

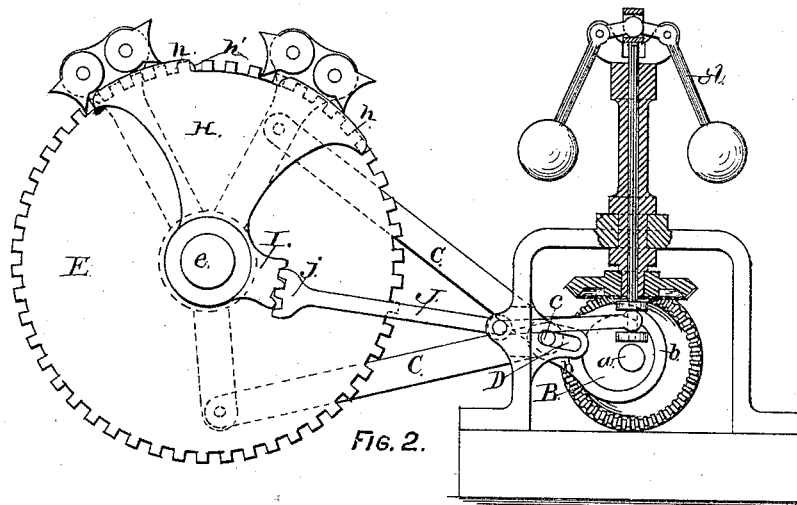
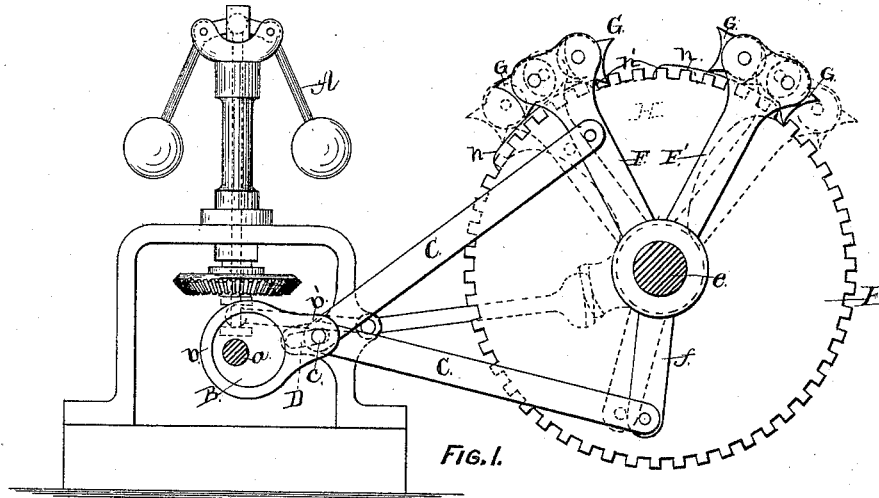
(No Model.)

W. T. KELLOGG.

GOVERNOR FOR WATER WHEELS, &c.

No. 305,752.

Patented Sept. 30, 1884.



Witnesses:

*S. B. Brewer.*  
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# UNITED STATES PATENT OFFICE.

WARREN T. KELLOGG, OF COHOES, NEW YORK.

## GOVERNOR FOR WATER-WHEELS, &c.

SPECIFICATION forming part of Letters Patent No. 305,752, dated September 30, 1884.

Application filed April 9, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WARREN T. KELLOGG, of Cohoes, in the county of Albany and State of New York, have invented certain Improvements in Governors for Water-Wheels; &c., of which the following is a specification.

My invention relates to an improvement on the governor for which Letters Patent of the United States, No. 228,566, were granted to Henry D. Snow on the 8th day of June, 1880; and the object of this improvement is to render the governing mechanism more sensitive and perfect in its action; and to this end my invention consists in combining, with a single eccentric wheel or crank, two vibrating arms that are arranged to be moved simultaneously in opposite directions by means of said eccentric wheel, the outer end of each of said arms being provided with two pawls arranged to operate in opposite directions and adapted to engage, when the opportunity occurs, in the teeth of gear-wheel of the gate-operating mechanism, the said pawls being thrown in and out of action upon said gear-wheel by means of a vibratile pawl lifter or shield, whose position is regulated by the action of the governor.

In the accompanying drawings, which form part of this specification, and to which reference is made herein, Figure 1 is a front elevation of the gate-operating mechanism and governor, and Fig. 2 a rear elevation of the same, the governor-stand and driving mechanism being shown in section.

The governor A may be of the form shown in the drawings, or of any other construction that may be preferred. Said governor is driven by a shaft, *a*, which derives its motion either directly or indirectly from the water-wheel. The eccentric wheel B is secured to the driving-shaft *a* for the governor. The strap *b* of said eccentric is provided with a lug, *b'*, to which the two eccentric-rods C are pivoted by means of a pin, *c*, which projects sidewise from the lug *b'* and engages in a stationary slotted guide, D, which permits the pin *c* to reciprocate in a direct line, but prevents the eccentric strap *b'* from following the rotary movement of the eccentric wheel. The gear-wheel E is secured to a shaft, *e*, that is connected in any preferred manner to the gate-actuating mechanism.

The arms F and F' are fitted to vibrate freely on the shaft *e* closely to the wheel E. The arm F is connected by one of the rods C to the eccentric strap *b*, the point of connection with the said arm being above the center of the shaft *e*. The arm F' has a pendent limb, *f*, to which the other rod C is attached to form a connection between said arm and the eccentric strap *b*. The point of connection with the limb *f* is below the center of the shaft *e* or diametrically opposite to the connection with the arm F, and it is obvious that the eccentric B will cause the synchronous vibrations of the two arms F and F' to occur in opposite directions. The arms F and F' are each provided with two pawls, G, which are pivoted to said arms, and are arranged to reach in opposite directions, as shown in the drawings. Said pawls are adapted, under conditions hereinafter explained, to engage with the teeth of the gear-wheel E. The vibratile shield or pawl lifter H is fitted to vibrate on the shaft *e*, and is provided with two segmental seats, *h*, which are separated lengthwise from each other. Said seats project beyond the outermost diameter of the wheel E, so as to prevent the free ends of the pawls G from engaging with the teeth of the wheel E whenever the shield H is held in the required position for effecting that purpose. The seats *h* and the intervening space *h'* are so proportioned that while the machinery is running at the required speed, the pawls G will ride back and forth on the seats *h* without engaging with any of the teeth of the wheel E; but when the speed of the machinery either increases or diminishes, the movement of the shield H in the requisite direction permits the pawls G to pass off from the seats *h* and engage in the teeth of the wheel E, so as to impart slight intermittent movements to the latter until the gate is sufficiently opened or closed (as occasion requires) to restore the speed of the machinery to its proper rate. The shield H is provided with a segmental gear-wheel, I, which gears into a segmental rack, *j*, attached to the lever J, which is operated by the rising and falling movements of the balls of the governor A.

In the device covered by Letters Patent No. 228,566, above referred to, the arrangement is such that only a single impulse of the toothed

gear—that is moved to impart motion to the gate-actuating mechanism—can be obtained from each revolution of the governor-driving shaft; but in this improvement by making the arms F and F' move in contrary directions two impulses in the same direction are given to the wheel E by each revolution of the shaft a, and consequently the governing action of the device is rendered much more sensitive.

10 I claim as my invention—

1. The combination, with a governor, A, and a vibratile shield or pawl raiser, H, provided with two separated seats, h, as herein described, of a single eccentric, B, connected, as 15 described, to two oppositely-moving arms, F

and F', each of said arms being provided with two pawls, G, arranged to reach in opposite directions, as herein set forth, all being constructed and arranged to operate substantially as specified.

2. In a water-wheel-governing mechanism, the combination, with a single eccentric, B, and slotted guide D, of the oppositely-moving arms F and F', connected to the strap b of said eccentric, as and for the purpose specified. 25

WARREN T. KELLOGG.

Witnesses:

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