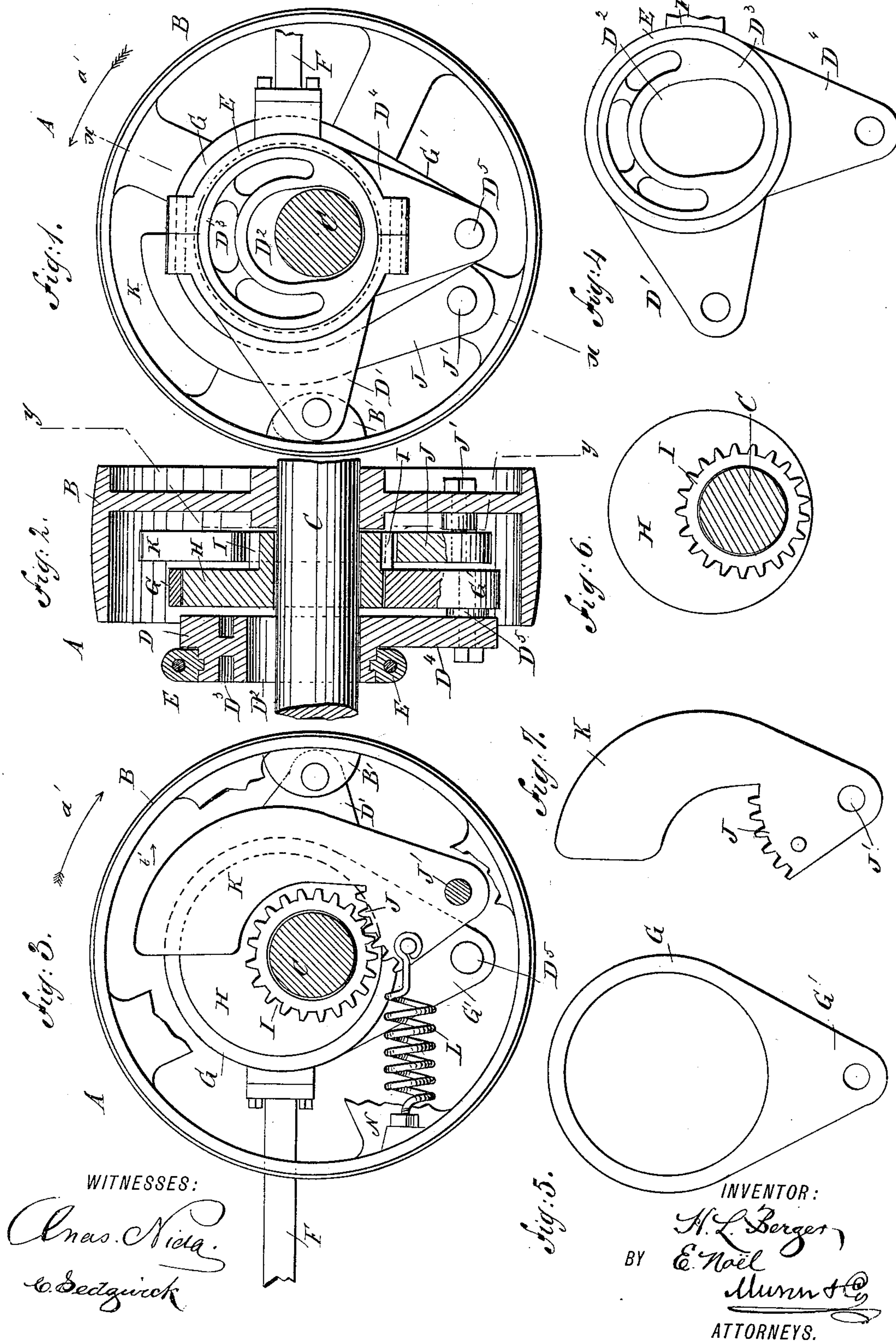


(No Model.)

H. L. BERGER & E. NOËL.
CENTRIFUGAL GOVERNOR.

No. 405,760.

Patented June 25, 1889.



UNITED STATES PATENT OFFICE.

HENRY L. BERGER, OF VERMILION PARISH, AND EDOUARD NOËL, OF
ABBEVILLE, LOUISIANA.

CENTRIFUGAL GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 405,760, dated June 25, 1889.

Application filed December 19, 1888. Serial No. 294,034. (No model.)

To all whom it may concern:

Be it known that we, HENRY L. BERGER, a citizen of France, at present residing in the parish of Vermilion and State of Louisiana, and EDOUARD NOËL, of Abbeville, in the parish of Vermilion and State of Louisiana, have invented a new and Improved Centrifugal Governor, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved centrifugal governor which is simple and durable in construction and very effective in operation, acting with great accuracy in cutting off or supplying steam to the cylinder, and being so constructed as to lock in every position, and being of sufficient strength to work an unbalanced valve.

The invention consists of certain parts and details and combinations of the same, as will be hereinafter fully described, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a face view of the improvement. Fig. 2 is a transverse section of the same on the line xx of Fig. 1. Fig. 3 is a sectional rear view of the same on the line yy of Fig. 2. Fig. 4 is a face view of the valve-eccentric. Fig. 5 is a face view of the governor-eccentric strap. Fig. 6 is a like view of the governor-eccentric and its gear-wheel, and Fig. 7 is a face view of the weighted arm.

The improved centrifugal governor A is provided with a pulley B, secured to the main driving-shaft C, and provided on the inside of its rim with a lug B', on which is pivoted the arm D' of an eccentric D³, having an elongated central aperture D², through which passes the main driving-shaft C, and on this eccentric fits the eccentric-strap E, connected in the usual manner by the eccentric-rod F with the slide-valve in the steam-chest. On the eccentric D³ is also secured an arm D⁴, which extends nearly at right angles to the arm D', and is pivotally connected by a pin D⁵ with the arm G' of an eccentric-strap G, mounted on the eccentric H, held to rotate loosely on the main driving-shaft C. The eccentric H has its center inside of the periphery of the shaft

C. On one face of the eccentric H is formed a gear-wheel I, the center of which is in the main driving-shaft C. The gear-wheel I meshes into the segmental gear-wheel J, pivotally connected at J' to one of the spokes of the pulley B. A weighted arm K extends upward from the said segmental gear-wheel J inside of the rim of the pulley B. A spring L is connected by one end to the segmental gear-wheel J, and is fastened by its other end to the rim of the pulley B, preferably by screwing into the rim of the said pulley, and is held in place by a jam-nut N, so that by loosening the latter the tension of the spring L may be increased or diminished, so as to hold the weight K and the segmental gear-wheel J in proper position.

The operation is as follows: When the shaft C is rotated in the direction of the arrow a' , the pulley B travels in the same direction, and the eccentric D³ is carried around with the said pulley on account of being pivotally connected with the said pulley. The rotary motion of the eccentric D³ imparts, by the eccentric-strap E and the eccentric-rod F, a forward and backward sliding motion to the valve in the cylinder. As soon as the speed of the engine rises above a normal speed then the weight K is caused to swing outward in the direction of the arrow b' , so that the said segmental gear-wheel J swings in the same direction and turns the gear-wheel I. The latter, on account of being secured to the eccentric H, turns the latter, and consequently shifts its center, so that the eccentric-strap G is likewise shifted, and, on account of being connected with the arm D⁴ of the eccentric D³, causes the latter to swing across the shaft C, thereby changing its center, so that the strap E through rod F causes the steam to be cut off quicker than before. As the admission of steam into the cylinder is thus diminished the speed of the engine will decrease until the normal speed is again reached. When the engine slows up from a high rate of speed, then the weight K again moves backward to its former position by means of the spring L, so that the several parts are again moved to their former places and the eccentric D³ again imparts the usual travel to the valve in the cylinder. It will be seen that the eccentric-

strap G with the eccentric H locks the valve-eccentric D³ in place until the first-named eccentric is actuated by the weight K thrown outward by the centrifugal force. Thus it
5 will be seen that the valve-eccentric is controlled by the action of a weighted arm and locked in place by a second eccentric actuated by the said arm.

It will be understood that the eccentric-
10 strap G and the eccentric H operate as a locking device which can receive and sustain the strain of any unbalanced valve in whatever position both eccentrics may be for the time, so that the valve-eccentric D³ acts ex-
15 actly as a fixed eccentric in any position which it may for the time occupy. A fixed weight may be placed on the inside rim of the pulley B to counterbalance the other mechanisms hereinbefore described, so as to properly bal-
20 ance the whole device.

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

1. In a centrifugal governor, the combina-
25 tion, with a pulley secured on the main shaft, of a valve-eccentric pivotally connected with the said pulley and having a slot through which said main shaft passes, a second eccentric pivotally connected with the said first-
30 named eccentric and mounted loosely on the main shaft, and a weighted arm pivoted on the said pulley and controlling the action of

the said second eccentric, substantially as shown and described.

2. In a centrifugal governor, the combina- 35
tion, with a pulley secured on the main shaft, of a valve-eccentric pivoted on the said pulley, a second eccentric pivotally connected with the first-named eccentric, a gear-wheel
40 formed on the said second eccentric concentric with the said pulley, a segmental arm geared with the said gear-wheel and fulcrumed on the said pulley, and a weighted arm formed on the said segmental arm, substantially as
45 shown and described.

3. In a centrifugal governor, the combina-
tion, with a pulley secured on the main shaft, of a valve-eccentric pivoted on the said pulley, a second eccentric pivotally connected
50 with the first-named eccentric, a gear-wheel formed on the said second eccentric concentric with the said pulley, a segmental arm geared with the said gear-wheel and fulcrumed on the said pulley, and a weighted arm formed
55 on the said segmental arm, and a spring connected at one end with the said segmental arm and at its other arm with the said pulley, substantially as shown and described.

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EDOUARD NOËL.

Witnesses:

GEO. W. SUMMER,
J. A. LEMAIRE.