

W. R. BRUCE & F. COUTTS.
CAR FENDER.
APPLICATION FILED JUNE 18, 1909.

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938,209.

Fig. 1.

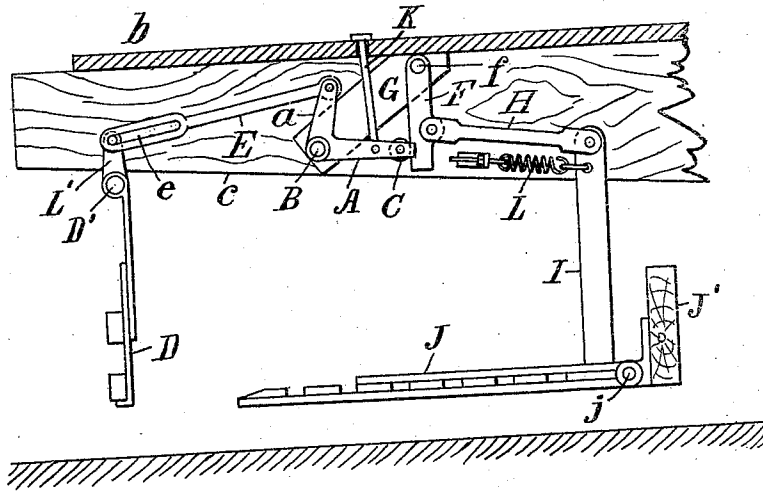


Fig. 2.

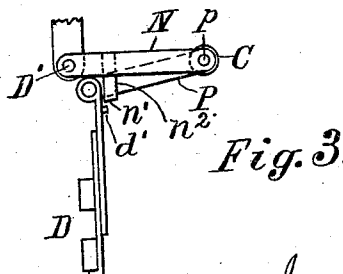
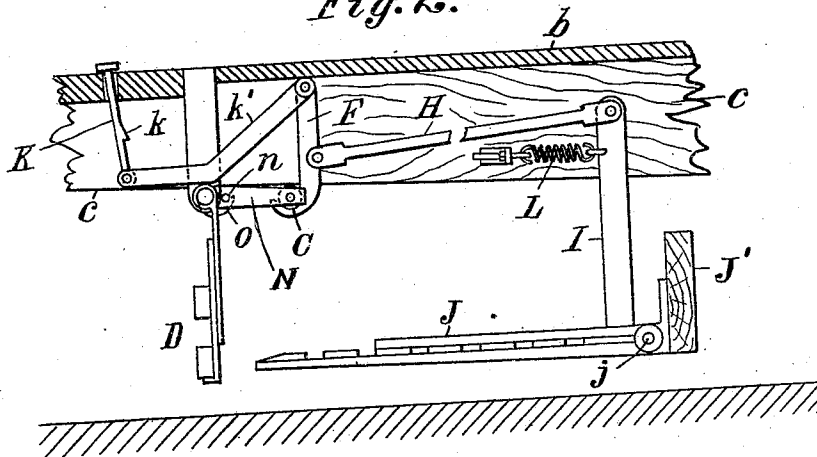


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM ROSS BRUCE, OF PAISLEY, AND FREDERICK COUTTS, OF ELDERSLIE, SCOTLAND.

CAR-FENDER.

938,209.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, WILLIAM ROSS BRUCE and FREDERICK COUTTS, both subjects of the King of the United Kingdom of Great Britain and Ireland, and residing, respectively, at Paisley and Elderslie, Scotland, have invented a certain new and useful Improvement in Car-Fenders, of which the following is a specification.

This invention relates to tramway or like lifeguards of the gate and tray type, and it has for its object to provide an improved arrangement of mechanism for operating the lifeguard.

In the accompanying drawings, Figure 1 is an elevation showing diagrammatically one arrangement of the devices for operating the lifeguard. Fig. 2 shows a modified arrangement. Fig. 3 shows an alternative arrangement of devices from which the feeler or gate is suspended.

As shown in Fig. 1, the mechanism comprises a forked bell crank A which is pivoted on a pin B and carries a roller C or a sliding contact, said bell crank being actuated by the feeler or gate D of the lifeguard through the intermediary of a connecting rod E attached to the arm *a* of the bell crank A. The roller C is adapted to run on the edge of an upright link or lever F freely suspended from a pin *f* which may be attached to a plate G secured to one of the beams which support the car platform. As shown, the pin B on which the bell crank A is pivoted is also secured to the plate G. The link F is adapted to swing on the pin *f* and is connected by a rod H to the lever I secured to the tray J of the lifeguard, said tray J being hinged or pivoted at *j* to the pilot board J¹ or the like. When the tray J is in its normal or raised position, as shown, the link F hangs vertically and is by means of the spring L pressed against the roller C, which roller is in a position slightly below the center of the pivot B of the bell crank A; further downward movement of the bell crank A and roller C being prevented by the flanged head of the pedal rod K which projects through the car platform and is coupled to said bell crank.

The feeler or gate D is suspended from a shaft D¹, located beneath, and extending transversely of, the car platform, and is provided with a lever arm L¹ adapted to move in an opposite direction to the feeler D,

which arm L¹ is connected to the arm *a* of the bell crank A by means of the connecting rod E which is slotted as at *e* for engagement with the joint pin of the arm L¹. The end of the rod E being slotted, the tray J is permitted to fall when the roller C rises above the pivot B of the bell crank A, irrespective of the position of the gate D of the lifeguard. When the gate D is hanging vertically, as shown, the pin which connects the lever L¹ to the rod E is at the front end of the slot *e*.

The action of the lifeguard is as follows:—When the gate D moves rearward, for instance when it strikes an object while the car is in motion, the lever arm L¹ pulls the connecting rod E forward, and thereby raises the arm of the bell crank which carries the roller C. The weight of the tray J, together with the tension of the spring L, tending to pull the tray J down, causes the swinging link F to move forward, whereupon the lever I moves forward so that the tray J turns on its pivot *j* and its free end drops on to the ground. If the roller C is raised above the pivot B of the bell crank A the action of the lifeguard becomes independent of the gate and any vertical movement of the roller C causes the rod K to pass upward through the car platform. The tray J of the lifeguard is raised by pushing down the rod K, whereupon the roller C of the bell crank engages with the link F and returns it to normal position.

In the arrangement shown in Fig. 2, the pivoted link F is connected to the rod K (which may be provided with a stop *k*) by means of an arm *k*¹, and is of hook-like formation at its lower end in order to engage with the roller C, which roller, in this case, is adapted to be disengaged from said link F by means of an arm or arms N, when the gate D is swung rearward due to some obstruction. The downward movement of the arm or arms N may be limited by a pin *n* or the like secured to the said arm or arms engaging a projection O on the shaft to which the feeler is attached. In other respects the arrangement is similar to that shown in Fig. 1.

As shown in Fig. 3, the gate D is suspended from a lever arm or arms P and from a lever arm or arms which may be similar to the arms N (Fig. 2), said arms N being loosely mounted on the usual shaft

D¹ extending transversely of the car platform, while said arms P are embraced by, and are freely jointed as at *p*, to the arms N. At the point *p* is carried a roller C or a sliding contact, adapted to engage with said link F which may be of the form, and may be supported in the manner shown in Fig. 1 or Fig. 2. The arms P are supported in turn by the web portion of a projection *n*¹ preferably of channel section and having flanges *n*² secured to the arms N. The arrangement is such that when the gate D contacts with the ground, as would happen when the end of the car swings downward, said gate and the arms P may rise vertically without actuating the tray J, but when the gate D strikes an object, a pin or projection *d*¹ secured to the gate engages with the projection *n*¹ having flanges *n*² secured to the arm or arms N, so that the gate D, the arms P and N, and the roller C carried at *p* swing freely on the usual transverse shaft D¹, said roller being disengaged from the link F whereupon the tray of the lifeguard is dropped.

The platform is lettered *b* and the joists beneath it, which extend outward from the car-body to carry the platform, are marked *c*, and it will be understood that the pilot-board J¹ which carries the tray J is supported independently of the platform; so as to maintain a uniform distance from the ground when the car body and platform vibrate upward and downward upon the car springs in the usual manner. When such vibration occurs, the parts attached to the platform are at times pressed downwardly toward the tray, the connecting rod H and the spring L yielding at such times or changing in angular relation to the depending lever *f* and the arm I which actuates the tray. Such yielding does not, in any position of the parts, affect the working of the parts attached to the platform, as the lever-arm A which carries the roll C is unaffected by the movements of the connecting-rod and spring; and the operative connection between the feeler and such arm A is in like manner unaffected.

It will be observed that the connection between the feeler D and the arm A which carries the roll C may be varied without affecting the operation of the invention, as is shown in Figs. 2 and 3, in which the lever N corresponds in its position and functions to the arm A of the bell-crank in Fig.

1, and operates the roll C in all respects the same as the bell crank.

Having now described our invention what we claim and desire to secure by Letters Patent of the United States is:—

1. In a car fender, in combination, a pivoted feeler, a lever depending from a pivot at its upper end, a moving contact operatively connected with said feeler, said moving contact engaging one face of said depending lever and being caused to travel on said face on movement of the feeler, a pivoted tray, connections between said depending lever and said tray for supporting the tray in one position of said depending lever, and for releasing the tray in another position of said depending lever, substantially as described.

2. In a car fender, the combination, with a pivoted tray having an arm to sustain the same, of a depending lever having a pivot at its upper end and connected to the said arm, a feeler mounted upon the car in advance of the tray, and a moving contact engaging the face of the depending lever and operatively connected with the said feeler, whereby a backward movement of the feeler shifts the moving contact, thus releasing the lever and permitting the tray to fall.

3. In a car fender, the combination, with the platform projecting at the end of the car, of a pilot-board J¹ supported beneath the platform, a tray pivoted thereon and having an arm I projected upwardly from its pivot, a depending lever E pivoted beneath the platform and connected to the arm I, a spring for drawing the arm I toward the said depending lever, a lever A having a roll C bearing against the depending lever to resist the action of the spring, and a shaft D¹ pivoted under the platform with feeler D depending therefrom and operatively connected with the arm carrying the roller, whereby the backward movement of the arm throws the roller upward and permits the spring to operate and throw down the tray.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

WILLIAM ROSS BRUCE.
FREDERICK COUTTS.

Witnesses:

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