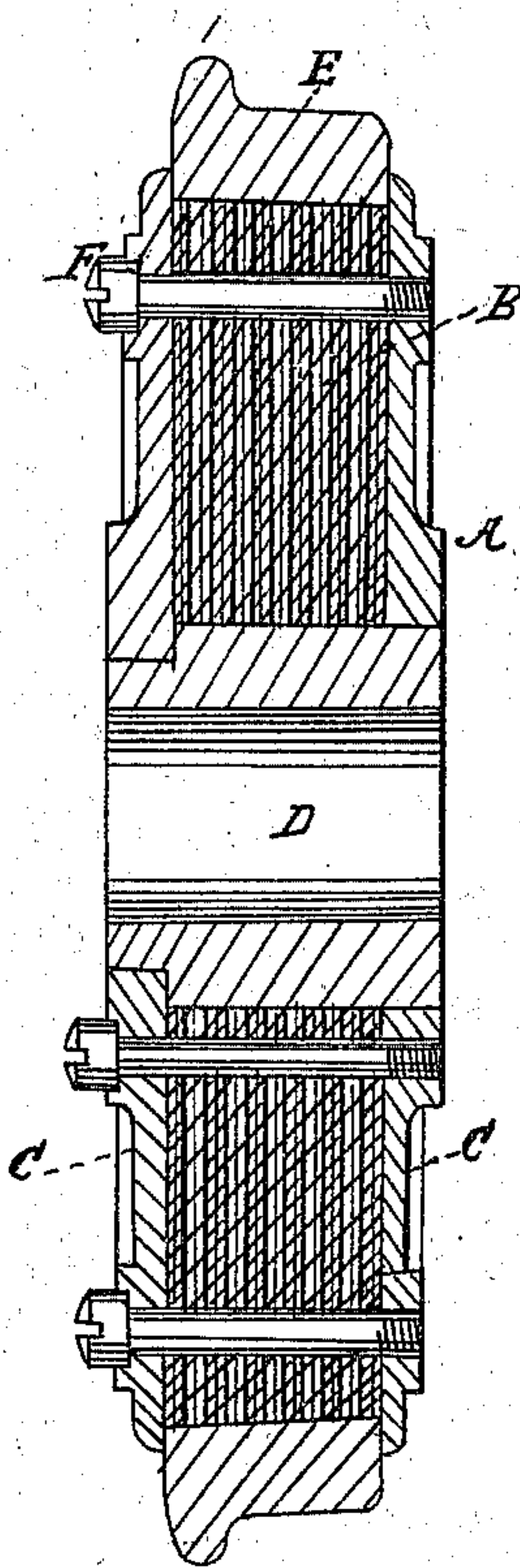


R. N. ALLEN & L. W. KIMBALL.  
CAR WHEEL.

No. 89,908.

Patented May 11, 1869.



Witnesses

*John F. Brooks*  
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Inventor

*R. N. Allen*  
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# United States Patent Office.

R. N. ALLEN AND L. W. KIMBALL, OF PITTSFORD, VERMONT, ASSIGNORS TO THEMSELVES, WILLIAM H. MALLORY, AND EDWIN L. BUTTERFIELD, OF NEW YORK CITY.

*Letters Patent No. 89,908, dated May 11, 1869.*

## IMPROVED CAR-WHEEL.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that we, R. N. ALLEN, and L. W. KIMBALL, of Pittsford, in the county of Rutland, and State of Vermont, have invented a new and useful Improvement in Car-Wheels; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to improvements in car-wheels, designed to provide more durable and elastic wheels than any now in use.

It consists in the production of wheels composed of metal and paper, as hereinafter more fully specified.

The drawing represents a transverse sectional elevation of a car-wheel, constructed according to our improvement.

Cast-metal wheels, made of both iron and steel, are found to be too rigid and unyielding to stand the shocks and jars to which they are subject, and last as long as required for economy, or to preserve the necessary ease and steadiness for the cars which they support.

To meet these difficulties, wheels have been made partly of wood and metal, also with India-rubber packing between the body and the tire.

The wood filling is found to be very objectionable, in consequence of its variation in size by atmospheric changes.

We have found that wheels constructed partly of metal and partly of paper give very much better results, both as to elasticity and durability, the paper being solidified by pressure and united in a mass by adhesive substances, as now commonly prepared for other uses.

To this end, we construct car-wheels with shells A, of any preferred metal, and in any preferred form, with interior parts B of paper.

In this instance we have represented two metallic disks, or side-pieces C, a central tubular core, D, and a tire, E, between which the paper part B is securely clamped by the bolts F, and to facilitate the tightening of the tire upon the paper part, we have made the face of the paper part conical, and shaped the interior of the tire correspondingly, so that the parts will wedge tightly together when the side-plates are clamped up to the tire and the paper part B.

We do not desire, however, to limit ourselves to any particular arrangement for the construction of these wheels, as various plans may be adopted which will be equally effective.

It is not necessary, in carrying out our invention, to first make the paper into thin sheets, and then uniting the sheets to make the required thickness. It will answer a good purpose to form the pulp into a single mass of the required thickness, by pressing it altogether in moulds at once, and we contemplate this application.

Having thus described our invention,

We claim as new, and desire to secure by Letters Patent—

Car-wheels constructed of metal and paper, substantially as herein described.

The above specification of our invention, signed by us, this 8th day of March, 1869.

R. N. ALLEN.

L. W. KIMBALL.

Witnesses:

D. P. PEABODY,

E. L. BARNES.