

No. 661,384.

Patented Nov. 6, 1900.

W. H. PRENDERGAST.
METALLIC PACKING.

(Application filed Jan. 19, 1900.)

(No Model.)

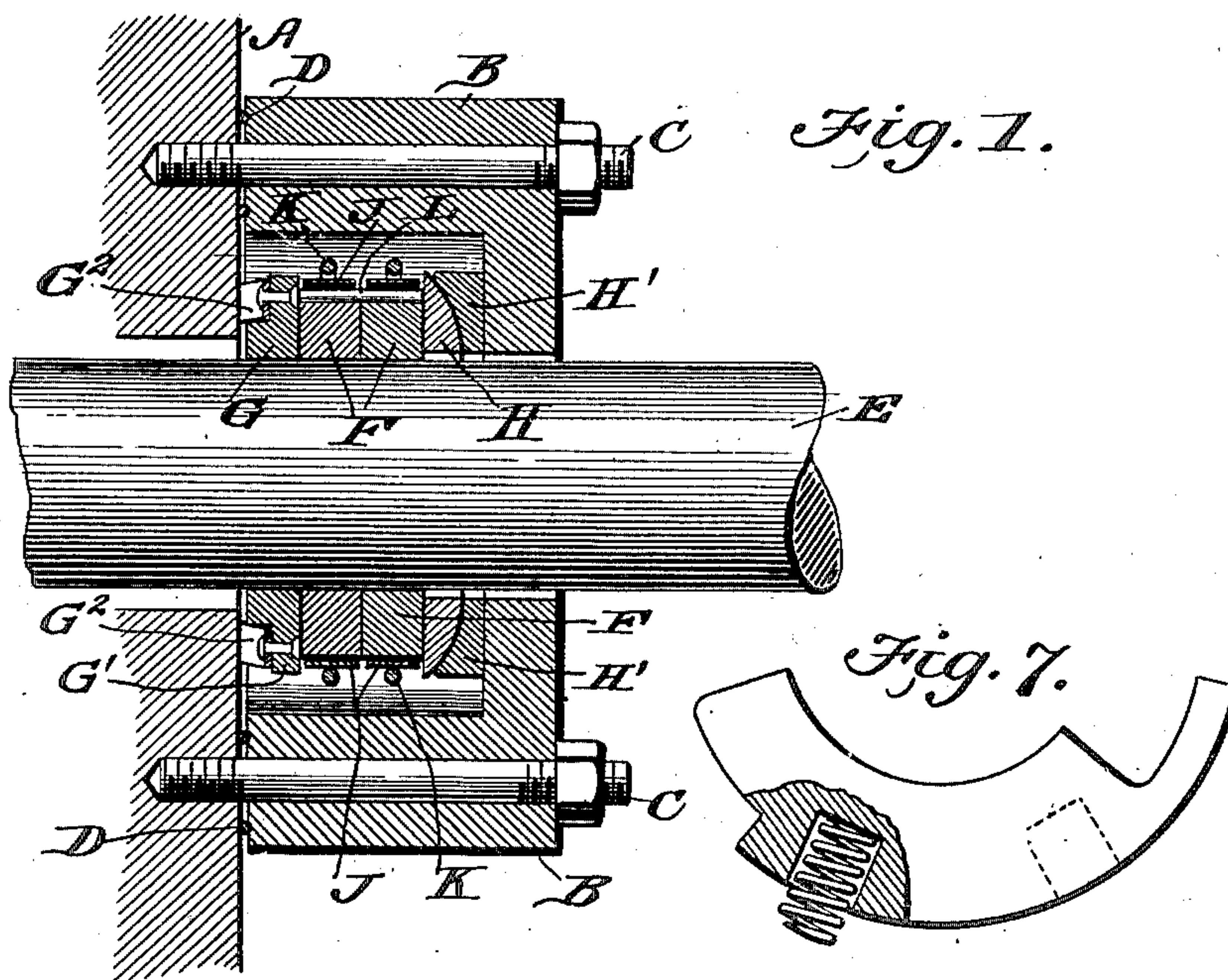


Fig. 2.

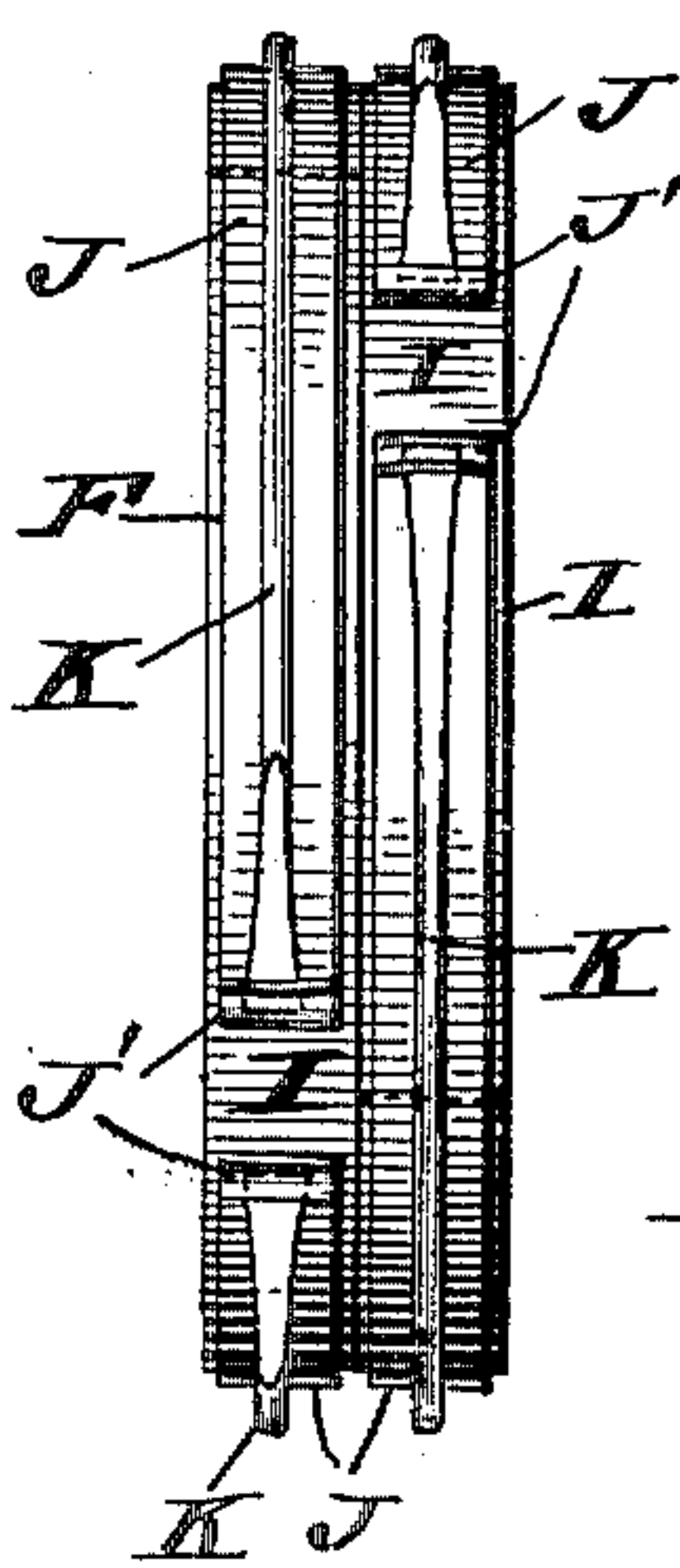


Fig. 3.

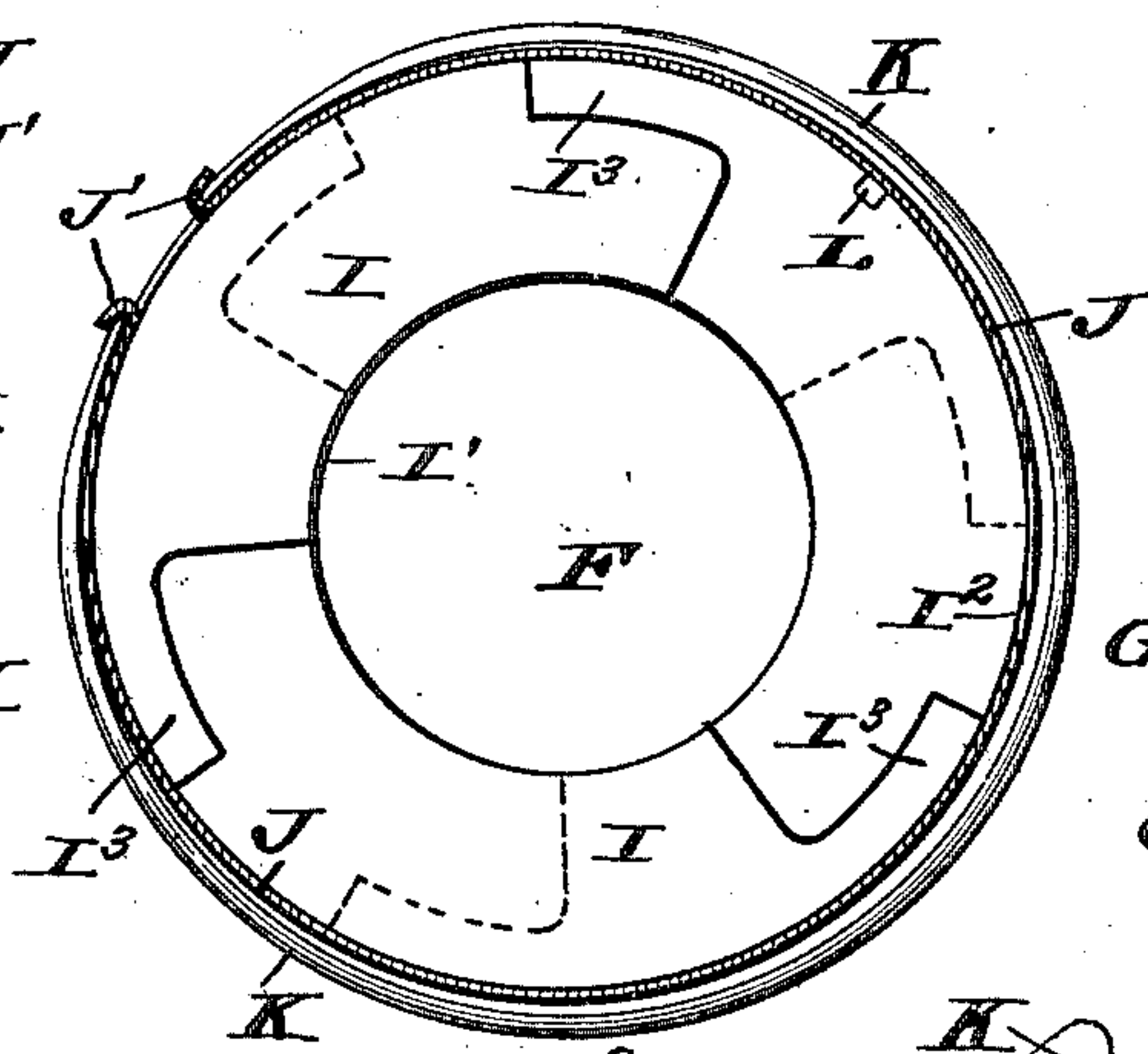


Fig. 4.

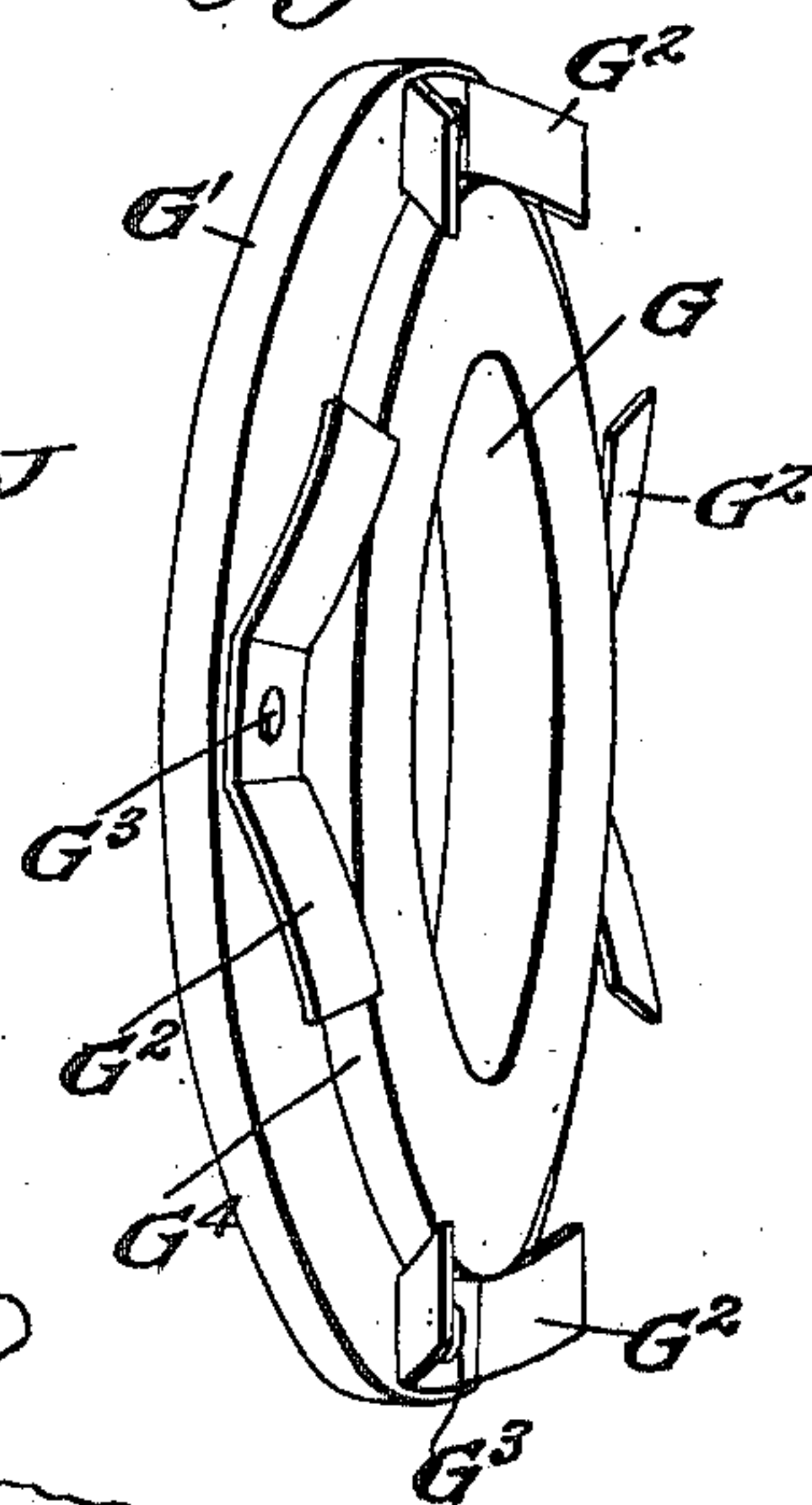


Fig. 5.

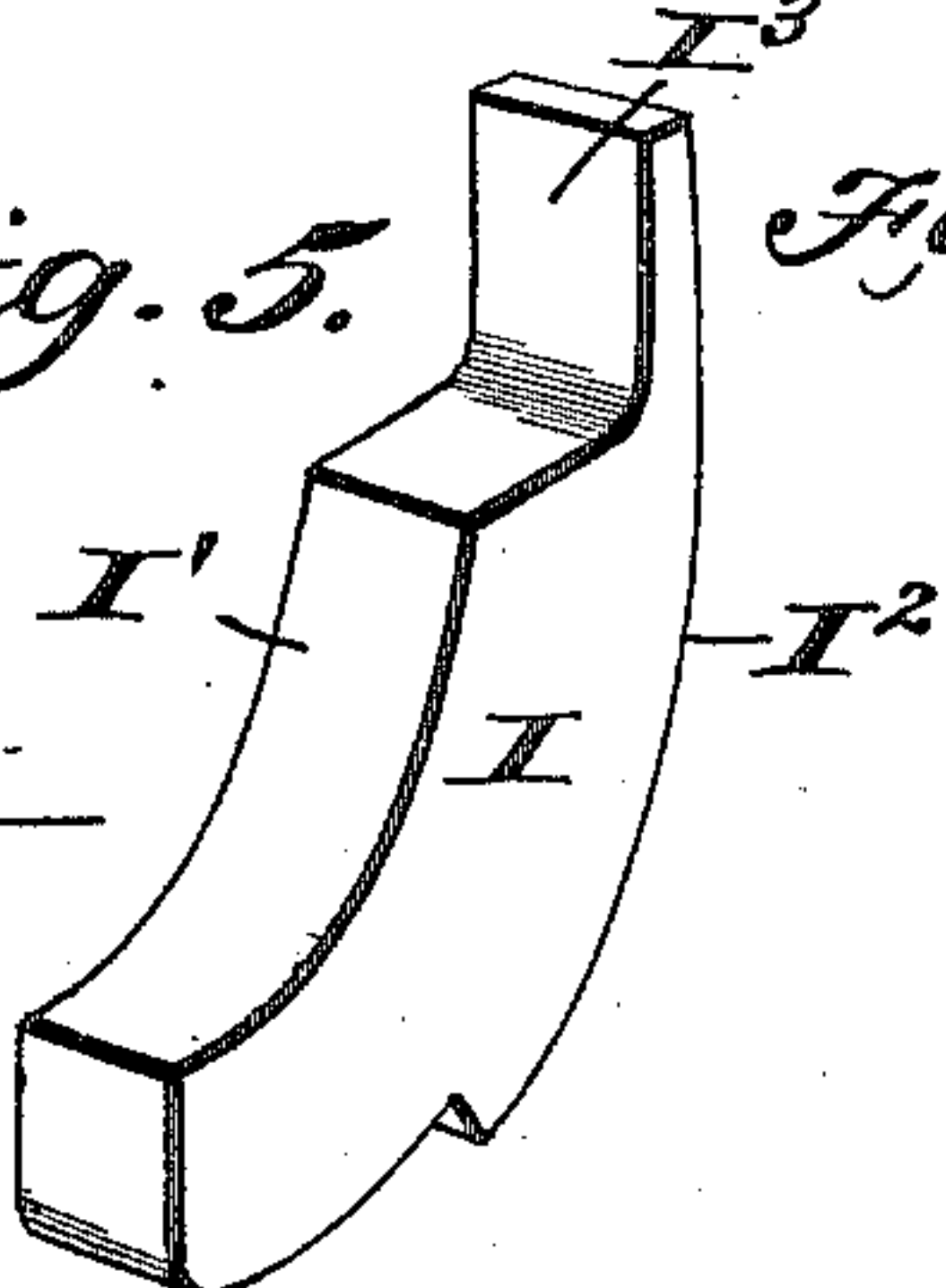
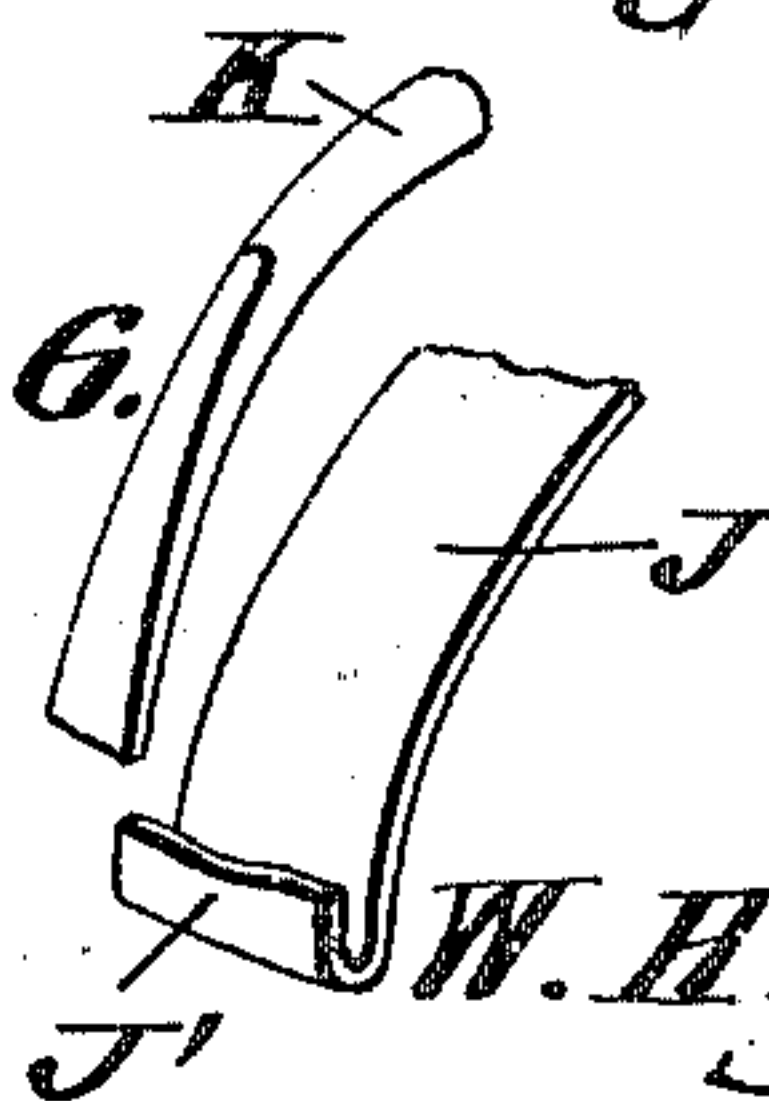


Fig. 6.



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WILLIAM HENRY PRENDERGAST, OF SAVANNAH, GEORGIA, ASSIGNOR OF
ONE-HALF TO THEODORE D. KLINE, OF SAME PLACE.

METALLIC PACKING.

SPECIFICATION forming part of Letters Patent No. 661,384, dated November 6, 1900.

Application filed January 19, 1900. Serial No. 2,027. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HENRY PRENDERGAST, residing at Savannah, in the county of Chatham and State of Georgia, have made
5 certain new and useful Improvements in Metallic Packings, of which the following is a specification.

My invention is an improvement in metallic packing for use on piston-rods, in air-
10 pumps, and in other locations where a tight durable packing is desired; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

15 In the drawings, Figure 1 is a sectional view of a portion of a cylinder-head and packing-box provided with my improvement. Fig. 2 is an edge view, and Fig. 3 a side view, representing a pair of packing-rings embodying
20 my invention. Fig. 4 is a perspective view of the spring-plate with the attached springs. Fig. 5 is a detail perspective view of one of the sections of the packing-ring. Fig. 6 is a detail perspective view illustrating one end
25 of one of the equalizing-plates and the spring for engagement therewith, and Fig. 7 illustrates a slightly-different construction by which the packing-ring sections may be spring-actuated.

30 In the construction shown in Fig. 1, A may represent the head of a cylinder, and B a packing-box held thereto by bolts C and packed at D in any suitable manner. The piston-rod E plays through the head A and
35 box B, and upon this rod E, I fit the packing-rings F, the spring-plate G, and the universal sections H H'. The sections H and H' have a ball and socket joint at their contacting edges to permit a slight rocking, as may
40 be necessary to compensate for vibration or displacement of the piston-rod. The outer side of the ring H' is flat to rest squarely against the square inner face of the box B, and the inner face of the ring H is flat to fit
45 squarely against the packing-ring, which abuts against it. The packing-rings F are alike and are each composed of a number of similar sections I, which are formed as shown
50 in Fig. 5 and applied together, as shown in Fig. 3, to form a complete ring. The sections I have their inner edges curved on the

arc of a circle at I' and their outer edges similarly curved at I². At one end the section I has a projecting tongue I³, which extends
55 from one end at its outer side and is formed to fit in a corresponding recess in the upper rear end of the adjoining section. Thus each section I is formed at its outer side with a tongue projecting from one end and a recess
60 in its other end fitted to receive such tongue. By making the sections alike one can be readily removed and another inserted in its place, or they may be interchanged to secure an
65 even wear or for other purposes, as may be desired.

An equalizing-plate J is fitted over each ring and extends circumferentially, with its ends comparatively near together. These
70 ends of the equalizing-plates are arranged for engagement by the ends of the springs K, presently described, and this is preferably effected by providing the ends of the equalizing-plate J with pockets at J', formed by re-
75 turning the said ends of the plates J, as is best shown in Figs. 2, 3, and 6. The springs K extend circumferentially along their respective equalizing-plates and engage at their
80 ends in the pockets J', as will be understood from Figs. 2, 3, and 6. By the described construction the spring exerts a tension which the equalizing-plate transmits to the sectional ring uniformly throughout the circum-
85 ference of the ring. I thus secure an even pressure upon the sections of the packing-rings and reduce wear by securing an even distribution of the packing-pressure.

As indicated in Fig. 3, in which the sections of one packing-ring are indicated in full lines and those of the next ring in dotted
90 lines, the joints of the sections of the adjoining packing-rings are staggered. To maintain the rings in this relation, I provide a connecting-pin L, which, as shown in Figs. 1 and
95 3, is arranged near the outer edges of the rings and extends between and connects the rings, as shown in Fig. 1, so the said rings cannot rotate independently. By preference the pin L is secured in grooves formed
100 in the outer edges of the packing-rings, being held in place by the overlying equalizing-plates, as is best shown in Figs. 1 and 3. The pin L is preferably formed to fit the square

or non-circular grooves in the periphery of the rings, the pin being thus held from rolling out of place.

The spring-plate G fits on the piston-rod and rests at its outer edge G' flat against the innermost packing-ring F. At its inner side the ring G is provided with the spring-plates G², which are secured at a point between their ends at G³ to the ring, with their ends deflected, so they will bear uniformly against the end of the chest A.

The plate G is rabbeted, as shown in Fig. 4, forming the shoulder G⁴, against which the deflected ends of the spring bear, so they cannot turn out of position, and the spring being double-ended and secured at the center has no tendency to tear the head off the rivet that secures it in place. This spring-plate G operates to keep the packing quiet when the engine is rolling, and by the special construction of such plate this rolling action does not tend to displace the springs thereon.

The sections of my packing-rings being exact counterparts of each other and not requiring to be cut or turned, I avoid the necessity for machine-work, and the sections can be kept in stock and used at a moment's notice.

My packing, as will be understood, is set down by steam, the pressure varying as to the work required, so that when steam is shut off the packing will relax and remain frictionless while the engine is rolling downhill, and the action of the rod will have no tendency to disturb the packing.

In Fig. 7 I show a somewhat-different arrangement for setting the packing down on the rod, which may be used in air-pump stuffing-boxes or in other location where there is not sufficient space to apply equalizing-plates and springs K.

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

1. In a packing substantially as described, the combination of the packing-ring sections, the equalizing-plate fitting over the said sections and extending circumferentially of the packing-ring, and the spring fitting over and extending circumferentially along the equalizer-plate and engaged at its ends with such plate adjacent to the ends of the latter.

2. In a packing substantially as described the combination, of the universal sections having a ball-and-socket joint at their contacting edges, the packing-rings composed of sections fitted together, the equalizing-plates fitting over the ring-sections and extending

circumferentially of the ring, the springs fitting over and extending circumferentially along the equalizing-plates and engaged at its ends with such plates adjacent to the ends of the latter, and the spring-plate provided with springs and adapted to exert pressure against the face of the packing-rings substantially as set forth.

3. In a packing substantially as described, the combination of the packing-ring sections and the equalizing-plate fitting over the ring-sections and having pocket-like seats at its ends and the spring fitting over the equalizing-plate and engaged at its ends in the pocket-like seats of the equalizing-ring.

4. In a packing, a plurality of rings fitted side by side and composed of sections together to form their rings, the joints of the sections of one ring being staggered with respect to the next, and such rings being provided in their peripheries with aligned non-circular grooves, and a pin extending between said rings and fitted to and in said grooves substantially as set forth.

5. In a packing substantially as described the combination of the packing-ring sections, the equalizing-plate fitting circumferentially on the packing-ring and having its ends separated and spaced apart, and spring devices exerting a tension directly on said ends of the plate in a direction to press such ends toward each other substantially as set forth.

6. In a packing substantially as set forth the combination of the packing-rings fitted side by side and composed of sections, the joints of the sections of the adjoining rings being staggered, and said rings being provided in their outer edges with grooves, the pin fitting in said grooves and connecting the adjoining packing-rings, and the equalizing-plates fitting on their respective rings and over the grooves and pin therein substantially as set forth.

7. In a packing substantially as described, a spring-supporting plate which is rabbeted forming a projecting shoulder, and springs held to said plate alongside said shoulder, such springs being held at their middles to the plate and having their ends deflected and bearing edgewise between their ends and middles against the said projecting shoulder and the packing devices substantially as set forth.

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