

No. 765,781.

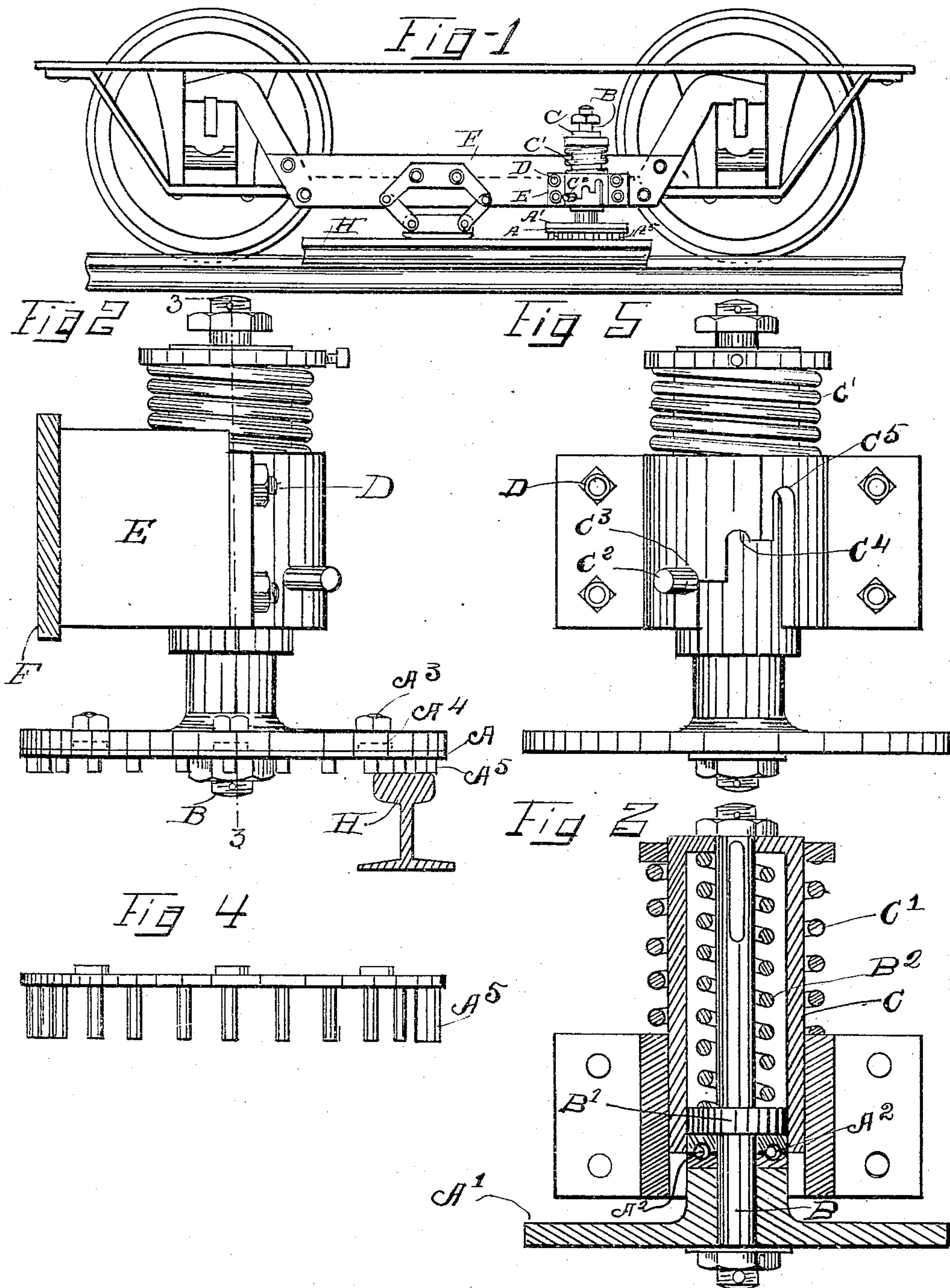
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DEVICE FOR REMOVING SLEET, ICE, &c., FROM ELECTRICAL CONDUCTORS.

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NO MODEL.



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DEVICE FOR REMOVING SLEET, ICE, &c., FROM ELECTRICAL CONDUCTORS.

SPECIFICATION forming part of Letters Patent No. 765,781, dated July 26, 1904.

Application filed November 19, 1903. Serial No. 181,802. (No model.)

To all whom it may concern:

Be it known that I, DON D. MILES, a citizen of the United States, residing at Aurora, in the county of Kane and State of Illinois, have
5 invented a certain new and useful Improvement in Devices for Removing Sleet, Ice, &c., from Electrical Conductors, of which the following is a specification.

My invention relates to devices for removing
10 ing snow, sleet, ice or other material from electrical conductors, and has for its object to provide a new and improved device of this description.

My invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a view showing diagrammatically an electric-car truck with one form of my device in position. Fig. 2 is a view showing
20 one form of the device as seen when looking along the conductor. Fig. 3 is a vertical section through the device when out of contact with the rail. Fig. 4 is a view showing a modified construction for the device that makes contact with the conductor.

Like letters refer to like parts throughout the several figures.

I have illustrated my invention as in use in connection with the third rail of electric railroads; but it is of course evident that it may be
30 used with other devices. It has been found, for example, that when such third rails become covered with sleet or ice the sliding shoe or other electrical contact device is greatly interfered with by the sleet or ice,
35 and one of the objects of my invention is to provide means for doing away with the evils and difficulties under such conditions.

The device I have illustrated in Fig. 1 consists of an engaging piece A, preferably circular and mounted so as to rotate about an
40 axis substantially vertical, or, perhaps, more properly speaking, substantially perpendicular to the face of the conductor upon which the device is to act.

As herein shown, the engaging piece A is rotatably mounted in any desired manner upon the device which moves along the conductor or rail. This engaging piece is connected to a rotatable part A', mounted upon
45 a shaft or part B, carried by the movable sup-

porting-piece C, movably connected to some part of the car. As herein illustrated, the part C is mounted in the bracket D, attached to the insulating-piece E, which in turn is attached to some part of the car, such as the
55 part F. The shaft or part B is longitudinally movable in or upon the support C and is preferably provided with a collar or the like B'. Between this collar B' and the upper end of the supporting part C is a spring B², which
60 normally tends to push the shaft B toward the rail. A spring C' is associated with the support C and engages a fixed part on the car at one end, the other end engaging the upper part of the support. This spring tends to
65 move the supporting part C away from the rail. This supporting part C is preferably made adjustable so that it may be held in various positions. This may be done in any convenient manner. As shown in the draw-
70 ings, the said supporting-piece is provided with a projection C², adapted to engage notches C³, C⁴, C⁵, &c., in the bracket D. This permits it to be adjusted toward and from the rail, for lifting the device out of contact with
75 the rail, and also to adapt it to the use of engaging pieces of different thicknesses.

The rotating part A' may be provided with any suitable friction-reducing devices, as the ball-bearings A². The engaging part A might
80 of course be part of the rotatable part A', but I prefer to make it detachable therefrom, as shown. The engaging part when detachable is removably connectible to the rotatable part by bolts A³ or the like. It is also preferably
85 provided with projections A⁴, which fit into openings in the rotatable part so as to insure the rotating of the two parts together and so as also to relieve the strain from the bolts.

The engaging piece A is preferably provided with engaging projections A⁵. As
90 shown, for example, in Fig. 2, these projections are preferably integral with A and the whole may be cast from suitable metal. These projections may be of any desired shape and,
95 as shown in Fig. 2, are circular in cross-section and have a flattened end, so that when rotated they sweep across the face of the rail H and clear it from the sleet, ice, or other material. This construction enables me to make
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the device with very little cost, and the engaging piece can be easily and cheaply removed and replaced when worn.

In Fig. 4 I have shown the projections A⁵ as consisting of a series of brush-like parts which may be made of wire or the like. It is of course evident that various arrangements of this kind may be used, depending upon the conditions presented, and that one may be substituted for another when desired.

It will be noted that the engagement of the engaging part with the rail is eccentric or at one side of the center, so that when in contact with the rail and the car is moved forward it will be rotated, thus causing the projections to sweep across the face of the rail.

I have described in detail a certain particular construction embodying my invention; but it is of course evident that the parts may be varied and some of the parts omitted and others used with parts not herein shown without departing from the spirit of my invention.

It is of course evident that this device may be used for cleaning rails other than those used for conducting electricity.

The use and operation of my invention are as follows:

If the device is used, for example, to remove the ice from the rail an engaging piece similar to that shown in Fig. 2 can be used. When the device is not in operation, the pin C² will be in one of the notches farthest from the rail—such, for example, as the notch C⁵—and the engaging piece will be out of contact with the rail. When it is desired to use the device, the pin C² is pressed downwardly by a suitably-insulated tool, which engages it and twists it around until it engages the notch C³. This compresses the spring C' and forces the engaging piece against the rail, thus compressing the spring B², so as to force the shaft or part B upwardly, causing it to be disengaged from the upper end of the supporting-piece C, as shown in Fig. 2. If now the car is moved, the engaging piece will be rotated in a plane substantially parallel to the face of the rail, and the projections A⁵ will thus sweep across the rail. It will be seen that the sharp edges due to the flattened ends will thus strike the edge of the ice and will not ride upon it, but will scrape it away, so as to clean the rail. These projections, it will be noted, will have a peculiar contact with the rail, for they will move across the face of the rail and at the same time forward and then during the latter part of their contact will move across the rail in the opposite direction. I have found that this insures complete cleaning of the rail.

By providing suitable notches in the bracket D it will be seen that any desired pressure upon the rail can be secured. If, for example, the material to be removed is snow and the snow should be wet, as is often the case, the ordinary brush used to brush it off will

simply paint it on the rail, as it were, and it will become frozen, producing a thick layer of ice. In case my device is used to brush off snow I may use the form of engaging piece shown in Fig. 4, having the brush-like projections. Since these projections are longer than the projections shown in Fig. 2, it will be necessary to move the part C² to a higher notch—such, for example, as the notch C⁴. When this device of Fig. 4 is used, the ends of the brushes engage the material on the rail, first at the edge of the rail and then sweep over the rail with a rotary motion, and they will not slide upon the material, but will brush it off and insure the cleaning of the rail.

When the engaging piece becomes worn, it will be seen that it can be easily removed and a new one substituted and that this process involves very little expense. When there is no occasion for the use of the device, the pin C is removed from the notch C³ and moved over beneath the notch C⁵. The spring C' then moves it up until further movement is stopped by the pin engaging the upper face of the notch.

It will be seen that with this device the part which scrapes the ice away is not pressed downwardly upon the top of the ice, but engages the ice at the edge and the engaging faces are substantially on a level with the face of the rail when they begin their cutting, and they always keep this position, thus insuring the cleaning of the rail.

The efficiency of such a construction will be readily understood when it is compared with a device which bears down upon the rail, for when such a device is used the ice is between it and the rail and the tendency is to slide along without cutting through the ice. All such tendency in this device is obviated.

I claim—

1. A cleaning device for rails comprising a part adapted to be rotated in a plane substantially parallel to the face of the rail, said part adapted to engage the rail at one side of its center, and means for elastically forcing it against the rail so that it will be rotated when moved therealong.

2. The combination with a rail of an ice-removing device comprising a rotatable engaging part, having its axis of rotation substantially vertical to the face of the rail, and adapted to engage said rail at one side of its axis of rotation, so as to be rotated when moved therealong.

3. The combination with a rail of an ice-removing device comprising a rotatable engaging part, provided with a series of separated projections, and having its axis of rotation substantially vertical to the face of the rail, and adapted to engage said rail at one side of its axis of rotation, so as to be rotated when moved therealong.

4. A cleaning device for rails comprising a rotatable part having its axis of rotation sub-

stantially perpendicular to the face of the rail, and adapted to engage said rail at one side of its axis of rotation, so as to be rotated when moved therealong, and means for adjusting said part with relation to the rail.

5 5. A cleaning device for rails comprising a rotatable part, a shaft upon which said part is mounted so as to be rotatable in a plane substantially parallel to the face of the rail and engaging said rail at one side of its axis of rotation, an adjustable support for said shaft, and means for attaching said adjustable support to the device to be moved along said rail.

15 6. A cleaning device for rails comprising a rotatable part mounted upon a shaft so that its axis of rotation is substantially perpendicular to the face of the rail and adapted to engage said rail at one side of said axis of rotation, a movable support for said shaft, a connecting-piece for connecting said support to the device moving along said rail, a spring between said support and said connecting device, and an engaging part on the support
25 adapted to engage said connecting device at different points.

7. A cleaning device for rails comprising a longitudinally-movable shaft, an engaging device for the rail mounted upon said shaft so that its axis of rotation is substantially
30 perpendicular to the face of the rail and adapted to engage the rail at one side of said axis of rotation, a supporting-piece for said shaft, a spring engaging said supporting-piece and said shaft so as to normally force
35 the shaft toward the rail, a bracket connected with the device to be moved along the rail upon which said supporting part is adjustably mounted, and a spring between said bracket and said supporting part.

8. A cleaning device for rails comprising a rotatable part, having its axis of rotation substantially perpendicular to the face of the rail and adapted to engage said rail at one side of its axis of rotation so as to be rotatably
45 moved therealong, said part having the engaging face removable so that it can be removed and replaced when worn.

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Witnesses:

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