

JOHN S. WARREN.

Improvement in Governors.

No. 124,523.

Patented March 12, 1872.

Fig. 1

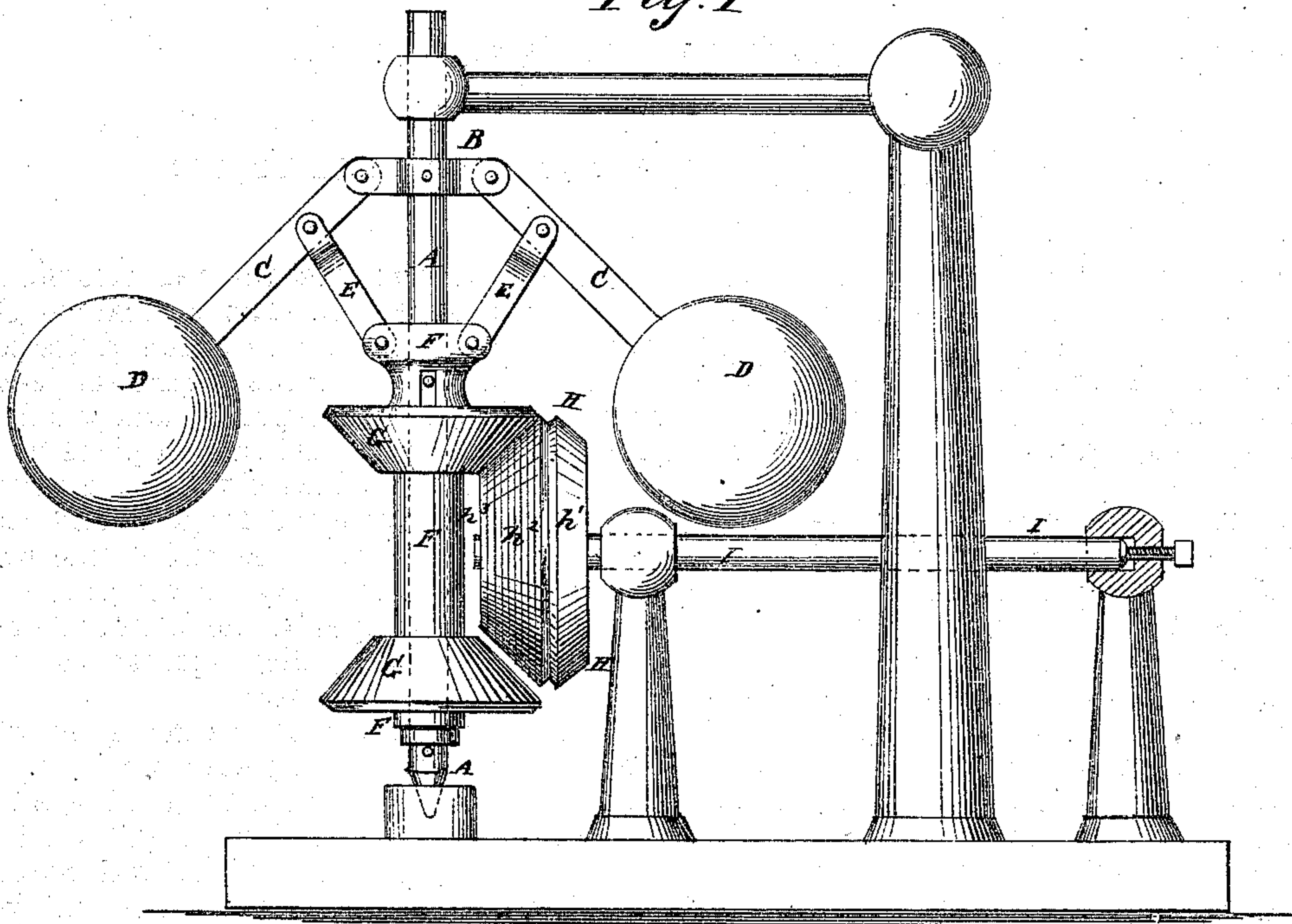
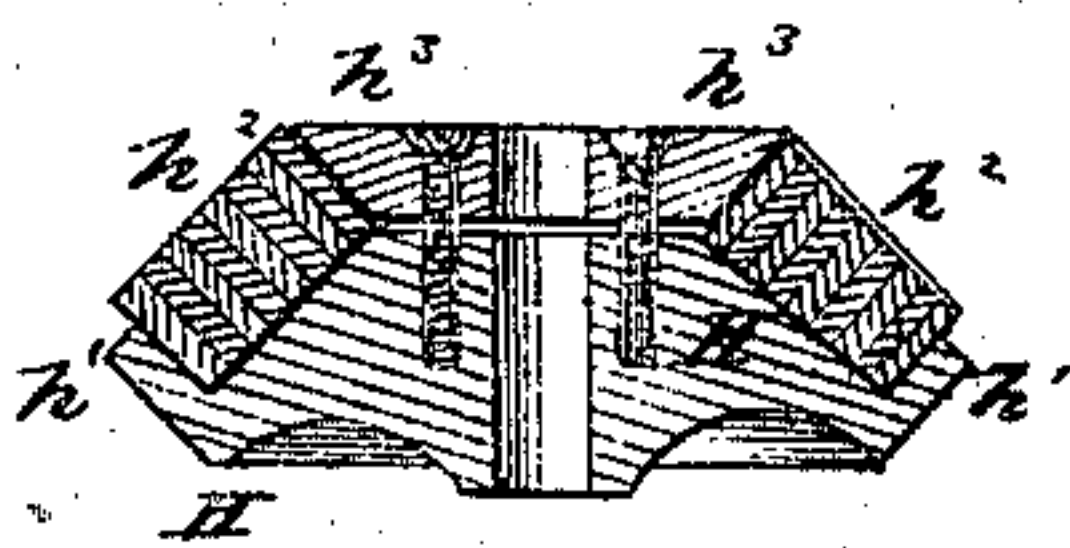


Fig. 2



Witnesses:

A. W. Almqvist
Geo. W. Mabee

Inventor:

John S. Warren
PER *Wm. H. L.*
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN S. WARREN, OF FISHKILL-ON-THE-HUDSON, NEW YORK.

IMPROVEMENT IN GOVERNORS.

Specification forming part of Letters Patent No. 124,523, dated March 12, 1872.

Specification describing a new and Improved Governor for Water-Wheels, invented by JOHN S. WARREN, of Fishkill-on-the-Hudson, in the county of Dutchess and State of New York.

Figure 1 is a side view of my improved governor. Fig. 2 is a detail section of the friction-wheels.

Similar letters of reference indicate corresponding parts.

My invention has for its object to furnish an improved governor for water-wheels, which shall be simple in construction, durable, not liable to get out of order, and reliable in operation, controlling the wheel effectually; and it consists in the construction and combination of the various parts of the governor, as hereinafter more fully described.

A is a vertical shaft, the lower end of which works in a step attached to some suitable support. The shaft A is connected with the water-wheel, so as to receive its motion from said wheel, and which revolves fast or slow according as the water-wheel revolves fast or slow. To the upper part of the shaft A is attached a cross-bar, B, to the ends of which are pivoted the ends of the arms C, to which the balls or weights D are attached. To the arms C, near their outer ends, are pivoted the upper ends of the connecting-rod E, the lower ends of which are pivoted to the upper ends of the sleeve F, which is placed upon the shaft A, and is connected with it by a pin which passes through a short slot in the sleeve F, and is attached to the said shaft A, so that the sleeve F may be carried around by and with the said shaft in its revolution, and at the same time may have a short longitudinal movement upon said shaft A. To the sleeve F are attached or upon it are formed two conical pulleys, G, which are placed face to face and at such a distance apart as to receive the conical pulley H between them without touching either of them. The conical pulley H is attached to the end of the horizontal shaft I, which revolves in bearings in suitable supports, and which is

connected with the gates that regulate the flow of water to the wheel. The conical wheel H is formed with a flange, h^1 , around its base, as shown in Fig. 2. h^2 are a series of leather rings placed upon the pulley, and which are pressed together and secured in place by the cap or disk h^3 , the edges of which are beveled off to be parallel with the flange h^1 , and which is secured to the truncated end of the wheel H by screws or bolts. By this construction of the wheel H the edges of the leather rings h^2 form the face of the pulley, against which the faces of the pulleys G bear.

By this construction of the governor, when the water-wheel is running at the proper speed, the balls D will hold the friction-pulleys G so suspended that neither of them will touch the pulley H. If the motion of the water-wheels increases the balls will raise the pulleys G bringing the lower wheel G in contact with the pulley H, gradually closing the gates until the speed of the water-wheel has been reduced to the desired point. In the same way if the water-wheel becomes too slow the balls D will lower the pulleys G until the upper one comes in contact with the wheel H, opening the gates until the motion of the wheel has been increased to the proper point, the governor thus perfectly controlling the motion of the wheel.

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

1. The friction-wheel H $h^1 h^2 h^3$, constructed substantially as herein shown and described.

2. The friction-wheels H, h^1 , h^2 , h^3 , and G, constructed as described, in combination with the shaft A, cross-bar B, pivoted arms C, balls D, bars E, and sleeve F, as set forth.

The above specification of my invention signed by me this 11th day of November, 1872.

JOHN S. WARREN.

Witnesses:

JAMES T. GRAHAM,
T. B. MOSHER.