

(No Model.)

4 Sheets—Sheet 1.

J. R. LITTLE.

METHOD OF MAKING METAL WHEELS.

No. 334,253.

Patented Jan. 12, 1886.

Fig. 1.

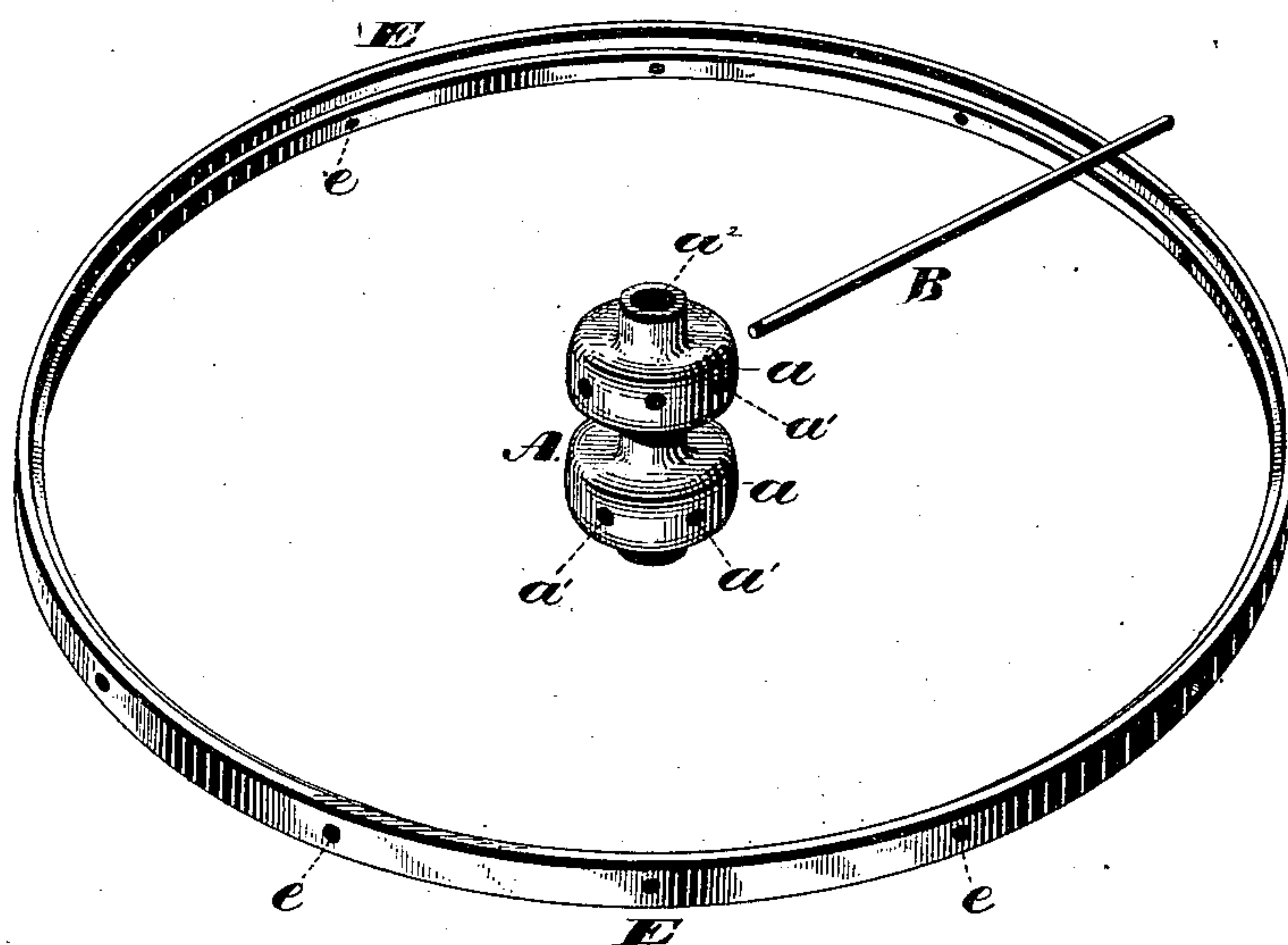
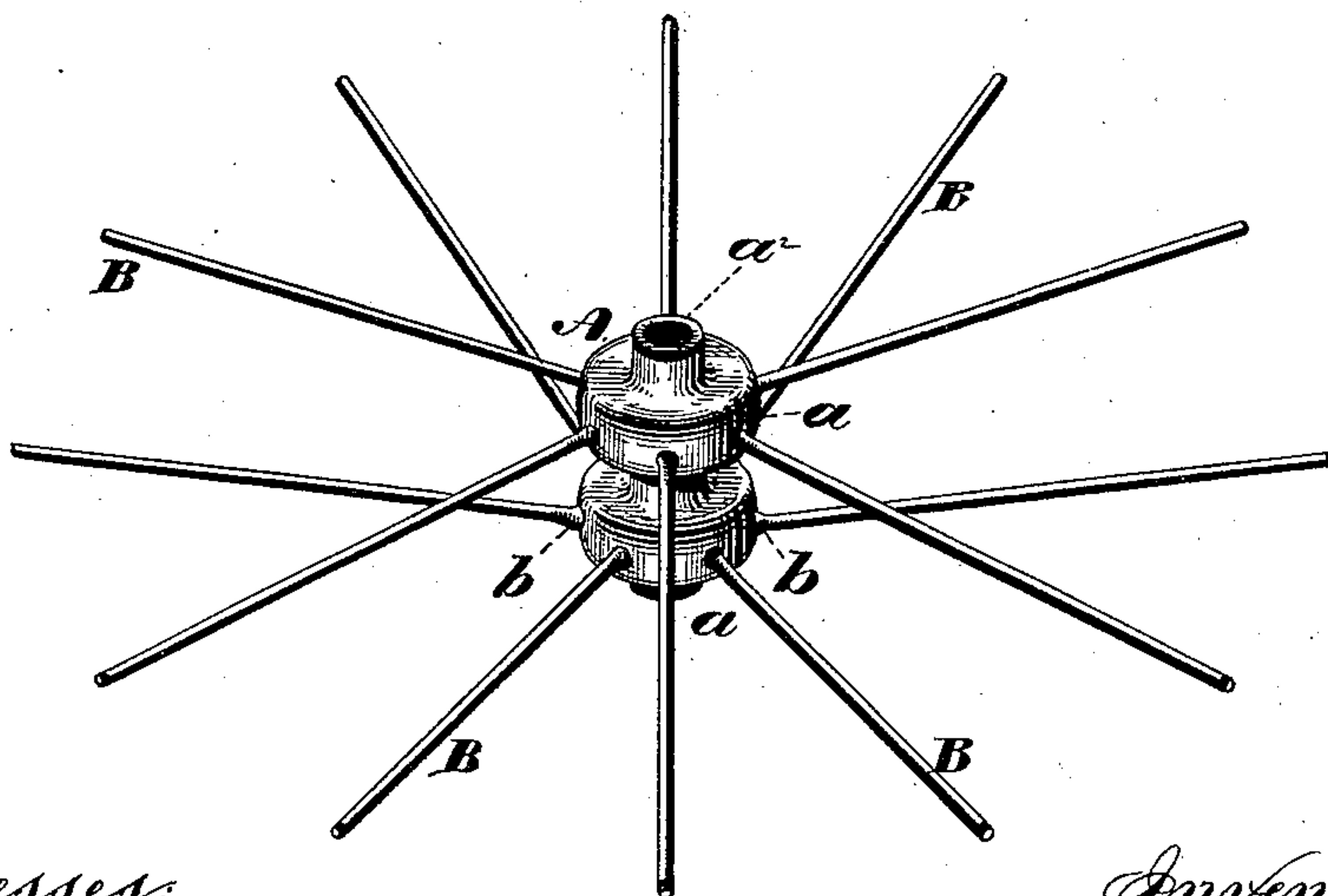


Fig. 2.



Witnesses:

Chas. J. Williamson.

Henry C. Hazard.

Inventor:

*Jas. R. Little, by
Pindell & Russell, his Attys*

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Fig. 3.

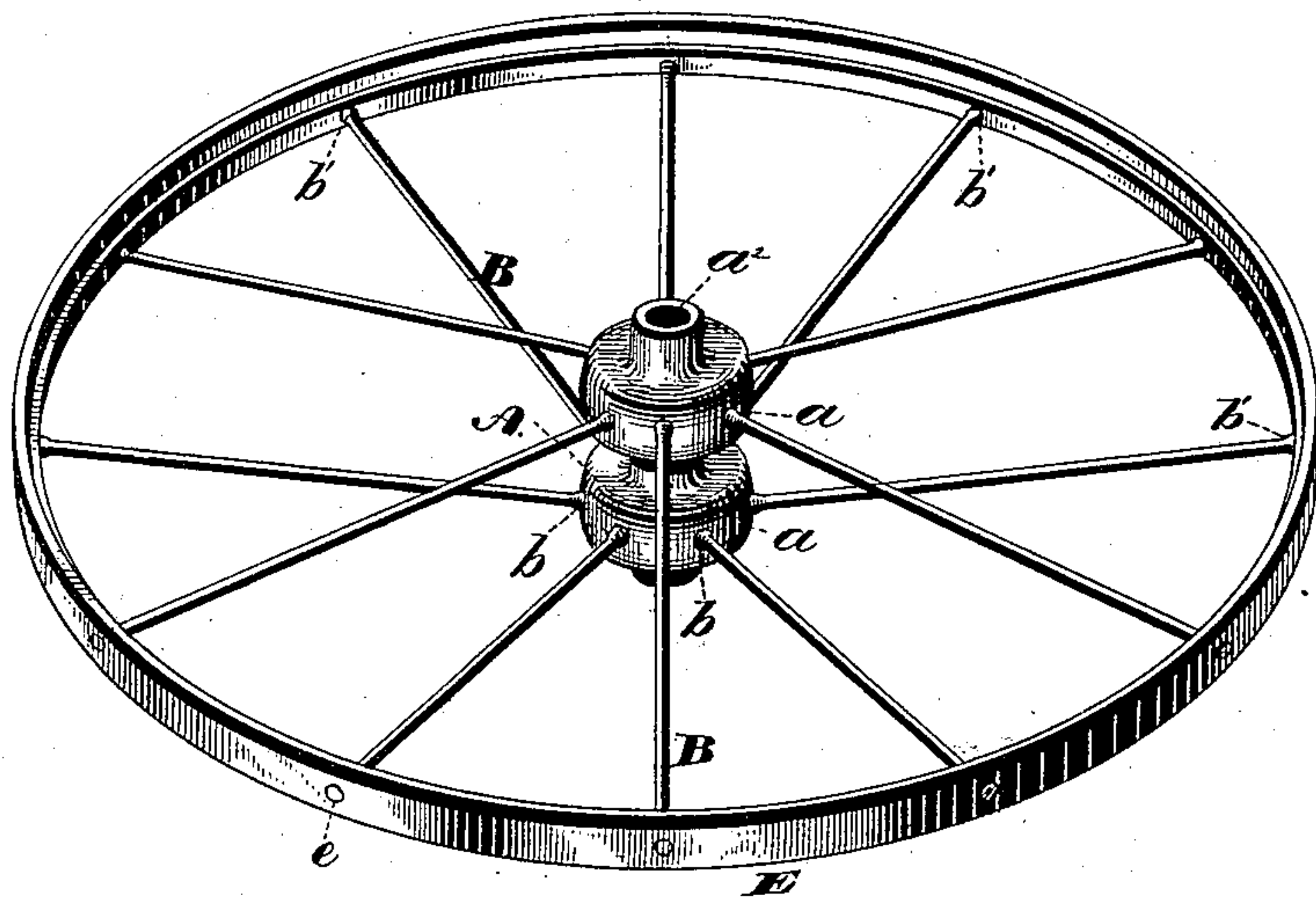
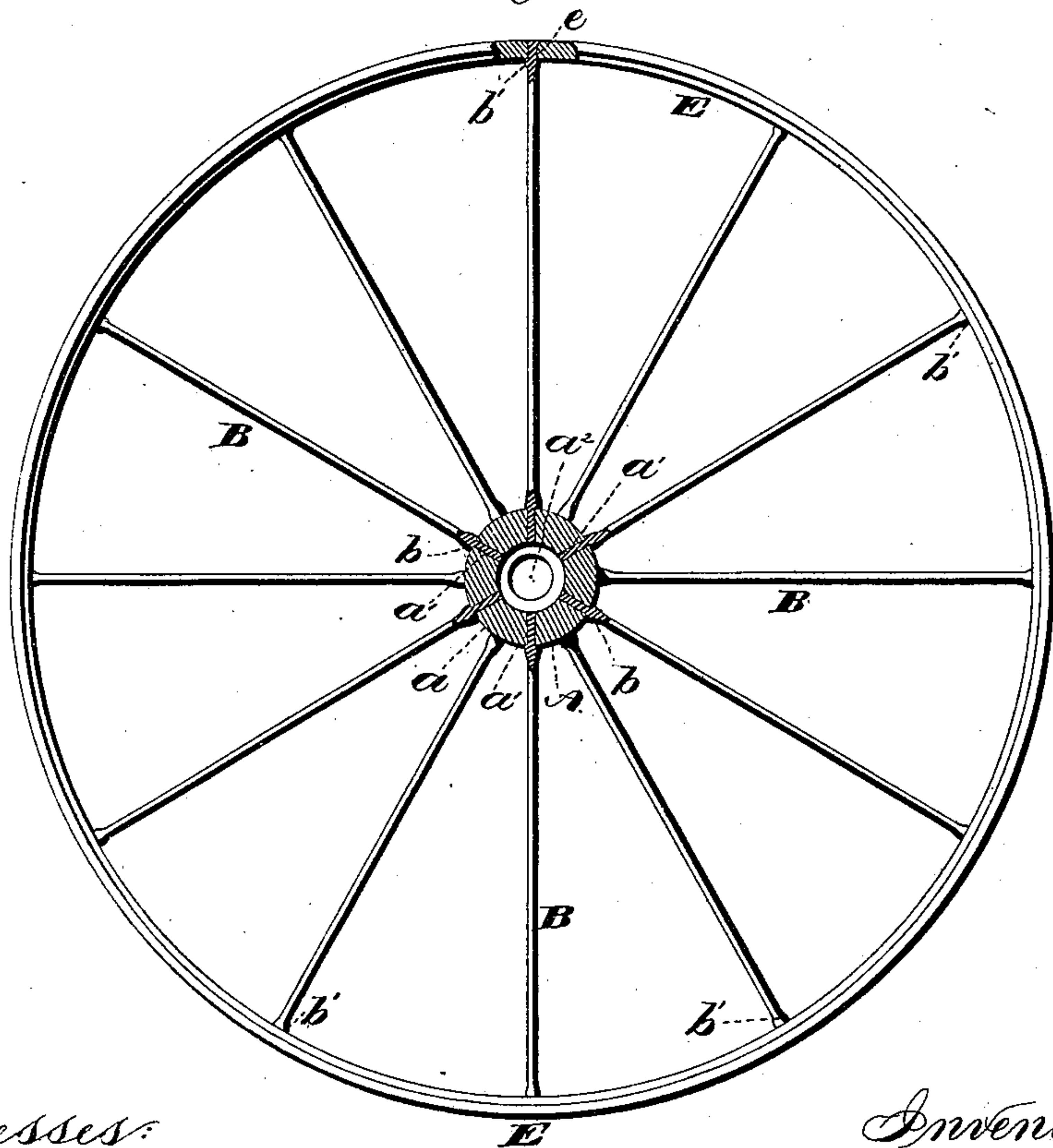


Fig. 4.



Witnesses:
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Henry C. Hazard.

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Jas. R. Little, by
Prindle & Russell, his Attys.

(No Model.)

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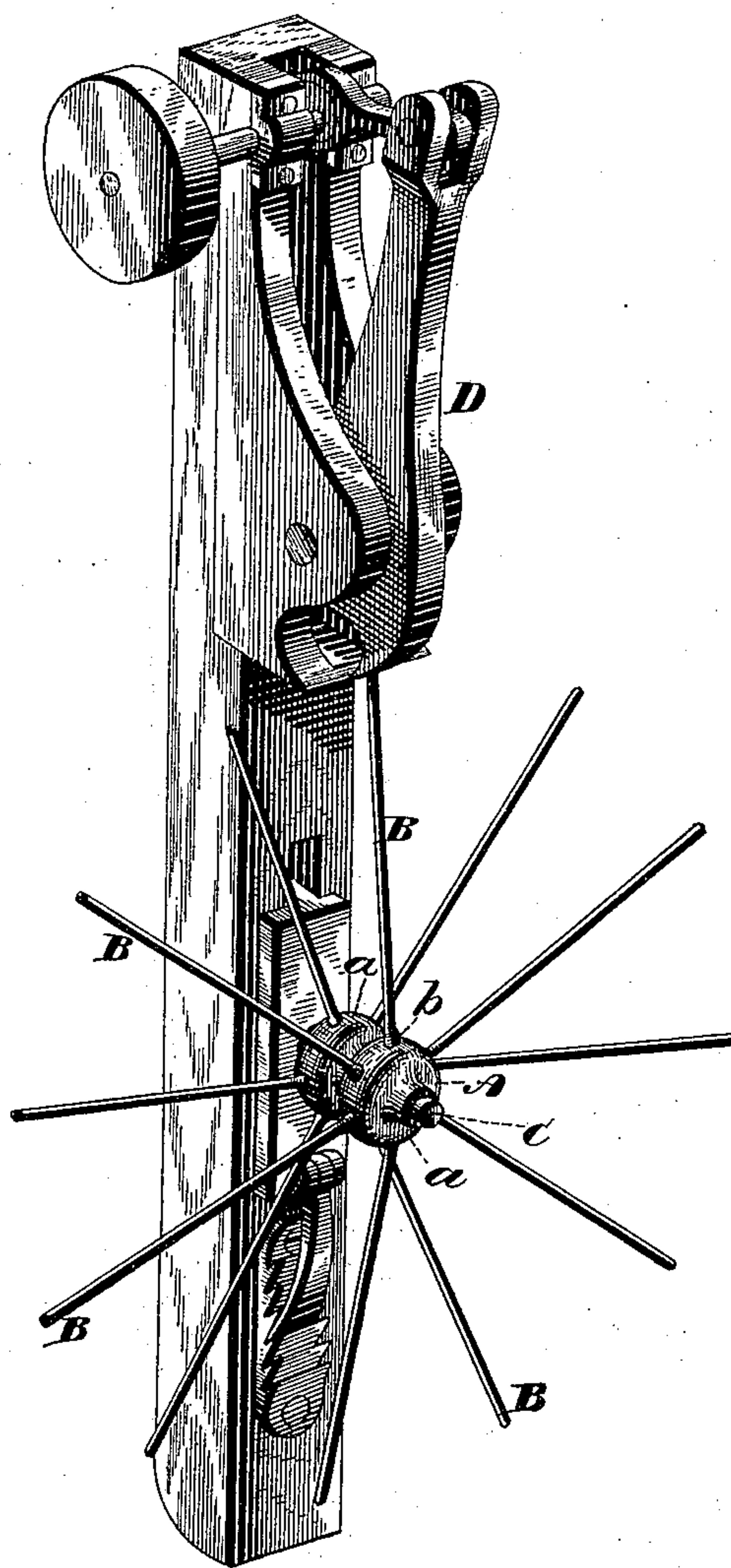
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Fig. 5.



Witnesses:
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(No Model.)

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Fig. 6.

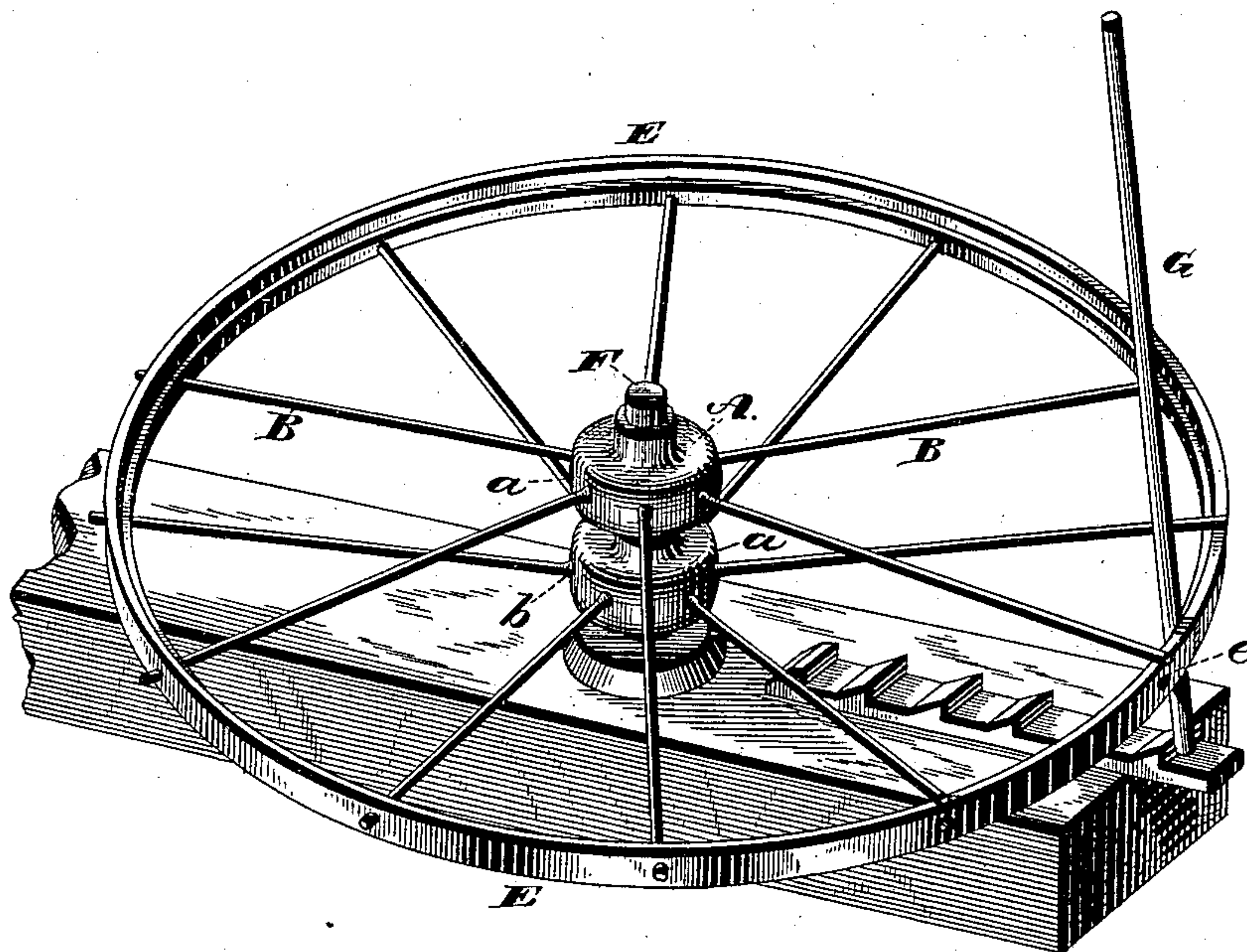
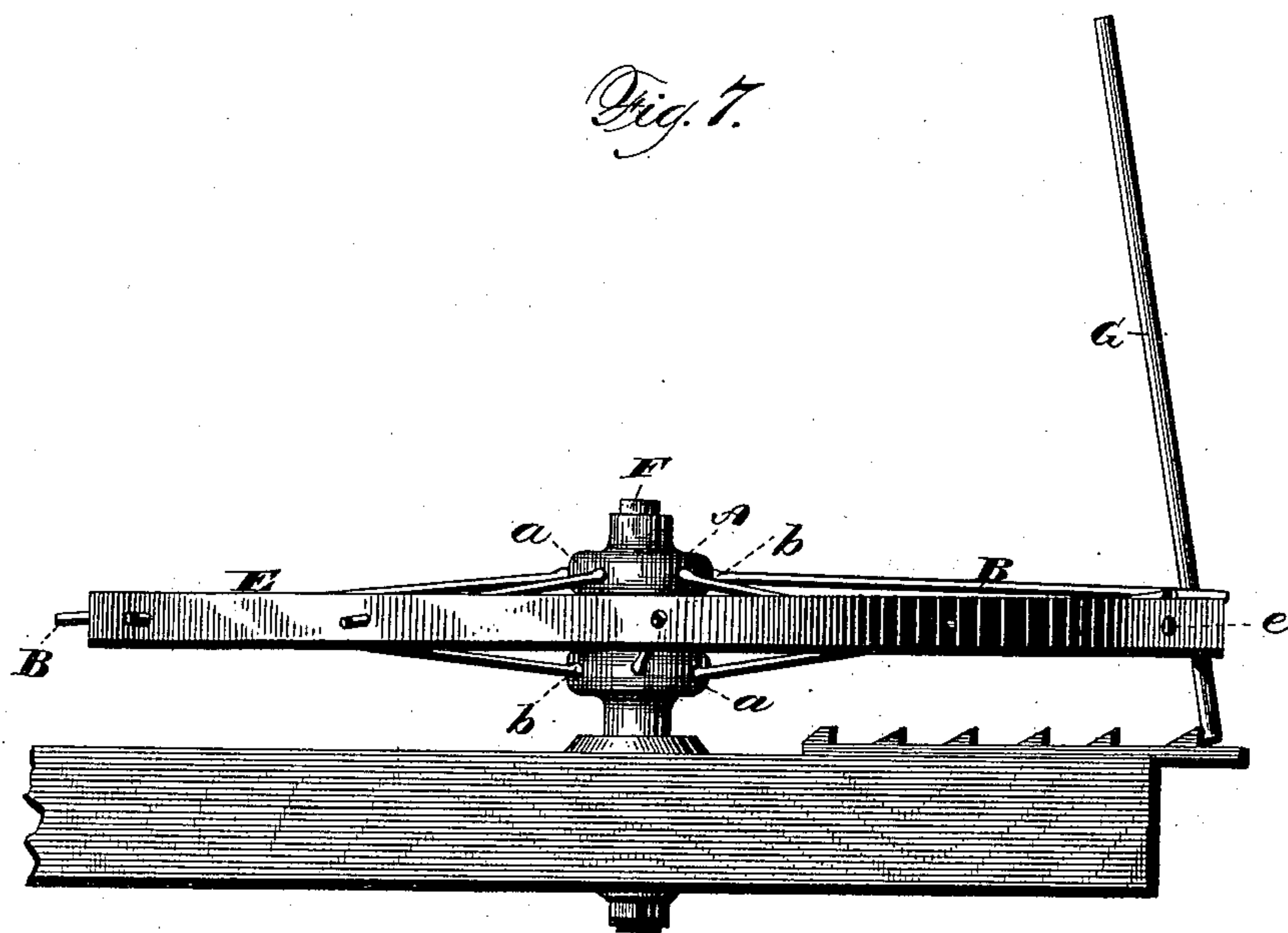


Fig. 7.



Witnesses:

Chas. J. Williamson.

Henry C. Hazard.

Inventor

Jas. R. Little, by

Grindle & Russell, his Attys.

UNITED STATES PATENT OFFICE.

JAMES R. LITTLE, OF QUINCY, ILLINOIS, ASSIGNOR TO THE QUINCY METAL WHEEL COMPANY, OF SAME PLACE.

METHOD OF MAKING METAL WHEELS.

SPECIFICATION forming part of Letters Patent No. 334,253, dated January 12, 1886.

Application filed October 19, 1885. Serial No. 180,332. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. LITTLE, of Quincy, in the county of Adams, and in the State of Illinois, have invented certain Improvements in the Manufacture of Metal Wheels; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of the hub, rim, and one of the spokes of my wheel before being united. Fig. 2 is a like view of the hub and spokes as combined. Fig. 3 is a perspective view of the completed wheel. Fig. 4 is a side elevation of the same, the hub being shown in cross-section and a portion of the rim being broken away to show the form of a spoke at such point. Fig. 5 is a perspective view of the wheel-spider in position for trimming its spokes to length. Fig. 6 is a like view of the spider and rim in position upon the mechanism employed for placing said rim upon the spokes, and Fig. 7 is a side elevation of the same.

Letters of like name and kind refer to similar parts in each of the figures.

My invention relates to the construction of metal wheels in which the rim is welded and made solid before being combined with the spider; and it consists in the method employed for constructing the wheel, substantially as and for the purpose hereinafter specified.

In the carrying of my invention into effect I employ a metal hub, A, which is preferably provided with two parallel circumferential enlargements, a , that increase the thickness at such points, and within which are formed radial mortises a' , that extend from the periphery of said hub into its axial opening a^2 . Said mortises are preferably arranged so that each mortise of a row comes opposite to the space between two mortises of the opposite row, the result sought being the production of a wheel having "staggered spokes."

Within each mortise a' is inserted one end of a metal spoke, B, which is secured in position therein by such longitudinal compression as will cause the part within said mortise to be expanded and caused to closely fill the

same. The longitudinal compression is also preferably caused to expand said spoke outside of said mortise and to form at such point an enlargement, b .

In consequence of the difficulty experienced in giving to each spoke the same longitudinal compression, it is usually found that after a hub, A, and its spokes B have been united the latter will have some differences in length, for which reason I at this point preferably journal said hub upon a bearing, C, which substantially fills its axial opening a^2 , and revolve the spider so as to bring the outer end of each spoke into contact with cutting mechanism D, that has a certain predetermined relation to said bearing C, and operates to cut said spokes successively to the desired length. The wheel-spider is now ready to be combined with the rim E, which is a solid continuous ring of metal, and is provided at suitable equidistant points with radial mortises e , that correspond in number to the number of the spokes B, and have such diameter as to enable the latter to be easily inserted therein. The spider is now placed upon a vertical bearing, F, which substantially fills the axial opening a^2 of the hub A, and the rim E is placed upon said spider and about one-half of its mortises e passed over the ends of the contiguous spokes B, after which, by means of a hand-lever, G, said rim is sprung outward at its intersection with each of the remaining spokes until the end of such spoke may pass within said rim and enter its mortise. The wheel is now completed by compressing the outer portion of each spoke B until it closely fills its mortise e , and, preferably, there is formed upon said spoke, immediately inside of the rim E, an enlargement, b' , that corresponds to the enlargement b near the inner end of said spoke.

By this method of constructing metal wheels perfect uniformity in the diameter of the rims and in the tension of the spokes may be secured and a better and stronger article produced than would otherwise be practicable.

Having thus fully set forth the nature and merits of my invention, what I claim is—

1. The method of constructing a metal wheel which consists, first, in securing the inner

ends of the spokes within a mortised hub, next trimming said spokes to uniform length, next placing upon the outer ends of said spokes a solid mortised rim, and, lastly, expanding said spokes within and causing them to closely fill the rim-mortises, substantially as set forth.

2. The method of constructing a metal wheel which consists, first, in expanding the inner ends of the spokes within and causing the same to closely fill the mortises of a hub, next trimming said spokes to uniform length, next placing upon the outer ends of said spokes a solid mortised rim, and, lastly, expanding said spokes within and causing them to closely fill the mortises of said rim, substantially as shown and described.

3. The method of constructing metal wheels which consists, first, in securing the ends of the spokes within a mortised hub, next trimming said spokes to a uniform length, next placing a solid mortised rim over the outer ends of the contiguous spokes at one side of said hub, and then springing said rim radially outward over the end of each of the remaining spokes, and, lastly, expanding said spokes within and causing the same to closely fill said rim-mortises, substantially as set forth.

4. The method of constructing metal wheels which consists, first, in expanding the inner ends of the spokes within and causing the same to closely fill the mortises of a hub, next trimming said spokes to a uniform length, next placing a solid mortised rim over the outer ends of the contiguous spokes at one side of said hub, and then springing said rim radially outward over the end of each of the remaining spokes, and, lastly, expanding said spokes within and causing the same to closely

fill said rim-mortises, substantially as shown and described.

5. The method of constructing metal wheels which consists, first, in securing the ends of the spokes within a mortised hub, next trimming said spokes to a uniform length, next placing a solid mortised rim over the outer ends of the contiguous spokes at one side of said hub, and then springing said rim radially outward over the end of each of the remaining spokes, and, lastly, securing the latter within said rim by compressing the outer portion of each spoke longitudinally until it closely fills its mortise and is enlarged at each end of the same, substantially as shown.

6. The method of constructing metal wheels which consists, first, in expanding the inner ends of the spokes within and causing the same to closely fill the mortises of a hub, next trimming said spokes to a uniform length, next placing a solid mortised rim over the outer ends of the contiguous spokes at one side of said hub, and then springing said rim radially outward over the end of each of the remaining spokes, and, lastly, securing the latter within said rim by compressing the outer portion of each spoke longitudinally until it closely fills its mortise and is enlarged at each end of the same, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of September, 1885.

JAMES R. LITTLE.

Witnesses:

WM. H. BERRY,
S. A. BLASLAND.