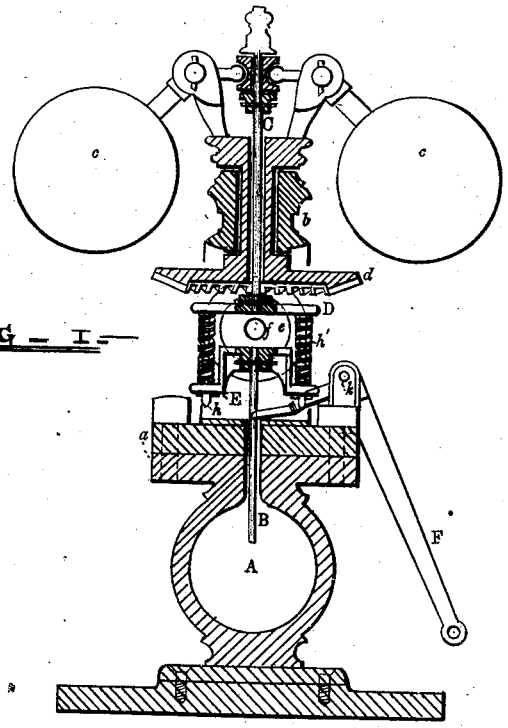
G. L. McCAHAN.

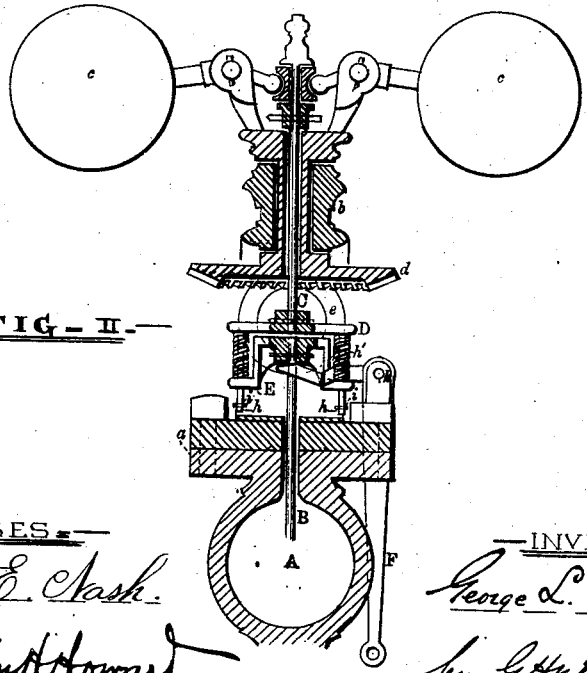
Steam-Engine Governor.

No. 162,401. Patented April 20, 1875.

—FIG. I.—



—FIG. II.—



—WITNESSES.—

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UNITED STATES PATENT OFFICE.

GEORGE L. McCAHAN, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN STEAM-ENGINE GOVERNORS.

Specification forming part of Letters Patent No. **162,401**, dated April 20, 1875; application filed December 11, 1874.

To all whom it may concern:

Be it known that I, GEORGE L. McCAHAN, of the city of Baltimore and State of Maryland, have invented certain new and useful Improvements in Steam-Engine Governors, of which the following is a specification; and I do hereby declare that in the same is contained a full, clear, and exact description of my said invention, reference being had to the accompanying drawing and to the letters of reference marked thereon.

My invention relates to certain attachments to steam-engine governors, by means of which attachments the governor-valve can be opened and an increased amount of steam admitted to the steam-cylinder by hand, and independently of the action of the governor-balls, or the movement of the valve-stem, influenced or actuated by the said balls; and consists in a combination of mechanical devices forming the means of communication between the hand of the operator and the governor-valve, and independent of the automatically valve-moving mechanism, the said devices being the direct means by which the usual elevation of the valve, consequent upon the centripetal action of the governor-balls, may be anticipated.

In the description of my invention which follows due reference must be had to the accompanying drawing forming a part of this specification, and in which—

Figure 1 is a view of a governor embodying my improvements, the said view being partly in section. Fig. 2 is a view, also partly in section, of the same, and parts of the invention occupying different relative positions.

Similar letters of reference indicate similar parts in both figures.

A is the valve-case, provided with the flange *a*, upon which the frame *b* which sustains the moving mechanism is secured. B is the lower valve-stem, which passes through a packing-box in the head of the valve-case to the valve, which valve, as it forms no part of my invention, is not shown or described. C is the upper valve-stem, operated upon directly by the governor-balls *c*. Motion is communicated to the governor-balls by means of the gear-wheels *d e*, from a belt which runs over a pulley keyed to the horizontal shaft *f*. The opposing ends of the valve-stems B C are fitted with cross-heads D E, united by the rods *h*. The cross-heads are separated by one or more spiral springs, *h'*, upon the rods *h*, the distance between the said cross-heads being governed by the positions of the pins *i* or similar devices. The effect of the spiral springs is to cause, under ordinary circumstances, a conjoined movement between the two stems. F is a lever, pivoted at *k*, the short arm of which is directly below the lower cross-head E. When the lever is placed in the position shown in Fig. 1 the stems B C and cross-heads D E, connected by the rods *h* and spiral springs *h'*, operate as a single stem; but when in the position shown in Fig. 2 the valve is opened independently of the revolving balls.

By reference to Fig. 2 it will be seen that the balls and lower stem represent directly opposite positions of the valve, the balls indicating a closed valve, while the lower stem shows that the valve is open.

From the foregoing it will be seen that by the movement of the lever F in the direction of the arrow, the operation of the governor-balls *c*, as far they relate to the closing of the valve, is suspended, and that the movements of the engine have no influence whatever upon the valve, it remaining open until the lever is released, when it is closed by the spiral springs and the action of the balls, provided that the speed of the engine is such as to require a diminished opening.

My invention is well adapted to engines driving machinery which at times is rapidly increased in the resistance which it offers to the movement of the engine; but is peculiarly suited to the requirements of saw-mills, when, upon the engagement of the saw with the log, additional power may be given to the engine to overcome the sudden check consequent upon such engagement.

By securing the governor-balls at their maximum elevation all action resulting from the centrifugal or centripetal forces of said balls is suspended and the valve closed by the resiliency of the spiral springs. The governor thus becomes merely a stop-valve to be opened by the lever, as before described. The lever F may be operated from any point in the fac-

tory or shop by means of wires, rods, or other devices attached thereto.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a steam-engine governor, the valve-stem provided with a compressible coupling or connection, enabling the valve to be elevated independently of the position of the stem operated upon directly by the governor-balls, substantially as and for the purpose set forth.

2. The upper and lower cross-heads D and E, rods *h*, springs *h'*, and lever F, combined as elements in a governor, substantially as herein specified, and for the purpose set forth.

In testimony whereof I have hereunto subscribed my name this 20th day of November, A. D. 1874.

GEORGE L. McCAHAN.

Witnesses:
JOHN F. COOK,
GEO. W. TAYLOR.