

Sibley & Walsh,

Governor.

N^o 82,758.

Patented Oct. 6, 1868.

Fig. 2.

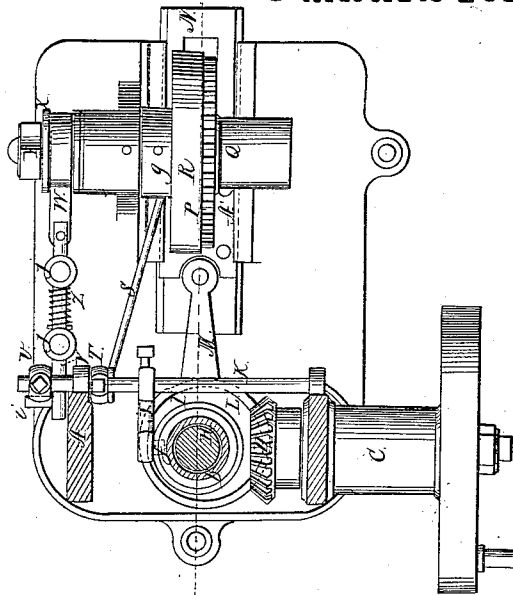


Fig. 1.

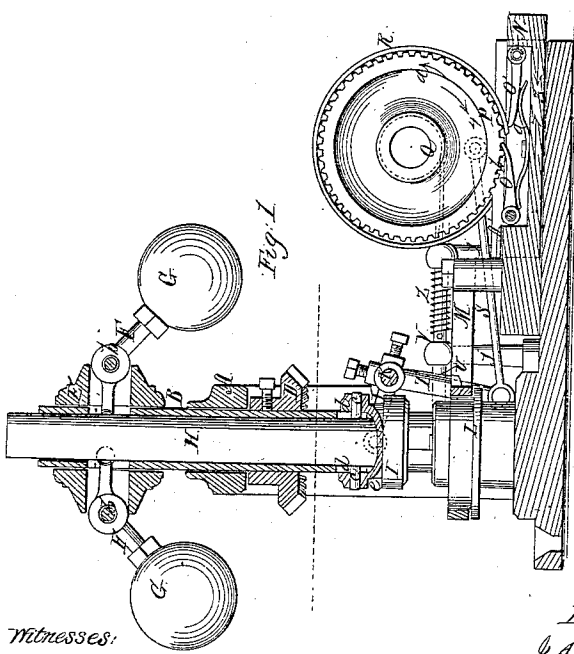
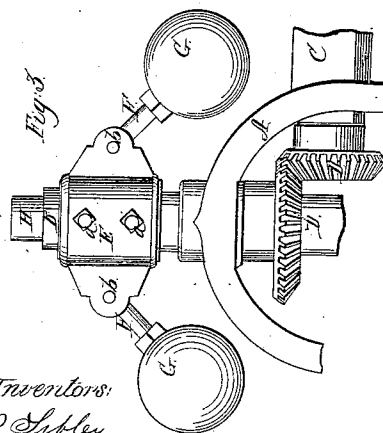


Fig. 3.



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JAMES P. SIBLEY AND ARTHUR WALSH, OF BENNINGTON, VERMONT.

Letters Patent No. 82,758, dated October 6, 1868.

IMPROVEMENT IN GOVERNORS FOR ENGINES, WATER-WHEELS, &c.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that we, JAMES P. SIBLEY and ARTHUR WALSH, of Bennington, in the county of Bennington, and State of Vermont, have invented a new and useful Improvement in Governors for Water-Wheels; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of our invention, taken in the line *x x*, fig. 2.

Figure 2 is a horizontal section of the same, taken in the line *y y*, fig. 1.

Figure 3 is an elevation of a portion of the same.

Similar letters of reference indicate like parts.

This invention relates to a new and useful improvement in governors, designed more especially to be applied to water-wheels.

And it consists in a novel construction and arrangement of parts, as hereinafter fully shown and described, whereby several advantages are obtained, which we set forth in the following description.

In the accompanying sheet of drawings—

A represents the framing of the device, which may be constructed in any proper manner to support a vertical tubular shaft, B, which receives a rotary motion from a driving-shaft, C, by means of bevel-gears D D, both of which are shown in fig. 3.

On the upper part of the tubular shaft B, there is attached, by set-screws *a a*, a head, E, in which, at opposite ends, the arms F F of two balls G G are secured by pivots *b*, the inner ends of said arms being fitted in a shaft, H, which is within the tubular shaft B, and turns with it, the shaft H being allowed to rise and fall freely in B.

On the lower part of the tubular shaft B, there is fitted a collar, I, which is allowed to rise and fall freely on B, and this collar is connected to the shaft H by pins *c c*, which pass through vertical slots *d d* in B, and into H, (see fig. 1.)

This collar I has a groove, *e*, made in it circumferentially, to receive the pin *f* of a lever, J, which is attached to a shaft, K, having its bearings on the framing A.

On the lower part of the tubular shaft B, there is keyed an eccentric, L, which operates an arm, M, connected to slide N, the eccentric and arm communicating a reciprocating motion to the slide from the shaft B.

This slide N has two pawls, O O', attached to it, which are in opposition, as shown in fig. 1, and engage, one at a time, with the under side of a ratchet-wheel, P, on a shaft, Q.

R is a cylindrical shell, the hub *g* of which is fitted loosely on the shaft Q.

This shell laps over the periphery of the ratchet-wheel P, and it has a section or portion cut out or removed at its under side, as shown at *h* in fig. 1.

This shell R is designed to throw the pawls O O' out of gear with the ratchet-wheel P, which it does alternately, as will be presently shown.

The lower part of the shell is connected, by a rod, S, with the lower end of a pendent arm, T, attached to the shaft K, the latter having a pendent arm, U, at one end of it, behind which a pin, *i*, from a shaft, V, projects, said shaft being fitted and allowed to slide in bearings in the upper ends of uprights *j j*.

This shaft V is connected, at one end, by a metallic strap, W, with a spool, X, placed loosely on one end of the shaft Q, and secured therein, with a greater or less degree of pressure, by a nut, Y.

On the shaft V there is placed a spiral spring, Z, the use of which will presently be shown.

When the governor is in operation, the pawl O, when engaged with the ratchet-wheel P, and the slide N, moves in the direction indicated by arrow 1, turns the wheel P in the direction indicated by arrow 2, and when the wheel P turns in this direction, the gate is raised by means of gearing from the shaft Q. When the slide N moves in the opposite direction, as indicated by arrow 3, and the pawl O' is engaged with wheel P, the pawl

O being disengaged therefrom, the wheel P is turned in the direction, indicated by arrow 4, and the gate will be lowered.

A' is a slide, which is placed underneath the wheel P, and is designed for throwing the pawl O out of gear with wheel P, when it is necessary to close the gate suddenly, and stop the wheel.

When the wheel is rotating at a slow speed, or below its maximum, the balls G G will be down or depressed, and the shell R in such a position that the pawl O' will be disengaged from wheel P, and the pawl O engaged with it. Consequently the wheel P will be turned by the pawl O, in the direction indicated by arrow 2, and the gate will consequently be raised, and more water let upon the wheel, until the desired speed is obtained.

In case the wheel runs too fast, the balls G G will rise, and, with them, the shaft H and collar I, and the lever J will turn the shaft K, so that the arm T and rod S will turn the shell R in the direction indicated by arrow 5, so that the pawl O will be disengaged from wheel B, and the pawl O' engaged with it under the influence of a spring, a^x . The wheel P will consequently be turned in the direction indicated by arrow 4, as the slide N moves in the direction indicated by arrow 3.

In the event of the wheel rotating at a slow speed, caused by an insufficient supply of water, the gate is relieved, after being raised to its fullest extent, in the following manner:

The friction between the spool X and the shaft Q causes the spool to turn with shaft Q, and the strap W winds upon the spool, thereby actuating the shaft K each time the slide N moves in the direction of arrow 1.

This movement of shaft K will raise the balls G, and actuate the shell R, so that the dog G will be disengaged from wheel P, the balls' centre forming the friction of spool X, so as to hold the shell in a certain position, and prevent the movement of wheel P until the requisite supply of water acts upon the wheel, and the speed of the latter will raise the balls G a greater height, and move the shell R, so as to cause the pawl O' to engage with wheel P, and the gate to be lowered.

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

1. The arrangement of the eccentric L on shaft B, for operating slide N, and the collar I, fitted on shaft B, and connected by shaft K, and levers J T, and arm S, for the purpose of operating the shell R, substantially as specified.
2. The slide N, provided with the pawls O O', in connection with the wheel P, all arranged substantially as set forth.
3. The metallic strap W, attached to the spool X, on shaft Q, connected with shafts V and K, all arranged as specified.
4. The slide A', when arranged or placed in relation with slide N and wheel P, substantially as specified.

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