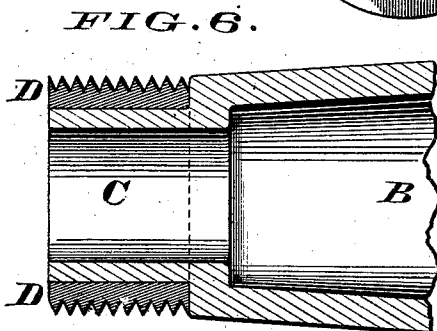
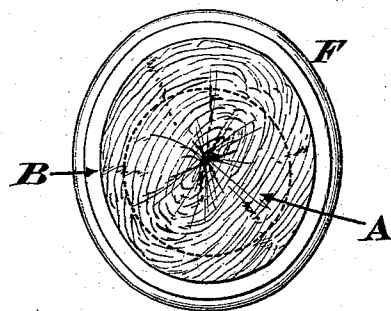
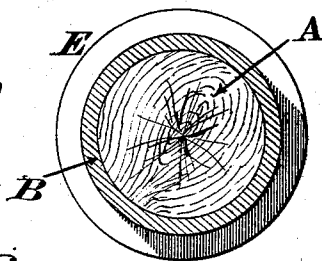
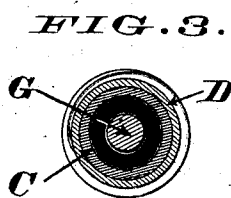
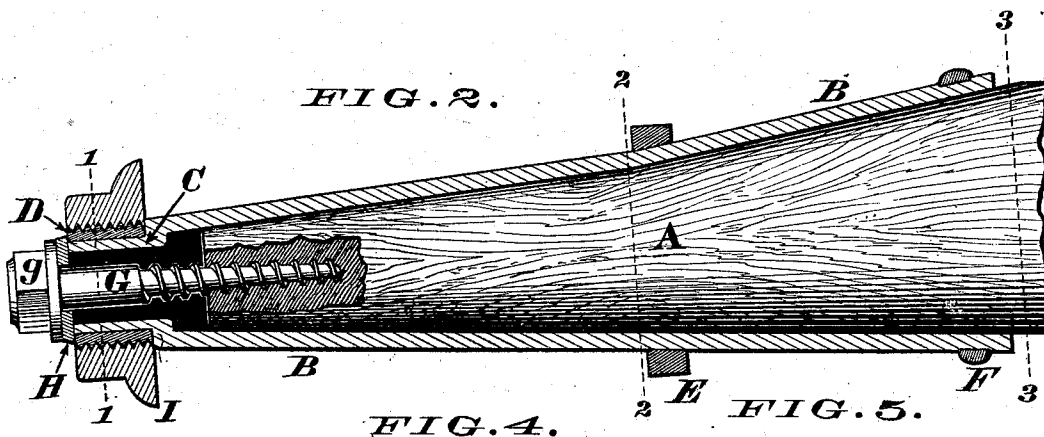
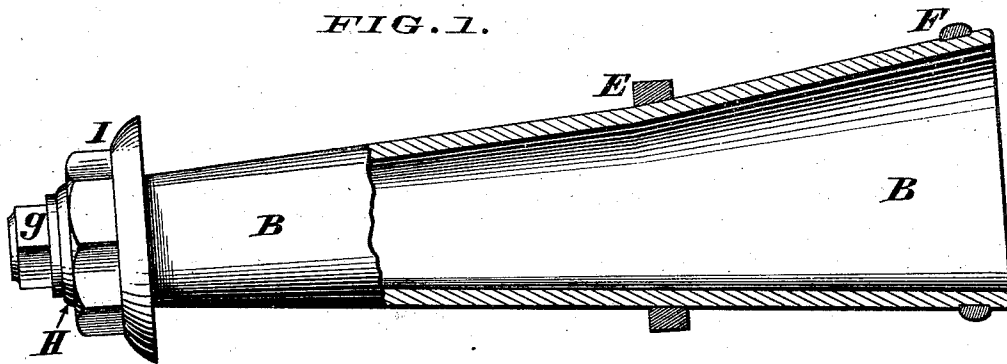


D. R. KLINGER.
Axle-Spindles for Vehicles.

No. 151,138.

Patented May 19, 1874.



David R. Klinger
By Knight Bros.
Attys.

Attest.
Jas. H. Layman,
Walter Allen

UNITED STATES PATENT OFFICE.

DAVID R. KLINGER, OF OWENSBOROUGH, KENTUCKY, ASSIGNOR TO HIMSELF AND JOHN A. BROWN, OF SAME PLACE.

IMPROVEMENT IN AXLE-SPINDLES FOR VEHICLES.

Specification forming part of Letters Patent No. **151,138**, dated May 19, 1874; application filed April 21, 1874.

To all whom it may concern:

Be it known that I, DAVID R. KLINGER, of Owensborough, Daviess county, Kentucky, have invented a new and useful Wagon-Skein, of which the following is a specification:

My invention relates to an improved form and construction of metallic casings or skeins for wooden axle-spindles; and consists, essentially, of a shoulderless and flaring tube of wrought-iron or steel, which tube has shrunk upon it three bands or collars, of which that nearest the point is screw-threaded to receive the nut which confines the wheel, my said skein being secured to the axle-tree by a wood-screw and a washer, all as hereinafter set forth.

In the accompanying drawings, Figure 1 is a partly sectioned elevation of my skein. Fig. 2 is an axial section of the same secured to the axle-tree. Fig. 3 is a section at the line 1 1, omitting the nut. Figs. 4 and 5 are sections at the lines 2 2 and 3 3, respectively. Fig. 6 is a longitudinal section of the point of the skein on a larger scale than the preceding.

A represents a portion of the wooden axle-tree, the same being tapered to receive the flaring tube B, of steel or wrought-iron, which constitutes my skein proper. The tube B has at its point a diminished portion or neck, C, to receive a sleeve, D, which is shrunk upon it, and which is screw-threaded externally to receive the nut which holds the wheel. At the

part 2 2 my sleeve is strengthened by a collar, E, shrunk upon it, which collar also serves as the rear bearing for the wheel-hub. From the points 2 2 the tube expands upward, so as to gradually acquire an oval transverse section, and at or near its rear end is re-enforced by a band, F, which is shrunk upon it. The oval enlargement toward the rear end of the skein serves to prevent its turning upon the axle-tree, and also permits the latter to be of ample strength at the place and in the direction of the greatest strain. The skein is secured to the axle-tree by means of a wood-screw, G, having a washer, H, which bears against the ends of the skein, as shown in Fig. 2; or the head *g* of the nut may bear directly against the end of the skein. I is the nut, which holds the wheel on the spindle.

I claim—

The axle-spindle composed of the skein B *b* C, sleeve D, bands E and F, and the wood-screw G, for securing the same to the axle-tree, all combined in the manner designated.

In testimony of which invention I hereunto set my hand.

DAVID R. KLINGER.

Attest:

GEO. H. KNIGHT,
WAYNE S. BISHOP,
JAMES THORNTON.