

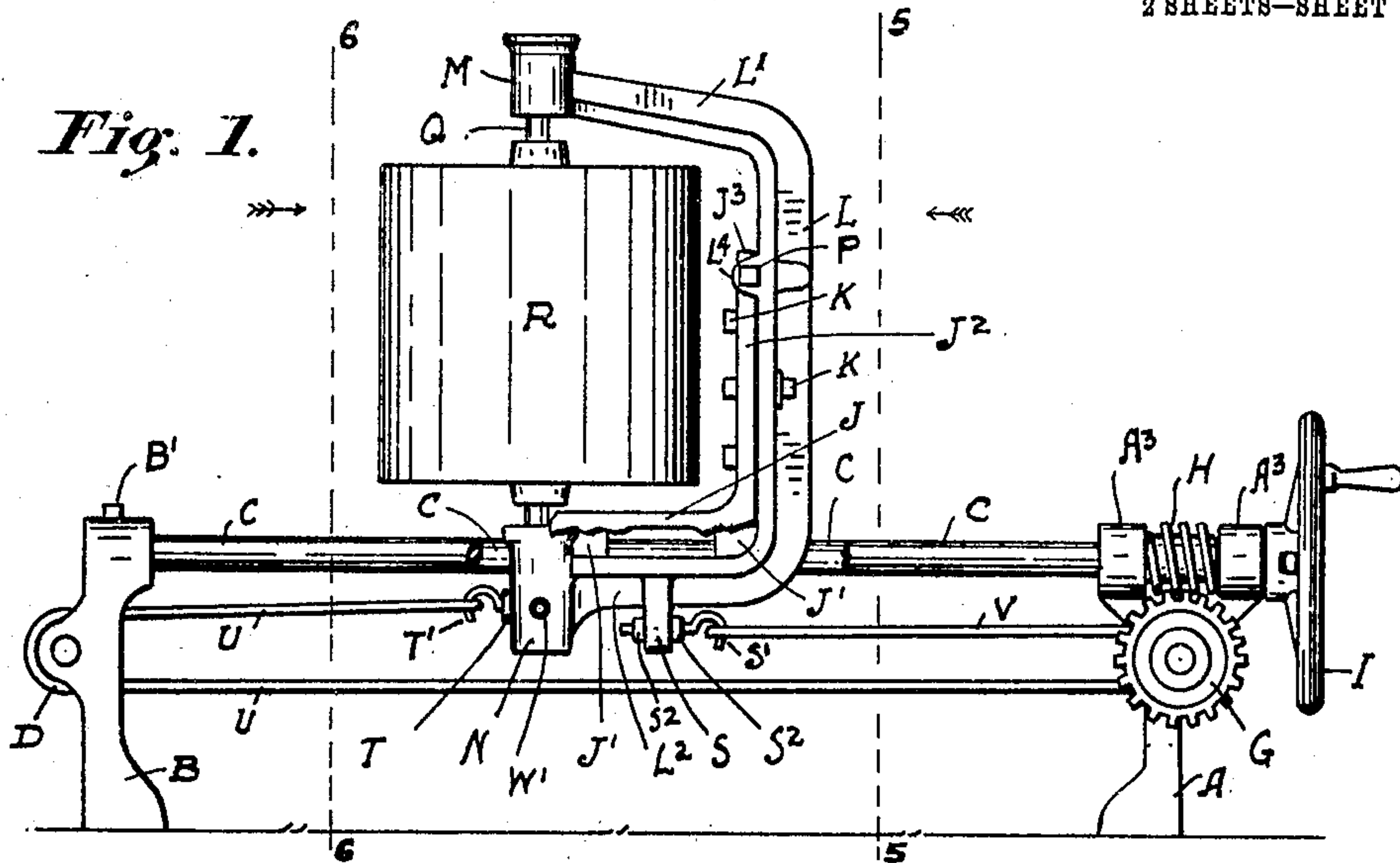
O. E. SHAFER.  
BELT TIGHTENING DEVICE.  
APPLICATION FILED MAR. 20, 1908.

916,619.

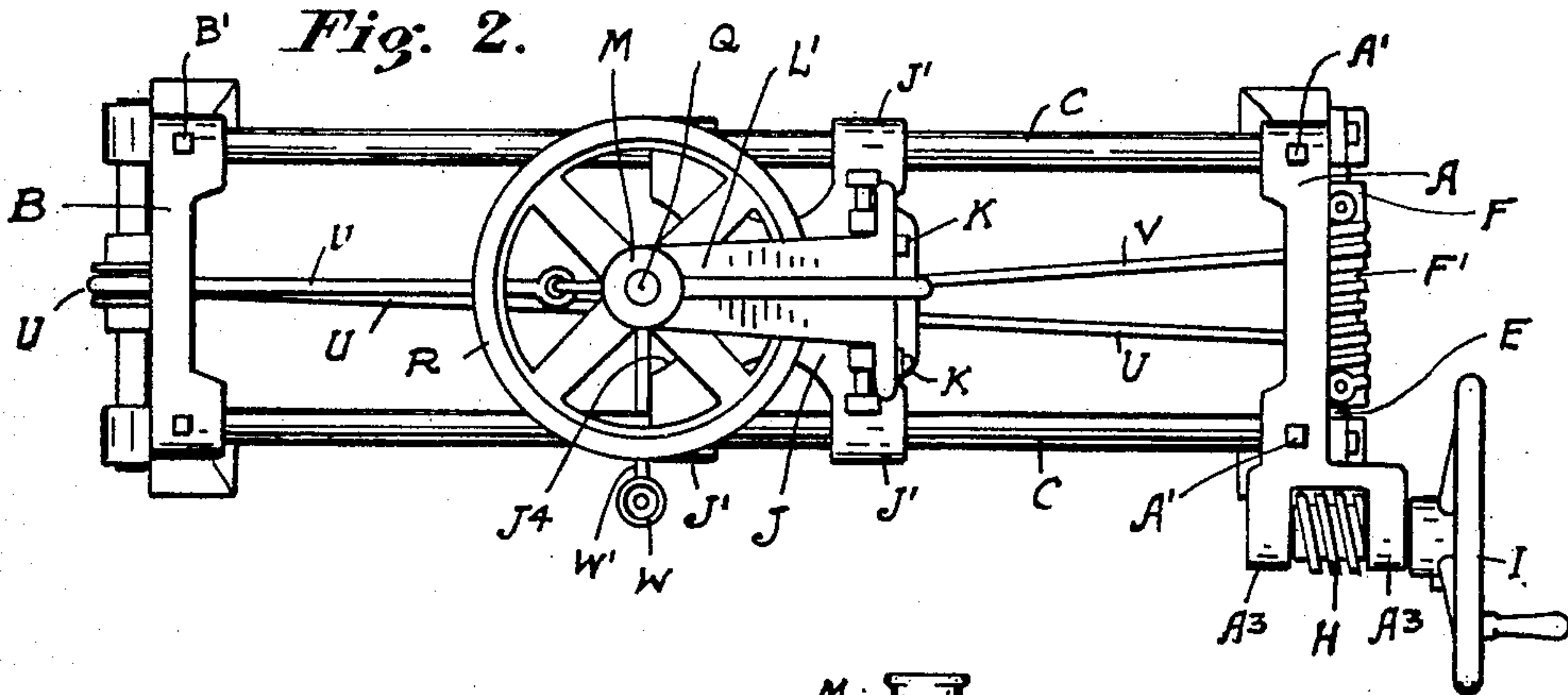
Patented Mar. 30, 1909.

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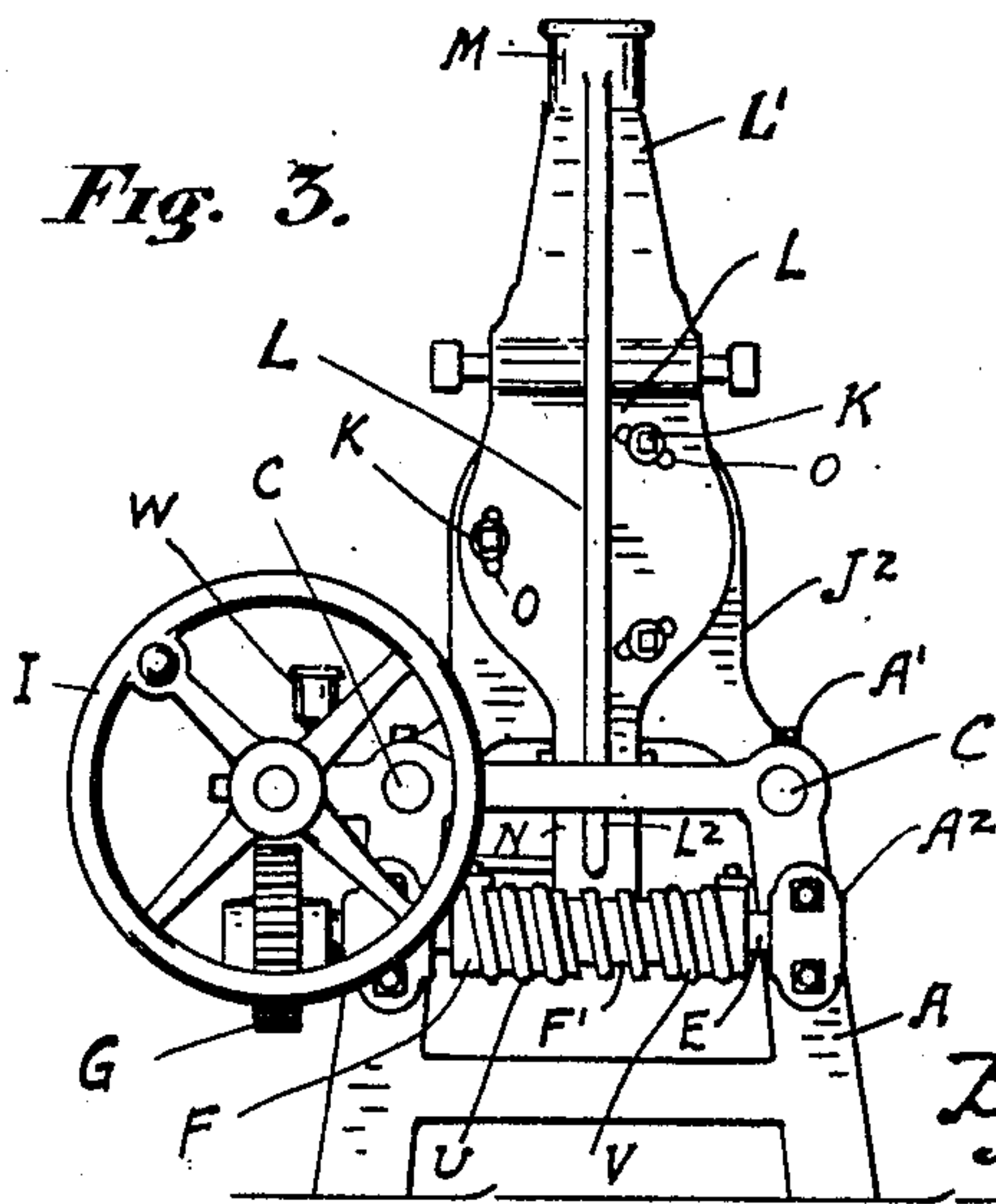
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



WITNESSES:  
Ezra L. Lister,  
Milton H. Forbes.

INVENTOR,  
OTTIS E. SHAFER.

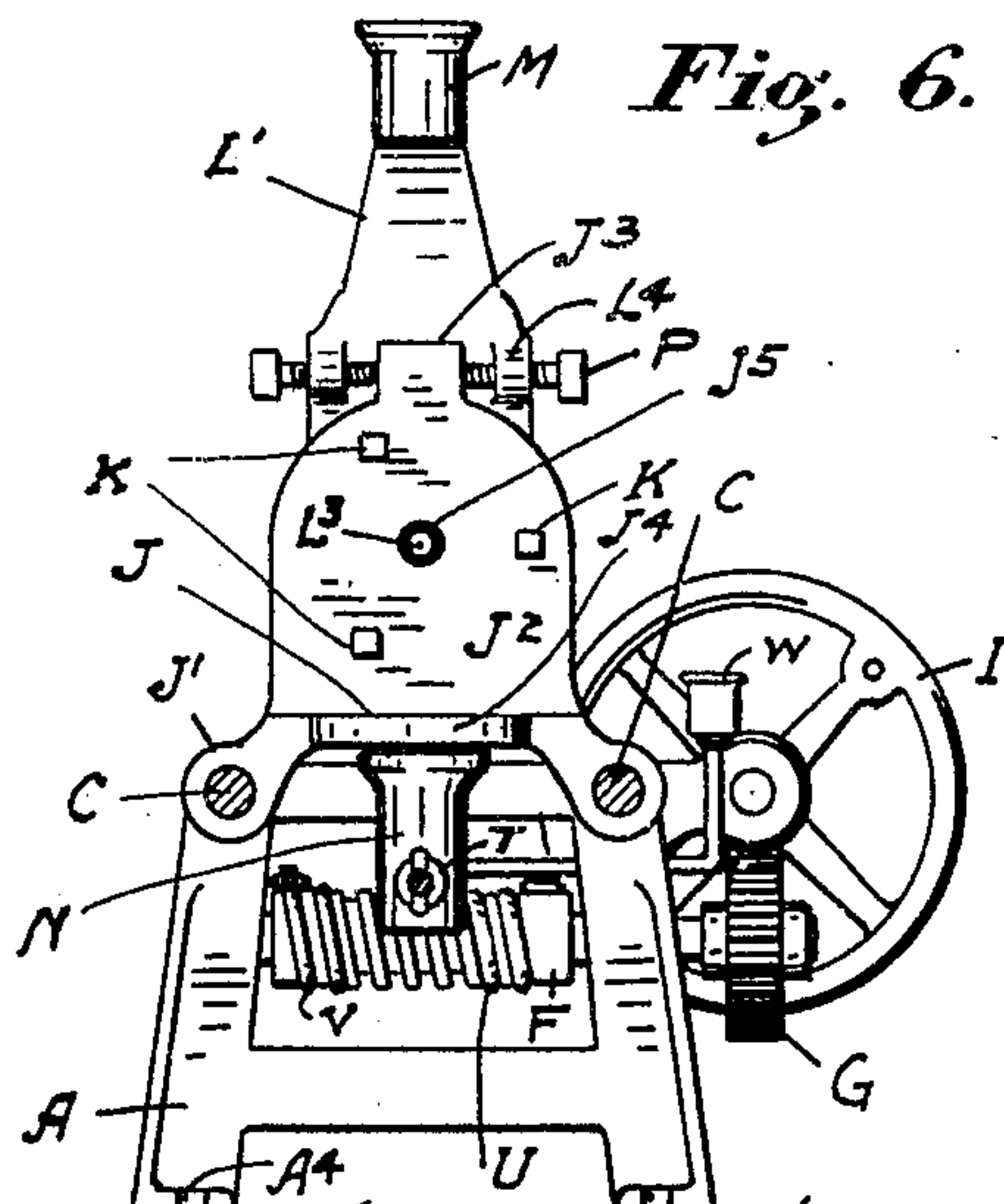
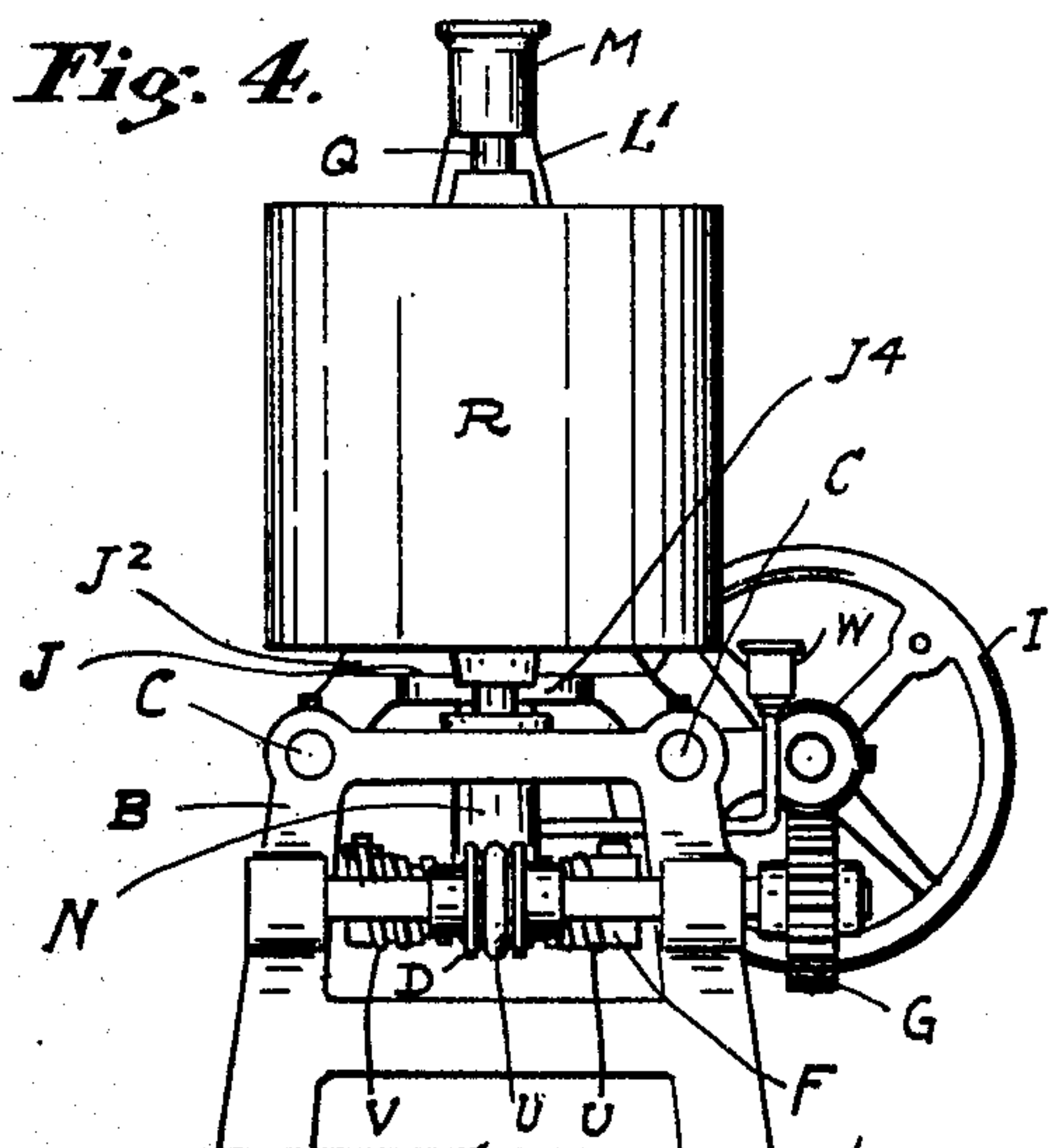
By *Thomas L. Ryan*  
ATTORNEY.

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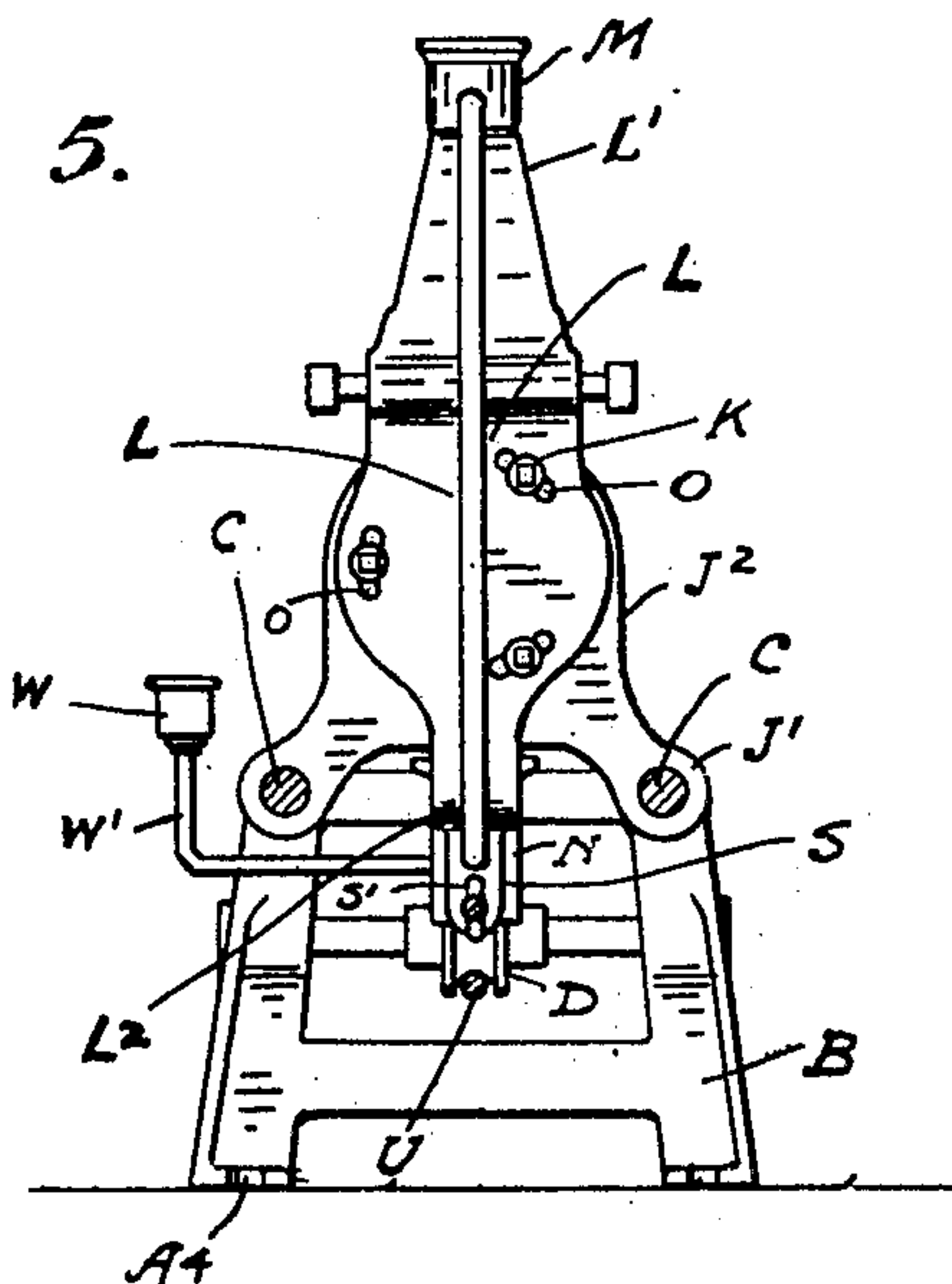
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2 SHEETS—SHEET 2



*Fig. 5.*



WITNESSES;  
Ezra L. Lister.  
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# UNITED STATES PATENT OFFICE.

OTTIS E. SHAFER, OF BLUFFTON, INDIANA, ASSIGNOR TO THE GEO. W. GRIMES COMPANY,  
OF BLUFFTON, INDIANA, A COPARTNERSHIP.

## BELT-TIGHTENING DEVICE.

No. 916,619.

Specification of Letters Patent.

Patented March 30, 1909.

Application filed March 20, 1908. Serial No. 422,196.

*To all whom it may concern:*

Be it known that I, OTTIS E. SHAFER, a citizen of the United States, residing in the city of Bluffton, in the county of Wells and the State of Indiana, have invented a new and useful Belt-Tightening Device, of which the following is a specification.

This invention relates to improvements in devices for regulating the tension of power-transmitting belting, and has for its objects to provide a mechanism whereby the tension of such belting connecting pulleys operating in alinement or at an angle to each other may be regulated easily and with precision.

Other objects of my invention are to provide a device of the character referred to that will be simple and compact in construction, of few parts, economical of manufacture, durable and not liable to get out of repair.

The objects of this invention are accomplished, by the mechanism described in this specification, illustrated in the accompanying drawings, and defined in the appended claim.

In the drawings similar characters of reference refer to corresponding parts throughout the several views, in which—

Figure 1 is a side view of my invention complete, a portion of the carriage and support-bar being broken away. Fig. 2 is a plan view. Fig. 3 is a front-end view, and Fig. 4 is a rear-end view of my invention complete. Fig. 5 is a transverse sectional view taken on the line 5—5 and in the direction indicated by the arrow in Fig. 1. Fig. 6 is a transverse sectional view taken on the line 6—6 and in the direction indicated by the arrow as shown in Fig. 1, the pulley-wheel having been removed.

The frame of my improved device is composed of the end-standards A and B which are of substantial weight and of such form that with the support-bars C rigidly secured therein by the set-screws A<sup>1</sup> and B<sup>1</sup>, a strong supporting structure is formed. The slots A<sup>4</sup> are provided in the feet of these end-standards through which lag-screws or bolts may be passed and secured in the foundation provided therefor.

Secured to a suitable shaft that is journaled in the end-standard B is the grooved-wheel D. The suitable boxings A<sup>2</sup> on the end-standard A are provided for the shaft E that is journaled therein and upon which shaft is secured the drum F provided with

the grooves F<sup>1</sup>. The worm-gear G that is secured on the shaft E engages the worm H. The hand-wheel I is secured on the end of a suitable shaft that is journaled in the boxings A<sup>3</sup> upon which shaft and between the said boxings is secured the worm H, so that by rotation of the hand-wheel I the drum F will be actuated.

The carriage has the legs J<sup>1</sup> which are provided with suitable boxing in which Babbit-metal bearings for the support-bars C are retained. The support-bars C are machine-smoothed so that the carriage may freely slide thereon. The upright J<sup>2</sup> of the carriage is of substantial dimensions, is formed integral with the platform J and has the head J<sup>3</sup>. Located centrally in the upright J<sup>2</sup> is the hole J<sup>5</sup>; K designates bolts sustained in suitable holes provided therefor, the function of which bolts and hole J<sup>5</sup> will be presently referred to.

The yoke which consists of the substantial body-portion L having the upper arm L<sup>1</sup> and the lower arm L<sup>2</sup> that support the journal-heads M and N, is of substantial weight and section as shown, and is secured to the carriage by the bolts K that pass through the elongated holes O, and sustain the body-portion L in direct engagement with the upright J<sup>2</sup>. The stud L<sup>3</sup> resides in the hole J<sup>5</sup> so that the yoke is supported pivotally. By this arrangement, as plainly shown in Fig. 3, Fig. 5 and Fig. 6, the yoke may be adjusted to and rigidly secured in different positions of inclination to the one side or the other of the vertical line.

Formed integral with the body-portion L are the housings L<sup>4</sup> through which are screwed the set-bolts P the ends of which bear against the head J<sup>3</sup> of the carriage. The line of curvature of the lower-arm L<sup>2</sup> is such that it will pass underneath the platform J with ample clearance, and the recess J<sup>4</sup> that is provided in the edge of the platform gives ample clearance for the journal-head N. Passed through the journal-head M and having its lower end journaled in the journal-head N is the vertical-shaft Q upon which is secured the pulley-wheel R.

S designates a lug formed integral with the lower-arm L<sup>2</sup>, and T is a lug formed upon the journal-head N.

S<sup>1</sup> designates a hook having a threaded shank which is passed through the lug S; S<sup>2</sup> designate set-nuts on either side of the lug



whereby the position of the hook may be adjusted.

T<sup>1</sup> designates a hook that is screwed into the lug T. Secured by its one end to the hook T<sup>1</sup> and extending over the grooved-wheel D, thence forward to and a few turns around and having this end secured to the drum F, is the cable U.

V designates a like cable secured by its one end to the hook S' and extending forward to and a few turns around the drum F in the direction opposite to that of the cable U, and having this end secured to the said drum, as plainly shown in Fig. 2. A chain may be used instead of the cable, if desired. This arrangement wherein the two lengths U and V of cable or chain is used is of some economy over the use of a single length; however it will be understood that the use of a single length of cable or chain may be employed instead of the two lengths, without affecting the nature or principle of my invention. By having the adjustable hook S<sup>1</sup> the proper adjustment of the cable may always be had. A convenient means for lubrication of the shaft Q in the journal-head N, is the oil-cup W from which the pipe W<sup>1</sup> leads into said journal-head.

In assembling this machine each of the support-bars has its end secured in the end-standards; after the carriage is slid onto the support-bars they are then secured in the other end-standard. The yoke is then placed in position as shown in the drawings and by the bolts K it is drawn into contact with the carriage. The set-screws P are then manipulated and the position desired for the yoke is obtained. After the yoke has been so adjusted on the carriage into the position desired, the bolts K are screwed down and the yoke will be held immovably in position.

My invention is of utility as a tightener and regulator for belting operating upon pulleys vertically disposed, or disposed at a right angle to each other, and is especially useful in connection with the operation of well-pumping rigs and other heavy and transitory power rigs, where on account of the temporary and comparatively imperfect installation, the proper tension and the accurate travel on the pulleys, of the belting, is practically impossible.

In the operation of my invention it is rigidly secured, or anchored in a suitable location adjacent the belting that is to be operated upon. The set-nuts S<sup>2</sup> are first adjusted so that the cables U and V are taut. By manipulation of the hand-wheel I the carriage may be controlled. By the ingenious construction, combination and arrangement of the parts composing this machine the pulley-wheel R may be moved gradually, accurately and irresistibly into engagement with the belting, and the carriage will hold and be sustained in the position where it has been so "set". By the setting of the yoke in a position inclined from perpendicular the course of the belting may be raised or lowered as the case may be. A great advantage accomplished by my invention is that the adjusting in position of this yoke may be accomplished while the machine is in use and the pulley-wheel in actual engagement with the belting. The bolts K are first loosened sufficiently then by manipulation of the set-bolts B the line of inclination of the yoke may be varied to any desired degree.

What I claim as my invention and desire to secure by Letters Patent of the United States, is—

A device of the kind described, comprising a frame composed of a pair of end-standards having parallel support-bars secured therein, a carriage slidingly secured to said support-bars and having an upright, a yoke having the body-portion adapted to be sustained directly against and in adjustable engagement with the upright, the arms of said yoke having journal-heads in which the shaft-ends of the pulley-wheel are journaled, a drum journaled on one end of the said frame adapted to be actuated by a hand-wheel through a worm-gear and worm, and another drum journaled at the opposite end of said frame, a flexible connection connected to said drums and having connection with the said carriage, substantially as described.

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

OTTIS E. SHAFER.

Witnesses:

ROBT. BARR,  
H. L. NORRIS.