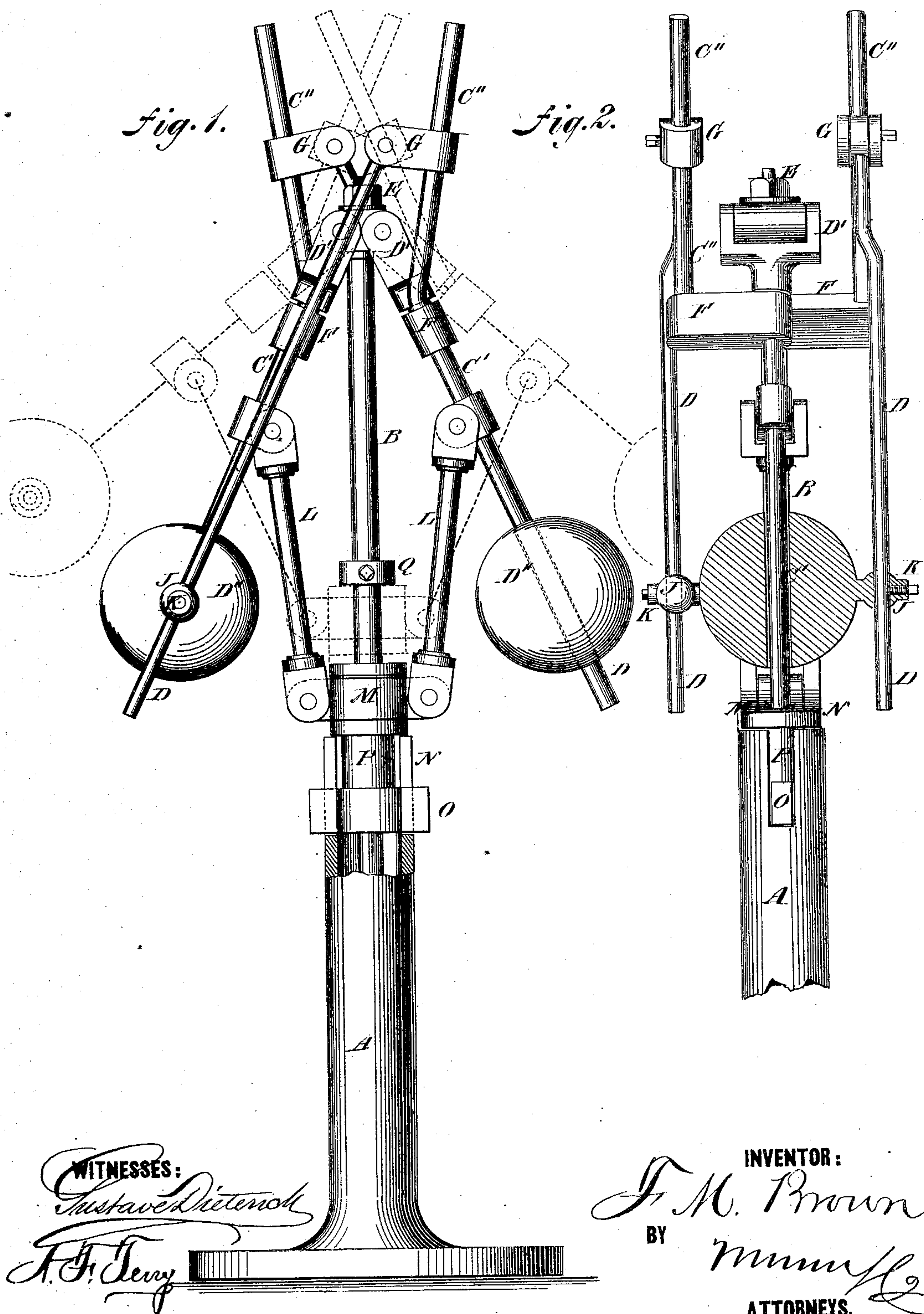


F. M. BROWN.  
Steam-Engine Governor.

No. 159,299.

Patented Feb. 2, 1875.



WITNESSES:

*Gustave Dietrich*

*A. F. Terry*

INVENTOR:

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BY

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ATTORNEYS.



# UNITED STATES PATENT OFFICE.

FREDRICK M. BROWN, OF WARREN, RHODE ISLAND.

## IMPROVEMENT IN STEAM-ENGINE GOVERNORS.

Specification forming part of Letters Patent No. **159,299**, dated February 2, 1875; application filed December 19, 1874.

*To all whom it may concern:*

Be it known that I, FREDRICK M. BROWN, of Warren, Bristol county, Rhode Island, have invented a new and useful Improvement in Governors, of which the following is a specification:

The invention will first be fully described, and then pointed out in the claim.

Figure 1 represents a side elevation of the governor, showing in dotted lines the position of the balls, arms, and levers and rods when the speed is increased; and Fig. 2 is an edge view, partly in section.

Similar letters of reference indicate corresponding parts.

This governor is contrived similar to some governors now in use, the peculiar feature of it being the upward movement of the balls on the arms when the speed diminishes, and the downward movement when the speed increases, and in the levers and rods by means of which these movements are produced.

A is the base or stand, to which is attached a central stationary spindle, B. C' C' are the ball-arms, hinged, at the top of the spindle, to a block fitted thereto. The joint is seen in Fig. 2, where D' represents the block, and E a nut on the extreme end of the spindle. D'' represents the balls. These balls are bored out and fitted to the arms C' C', so that they slide thereon. C'' C'' are levers attached to the blocks F F, which latter are on the arms, where they are rigidly fastened. G G are small clevises on the levers. D D are rods hinged to the clevises G G, and attached to the balls by means of the eyes J J, where they are made adjustable by means of set-screws K. The clevises G G are also adjustable on the levers C'' C''. The levers are bent to an angle of ten degrees, more or less, with the

ball-arms. When the governor is in motion, the centrifugal force will alter the position of these levers, and the rods D D will force the balls downward when the speed increases, and draw them upward when the speed diminishes. The balls may be adjusted to rotate in any desired plane around the stationary central spindle B, and any deviation from the required speed will alter the length of the ball-arms, and the plane of rotation. L L are arms hinged to the ball-arms, and to the sliding thimble M, which thimble revolves around the slide N, to which the valve-lever is attached by means of the projecting lug O, which lug works up and down in the slot P of the base. Q is an adjustable collar on the spindle to stop the upward motion of the balls.

No novelty is claimed for the slide and thimble or manner of communicating with the valve. The novelty consists in a device for altering the plane of the rotating balls during their revolution, substantially in the manner described.

I do not confine myself to the particular manner shown, but design to employ any mode or device by which the ball-arms are shortened and lengthened by the application of centrifugal force.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with arms C' C', pivoted to the stationary spindle B, of crooked levers C'' C'' and sliding balls D'' D'', connected by pivoted rods D' D', as and for the purpose specified.

FREDRICK MONTROSE BROWN.

Witnesses:

T. B. MOSHER,

ALEX. F. ROBERTS.