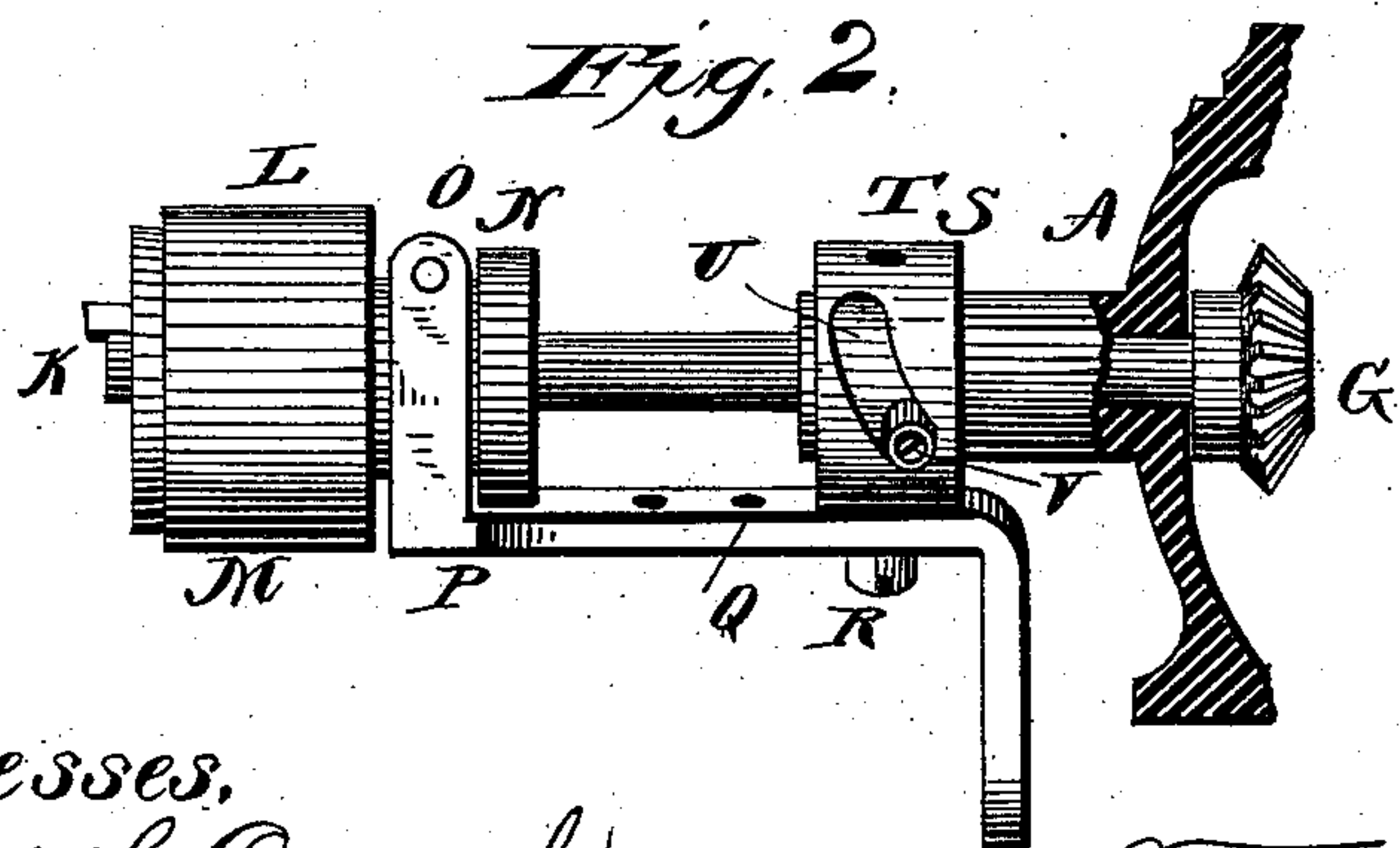
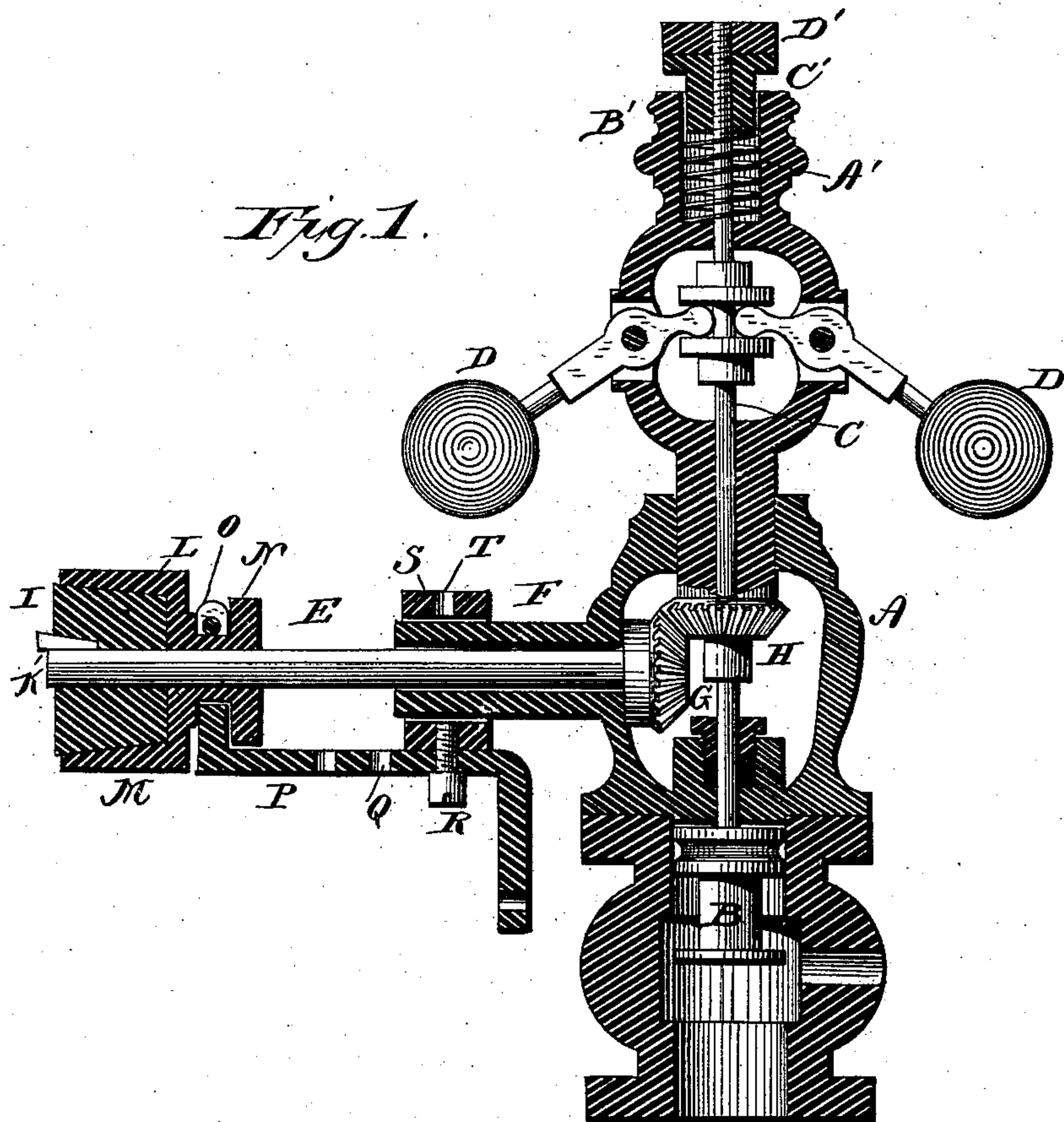


(Model.)

F. HEYER.  
Steam Engine Governor.

No. 236,029.

Patented Dec. 28, 1880.



Witnesses,  
Frank L. Ouraud  
J. J. McCarthy.

Inventor.  
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att'y



# UNITED STATES PATENT OFFICE.

FREDERICK HEYER, OF RICHMOND, VIRGINIA.

## STEAM-ENGINE GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 236,029, dated December 28, 1880.

Application filed October 29, 1880. (Model.)

*To all whom it may concern:*

Be it known that I, FREDERICK HEYER, of Richmond, in the county of Henrico, and in the State of Virginia, have invented certain new and useful Improvements in Steam-Engine Governors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in engine-governors; and it has for its objects to provide means whereby the speed of the engine may be instantaneously increased or decreased, and whereby the governor may be adjusted to vary the speed of the engine at will, as more fully hereinafter specified. These objects I attain by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section of an engine-governor, showing my improvements; and Fig. 2 represents a side elevation, showing the mechanism for changing the speed of the engine in detail.

The letter A indicates an engine-governor, B the valve thereof, C the valve-rod, and D the weights, operated by centrifugal force, in the usual manner, to regulate the speed of the engine.

The letter E indicates the shaft by means of which motion is transmitted to the governor from the engine, the said shaft being journaled in the boss F, and provided with a beveled-gear wheel, G, intermeshing with a similar wheel, H. At its outer end the said shaft E is provided with a cone-pulley, I, which is rigidly secured to it by means of a key, K, or otherwise. The said shaft has also mounted on it a loose pulley, L, which has an internal conical friction bearing-surface, M, which is adapted to be forced against the cone-bearing of the fast pulley, so that the two may be rotated together, or one independent of the other, as may be desired. The loose pulley is capable of a longitudinal movement on the shaft E, and is provided at one side with a collar, N, which is loosely embraced by a yoke, O, on one end of a bar, P, which is bent at its other end, as shown, for the purpose hereinafter explained. The horizontal portion of said bar is

provided with a series of apertures, Q, for the passage of a screw, R, by means of which the bar may be adjustably secured to the loose collar S, mounted on the boss F, the said collar being provided with a series of threaded apertures, T, for the reception of the screw, by means of which the bar may be further adjusted. The collar is provided with an oblique cam-slot, U, which works over a friction-roller secured to the boss by means of screw or bolt V.

The upper part of the governor is recessed, as indicated by the letter A', and in said recess is located a spiral spring, B', with its lower end resting upon the bottom of the recess. The said spring surrounds the upper end of the valve-rod, and its upper end is confined by a milled nut, C', on the valve-rod, by which the tension of the spring may be accurately regulated.

D' indicates a jam-nut, secured to the valve-rod above the milled nut, by which said milled nut is prevented from working out of place when properly adjusted.

The operation of my invention is as follows: A band from a pulley driven by the engine passes over the loose pulley mounted on shaft E, whereby a rotary motion is imparted to the said pulley, and, when said pulley is bearing against the fast cone-pulley, to the said shaft E, and through it to the governor. By employing the bent end of the bar P as a lever and shifting the loose pulley back or forth the speed of the engine may be increased or decreased instantaneously by throwing the governor into or out of gear.

By means of the spiral spring in the upper part of the governor it is evident that the resistance of the weights to centrifugal power may be increased or diminished at will, and the speed of the engine thus regulated.

It is evident that other mechanism than above described may be employed for shifting the loose pulley, and that the position of the handle on the bar P may be varied, so that the bar may be operated by a pitman or connecting-rod from above, below, or from either side of the governor, as may prove most convenient to the engineer.

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

1. In a steam-engine governor, the combination, with its driving-shaft, provided with a fixed conical pulley, I, of the loose belt-pulley L, having a like conical internal form, and adapted to slide over and bind against the said pulley I, whereby the engine and governor are partially or positively connected together, and the speed of the former regulated accordingly, substantially as and for the purposes specified.

2. In combination with the shaft operating the governor and the fast and loose pulleys, the bar having a yoke at one end embracing

a collar on the loose pulley, and secured adjustably at the other end to a cam-collar working over a friction-roller on the boss in which the shaft is journaled, the whole adapted to operate substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 26th day of October, 1880.

FRED. HEYER. [L. S.]

Witnesses:

H. AUBREY TOULMIN,  
WM. J. McNAMARA.