G. W. SWETT.
Car-Wheel.

No. 211,803. Patented Jan. 28, 1879.

Fig. 1

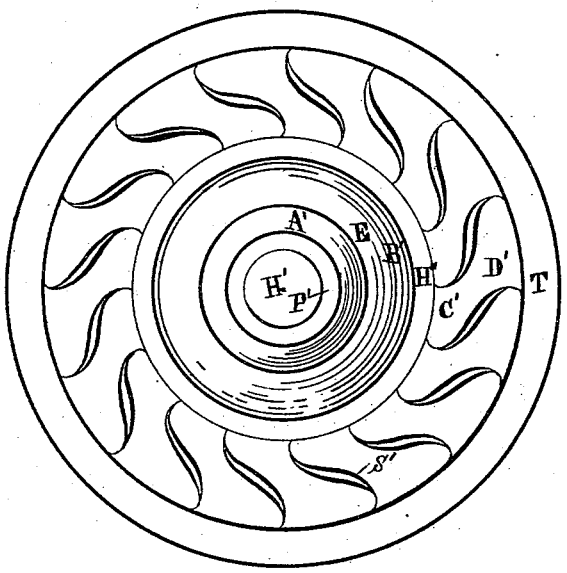
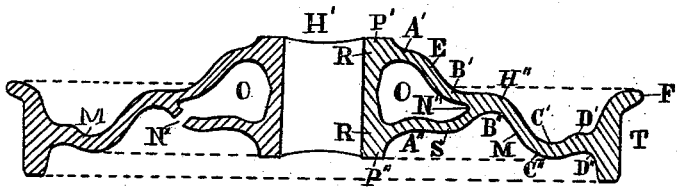


Fig. 2



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UNITED STATES PATENT OFFICE.

GEORGE W. SWETT, OF TROY, NEW YORK.

IMPROVEMENT IN CAR-WHEELS.

Specification forming part of Letters Patent No. **211,803**, dated January 28, 1879; application filed October 22, 1878.

To all whom it may concern:

Be it known that I, GEORGE WALLACE SWETT, of the city of Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Car-Wheels, of which the following is a specification:

My invention relates to the form of double-plate car-wheels and a manner of removing the resonance that the metal which composes them gives off when the wheels are subject to the concussion produced by running upon metallic tracks, the object accomplished by the new form being that the metal of which the wheels are composed and cast may be run into molds at a high temperature, so as to obtain the best chilling effect upon the metal composing the flange and tread, and at the same time the form will adapt itself to the cooling conditions of the metal, so as not to chill-crack the tread and connected rim-flange.

Another object of my invention is to prevent the resonance given off by the running wheels found to be so objectionable where elevated roads are used in cities over streets and near habitations.

My invention consists principally in introducing into the double plates of the hub-section of a cast-metal car-wheel diametrical corrugations adapted mutually to each other to avoid the evils resulting ordinarily from contraction of the cooling of the metal after casting; and it further consists in adapting to a wheel having such corrugations around the hub like corrugations in the single plate between the hub and the tread.

The particular form of my improved car-wheel will be fully described, and the special features constituting my invention pointed out in the claims.

In the accompanying drawings there are two figures illustrating my invention, in both of which the same letters give reference to the same parts of the car-wheel.

Figure 1 shows a plan of a car-wheel and the manner of arranging the corrugated surfaces in revolution about the hub-center. Fig. 2 exhibits a vertical section of a double-plate car-wheel, the form of the corrugations produced by the contiguous diametrical lines of ogee curves, and also the hollow annular space between the double plates arranged in revolution about the hub.

The various parts of the wheel, as shown in vertical section, are designated by letters of reference as follows: R R denote the double-plate section containing the annular chamber O O. The letter H′ shows the hub-center; P′ and P″, the double plates uniting at N″. The letter A′ designates the hub-rim, and E a projection arranged between the two depressed or grooved portions shown at the points A′ and B′, and this projection E is composed of two ogee curves united. The letter B′ designates a receding portion intervening between E and H″, and A″ and B″ two depressions or grooves having the intervening projection S, formed by two ogee curves. M denotes the single-plate portion of the wheel, having the raised portions H″ and D′ and the intervening grooved portion C′, which, when reversed upon the other side of the plate, produce the depressions B″ and D″, with the intervening projecting molding C″. The flange of the wheel is shown at F, and the tread at T.

All the lines of curve shown in Fig. 2 are diametrical ones, and represent molded forms of corrugation produced upon the facing sides of the wheel, and in molded revolution about the hub-center H′, of which the figure is a vertical diametrical section, as double-plate car-wheels are usually made with corrugations formed only upon the single-plate portion, which connects the tread and flange with the hub-section. The two plates forming a Y-shaped connection create a direct reacting brace to resist the contraction of the tread and flange when cooling, and if the metal be poured hot enough to produce a proper chill upon the tread and flange, the contraction toward the mass of metal composing the hub is resisted by direct lines of reaction, so as to crack the chilling tread and flange-rim.

When the inclining plates forming the double-plate section of the wheel are corrugated as shown herein, there are no direct bracing-lines, and the contraction is relieved by the series of curves between the rim and upon the double-plate hub-section, and thus a much higher temperature of molten metal may be employed

in casting the wheels, and a better chill produced upon the tread and flange rim in consequence of it.

To support the flange, the usual brackets are formed upon the flange side of the single plate, and in this case they are curved in the form shown in Fig. 1, and extend from the annular corrugation B′ to the flange F. They are adapted in shape and amount of metal to the single plate of the described shape, and constitute with the other parts a symmetrical and well-proportioned wheel, capable of enduring the contraction consequent upon cooling without injury.

I am well aware that there is no novelty, broadly considered, in corrugating the faces of car-wheels, excepting so far as relates to their application to the hub-section of a double-plate wheel, and their combination thus located with corrugations formed upon the single-plate portion of the wheel.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a cast-metal car-wheel having a single annular cavity, O, about its hub and double plates united at N to form a single plate, the corrugations A′ E B′ on one side and A″ S B″ on the other, the opposite diametrical curves being arranged in relation to each other as and for the purpose shown.

2. The two plates inclosing the annular space and uniting at N to form a single plate, said plates being formed and arranged in relation to each other in the manner shown, in combination with the corrugations H″ C′ C″, as and for the purpose set forth.

Signed at Troy, New York, this 21st day of October, 1878.

GEORGE W. SWETT.

Witnesses:
GILES KELLOGG,
JUSTIN KELLOGG.