

A. H. NEUREUTHER.  
 LANTERN PINION.  
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906,915.

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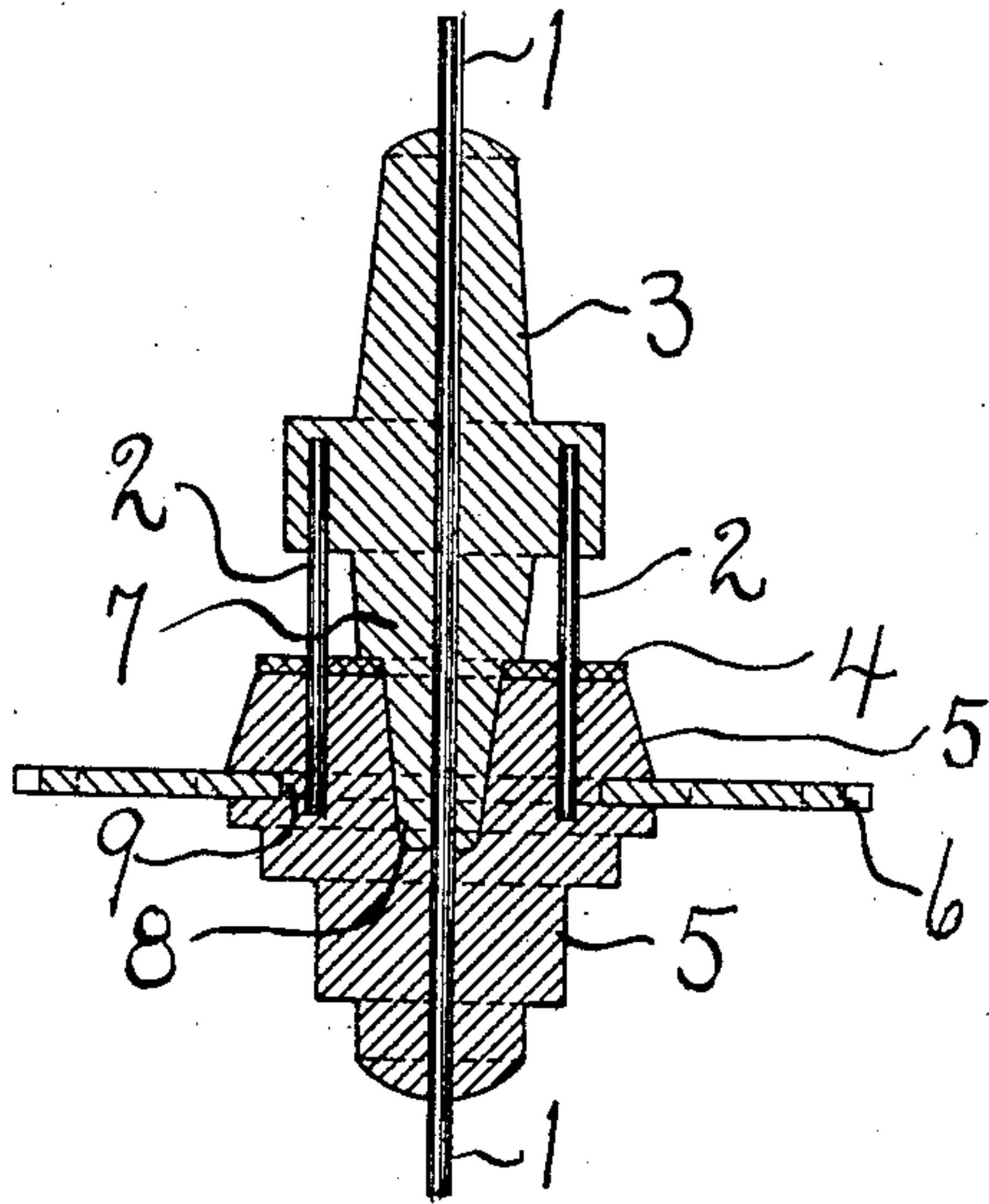


Fig. I.

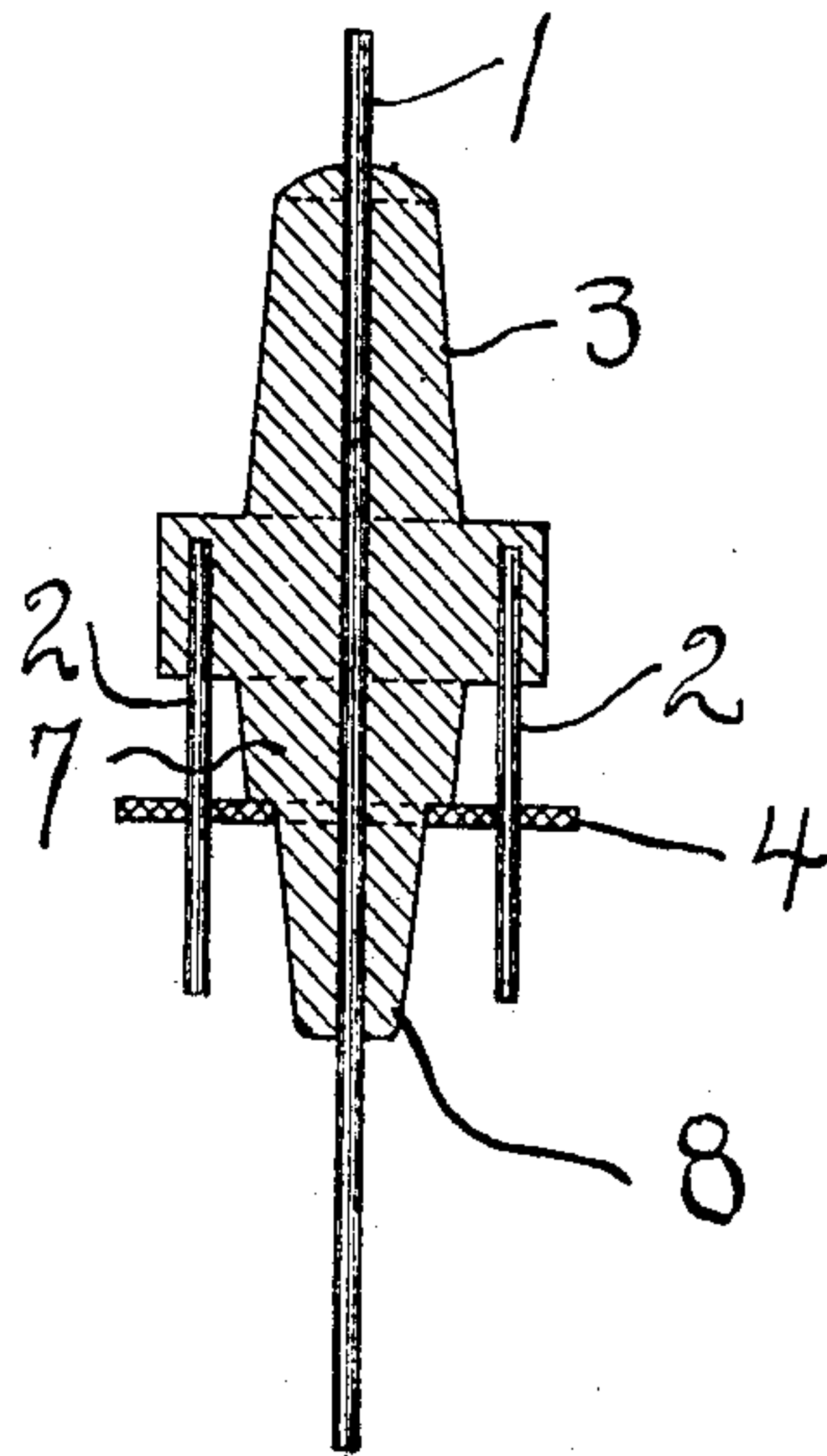


Fig. III.

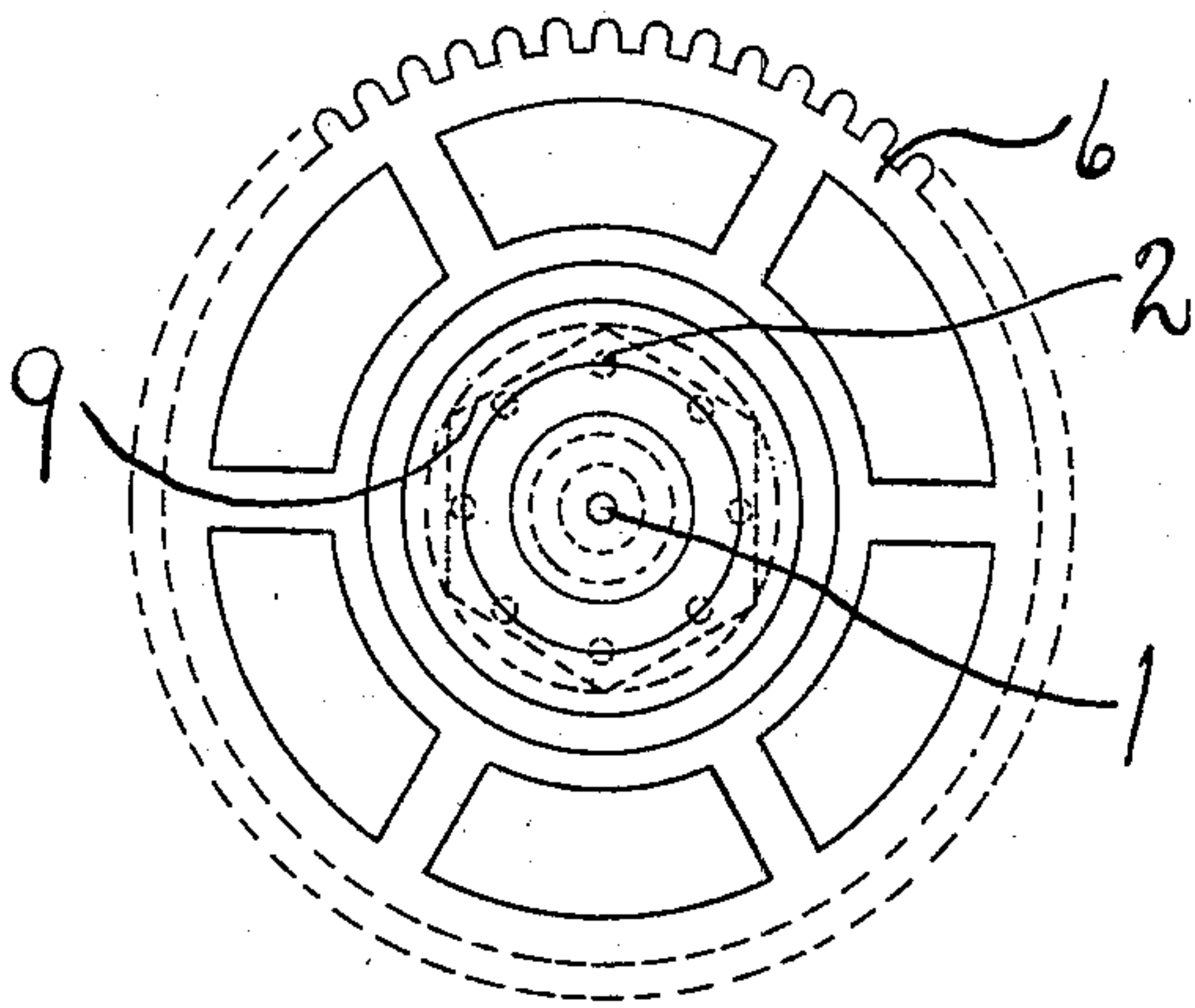


Fig. II.

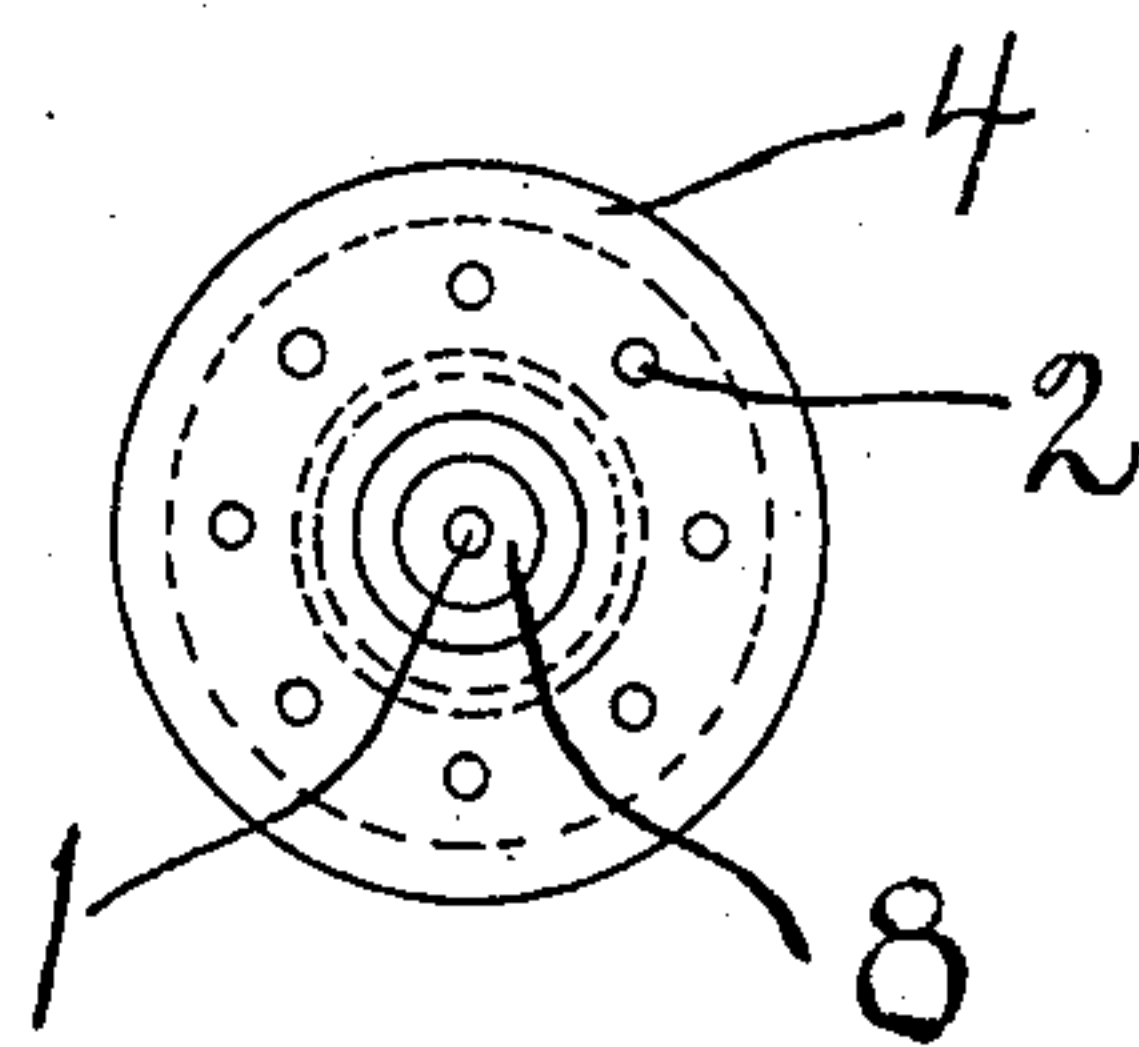


Fig. IV.

WITNESSES:

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# UNITED STATES PATENT OFFICE.

ANDREW H. NEUREUTHER, OF PERU, ILLINOIS, ASSIGNOR TO THE WESTERN CLOCK MANUFACTURING COMPANY, OF LA SALLE, ILLINOIS, A CORPORATION OF ILLINOIS.

## LANTERN-PINION.

No. 906,915.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed October 23, 1908. Serial No. 459,250.

*To all whom it may concern:*

Be it known that I, ANDREW H. NEUREUTHER, a citizen of the United States, residing in the city of Peru, in the county of Lasalle and State of Illinois, have invented a certain new and useful Improvement in Lantern-Pinions, of which the following is a specification.

My invention relates to pinions, particularly such as are called lantern pinions, such as are used in clocks and watches.

It is well known that in clocks and watches it is necessary to reduce the friction caused by the pivots on which the pinions are mounted, to the least possible amount, consistent with the expense. In the better classes of watches and clocks these are generally turned on the ends of heavier pieces, then hardened, and in the still finer clocks and watches run in jewels. In Letters Patent No. 712,325 granted to me on Oct. 28, 1902, I have shown how to avoid the turning down of the ends for the pivots by using a piece of wire of smaller diameter, in place of the piece of heavier material, with the pivots turned down smaller. In the construction shown in said patent, it is evident that a limit is soon reached if the pivot is reduced, beyond which the pinion becomes very weak.

It is the object of the present invention to produce a pinion of this type which will enable me to use a still smaller pivot or wire on which the pinion is mounted and at the same time have it stronger than those previously produced before this invention and at the same time have it very simple and inexpensive. I attain these objects by the means shown in the accompanying drawings, in which—

Figure 1 is a sectional view through the center, along the pivot, showing my improvement, Fig. 2 is an end view of Fig. 1, Fig. 3 is a sectional view of the pinion along the pivot showing the projecting core and the washer on same. Fig. 4 is a view of Fig. 3.

Similar numerals represent the same parts in all the drawings.

In the drawings, 1 is the pivot or shaft, 2 is one of the leaves of the lantern pinion, 3 is a mass of metal molded on the pivot wire 1, having a shouldered portion 7 from which projects a tapered core 8, which projects into the second mass of molded metal 5 on which is mounted the gear wheel 6. On the shoulder between 8 and 7 and pierced by the pin-

ion wires 2 is a metallic or other washer 4 capable of resisting the temperature of the molded metal 3 and 5. The function of the washer is to cap the mold so as to keep the metal out of the pinion during the casting operation. Gear wheel 6 has an irregular aperture 9 which prevents it from turning on the metal 5.

The use and operation of this pinion will be readily understood, for when constructed it is capable of any use to which the ordinary lantern pinion may be put. It will be understood that the masses of metal are such as can be melted and run in molds to set the parts together, as indicated in the figures, the pinion wires, washer and gear wheel being of a nature to resist the heat under such conditions. It is further evident that the long tapering core 8 projecting into the interior of the mass of the metal 5, and said metal 5 being melted and forced around said core 8 melts the top of same for a greater or less distance making the two masses of molded metal 5 and 3 more or less continuous depending on the melting points of the metals and the temperature under which it is injected into the mold, producing a pinion which is extremely rigid and practically independent of the pivot wire for its strength, allowing the use of an extremely small pivot wire, which is very inexpensive, being simply a straight piece of drawn wire, as compared with the turning of the ends where the stiffness of the pinion depends more or less on the thickness of the shaft or pivot.

I claim—

1. A lantern pinion consisting of a pivot wire, properly disposed pinion wires, a gear wheel, and a washer having an aperture larger than the pivot wire, concentrically mounted on said pinion and pivot wires, two masses of metal molded in and about such parts to hold them in fixed relation, while leaving the pinion wires exposed, one of said molded masses projecting through the aperture of said washer into the other of said molded masses.

2. A lantern pinion consisting of a pivot wire, properly disposed pinion wires, a gear wheel, and a washer having an aperture larger than the pivot wire, concentrically mounted on said pinion and pivot wires, two masses of metal molded in and about such parts to hold them in fixed relation while



leaving the pinion wires exposed, one of said molded masses projecting through the aperture of said washer uniting and forming one contiguous mass of said molded portions.

5 3. A lantern pinion consisting of a pivot wire, properly disposed pinion wires, a gear wheel, and a washer having an aperture materially larger than the pivot wire, concentrically mounted on said pinion and pivot  
10 wires, two masses of metal molded in and about such parts to hold them in fixed relation while leaving the pinion wires exposed, one of said molded masses projecting through the aperture of said washer uniting and  
15 forming one contiguous mass of said molded portions.

4. A lantern pinion consisting of a pivot wire, properly disposed pinion wires, a gear wheel, a washer, an aperture in said washer  
20 larger than said pivot wire, said washer being concentrically mounted on said pinion and pivot wires, two masses of metal molded in and about such parts to hold

them in fixed relation while leaving the pinion wires exposed, one of said molded 25 masses projecting through the aperture in said washer into and uniting with said other molded part to form one contiguous mass of molded metal.

5. A lantern pinion consisting of a pivot 30 wire, properly disposed pinion wires, a gear wheel, a washer, an aperture in said washer materially larger than said pivot wire, said washer being concentrically mounted on said pinion and pivot wires, two masses of metal 35 molded in and about such parts to hold them in fixed relation while leaving the pinion wires exposed, one of said molded masses projecting through the aperture in said washer into and uniting with said 40 other molded part to form one contiguous mass of molded metal.

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Witnesses:

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