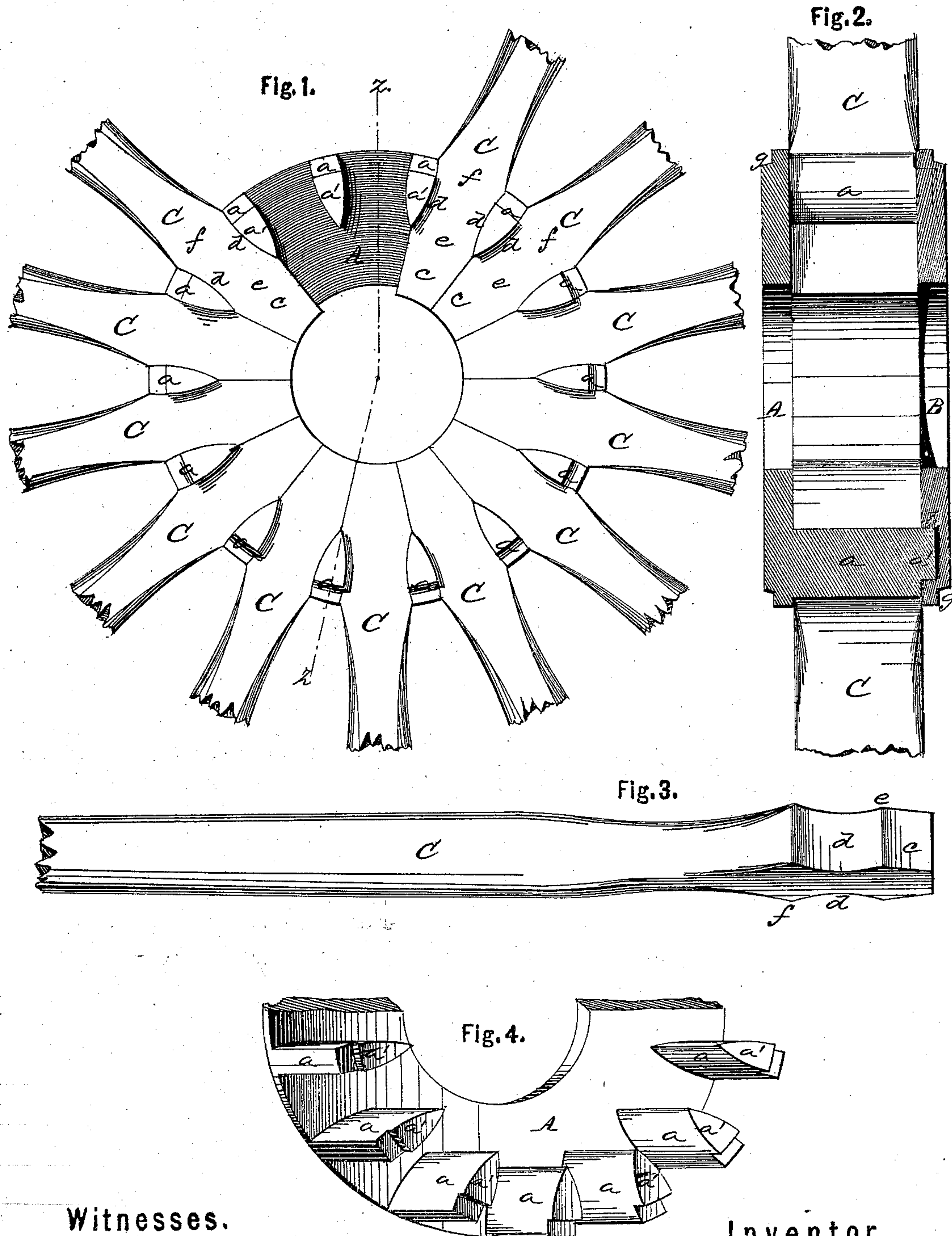


W. A. LEWIS.

Hubs for Wheels of Vehicles.

No. 133,867.

Patented Dec. 10, 1872.



Witnesses.

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WILLIAM ARNOLD LEWIS, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN HUBS FOR WHEELS OF VEHICLES..

Specification forming part of Letters Patent No. 133,867, dated December 10, 1872.

To all whom it may concern:

Be it known that I, WILLIAM ARNOLD LEWIS, of Chicago, in the county of Cook and State of Illinois, have invented an Improved Wagon or Carriage Wheel, of which the following is a specification:

Nature and Objects of the Invention.

This invention relates to single-web wooden spoke-wheels with metallic hubs. The first part of the invention consists in a flat annular disk with projections or lugs of peculiar form to occupy spaces between the spokes; the same to be used in combination with a socketed or concave disk on the other face of the spokes, to support the latter against torsional, radial, and lateral displacement. The second part of the invention consists in sector spokes, of peculiar construction, for use in connection with the aforesaid supporting-disk, the same being strengthened by enlargement of the hub-line.

Description of the Drawing.

Figure 1 is a face view of a partial set of spokes and their supporting-disk. Fig. 2 is a section on the line *z z*, Fig. 1, showing the face-disk as applied. Fig. 3 is a perspective view of a spoke. Fig. 4 is a sectional perspective view of the supporting-disk.

General Description.

A represents a flat annular disk, of cast-iron, with radial projections or lugs *a* of peculiar shape on one side, the spaces between being adapted to accommodate the several spokes. B represents a corresponding cast-iron disk, with sockets *b* to receive the ends *a'* of the lugs *a*. C C represent wooden spokes. The lugs *a* are in the shape of wedges with convex sides, so as to act as keys. The spokes C have sector ends *c*, which abut around the box of the hub, forming a solid wooden section. Adjoining these are curved concavities *d*, which form the spaces to receive the lugs *a*. From these concavities, terminating at the hub-line, the spokes taper outward in any approved shape. The spokes thus have enlargements *e f* within the hub and at the hub-line. The former serve to prevent the spokes drawing, and the latter to prevent inward movement and to strengthen the spokes against breakage at the hub-line. Sector-spokes thus

formed, in addition to superior strength, have smaller hub ends than could otherwise be employed, and may consequently be cut with great economy.

The spokes C are laid up between the lugs *a* of the supporting-disk A, as represented in Fig. 1, and the face-disk B and the remainder of the metallic hub are then applied. This may consist of a box with a collar at its inner end, and threaded at its outer end, a pair of hollow cast-iron shells and a combined nut and dust band or cap for the outer end. The back shell would abut against the box-collar, the supporting-disk A against this, the front shell against the face-disk B, and the whole would be united and clamped by means of the sand-band. The disks A and B are constructed with marginal depressions *g* to receive the ends of the hub-shells.

In the completed wheel, as will be apparent, the spokes are securely locked against radial, lateral, or torsional displacement.

I am aware that metallic hubs have heretofore been used provided with radial projections or lugs, between which wooden spokes have been centrally driven; and I therefore lay no claim to such invention; but

What I do claim as new, and desire to secure by Letters Patent, is, in a wholly-metallic hub—

1. The supporting-disk A, provided with radial projections or lugs *a* with convex sides, in combination with the spokes C C, having concavities and enlargements, as described, and for the purpose set forth.

2. The supporting-disk A, provided with radial lugs *a* having convex sides and tenons *a'*, in combination with the socketed face-disk B *b*, substantially as shown and described.

3. A wooden spoke, C, constructed with a sector end, *c*, curved concavities *d d*, and enlargements *e f*, as herein shown and described, for the purpose set forth.

4. The combination of the supporting-disk A, face-disk B, and spokes C, when the latter are constructed and inserted in the manner and for the purpose set forth.

To the above specification of my improvements in wheels I have hereunto set my hand this 8th day of July, 1872.

WM. ARNOLD LEWIS.

Witnesses:

D. S. FASSETT,
J. R. COMPTON.