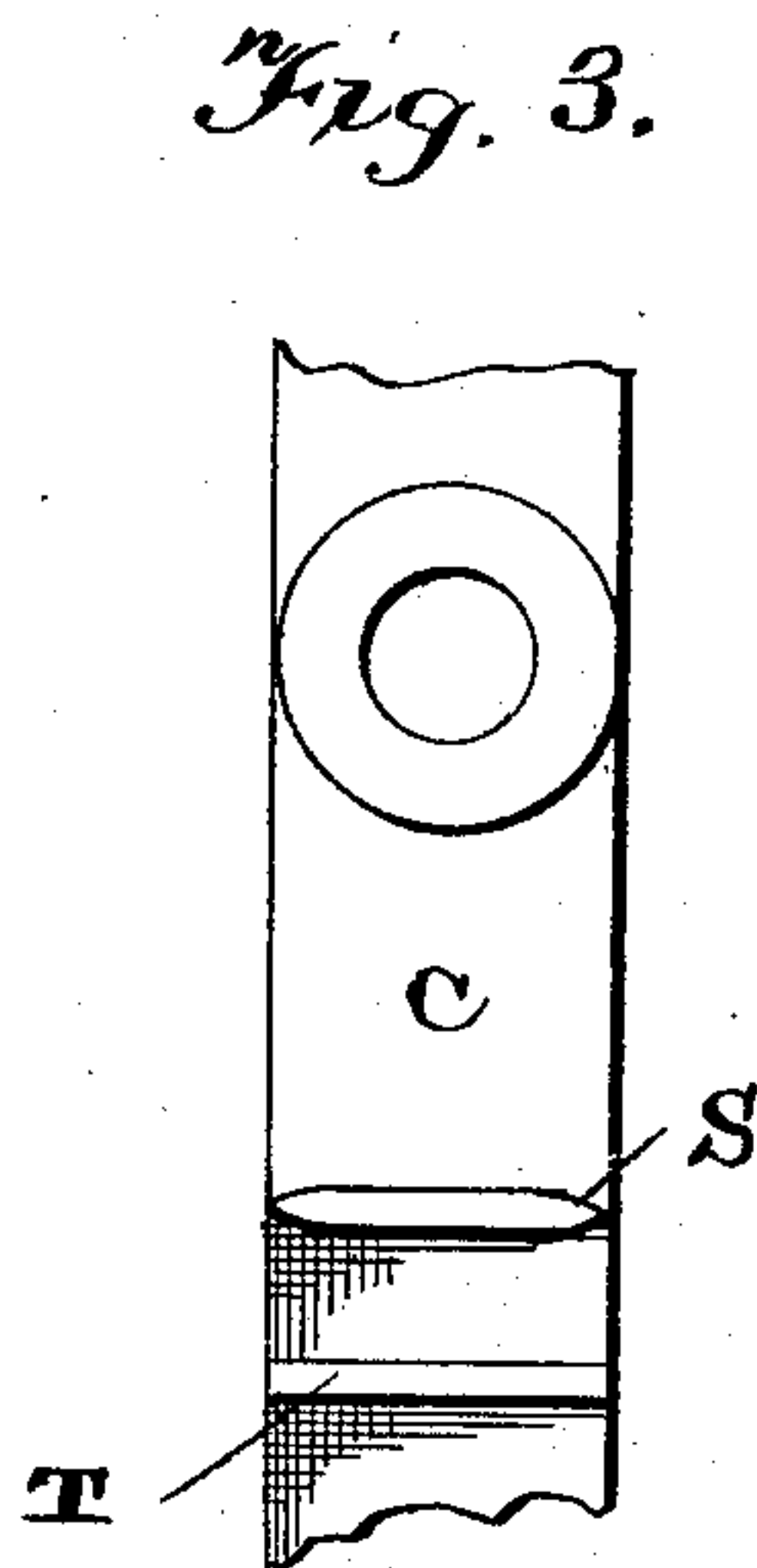
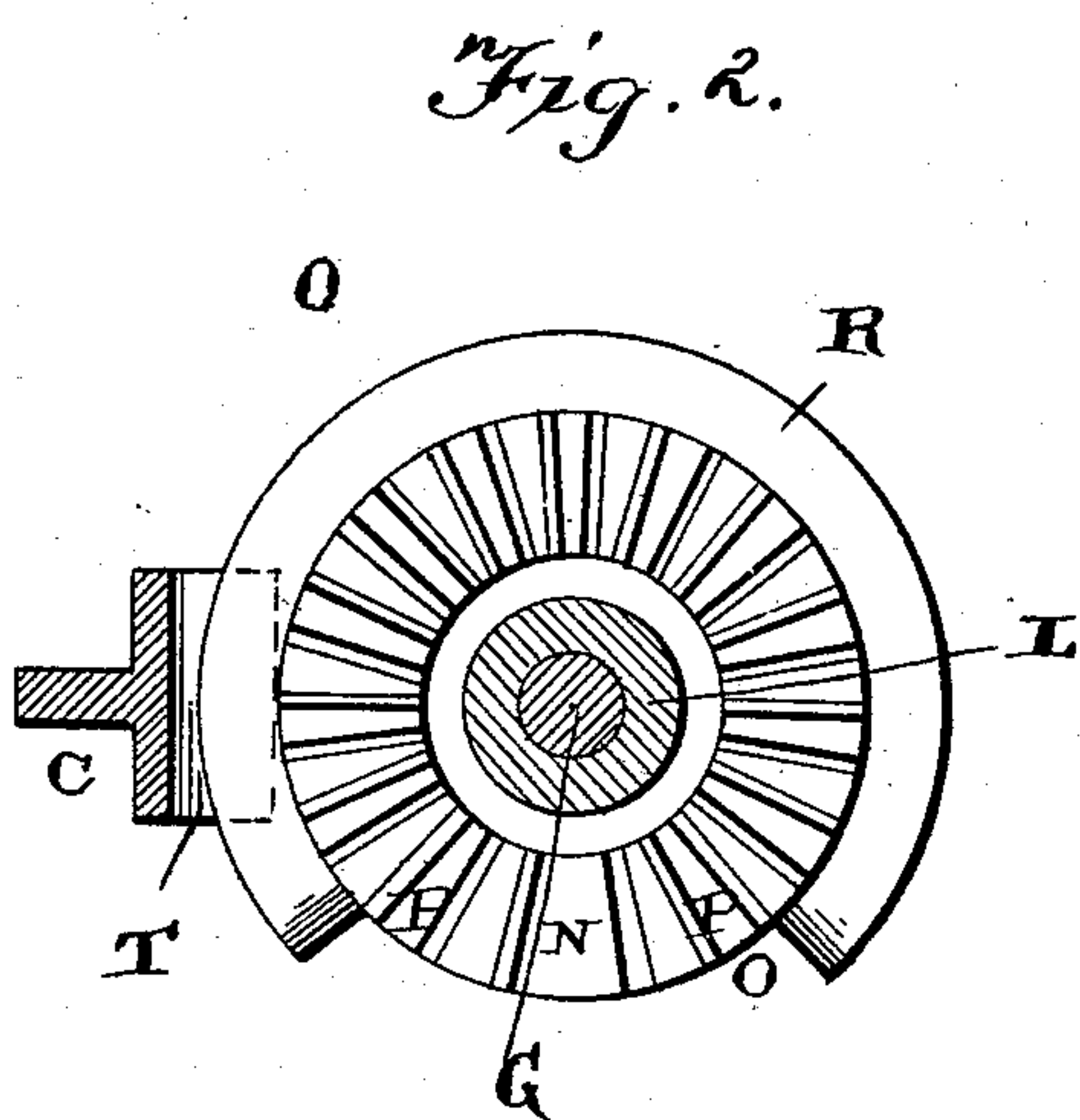
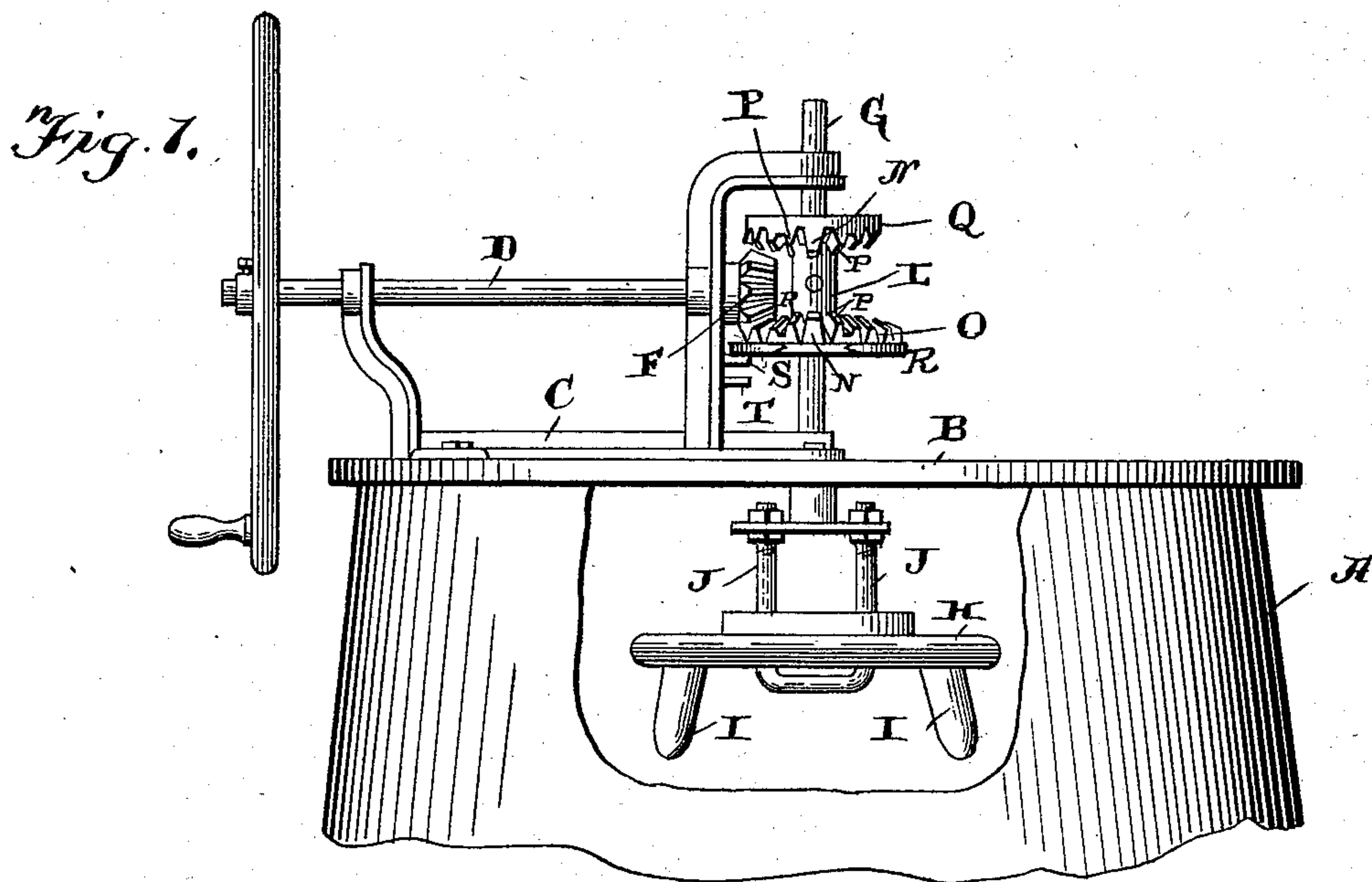


(No Model.)

H. F. BRAMMER & A. PLAGMAN.
MECHANICAL MOVEMENT.

No. 539,790.

Patented May 28, 1895.



Witnesses:

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UNITED STATES PATENT OFFICE.

HENRY F. BRAMMER AND ADOLPH PLAGMAN, OF DAVENPORT, IOWA.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 539,790, dated May 28, 1895.

Application filed February 26, 1895. Serial No. 539,748. (No model.)

To all whom it may concern:

Be it known that we, HENRY F. BRAMMER and ADOLPH PLAGMAN, citizens of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented certain new and useful Improvements in Mechanical Movements; 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.

Our invention relates to an improvement in mechanical movements; and it consists in a continuously rotating shaft, provided with a pinion upon its inner end, combined with a vertically moving shaft which has a reciprocating rotary motion, and to which are secured two oppositely faced wheels provided with teeth of unequal size, and which wheels alternately engage with the pinion on the operating shaft; and the stirrer upon the lower end of the vertically moving shaft, all of which will be more fully described hereinafter.

The object of our invention is to provide a mechanical movement whereby a continuously rotary movement is converted into a rotary reciprocating motion, whereby a movement is produced that is especially adapted for washing machines, churns, and other places where a rotary reciprocating movement is required.

In the accompanying drawings, Figure 1 is a side elevation of a movement which embodies our invention complete, the side of the tub being broken away, so as to show the stirrer. Fig. 2 is a plan view of the lower half of the casting, which is applied to the vertically-moving shaft. Fig. 3 is a detail view showing the supports upon the frame for the casting.

A represents the tub of a washing, or other suitable machine, and upon the top of which is placed the cover B, which has an opening through its center for the vertical shaft to pass freely through. Upon the top of this cover is secured the frame C, in which the operating shaft D, is journaled. This shaft D is to revolve continuously in one direction, and is provided with a wheel or handle at its outer end, and a pinion F which is rigidly se-

cured to its inner end, and which pinion has about eight teeth formed upon it, all of which are regular.

Passing down through the top of the cover and through the inner upper end of the frame C is the shaft G which has two motions, a vertical one and a reciprocating rotary motion, and to its lower end is secured the stirrer H which is provided with four pegs I on its under side for the purpose of moving the clothes back and forth through the water. Passing up through the stirrer H is the U-shaped rod J which moves freely back and forth vertically through the stirrer, and which is secured at its upper end by suitable nuts to the lower end of the shaft G. If the stirrer is supported by the clothes the vertical movement of the shaft G will simply cause the rod J to move vertically back and forth through the stirrer without changing the stirrer's position.

Rigidly secured to the shaft G is a casting L which has its two ends formed into two beveled wheels which have the teeth set facing each other, and which are alike with the exception of the flange upon the lower end O, and which wheels alternately engage with the pinion F, the upper one of the two wheels causing the shaft G to revolve in one direction, and the lower one causing it to revolve in the opposite one. Both of these wheels are provided with about fifteen teeth all of which are alike with the exception of three upon one side. The central one N of these three is larger and higher than either one of the two P next to it, but these two teeth P are higher than the other twelve teeth and the recess between each of these teeth P and the next following teeth is not as deep as those between the twelve teeth. The object in making the three teeth N P as here shown, is to make the ascent from the twelve regular teeth to the highest one N gradual, so that as the teeth of the pinion approach the teeth N, the movement will be regular and thus avoid all jarring of the parts. The pinion causes each of the two wheels at the end of the casting L, to revolve evenly until the teeth N, P, are encountered, and then the teeth P, being higher than the other twelve, begin to force the casting L,

and the shaft G to which it is rigidly secured, in an endwise direction, and when the tooth N, is reached this tooth being larger and higher than any of the others, it strikes against
 5 and rides on top of one of the teeth upon the pinion, and thus forces the shaft G, and the casting L endwise until the side of the opposite tooth N, contacts with the side of another one of the pinion teeth, the parts being
 10 so arranged that the other wheel on the opposite end of the casting is then in position to gear with the pinion F, and thus instantly reverse the movement of the shaft. The rotary movement of the shaft and casting L, continues until this tooth N strikes upon the
 15 pinion, and then the endwise movement of the shaft takes place, and immediately the rotary movement is reversed.

The two wheels O, Q, are exactly alike, with
 20 the exception that the one O has a flange R, which extends about three quarters the distance around its lower edge, and then the flange is cut away, as shown in Fig. 2, and has its ends beveled, so as to correspond to the
 25 bevel upon the ends of the top support S. Upon the side of the frame C, next to the shaft G, the two supports S, T, are formed,—the upper one serving to support the casting and the shaft G in its raised position, and the
 30 lower one serving to regulate the distance the shaft shall drop, and at the same time assist the pinion in supporting the weight of the shaft and casting.

When the shaft and casting revolve until
 35 the opening in the flange R, is reached, the tooth N on the lower wheel O causes the casting and the shaft to sink until the upper wheel Q comes in contact with the pinion, and then the flange R rests upon the lower
 40 support T and revolves thereon. When the tooth N on the upper wheel Q strikes the pinion and forces the shaft and casting upward, the flange R catches upon the upper support S. These supports prevent the weight of the
 45 shaft and casting from coming in contact

with the pinion with such force as to cause the pinion to be hard to turn.

Were it not for the upper support the weight of the shaft and casting would cause the upper wheel Q to remain in contact with
 50 the pinion except when its tooth N caused the shaft and casting to rise.

Having thus described our invention, we claim—

1. In a mechanical movement, a continuously revolving shaft, provided with a pinion upon its inner end, combined with a vertically moving shaft, having also a rotary reciprocating movement, a casting secured rigidly to the shaft, and having teeth of unequal
 55 size upon both of its ends; the two toothed ends of the casting being adapted to alternately come in contact with the pinion, and thus reverse the movement of the shaft, substantially as shown. 65

2. In a mechanical movement, a continuously rotating shaft provided with a pinion upon its inner end, the shaft G, and the casting secured to it; each end of the casting being provided with teeth which face toward
 70 each other, and having the teeth N, P, of greater height than the other teeth, substantially as described.

3. The continuously rotating shaft D, provided with the pinion F, the vertical shaft G
 75 having the casting L secured rigidly thereto, each end of the casting being provided with teeth which are set facing each other, the teeth being of unequal size, and the flange upon the lower end of the casting; and the
 80 two supports S, T, upon the frame, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

HENRY F. BRAMMER.
 ADOLPH PLAGMAN.

Witnesses:

JOHN KOOP,
 H. JARET.