

GEORGE W. CLARK.

Improvement in Steam Governors.

No. 120,856.

Fig. 1.

Patented Nov. 14, 1871.

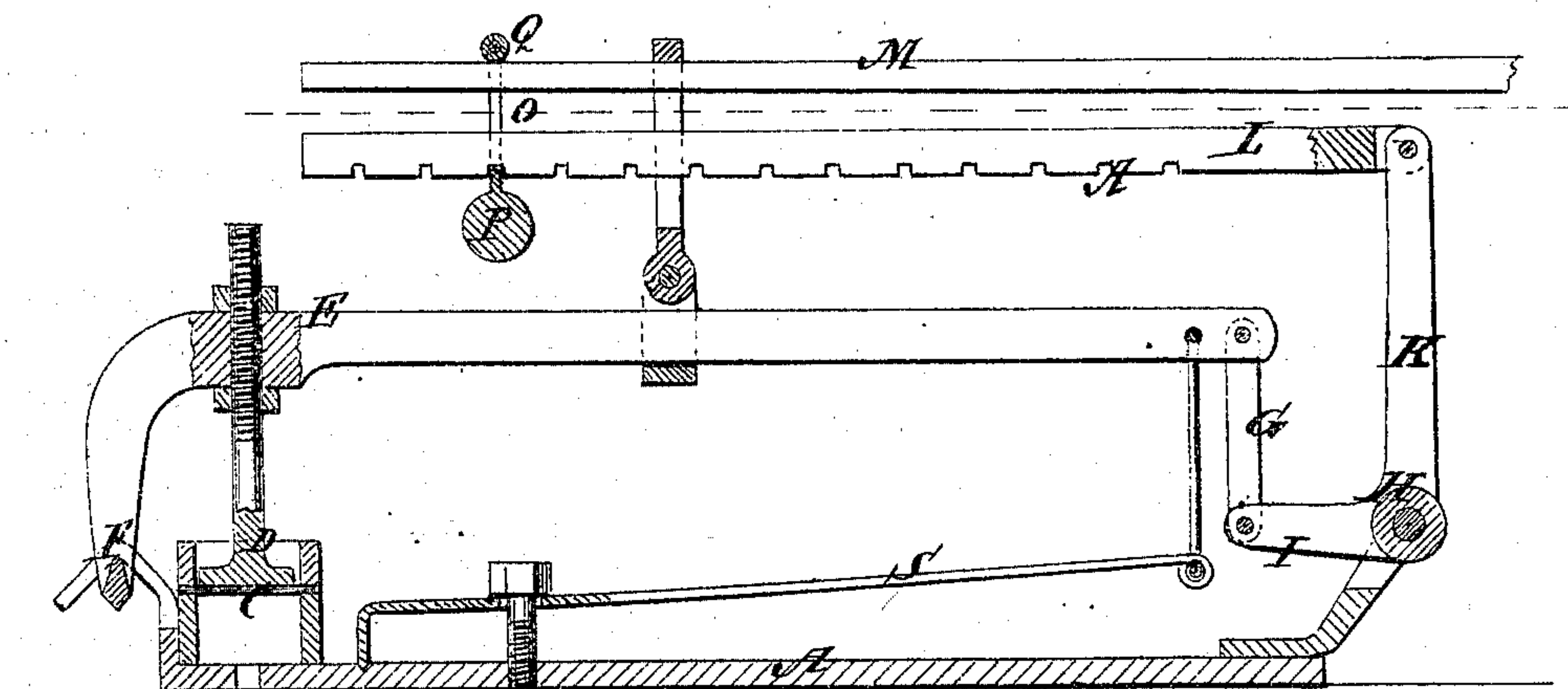
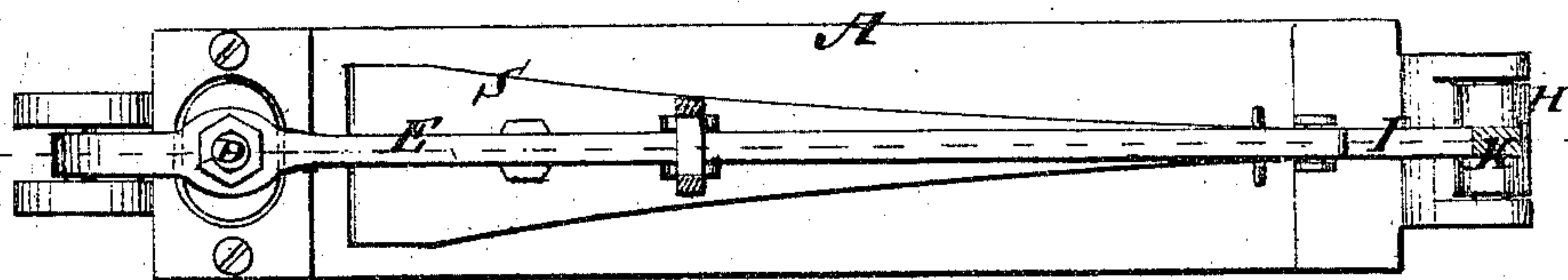


Fig. 2.



Witnesses:

E. Woff.
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120,856

UNITED STATES PATENT OFFICE.

GEORGE W. CLARK, OF COUNCIL BLUFFS, IOWA.

IMPROVEMENT IN STEAM-GOVERNORS.

Specification forming part of Letters Patent No. 120,856, dated November 14, 1871.

To all whom it may concern:

Be it known that I, GEORGE W. CLARK, of Council Bluffs, in the county of Pottawattomie and State of Iowa, have invented an Improved Steam-Governor, of which the following is a specification:

My invention consists in the application to the ordinary governor of a weight, to be moved toward or from the fulcrum as a re-enforcement to the balls to assist in moving the valve, and apparatus for shifting the weight, said apparatus being actuated in one direction by the steam and in the other by gravity or a spring, to move the ball one way as the pressure increases, and the other way as it falls.

Figure 1 is partly a side elevation and partly a sectional elevation of my improved apparatus, and Fig. 2 is a horizontal section of the same.

A is a base-plate for the apparatus, with a steam-chest, B, upon it, having a flexible cover, C, with a piston, D, above it, to rise and fall as the pressure of steam increases or diminishes, the steam being admitted to said chest below the flexible cover. The rod of this piston is connected at the upper end with a lever, E, having its fulcrum at F, while the end of the long arm is connected by a link, G, with the short arm I of an elbow-lever, H, mounted on the base-plate A. The long arm R of this elbow-lever, which rises vertically above the pivot, is connected to one end of a long bar, L, arranged under the lever M of the ordinary ball-governor, and having notches, N, in its lower edge. This bar passes through link O, which suspends a weight, P, from the lever M, and engages said weight by one of its notches, so that when moved forward or backward it will move weight P along lever M correspondingly. The link O is provided with a roller, Q, for lessening the friction of moving along lever M. R is a link or stirrup connecting levers E and M together, so that the latter cannot rise unless the former does. S is a spring connected to the lever E for pulling it down after being raised.

The operation is as follows: When the pressure of steam increases and it is necessary to have the throttle-valve closed, the piston D will rise and throw up the long arm of lever E. It will also relieve lever M so that it may be raised

by the balls for closing the throttle-valve. At the same time the elbow-lever H will move bar L to the right, carrying weight P along with it toward the pivot of lever M, relieving the balls of the resistance of the weight against them, they being arranged to act on the short arm, which will, of course, be beyond the pivot of said lever M, thus affording the balls certain advantage in effecting the necessary movement of the throttle-valve. And when the pressure lessens under piston D, it will fall and cause the movement of the weight in the other direction beyond its mean position, and accelerate the action of the balls in moving the throttle in that direction. It will be understood that the mean position of the weight is that which it occupies when the engine is traveling at the required rate of speed. For different speeds the weight will be shifted toward or from the pivot of the lever M, and the bar L connected with it accordingly.

I do not limit myself to the particular arrangement of apparatus which I have here shown for effecting the adjustment of the weight by the piston D, for many different contrivances of like character may be devised to produce the same results. I consider my invention to consist essentially in the employment of an adjustable re-enforcing-weight, with the governor-lever and a piston, D, for actuating it, the devices employed to form the operative connection between them being of a secondary character.

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

1. The combination of a shifting re-enforcing-weight, P, a piston, D, and connecting devices therefor, with a governor-lever, M, the piston being subject to the action of the live steam, and the said connecting devices being arranged to cause the weight to shift along the said lever as the steam pressure varies and the piston rises or falls, all substantially as specified.

2. The combination and arrangement of the piston D, lever E, elbow-lever H, notched bar L, weight P, governor-lever M, and springs S, all substantially as specified.

GEORGE W. CLARK.

Witnesses:

J. H. COX,
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(69)