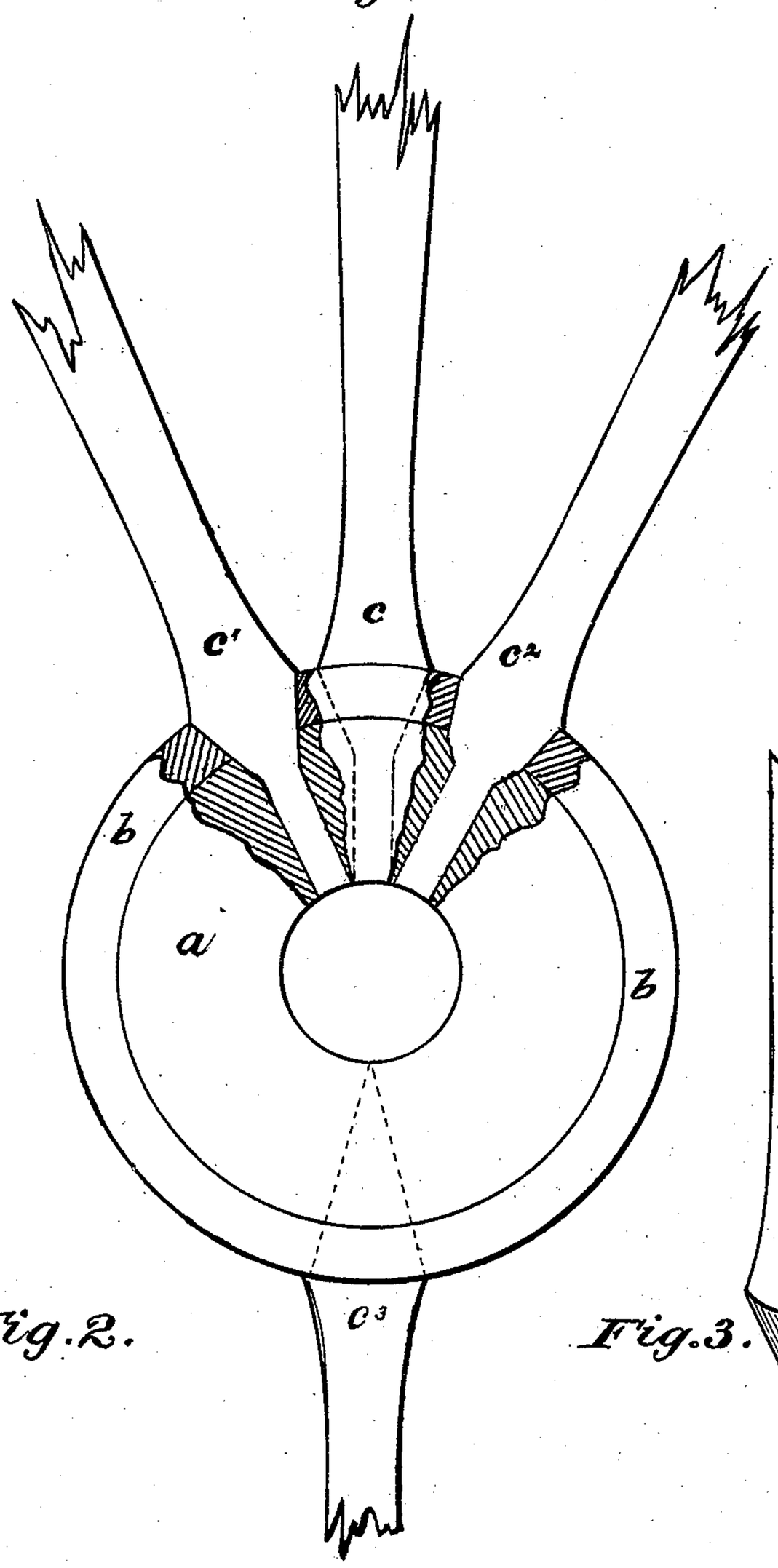
A. WARNER.

Wheels for Vehicles.

No. 152,202. Patented June 16, 1874.

Fig. 1.



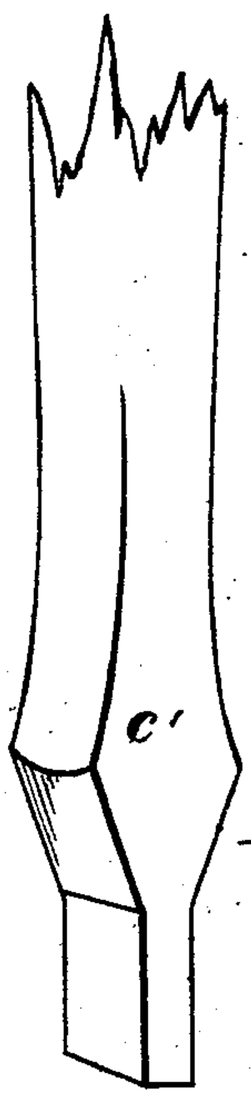


Fig. 2.

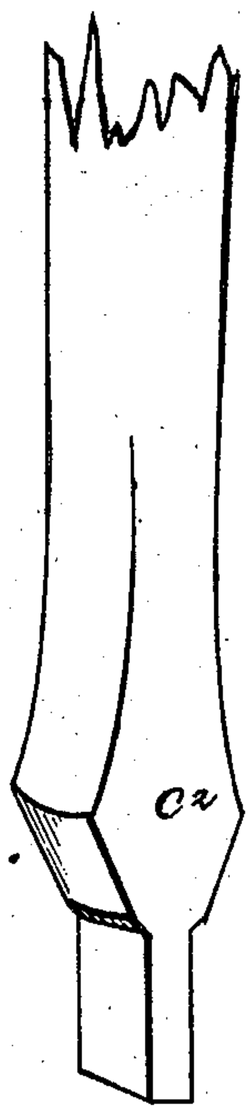


Fig. 3.

Witnesses.
Geo. H. Innis
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UNITED STATES PATENT OFFICE.

ALMON WARNER, OF BELVIDERE, NEW JERSEY.

IMPROVEMENT IN WHEELS FOR VEHICLES.

Specification forming part of Letters Patent No. **152,202**, dated June 16, 1874; application filed May 13, 1873.

To all whom it may concern:

Be it known that I, ALMON WARNER, of Belvidere, county of Warren and State of New Jersey, have invented certain Improvements in Carriage-Wheels, of which the following is a specification:

My invention consists of the solid metallic ring or band provided with oval sockets of coniform shape on the sides of the same, the wooden hubs, and the taper-pointed spokes with oval sides to fit into the sockets of both the metallic ring and the wooden hub, as shown in the accompanying drawings.

Figure 1 is a perspective view of the wooden hub, the metallic ring, and the pointed spokes.

a represents the wooden hub; *b*, the metallic ring; and *c*, the spokes with oval sides to fit into the metallic sockets. The points of the spokes, so far as they enter the wooden hub, may be of any form desired; but the form of the letter **Y** is preferred, and the tapered part should extend well into the wooden hub, nearly half an inch, more or less, as may be deemed necessary. The sockets in the metallic ring may be of any desirable shape, by which an increased lateral support is obtained by enlarging the thickness of the spokes between their two faces or edges and toward the center of the same. The spaces between the spokes on the outside of the metallic bands may be either oval or straight, as preferred. The sockets in the wooden hub do not necessarily pass entirely through the same to its center.

By this device I obtain the greatest possible amount of lateral support for the spokes, which enables me to reduce the projection of the ring beyond the surface of the wooden hub and against the edges of the spokes to narrow limits, and still retain all necessary lateral support, and in this manner construct carriage-wheels which combine greater strength, lightness of appearance, neatness, and style than any other in use.

Heretofore carriage-wheels of this general character have been constructed with comparatively broad flanges and riveted together against the two faces of the spokes for lateral support. Others are made by casting the same in one piece and connecting the same with webs between the spokes, by which mortises are formed to receive the same with shoulders bearing upon the surface of the wooden hubs. Others are also constructed with slotted spokes, with wedges in the ends of the same, which pass through the mortised bands into a groove or recess in the wooden hub about the width of the spokes, with an increased breadth at the bottom of the same. This forms a dovetail when the spokes with wedges are driven to their places to sustain the same.

My invention is readily distinguished from all others in use by the very narrow projections of the metallic rings against the edges of the spokes, which need not exceed one-quarter or five-sixteenths of an inch beyond the surface of the wooden hubs for light carriages, and also by the curves at the top of the metallic sockets.

I claim—

The solid metallic band *b*, having sockets of coniform shape, and the tenoned spokes *c*, having coniform shoulders to fit the same, in combination with the mortised wooden hub *a*, substantially as and for the purpose specified.

ALMON WARNER.

Witnesses:
JOS. C. TUNIS,
JOHN G. ENTREKIN.