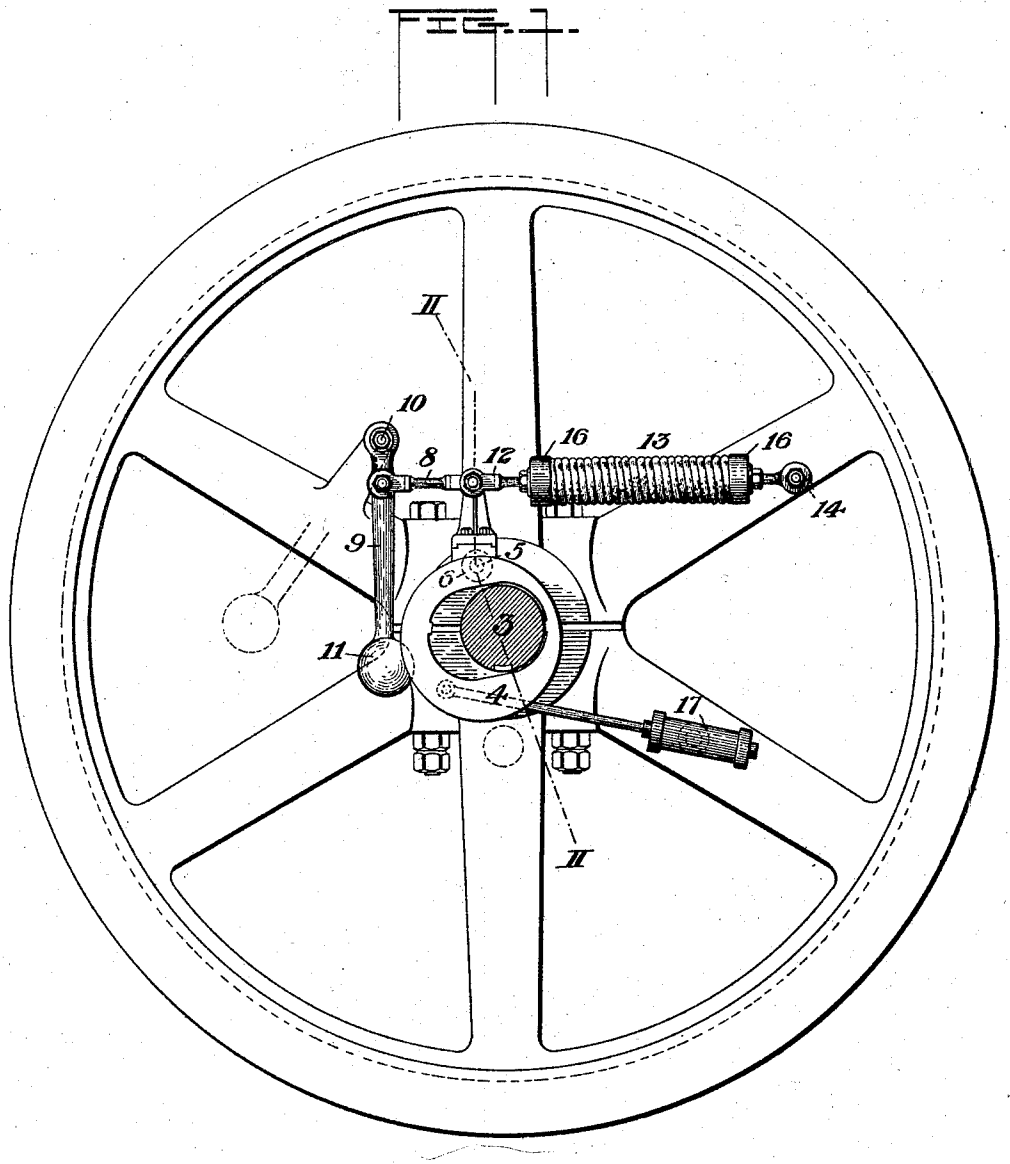
(No Model.) 2 Sheets—Sheet 1.

F. F. FISCHER.

GOVERNOR.

No. 542,013. Patented July 2, 1895.



Witnesses
H. M. Corwin
H. L. Gill

Inventor
F. F. Fischer
by W. Baxendell & Sons
Attorneys

(No Model.) 2 Sheets—Sheet 2.

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GOVERNOR.

No. 542,013. Patented July 2, 1895.

FIG. 2.

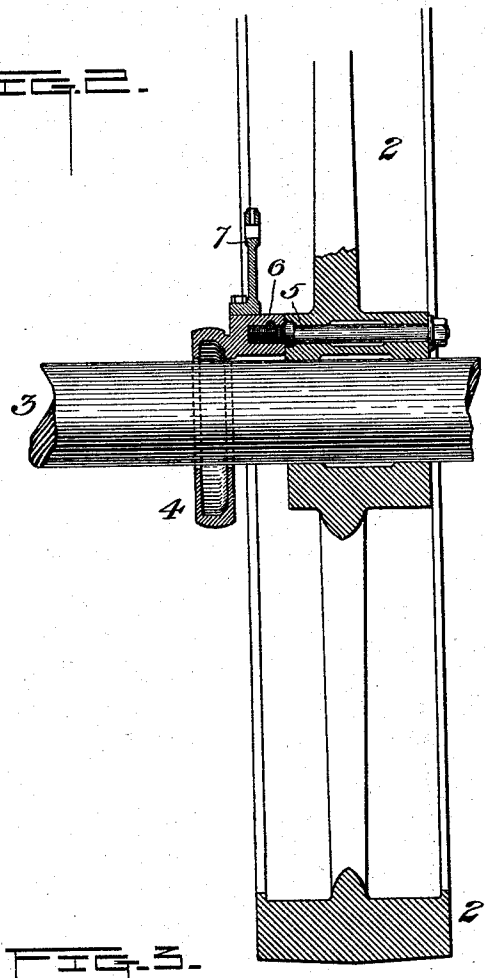
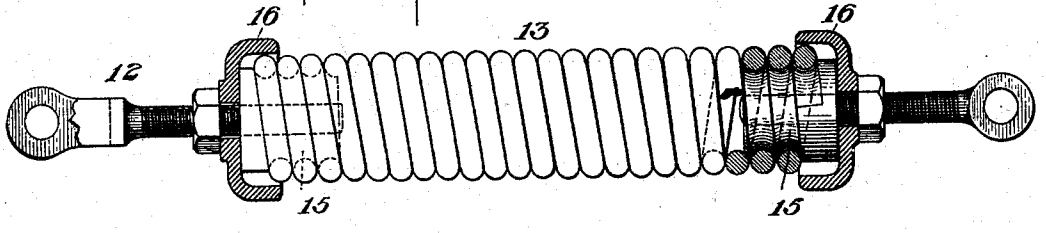


FIG. 3.



Witnesses
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Inventor
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by W. Baxewell & Sons
his Attorneys.

UNITED STATES PATENT OFFICE.

FREDERICK F. FISCHER, OF PITTSBURG, PENNSYLVANIA.

GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 542,013, dated July 2, 1895.

Application filed October 11, 1892. Renewed December 5, 1894. Serial No. 530,929. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK F. FISCHER, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Governors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my improved governor. Fig. 2 is a cross-section on the line II II of Fig. 1, and Fig. 3 is a detail view of the counterbalancing-spring and its attachments.

My invention relates to that class of centrifugal governors wherein weights are employed to vary the throw of the eccentric and its valve under the action of varying amounts of centrifugal force; and its object is to attain a governor which shall be more sensitive than former devices of this character, and hence effect a much closer regulation of the motor, as well as to attain a cheaper and more simple construction.

In the drawings, in which similar numerals indicate corresponding parts, 2 represents a wheel or case which is keyed to the shaft 3 and supports the governing mechanism. The valve-eccentric 4 fits freely around the shaft 3 and is slotted transversely, as usual, to allow its movement across the shaft. This eccentric is pivoted at 5 to a shaft which passes through the hub of the wheel and is secured to a right-angled extension 6 of the eccentric. Rigidly secured to this extension is an arm 7, by means of which the eccentric is moved across the shaft and the governing action attained. A link 8 pivotally connects this arm with the actuating-lever 9, which is pivoted to the wheel at 10 and is provided with the usual ball or weight 11. The juncture of the lever 9 and the link 8 is near the pivotal point of the lever, so that a long lever-arm is attained, and pivoted to the arm 7 and extending in the opposite direction to that of the link 8 is a stud 12, which is connected to an opposing spring 13. This spring is pivotally connected with the case at 14 by a similar stud, and the means for attaching the studs to the spring is clearly shown in Fig. 3, wherein 15 is a short screw which engages the end coils of the spring and has a screw-thread connection with the stud.

16 is a covering-cap to protect the loose end of the spring.

A dash-pot 17 is connected to the eccentric to prevent any sudden movement of the weight as the load is varied.

The operation of the device is obvious. When the centrifugal force exerted upon the ball is greater than the resistance of the spring, it flies out and moves the eccentric, thus shortening the travel of the valve and reducing the amount of steam admitted to the engine. On account of the peculiar indirect connection of the lever to the eccentric through the link which connects the arm 7 with the lever near its pivotal point a very light ball may be used. The movement of the eccentric is increased proportionately to that of the lever and a very sensitive governor is attained. The position and connection of the spring are moreover of great advantage, as it is in a straight line with the connecting-link and directly opposes the movement of the lever, so that the resistance of the spring increases proportionately to the increase in the power of the weight, and the pull on the spring is in a direct line with its length. By this arrangement of the spring in any position of the weight the resistance of the spring is very nearly equal to the centrifugal power of the weight, and thus there is very little strain and wear on the lever-pivot and the governor is rendered much quicker acting.

The device is simple, inexpensive, and not liable to get out of order, and in actual practice it is found that the most accurate tachometer is unable to detect a change of a single revolution when the full load is thrown upon the engine at once.

I claim—

1. In a centrifugal governor, the combination of a wheel or case, a valve eccentric pivoted to the wheel and fitting over the crank-shaft, a single weighted lever pivoted to the wheel, a link connecting lever to an extension of the eccentric outside its pivot, and a spring arranged to oppose the movement of the lever.

2. In a centrifugal governor, the combination of a wheel or case, a valve eccentric pivoted to the case and fitting over the crank-shaft, said eccentric having a projecting arm on its pivotal side, a weighted lever pivoted

to the wheel, and a link connecting the eccentric arm to the lever; substantially as and for the purposes described.

3. In a centrifugal governor, the combination of a wheel or case, a valve eccentric pivoted to the wheel and fitting over the crank-shaft, and having a projecting arm on its pivotal side, a weighted lever pivoted to the wheel, a link connecting the eccentric arm to the lever and a spring extending from the eccentric in the opposite direction to that of the link; substantially as and for the purposes described.

4. In a centrifugal governor, the combination of a wheel or case, a valve eccentric fitting over the crank-shaft, and having a projecting arm, a weighted lever pivoted to the wheel, a link connecting the eccentric arm to the lever, and a spring pivotally connected to the eccentric-arm and extending in the opposite direction to the link; substantially as and for the purposes described.

5. In a centrifugal governor, the combination of a wheel or case, a valve eccentric fitting over the crank-shaft, and having a projecting arm, a weighted lever pivoted to the wheel, a link connecting the eccentric arm to the lever, a spring connected to the eccentric arm and extending in the opposite direction to the link, and a dash-pot connected to the opposite side of the eccentric; substantially as and for the purposes described.

6. In a centrifugal governor, the combination of a wheel or case, a valve eccentric fitting over the crank-shaft and having a projecting arm, a weighted lever pivoted to the wheel, a link connecting the eccentric arm to the lever, and a spring connected to the eccentric arm and extending in the opposite direction to the link, said spring being pivoted to the wheel at its outer end; substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 24th day of September, A. D. 1892.

FREDERICK F. FISCHER.

Witnesses:
W. B. CORWIN,
H. M. CORWIN.