No. 781,593. PATENTED JAN. 31, 1905.

J. C. COUPER & A. V. SOMERS.

WHEEL.

APPLICATION FILED JAN. 12, 1903.

2 SHEETS—SHEET 1.

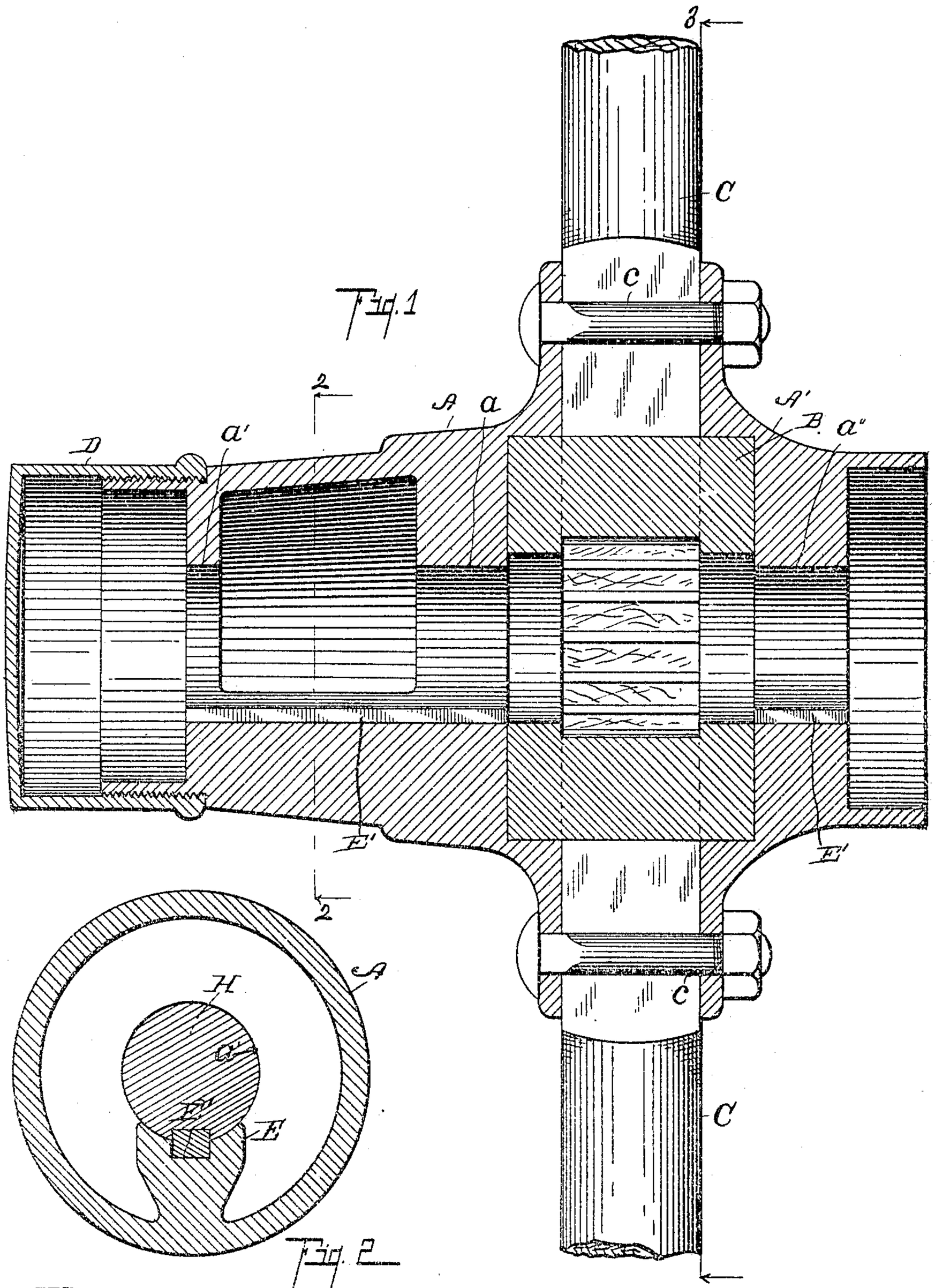

Fig. 1

Fig. 2

Witnesses:

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Otis A. Earl

Inventors

James C. Couper & Arthur V. Somers

By Fred L. Chappell

Att'y.

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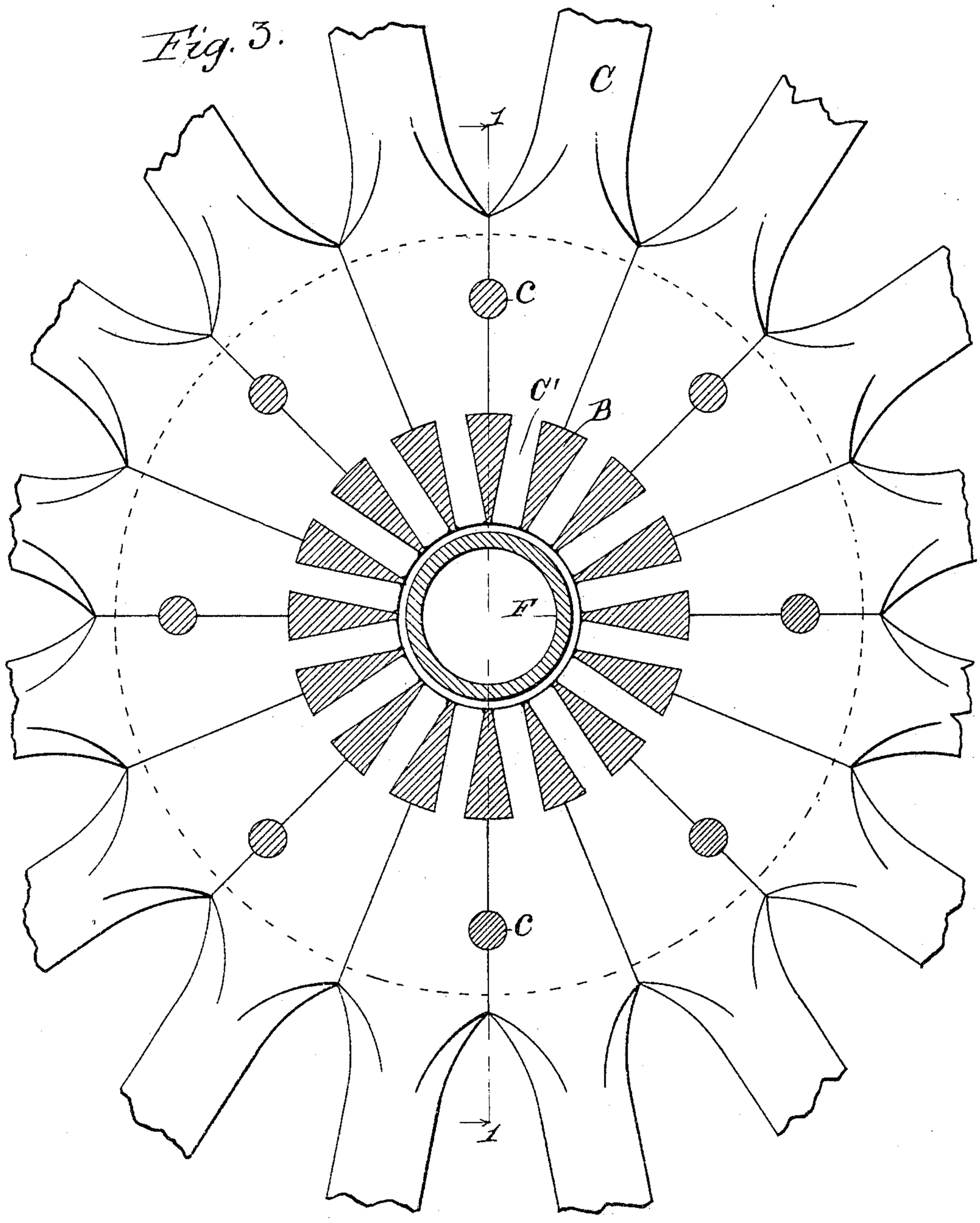
2 SHEETS—SHEET 2.

Fig. 3.



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No. 781,593. Patented January 31, 1905.

UNITED STATES PATENT OFFICE.

JAMES C. COUPER AND ARTHUR V. SOMERS, OF FLINT, MICHIGAN, ASSIGNORS TO IMPERIAL WHEEL COMPANY, OF FLINT, MICHIGAN.

WHEEL.

SPECIFICATION forming part of Letters Patent No. 781,593, dated January 31, 1905.

Application filed January 12, 1903. Serial No. 138,684.

To all whom it may concern:

Be it known that we, JAMES C. COUPER and ARTHUR V. SOMERS, citizens of the United States, residing at the city of Flint, in the county of Genesee and State of Michigan, have invented certain new and useful Improvements in Wheels, of which the following is a specification.

This invention relates to improvements in wheels.

It relates particularly to improvements in wheels intended for use as the propelling-wheels for automobiles. The propelling-wheels for automobiles are subject to extraordinary strains, tending to rack the spokes and hubs of the wheels unless they are built of exceptional size and strength.

It is the object of this invention to provide an improved construction of wheel wherein the tendency to rack the hub and spokes is eliminated.

Further objects and objects relating to structural details will definitely appear from the detailed description to follow.

We accomplish the objects of our invention by the devices and means described in the following specification.

The invention is clearly defined, and pointed out in the claims.

A structure embodying the features of our invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a longitudinal detail sectional view through the hub of our improved wheel, taken on a line corresponding to line 1 1 of Fig. 3. Fig. 2 is a transverse detail sectional view taken on a line corresponding to line 2 2 of Fig. 1. Fig. 3 is a detail transverse sectional view taken on a line corresponding to line 3 3 of Fig. 1.

In the drawings the sectional views are taken looking in the direction of the little arrows at the ends of the section-lines.

Similar letters of reference refer to similar parts throughout the several views.

Referring to the drawings, the hub is made up of an outside flange and sleeve A and an inside flange and sleeve A′. These embrace a central hub-block B and the mitered spokes C. Central recesses are formed in the flanges to receive the ends of the central block B. The spokes are mortised into this block B and are mitered together outside thereof and fit closely together at a point somewhat beyond the peripheries of the flanges. The hub-block serves as a temporary support for the spokes in the construction of the wheel and when the wheel is completed serves the important function of cushioning the spokes. The shoulders of the spoke-tenons rest against the periphery of the hub-block and prevent the spokes being driven inward, thus effecting the cushioning. The ends of the central block fit snugly within the recesses of the flanges, but are not of sufficient length to interfere with the clamping of the flanges upon the sides of the spokes. The flanges are clamped upon the central block and upon the spokes by bolts or rivets *c*, which are arranged therethrough. The hub extension of the outer flange A is provided with a cap D.

The parts described are substantially those described and claimed in the copending application of James C. Couper, one of these applicants, filed October 24, 1903, Serial No. 178,394.

The hub extension of the flange A is provided with a longitudinal strengthening-rib E. A key-seat is formed in this rib and in the rear flange A′ to receive the key E′, (see Fig. 2,) by which the wheel is secured to the axle H, the axle also being provided with a suitable key-seat. A portion only of the hub extensions are cored away, leaving the heavy portions *a a′* in the front flange A and *a″* in the rear flange A′, which embrace the axle H. The axle is thus secured to both flanges of the hub. It will thus be seen that any power exerted upon the driven axle will be distributed equally to both the front and rear flanges of the wheel, and thereby any strain or side thrust on the spokes will be avoided. While this feature is of especial advantage in the particular wheel we have illustrated, it is obvious that this method of coupling the opposite sides

of the wheel together upon the driven axle is a very great advantage in any flanged wheel structure.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a wheel, the combination of the hub-flanges; a central hub-block; mitered spokes mortised into the said hub-block; suitable bolts through the flanges and spokes for clamping the flanges onto the spokes; a suitable key-seat formed in both flanges; and an axle extending through and secured to both of the said flanges by a suitable feather engaging the said key-seat, as specified.

2. In a wheel, the combination of a short central hub-block of wood; mitered spokes, mortised thereinto; metal flanges at each side, clamped upon the said spokes by suitable bolts therethrough and embracing the said hub; and an axle secured to said flanges, by the use of a suitable feather; for the purpose specified.

In witness whereof we have hereunto set our hands and seals in the presence of two witnesses.

JAMES C. COUPER. [L. S.]
ARTHUR V. SOMERS. [L. S.]

Witnesses:
EDGAR D. POPE,
JOHN KOOLS.