

A. J. COCKERELL.
 CLEANER FOR THIRD RAILS.
 APPLICATION FILED DEC. 8, 1909.

972,600.

Patented Oct. 11, 1910.

3 SHEETS—SHEET 1.

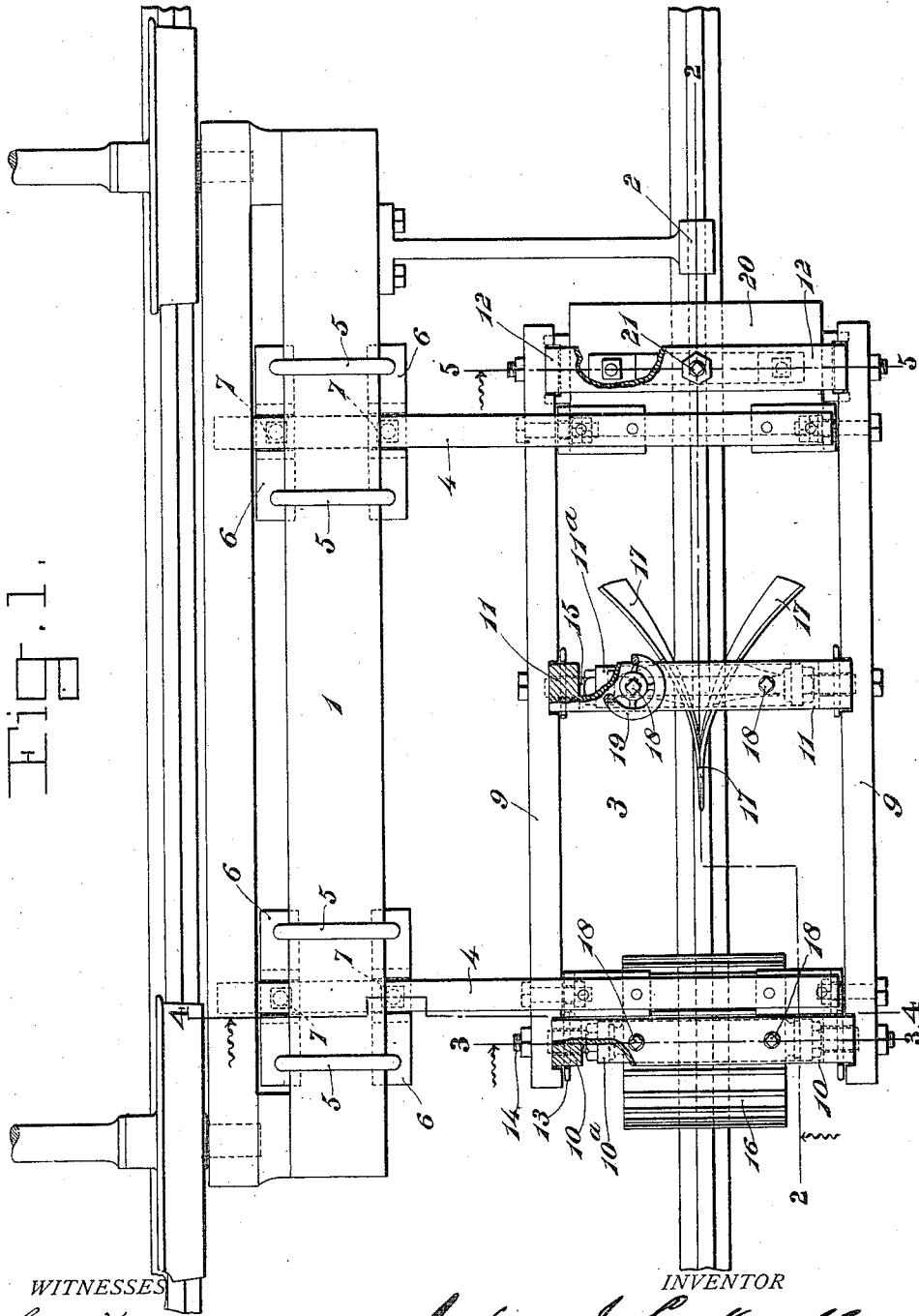


Fig. 1.

WITNESSES

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Joseph O. Stack

INVENTOR

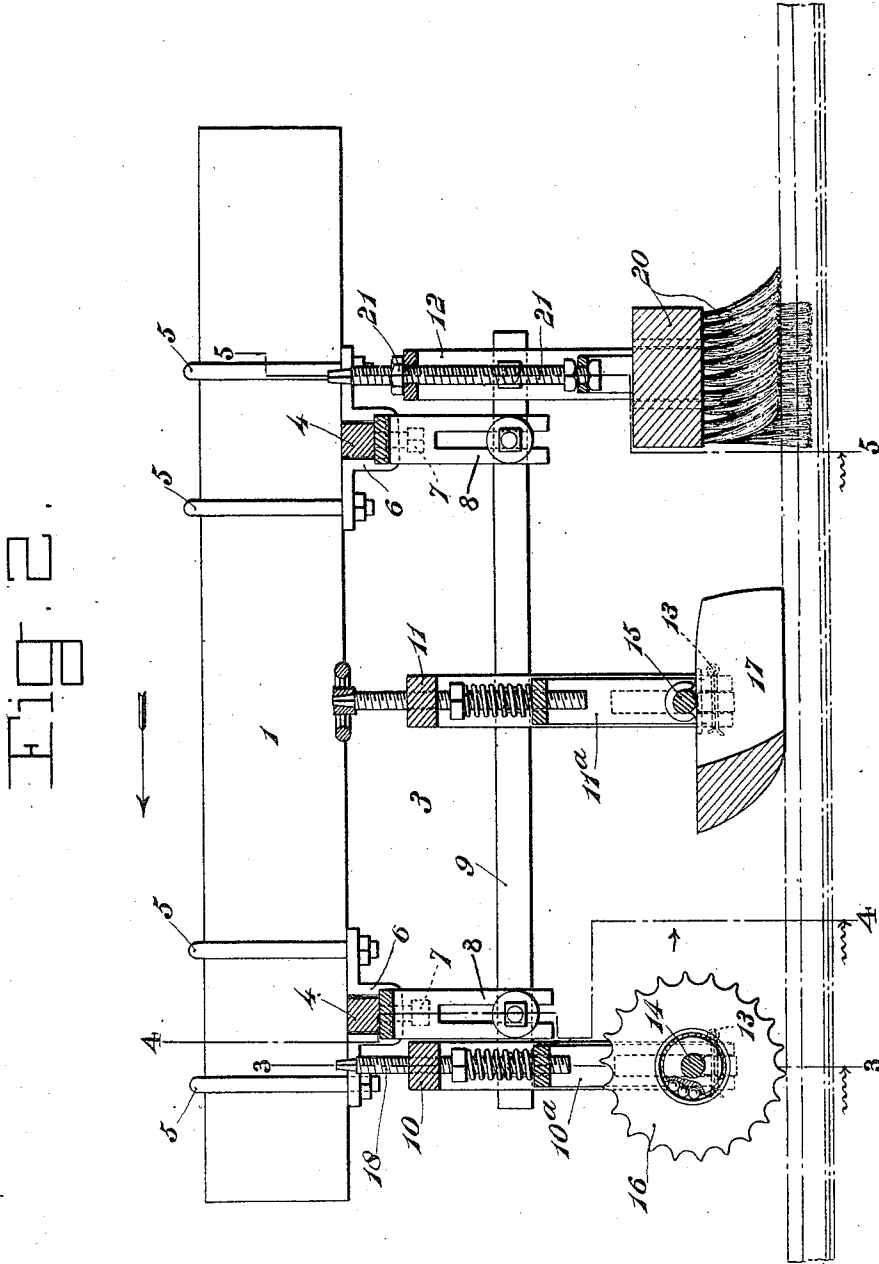
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 his Attorney.

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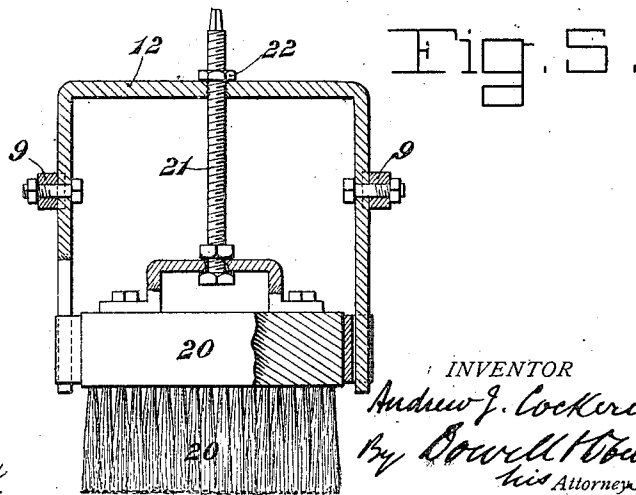
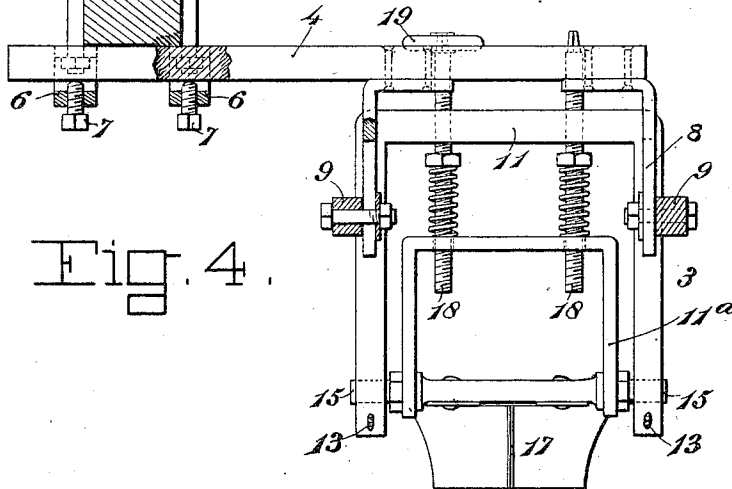
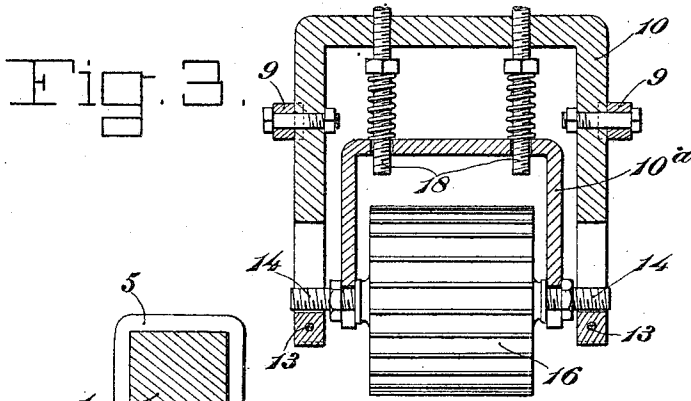
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ANDREW JACKSON COCKERELL, OF CHILLICOTHE, OHIO.

CLEANER FOR THIRD RAILS.

972,600.

Specification of Letters Patent.

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Application filed December 8, 1909. Serial No. 532,110.

To all whom it may concern:

Be it known that I, ANDREW J. COCKERELL, a citizen of the United States, residing at Chillicothe, in the county of Ross and State of Ohio, have invented certain new and useful Improvements in Cleaners for Third Rails, of which the following is a specification.

My invention relates to devices for cleaning an exposed rail of a railway system; and the principal object of my invention is to provide an improved device adapted for attachment to a car in a position to remove snow, ice, dirt or other accumulations from the "third rail" of an electric railway during the travel of the car, in order that the contact-shoe carried by the car can pass uninterruptedly over the rail and also make proper contact with it.

The invention will first be described with reference to the accompanying drawings and then more particularly pointed out in the appended claims.

Referring to the accompanying drawings: Figure 1 is a plan view showing an embodiment of the invention attached to a car and positioned to clean the third rail in advance of the shoe. Fig. 2 is a vertical section taken longitudinally through the cleaner on the line 2—2 of Fig. 1, the contact shoe being omitted from Fig. 2, and the "third rail" being shown in dot and dash lines. Fig. 3 is a transverse vertical section on the line 3—3 of Figs. 1 and 2. Fig. 4 is a transverse vertical section on the line 4—4 of Figs. 1 and 2. Fig. 5 is a transverse section on the line 5—5 of Figs. 1 and 2.

1 denotes a portion of a car, for example the truck beam, and 2 a contact-shoe carried by the car and engaging the third rail as shown in a conventional manner in Fig. 1.

The mechanism for cleaning the rail in advance of the shoe is mounted in a frame 3. This frame is removably attached to the car by means of bars 4 which are detachably connected to the car and project laterally therefrom. In the illustrated embodiment, the inner end of each bar 4 is secured to the truck beam 1 and against its under surface by means of a pair of U-shaped or clip-bolts 5 which straddle the truck beam at each side of a bar 4 and have their corresponding legs connected by plates 6 each

of which overlies the underside of a bar 4 and is secured upon the bolts 5 by nuts as shown, there being thus two plates 6 for each bar 4.

The plates 6 are formed with sockets for the reception of the bars 4, the latter being adjustable laterally in said sockets; and set-screws 7, tapped through said plates, are adapted to be screwed into engagement with the bars 4 to hold them in position after such lateral adjustment.

The outer ends of the bars 4 are provided with depending arms 8, which are slotted or bifurcated and which are bolted to the side bars 9 of the frame 3 by bolts which pass through said side-bars and slots, the frame of the cleaner being thus adjustable vertically on the bars 4.

To the side-bars 9 are bolted the legs of main arched members 10, 11 and 12, each of which supports a rail-cleaning element. These main arched members are shown each formed of a cross bar having depending legs which preferably are seated in recesses formed in the bars 9. The lower extremities of the legs of the members 10 and 11 are bifurcated to provide vertical slots; and the mouths of the bifurcations are closed by blocks held removably in place by means of cotter-pins 13 which pass through the blocks and through the legs.

Within each arched member 10 and 11 is mounted a secondary arched member 10^a and 11^a respectively. Each secondary member has fixed to its legs a shaft, 14 and 15 respectively, which extends between the legs and projects beyond them into the vertical slots formed by the bifurcations in the members 10 and 11, in which slots the shafts have a limited vertical movement. Upon the shaft 14 is mounted a corrugated or breaking roller 16; and upon the shaft 15 is mounted a plow 17, which may have oppositely diverging wings as shown. Both secondary arched members are spring-pressed downwardly to hold the roller and plow in yielding contact with the rail. This is accomplished by interposing expansion coil springs between the main and secondary arched members. These coil springs are shown encircling rods 18, two for each pair of arched members, which are in screw-thread engagement with the main member

and pass loosely through openings in the secondary member. The rods 18 are shown provided with a nut forming a collar-like projection which bears upon the upper ends of the springs and the tops of these rods are preferably square so that they may be engaged by a removable hand wheel 19.

A brush 20, having bristles preferably of wire, is carried by the rear arched member 12. The head of the brush is provided at its sides with guide-ways which receive the legs of the member 12 and guide the brush in its vertical movements. To the head of the brush is secured an arched bracket to which a screw-threaded rod 21 is connected, preferably in a manner to have the brush swivel on the rod. This may be accomplished, as in the illustrated embodiment, by securing a nut upon the rod 21 at each side of the bracket but sufficiently distant therefrom to allow the brush some freedom of movement upon the rod. The rod 21 has screw-thread engagement with the cross-bar of the member 12; and it is provided with a square head for engagement by the hand wheel 19. After adjustment, the rod 21 can be held in position by means of a lock nut 22.

The operation of the device is as follows: The cleaner is secured to the car and adjusted to position so that the cleaning elements, the roller, plow and brush will rest on the third rail. As the car travels along the track, the corrugated roller will roll along the rail breaking and loosening ice or other substance that may have hardened upon the rail, while at the same time the roller will act as a rolling support for the cleaner. The plow following the roller will push off from the rail, any snow, ice or other substance resting thereon; and the brush following the plow will brush the rail clean, insuring perfect electrical contact for the shoe that follows.

The arched members and side bars make a rigid frame that can be adjusted longitudinally by moving the clip-bolts longitudinally along the truck beam, and can be adjusted laterally by moving the bars 4 laterally in the sockets of the plates 6 after loosening the set-screws 7. The pressure with which the corrugated roller and plow bears upon the rail can be regulated by regulating the tension of the spring 16, the resiliency of the wires of the brush enabling the brush to accommodate itself to varying positions of the brush within certain limits.

The corrugated roller 16 may be provided with ball bearings as shown in Fig. 2.

Having described my invention what I claim is:

1. A cleaner for third rails comprising a frame formed of side bars and arched mem-

bers connecting the side-bars and bolted thereto, supporting bars secured to the car and projecting laterally therefrom and secured to the frame, and rail-cleaning elements carried by the frame.

2. A cleaner for third rails comprising a frame, rail - cleaning elements mounted therein, and supporting bars for the frame, said bars being secured to the car so as to be adjustable laterally thereof and secured to the frame so as to have the latter adjustable vertically on said bars.

3. A cleaner for third rails comprising side-bars, arched members having legs and connecting the side bars, the latter being bolted to the legs of the arched members, secondary arched members mounted within the first mentioned arched members to be movable vertically therein, rail-cleaning elements carried by the secondary arched members, and means for securing the cleaner to a car to be in operative relation to the third-rail.

4. A cleaner for third rails comprising a frame, rail-cleaning elements mounted in the frame, supporting bars connected at their outer ends to the frame, a pair of U-shaped bolts straddling a beam of the car, plates connecting the corresponding legs of the bolts, said plates having sockets formed therein and said sockets receiving the inner end of a supporting bar, and set-screws tapped through the plates and bearing upon the supporting-bars and adapted to hold them in an adjusted position.

5. A cleaner for third rails comprising side-bars, arched members connecting the side-bars and bolted thereto, secondary arched members each yieldingly mounted in a main arched member, a plurality of said main arched members being provided with said secondary arched members, a rail-cleaning element mounted in each secondary arched member, a brush mounted in a main arched member not having a secondary member therein, a screw rod having a swivel connection with the brush and having screw-threaded engagement with the arch member in which it is mounted, and means for supporting the cleaner from a car.

6. A third rail cleaner comprising opposite side-bars, main arched members composed of a cross-bar having depending legs provided with vertical slots, bolts securing said legs to the side bars, secondary arched members mounted in said main arched members, a shaft for each secondary member, said shaft being secured to and extending between the legs of the secondary arched member and projecting into the vertical slots of the legs of the main arched member, a plurality of screw-threaded rods having screw-threaded engagement with the cross-

bar of the main arched member and passing loosely through openings in the cross bar of the second arched member, each of said screw-threaded rods having a collar-like projection thereon, extension springs encircling the screw-threaded rods and interposed between said projections and the cross bar of the secondary arched member, and a rail cleaning element mounted in each secondary arched member.

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

ANDREW JACKSON COCKERELL.

Witnesses:

NATHAN P. CLYBURN,
JAMES I. BOULGER.