

(No Model.)

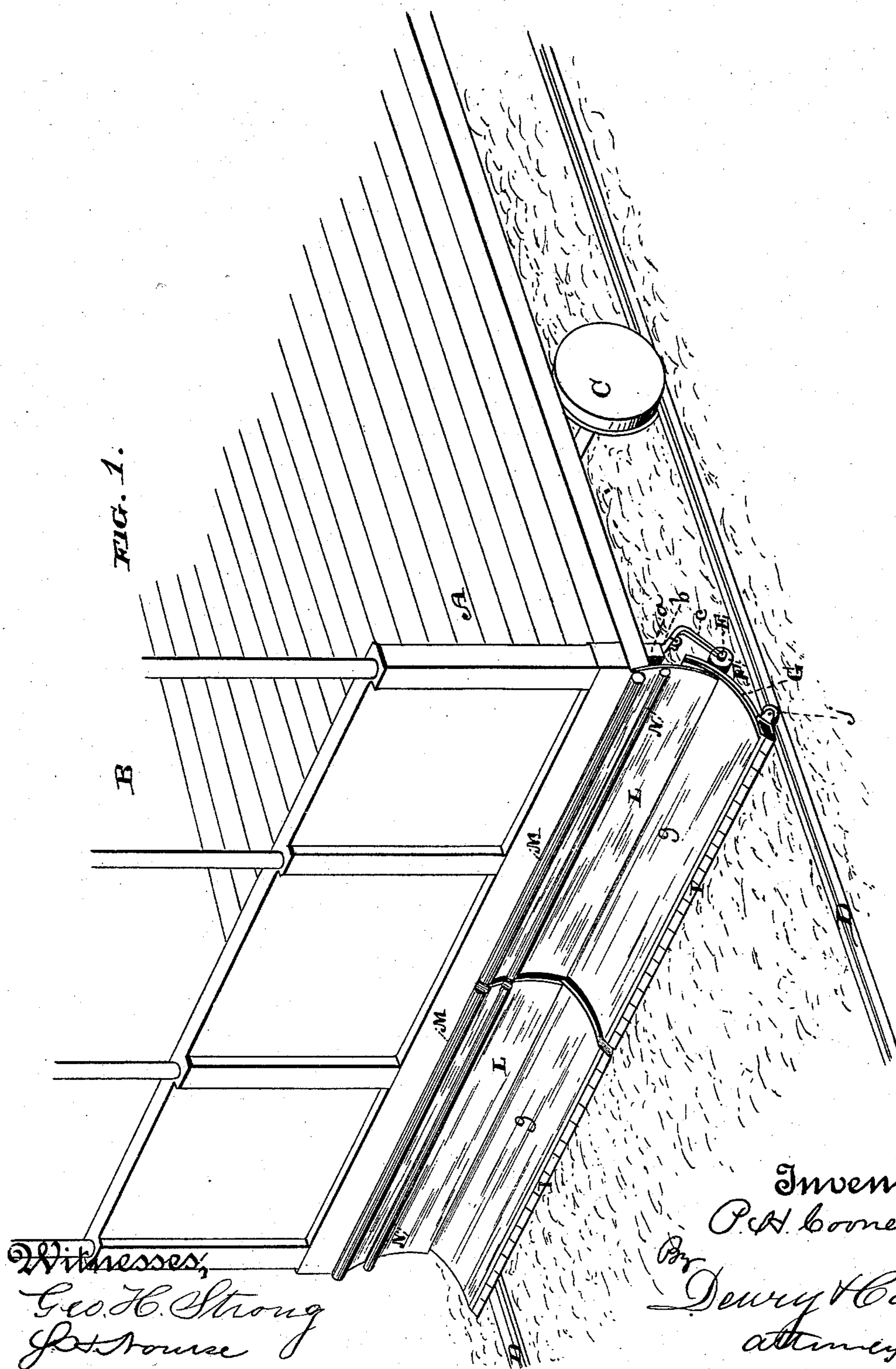
3 Sheets—Sheet 1.

P. H. COONEY.

SAFETY FENDER FOR CARS.

No. 290,746.

Patented Dec. 25, 1883.



Inventor,
P. H. Cooney
Dewey & Co.
attorneys.

(No Model.)

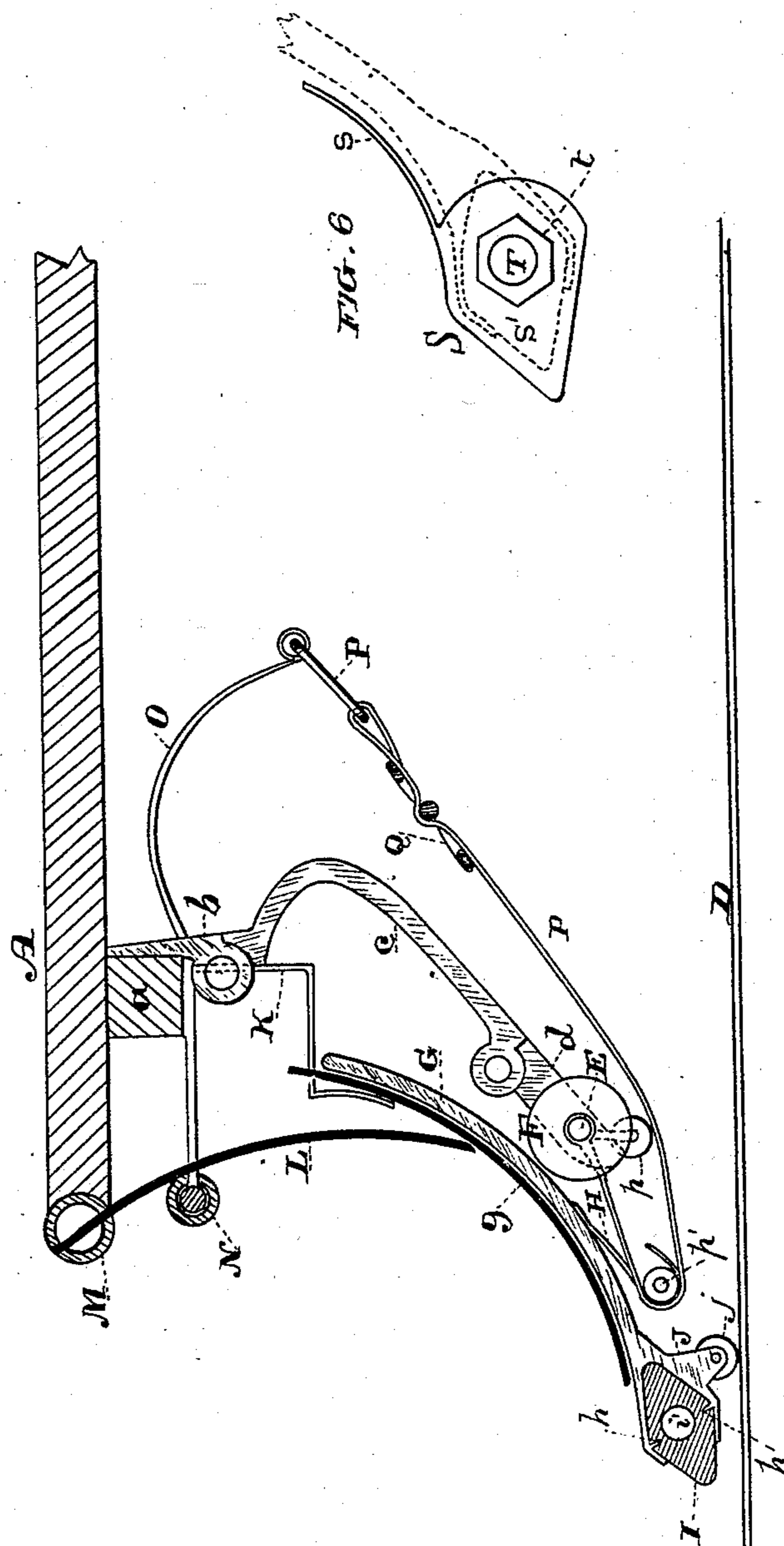
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FIG. 2.



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3 Sheets—Sheet 3.

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FIG. 3

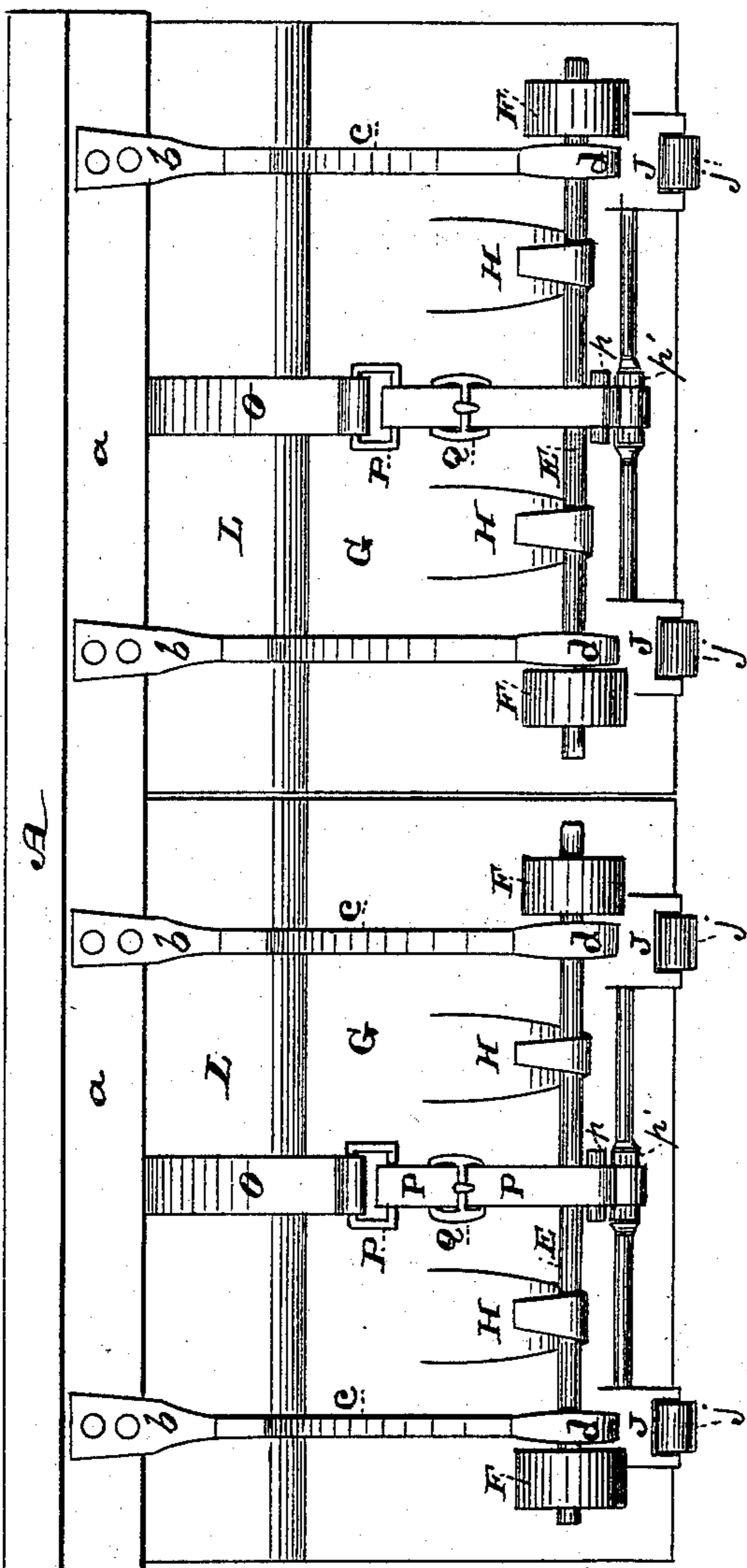


FIG. 5

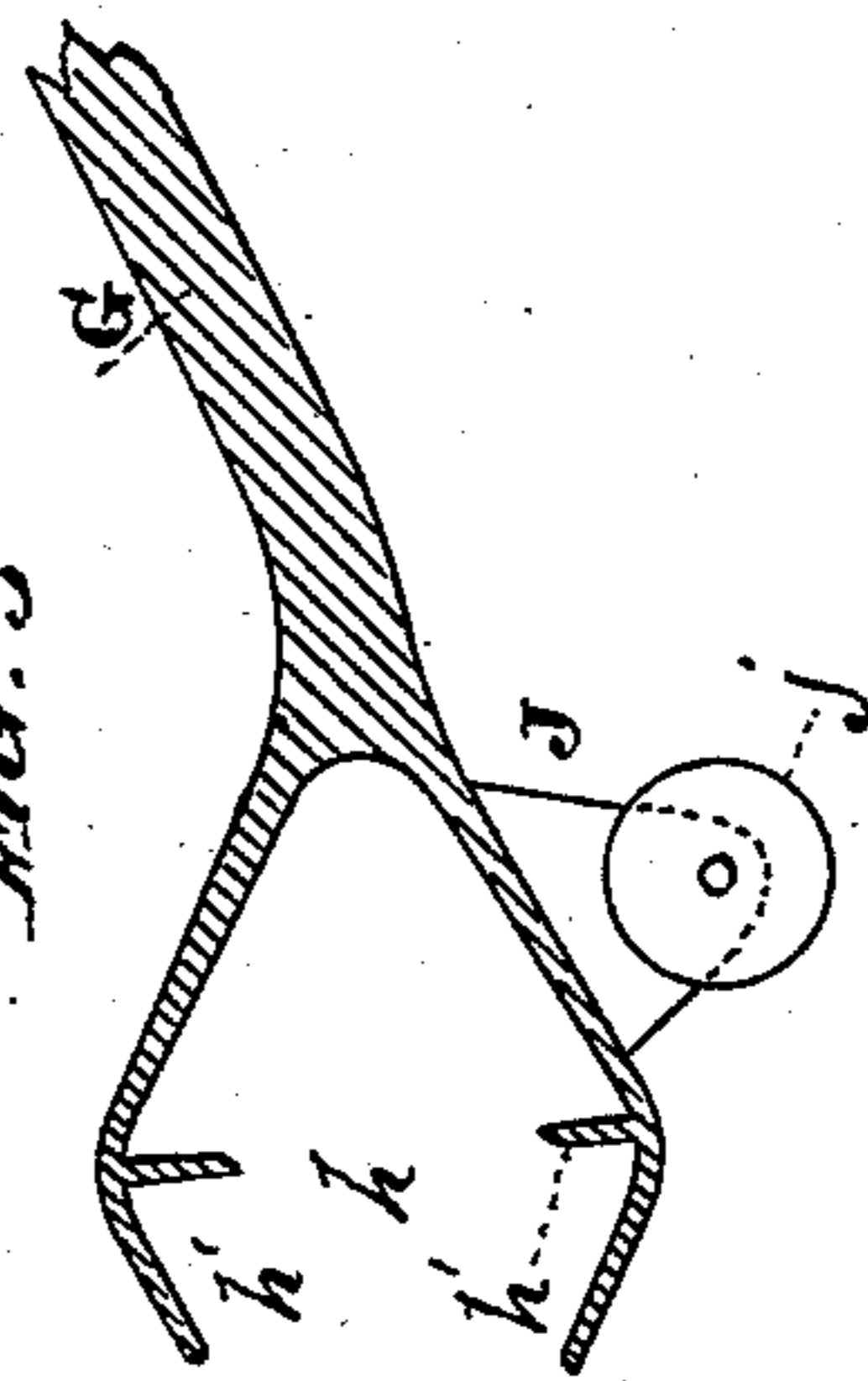
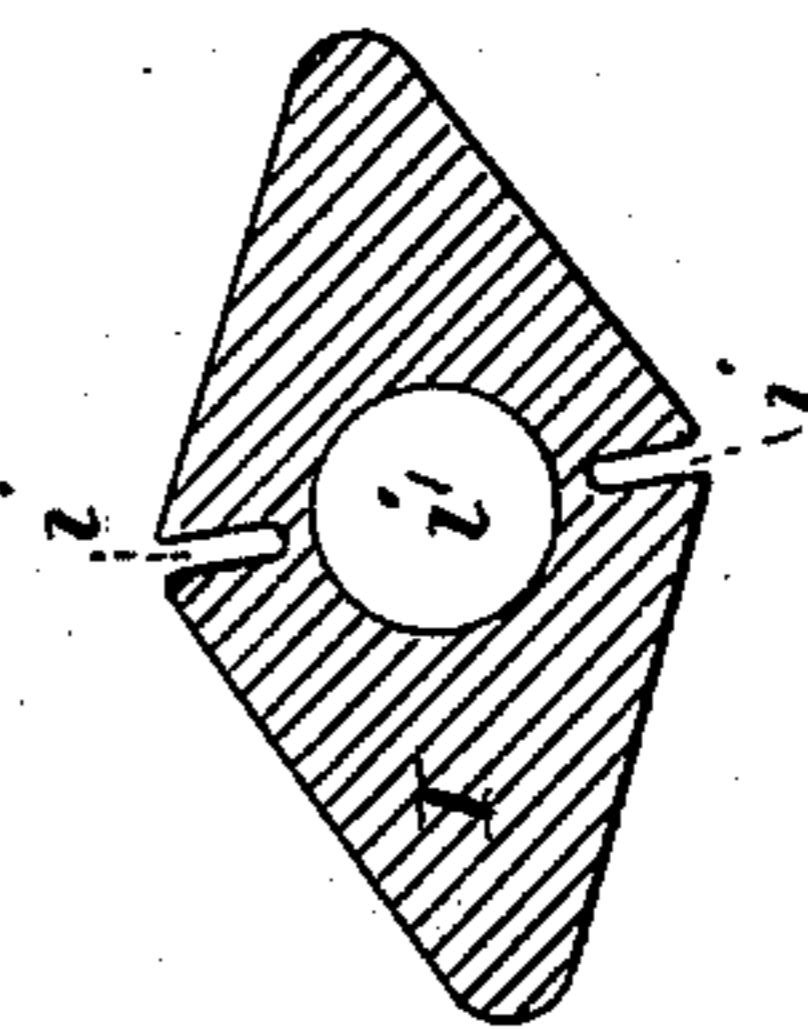


FIG. 4.



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UNITED STATES PATENT OFFICE.

PATRICK H. COONEY, OF SAN FRANCISCO, CALIFORNIA.

SAFETY-FENDER FOR CARS.

SPECIFICATION forming part of Letters Patent No. 290,746, dated December 25, 1883.

Application filed September 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, PATRICK H. COONEY, of the city and county of San Francisco, and State of California, have invented an Improvement in a Safety Guard or Fender for Cars; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to that class of attachments to street-railway cars which are designed to protect persons from injury by preventing them from getting under the car.

My invention consists in a two-part swinging or hinged guard having a rubber nose-piece traveling just above the road-bed.

The peculiar connection between the guard and the car-platform, the means for effecting its operation, and certain novel cushions and shields further constitute my invention.

The object of my invention is to provide a guard or fender which shall be able to accommodate itself to the motion of the car-body on its springs and to the inequalities of the road, remaining at all times in position to ward off injury to persons by preventing them from getting under the car and wheels.

Referring to the accompanying drawings, Figure 1 is a perspective view of my guard as applied to a car. Fig. 2 is a vertical section of platform A and guard device. Fig. 3 is a rear elevation of same. Fig. 4 is a view of one section of rubber nose-piece I. Fig. 5 is a vertical section of lower end of guard G, showing socket *h*. Fig. 6 is a side elevation of the snow-shield when attached to the nose-piece.

A is the platform of a car, B, having wheels C traveling on tracks D. Under the platform is a cross-sill, *a*, to which are bolted short arms or bearings *b*, Fig. 2. To the lower ends of these arms are hinged or pivoted long arms *c*, curving backwardly and downwardly toward the ground. To the lower ends of these are hinged or pivoted short arms *d*. There are four of these arms, *b c d*, arranged in pairs, each pair of short arms *d* having journaled in their ends a shaft, E, each end of which carries a rubber roller, F, Fig. 3.

G G represent the guards or fenders. There are two of these, each covering about one-half the width of the platform A. They consist of metal plates, cast or otherwise made, having in outline a rectangular shape, while their

surface is concavo-convex, the concave face being outward. These guards are covered by rubber sheeting or plates *g g* on their faces. They are laid over the arms *c d*, and are secured to the shafts E by arms or bearings H, so that said shafts become axes, upon which the guards may oscillate slightly when forced so to do, as I shall explain. The lower edges of the guards are cast with an incomplete diamond-shaped socket, *h*, open in front, and provided with inwardly-projecting flanges *h'*, Fig. 5. This socket is to receive the rubber nose-piece I, which is preferably molded in sections of a rhombic shape, Fig. 4. These sections are each provided with slits *i* in their edges, which receive the flanges *h'* when the sections are slipped into socket *h* from the ends. When in place, the end of the nose-piece projects forward and toward the ground through the open front of socket *h*, Fig. 2. I prefer to make the sections of the nose-piece with a hollow center, *i'*, for two reasons, namely: to economize rubber, and, more particularly, to give them more spring when pressed, whereby they are softer in contact and maintain their position in the socket *h* better.

Under the lower side of socket *h* is cast a bearing, J, near each end of the guard-plates, in which are mounted small rollers *j*, the outer ones of which are in the same vertical planes with the rails D, and the inner ones travel over the center of the road-bed, or over the slot-irons when used on a cable-dummy.

K K are brackets, the upper ends of which are bolted to beam *a* under the platform, their lower ends extend downwardly, thence forwardly over the tops of guard-plates G, and down in front of them, whereby they serve as stops to the forward movement of the upper edges of the guards.

L L represent the upper guards or shields, consisting of sheets or plates of rubber. Their upper ends extend to the forward edge of the platform and are secured thereto, or, as here indicated, terminate in a transverse rubber cylinder or hose, M, secured to the edge of the platform, and serving as a buffer or cushion. These shields are concaved, and their lower edges overlap the upper edges of the guards G G. The upper ends of the brackets K extend through the centers of the shields L, to

secure them at this point, and they may be concealed by a rubber hose, N, which serves both as a cushion and as an ornament, Fig. 2.

Secured to the beam *a*, and extending backwardly, curving downwardly, are springs O, to the lower ends of which are secured straps P. These straps extend forwardly over friction-pulleys *p* on shafts E, around pulleys or rollers *p'*, secured to the under lower edges of the guards G and up to the shafts E, to which they are secured. These straps serve to hold the guards down with their nose-pieces near the ground, and to return them under the influence of springs O to position when they are pressed up. The straps are provided with buckles Q, whereby the tension of the springs may be regulated.

I will now proceed to explain the operation of my safety-guard, from which a better understanding of the invention may be obtained.

The platform of a car, being a portion of its body, is subjected to the action of the main springs, and rises up and down and pitches and rolls with the body. It is necessary, therefore, in constructing a guard which depends upon the platform for support, to provide for these motions and variations, so that it may remain operative, and not be injured by contact with the road-bed; also, when the device is used on cable-cars provision must be made for meeting changes of grade. This latter provision is made as follows: The small rollers *j*, under the lower edges of the guards, first meet the tracks or road-bed at the change of grade, and force upward the nose of the guard, preventing it from coming in contact with the ground. This motion is permitted the guards because of the shafts E, which oscillate in their bearings. The springs O, through straps P, return the guards to position, and the brackets K limit them; but in the pitching of the car some lurch might be made sufficient to bring the guards down to the road-bed and injure them. In such case the larger rollers F on shafts E first strike the ground. This contact bends upward the hinged arms *d*, and throws the guards much higher than their own oscillation could effect; and if a further movement is required the arms *c* also move on their hinges, thus providing for a movement the limit of which is sufficient to clear the guard effectually; and the same result would occur if, by some accident, an obstruction is met which could force itself under the nose-piece. The oscillation of the guards being limited by their upper edges coming in contact with the arms *c*, any further movement would bend the arms *d*, and also, finally, the arms *c*, as heretofore described; but this would seldom happen, because the tendency of the guards, when an obstruction is encountered in front, would be to remain down, and by this means nobody could get under them. If a body were struck, the impact would be broken by the rubber nose-piece, and the guards and shields, being also of rubber, would not do more than slightly bruise

a body received upon them. The rubber cushions M N further tend to this result.

The advantage in having this device made in two independent and separate parts is that it may with better facility accommodate itself to the motions of the car and the inequalities of the road.

In colder climates, where there are ice and snow, in order to prevent the rubber nose-piece from being cut or injured, I use a removable shoe, S, Fig. 6. This consists of a metal covering adapted to fit over the nose-piece. It has an upwardly-extending wing or plate, *s*, and perforated ends *s'*. When fitted to its place, a rod or bolt, T, is passed through the perforated ends *s'*, and through the perforated center of the nose-piece, and receives a nut, *t*, upon its end. This secures the shoe in its place, and by removing the bolt the shoe may readily be taken off.

If preferred, I could, instead of fixing the guards G G in the same plane, have them inclined, converging to a point in front—as a pilot of a locomotive.

I am aware that guards and fenders for cars are not new, and that a guard has been invented which, in meeting a change of grade, is adapted to accommodate itself by turning slightly on its joints. I do not claim these things, broadly; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. The platform A, the arms *b c d*, hinged or jointed together, as shown, the shafts E, and rollers F on their ends, in combination with the guard-plates G G, secured above and in front of said shafts E, substantially as and for the purpose herein described.

2. The platform A, arms extending from the platform downwardly, and shafts E, journaled to oscillate in the lower ends of said arms, in combination with the guard-plates G G, secured upon and in front of said shafts, and having the rollers *j* under their lower edges, whereby the guards may be oscillated with the shafts E as axes, substantially as and for the purpose herein described.

3. The platform A, arms *b c d*, jointed or hinged together as shown, the shafts E, journaled in arms *d*, and the rollers F on said shafts, in combination with the guards G G, secured to and in front of said shafts, and the rollers *j*, under the lower edges of said guards, substantially as and for the purpose herein described.

4. The platform A, jointed arms *b c d*, shafts E, and rollers F, in combination with the guards G G, secured to and in front of said shafts, the springs O, and straps P, secured to the shafts E, to return and hold the guards in position, and the brackets K, to limit the movement of the guards, substantially as herein described.

5. The adjustable two-part safety-guard G G, covering in the space under and in front of the platform of a car, in combination with said platform and separate connections between

each part of the guard and the platform, whereby each part may have a separate adjustment, substantially as shown, and for the purpose herein described.

5 6. In a safety guard or fender for cars, the metal guard-plates G G, covered on their outer faces with rubber sheeting or plates *g g*, and terminating at the lower edge with a nose-
10 piece, I, formed in rhombic shape, provided with slits *i*, substantially as herein described.

7. In a safety guard or fender for cars, the guards G G, in combination with a rubber
15 nose-piece or cushion secured to their lower edges and traveling near the road-bed, said piece being formed in sections of rhombic shape and provided with slits *i*, substantially as herein described.

8. The guard-plates G G, having a socket, *h*, open in front, formed in their lower edges,
20 in combination with a rubber nose-piece, I, fitted in said socket and projecting in front, substantially as herein described.

9. The guard-plates G G, having a socket, *h*, open in front, and with flanges *h'* formed in
25 their lower edges, in combination with the rubber nose-piece formed in sections of rhombic shape, and having slits *i*, whereby said sections are adapted to fit said socket and project through the front, substantially as herein
30 described.

10. The guard-plates G G, having a socket, *h*, open in front, formed in their lower edges, in combination with the rubber nose-piece
35 formed in sections of rhombic shape, having an open or perforated center, *i'*, and adapted to fit in socket *h*, substantially as herein described.

11. The guard-plates G G, having a rubber nose-piece, I, on their lower edges, in combi-

nation with the shoe S, fitting over said nose- 40 piece, and means for securing it in place, substantially as and for the purpose herein described.

12. The guard-plates G G, having a rubber nose-piece, I, with a perforated center on their 45 lower edges, in combination with the removable shoe S, having wing or plate *s* and perforated ends *s'*, and the means for securing said shoe to the nose-piece, consisting of the bolt-rod T, passing through ends *s'* and perforated 50 center of the nose-piece, and the nut *t*, substantially as herein described.

13. In a safety guard or fender for cars, the platform A and the swinging or adjustable 55 guards G G, in combination with the rubber shield-plates L L, secured to the platform and overlapping the upper edges of the guards, substantially as and for the purpose herein described.

14. The platform A and guards G G, in combination with the shields L L and the trans- 60 verse rubber cylinder or cushion M, substantially as and for the purpose herein described.

15. The platform A, guards G G, and a jointed or hinged connection between said 65 guards and platform, in combination with the springs O, straps P, pulley or roller *p'*, on the lower edge of said guards, the shafts E, and the stop-brackets K, all arranged and operating substantially as and for the purpose here- 70 in described.

In witness whereof I have hereunto set my hand.

PATRICK H. COONEY.

Witnesses:

C. D. COLE,

J. H. BLOOD.