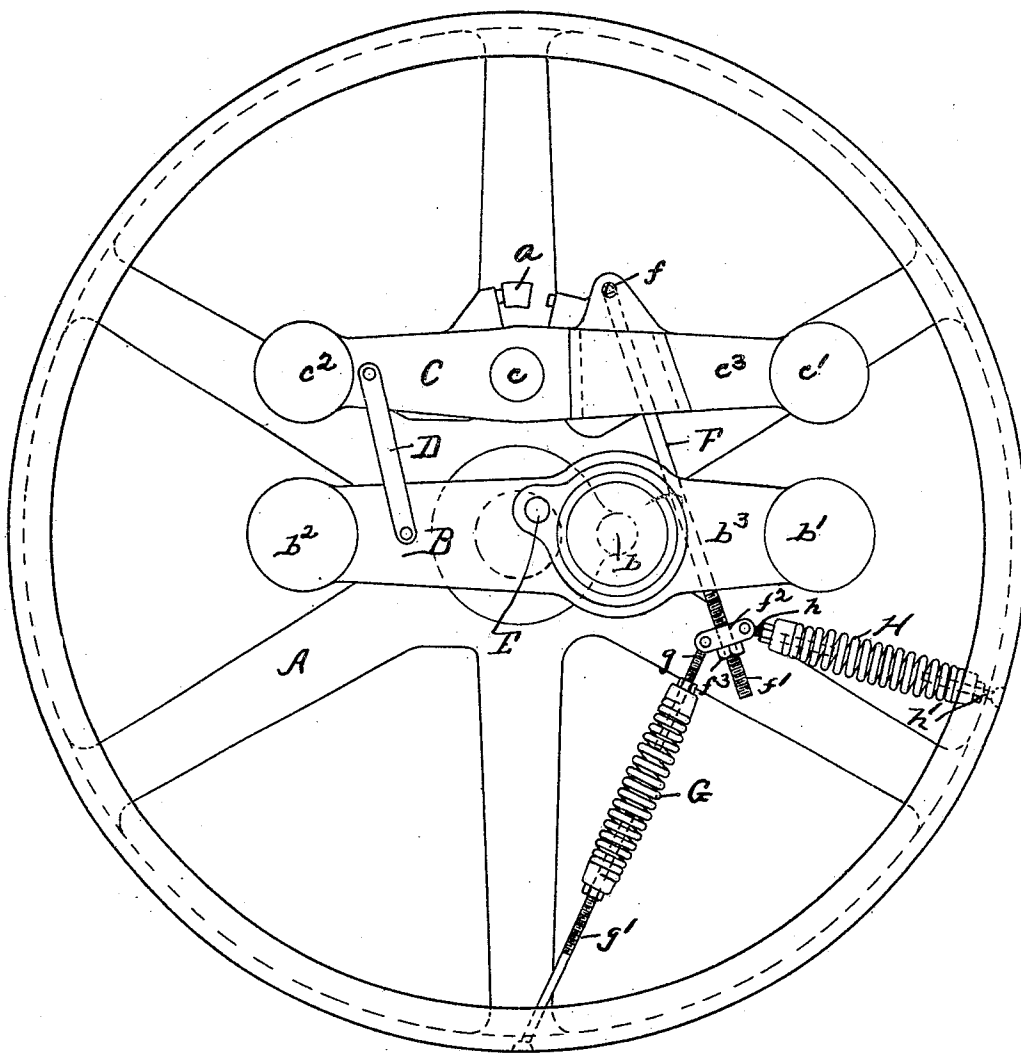


No. 822,907.

PATENTED JUNE 12, 1906.

F. O. BALL.
GOVERNOR.

APPLICATION FILED OCT. 2, 1905.



Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK OSSIAN BALL, OF PLAINFIELD, NEW JERSEY.

GOVERNOR.

No. 822,907.

Specification of Letters Patent.

Patented June 12, 1906.

Application filed October 2, 1905. Serial No. 281,036.

To all whom it may concern:

Be it known that I, FREDERICK OSSIAN BALL, a citizen of the United States, residing at Plainfield, in the county of Somerset and State of New Jersey, have invented new and useful Improvements in Governors, of which the following is a specification.

This invention relates to governors; and it consists in certain improvements in the construction thereof, as will be hereinafter fully described, and pointed out in the claims.

The invention is illustrated in the accompanying drawing, wherein—

A marks the fly-wheel of an engine, which in the construction shown forms the rotative carrier of the governor. The governor shown is provided with two weights B and C. The weight B comprises the arm b^3 and weighted ends b^1 and b^2 . It is pivoted on the carrier at b . The pin E for operating the valve-rod (not shown) is carried by this weight and operated in the usual manner. The weight C comprises the arm c^3 and weighted ends c^1 and c^2 . It is pivoted on the carrier at c . A link D connects the weights B and C. These weights operate in a manner common to governors of this class and form the centrifugal element of the governor. The valve-actuating mechanism is driven by devices (not shown) arranged at the center E.

A spring-rod F is connected to the weight C at f . This rod has the screw-threaded end f^1 . The cross-head f^2 is arranged on the rod and is secured in adjustment thereon by the nut f^3 .

The spring G is connected by the rods g and g' with the cross-head and carrier, respectively, and the spring H is connected to the cross-head and carrier by the rods h and h' , respectively. These springs are arranged at an angle to each other. The spring-rod F, being free to swing at f , takes the direction of the resultant of the forces exerted by the springs G and H. The spring H is preferably formed of larger coil than the spring G, and when so made it increases in resistance less rapidly when stretched than the spring G, and in consequence the end f' of the rod F is

made to swing toward the spring G as the weights swing outwardly, thus, in effect, changing the base of the centripetal element. In this way the length of the arm from the pivot C is automatically changed by the change in the base of the spring or centripetal element, and in consequence a shorter spring may be used with the same result as a longer spring with a fixed base. By varying the lengths of the springs, their relative strengths, and the angle between them other variations in the action of the springs may be obtained. This arrangement of springs also lessens the side swing of the springs under the influence of centrifugal force and gravity.

What I claim as new is—

1. In a governor, the combination of a rotative carrier; a governor-weight mounted thereon; a spring-rod connected to the weight; and two springs arranged to exert force in directions at an angle to each other and connected to the rod and the carrier.

2. In a governor the combination of a rotative carrier; a governor-weight mounted thereon; a spring-rod connected to the weight and two springs arranged to exert force in directions at an angle to each other and connected to the rod and the carrier, said springs varying in resistance with a given stretch.

3. In a governor, the combination of a rotative carrier; a governor-weight pivotally mounted thereon; a spring-rod connected with the weight, and two springs arranged to exert force in directions at an angle to each other and connected with the rod and the carrier, said springs varying in resistance with a given stretch, and arranged to swing the rod as the springs are extended in a direction tending to vary a relation between the rod and the weight to shorten the effective arm of the weight as the springs are extended.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FREDERICK OSSIAN BALL.

Witnesses:

A. K. SMITH,
E. M. KUNTZ.