

No. 748,223.

PATENTED DEC. 29, 1903.

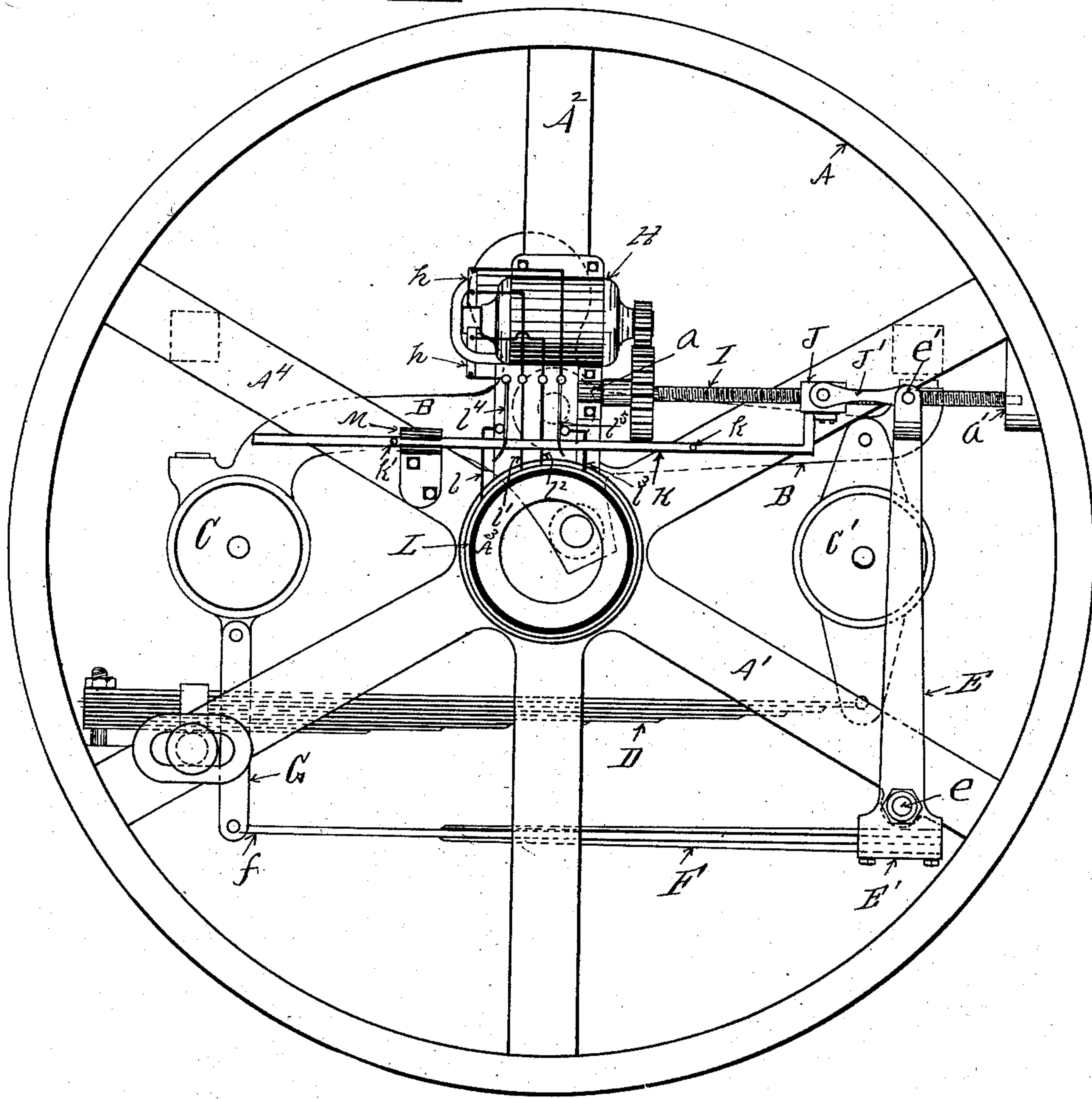
LE GRAND SKINNER & J. C. GLENN.  
GOVERNOR ADJUSTING MECHANISM.

APPLICATION FILED JAN. 20, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses.

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G. J. Mead

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By J. L. & H. M. Surgeon

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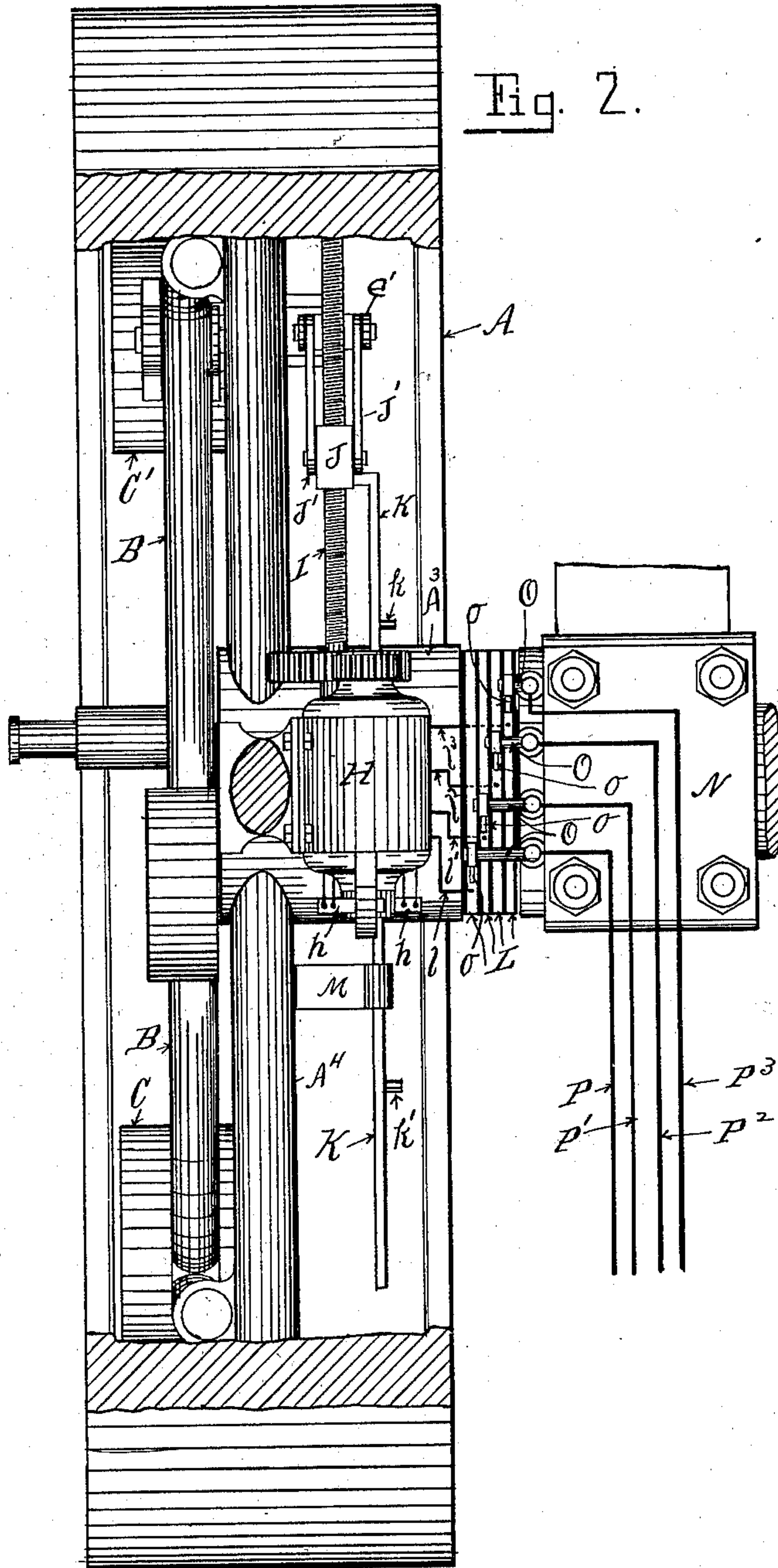
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GOVERNOR ADJUSTING MECHANISM

APPLICATION FILED JAN. 20, 1903.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2.



Witnesses.

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# UNITED STATES PATENT OFFICE.

LE GRAND SKINNER AND JOHN C. GLENN, OF ERIE, PENNSYLVANIA; SAID  
GLENN ASSIGNOR TO SAID SKINNER.

## GOVERNOR-ADJUSTING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 748,223, dated December 29, 1903.

Application filed January 20, 1903. Serial No. 139,835. (No model.)

*To all whom it may concern:*

Be it known that we, LE GRAND SKINNER and JOHN C. GLENN, citizens of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have jointly invented certain new and useful Improvements in Steam-Engine-Governor-Adjusting Mechanism; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

Our invention relates to improvements in steam-engine-governor-adjusting mechanism, and has for its object the construction and combination with an ordinary centrifugal governor for steam-engines of mechanism whereby such governor can be adjusted while the engine is in operation, so as to increase or diminish the speed of the engine, as desired.

It is a matter of common knowledge that it has been found difficult to adjust the governors of two or more engines when at rest, so as to synchronize the speed of the engines when in operation, and that especial difficulty has existed in adjusting the governors of two or more engines driving separate alternating dynamos, so as to synchronize the operation of such dynamos driven thereby. To overcome these difficulties, we have devised a mechanism adapted to be attached to centrifugal governors of steam-engines in which we provide mechanism for varying the action of the governor and means for operating such mechanism, so that the governor may be adjusted while the engine is in operation, so as to maintain a different speed of the engine from that which the governor maintains at its normal adjustment.

In the description of our invention herein after set forth we show and describe mechanism embodying our invention as applied to an ordinary and well-known type of centrifugal steam-engine governor; but it will be distinctly understood that by mere mechanical modifications of the construction and ar-

rangement of the parts thereof our invention is equally applicable to other forms and types of centrifugal steam-engine governors.

In the accompanying drawings, illustrating our invention, Figure 1 is a side view in elevation of a governor-wheel and centrifugal governor with a mechanism embodying our invention. Fig. 2 is a top or plan view of the same with a part of the wheel-rim broken away.

In the drawings, A is an ordinary governor-wheel; B, the governor-lever, C C, the governor-weights, and D the governor-spring, all of which are of usual construction.

On the arm A' of the wheel A on a pivot *e* we mount a lever E, in one end E' of which there is mounted a supplementary spring F, the end *f* of which is pivoted to links G, extending to and pivoted to the governor-weight C. Upon the arm A<sup>2</sup> of the wheel A we secure a reversible electric motor H, which is geared to a screw-threaded shaft I, mounted in bearings *a* on the wheel-arm A<sup>2</sup> and *a'* on the inside of the rim of the wheel A. Upon the screw-threaded shaft I there is a traveling nut J, from which links J' extend to and are pivoted to the forked end *e'* of the lever E, so that the traverse of the nut J on the shaft I moves the lever E on the pivot *e*, so as to produce a tension on the spring F in one direction or the other, which thereby operates either to supplement the governor-spring D and increase the centripetal force exerted on the governor-weights or to diminish it, according to the direction the nut J travels on the shaft I, and thereby adjust the governor for a greater or less speed of the engine.

For operating the motor H insulated rings L are secured upon the hub A<sup>3</sup> of the wheel A, from which wires *l l' l<sup>2</sup> l<sup>3</sup>* extend to the brushes *h h* of the motor H in the usual manner. In the wires *l l<sup>3</sup>*, however, we provide spring-switches *l<sup>4</sup> l<sup>5</sup>*, and secured to the nut J we provide a rod K, which slides through a guide M on the arm A<sup>4</sup> of the wheel A, so that the rod K travels back and forth in unison with the nut J. On this sliding rod K there are two studs *k k'*, which are adapted to engage the switches *l<sup>4</sup>* and *l<sup>5</sup>* and open



them when the nut J completes its limit of traverse on the shaft I in either direction, and thereby automatically stop the motor H.

Upon the journal-bearing box N of the wheel A we secure ordinary brush-holders O, from which brushes o extend to and contact with the insulated rings L on the wheel-hub A<sup>3</sup>, and from the brush-holders O wires P P' P<sup>2</sup> P<sup>3</sup> lead to a reversing and cut-out switch (not shown) of usual and ordinary construction.

In operation whenever it is deemed necessary to increase the speed of the engine above or reduce it below that for which the governor is normally adjusted the operator can by means of the reversing-switch start the motor H in the proper direction to rotate the shaft I, so that the nut J thereon will travel in the direction necessary to produce the result desired—viz., the production of such a tension in the supplementary spring F as will either increase or diminish the centripetal force exerted upon the governor, and thereby diminish or increase the speed of the engine, as may be desired.

It is obvious to those skilled in the art to which this invention appertains that the construction and arrangement of the parts of our mechanism can readily be modified, so as to be connected and combined with and operate to adjust any type of centrifugal governor without departing from the spirit of our invention.

Therefore, having described our invention, so as to enable others to construct and utilize the same, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a governing device for steam-engines, comprising substantially a rotating member having centrifugal-weights mechanism, spring mechanism operating centripetally on the weight mechanism, and eccentric attach-

ment mechanism mounted thereon, the combination therewith of an auxiliary spring connected with the governor-weight mechanism, and means on said rotating member for varying the tension of said auxiliary spring, substantially as and for the purpose set forth.

2. In a governing device for steam-engines, comprising substantially a rotating member, having centrifugal weights, a main governor-spring acting centripetally on the governor-weights, and eccentric mechanism mounted therein, the combination therewith of an auxiliary spring connected with the governor-weights, and motor mechanism mounted on the rotating member and connected with said auxiliary spring and operating thereon to vary its tension in either direction as desired, substantially as and for the purpose set forth.

3. In a governor device for steam-engines, comprising substantially a rotating member having centrifugally-acting weights, main governor-spring mechanism operating centripetally on the centrifugally-acting weights, and eccentric actuating mechanism mounted thereon, the combination therewith of an auxiliary spring mounted on said rotating member and connected with said centrifugally-acting weights, motor mechanism mounted on said rotating member and connected with said auxiliary spring, and acting thereon to vary its tension in either direction, and means for operating and controlling said motor mechanism from a point outside of the said rotating member, substantially as and for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

LE GRAND SKINNER.  
JOHN C. GLENN.

Witnesses:

F. J. BASSETT,  
G. J. MEAD.