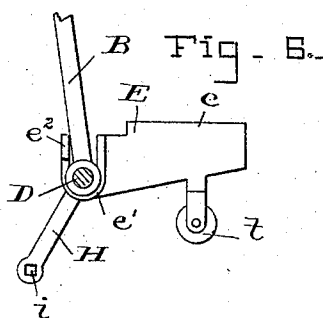
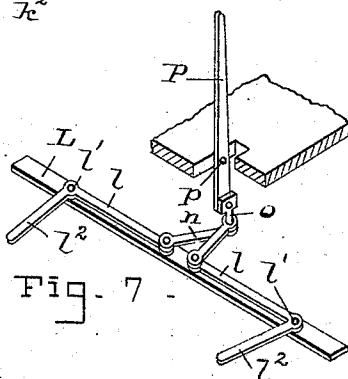
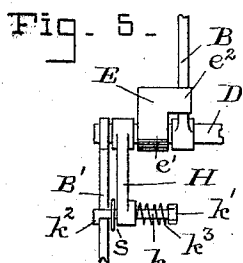
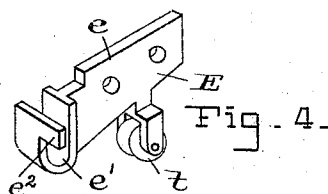
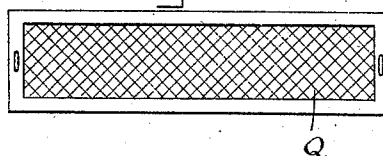
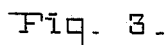
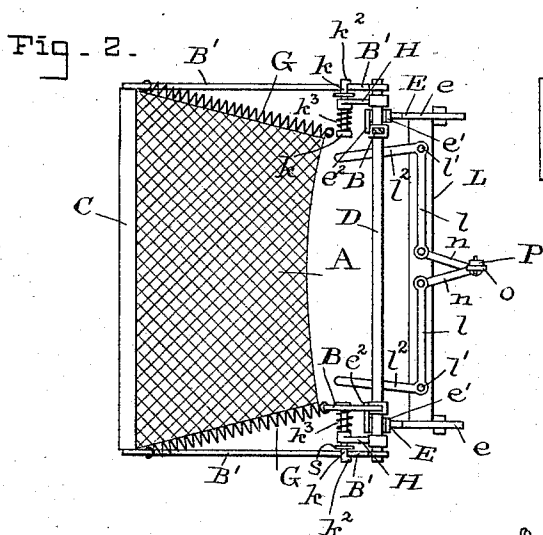
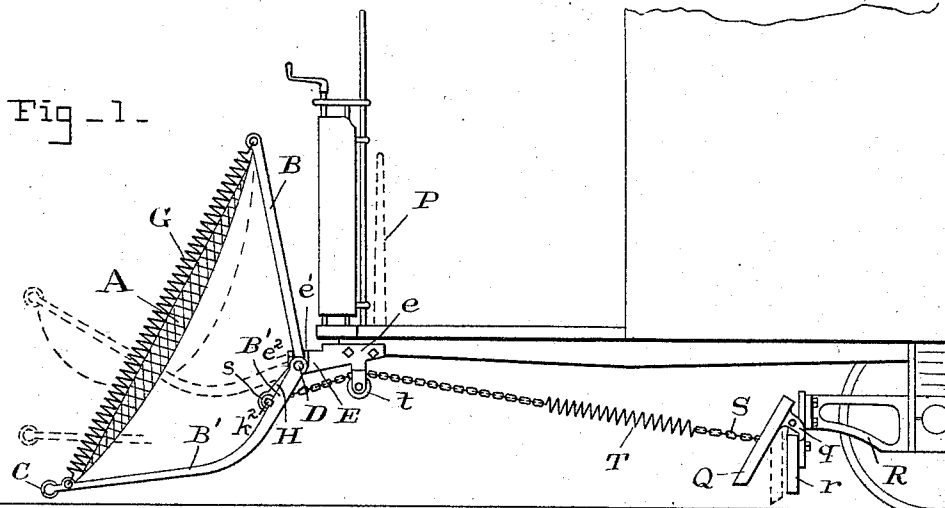


S. C. KINDIG.
SAFETY CAR FENDER.

Patented May 28, 1895.



L. I. Van Horn.
Chas. B. Mann Jr.

S. G. Kindig
By Chas B. Mann

ATTORNEY.

UNITED STATES PATENT OFFICE.

SAMUEL C. KINDIG, OF BALTIMORE, MARYLAND.

SAFETY CAR-FENDER.

SPECIFICATION forming part of Letters Patent No. 540,063, dated May 28, 1895.

Application filed October 20, 1894. Serial No. 526,428. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL C. KINDIG, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Safety Car-Fenders, of which the following is a specification.

This invention relates to certain new and useful improvements in safety car fenders.

The invention is of the same class as that shown in Letters Patent of the United States No. 519,128, granted me May 1, 1894.

One of the objects of the invention is to provide certain improvements in the construction, and another object is to provide a wheel guard or rear fender coacting with said front fender, whereby if the latter should fail, from any cause, to pick-up the person run down, said guard will prevent the person from getting under the wheels.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of part of one end of a car, showing the improved fender in side elevation. Fig. 2 is a top or plan view of the front fender. Fig. 3 is a front view of the wheel-guard. Fig. 4 is a perspective view of one of the bearing-brackets. Fig. 5 is a detail view illustrating the latch mechanism which holds the fender down. Fig. 6 is also a detail view showing a portion of one of the bearing-brackets, a transverse shaft journaled therein, one of the upper side bars, and a downward-projecting short arm. Fig. 7 is a perspective view showing the mechanism employed for resetting the latch-bolts.

The front fender, A, composed of network or any other suitable flexible material is supported by two upward-projecting side-bars, B, and two lower side-bars, B', and a transverse cushion-bar, C, connecting the front ends of the said lower side-bars. The upper side-bars, B, have their lower ends rigidly attached to a transverse shaft, D, journaled in bracket-bearings, E, at the two sides of the car and the upper ends of the lower side-bars, B', are loosely pivoted on this transverse shaft so that their lower ends may tilt up and take the position indicated by the broken lines in Fig. 1. The bracket-bearing, E, comprises a plate, e, secured by bolts to the car-frame and having a U-shaped end, e', which forms the

bearing for the end of the transverse shaft, D, and this end is provided at its extremity with a lateral lug or extension, e², which engages the lower part of the upper side-bar, B, and limits the forward movement of said bar. By this construction it will be seen that while the lower side-bars, B', which are loosely pivoted on the shaft, D, are free to rise or tilt up, the said upper side-bars, B, which are rigid on the shaft, D, have only a limited movement to and from the car-front or dashboard, F, which movement results from the shaft, D, rocking. Thus said upper bars act as stays or supports to which the springs, G, are attached for tilting up the lower side-bars, B'.

Two spiral springs, G, are employed to draw up the front ends of the lower bars, B'. One spring is at each side of the fender and each spring has an inclined position. One end of each spring is attached to the top end of the upper side-bars, B, and the other end to the front ends of the lower side-bars, B'. With this construction and arrangement the springs are normally under tension when the parts are in their set position, as in Fig. 1, but when the said lower side-bars, B', are not held down, the springs, G, will draw on them to raise them, as indicated by the dotted lines in Fig. 1.

The net-work, A, of the fender has its lower end attached to the cushion-bar, C, and its upper corners attached to the upper side-bars, B, or to the inclined springs, G. When the lower bars, B', are tilted up by the action of the springs, this network fender or curtain will droop or sag down, as indicated by the dotted lines in Fig. 1, and thus form a receptacle in which to hold the person who may be picked up by the fender.

Means, comprising an improved latch mechanism, are provided to hold down the lower side-bars, B', and resist the lifting tension of the inclined springs, G, said latch mechanism being automatically released by the blow or impact against the cushion-bar, C, or network of the fender of the person or other object run down, and as soon as released the lower bars, B, and cushion-bar, C, will rise.

A short arm, H, projects from each end of the shaft downward. This arm may be independent of, or an extension of, the upper

side-bar, B. Said short arm has at its lower end a hole or opening, *i*. Through this hole passes a latch-bolt, *k*, having at one end a nut, *k'*, and a lateral hook-lip, *k*², which engages above the lower side-bar, B', and thereby holds it down. A spiral spring, *k*³, on the bolt between the nut, *k'*, and the short-arm, H, tends to draw the hook-lip end of the bolt out of engagement from the lower side-bar. Thus the two short arms, H, and the two latch-bolts, *k*, thereof constitute the means which normally holds down the two lower side-bars, B', of the fender against the lifting tension of the inclined springs.

The action which releases the latch-bolts, *k*, may be described as follows: When a person is run down by the moving car and struck by the cushion-bar, C, the lower side-bars, B', will be depressed slightly and pushed back beyond the limit of the hook-lip, *k*², of the latch-bolts and thereupon the springs, *k*³, will instantly draw the said bolts inward thus disengaging them from the bars. The inclined springs, G, will then at once raise or tilt up the said bars, B', as indicated by the broken lines in Fig. 1, and the network or curtain, A, will droop or sag and form a receptacle in which the person run down will be held.

A latch-bolt resetting device is provided whereby the motorman may reset the two latch-bolts, *k*, from his position on the car-platform while the lower side-bars, B, are being held down to their normal set position. A transverse bar, L, is on the car and beneath the platform. Two bell-crank levers, *l*, are each pivoted at, *l'*, to this bar and one arm, *l*², of each lever projects forward in proximity to the end of the latch-bolt, *k*, and the other arm of each lever extends along the bar, L, the ends of these two arms being in close relation. To each of these ends are pivoted one end of two short links, *n*, whose other ends are joined to a pivot-bolt or pin, *o*, which is pivoted to the lower end of an actuating lever, P, which latter is pivoted, as at, *p*, to the car, its upper end being in position at the car-front where the motorman may have access to it. By reference to Figs. 2 and 7, the operation of this device will be understood. When the actuating lever, P, is moved properly the ends of the two proximate arms of the bell-crank levers will be moved forward and the other arms, *l*², of the levers will move laterally and take against the nut-end, *k'*, of the latch-bolt, *k*, and force said bolts outward against the tension of the spring, *k*³, to a position where their lateral hook-lips, *k*², will engage the lower side-bars, B', in the manner hereinbefore described. A wheel-guard or rear fender, which coacts with said front fender, is provided whereby if the latter should fail, from any cause, to pick up the person run down, the retracting of the bolts and the up-tilting of the lower arms, B', will automatically place the wheel guard in position and said guard will then prevent the person from getting under the wheels. This guard consists of a trans-

verse frame or shield, Q, below the car and extending crosswise of the track and having at each end a stop-hook, *q*. A bracket, R, is attached at each side of the car to the truck-frame and a block, *r*, is secured on the front end of this bracket. The stop-hook of the guard is pivoted at top to this block so that the guard frame may tilt up, and the end of the stop-hook takes against the rear side of the block and limits the up tilt of said guard. The wheel guard frame, Q, has position, during the ordinary running of the car, tilted up above the street surface, as shown in Fig. 1, but I have provided means whereby when a person is struck by the front fender so as to release the bolts, said wheel guard frame will be released and allowed to tilt down with its lower edge in close proximity to the street surface so as to prevent the person from getting under the wheels. One end of a chain, S, is attached to the guard-frame, Q, and the other end has a ring, *s*, which fits loosely over one of the latch-bolts, *k*. Between the guard-frame and said bolt this chain passes over and is elevated by a roller, *t*, depending from the bracket-bearing, E. Thus the chain at the point where the roller is located is higher than at either of its ends. Of course two chains are used, one at each side of the car. Normally it will be seen, this chain, S, holds the guard-frame tilted up, but when the bolts, *k*, are retracted by the cushion-bar, C, colliding with an object, as heretofore described, the rings, *s*, will drop off the bolts and thereby the chain, S, will be relaxed and the guard-frame, Q, will drop. This guard-frame thus supplements the front fender and makes assurance doubly sure; but the guard-frame may be brought into position,—that is, caused to drop,—without the latch-bolts being retracted. This latter action results from the fact that the chain has at a point intermediate of its ends a section composed of some suitable elastic material which will yield or give, a spiral spring, T, being employed in the present instance. If from any cause the ring, *s*, of the chain is not released from the latch-bolt, *k*, when the front fender tilts up and fails to pick up the person struck, or if a person should fall beneath the car in rear of the front fender, the blow or force of impact of the said person against the guard shield, Q, will cause the elastic section of the chain to yield and permit the guard-shield to tilt down with its lower edge in close proximity to the street surface in order to prevent the person from getting under the wheels.

It will be seen that the entire front fender in its normal position,—that is, with the lower side-bars, B', held by the latch-bolts in fixed relation to the upper side-bars, B, has a limited up and down tilt or movement caused by the rocking of the transverse shaft, D. By this construction, the transverse shaft, D, upper bars, B, lower bars, B', cushion-bar, C, network, A, and springs, G, have the up-and-down movement referred to.

The cushion-bar, C, of the fender may have position in close proximity to the street surface without liability of injury to the fender, because the freedom of the fender to tilt up enables the cushion-bar to clear the higher stones of the street or any small obstructions between the track rails.

Having thus described my invention, what I claim as new, and desire to secure by Letters

10 Patent, is—

1. The combination in a fender of the upper side-bars, B, the upper ends of which are free to have a limited movement to and from the car-front; lower side-bars, B', pivoted at
15 their upper ends so that their lower front ends may tilt up; springs connecting between the upper side bars and the lower side-bars and serving to draw or tilt up said lower bars; a network fender supported by said upper and
20 lower side bars; and retracting means for holding said lower side-bars down against the lifting action of the springs, whereby all the said parts of the fender have a limited up-and-down-movement.

2. In a car fender, the combination of a car; a transverse shaft journaled in bearings at one end of the car; two upper side-bars, B, having their lower ends attached to the transverse shaft, and said arms having a limited
30 movement to and from the car-front; two lower side-bars, B', having their upper ends attached to said shaft so that their lower front ends may tilt up independently of the upper side-bars; a cushion-bar, C, extending
35 transversely across at the front of the fender and connecting the front ends of the said lower side-bars; two springs—one at each side of the fender—each having one end attached to the front ends of the said lower
40 side-bars and the other end attached to the top ends of the upper side-bars, said springs serving to draw or tilt up the lower side-bars; and means for holding said lower side-bars down against the lifting tension of the
45 springs.

3. The combination of a car; a transverse shaft journaled in bearings at the end of the car; two upper side-bars, B, having their lower ends attached to the said shaft; two lower
50 side-bars, B', having their upper ends attached to the transverse shaft so that their lower ends may tilt up; a cushion-bar, C, connecting said front ends of the lower bars; springs, G, connecting between the upper side-bars
55 and the said lower side-bars; and a latch-bolt at each side of the fender and engaging each lower side-bar so as to hold said bar down against the lifting tension of the said springs, and each latch-bolt provided with a retracting
60 spring, whereby, when an object strikes said cushion-bar, the lower side-bars will be pushed back, and the retracting springs will disengage the latch-bolts from the said lower bars, leaving the latter free to tilt up.

4. The combination of a car; a transverse shaft journaled in bearings at the end of the car; two upper side-bars, B, having their

lower ends attached to the transverse shaft; two lower side-bars, B', having their upper ends attached to the said shaft so that their
70 lower ends may tilt up; a cushion-bar, C, connecting said front ends of the lower bars; springs, G, connecting between the upper side-bars and the said lower side-bars; a latch-bolt at each side of the fender and en-
75 gaging each lower side-bar so as to hold said bar down against the lifting tension of the said springs, and each latch-bolt provided with a retracting spring; and mechanical means for resetting both of the latch bolts
80 simultaneously after they have been disengaged from the lower side-bars and while the said bars are being held down against the lifting tension of the springs.

5. The combination of a car; a transverse
85 shaft journaled in bearings at the end of the car; two upper side-bars, B, having their lower ends attached to the transverse shaft; two lower side-bars, B', having their upper ends attached to the said shaft so that their
90 lower ends may tilt up; a cushion-bar, C, connecting said front ends of the lower-bars; springs, G, connecting between the upper side-bars and the said lower side-bars; a latch-bolt at each side of the fender and engaging
95 each lower side-bar so as to hold said bar down against the lifting tension of the springs, and each latch-bolt provided with a retracting spring; a re-setting latch mechanism comprising two pivoted bell-crank levers, L, each
100 having an arm projecting in proximity to one of the latch-bolts and adapted to move said bolt in a direction to engage the lower side-bars; and a lever on the car to actuate the said bell-crank levers.

6. The combination of a car having at each
105 side a bracket, E, having a bearing and a lug or extension projecting laterally from said bearing; a transverse shaft having its ends journaled in said bearings; two upper side-
110 bars, B, having their lower ends rigidly attached to the shaft and engaging the said lateral lug of the bearing, whereby the forward movement of the said upper bars is limited; two lower side-bars, B', having their
115 lower ends loosely pivoted to the said transverse shaft so that their lower front ends may tilt up; a transverse cushion-bar, C, connecting the said lower side-bars; and two springs, G,—one at each side—attached at one end to
120 the top of the said upper side-bars and at their other end to the said front ends of the lower side-bars, substantially as described.

7. The combination in a fender, of the two upper side-bars, B, the upper ends of which
125 are free to have a limited movement to and from the car-front; two lower side-bars, B', pivoted at their upper ends so that their lower front ends may tilt up; a cushion-bar, C, connecting the front ends of said lower bars; springs
130 connecting between the upper side-bars and lower side-bars and serving to tilt-up said lower bars; a short arm, H, projecting down from the lower end of each upper side

bar; a latch-bolt carried by each short-arm and engaging said lower side-bar and holding it down against the lifting tension of the said springs and retracting springs to withdraw
 5 the latch-bolts from engagement with said lower side-bars after an object has been struck, substantially as described.

8. The combination of the front fender having two upper side-bars, B; two lower side-bars, B', pivoted at their upper ends so that their lower ends may tilt up; springs connecting between the upper side-bars and lower side-bars and serving to draw or tilt up said lower bars; a latch-bolt engaging each lower side-bar to hold it down against the lifting tension of the springs, said bolts being automatically withdrawn from engagement when the fender strikes an object; a pivoted wheel-guard or rear fender below the car and extending cross-wise of the car-track; and a chain connected by one end to the wheel-guard and having its other end fitting loosely over the said latch-bolt, and holding the guard normally elevated above the street surface,—said chain
 20 being released from the latch bolt upon its withdrawal from the lower side-bar and thereupon allowing said guard to drop down to the street surface.

9. The combination of the front fender hav-

ing the two upper side-bars, B; two lower side-bars, B', pivoted so as to permit their lower front ends to tilt up; springs, G, to draw or tilt up said lower bars; latch-bolts to hold the lower side-bars down against the lifting tension of the springs, said bolts being automati-
 35 cally withdrawn from engagement when the fender strikes an object; a wheel guard or rear fender below the car; a chain to hold the said wheel guard normally elevated and having one end attached to the guard and the other end fitting loosely over the latch-bolts and adapted to be automatically released therefrom upon the withdrawal of the bolts, whereby to permit the guard to tilt down to the street surface; and an elastic section, T,
 40 in the chain intermediate of its ends which gives or yields when an obstruction strikes the wheel-guard and allows said guard to tilt down to the street surface upon a failure of the latch-bolts to release the chain-end, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

SAMUEL C. KINDIG.

Witnesses:

CHAS. B. MANN, Jr.,

C. CALVERT HINES.