(No Model.)

A. CHISHOLM.

TRACK CLEANER.

No. 490,269. Patented Jan. 24, 1893.

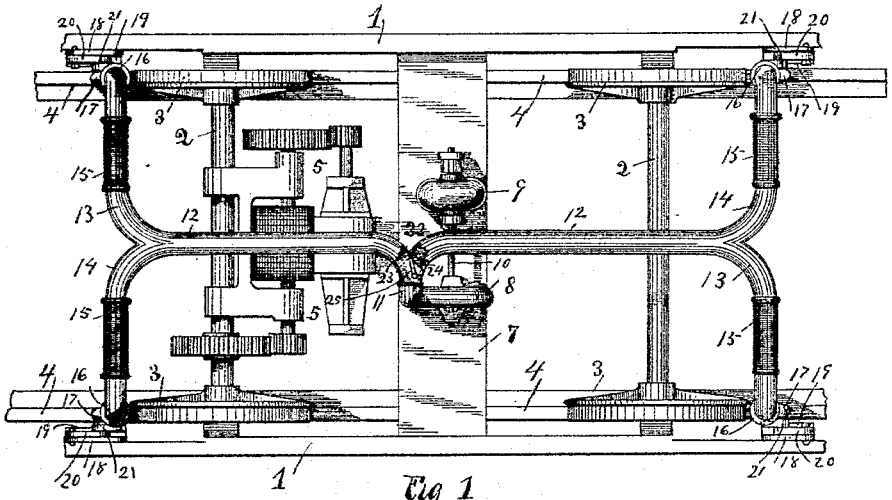

Fig 1

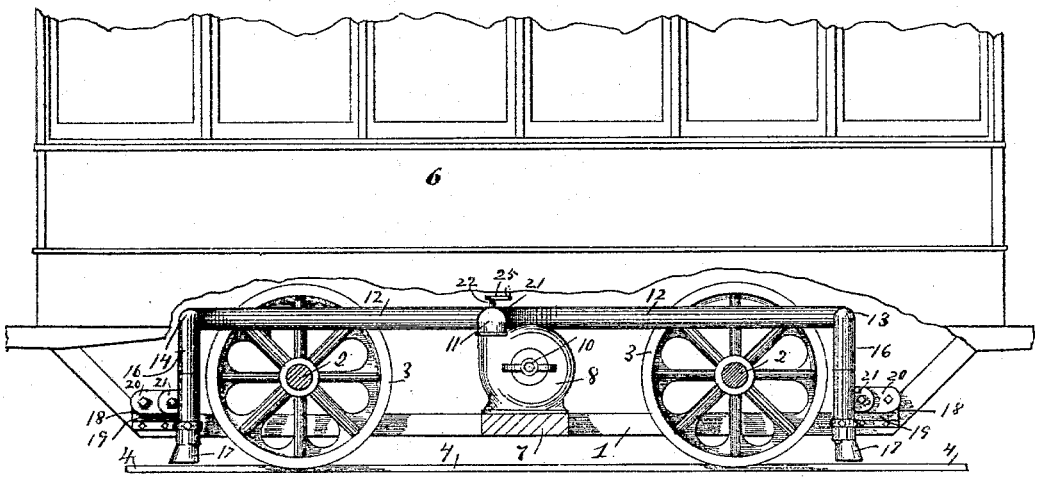

Fig. 2

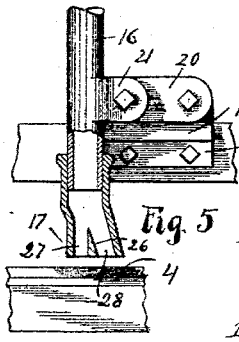

Fig. 5

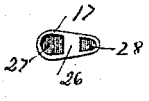

Fig. 6

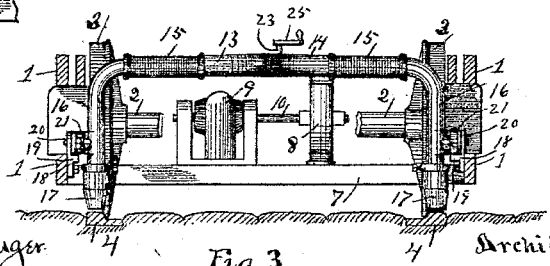

Fig. 3

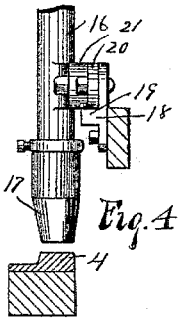

Fig. 4

Attest
J. F. Becklinger
Geo. P. Thomas

Inventor
Archibald Chisholm.
By Jas. E. Thomas Atty

UNITED STATES PATENT OFFICE.

ARCHIBALD CHISHOLM, OF BAY CITY, MICHIGAN.

TRACK-CLEANER.

SPECIFICATION forming part of Letters Patent No. 490,269, dated January 24, 1893.

Application filed October 29, 1891. Serial No. 410,212. (No model.)

To all whom it may concern:

Be it known that I, ARCHIBALD CHISHOLM, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Track-Cleaners, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention pertains to devices for cleaning the track of electric roads, and is designed more especially for use in electric cars, with the object of providing a means for removing dry dust particles and débris on the rails of an electric road, so as to provide a more uniform and perfect contact of the metal surfaces of the wheels and the rails, for providing a perfect and unobstructed electrical connection between the track and car wheels.

My invention consists first in the method of removing the dust and débris from the surface of the rails of an electric road, by means of an air blast directed upon the track directly in front of the wheels of a moving car. And second the invention consists in the combination with an electric car of a pipe or pipes having nozzles in front of the wheels and in proximity to the rails, and means for forcing a blast of air through the pipes. And the third part of the invention consists in the combination, arrangement and operation of the several parts together with the construction of the same as I shall fully describe in the following specification, and which will also be specifically defined in the claims thereof.

My invention is illustrated in the accompanying drawings in which the same figures of reference will be found designating the same elements throughout the several views.

Figure 1, is a plan view of the tracks of an electric car with my device attached thereto. Fig. 2, is a longitudinal vertical section of the trucks and embodying my improvement. Fig. 3, is an end view of the devices shown in Fig. 1. Fig. 4, is a front view of the nozzle and its supporting devices detached and enlarged. Fig. 5, is a side view of the same partly in longitudinal section. Fig. 6, is a view of the under side of the nozzle.

1 represents the frame of the trucks; 2 are the axles; and 3 are car wheels which carry the truck frame, and 4 are the rails upon which the wheels run.

5, is a motor for propelling the car, and 6, is the car body which is carried by the trucks.

Upon a suitable support 7, carried by the frame 1, preferably located between the front and rear wheels is mounted a blower 8, driven by power supplied from any suitable source preferably however by a small electric motor common to both motor and blower.

Leading from the blower 8, is a main pipe 11, and this pipe is provided with branch pipes 12, leading to the front and rear ends of the trucks where each are provided with lateral branch pipes 13, and 14, extending to the outer sides of and in proximity to the peripheries of the wheels 3. The branch pipes 13, and 14, are each provided with a pliable section 15, and are connected with a downwardly turned section 16, provided with a nozzle 17, supported in close proximity to the surface of the rail.

Upon the frame 1, or to some other suitable part of the car is permanently secured a support 18, provided with an inwardly projecting horizontal shelf 19, and to this support is pivoted by one end a radial bar 20, while to the outer end of the bar is pivoted one end of a hanger 21, the opposite portion of the hanger being rigidly secured to the downwardly turned section of pipe 16, and the bar 20, and hanger 21, rest with their lower edges upon the shelf 19, which then serves to carry the pipe section with its nozzle in proper relation to the track, and the arrangement of the hanger and bar allows the pipe section to retain a vertical position under all normal conditions, but also allows a vertical movement thereof to obtain and a backward or forward movement of the nozzle as well, so that should the nozzle come in contact with a slight obstruction on the track, a backward movement of the nozzle will be had by the hanger turning on its pivot, while should the car leave the track so that the bottom of the nozzle comes in contact with an obstruction the bar 20, then turns on its pivot as also does the hanger and allows the nozzle to move upward, the pliable section 15, of course being

adapted for allowing the nozzle to have a limited movement in all directions.

At the intersection 22, of the main pipe 11, and the branch pipes 12, is placed a vertical spindle 23, and on this spindle within the pipe is mounted an air valve 24, which can be placed across the opening or channel of either pipe 12, so that an air current from the blower can be directed through either pipe 12, by turning the spindle to move the valve 24, to close the channel of the other pipe, and a crank 25, is secured to the upper end of the spindle 23, where with to oscillate the latter, and this spindle may be extended into the car if desired, and the crank may be located in any suitable position as may be most convenient for the operator. The lower end of the nozzle is preferably elongated from front to rear and contracted laterally, and a short dividing plate 26, is introduced in the channel, transversely with the opening, so that the main channel is divided into a short vertical channel 27, and a channel 28, which has a slight forward incline, so that an air blast through the pipe will have a portion directed forward through the channel 28, for counteracting the relative current formed by the forward movement of the car, while a downward current through the channel 27, behind the first current, is forced directly upon the surface of the track in the eddy of the forward current, and operates to remove and clean from the surface of the rail all loose particles of dust or débris which may be in contact therewith.

In practice the valve 24, is turned to close the branch pipe 12, which leads to the rear, and leaving a free opening through the forwardly extending pipe 12, and branch pipes 13 and 14, and nozzles 17, and an electric current being turned on the motor 9, motion is imparted to the shaft 10, and the blower, which forces a strong current of air through the pipes and nozzles directly upon the surface of the rails, and removes therefrom all dust, dirt, loose snow or any dry particles of loose matter which is liable to settle upon the rails and operate to form a partial insulation or an imperfect contact between the wheels and track, which, when the track is used as a machine for conducting the negative current causes great loss of power and time as well as trouble and inconvenience, as a slight interposition of dust particles provides a great resistance, and consequent loss of power. Of course it is intended that the form of the nozzles can be arranged to adapt the device for moving débris of a special character, and the form and location of the pipe construction and blower can be changed to suit cars of different constructions, as the main feature to be obtained is to so arrange the mechanism that the air blast will be directed upon the track in front of the wheels. And it may be preferable in some instances to give a laterally oblique direction to the nozzles, so that the dust may be blown toward the center of the track or to the outer sides thereof, so that I wish it understood that I intend that the nozzles can be directed in any desired direction and not depart from the spirit and intent of my invention.

It will be seen that a series of electric cars provided with my improvement and running over a track will operate to effectually remove all dry loose particles, while damp or wet material such as mud or wet cinder &c., forms a good conductor and develops no great resistance, and such material when dried is quickly pulverized by the passing car wheels, and is then removed by the air blasts from the car next passing. It will also be observed that the nozzles being held free from contact with the rails, no wear of the parts obtains and consequently no removal or repair of these parts are needed and a uniform and positive action is obtained.

Another advantage of the use of my improved device is that when a light snow is falling or drifting upon the rails it is continually removed by the air blast before the wheels pass over it, so that the liability of the snow becoming packed upon and freezing to the rails is avoided, and the great expense usually incurred in cleaning the rails is saved and better and more satisfactory road service is rendered.

What I claim as my invention is:—

1. The combination of an electric car, a blower upon the car and means for imparting motion to the blower, a main air pipe leading from the blower and provided with branch pipes leading to the tracks, with the nozzles 17, upon the ends of the branch pipes and provided with the forwardly inclined channel 28, and with the vertical channel 27, in rear of said channel 28, substantially as and for the purpose set forth.

2. In a track cleaner the combination of the car, the blower mounted on the car and provided with main air pipes and with branch pipes leading from the main pipe toward the rails, and provided with pliable sections and with vertical sections having nozzles with open ends in proximity to the rails, with the supports secured to the car and each provided with a laterally extending horizontal shelf, the radial bars pivoted by one end to the supports and resting on said shelves, the hangers pivoted to the outer ends of said radial bars and resting on the shelves, and with their outer portions secured to the vertical pipe sections, substantially as set forth.

3. The combination of an electric car, a blower upon the car and means for imparting motion to the blower, a main air pipe leading from the blower, and having branch pipes leading toward the track and provided with pliable sections, and the nozzles connected to the ends of said branch pipes and provided

with a forwardly inclined channel 28, and with a vertical channel 27, directed upon the rail, the supports 18, carrying the bars 20, pivoted thereto, and the hangers 21, pivoted by one end to said bars 20, and with their opposite ends secured to the said branch pipes, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ARCHIBALD CHISHOLM.

Witnesses:
FRED B. SPEAR,
JAS. E. THOMAS.