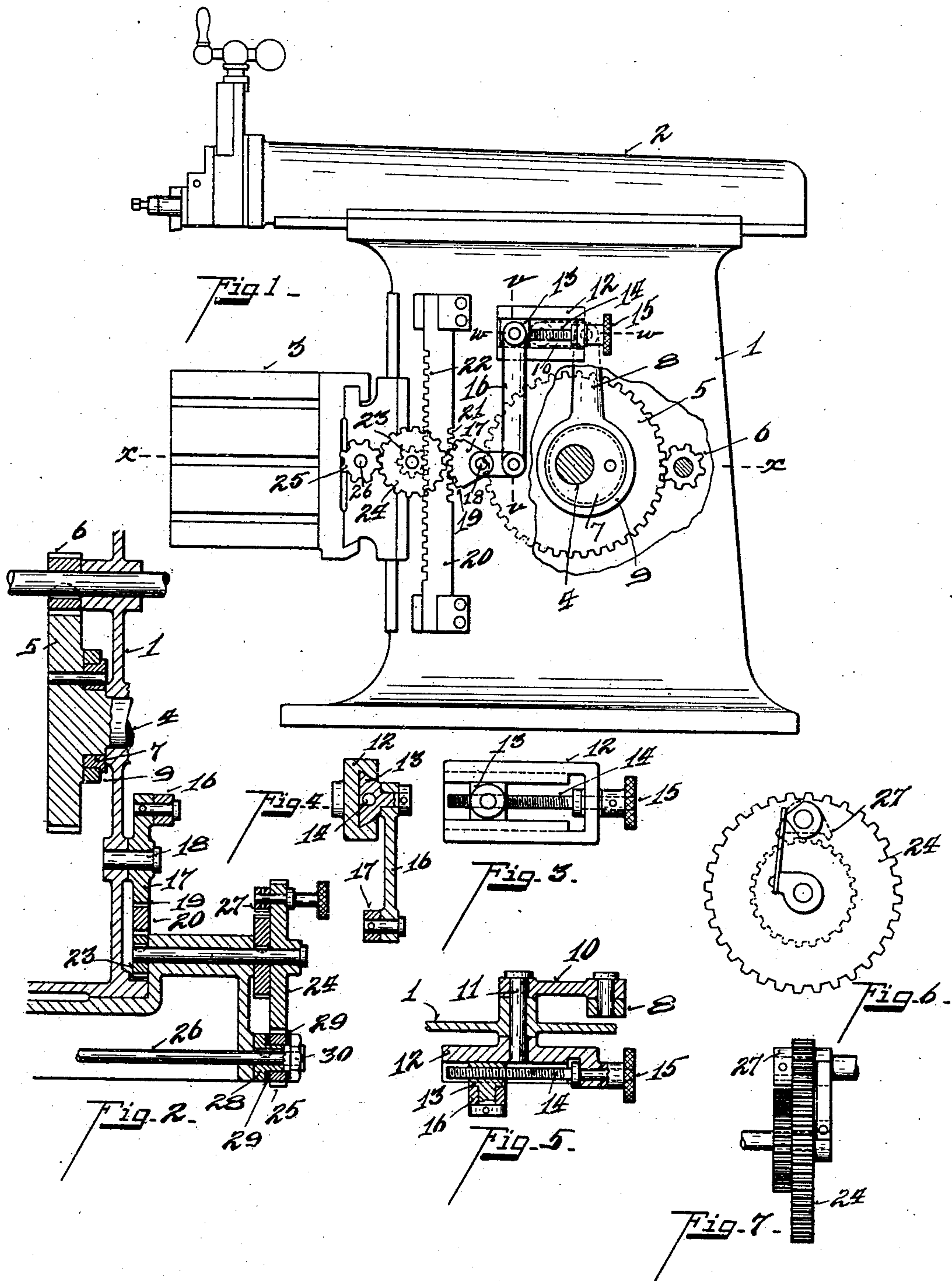


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SHAPER.

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930,088.

Patented Aug. 3, 1909.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALBERT E. ROBINSON, OF COVINGTON, KENTUCKY, ASSIGNOR TO THE AMERICAN TOOL WORKS COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF WEST VIRGINIA.

## SHAPER.

No. 930,088.

Specification of Letters Patent.

Patented Aug. 3, 1909.

Application filed December 28, 1908. Serial No. 469,619.

*To all whom it may concern:*

Be it known that I, ALBERT E. ROBINSON, a citizen of the United States, residing at Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Shapers, of which the following is a specification.

My invention relates to an improvement in the feed mechanism for shapers and other similar machine organizations.

The object of the invention is to obtain a simple and substantially direct feed from the driving shaft to the table with provision for readily and accurately adjusting the stroke of the feed, if desired, when the machine is in motion.

The features of the invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:—

Figure 1 is a side elevation of a shaper with my improvement applied. Fig. 2 is a section on line *x, x*, Fig. 1. Fig. 3 is a detail plan view of the slide-way and adjusting screw. Fig. 4 is a section on line *v, v*, Fig. 1. Fig. 5 is a section on line *w, w*, Fig. 1. Fig. 6 is a detail plan view of the main feed gear and pawl mechanism for governing the direction of feed of the carriage. Fig. 7 is a side elevation of Fig. 6.

I have shown in the drawings a side elevation of a conventional shaper with my improved feed mechanism incorporated therein, as it is primarily designed for this use.

1 represents the frame, 2 the tool carriage, 3 the table.

4 represents the driving shaft, driven from gear 5 fixed thereon, which is in turn driven by the gear 6, receiving motion from any suitable power, said parts being within the casing. Secured to the gear 5 is the eccentric 7; 8 is a pitman having a strap 9 engaging the said eccentric 7. To the upper end of the pitman 8 is pivoted the link 10. 11 represents a rock shaft extending through the casing to the inner end of which is fixed the other end of the link 10. It is obvious that by reason of this eccentric, pitman and

link mechanism, a rocking motion is imparted to the shaft 11. Upon the outer end of the shaft 11 is fixed a rocking slide-way 12.

13 represents a slide-block within the slide-way of the member 12, adjustable therein by means of a screw 14, having an adjusting nurl 15. Pivotaly secured to the block 13 is a link 16, the lower end of which is pivoted to a rock arm 17, pivoted at 18 to the frame, and having on its outer end, a gear segment 19.

20 represents a vertically reciprocating rack bar mounted in suitable bearings on the frame. Upon one side it has the teeth 21 engaging with the teeth of segment 19. Upon its other side it has the teeth 22 meshing with the pinion 23.

24 represents a gear, driving a gear 25 on the end of the feed shaft 26.

27 represents a pawl and ratchet mechanism connecting the pinion 23 with gear 24 for converting the rocking motion of the pinion into intermittent rotary movements in a single direction of the gear 24.

It will be understood from this description that the function of this mechanism is to feed the table in a series of step movements, the length of which may be delicately, accurately and conveniently obtained while the machine is in motion, by simply adjusting the nurl 15, conveniently positioned relative to the operator.

Gear 25 is preferably connected to the lead screw, as follows:—28 represents a sleeve keyed to the lead screw, and 29 represents friction disks placed upon each side of the gear 25 and mounted upon the sleeve 28. 30 represents a nut threaded upon the sleeve 28, which when tightened will clamp the gear 25 frictionally to the screw shaft 26. By this construction if too deep a cut is made than the machine will stand, gear 25 will slip and thereby avoid breakage.

Having described my invention, I claim:—

In a machine of the class described, comprising a reciprocating tool-holder and a table to be fed in step movements, a driving shaft for the tool holder, an eccentric on the driving shaft, a rock shaft, pitman and link

mechanism between the eccentric and rock shaft, a rocking slide-way member, a slide-block adjustable in said slide way, a rock arm having a gear segment, a link connecting  
5 the adjustable block to the rock arm, a reciprocating rack bar having teeth engaging said segment, a pinion, a second set of teeth on the bar engaging the pinion, a feed shaft, and means for converting the rocking motion

of the pinion into intermittent rotations of 10 the feed shaft in a given direction.

In testimony whereof, I have hereunto set my hand.

ALBERT E. ROBINSON.

Witnesses:

OLIVER B. KAISER,  
L. BECK.