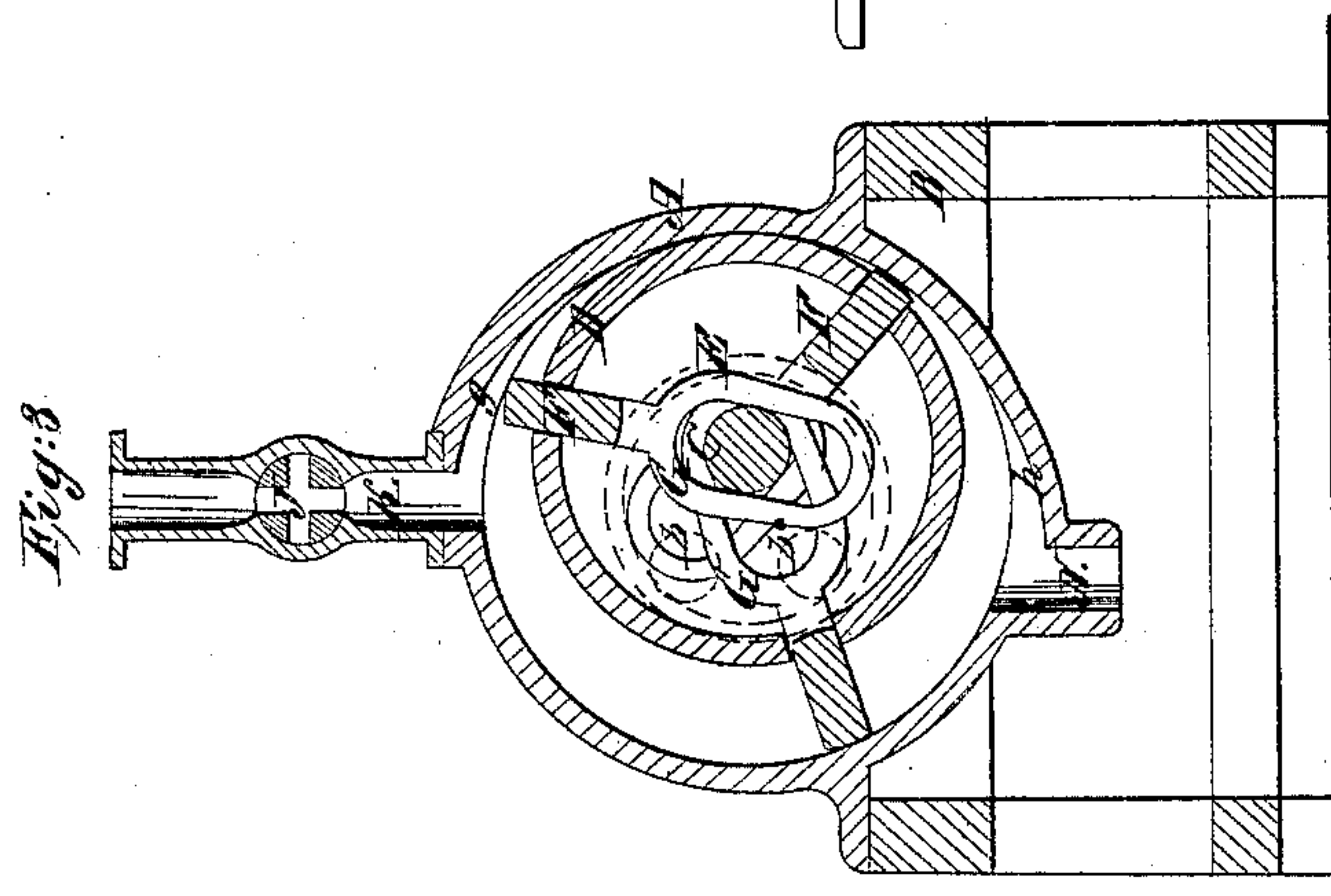
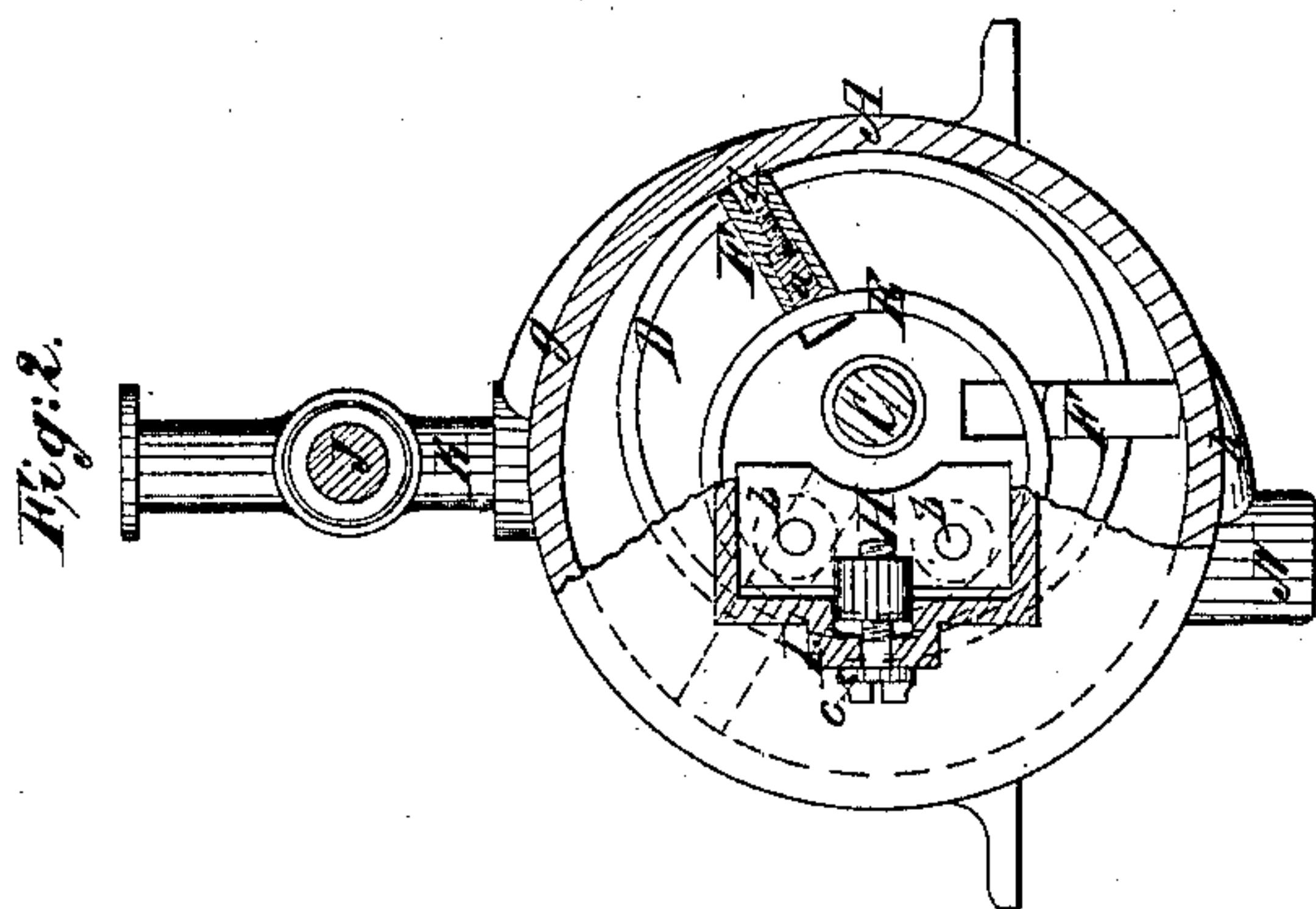
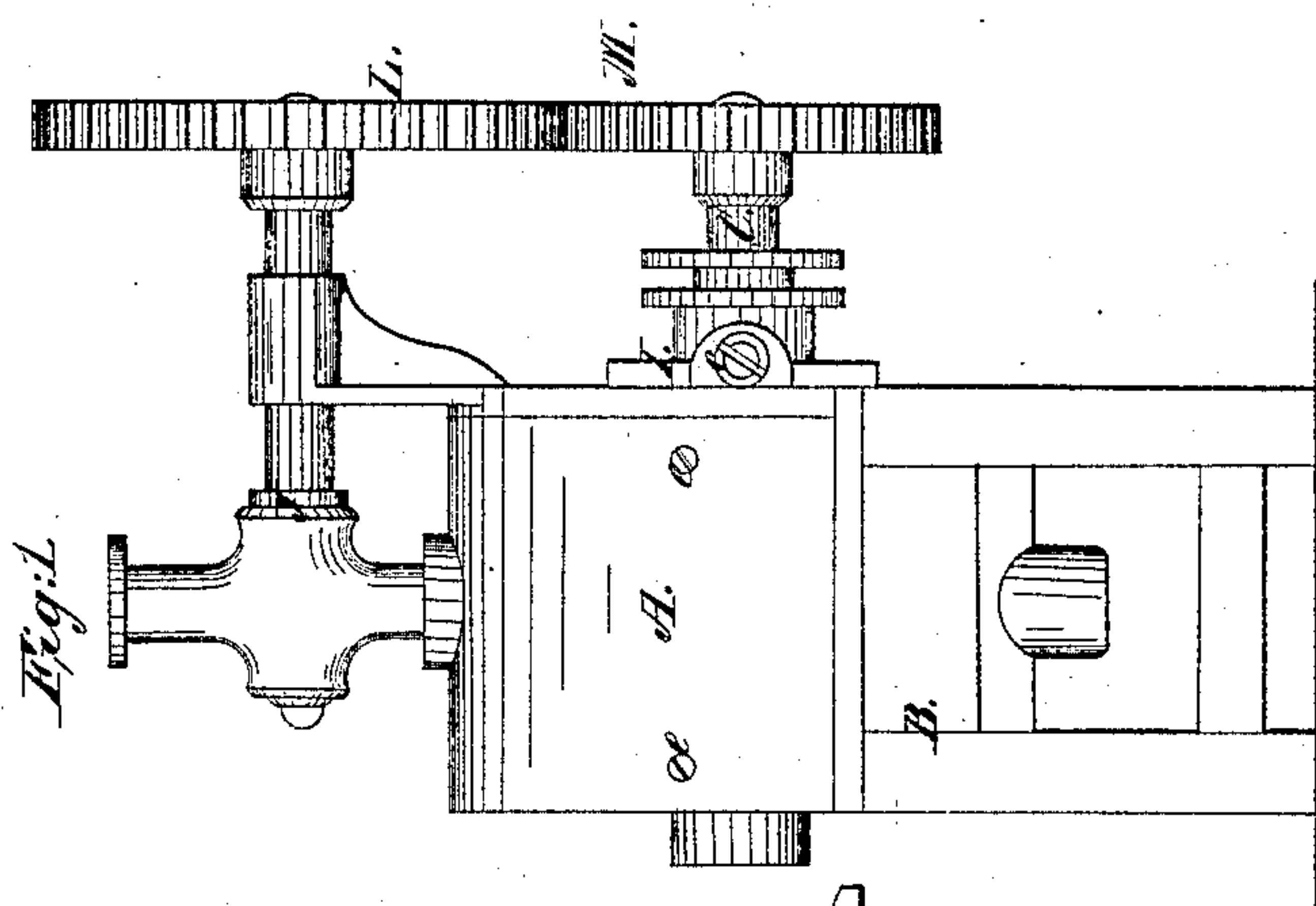


J. E. Gillespie,
Rotary Steam Engine.
N^o 65,483. Patented June 4, 1867.



Witnesses:

J. M. Coombes
G. W. Reed

Inventor.
J. E. Gillespie
Per Brown Coombes & Co.
Attys

United States Patent Office.

J. E. GILLESPIE, OF BOSTON, MASSACHUSETTS.

Letters Patent No. 65,483, dated June 4, 1867.

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, J. E. GILLESPIE, of Boston, in the county of Suffolk, and State of Massachusetts, have invented a certain new and useful Improvement in Rotary Motors, applicable also to pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and in which—

Figure 1 represents an end elevation of a steam or other motor having my improvement applied to it.

Figure 2, a partly sectional view taken at right angles to the driving-shaft and close to the cylinder cover; and

Figure 3, a transverse section in the same direction through the centre of the motor.

Like letters refer to corresponding parts.

My improvement relates to that class of rotary motors or pumps in which radially-sliding pistons are used in connection with a revolving drum and eccentric outer cylinder or case; and the nature of my invention consists in a combination with such arrangement of pistons, of loose eccentric rings to the inner edges of the pistons, said rings being left free to rotate. Likewise the invention consists in a novel outside adjustment of said rings; also outside adjustment of bearing-blocks to the inner edges of the pistons.

Referring to the accompanying drawing, A represents an outer cylinder or case supported on any suitable frame, B. C is the driving-shaft, which is arranged eccentric to the main cylinder A, and has fast to it a hollow drum, D, which may be boxed in at the ends that are recessed, to accommodate, between said ends and the cylinder covers on either side, a loosely-fitting and free-to-rotate ring, E, concentric, say, with the outer cylinder or case, and that serve as bearing surfaces for the interior edges of the pistons F, or blocks *a*, fitted therein at opposite ends of said pistons, to rest on and travel over or round said pistons, having a radially-sliding action through the drum D, and being guided or directed in such action by yokes, G, connected with them, and clipping or looping over the shaft C. These rings are retained in place and set up from time to time to adjust the pistons to their bearing and provide against wear, by means of anti-friction rollers *b b*, carried by a slide or slides H, adjustable by a set-screw, *c*, working through a box or case projection, I, on the exterior of the cylinder covers, and whereby said rings E are adjustable from the outside and while the motor is at work. The rings E being loose and free to rotate, friction is reduced by the rub of the interior edges of the pistons or their blocks *a* against them in the travel of the drum D and main shaft. While the rings E are supported or held by the rollers *b b*, as described, and the wings or pistons kept up snug to work against the shell or case by the adjustment of the slide which carries the rollers, it may not be practicable to move the rings E sufficiently from their true or original position to effect the adjustment in case of extensive wear, to meet which, and to provide for separate adjustment of the pistons, I make the blocks *a*, at the ends of the inner edges of the rings, adjustable by means of a screw or screws, *d*, passing up within a recess in the wings or pistons, and accessible from the outside of the cylinder or case on removing screw-plugs *e*. The outer and inner edges of the wings or pistons are suitably rounded to accommodate them to a free yet close fit against the surfaces they travel over during the varying eccentric positions of them assumed in their travel by reason of the relative positions of the shell or case A, drum D, with its shaft C and rings E. Supposing steam to be the impelling force, it is or may be admitted by a revolving cock, J, which, where the main shaft or its drum, D, carries, say three wings or pistons, should revolve three times for each four revolutions of the motor shaft, whereby said valve will act to advantage as a cut-off, the length of follow being determined by the breadth of the throat of the steam pipe K, in which it works. To make such action relative and automatic, the valve J should be geared with the motor shaft by wheels, L M, of a size or diameter proportioned to the different velocity required to give the valve, and which may be changed according to the number of wings or pistons employed. N is the exhaust pipe, and *g h* are recesses or ways in the outer cylinder to facilitate the admission of steam to the backs of the pistons and secure a free and extended passage to the exhaust. Where the motor is designed to be propelled by water, then the cut-off valve may be dispensed with, and would also be out of place in driving the machine to work as a pump, for which purpose, it will be obvious, my invention is equally applicable, by making the one pipe the suction, and the other to serve the purpose of delivery.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the sliding and revolving radial wings or pistons and loose eccentric rings E, for operation together, essentially as specified.
2. The loose eccentric rings E, made adjustable from the exterior of the cylinder or case, substantially as herein set forth.
3. The blocks a, to the wings or pistons F, made adjustable from the outside of the cylinder or case, essentially as described.

Witnesses:

THOMAS LEAVITT,

J. KALLOCK.

J. E. GILLESPIE.