

No. 704,524.

Patented July 15, 1902.

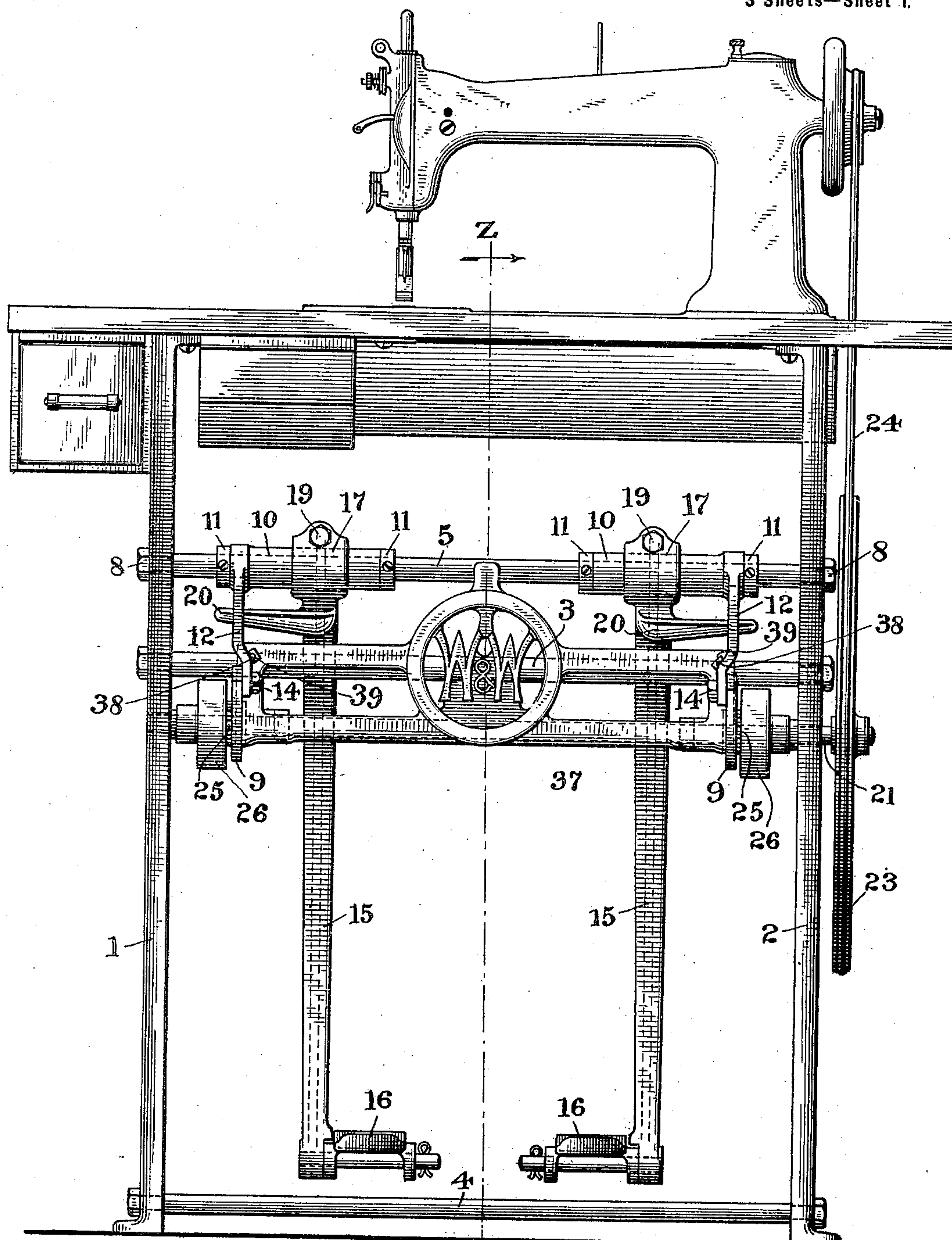
G. M. EAMES.

TREADLE POWER STAND FOR SEWING MACHINES.

(Application filed July 29, 1901.)

(No Model.)

3 Sheets—Sheet 1.



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Fig. 1. Z

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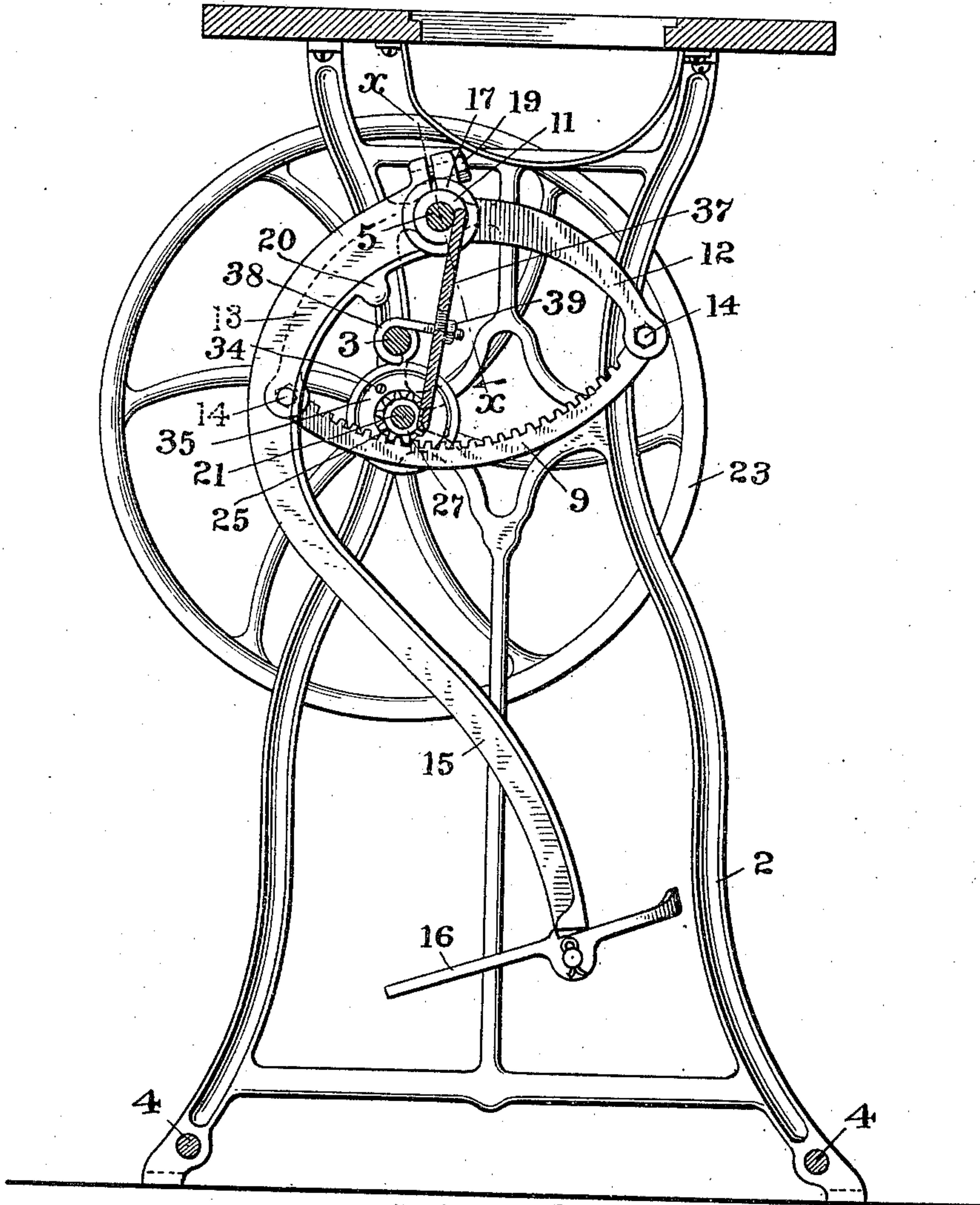


Fig. 2.

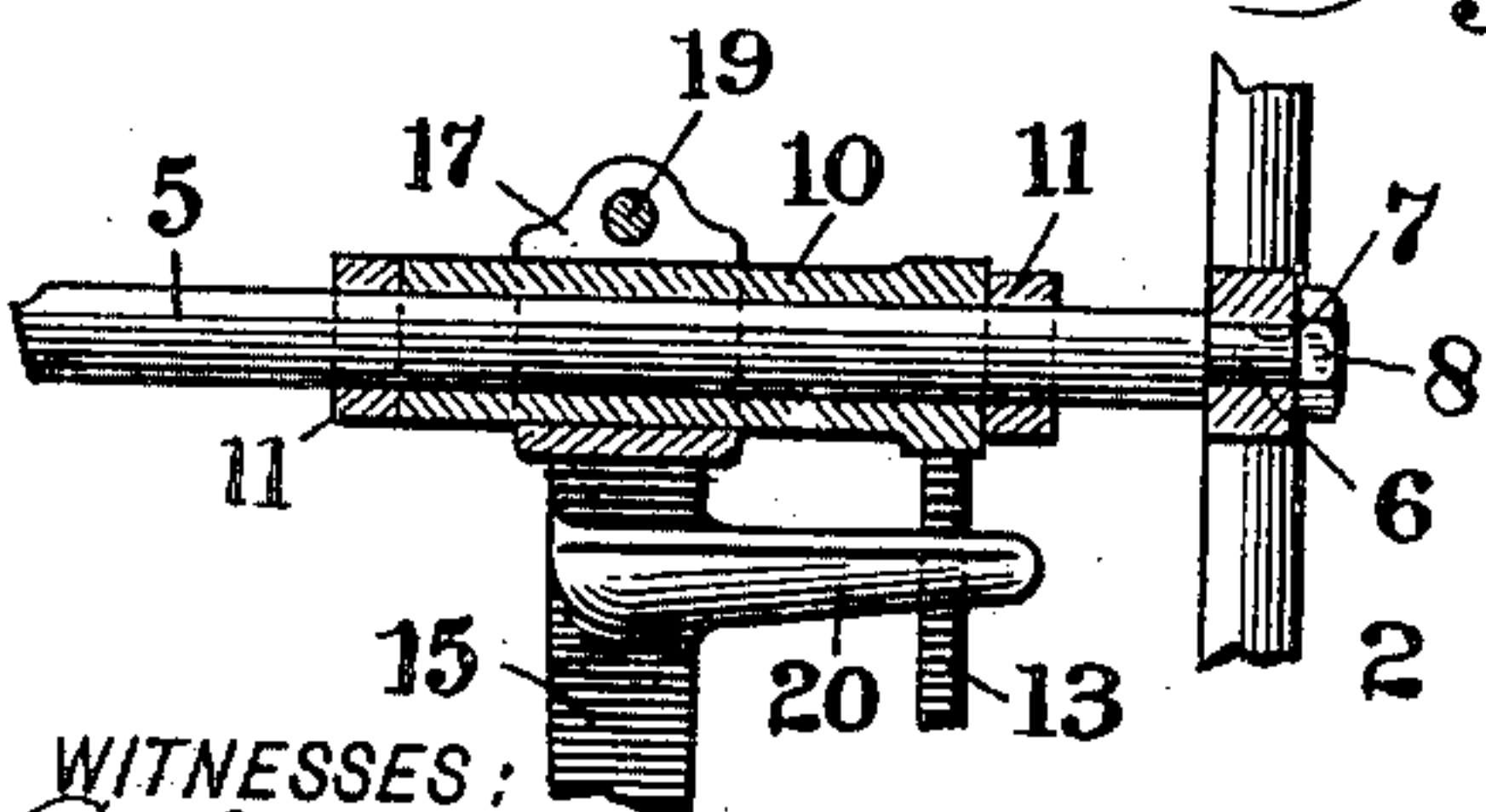


Fig. 3.

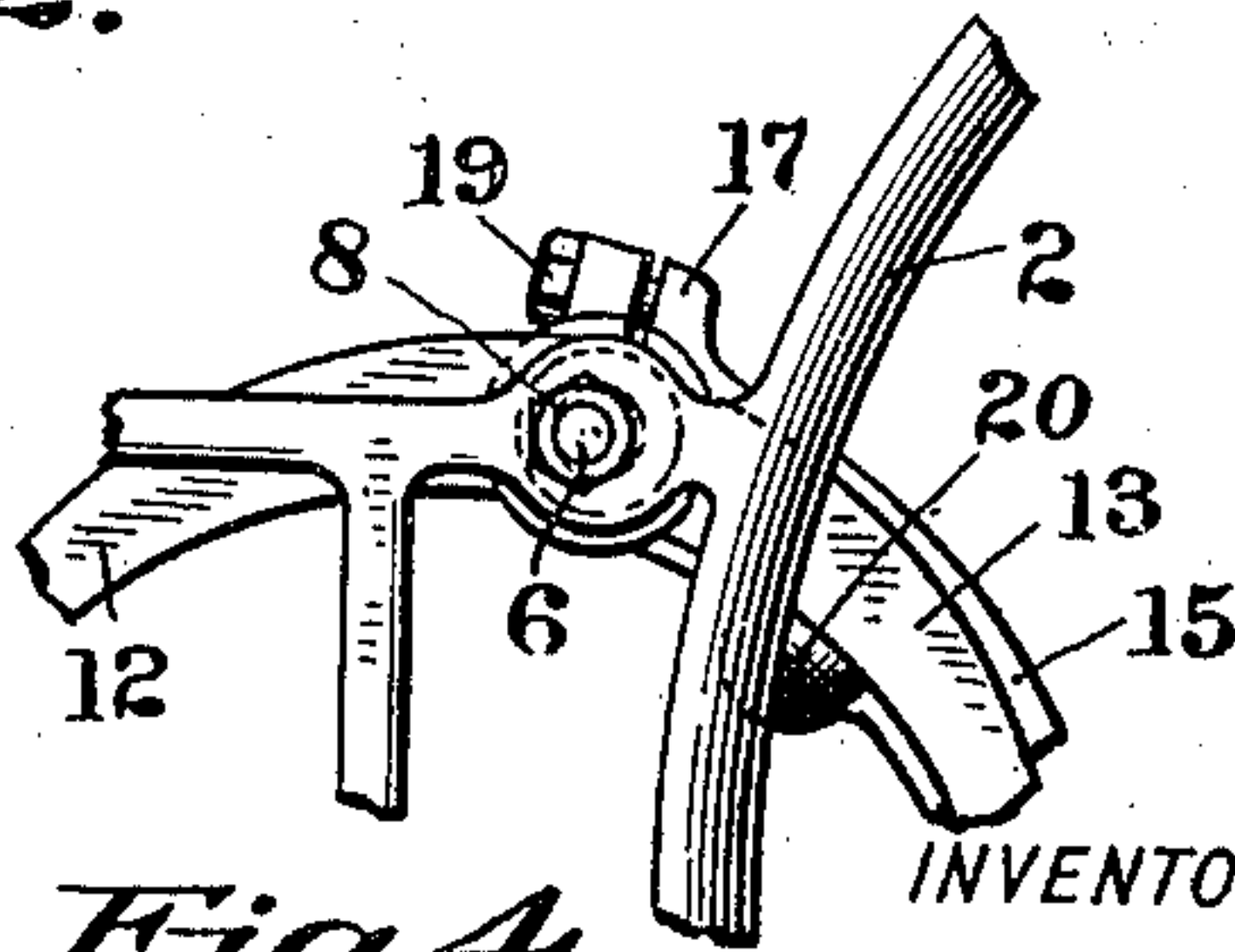


Fig. 4.

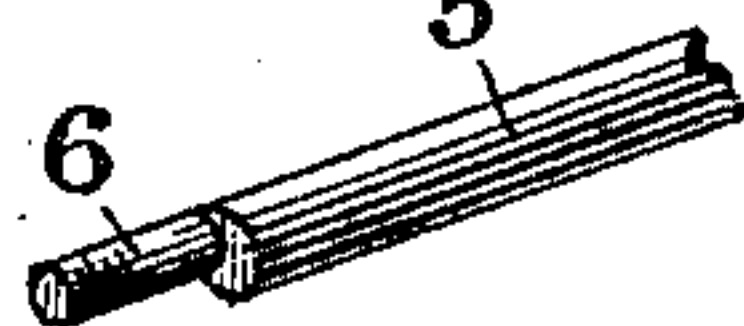


Fig. 5.

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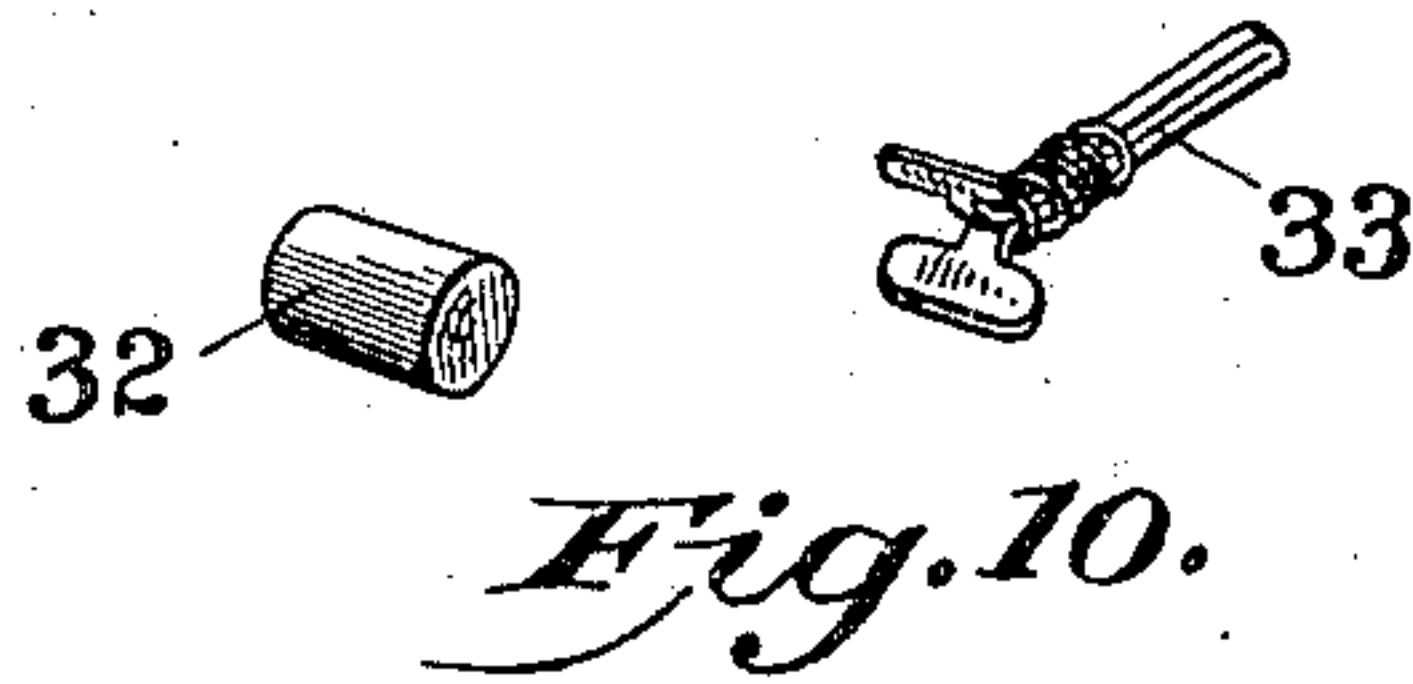
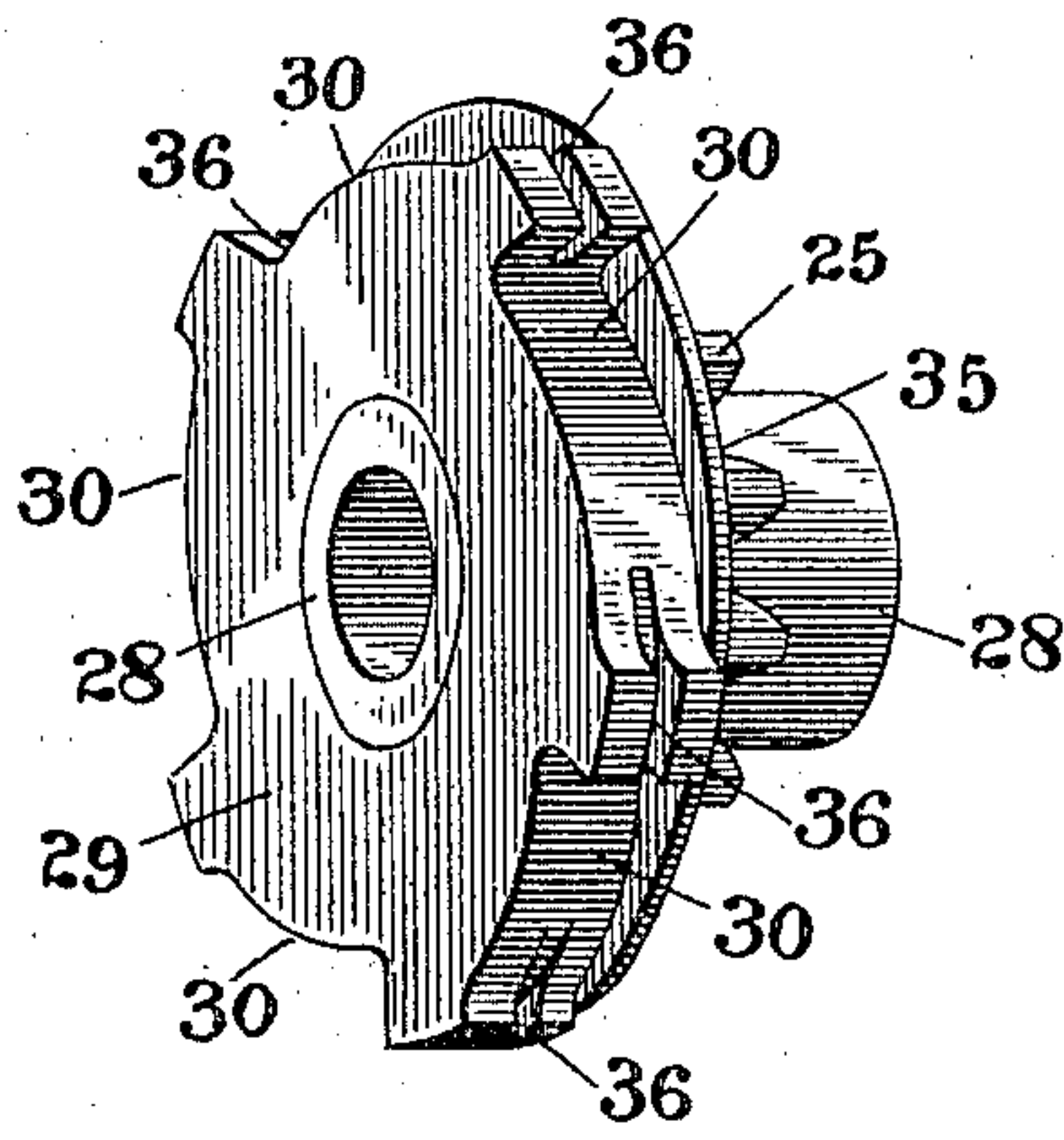
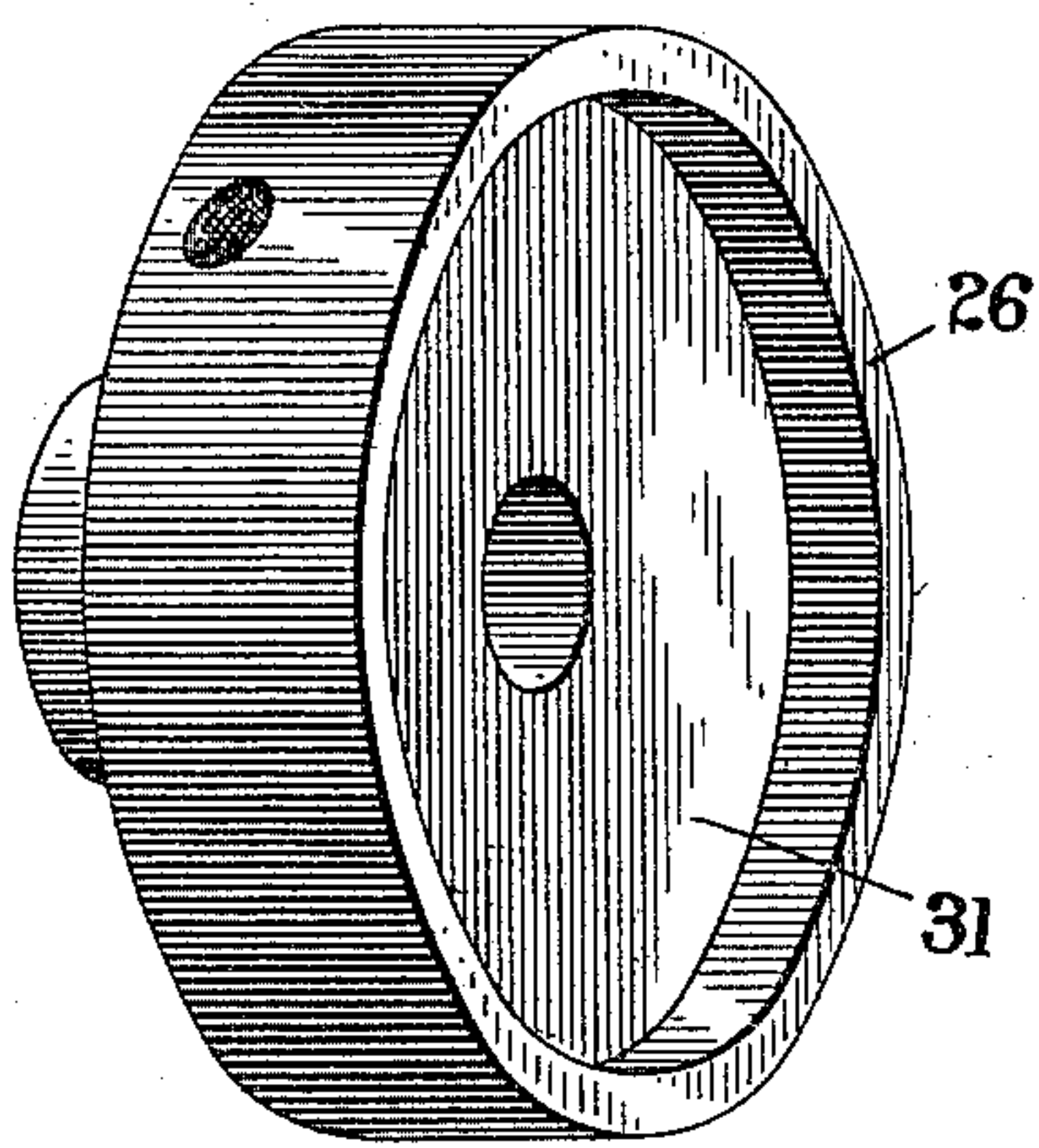
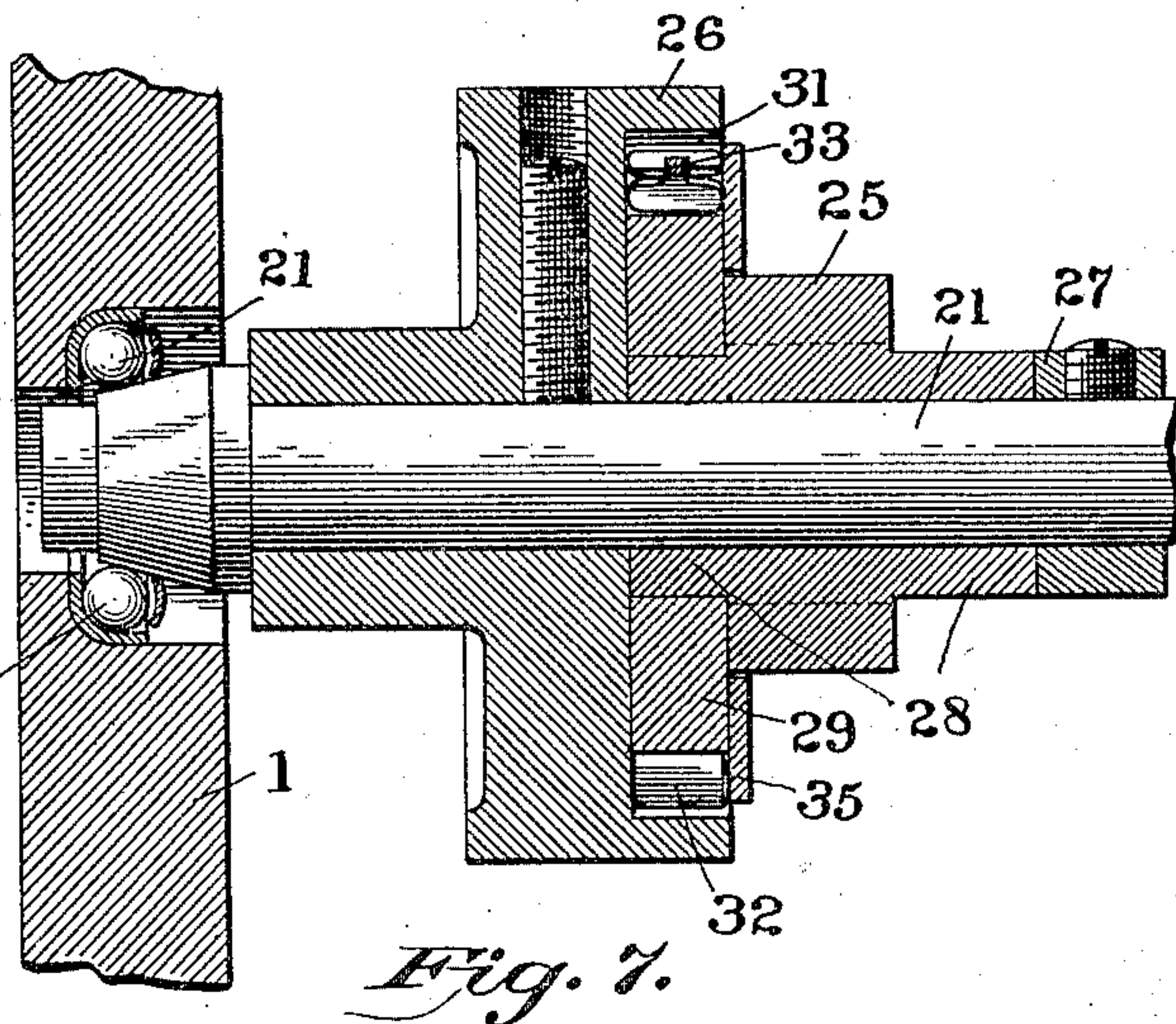
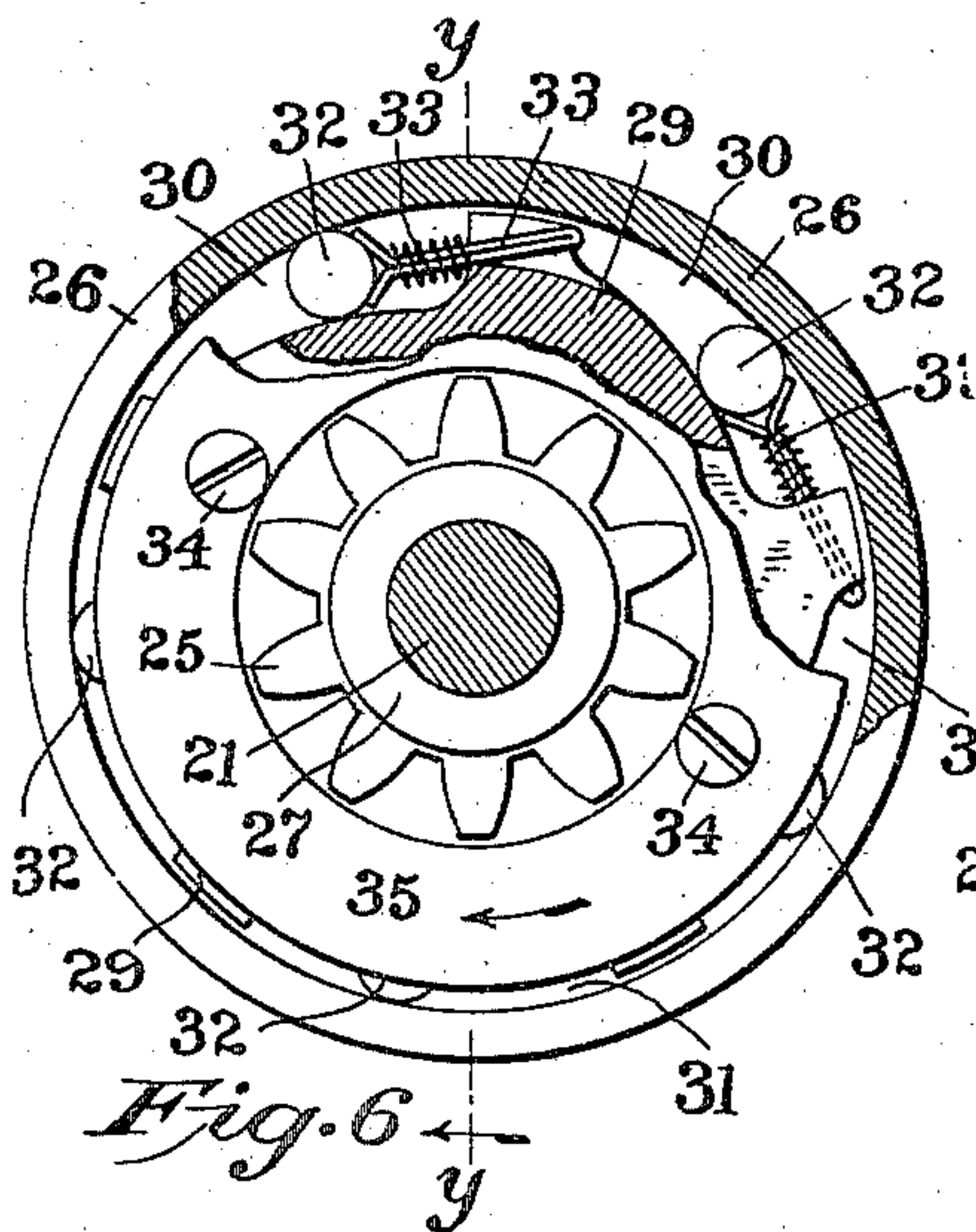
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UNITED STATES PATENT OFFICE.

GEORGE M. EAMES, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO WHEELER & WILSON MANUFACTURING COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

TREADLE-POWER STAND FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 704,524, dated July 15, 1902.

Application filed July 29, 1901. Serial No. 70,105. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. EAMES, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Treadle-Power Stands for Sewing-Machines, of which the following is a specification.

My invention pertains to treadle-power-transmitting apparatus for sewing-machines and the like, and has for its object the attainment of as high speed as possible and the resulting greater production of work with the limited power of an operator; and my invention comprises a stand equipped with a pair of swinging foot-levers connected rigidly with internal segment-gears adapted to mesh with pinions loose on the driving-shaft and connected therewith by suitable clutches.

My invention also consists in providing means for adjusting the position of said segment-lever both laterally and axially to accommodate the size and comfort of the operator.

My invention further consists in certain details of construction, which will more fully hereinafter appear and be particularly designated by the claims.

Referring to the accompanying drawings, which form a part of this specification, and in which like parts are similarly designated, Figure 1 is a front elevation of my improved treadle-stand, together with a sewing-machine mounted thereon. Fig. 2 is a vertical section taken in the plane indicated by the line $z z$ on Fig. 1, the sewing-machine being omitted. Fig. 3 is a detail section, partly broken, taken in the plane indicated by the line $x x$ on Fig. 2. Fig. 4 is a detail side elevation of a portion of the stand, illustrating particularly the means for adjusting the segment-gears to and from the pinions with which they intermesh. Fig. 5 is a detail perspective view of one end of the rod on which the segment-gears swing. Fig. 6 is a side elevation, partly in section, of one of the clutches carried by the power-shaft. Fig. 7 is a section taken in the plane indicated by the line $y y$ on Fig. 6 and also illustrating the manner of journaling the power-shaft, and Figs. 8, 9, and 10 are detail perspective views of the several parts of one of the clutch mechanisms.

The supporting-legs and table of my apparatus are not unlike those of the ordinary foot-power stand used for sewing-machines, except that the construction of the legs is so modified as to adapt them to the application of my devices, as will be hereinafter described.

The legs of the stand are constructed in pairs, as shown at 1 2, each pair being united by suitable braces 3 4 for proper stability, said pairs being duplicates except as to rounding their outside corners and making holes for shaft-bearings, which renders them right-handed and left-handed, respectively.

5 is a stationary shaft or spindle, the screw-threaded ends 6 of which are formed eccentric with the axis of said spindle and inserted through holes 7, made therefor in the legs 1. 8 represents nuts run upon the threaded ends of said spindle, by means of which the latter is secured in place. This construction of the spindle 5 permits the same to be adjusted slightly to and from a given point by simply turning said spindle upon its axis, for a purpose which will be presently explained.

The two sets of mechanism for the respective feet of the operator are precisely alike, except that they are rights and lefts, and a description of one of such sets will be understood to refer to them both.

Mounted loosely upon the spindle 5 is a segment-gear 9, the hub 10 of which is somewhat elongated and held against lateral shifting between collars 11, tight upon the spindle.

For convenience in manufacturing I prefer to make the toothed rim of the segment-gear separable and attached to the arms or spokes 12 13 of the gear by means of screws 14; but of course a gear formed with an integral rim would answer the requirements of my invention equally as well.

15 is a pendent treadle-lever, the lower end of which is provided with a pedal 16, while the upper end is adjustably secured upon the elongated hub 10 of the segment-gear 9 by a pinch-joint made by splitting the hub 17, formed on the end of said lever, and drawing the ends thereof together by a screw 19.

20 is a finger formed on the lever 15 and projecting laterally therefrom against the inner side of the arm or spoke 13, the function of which finger is to prevent any slipping between the segment-gear and treadle-lever dur-

ing the actuating or forward stroke of said lever.

The treadle-levers 15 are swung forward and backward with a kicking motion by the operator, who assumes a sitting position in front of the machine with both feet upon the pedals, and said treadle-levers are suitably curved, as shown in Fig. 2, to allow the operator's feet and lower legs to swing backward to the full extent without bringing the levers against the operator's knees. By clamping the treadle-levers upon the segment-gear hubs 10, as described, they may be set forward or backward with respect to the segment-gears to conform to the length of the operator's limbs and also more or less apart, as the size and comfort of the operator may demand. The treadle-levers may also be shifted to the right or left to conform to sewing-machines having different lengths of arms, which necessarily brings the needle action, and hence the position of the operator, more or less to the right or left.

21 is the power or driving shaft journaled in antifriction or ball bearings 22, formed in the legs 12 in the usual or any approved manner, and 23 is a band-wheel tight on the end of said shaft, from which motion is transmitted by a belt 24 in the usual manner.

Intermeshing with the segment-gears 9, previously described, is a pinion 25, loose on the driving-shaft 21 and held in position between a clutch-disk 26 and collar 27, tight on said shaft. The pinion 25 is formed with a hub 28 of sufficient length to insure a proper bearing, and upon the end of said hub adjacent to the clutch-disk is rigidly secured by shrinking or otherwise a clutch-disk 29, provided with inclined peripheral pockets 30.

Formed within the face of the clutch-disk 26 is a circular recess 31, within which the disk 29 works, and within the pockets 30, formed in the periphery of said disk 29, are inserted wedge-rollers 32, backed up by spring-actuated plungers 33.

Secured by screws 34 to the outer side of the disk 29 over the pinion 25 is a ring 35, which serves to prevent the wedge-rollers 32 escaping from the pockets within which they are placed.

The plungers 33 are held against displacement by inserting the ends thereof within a peripheral groove 36, formed in the disk 29.

When the pinion is rotated in the direction indicated by the arrow in Fig. 6, the rollers 32 will wedge between the inclined surfaces of the pockets 30 and the internal circular wall of the recess 31 in the disk 26 and said disks 26 29 will be locked together, thus connecting the treadle-levers with the driving-shaft; but when said pinion is rotated in the opposite direction no wedging action of the rollers will occur and said disks will be free to turn independently of each other, as will be readily understood by reference to the drawings. Thus it will be seen that by the to-and-fro movement of the treadle-levers the

driving-shaft will be given an intermittent propulsion; but by reason of the momentum of the band-wheel, which is of sufficient weight and size to also serve the purpose of a fly-wheel, the motion of the power-shaft will be practically continuous.

Although the friction-clutch illustrated and described is a particularly advantageous construction, still I do not wish to circumscribe my invention in this respect, since any approved form of clutch would answer the requirements of my invention equally as well.

For the purpose of shielding the clothing of the operator from contact with the revolving parts I employ a fender 37, which consists of a suitably-shaped frame attached to the brace-rod 3 by threaded hooks 38 and nuts 39, as clearly shown in Figs. 1 and 2.

In order to insure the proper intermeshing of the segment-gears with the pinions, I have provided for a limited adjustment of the spindle on which said gears are carried, as previously set forth, and when said spindle is turned upon its eccentric ends the segment-gears will be moved nearer to or farther away from the pinions, as the case may be, thus bringing said gears farther into or out of mesh with the pinions until the pitch-lines of both pinions and gears coincide, which is a very necessary condition to insure smoothness of running.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a foot-power stand for sewing-machines and the like, the combination of the driving-shaft suitably journaled and carrying a loose pinion, suitable clutch mechanism intermediate of said pinion and driving-shaft, a segment-gear provided with an elongated hub and pivoted around a spindle secured to the supporting-legs and a pendent treadle-lever secured upon the elongated hub of said segment-gear and provided with a lateral extension or finger 20 adapted to bear against one of the spokes of said segment-gear, substantially as and for the purpose set forth.

2. In a foot-power stand for sewing-machines and the like, the combination of the driving-shaft suitably journaled and carrying a loose pinion, suitable clutch mechanism intermediate of said pinion and driving-shaft, a segment-gear provided with an elongated hub and pivoted around a spindle secured to the supporting-legs and a pendent treadle-lever adjustably secured around the elongated hub of said segment-gear, whereby said treadle-lever is capable of lateral adjustment upon said hub, substantially as and for the purpose set forth.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 26th day of July, A. D. 1901.

GEORGE M. EAMES.

Witnesses:

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C. N. WORTHEN.