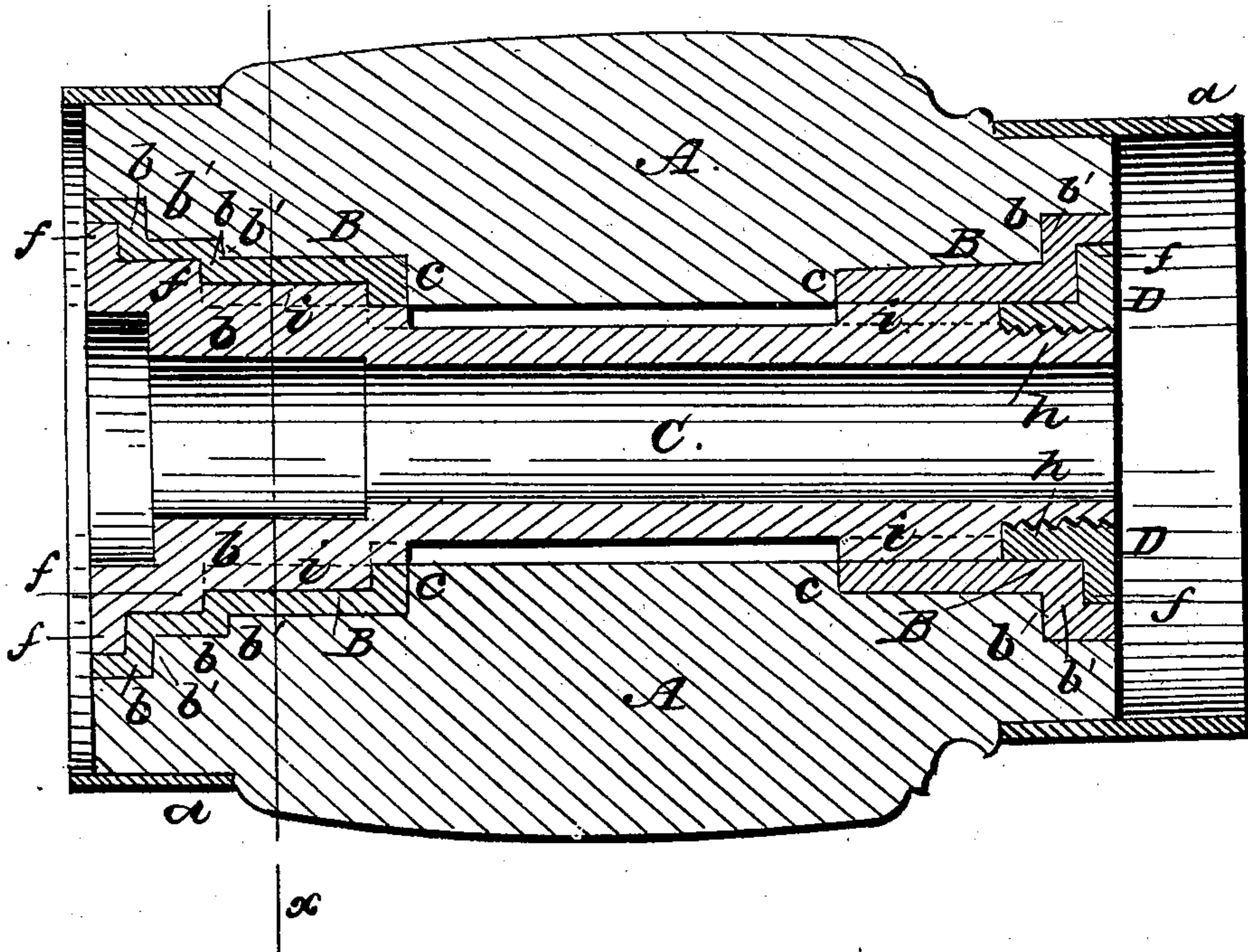


E. G. WOODSIDE,  
Wheel Hub.

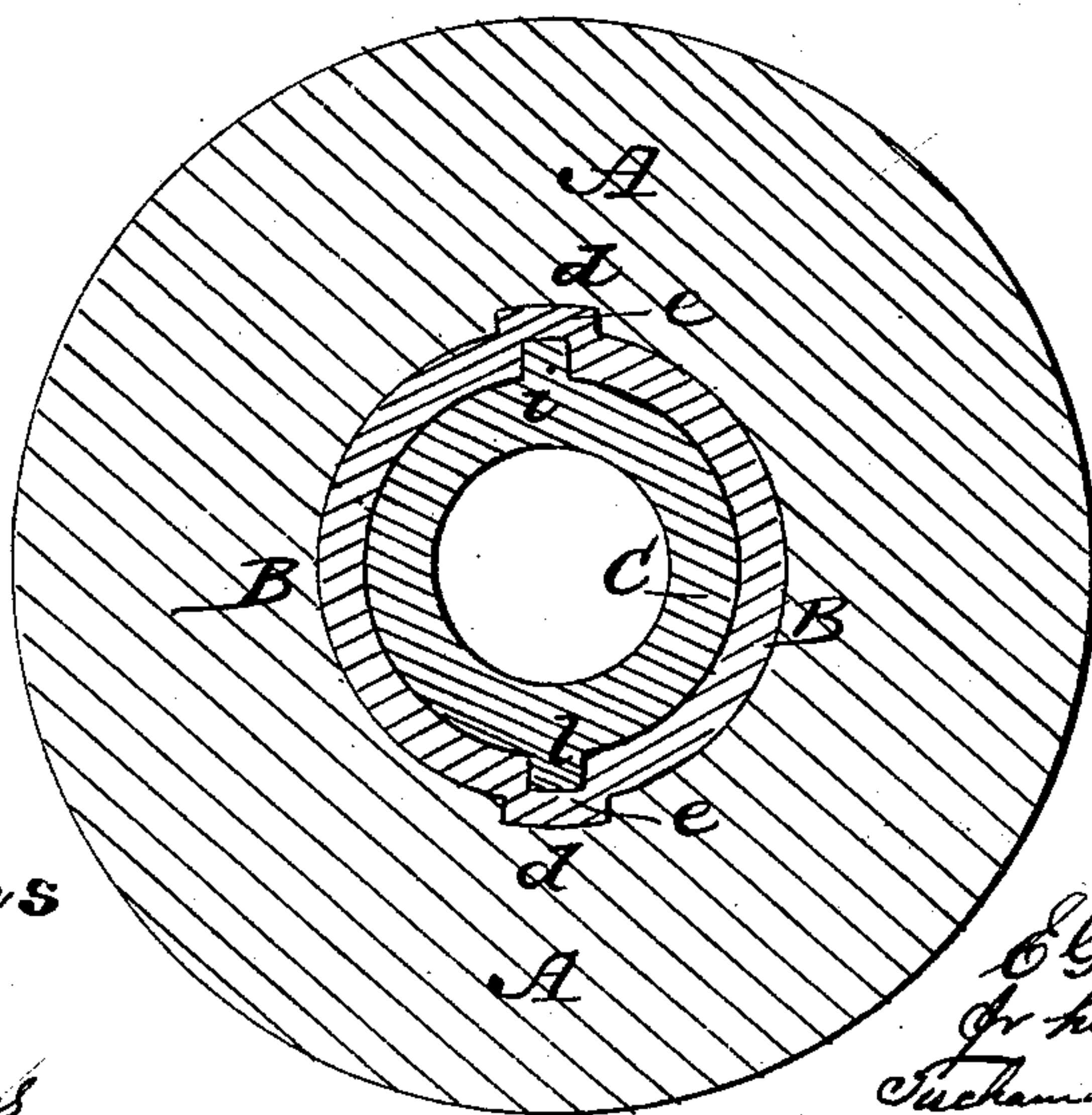
No. 90,714.

Patented June 1, 1869.

*Fig. 1*



*Fig. 2*



Witnesses  
W. J. Cambridge  
O. N. Robbins

Inventor  
E. G. Woodside  
By his Attorneys  
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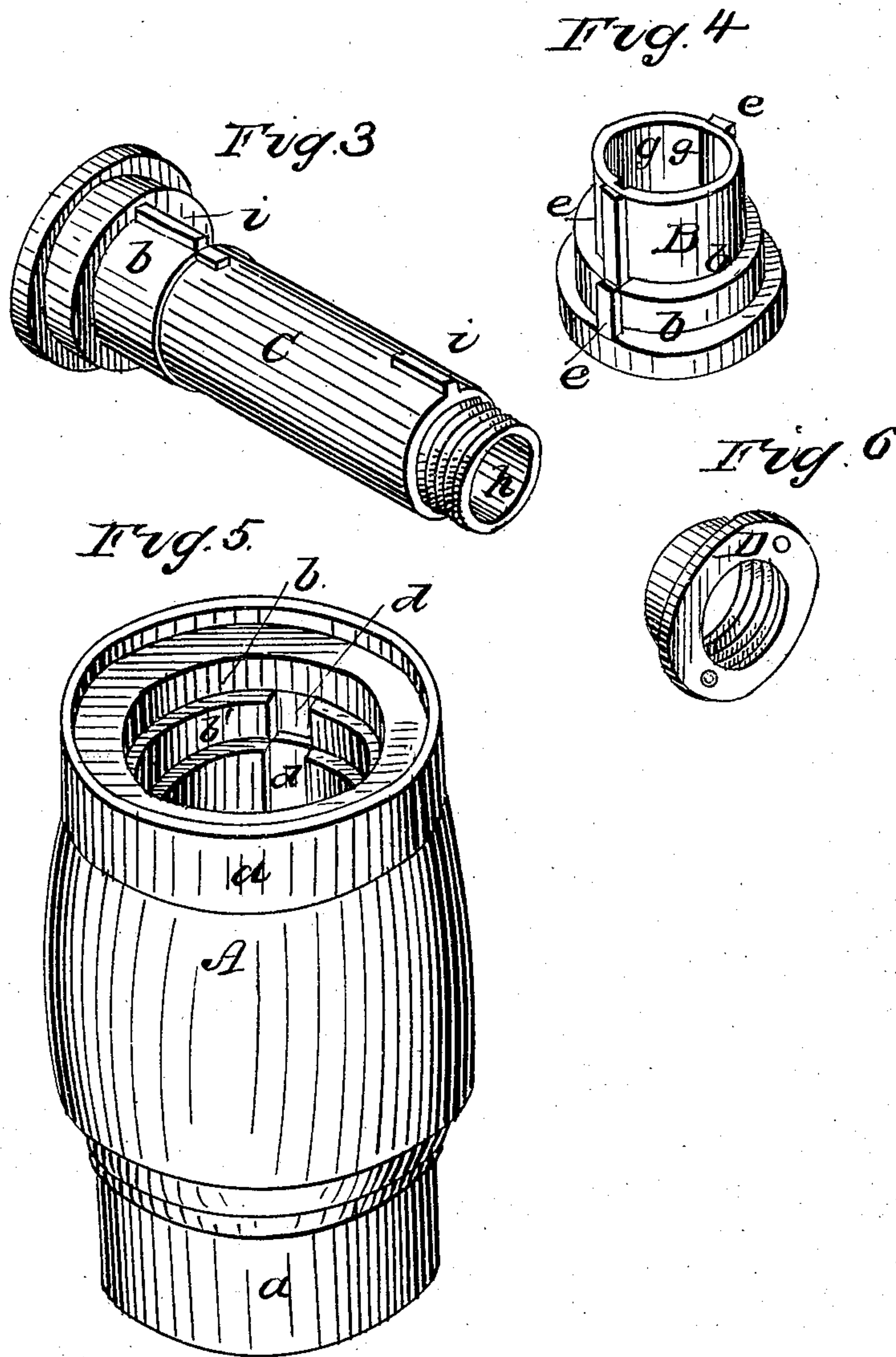
E. G. WOODSIDE.

Wheel Hub.

2 Sheets—Sheet 2.

No. 90,714.

Patented June 1, 1869.



WITNESSES

W. J. Cambridge  
M. N. Robinson

INVENTOR

E. G. Woodside  
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# UNITED STATES PATENT OFFICE.

ELBRIDGE G. WOODSIDE, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN CARRIAGE-WHEELS.

*Specification forming part of Letters Patent No. 90,714, dated June 1, 1869.*

*To all whom it may concern:*

Be it known that I, ELBRIDGE G. WOODSIDE, of San Francisco, in the county of San Francisco and State of California, have invented certain Improvements in Carriage-Wheels; of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a longitudinal section through the center of a hub of a carriage-wheel with my improvements applied thereto. Fig. 2 is a transverse section on the line *x x* of Fig. 1. Fig. 3 is a perspective view of the box or bearing in which the axle rests. Fig. 4 is a perspective view of an elastic cushion or packing-ring inclosing one end of the box, and interposed between it and the interior of the hub. Fig. 5 is a perspective view of the interior of one end of the hub. Fig. 6 is a view of the nut which holds the box and packing-rings in place within the hub.

My present invention relates particularly to certain improvements in the construction of hubs and axle-boxes set forth in Letters Patent of the United States, No. 70,670, granted to me on the 5th of November, A. D. 1867, in which the box was surrounded by an elastic packing, extending from one end of the hub to the other, in order to relieve the concussion and noise incident to carriage-wheels of the ordinary construction; and my present invention consists in interposing between each end of the box and hub an elastic packing of peculiar construction, which is so fitted around the box and into the hub as to insure the parts being held firmly and compactly in place, without any liability of turning within the hub, the said construction also avoiding the weakening of the hub at its center necessitated by the employment of a continuous elastic packing extending from one end of the hub to the other.

To enable others skilled in the art to understand and use my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A represents a wooden carriage-hub provided with a band, *a*, shrunk over each of its extremities. The interior of this hub is bored out centrally and is enlarged at each end for the reception of a ring or packing, B, of rubber, or other elastic material,

which is of different diameters at different portions of its length, as seen in Figs. 1 and 4, and is provided with shoulders *b b* which rest against corresponding shoulders *b' b'* formed on the inside of the hub, the latter being also provided with a third shoulder, *c*, which serves as an abutment for the inner end of the packing-ring B to rest against. In addition to the shoulders *b' b' c*, the interior of each end of the hub is provided with recesses *d d*, Figs. 2 and 5, diametrically opposite, for the reception of corresponding projections or ribs *e*, formed on the exterior of each of the packing-rings B for the purpose of preventing them from turning within the hub. The interior of each of these rings B is also provided with shoulders *f* and recesses *g*, the form of the interior being such as to correspond to that of one end, 6, of a hollow axle-box, C, the opposite end of which is provided with a screw-thread, *h*, over which (when its packing-ring B is in place thereon) fits a nut, D, the nut corresponding in form to the interior of the packing, and drawing the two elastic rings B into the enlargements within the hub in such manner that they are expanded laterally and caused to snugly fit against the interior of the latter, whereby the whole is compactly bound together, the exterior of the axle-box being provided with projections *i*, of corresponding form and size to the recesses *g* in the interior of the packing B, which admit of passing the latter over the end of the axle-box C, and the box is thereby prevented from slipping within the packing-rings B. The thickness of the elastic rings at the points where the recesses *g* are formed is made equal to or greater than the thickness of the remaining portions of the said rings, in order that the same degree of elasticity may be insured at these points, and the width and length of the projections *i* on the exterior of the axle-box should be sufficient to prevent the box from slipping within the packing-rings. These projections should be somewhat rounded at their edges, to prevent the rings being cut or injured thereby.

The central portion of the interior of the hub is only of sufficient diameter to allow of the yielding of the box C within it, and does not require to be cut away to that extent which would be necessary if the elastic packing surrounded the central portion of the box, and

consequently the strength of the hub is not diminished, and a smaller and lighter hub may be employed than would be possible with the construction described by me in my aforesaid Letters Patent of November 5, A. D. 1867. For large hubs, however, the central portion, as well as the ends of the box, may, if desired, be surrounded with elastic packing composed of one or more pieces provided with projections or ribs similar to those on the rings B.

The end 6 of the box C and the nut D may be each provided with a flange for the purpose of covering the outer ends of the packing-rings B, or the ends of the rings may be covered by flanges projecting from the interior of the bands *a*, or an independent washer may be employed for this purpose.

It is evident that my improvements may be applied to railroad-car wheels, if desired, without departing from the spirit of my invention.

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

The elastic packing-rings B, with their projections *e* and recesses, and with or without shoulders *b b f* applied to the ends of the box C, in combination with the hub A, the ends of the interior of which are of a form corresponding to that of the rings B, substantially as and for the purpose described.

ELBRIDGE G. WOODSIDE.

Witnesses:

N. W. STEARNS,  
W. J. CAMBRIDGE.