2 Sheets--Sheet 1.

J. CURTIS.

Wheel for Vehicles.

No. 162,222. Patented April 20, 1875.

FIG. 1.

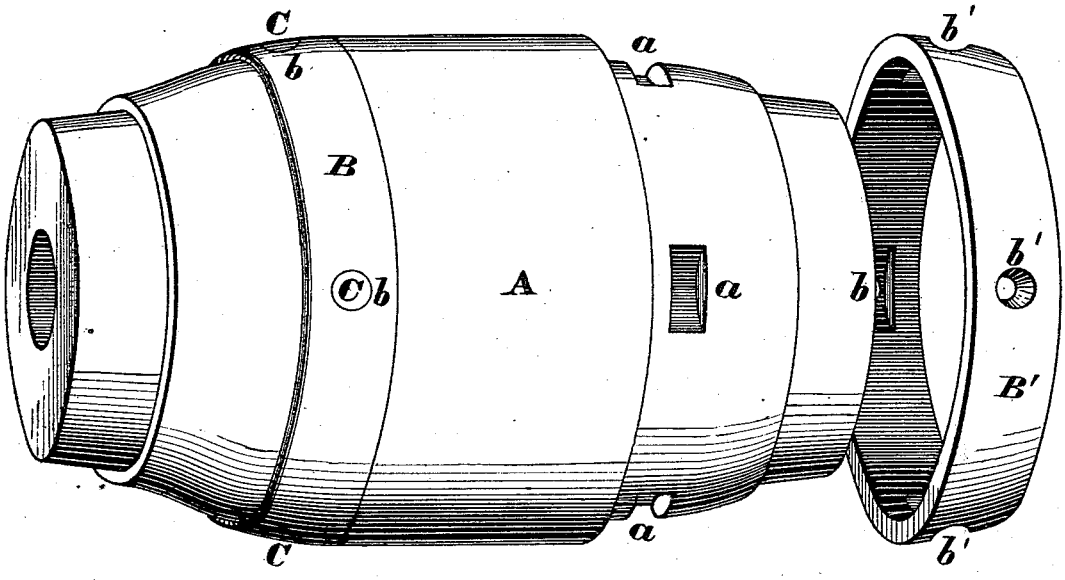


FIG. 2.

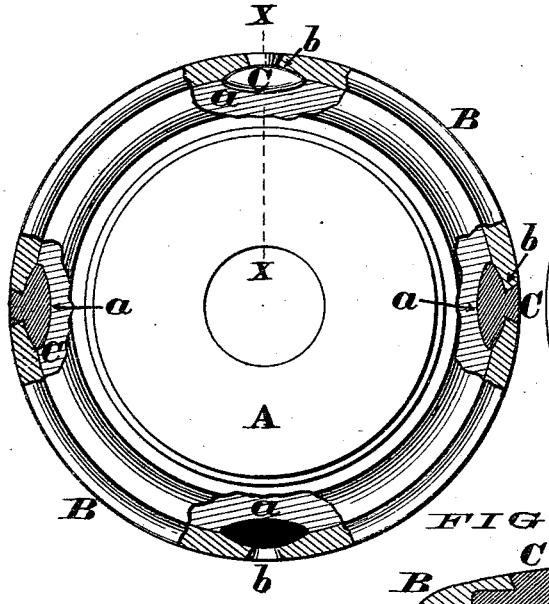


FIG. 3.

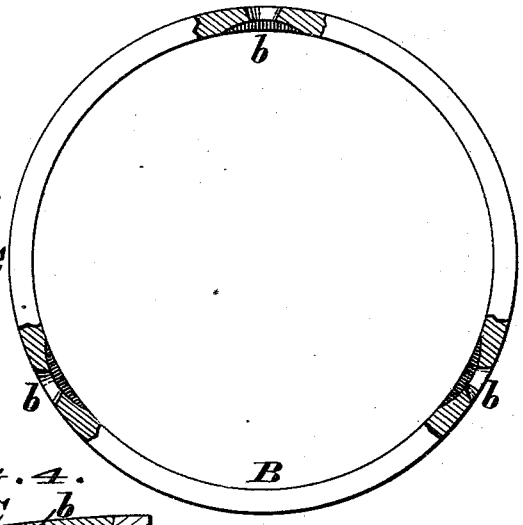
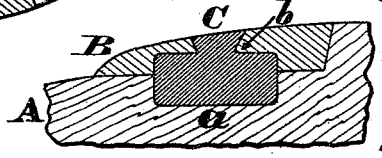


FIG. 4.



Attest:
Jas. H. Layman.
Henry Tanner.

John Curtis
By Knight Bros. Att'ys.

2 Sheets--Sheet 2.

J. CURTIS.

Wheel for Vehicles.

No. 162,222. Patented April 20, 1875.

FIG. 5.

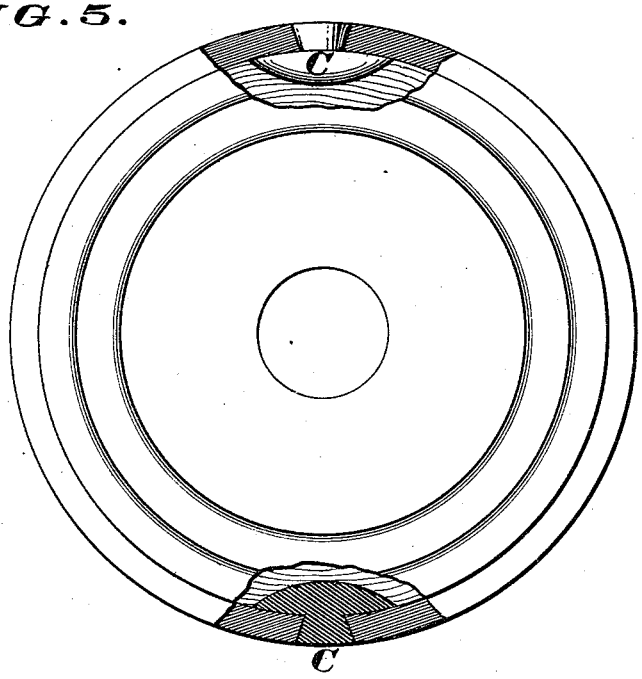
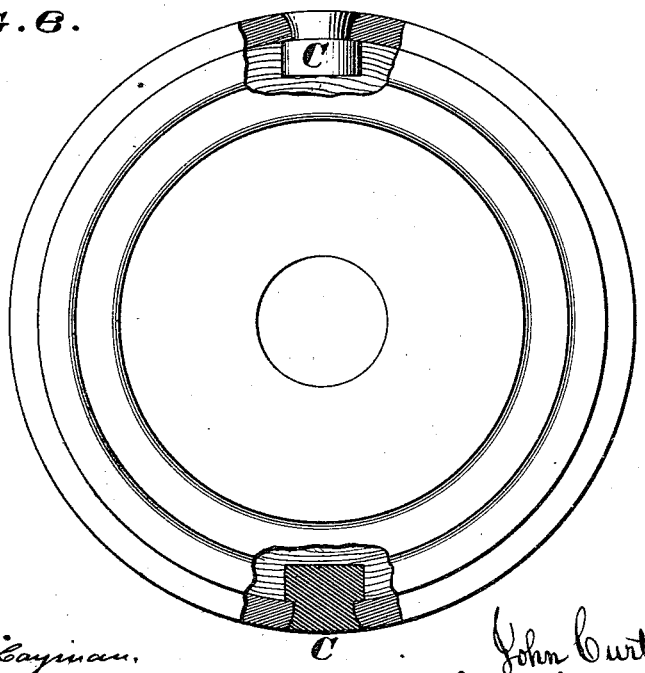


FIG. 6.



Attest.
Jas. H. Layman.
Henry Tanner

John Curtis
By Knight Bros. Att'ys.

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UNITED STATES PATENT OFFICE.

JOHN CURTIS, OF CINCINNATI, OHIO.

IMPROVEMENT IN WHEELS FOR VEHICLES.

Specification forming part of Letters Patent No. **162,222**, dated April 20, 1875; application filed October 12, 1874.

To all whom it may concern:

Be it known that I, JOHN CURTIS, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Manufacture of Hubs for Carriage-Wheels, of which the following is a specification:

My invention relates to a cheap, quickly-applied, and effectual device for securing the metallic bands upon a wooden hub; and consists in the provision in the band of one or more gates or orifices, which preferably flare radially outward and inward from at or near the mid-thickness of the band, and which communicate, when in place upon the hub, with cavities in the latter's periphery, corresponding in position with said orifices, thus forming matrices or pockets for the reception of fusible-metal plugs or keys, whereby the band is permanently held or fastened upon the hub, equally against circular and longitudinal displacement.

In the accompanying drawing, Figure 1 is a perspective view of a wooden hub whose bands are prepared for attachment on my plan, one band being shown in position and locked, and the other band being loose. Fig. 2 is a transverse section, showing one empty and three filled matrices, two of the plugs being in section. Fig. 3 is an end view of a band with three gates, all shown in section. Fig. 4 is a section on line *x x*, to a scale somewhat larger than that of the preceding figures. Figs. 5 and 6 represent modifications of my invention.

The hub A and bands B B′ may be of any customary or approved form, except as to their excavations *a* and *b*, of which those (*b*) in the bands preferably flare from at or about the mid-thickness of the band in the manner represented. The entire suit of excavations may be expeditiously and cheaply made by means of revolving bits. The band, having been driven or shrunk on in the usual way, is firmly and permanently locked in position by simply pouring into the excavation some readily fusible metal, such as an alloy of lead, antimony, and bismuth, so as to fill said excavation with plugs C. After the excavations have been filled, the projecting sprues of metal are filed or turned down, so as to be flush with the periphery of the bands, thereby causing the latter to present a perfectly smooth and uniform surface, and so that when the bands have been painted and varnished the retaining devices shall be entirely concealed. The above mode of locking, while similar in effect, is preferable to wood-screws, because not liable to be shaken out with use. As the plugs occupy only a small portion of the circumference of the hub, the subsequent displacement of the bands, either by slipping off or revolving upon the hub, is rendered impossible.

While describing the preferred form of my invention, I reserve the right to modify the same in non-essential particulars; for example, my plugs may take the form shown in Figs. 5 and 6.

I claim as a new article of manufacture—

The combination of excavated wooden hub A *a* and bands B, having openings *b* to receive fusible-metal plugs C, as set forth.

In testimony of which invention I hereunto set my hand.

JOHN CURTIS.

Attest:

GEO. H. KNIGHT,
O. P. CAYLOR.