

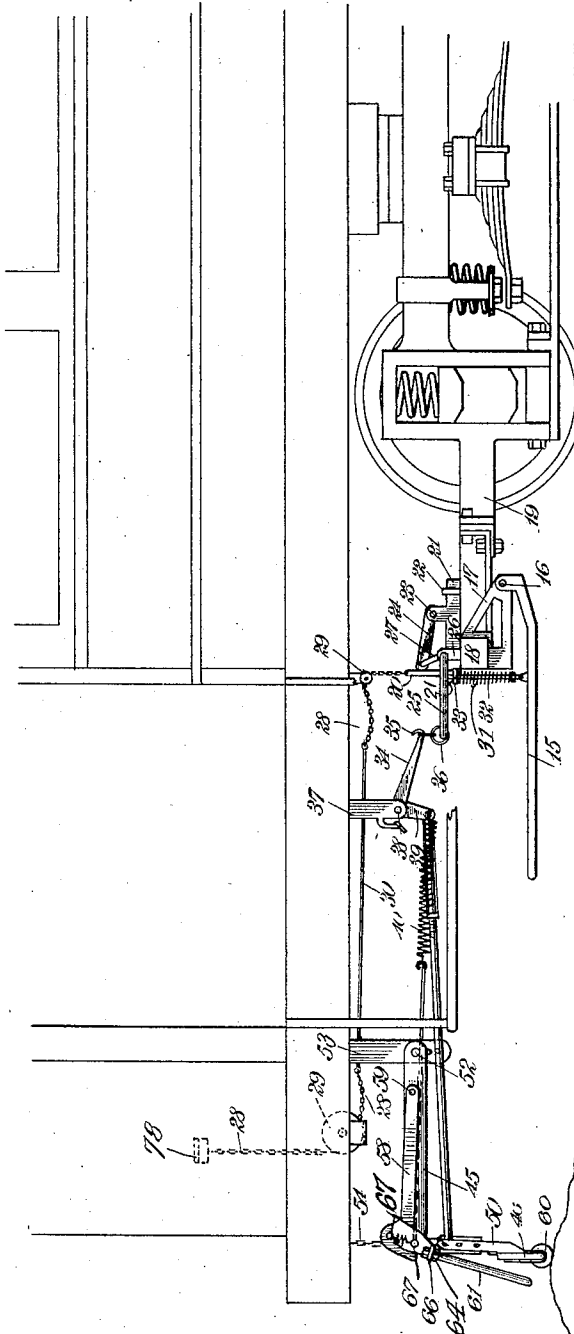
W. T. WATSON.
CAR FENDER.
APPLICATION FILED MAR. 24, 1911.

1,062,526.

Patented May 20, 1913.

4 SHEETS—SHEET 1.

Fig. 1



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4 SHEETS-SHEET 2.

Fig. 2.

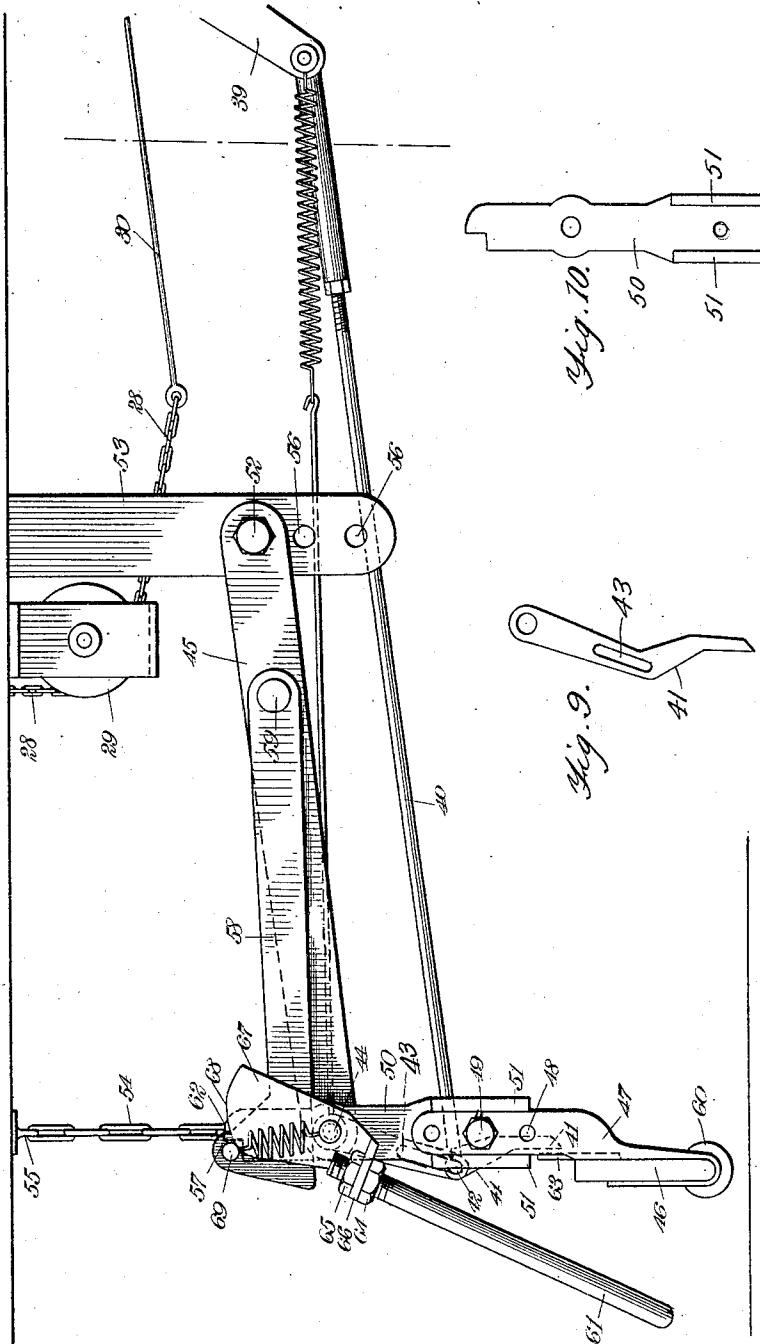


Fig. 10.

Fig. 9.

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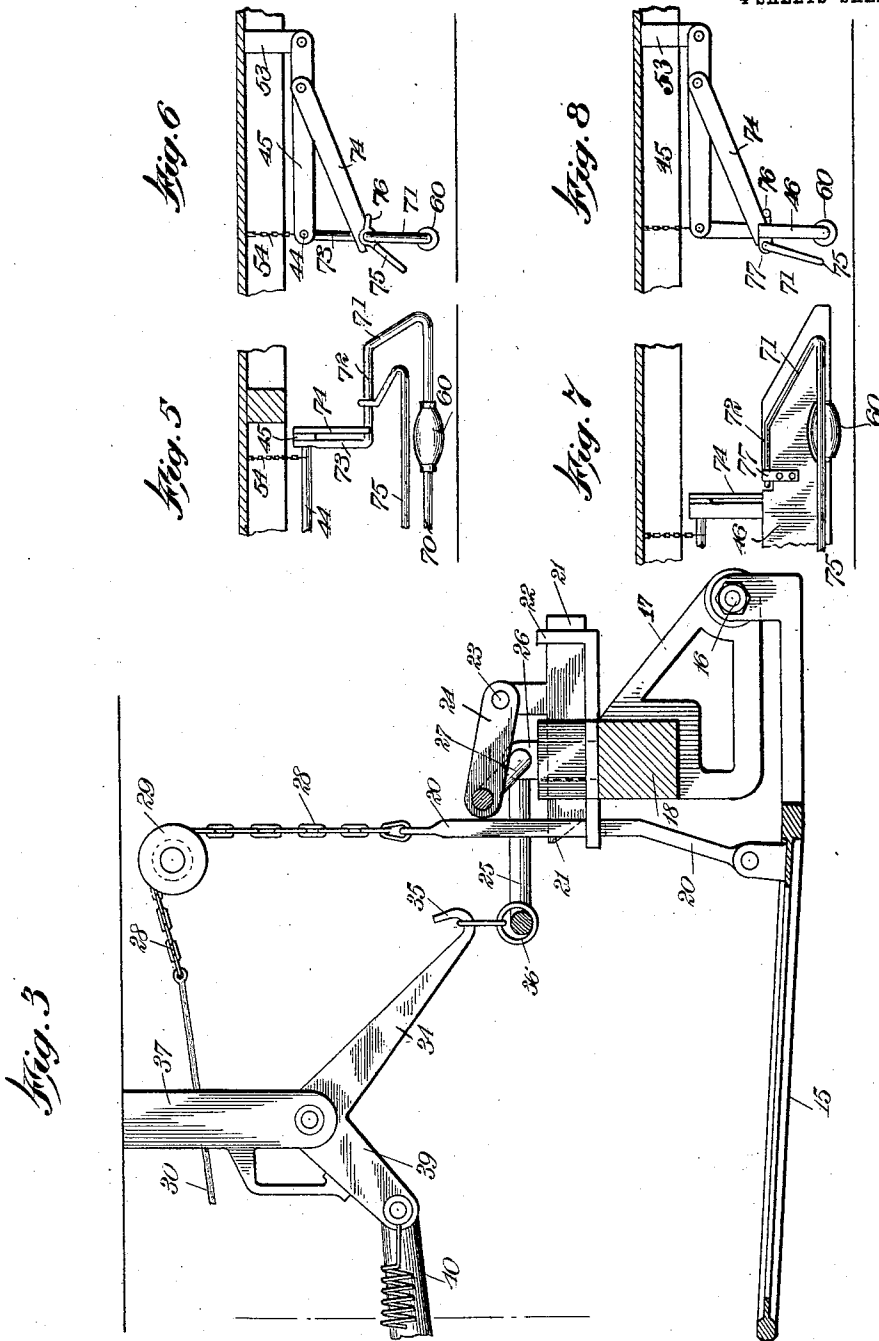
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4 SHEETS—SHEET 3.



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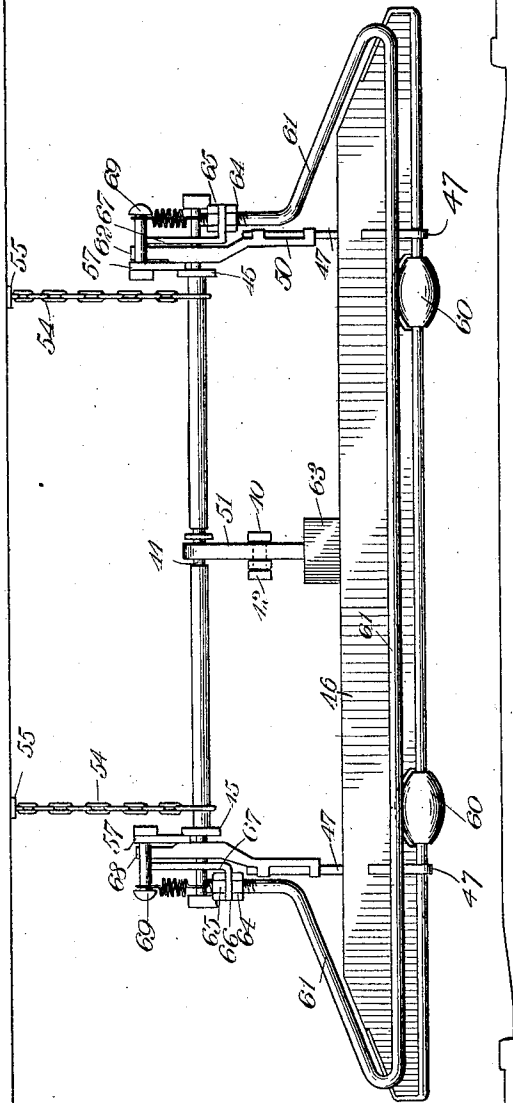
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4 SHEETS—SHEET 4.

Fig. 4



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CAR-FENDER.

1,062,526.

Specification of Letters Patent.

Patented May 20, 1913.

Application filed March 24, 1911. Serial No. 616,581.

To all whom it may concern:

Be it known that I, WILLIAM THOMAS WATSON, a subject of the King of Great Britain, and a resident of Vancouver, in the Province of British Columbia, Dominion of Canada, have invented a new and Improved Car-Fender, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide an attachment whereby the operating apron of a scoop fender is lifted from tripping contact with obstructions on the road bed other than the accidental obstructions which it is intended should operate the said fender; and to provide means for avoiding the operation of the scoop fender by inequalities of the road bed, or the employment of a gate construction dangerously raised to avoid the said inequalities, such as the upgrade at the bottom of a hill.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a side elevation of the forward section of a street railway car of the usual construction having applied thereto a scoop fender and trip fender therefor constructed and arranged in accordance with the present invention; Fig. 2 is a detail view, on an enlarged scale and in side elevation, of operating mechanism for the scoop fender constructed and arranged in accordance with the present invention; Fig. 3 is a detail view, on an enlarged scale, of the scoop fender and operating mechanism therefor; Fig. 4 is a front elevation of the trip fender operating gate and attachment for lifting the same out of contact with the road bed; Fig. 5 is a detail view in front elevation, of a fragment of a tripping attachment for the trip fender operating mechanism constructed in a modified form; Fig. 6 is a side view of the same; Fig. 7 is a detail view of a modified form of the tripping attachment shown in front elevation; Fig. 8 is a side view of the same; Fig. 9 is a detail view of the trigger arm employed in the present invention; and Fig. 10 is a detail view of one of the hanger arms for the operating bar of the fender.

The present invention may be applied to most of the scoop fenders where the fender is dropped to the road bed in front of the

wheels adjacent the wheel truck and under the body of the car, the dropping of which fender is actuated by the displacement of a trip fender or apron disposed adjacent the front end or platform of the car. As is well known, fenders of this type are objectionable for the reason that the trip fenders, if not raised too high to be successfully operated in the emergency attending an accident, are liable to interfere with the road bed and to be moved thereby to operate the fender. To successfully lift the trip fender when so dropped requires that the car be stopped, and in most instances requires that the motorman shall descend from the car and manually lift the apron. In many instances it is to prevent this frequent accidental operation of the apron that the motorman has tied the apron or parts connected therewith so that the same are not dropped, thus putting the apparatus out of commission and in position where it will not operate under the emergency conditions for which it is designed.

The scoop fender, supporting, and tripping mechanisms therefor, shown in the present drawings, are similar in construction and operation to those disclosed in Letters Patent No. 993,209, for a wheel guard, granted to me the 23rd day of May, 1911, to which application cross-reference is here made.

As shown in the present drawings, the scoop fender 15 is pivotally mounted at 16 on brackets 17. The brackets 17 are extended from the cross brace 18 which is rigidly mounted on the arms 19 which are extended from the outer ends of the truck upon which the car body is carried. The fender 15 is supported in horizontal position, or in position where the forward end is raised off of the bed of the road by a bail arm 20 which is slotted to receive the end of a latch bolt 21. The bolt 21 is guided in suitable eyelets, the eyelets 22 being extended from the rigid frame of the truck. In the present disclosure, the bolt 21 is provided with trunnions 23 to which is pivotally connected a link 24. The bolt is reciprocated by means of the link 24 and lever bar 25, the latter being pivotally mounted in the standard 26 and provided with a crank arm 27. The crank arm 27 is pivotally connected with the link 24.

The scoop fender is lifted to the position shown in Fig. 1 of the drawings by means

of the cable sections 28, 28, which are reeved over pulleys 29, 29 and are connected by a link rod 30. One of the cable sections 28 is connected to the upper end of the bail arm 20 while the other section 28 is carried to an operating station convenient to the motor-man and there provided with a handle 73. When the combined cable sections 28, 28 and connecting link rod 30 are manipulated, the fender 15 is lifted, as stated, to the position shown in Fig. 1. Under normal conditions the cable sections 28, 28 are flexed so that when the bolt 21 is withdrawn from engagement with the bail arm 20, the fender being unsupported drops onto the road bed to operate there to pick up any body lying prone on the ground. The operation of the fender to drop is augmented by the spiral springs 31 which are threaded on the rods 32 and extend under the bracket 33 which is fixedly connected with the rigid truck frame.

In modern street car construction, for reasons known to the trade, the distance between the forward end of the body frame and the truck of the car is variable. It is to accommodate to some extent the sweep of the extended end of the car when the same is rounding a curve beyond the outer side of the track that the body of the frame is permitted a lateral movement on the trucks. It is to accommodate this independent movement of the car body and the operating devices connected therewith and the trucks, that I have provided the lever bar 25, which bar extends above and across the fender 15. To lock the bar 25, the forward extension of the same is raised by means of a bell crank lever, the arm 34 whereof is provided with a hook 35 which in turn is connected with a ring 36 loosely infolding the bar 25. The connection formed by the ring 36 between the bar 25 and the lever arm 34 provides for the independent movement of the bar 25 and the arm 34 of the bell crank lever. The bell crank lever is pivotally mounted in the depending standard 37 by means of a pivot pin 38. The standard 37 and the lever mounted therein, it will be understood, are permanently disposed on the car body. The short arm 39 of the bell crank lever is pivotally connected to a transmission bar 40 which is connected with the trigger arm 41 by means of a pin 42 which is extended through a slot 43 formed in the upper section of the trigger arm 41.

When in the course of operation the trigger arm 41 is rotated upon the shaft 44 backwardly, the arm 34 of the lifting lever is raised, thereby lifting the bar 25 and rocking the same to move the crank arm 27, and consequently the bolt 21 rearwardly. The bolt 21 being removed from engagement with the bail arm 20, the springs 31 and the weight of the fender operate to rapidly press the forward end of the fender on the

track bed. It is to avoid the rotation of the trigger arm in the manner described, except under certain conditions, that I have provided the swinging arms 45 and the carrier bar 46. The bar 46, as shown in the preferred form illustrated in the drawings, is a wood member rigidly secured to the adjustable arms 47, as best seen in Fig. 2 of the drawings. The arms 47 are provided with a series of perforations 48 to receive a bolt 49 to be thereby secured to pivot arms 50. The arms 50 are rotatively mounted on the shaft 44 which is extended across the front of the car and rotatively connected with the swinging arms 45. The connection between the pivot arms 50 and the adjustable arms 47 is simplified by the provision of guide flanges 51, provided to form a slot for seating the arms 47 in the arms 50, as seen in Fig. 2 of the drawings.

The arms 45 and the shaft 44 constitute the frame of the trip fender above mentioned which is pivotally mounted on pivot bolts 52 which are set out from the depending brackets 53. The forward end of this frame is supported by two chains 54. The chains 54 are anchored by means of eyelets 55 provided in the body of the car. The chains 54 may be lengthened or shortened to accommodate cars having trucks of different height. It is to accommodate this variation in car construction that a series of bolt holes 56 is provided in the brackets 53 to receive the bolts 52.

Normally the pivot arms 50 are prevented from swinging on the shaft 44 to carry the bar 46 backward from a perpendicular line drawn through the shaft 44. The means employed to prevent the rearward movement of the bar 46 is a stop provided in the end of the latch arms 58. The arms 58 are pivoted by means of bolts 59 on the swinging arms 45. Normally the arms 58 pass over and rest upon the shaft 44 as seen best in Fig. 2 of the drawings.

The bar 61 when moved backward advances the plates 67, the cam surface 68 whereof extends under the pins 69 and lifts the arms 58. This releases the arms 50 and permits the rotation of the same about the shaft 44. The arms 47 and bar 46 swing toward the truck of the car carrying the fender 15 and press the plate 63 against the end of the trigger arm 41, moving the said arm toward the said truck. The rearward movement of the arm 41 operates through the bar 40 and devices connected therewith to retract the bolt 21 and drop the fender 15.

The safety tripping bar 61 extends across the face of the bar 46 as shown best in Fig. 4 of the drawings. In practice the separation between the cross member of the tripping bar 61 and the forward face of the carrier bar 46 is slight. The cross member of the tripping bar 61 is lifted above the

horizontal level of the lower ends of the rollers 60 so that obstructions over which the car is passing, before contacting with the cross member of the bar 61, impinge upon the rollers 60 to lift the frame carrying both the arms 47 and 50, and the tripping bar 61. When, however, the obstruction is such as a fallen body it strikes upon the tripping bar 61 and the cross member thereof, retracting the same toward and against the bar 46. The side arms of the tripping bar 61 are secured by means of the nuts 64, 65 to the bracket flange 66 of the cam plates 67. The cam plates 67 are pivotally mounted on the shaft 44 and are provided with a cam surface 68 disposed eccentric to the shaft 44, as seen in Fig. 2 of the drawings. The surface 68 is so shaped that when the tripping bar 61 is moved against the bar 46, the cam plates 67 pass under the pins 69 and rest the stock member on the end 57 of the arms 58 above the path of the end 62 of the arms 50. In this position the arms 47, 50, and the bar 46 are free to swing on the shaft 44 backward toward the fender 15.

It will be understood that the arms 45, being independent and each pivotally mounted upon the brackets 53, the frame formed by the said arms 45 and the shaft 44 is at liberty to accommodate itself to the pitch or shape of the road bed, and also to accommodate the lateral rolling of the car body on its trucks.

In Figs. 5 to 8 inclusive, of the drawings, are shown two modified forms of the construction above described. In Figs. 5 and 6 the modification consists in substituting for the carrier bar 46 provided and supported by the arms 47 and 50, a carrier bar 70, the ends whereof are opened to form the extensions 71, 72 and 73. The extension 73 is pivoted upon the shaft 44 in the ends of the arm 45. The extension 72 forms an engaging member for the latch arm 74. The latch arm 74 is a substitute for the latch arms 58 shown in the former figures of the drawings. Whereas in Figs. 1 to 4 inclusive the tripping bar 61 is provided with the cam plates 67 for releasing the latch arms 58. The tripping bar 75 which is substituted therefor in the present described construction is provided with a hook-like extension 76 which is passed under the arms 74 to remove the same from engagement with the extension 72 when the tripping bar is moved toward the carrier bar 70. The carrier bar 70 is provided with rollers 60, the same being disposed as in the former construction. The operation of the operating attachment is the same as above described.

In Figs. 7 and 8, the tripping bar 75 is employed in conjunction with the carrier bar 46. The latch arm 74 engages the bar 46 as shown best in Fig. 8 of the drawings.

The extension 72 of the tripping bar in this construction is extended through an eyeleted bracket 77 which is secured upon the carrier bar 46.

Each of the constructions described has its special advantages.

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

1. In combination with a scoop fender such as described, means for suspending the scoop fender embodying a supporting latch; a pivotally mounted trip fender frame; a thrust member operatively connecting said frame and said latch; a locking member for said frame; and means yieldingly mounted in front of said frame to release said lock and permit the frame to move said latch to drop said scoop fender.

2. In combination with a scoop fender such as described, means for suspending said scoop fender embodying a supporting latch; a swinging trip fender frame disposed in front of said scoop fender and operatively connected with said latch; and a locking member for said frame, pivotally connected therewith in front of said frame, to release the same and permit the swing thereof when said locking member is moved toward said frame.

3. In combination with a scoop fender such as described, means for suspending the scoop fender embodying a supporting latch; a swinging trip fender frame disposed in front of said scoop fender and operatively connected with said latch; a lock for preventing the swing of said frame; a yielding member operatively mounted on said frame to release said lock and permit the frame to remove said latch from the support of said scoop fender; and means mounted on said frame for lifting the same vertically when moved thereto by a variation in the road-bed.

4. In combination with a scoop fender such as described, means for suspending said scoop fender embodying a supporting latch; a swinging trip fender frame disposed in front of said scoop fender and operatively connected with said latch; a lock for preventing the swing of said frame; a fender bar pivotally mounted on said frame and extended across the face thereof above the lower edge of said frame, said bar being adapted to release said lock when the bar is moved toward said frame; and rollers mounted on said frame to support the same on the road-bed.

5. In combination with a scoop fender such as described means for suspending said scoop fender embodying a supporting latch, a trip fender frame disposed in front of said scoop fender and having carrying wheels for supporting the same on the road-bed; means operatively connecting said frame

and said latch to move the latch to release the scoop fender when said frame is moved toward said scoop fender; means for locking said frame to prevent the movement thereof toward said scoop fender; and a
5 bar suspended in front of said frame to be moved by an obstacle on the road-bed toward said frame to unlock the same.

6. In combination with a scoop fender
10 such as described, a swinging frame disposed in front of said scoop fender and adapted to swing toward the same; means for suspending said scoop fender in normal raised position; means for locking said
15 frame to prevent the swing thereof; means

yieldingly disposed in front of said frame and operatively connected with said locking means to release said frame when said yielding means moves toward said frame; and means connecting said frame and said scoop
20 fender to depress the latter when the former swings toward the latter.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM THOMAS WATSON.

Witnesses:

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PHILIP D. ROLLHAUS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."