

(No Model.)

W. KNIGHT.
VEHICLE WHEEL.

No. 375,940.

Patented Jan. 3, 1888.

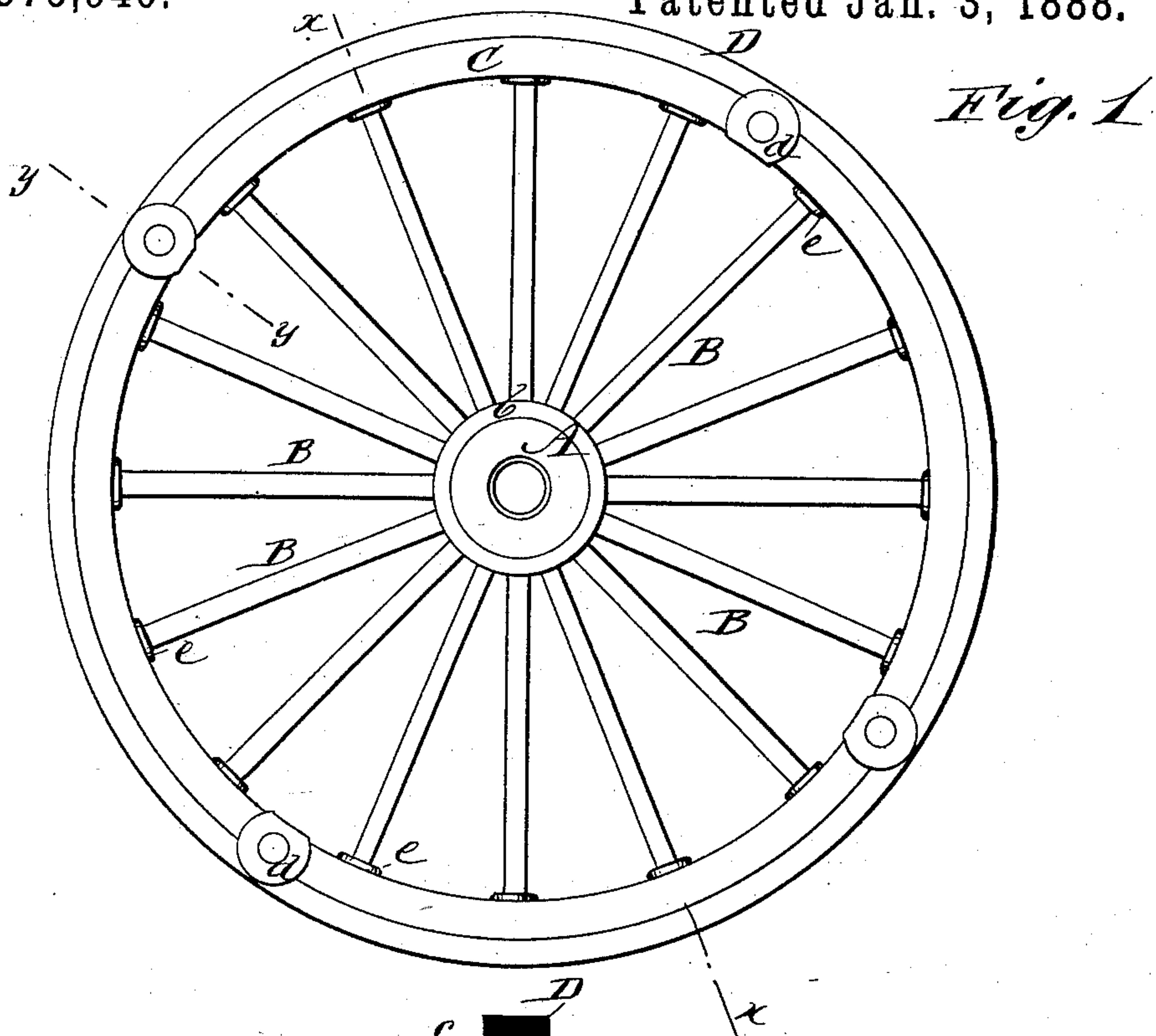


Fig. 1

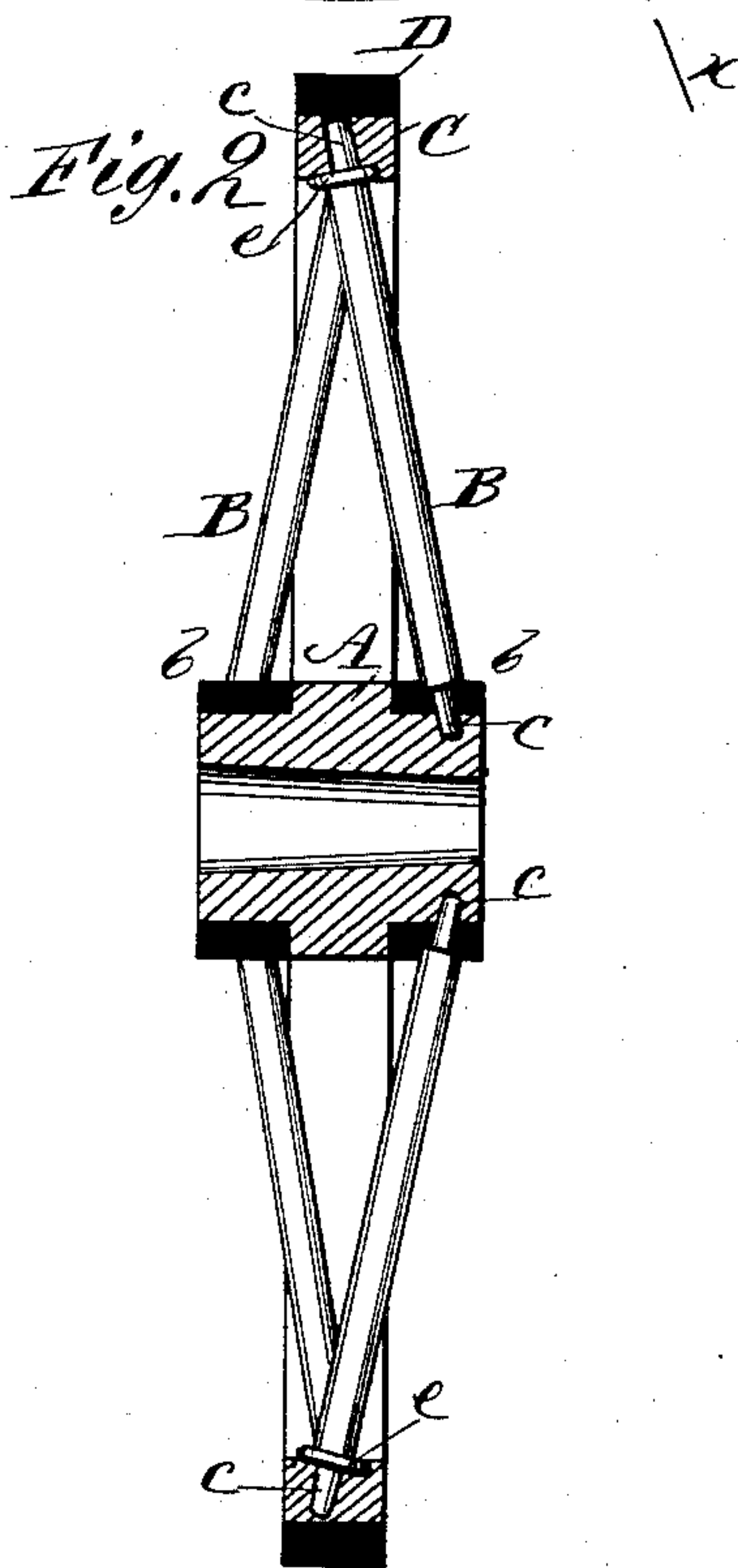


Fig. 2

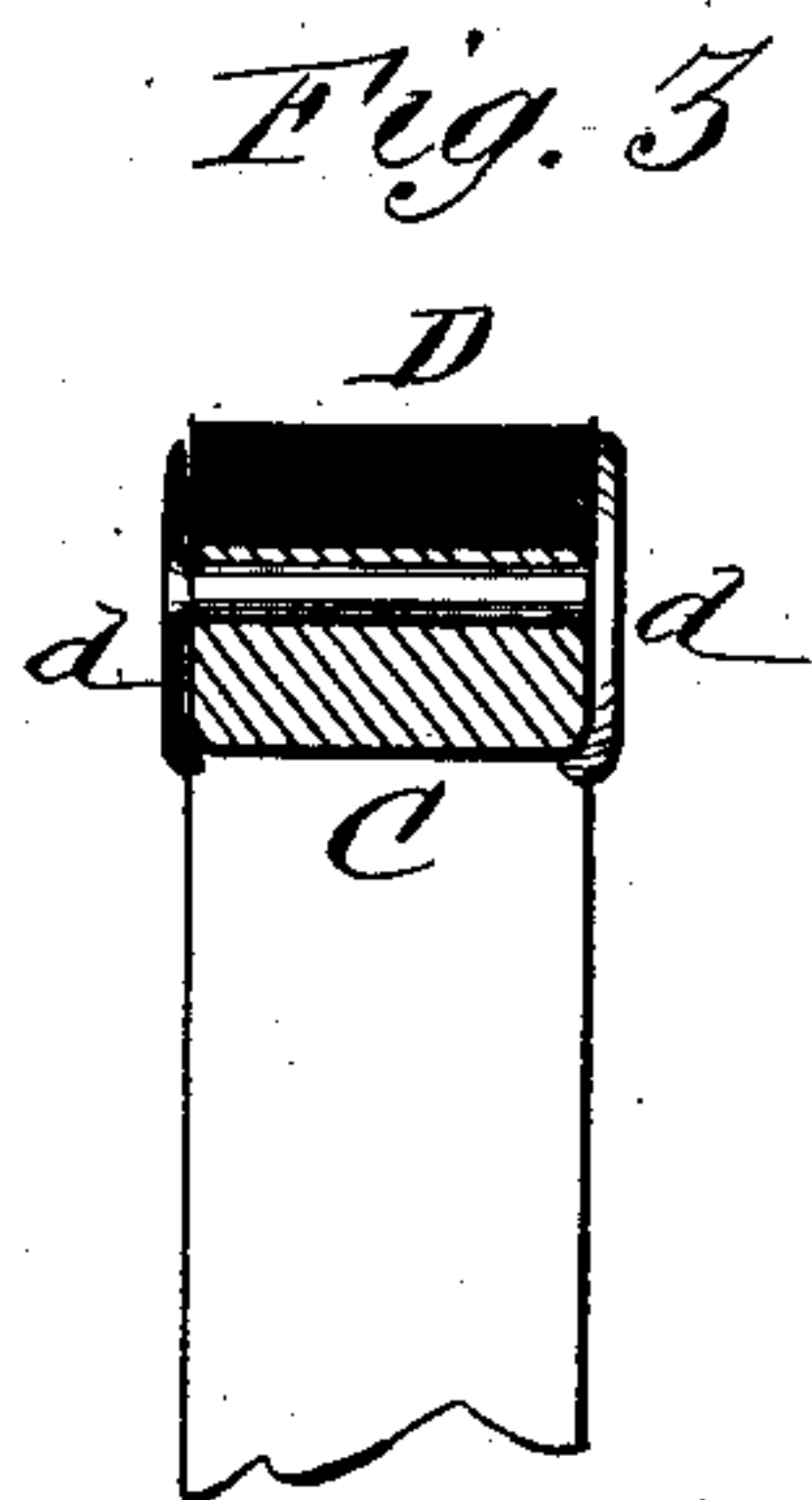


Fig. 3

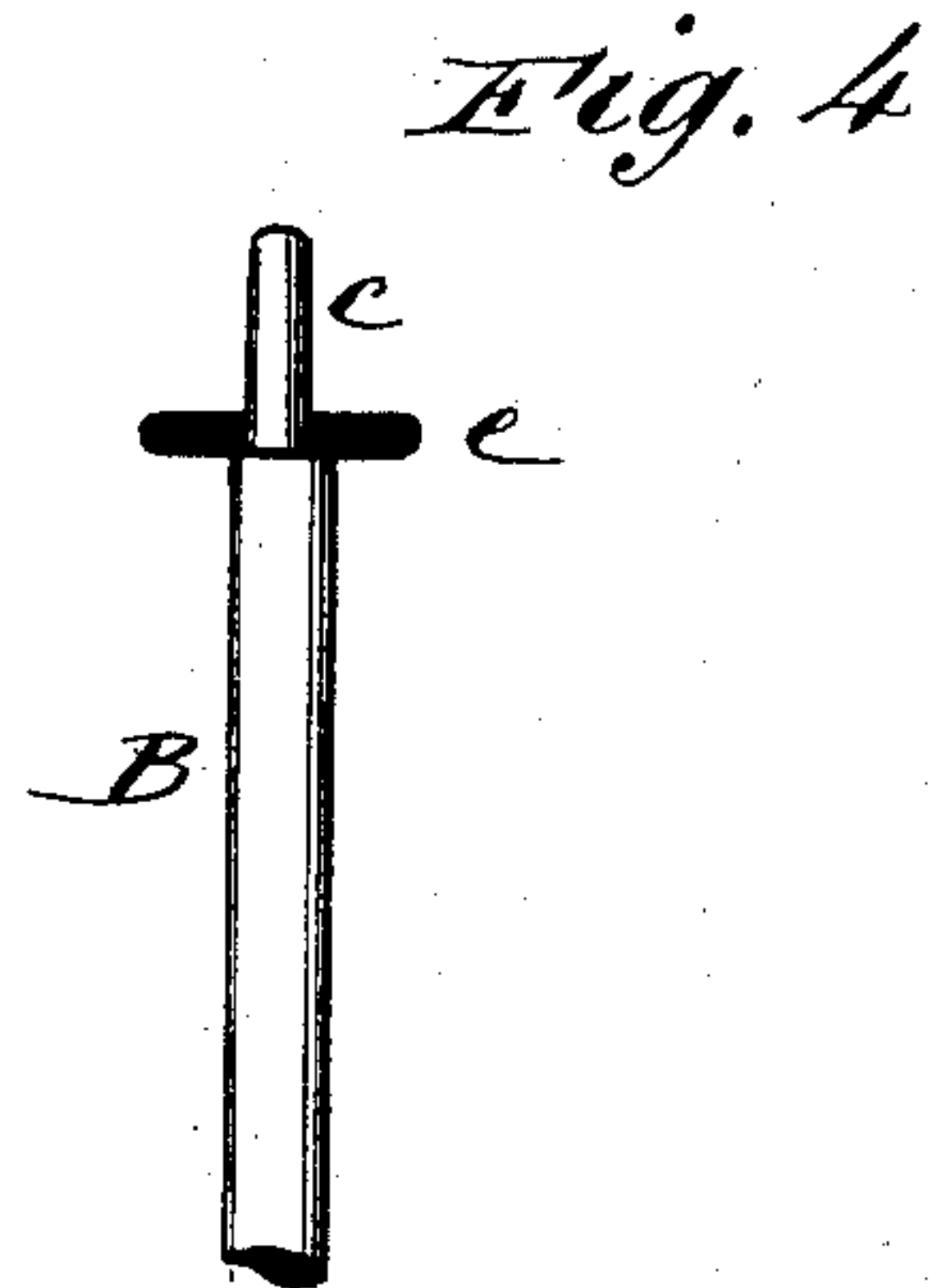


Fig. 4

WITNESSES:

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UNITED STATES PATENT OFFICE.

WALTER KNIGHT, OF SAN ANDREAS, CALIFORNIA.

VEHICLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 375,940, dated January 3, 1888

Application filed August 31, 1887. Serial No. 248,366. (No model.)

To all whom it may concern:

Be it known that I, WALTER KNIGHT, of San Andreas, in the county of Calaveras and State of California, have invented a new and useful Improvement in Wheels for Wagons and other Vehicles, of which the following is a full, clear, and exact description.

This invention relates to wagon or other vehicle wheels having wooden hubs and fellyes but metal spokes set inclining or staggering in relation with each other, which combined wood and metal wheels are more capable of enduring without injury those inequalities of weather, such as the heat of summer and dampness of winter in highly variable climates and to stand which wagon-wheels made wholly of metal are not satisfactory and liable to break, while the common wooden ones are soon destroyed, whereas the combined wood and metal wheels have a compensating effect, the iron or steel expanding in hot weather and the wood shrinking, and in damp weather the metal shrinking while the wood expands, thus adding to the durability of the wheel.

The invention consists in a novel combination of parts in a combined wood and metal wheel as above, substantially as hereinafter described and pointed out in the claims, whereby great simplicity, durability, and strength are secured, and the wheel may be easily repaired when required.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a side view of a wagon-wheel embodying my invention. Fig. 2 is a transverse section of the same upon the line *xx* in Fig. 1. Fig. 3 is a section upon the line *yy* in Fig. 1, showing the tire and felly in part, and means of securing the same; and Fig. 4 is a longitudinal view of one of the spokes of the wheel, in part, with a washer, in section, applied to the outer end thereof.

A is the hub of the wheel, made of wood, and of uniform size throughout its length and free from all mortises, whereby it is less liable to split or wear out, and is cheaper and better than the ordinary wooden hubs now in use. This whole or unmutilated cylindrical wooden

hub is bound at its opposite ends by metal bands *b b*.

B B are the spokes of the wheel. These spokes are of iron or steel, and are each made with a shoulder near its opposite ends. The reduced inner terminal portions of these spokes are fitted to enter and pass through the hub-bands *b b*, and so that their shoulders at said ends rest on the hub-bands and receive or carry the weight. Said reduced ends or tenons *c* pass through the hub-bands into the wood of the hub the necessary distance to hold the spokes and hub-bands to their places without cutting the wood of the hub to weaken or destroy its usefulness and strength. The wheel has two rows or sets of spokes, B B, set inclining toward each other in an outward direction and arranged in staggering or intermediate relation with each other from opposite ends of the hub, and serving, when united with the felly of the wheel, to brace each other.

C is the felly of the wheel, and D its tire, which may be laterally bound and united with each other by riveted clip-plates *d*. The felly C is made of wood, and it and the main body of the hub both being of wood gives the tire D a chance to draw the wheel tight together, and there being little or comparatively no shrinkage in the metal spokes the wheel will remain in good condition much longer than wheels of a different construction. The tenons *c* at the outer ends of the metal spokes have washers *e* fitted over them, the tenons themselves projecting into the felly, while the washers *e* lie between the outer shoulders of the spokes and the wooden felly and prevent said shoulders from entering too far into the wood of the felly, so that the latter is neither crushed nor its strength destroyed by the outer shoulders of the spokes.

Constructed as described, the combination of wood and metal in the wheel is such that a very superior wheel for general use is produced and the full benefits of the two different materials are obtained. There may be any number of spokes in the wheel, preferably from thirty to forty, and these may be of any desired diameter—say from five-eighths of an inch to one inch each; but my invention is not restricted in these and other respects.

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

5 The combination of the cylindrical wooden hub A, having outer opposite end metal bands, *b b*, the wooden felly C, with its metal tire D, the double series of inclined metal spokes B B, constructed with shoulders near their opposite

ends and tenons *c c*, fitted to enter respectively into the hub through the bands *b* thereof and into the felly, and the washers *e*, essentially as shown and described.

WALTER KNIGHT.

Witnesses:

ALFRED L. WYLLIE,

SAMUEL E. REDMOND.