

(No Model.)

R. J. HOTCHKISS.  
GOVERNOR CONNECTION.

No. 350,250.

Patented Oct. 5, 1886.

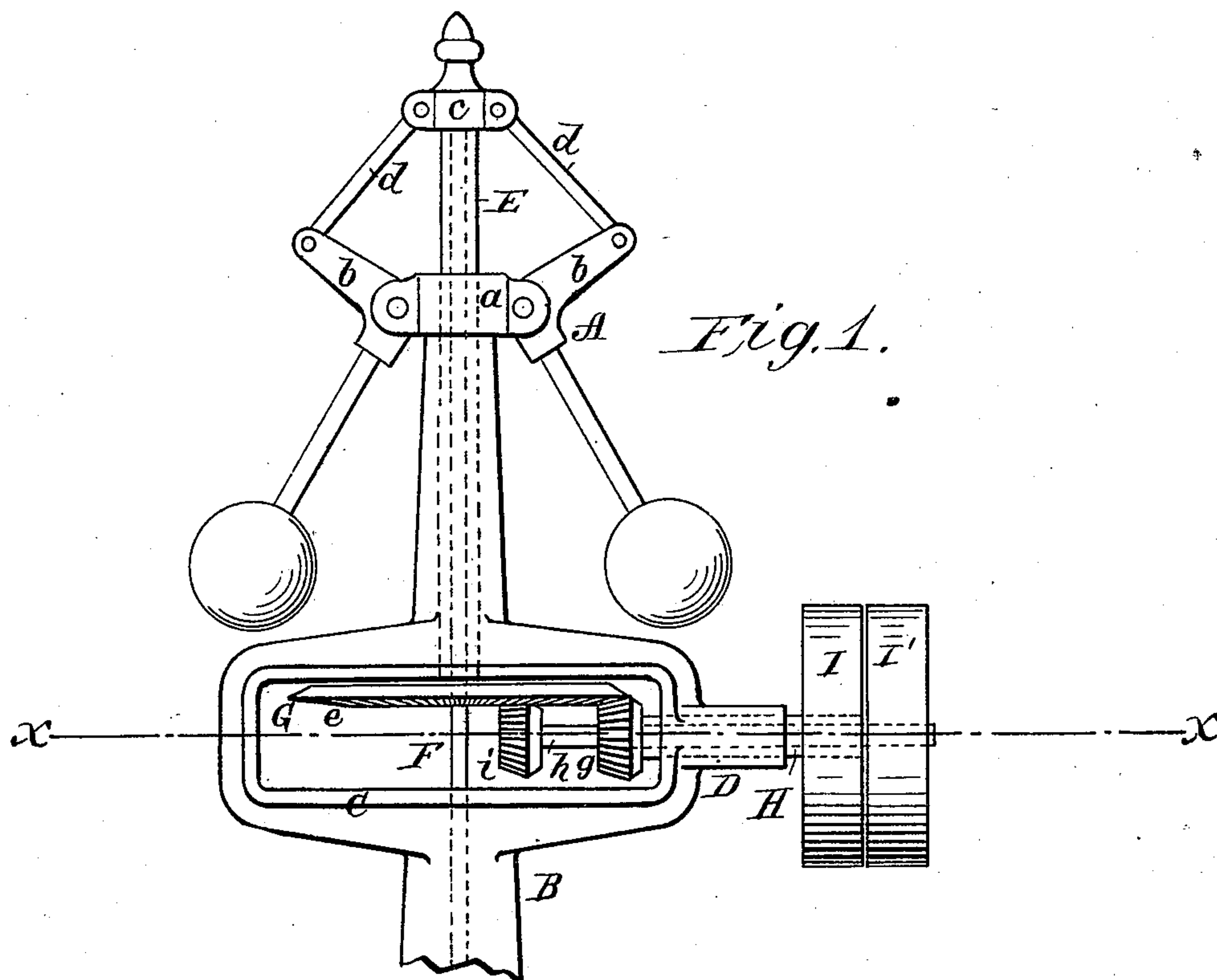
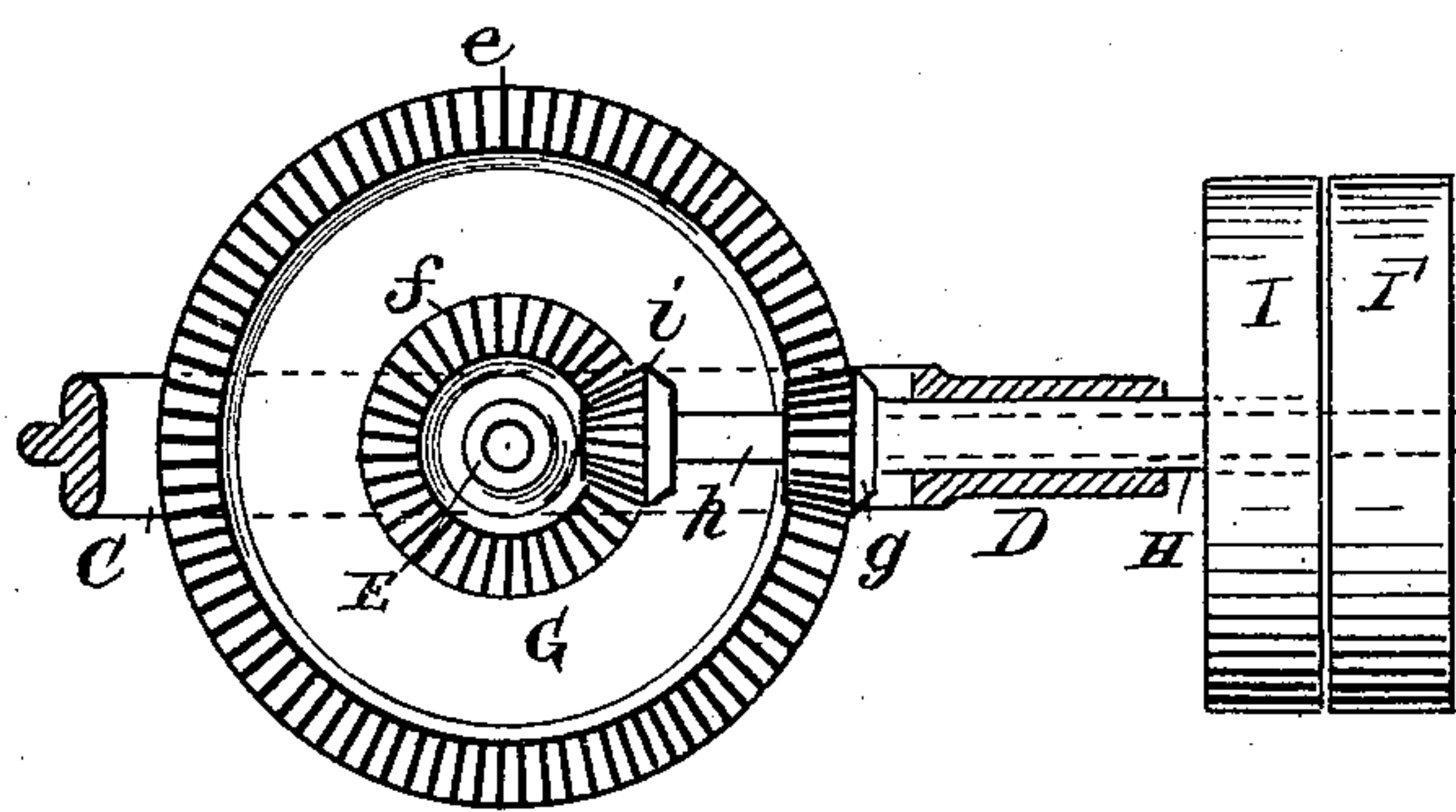


Fig. 2.



WITNESSES:

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ROBERT J. HOTCHKISS, OF DOWNSVILLE, NEW YORK.

## GOVERNOR-CONNECTION.

SPECIFICATION forming part of Letters Patent No. 350,250, dated October 5, 1886.

Application filed March 18, 1886. Serial No. 195,675. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT JULIUS HOTCHKISS, of Downsville, in the county of Delaware and State of New York, have invented a new and useful Improvement in Governor-Connections, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of an engine-governor to which my improvement has been applied. Fig. 2 is an inverted plan view, taken in section on line *xx* in Fig. 1.

Similar letters of reference indicate corresponding parts in both figures of the drawings.

The object of my invention is to provide means for changing the speed of a steam-engine without changing the adjustment of the governor or increasing or diminishing the steam-supply.

My invention consists in a governor having on its spindle a bevel-wheel with different series of teeth, the series being of different diameters, and in pinions carried by separate shafts and gearing with the different series, the pinions being arranged to be driven independently of each other by motion communicated to them by some rotating part of the engine. The moving parts of the governor are supported by a hollow standard, B, in which is formed a rectangular yoke, C, having in one side thereof a sleeve, D, arranged at right angles to the axial line of the standard. In the upper part of the standard B, above the yoke C, is journaled a hollow shaft, E, carrying a yoke, *a*, in which are pivoted the right-angled weighted levers *b*, and in the hollow shaft E is placed the valve-rod F, which is secured in the cap *c*, the cap being connected with the shorter arm of the weighted levers *b* by links *d*. Upon the lower end of the hollow shaft E, and within the yoke C, is secured a bevel-wheel, G, whose face in the present case is provided with two series of teeth, *e f*, of different diameters. In the sleeve D, projecting from the side of the yoke C, is journaled a hollow sleeve, H, carrying on its inner end within the yoke C a pinion, *g*, which meshes with the teeth *e* of the wheel G. Upon the outer end of the sleeve H is secured a pulley, I, and in the sleeve H is journaled a shaft, *h*, carrying on its inner end a pinion, *i*, which engages the teeth *f* of the wheel G. Upon the outer end of the shaft *h* is secured a pulley, I'.

The valve-rod F is connected with the engine-valve in the usual way, and a belt connected with some rotating part of the engine runs around one or the other of the pulleys I I'. When a high engine-speed is required, the belt is received on the pulley I, and motion is transmitted through the sleeve H and pinion *g* to the bevel-wheel G, while the pinion *i*, shaft *h*, and pulley I' are driven by connection with the teeth *f* of the wheel G. In this manner a very slow rotary motion is imparted to the governor, requiring considerable velocity in the engine to effect the governor-valve. By shifting the belt from the pulley I to the pulley I' motion is imparted to the governor-valve through the sleeve H, pinion *i*, and teeth *f* of the bevel-wheel G, causing the governor to revolve with a greatly-increased speed, thereby operating the governor-valve with less engine velocity.

My invention is especially applicable to engines employed in sawing lumber, where a high velocity is required at one time and a comparatively low velocity at another time. This has usually been effected by the employment of a common butterfly-valve placed in the steam-supply pipe, and operated simultaneously with the shifting mechanism of the saw-mill.

With my improvement, to secure the required change in the velocity of the engine, it is only necessary to shift the belt from one of the pulleys I I' to the other.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the governor-shaft, of a toothed wheel having two or more series of teeth of different diameters, pinions for engaging the teeth, and means for imparting motion from the engine to one or the other of the pinions, substantially as herein shown and described.

2. The combination, with the driving shaft of an engine-governor, of the bevel-wheel G, provided with two series of teeth, *e f*, the sleeve H, shaft *h*, pinions *g i*, and the pulleys I I', substantially as herein shown and described.

ROBERT J. HOTCHKISS.

Witnesses:

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