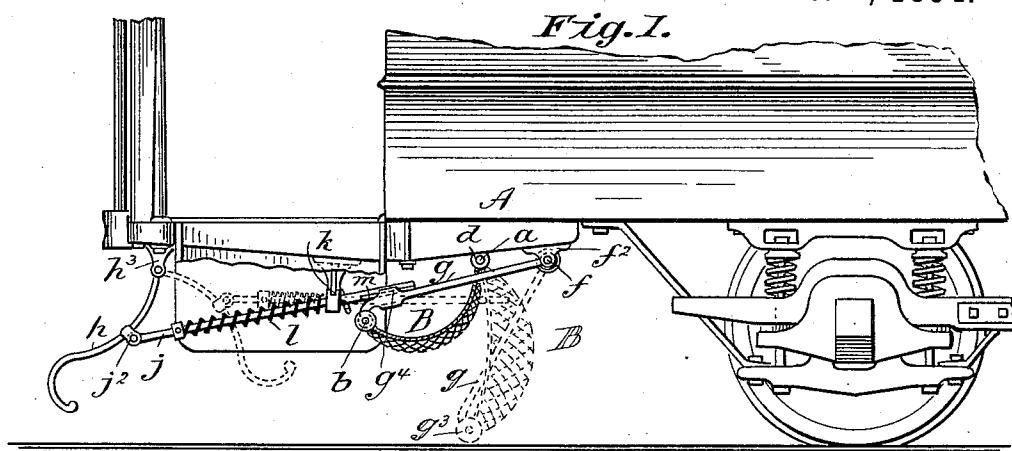


(No Model.)

D. A. FREEMAN.
SAFETY GUARD FOR STREET CARS.

No. 530,174.

Patented Dec. 4, 1894.



Witnesses:
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UNITED STATES PATENT OFFICE.

DANIEL A. FREEMAN, OF BOSTON, MASSACHUSETTS.

SAFETY-GUARD FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 530,174, dated December 4, 1894.

Application filed November 23, 1893. Serial No. 491,726. (No model.)

To all whom it may concern:

Be it known that I, DANIEL A. FREEMAN, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Safety-Guard Appliances for Street-Cars, of which the following is a specification.

This invention relates to guards and fenders for street-cars, more particularly electric railway-cars.

The object of the invention is to improve the safety devices especially with respect to their capabilities for the efficient performance of their expected functions, to their simplicity, and also with respect to their unobtrusiveness and even slightly appearance upon the car.

The invention embodies a downswinging guard mounted upon an under part of the car near the end thereof, a support for normally holding the guard swung up from the road-bed and movable to disengage the guard, and a device for releasing the support from its engagement with the guard which has a position near the road-bed in advance of the guard whereby it is caused to be operated by its impact against an object on the railway, and all as will hereinafter fully appear and be set forth in the claim.

Reference is to be had to the accompanying drawings, in which—

Figure 1 is a side elevation at the one end portion of a car with the improved safety appliances operatively mounted thereunder. Fig. 2 is a perspective view of the safety appliances.

Describing the devices in detail, in connection with said drawings, A represents the car-body having thereunder at a suitable distance to the rear of the platform the guard, B, which, as shown, is in the form of a flexible net supported between the upper and lower horizontal rods, *a* and *b*, the upper of which is pivotally mounted, as at *d*, in the depending ear lugs of the car-body.

f represents another rod, or rock-shaft, horizontally and transversely mounted in the depending ear lugs, *f*², *f*², on the car-body, to the rear of the guard. This shaft has the duplicated, rigidly connected, radial arms, *g*, *g*, which have a downward and forward incli-

nation, their extremities being connected to the forward rod, *b*, which supports the guard net. The spring, *g*², applied for torsion action on the rock-shaft has its stress to throw the arms, *g*, *g*, downward so that their extremities will be in contact on, or in proximity to, the ground; and the said extremities preferably have the rollers, *g*³, *g*³, to run on the tracks, overcoming any liability of the arms becoming buckled.

The fender, C, is shown as consisting of a light framing of metal or wood, comprising the paired ogee side members, *h*, *h*, and the series of uniting cross-rods, *h*². The side members are pivotally hung in the ear lugs, *h*³, depending from the front end portion of the car platform and the fender, as a whole, normally has a downward and forward inclination with its forward lower portion rearwardly deflected.

j, *j* represent paired, and somewhat nearly horizontal, rods having their forward ends linked, or pivoted, to the fender, for instance, as seen at *j*², and having portions to the rear of such connection slide-supported in the apertured hangers, *k*, *k*, fixed to the under side of the car. These rods have at their rear extremities the lateral projections, or shelves, *m*, *m*, for the support of the arms, *g*, *g*, through the lugs, *g*⁴, *g*⁴, thereof,—the springs, *l*, *l*, applied to, and upon, the rods, *j*, insuring a forward presentation of the rods to maintain the said shelf-like projections in their positions for supporting engagement with the said lugs, and to hold the fender in its position near the road-bed.

Any object of large size, but of comparatively slight weight, on being struck by the fender will usually be thrown forward thereby, but a person, or heavy obstruction, liable to be damaged, or to do damage, will, by overcoming the force of the springs, *l*, *l*, secure the retreat and upswinging of the fender, (see dotted line position indicated in Fig. 1) the displacement of the support for the arms, *g*, and the instantaneous downswinging of the guard net to catch and carry the person, or obstruction. The guard may be restored to its original position by moving the rods, *j*, forward, swinging up the arms, *g*, and then permitting the rods to be spring-pressed to their rearward limits.

By providing a door-latch form of catch or snap, either as the shelf-like supports of the rods, *j*, or upon the arms, *g*, the guard could be restored to its original position without the necessity of first forwardly moving the rods.

The fender is primarily to be regarded as a device for automatically operating and bringing down the guard-net, and hence its shape to fulfill this function may be variable within wide limits, but to serve also the purposes of a fender for clearing the track of obstructions of light character, such device would naturally partake of a form extending over a considerable frontal area, substantially as shown.

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

The combination with the car-body of the guard-net having an upper part thereof mounted under the body for swinging movements, the rock-shaft with the spring and the arms, *g*, *g* which are connected to the free end of the guard, and which have the lugs, *g*⁴, the pivotally-hung fender, in advance of the guard, and the longitudinally supported rods, *j*, *j*, connected to the fender and having the lateral lugs for the supporting engagements therewith of the lugs, *g*⁴, and the forwardly pressing springs applied to said rods, substantially as described.

DANIEL A. FREEMAN.

Witnesses:

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