

No. 725,551.

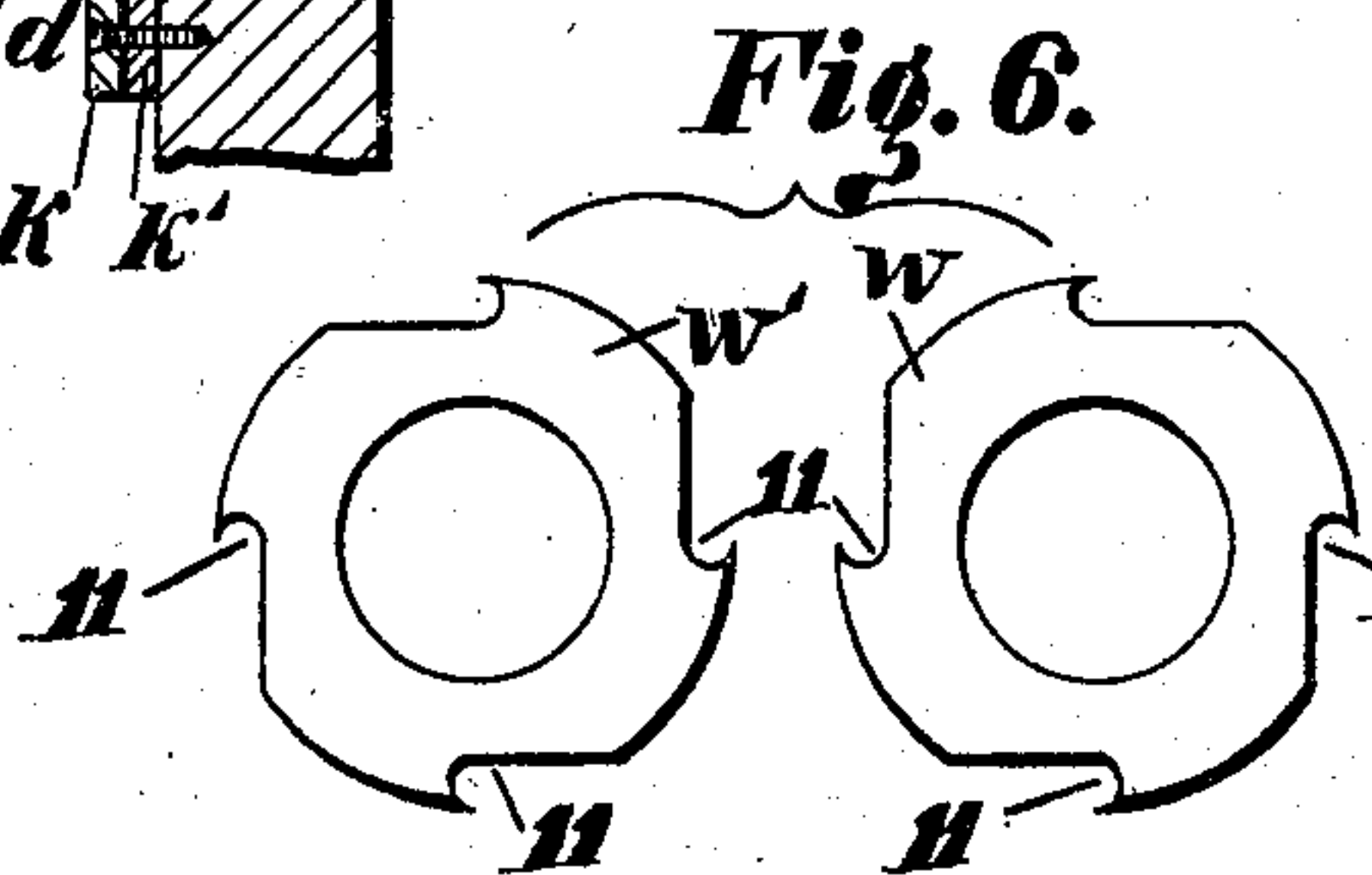
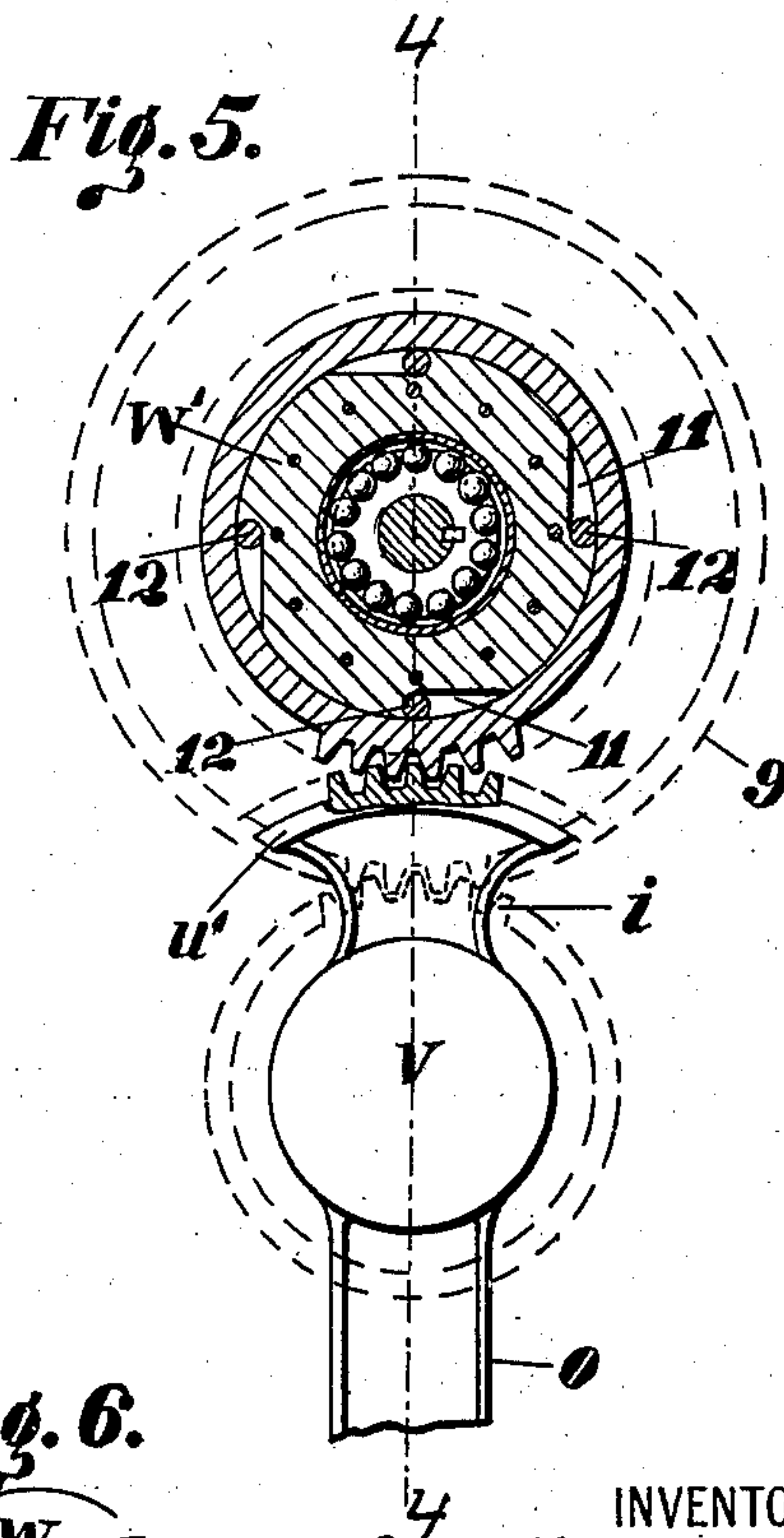
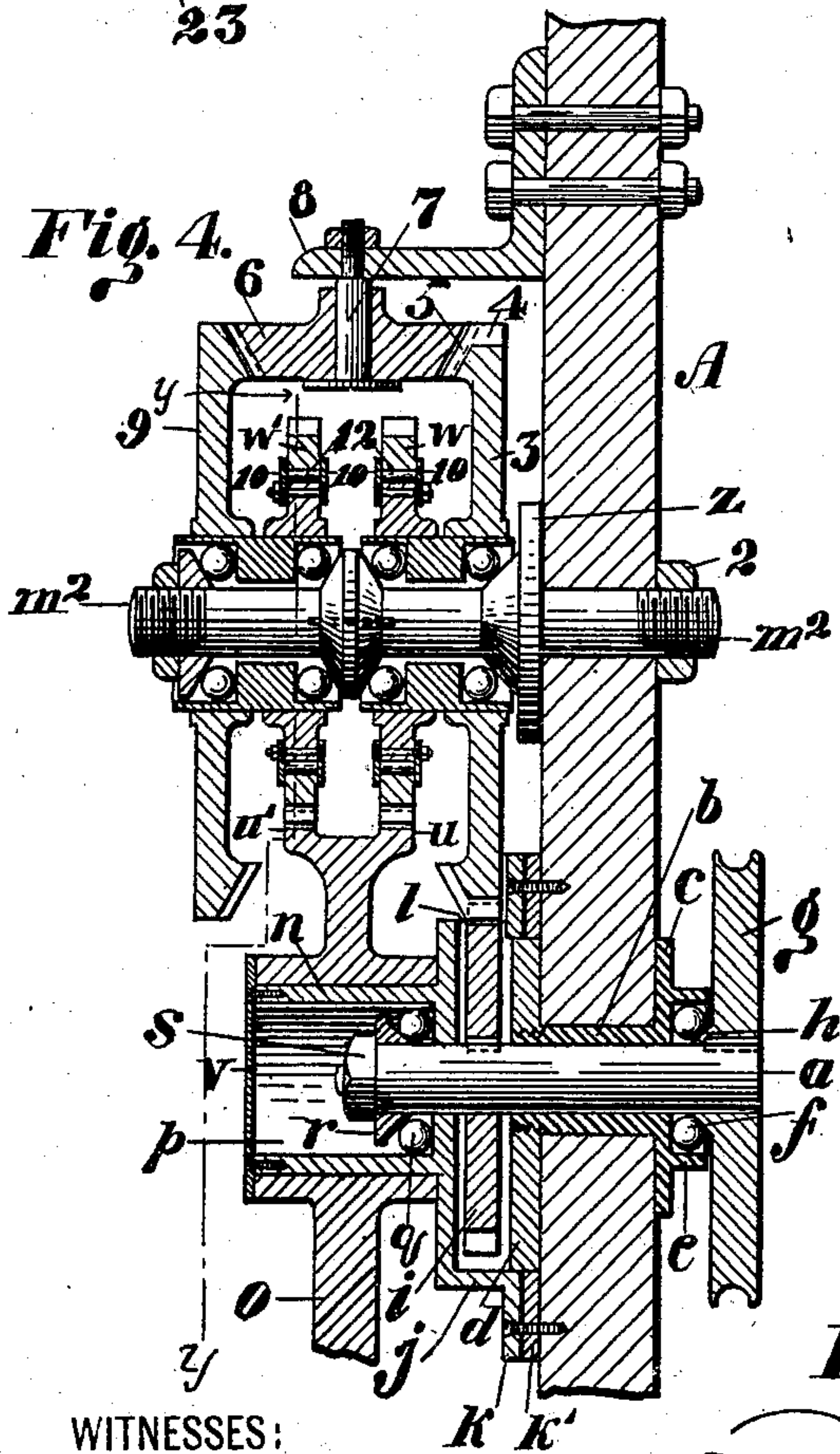
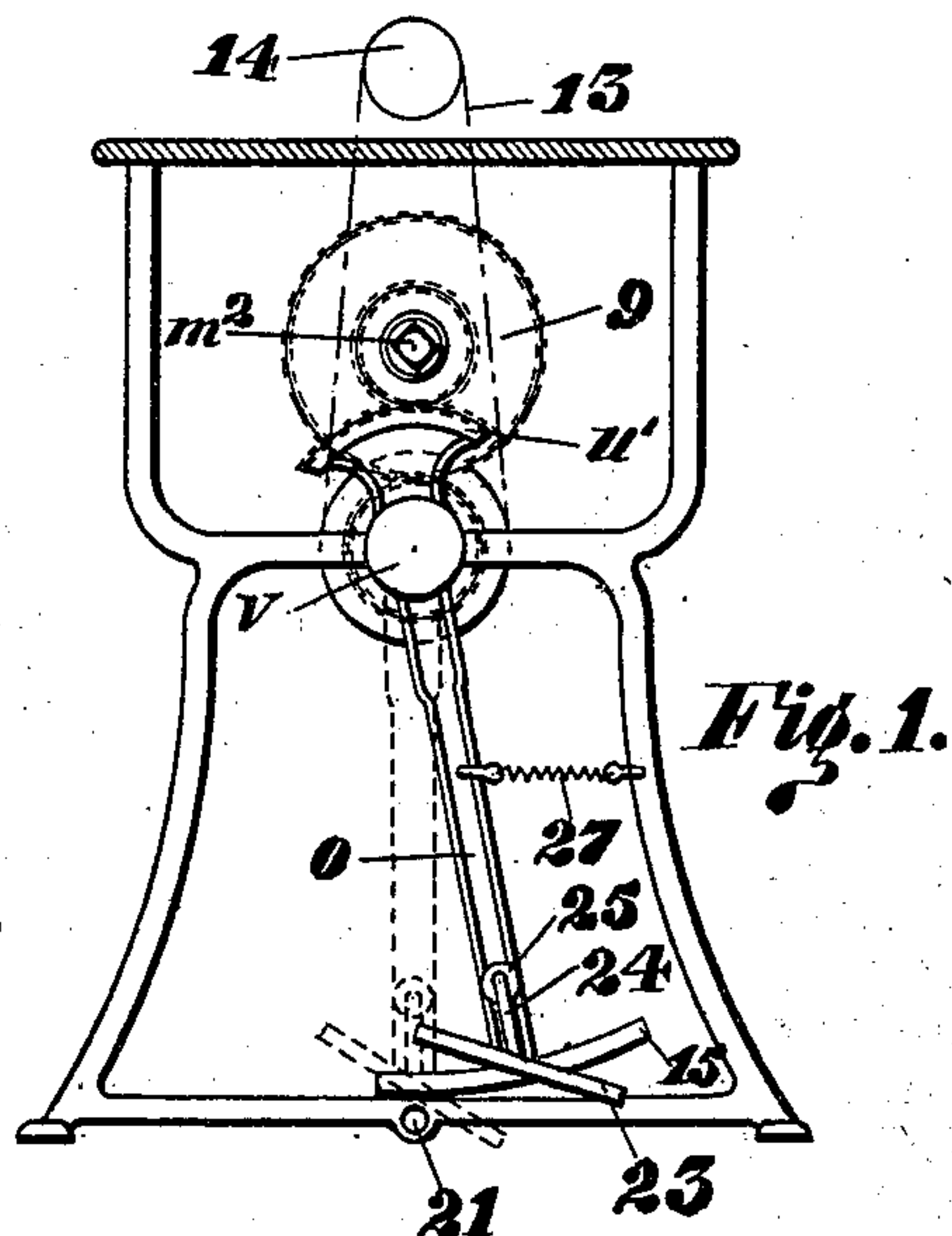
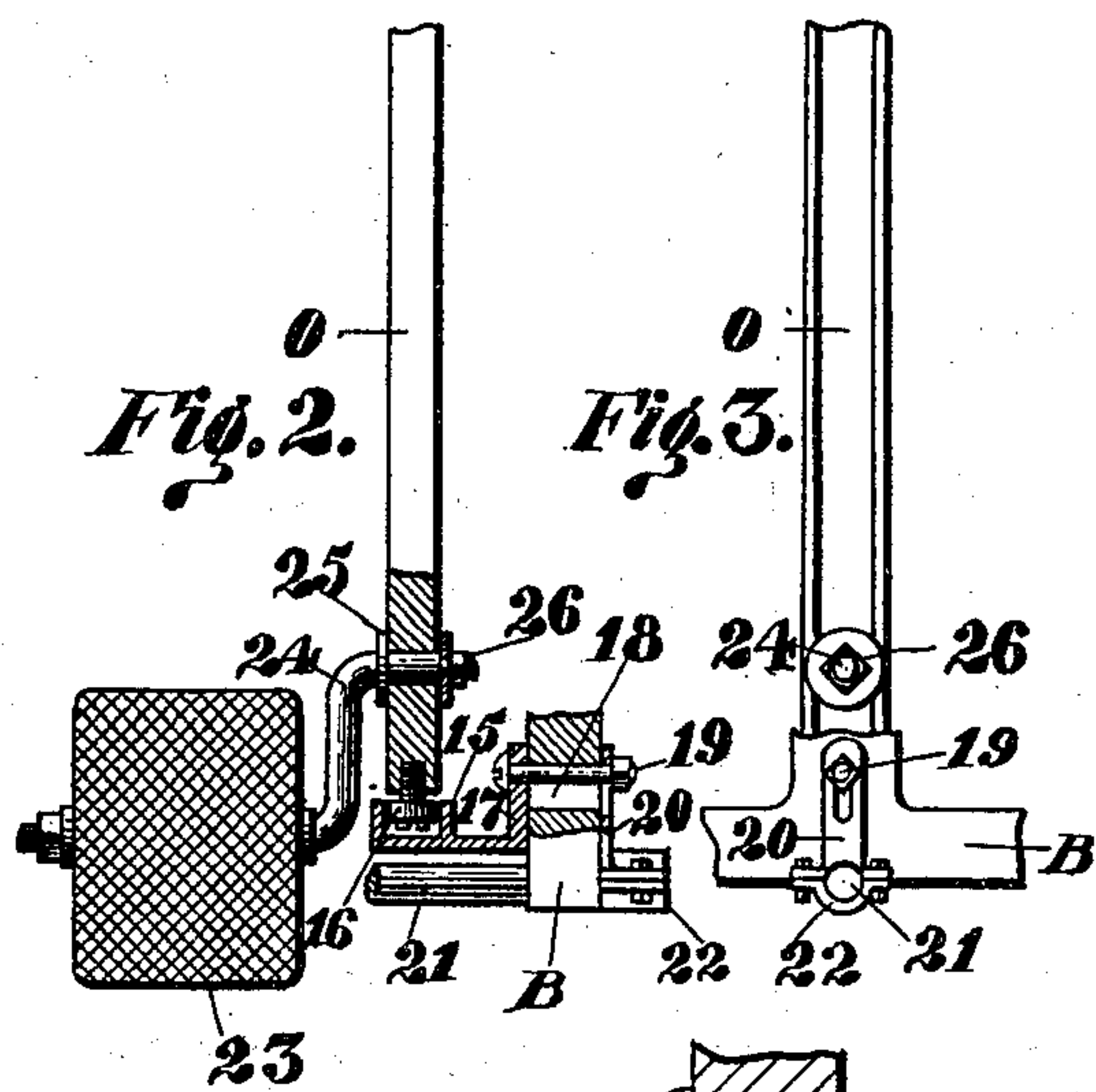
PATENTED APR. 14, 1903.

O. H. GENTRY.

FOOT POWER.

APPLICATION FILED AUG. 9, 1902.

NO MODEL.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

OLIVER HOWARD GENTRY, OF BROOKLYN, NEW YORK.

## FOOT-POWER.

SPECIFICATION forming part of Letters Patent No. 725,551, dated April 14, 1903.

Application filed August 9, 1902. Serial No. 119,024. (No model.)

*To all whom it may concern:*

Be it known that I, OLIVER HOWARD GENTRY, a citizen of the United States of America, and a resident of the borough of Brooklyn, New York city, and State of New York, have invented certain new and useful Improvements in Foot-Power, of which the following is a specification.

My invention relates to foot-power apparatus for driving sewing-machines, lathes, and other light machines; and it consists of improved means for applying the power through the instrumentality of a pendulous treadle-carrying lever to be operated by a swinging motion effected by flexure of the knee-joint rather than the common pedal operated by the ankle-joint, which has some advantages, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is an end elevation of a sewing-machine stand with my improved power apparatus applied. Figs. 2 and 3 are enlarged details of the lower parts of the pendulous lever and treadle. Fig. 4 is a vertical section of the transmitting apparatus geared with the upper end of said lever, the section being taken through the axis of the lever on line 4 4 of Fig. 5. Fig. 5 is partly an elevation of the apparatus of Fig. 4 and partly a transverse section on line *y y*. Fig. 6 represents details of the driving clutch-pinions.

A represents a part of one end frame of the stand. *a* represents a short shaft fitted in a bushing *b*, mounted in said part A of the frame and securely clamped by its flange-head *c* and the disk nut *d*, the latter being screwed onto the screw-threaded inner end of the bushing.

The flange *c* carries a socket *e*, wherein bearing-balls *f* are placed, and a driving-pulley *g*, carried on the outer end of shaft *a*, has a cone *h*, forming the complement of a ball-bearing for the outer extremity of said shaft *a*. Near the other extremity of said shaft *a* it carries a spur-toothed wheel *i*, which is inclosed in a cover *j*, the rim of which closely fits on the periphery of the disk nut *d*, by which the cover is centered relatively to the bore of bushing *b*, and the rim of said cover has a flange *k*, by which it is bolted to frame A, with intermediate packing *k'* for retaining lubricating-oil. Said rim of the cover is also

slotted in the upper side at *l* for clearance for a spur-toothed rim 4 of wheel 3, mounted on pivot-stud *m*<sup>2</sup> and meshing with wheel *i*.

On the back of cover *j* is a pivot-stud *n*, whereon the pendulous lever *o* is mounted, said stud being in the axis of shaft *a* and having a socket *p*, which is the socket for a ball-bearing for the inner end of shaft *a*, of which *q* represents the balls and *r* the cone, said cone being secured by a nut *s*, screwed on the shaft. The socket *p* is closed by a cover *v*, bolted onto the end of pivot *n*.

Above the pivot *n* lever *o* carries two spur-toothed segments *u u'*, respectively, gearing with pinions *w w'*, mounted on the pivot-stud *m*<sup>2</sup>, said pivot-stud being a fixture in the frame A, to which it is secured by the disk head *z* and the nut 2, screwed on the end of the stud.

To the hub of the pinion *w* a wheel is attached having a spur-toothed rim 4, gearing with wheel *i*, and a bevel-toothed rim 5, gearing with the bevel-pinion 6, located above pinions *w w'* on the vertical pivot-stud 7, supported by the bracket 8, attached to frame-piece A. To the hub of pinion *w'* a bevel-wheel 9 is attached, which also gears with pinion 6.

The pinions *w* and *w'* each comprise a hub and a toothed rim, said rim being confined on the periphery of the hub between two flanges 10, with clutch-notches 11 in the periphery of the hub and clutch-rollers 12 in the notches, whereby the clutch engages for driving when the hub moves in one direction and disengages when the hub moves in the other direction, and the clutch-notches of the respective hubs are arranged in reverse of each other, as represented in Fig. 6, whereby through the instrumentality of the wheels 3 and 9, alternately driven forward in opposite directions and engaging pinion 6 on opposite sides of its pivot, continuous forward motion is communicated to shaft *a* and pulley *g*, which give motion through the belt 13 to the pulley 14 of the sewing-machine shaft or to the spindle or other high-speed object to be driven.

Under the lever *o* I have provided a guide-channel 15 for the lower end of said lever, with an antifriction-roller 16 on a stud in the end of the lever for economizing friction against the side walls of the channel. The



said channel is carried on a bracket 17, bolt-  
ed onto the frame-piece B, in which there is  
a vertical slot 18 for the bolt 19, allowing the  
bracket to be shifted up and down to adjust  
5 it with relation to the lever. The bolt 19 also  
traverses a slotted bracket 20, in which one  
end of the end-frame connecting-rod 21 has  
a bearing at 22, which bracket is clamped to  
the end frame-piece B by said bolt. Said bolt  
10 may be shifted in the slot of this bracket to  
adjust the guide-channel.

The pedal 23 is connected to the lever o by  
a cranked rod 24, allowing the pedal to be  
shifted forward and backward to suit the op-  
15 erator, said rod having a collar 25 and a nut  
26 on the part connected with the lever o for  
clamping the lever and holding the pedal in  
the positions in which it may be set.

At 27 I represent a coiled spring, the pur-  
20 pose of which is to retract the lever, as indi-  
cated in Fig. 1, when released from the foot  
of the operator, so that the first movement in  
starting will be the forward thrust, which is  
the movement most favorable for application  
25 of the power.

I am aware that a pendulous lever with a  
toothed segment and a reciprocating clutch-  
pinion are not new broadly as a foot-power

driving-gear, and I do not claim such devices  
broadly.

What I do claim as my invention is—

1. The combination of the pendulous trea-  
dle-carrying lever, bearing two reciprocating  
toothed segments, reversely-driving clutch-  
pinions respectively engaging said toothed  
35 segments, a bevel-wheel connected with each  
pinion and geared with an intermediate bevel-  
pinion on opposite sides of its axis, and a  
transmitting-wheel geared with one of the  
bevel-wheels.

2. The combination with the transmitting-  
wheel, of the pinion, shaft and pulley geared  
with said transmitting-wheel, bushing where-  
in said shaft is mounted and being supported  
45 in the frame-piece and secured by the disk  
nut, flanged cover inclosing said pulley-driv-  
ing pinion, and disk nut, the shaft bearing  
socketed pivot-stud on the back of said cover,  
and the pendulous foot-lever pivoted on said  
stud and geared with said transmitting-wheel. 50

Signed at New York this 2d day of August,  
1902.

OLIVER HOWARD GENTRY.

Witnesses:

C. SEDGWICK,

J. M. HOWARD.