

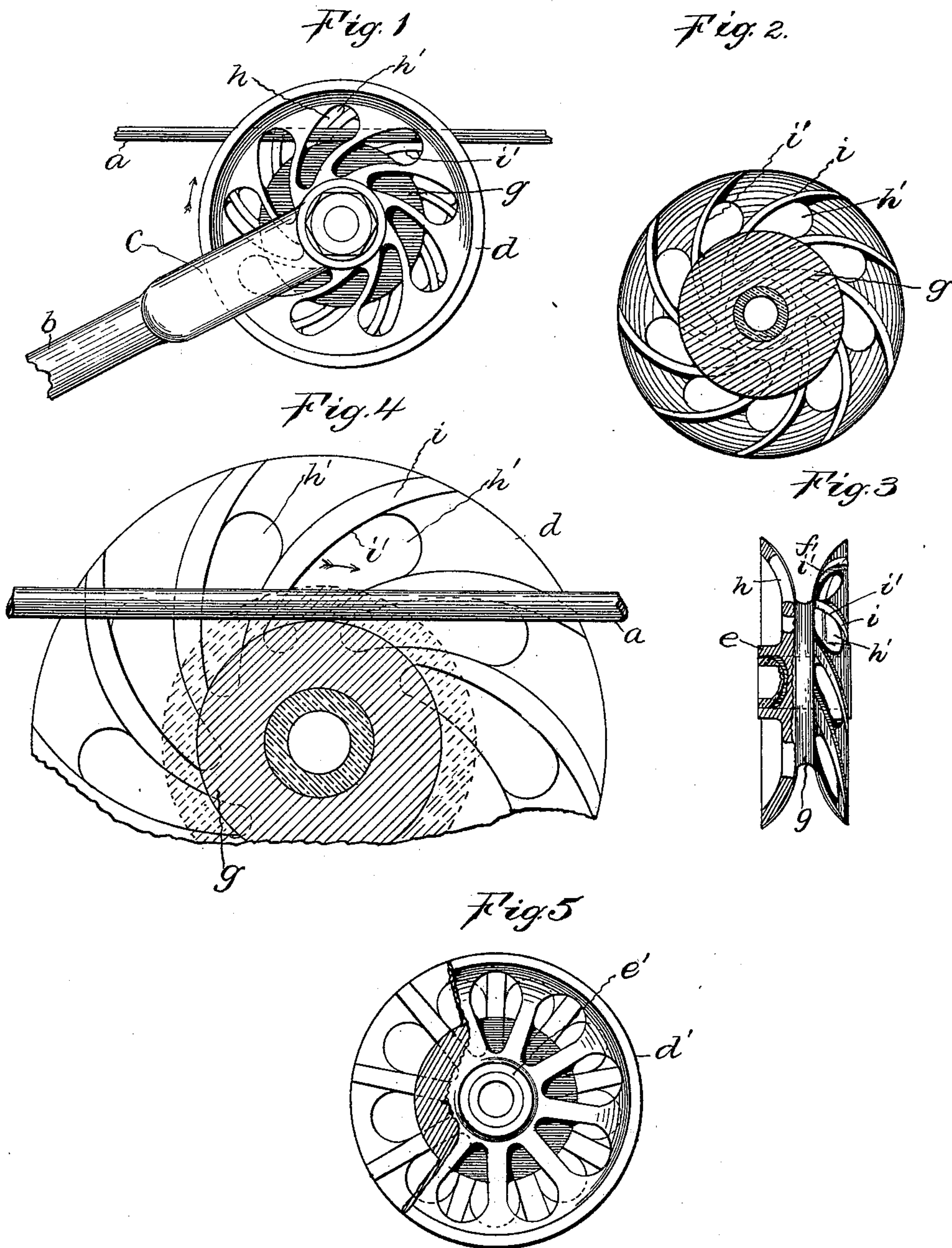
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Patented Aug. 21, 1900.

H. A. OSBORNE.
TROLLEY WHEEL.

(Application filed Dec. 6, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

HENRY A. OSBORNE, OF PLAINVILLE, CONNECTICUT.

TROLLEY-WHEEL.

SPECIFICATION forming part of Letters Patent No. 656,207, dated August 21, 1900.

Application filed December 6, 1899. Serial No. 739,376. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. OSBORNE, a citizen of the United States, and a resident of Plainville, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Trolley-Wheels, of which the following is a specification.

My invention relates to the class of devices which are used on the end of a trolley-pole, supported in the harp and used to form a rolling connection between the trolley-wire and the car. Such devices are apt to become to a degree inoperative in winter owing to sleet and ice which accumulates on the trolley-wire; and the object of my invention is to provide for automatically removing such accumulations, the said means being borne by and forming, in fact, a part of the bearing or contact surface of the trolley-wheel. Such a wheel is familiarly known in the art as a "sleet-wheel" or "ice-cutter."

Referring to the drawings, Figure 1 is a view in side elevation of my improved wheel in place on the end of a trolley-pole and in contact with the trolley-wire. Fig. 2 is a view in central vertical section through the middle of the wheel. Fig. 3 is an edge view of the wheel. Fig. 4 is a detail view of a portion of the wheel, on an enlarged scale, illustrating the manner in which the wheel becomes worn down by contact with the wire and also the self-sharpening feature of the wheel. Fig. 5 is a view in elevation of a modified form of my invention, in which the clearer-arms are arranged in a radial position.

In the accompanying drawings, the letter *a* denotes a trolley-wire; *b*, a trolley-pole; *c*, the harp or like wheel-bearing support, and *d* my improved wheel. This trolley-wheel *d* has a hub or center *e* and a peripheral groove *f*, the bottom of the groove being formed by the edge of the web *g*. This web is thin as compared with the total thickness of the wheel and lies between recesses *h* and *h'*, formed in the sides of the wheel and beyond the edge of the web, extending completely through the side walls, as illustrated in the drawings. These recesses *h* and *h'* are preferably formed with a curved outline, leaving between them what may be termed "ribs" *i*, which are curved in outline, so as to present a concave edge *i'*,

the function of which will be hereinafter explained. The ribs *i* extend in a curved line along the inner face of the side parts of the wheel, as shown in Fig. 2 of the drawings, and preferably run out or merge with the regular surface at or near the edge or periphery of the side parts of the wheel. This raised part of each rib lying along the surface of the side part on the inside of the wheel practically extends the clearer or cutter from the edge of the web *g* out to the extreme edge of each side part of the wheel. This makes the device effective as a means for clearing the trolley-wire of ice and sleet, not only while the wheel is running along a straight length of wire, but also as a wheel turns a corner, as when the car is rounding a curve.

My improved wheel is preferably mounted on the trolley-pole, as shown in Fig. 1 of the drawings, with the wheel arranged to rotate in such direction as to sweep the concave edges of the ribs or clearers along the surface of the wire, that having been found by practice to be the most effective manner of mounting the wheel. When the wheel *d* is arranged to rotate in the direction indicated by the arrow in Fig. 1 of the drawings, the concave edge of each rib *i* is carried with a sweeping motion along the surface of the wire, so as to give what may be termed a "drawing" cut against any accumulation of sleet or ice and remove the same from the wire, the material thus thrown off being quickly and easily discharged to right and left through the openings *h* in the sides of the wheel.

In the preferred form of the wheel the ribs *i* on opposite sides are staggered with reference to the recesses *h h'*—that is, the ribs on the one side are opposite the openings or recesses on the opposite side.

The advantage of the web *g* is that a continuous bearing for the trolley-wire is afforded, so that contact is always preserved and extreme sparking avoided. If it were not for the web and the V-like arrangement of ribs depended upon to form the sole support for the wire, there would be a continuous making and breaking of contact, which would cause practically-continuous sparking and consequent undue and extreme wear not only on the wire, but on the wheel. This is entirely avoided by my improvement.

The recesses *h h'*, which are located nearest the center of the wheel, as distinguished from the openings completely through the sides, are of advantage in this: that as the web wears down toward the center the ribs are maintained until the wheel has been worn so near to the center as to become useless and has to be thrown away. This feature of the wheel in continuing the clearing edge of the rib retains its self-sharpening feature, which is a material advantage, for the reason that it permits the wheel to be worn to the last possible usable diameter and yet remain operative as a sleet-wheel or wire-clearing device as long as the wheel has any useful life.

In Fig. 5 I have shown a form of wheel in which the central web forms a continuous support for the trolley-wire, the same as in the preferred form already described, this wheel *d'* having a hub *e'* and having recesses extending into the side parts of the wheel to the web and beyond the web, completely through the side part, as in the other form. This wheel with the radial spokes is an effective form to a degree in maintaining the continuous contact, the wire-clearing, and the self-sharpening features; but it is not so effective in operation as in my preferred form of wheel above described, in which the ribs are arranged on curved lines tangential to the hub, rather than on direct radial lines.

It is obvious that the main feature of my invention is applicable to a trolley-wheel in which the rib may be variously formed and arranged, and I do not limit my invention to the two forms or arrangements of the rib and the continuous support which have been described, but intend to include within my invention such variations of these features as will suggest themselves to the mechanic skilled in the art.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. As an improved article of manufacture, a trolley-wheel having a web, side parts extending beyond the web and forming a groove, projecting ribs extending along the side of the web from a point within its periphery and terminating at a point beyond the periphery of the web.

2. As an improved article of manufacture,

a trolley-wheel having a web, side parts extending beyond the web and forming a groove, projecting ribs extending along the web from a point within to a point beyond the periphery of the web, openings through the side parts between the ribs beyond the periphery and recesses formed between the ribs and bounded by the ribs and web within the periphery of the web.

3. As an improved article of manufacture, a trolley-wheel having a peripheral groove forming side parts, curved ribs extending from the hub toward the periphery of the side parts, openings through the walls of the side parts arranged in alternation with the rib on the opposite side part, and a web located between the side parts and forming a bottom for the peripheral groove.

4. As an improved article of manufacture, a trolley-wheel having a peripheral groove forming side parts, a hub, a thin web located between the side parts and with its edge forming the bottom of the groove, recesses formed in and extending in part through the walls of the side parts, and curved ribs extending from the edge of the web to the outer edge of each side part.

5. As an improved article of manufacture, a trolley-wheel having a peripheral groove forming side parts, openings through said side parts leaving solid portions or ribs arranged in alternation on the one side with the openings on the opposite side, the inner projecting edges of such ribs forming cutting or clearing edges, and a web extending between the ribs.

6. As an improved article of manufacture, a trolley-wheel comprising a web and side parts forming a peripheral groove about the web, said side parts having a series of ribs and openings and cutting edges on the ribs, and recesses formed within the periphery of the web and bounded by the ribs and web adapted to present a new cutting edge on the ribs as the web decreases in diameter through wear.

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