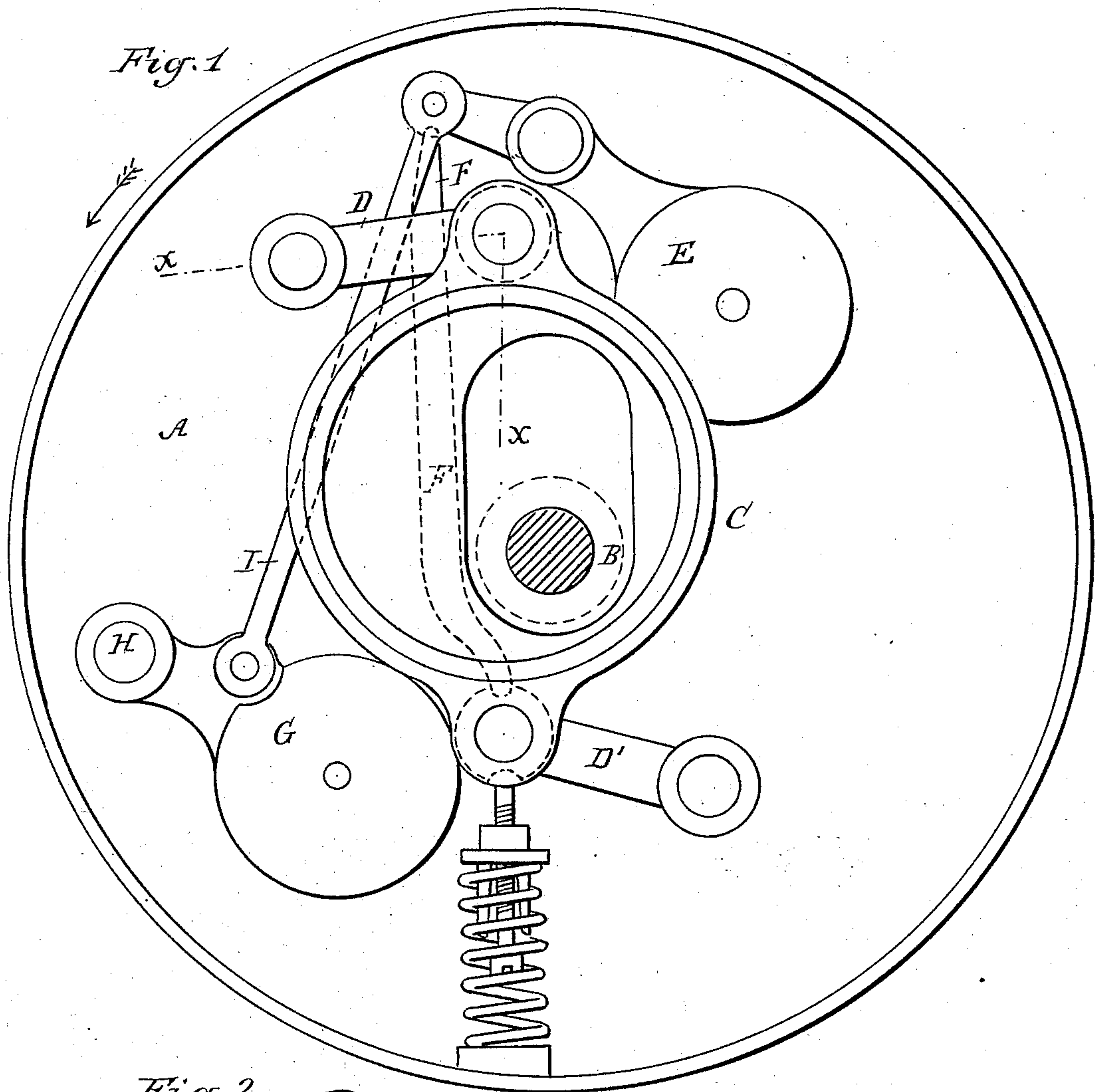


(No Model.)

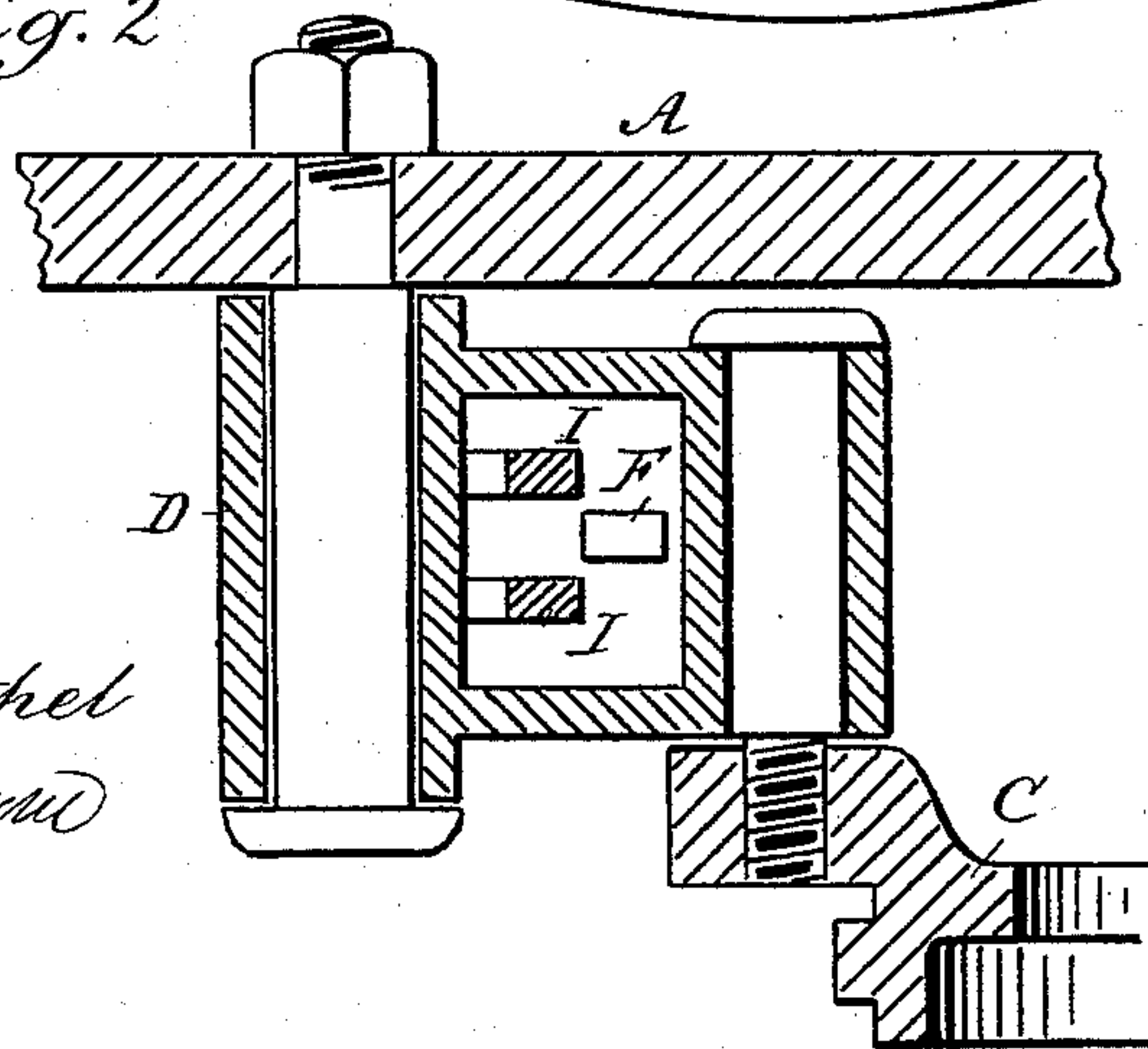
S. E. JARVIS.  
STEAM ENGINE GOVERNOR.

No. 280,042.

Patented June 26, 1883.



*Fig. 2*



Attest:  
A. Barthel  
W. J. Sprague

Inventor:  
S. E. Jarvis  
By W. J. Sprague  
Atty



# UNITED STATES PATENT OFFICE.

SAMUEL E. JARVIS, OF LANSING, MICHIGAN.

## STEAM-ENGINE GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 280,042, dated June 26, 1883.

Application filed April 3, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL E. JARVIS, of Lansing, in the county of Ingham and State of Michigan, have invented new and useful  
5 Improvements in Steam-Engine Governors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 The improvement herein described relates to automatic cut-off-valve governors, and it is especially intended to form an improvement upon a similar device for which I recently applied for a patent, and which was allowed  
15 and numbered 273,999, March 13, 1883.

The improvement consists in providing the single governor-weight shown in my device with a counterbalance-weight so arranged with relation to the center of motion that it  
20 will counterbalance the governor-weight in any of its positions, all as more fully herein described.

In the drawings, Figure 1 is an elevation of my single-weight governor as patented to me  
25 by the above-mentioned Letters Patent with my improvement attached thereto. Fig. 2 is a section on the line X X thereof.

The construction and operation of the governor shown in the drawings are fully explained in the above-mentioned Letters Patent; but I will shortly recapitulate its main features and operation.

A is a disk secured upon the shaft B.

35 C is the cut-off eccentric, secured to the disk by means of the links D D'.

E is the governor-weight; F, a rod by means of which the governor-weight is exerting its centrifugal force to regulate the relative position of the eccentric.

40 It is clear that the governor-weight E is not acted upon alone by its centrifugal force when the device is in operation, but also by its force of gravity, which exerts a constantly-varying influence and effects the action of the  
45 governor injuriously, especially when running at low speed, and it is to eliminate this factor of gravity that I make use of a counterbalance-weight, G, which is pivotally attached to the disk at H, and connected with the governor-weight, E, by a link, I, in such manner  
50 that both weights counterbalance each other at any position of the disk and leave the

weights free to follow the impulse of the centrifugal force alone. In the drawings the counterbalance-weight G is so pivoted in relation to the direction of rotation of the disk  
55 that its centrifugal force at a low speed of the governor either counteracts to some extent the centrifugal force of the governor-weight E or is in a perfect neutral position; but when the  
60 speed increases its centrifugal force will grow rapidly and be added to the one of the governor-weight E. This arrangement therefore gives to my governor a great sensitiveness at  
65 high speed with comparatively small weights. It has a larger range of governing than without the weight G, as the latter is enabled to go beyond its pivotal point. At low speed  
70 my improved governor, owing to the perfect balance of the weights E and G, will show great steadiness in governing.

I do not intend to limit myself to pivoting the counterbalance-weight G back of its center of gravity, as by the reverse way the main  
75 object of my improvement may likewise be accomplished.

What I claim as my invention is—

1. In a single-weight governor, the balance-weight G, so arranged with relation to the center of motion that it will by means of a link  
80 connection counterbalance the force of gravity of the governing-weight E at all positions thereof, substantially as and for the purposes described.

2. In a cut-off governor, the two governing-  
85 weights E G, one of which forms the actuating force of a lever of the first degree, the other one of the second degree, and in combination with the connecting-link I, whereby the force of gravity of the two weights is counter-  
90 balanced and their centrifugal force directly combined, substantially as described.

3. A cut-off governor in which the two governing-weights are connected by a link,  
95 whereby their force of gravity is balanced and their centrifugal forces directly combined, the weight G being pivoted behind its center of gravity, substantially as and for the purpose described.

S. E. JARVIS.

Witnesses:

W. A. WILCOX,  
W. DONOVAN.