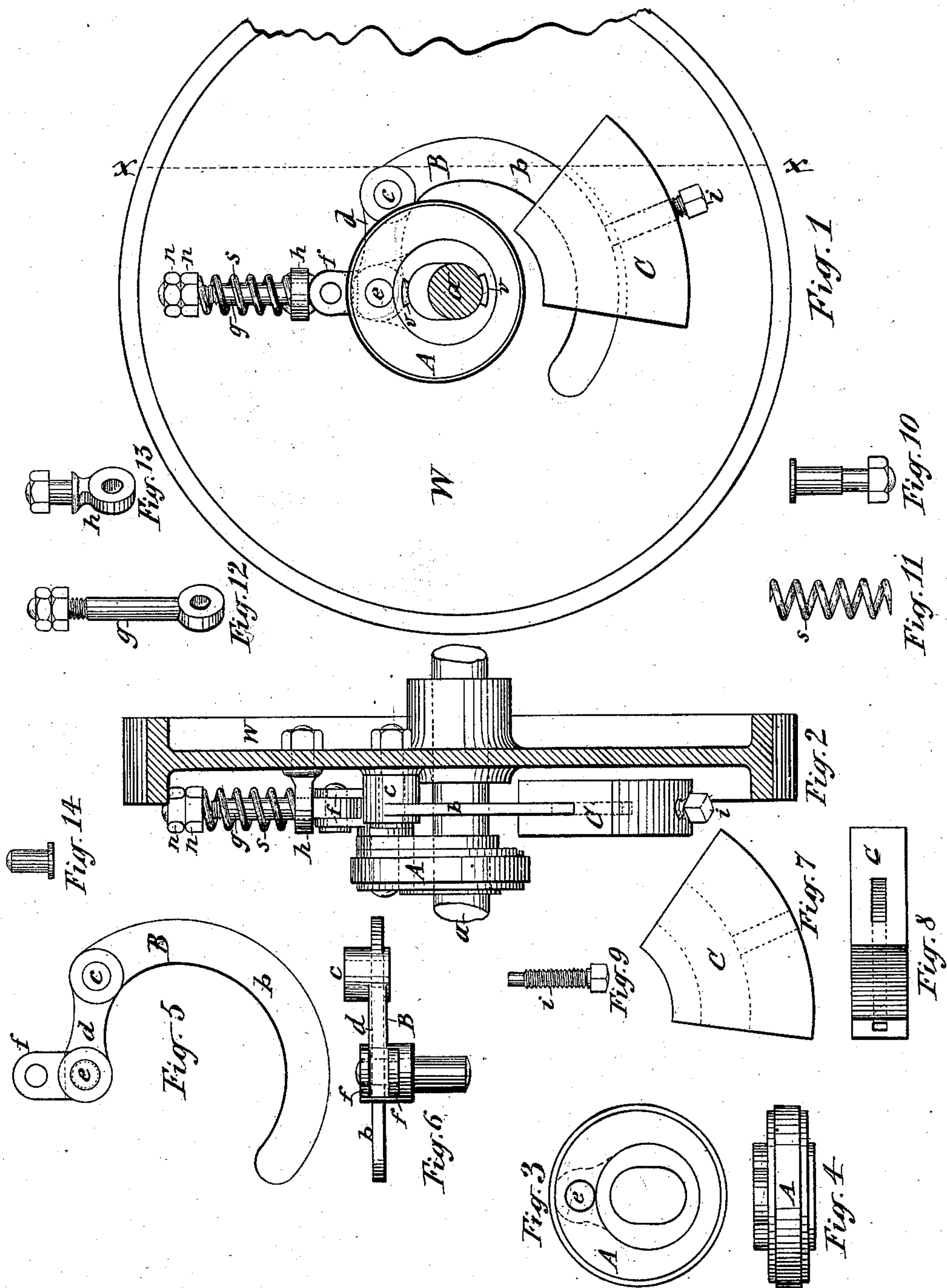


(No Model.)

J. SINNAMON.  
Steam Governor.

No. 231,940.

Patented Sept. 7, 1880.



WITNESSES:  
E. Laas  
Wm. B. Raymonds.

INVENTOR:  
John Sinnamon  
per Hull, Laas & Key  
Attys



# UNITED STATES PATENT OFFICE.

JOHN SINNAMON, OF OSWEGO, NEW YORK.

## STEAM-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 231,940, dated September 7, 1880.

Application filed July 24, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN SINNAMON, of Oswego, in the county of Oswego, in the State of New York, have invented new and useful  
5 Improvements in Steam-Governors, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to improvements in  
10 that class of steam-governors in which the governing action is obtained by an eccentric-rod connected at one end to the main valve of the engine and the opposite end with an eccentric which is mounted on the shaft of the balance  
15 or driving wheel, with a lateral play in its axial bearing thereon extending to the center of the eccentric, and retained in its eccentric position by a spring counteracted by the centrifugal force of a weighted lever pivoted to the wheel.

20 The invention consists in an improved application of the spring and the centrifugal counterpoise to the eccentric which has the lateral axial play, and has its rod connected with the main valve of the engine in the  
25 manner aforesaid, by which improvement the action of the governor is rendered more positive and sensitive and the adjustment of same more accurate.

The invention is clearly illustrated in the accompanying drawings, wherein Figure 1 is a  
30 side view of my invention; Fig. 2, a transverse vertical section of same on line *x x*. Figs. 3 and 4 are side and edge views, respectively, of the eccentric. Figs. 5 and 6 are side and  
35 edge views of the centrifugal counterpoising-lever. Figs. 7 and 8 are side and top views of the counterpoise. Fig. 9 is a detached view of the set-screw by which the counterpoise is secured in its position. Fig. 10 is a detached  
40 view of the pin by which the counterpoising-lever is pivoted to the wheel; Fig. 11, a detached view of the spring; Fig. 12, a detail view of the rod by which the spring is connected with the centrifugal counterpoising-lever and the tension of the spring is adjusted. Fig. 13 is a detached view of the stud by  
45 which the last-mentioned rod and the spring surrounding it are supported, and Fig. 14 is a detached view of the coupling-pin of the rod shown in Fig. 12, with the centrifugal counterpoising-lever.

Similar letters of reference indicate corresponding parts.

A represents the eccentric, mounted on the shaft *a* of the driving or balance wheel W, and  
55 having its axial bearing thereon elongated, so as to allow the eccentric to move toward the center and become concentric with the axis of the shaft.

The eccentric-rod (not shown in the drawings) is connected with the eccentric in the ordinary manner, and has its opposite end connected, either directly or indirectly, with the main valve of the engine.

B represents the centrifugal counterpoising-lever, fulcrumed on the wheel W a short distance from the axis thereof, as indicated at *c*, and having one arm, *b*, curved to gradually  
65 diverge from the axis of the wheel W. Another shorter arm, *d*, of the lever B, projects from the fulcrum *c*, and is pivoted to the eccentric A at *e*, or nearly diametrically opposite the free end of the curved arm *b*.

The arm *d* is provided, at its connection with the eccentric A, with ears *f*, to which is connected a rod, *g*, extended radially therefrom  
75 and supported in its position by passing through an eyebolt or stud, *h*, secured to the wheel W.

The outer end of the rod *g* is provided with  
80 nuts *n*, against the under side of which presses a spiral spring, *s*, surrounding the rod *g* and exerting a linear expansive force against the nuts *n* and against the rigid eyebolt *h*. This action of the spring *s* serves to draw on the  
85 rod *g*, so as to cause the arm *d* of the lever B to hold the eccentric in its extreme eccentric position on the shaft *a*, as shown in Fig. 1 of the drawing.

Upon the curved arm *b* of the lever B is a  
90 counterpoise, C, adapted to be moved toward either end of said arm, and provided with a set-screw, *i*, by which it is secured at any desired distance from the fulcrum of the lever B.

The centrifugal force imparted to the weighted arm *b* by the motion of the wheel W causes the said arm to swing outward and press the short arm *d* toward the axis of the shaft *a*. This movement of the short arm *d* forces the  
95 eccentric A toward a concentric position on the shaft *a*, and thus diminishes the stroke of the eccentric-rod, and consequently the movement of the valve of the engine.

Since the centrifugal force of the arm *b* depends in a measure on the distance of the  
105 counterpoise C from the axial center of the



shaft *a*, the adjustment of the position of the weight *C* on the gradually-divergent arm *b*, with its fulcrum *c*, near the axis of the wheel, furnishes a very sensitive and at the same time  
5 positive means for regulating the centrifugal force of said arm, and this force is transmitted with increased leverage directly to the eccentric and to the spring *s*. The tension of the latter can be adjusted in the usual way by the  
10 nuts *n* on the end of the rod *g*.

To prevent jars of the herein-described governor, I apply to each extreme axial bearing of the eccentric an elastic cushion, *v*, which may consist of any suitable material, and is  
15 secured in position by dovetailing it in the eccentric, as shown in Figs. 1 and 3 of the drawings.

I do not claim, broadly, the combination of the variable eccentric held in an eccentric position by a spring and moved toward a concentric position by a centrifugal counterpois-

ing-lever, as I am aware the same is not new; but

What I do claim as my invention is—

The combination, with the variable eccentric 25  
A, of the lever B, fulcrumed on the wheel W at *c*, and having the curved arm *b*, provided with the counterpoise *C*, secured adjustably in its position by set-screw *i* and the arm *d*, connected directly with the eccentric and with the  
30 spring-rod *g*, substantially as described and shown.

In testimony whereof I have signed my name and affixed my seal in the presence of two at-  
testing witnesses, at Syracuse, in the county 35  
of Onondaga and State of New York, this 6th day of July, 1880.

JOHN SINNAMON. [L. S.]

Witnesses:

E. LAASS,

WM. C. RAYMOND.