

No. 670,253.

Patented Mar. 19, 1901.

H. G. SHANNON.
CORK TAPERING MACHINE.

(Application filed Sept. 21, 1899.)

(No Model.)

4 Sheets—Sheet 1.

Fig. 2.

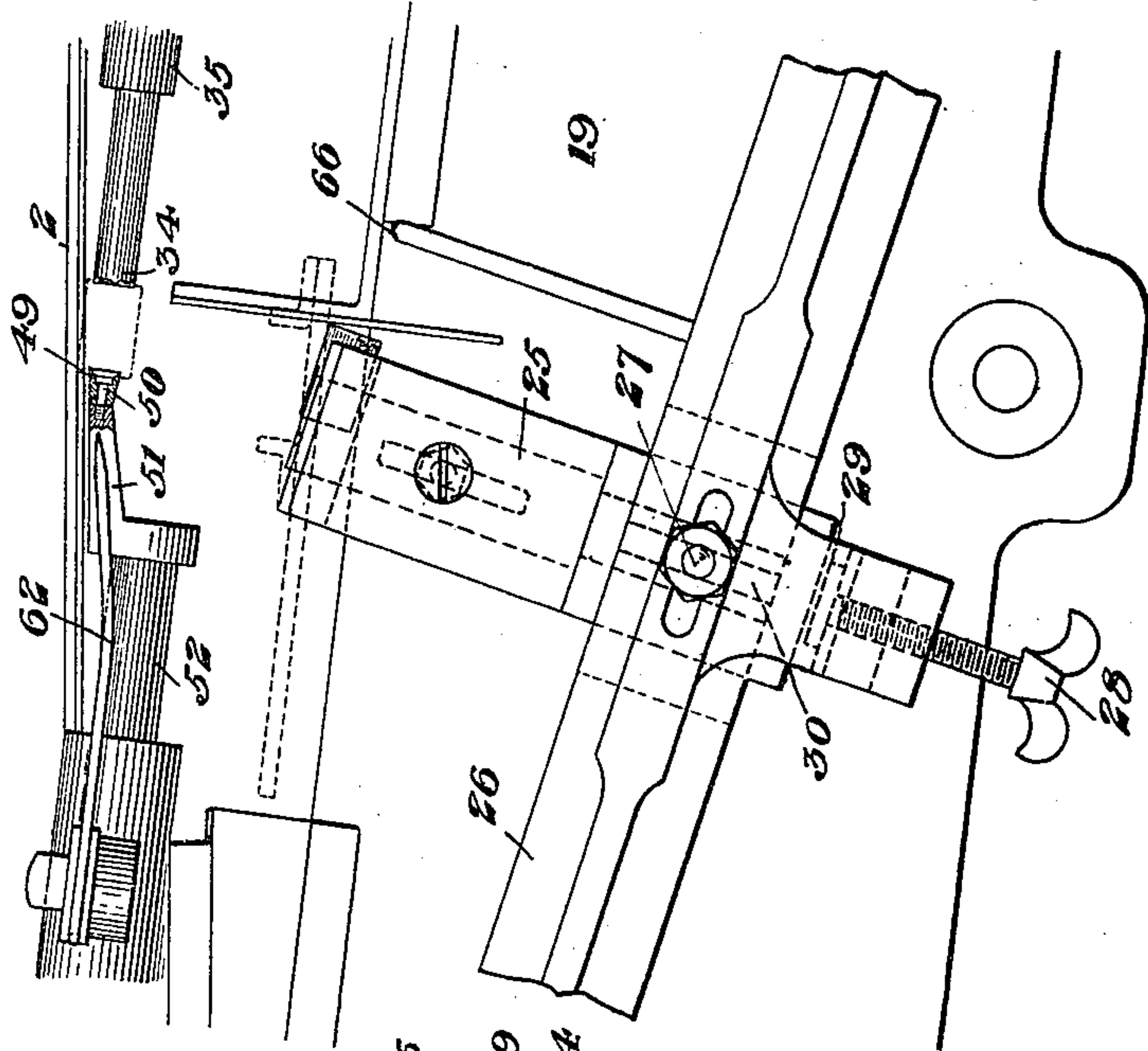
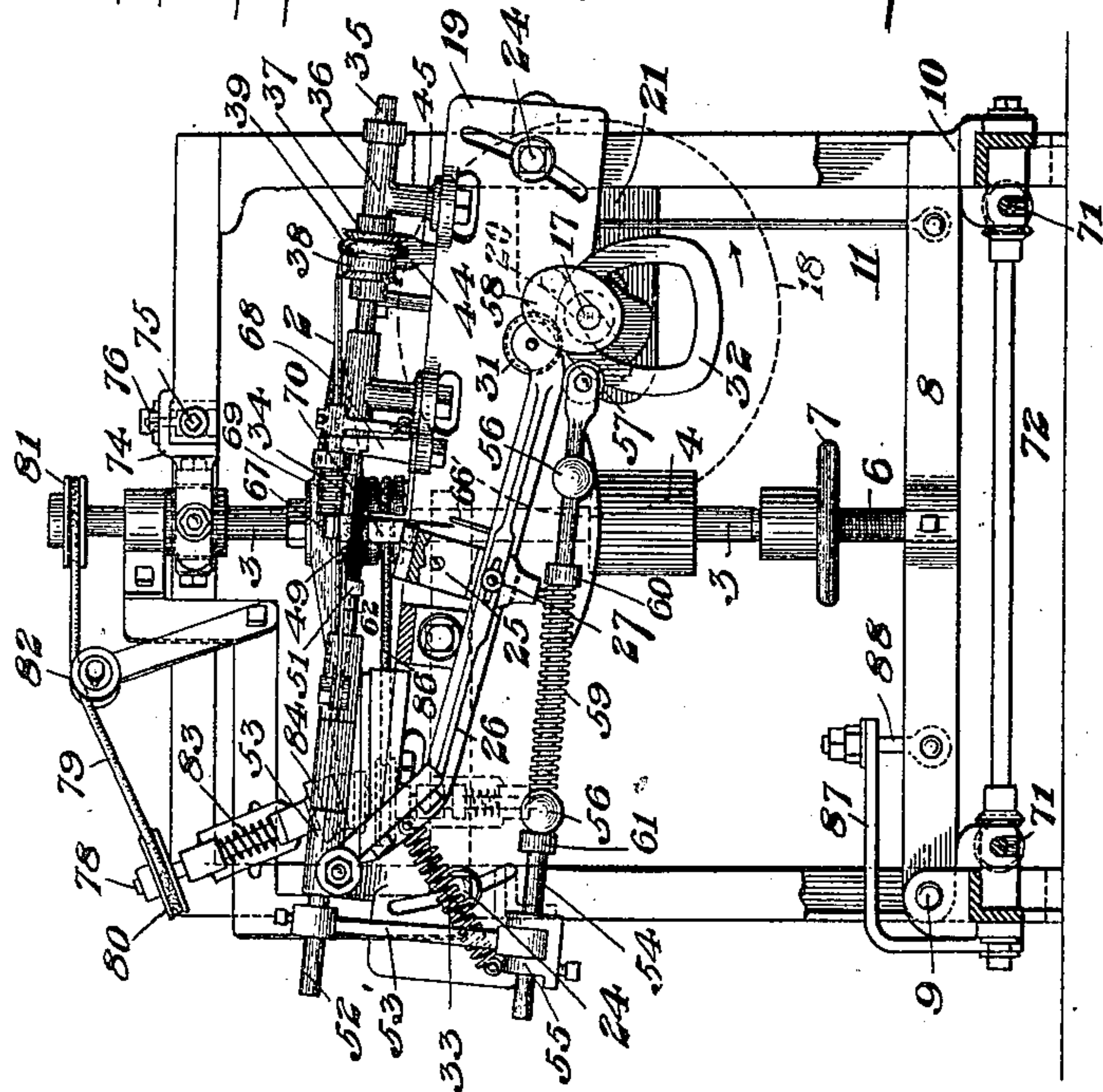


Fig. 1.



WITNESSES

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Fig. 4.

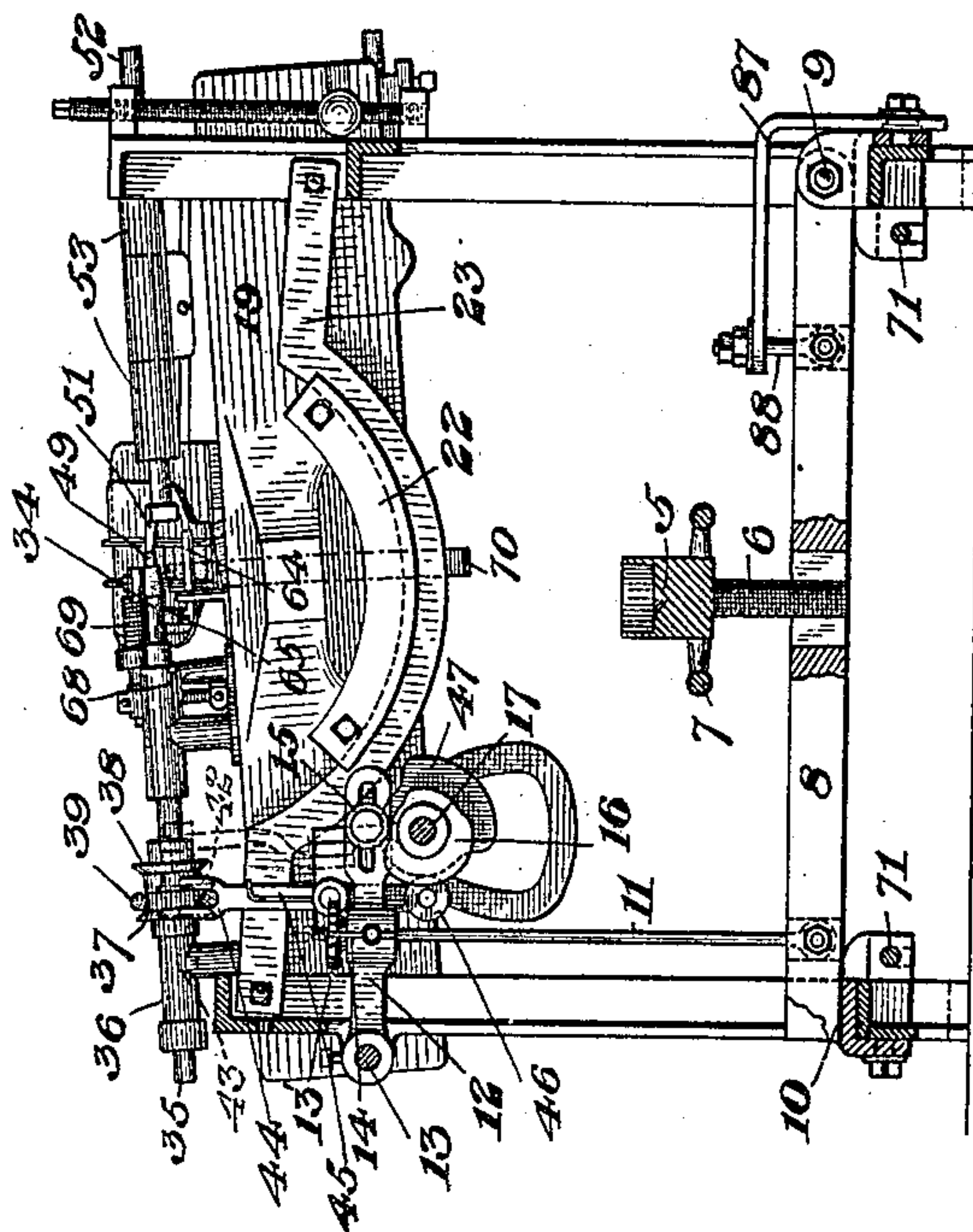
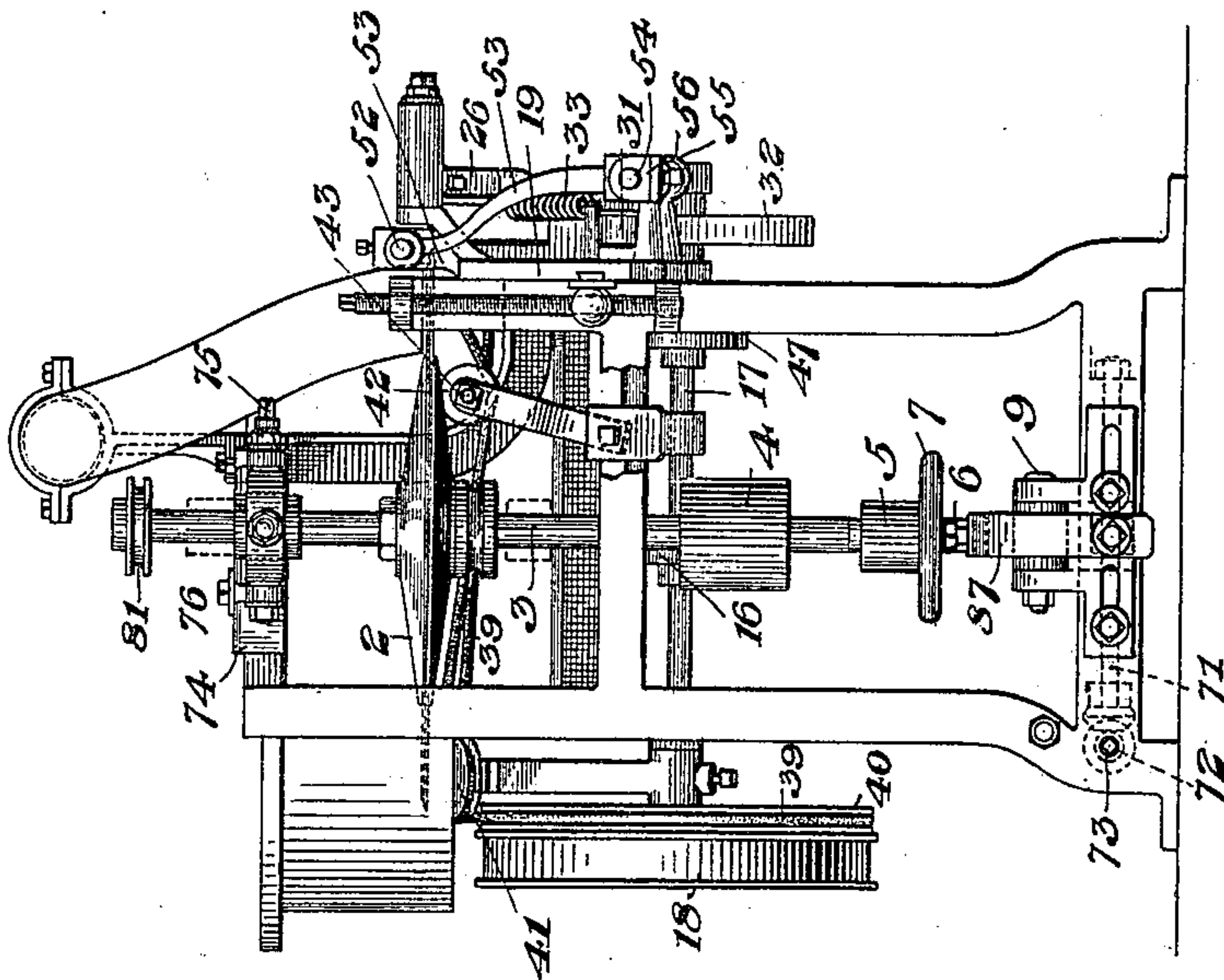


Fig. 3.



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Fig. 6.

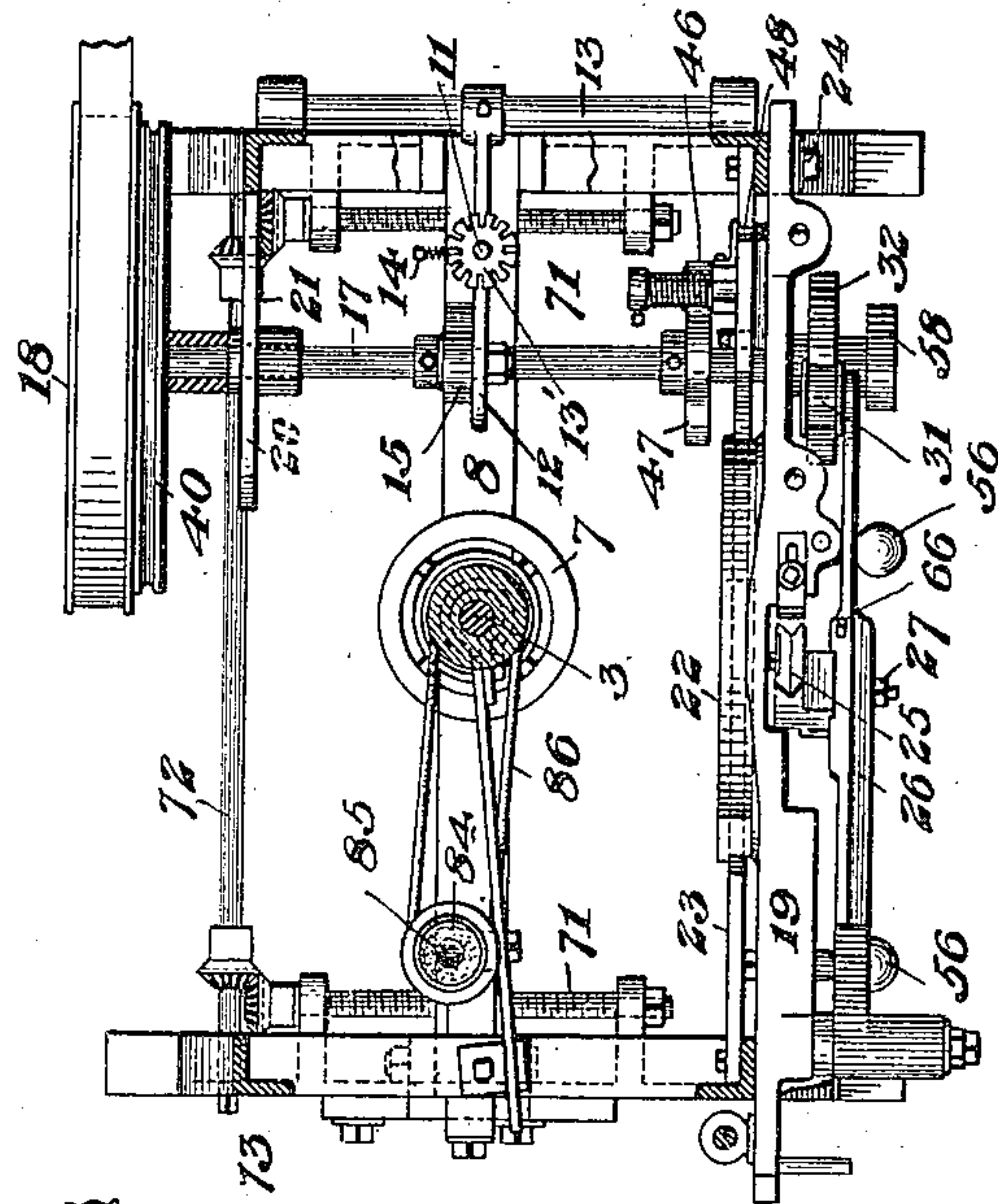
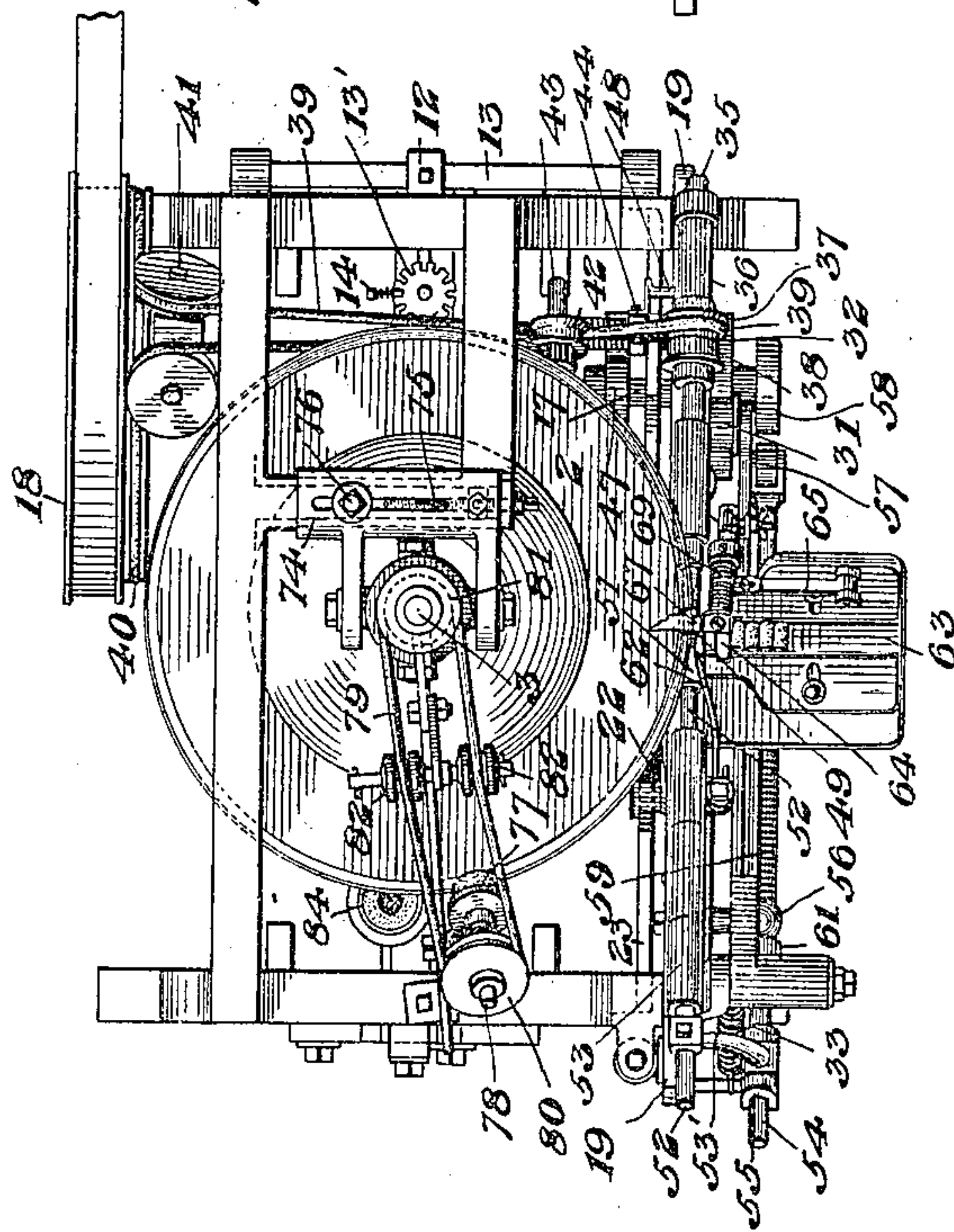


Fig. 5.



WITNESSES

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No Model.)

(Application filed Sept. 21, 1899.)

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Fig. 8.

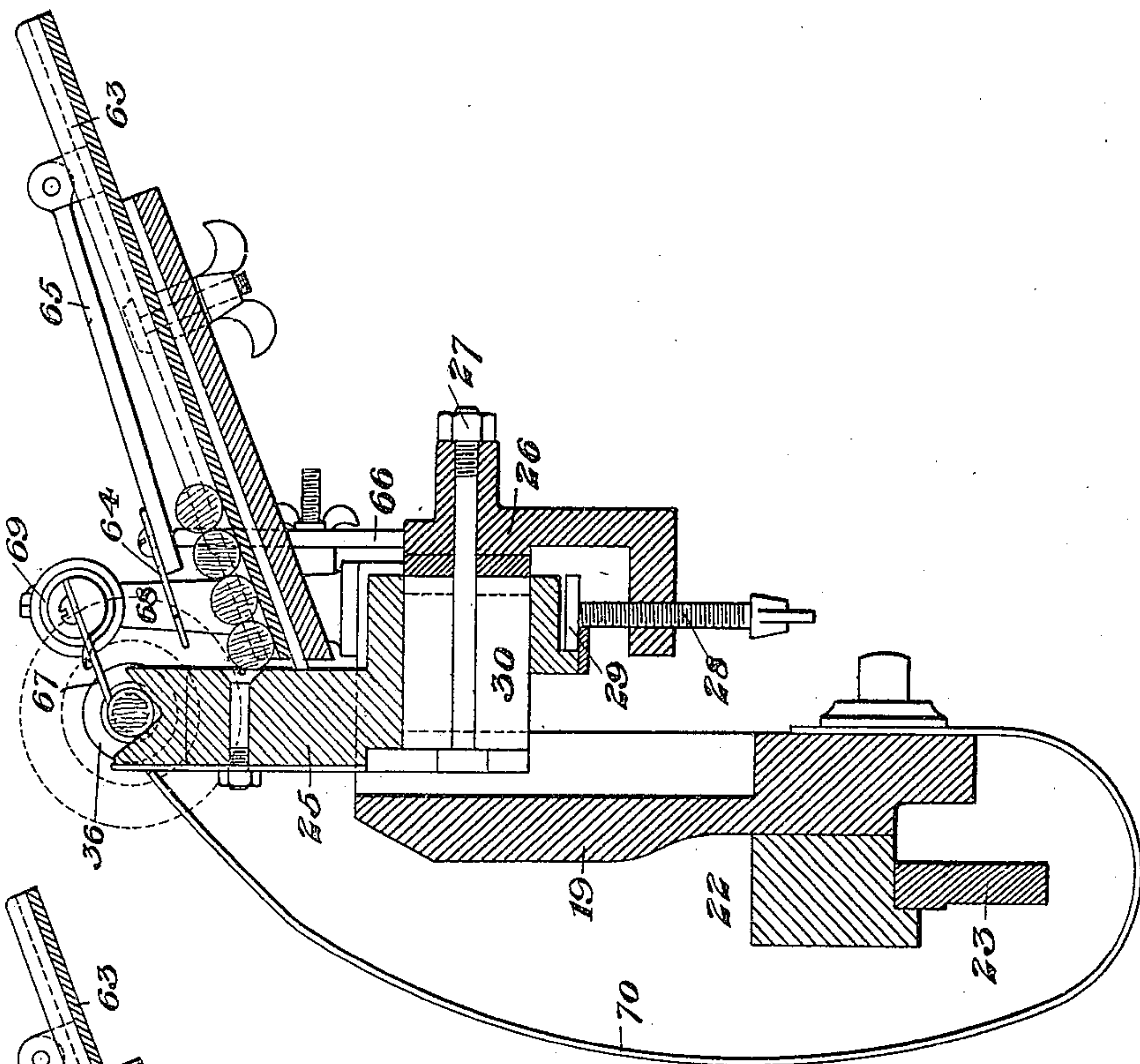
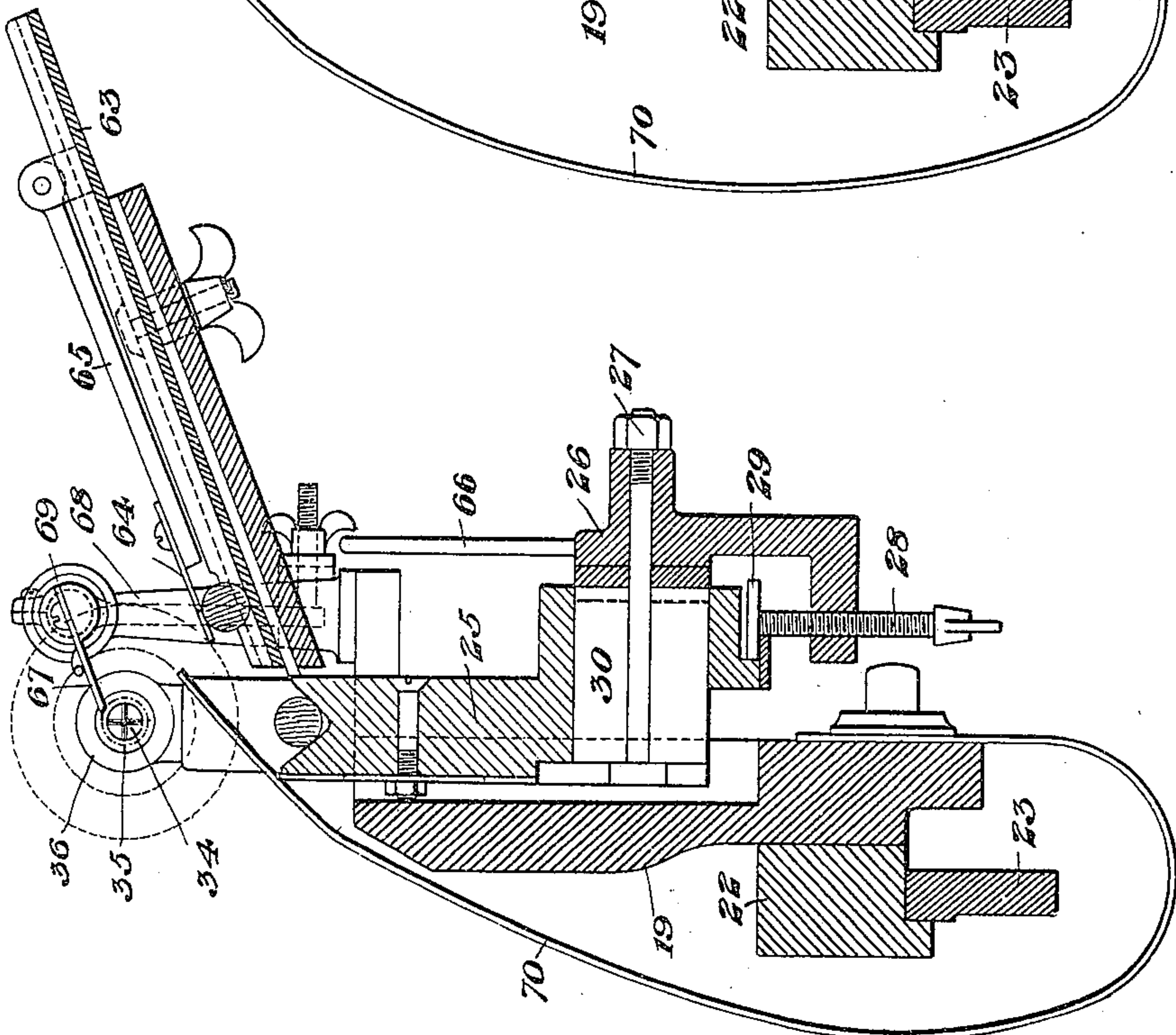


Fig. 7.



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UNITED STATES PATENT OFFICE.

HOWARD G. SHANNON, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO
ARMSTRONG CORK COMPANY, OF SAME PLACE.

CORK-TAPERING MACHINE.

SPECIFICATION forming part of Letters Patent No. 670,253, dated March 19, 1901.

Application filed September 21, 1899. Serial No. 731,162. (No model.)

To all whom it may concern:

Be it known that I, HOWARD G. SHANNON, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Cork-Tapering Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a front elevation of my improved machine. Fig. 2 is a detail view, on a larger scale, showing the lifter and chucks for clamping the cork. Fig. 3 is an end elevation of the machine. Fig. 4 is a longitudinal vertical section looking toward the front of the machine. Fig. 5 is a top plan view. Fig. 6 is a horizontal section showing mechanism for adjusting the knife, and Figs. 7 and 8 are vertical cross-sections showing the feeding and lifting mechanism in different positions.

My invention relates to that class of cork-tapering machines wherein the corks are clamped and revolved between end chucks and are cut into tapered form by a revolving cutter-disk; and its object is to increase the output of such machines, to prevent clogging of the machines by cork-dust, and to enable the adjustments for different sizes of cork and different tapers to be quickly and easily made.

In the drawings, 2 represents a horizontal cutter-disk secured to a vertical shaft 3, rotated by a pulley 4. The lower end of the shaft is stepped in a bearing 5, supported upon a screw-threaded standard 6, having hand-wheel 7 and adjustably mounted in the longitudinal lever 8, pivoted to the frame of the machine at 9. One end of the lever normally rests upon a seat 10 therefor formed on the framework, and near this end the lever is connected by pivotal link 11 with a short lever 12, pivoted to the frame at 13. The link 11 extends loosely through a hole in the lever 12 and is provided at its upper end with a nut 13, engaging screw-threads thereon, and which is held in any adjusted position by a stop 14, engaging slots in the nut. The lever 12 is provided with a roller 15, adjustably mounted in a slot therein and bear-

ing upon a cam 16, secured to shaft 17, extending from front to rear of the machine and receiving power through the pulley 18. The cam 16 is shaped so as to maintain the knife in elevated position while a cork is being raised and clamped, and then to lower the cutter a determined distance for the first or primary cut, and then lower the lever 8 so that it rests upon the seat 10 during the second or final cut, thus giving a rigid bearing, which prevents any irregularity in the taper.

The shaft 17 is mounted in bearings in an adjustable front plate or apron 19, and in a bearing carried in a curved slot 20 in a rear arm or bracket 21, secured to the frame of the machine. The plate 19 is provided with an arc-shaped plate 22, having a rib which fits over the arc-shaped portion of a supporting-bar 23, secured to the frame of the machine, and the plate is secured in any angular position to which it is swung by bolts 24, extending through curved slots in its end portions and secured to the framework.

The V-shaped lifter 25, which raises the cork into position between the chucks, is adjustably secured to a lever 26 by a bolt 27, extending through a longitudinal slot in the lever. The lifter may also be adjusted vertically by thumb-screw 28, having a button 29 engaging a recess in the lifter, which lifter has a vertical slot 30, through which the securing-bolt passes. The lever 26 is pivoted about a pin projecting forwardly from the upper left-hand portion of the plate 19, and its end is provided with a roller 31, bearing upon a hollow cam 32, secured to the shaft 17. The roller is held in contact with the cam by a spring 33, secured at one end to the lever, and the cam is arranged to lift the cork into registry with the chucks while one of them is retracted.

The positively-rotated chuck 34 is mounted upon a shaft 35, carried in bearings 36, secured to lugs projecting from the plate 19, the shaft having fast and loose pulleys 37 and 38, engaged by a driving-cord 39, which passes over a pulley 40 at the rear of shaft 17, over the guide-pulleys 41, and the intermediate idler 42, which slides loosely upon pin 43. Between the pulley 42 and the shaft 35 the

driving-cord is engaged by a shifting-fork 44, forming the upper end of a lever 45, pivoted to the frame and having at its lower end a roller 46, bearing on cam 47, secured to the shaft 17. This cam is arranged so as to shift the cord from the fast pulley to the loose pulley as soon as the cut is made, and then shift the cord back to the fast pulley when the next cord is clamped between the chucks, so as to rotate the cork during the tapering operation. To stop rotation of the shaft 35 as soon as the cord is thrown on the loose pulley, I provide a brake 48, which is faced with leather or suitable material and bears upon the hub of the fast pulley. The other chuck 49 is revolvably mounted upon a pin 50, secured to an offset finger 51, extending from an endwise-movable rod 52, carried in bearings 53 on the plate 19. This rod is connected by an adjustable bar 53', pivoted to an endwise-movable rod 54, between adjustable collars 55, secured thereon, the rod 54 being carried in bearings 56, secured to the apron. The bar 54 is provided at the front end with a roller 57, which is acted upon by a cam 58, secured to the front end of the shaft 17 and is normally pressed forward by spiral spring 59, bearing on a collar 60, the forward movement being limited by a collar 61 on the rod. The cam 58 is shaped so as to retract the chuck 49 as soon as the taper has been cut, the cork being stripped from this chuck, if necessary, by a rod 62, secured to the bearings for the rod 52. When the lifter has moved the cork between the chucks, the cam 58 allows the spring 59 to force forward the rod 52 and clamp the cork between the chucks, which are immediately rotated.

The corks are fed into an inclined trough 63, and the series is held in place by a stop 64, mounted on a lever 65, which is lifted by a pin 66, mounted upon a lever carrying the lifter, the stop dropping by the action of gravity as soon as it is released.

A shield 67 is mounted upon a standard 68 and arranged to prevent the cork jumping out of the lifter, this being forced downwardly to a determined point by a spiral spring 69. A leaf-spring 70, secured to the frame of the machine, projects over the lifter when in its lower position, as shown in Fig. 7, and prevents the tapered and released cork from dropping back into the lifter, this spring being pushed aside as the lifter moves the cork up into position.

The supports for the lever 8 may be adjusted horizontally by screw-spindles 71, having bevel-gear connection with a shaft 72, which may be rotated by a wrench applied to its squared end 73, the lever thus being moved back and forth in parallel lines. The upper part of the shaft 3 may be correspondingly adjusted by the slide 74, carrying the upper bearing, and adjusted by screw 75 and securing-bolt 76.

To sharpen the rotating cutter, I provide

an upper grinder or "whetter" 77, mounted upon the inclined shaft 78, driven by a cord 79, passing over the pulley 80 thereon and engaging pulley 81 on the shaft 3. This cord passes over intermediate guide-pulleys 82, and the whetter is yieldingly pressed against the upper beveled edge by a spring 83, surrounding its shaft. The lower grinder 84 bears upon the flat lower face of the cutter and is mounted on shaft 85, driven by the belt connection 86 with the shaft 3. The cutter is thus ground on both faces, so as to maintain its cutting edge in sharpened condition.

To aid the link 11 in lifting the lever 8, I provide a strong spring 87, having link connection 88 with the lever and which exerts a constant lift thereon.

When the machine is in operation, the lifter being in its normal position, the lowermost cork of the series having dropped thereinto, as shown in Fig. 7, the lifter is then moved up to bring the cork in line with the chucks. The left-hand chuck is then moved forward, gripping the cork, and the lifter moves down, forming a stop for the series of corks, as shown in Fig. 8, until it has reached its lower position, when the next cork rolls into it, and the stop 64 being released by the pin 66 drops upon the next cork and holds it in place. As soon as the cork is clamped the right-hand chuck is rotated and the descending knife cuts the tapering shaving, giving two cuts, as above described. As soon as the taper is thus formed the cutter is raised, the left-hand chuck is withdrawn, and the released cork drops down into a suitable receptacle.

The advantages of my invention follow partially from the mounting of the several mechanisms upon the common plate or apron 19, so that they may all be simultaneously adjusted. Further, the mounting of the V-shaped lifter upon the swinging lever instead of upon a vertical slide does away with the guides heretofore necessary and prevents clogging by the cork-dust, which caused much difficulty with former machines. The grinders keep the knife in sharpened condition, and the adjustments for the different lengths and sizes of corks, as well as to compensate for the wear of the knife, may be easily and quickly made. The machine may be run at high speed and in practice has doubled the output which was formerly turned out by machines of this class.

Many changes may be made in the form and arrangement of the various parts without departing from my invention.

I claim—

1. In a cork-tapering machine, the combination with gripping-chucks, of a swinging lever movable in a plane parallel to that of the work, a lifter rigidly secured to and guided by said lever, and mechanism for rocking the lever; substantially as described.

2. In a cork-tapering machine, a front plate

or apron arranged to be tilted into different angular positions, a swinging lever supported upon the apron, and a lifter secured to and movable with the lever; substantially as described.

3. In a cork-tapering machine, the combination with gripping-chucks, of a swinging lever, a lifter secured to and adjustable along the lever, and mechanism for rocking the lever vertically; substantially as described.

4. In a cork-tapering machine, a front plate or apron having an arc-shaped plate, a curved guide upon which the plate rests, mechanism for securing the plate in different angular positions, a swinging lever supported upon the apron and carrying a lifter, and gripping-chucks also mounted upon the apron; substantially as described.

5. In a cork-tapering machine, a front plate or apron arranged to be tilted into different angular positions, a swinging lever mounted on the plate, a lifter secured to and movable with the lever, gripping-chucks also mounted on the front plate, and a shaft having a bearing secured to the front plate and arranged to actuate the lifter-lever; substantially as described.

6. In a cork-tapering machine, a front plate or apron arranged to be tilted into different angular positions, a swinging lever mounted on the plate and having a lifter secured thereto, gripping-chucks also mounted on the front plate, actuating connections arranged to rotate one of the grippers, and a shaft having a bearing on the front plate and arranged to

swing the lifter-lever and reciprocate one of the chucks; substantially as described.

7. In a cork-tapering machine, a front plate or apron arranged to be tilted into different angular positions, a feed-trough, a lever carrying a lifter, and gripping-chucks, all mounted upon said front plate, and actuating connections carried on the front plate and arranged to actuate the lifter and the chucks; substantially as described.

8. In a cork-tapering machine, the combination with mechanism for gripping and rotating the cork, of a revoluble knife mechanism arranged to move the knife vertically during the cutting operation, and mechanism for adjusting the knife horizontally toward and away from the cork-revolving mechanism; substantially as described.

9. In a cork-tapering machine, the combination with cork gripping and rotating mechanism, of a revoluble knife having a lower bearing mounted on a vertically-swinging lever, mechanism for swinging the lever during the cutting operation, mechanism on the lever for adjusting the knife vertically, and mechanism for adjusting both ends of its lifting-levers simultaneously toward or away from the cork-gripping mechanism; substantially as described.

In testimony whereof I have hereunto set my hand.

HOWARD G. SHANNON.

Witnesses:

H. M. CORWIN,
G. B. BLEMMING.