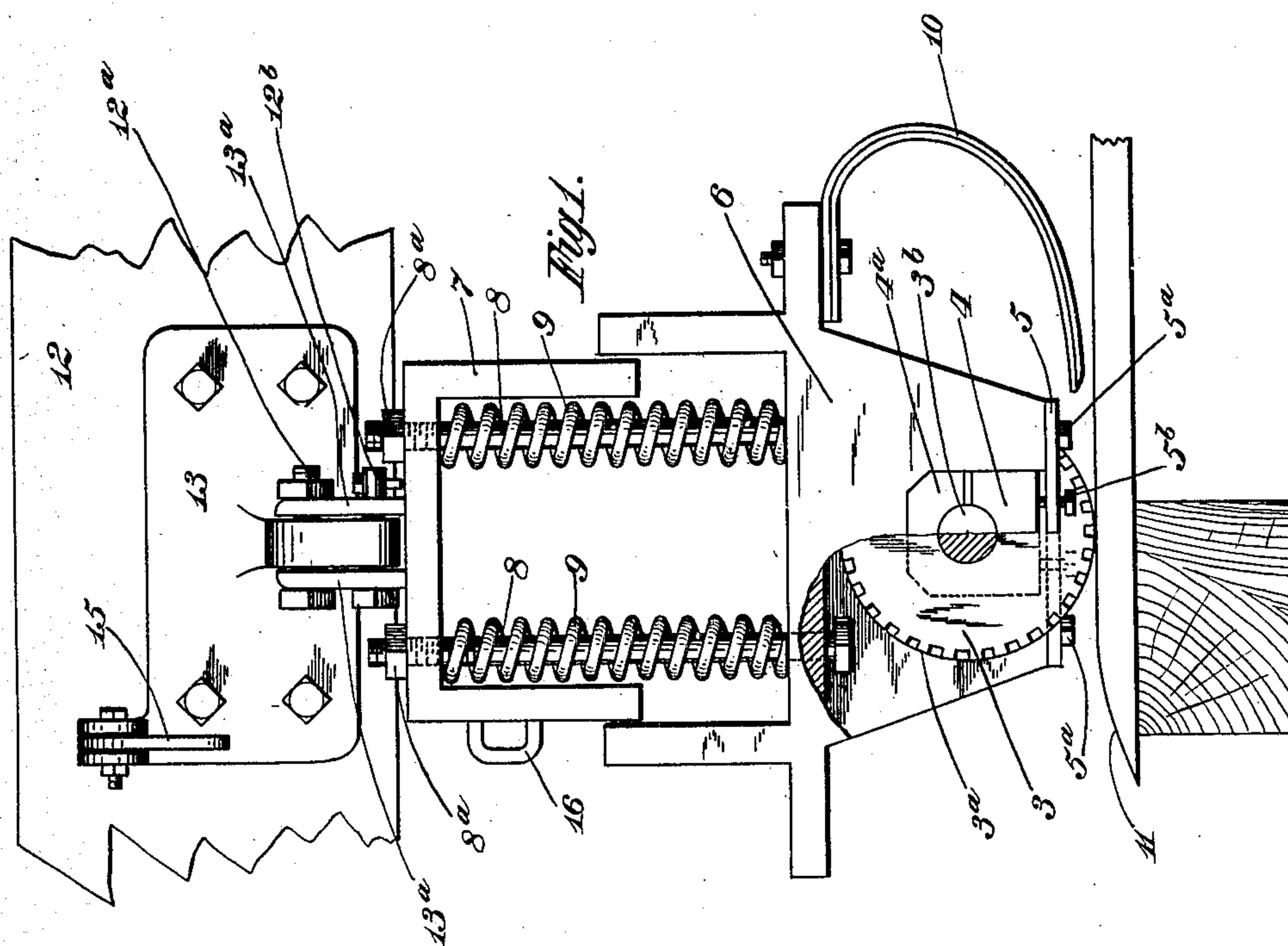
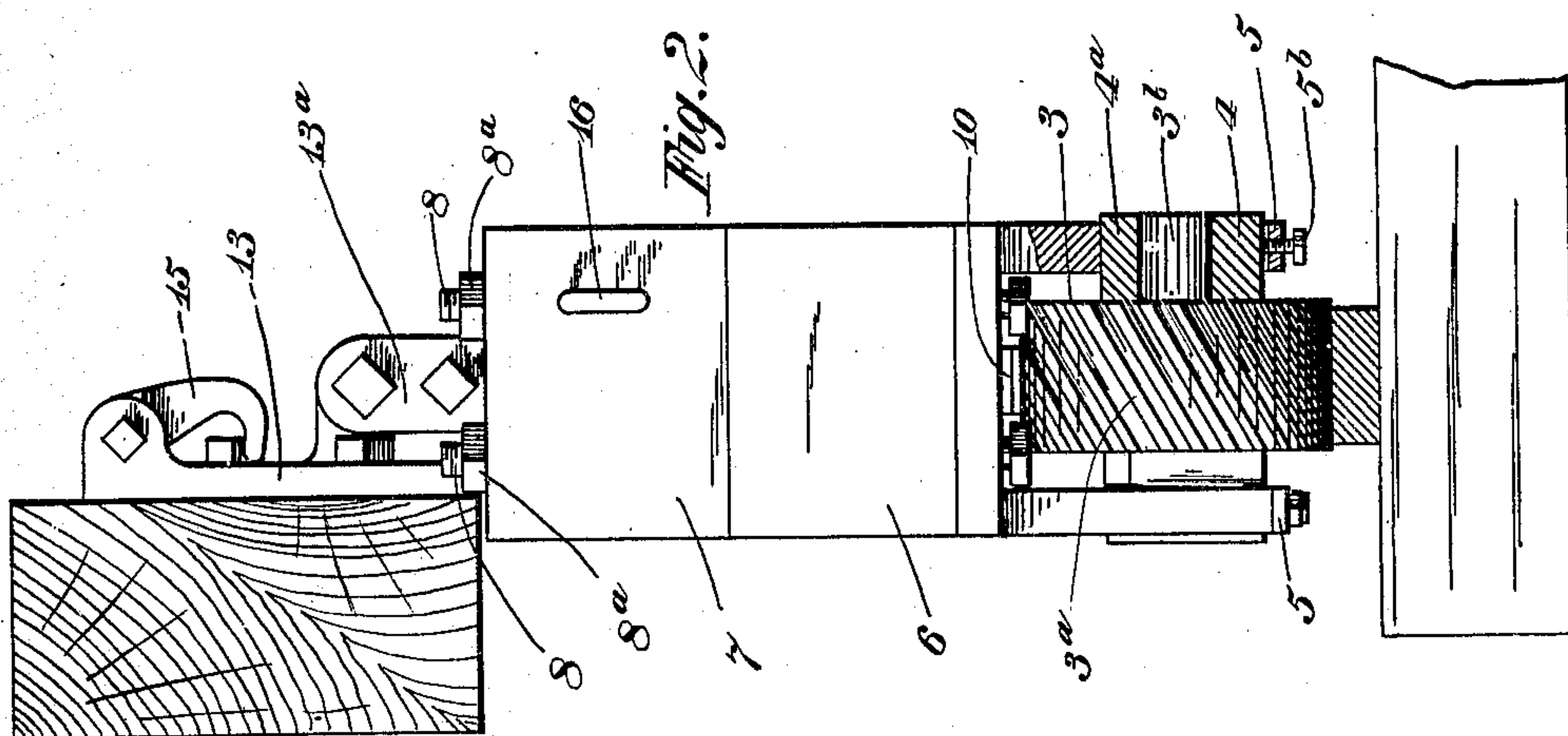


No. 860,438.

PATENTED JULY 16, 1907.

J. W. BLACKSTEN.  
DEVICE FOR REMOVING ICE FROM RAILS.  
APPLICATION FILED JAN. 28, 1907.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JAMES W. BLACKSTEN, OF NEWARK, OHIO.

## DEVICE FOR REMOVING ICE FROM RAILS.

No. 860,438.

Specification of Letters Patent.

Patented July 16, 1907.

Application filed January 28, 1907. Serial No. 354,403.

*To all whom it may concern:*

Be it known that I, JAMES W. BLACKSTEN, a citizen of the United States, residing at Newark, in the county of Licking and State of Ohio, have invented a certain new and useful Improvement in Devices for Removing Ice from Rails, of which the following is a specification.

The invention relates more particularly to devices for removing ice from so-called "third rails" that are used for grounding or closing the operating circuit of electric motors on railway cars. When ice accumulates on such rails it impedes or prevents the passage of the operating current, causing delay or entirely stopping the traffic of the road.

The object of the invention is to provide a simple, cheap and effective device to relieve the trouble indicated, and the invention consists in the construction hereinafter described and claimed.

In the accompanying drawings in which is shown but one embodiment of the invention—Figure 1 is a side elevation partially in section; Fig. 2 is an edge elevation also partially in section.

In the views 3 designates the ice-crushing or removing wheel. This wheel has, as shown, its tread of suitable width and provided with diagonal ribs or teeth 3<sup>a</sup> arranged at an angle of approximately 45 degrees to the side of the wheel. The teeth are shown at an inclination of about 58 degrees to the sides of the wheel and this construction accomplishes the purpose of crushing the ice and preventing clogging thereof between the teeth, hence by approximately 45 degrees is meant 45 degrees or within 15 degrees on either side thereof. The wheel has fixed to it stud journals 3<sup>b</sup> that turn in suitable bearings in the sides of the lower member of a carrier frame. The boxes or bearings for the journals of the roller 3 are preferably made in two parts 4 and 4<sup>a</sup> secured in recesses in the sides of the lower member of the carrier frame by means of a plate 5 bolted by bolts 5<sup>a</sup> to the lower end of the side of said carrier member; and the lower member of the journal box can be made adjustable to compensate for wear by means of set screws 5<sup>b</sup> threaded into and through the plate 5 and having their upper ends pressing against the lower member of the box.

The carrier frame comprises principally two members 6 and 7 the lower of which (when the parts are in operating position) being designated 6 and the upper member 7. The lower member 6, which carries the crushing roller, has a sliding or yielding movement with reference to the upper part 7, and for the purpose of retaining the members together the upper

member has four bolts like that designated 8 threaded through the upper member and locked in position therein with nuts 8<sup>a</sup>. The lower headed ends of the bolts 8 engage the lower member of the frame and prevent it from falling away from the upper part, but the lower part can yield upward. On the bolts 8 are placed springs 9 that press the lower member of the carrier frame downward and therefore the crushing wheel against the top of the rail.

On the lower member 6 of the carrier frame and forward of the crushing roller is secured a strong curved spring 10 that has its free end inclined rearward and its terminus nearly touching the top of the rail. Third rails, so called, usually have their ends beveled, as seen at 11, so as to present an inclined surface to the approaching brush, and the function of the spring 10 is to preliminarily raise the lower portion of the approaching carrier frame and prevent violent abutting of the carrier frame or the crushing wheel against the end of the rail.

The carrier frame is hinged by means of suitable lugs 12 to ears 13<sup>a</sup> on a bracket 13, secured to a beam at the side of the car truck, a hinge pin 12<sup>a</sup> being passed through the lugs 12 and ears 13<sup>a</sup>. When the carrier frame is down and in operative position it is locked in that position by means of a removable pin 12<sup>b</sup>. If the device is not in use it can be turned up after removing the pin 12<sup>b</sup> and secured in upturned position by means of a hook 15 engaged with an eye 16 on the upper member of the carrier frame.

What I claim and desire to secure by Letters Patent is:

1. A device for removing ice from rails comprising, in combination, a yielding carrier frame, an ice-crushing wheel journaled therein, said wheel having a diagonally-toothed tread, said teeth having sharp angular edges and said teeth arranged at an inclination of approximately forty-five degrees to the sides of the wheel.

2. A device for removing ice from rails comprising, in combination, a yielding carrier frame, an ice-crushing wheel journaled therein, and a spring on said frame located in advance of said wheel and adapted to engage the rail before the engagement thereof by the ice-crushing wheel.

3. A device for removing ice from rails, comprising, in combination, a yielding carrier frame, an ice-crushing wheel journaled therein, and a rearwardly inclined spring on said frame located in advance of said wheel and adapted to engage the rail before the engagement thereof by the ice-crushing wheel.

JAMES W. BLACKSTEN.

Witnesses:

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