

No. 667,609.

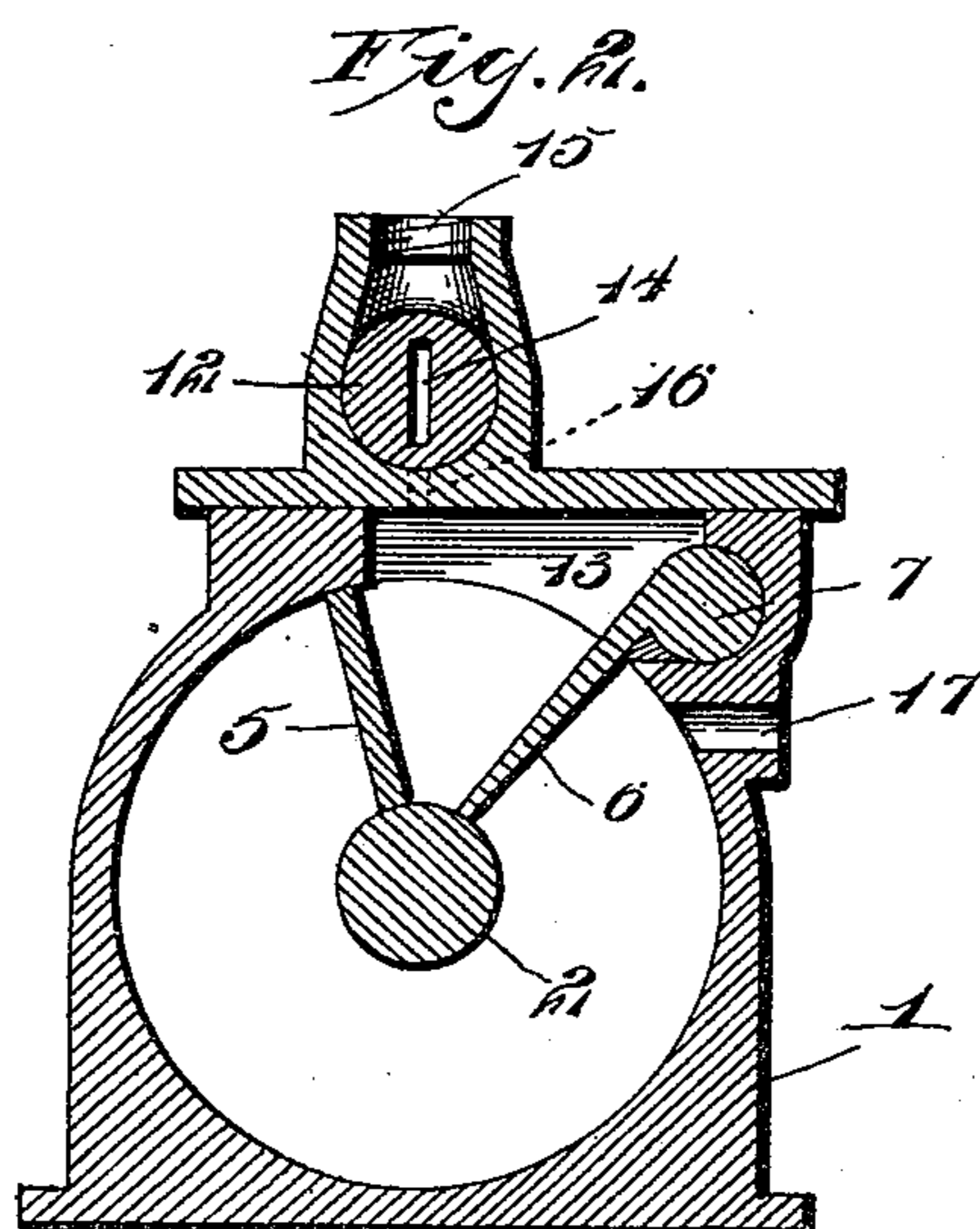
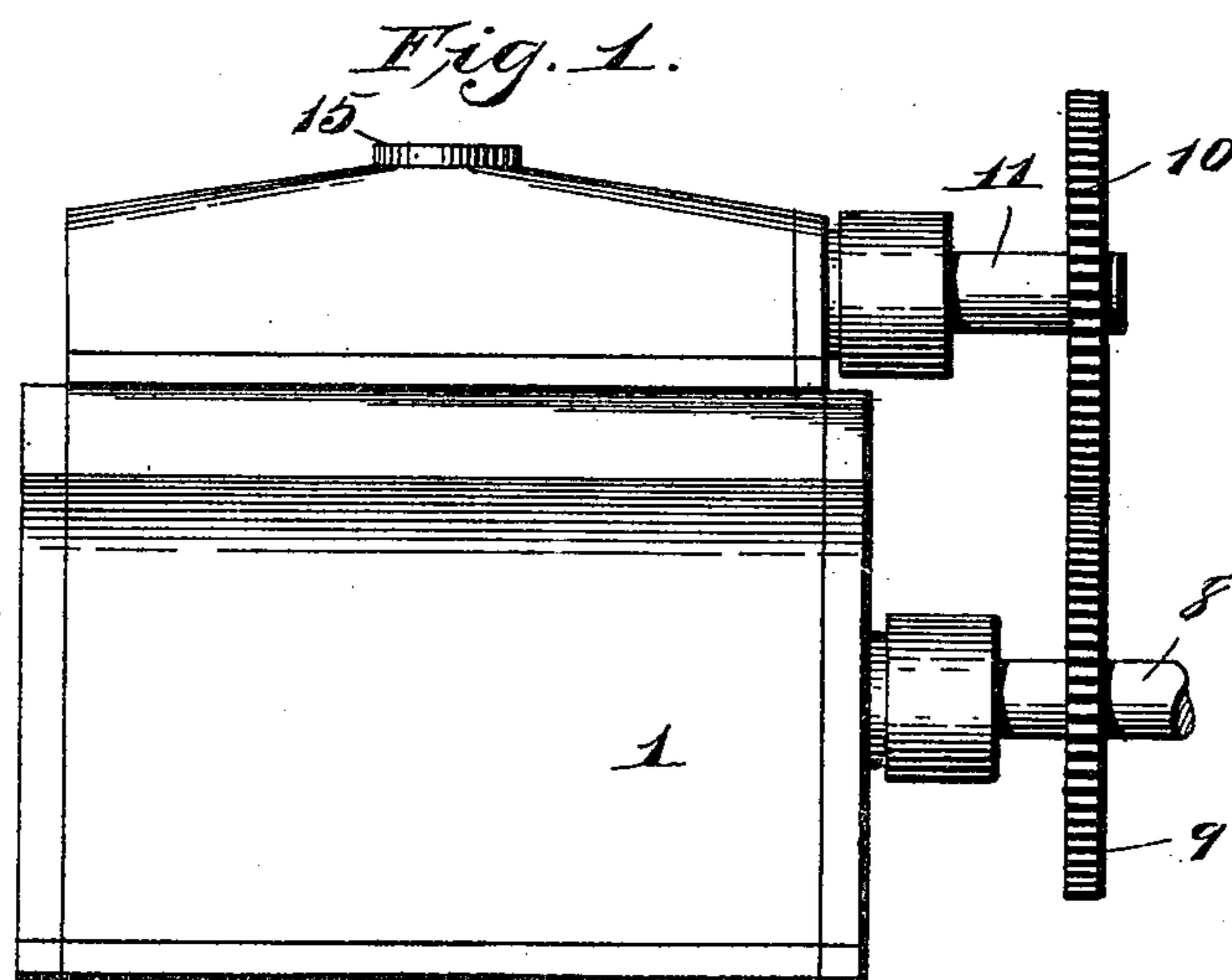
Patented Feb. 5, 1901.

F. C. TUCKER.  
ROTARY ENGINE.

(Application filed Apr. 28, 1900.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

*Louis D. Heinrichs*  
*Herbert Dawson.*

Inventor  
*Fred C. Tucker*

By *Victor J. Evans.*

Attorney

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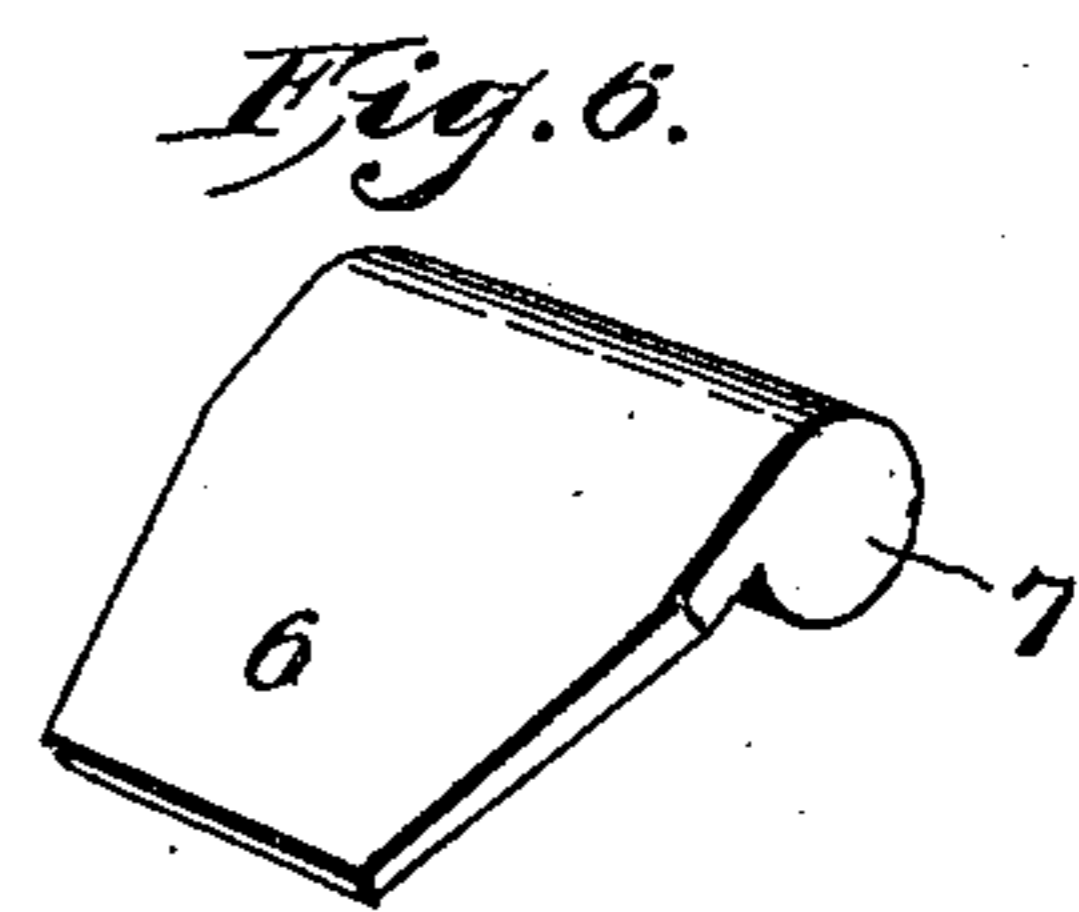
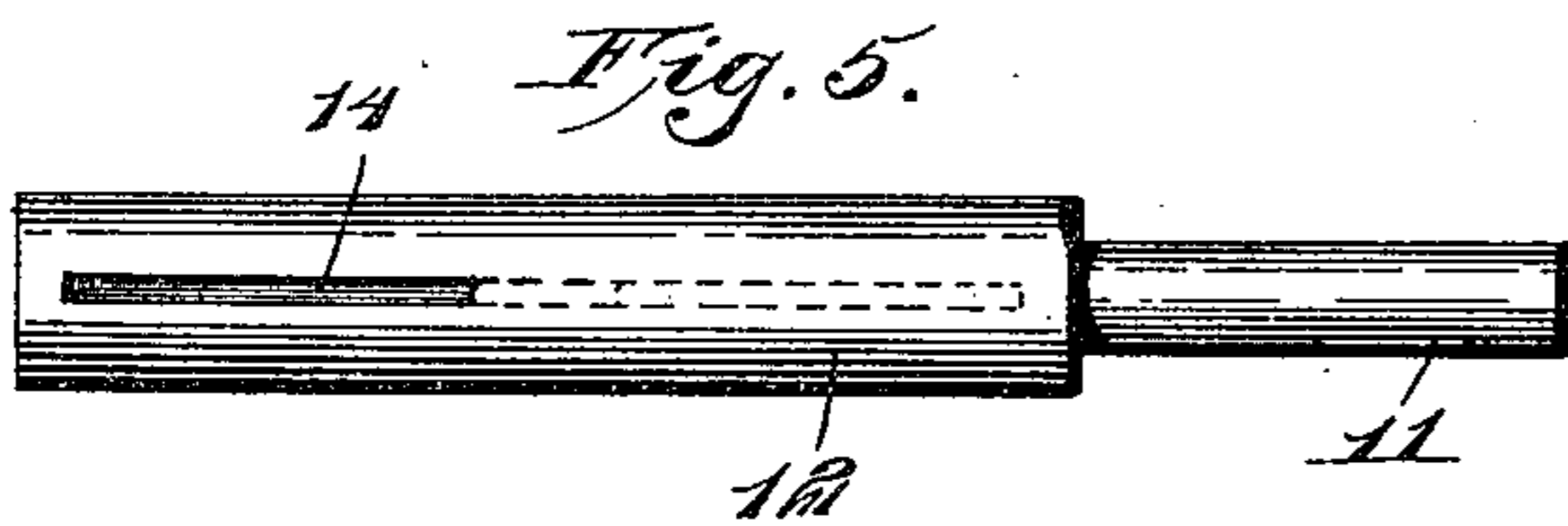
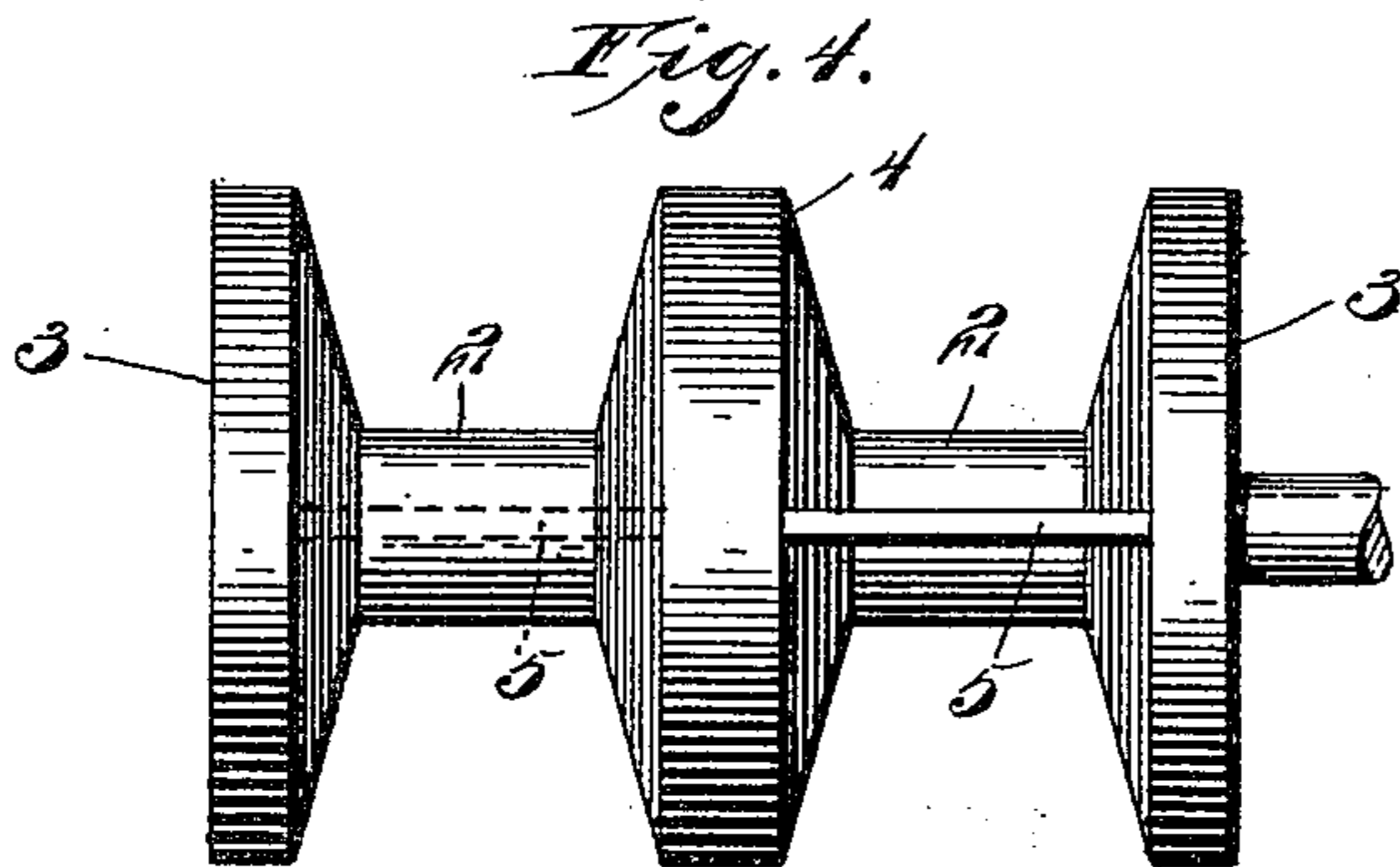
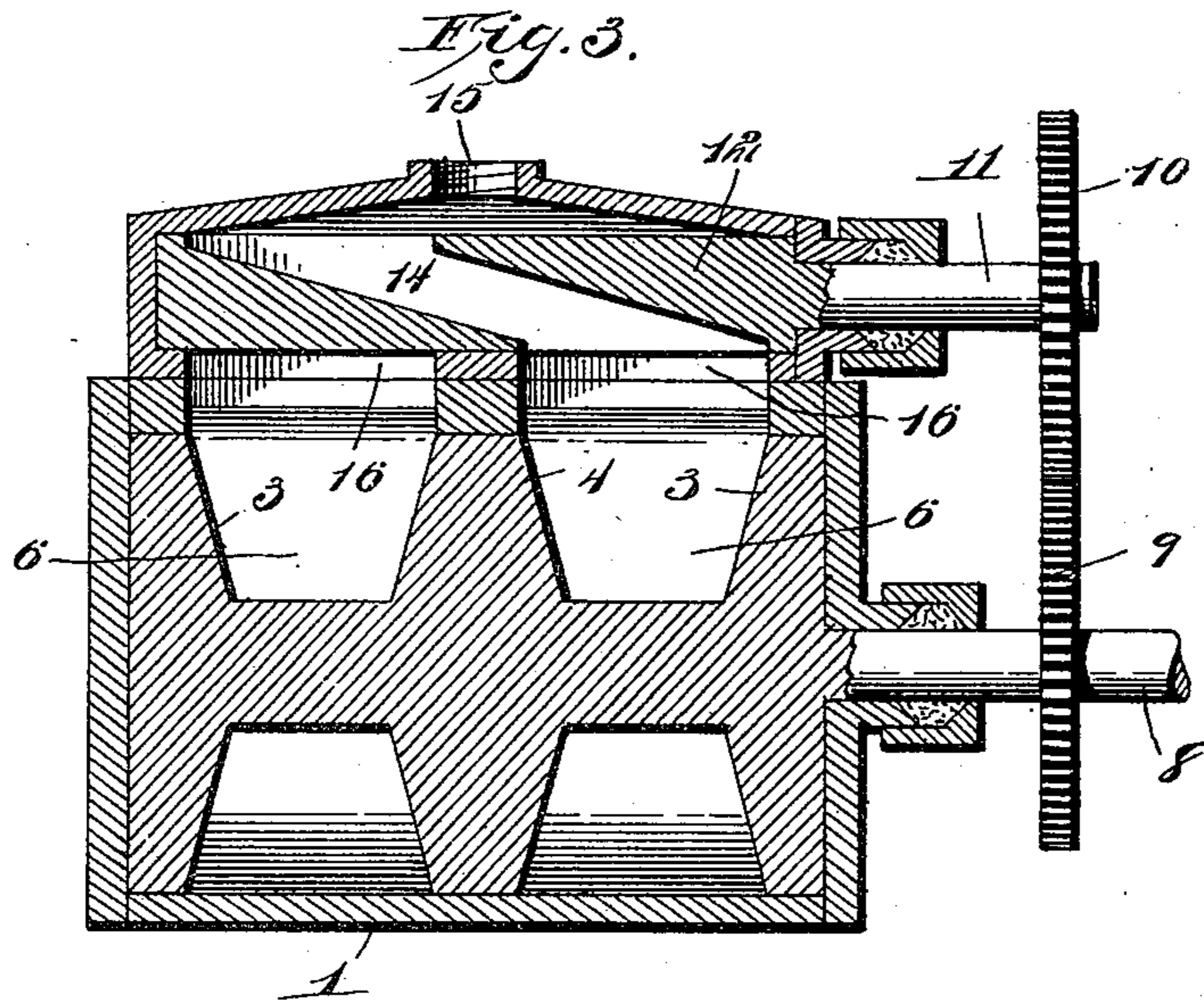
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2 Sheets—Sheet 2



Witnesses  
Louis D. Heinrichs  
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# UNITED STATES PATENT OFFICE.

FRED C. TUCKER, OF LUBEC, MAINE.

## ROTARY ENGINE.

SPECIFICATION forming part of Letters Patent No. 667,609, dated February 5, 1901.

Application filed April 28, 1900. Serial No. 14,754. (No model.)

*To all whom it may concern:*

Be it known that I, FRED C. TUCKER, a citizen of the United States, residing at Lubec, in the county of Washington and State of Maine, have invented certain new and useful Improvements in Rotary Engines, of which the following is a specification.

This invention relates to new and useful improvements in rotary engines, and its primary object is to provide a device of this character which is simple and durable in construction, smooth in operation, and which is so constructed as to permit a continuous pressure of steam upon the piston.

A further object is to provide a valve of novel construction whereby the steam will be admitted automatically to each of the piston-heads alternately.

To these ends the invention consists in providing a piston having a flange at each end and at the center thereof, each of the walls of the central flange and the inner walls of the end flanges being inclined to form bearings for hinged valve-plates adapted to direct the steam against piston-heads arranged at suitable points between the flanges of the piston. Mounted within the casing is a rotary valve having a diagonally-extending passage therein and having a gear secured thereto adapted to receive motion from the rotating piston.

The invention also consists in the novel construction and combination of parts herein-after more fully described and claimed, and illustrated in the accompanying drawings, showing the preferred form of my invention, and in which—

Figure 1 is a front elevation of the device. Fig. 2 is a central vertical transverse section therethrough. Fig. 3 is a longitudinal section. Fig. 4 is a plan view of the piston detached. Fig. 5 is a similar view of the rotary valve, and Fig. 6 is a perspective view of the valve-plate.

Referring to said figures by numerals of reference, 1 is a casing of any suitable form and material and having a piston 2 fitting snugly and revoluble therein. This piston is provided with a flange 3 at each end and a flange 4 at the center thereof, and these flanges bear upon the inner surface of the casing, as shown. Between one of the flanges 3 and the flange 4

is a partition or head 5, and a similar partition is secured between said flange 3 at a point out of alinement with the first partition. The walls of the flanges are preferably inclined, as shown, and form bearings for tapered valve-plates 6, which are each provided with enlarged cylindrical ends 7, which are mounted and revolve within the casing near the upper end thereof.

A shaft 8 projects through the side of the casing 1 from the piston 2 and is provided with a gear 9, adapted to engage a similar gear 10, mounted upon a shaft 11, which extends through the casing near the upper end of the side thereof and is secured at its inner end to a cylindrical valve 12, mounted within the casing at a point above the recesses 13, which are adapted to receive the plates 6. This valve is provided with an inclined passage 14 therethrough, which extends from one end to the other thereof.

A suitable inlet 15 is provided at the center of the top of the casing, and said top is so constructed as to form a chamber above the valve 12.

Between each of the recesses 13 and the valve 12 is a slot 16, whereby steam admitted to said valve may pass directly into contact with one of the cylinder-heads. Outlets or exhaust-ports 17 are provided in the side of the casing preferably at points adjacent to the bottoms of the plates 6.

In operation steam is admitted through the inlet 15 and the passage 14 of the valve 12 into contact with one of the piston-heads 5. This will cause the piston to rotate in one direction, as the escape of steam in the opposite direction is prevented by the plate 6, which lies within the path of said piston-head. This revolution of the piston will impart a rotary motion to the valve 12, which will thereby direct the steam entering the inlet 15 against the remaining head 5 of the piston. As the piston revolves the steam will exhaust through the ports 17, and it will be understood that while the steam is exhausting from one half of the cylinder the admission of steam to said head is prevented by the valve 12, which at the same time is directing steam into the other half of the piston.

It will be readily understood that when the

heads 5 contact with the plates 6 said plates will be swung upward into their respective recesses until the heads have passed.

In the foregoing description I have shown  
 5 the preferred form of my invention; but I do not limit myself thereto, as I am aware that modifications may be made therein without departing from the spirit or sacrificing the advantages thereof, and I therefore reserve  
 10 the right to make such changes and alterations as may fairly fall within the scope of my invention.

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

The combination with a casing; of a cylinder mounted therein; tapered annular flanges thereto; heads between the flanges and out of

alinement with each other; a shaft to said cylinder extending through the casing; a gear 20 upon the shaft; a cylinder mounted within the casing above the piston having an inclined passage therein adapted to direct steam against the piston-heads alternately; a shaft to said cylinder; a gear thereon mesh- 25 ing with the gear of the piston-cylinder; inlet and outlet ports to the casing; and tapered plates hinged within a recess within the casing and bearing between the flanges of the cylinder. 30

In testimony whereof I affix my signature in presence of two witnesses.

FRED C. TUCKER.

Witnesses:

FRANK M. TUCKER,  
 SEWARD W. ORRS.