

(No Model.)

G. J. RAITHEL.

HUB.

No. 398,652.

Patented Feb. 26, 1889.

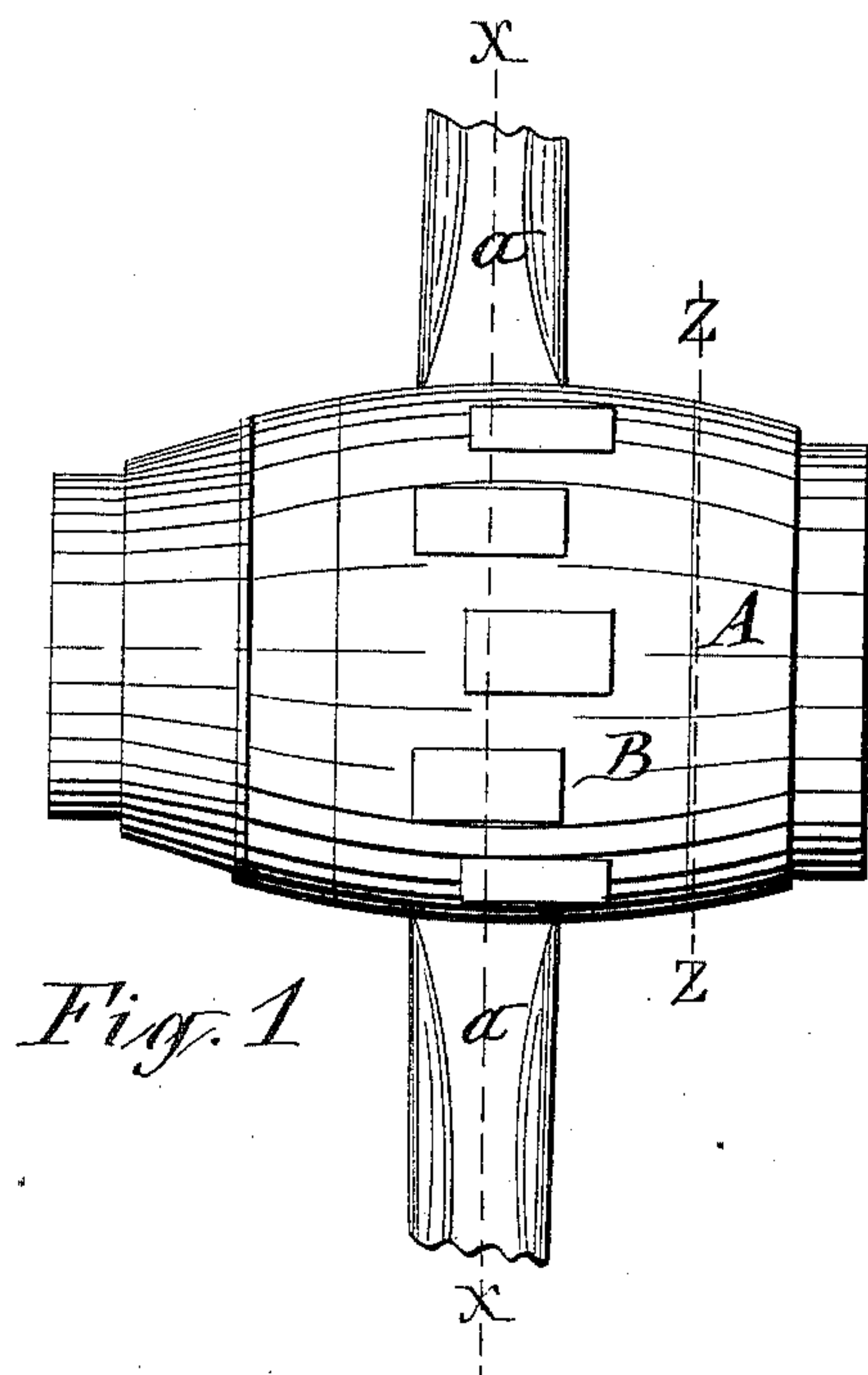


Fig. 1

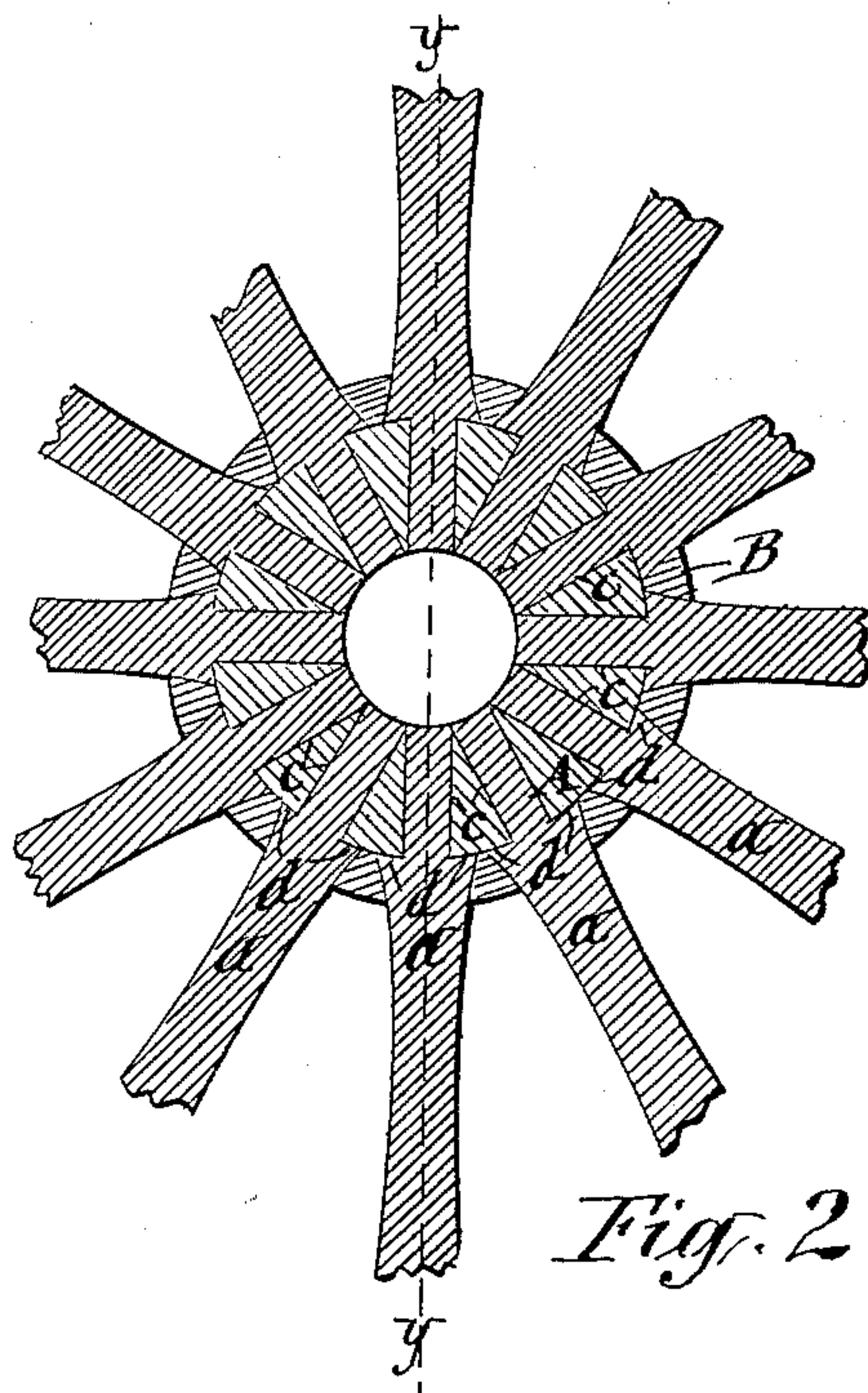


Fig. 2

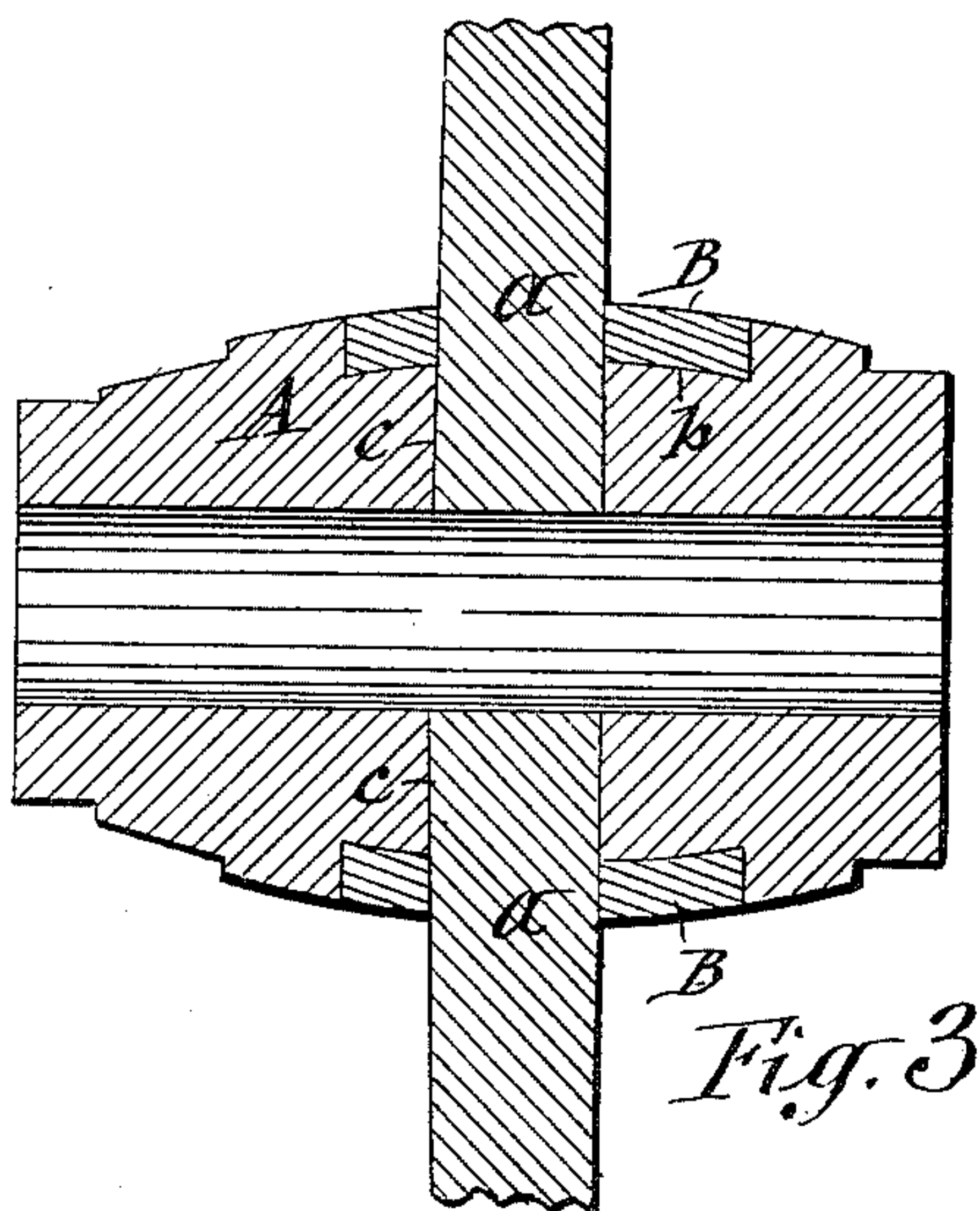


Fig. 3

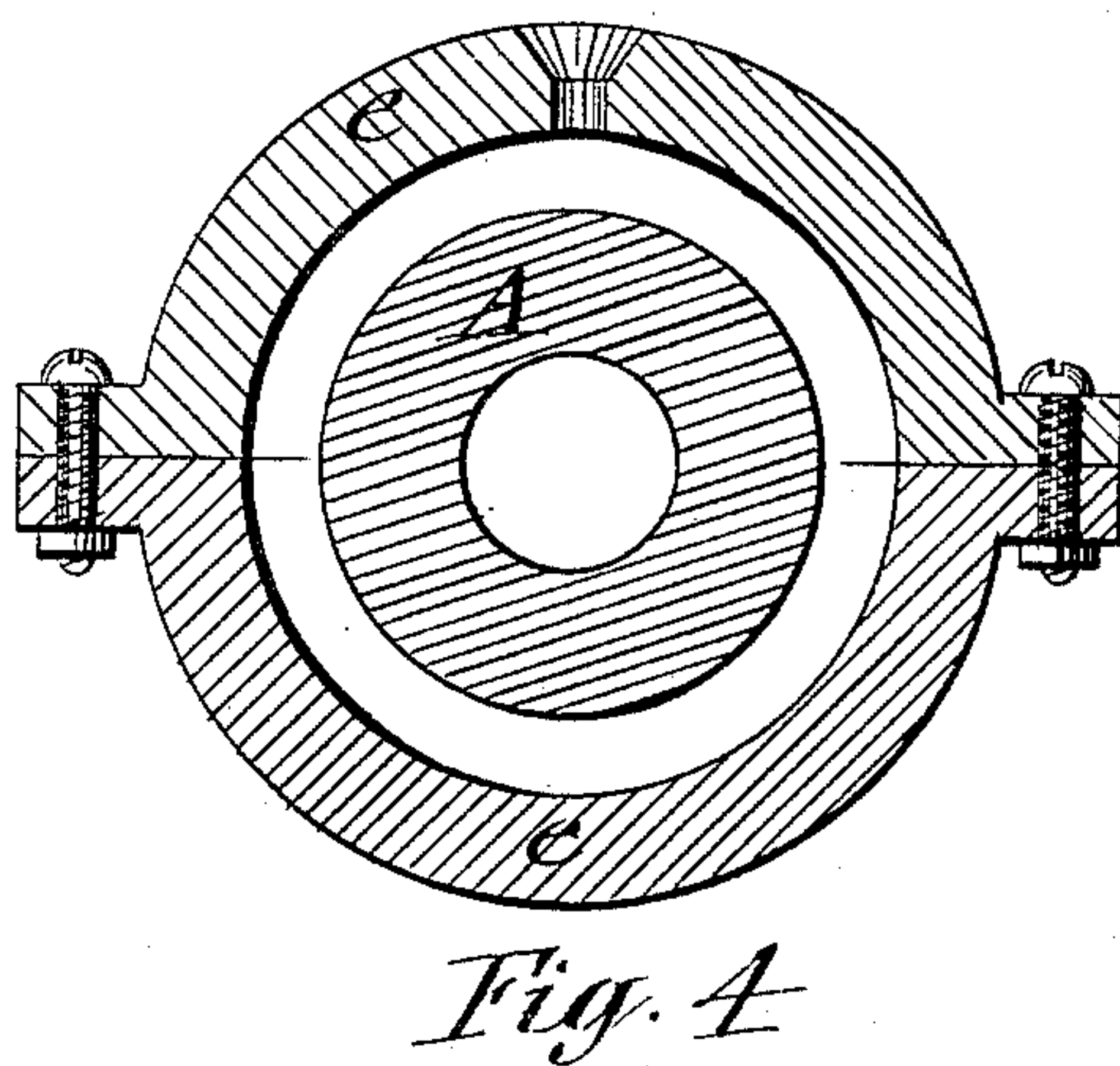


Fig. 4

WITNESSES:

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# UNITED STATES PATENT OFFICE.

GEORGE J. RAITHEL, OF MIDDLEVILLE, NEW YORK.

## HUB.

SPECIFICATION forming part of Letters Patent No. 398,652, dated February 26, 1889.

Application filed October 1, 1888. Serial No. 286,854. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE J. RAITHEL, of Middleville, in the county of Herkimer, in the State of New York, have invented new and  
5 useful Improvements in Vehicle-Wheels, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the attachment of  
10 spokes in a wheel-hub and to securing them therein and re-enforcing them against both lateral and longitudinal strain.

The object of my invention is to strengthen and stiffen the wheel by forming a metallic  
15 grip around the hub and around the shoulders of the spokes, gripping positively both the hub on either side of the spokes, and also the shoulders of the spokes, thereby preventing, first, the splitting of the hub, and, secondly, preventing the withdrawal of the spokes  
20 from their mortises, such grip consisting of a continuous integral band of metal cast onto the hub and over the shoulders of the spokes after the spokes are driven; and my invention consists in this re-enforcement and grip-  
25 ping of the hub and of the shoulders of the spokes.

In the annexed drawings, Figure 1 is a side  
30 view of a wheel-hub with portions of some of the spokes attached thereto. Fig. 2 is a transverse section on line *x x*, Fig. 1. Fig. 3 is a longitudinal section on line *y y*, Fig. 2; and Fig. 4 is a transverse section on line *z z*, Fig. 1, showing the method and means of apply-  
35 ing the metal band to the hub.

Similar letters of reference indicate corresponding parts.

A represents the hub, which may be of metal or wood, and *a a* denote the spokes,  
40 which I secure to the hub in the following manner: I form the exterior of the hub with an annular peripheral groove, *b*, around the row of mortises *c c*, and of a width somewhat greater than the width of the said mortises. I drive the spokes into the mortises  
45 *c c* until the shoulders *d d* of the spokes are brought to bear on the hub, as illustrated in Fig. 2 of the drawings. I then place around the hub a mold, *e*, which incloses the groove  
50 *b* and bases of the spokes, and is made in two parts with ports at the junction of said parts to allow the spokes to protrude from the mold

when applied, as illustrated in Fig. 4 of the drawings. The interior of this mold is of the diameter and shape required of the exterior  
55 of the hub on the line of the attachment of the spokes. After the mold has thus been applied I pour into the same suitable molten metal, preferably Babbitt metal, and fill the mold therewith, and when cooled and hard-  
60 ened I remove the mold. In this manner a solid band, *B*, of metal is formed in the annular groove, which grips closely the hub adjacent to the spokes on both sides, and also grips the shoulders of the spokes and part of  
65 each spoke adjacent and exterior to the shoulders thereon, and such gripping both on the edges of the spokes and upon the shoulders and adjacent to the shoulders effectually prevents the spokes from working loose.  
70

It will be observed that my invention consists in the positive grip of the metal band upon the spokes exerting itself directly against the sides and shoulders, thus bracing and  
75 staying the spokes, as well as the hub, and thereby reducing the liability or possibility of the dishing of wheel to the minimum, if not absolutely preventing it.

Having described my invention, what I claim as new, and desire to secure by Letters  
80 Patent, is—

1. The re-enforcement of the spokes of a wheel, consisting in forming an annular peripheral groove in the hub of greater width  
85 than the spoke-mortises, then driving the spokes into the hub, and then casting metal into the groove and over the shoulders of the spokes.

2. The gripping of the shoulders of the spokes of a wheel and the spokes themselves  
90 adjacent but exterior to the shoulders by casting a metallic band into an annular peripheral groove in the hub and around the spokes and their shoulders after the spokes have been driven into the hub.  
95

In testimony whereof I have hereunto signed my name, in the presence of two witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 21st day of September, 1888.

GEORGE J. RAITHEL. [L. S.]

Witnesses:

J. J. LAASS,  
A. F. WALZ.