

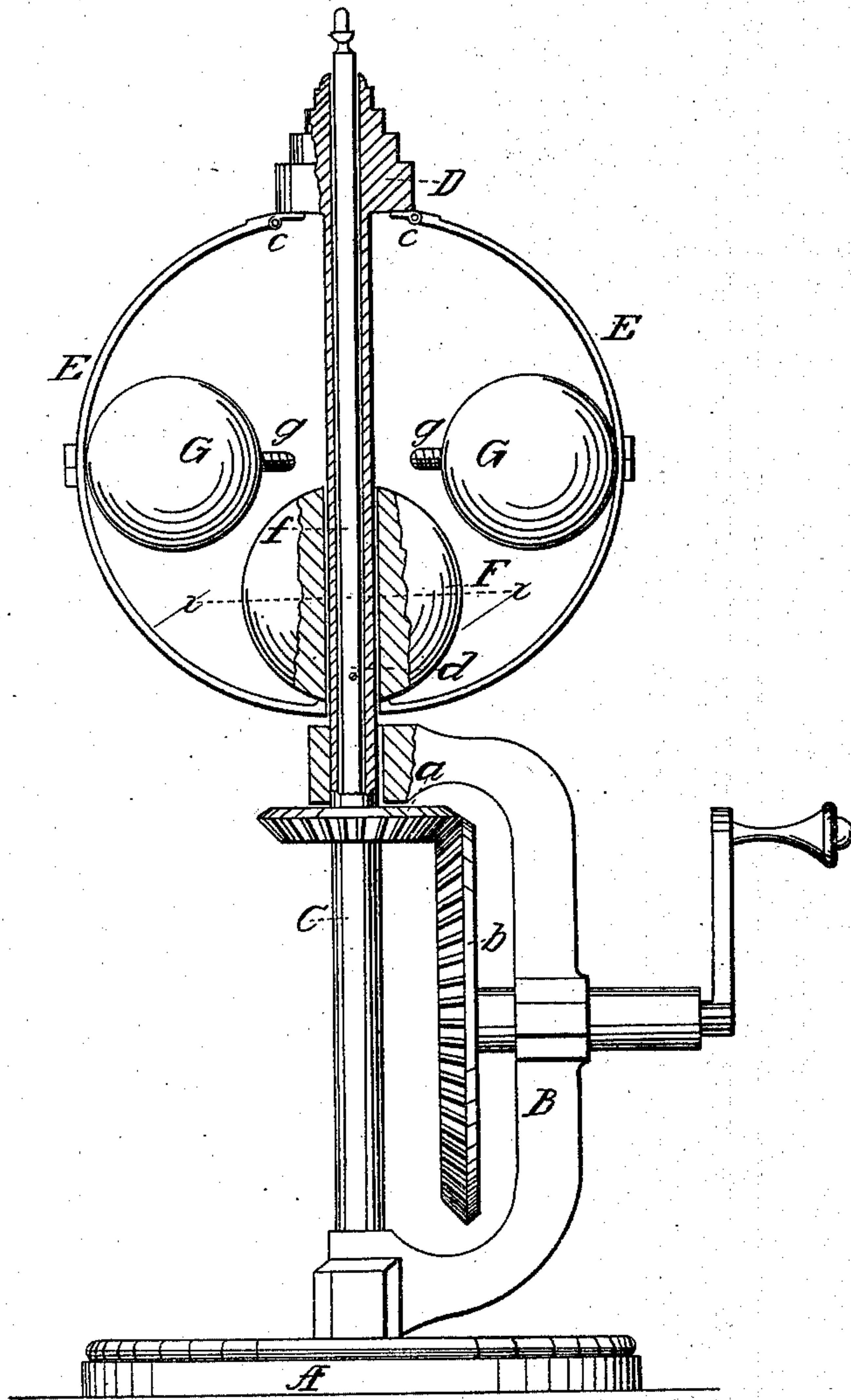
*T. S. LaFrance,*

*Governor.*

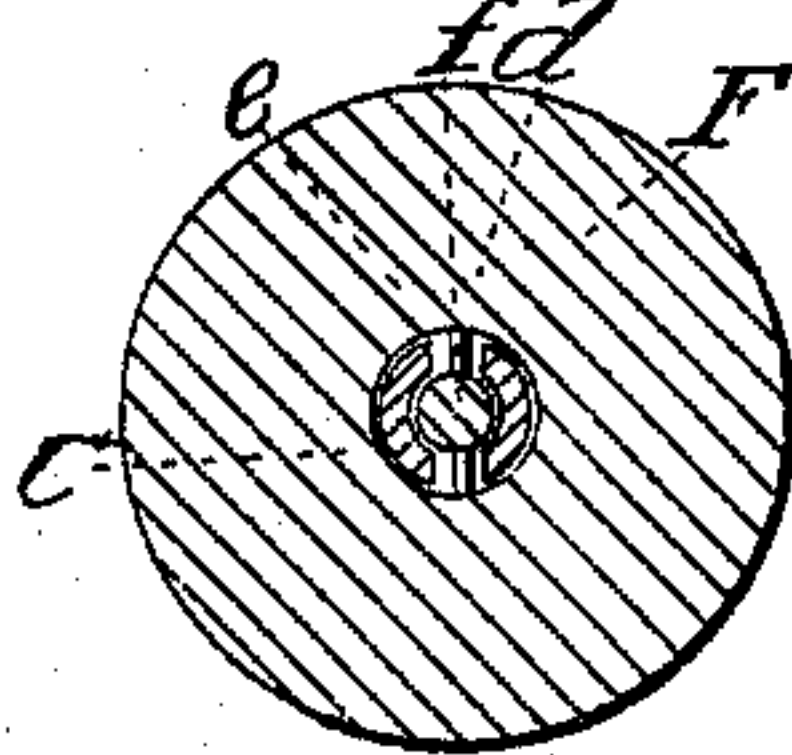
*N<sup>o</sup> 47,648.*

*Patented May 9, 1865.*

*Fig. 1*



*Fig. 2*



*Witnesses:*

*W. A. Hearn*  
*Oliver F. Lusk*

*Inventor:*

*T. S. LaFrance*  
*By William R. [Signature]*



# UNITED STATES PATENT OFFICE.

T. S. LA FRANCE, OF ELMIRA, NEW YORK.

## IMPROVEMENT IN GOVERNORS.

Specification forming part of Letters Patent No. 47,648, dated May 9, 1865.

*To all whom it may concern:*

Be it known that I, T. S. LA FRANCE, of Elmira, in the county of Chemung and State of New York, have invented an Improved Governor; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a sectional front elevation of this invention. Fig. 2 is a horizontal section of the same, the line *x x*, Fig. 1, indicating the plane of section.

Similar letters of reference indicate corresponding parts.

This invention consists in the use of two semicircular springs hinged to the top of the governor-spindle, in combination with three balls, two of which—viz., the governor balls—are secured to the springs on opposite sides of the spindle, whereas the third ball or weight is connected to the lower ends of both springs, and also to the rising and falling rod, which connects with the throttle-valve in such a manner that when the speed of the engine rises beyond a certain point the gravity of the middle ball or weight and the force of the springs are overcome by the centrifugal force of the governor-balls, and the valve is partially or wholly closed, and as the speed of the engine slackens the gravity of the weight and the force of the springs cause the governor-balls to recede, and the valve opens. The governor-balls are secured to the springs by means of screw-rods, so that they can be adjusted closer to or farther from the center of rotation, and the governor can be adapted for different speeds without changing its driving-pulley.

A represents the stand or bed-plate, from which rises a standard, B, that forms the bearings for the spindle C. To this spindle a rotary motion is imparted by a bevel-gear, *a b*, or in any other suitable manner, and it terminates at its upper end with a flanged head, D, to which two springs, E E, are connected by means of hinge-joints *c*. These springs are semicircular in form, and they extend on opposite sides of the spindle C, as clearly shown in Fig. 1 of the drawings. Their lower or loose ends are connected to a ball or weight, F, which slides freely up and down on the spindle C; but it is compelled to rotate with the same partly by the action of the springs E and partly by the action of a pin, *d*, which

passes through the weight and through a longitudinal slot, *e*, in the spindle, as seen in Fig. 2, said spindle being made hollow, and provided with a rod, *f*, which connects with the pin *d* and weight F, and by means of which the action of the governor is transmitted to the throttle-valve.

From the middle of each spring extend two pins or studs, *g*, and on these studs are mounted the governor-balls G. These balls are situated one opposite the other, and they are connected to the studs by means of screw-threads, or in any other suitable manner, so that their distance from the center of rotation can be regulated at pleasure.

When the speed of the engine exceeds a certain point, the centrifugal force of the governor-balls overcomes the force of the springs and the gravity of the weight F, and said weight rises, causing the rod *f* to rise also and to close partially or wholly the throttle-valve. When the speed of the engine slackens, the weight F sinks down, and the valve opens.

By the application of hinge-joints at the ends of the springs where the same connect with the spindle C the rising and falling motion of the weight F is facilitated, and a lateral strain on the same in either direction is prevented, and by adjusting the distance of the governor-balls from the center of rotation the speed of the engine can be regulated without changing the driving-pulley of the governor.

The whole device is simple, compact, and light, it takes up but little room, and it is very sensitive.

I claim as new and desire to secure by Letters Patent—

1. The hinge-joint *c*, in combination with the springs E E, spindle C, balls G G, and weight F, constructed and operating substantially as and for the purpose described.

2. The screw studs *g*, or their equivalents, in combination with the balls G G and springs E E, substantially as described, so that the distance of the balls from the center of rotation can be regulated at pleasure.

3. The combination of the springs E E, balls G G, weight F, and rod *f*, all constructed and operating substantially as and for the purpose set forth.

T. S. LA FRANCE.

Witnesses:

C. PRESWICK,  
N. P. FASSETT.