

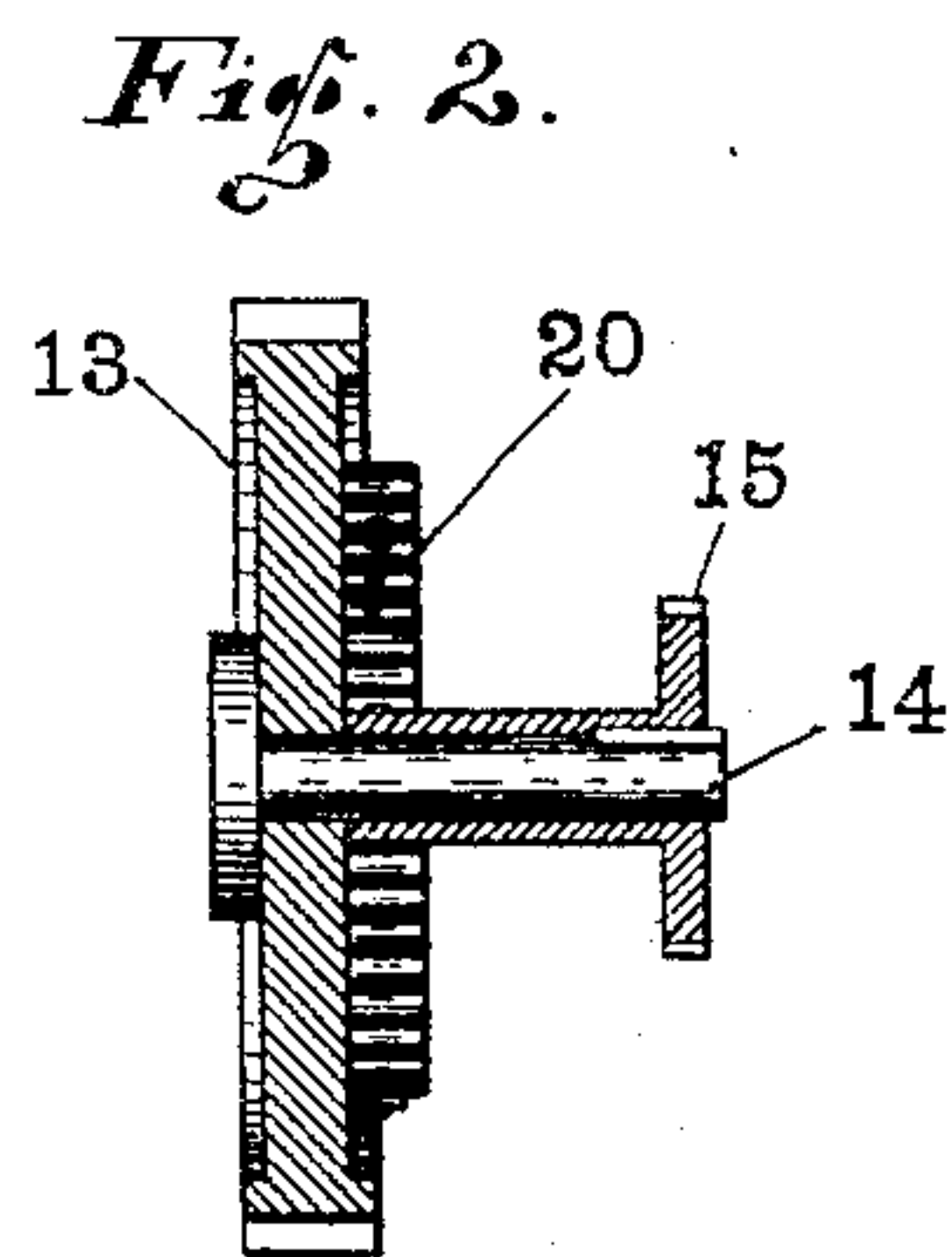
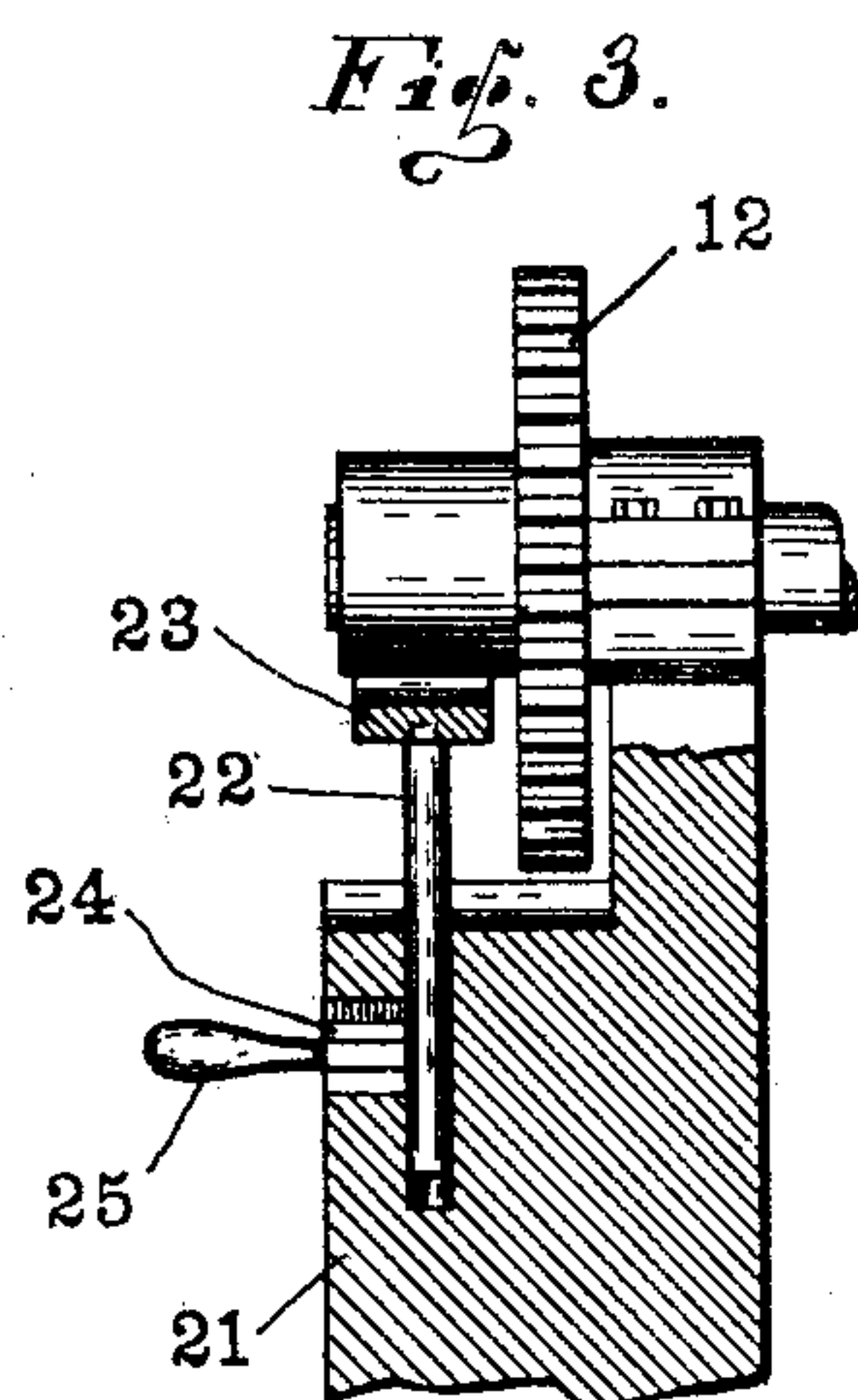
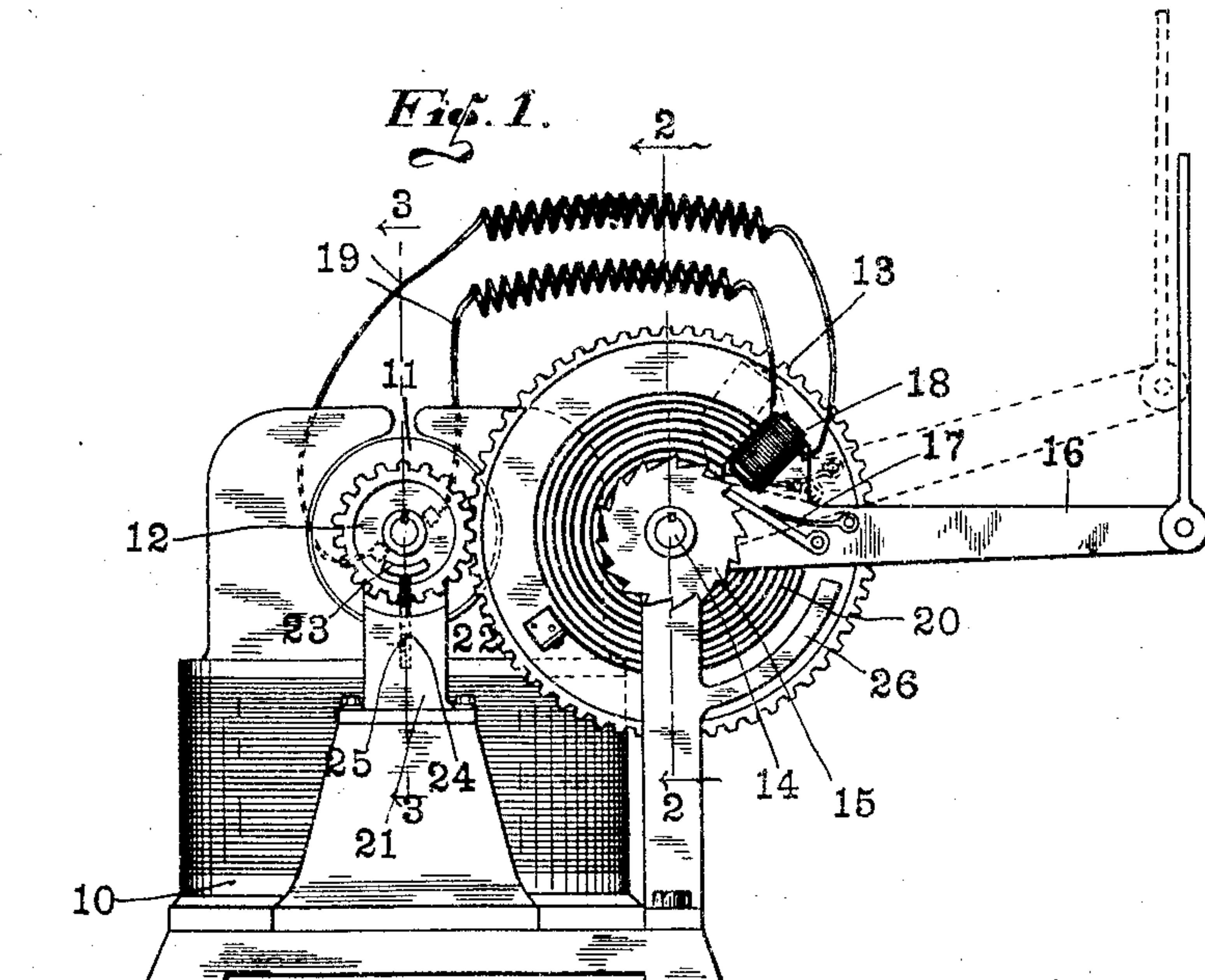
No. 776,028.

PATENTED NOV. 29, 1904.

H. N. MOTSINGER.  
SPEED GOVERNOR.

APPLICATION FILED SEPT. 21, 1903.

NO MODEL.



Witnesses  
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# UNITED STATES PATENT OFFICE.

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## SPEED-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 776,028, dated November 29, 1904.

Application filed September 21, 1903. Serial No. 174,044. (No model.)

*To all whom it may concern:*

Be it known that I, HOMER N. MOTSINGER, a citizen of the United States, residing at Pendleton, in the county of Madison and State of Indiana, have invented certain new and useful Improvements in Speed-Governors, of which the following is a specification.

The object of my invention is to provide a simple but efficient speed-governor for electric generators, especially generators of the type used for producing the spark for gas-engines, the construction being such that the speed of the armature-shaft is controlled by the change of strength of the current. It will be understood that the device may be used for driving other machinery the speed of which is to be governed electrically.

The accompanying drawings illustrate my invention.

Figure 1 is a side elevation; Fig. 2, a section on line 2 2 of Fig. 1, and Fig. 3 a partial sectional detail.

In the drawings, 10 indicates an electric generator having an armature 11, the shaft of which is provided with a suitable driving-gear 12. Meshing with gear 12 is a gear 13, rotatable upon shaft 14. Secured to shaft 14 is a ratchet-wheel 15, provided with a sleeve which is journaled in a suitable standard forming part of the frame of generator 10. Pivoted upon the sleeve of ratchet 15 is a lever 16, carrying pawl 17, normally in engagement with the ratchet-wheel, so that a reciprocation of lever 16 will drive the ratchet-wheel. Lever 16 also carries an electromagnet 18, which is located adjacent pawl 17 and which is capable of drawing said pawl away from driving engagement with the ratchet-wheel. Magnet 18 is in circuit by wires 19 with the generator in any desired manner. In order that the impulses of lever 16 upon the ratchet-wheel 15 may be more evenly applied to gear 13, the ratchet is connected to the wheel by means of a volute spring 20, one end of which is attached to the sleeve of the ratchet-wheel, while the other end is attached to the gear.

By this arrangement the spring 20 must be put under some degree of tension before gear 13 will operate to drive gear 12. By this arrangement also it is possible to provide for a starting action of the armature before any movement of lever 16 is had, and this is done in the following manner: Vertically reciprocable within the standard 21 of the frame of the generator 10 is a stem 22, provided at its upper end with a brake-shoe 23, which may be moved into engagement with gear 12. Stem 22 may be held in its upper position by any suitable means—as, for instance, by slot 24 and pin 25. When the machine is to be stopped, the brake-shoe 23 is moved up into engagement with the hub of gear 12, so that spring 20 is wound to a greater degree and is held wound by the brake-shoe and a contracting of lever 16 with a back-stop 26. When it is desired to get an additional current from the generator before starting lever 16—as, for instance, in order to obtain an initial spark for a gas-engine before the same has been moved—all that is necessary is to withdraw brake-shoe 23, whereupon the spring 20 will operate to rotate the armature sufficiently to produce the desired current.

In operation pawl 17 is normally in engagement with ratchet-wheel 15, so that continued reciprocation of the lever 16 will result in a rotation of the armature-shaft. If, however, the speed of the armature becomes great enough to produce sufficient current to adequately energize the electromagnet 18, said magnet will draw the pawl away from the ratchet, and thus allow the continued reciprocation of the lever without driving the armature-shaft. So soon as the speed of the armature-shaft drops below a desired point, however, magnet 18 is no longer energized sufficiently to maintain pawl 17 away from the ratchet-wheel, and it therefore returns to operating position.

It will be readily understood that the pawl-and-ratchet mechanism may be of any desired type and that it may be attached directly to



the armature-shaft or separated therefrom by any desired form of intermediate gearing without departing from my invention.

I claim as my invention—

5 1. In a speed-governor, the combination with an electric generator, of a pawl-and-ratchet mechanism for driving the same, an electromagnet adapted to separate said pawl-and-ratchet mechanism, and electric connections between the generator and the magnet, 10 for the purpose set forth.

2. In a speed-governor, the combination with an electric generator, of a ratchet-wheel, connections between the generator-shaft and 15 said wheel, a lever, a pawl carried by said lever and normally engaging said ratchet-wheel, an electromagnet carried by the lever in position to withdraw the pawl from engagement with the ratchet-wheel, and electric connections between the generator and said magnet, 20 for the purpose set forth.

3. In a speed-governor, the combination with an electric generator, of a pawl-and-ratchet mechanism for driving the same, a 25 spring forming part of the driving connection between the pawl and ratchet and the generator, and a brake for holding the generator-shaft against the action of the spring, whereby the spring may be held wound, for the purpose set forth. 30

4. A speed-governor consisting of a driven part and a driving part, separable driving connections between the same consisting in part of a spring through which the driving force

is transmitted, a brake for holding the driven 35 part against the action of the spring, an electromagnet capable of operating upon the separable driving connection, and means operated by the driving or driven part for energizing the magnet sufficiently to operate upon the 40 separable driving connection.

5. In a speed-governor, the combination with an electric generator, of a ratchet-wheel, a spring attached thereto, connections between said spring and a generator-shaft, a lever, a pawl carried by said lever and normally 45 engaging said ratchet-wheel, an electromagnet carried by the lever in position to withdraw the pawl from engagement with the ratchet-wheel, electric connections between 50 the generator and the magnet, and a brake to act upon the generator-shaft in opposition to the spring, for the purpose set forth.

6. In a speed-governor, the combination, with an electric generator, of a reciprocating 55 driving element, a separable driving connection between said reciprocating driving element and the generator, an electromagnet adapted to separate said separable connection, and electric connections between the generator 60 and the magnet, for the purpose set forth.

In witness whereof I have hereunto set my hand and seal, at Indianapolis, Indiana.

HOMER N. MOTSINGER. [L. S.]

Witnesses:

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