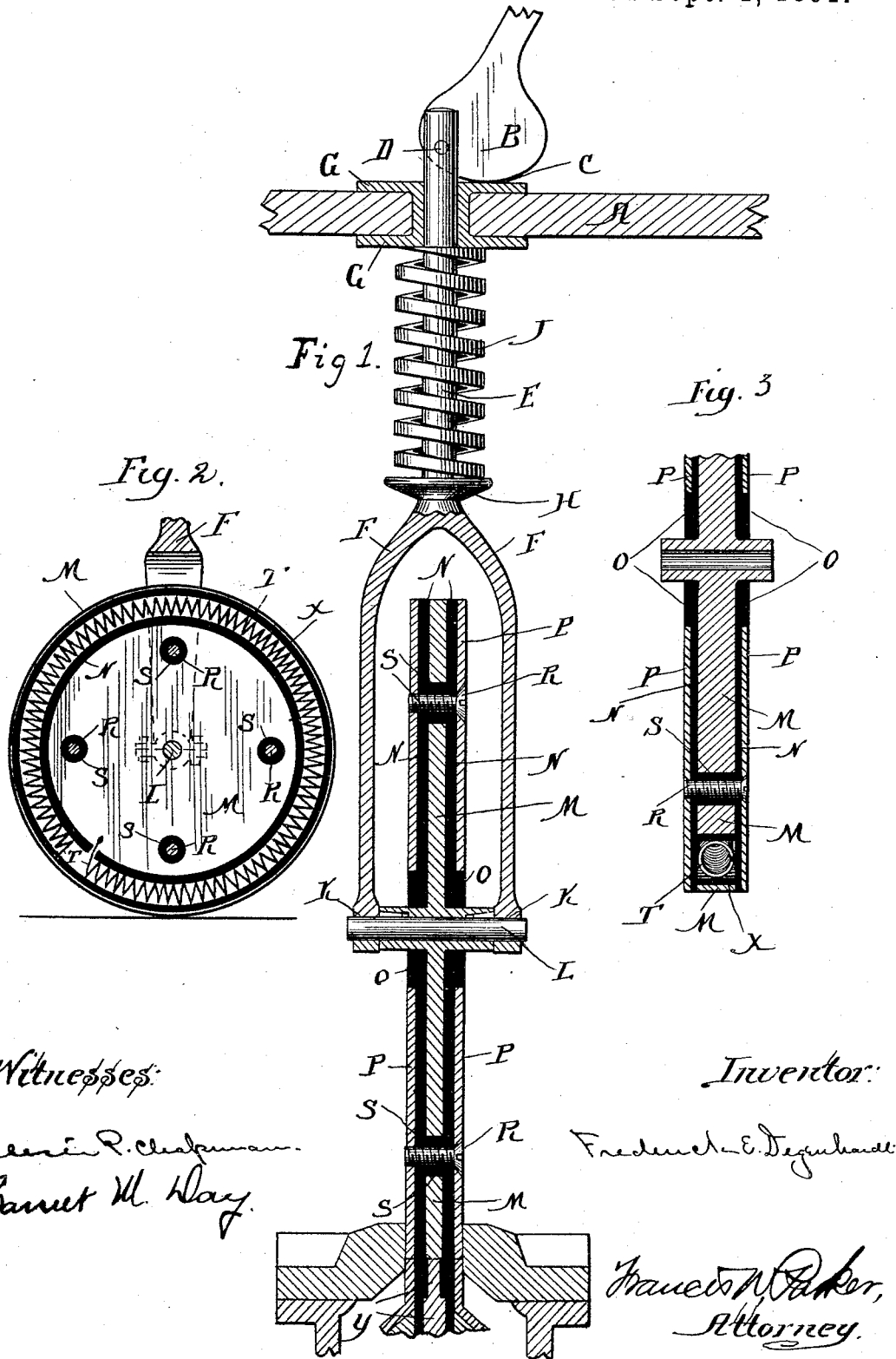


(No Model.)

F. E. DEGENHARDT.
ELECTRIC TROLLEY OR CONTACT WHEEL.

No. 458,620.

Patented Sept. 1, 1891.



UNITED STATES PATENT OFFICE.

FREDERICK E. DEGENHARDT, OF CHICAGO, ILLINOIS.

ELECTRIC TROLLEY OR CONTACT WHEEL.

SPECIFICATION forming part of Letters Patent No. 458,620, dated September 1, 1891.

Application filed November 21, 1890. Serial No. 372,172. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK E. DEGENHARDT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Electric Trolley or Contact Wheels, of which the following is a full, clear, and exact specification.

My invention relates to trolley-wheels or devices for conducting the current of electricity from a fixed conductor to a moving motor, and particularly from a fixed underground conductor. It is illustrated in the accompanying drawings, wherein—

Figure 1 is a front elevation and part section of my device. Fig. 2 is a vertical section of a modified wheel. Fig. 3 is a vertical cross-section of a modified wheel.

Like parts are indicated by the same letters in all the figures.

A is the bottom of the car; B, a cam-lever thereon, resting upon the bearing-plate at the point C, pivoted at D to a shank E, which is bifurcated at F F and adapted to reciprocate through the bearing-plates G G on the bottom of the car and carrying the bearing-plate H, between which and the lower bearing-plates G G is disposed the spring J about the shank E. At the lower extremity of the parts F F are the journals K K, in which rotate the short axle L, which carries the metallic disk M rigid upon such axle. This plate M is inclosed between disks of insulation N N and insulating-washers O O. The exterior surface disks P P of wearing metal are secured upon the inner plate M by the screws R R, which are surrounded by insulation S S, and pass through all of the disks, being screw-threaded into one of the outer disks P P. In this manner a strong trolley-wheel is produced and the same is protected by side plates, which are insulated from the conducting portion of the wheel, so that the periphery of such wheel consists of exterior projecting plates of metal and an interior conducting-plate insulated from the exterior plates. This trolley-wheel is adapted for use with my improved underground conduit, which is the subject-matter of a patent application of even date herewith. The arrangement and adjustment of these parts could be greatly altered

without departing from the spirit of my invention.

In Figs. 2 and 3, plate M is shown as of less diameter, and the insulation N is so disposed as to leave an annular insulated chamber about the periphery of the trolley-wheel. In this chamber is the resistance-coil, of any desired resistance capacity, connected at one end with the plate M, and thence to the motor on the car, and at the other end to a sort of tire X, adapted to bear upon and against the contact-plate Y, which is disposed along the ground and when depressed by the trolley-wheel makes contact with the conductor which supplies the current.

The use and operation of my invention are as follows: When the device is suitably constructed and the parts assembled, it will assume the position shown in the drawings, and when placed upon the car is adapted to extend downwardly almost in a vertical line. It may be mounted and provided with parts, so as to be capable of motion with reference to the car, if desired. In the position shown it is making contact, being forced downwardly by the strong spring J, the strength of which spring will of course be varied to suit varying circumstances. When the trolley is to be out of use, it is released by depressing the cam-lever D, which will lift the lower face of the trolley above and free it from the contact-surface below. When in contact, it is evident that a current will pass from the lower contacting plate or conducting plate to the conduit through the central disk M and the axle L, up the sides F F, through the shank E, and thence in any suitable manner to the motor. The insulation necessary to protect the inner disk is itself protected by the disks, between which it is clamped, and these latter also receive the wear which would result from friction with the walls of the slot. In some cases trolley-wheels are insulated from their journal-supports and the current is taken by a brush or a wire from them to the motor on the car; but this is equally applicable to my wheel. The cam, lever, and spring can be replaced by other devices for raising or lowering the wheel.

In cold or wet weather or under other circumstances when it is desired that the trolley

should heat the contacting point and thus make a better contact than otherwise, I employ the wheel shown in Figs. 2 and 3, substituting it for that shown in Fig. 1. In all material respects the wheels are the same, save that the form of Figs. 2 and 3 has a heating resistance-coil therein.

I claim—

1. In a trolley for electric railways, the combination of a central conducting-disk with insulation external thereto applied to both sides thereof.

2. In a trolley for electric street-railways, the combination of a central conducting-disk with insulation upon the sides thereof and exterior protecting-disks, the whole secured to-

gether, so as to present an insulated central disk with external supporting and wearing disks.

3. A trolley-wheel provided with a heating resistance-coil therein to make a better contact.

4. A trolley-wheel provided with a heating resistance-coil therein, side plates, a central insulated conducting-plate, a peripheral insulated tire, and the resistance-coil connected between the tire and plate.

FREDERICK E. DEGENHARDT.

Witnesses:

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