

A. J. SIMON.

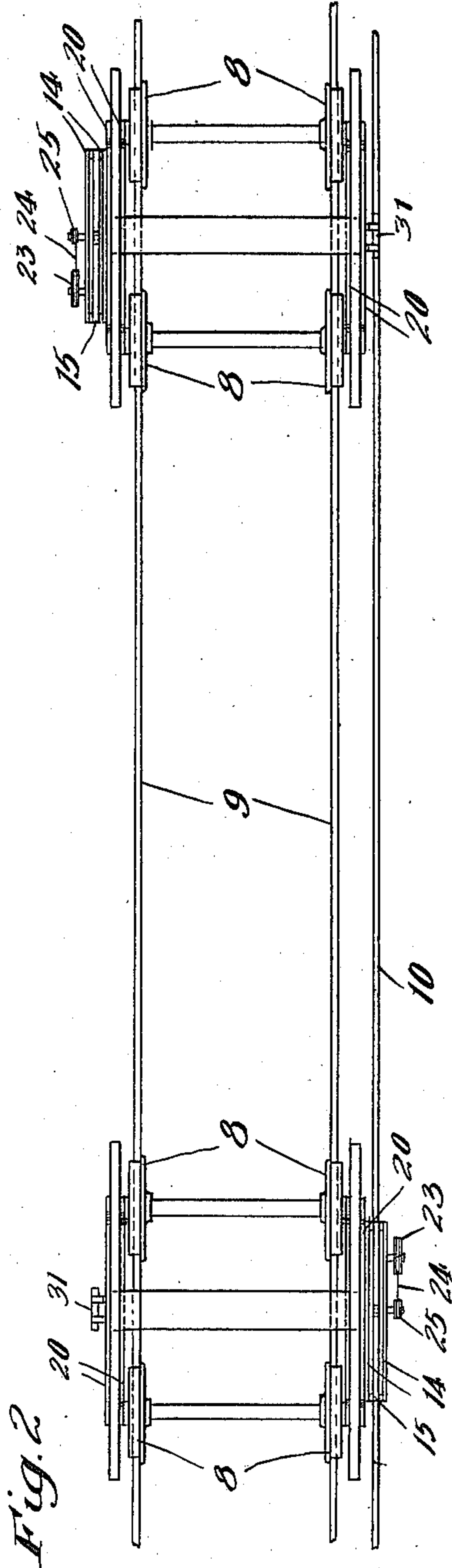
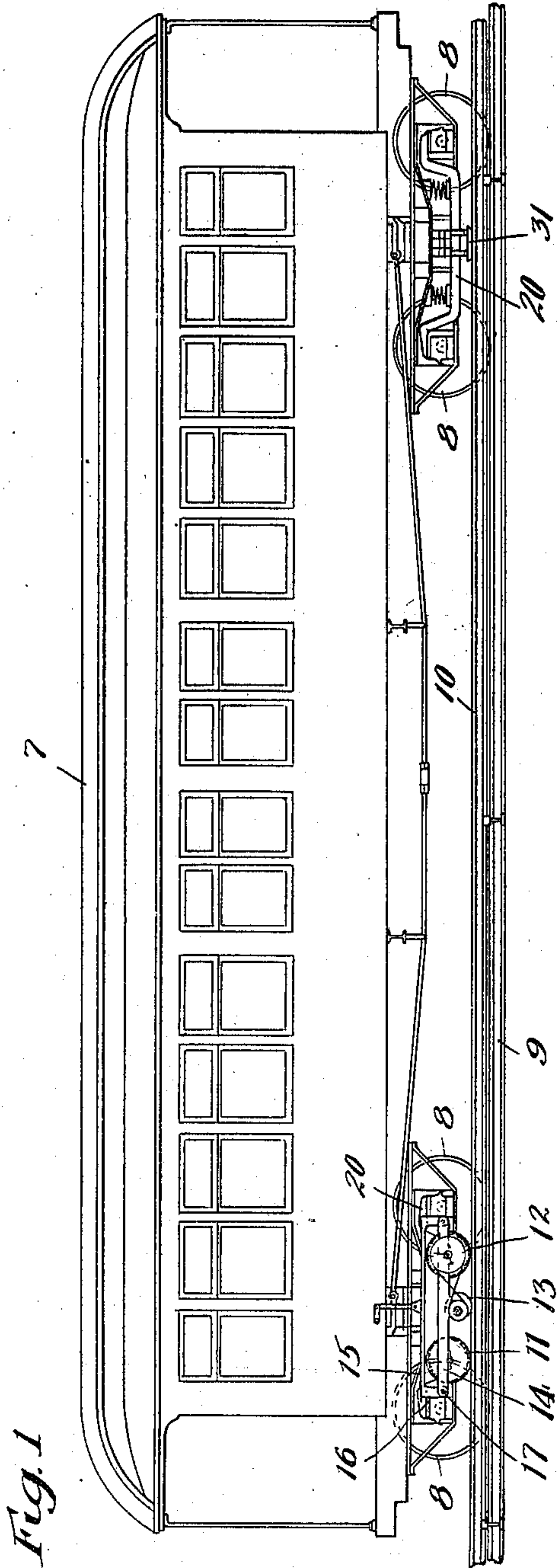
APPARATUS FOR CLEARING ICE AND SNOW FROM THIRD RAILS OF ELECTRIC RAILWAYS.

APPLICATION FILED OCT. 25, 1909.

964,125.

Patented July 12, 1910.

3 SHEETS—SHEET 1.



Witnesses:

Wm. Geiger  
Pearl W. Harris

Inventor:

Alois J. Simon

By Munday Evans, Adcock & Clarke

Attorneys

A. J. SIMON.

APPARATUS FOR CLEARING ICE AND SNOW FROM THIRD RAILS OF ELECTRIC RAILWAYS.

APPLICATION FILED OCT. 25, 1909.

964,125.

Patented July 12, 1910.

3 SHEETS—SHEET 2.

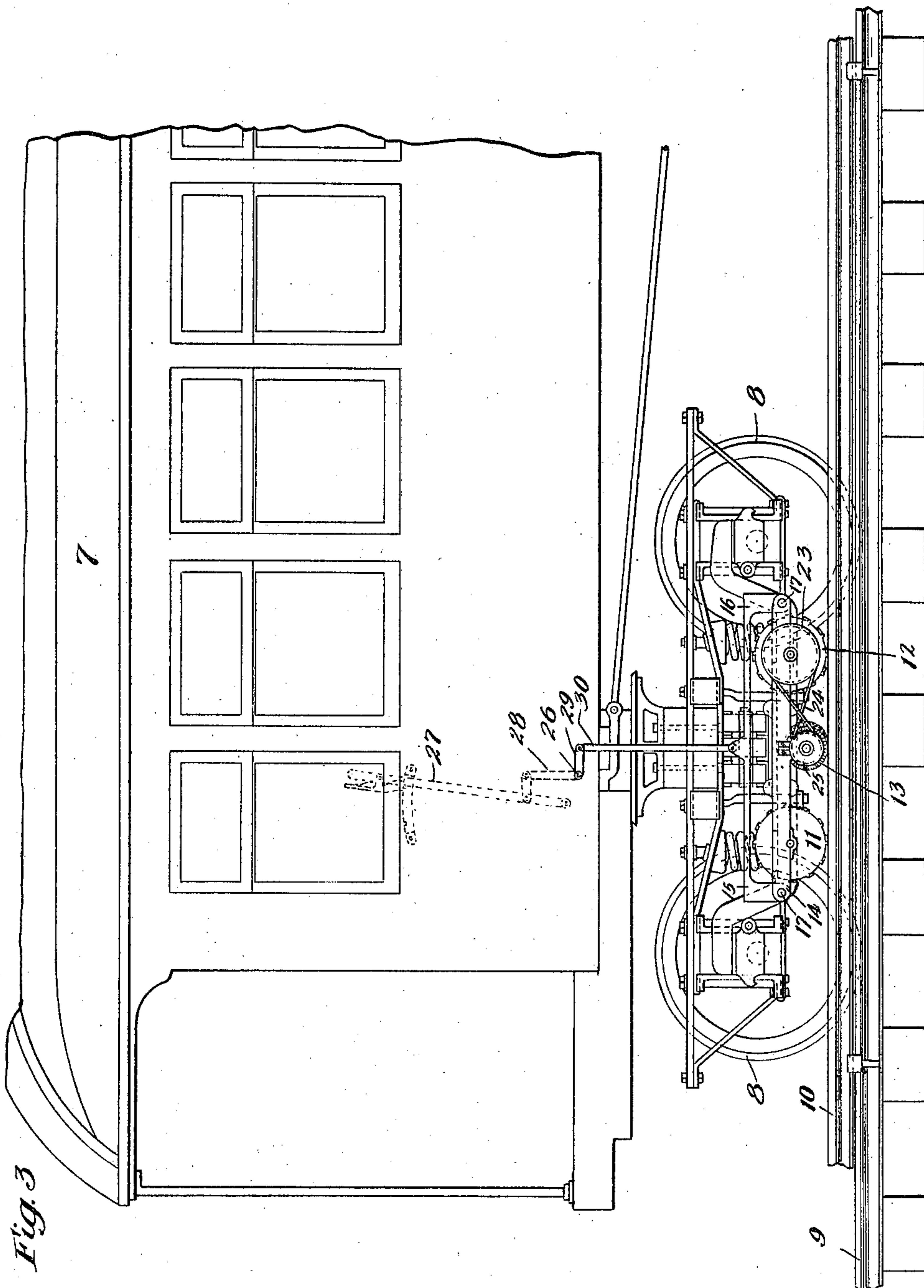


Fig. 3

Witnesses:

Wm. Geiger  
Pearl Abrams.

Inventor:

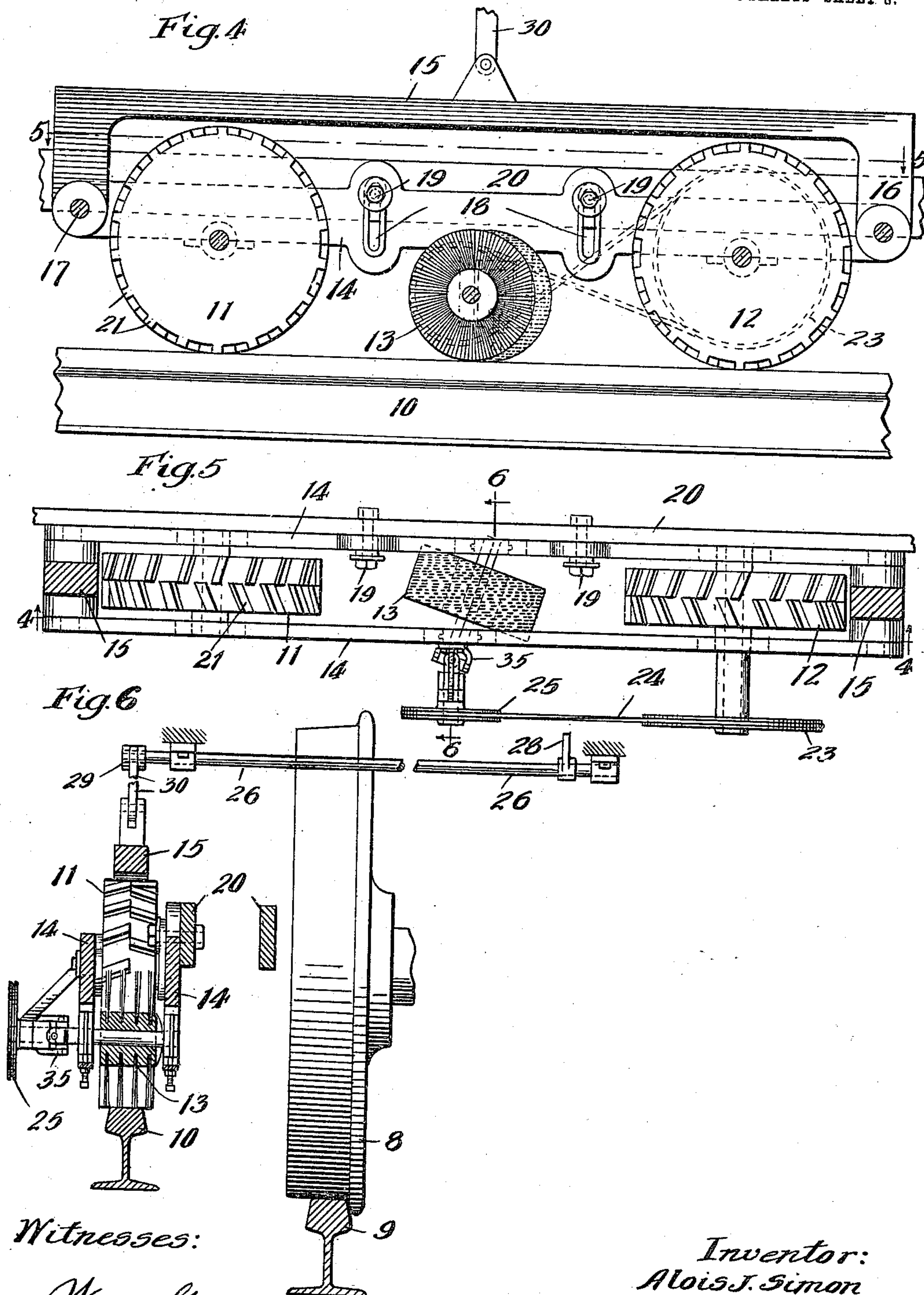
Alois J. Simon

By Munday Evans Arcock & Clarke

Attorneys

A. J. SIMON.  
 APPARATUS FOR CLEARING ICE AND SNOW FROM THIRD RAILS OF ELECTRIC RAILWAYS.  
 964,125. APPLICATION FILED OCT. 25, 1909. Patented July 12, 1910.

3 SHEETS—SHEET 3.



Witnesses:

*Wm. Geiger*  
*Pearl Ahrens*

Inventor:  
*Alois J. Simon*

By *Munday Evans Wood & Clark*  
 Attorneys



# UNITED STATES PATENT OFFICE.

ALOIS J. SIMON, OF CHICAGO, ILLINOIS.

APPARATUS FOR CLEARING ICE AND SNOW FROM THIRD RAILS OF ELECTRIC RAILWAYS.

964,125.

Specification of Letters Patent. Patented July 12, 1910.

Application filed October 25, 1909. Serial No. 524,312.

*To all whom it may concern:*

Be it known that I, ALOIS J. SIMON, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Apparatus for Clearing Ice and Snow from Third Rails of Electric Railways, of which the following is a specification.

This invention relates to the construction of devices for keeping the third rail of electric railways free from ice and snow. The device is an improvement upon the devices heretofore used for that purpose, and is intended to provide the railway companies with a simple, durable and efficient instrumentality by the use of which they can avoid the interruptions in their traffic usually occurring in stormy winter weather.

The nature of the invention is fully disclosed in the following part of this specification, and it is also shown in the accompanying drawings, in which latter—

Figure 1 is a side elevation of an electric car provided with my invention; Fig. 2 is a bottom plan of the car; Fig. 3 is a side elevation showing the invention enlarged from Fig. 1; Fig. 4 is a longitudinal vertical section on line 4—4 of Fig. 5; Fig. 5 is a horizontal section on line 5—5 of Fig. 4; Fig. 6 is a section on the line 6—6 of Fig. 5.

In said drawing 7 represents the car, 8, 8, the supporting wheels, 9 the track on which the wheels 8, 8, travel, and 10 is the usual third or electrically charged rail, the clearing of the ice and snow from which is the object of the invention.

The parts relied upon for the removal of the snow and ice, are the breaker wheels 11 and 12 arranged one in front of the other, and a revolving brush 13 located between the breaker wheels. These three parts are journaled in a suitable frame, which desirably consists of side bars 14, 14, and a central beam 15 having feet 16 at its ends to which the bars 14 are secured by bolts 17. One of the bars 14 has elongated bolt openings 18 through which the bolts 19 are passed for the attachment of the frame to the equalizing bar 20 of the car truck, the bolt openings permitting adjustment of the frame to different heights above the third rail.

Both of the breaker wheels are armed on their periphery with teeth 21 adapted to break up and loosen any ice which may have

formed on the third rail, and the brush is adapted to brush the ice, loosened by the breaker wheel which precedes it in the travel of the car, off from the rail. A desirable method of operating the brush is illustrated, and it consists in providing one of the breaker wheels with a pulley 23 and connecting this pulley by a belt 24 with another and preferably a smaller pulley 25 on the shaft of the brush. The motion of the car gives motion to the breaker wheel by the contact of the latter with the third rail, and this motion is accelerated and transmitted to the brush by the means described.

With the apparatus described, the results are the same whichever way the car travels, one breaker wheel being the active member in breaking up the ice when the movement is such as to give that wheel the advance position, and the other breaker wheel doing the work when the movement is such as to give it the advance position, the brush acting equally well to clear the loosened ice and snow from the rail in both directions of travel.

The apparatus described is supported vertically from the car by means adapted to raise it from acting position at any time when its services are not needed, and also adapted to lower it into acting position at any time. These means consist of a rock shaft 26 controlled by a lever 27 the handle of which is within reach of the motorman, a lever 28 connecting the shaft to the lever, and an elbow lever 29 connecting the shaft to a rod 30 extending upward from the center of beam 15.

The usual shoes for transmitting electric current from the rail to the car motor are shown at 31. The rod 30, or some other part of the connecting devices by which the apparatus is supported vertically, is made of wood so that no electric current from the rail can pass upward to the motorman's lever. The brush is arranged by preference at an angle inclined to the direction of the travel of the car as shown particularly in Fig. 5. To permit this angling position a universal joint 35 is embodied in the shaft of the brush between the brush and the actuating pulley. By this feature the loosened ice is thrown off the track by the brush instead of being thrown against either breaker wheel.

The brush is made vertically adjustable,



so it can be lowered as fast as the bristles become shortened by wear and thus be maintained in operative relation to the third rail. The screws shown in Fig. 6 at the bottom 5 of the bearings permit this lowering of the brush.

The breaker wheels are both armed with two sets of ice breaking teeth shown in Figs. 5 and 6, one set at each side of the central 10 circumferential line of the wheel. The teeth of the two sets are staggered relatively, and they are also inclined in opposite directions from said central line. I have found that with wheels of this construction, the spaces 15 between the teeth do not usually fill up or become clogged.

I claim:—

1. The apparatus for clearing snow and ice from the third rails of electric railways, 20 consisting of a pair of ice breaking wheels traveling on the third rail and each adapted to break up and loosen the ice or snow thereon, a rotating brush between said wheels adapted to remove the loosened ice 25 or snow, and a frame to which said wheels and brush are journaled and by which they are attached to the truck of a car.

2. The apparatus for clearing snow and ice from the third rails of electric railways, 30 consisting of a pair of ice breaking wheels traveling on the third rail and each adapted to break up and loosen the ice or snow thereon, a rotating brush between said wheels

and arranged at an angle to the line of travel whereby it is adapted to remove the 35 loosened ice or snow whichever way the car is moving, power-carrying connections from the shaft of one of the breaker wheels to said brush, and a frame in which the wheels and brush are journaled and by which they 40 are attached to the car.

3. The apparatus for clearing snow and ice from the third rails of electric railways, consisting of a pair of ice breaking wheels 45 traveling on the third rail and each adapted to break up and loosen the ice and snow thereon, a rotating brush between said wheels adapted to remove the loosened ice or snow and having vertically adjustable 50 bearings, and a frame in which said wheels and brush are journaled and by which they are yieldingly attached to the car truck.

4. The apparatus for clearing snow and ice from the third rails of electric railways, consisting of a pair of ice breaking wheels 55 traveling on the third rail and each provided with rows of oppositely inclined ice breaking teeth, a brush for removing the ice and snow loosened by the wheels and located 60 between said wheels, and a frame supporting the wheels and brush and by which they are attached to the car truck.

ALOIS J. SIMON.

Witnesses:

PEARL ABRAMS,  
EDW. S. EVARTS.