

(No Model.)

H. F. MANN.
CAR WHEEL.

No. 410,324.

Patented Sept. 3, 1889.

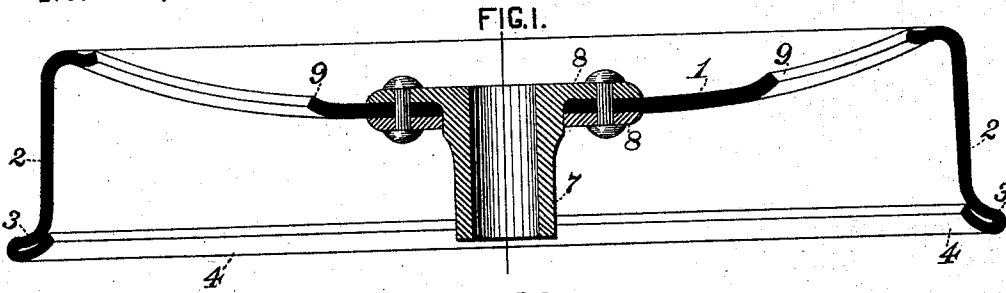
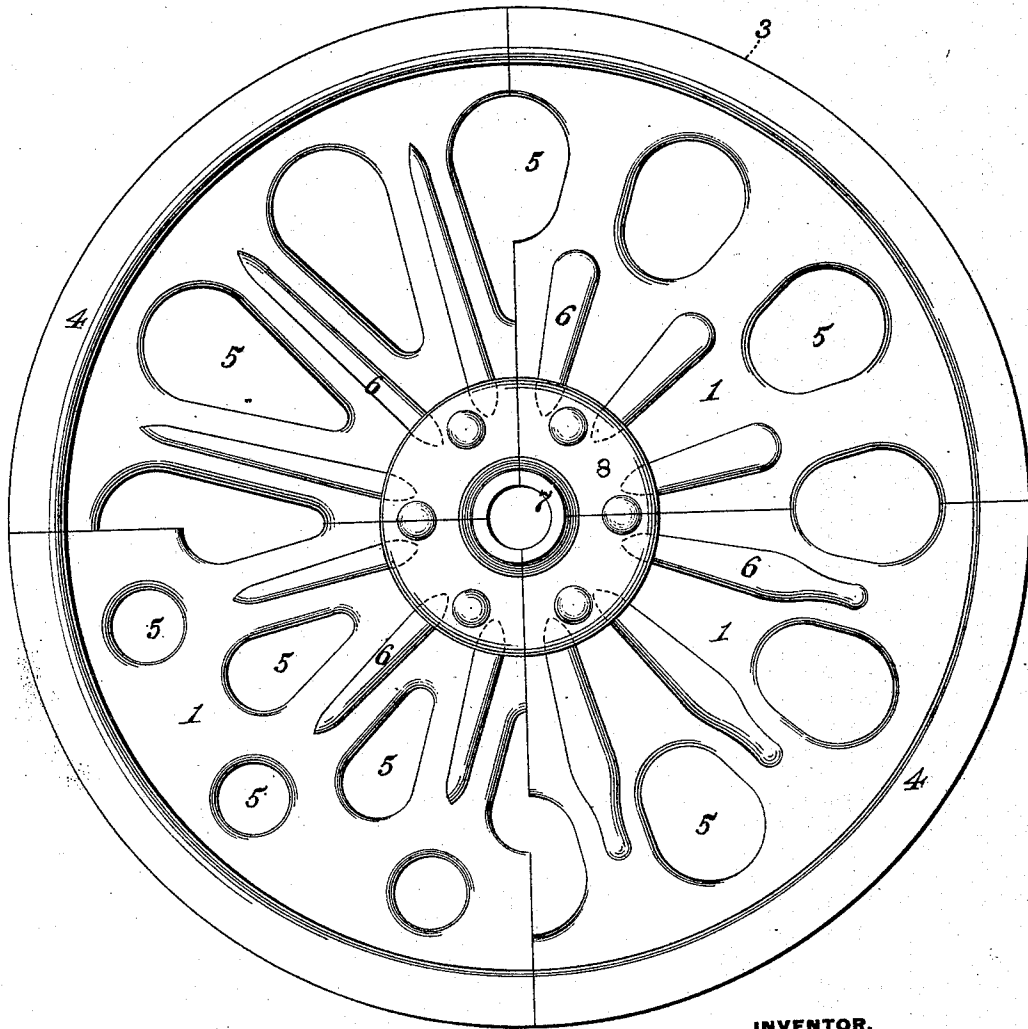


FIG. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY F. MANN, OF ALLEGHENY, PENNSYLVANIA.

CAR-WHEEL.

SPECIFICATION forming part of Letters Patent No. 410,324, dated September 3, 1889.

Application filed February 15, 1889. Serial No. 299,939. (No model.)

To all whom it may concern:

Be it known that I, HENRY F. MANN, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Car-Wheels, of which improvements the following is a specification.

The invention described herein relates to certain improvements in wrought-iron or steel car-wheels, and has for its object the re-enforcement of such parts of the wheel as are subjected to the greatest strains and shocks and the lightening of such parts as are subjected to the least strains, thereby producing a strong light wheel especially adapted for hand-cars and railroad-velocipedes.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional view of a car-wheel constructed in accordance with my invention, and Fig. 2 is a view of a wheel in side elevation, the different quadrants into which the web is divided illustrating different ways in which the web may be lightened and rendered more rigid.

In constructing wrought-iron or steel car-wheels the usual practice is to turn the edge of a circular disk, as 1, to or approximately to a right angle with the body of the disk, said turned-over portion being of sufficient width to form not only the tread 2 but also the flange 3 of the wheel, said flange being formed by bending outwardly the edge of the portion which was turned over to form the tread.

Experience has shown that in a wheel constructed in the manner stated—*i. e.*, with a solid web portion and the flange formed of a single thickness of metal—the web contains an amount or weight of metal unnecessarily large to render it fully capable of withstanding the radial and lateral strains and shocks to which it is subjected, and that the flange is not sufficiently strong and rigid to withstand the lateral shocks or strains when passing around curves, or the edgewise blows to which they are subjected in moving the car off of and onto the rails. In order to render the flange more durable in use, I turn over an additional width of metal over and above

that required for the formation of the tread and flange, and in bending the edge of the turned-over portion for the formation of the flange a little greater width of metal is bent outwardly, and then fold this excess of metal outwardly and downwardly against or parallel with the flange, as at 4, thereby bracing the flange as against lateral strains and also increasing the width of the edge of the flange and the rigidity thereof as against edgewise shocks or blows. In order to lessen the weight of the wheel, portions of the web 1, preferably adjacent to the tread, are cut out, as shown at 5, Fig. 2. This removal of the metal does not injuriously weaken the web, as the principal strains are applied in radial lines, and in order to counteract any weakening which the removal of the metal may cause as against lateral strains I form a series of radial corrugations 6, preferably alternating with the holes 5. These corrugations may extend either from the eye formed in the web from the insertion of the hub 7, or from the washers 8, employed for securing the hub to the web, to or out between the holes 5, as shown in Fig. 2. In order to further increase the rigidity of the web as against lateral strains, the edges of the holes 5 are turned outwardly at an angle to the web, as shown at 9, Fig. 1.

A wheel constructed as described has all of its parts suitably proportioned and constructed to withstand all strains or shocks to which it may be subjected, and that without any undue increase in the weight of metal at any part thereof. As will be seen by reference to the drawings, the outer edge of the tread is supported by the web and the inner edge thereof by the re-enforced flange.

Although I have shown and described the wheel as having its tread and web portions integral with each other, said portions may be connected as set forth in application, Serial No. 290,705, filed November 13, 1888, and Serial No. 292,514, filed December 3, 1888.

I claim herein as my invention—

1. A wrought-iron or steel car-wheel having, in combination, a single web, a tread connected at its outer edge to said web, and a flange re-enforced by a fold of metal, portions of the metal of the web being removed for

the purpose of lessening the weight of the wheel, substantially as set forth.

2. A wrought-iron or steel car-wheel having, in combination, a web, a tread connected
5 at its outer edge to said web, and a flange, portions of the web being removed for the purpose of lessening the weight of the wheel, the edges of the holes formed by the removal

of the metal being turned at an angle to the web, substantially as set forth. 10

In testimony whereof I have hereunto set my hand.

HENRY F. MANN.

Witnesses:

DARWIN S. WOLCOTT,
R. H. WHITTLESEY.