

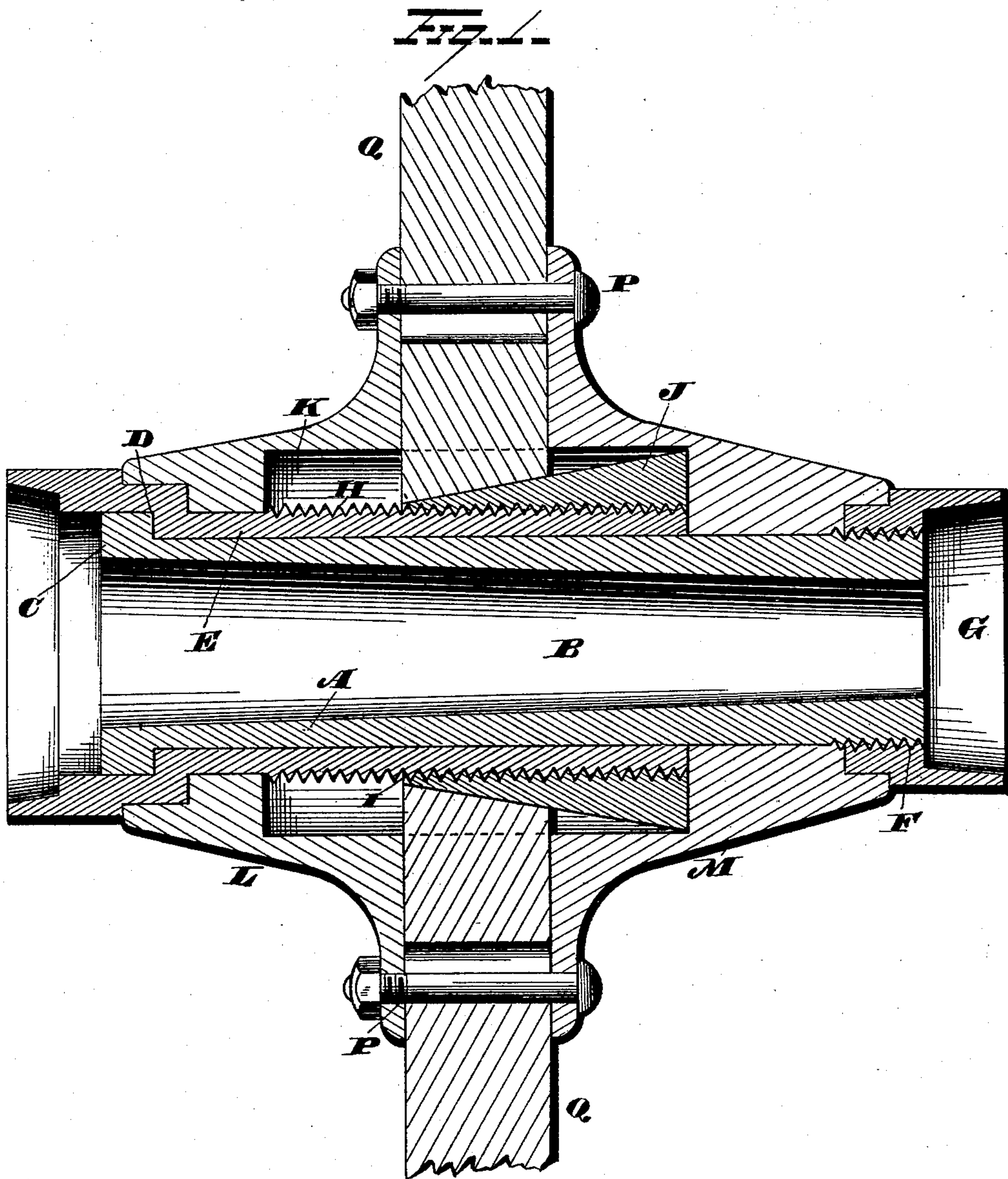
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6 Sheets—Sheet 1.

A. E. MILTIMORE & A. J. WOLFF.
WHEEL.

No. 280,063.

Patented June 26, 1883.



WITNESSES
E. J. Nottingham
Geo. W. Seymour

INVENTORS
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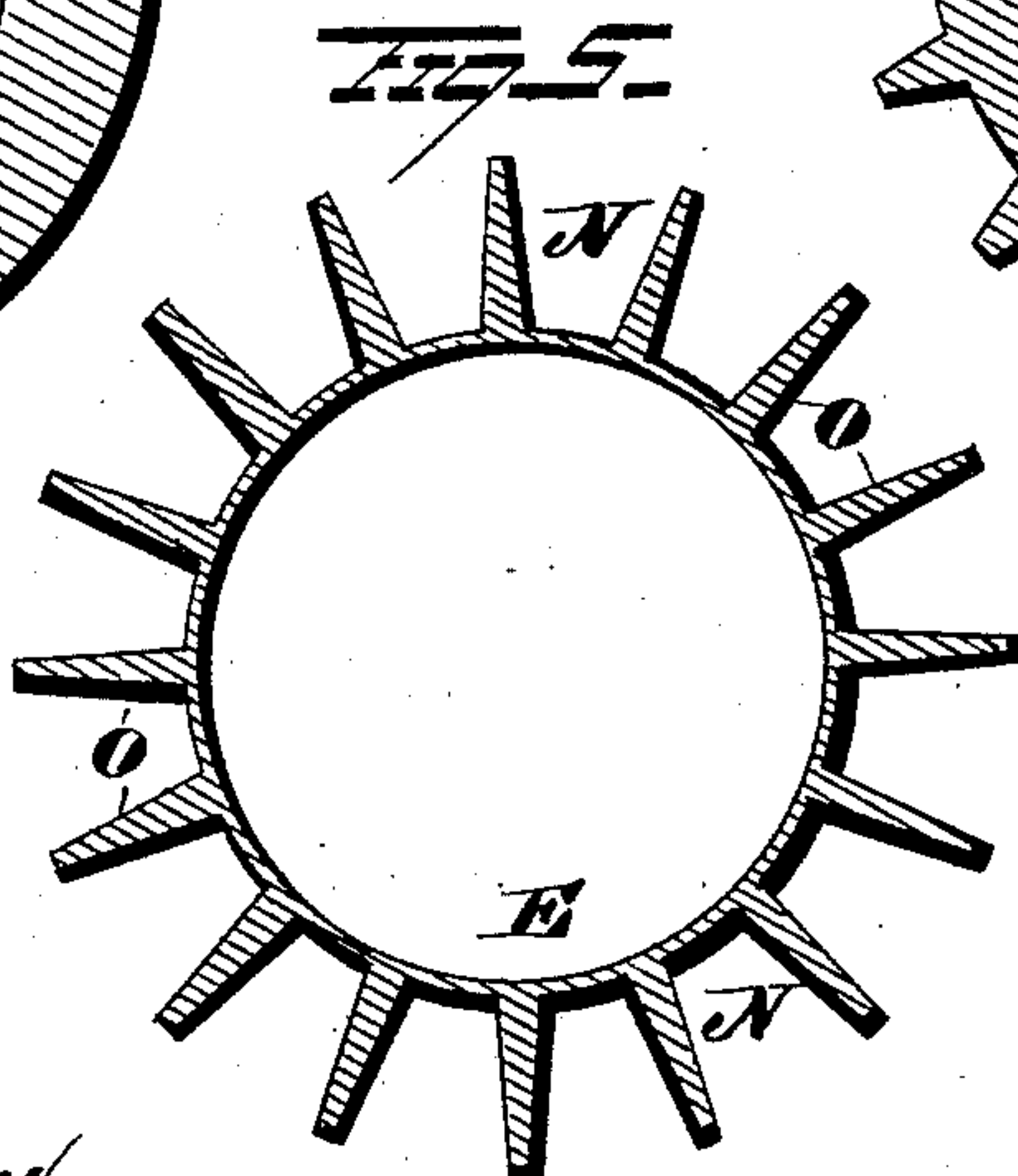
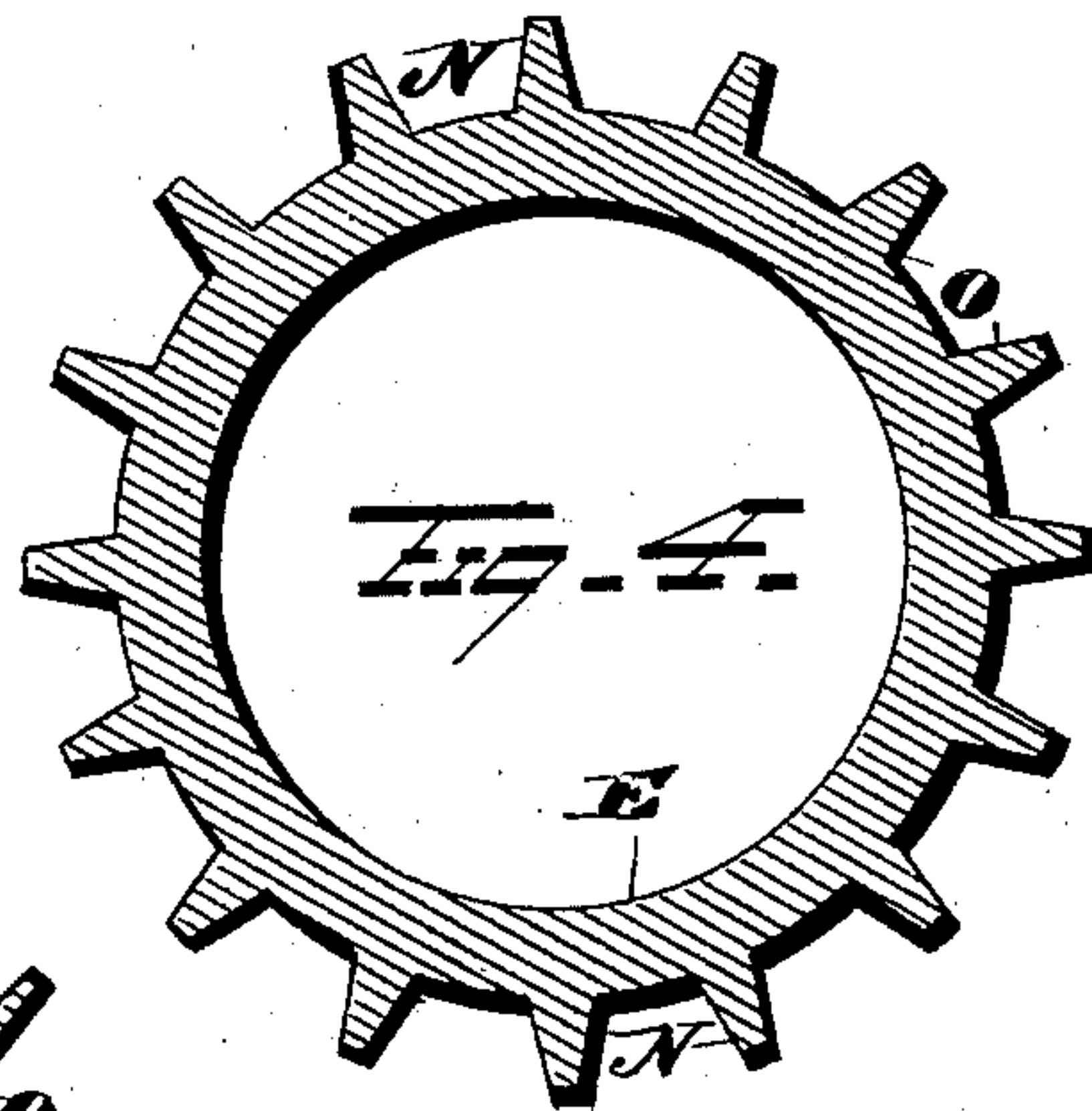
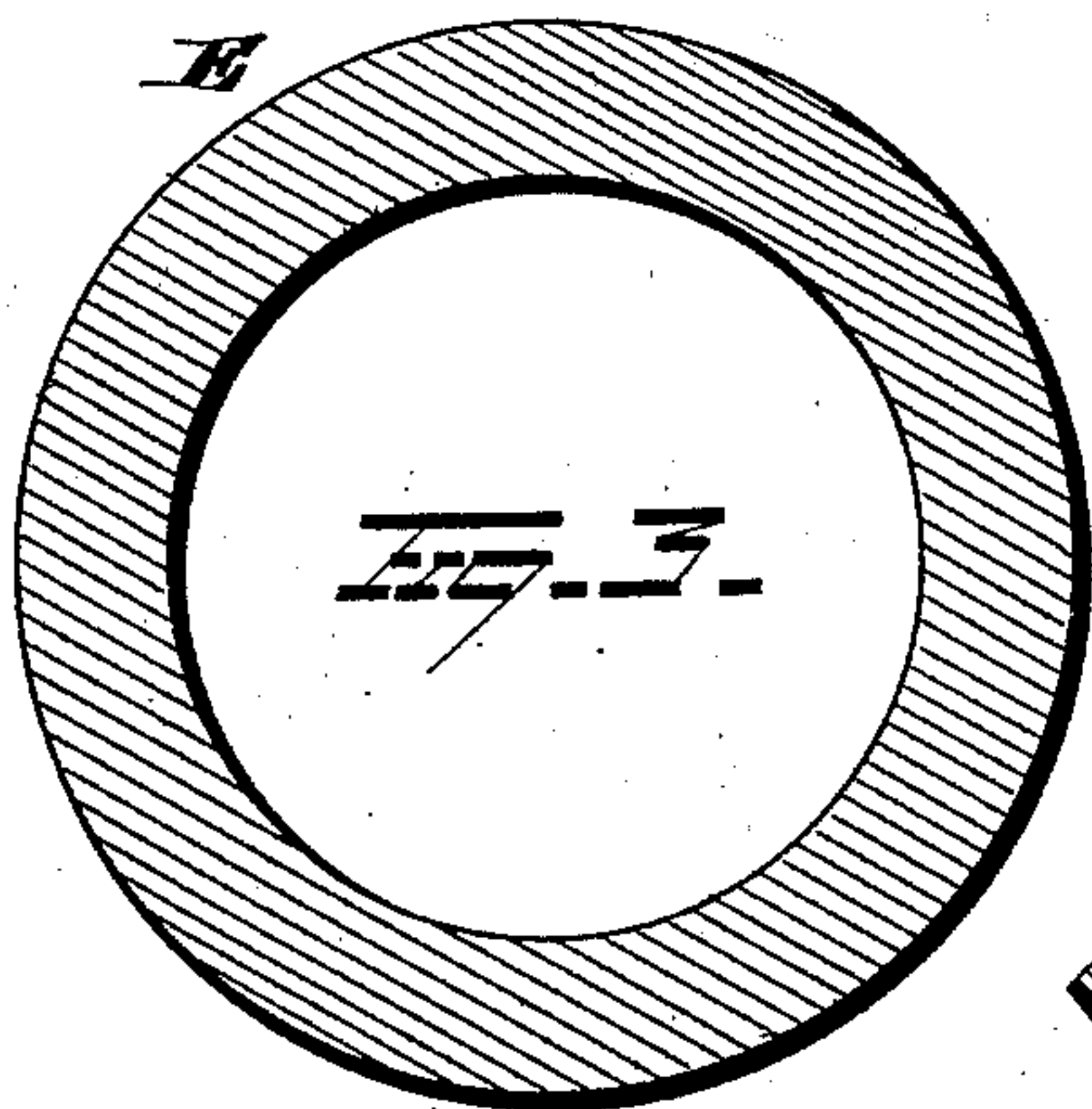
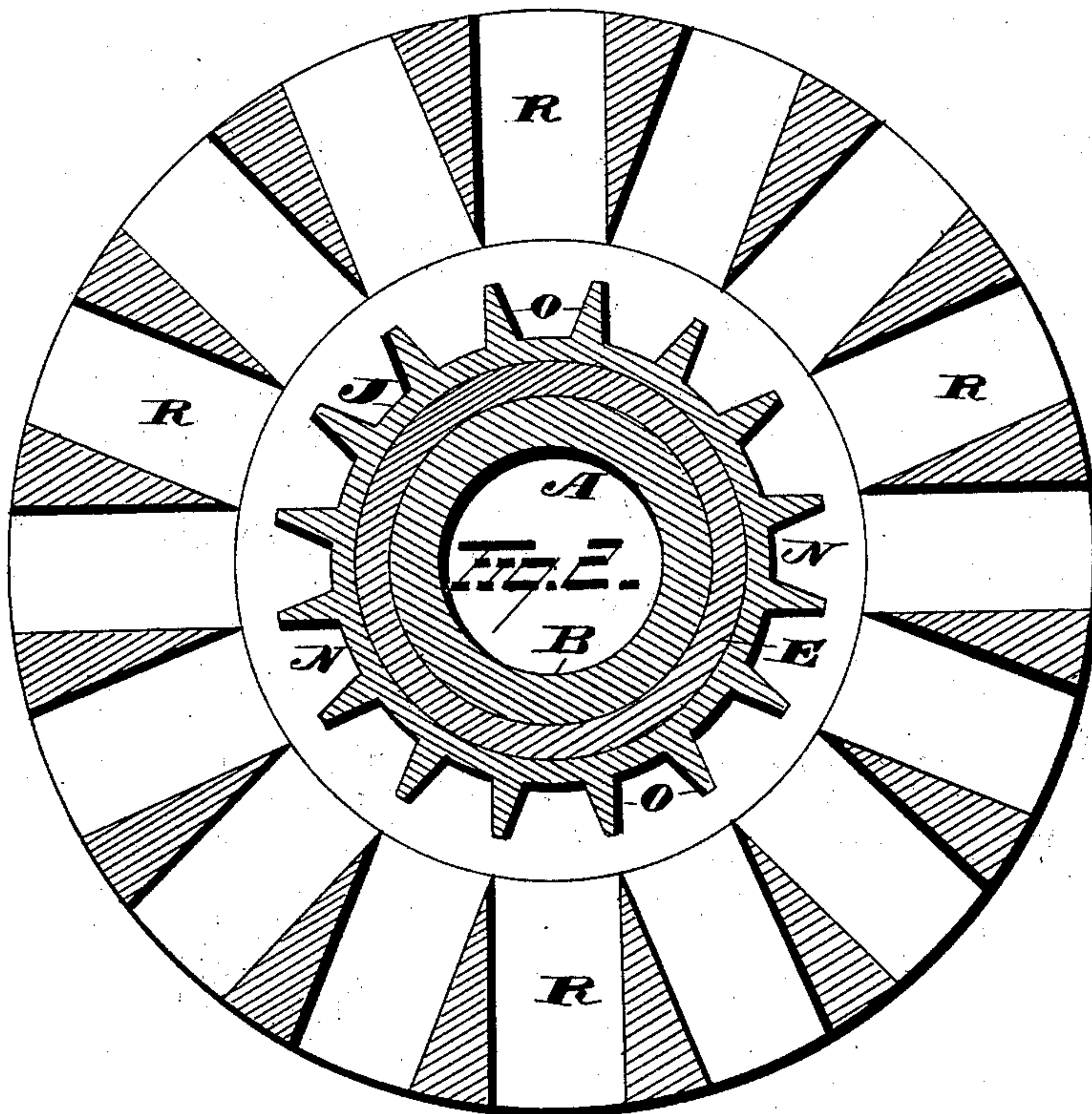
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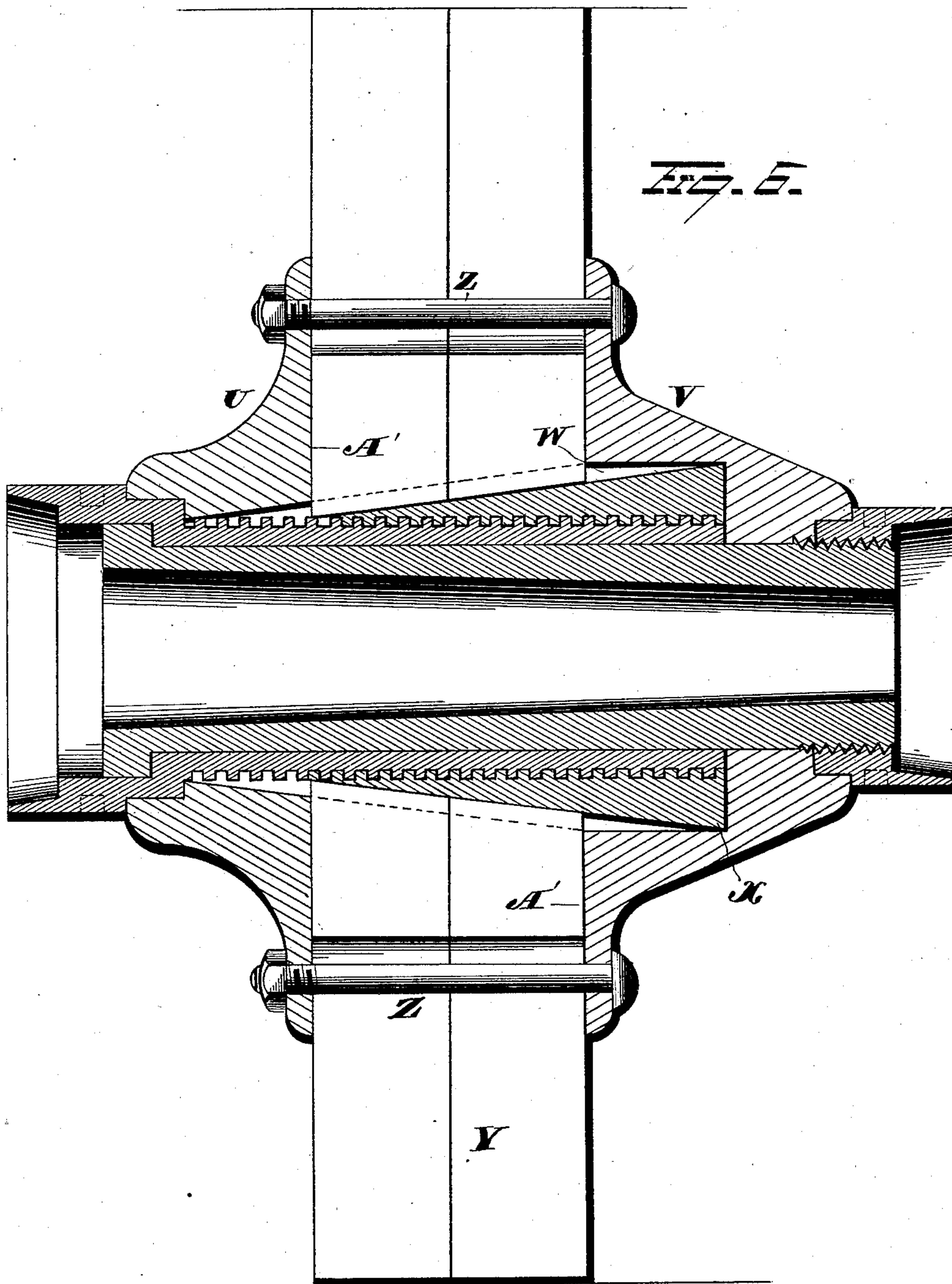
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A. E. MILTIMORE & A. J. WOLFF.
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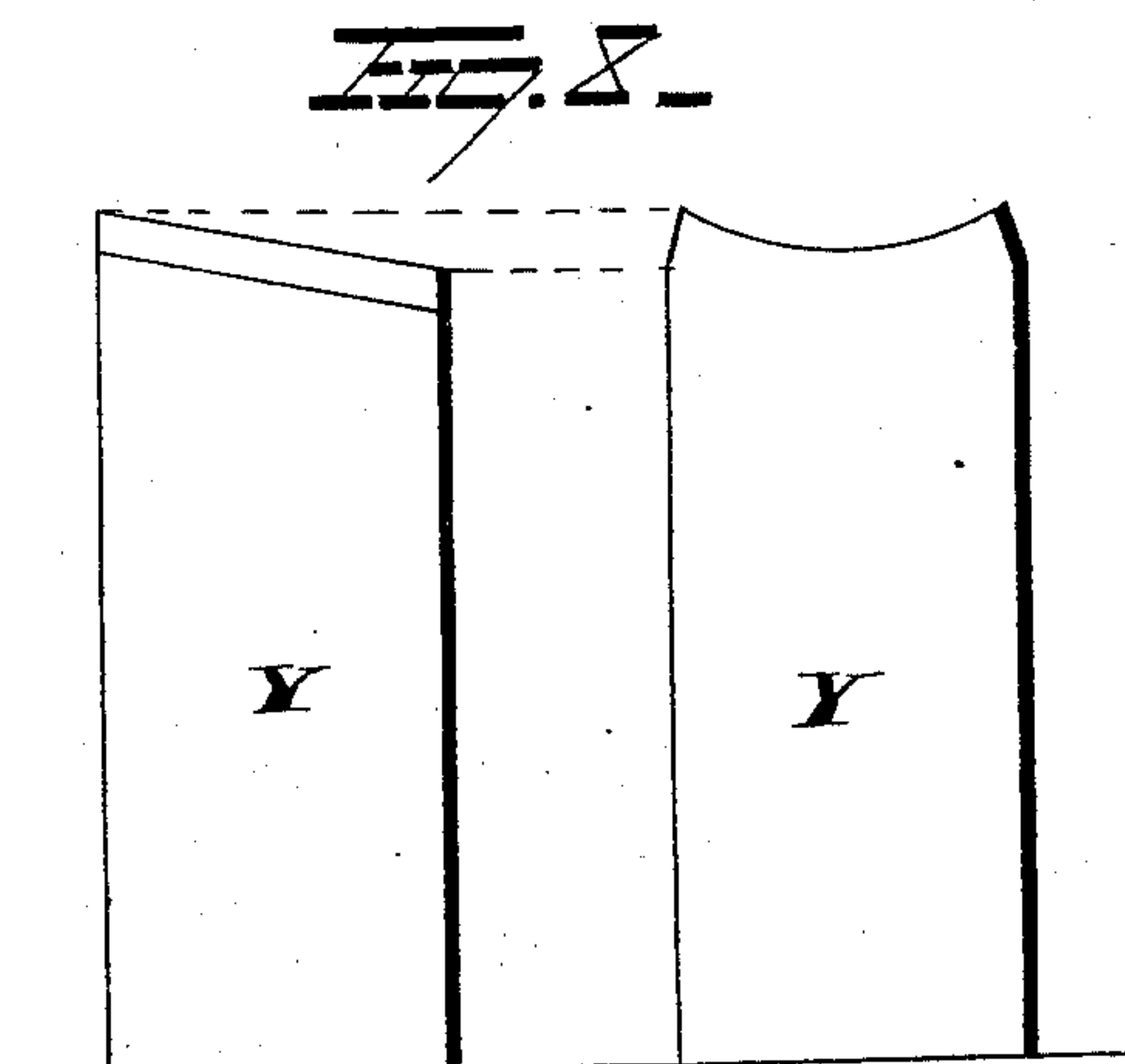
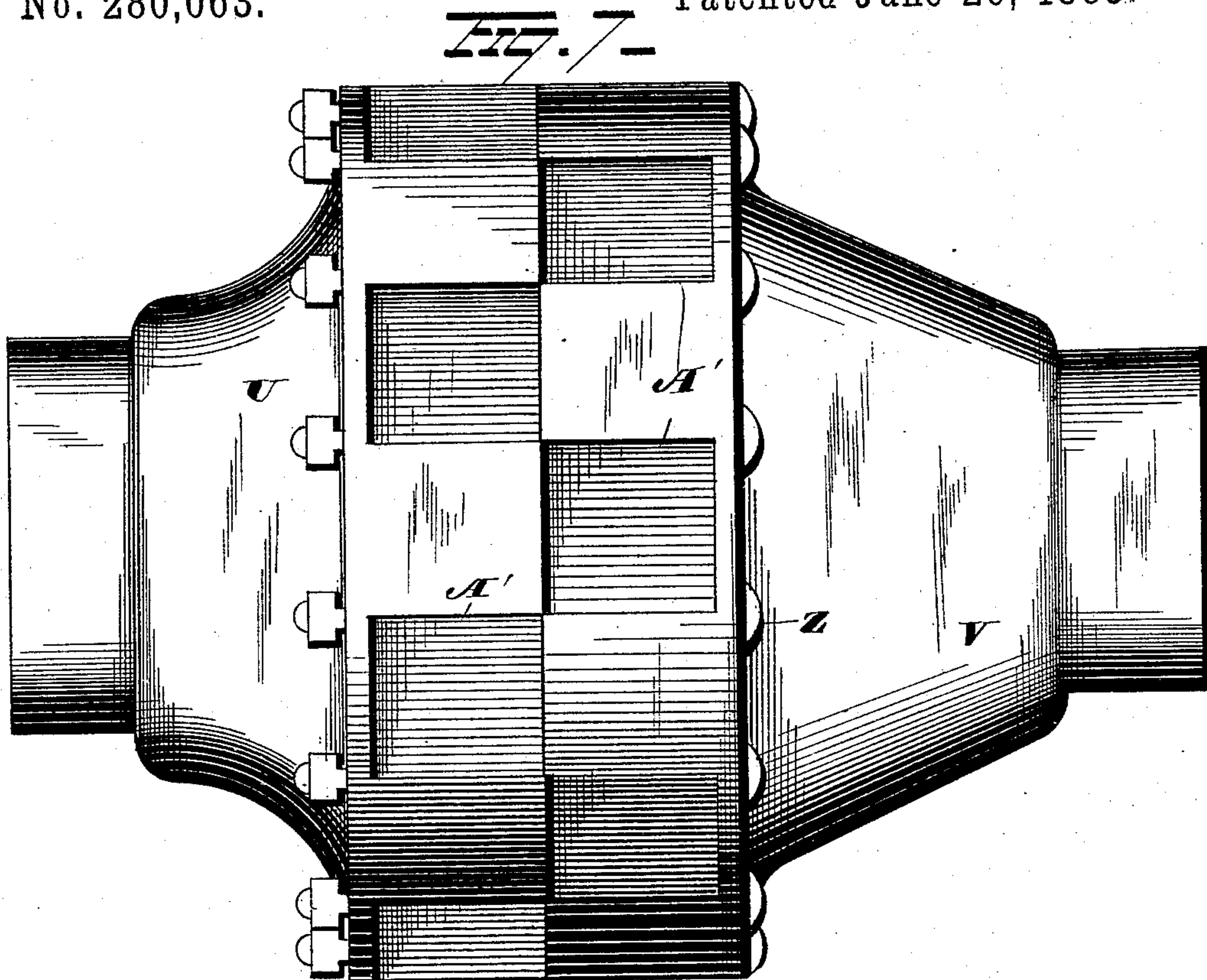
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A. E. MILTIMORE & A. J. WOLFF.
WHEEL.

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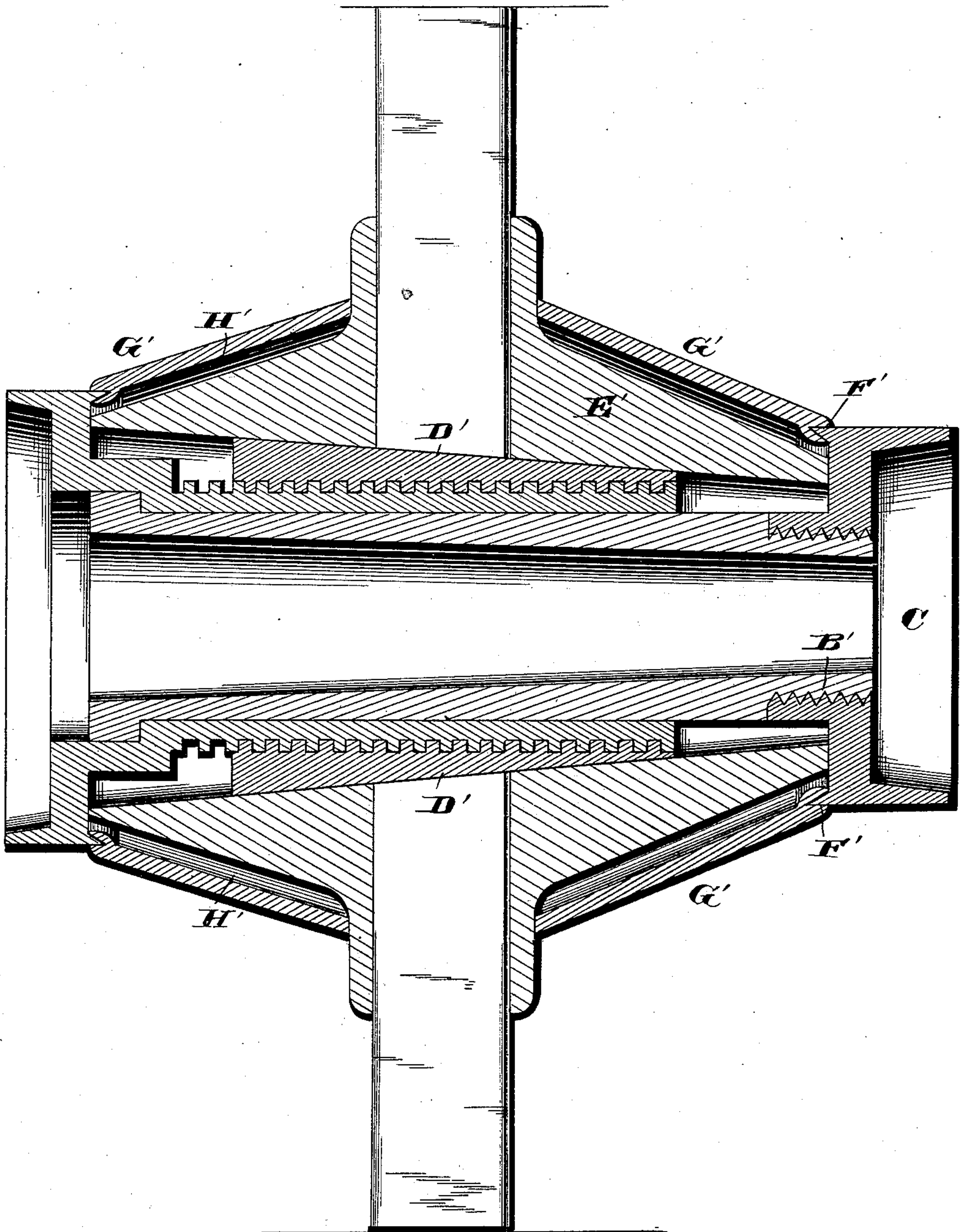
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Fig. 5.



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6 Sheets—Sheet 6.

A. E. MILTIMORE & A. J. WOLFF.
WHEEL.

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Patented June 26, 1883.

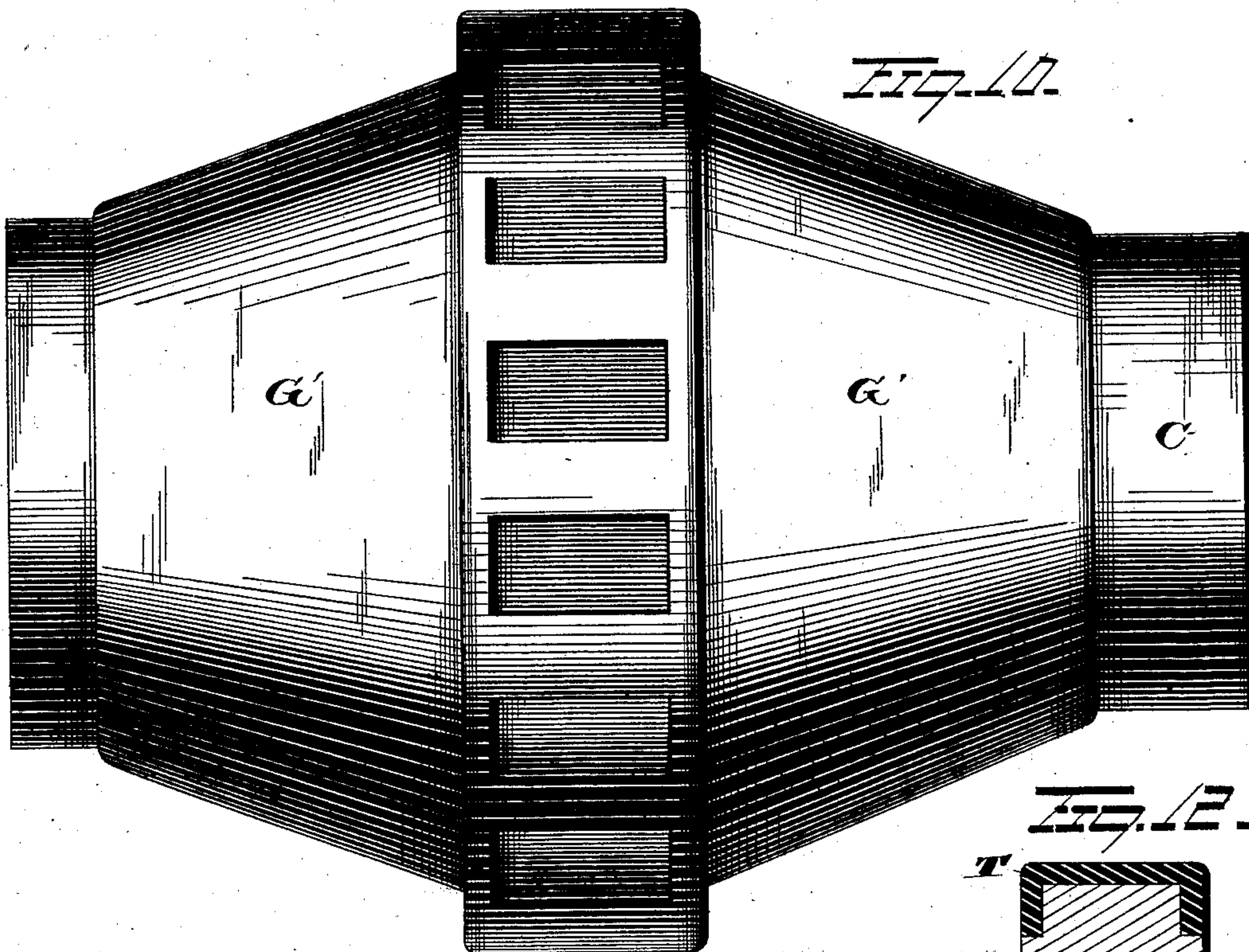
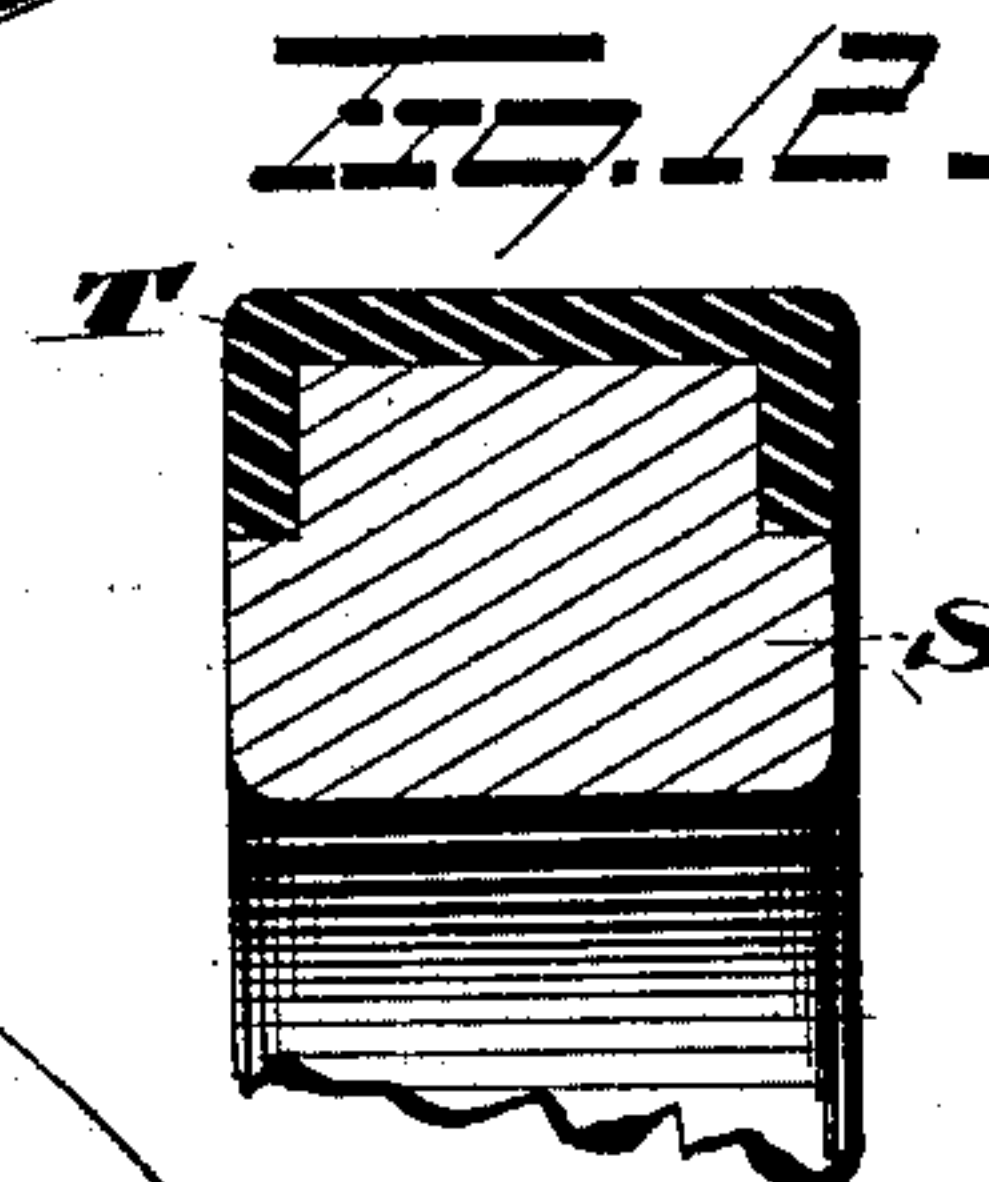
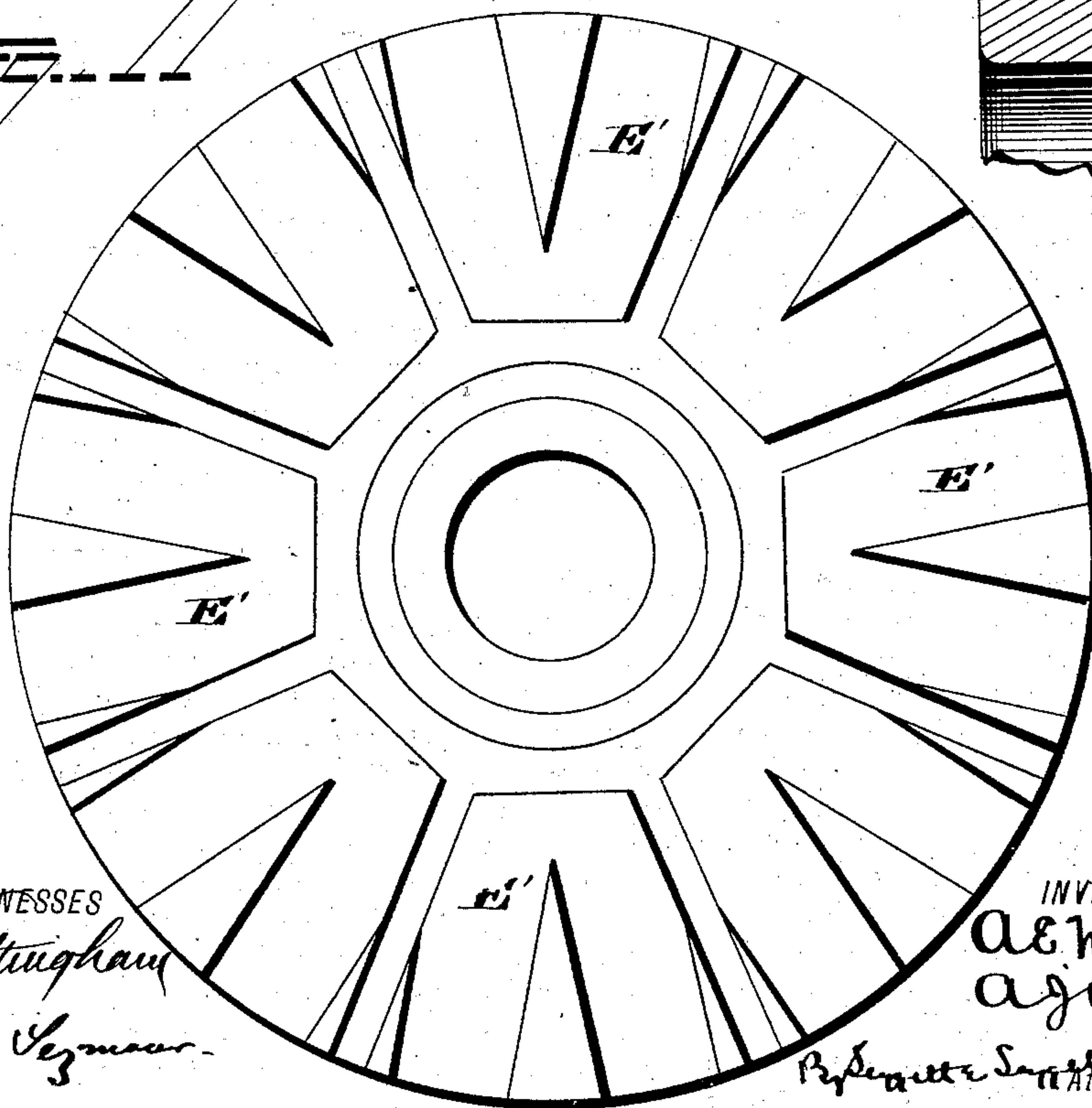


FIG. 11



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UNITED STATES PATENT OFFICE.

ALONZO E. MILTIMORE, OF THE UNITED STATES ARMY, AND ARTHUR J. WOLFF, OF NEW YORK, N. Y.

WHEEL.

SPECIFICATION forming part of Letters Patent No. 280,063, dated June 26, 1883.

Application filed November 7, 1882. (No model.)

To all whom it may concern:

Be it known that we, ALONZO E. MILTIMORE, of the United States Army, and ARTHUR J. WOLFF, of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Wheels; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

Our invention relates to an improvement in wheels, and more particularly to that class thereof which are provided with sectional naves embodying adjustable devices arranged to enlarge or contract the circles in which the inner and the outer ends of the spokes are located, the object of the invention being to produce a wheel adapted to be readily dismantled and to be adjusted to compensate for wear and for the changes resulting from the influences of the weather.

A further object of our invention is to produce a wheel of the character designated which shall combine simplicity and cheapness of construction with durability and efficiency in use.

With these objects in view, our invention consists in certain details of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in longitudinal section of a wheel-nave embodying our invention. Fig. 2 is a view thereof in transverse section. Figs. 3, 4, and 5 are views in cross-section of the annular wedge, said views being taken, respectively, through the outer end, the center, and the inner end thereof. Fig. 6 is a view in longitudinal section of another form of nave embodying our invention. Fig. 7 is a plan view thereof. Fig. 8 is a view showing the manner of beveling and concaving the inner ends of the spokes for this form of nave. Fig. 9 is a view in longitudinal section of still another form of nave embodying our invention. Fig. 10 is a plan view thereof. Fig. 11 is a view in cross-section, showing the mode of group-

ing the sections of the nave around the wedge which operates them; and Fig. 12 is a view in section, showing the form of felly and flanged tire which we prefer to employ in wheels provided with our improved naves.

The principle of construction upon which our improved wheel is based consists in providing the nave with devices adapted to be adjusted to enlarge or contract the circles in which the inner and outer ends of the spokes are located.

In Fig. 1 of the drawings, which represents one construction embodying the principle above stated, A is an axle-box, the same being cylindrical in general contour and traversed by a tapering aperture, B, conforming to the shape of the spindle of the axle. The inner end of said box is provided with a flange, C, against which the shoulder D of the adjusting-sleeve E abuts, the projecting inner end of the said sleeve constituting the inner sand-box. The outer end of the axle-box is screw-threaded, as shown at F, for the attachment of the outer sand-box, G. Screw-threads H, encircling the central portion of the outer face of the said adjusting-sleeve, are adapted to interlock with suitable screw-threads, I, formed on the inner face of the annular wedge J, which is located in a chamber, K, formed by appropriately recessing the sections L and M of the nave. The outer face of the said wedge is divided into a number of compartments, respectively designed to receive the beveled inner ends of the spokes by a series of longitudinal grooves, N, the same being isolated from each other by walls O, and increasing in width and depth from the outer toward the inner end of the wedge, the deeper portions of the said grooves being adjacent to the inner portion of the nave. The abutting inner faces of the nave-sections L and M, which are clamped together by bolts P, are encircled by a series of radially-disposed recesses, R, which register with each other and form the mortises or sockets which receive the inner ends of the spokes Q, the outer ends of which terminate in a felly, S, encircled by a flanged tire, T, as shown in Fig. 12 of the drawings. The said felly may or may not be sectional, and it may or may not be provided with devices to compensate

sate for expansions and contractions occurring in it. The outer end of section L of the nave is interlocked with the adjusting-sleeve C, and thereby secured against displacement, while the outer end of the section M is arranged to abut against the sand-box G, which fulfills in this connection the twofold function of holding the section in place and of imparting rigidity to the nave by forcing the section against the opposite nave-section and spokes. The enlargement of the circles in which the inner and outer ends of the spokes are located is effected by turning the adjusting-sleeve in such manner as to cause the wedge to move toward the inner end of the chamber K, the spokes being lifted by the inclined grooves of the wedge. On the other hand, when it is desired to contract the circles aforesaid, the adjusting-sleeve is properly turned to cause the wedge to move toward the outer end of the said chamber K, thus permitting the spokes to fall toward the center of the nave. In effecting the above adjustments the sleeve E is turned by means of a wrench or spanner, which is applied to its projecting inner end.

Figs. 6, 7, and 8 of the drawings represent another form of nave embodying our invention, showing an arrangement for dodging the spokes, which we consider an important feature in naves of this character. The axle-box, adjusting-sleeve, and sand-boxes shown in these figures of the drawings are the same in construction as those already described, and need not be further referred to. The inner nave-section, U, and the outer section, V, are appropriately cut away to form the chamber W, in which the annular wedge X is located, the same being conical in general contour, and having a smooth outer face. The said wedge is laterally reciprocated in the chamber W to raise or lower the spokes Y, the ends of which are beveled and concaved by means of the adjusting-sleeve, which is operated by a wrench or spanner applied to the projecting inner edge of the sleeve. The sections U and V, which are secured together by bolts Z, are provided with a series of recesses, A', respectively adapted to receive a spoke and isolated from each other by spaces equal to their own width, the sections being relatively arranged so that the recesses of one section will be opposed to the spaces between the recesses of the other section.

Figs. 9, 10, and 11 are views of still another form of nave embodying our invention. The axle-box and adjusting-sleeve of this nave are substantially the same as those shown in the other figures of the drawings, being different from them only in that the outer end of the box is provided with a screw-threaded shoulder, B', to receive the outer sand-box, C'.

D' is a conical wedge, the same being provided on its inner face with screw-threads interlocking with the screw-threaded outer face of the adjusting-sleeve. The nave is composed of longitudinal sections E', which are grouped around the wedge D', by which they are sepa-

rated to enlarge the circle in which the inner and outer ends of the spokes are located or allowed to fall together to contract the said circles. The said sections E' are retained in place and the limit of their separation by the wedge defined by flanges F', formed on the inner faces of the sand-boxes, the said flanges also serving to support the casing G', which incloses the nave, and prevents dust and dirt from entering the openings between the nave-sections when they are separated. The casing G' is arranged to form an annular chamber, H, between its inner face and the outer faces of the nave-sections, to permit the latter to be operated by the wedge.

The outer ends of the spokes of the modified constructions are preferably arranged to terminate in felloes inclosed by a flanged tire.

It is apparent that the leading features of our invention are susceptible of considerable variation, and that they may be embodied in naves differing in construction and applicable to different types of wheels. We would therefore have it understood that we do not limit ourselves to the arrangement and construction of parts herein shown; but we hold ourselves at liberty to make such changes and alterations as fairly fall within the spirit and scope of our invention.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with an axle-box, and a sleeve encircling the axle-box and extending outwardly to form a sand-box on the inner end of the axle-box, said sleeve being screw-threaded on its outer surface, of an annular wedge encircling the sleeve and screw-threaded on its inner surface, so as to be adjusted by turning the sleeve, and spokes resting on the outer surface of the annular wedge, substantially as set forth.

2. The combination, with an axle-box, a sleeve encircling the axle-box, said sleeve being screw-threaded on its outer surface, and a nave provided with a recess, of an annular wedge screw-threaded to fit the sleeve and located within the recess formed in the nave, substantially as set forth.

3. The combination, with an axle-box and a sleeve encircling the axle-box, and constructed to extend beyond the axle-box and screw-threaded on its outer surface, of an annular screw-threaded wedge arranged to engage with the sleeve and to be operated thereby, and spokes resting on the outer surface of the annular wedge, substantially as set forth.

4. The combination, with a nave having a recess formed in its interior portion, an axle-box, and a sleeve encircling the axle-box, said sleeve being screw-threaded on its outer surface, of an annular wedge constructed to extend outside of the axle-box and nave, said annular wedge being screw-threaded on its inner surface and adapted to engage with the sleeve and be reciprocated thereby, and also

provided with recesses for the inner ends of the wheel-spokes, substantially as set forth.

5 The combination, with an axle-box provided with a shoulder on its inner end, and a screw-threaded sleeve encircling the axle-box, and provided with a shoulder fitting against the axle-box shoulder and for retaining one end of the nave against displacement, of an annular wedge screw-threaded on its inner surface, and adapted to be adjusted by turning the sleeve, substantially as set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 11th day of October, 1882.

ALONZO E. MILTIMORE.
ARTHUR J. WOLFF.

Witnesses:

CARL BOCK,
A. GUSTAIN.