

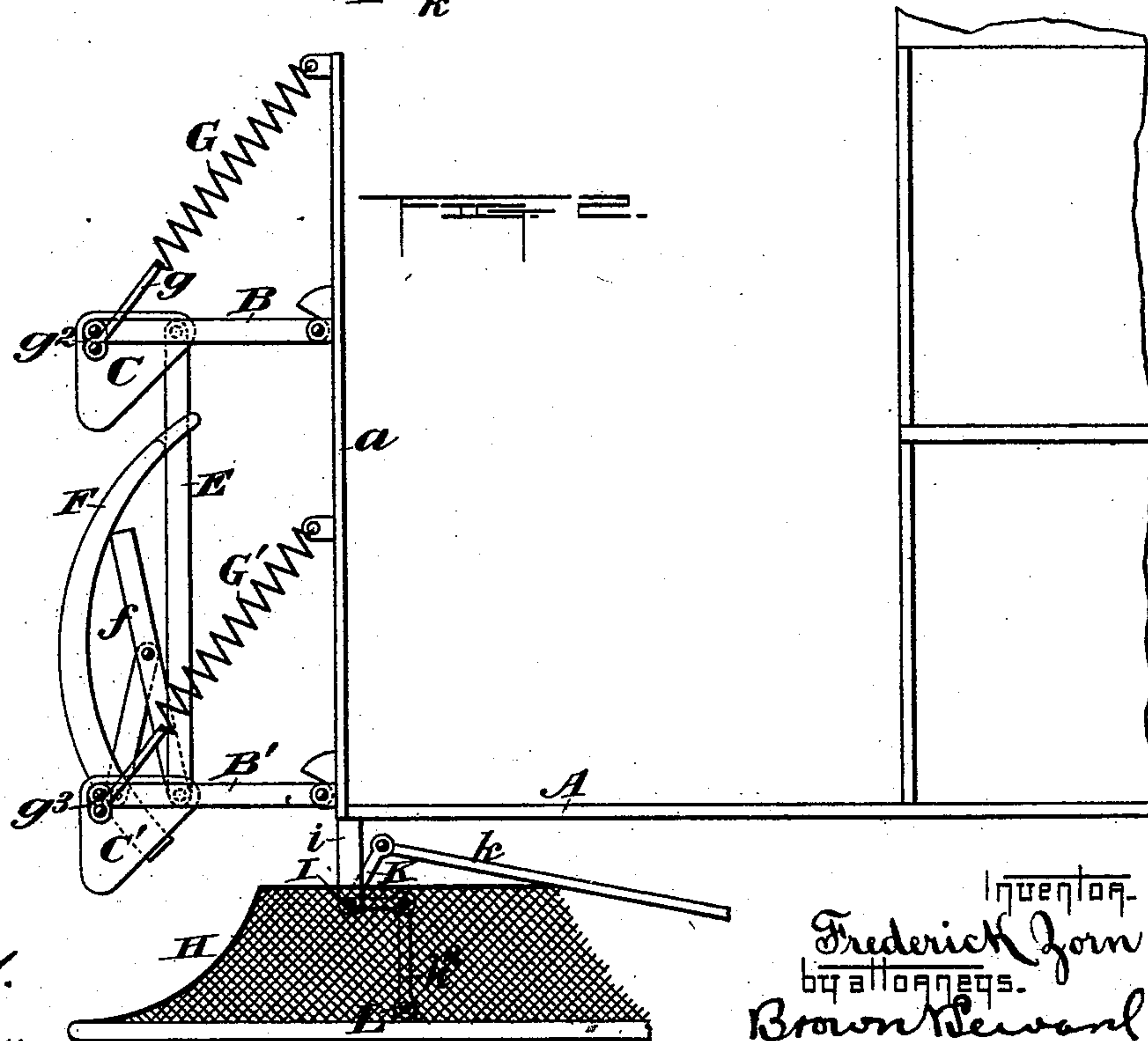
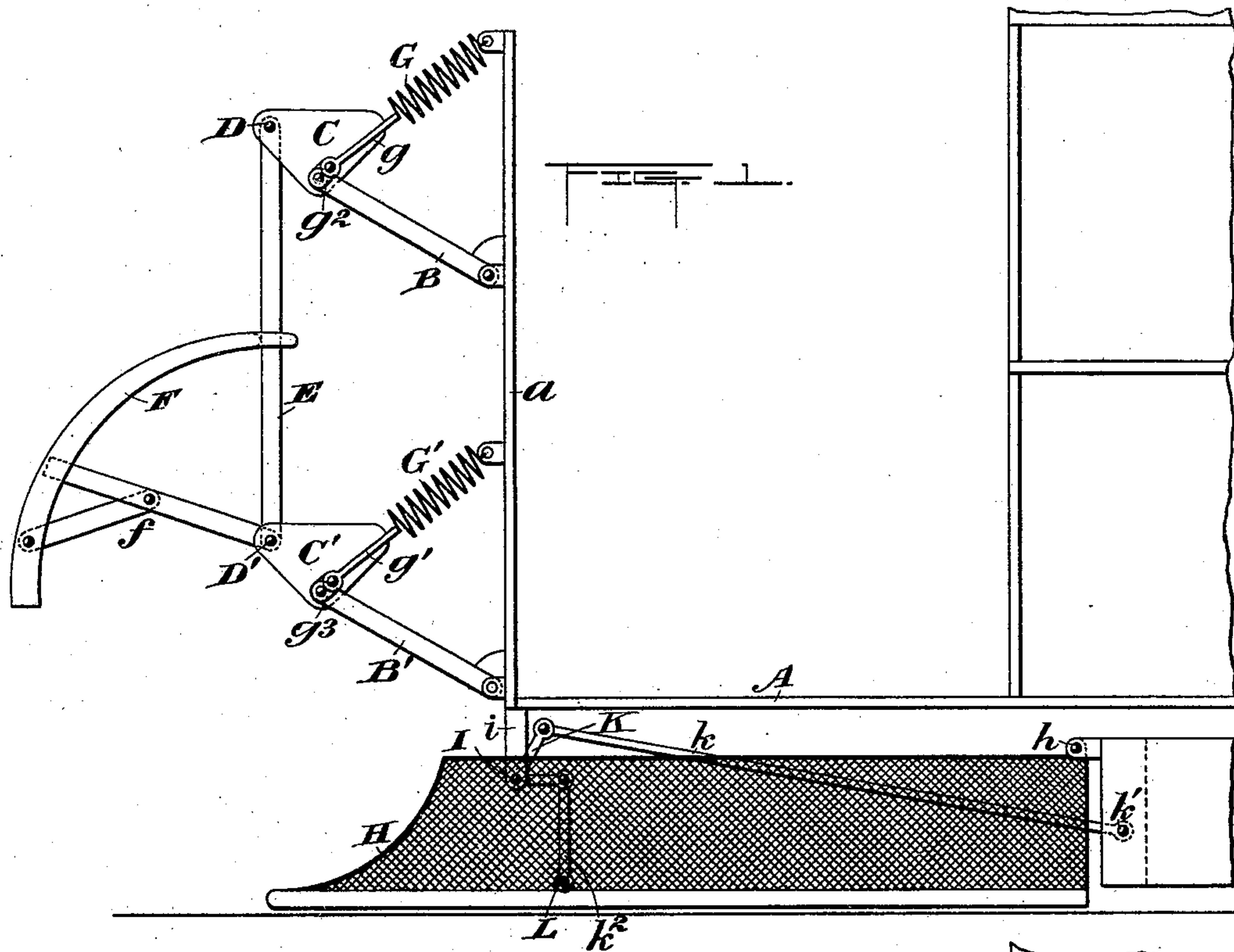
(No Model.)

2 Sheets—Sheet 1.

F. ZORN.  
SAFETY GUARD FOR CARS.

No. 529,095.

Patented Nov. 13, 1894.



Witnesses.  
R. B. Howard.  
George Barry.

Inventor-  
Frederick Jorn  
by attorneys.  
Brown & Newell

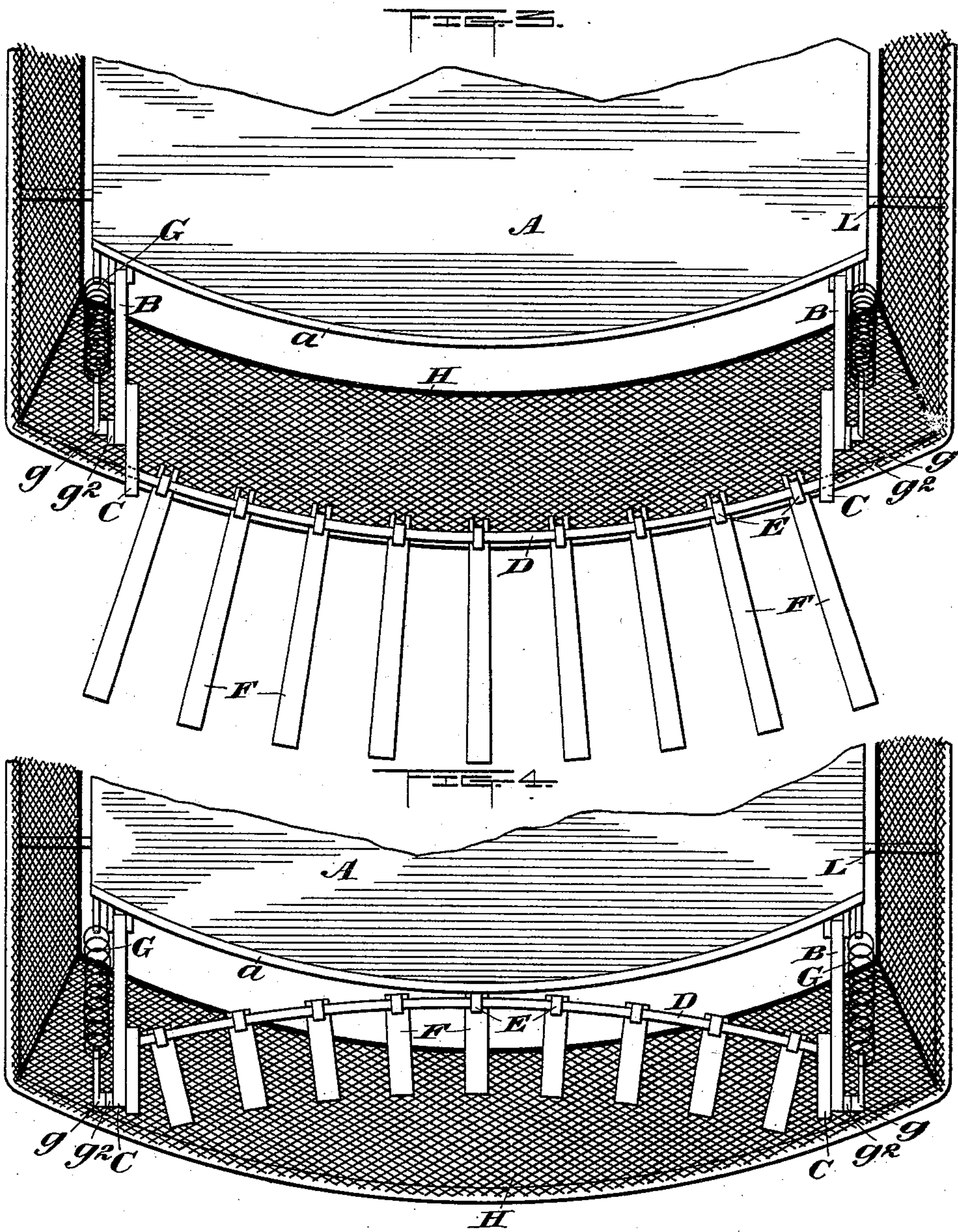
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# UNITED STATES PATENT OFFICE.

FREDERICK ZORN, OF NEW YORK, N. Y.

## SAFETY-GUARD FOR CARS.

SPECIFICATION forming part of Letters Patent No. 529,095, dated November 13, 1894.

Application filed June 21, 1894. Serial No. 515,233. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK ZORN, of New York, in the county and State of New York, have invented a new and useful Improvement in Safety-Guards for Cars, of which the following is a specification.

My invention relates to an improvement in safety guards for cars, the object being to provide an efficient device which may be secured to the dash board of a car in position to strike a person or other object which might happen to be in front of the car a yielding blow.

A further object is to provide a device which will automatically return to its normal position.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 is a side view of my device in its normal or extended position, one guard piece and upright only being shown for the sake of clearness. Fig. 2 is a similar view of the device in its contracted or rearward position. Fig. 3 is a top plan view of my device, showing the device in its extended position, as in Fig. 1; and Fig. 4 is a top plan view of the same, showing the device in its contracted position, as shown in side elevation in Fig. 2.

A designates the platform of a car and *a* one of its dash boards. To the front of the dash board are pivoted two sets of swinging arms B and B', the arms B being located some distance above the arms B'. To the outer ends of the arms B B', I pivot upper and lower triangular pieces C, C'. The triangular pieces C are secured to rock together by a curved rock bar D which follows substantially the contour of the dash board, when the guard is in its normal position. The triangular pieces C' are also spaced apart and secured together by a corresponding curved rock bar D'. The upper and lower curved bars D and D' are connected by a number of vertical rods or bars E. A plurality of curved guard pieces F, one for each of the bars E, have a sliding engagement at their upper ends with each of the said vertical bars E and, at or near their lower ends, are connected to the curved bar D' by jointed arms *f*, which hold the curved guard pieces F normally extended. When the device is in its normal position, the guard

pieces F radiate outwardly, at substantially right angles to the curved bars D, D'.

The arms B, B' and the parts which they support are held yieldingly in position by means of springs G, G' which are secured at their upper ends to the dash board and at their lower ends to the free ends of rods *g*, *g'*. These rods, *g*, *g'* are pivotally secured at their lower ends to crank levers *g*<sup>2</sup>, *g*<sup>3</sup> which are secured to rock with the triangular pieces C, C'.

Underneath the platform of the car, and extending forwardly a short distance beyond the dash board, I secure a fender H which is preferably made of wire netting. The fender is supported beneath the car in the following manner:—At its upper rear corners, it is pivotally secured to the car truck as shown at *h* (Fig. 1). A rod I, extends transversely across under the platform and is secured at its ends in brackets *i*. Upon this shaft, I mount a two armed lever K in position to rock thereon. From the upper arm of this lever, I extend a bar *k* rearwardly and pivot it to the car truck at a point considerably below the shaft I, as shown at *k'*. From the lower arm of the two armed lever K, I extend a short rod *k*<sup>2</sup> to a cross shaft L on the fender H. The reason for securing the fender in this manner is that, as the car platform rises and falls to a greater or lesser degree, the fender is caused to recede from or approach the platform, so that it is at all times in close proximity to the track without touching it.

Proceeding to describe the operation of my invention: as the guards F strike a person or other object, they will be forced backwardly, because of their jointed connection, the upper ends of the guards sliding upwardly along the vertical rods E. After the guards have been forced inwardly, the triangular pieces are forced rearwardly, swinging them upon their pivotal connections with the arms B, B' against the tension of the springs G, G'. These triangular pieces are forced rearwardly to a greater or lesser degree, according to the resistance of the object which is struck by the guard, the position shown in Fig. 2 being the extreme rearward position of the triangular pieces. The arms B B' are also forced more or less in a downwardly direction.

It will be seen that, because of the curved



bars D, D' being secured firmly to the triangular pieces C, C', that, as the triangular pieces are rotated in a rearward direction, the curved rock bars instead of following the contour of the dash board will be caused to curve inwardly to a greater or lesser degree, thereby drawing the outer ends of the guard pieces F closer together, causing them to hold more securely any part of the person or object which may have been forced between them, while in their outermost position.

If the guard pieces F should fail to grasp the person or object snugly, it will be seen that the fender H beneath the guard pieces F will prevent the person or object from rolling beneath the car.

After the person or object has been withdrawn from in front of the guard, the different parts will again resume their former extended position by the contraction of the springs G, G'. The guard pieces F will resume their extended position, because of the location of their jointed connection with the lower curved rock bar D'.

It is evident that slight changes might be resorted to in the construction and arrangement of the several parts, without departing from the spirit and scope of my invention, hence I do not wish to limit myself strictly to the structure herein set forth, but

What I claim is—

1. A safety guard for cars, comprising a rock bar, means for supporting it, and a series of guard pieces secured to the rock bar in yielding adjustment spaced apart and extending outward away from each other, the rock bar being constructed to draw the free ends of the guard pieces toward each other as it is rocked rearwardly, substantially as set forth.

2. A safety guard for cars, comprising a

rock bar curved outwardly when in its normal position, means for yieldingly holding the rock bar in its normal position, and a series of yielding guard pieces secured to the rock bar, the free ends of said guard pieces being spaced apart and extended outward away from each other when the bar is in its normal position, and drawn toward each other as the bar is rocked rearwardly, substantially as set forth.

3. A safety guard for cars, comprising a pair of arms secured at their inner ends to the car, supporting pieces pivoted to the outer ends of the said arms, a rock bar secured to the said supporting pieces, springs secured to the car and the supporting pieces for yieldingly holding the rock bar in its forward position, and a series of yielding guard pieces secured to the rock bar, substantially as set forth.

4. A safety guard for cars, comprising a pair of rock bars one above the other, means for supporting the rock bars, a series of vertical rods, connecting the two rock bars, a series of yielding guard pieces, one for each rod, secured to the lower rock bar by jointed arms, the upper ends of the guard pieces having a sliding engagement with the vertical rods, substantially as set forth.

5. A safety guard for cars, comprising a rock bar, means for yieldingly holding the rock bar in its forward position, a series of rearwardly yielding guard pieces secured to the rock bar, and a fender secured to the car and extending beneath the guard pieces and rock bar, substantially as set forth.

FREDERICK ZORN.

Witnesses:

FREDK. HAYNES,  
R. B. SEWARD.