E. TOWNS.

Governor for Steam-Engines.

No. 198,711. Patented Dec. 25, 1877.

Fig. 2.

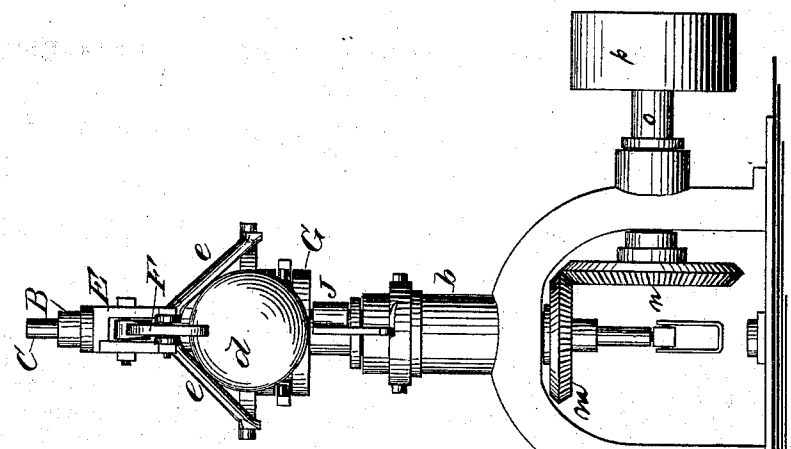
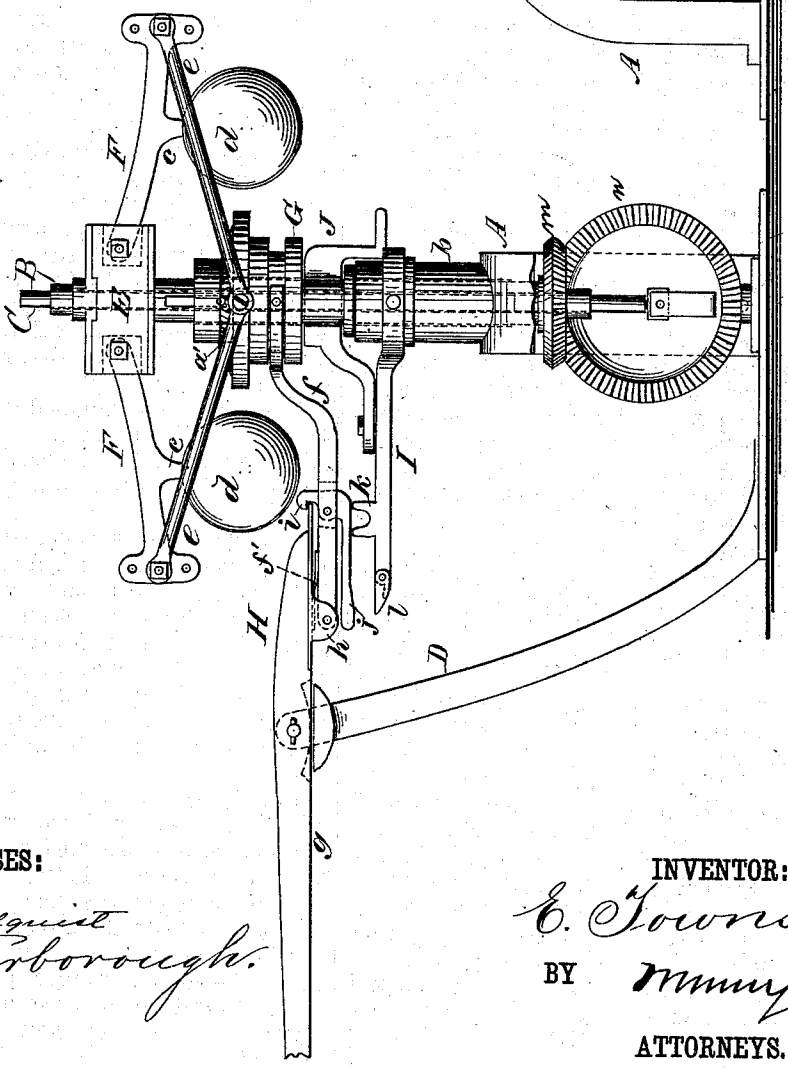


Fig. 1.



WITNESSES:

H. Bydquist

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UNITED STATES PATENT OFFICE.

ELSON TOWNS, OF CISNE, ILLINOIS.

IMPROVEMENT IN GOVERNORS FOR STEAM-ENGINES.

Specification forming part of Letters Patent No. **198,711**, dated December 25, 1877; application filed June 4, 1877.

To all whom it may concern:

Be it known that I, ELSON TOWNS, of Cisne, county of Wayne, and State of Illinois, have invented a new and Improved Governor, of which the following is a specification:

Figure 1 is a side elevation of my improved governor. Fig. 2 is a front elevation.

Similar letters of reference indicate corresponding parts.

My invention relates to governors for regulating the speed of machinery. It is more especially designed for controlling steam-engines; but it may be applied to machinery driven by water, wind, or other power.

In the drawing, A is a frame, having formed upon it the sleeve *b*, in which is journaled the vertical tubular shaft B, through which the valve-spindle C extends. To the upper end of the tubular shaft B a head, E, is secured, in which arms F are pivoted. These arms are provided with branches *c*, which project downward, and to which the balls *d* are attached. The arms F and rods *e* are at an acute angle to each other at all times, thus giving a decrease of weight or power as the balls rise, and increase as they fall. To the outer end of the arms F rods *e* are pivoted, which are also pivoted to a sleeve, G, that slides upon the tubular shaft B. This sleeve is connected with the valve-spindle C by means of a pin, that passes through it and through the said spindle. A slot is formed in each side of the tubular shaft B to permit of the vertical movement of the pin that connects the sleeve and valve-spindle.

The sleeve G is grooved to receive pins projecting from the ends of the jointed lever H. This lever consists of the parts *f g*, which are jointed together at *h*. The part *f* engages the sleeve G, and the part *g* is pivoted to a standard, D, that is attached to the frame A, or to some fixed portion of the engine. The end of the part *g* projects over the part *f*, and is engaged by a catch, *i*, that is pivoted in the part *f*, and is provided with a weighted arm, *j*, that extends under and parallel to the part *f*.

An arm, I, projects from the sleeve G, and is provided with lugs *k*, which the catch *i* strikes when, from any cause, the shaft B ceases to rotate and the balls *d* drop beyond the prescribed limit.

The part *g* of the lever H is connected with the governor-valve of an engine, or with a shifter in other machinery; and the part *f* is provided with a spring, *f'*, that bears against the under surface of the part *g*, and causes its outer end to descend when the inner end is released from the catch *i*. A finger, *l*, is pivoted to the end of the arm I, and is capable of being turned up vertically, and when so turned it will prevent the catch *i* from engaging the part *g* of the lever H.

A support, J, is pivoted to the arm I, and is of such form as to partly surround the shaft B. This support is designed to sustain the sleeve G until the engine attains its regular speed, after which it is turned on its pivot, so that should the said sleeve drop down it will carry with it the lever H, when the catch *i* will be tripped, and the arm *g* of the said lever will drop, closing the valve of the engine, or shifting the power of other machinery so as to stop it.

The shaft B is provided with a bevel-wheel, *m*, which is driven by a bevel-wheel, *n*, that is secured to a shaft, *o*, journaled in the frame A, and provided with a pulley, *p*, which receives the driving-belt.

This governor is so contrived that the relation of the centrifugal force of the rotating balls to the resistance changes as the balls rise or fall; and the relation of the motion of the balls to that of the sleeve G is also variable, so that the governor is the most sensitive when sensitiveness is required—that is, when the engine or other machinery to which it is attached is doing its maximum amount of work.

Should the governor cease to rotate, the balls immediately drop, carrying downward the sleeve, and also the forked end of the lever H, until the catch *i* is tripped by contact with the lugs *k*, when the arm *g* of the said lever drops and closes the governor-valve.

When the stop-motion is not used, the lever H may be made in a single piece, and the catch *i*, arm I, and the pivoted piece J may be dispensed with; or the lever H may be omitted,

and the spindle C may be connected directly with the valve, and the ball-spindle B may be made solid, and the spindle C omitted when the valve is connected with the lever H.

To regulate the motion of the governor, a sectional weight, *a'*, is placed upon the sleeve G. By removing a portion of this weight the motion of the engine may be retarded. By increasing the weight the motion of the engine is accelerated.

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

The support J, pivoted to arm I, and partly surrounding the shaft B, as and for the purpose specified.

ELSON TOWNS.

Witnesses:
SAMUEL WEEDON,
THOMAS D. COLVIN.