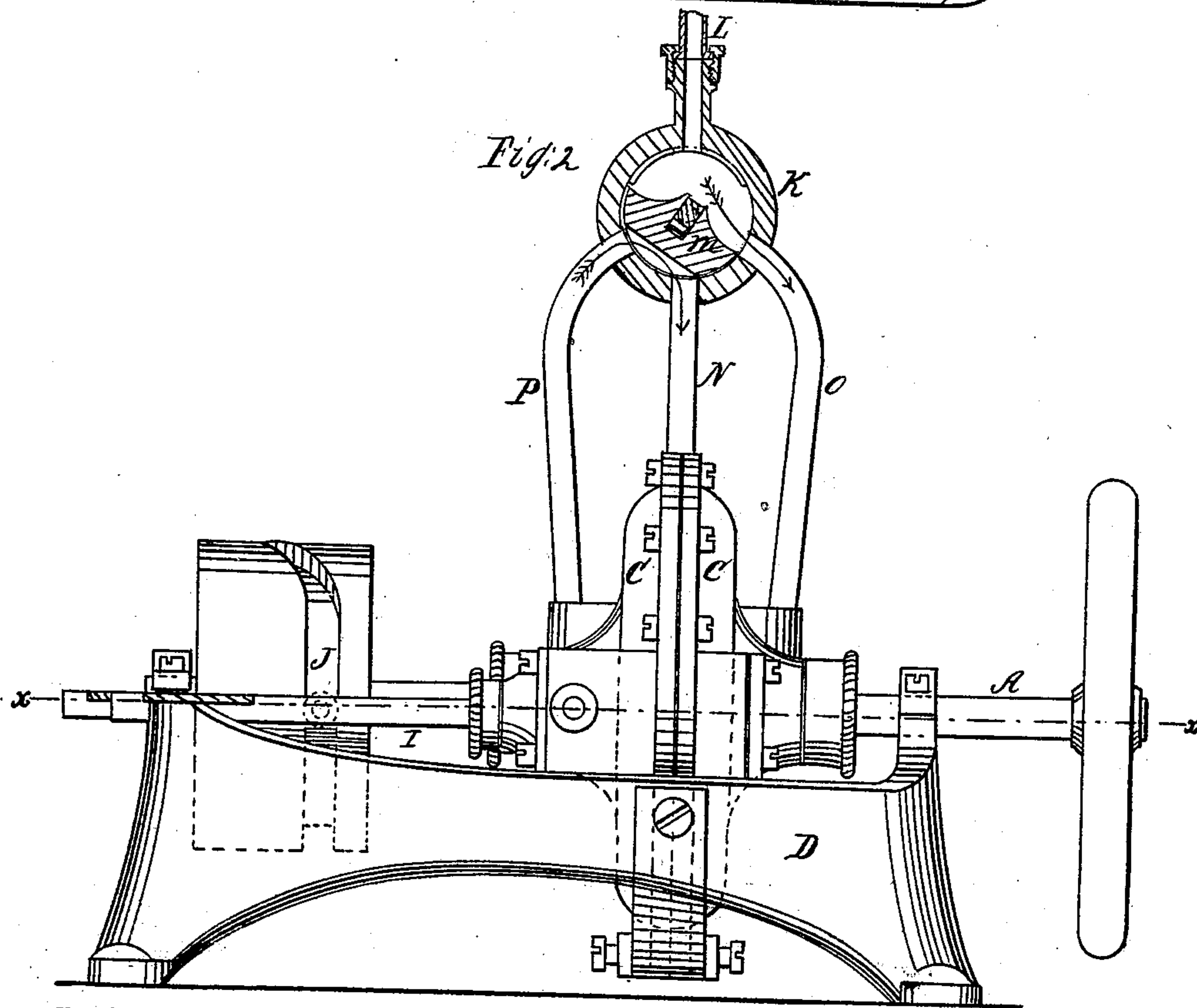
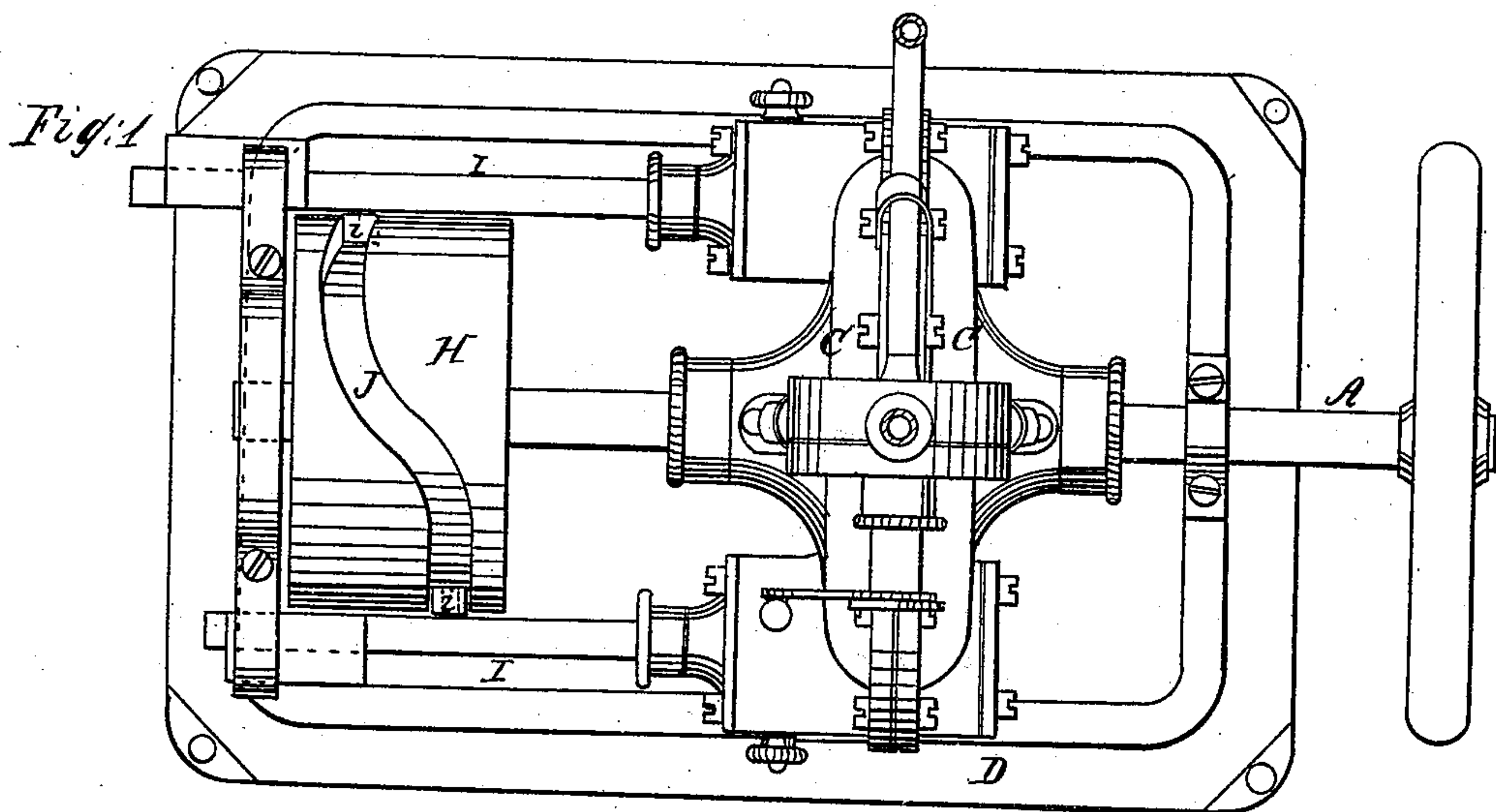


A. Bailey

Steam Engine.

No. 90,721.

Patented Jan. 1, 1869.



Witnesses
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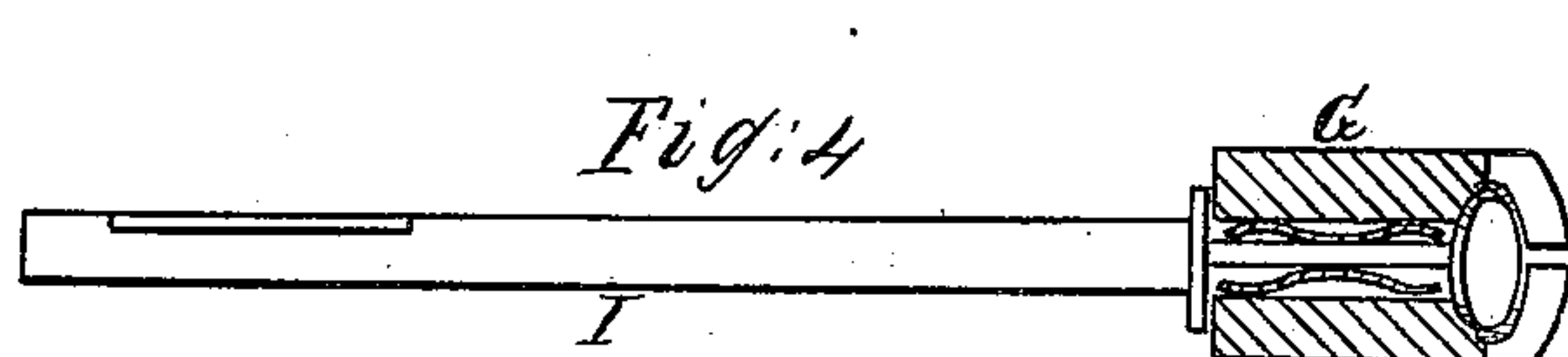
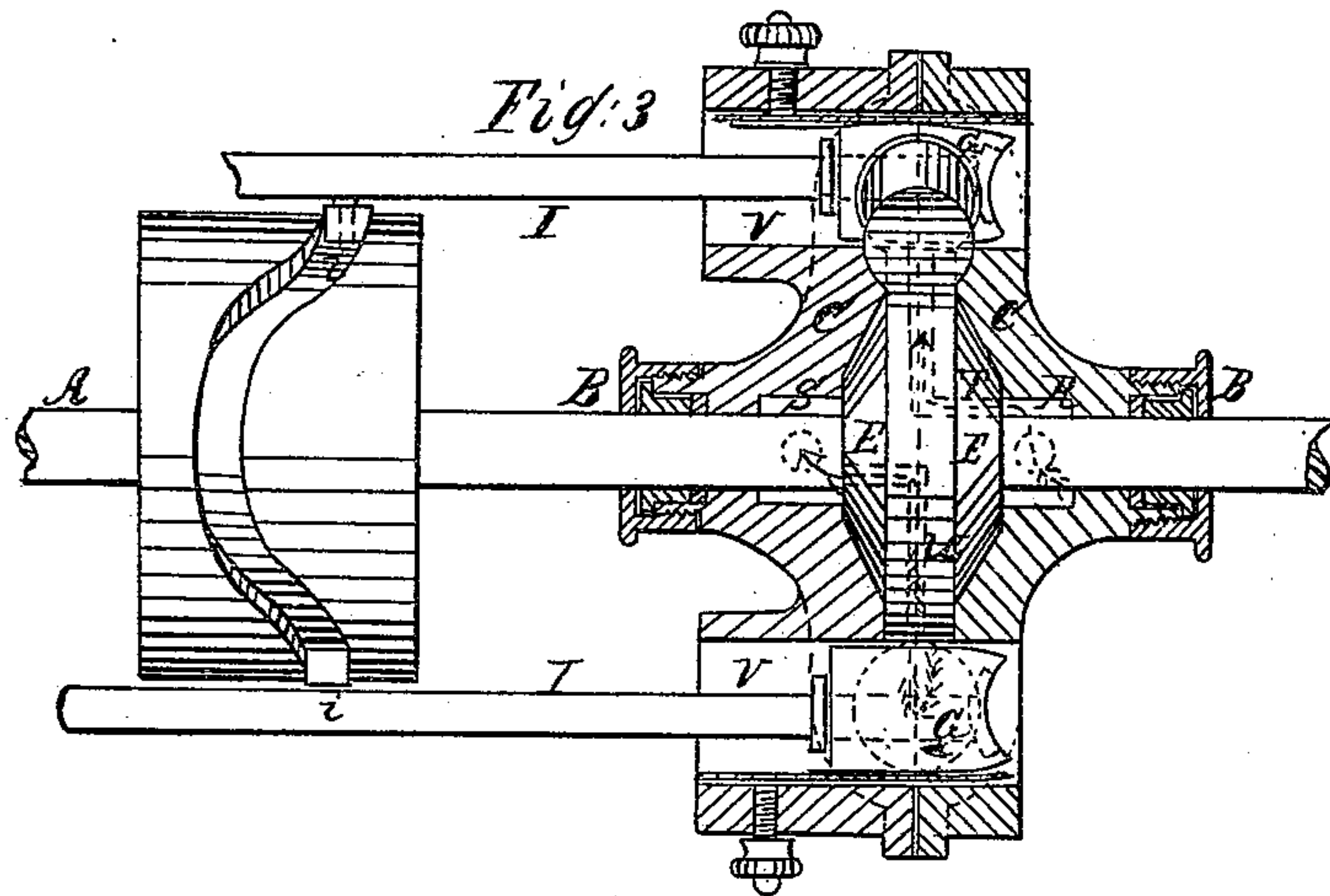
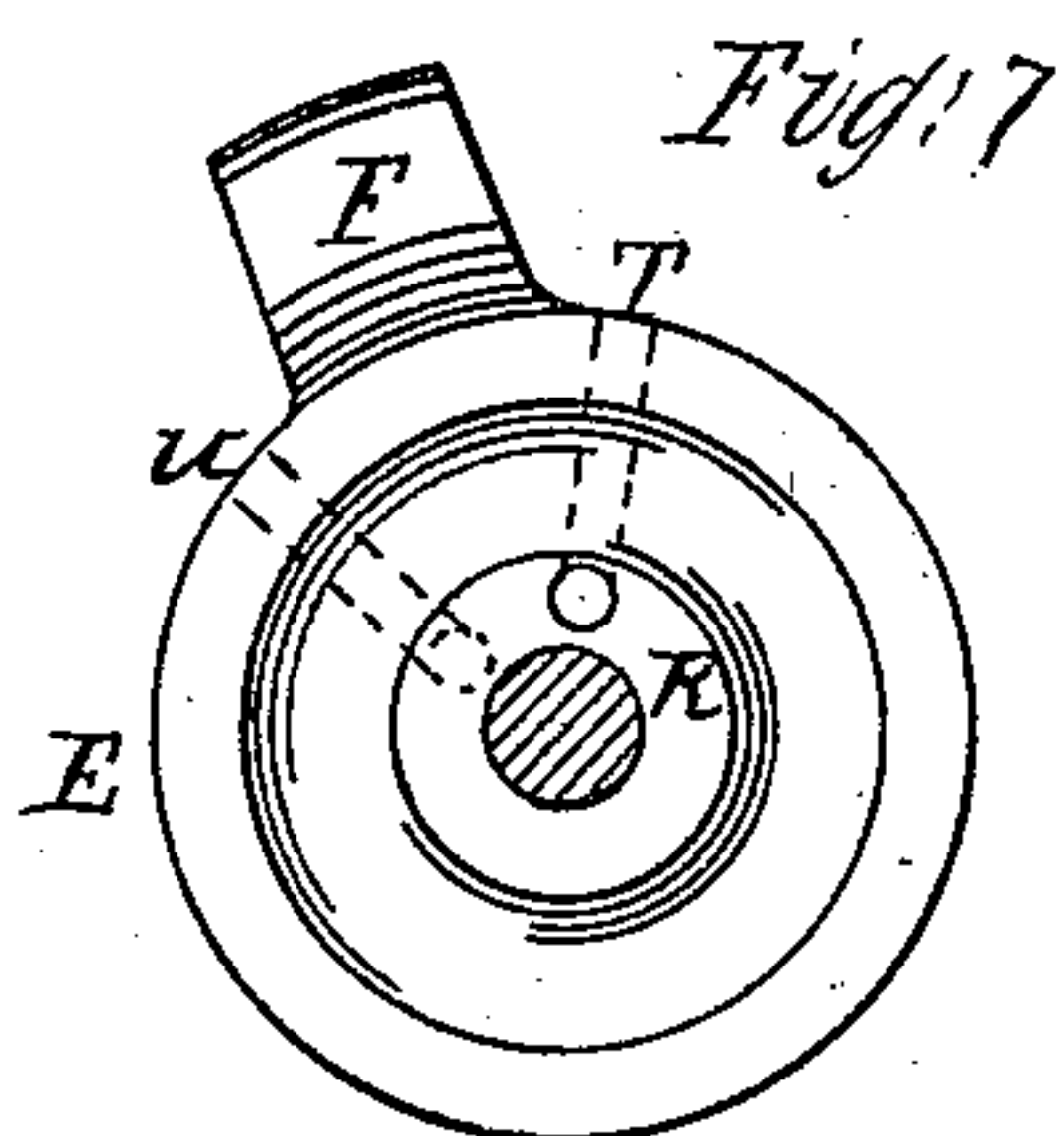
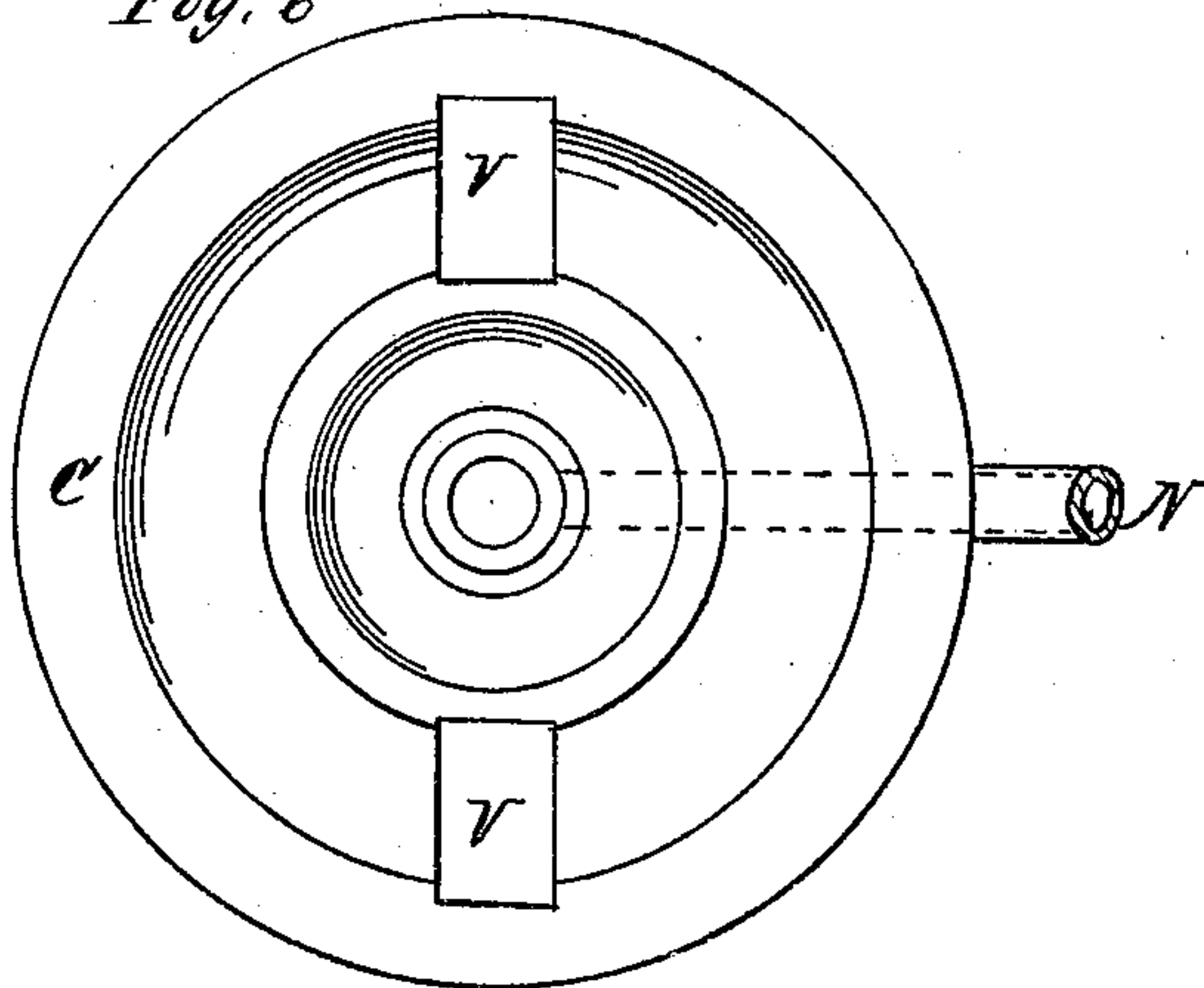


Fig: 6



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ALFRED BAILEY, OF OSWEGO, NEW YORK.

Letters Patent No. 90,721, dated June 1, 1869.

IMPROVEMENT IN ROTARY STEAM-ENGINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern :

Be it known that I, ALFRED BAILEY, of Oswego, Oswego county, New York, have invented a new and useful Improvement in Rotary Steam-Engines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to new and important improvements in engines with rotary pistons, where the steam acts continuously on the piston, and revolves a shaft by constant pressure; and

The invention consists in the novel arrangement of the steam and exhaust-ports, whereby the steam from the boiler is constantly entering the cylinder and constantly exhausting therefrom.

It also consists in the novel construction of the abutment-slides, and in the mechanism provided for reversing the motion of the engine, as will be hereinafter more fully described.

In the accompanying plate of drawings—

Figure 1, Sheet I, represents a plan or top view of the engine.

Figure 2, Sheet I, is a side elevation, with the reversing-arrangement in section.

Figure 3, Sheet II, is a horizontal section of fig. 2, through the line *x x*.

Figure 4 is a view of the abutment-rod, showing the abutment in section.

Figure 5 is an end view of the abutment, showing the concave edge, corresponding with the bore of the cylinder and circle of the piston.

Figure 6 represents an outside view of the cylinder.

Figure 7 is a detached view of the piston-wheel, or disk.

Similar letters of reference indicate corresponding parts.

A is the engine-shaft, which is packed by suitable stuffing-boxes where it passes through the shell, or sides of the cylinder, as seen at B B.

C C represent the sides of the cylinder, which are stationary, and securely fastened to the frame D.

These sides form the cylinder, when bolted together, as seen in the drawing, a semicircle being formed in each, as seen in the sectional fig. 3.

The sides enclose the piston-disk E, which is keyed securely to the shaft A, with the piston F attached to its periphery, as seen in fig. 7.

This piston may be packed like ordinary pistons, and made to run steam-tight in the cylinder.

G represents the abutments, of which there are two, which alternately open and close the cylinder, each being carried forward and back alternately, for each revolution of the piston, by the cam-wheel H, which is attached to and revolves with the shaft.

While one abutment is being carried in and out, or making an entire stroke, the other abutment is at rest, and so on alternately.

There are friction-wheels, *i*, on the abutment-rods I, which run in the cam-groove J, and impart the proper motion to the abutments.

K represents the steam-chest, which receives steam from the boiler through the pipe L.

m is a rock-valve, which works in the chest on a suitable rod, or spindle.

N is the exhaust-pipe, which is in communication with the chest K.

As represented in the drawing, the pipe O is admitting steam into the cylinder, and the pipe P is exhausting it therefrom, the course of the steam, in each case, being indicated by arrows; but it will be seen, that by turning the valve a portion of a revolution, so as to bring the pipes O and N into communication with each other, the pipe O would then exhaust the steam, and P would become the induction-pipe. This would, of course, reverse the motion of the engine.

Referring to fig. 7, R represents a chamber in the side of the cylinder, immediately around the shaft, into which the steam is admitted by the pipe O. This is the induction-chamber.

There is a corresponding chamber, S, on the other side of the disk, which, as seen, is the eduction or exhaust-chamber.

From the chamber R the steam is conveyed to the cylinder, through the channel, or port T, and from the cylinder, through the channel, or port *u*.

These ports, or channels open into the cylinder on each side of the piston, as seen in fig. 7; or it may be said, they open in front and in rear of it.

There is no cessation to the flow of steam through the channel T into the cylinder, nor of the flow of steam from the cylinder, consequently, there is no necessity for cut-off valves.

The abutments close the cylinder with steam-pressure upon both sides; consequently, they are balanced, and the friction upon them is very slight. They are drawn back by the cam, to allow the piston to pass, and to form a base, or abutment for the steam to act against at each revolution, so that the steam is always entering the cylinder in the rear and exhausting in front of the piston, and the abutments are always opening forward and closing behind it.

The abutments, or heads G are made each in two parts, which are confined on the rods by means of collars, or shoulders, with one or more springs between the parts, for pressing them to their seats.

The pressure is equalized by allowing steam to enter between the parts.

They slide in boxes, *v*, which form part of the sides of the cylinder, the rods being secured steam-tight by stuffing-boxes, as seen in the drawing.

I claim as new, and desire to secure by Letters Patent—

1. The arrangement of the devices whereby the steam is admitted to and exhausted from the cylinder, substantially as herein described and shown.

2. The construction of the abutments G, arranged substantially as herein described.

The above specification of my invention signed by me, this 5th day of February, 1869

ALFRED BAILEY.

Witnesses:

FRANK BLOCKLEY,
E. GREENE COLLINS.