

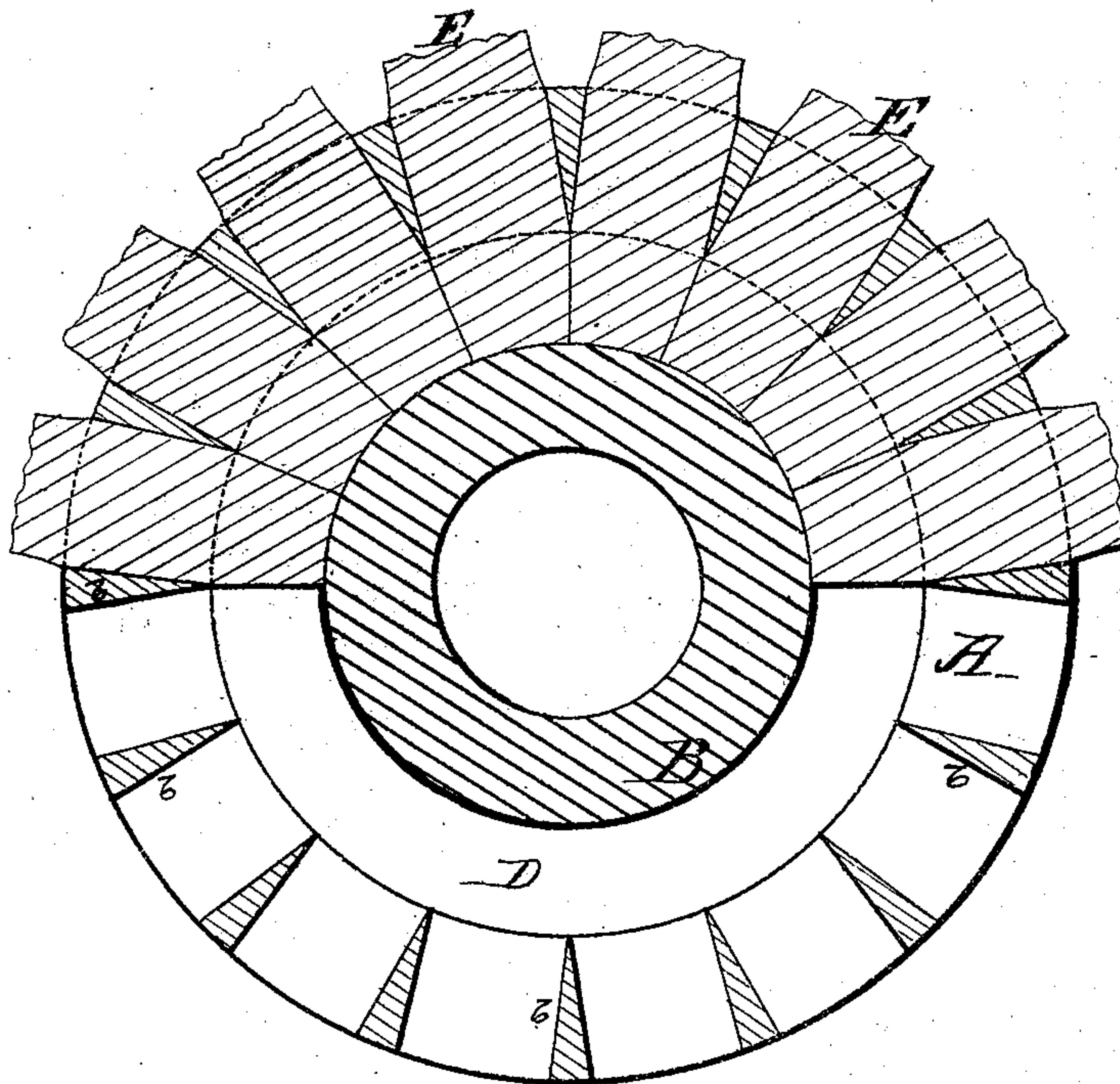
NOBLE G. OLDS.

Improvement in Wheels for Vehicles.

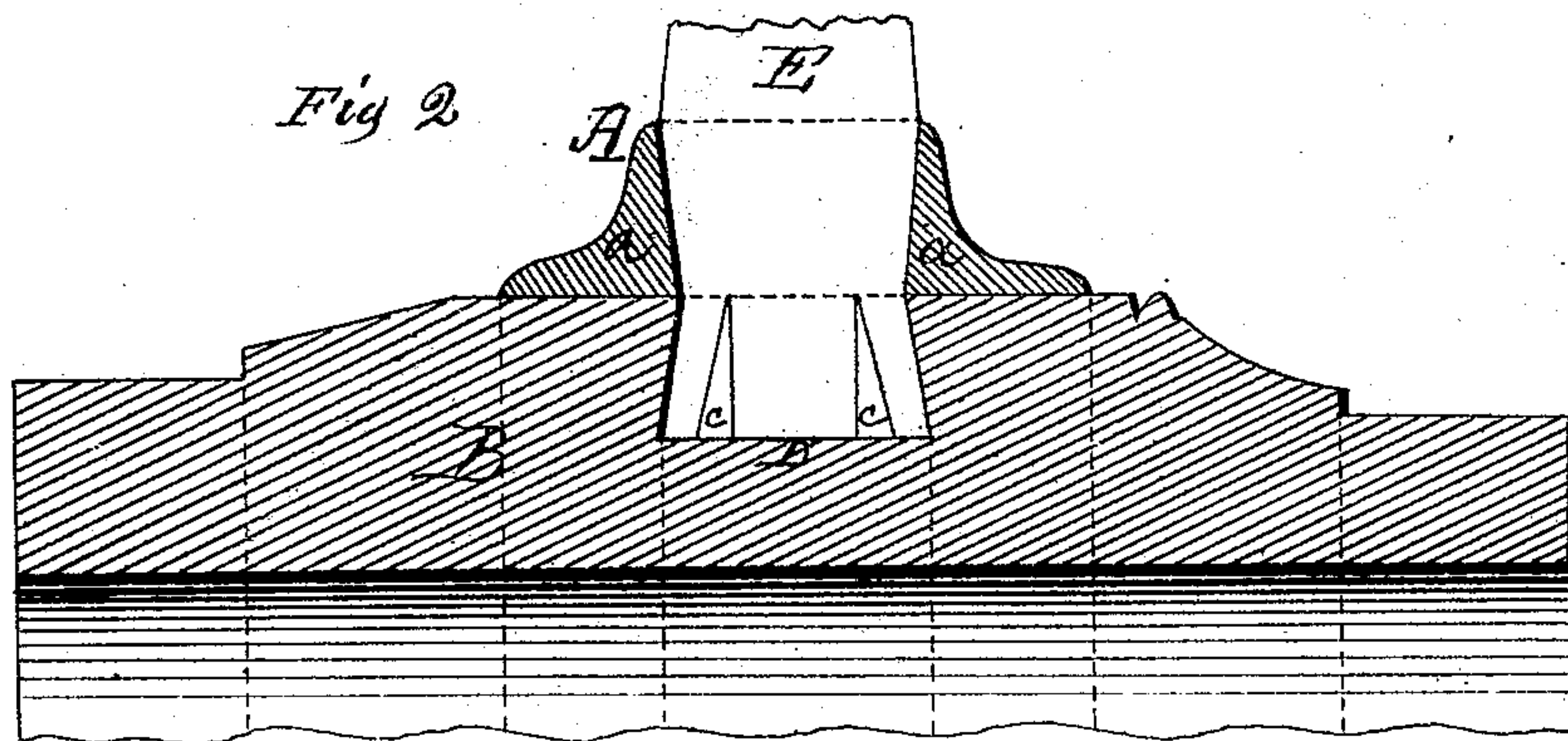
No. 127,638.

Patented June 4, 1872.

*Fig 1.*



*Fig 2*



Attests  
Henry G. Olds  
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# UNITED STATES PATENT OFFICE.

NOBLE G. OLDS, OF FORT WAYNE, INDIANA.

## IMPROVEMENT IN WHEELS FOR VEHICLES.

Specification forming part of Letters Patent No. 127,638, dated June 4, 1872.

*To all whom it may concern:*

Be it known that I, NOBLE G. OLDS, of Fort Wayne, in the county of Allen and State of Indiana, have invented a new and useful Improvement in Carriage-Wheels.

The object of my invention is to provide a light and durable wheel, possessing the advantages of the wooden and the metallic hub, without any of the well-known practical disadvantages attendant upon a hub composed wholly of wood or of metal, or of both, as hitherto combined. It consists in a novel combination of a dovetailed grooved wooden nave, a mortised metallic annulus, and wedged spokes.

And I do hereby declare that the following specification, taken in connection with the drawing making a part of the same, is a full, clear, and exact description thereof.

Figure 1 is a sectional view of the wheel in a plane passing through the transverse axis of the hub and the longitudinal axis of the spokes. Fig. 2 is a sectional view through the longitudinal axis of the hub bisecting the spokes.

My invention relates to that class of wheels in whose construction is employed a metallic mortised hub, in combination with a central wooden core or nave; and it consists in a means by which the spokes, the metallic hub, and the central wooden nave are combined together.

Referring to the drawing, A is a mortised metallic annulus, consisting of two flanged collars, *a a*, united together by partitions *b*, the flanged collars and connecting partitions being, by preference, of one casting. I prefer to make the four walls of the mortises in the annulus slightly converging, so that the shanks of the spokes which are correspondingly tapered will be firmly wedged therein when the spokes are driven home. B is a central nave of wood, in which, for the reception of the spokes E, is cut a groove or channel, D, from three-eighths of an inch to one inch and a half in depth, according to the size of the wheel; sufficient thickness of wood being always left between the base of such groove and the axle-box hole in the hub to furnish the requisite strength to the hub. The walls of this groove, it will be

observed, converge from the base toward the top, so that the portions of the spokes entered therein will not, without means are employed to make them do so, have their sides in full contact with the surfaces of the walls of the groove. To spread the ends of the spokes which are not shouldered and tenoned, so that they will be firmly wedged in the groove in the nave so formed, I insert two or more wedges, *c c*, having first sawed short longitudinal slits in the ends of the spokes E. The bases of these wedges rest on the bottom of the groove before the spokes are driven home, and as they are being driven the wedges are forced into the slits which have been sawed in the spokes, and spread their ends so as to firmly wedge the spoke between the walls of the groove in the nave.

By the means described I am enabled to make a wheel the wooden nave of which is stronger than if it were cut away by the usual number of mortises extending into the hole for the axle-box, and the spokes of which are not weakened by having tenons and shoulders cut in their ends, while by thus wedging the spoke into the nave the annulus, the spokes, and the nave are combined together so as to make a thoroughly strong wheel.

I am aware that hubs consisting of a mortised metallic annulus and a wooden nave are described in the English patent of Smith and Parfrey, dated May 10, 1853; also that it is not new to secure spokes in metallic hubs by wedges and dovetailed grooves; nor to secure spokes to wooden hubs by simple dovetailed tenons on the spokes fitted to annular dovetailed grooves in the hubs; but I am not aware that, prior to my invention, a wheel was ever made in which the wedged spokes, the dovetailed grooved wooden nave, and the mortised metallic annulus were combined.

The advantages derived from this novel combination are numerous, among which may be enumerated, as follows, viz.: By the action of the wedges and the dovetailed groove on the tenons of the spokes the latter are not only secured to the nave and to the annulus, but the nave and the annulus are rigidly bound

together radially by the longitudinal strain on each spoke-tenon; all undue radial expansion of the nave through the action of the wedged tenons is prevented by the metallic annulus; it is practically impossible for the nave to become loosened from the metallic annulus by dry shrinkage, for the expansive strain exercised radially upon the nave by reason of the wedges in the spoke-tenons is originally too great to admit of any undue subsequent contraction; and by having the spokes firmly united to the wooden nave, in a manner independent of the metallic annulus, there is that springiness to the wheel which is common to the ordinary wooden hub, and the spokes are there-

fore less liable to batter at the felloes than when combined with a solid metallic hub.

What I claim as my invention, and desire to secure by Letters Patent, is—

A carriage-wheel constructed with a mortised metallic annulus, A, a central wooden nave, B, provided with a groove having inclined sides, as described, and spokes E, combining the annulus and grooved nave, in the manner substantially as specified.

NOBLE G. OLDS.

Witnesses:

HENRY G. OLDS,  
PETER F. HUGHES.