J. A. Whitman,

Water Wheel Governor.

No. 96,522. Patented Nov. 2. 1869.

Fig. 2.

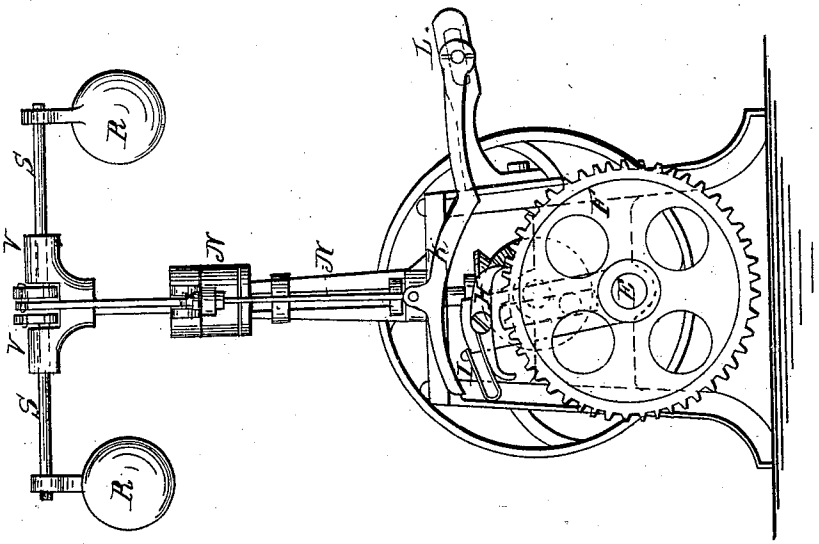
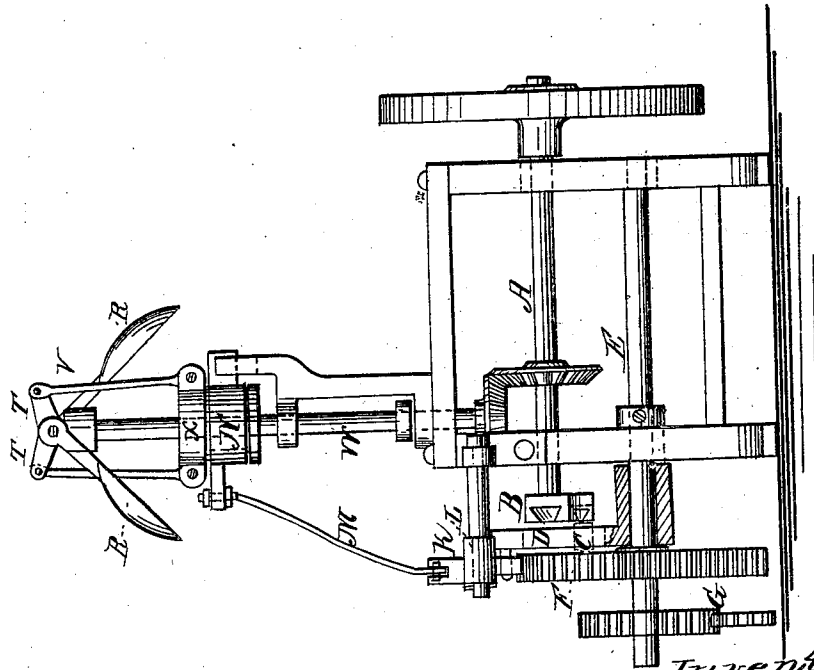


Fig. 1.



Witnesses
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J. A. WHITMAN, OF AUBURN, MAINE.

Letters Patent No. 96,522, *dated November* 2, 1869.

IMPROVEMENT IN WATER-WHEEL GOVERNORS.

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

To all whom it may concern:

Be it known that I, J. A. WHITMAN, of Auburn, in the county of Androscoggin, and State of Maine, have invented a new and improved Water-Wheel Governor; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

The object of this invention is to provide certain improvements in governors, whereby a greater and more prompt movement of the gate may be effected by the changes of the governor than can be done with those now in use.

The invention consists of a combination, with the driving-mechanism for the governor, the gate-operating devices, and the governor, of a double-acting vibrating pawl, under an arrangement whereby it is changed to work the ratchet connected with the gate-operating devices either way, the said pawl being worked by the direct action of the governor-driving mechanism, thereby relieving the governor of all labor, except the changing of the pawl.

The invention also comprises an improved construction of the governor, whereby the resistance of the air upon a pair of pendent hinged revolving wings is made use of, mainly for working a vertically-sliding hub on a revolving spindle, to obtain the required reciprocating motion.

Figure 1 represents a side elevation of my improved governor, partly sectioned, and

Figure 2 represents an end elevation of the same.

Similar letters of reference indicate corresponding parts.

A represents the driving-shaft, for operating the governor. It may be operated by a belt, or other means, from the driving-shaft of the water-wheel, in the usual way.

It is provided with a crank, B, with an adjustable pin, C. This pin takes into a slotted rocker-arm, D, vibrating on the shaft E, of a ratchet-wheel, F, having teeth adapted for being worked in either direction, and connecting in any approved way with the water-wheel gate, for opening or closing it.

In this case, I have represented a train, G, of gear-wheels for this purpose.

H is a double-acting pawl or dog, pivoted centrally, in respect of its length, to the vibrating arm D, so as to work above the face of the wheel F. One end is weighted, and the other is provided with a bent spring, I, the free end of which rises above the other parts of the pawl, so as to be acted upon by the free end of a vibrating arm, K, pivoted adjustably at L, and suspended at its free ends by a rod, M, from the reciprocating sleeve N of the governor.

When the speed of the wheel is increased, so as to raise the sleeve N and the arm K of the pawl H, the weighted end of the latter will fall upon the ratchet-wheel F, and being moved back and forth by the crank B and arm D, it will turn the wheel to the right, and close the gate until the motion slackens, so that the sleeve falls and allows the arm K to pass down upon the spring I, so as to disengage the pawl H from the wheel, which, so long as the motion does not further slacken, will hold the said pawl entirely out of action with the wheel, leaving it at rest, but if the motion continues to slacken, the further downward movement of the arm K will carry the other end of the pawl down into action with the wheel, whereupon it will be turned to the left, and the gate thereby opened again, to admit an increased volume of water, and the speed will be thereby increased again.

It will be seen that by this arrangement, the labor of working the gate is taken entirely off from the governor, which being only required to vibrate, the pawl does not encounter such resistance as to prevent it from working quickly, and that the gate, being worked by the positive action of the driving-shaft, is not liable to fail of being moved.

My improvement in the construction of the governor consists in the arrangement of the pendent wings R, oscillating shafts S, and cranked connections T thereof, with the rods U, for working the sleeve X, the said shafts being supported, horizontally, in long bearings, V, at the top of the shaft W, so as to be revolved with it, but free to turn in the said bearings under the resisting action of the air on the wings, aided also, to some extent, by centrifugal force.

The cranks T are set at angles sufficiently less than right angles to the wings T, to stand as near a horizontal plane as possible. When in operation, the required speed is obtained whereby the governor works to the best advantage.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the vibrating or reciprocating sleeve or yoke, the driving-shaft of a governor, and a ratchet-wheel, arranged to move the gate, of a vibrating pawl-arm, a double-acting pawl, and a crank, or other device on the said driving-shaft, for imparting vibrating motion to the pawl-arm, when the governor-sleeve or yoke is arranged for changing the pawl upon the said ratchet-wheel for working it in opposite directions, all substantially as specified.

2. The combination, with the sleeve X of a governor, of the pendent wings T, crank-shafts S, and suitable connecting-rods M, all substantially as specified.

The above specification of my invention signed by me, this 5th day of August, 1869.

J. A. WHITMAN.

Witnesses:

GEO. W. MABEE,

ALEX. F. ROBERTS.