(No Model.)

J. SULLIVAN.

TROLLEY WHEEL.

No. 453,093. Patented May 26, 1891.

Fig. 1.

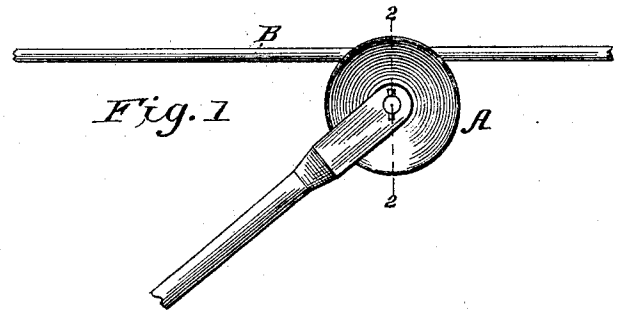


Fig. 2.

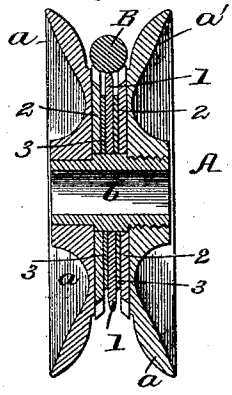


Fig. 3.

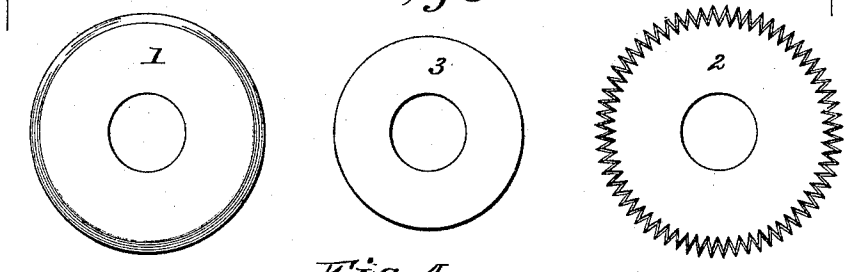
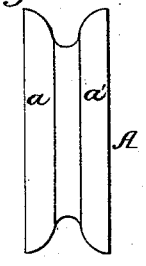


Fig. 4.



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JOHN SULLIVAN, OF WASHINGTON, DISTRICT OF COLUMBIA.

TROLLEY-WHEEL.

SPECIFICATION forming part of Letters Patent No. 453,093, dated May 26, 1891.

Application filed February 19, 1891. Serial No. 382,071. (No model.)

To all whom it may concern:

Be it known that I, JOHN SULLIVAN, of Washington, in the District of Columbia, have invented a new and useful Improvement in Trolley-Wheels, of which the following is a specification.

In operating electric railways which employ the "overhead system" of conductors it is often difficult and sometimes impossible, when the conducting-wire is coated with ice or very damp snow that has become compacted and frozen, to secure a good contact between such wire and the trolley-wheel through which the current is transmitted to the motor beneath the car.

It is the object of my invention to provide a trolley-wheel so constructed that it will break up and dislodge such coat or covering of ice or snow and make a perfect mechanical and electrical contact, thus enabling the motor to propel a car at the usual uniform speed.

In carrying out my invention I provide the trolley-wheel with toothed or corrugated portions adjacent to a central and intervening circular portion that runs in contact with the overhead-wire conductor.

Details will be now described, with reference to accompanying drawings, in which—

Figure 1 is a side view showing my trolley-wheel applied to a conductor as usual in practice. Fig. 2 is a cross-section, enlarged, on line 2 2 of Fig. 1. Fig. 3 is a plan or face view of certain portions of the trolley-wheel. Fig. 4 is an edge view of a trolley-wheel having a central or bearing portion adapted for use when the conductor is free of ice or snow.

The trolley-wheel A is made in parts, but has the usual outturned flanges *a a'*, separated by a peripheral groove, whose bottom constitutes the bearing that runs in contact with an overhead conductor B. In this case such bearing is a disk 1, having a thin beveled edge. On each side of it (1) and adjacent to a flanged portion *a a'* is arranged a disk 2, having its periphery provided with teeth, which project slightly beyond the edge of the contact-disk 1, and are beveled inward to adapt them to work close to the conductor B, as shown in Fig. 2. Each of these toothed disks 2 is separated from the central or contact disk 1 by means of a washer or thin flat plate 3, which is of considerably less diameter than the toothed disks 2, for a purpose hereinafter stated. Said washers may also be varied in thickness if it be desired to place the toothed disks 2 nearer or farther from each other.

The several parts 1, 2 2, and 3 3 are mounted on the sleeve or tube *b*, constituting the hub of the wheel A. One of the flanged portions *a* is keyed fast on such hub *b* and the other *a'* screws on its free end, thus clamping the several disks firmly together, yet permitting them to be readily removed when worn and others substituted.

In practical operation the trolley-wheel A is pressed against and runs along the conductor B in the usual way, so that the toothed portions 2 2 work in contact with and break up and dislodge the adhering coat of ice or compacted snow, thus enabling the central disk 1 to work constantly in perfect contact with the conductor B and insuring steady transmission of the propelling-current to the car-motor. A portion of the ice or snow thus broken up passes into the peripheral spaces or grooves, Fig. 2, formed between the teeth of disks 2 2 and the disk 1, so that the contact of the latter is rendered more easy and certain.

I propose in some cases to provide the central disk 1 with a toothed edge instead of a continuous one.

The contact-disk 1 and toothed disks 2 2 may be made of any suitable metal; but I generally employ brass for this purpose.

In Fig. 4 a solid central bearing-block is shown substituted for the disks 1 2 and plates 3 for use in ordinary weather when no coat of ice or compacted snow adheres to the conductor B. The substitution may be quickly effected by screwing off the flanged piece *a'*.

What I claim is—

1. A trolley-wheel for an overhead electrical conductor, having toothed portions in the bottom of its peripheral groove, as and for the purpose specified.

2. A grooved trolley-wheel for an overhead conductor, having a central contact portion and circular-toothed portions laterally adjacent thereto, as and for the purpose specified.

3. The improved grooved trolley-wheel for use with an overhead conductor, the same having a thin-edged central circular portion which runs in contact with said conductor

and circular-toothed portions arranged laterally adjacent to such contact portion, substantially as shown and described.

4. An improved grooved trolley-wheel for use with an overhead conductor, the same having a central circular contact portion and the two laterally-adjacent circular-toothed portions separated from such contact portion by a narrow space, as and for the purpose specified.

5. In a grooved trolley-wheel for use with an overhead conductor, the combination, with the thin-edged central circular bearing or contact portion, of laterally-adjacent portions having teeth whose edges are beveled or inclined inward toward each other, substantially as shown and described.

6. The improved trolley-wheel composed of the several separable parts specified—namely, the two outer flanged portions *a a*, the contiguous peripherally-toothed disks, the washers or spacing-disks, and the central or contact disk, secured together substantially as shown and described.

JOHN SULLIVAN.

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