

(No Model.)

J. R. LITTLE.
HUB BLANK FOR METAL WHEELS.

No. 488,125.

Patented Dec. 13, 1892.

Fig. 1.

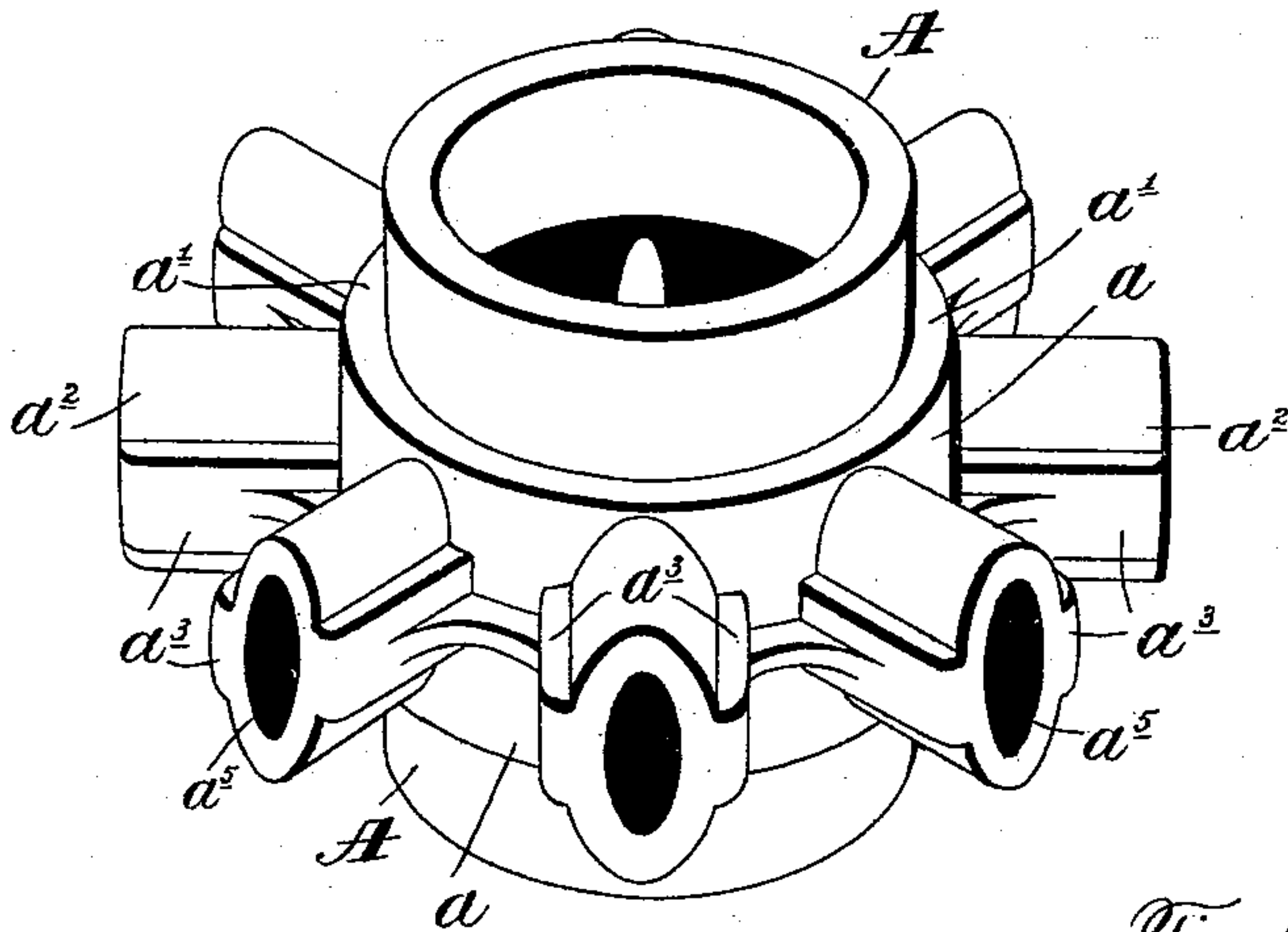


Fig. 3.

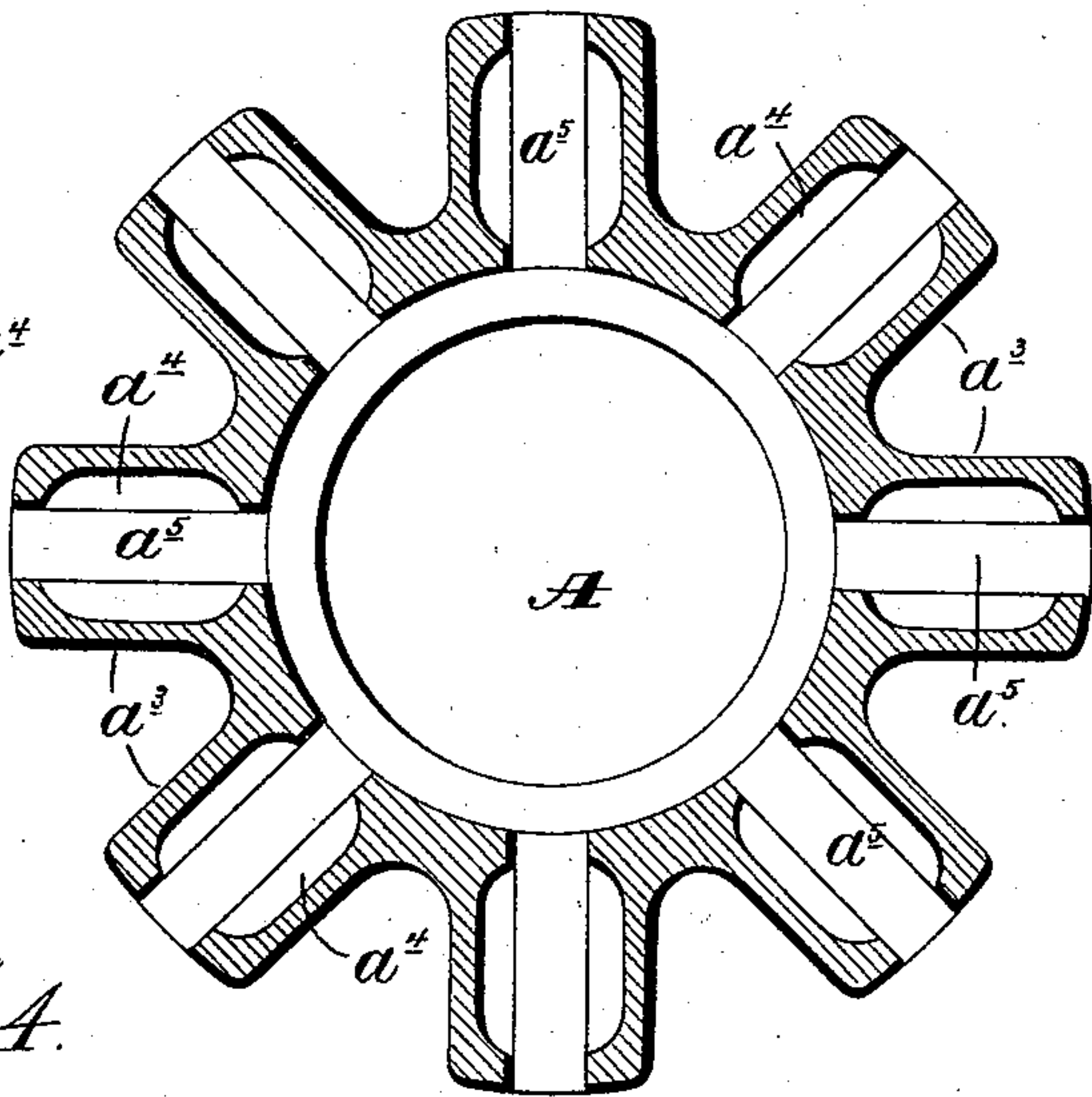


Fig. 2.

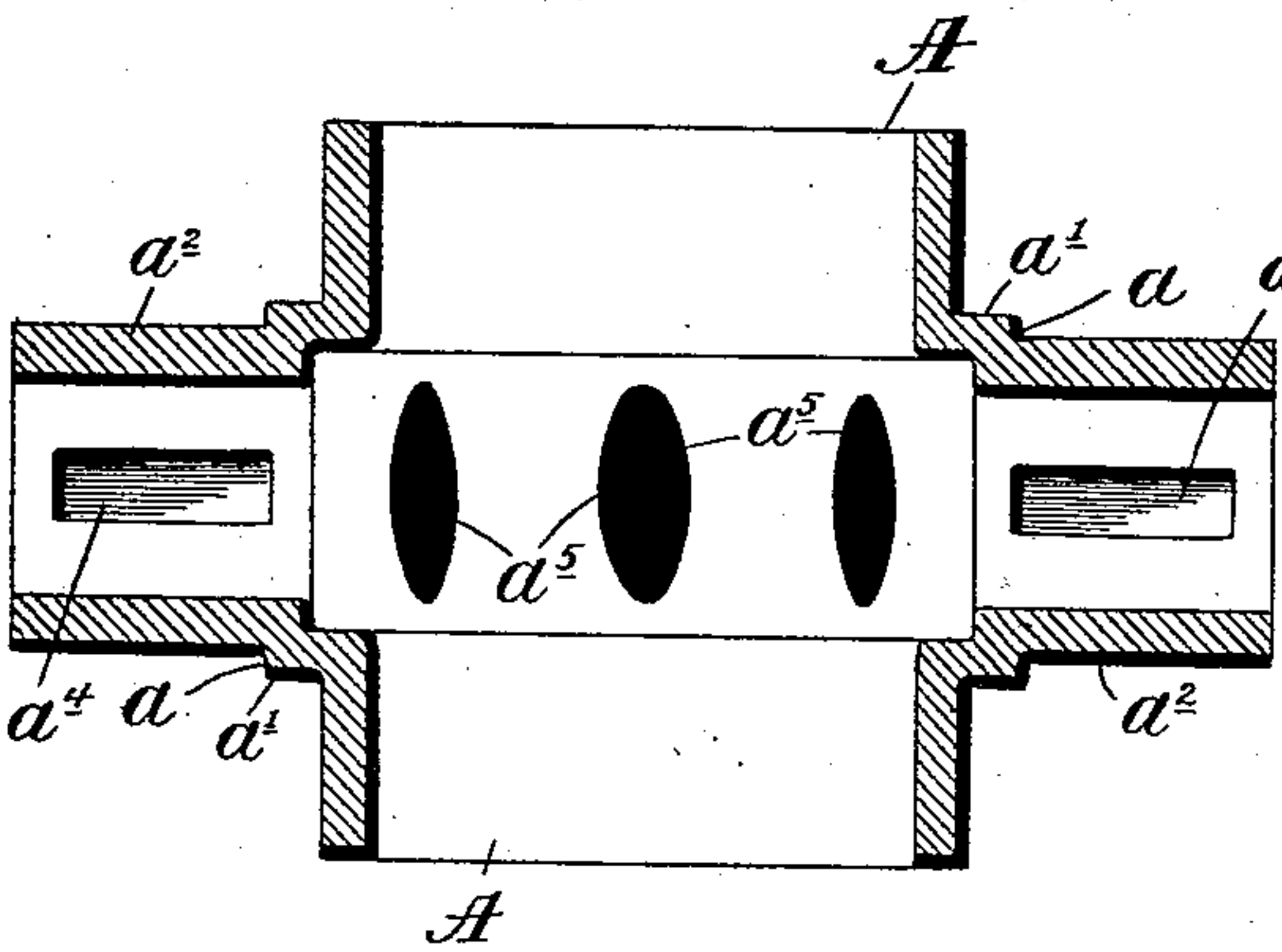
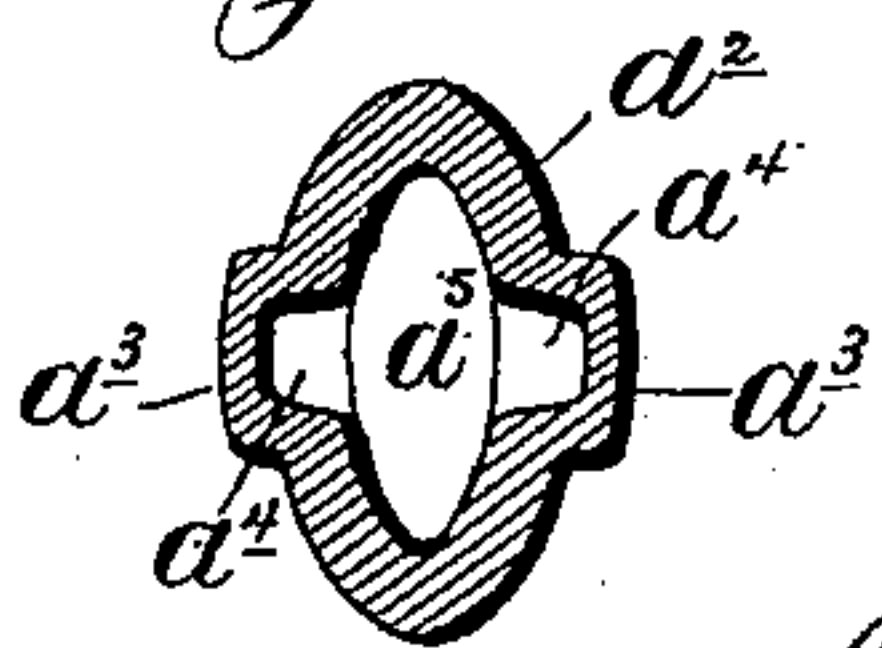


Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES R. LITTLE, OF QUINCY, ILLINOIS.

HUB-BLANK FOR METAL WHEELS.

SPECIFICATION forming part of Letters Patent No. 488,125, dated December 13, 1892.

Application filed February 24, 1892. Serial No. 422,706. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. LITTLE, a citizen of the United States of America, residing at Quincy, in the county of Adams, and in the State of Illinois, have invented certain new and useful Improvements in Hub-Blanks for 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 shows a perspective view of my improved metal-wheel-hub blank with its spoke-receiving bosses; Fig. 2, a view of a longitudinal section of the hub on a plane passing through the axes of two opposite spoke-receiving bosses; Fig. 3, a view of a section of the hub on a plane at right angles to the hub-axis, and Fig. 4 a view of a cross-section of one of the spoke-receiving bosses.

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

The object of my invention has been to provide an improved hub-blank for use in making metal wheels, in which the spokes are secured to the hub by bosses on the latter, which inclose and are compressed around portions of the spokes; and to this end my invention consists in the blank and the parts thereof constructed and arranged as hereinafter specified.

The special purpose which I have had in view in devising the blank has been to produce one which, when used with a two-part compressing die having cavities for the body of the hub and the spoke-receiving bosses, would be most easily compressible to secure the spokes without danger of distortion of the shape of the hub-body and without causing injurious wear on the edges of the cavities, such as would take place where a blank is used without portions for the faces of the die parts adjoining the cavity-edges to abut squarely against.

In the drawings, A designates the body of the hub, which has the two substantially-cylindrical end portions, and between the latter a part a of larger diameter connected with the end portions, so as to leave the abrupt annular shoulders $a' a'$. This shape of hub-body is preferably produced, as indicated, by making an annular offset from the bore of the hub of sufficient depth to bring the inner

wall of the enlargement a outside of the plane of the periphery of the end portions of the hub, so that such wall will be in line between the two parts of a die engaging the shoulders $a' a'$, and the said enlargement will be in position to be compressed longitudinally between the faces of the die parts adjoining the edges of the cavities in the latter which receive the cylindrical end portions of the hub. The spoke-receiving hollow bosses $a^2 a^2$ preferably have their bores, as shown, communicating with the offset in the hub-bore and made elliptical in shape, with the longest diameters parallel with the hub-axis, though I do not limit myself to such construction. On the other side of the bosses are the longitudinal ribs or ridges $a^3 a^3$, situated at opposite ends of planes at right angles to the longer diameters of the bosses, while within are the longitudinally-running offsets $a^4 a^4$ from the boss-bores $a^5 a^5$, coincident with though narrower than the ribs, and preferably of such depth as to bring the inner walls of the ribs or ridges to or outside of the planes of the outer sides of the bodies of the bosses. As shown, these offsets do not extend to but stop short of the ends of the bores $a^5 a^5$.

With a hub-blank constructed and shaped as above specified a die can be used having adjacent to the edges of its cavities abrupt faces to engage the shoulders $a' a'$ on the hub-body and the sides of the ribs or ridges $a^3 a^3$ on the spoke-receiving bosses, so that when pressure is applied to force the parts of the die toward each other the annular enlargement a on the hub-body and the ribs or ridges $a^3 a^3$ on the bosses will be compressed. The result of such compression will, as the inner walls of the enlargement and of the ribs are outside of the walls of the hub and boss bores and substantially in line between the compressing parts of the dies, be a shortening of the hub without danger of distortion of its shape or change in the size of its bore, and a diminishing of the size of the bores in the bosses, such as will cause the spoke ends previously placed in the bosses to be most securely gripped and held by the compression of the bosses and the part a of the hub-body.

My hub-blank is especially well adapted for use with dies intended to secure the compression of all the bosses at one and the same

time, a thing which is greatly advantageous because of the consequent equal compression of the different bosses and avoidance of any danger of unevenness or distortion in the hub and resultant wheel.

By providing the bosses with the ribs or ridges having their sides adapted to overlap the edges of the boss-receiving cavities and be abutted against squarely by plane surfaces on the dies adjoining such edges I make it possible to avoid the injurious wear which would come upon such edges were the latter allowed to slide upon the rounded outer surfaces of the bosses, as they would during the compressing operation were the ribs or ridges absent, while with the offsets a^4 a^4 situated and of the depth as described the compressing power is applied to the bodies of the ribs outside of the peripheries of the main parts of the bosses, and such ribs are easily and equally compressed to diminish their width and draw the portions of the bosses on opposite sides of the ribs together to diminish both the longer and shorter diameters of the spoke receiving and holding bores.

The offsets from the bore of the hubs are advantageous even where they are not of the depth shown and are not situated within projecting ribs or ridges, for they not only make the compression of the spokes easier, but, especially where the spokes are heated before insertion in the bosses, would, as the latter are compressed, receive and engage portions of the spokes forced into them by compression of the spoke end, so that there would be a strong interlocking of boss and spoke.

Having thus described my invention, what I claim is—

1. A blank for metal wheel-hubs, having the body provided with the annular enlargement with shoulders for engagement by the compressing-dies, spoke-receiving sockets on such enlargement to receive and be compressed upon the spoke ends, and the annular offset from the bore within the hub-body, substantially as and for the purpose described.

2. A blank for metal wheel-hubs, having the body provided with the annular enlargement having shoulders to be engaged by the compressing-dies and the spoke-receiving hollow bosses projecting out from the annular enlargement to be compressed upon the spoke ends, and an offset within the hub to bring the inner face of the main part of the enlargement to or outside of the plane of the outer pe-

riphery of the hub-body, substantially as and for the purpose specified.

3. A blank for metal wheel-hubs, having the body and the spoke-receiving hollow bosses to be compressed upon the ends of the spokes, each having the ribs or ridges on opposite sides to be engaged and compressed by the dies, and the offsets from its bore situated within the ribs or ridges, substantially as and for the purpose set forth.

4. A blank for metal wheel-hubs, having the body and the spoke-receiving hollow bosses to be compressed upon the ends of the spokes, each provided with the longitudinal ribs with sides to be engaged by the faces of the compressing-dies, and the offset from the bore of the boss of such depth as to bring the inner sides of the ribs or ridges substantially to or outside of the outer periphery of the body of the boss, substantially as and for the purpose described.

5. A blank for metal wheel-hubs, having the hollow spoke-receiving bosses to be compressed upon portions of the spokes provided within with one or more longitudinally-extending grooves, forming offsets from their bores, substantially as and for the purpose specified.

6. A blank for metal wheel-hubs, having the spoke-receiving hollow bosses to be compressed upon portions of the spokes provided with projecting longitudinal ribs or ridges on their outer sides to be engaged by abrupt faces on the boss-compressing dies adjoining the edges of the boss-receiving cavities, substantially as and for the purpose shown.

7. A blank for metal wheel-hubs, having the body provided with an annular enlargement within which is an annular offset from the hub-bore and the spoke-receiving hollow bosses to receive and be compressed upon the ends of the spokes situated on the annular enlargement of the hub-body and each provided with ribs or ridges to overlap the edges of the boss-receiving cavities in the compressing-dies, and an offset from its bore on the inner side of each rib or ridge, substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of February, A. D. 1892.

JAMES R. LITTLE.

Witnesses:

JOSEPH N. CARTER,
S. DEIDESHEIMER.