C. HEART.
METAL WHEEL SPOKE.
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METAL WHEEL-SPOKE.


Original application filed May 25, 1905, Serial No. 262,114. Divided and this application filed September 9, 1905. Serial No. 277,744.

To all whom it may concern:

Be it known that I, CHARLES HEART, a citizen of the United States, residing at Alexandria, in the county of Madison and State of Indiana, have invented new and useful Improvements in Metal Wheel-Spokes; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to wheels for vehicles such as wagons, carriages, automobiles and the like, the invention having reference particularly to the spokes of the wheels, which were originally shown in my application filed May 25, 1905, Serial No. 262,114, and divided therefrom; objects of the invention being to provide improved hollow metallic spokes for wheels, and particularly to provide reinforced spoke-ends capable of withstanding the strains where they are attached to the wheel-hub, and to provide improved tenons at the spoke-ends that are connected to the wheel-felly.

With the above-mentioned and minor objects in view, the invention consists in certain novel features of construction in hollow metal spokes for wheels, embracing particularly reinforced ends thereof; and the invention consists further in the parts and combinations parts, as hereinafter particularly described and claimed.

Referring to the drawings, Figure 1 is a front elevation of a wheel including the improved spokes; Fig. 2, a fragmentary longitudinal sectional view of a spoke showing the improved tenon thereof; Fig. 3, a fragmentary longitudinal sectional view of a spoke showing the reinforced hub-end thereof; Fig. 4, a transverse sectional view on the line A A in Fig. 2, omitting the tenon-thimble; Fig. 5, an end-view of a spoke and tenon without the thimble thereof; Fig. 6, a plan of the thimble detached from the spoke; Fig. 7, an end-view of the spoke showing the plan of the hub-end thereof; Fig. 8, a transverse sectional view on the line B B in Fig. 3; and, Fig. 9, a front view of a spoke detached from the wheel.

Similar reference characters in the different figures of the drawings designate corresponding parts or features.

In the drawings, as illustrating the invention as connected with a wheel, in Fig. 1 a complete wheel is shown comprising a hub, a; the improved spokes, C; a felly, b; a tire, c; and a spoke-socket, d. The felly has a joint e.

The spokes C are each mainly formed of a single piece of sheet metal pressed to the desired shape so as to be hollow, and each one has a wedge-shaped hub-end D and a shoulder g near its other end from which extends a hollow integral tenon composed of two sides h and k having their edges turned inwardly and forming abutting lips i and i' at their joints. The body part of the spoke has a turned-over seam f extending from the shoulder g to the opposite or inner end of the spoke that connects with the hub.

The outer end of each spoke proper is provided with a reinforcing thimble E that embraces the tenon and has a cap-end j extending across the end of the tenon and into the felly b, the thimble having also a shoulder k engaging the shoulder g of the spoke, and from the shoulder k extends a flange which with the shoulder as a bottom forms a socket d for the end of the spoke proper, the remaining portion of the thimble forming also a socket and reinforcement for the tenon of the spoke. The thimble is usually forcibly pressed onto the spoke before being connected in the wheel, but the thimble may be first pressed into the felly and then the spoke may be driven into the thimble. Preferably the thimble is formed of a disk of soft sheet metal pressed in dies.

The inner rectangular tapering end portion D of each spoke that is attached to the hub is provided with transverse internal braces F and F' that extend along the sides n and n' of the ends of the sloping plates x, x' of the end D of the spoke and are connected by an integral brace plate G at their edges which bear against one flat side l of the spoke, the opposite edges of the branches F and F' bearing against the opposite side m of the spoke and having flanges or lips H and H' engaging opposite sides of the seam f of the spoke for holding the braces in position. A single piece of metal forms each set of braces, and preferably is composed of sheet steel.

In practical use the internal braces of the ends D of the spokes prevent the flat sides of the spokes from being bent inwardly by the hub resulting from severe service, and the
thimbles on the tenons of the spokes not only strengthen the tenons but prevent the entrance of water into the hollow spokes.

Having thus described the invention, what is claimed as new is—

1. A metal wheel spoke having a tenon formed integral therewith and comprising two separate joined opposing sides having their edges turned inwardly and forming abutting lips at the joints thereof, and a thimble extending about the tenon and holding the two sides thereof together.

2. A hollow metal wheel spoke having a tenon formed integral therewith and comprising two sides having their edges turned inwardly and forming abutting lips at the joints of the sides, and a thimble extending about the tenon and across the end thereof, the thimble holding the two sides of the tenon together.

3. A hollow metal wheel spoke comprising a body part and an integral tenon, the body part having a seam therein and the tenon comprising two separate abutting sides, and a thimble extending about the tenon and also about a portion of the body part and holding the two sides of the tenon together.

4. In a wheel spoke, the combination with a thimble, of a hollow metal spoke having a tenon comprising two sides each separately formed integral with the body of the spoke and having two lips turned inwardly, the lips of one side abutting against the lips of the other side of the tenon, the end of the spoke and the tenon being inserted in the thimble.

5. In a hollow metal wheel spoke, the combination with a rectangular tapering end portion of the spoke having a longitudinal seam therein, of two parallel braces extending along the sides of the ends of the sloping plates of said tapering end, said braces having an integral brace attached thereto bearing against the side of said end portion opposite the seam thereof, said parallel braces bearing against the seamed side of said end portion and having lips bearing against opposite sides of said seam.

In testimony whereof, I affix my signature in presence of two witnesses.

CHARLES HEART.

Witnesses:

Wm. C. Thompson,
E. T. Silvius.