J. M. BOTTUM.

Governors for Steam-Engines, &c,

No. 137,652. Patented April 8, 1873.

FIG. 1.

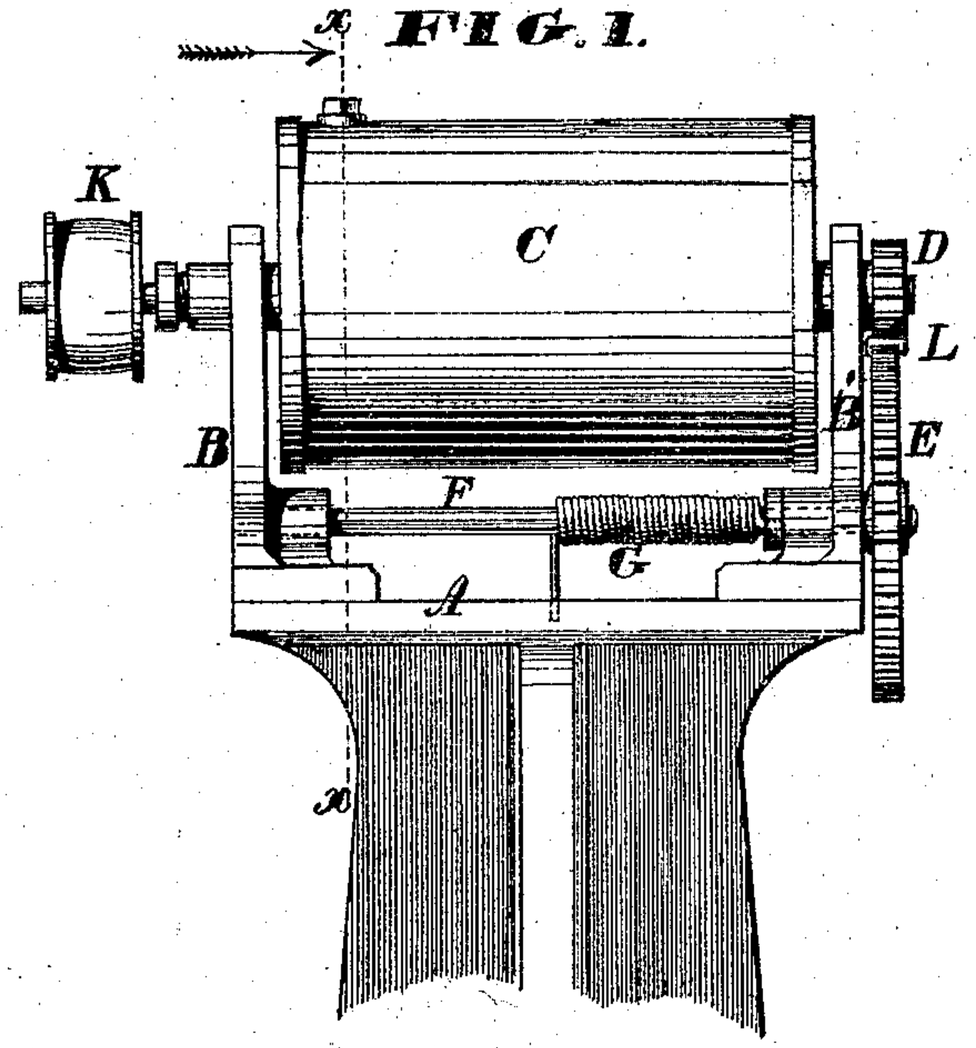


FIG. 3.

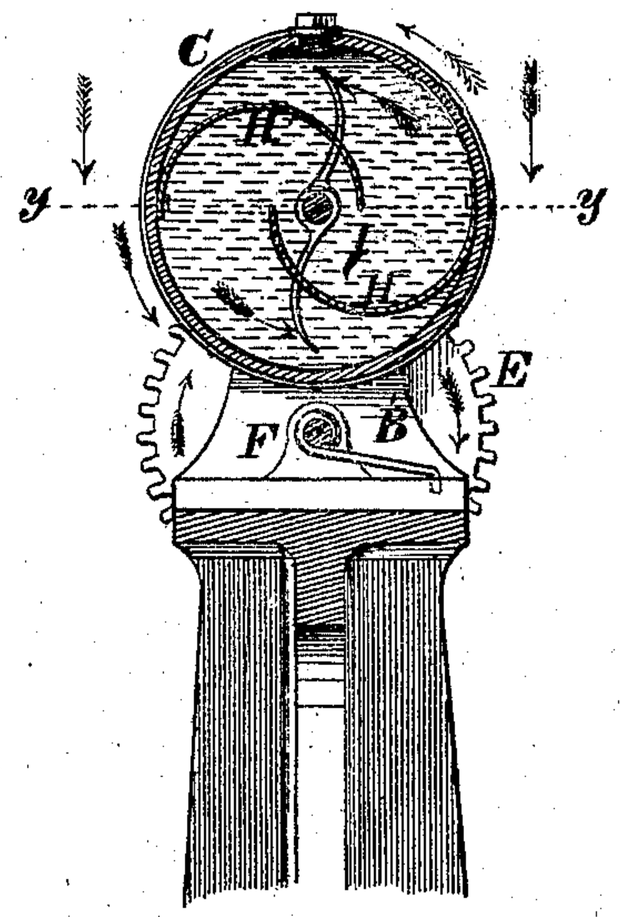


FIG. 2.

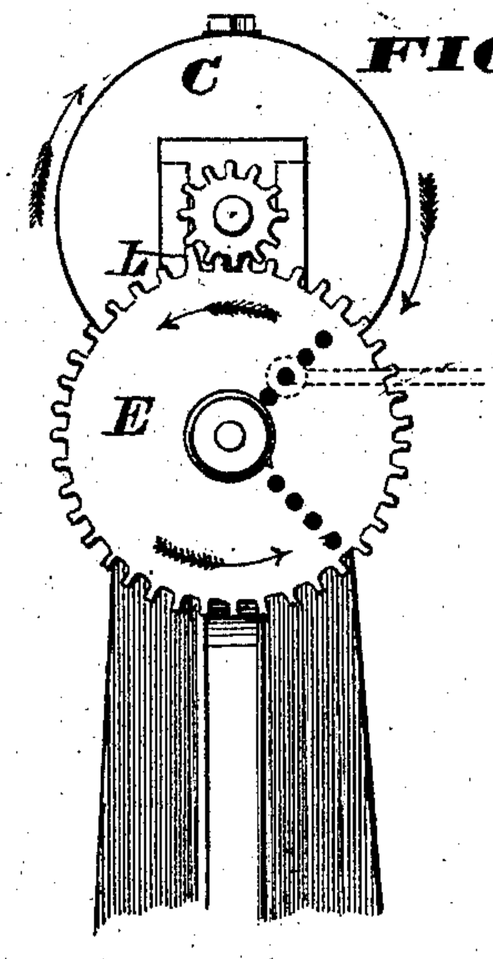
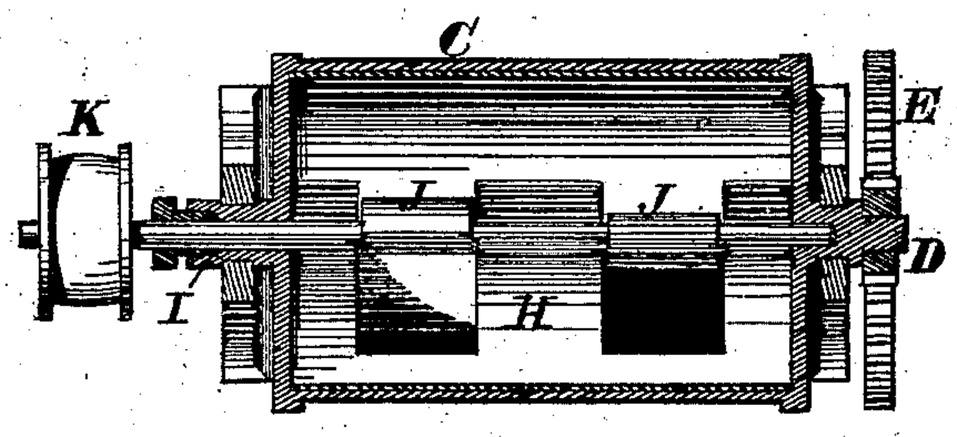


FIG. 4.



WITNESSES:

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AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JAMES M. BOTTUM, OF NEW YORK, N. Y.

IMPROVEMENT IN GOVERNORS FOR STEAM-ENGINES, &c.

Specification forming part of Letters Patent No. **137,652**, dated April 8, 1873; application filed January 17, 1873.

To all whom it may concern:

Be it known that I, JAMES M. BOTTUM, of the city, county, and State of New York, have invented an Improved Governor for Steam-Engines, Water-Wheels, and other motors, of which the following is a specification:

Nature and Objects of the Invention.

My governor consists, essentially, of a chamber, of cylindrical or other proper form, with one or more wings attached to its interior, a shaft rotating freely within the cylinder, and carrying wings which pass between those attached to the cylinder. The cylinder is to be filled with oil or other liquid, and the shaft rotated by connection with any part of the engine. Its wings pass through the oil without moving the cylinder, unless the motion is excessive, in which case the centrifugal and rotary movement imparted to the oil, acting through the medium of the wings on the cylinder, rotate the latter, which movement is communicated through a crank and rod or other appliance to a throttle-valve or other device which the governor is to control. A suitable spring resists this movement of the cylinder and restores the latter to its normal position when permitted by the slackened rotation of the shaft.

General Description.

In the accompanying drawing, Figure 1 is a side elevation of a governor illustrating my invention. Fig. 2 is an end view of the same. Fig. 3 is a vertical transverse section thereof on the line *x x*, Fig. 1. Fig. 4 is a longitudinal section on the line *y y*, Fig. 3.

The arrows marked 1 indicate the directions in which the sections are viewed. The other arrows show the direction of rotation of the the various parts as hereinafter explained.

A may represent a bed or frame, upon which are standards B B′, forming bearings for the cylinder C. Attached rigidly to one end of this cylinder is a pinion, D, gearing with a wheel, E, attached to a shaft, F, which turns in bearings in the standards B B′ beneath the cylinder C. A spring, G, attached at one end to the shaft F, and resting or secured at its other end upon the bed-plate, permits a rotary movement of the said shaft, but offers an increasing resistance thereto. H H are wings attached to the cylinder C, and projecting inward, preferably in curved form, as shown. I represents a shaft fitted to turn freely within the cylinder C, and carrying wings J, adapted to pass between the wings H of the cylinder as the shaft I rotates.

Rotary motion may be communicated to the shaft I from the engine or other motor by a belt running on a pulley, K, keyed on said shaft.

The movement of the governor may be transmitted to the valve or other object to be controlled through the medium of a rod attached to the wheel E or by other means.

L is a stop, which may consist of a projecting tooth on the wheel E, serving to limit the backward movement of the cylinder.

If preferred, the first motion may be applied to the cylinder, and the motion transmitted from the governor to the valve through the shaft I, this being simply the reverse of the arrangement shown.

Operation.

The cylinder being filled with oil, and the governor-belt being placed on the pulley K, the wings J of the shaft I will pass through the oil without moving the cylinder beyond the proper limit so long as the motion does not exceed the desired speed; but any excessive motion imparts an increased centrifugal and rotary movement to the oil, forcing it against the backs of the wings H H and turns the cylinder in the direction of the arrows. When the movement is again slackened the spring restores the cylinder and retracts the connecting-rod or other attachment.

The winged shaft and winged cylinder constitute the essential parts of my invention, and may be used either with or without the cog-wheels, the motion of the cylinder being counteracted by a spring or weight arranged in any suitable way.

Claim.

I claim as new—

The winged shaft I J and winged cylinder C H combined and arranged to operate substantially as herein described, a rotary movement being communicated from one to the other through the medium of liquid contained in said cylinder.

JAMES M. BOTTUM.

Witnesses:

W. H. NEWSCHAFER,

W. H. HAYES.