(No Model.)

2 Sheets—Sheet 1.

J. B. ALLFREE.

GOVERNOR FOR STEAM ENGINES.

No. 383,267. Patented May 22, 1888.

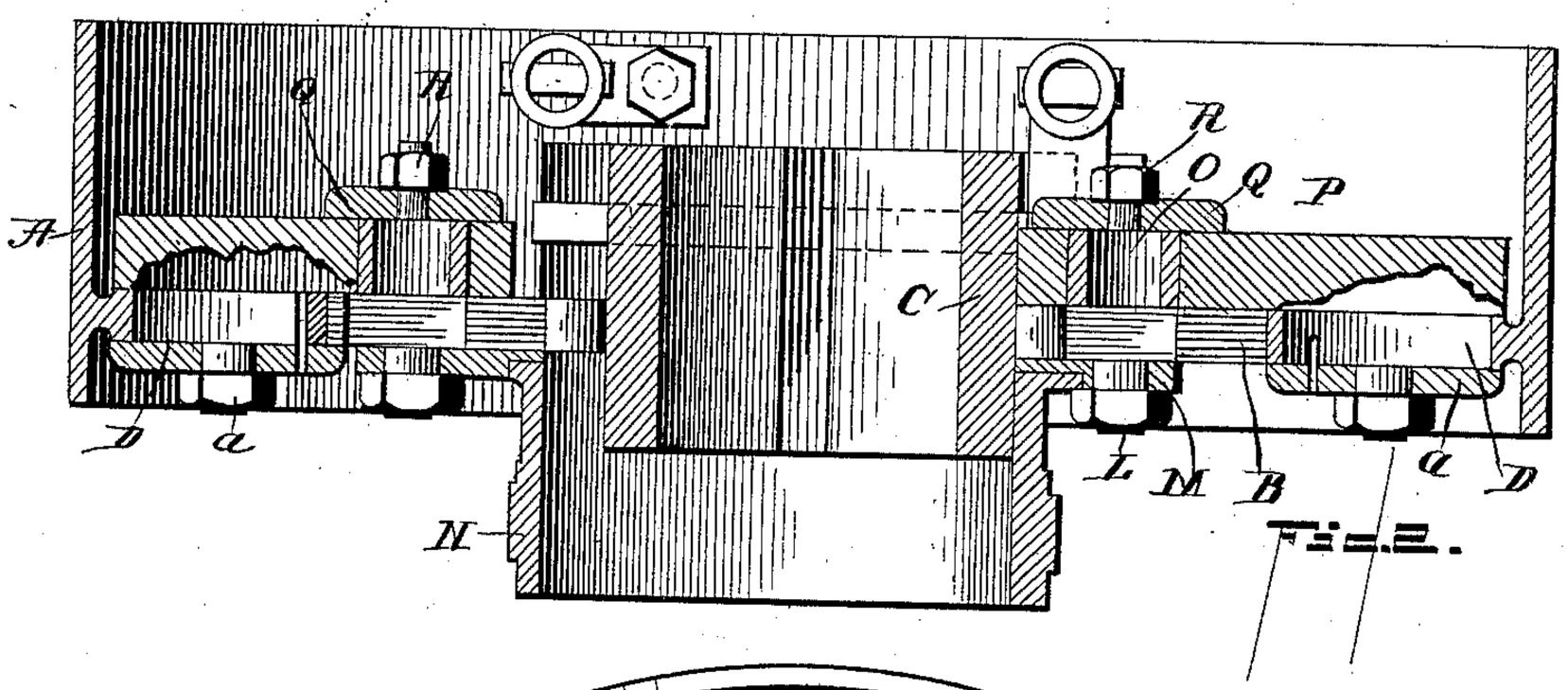

FIG. 2.

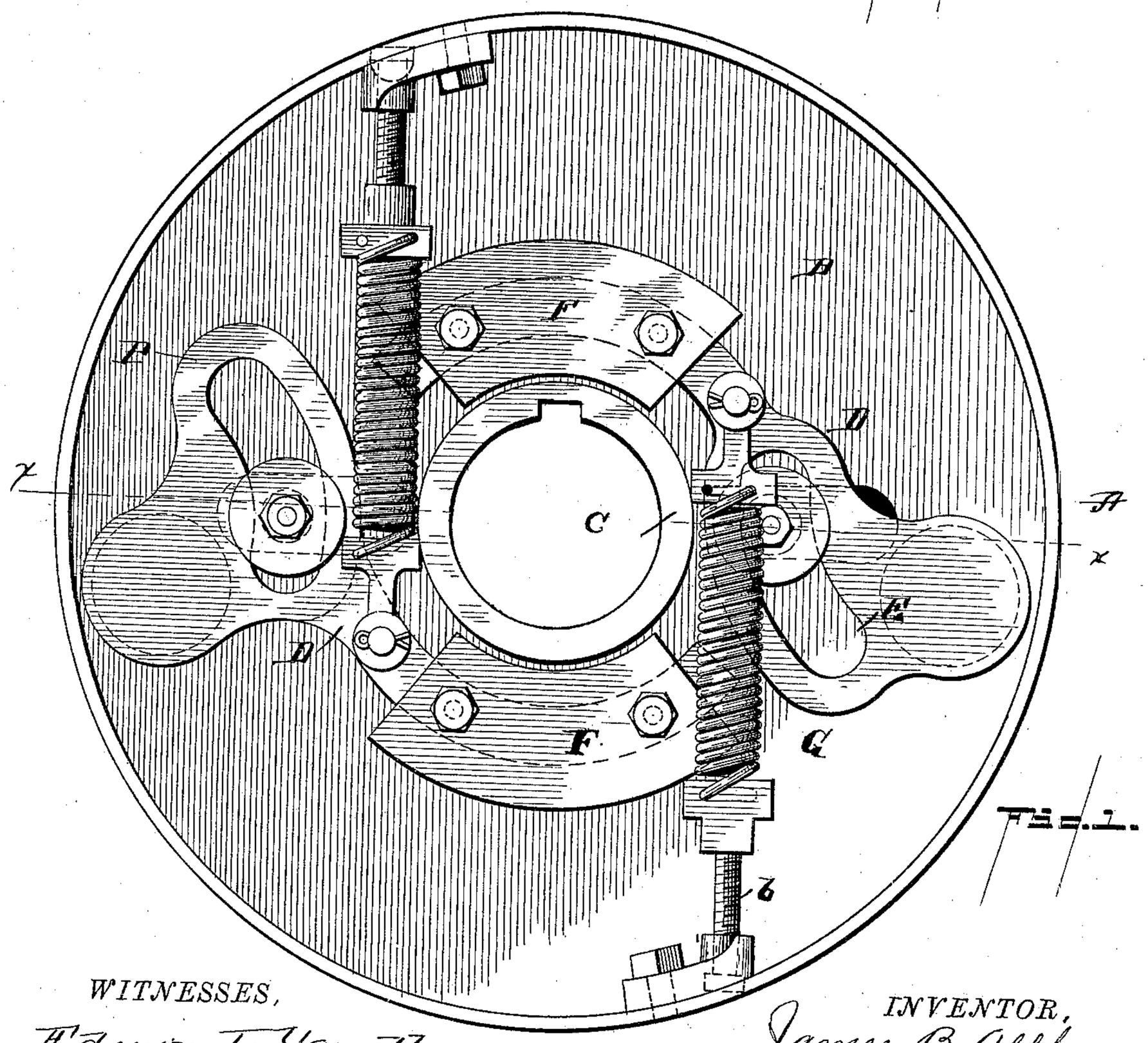

FIG. 1.

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(No Model.) 2 Sheets—Sheet 2.

J. B. ALLFREE.

GOVERNOR FOR STEAM ENGINES.

No. 383,267. Patented May 22, 1888.

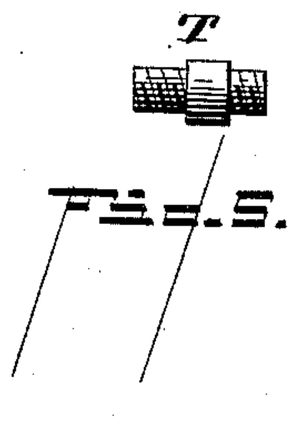

FIG. 5.

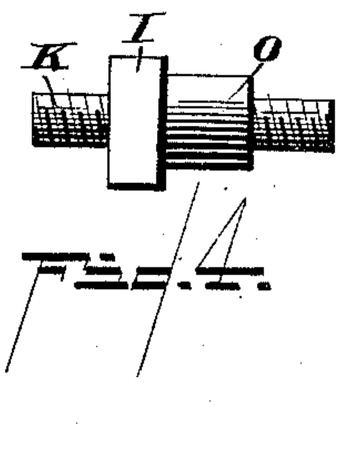

FIG. 4.

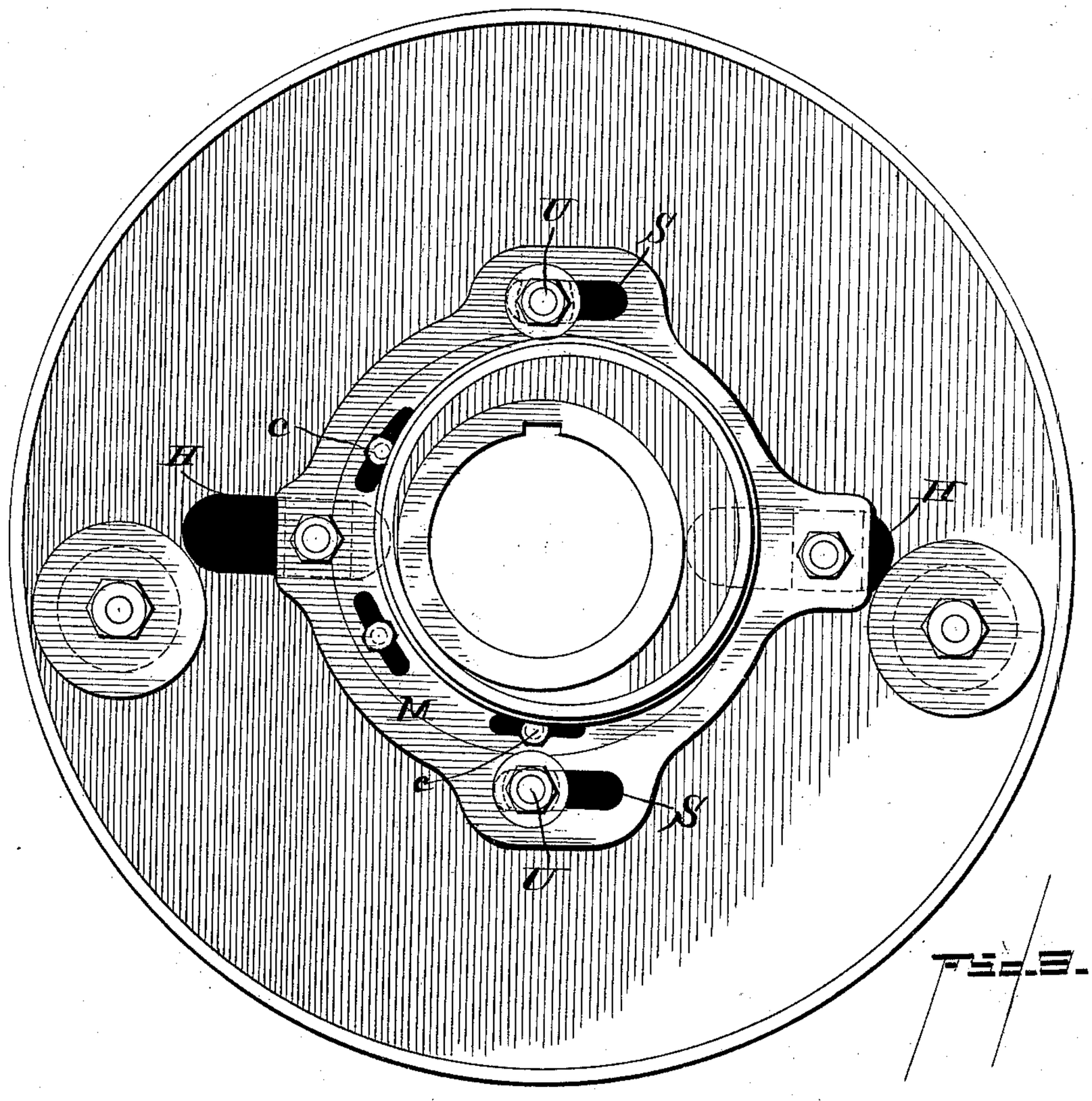

FIG. 3.

WITNESSES

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JAMES B. ALLFREE, OF INDIANAPOLIS, INDIANA, ASSIGNOR OF ONE-HALF TO ROBERT SHRIVER AND HARRISON SWARTZWELDER, OF CUMBERLAND, MARYLAND.

GOVERNOR FOR STEAM-ENGINES.

SPECIFICATION forming part of Letters Patent No. 383,267, dated May 22, 1888.

Application filed September 1, 1887. Serial No. 248,554. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. ALLFREE, a citizen of the United States, residing at Indianapolis, Indiana, have invented new and useful Improvements in Governors for Steam-Engines, of which the following is a specification.

My invention relates to certain new and useful improvements in governors for steam-engines, and has for its object to provide a simple and cheap device which shall be effective and durable in operation; and with these ends in view my invention consists in the peculiarities of construction and combination of parts hereinafter fully described and specifically claimed.

In order that those skilled in the art may fully understand my improved governor, I will proceed to describe its construction and operation, referring by letters to the accompanying drawings, in which—

Figure 1 is a back view; Fig. 2, a cross-section on the line *x x* of Fig. 1; Fig. 3, a front view showing the actuating-plate and valve-eccentric. Fig. 4 is a plan view of the pins employed to connect the actuating-plate with the cam-lever, and Fig. 5 is a plan view of one of the stud-bolts employed to steady the actuating-plate.

Similar letters denote like parts in the several views.

I first construct a pulley-shaped casing, A, having a web, B, connecting the rim thereof to the hub C. On opposite sides of the hub of the casing, near the inner portion of the rim, I provide two circular openings, into which I place the projecting hubs of two cam-levers, D, having washers *a* secured thereto to hold said hubs in place, each lever having a curved slot, E, arranged eccentrically to the center of its hub, weights F, attached to the outer ends of the levers, and springs G, attached, preferably, about midway between the center of the weight and the hub, and connected at the other end by an adjusting-screw to the rim of the casing.

In the web of the casing I further provide in the line of its center two parallel slots, H, one on either side of the shaft and opposite to each other, into which I introduce pins (see Fig. 4) having a square portion, I, neatly fitted in said slots and adapted to slide therein. On one end of this pin is a round portion, K, having fitted thereon a nut, L, for the purpose of securely fastening the pins to a sliding or movable plate, M, to which is adjustably fitted the valve-actuating eccentric N by means of cap-screws *c*, passing through slots, as seen at Fig. 3. The other end of the pins beyond the square portion I make round, as seen at O, Fig. 4, and journal thereon curved blocks P, as seen in dotted lines, Fig. 1, adapted to fit snugly into the curved slots E of the cam-levers and to have movement throughout the entire length of the slots. I also provide this outer end of the pins with a washer, Q, and nut R, for the purpose of holding the several parts in place.

In the sliding or movable plate M, at right angles to the points where the pins are fastened, I provide two slots, S, one on either side of the center parallel to its line of movement, through which and into the web of the casing I securely fasten stud-bolts T, (see Fig. 5,) having nuts and washers U on their outer ends, for the purpose of holding the movable plate in place and allowing it to have free movement.

When the engine is set in motion, the weights are thrown outwardly from the center by centrifugal force, at the same time causing the rotation of the cam-levers in their bearings in the web. As the cam-levers are rotated, their eccentric portions bear against the pins connected to the movable plate to which the eccentric is attached, moving them along the slots in which they are set, thus moving the eccentric transversely across the shaft in a straight line.

As the speed of the engine is reduced, the springs which counterbalance the centrifugal force of the weights, acting upon the weighted levers, tend to reverse the movement of the cam-levers, thus restoring the parts to their normal position.

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

1. In a centrifugal governor, two weighted levers pivoted to a suitable casing on opposite sides of its center and provided with eccentrically-curved slots, in combination with counteracting-springs, a valve-actuating eccentric,

and suitable means of connection, whereby the said eccentric may be actuated and the valve regulated by the centrifugal force of the weights, substantially as described.

2. In a centrifugal governor, the valve-actuating eccentric fitted, as described, to an actuating-plate, M, in combination with two cam-levers pivoted in the web on opposite sides of the shaft and suitably connected with the actuating-plate to secure its movement automatically, as and for the purpose set forth.

3. In a centrifugal governor, the valve-actuating eccentric, in combination with the two cam-levers D, provided with curved slots E, the correspondingly-curved blocks P, the connecting-pins passing through said blocks and securely fastened to the actuating-plate, the web B, provided with slots H, weights E, and springs G.

4. A centrifugal governor comprising a suitable casing attachable to the driving-shaft, two cam-levers pivoted in the web of said casing on opposite sides of the shaft, weights adjustably attached to said cam-levers, adjustable counteracting-springs attached to the weighted cam-levers and to the casing, a movable plate sliding in suitable guides and carrying a valve-actuating eccentric, and suitable studs or pins attached to said plate and adapted to slide in slots in the web of the casing and in the cam-levers, all substantially as described, so arranged and combined as to operate as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES B. ALLFREE.

Witnesses:
E. EVERETT ELLIS,
CURTIS LAMMOND.