

(No Model.)

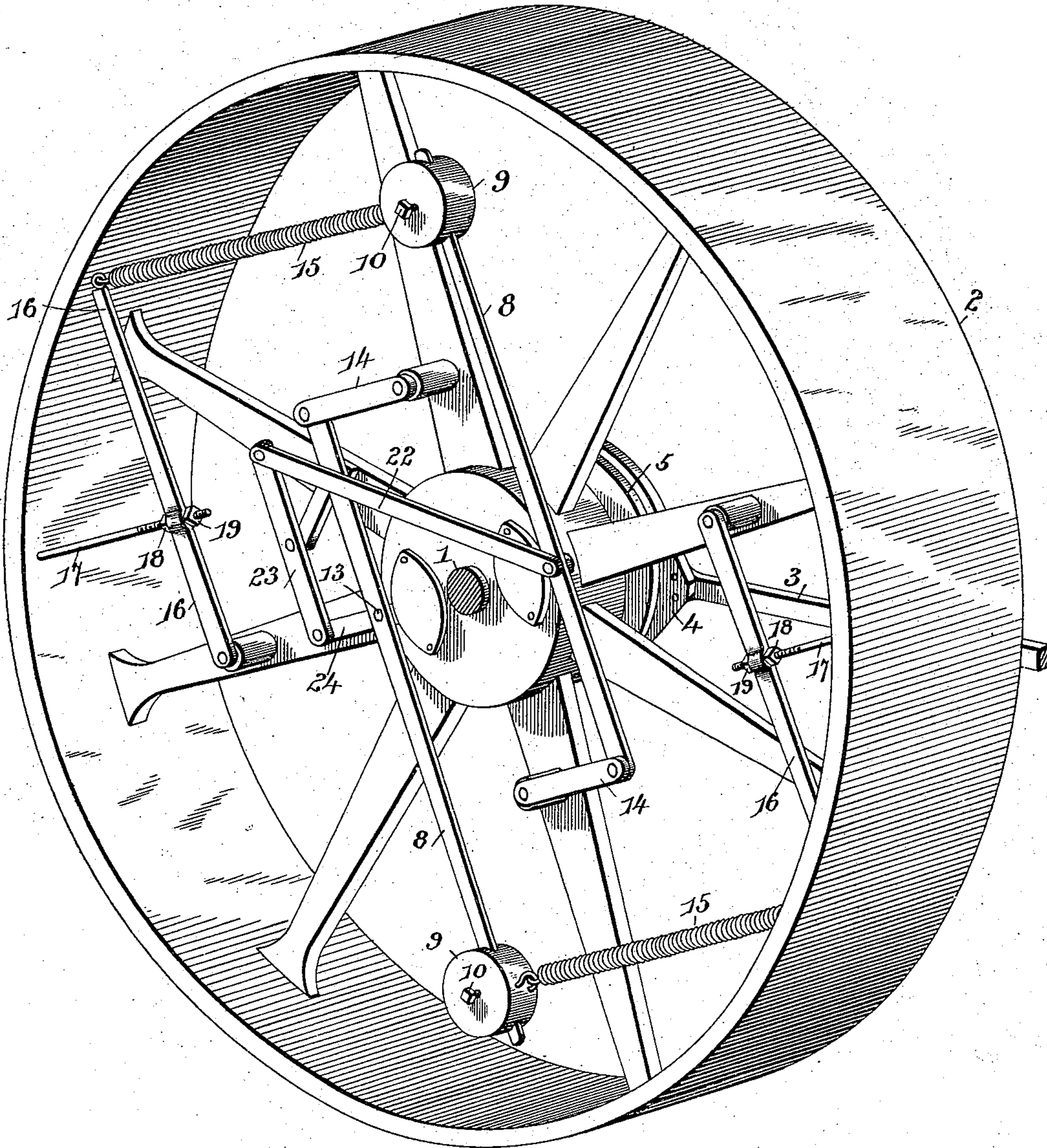
3 Sheets—Sheet 1.

D. C. TOWER.
GOVERNOR.

No. 563,433.

Patented July 7, 1896.

FIG. 1.



Inventor

Dewitt C. Tower

Witnesses

Jas. K. McLaughlin

E. D. [Signature]

By his Attorneys.

C. A. Snow & Co.

(No Model.)

3 Sheets—Sheet 2.

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GOVERNOR.

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FIG. 2.

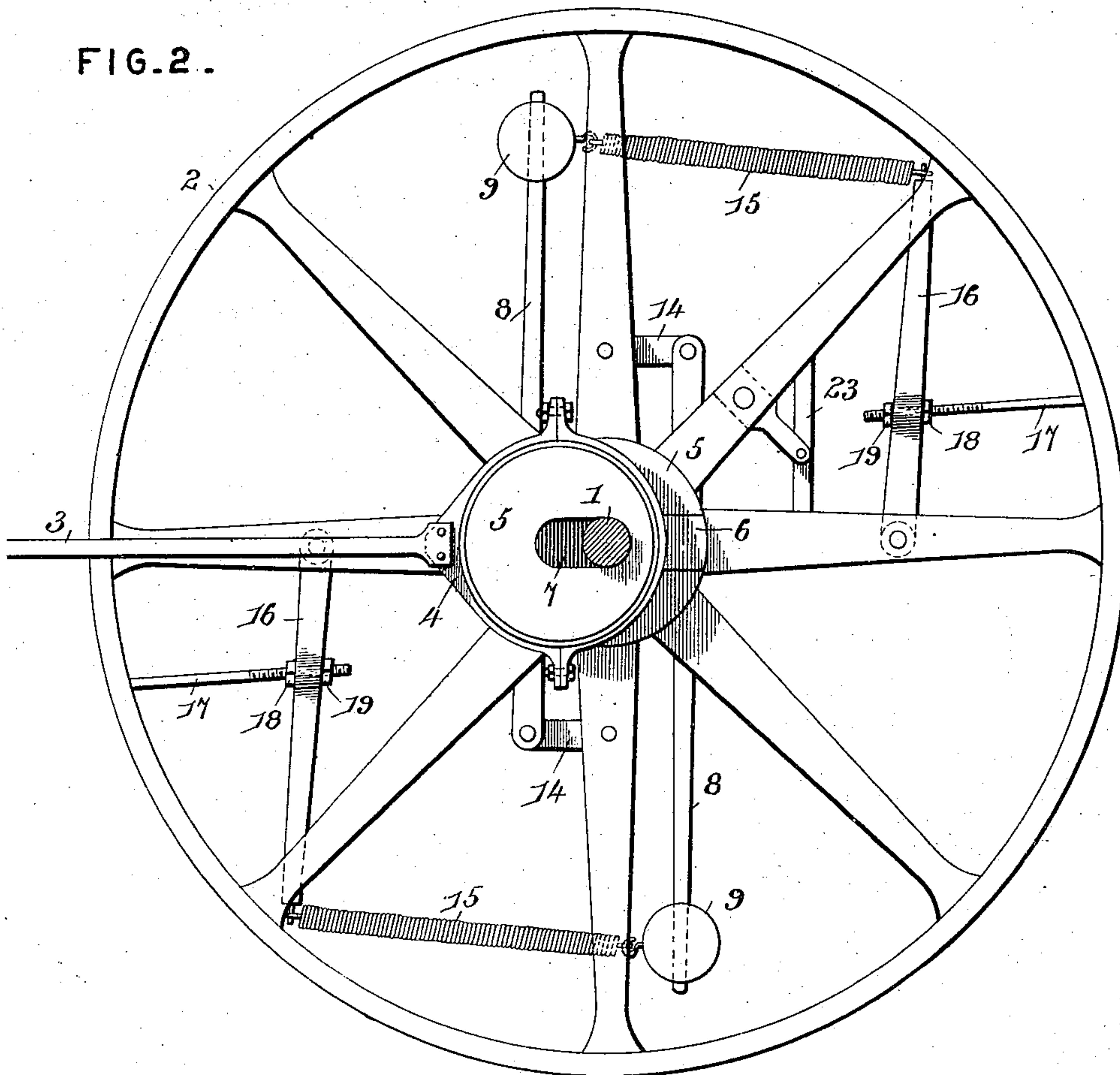
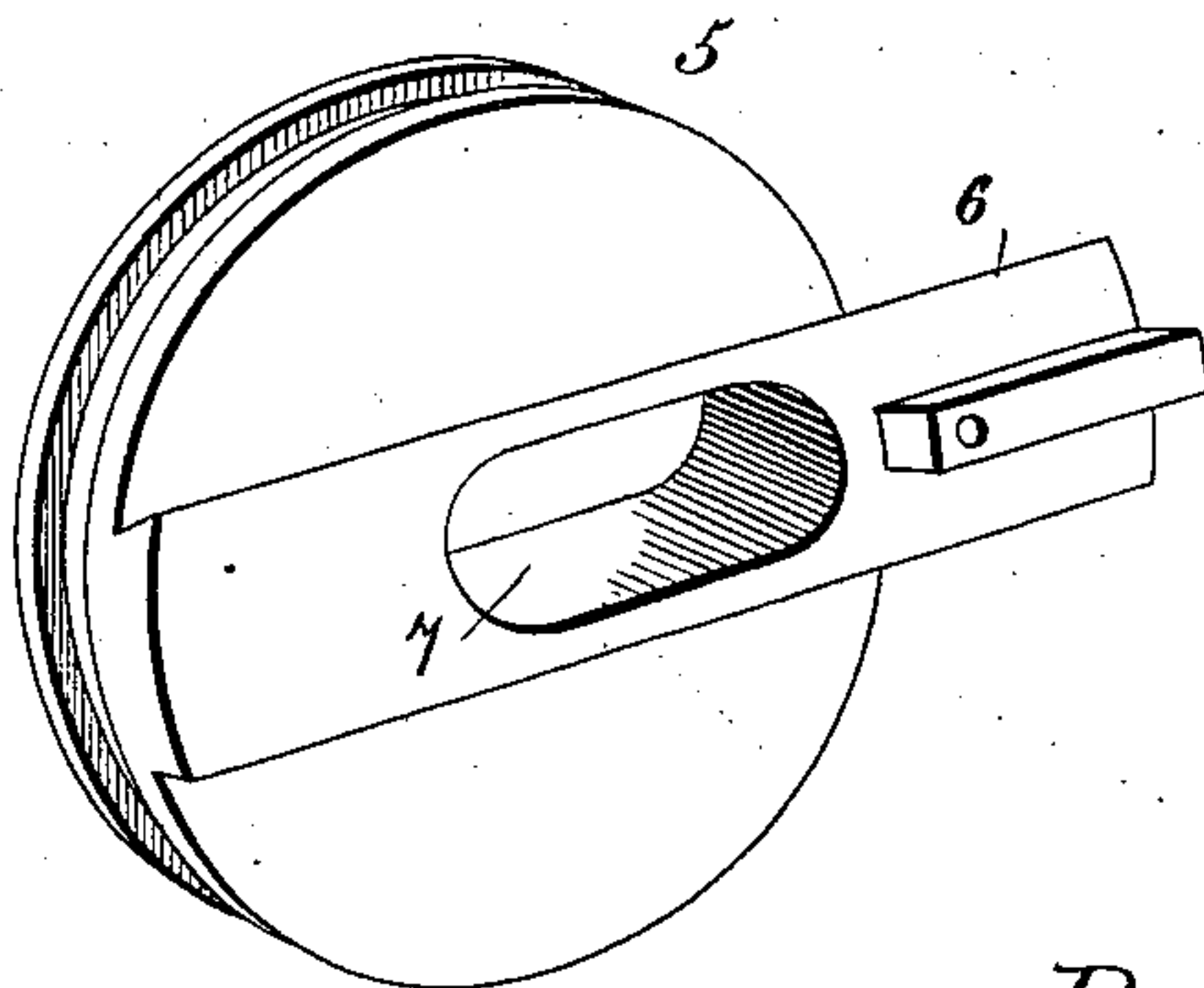


FIG-5-



Inventor

Dewitt C. Tower

Witnesses

Jas. K. McCutchan

By *his* Attorneys.

Chas. Snow

(No Model.)

3 Sheets—Sheet 3.

D. C. TOWER.
GOVERNOR.

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Patented July 7, 1896.

FIG. 3.

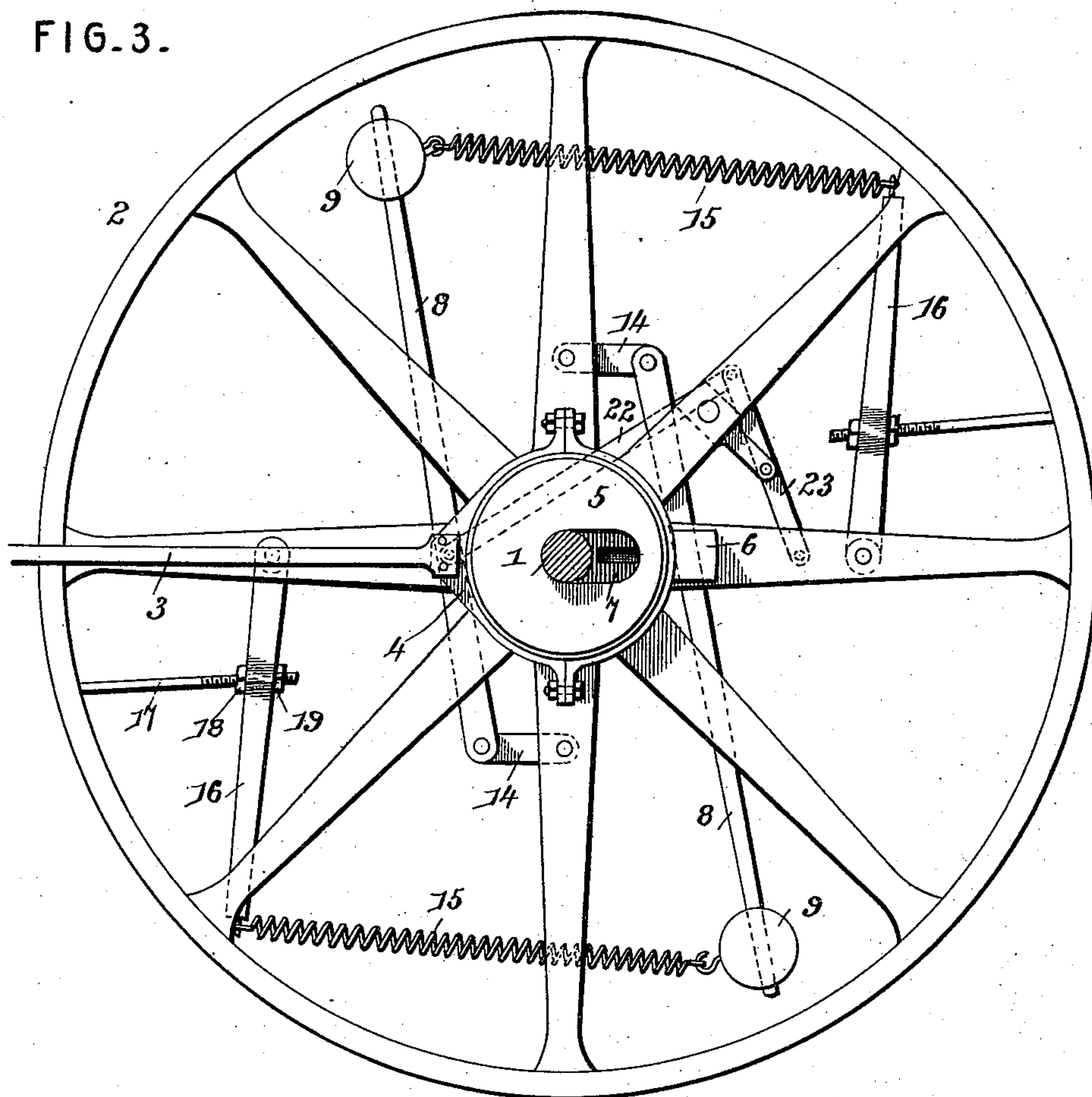
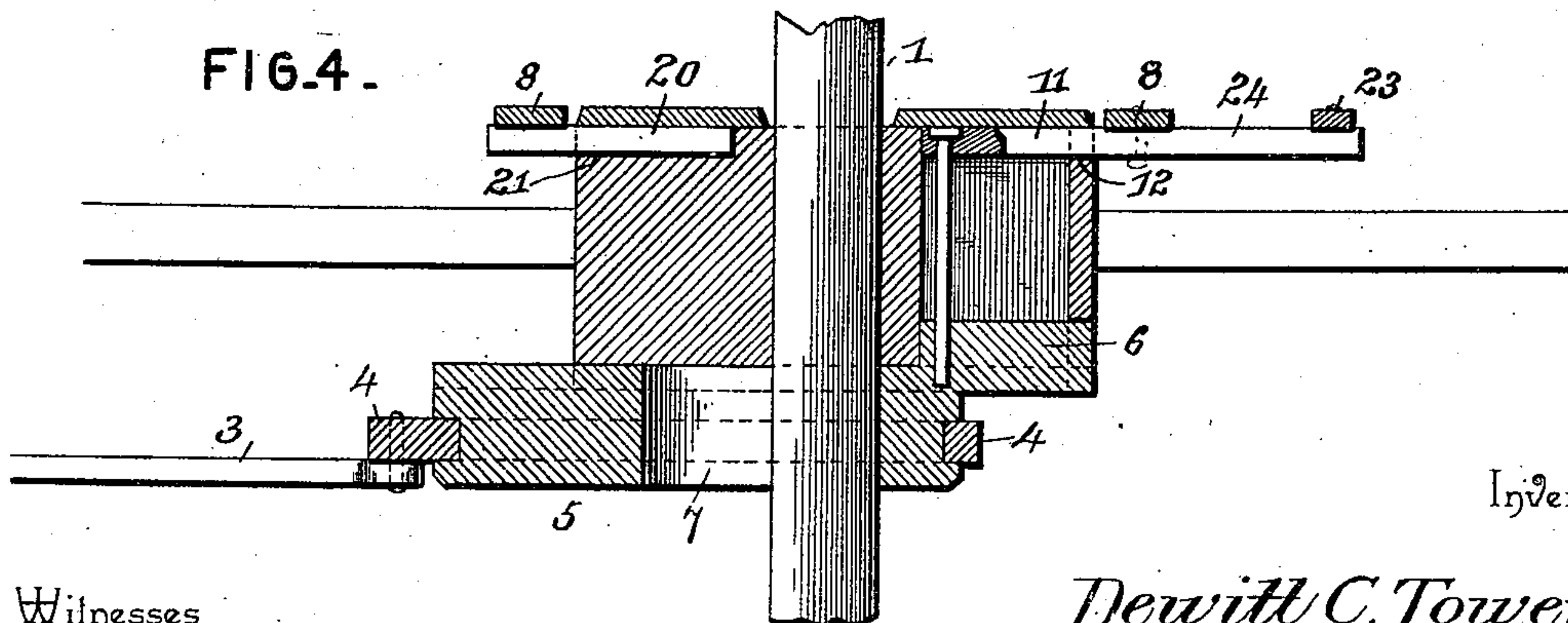


FIG. 4.



Inventor

Witnesses

Jas. K. McLaughlin

By *his* Attorneys,

Dewitt C. Tower

Chas. Snow & Co.

UNITED STATES PATENT OFFICE.

DEWITT C. TOWER, OF CHENEYVILLE, LOUISIANA.

GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 563,433, dated July 7, 1896.

Application filed August 31, 1894. Renewed December 27, 1895. Serial No. 573,560. (No model.)

To all whom it may concern:

Be it known that I, DEWITT C. TOWER, a citizen of the United States, residing at Cheneyville, in the parish of Rapides and State of Louisiana, have invented a new and useful Governor, of which the following is a specification.

My invention relates to governors for steam and similar engines; and it has for its object to provide a simple and efficient device adapted to be supported and carried by a wheel and provided with means for adjustment whereby the valve or valves controlled thereby may be closed when the desired speed is attained; and, furthermore, to provide mechanism whereby the amount of opening of the valve is proportionate to the speed and whereby the control is exerted through the eccentric which operates the valve.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a perspective view of a governor embodying my invention. Fig. 2 is an elevation of the opposite side of the mechanism, showing the parts in the positions they occupy when the valve receives the full length of stroke. Fig. 3 is a similar view showing the parts in the positions they occupy when the valve receives no motion. Fig. 4 is a detail sectional view of a portion of the mechanism, taken parallel with and through the axis of motion. Fig. 5 is a detail view in perspective of the eccentric-slide.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 designates a shaft to which is fixed a rotary member which, in the construction illustrated, consists of the drive-wheel 2, and 3 designates a stem which may be attached to a slide-valve (not shown) and is provided with a yoke 4, mounted upon the eccentric 5. This eccentric is carried by an eccentric-slide 6, the latter being dovetailed in cross-section and being fitted in a correspondingly-shaped groove in one end of the hub of the wheel, and the eccentric and slide are slotted, as shown at 7, whereby the eccentric may occupy

its normal position, as shown in Fig. 2, or a position concentric with the wheel, as shown in Fig. 3, without interfering with the shaft upon which the wheel is fixed.

Pivotally connected at one end to a suitable support carried by the wheel is a weighted arm 8, having a movable and adjustable weight 9, held in place by means of a set-screw 10, and pivotally connected to an intermediate part of this weighted arm is a rod 11, which fits in a guide-slot 12 in the hub of the wheel and is connected rigidly to the eccentric-slide by means of a bolt 13. In order to provide for a direct rectilinear movement of the rod 11, I employ a supporting-arm 14, pivoted at one end to the wheel and at the other end to the approximately stationary terminal of the weighted arm.

The means for returning the free or weighted end of the weighted arm to its normal position, in which the eccentric is in the position shown in Fig. 2, consists of a spring 15, attached at one end to the weighted arm and at the other end to the extremity of a bar 16, which is pivotally connected to the wheel. Through an intermediate part of this bar extends the tension-rod 17, fixed at its outer extremity to the rim or other portion of the wheel and threaded for engagement by the nuts 18 and 19, which are arranged, respectively, in contact with the inner and outer surfaces of the bar. By the adjustment of these nuts the tension of the spring may be altered to suit the weight carried by the weighted arm and the position of such weight on the arm.

In order to increase the effectiveness of the apparatus, I prefer to duplicate certain of the parts, and in the construction illustrated a second weighted arm is disposed upon the opposite side of the hub with its weight diametrically opposite the weight on the first-named arm. This weighted arm is provided with a tension-spring, a bar to which the outer end of the spring is attached, and a tension-rod to adjust the tension of the spring. Also a rod 20 is connected to an intermediate part of the weighted arm and fits in a guide 21, formed in the hub opposite and in alignment with the guide-slot 12.

It is preferable to connect the weighted

arms by means of a connecting-rod 22, pivotally attached at one end to one of said arms and at the other end to one arm of a rocking lever 23, the other arm of said rocking lever 5 being pivotally attached to the other weighted arm. In the construction illustrated this connection of one arm of the rocking lever to the weighted arm is attained by attaching it to an extension of the rod 11, such extension 10 being indicated at 24.

From the above description it will be seen that the centrifugal force caused by the rotation of the wheel produces an outward movement of the weighted extremities of the 15 weighted arms, and hence a movement of the eccentric toward axial alinement with the wheel. When the eccentric reaches axial alinement with the wheel, the reciprocation of the stem 3 ceases, and a speed of rotation 20 sufficient to cause a slight outward movement of the weighted arms, without throwing them to the limit of their movement, will result in a partial closing of a valve connected to said stem, or a less extended reciprocation of such 25 valve, and this difference in the extent of movement of the valve is proportionate to the speed of rotation of the wheel.

Inasmuch as the governor is inclosed within the rim of the wheel it is protected from injury by contact with other objects, and the 30 detachment of the governor from a machine is accomplished by removing the wheel, thus simplifying the operation of mounting and dismounting the apparatus.

35 It will be understood, furthermore, that various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention, 40 such changes being necessitated by the different conditions under which the device may be employed; but it is obvious from the foregoing description that the governor as constructed may be used upon either a right or 45 left, an upright, or a horizontal engine with equal facility, inasmuch as the position in which it is placed does not affect its operation.

Having thus described my invention, I claim—

1. The combination with a rotary member, 50 an eccentric-slide mounted thereon, and connections, of a pivotal weighted arm, means for adjusting the weight on the arm, connections between the weighted arm and said eccentric-slide, a pivotal tension-bar, a spring 55 connecting the free end of the weighted arm to said tension-bar, and means for adjusting the tension-bar to regulate the tension of the spring, substantially as specified.

2. The combination with a rotary member, 60 an eccentric-slide mounted thereon, and connections, of a pivotal weighted arm, means for adjusting the weight on the arm, connection between the weighted arm and said eccentric-slide, a tension-bar pivotally connected 65 to the wheel, a spring connecting the extremity of the tension-bar with the weighted arm, and a tension-rod connected to the tension-bar and provided with nuts arranged upon opposite sides of the latter, whereby 70 said bar may be adjusted to regulate the tension of the spring, substantially as specified.

3. The combination with a wheel, an eccentric-slide and connections, of weighted 75 arms, one of which is pivotally connected at an intermediate point to said eccentric-slide, links connecting the extremities of the weighted arms with the wheel, a rocking lever pivotally mounted at an intermediate point upon 80 the wheel, and links connecting the extremities of the rocking lever with intermediate points of the weighted arms, respectively, springs connected to the free ends of the weighted arms, and means for adjusting the 85 tension of said springs, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

DEWITT C. TOWER.

Witnesses:

W. L. TANNER,

WALTER I. TANNER.