

G. MANNES.
METAL WHEEL HUB.
APPLICATION FILED MAY 26, 1909.

946,640.

Patented Jan. 18, 1910.

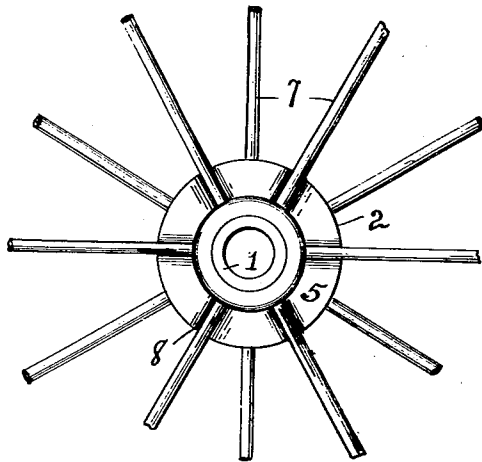


Fig. 1.

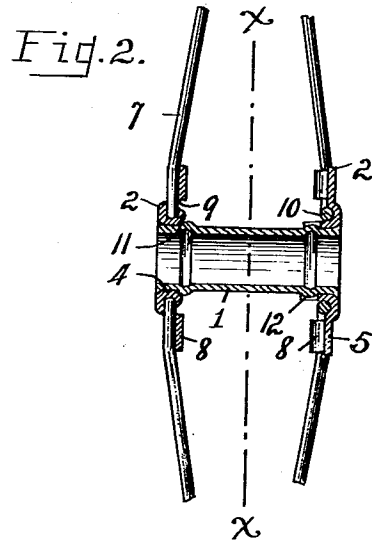


Fig. 2.

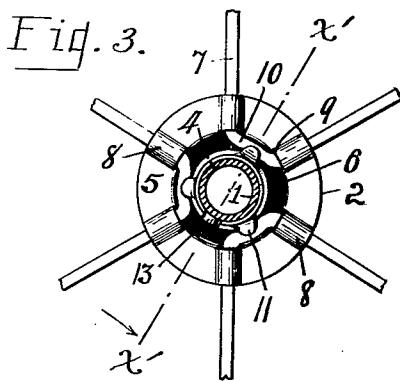


Fig. 3.

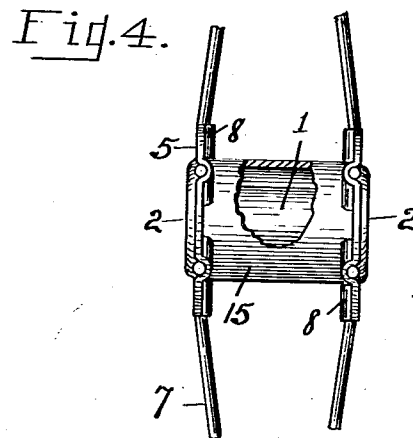


Fig. 4.

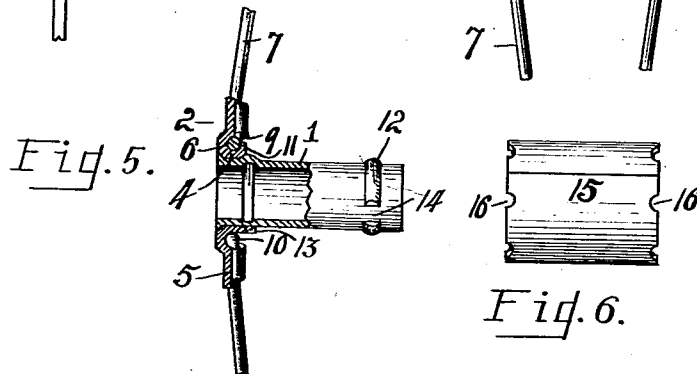


Fig. 5.

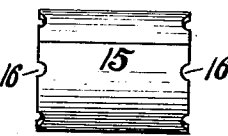


Fig. 6.

WITNESSES:

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UNITED STATES PATENT OFFICE.

GEORGE MANNES, OF TOLEDO, OHIO.

METAL WHEEL-HUB.

946,640.

Specification of Letters Patent.

Patented Jan. 18, 1910.

Application filed May 26, 1909. Serial No. 498,545.

To all whom it may concern:

Be it known that I, GEORGE MANNES, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Metal Wheel-Hub; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 figures of reference marked thereon, which form a part of this specification.

My invention relates to metal wheels of the class designed to be used in connection with velocipedes, baby-carriages, tricycles, etc., and has particular reference to the hub construction of such wheels and the manner of securing the spokes thereto.

The object of my invention is the provision of a simple, improved and highly efficient wheel of this class, which is easy and inexpensive of manufacture, and strong and durable in its construction whereby to enhance the practicability and commercial value thereof.

The invention is fully described in the following specification, and while in its broader aspect it is susceptible of embodiment in numerous forms, a preferred form of the same is illustrated in the accompanying drawings, in which,—

Figure 1 is a side view of a hub embodying my invention. Fig. 2 is a central longitudinal section of the same, Fig. 3 is a central cross-section of the same on the line $x-x$ in Fig. 2. Fig. 4 is an elevation of the same with the reinforcing barrel in position thereon. Fig. 5 is a partial section of the hub on the line $x'-x'$ in Fig. 3, one flange being removed, and Fig. 6 is a side view of the reinforcing barrel.

Referring to the drawings, 1 designates the sleeve or tube which constitutes the body of the hub and carries at its ends the spoke securing flanges 2, 2. These flanges are preferably stamped from sheet metal, and the blank from which each is formed is preferably of disk-form and is provided with a central opening, which is enlarged and has its wall broadened or flanged as at 4, to receive and form a suitable bearing for the sleeve 1. The outer marginal portion 5 of the blank is pressed in the same direction as the flange 4 to combine with such

part to form an annular recess 6, the depth of which, relative to the portion 5, is preferably, but not necessarily, equal to substantially half the thickness of the wire forming the spokes 7 for the purpose hereinafter described.

8 designates embosses which are formed at intervals around the portion 5 of the flange and provide radial recesses preferably of semi-circular form in cross-section on the side thereof opposed to the recess 6. The recesses formed by the embosses or depressed portions 8 extend entirely across the portion 5 of the flange and have their inner ends opening into the recess 6, due to the shearing of the inner ends of such embosses from the outer wall of the recess 6, as shown at 9.

The spokes 7 are formed in pairs, two spokes being formed from a single piece of wire by bending the same in the middle, thus forming the integral loop portion 10. These spokes have their loops seating in the annular recess 6 and their radiant portions extended outwardly through the sheared inner ends of the embosses 8 and lying in the recesses formed by such embosses, as shown. It will be noted that the spokes are rigidly held to their respective flanges by reason of the loops 10 thereof having their inward thrusts against the inturned portions 4 of the flanges and their outward thrusts against the outer wall of the recess 6 and the inner ends of the embosses 8, while the inner end portions of the spokes proper are firmly held against lateral movements by the walls of the radial recesses in which they seat.

In order to prevent lateral pivotal movements of the spokes relative to their flanges when their outer ends are not secured to the wheel rim, and thus facilitate an assembling of the parts during manufacture, the free end of each inturned portion 4 of the flanges is formed with a series of ears or lugs 11, which are intended to be bent outwardly over against the loops 10 of the spokes to hold such loops rigidly seated in the recess 6, as shown.

In assembling the parts of the hub the flanges 2 are preferably placed thereon, with the recesses 6 thereof disposed inwardly, thus leaving the bulged sides of such recessed portions to cooperate with the ends of the sleeve to form a broadened bearing surface for a spindle nut. The inward movements of the flanges on the sleeve 1 are prevented by shoulders 12 formed on the sleeve,

as is customary in such cases, and the outward movements thereof are prevented by an expansion of the ends of the sleeve within the outer portions of the flange bearings, as shown. For the purpose of preventing a relative turning of the flanges 2 and the sleeve, the inner end of the bearing portion 4 of each flange is provided with an ear or lug 13, which enters a notch 14 in the contiguous shoulder 12 of the sleeve.

15 designates a supplemental or reinforcing sleeve or drum, which encircles the sleeve 1, and is preferably of suitable diameter for its ends to abut flanges 2, at the inner ends of the embosses 8, as shown in Fig. 4. The ends of the sleeve 15 are notched, as at 16, in suitable position to aline with the inner open ends of embosses 8, and to receive the contiguous sides of the spokes 7, thus adapting the sleeve to prevent relative rotary movements of the flanges of a hub.

I wish it understood that my invention is not limited to any specific construction and arrangement of the parts except in so far as such limitations are specified in the claims.

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

1. In a wheel, the combination of a hub-sleeve having spoke securing flanges at its ends, spokes attached to said flanges and having portions exposed interiorly of the flanges, and a supplemental sleeve encircling the first mentioned sleeve and having its ends provided with notches for receiving the contiguous sides of the exposed portions of the spokes.

2. In a wheel, a sleeve formed with an annular shoulder in spaced relation to each end, a spoke engaging flange at each end of the sleeve surrounding the latter, the free ends of the sleeve being flared outwardly to form shoulders to engage the spoke flanges, said flanges being formed with radial embosses, said embosses terminating at a circular recess formed at the inner ends thereof, the inner end of each spoke flange being formed with spaced ears, a series of spokes connected at their inner ends in pairs, said spokes having their connected ends disposed in said circular recesses and engaged by said ears and having their portions adjacent said connected ends engaged in said embosses.

3. In a wheel, a sleeve, a spoke engaging flange at each end of the sleeve, each of said flanges being formed with an annular recess and a series of radial embosses, a series of spokes connected at their inner ends and having their connected ends disposed in said circular recess, and a supplemental sleeve encircling the first named sleeve, said supplemental sleeve being for engagement with each of said spoke engaging flanges to prevent rotative movement thereof with respect to each other.

4. In a wheel, a sleeve, a spoke engaging flange at each end of the sleeve, each of said flanges being formed with an annular recess on its inner side face and with a series of radial embosses which are struck outwardly from said flange and which are disposed at the inner side face of the flange, and a series of spokes connected at their inner ends and having their connected ends disposed in said circular recess, the inner end of each spoke flange adjacent said recess thereof being formed with ears which are engaged about said connected ends of the pairs of spokes.

5. In a wheel, a hub sleeve having spoke engaging flanges formed with a central recess and embosses, spokes engaging in said recess and having portions arranged in said embosses, and a supplemental sleeve having its ends extending in said recess and having spaced notches to receive said spokes at their points where they lie in said recess.

6. In a wheel, a sleeve, a spoke engaging flange at each end of said sleeve, each of said flanges at their inner faces being formed with a central recess, the material beyond said recess being bowed radially to form a series of spoke sockets, the inner end of each bowed portion being sheared so as to establish communication between the spoke sockets and said recess, and spokes arranged in pairs connected at their inner ends, said spokes seating in the spoke sockets and having their connecting portions arranged in said central recess.

In testimony whereof, I have hereunto signed my name to this specification in the presence of two subscribing witnesses.

GEORGE MANNES.

Witnesses:

C. W. OWEN,
D. C. WALTER.