

R. K. Huntton,
Governor for Steam Engines,
No. 71,015, *Patented Nov. 19, 1867.*

Fig. 4.

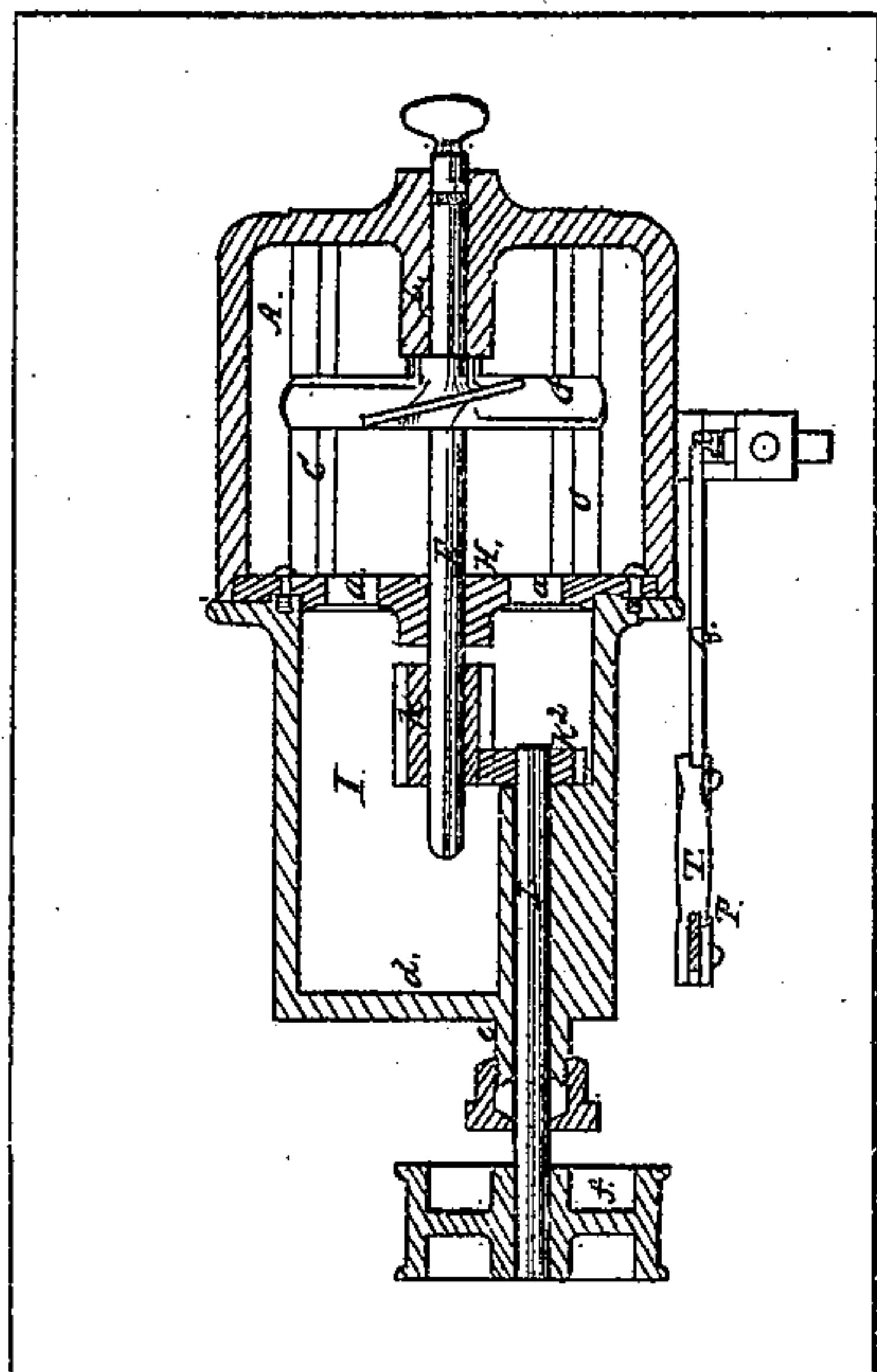
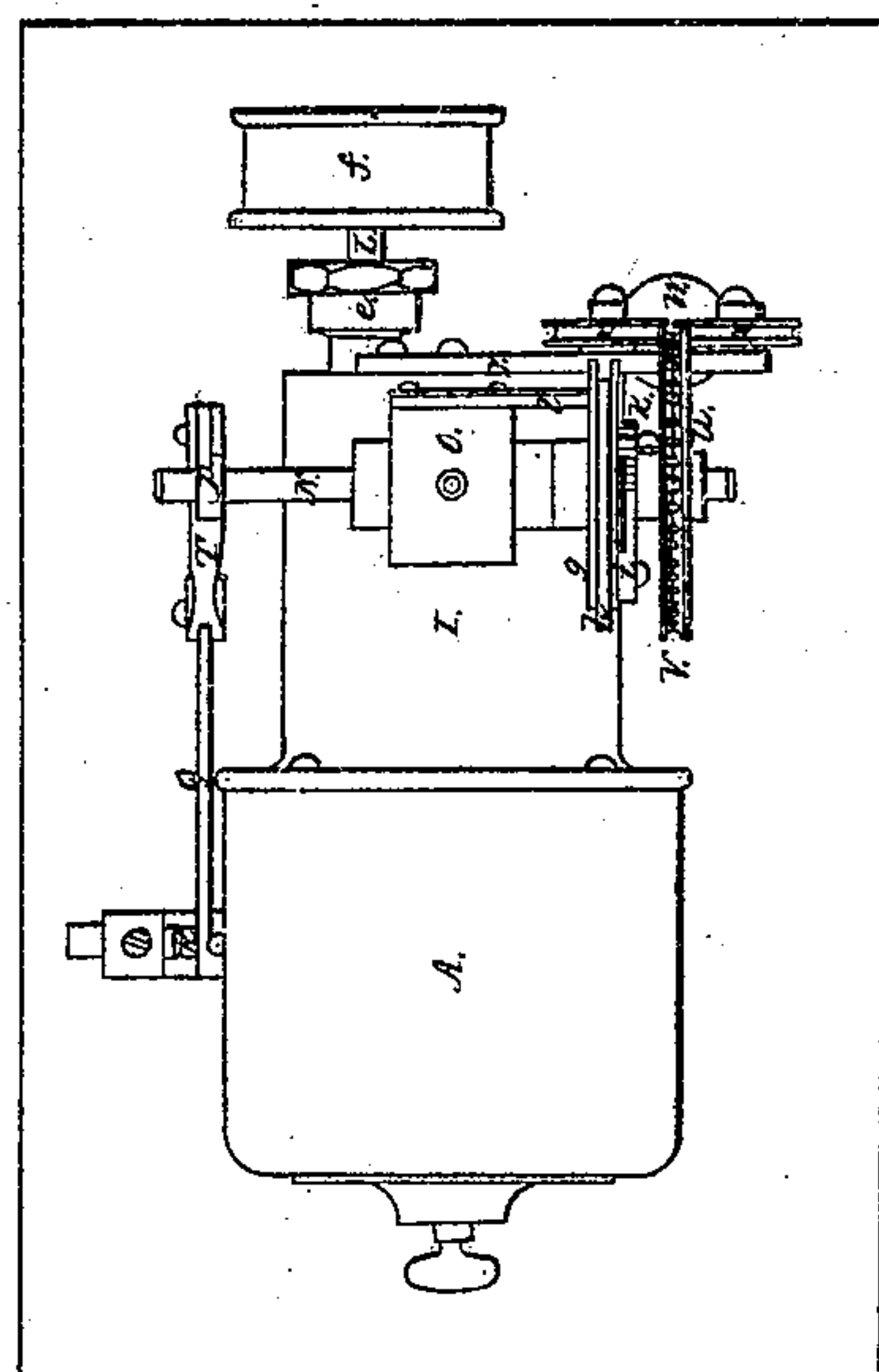


Fig. 1.



Witnesses.
S. N. Piper
J. B. Snow

Fig. 2.

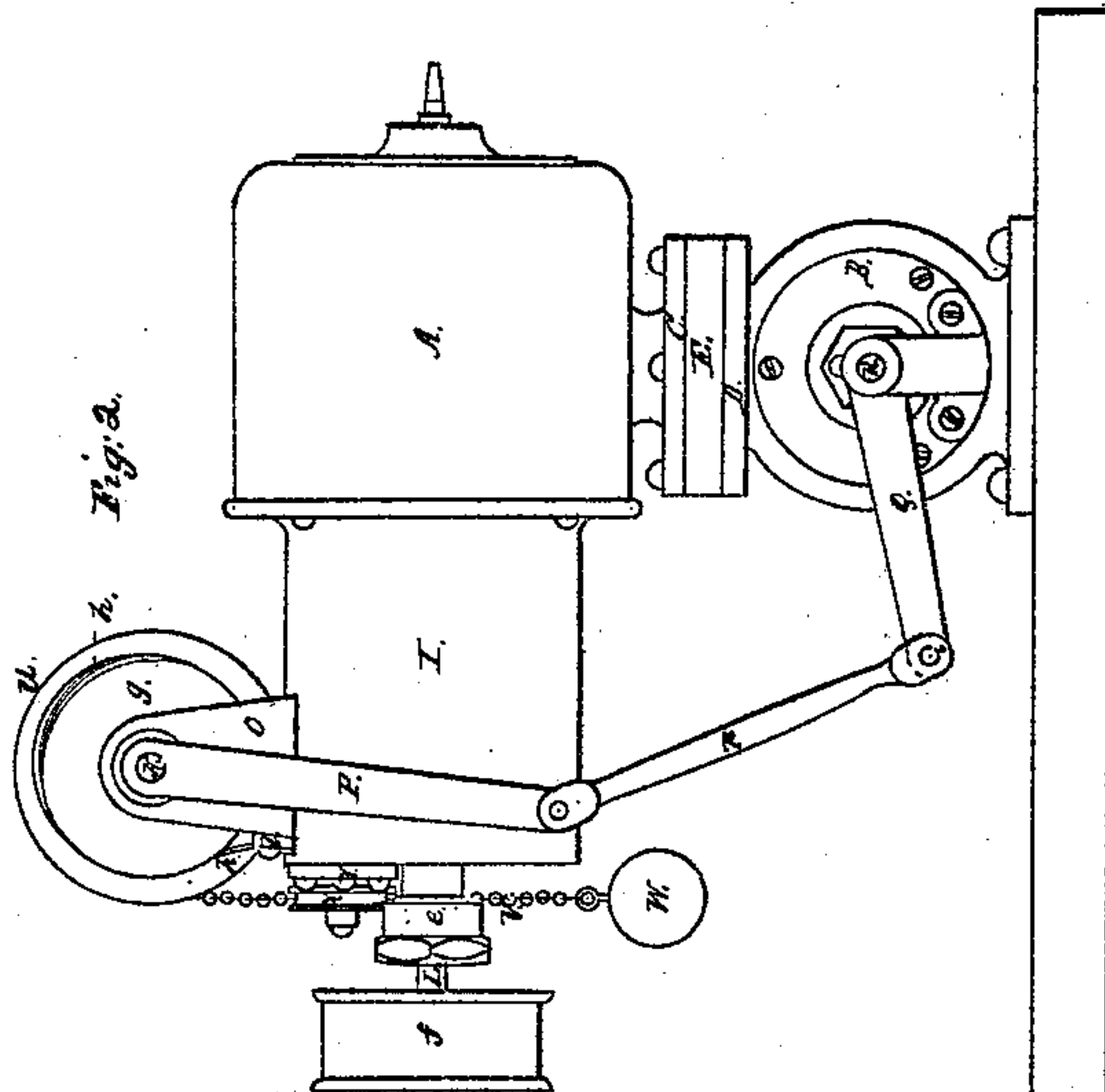


Fig. 3.

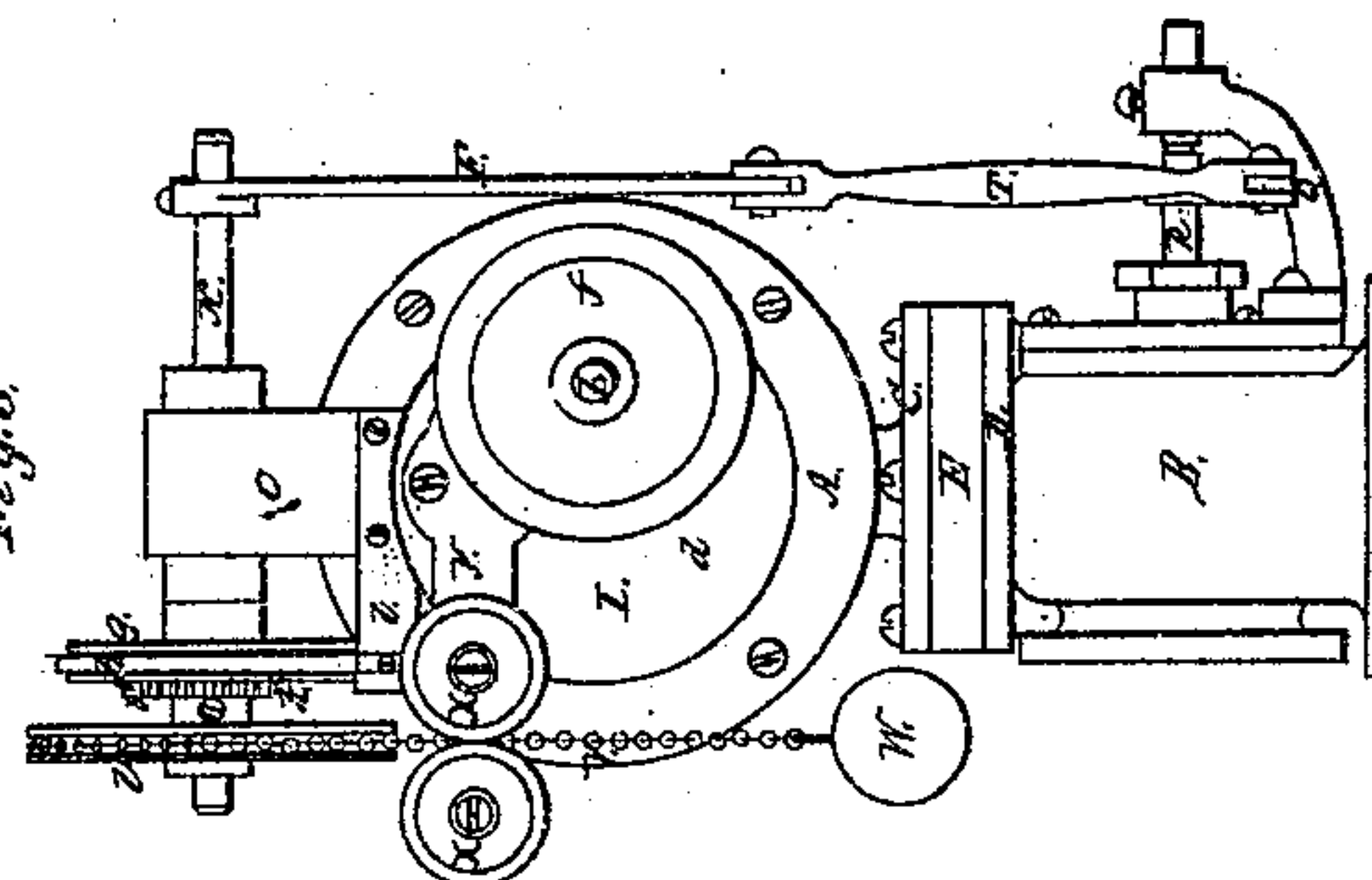
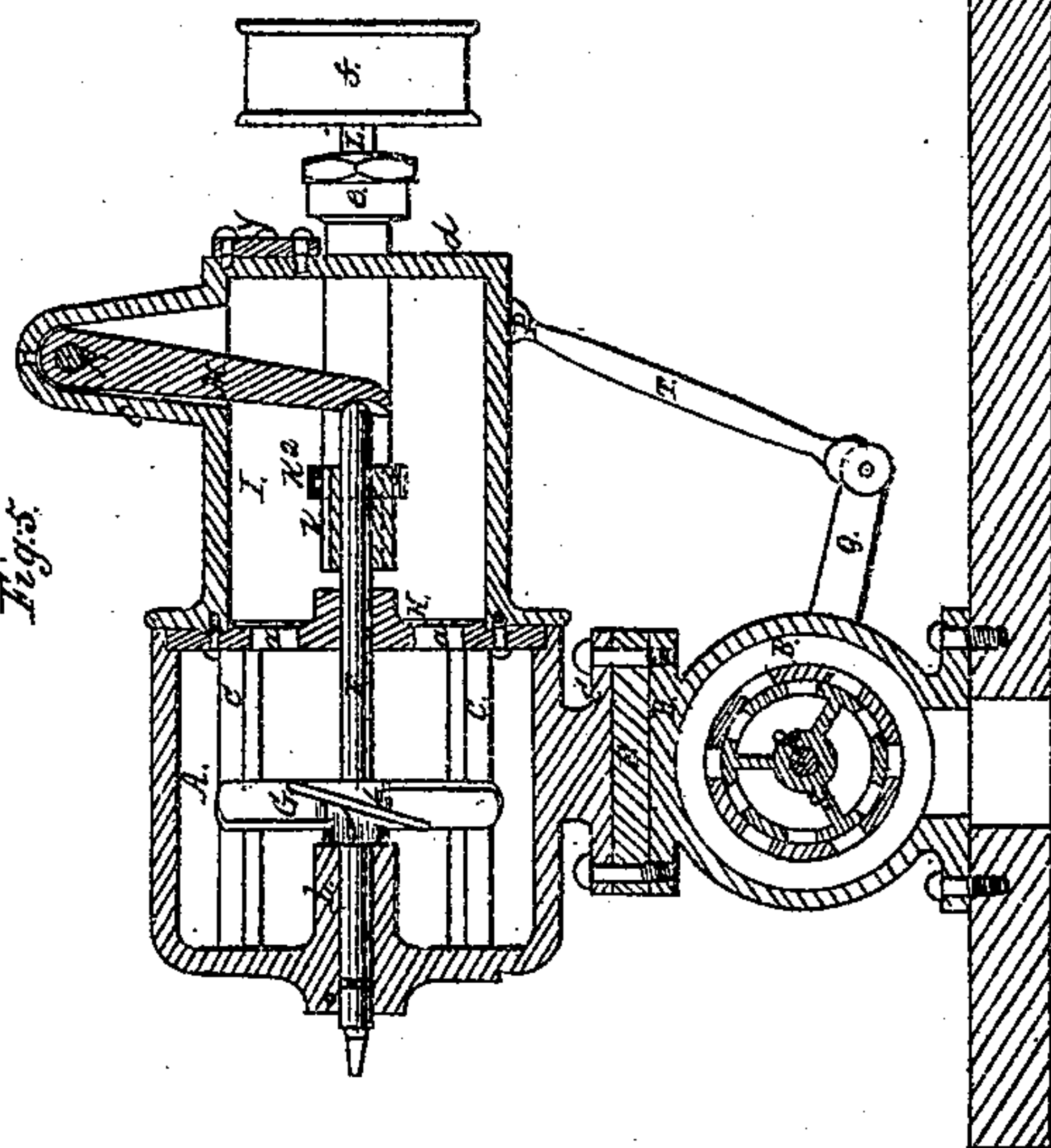


Fig. 5.



Inventor.
R. K. Huntton.
By his attorney.
R. M. Eddy.

United States Patent Office.

REUBEN K. HUNTOON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO HIMSELF AND J. AUGUSTUS LYNCH, OF SAME PLACE.

Letters Patent No. 71,015, dated November 19, 1867.

IMPROVEMENT IN GOVERNORS FOR STEAM ENGINES.

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

TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME:

Be it known that I, REUBEN K. HUNTOON, of Boston, in the county of Suffolk, and State of Massachusetts, have made a new and useful Improvement having reference to Governors for Steam Engines; and I do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view,

Figure 2, a side elevation,

Figure 3 a front end elevation,

Figure 4 a horizontal section, and

Figure 5 a vertical and longitudinal section of a "governor" constructed in accordance with my invention.

The common and well-known "ball-governor," attached to pendulous arms, cannot well be used for marine engines, it being only adapted for stationary or land engines, the rolling and pitching movements of a vessel at sea causing the balls to operate with irregularity, which renders the governor useless for the purpose for which it is intended.

My improved governor, hereinafter described, is specially applicable to the engines of navigable vessels, and in this respect it is a desideratum long sought for.

In the drawings, A denotes a close cylindrical cast-iron vessel, supported over a steam-valve case, B, (also made of metal,) by means of a flange foot, C, between which and a base-plate, D, fixed to the top of the case B, a non-conductor of heat, E, is interposed. This non-conductor may be a disk of wood, its purpose being to prevent heat passing from the valve-case up into the vessel A, in order to heat the oil or liquid contained therein and cause evaporation thereof, or its water. A horizontal-shaft, F, supporting a screw-propeller, G, is, with such propeller, arranged within the case A. The shaft F extends from the said case through a supporting partition, H, and into another cylindrical vessel, I, which is fixed to the vessel A, and communicates therewith through one or more holes *a a*, made in the said partition. The shaft is supported in and by the partition, and in and by a tubular bearing, *b*, extending from one end of the cylinder A. Furthermore, there is around the propeller, and fixed to the inner surface of the vessel A, a series of ribs, *c c c*, the office of which is to prevent or hinder the oil or fluid in the vessel A from being revolved therein by the propeller, when in revolution. A gear, K, fixed on the shaft of the propeller, and within the oil-chamber or vessel I, engages with another gear K², fixed on a shaft, L, extending through the head *d* of the vessel I, and being supported in a stuffing-box, *e*, applied thereto. An endless belt from the engine is to run around a pulley, *f*, fixed on the shaft L. That end of the shaft E which is within the oil-vessel I, abuts against an arm, M, extending down into the vessel, and from a shaft, N, arranged transversely thereof and over the vessel. The shaft N goes through a hollow head or extension, O, projecting up from the said oil-vessel I, and at bottom being made to open into the said vessel. An arm, P, extending from one end of the shaft N, engages by means of a connecting-rod, T, with an arm, Q, projecting from the shaft R of the valve S. On the other end of the shaft N is a wheel, U, to whose periphery a chain, V, attached to a weight, W, is affixed, the chain being extended around the said periphery, and carried between two guide-rollers X X. The peripheries of such rollers are grooved to receive the chain and prevent it from slipping from between the rollers. The weight is fixed to the chain below the rollers, and the rollers turn on journals projecting from a stationary arm, Y, extending from the vessel I. As an equivalent for the wheel, chain, and weight, a wheel and spiral spring may be employed. This wheel is shown at *g*, and the spring at *h*. The wheel is to turn on the shaft N, and to carry a pawl, *i*, to engage with a ratchet, *k*, fixed on the shaft. Furthermore, the spiral spring is to have one end attached to the wheel, and is to be coiled around the wheel, and have its other end fastened to an arm, *l*, projecting from the vessel I. The ratchet and pawl serve to so connect the wheel with the shaft N as to cause it to be turned by the shaft. They admit also of the wheel being turned on the shaft for the purpose of taking up or coiling the spring as occasion may require.

If we suppose both of the vessels A and I to be filled with oil, and the propeller in the vessel A to be put in revolution by its driving-gears actuated by a belt from the steam engine, the propeller, as the speed of the engine may increase, will be moved within the oil so as to force the shaft F against the arm M, and move it so

as to turn the shaft N, and thereby cause the steam-valve to be moved so as to diminish the flowage of steam through it. When the speed of the engine may slacken, the weight W or the spring $\frac{1}{2}$ will effect a retrograde endwise movement of the propeller-shaft, and also a retrograde movement of the valve, whereby the flowage of steam will be increased. The weight W, by having its chain arranged between and guided by the wheels X X, will be at liberty to swing in any direction without danger of the chain being thrown off its wheel U. The driving-gears of the propeller-shaft, by being within the vessel I, will run in the oil thereof, and thus will be kept well lubricated. The propeller-shaft and its bearings, by their arrangement in the oil-vessel or vessels, will also be kept lubricated.

In the above-described machine, I claim as my invention, the following, viz:

I claim the combination and arrangement of the close oil-vessel I, and the open head or partition H, with the case A, the propeller, its shaft, and driving-gears, arranged within the vessel and case, substantially as described.

I also claim the combination as well as the arrangement of the arm M, its shaft N, wheel U, chain V, and weight W, or the mechanical equivalent of such wheel, chain, and weight, with the propeller, its shaft, and the case or cases containing such propeller and shaft.

I also claim the combination of the guide-wheels X X, or their equivalent, with the weight W, its chain V, and supporting-wheel U, the shaft N, arm M, the propeller, its shaft, oil-reservoir or case, and operative mechanism, substantially as described.

I also claim the combination of the insulator E with the steam-valve case, and the governor made and applied thereto, substantially as set forth.

REUBEN K. HUNTOON.

Witnesses:

R. H. EDDY,

F. P. HALE, Jr.