(No Model.)

S. D. FORBES.

HUB.

No. 467,004. Patented Jan. 12, 1892.

Fig I.

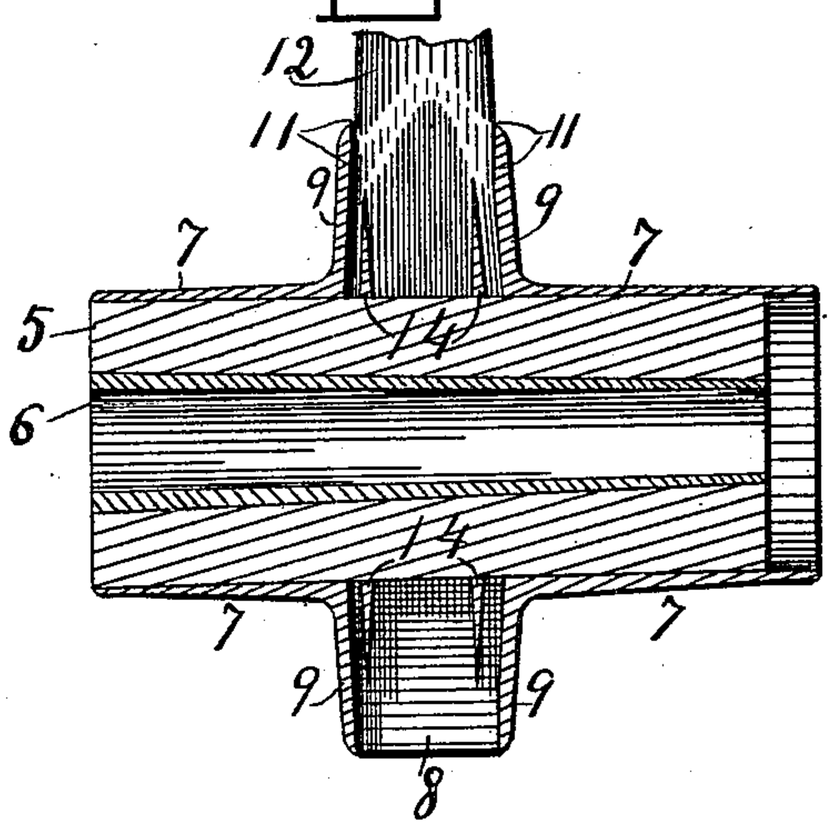
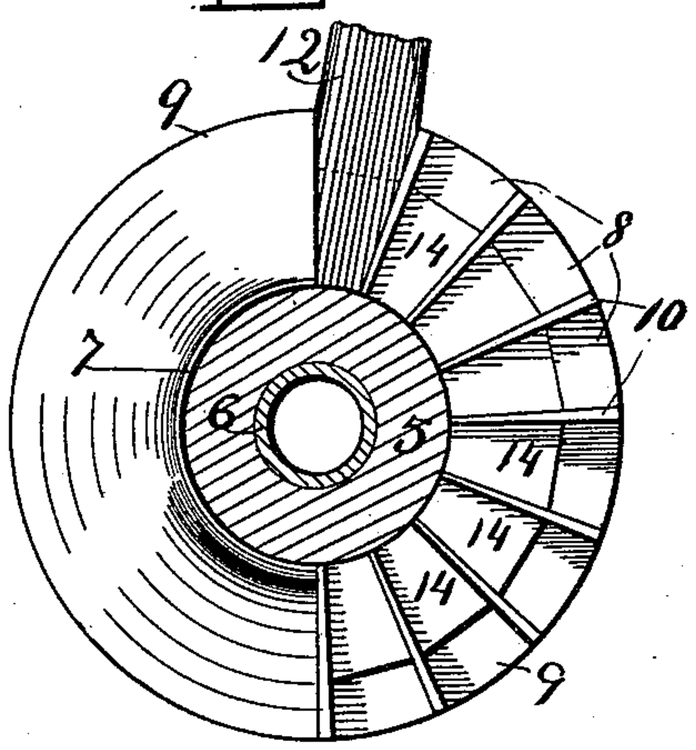


Fig II.



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UNITED STATES PATENT OFFICE.

SAMUEL D. FORBES, OF WILMINGTON, DELAWARE.

HUB.

SPECIFICATION forming part of Letters Patent No. 467,004, dated January 12, 1892.

Application filed June 30, 1891. Serial No. 397,971. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL D. FORBES, a citizen of the United States, residing at Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Wheel-Hubs; 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.

This invention relates to that class of wheel-hubs which are made partly of wood and partly of iron; and its object is to produce a hub which shall have all the advantages of a wooden core to accommodate the swelling and shrinking of the rim and spokes in different conditions of the weather and of a metallic hub portion in one piece to support the spokes against lateral strain in all directions, the mortises in said hub portion being so shaped as to spread the tenon of the spoke or to permit it to be spread into a dovetail shape in the act of being driven, and the wood portion being shaped to support the full plane end of the spoke-tenon.

To this end my invention consists in the construction and combination of parts forming a "wheel-hub" hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I represents a longitudinal section of my hub with a portion of a spoke in the upper mortise and the lower mortise empty. Fig. II is an end view of my hub, partly in section, in the plane of the wheel.

5 represents the core portion, to be made of wood of cylindrical form along its central portion or very slightly tapering toward the outer end. This core is fitted with the usual metallic box 6, and for light buggies its external diameter need not be over two and one-half inches for a hub of six and one-half inches in length.

7 represents the metallic band portion of my hub, which is fitted internally to be driven closely upon the core 5, and it may extend a part or the whole length of the core or even project over the outer end thereof to cover the axle-nut. This metallic band is cast with mortises 8, formed between the two collar portions 9 and between the cross-webs 10. These two collars and the webs joining them are cast as one piece, and the inner ends of the mortises are broader than the outer ends in the direction of the length of the hub. Such a form as gives the collars 9 a neat external appearence produces the right dovetailing shape to the mortises when the collars are made very thin and of about equal thickness throughout any radial section. I prefer to give the outer end of the mortise a nearly parallel form in the region 11 in order that the collars may better support the spokes against strain lateral to the plane of the wheel.

12 represents the spoke, which is to be made tapering on those sides which fit against the webs 10, such sides being nearly radial with the hub. In the other direction—that is, lengthwise of the hub—the tenon portion of the spoke is to be made parallel sided as wide as will enter the mouth of the mortise at the region 11. The spoke is to be split at two points near its edges to receive wedges 14, which I prefer to have cast to the webs integral with the hub, so that when the spoke is driven these will both spread the tenon to fill the dovetailed mortise and will compress the wood of the tenon to hold it firmly in place. Though this is the preferred form of my hub, yet some advantages would be gained if the wedges 14 were made separate from the hub, in which case they should have their point ends started into the spoke before the spoke is entered into the mortise, so that the act of driving the spoke will bring the heads of the separate wedges down upon the wooden core and force the wedges into the spoke to spread it, as described, relative to the integral wedges. At the same time that the spoke lands upon the core its tapering sides will also have reached bearings against the radial cross-webs 10 in the tapering mortises. The surface of the core is not grooved to receive the spoke nor the metallic band nor any portion of either, but is in this respect what I shall term for the purposes of the claim "cylindrical."

The metallic band 7 is mortised through and through radially, so that the whole end of the spoke-tenon may rest fairly upon the wooden core, and a metallic band having an inner end of metal to its mortises, so that the spokes would rest therein on metal, would not

be according to my invention, because such mortises would not have the advantages which are known to be derived from my wooden core as a seat for the spokes to rest upon. Neither would the metallic portion be according to my invention if it were made up of two separate collars 9 joined together by rivets or bolts as a substitute for my integral web portions 10, because such rivets and bolts are very likely to work loose. A groove around the core portions would materially weaken such portions when made so small as it is desirable to make it, and such groove would, furthermore, if the spokes were tenoned to enter the groove, prevent the peculiarity of each spoke being humored by the driver to bring the spoke into the plane of all the other spokes.

Having thus fully described my invention, what I believe to be new, and desire to secure by Letters Patent, is the following:

1. The combination, in wheel-hubs, of a wooden core portion having its central surface nearly cylindrical in form, a metallic hub-band in one piece internally fitted to be closely driven upon the said core and provided with mortises radially through it, the said mortises being dovetail-shaped at the collar sides and nearly radial at the web sides, and wedges crossing from web to web, substantially as described, whereby a spoke-tenon having two parallel sides and a plane end may be spread with wedges to fill the dovetailed mortise.

2. The combination of a metallic hub-band having radial mortises through it, collar portions of the band being shaped to give a dovetail form to the mortises, radial webs joining the collar portions between and forming sides of the mortises and wedges joined to the webs and crossing the mortises, the said collars, webs, and wedges being integral, and a wooden core portion to fit within the said band and form the inner end of each mortise, substantially as described.

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

SAMUEL D. FORBES.

Witnesses:
J. JACKSON PIERCE,
J. BAIL PEIRCE.