

F. NICHOLS.  
Wagon Wheel Hub.

No. 82,630.

Patented Sept. 29, 1868.

Fig. 1.

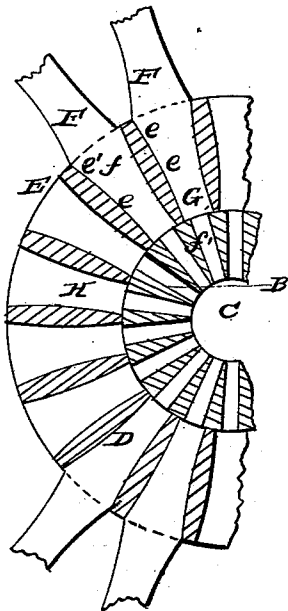


Fig. 2

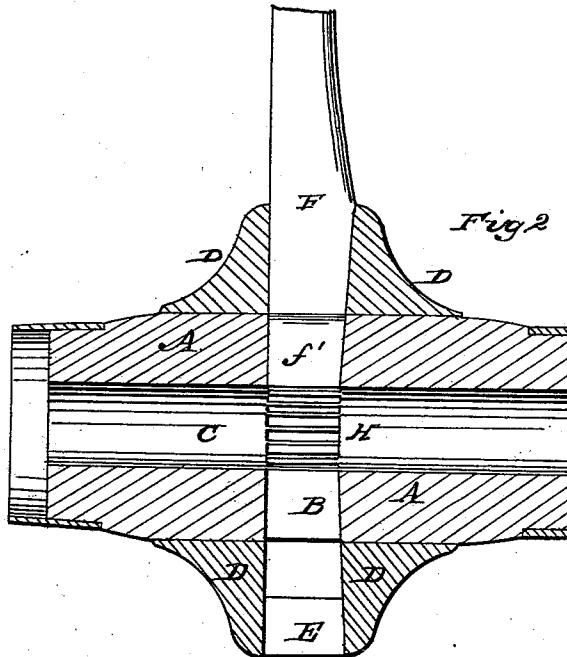
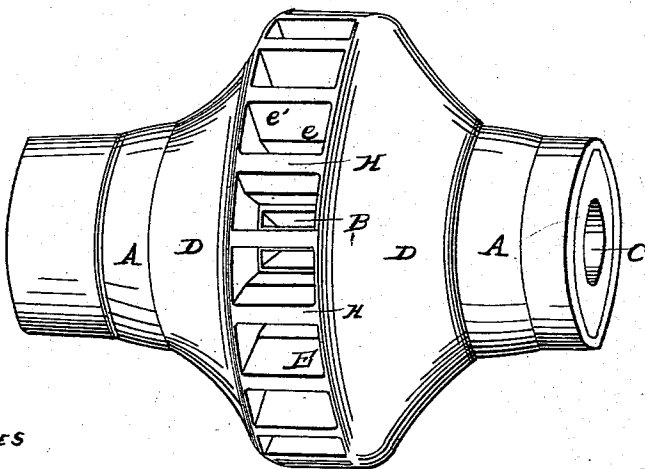


Fig. 3



WITNESSES

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# UNITED STATES PATENT OFFICE.

FREEMAN NICHOLS, OF NEWPORT, KENTUCKY.

## IMPROVEMENT IN HUBS FOR WAGON-WHEELS.

Specification forming part of Letters Patent No. **82,630**, dated September 29, 1868.

### *To all whom it may concern:*

Be it known that I, FREEMAN NICHOLS, of Newport, Campbell county, State of Kentucky, have invented a new and useful Improvement in Hubs for Wagon-Wheels; and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

This improvement consists in inclosing a wooden hub within a metallic band that is cast in one piece, and which is provided with mortises for the insertion of the spokes, and the sides of said mortises, instead of being parallel with each other, have an outward flare, thereby permitting the spoke to become more deeply seated within the metallic band as the tire shrinks without crippling the spoke, while shoulders upon the spoke prevent its slipping too far into the hub, thus producing a very strong and durable wheel.

In the accompanying drawings, Figure 1 is a vertical section of a portion of a hub constructed on my improved plan, with some of the spokes in position. Fig. 2 is an axial section of the same, and Fig. 3 is a perspective view of the hub without the spokes.

A represents a wooden hub, having the customary mortises B for the reception of the tenons of the spokes and an axial perforation, C. This wooden hub or core is adapted to fit securely within a metallic band, D, in such a manner that the mortises B of the former will be in line with the ones E of the latter. This band may be constructed of brass, cast-iron, or any other suitable metal, and its mortises, instead of having parallel sides, have outwardly-flaring ones, *e e'*, of which those *e'* are the ones against which the tapering portion *f* of the spokes F bears. The inner ends of the spokes F have tenons *f'*, which enter the mortises B of the wooden hub.

The shoulders G of the spokes are not intended to sustain any great amount of pressure, as the tapering portion *f* of the spokes, which bears upon the flaring part *e'* of the mortises, will receive almost the entire strain which is brought to bear upon the hub and the inner ends of the spokes.

The inclined mortises of the hub permit of the spoke becoming more deeply seated within it as the tire shrinks, without liability to cripple or shiver the spoke, which cannot take place when the spoke has a square shoulder

to bear against the periphery of the hub, as is the case with wheels having ordinary-shaped spokes and hubs.

As the webs H of the metallic band have a feather edge toward the inner circumference of the same, it will be seen that an unusual number of spokes can be inserted in an ordinary-sized hub, and in some cases almost twice the customary number, thereby increasing the strength and durability of the wheel.

There being no gains upon the spokes where they enter the hub, the wheel is remarkably stout at this point, and there is no danger of the spokes being sprung and twisted out of shape and position in case the wheel should be caught in a rut.

The mortises of the metallic band are so formed as to converge more rapidly from the periphery to a point about half-way inward, the spoke being correspondingly contracted, as at *f'*, so as to form, in effect, an auxiliary shoulder to the spoke in the heart of the band, which, without weakening the spoke, assists the shoulder G in sustaining the spoke against the inward pressure due to its position and function.

It seems necessary to furnish a shoulder for the spoke, and I have given it one where it rests upon the periphery of the wooden core, specially avoiding a square shoulder on the spoke outside the band D—a position in which it is so apt to initiate splits in the spoke, and forming an element of weakness in the latter. The square shoulder upon the periphery of the core A is tightly banded, and not liable to the same objection. Without a shoulder the spoke is liable to work gradually toward the center, thus loosening the felloes in their tire.

I claim herein as new and of my invention—

The arrangement described, consisting of the wooden core, with mortises B, and affording seats on its periphery for the shoulders G of the spokes, together with band D, having mortises *e e'*, the latter or outer portions being more flaring than the inner, and adapted to form sockets for the taper portions of the spokes, substantially as described and represented.

In testimony of which invention I hereunto set my hand.

FREEMAN NICHOLS.

Witnesses:

GEO. H. KNIGHT,  
JAMES H. LAYMAN.