W. BEERS.

Wheels for Vehicles.

No. 157,060. Patented Nov. 24, 1874.

Fig. 1.

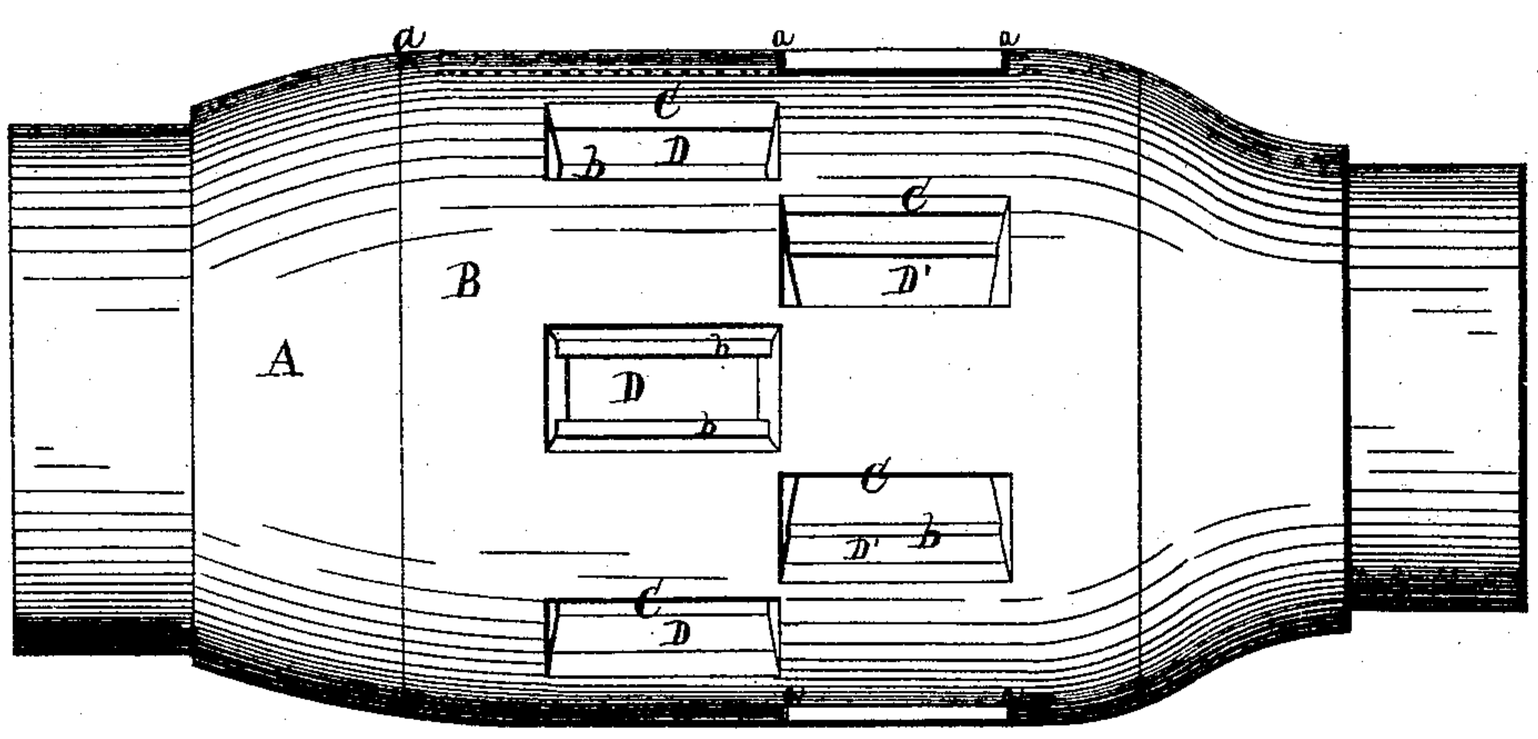
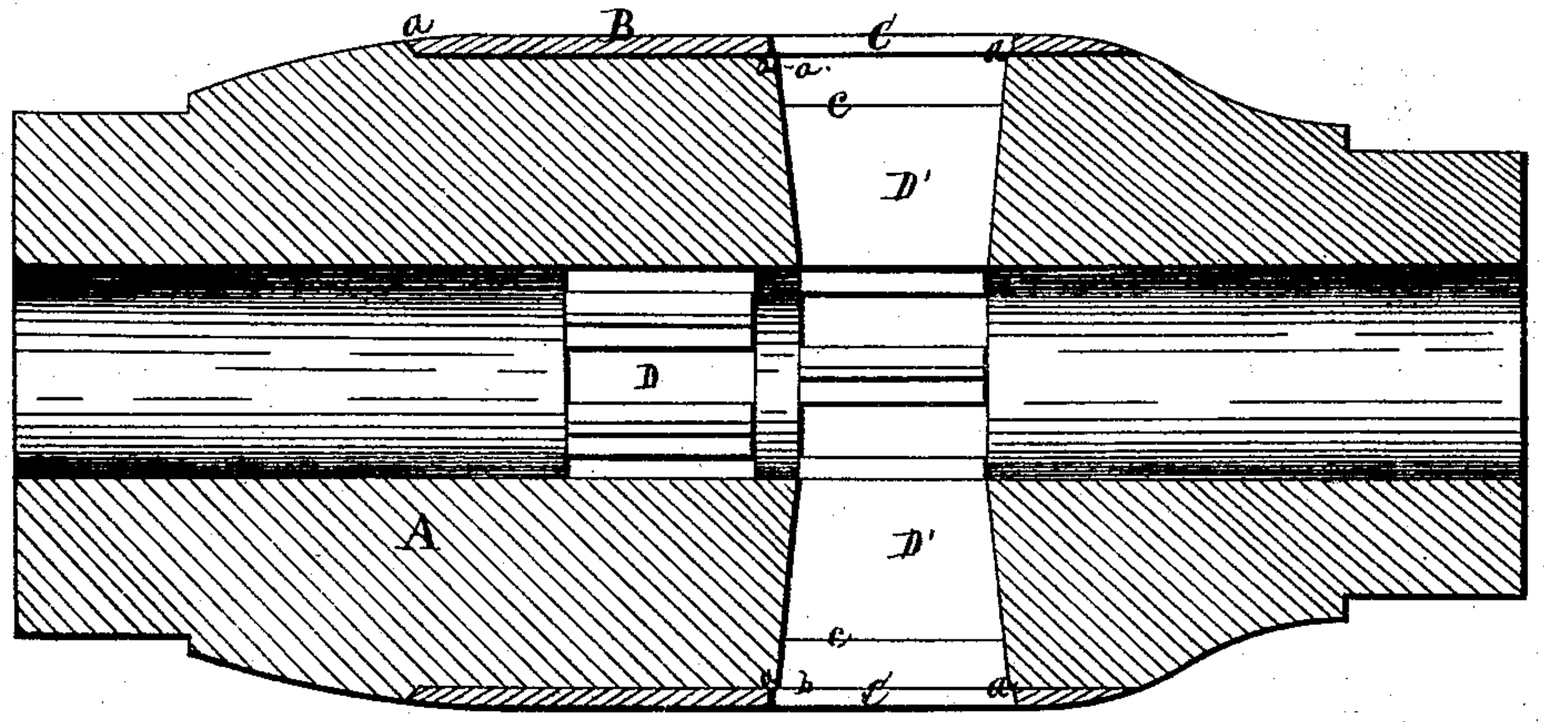


Fig. 2.



Witnesses.

A. F. Cornell.

H. C. Mann,

Inventor.

William Beers.

Per Burridge & Co.

Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM BEERS, OF MILAN, OHIO.

IMPROVEMENT IN WHEELS FOR VEHICLES.

Specification forming part of Letters Patent No. **157,060**, dated November 24, 1874; application filed September 7, 1874.

To all whom it may concern:

Be it known that I, WILLIAM BEERS, of Milan, in the county of Erie and State of Ohio, have invented a certain new and Improved Wheel-Hub, of which the following is a full, clear, and complete description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side view of the hub. Fig. 2 is a transverse longitudinal section.

Like letters of reference refer to like parts in the several views.

The nature of this invention relates to a hub for carriage-wheels, the hub being of that class provided with a metal band around the middle part to prevent the splitting of such hubs, and of otherwise adding strength to the same; and the object thereof is to provide a hub that shall be of small diameter, and yet of sufficient strength for practical use, and at the same time retaining the shape and elasticity of the ordinary wooden hub.

Of the aforesaid hub the following is a detailed description, the same being an improvement of a hub for which a patent was granted to me December 24, 1872.

The hub referred to consists of the wooden hub or section A. Around the middle thereof is fitted a metallic band, B, having therein mortises C, corresponding to the mortises D D′ in the wooden section or hub A.

It will be seen on examination of the drawings that the mortises in the band are longer than those in the hub, whereby is formed a slight shoulder, *a*, at each end of the mortise, by the projection of wood beyond the metal. The mortises in the band are also wider than the mortises in the hub, thereby forming slight shoulders, *b*, immediately under the band, below which are formed the shoulders *c*, made by cutting the mortises D′, for the admission of the tenons of the spokes, and upon which shoulders the shoulders of the spokes rest.

It will be seen that the shoulders *c* are low down in the mortise.

The arrangement of the mortises is such as is termed staggered. The front range of them are cut straight—that is to say, so cut that the spokes, when driven therein, will be without dish. The back mortises, on the contrary, are so cut as to dish the spokes, and thus cause them to face up to the front range of spokes, causing them to stand bracing, thereby giving to the wheel a front straight face for beauty, and a back brace for strength. By enlarging the mortises in the face of the hub and in the band, so as to receive the full size of the spoke at the shoulder, the full strength of the spoke is secured in the hub, with its shoulders resting upon the shoulders *c* deep in the mortise.

The full size of the spoke being thus secured within the mortise of the hub, the tenon of the spoke is not so liable to be moved by the straining and wrenching of the wheel as it would be if the shoulders of the spokes rested upon the surface of the hub, on the sides of the mortise, in the ordinary way. When the shoulders of the spokes rest upon the outside of the hub, said shoulders act as a fulcrum to lift the tenon from the mortise on straining and wrenching the wheel; also, it has a tendency to cause the shoulders to crush and check the wood of the hub, and finally work the spoke loose.

It will be obvious that, by inclosing the shoulders of the spokes within the mortises of the hub and band, it is strongly braced and supported thereby.

The band on my patented hub was shrunk upon the full circumference of the hub, and hence raised above it, thereby making at each end of the band a shoulder, thus breaking the smooth even surface of the hub, thereby marring its symmetry. In this my improved hub the band is not raised above the face of the hub, but is flush therewith, making a smooth, unbroken surface, as shown in the drawing.

In fitting the spokes to the hub the spoke is first so closely fitted as to fill the mortise in the band, so that, the spoke being driven therein, the band will not cut or tear the wood. The mortise in the hub, being a very little smaller than that in the band, will, on driving in the spoke, press tightly around it, and hold it firmly therein. As the wood of the hub is softer than that of the spokes, the projecting walls of the mortise will be forced back under the band, and, by the compression of the wood, will hug firmly around the spoke, immediately above the shoulders, while that part of the spoke in the mortise of the band is closely embraced by it, without compression, thereby bracing the spokes in the hub. The band, be-

ing made of thin metal, adds but little to the weight of the wheel, while it prevents the hub from being broken by the strain or wringing of the spokes.

I am aware a band similar to B has been known, and which I do not claim *per se;* but what distinguishes my invention is the band with the rear of the mortises in a circular line, or nearly so, and forming shoulders *b* and *c* below the band in the hub, the mortises so cut as to give a straight radial face to the front spokes, and dish or inclination to the back ones, forming counter-braces to each other, as hereinbefore stated, for the object mentioned.

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

In carriage-wheel hubs, the even-surfaced band B, with staggered mortises, the rear ends thereof in line, or nearly so, in combination with the hub having corresponding mortises D′ D′ and shoulders *b* and *c* below the band, to give a straight radial face to the front spokes and dish to the back ones, as and for the purpose set forth.

WILLIAM BEERS.

Witnesses:

W. H. BURRIDGE,

E. HESSENMUELLER.