

No. 751,456.

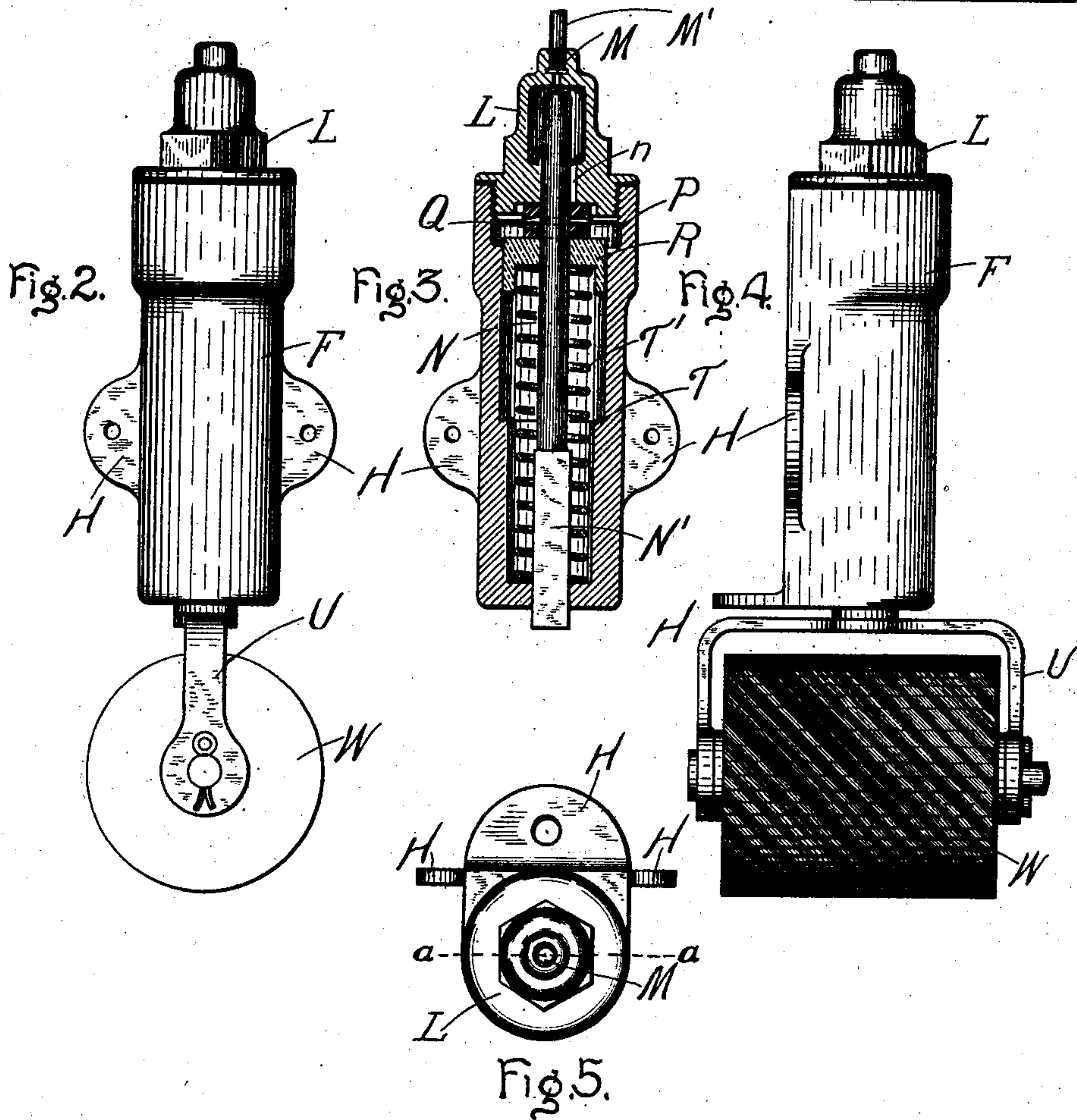
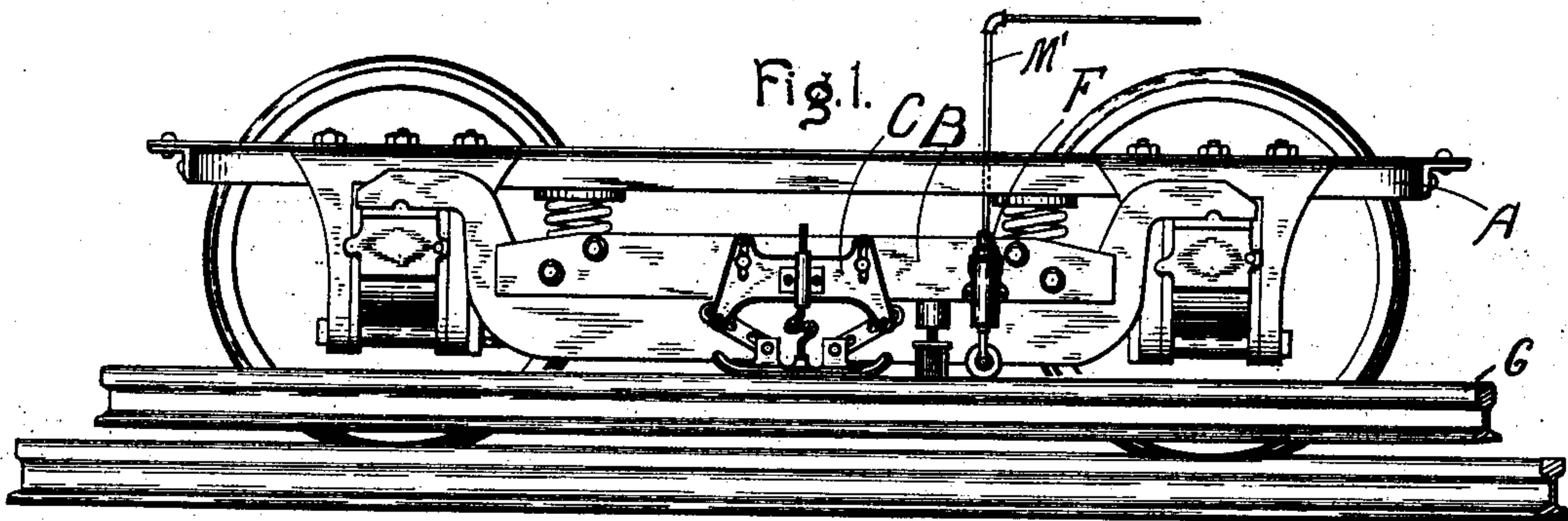
PATENTED FEB. 9, 1904.

M. C. CANFIELD.

SURFACE CLEANING DEVICE FOR THIRD RAILS OF ELECTRIC RAILWAYS.

APPLICATION FILED JAN. 14, 1903.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

MILTON C. CANFIELD, OF CLEVELAND, OHIO, ASSIGNOR TO STANLEY ELECTRIC MANUFACTURING COMPANY, OF PITTSFIELD, MASSACHUSETTS, A CORPORATION OF NEW JERSEY.

SURFACE-CLEANING DEVICE FOR THIRD RAILS OF ELECTRIC RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 751,456, dated February 9, 1904.

Application filed January 14, 1903. Serial No. 138,998. (No model.)

To all whom it may concern:

Be it known that I, MILTON C. CANFIELD, a citizen of the United States, and a resident of Cleveland, county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Surface-Cleaning Devices for Third Rails of Electric Railways, of which the following is a specification.

My invention consists in a device for cleaning the third rails of electric railways of sleet or ice, and has for its object the provision of a means for more thoroughly and uniformly removing such ice and sleet from the third rail, so that a permanent contact for the feeder-shoe is insured. To attain this object, I provide a device that will remove the ice or sleet by crushing or loosening the ice by a special device additional to the contact-shoe, which device is pressed heavily against the third rail and may be controlled directly from the motorman's cab by means of air-pressure.

My invention further consists in the specific device I have provided for this purpose, comprising a roller having, if desired, a corrugated face, the corrugations being inclined to the periphery of the roller, the roller being connected to a piston working in a cylinder connected to the air-pressure for the brakes.

My invention is fully illustrated in the accompanying drawings, in which—

Figure 1 is a partial side elevation of a motor-truck upon which is mounted the contact-shoe and steel brush and in its relative position the crushing device. Fig. 2 is a front elevation of the crushing device. Fig. 3 is a cross-section taken on the line *a a* of Fig. 5. Fig. 4 is a side elevation. Fig. 5 is a plan view of Fig. 2 without the roller.

In Fig. 1, A represents an ordinary motor-truck upon which is mounted in the usual way the bolster B, supporting the contact-shoe C. Directly in front of the contact-shoe and mounted upon B is the air-chamber F, operating and controlling the action of the roller or crusher.

Figs. 2 and 4 fully illustrate the external design of the air-chamber F, which may be an iron casting semicylindrical in shape and

which has lugs H cast on the sides and base for its support. From Fig. 3 the method of operating may be clearly explained as follows: The air-pressure enters at the top through the opening M from the pipe M' and passes through a number of smaller openings *n* around the piston-rod N into the chamber P, where the pressure is exerted upon the piston-head R, forcing it downward. The piston is provided with a spring-return, and in order to reduce the force of the blow on the cylinder-head L a cushion of rubber Q is interposed between it and the piston-head R. The lower portion of the piston N' is square and has a square bearing in the lower part of the cylinder F, thus preventing any lateral movement of the roller.

The throw of the piston is limited by the shoulder T, formed by making the upper portion of the cylinder larger in diameter than the lower portion. Attached to the lower end of the piston-rod by a yoke U, such as is shown in the drawings, is the metal roller or crusher W. This roller is cylindrical in shape, being somewhat wider than the face of the third rail. The face of the roller W, as shown, is corrugated, the corrugations being inclined to the periphery of the roller; but, if desired, the roller may be used with a smooth surface.

In operation air is applied, the supply coming from the air-brake compressor through an ordinary valve, and the roller is forced down upon the rail, the effect produced being similar to that of the pilot-wheels on a locomotive. The ice is crushed and thrown sidewise by the heavy pressure, thus freeing the rail and giving practically a clean surface for the contact-shoe. The crushing effect is limited by the amount of air applied, the cylinder being constructed for the pressure necessary. When not in service, the roller is returned and held in place by the return-spring T.

While I have illustrated and described a specific embodiment of my invention, I do not desire to limit myself to the immaterial details, since the principle of my invention may be embodied in different ways without departing outside the scope of the appended claims.

Having thus fully described my invention, what I claim, and desire to protect by Letters Patent, is—

1. The combination with an electric railway
5 having a third rail, a vehicle making traveling contact therewith, a roller carried by said vehicle and traveling on the third rail, a source of air-pressure and means for causing such air-pressure to urge said roller against said
10 third rail.

2. The combination with an electric railway having a third rail, a vehicle making traveling contact therewith, a roller carried by said vehicle and traveling on the third rail, a piston carrying said roller, and a cylinder for said
15 piston adapted to be connected to a source of air-pressure.

3. The combination with an electric railway

having a third rail, a vehicle making traveling contact therewith, a corrugated roller carried by said vehicle and traveling on the third rail, a source of air-pressure and means for causing such air-pressure to urge said roller against the rail. 20

4. As a means for removing ice or sleet from
25 electric-railway third rails, a pneumatically-operated corrugated pressure-roller carried by the moving vehicle and traveling on the third rail.

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

MILTON C. CANFIELD.

Witnesses:

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