

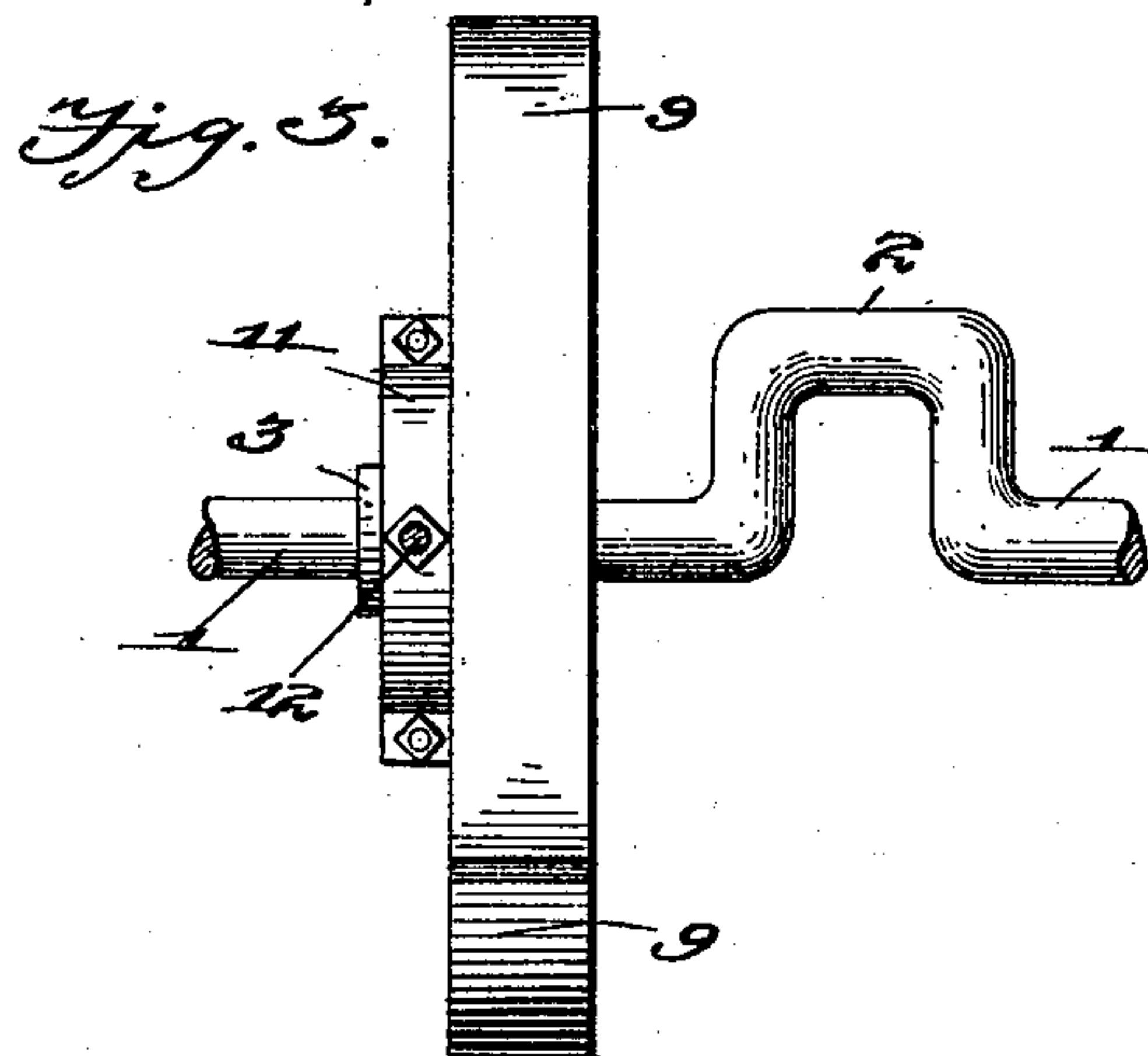
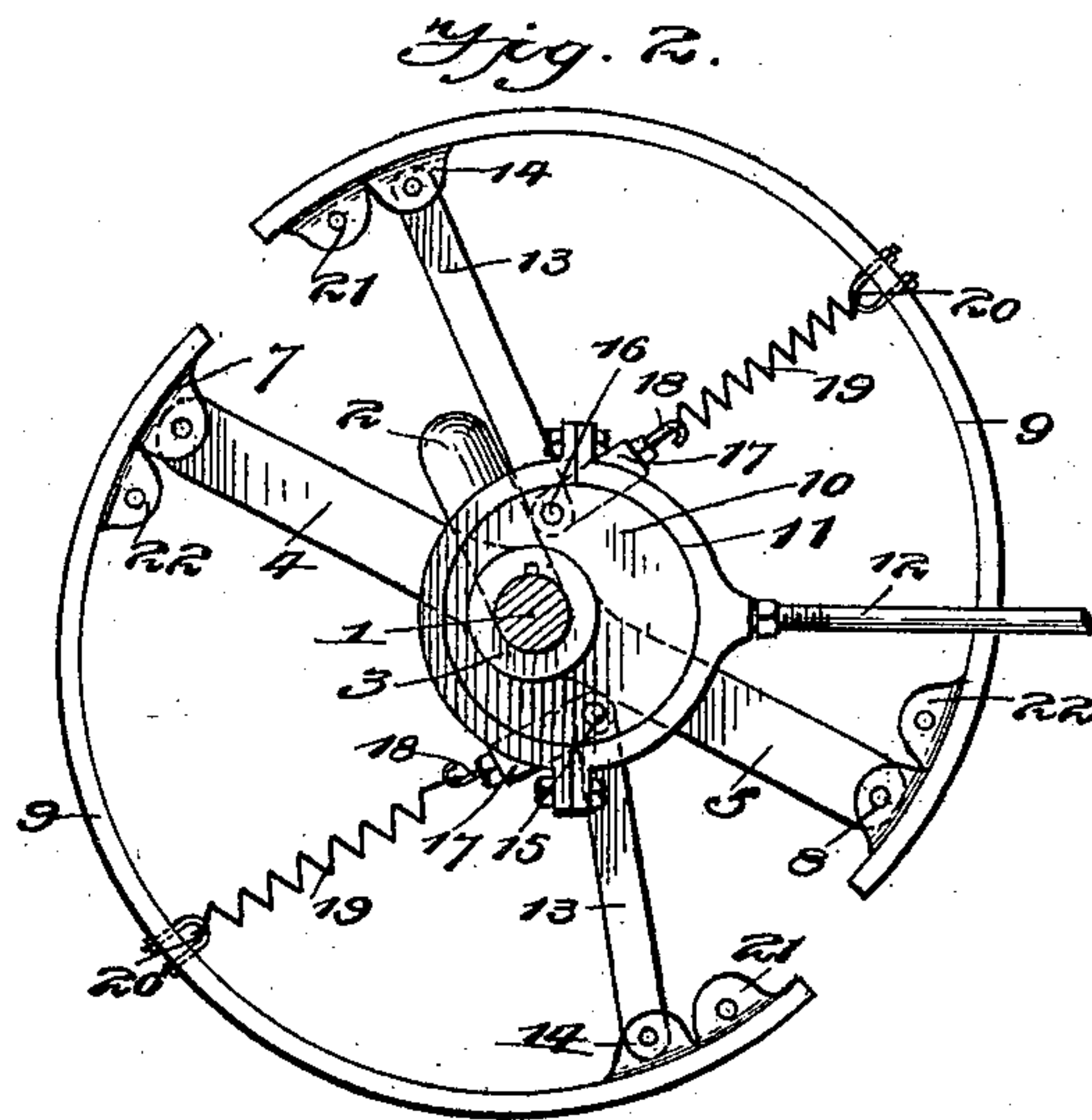
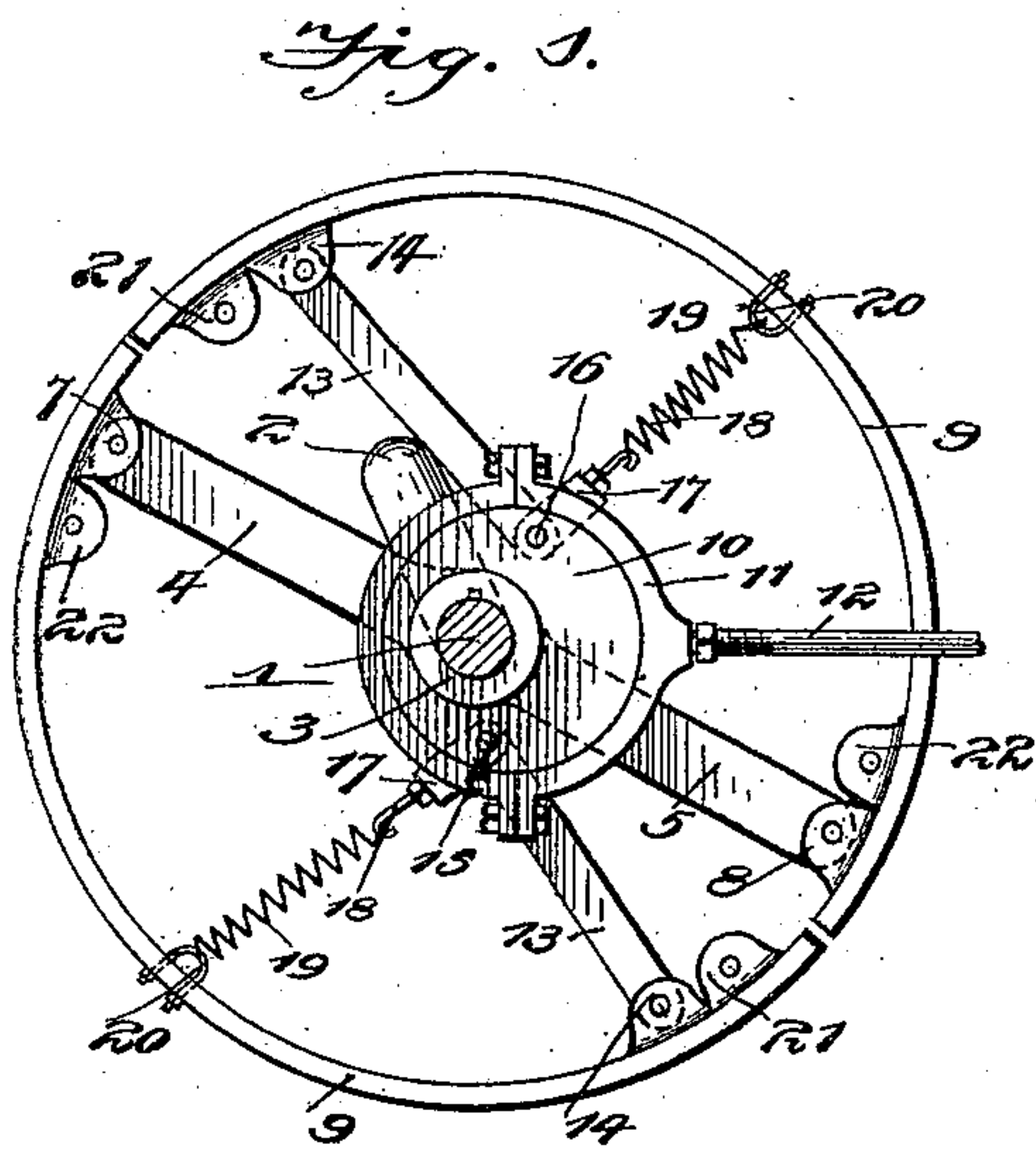
No. 614,388.

Patented Nov. 15, 1898.

V. E. HUNTER.
GOVERNOR.

(Application filed Dec. 21, 1897.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

VICTOR E. HUNTER, OF CLEBURNE, TEXAS.

GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 614,388, dated November 15, 1898.

Application filed December 21, 1897. Serial No. 662,783. (No model.)

To all whom it may concern:

Be it known that I, VICTOR E. HUNTER, residing at Cleburne, in the county of Johnson and State of Texas, have invented certain new and useful Improvements in Governors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention relates to a novel governor for steam or other engines.

Inasmuch as it is not deemed necessary to illustrate and describe a steam-engine in connection with the illustration of the governor proper, it may be well to premise that this governor belongs to the general class of devices known as "automatic cut-off mechanism," inasmuch as the purpose of the device being to change the relation of the controlling-valve eccentric and the crank upon the main shaft through the medium of centrifugal force acting through the elements of the governor. This change of relation regulates the lead of the controlling-valve and the supply of steam to the cylinder in accordance with the work to be performed by the engine and in this manner not only regulates the speed of the engine, but by an equalization of the steam-supply serves to economize the expenditure of the steam or other motive fluid.

The object of my invention is to provide a governor of simple, durable, and efficient construction which will effect the cut-off with precision and will be capable of ready adjustment to present the requisite resistance to the operating force.

To these and other ends the invention consists in mounting a pair of vibrating segments of substantially semicircular form upon a pair of diametrically-extending arms fixedly carried by a hub mounted upon the main or engine shaft and supporting an eccentric in operative relation with the eccentric of the controlling-valve, the whole being so constructed and arranged that the governor members or segments will be vibrated under centrifugal force in order to regulate its movement and position with respect to the crank, and thereby constantly regulate and vary the lead of the controlling-valve to effect the cut-off in a manner to economize

the expenditure of steam as the "load" of the engine is increased or diminished.

Referring to the drawings, Figure 1 is a side elevation of my governor complete, the valve-rod being broken away. Fig. 2 is a similar view showing the governor members urged outwardly by the centrifugal force, and Fig. 3 is a view taken at right angles to Fig. 1.

Referring to the numerals on the drawings, 1 indicates the engine-shaft, mounted in suitable bearings (not illustrated) and provided with the usual crank 2, connected to the pitman extending from the cross-head of the engine. (Not illustrated.)

3 indicates the hub of my governor, keyed or otherwise secured upon the engine-shaft and somewhat elongated, as shown.

4 and 5 indicate a pair of diametrically-extending arms carried by the hub and upon the extremities of which are pivoted, as by means of bearing-ears 7 and pintles 8, a pair of vibrating governor members or segments 9 of substantially semicircular form and forming when in their normal or inactive positions a circular rim. These segments, as shown, are mounted at their opposite ends upon the hub through the intermediate arms, and the free ends of each member, contiguous to the supported ends of the opposite members, are designed to be urged outwardly by centrifugal force as the engine-shaft and the governor fixed thereto are rotated at a high rate of speed. In order, therefore, to utilize this movement of the free ends of the arms for the purpose of effecting the lead of the controlling-valve, the valve-eccentric 10 is mounted upon the extended end of the hub, and the eccentric-strap 11, connected to the valve-rod 12, is clamped upon the eccentric in a manner well understood in the art.

Governor-links 13 are pivotally connected at one end of each of the governor members and are likewise pivotally connected at their opposite ends to the side of the eccentric 10 at diametrically opposite points, as by pins 15 and 16.

A device organized in this manner will constitute an operative whole, since the movement of the governor members will shift the eccentric by reason of the link connection; but in order that the resistance of the

members will be sufficient to enable the engine to attain the proper speed without affecting the governor it is necessary that tension mechanism be provided for opposing the movement of the governor and the consequent shifting of the eccentric until a predetermined speed limit has been exceeded. I therefore employ tension mechanism consisting, essentially, of spring-sockets 17, pivoted upon the extremities of the pins 15 and 16 and adjustably carrying tension-rods 18, connected to the inner extremities of tension-springs 19, secured at their opposite ends to eyelets 20, adjustably carried by the governor members and designed to augment the adjustment of the spring when the movement of the tension-rod is insufficient. It will now be seen that as the governor is rotated beyond the speed limit, determined by the adjustment of the tension mechanism, the centrifugal force will overcome the resistance of such mechanism and will urge the governor members outwardly, shifting the eccentric through the medium of the governor-links and adjusting the relation of the controlling-valve with respect to the position of the crank, or, more properly speaking, with respect to the position of the piston within the engine-cylinder. Additional bearing-lugs 21 and 22 may be provided in front of each of the bearing-lugs 14 and 7 in order to permit the reversal of the governor, or the various elements of the device may be modified and varied without departing from the scope of the invention.

What I claim is—

1. In a governor of the character described, the combination with a hub and diametrically-extending arms, of segmental governor members terminally supported upon the arms, an eccentric mounted upon the hub, governor-links pivotally connected at their oppo-

site extremities to the eccentric and adjacent to the free ends of the governor members, and springs connecting the governor members and eccentric, substantially as specified.

2. In a governor of the character described, the combination with a hub and diametrically-extending arms, of segmental governor members terminally pivoted at the opposite extremities of said arms, an eccentric mounted upon the hub, governor-links pivoted adjacent to the free ends of the members and to the eccentric at diametrically opposite points, and longitudinally and laterally adjustable tension-springs connecting the eccentric and governor, substantially as specified.

3. The combination with an eccentric, of a pair of pivoted segmental governor members operatively connected thereto, tension-springs connected to the eccentric and to the governor members, means for adjusting the tension of the springs, and means for shifting the springs laterally, substantially as specified.

4. The combination with an eccentric and a pair of pivoted governor members operatively connected thereto, of spring-sockets pivotally connected to the eccentric, tension-rods adjustably carried by the sockets, springs secured to the tension-rods, and adjustable eyelets carried by the members and supporting the outer ends of the springs, substantially as specified.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

VICTOR E. HUNTER.

Witnesses:

R. E. STALCUP,
R. G. HALL.