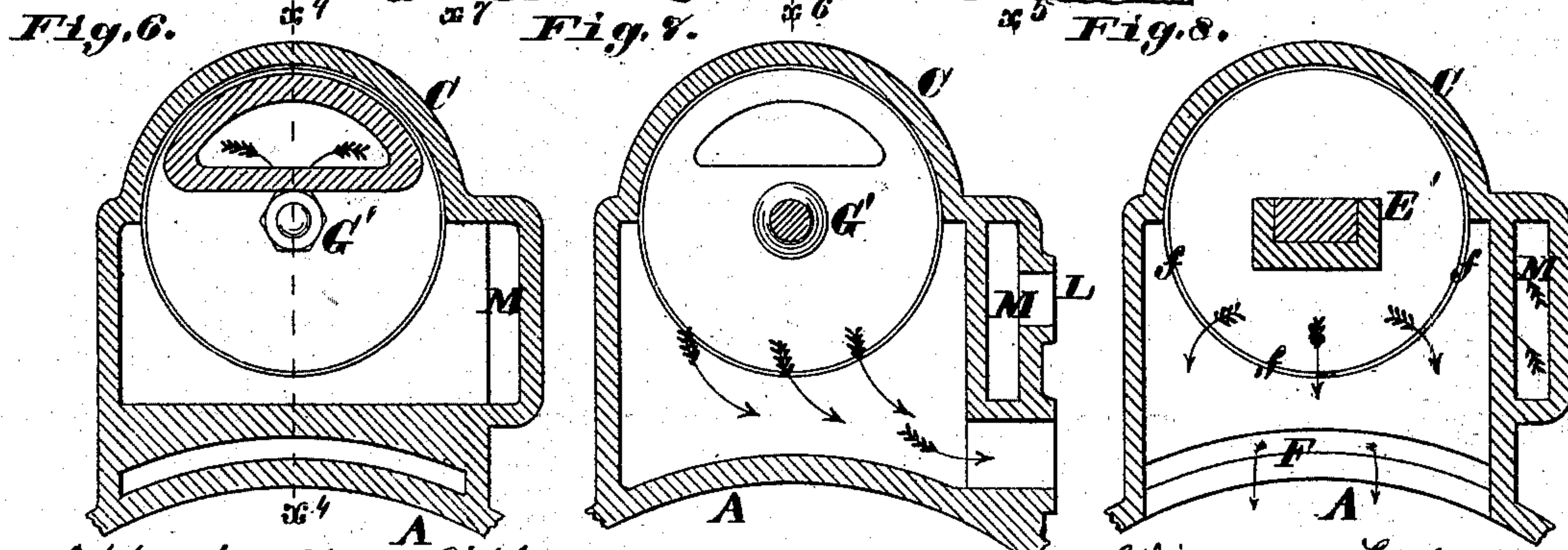
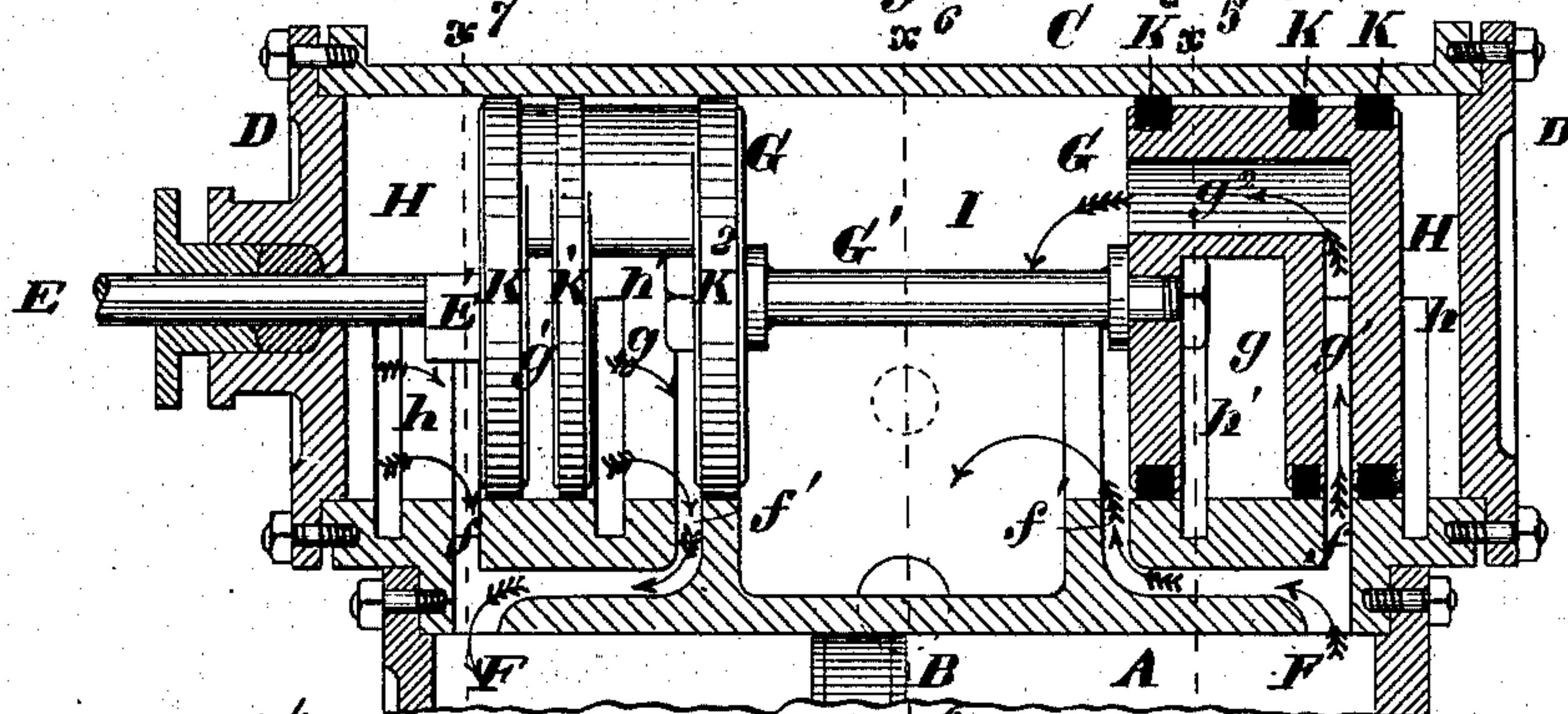
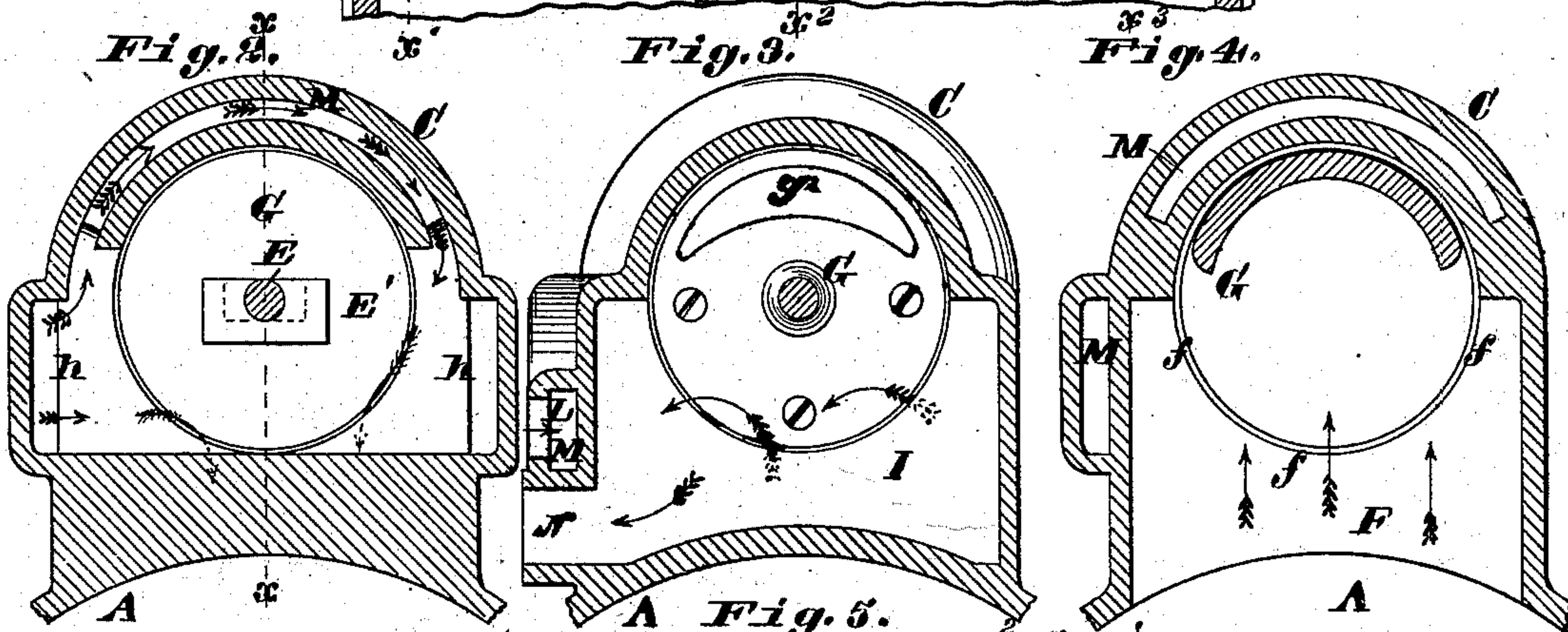
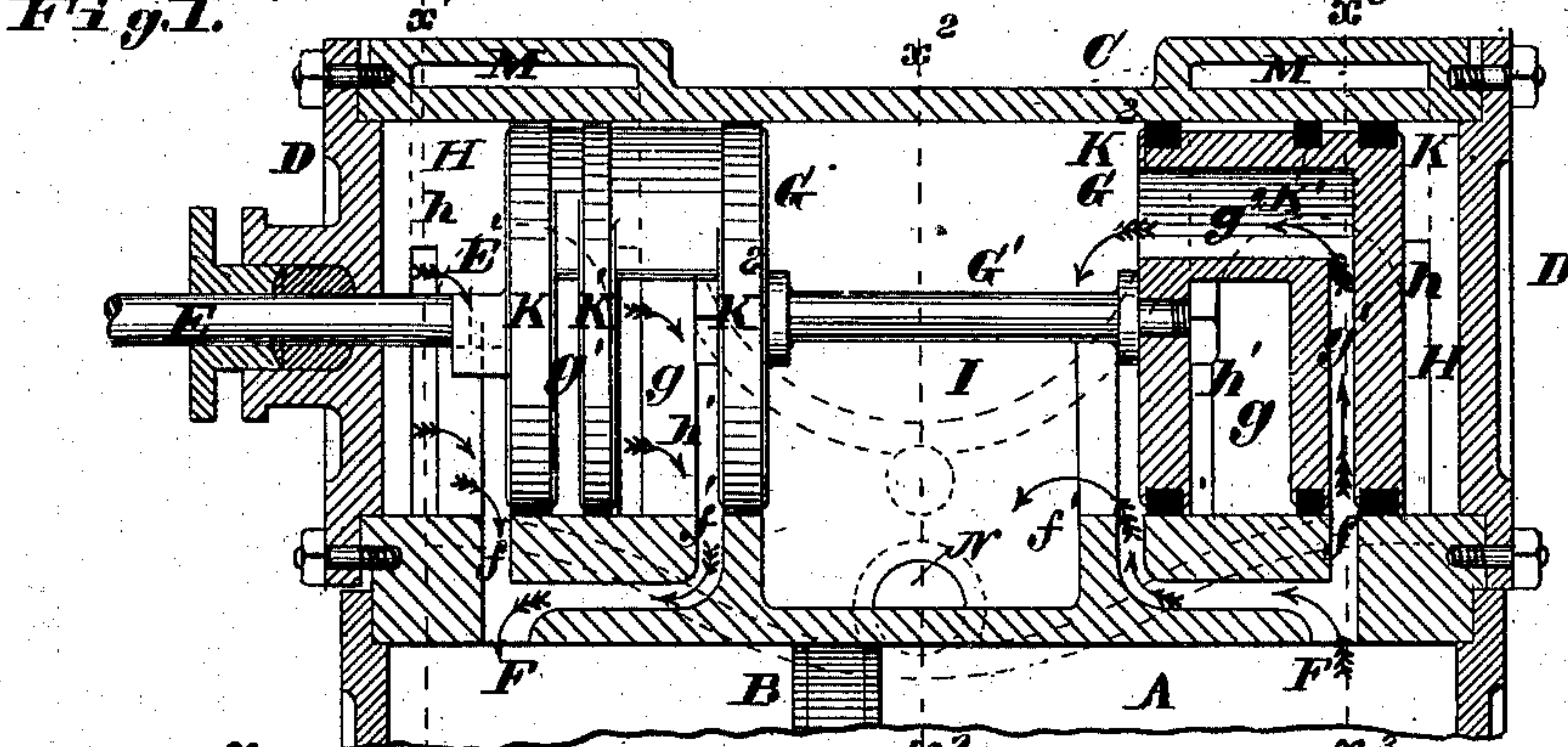


(Model.)

W. FOLEY.
PISTON VALVE.

No. 252,450.

Patented, Jan. 17, 1882.



Attest: Charles Pickles
Geo. H. Knight

Inventor: William Foley
By Knight Bros. Attys.

UNITED STATES PATENT OFFICE.

WILLIAM FOLEY, OF KEOKUK, IOWA.

PISTON-VALVE.

SPECIFICATION forming part of Letters Patent No. 252,450, dated January 17, 1882.

Application filed May 31, 1881. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM FOLEY, of Keokuk, Lee county, Iowa, have invented a certain new and useful Improvement in Piston-Valves for Steam-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My improvement consists of two compound piston-heads forming a slide-valve working in a cylindrical steam-chest, as hereinafter described and claimed.

In the drawings, Figure 1 is a longitudinal section at $x x$, Fig. 2. Fig. 2 is a transverse section at $x' x'$, Fig. 1, looking away from the valve-stem. Fig. 3 is a similar transverse section at $x^2 x^2$, Fig. 1. Fig. 4 is a similar transverse section at $x^3 x^3$, Fig. 1. Fig. 5 is a longitudinal section at $x^4 x^4$, Fig. 6. Fig. 6 is a transverse section at $x^5 x^5$, Fig. 5, looking toward the valve-stem. Fig. 7 is a similar transverse section at $x^6 x^6$, Fig. 5. Fig. 8 is a similar transverse section at $x^7 x^7$, Fig. 5.

A part of the engine-cylinder is seen at A. B is a part of the engine-piston. C is the steam-chest, shown as cast with the cylinder; but this is not essential, for the steam-chest may be in a separate casting from the cylinder A. The heads of the steam-chest are shown at D.

E is the valve-stem, having preferably a T-head connection, E' , with the valve, as described in my application for patent filed 15th October, 1880. The valve itself, as shown in Figs. 1 to 4, is similar to that shown in Figs. 5 to 8; but the steam-passages are somewhat modified.

I will first describe the construction shown in Figs. 1 to 4.

F F are the steam-ports of the cylinder A, branching and communicating with the interior of the steam-chest at $f f'$. These ports $f f'$ I prefer to extend up the sides of the valve, as shown, to give a free passage to the steam.

The valves consist of two similar heads, G, connected by a rod, G' , and each having two chambers, g and g' , the former of which is a steam-chamber and the latter an exhaust-chamber. These chambers are separated from each other and from the steam-chambers H H and exhaust-chamber I by packing-rings K K'

K², which surround the circular heads G. The rings K and K² are wide enough to cover the ports $f f'$.

The induction-port of the steam-chest is shown at L. This part is in communication with a steam-jacket, M, surrounding the upper part of the steam-chest at the ends and communicating with the steam-chambers H and g by ports h and h' . The steam from the chambers H and g passes through the ports f and f' and the port F into the receiving end of the cylinder, and exhausts from the other end of the cylinder through ports $F f f'$ into chambers g' and I and through the exhaust-passage N. The chambers g' and I communicate by a passage, g^2 , in each head G.

In the form shown in Figs. 5 to 8 the steam jacket or passage M extends along one side of the steam-chest. As the ports h and h' extend up the sides of the valve, and as the chamber g extends up into the valve in like manner, the steam has very free ingress to the ports f and f' .

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. Cylinder-valve working in a valve-chest provided with suitable induction and eduction ports, and composed of two heads, each containing a live-steam chamber and an exhaust-steam chamber separated from each other and closed upon the outer sides by packing-rings encircling the head.

2. The combination, in a cylinder slide-valve, of the duplicate steam-ports $f f'$ and induction-ports $h h'$ at each end of the cylinder, the two heads G G, each having three packing-rings, a live steam chamber, g , and an exhaust-chamber, g' , connected by a duct, g^2 , with the central exhaust-chamber, I, substantially as and for the purpose set forth.

3. The combination, in a valve-chest, of the induction-port L, passages M, extending over the steam-chest, and induction-ports $h h'$ on both sides of the steam-chest, substantially as set forth.

WM. FOLEY.

Witnesses:

I. N. TICHENOR,
W. J. MEEKS.