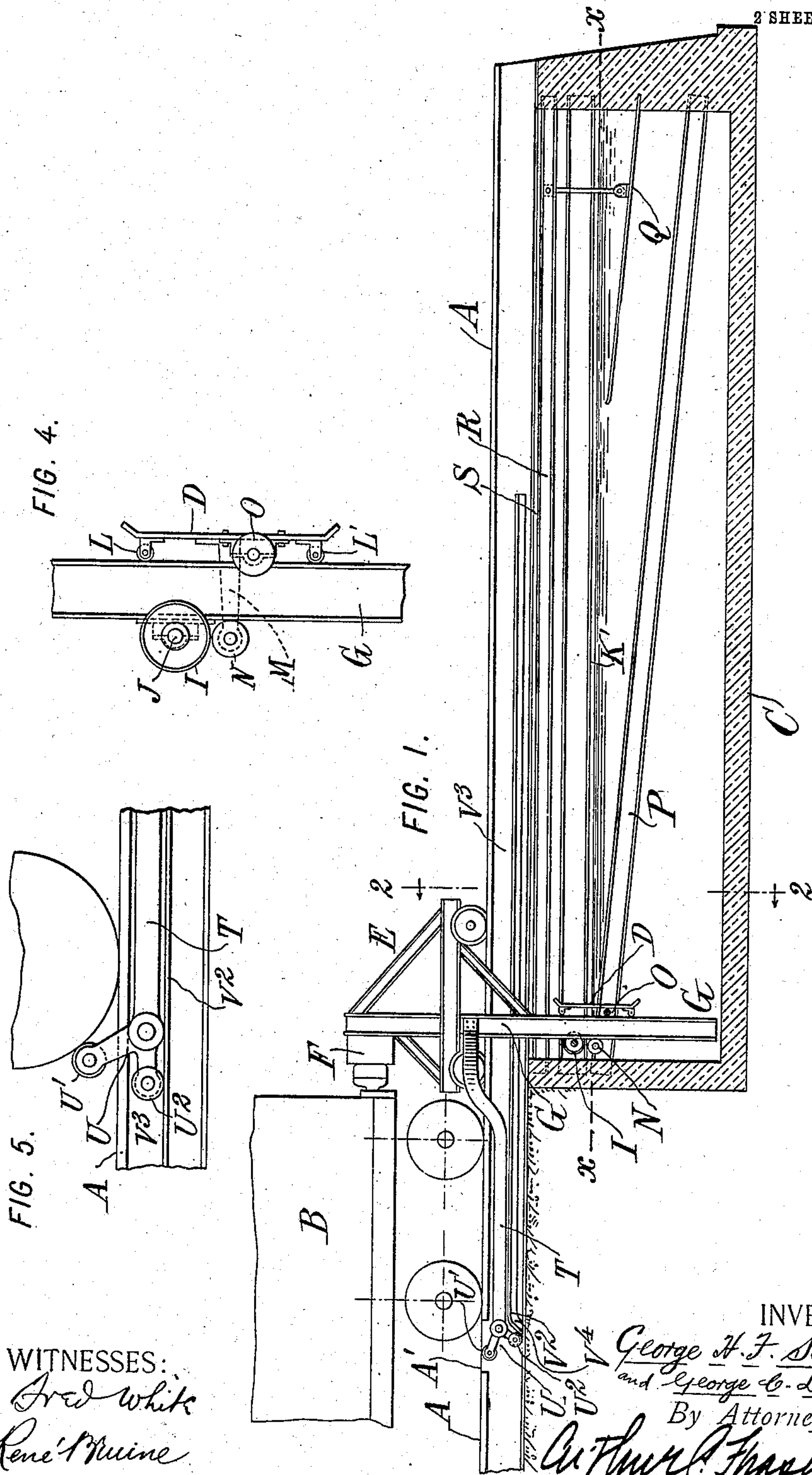


G. H. F. SCHRADER & G. C. LEONARD.  
CAR BUMPER OR THE LIKE.  
APPLICATION FILED AUG. 13, 1908.

911,166.

Patented Feb. 2, 1909.

2 SHEETS—SHEET 1.



WITNESSES:  
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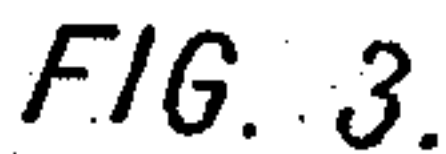
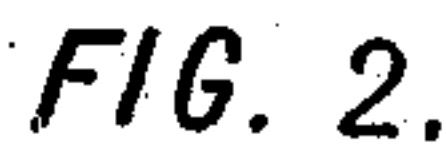
INVENTORS:  
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By Attorneys,  
*Arthur P. Francis & Co.*

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2 SHEETS—SHEET 2.



INVENTORS:

George H. F. Schrader  
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*By Attorneys,*

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# UNITED STATES PATENT OFFICE.

GEORGE H. F. SCHRADER, OF HARTSDALE, AND GEORGE C. LEONARD, OF PORT CHESTER, NEW YORK.

## CAR-BUMPER OR THE LIKE.

No. 911,166.

Specification of Letters Patent.

Patented Feb. 2, 1909.

Application filed August 13, 1908. Serial No. 448,323.

*To all whom it may concern:*

Be it known that we, GEORGE H. F. SCHRADER, a citizen of the United States, residing in Hartsdale, in the county of Westchester and State of New York, and GEORGE C. LEONARD, a citizen of the United States, residing in Port Chester, in the county of Westchester and State of New York, have jointly invented certain new and useful Improvements in Car-Bumpers or the Like, of which the following is a specification.

This invention relates to car bumpers or buffers for use in terminals or on sidings or similar positions where it is desired to bring a car or cars to a stand-still without leaving the tracks.

Great difficulty has heretofore been encountered in providing a satisfactory device of this kind. It is of frequent occurrence that the car either carries away the bumper or passes over the latter, sometimes with injury to the car and loss of life.

According to our invention we provide a means for surely and certainly bringing the car or train to a standstill without injury to the car. We accomplish this result by the resistance of water or other liquid which is brought into opposition to the movement of the car. In the preferred form of our invention we provide an elongated tank which is arranged below the track at the end of the siding or terminal, in which tank is arranged a movable pressure member which is adapted to be forced by the car through the liquid in the tank. Preferably the parts are so constructed that as the pressure member is advanced it sinks deeper in the liquid so that the resistance to its movement is increased. By preference the pressure member is carried upon a frame which is fixed to a truck running upon the car tracks, such truck having a buffer plate or other part adapted to engage the buffer plate of the car. Means are provided whereby the bumping mechanism is returned to its initial position by the car when the latter is moved out of the siding or terminus.

Referring to the drawings which illustrate one form of our invention,—Figure 1 is a longitudinal section of the invention. Fig. 2 is a section taken on the line 2—2 in Fig. 1. Fig. 3 is a section taken on the line 3—3 in Fig. 2. Fig. 4 is a detailed view showing the pressure member in elevation. Fig. 5 is a detail.

Referring to the drawings let A indicate the rails of a railroad terminus, and B the end of a car moving upon such rails. Beneath the end of the track we provide a tank C which is preferably made of concrete and which is of any suitable length and of a width preferably approximating the width of the track. The tank is filled to any suitable level with oil, water or other liquid, the preferred level being indicated at  $x\ x$ , Fig. 1. Within the tank is located a pressure member D which is best shown in Fig. 4, which pressure member is preferably substantially as wide as the tank, and about one-half the depth of the latter.

The pressure member D is designed to be moved by the car along the tank C against the resistance of the liquid therein, thereby bringing the car to rest. Any suitable means may be provided for connecting the car with the pressure member, preferably that illustrated wherein the pressure member is carried by a truck E which is provided with a buffer block F, and which is mounted on wheels adapted to travel on the track. The truck E is formed with downwardly extending beams  $G\ G'$  which are joined at their bottom ends by a cross piece H and constitute a frame for the support of the pressure member D. In order that the truck may be held against any tilting movement when struck by the car, we provide a pair of wheels  $I\ I'$  which are mounted upon an axle J which is carried by the beams  $G\ G'$ , such wheels  $I\ I'$  being adapted to move in grooves  $K\ K'$  formed in the sides of the tank C. These grooves extend parallel with the rails A, and hold the truck E upon the track, so that it cannot be tilted or thrown backwardly when struck. The grooves  $K\ K'$  may be provided with channel irons as shown if desired.

The pressure member D may be fixed upon the beams  $G\ G'$  so that it displaces the liquid in the tank uniformly from one end of its movement to the other. We prefer, however, to increase such displacement as the truck moves toward the end of the tank, whereby the resistance to the movement of the car will be gradually but very materially increased. To this end we prefer to mount the pressure member D so that it is capable of sliding upwardly and downwardly upon the beams  $G\ G'$ , and we prefer to provide a set of inclined grooves or tracks on the side of the tank which guide the pressure mem-



ber upwardly and downwardly as the truck is moved backwardly and forwardly. From Fig. 4 it will be seen that the pressure member is provided with rollers L L' on both of its sides, which rollers bear against the beams G G' as shown. The pressure member is also provided with arms M which carry rollers N bearing against the opposite side of the beams, so that the pressure member is prevented from falling off the beams. On each side of the pressure member is mounted rollers O, which rollers extend beyond the sides of the machine sufficiently to travel in grooves P which are inclined downwardly toward the rear of the device, as best seen in Fig. 1. The effect of this construction is that when the truck E is in its forward position only a part of the pressure member is submerged and the resistance to the movement of the car is not at its maximum. As the truck moves rearwardly, however, the pressure member is gradually depressed so that the resistance of the liquid is gradually increased.

In some cases it may be desirable to very materially increase the liquid resistance toward the end of the tank, and in this case a more or less horizontal partition Q can be introduced at the end of the tank, such partition being supported in any suitable manner as upon the beams R R' to be referred to. The pressure member D passes beneath the partition and fills up the major part of the compartment thus formed so that there is a comparatively small exit for the liquid which is forced in the compartment. The extent of the exit or leak space may be proportioned as desired.

Preferably the top of the tank is covered as much as possible, while leaving room for the passage to and fro of the beams G G'. For this purpose the beams R R' are extended lengthwise of the tank and rest on the end walls thereof, which beams support a cover S as shown.

We prefer to provide means whereby the truck E and pressure member will be returned to their forward positions when the car is drawn out of the siding or terminus. To this end we provide on each side of the truck E an arm T (or T') which has pivoted to its end a bell crank U, the upper arm of which carries a small roller U', while the lower arm of which carries two rollers U<sup>2</sup> (Fig. 2). Alongside of the rails A we provide two guides V V' which have recesses V', and on the outer side of each of the rails A we provide a flange V<sup>2</sup> which makes a corresponding guide recess V<sup>3</sup>. The rollers U<sup>2</sup> are designed to slide in the guide recesses V' V<sup>3</sup>, while the roller U' is designed to be engaged by the wheels of the car D. The flange V<sup>2</sup> of the rail A (and the corresponding flange of the guide V) are provided with a curved portion

V<sup>4</sup> (Fig. 1), while the rail A has its head partly cut away at A' to permit the downward movement of the upper roller of the bell crank U. The effect of this construction is that when the car contacts with the truck E so that the latter moves backwardly the lower rollers of the bell cranks contact with the curved guides V<sup>4</sup> and move the upper roller into the position of Fig. 5, in which position it remains while the car is moving the truck rearwardly. When the car is drawn out of the siding or terminus its truck wheels engage the upper rollers of the lever U, and as the lower rollers are supported in the guides V' V<sup>3</sup> the levers cannot tilt so that the truck E is drawn forwardly to its normal position. When the lower rollers meet the curved guide V<sup>4</sup>, however, they are enabled to move downwardly whereby the bell cranks tilt and the upper rollers pass through the recesses A' in the rails, so that the bell cranks lie entirely beneath the track and the car is at liberty to move forwardly without affecting the truck. If desired, the pressure member D may be provided with doors or flaps which open during the return of the truck to its initial position, and which close by the pressure or otherwise when the pressure member moves rearwardly.

It will be seen that by our invention we provide a car bumper or the like which is extremely efficient in practice and which can be proportioned or regulated so as to overcome the severest shock without breakage or causing the cars to leave the tracks. The bumper is returned to operative position automatically and requires no manual attention.

While we have shown in detail one form of our invention we do not wish to be limited thereto as many changes can be made therein without departing from the invention.

What we claim is:—

1. In a car buffer, the combination of a tank, a pressure member mounted to travel back and forth therein and means for carrying said pressure member.
2. In a car buffer, the combination of a tank, a pressure member mounted to travel therein and means for carrying said pressure member, said means comprising a truck.
3. In a car buffer, the combination of a tank, a pressure member mounted to travel therein, means for carrying said pressure member, and means for depressing said pressure member as it moves along said tank.
4. In a car buffer, the combination of a tank having inclined guides, a pressure member moving in said guides and means for transmitting the movement of the car to said pressure member.
5. In a car buffer, the combination of a tank having inclined guides, a pressure member moving in said guides and means for transmitting the movement of the car to



said pressure member, said means comprising a truck mounted to move above said tank.

5 6. In a car buffer, the combination of a tank, a pressure member adapted to move forwardly and backwardly in said tank, and means for depressing said pressure member as it moves backwardly.

10 7. In a car buffer, the combination of a tank, a truck mounted to move above said tank, a pressure member in said tank, a support for said pressure member carried by said truck, said pressure member being adapted to move upwardly and downwardly  
15 on said support, and an inclined guide adapted to depress said pressure member as the truck moves backwardly.

20 8. In a car buffer, the combination of a tank, a pressure member adapted to move forwardly and backwardly in said tank, and a partition Q mounted at one end of said tank adapted to retard the flow of liquid from in front of said pressure member.

25 9. In a car buffer, the combination of an inelastic means for engaging the car, said means being adapted to be moved rearwardly when engaged, and means operated by the car for returning said means to its initial position.

30 10. In a car buffer, the combination of a tank, a pressure member movable therein, a truck carrying said pressure member, and means operated by the car for returning said

truck and pressure member to their original positions.

35 11. In a car buffer, the combination of a tank, a pressure member movable therein, a truck carrying said pressure member, and means operated by the car for returning said truck and pressure member to their original  
40 positions, said means comprising a two-armed lever connected with said truck and guides for said lever.

12. In a car buffer, the combination of a tank, a pressure member movable therein, a  
45 truck carrying said pressure member, and means operated by the car for returning said truck and pressure member to their original positions, said means comprising a two-armed lever connected with said truck  
50 and guides for said lever, said guides extending lengthwise of the tank and being adapted to hold said lever in engagement with the wheels of the car until said truck is in its initial position and to permit said lever to  
55 move out of engagement with said wheels when such position is reached.

In witness whereof, we have hereunto signed our names in the presence of two subscribing witnesses.

GEORGE H. F. SCHRADER.  
GEORGE C. LEONARD.

Witnesses:

KARL C. MERTZ,  
WM. J. ACKERMAN.