

G. W. HALL & A. O. WHITTEMORE.
ENGINE-GOVERNOR.

No. 172,116.

Patented Jan. 11, 1876.

Fig. 1.

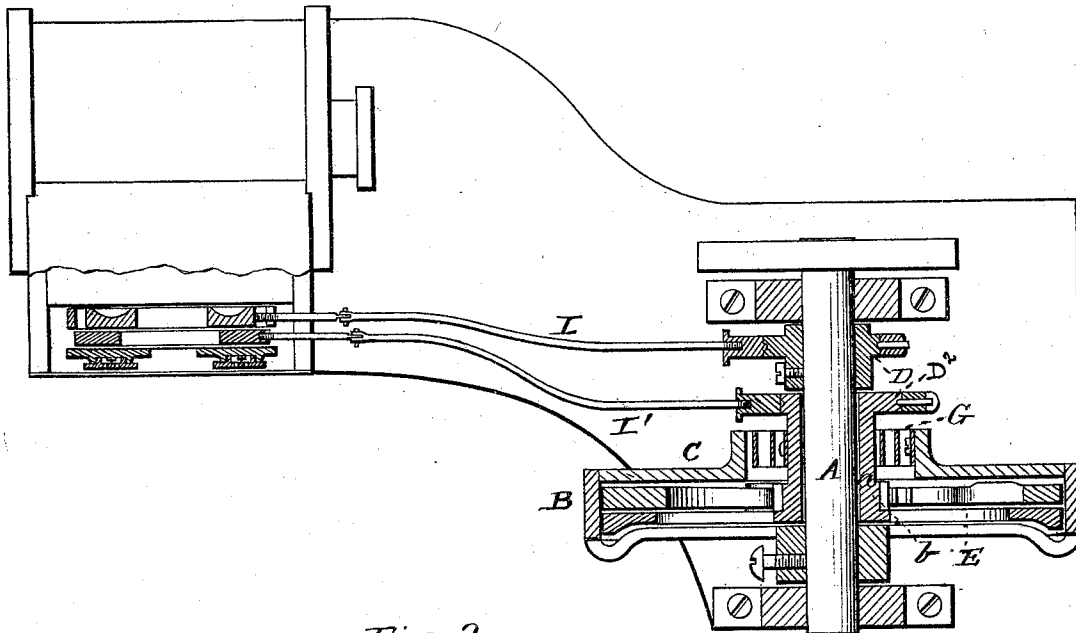
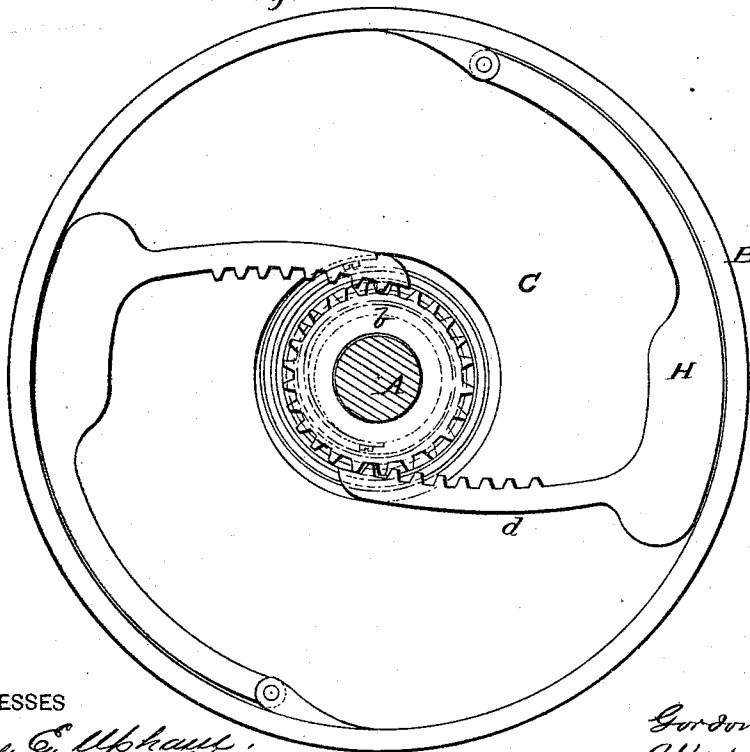


Fig. 2.



WITNESSES

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Fig. 3.

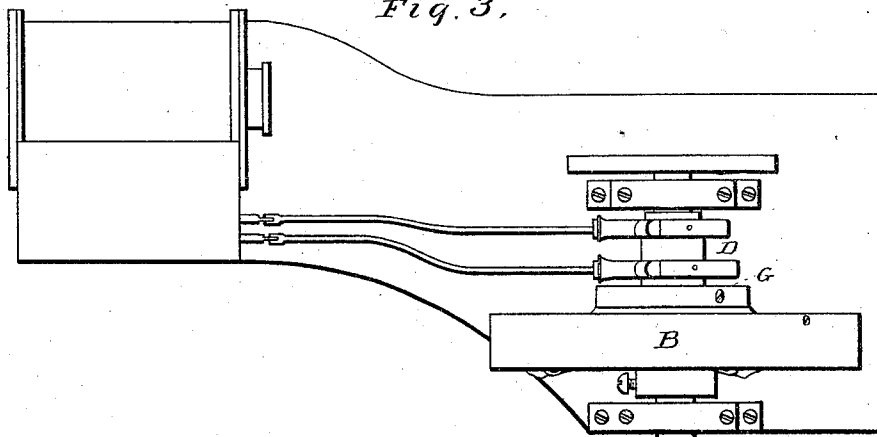
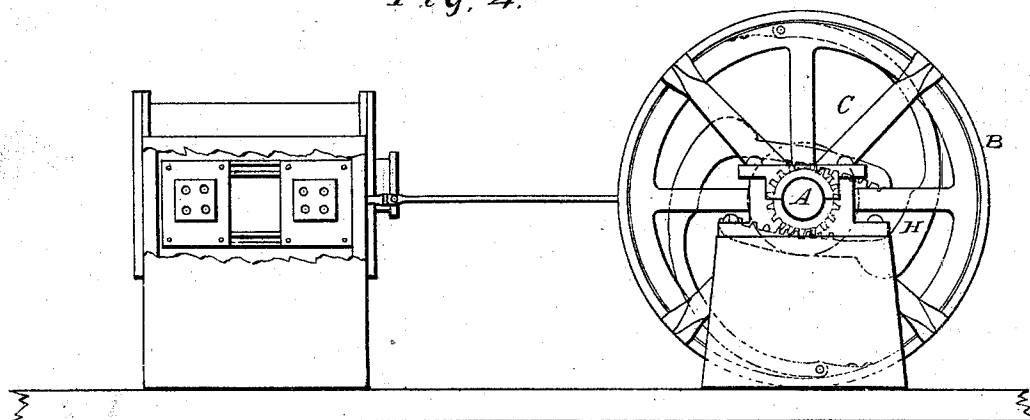


Fig. 4.



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UNITED STATES PATENT OFFICE.

GORDON W. HALL AND ALBERT O. WHITTEMORE, OF HAVANA, NEW YORK.

IMPROVEMENT IN ENGINE-GOVERNORS.

Specification forming part of Letters Patent No. **172,116**, dated January 11, 1876; application filed July 17, 1875.

To all whom it may concern:

Be it known that we, GORDON W. HALL and ALBERT O. WHITTEMORE, of Havana, in the county of Schuyler and State of New York, have invented a new and valuable Improvement in Steam-Engine Governors; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a horizontal section of our steam-engine governor, and Fig. 2 is a vertical sectional view of the same. Fig. 3 is a plan view, and Fig. 4 a side view, thereof.

Our invention relates to governors for steam-engines; and it consists in a movable eccentric for operating the slide-valve, and provided with a cog-wheel within the governor-case, the hinged weights geared to said cog-wheel, and the coiled spring connecting the eccentric with the governor-case.

In the annexed drawing, A represents the main shaft of the engine, upon which is rigidly fastened a governor-case, B, provided with an adjustable face-plate, C, held in any position desired to the case by screws or other suitable means. D represents the eccentric, which operates the slide-valve of the engine by means of the connecting-rod I. This eccentric is placed loosely on the shaft A, and is formed with an elongated hub, a, which extends into the case B, and has a cog-wheel, b, formed therein. The position of the movable or loose eccentric D on the shaft A is controlled by the governor. Attached to the hub of the movable eccentric D² is a fly-wheel, E, or its equivalent, to steady the motion thereof, as without this the eccentric would have an unequal motion at different points of its revolution occasioned by friction of the parts or other causes. G is a coil-spring, wound around the hub of the eccentric, and having its inner end secured to the same, while the outer end is secured to the face-plate C of the governor-

case. By turning the face-plate and fastening at any point desired the tension of the spring G is regulated, thereby regulating the speed of the engine, as the governor thereby becomes set to a certain speed. Within the casing B are hinged two weighted arms, H H, the outer weighted ends of which are provided with rack-bars d d, gearing with the pinion b on the hub of the eccentric. These arms are used in lieu of the ordinary governor-balls, and thrown out by the momentum of the case, the rack-bars of which engage with the pinion on the elongated sleeve, thereby regulating the cut-off valve through the medium of the connecting-rod I. The governor-spring G being set by means of the adjustable face-plate C to the desired tension, and the engine being in operation, as long as it runs up to or below the speed for which the spring is set the eccentric moves regularly with the shaft, it being connected thereto by the spring and governor-case; but as soon as the speed increases the least trifle beyond said point the movement of the movable eccentric is changed, so as to restrict the movement of the cut-off valve, and thus admit the steam into the cylinder at a different point of the stroke, and thereby at once decreasing the speed.

What we claim as new, and desire to secure by Letters Patent, is—

1. The loosely-movable eccentric D, having the elongated hub a and cog-wheel b, in combination with the governor, substantially as described.

2. The casing B and weighted arms H, provided at their outer ends with rack-bars d, in combination with the pinion b of the eccentric, substantially as and for the purpose set forth.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

GORDON W. HALL.

ALBERT O. WHITTEMORE.

Witnesses:

ELBERT P. COOK,

M. D. CARPENTER.