

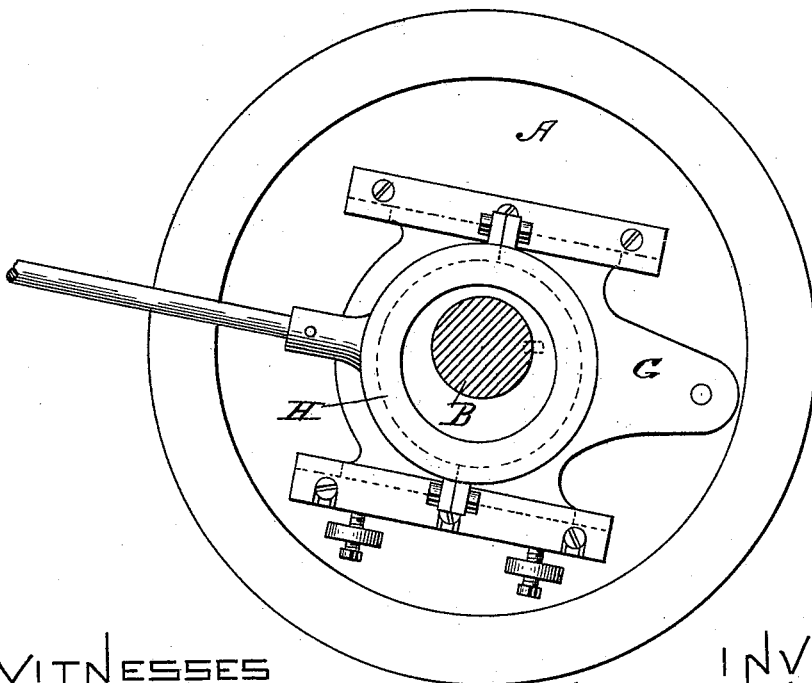
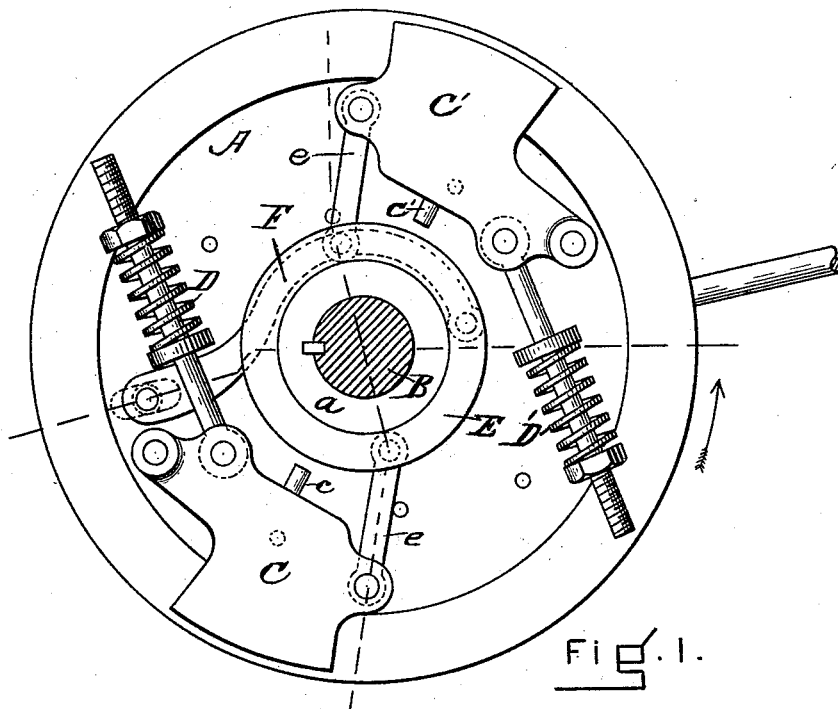
(No Model.)

2 Sheets—Sheet 1.

J. W. HAYES.  
STEAM ENGINE GOVERNOR.

No. 493,624.

Patented Mar. 14, 1893.



WITNESSES  
*Moses S. Case*  
*Ellen B. Tomlinson.*

INVENTOR  
*John W. Hayes*  
by *Alex. P. Browne,*  
attorney

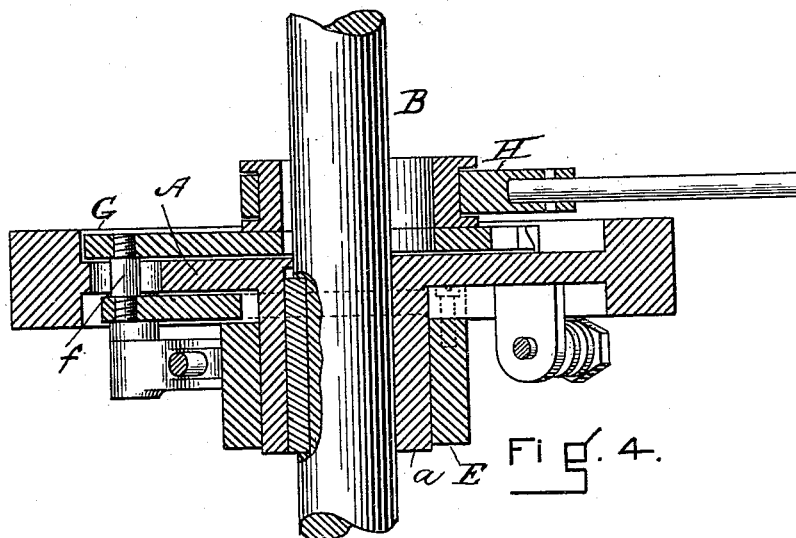
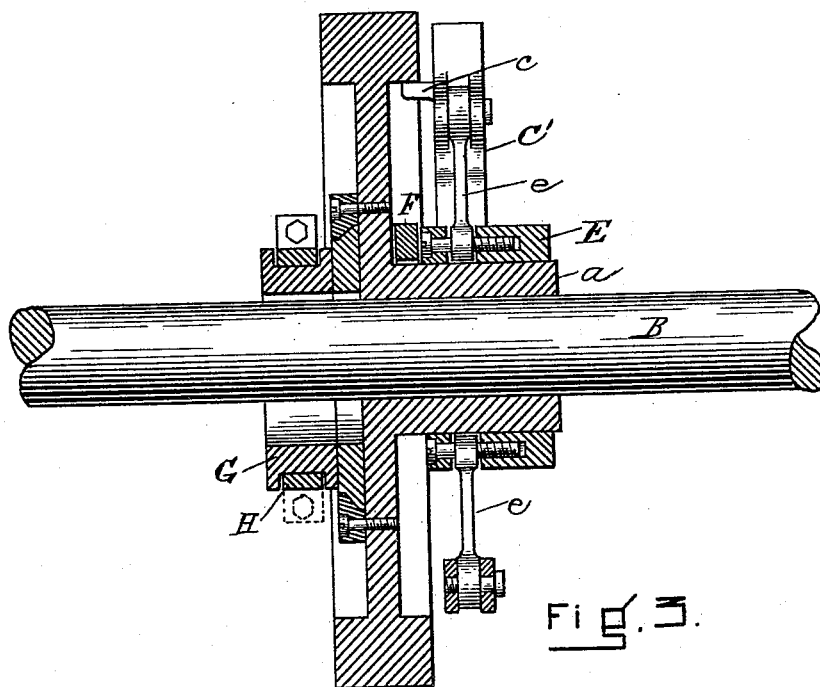
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# UNITED STATES PATENT OFFICE.

JOHN W. HAYES, OF PORTSMOUTH, NEW HAMPSHIRE, ASSIGNOR TO HIMSELF,  
MARCELLUS ELDREDGE, AND EDMUND S. FAY, OF SAME PLACE.

## STEAM-ENGINE GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 493,624, dated March 14, 1893.

Application filed June 22, 1892. Serial No. 437,653. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN W. HAYES, a citizen of the United States, residing at Portsmouth, in the county of Rockingham and State of New Hampshire, have invented certain new and useful Improvements in Steam-Engine Governors, of which the following is a specification.

My invention relates to governors for steam engines, and its objects are to improve the simplicity and efficiency of their construction and operation, and also particularly to provide an efficient governing device for the rotary engine patented to me January 20, 1891, by Letters Patent numbered 444,834.

In the accompanying drawings I have shown at Figures 1 and 2 opposite elevations of a governor embodying my improvements viewed in the vertical transverse plane of the shaft to which the governor is attached. Figs. 3 and 4 are sections of the device in vertical and horizontal planes respectively.

In my improved governor I provide a disk A attached to and turning with its shaft B, and at opposite points of the disk I provide weights C, C' pivoted thereon, so that when the disk is in motion they will move outwardly under centrifugal force and against the tension of the springs D, D'. The construction as thus far described is a familiar one in governors of this class. Surrounding the shaft B, and preferably upon the hub *a* of the disk A, is a loose ring or collar E, connected by links *e* with the free ends of the weights C, C'. Also pivotally attached to the ring E is a lever F, shown partially in dotted lines at Fig. 1, the other end of which is connected by means of a pin *f* (see Fig. 4) passing through a slot in the disk A, with a frame G adapted to slide as shown at Fig. 2 upon the face of the disk in suitable ways, and carrying the eccentric H by which motion is imparted to the valve or cut-off. The eccentric

has what may be called a normal amount of eccentricity corresponding with the lap and lead of the valve, being the amount possessed by it when the weights C, C' are in their positions nearest the circumference of the disk under centrifugal force operating against the tension of their springs. As the speed of the shaft B decreases, the inward motion of the weights under spring tension and against centrifugal force is communicated to the ring E and turns it, thereby sliding the plate G over the face of the disk and increasing the eccentricity of the eccentric to vary the point of cut-off and thus regulate or govern the speed of the engine.

The extreme outward and inward motions of the weights may be limited by stops in the ordinary manner. One of these stops for limiting the outward motion is shown at *c*, Fig. 3; and another for limiting the inward motion at *c'*, Fig. 1.

I claim—

In a steam engine governor, the combination with a disk secured to the shaft and having spring controlled weights pivoted thereon capable of outward centrifugal motion, of a plate G adapted to slide on the said disk and carrying an eccentric H, a collar E connected by links *e* to the said weights and adapted to be turned circularly upon the shaft by the motion of the said weights, and a connection F between the said collar and the said plate and pivotally attached to each, whereby the circular motion of the collar imparts rectilinear sliding motion to the plate to vary the eccentricity of the eccentric as set forth.

In testimony whereof I have hereunto subscribed my name this 15th day of June, A. D. 1892.

JOHN W. HAYES.

Witnesses:

CALVIN PAGE,  
CHAS. E. HATCH.