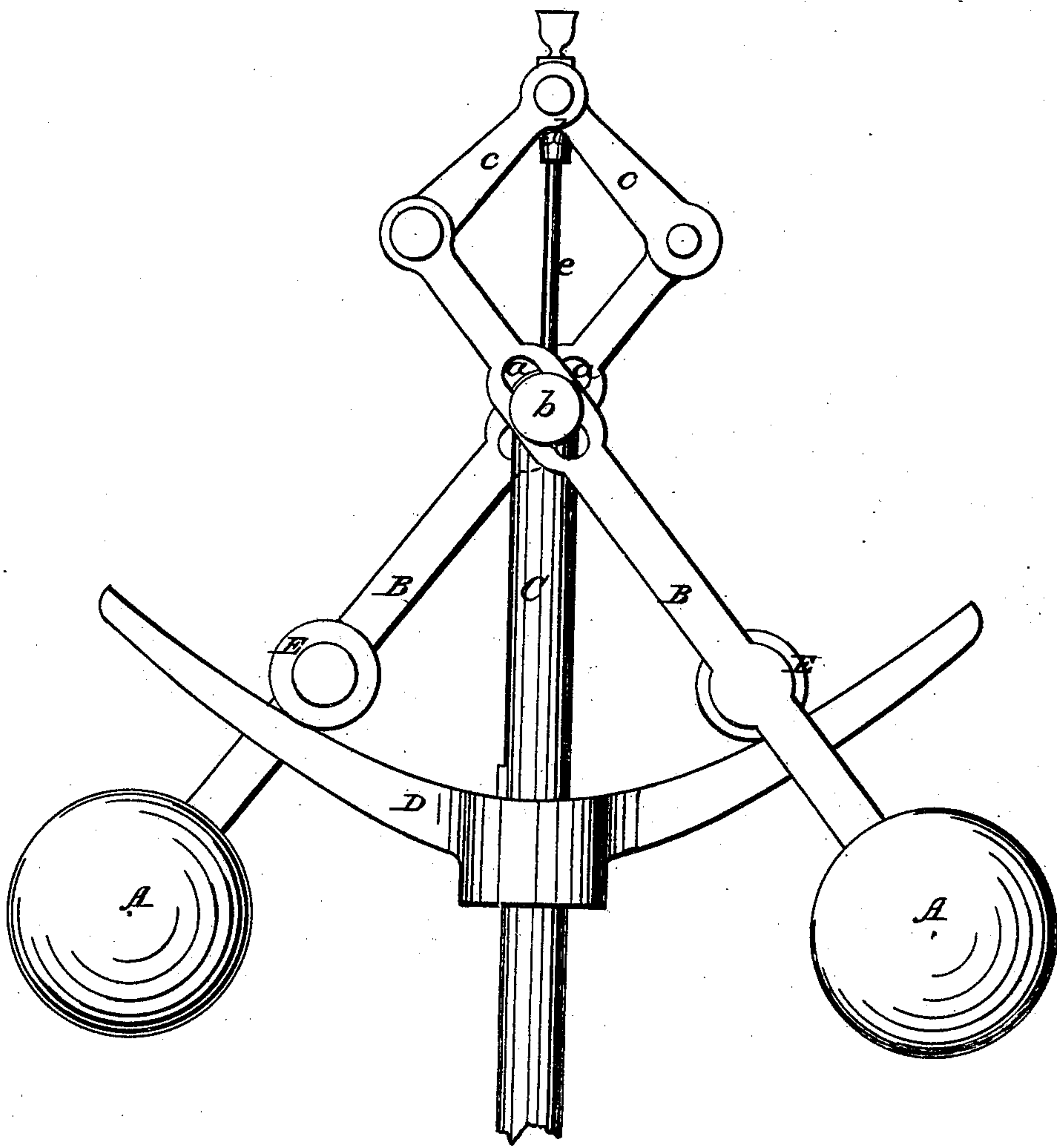


*J. Parlame.*

*Steam Engine Governor.*

*N<sup>o</sup> 90,294.*

*Patented May 18, 1869.*



*Witnesses,*

*McComby*  
*A. Kinzie*

*Inventor,*

*James Parlame*

# United States Patent Office.

JAMES PARLANE, OF BROOKLYN, NEW YORK.

*Letters Patent No. 90,294, dated May 18, 1869.*

## IMPROVEMENT IN STEAM-ENGINE GOVERNORS.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that I, JAMES PARLANE, of Brooklyn, in the county of Kings, and State of New York, have invented a new and useful Improvement in Governors, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification, and which represents a side elevation of a governor constructed in accordance with my invention.

This, my improvement, has reference to centrifugal governors, applicable to controlling the speed of steam-engines, and other purposes or uses, in which the balls attached to radius-rods that revolve around a vertical axis are directed, in being thrown in or out, to travel in a curve or curves of a parabolic or cycloidal character, as contradistinguished from the arc of a circle or circles.

To effect this, it is necessary that the distance of the balls from the pivots, or working-centre or centres of the radius-rods, should vary in the swing of the balls, and that a proper direction to the latter should be given by a suitably-curved bracket or track carried by the revolving vertical spindle of the governor.

In the ordinary centrifugal engine-governor, in which the balls swing in the arcs of circles, or at a uniform distance from the points of suspension, to shut off steam to the necessary extent, when the load is removed from the engine, requires a corresponding increase of speed in the engine before the balls can be sufficiently elevated to effect the shutting off of the steam.

Such a governor is necessarily very imperfect or slow in its action, and lacks sensitiveness.

Now, it is known that the centrifugal force of the balls of a governor is dependent upon their distance from the centre of the governor-spindle; thus, if the balls be twice as far from said spindle as they formerly were, their centrifugal force is doubled, and they will be enabled to sustain themselves in places twice as high as formerly.

This law establishes the parabolic or cycloidal curve as the correct one to hold the balls in a state of balance, that is, it will support the balls on any point in the curve, the speed of the governor remaining the same.

Centrifugal governors, having their balls thus directed and sustained in a state of balance, and which have been termed parabolic governors, are much more prompt and perfect in their action, but have heretofore

been defective in construction, the balls usually being made in halves with their radius-rods working on fixed points of suspension above and slotted below to embrace pins connecting the two halves of the balls, which have been made to roll on the curved bracket or track.

Such construction materially impairs the efficiency of the governor and adds to its expense.

My invention consists in such a construction of the governor as that the radius-rods are slotted above to have free compensating play at the centre of suspension, and are connected in a fixed or positive manner to the balls below, which balls may be made whole or entire, with rollers on their radius-rods or arms, arranged to run on the curved bracket or track that directs the swing of the balls, said track, by this arrangement, lying above the balls, and between the latter and their centre of suspension, thus giving a free and more effective action to the balls.

Such improved construction is shown in the drawing, wherein A A are the balls and B B the radius-rods or arms, slotted above, as at A A, to establish the necessary compensating play about or across a centre of suspension or motion, *b*, on the revolving spindle C of the governor.

D is the curved bracket or track, carried by the spindle C, and of parabolic or cycloidal character, on its upper edge, on which rollers E E, attached to the radius-rods, rest and run, said bracket thus being arranged above the balls, and between them and their centre of suspension.

The means for communicating motion from the governor to the throttle-valve may be varied, but the same is here shown as effected by link-rods *c c*, jointed at their lower ends to the upper extremities of the radius-rods, and at their upper ends to the coupling-joints or head *d* of the valve-stem *e*, which is carried down through the governor-spindle to connect with the throttle-valve.

What is here claimed, and desired to be secured by Letters Patent, is—

The combination of the slotted radius arms B B, the track D, and rollers E E, substantially as specified.

JAMES PARLANE.

Witnesses:

FREDK. HAYNES,  
J. W. COOMBS.