(No Model.)

E. SHARBONNEAU.

METAL WHEEL.

No. 388,455. Patented Aug. 28, 1888.

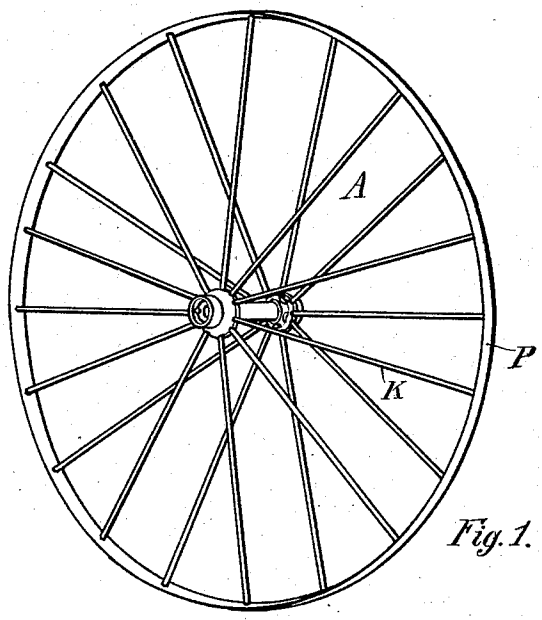

Fig. 1.

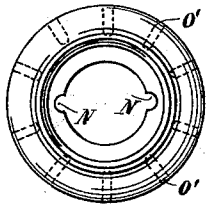

Fig. 3.

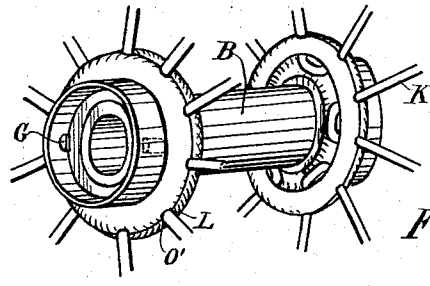

Fig. 2.

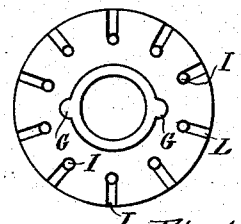

Fig. 4.

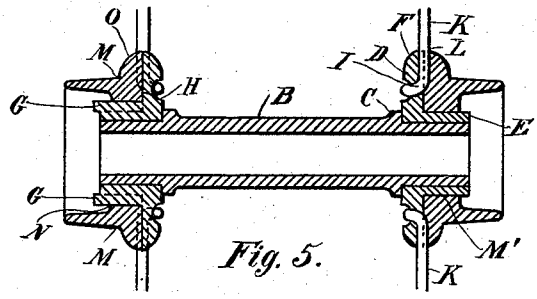

Fig. 5.

Witnesses.
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UNITED STATES PATENT OFFICE.

ELI SHARBONNEAU, OF TOLEDO, OHIO.

METAL WHEEL.

SPECIFICATION forming part of Letters Patent No. 388,455, dated August 28, 1888.

Application filed April 26, 1888. Serial No. 271,897. (No model.)

To all whom it may concern:

Be it known that I, ELI SHARBONNEAU, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in a Metal Wheel; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to metal wheels of that class more especially used for childrens' carriages, bicycles, velocipeds, &c., and has especial reference to simplicity of construction and rigidity to withstand the great strain to which wheels of this character are subjected.

The object of the invention is to cheapen the manufacture and provide a wheel of great durability.

The invention consists in certain parts, as will be more fully explained and expressed in the claims.

In the drawings, Figure 1 is a perspective view of a complete wheel. Fig. 2 is a perspective of the hub and a sufficient portion of the spokes to illustrate my invention. Fig. 3 is a top plan view of the cap. Fig. 4 is a plan view of the outer face of the flanged collar. Fig. 5 is a longitudinal vertical section through the hub, the front half being removed to disclose the interior thereof, Figs. 2 and 3 being drawn on an enlarged scale.

A designates the wheel; B, the hub having a longitudinal axial opening for the journal. The end portions of the hub are reduced for some distance, thereby forming shoulders C, against which the inner sides of collars D abut. Each collar D is formed with a tubular portion, E, and a flange portion, F, the tubular portion being of a size to closely fit upon the reduced end of the hub, and having upon the periphery thereof at diametrically-opposite points keys or lugs G, formed integral, as shown in Fig. 5. Collars D are formed with an annular depression, H, and transverse perforations I, extending through the flanges at equidistant points, corresponding to the number of spokes K contained in the wheel, the outer vertical surface of the collar having semi-circular grooves L extending from the perforations to the periphery.

M designates caps formed with a cylindrical portion, M', having an annular space corresponding in size to the circumference of the tubular extension E of collar D. Each annular space is formed with a groove, N, corresponding in interior contour to the shape of key or lug G. From the cylindrical portion M' extends a collar, O, corresponding in circumference with flange F of collar D, and having semi-cylindrical grooves O' in coincidence with grooves L of said flange. From the bearing-point of extension M' the cap is flared upon the inner side and can be finished upon the outer surface in any desired manner.

In assembling the parts to constitute a complete wheel, collars D are placed upon the reduced ends of the hubs. Spokes L (which are of the character known in the art as "return-spokes") are passed through perforations I of the flanges with the bend thereof within the annular depression and in tension against the metal between each series of perforations, and are then bent at right angles to the axis of said hub and placed within the radial grooves. Caps M are then placed upon the tubular portion E of the collar, with groove N passed over keys or lugs G, and the radial grooves O' in alignment with the spokes, which are seated therein. The extended ends of keys or lugs G are then upset or bent sufficiently to force the cap closely against collar D, after which the spokes are secured to the rim P of the wheel in the usual manner.

By the construction described the "gather" of the wheel tends to draw the collars firmly against the shoulders on the hub, and the cap-pieces present a finished appearance to the wheel and are held from displacement by the keys or lugs, which afford a convenient means of securing the same, being also easily arranged to permit the removal of the caps to remove or insert a spoke or spokes in the event of breakage.

The wheel is inexpensive in construction and has no loose parts to annoy by rattling or lose by carelessness.

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

1. In a metal wheel, a hub, a collar thereon having transverse perforations through the right-angled portion, in combination with return-spokes passed through the perforations and embracing the intermediate metal, as and for the purpose set forth.

2. In a metal wheel, a hub, a collar having an annular portion formed with an integral key or lug in parallel relation, a flange having perforations, spokes passed through the perforations, and a cap formed with grooves coincident with the keys or lugs, as and for the purpose set forth.

3. In a metal wheel, a hub, collars upon each end thereof having radial flanges formed with an annular depression, perforations through the flanges opening into the annular depression, and radial grooves from the perforations to the periphery thereof, in combination with caps secured upon the end of the collars and having radial grooves corresponding with the grooves in the flange, as and for the purpose set forth.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

ELI SHARBONNEAU.

Witnesses:

WILLIAM WEBSTER,

CARROLL J. WEBSTER.