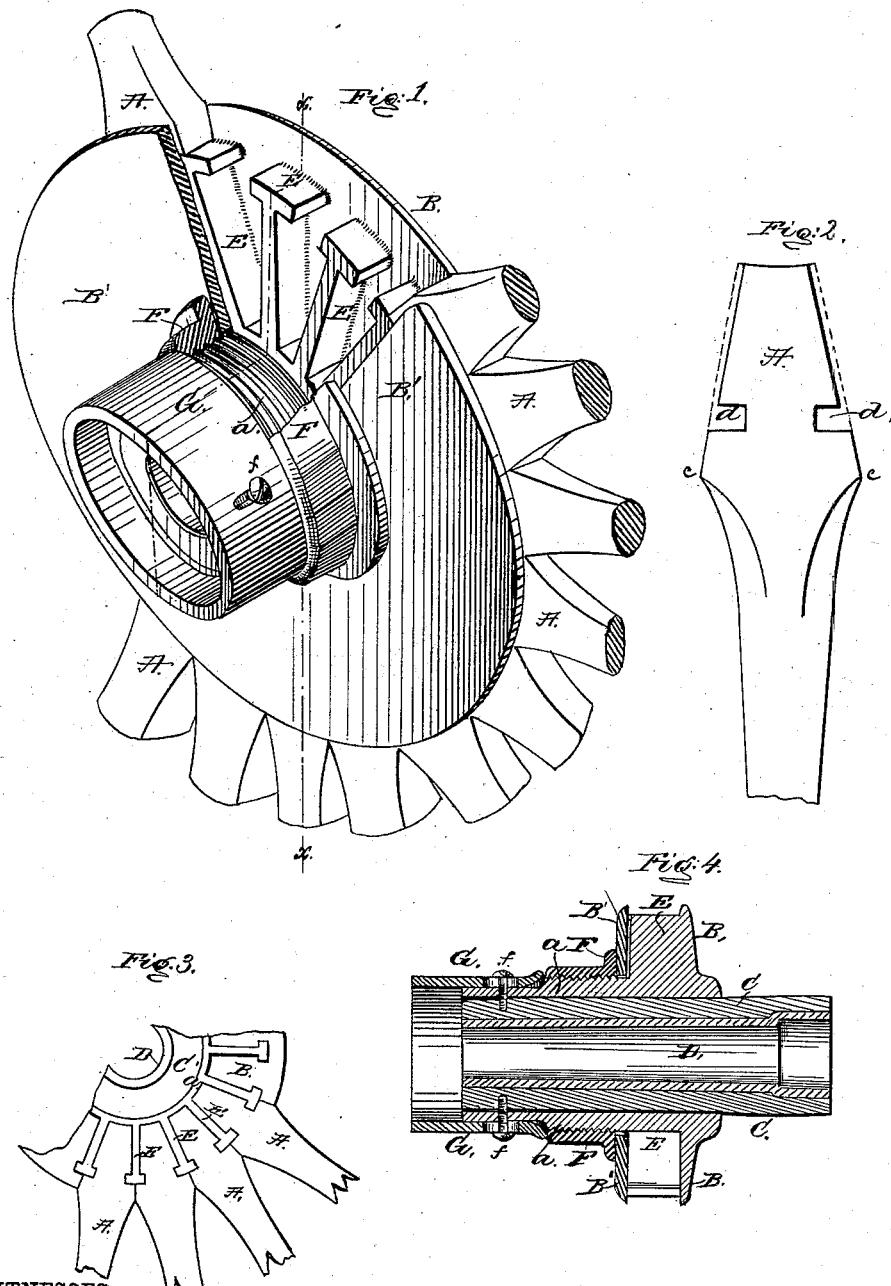


J. D. BULTZ & J. L. BAKER.  
Vehicle-Wheel Hub.

No. 217,196.

Patented July 8, 1879.



WITNESSES:

John D. Bultz, President  
James W. Hart

INVENTORS:

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J. L. Baker

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ATTORNEYS.

# UNITED STATES PATENT OFFICE.

JOHN D. BULTZ AND JOSEPH L. BAKER, OF JACKSONBOROUGH, OHIO.

## IMPROVEMENT IN VEHICLE-WHEEL HUBS.

Specification forming part of Letters Patent No. **217,196**, dated July 8, 1879; application filed June 9, 1879.

*To all whom it may concern:*

Be it known that we, JOHN D. BULTZ and JOSEPH L. BAKER, of Jacksonborough, in the county of Butler and State of Ohio, have invented a new and useful Improvement in Vehicle-Wheel Hubs; and we do hereby declare that the following is a full, clear, and exact description of the same.

Our invention is an improvement in that class of wheel-hubs in which the spoke-tenons are in lateral contact and form a continuous circumferential band, being supported by and clamped between metal flanges that encircle the wooden body of the hub.

Our invention relates to the construction and combination of parts, as hereinafter described and claimed.

In accompanying drawings, forming part of this specification, Figure 1 is a perspective view, part being broken out, of a wheel-hub constructed according to our invention. Fig. 2 is a side view of a fragment of a spoke. Fig. 3 is a detail view, showing the connection of the spoke-tenons and lugs for securing them. Fig. 4 is a central longitudinal section of the hub on line *x x*, Fig. 1.

While due regard is had to mere bulk and weight, the object chiefly aimed at in the construction of wheel-hubs is to so secure the spokes therein that they shall be perfectly rigid or immovable. To attain this object we adopt the following-described construction.

Referring to the drawings, A indicates the tenons of the several spokes of a wheel, and B B' the respective fixed and detachable metal flanges, between which the spokes are clamped. The part B has a lateral cylindrical screw-threaded extension, *a*, around its eye, which constitutes a thimble or socket for the wooden portion C of the hub, in which part C the metallic box D is inserted. The spoke-tenons have the usual wedge shape; but their contiguous sides are cut away for about two-thirds their length, so that their shoulders *c* are alone in contact. Kerfs or grooves *d* are formed in each of the contiguous sides of the tenons A immediately below such point of contact, *c*. The connection between the lugs and spoke-tenons, whereby the lateral shoulders of the former enter the kerfs in the latter, absolutely

prevents any longitudinal movement of the spokes, since there is no appreciable shrinkage of the wood lengthwise, and the said shoulders of the lugs consequently remain in firm contact with the lower shoulders or sides of the kerfs so long as the hub is intact.

Further, it will be observed that the heads of the lugs are located below or within the rim of the flange B, so that the spoke-shoulders *c* not only lie in contact, but conceal the lugs from view exteriorly. Moreover, it is requisite, in order to support the felly, that the number of spokes in the wheel shall be as large as practicable consistently with the strength of the hub and due limitation of its size and weight. It is also desirable, for various reasons, that the spoke-shoulders shall lie in contact around the hub.

Our construction and arrangement of parts enable these objects to be attained at the same time that the spokes are held perfectly immovable lengthwise.

The spoke-tenons A are made slightly thicker than the width of the sockets, so that when the flange B' is forced home it will bear against the faces of the tenons, and not the edges of the lugs E.

When the spokes shrink, the flange B' may be adjusted correspondingly to take up the shrinkage. This flange is held or clamped in place by means of a nut, F, which screws on the thimble *a*.

The nut is locked by the hub-band G, which is secured by screws *f*, that pass through slots in the band, and also through the thimble *a*, and enter the wooden portion C of the hub. Said screws not only secure the hub-band, which, in turn, acts as a jam-nut for the nut proper, F, but likewise hold the flange B *a* in place on the tapered part C.

We do not claim, broadly, a spoke-tenon provided with kerfs, nor a hub-flange having lugs which join with and are radial to the cylindrical portion or body of the same; and we are also aware that a cylindrical screw-nut has been employed to lock the nut which clamps the movable flange of an iron hub in place.

What we do claim is—

1. In a carriage-wheel, the combination of the thimble *a*, screw-threaded, as specified, the

radial flange B, and T-shaped lugs E, whose heads lie within or below the rim of such flange, said parts being cast in one piece, the detachable flange B' and screw-nut F, and the spokes A, having the lateral kerfs d d, to receive the heads of said lugs, and arranged with their shoulders e in contact around the hub, all as shown and described.

2. The combination of the screws f and the slotted hub-band G with the nut F, the thimble a of flange B, and the wooden portion C

of the hub, whereby said screws both clamp the hub-band and secure the flange in place, as shown and described.

The above specification of our invention signed by us this 7th day of June, 1879.

JOHN D. BULTZ.  
JOSEPH L. BAKER.

Witnesses:

CHAS. A. PETTIT,  
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