No. 796,779. PATENTED AUG. 8, 1905.

J. WARREN.

WOODWORKING MACHINE.

APPLICATION FILED JAN. 25, 1905.

4 SHEETS—SHEET 1.

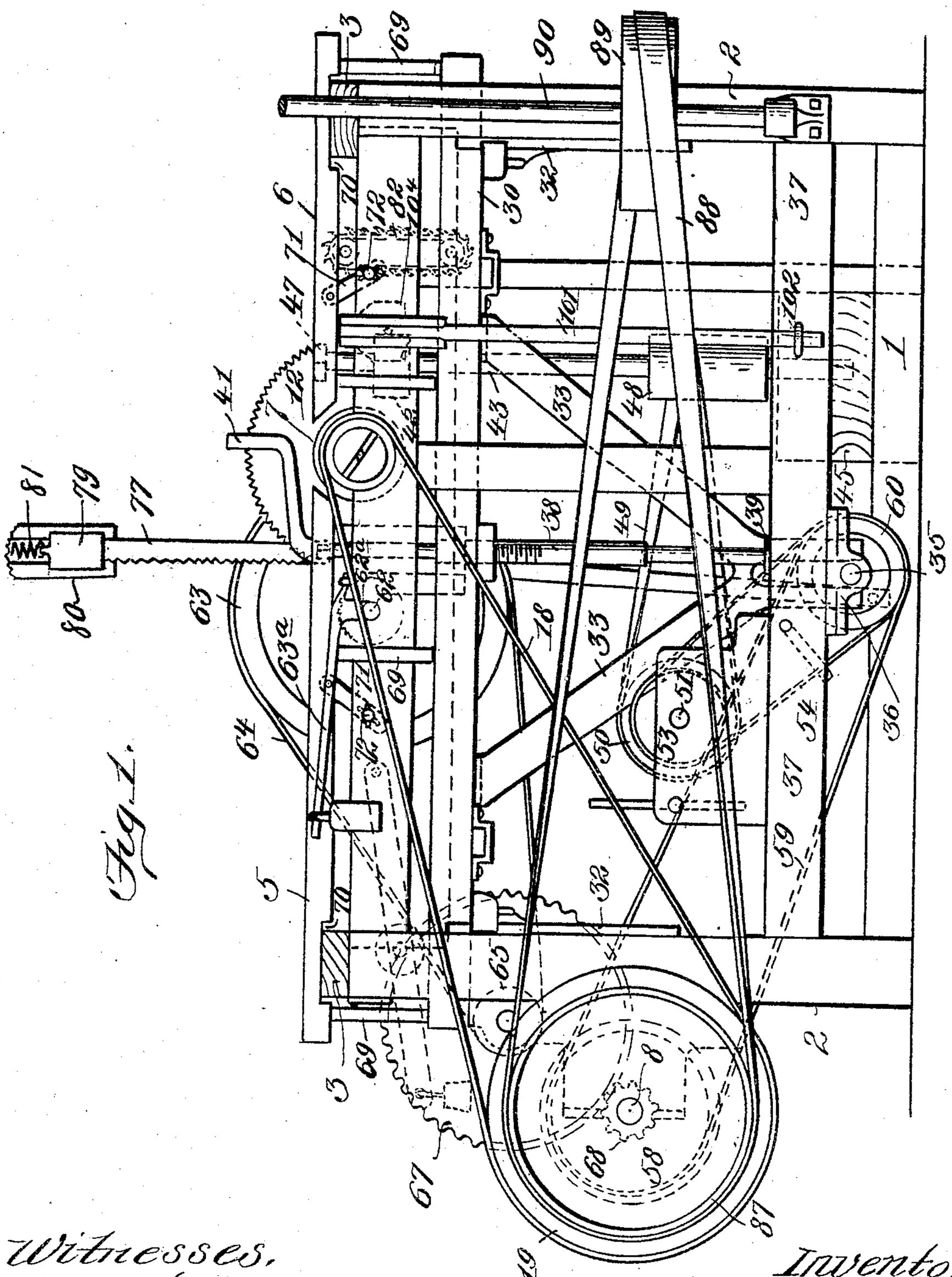

Fig. 1.

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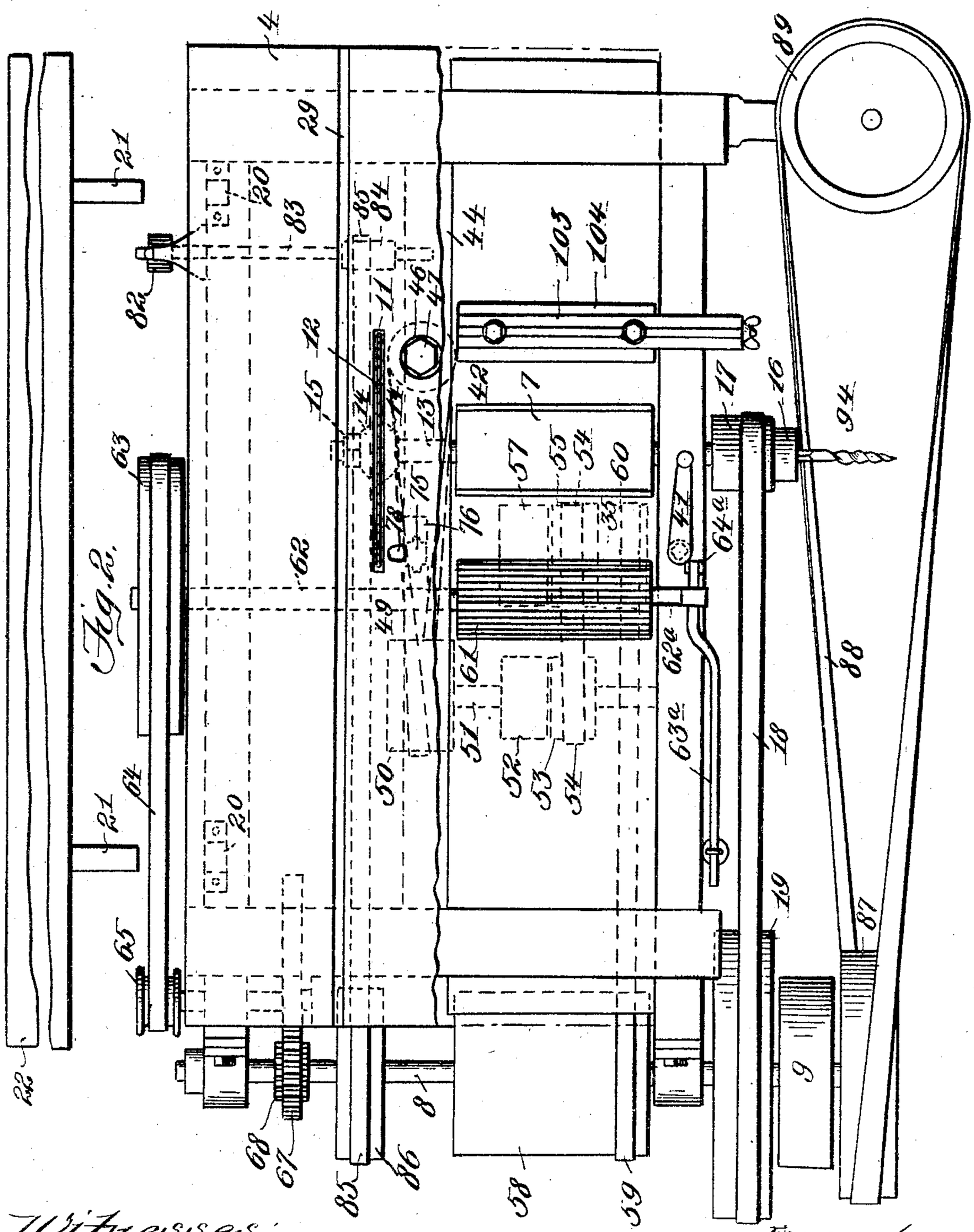

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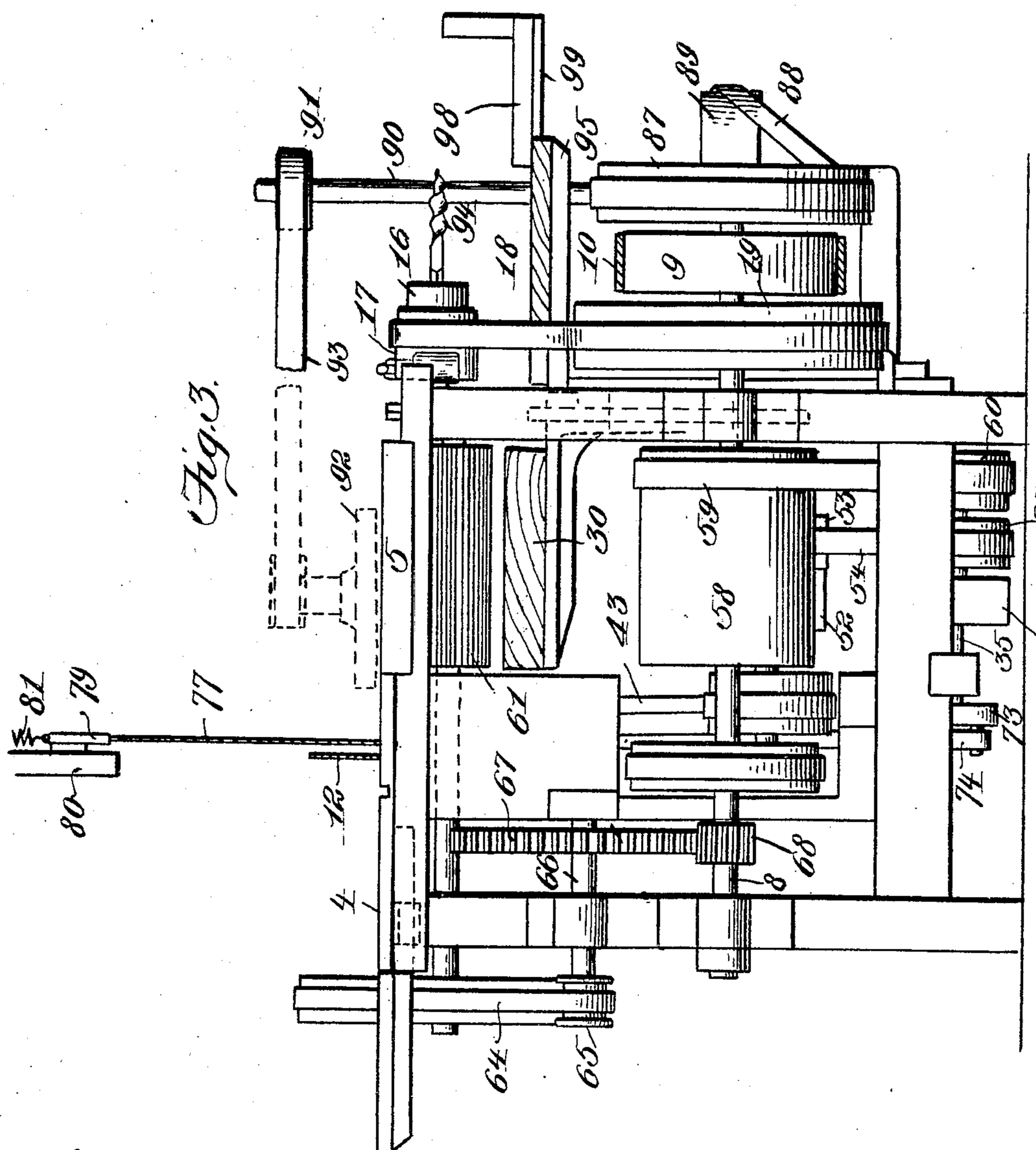
4 SHEETS—SHEET 3.

Fig. 3.



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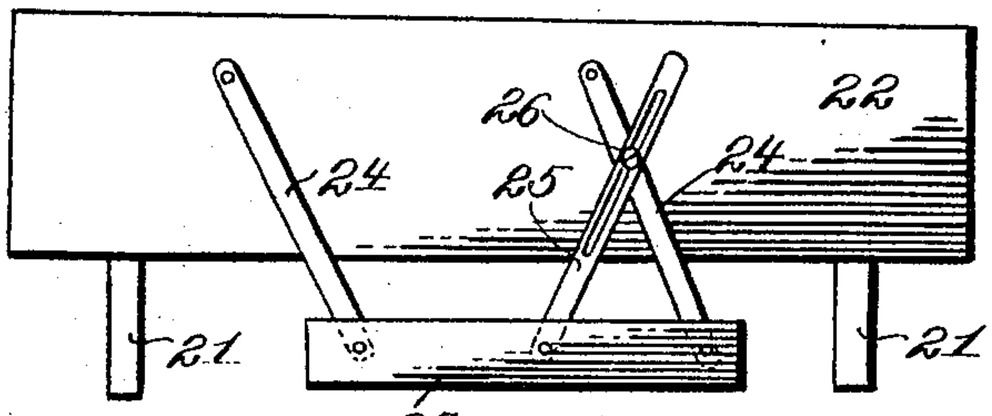


Fig. 4.

Fig. 5.

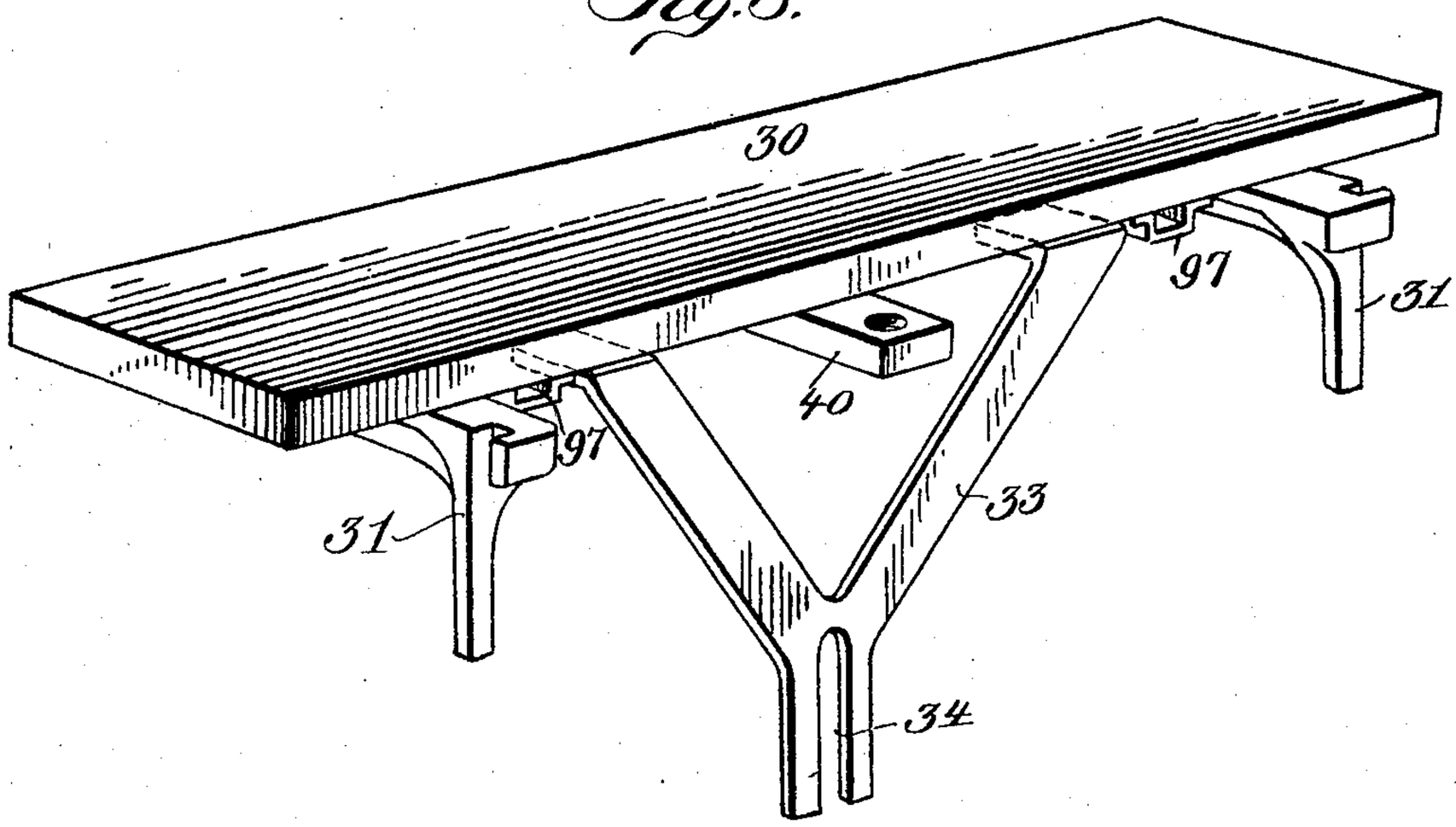


Fig. 6

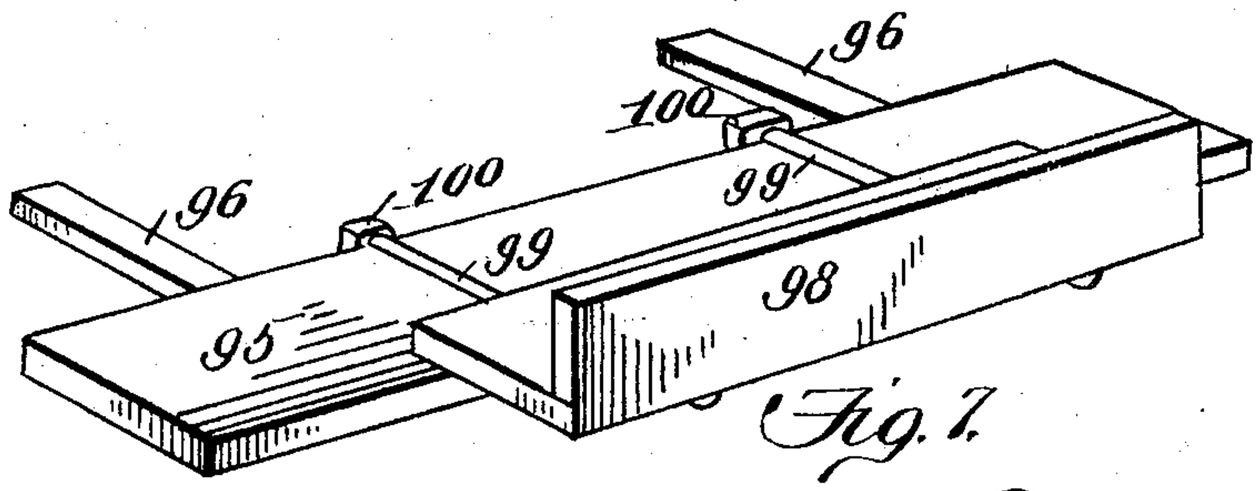
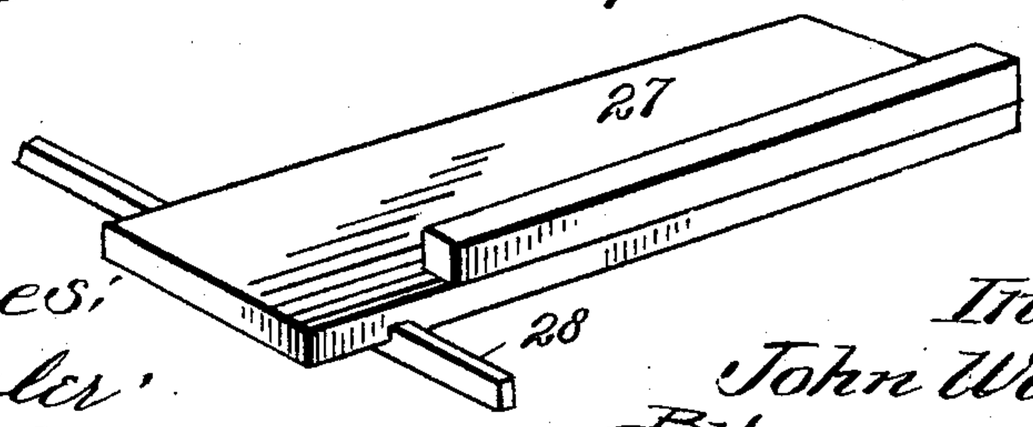


Fig. 7.



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John Warren
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UNITED STATES PATENT OFFICE.

JOHN WARREN, OF MOHNS STORE, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO JAMES M. BROWN, ONE-SIXTH TO CHAS. ALBERT CONRAD, AND ONE-SIXTH TO FRANK J. BOYER, OF READING, PENNSYLVANIA.

WOODWORKING-MACHINE.

No. 796,779. Specification of Letters Patent. Patented Aug. 8, 1905.

Application filed January 25, 1905. Serial No. 242,648.

To all whom it may concern:

Be it known that I, JOHN WARREN, a citizen of the United States, residing at Mohns Store, in the county of Berks and State of Pennsylvania, have invented new and useful Improvements in Woodworking-Machines, of which the following is a specification.

This invention relates to a portable woodworking machine, and has for its object to combine in a single machine a novel construction and arrangement of parts which will enable the machine to be employed in many different capacities. Several of the functions to which the machine is adapted usually require in each instance a separate machine for their performance. By providing a single machine all the parts of which are driven from a main driving-shaft and which machine is adapted to permit the various operations hereinafter enumerated to be performed I not only economize space, but enable practically all the operations to which wood in various forms is usually subjected in the building art to be carried out rapidly and economically.

In order that the invention may be clearly understood, I have illustrated the same in the accompanying drawings, in which—

Figure 1 is a view in side elevation of a machine constructed according to my invention. Fig. 2 is a top plan view, a portion of the top of the table being broken away. Fig. 3 is a view in elevation of the opposite side of the machine to that shown in Fig. 1. Fig. 4 is a detail view of a table extension having combined therewith a plank-guide. Fig. 5 is a perspective view of the adjustable planer-bed. Fig. 6 is a similar view of a support adapted to be combined with said planer-bed, and Fig. 7 is a similar view of an attachment for use in crosscut-sawing.

Referring now to the drawings, 1 indicates the base of the machine, 2 upright frame members, and 3 cross-bars supported on the uprights 2.

The top of the machine is made in three parts. One of these parts 4 extends from one side of the machine as far as to the planer mechanism, and the other parts 5 6 (shown in edge view in Fig. 1) are located above and are of the same width as the planer-bed (shown in Fig. 5 and hereinafter referred to) and terminate, respectively, a short distance from either side of the top planing-tool or cutter-head 7.

8 indicates the main driving-shaft, which is provided with a pulley 9, by means of which it is driven by a belt 10 from an engine.

The top portion 4 is provided with a slot 11, through which extends a circular saw 12, removably supported on a shaft 13 by means of disks 14 and a nut 15. The same shaft 13 carries the cutter-head 7, above referred to, and is provided at one side of the machine with a universal chuck 16, adapted to receive a variety of tools. The shaft 13 is provided at one side of the machine with a pulley 17, over which passes a belt 18, passing over a pulley 19 on the main drive-shaft 8.

The under side of the top portion 4 is provided with keepers 20, located near opposite ends thereof, which are adapted to receive arms 21, carried by a table extension 22. This table extension is employed when the saw 12 is used as a rip-saw, and to this end it is provided with a plank-guide 23, pivotally connected to the table extension by means of arms 24 and adapted to be held in adjusted positions through the medium of a slotted arm 25 and set-screw 26 in the ordinary manner. When the saw 12 is to be used for crosscut-sawing, the extension 22 is removed and I employ the attachment shown in Fig. 7, which comprises a plank 27, provided on its under side, near one end, with a rib 28, projecting beyond either side of the plank, and which rib is adapted to fit in a groove 29, provided in the top of the table portion 4 and extending parallel with the side thereof. By placing the piece of wood to be sawed on the plank 27 and moving the latter past the saw a straight cut is assured by reason of the fact that the plank 27 will be guided in a straight line through the engagement of the rib 28 in the groove 29. Of course saws of different diameters may be placed on the shaft 13, according to the thickness of the wood to be cut.

30 indicates the planer-bed. (Shown in detail in Fig. 5.) The said planer-bed is provided near opposite ends with grooved guide-brackets 31, which engage over and slide against guide-ribs 32, provided at each end of the machine on the uprights 2. Secured to the under side of the planer-bed is a Y-shaped iron 33, the stem of which is slotted, as indicated at 34, said slot being adapted to work

over a pulley-shaft 35, supported in bearings 36 on a supplemental frame member 37. The parts just described are for guiding the bed-plate in its upward-and-downward movement, which movement is effected by means of a threaded shaft 38, supported at its lower end in a bearing 39, mounted on the frame member 37 and having screw-threaded engagement in a block 40, mounted on the under side of the planer-bed 30. A removable crank 41 is provided for turning the shaft 38. The plank to be planed is placed on the bed 30, which latter is raised or lowered, according to the thickness of the plank, to bring the plank to a proper height relative to the cutter-head 7, which latter planes the upper side of the plank. The cutter-head 7, as previously stated, is revolved, by means of the belt 18 and pulley 17, on the shaft 13. For simultaneously planing one side of the plank at the same time that its top is planed I provide a revolving planer-tool 42, mounted on an upright shaft 43, which is journaled toward its upper end in a frame member 44 and at its lower end is mounted in a bearing-block 45. The upper end of the shaft 43 extends into an opening 46 in the table portion 4 and is shown provided with a nut 47. This nut may be removed, and various kinds of shaping-tools may be applied to the shaft. The shaft 43 is provided with a pulley 48, which is driven by a belt 49, passing over a pulley 50 on a shaft 51. The shaft 51 is provided with a loose pulley 52 and a tight pulley 53. Over the tight pulley 53 a belt 54 passes around a fixed pulley 55 on the shaft 35, which shaft is also provided with a loose pulley 57. On the main shaft 8 is a pulley 58, and a belt 59 passes over this pulley and around a pulley 60 on the shaft 56. The shaft 51 is therefore driven from the pulley 58 through the medium of the pulley-and-belt arrangement described. A belt-shifter of any preferred description may be employed for shifting the belt 54 to the loose pulleys 52 and 57 when it is not desired to revolve the shaft 43 for planing or shaping.

When using the machine for planing, I employ a feed-roller 61, mounted on a shaft 62, which roller is slightly inclined to the vertical, as shown, in order to feed the material toward and hold it against the planing-tool 42. The shaft 62 is provided with a pulley 63, over which passes a belt 64 from a pulley 65. The pulley 65 is mounted on a stub-shaft 66, on which stub-shaft is also mounted a relatively large gear-wheel 67. Mounted on the main shaft 8 is a spur-gear 68, which meshes with the gear-wheel 67 and by imparting motion to the same operates the feed-roller 61 through the medium of the parts above described. The outer end of the shaft 62 rests in an open-ended slot 62^a in order to allow the feed-roller to yield when the plank to be planed is inserted beneath the same, and the said shaft is held downward by means of a weighted arm 63^a, bearing upon said shaft and fulcrumed at 64^a.

The removable top portions 5 and 6 are supported from the planer-bed by means of legs 69 and may be raised or lowered by raising or lowering the planer-bed through the medium of the threaded shaft 38, previously described. In addition to this movement the said top portions 5 and 6 may be moved toward and from the planer 7 or other tool which may be substituted therefor on the shaft 13 by reason of the fact that the under sides of said top portions are provided with recesses 70, which are longer than the cross-pieces 3, over which they engage, and the said top portion may be held in any such adjusted position by means of pivoted plates 71, carried thereby and having lower slotted ends which engage over the shank of set-screws 72, engaging in the frame of the machine.

A further attachment which I combine with the machine is that of a jig-saw, and the parts necessary to permit this attachment to be employed will now be described.

Mounted on the shaft 35 is a crank-disk 73, to which is connected a crank-rod 74, which at its upper end is connected to a cross-head 75, sliding in a guide 76. The cross-head and guide are shown in the plan view, Fig. 2, and by dotted lines in Fig. 1. The jig-saw 77 is connected at its lower end to the cross-head 75 and extends upward through an aperture 78 in the lower end of the top portion 4 and at its upper end is secured to a cross-head 79, sliding in a guide 80. (Shown in Fig. 3.) The guide 80 may be suitably supported from any portion of any suitable structure, as from the roof of the building in which the machine may be temporarily located. The cross-head 79 is normally pulled upward by means of a spring 81, and thus the proper tension is maintained on the saw 77 to keep it from buckling. In operation as the crank-disk 73 is revolved the crank-rod 74 will cause the reciprocation of the saw 78, as well understood.

A still further attachment combined with the machine is that of a chain-mortiser, which is indicated at 82 in Figs. 1 and 2. One of the sprockets of this chain-mortiser is driven from a shaft 33, having a pulley 84, which receives a belt 85, driven from a pulley 86 on the main driving-shaft 8.

A still further attachment is that of a sander. On the main driving-shaft is a pulley 87, from which a belt 88 passes to a horizontally-disposed pulley 89, mounted on a vertical shaft 90. Toward the upper end of the shaft 90 is a pulley 91. From the pulley 91 a sander 92 may be driven by a belt 93, as shown conventionally in Fig. 3. The sander-rigging is one common to all sanding-machines and need not be illustrated.

The chuck 16 is shown as holding an auger 94. This chuck, as stated, may be adapted

to receive various implements, such as a turning-lathe, emery-wheel, and different descriptions of boring-tools. In the operation of boring I employ a table 95, (shown in Fig. 6,) which is provided with arms 96, adapted to be inserted in keepers 97, provided on the under side of the planer-bed 30. Slidably mounted on the table extension 95 is a work-support 98, which is provided with guide-ribs 99, sliding in grooves in said extension-table and extending through keepers 100, secured to the inner edge of said extension. The wood to be bored is placed on the support 98, which may then be moved toward the boring-tool, as may be more clearly seen from Fig. 3.

When using the planer attachment, means must be provided for holding the work to the bed, and to this end I provide a work holder or clamp comprising a rod 101, mounted at its lower end in a guide 102 on the side of the machine and having at its upper end a right-angular extension 103, supporting a bearing-block 104.

The operation of the attachments for use in long-cut sawing, crosscut-sawing, scroll or jig-saw work, planing, sanding, chain-mortising, and boring have been described. For jointing, the top portions 5 and 6 of the table can be slightly raised or lowered, if necessary, by means of the threaded shaft 38, and the cutter-head 7, to which the planing-knives are attached, may be supplied with the requisite knives for the purpose. For molding, the proper tools are attached to the cutter-head 7, as in jointing. For shaping, the proper implement is applied to the top of the shaft 43, the nut 47 being removed. For tenoning, tenoning-tools are attached to the saw-shaft 13. For panel-raising, the proper tools are attached also to the shaft 13 in place of the saw.

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

1. In a woodworking-machine, a table having a top portion provided with a slot, a rotatable shaft mounted in said table and extending transversely thereof and adapted to have interchangeably applied thereto tools capable of different functions, including a circular saw adapted to work through said slot and a planer, two removable top portions terminating short of said shaft on either side thereof, and a vertically-adjustable planer-bed mounted below the removable top portions of said table and in line with and supporting said top portions.

2. In a woodworking-machine, a table provided with a rotatable shaft adapted to have interchangeably applied thereto tools capable of different functions, including a circular saw and a planer, a stationary top portion having a slot, and a groove extending parallel with the side of the table, two removable top portions terminating short of said shaft, a planer-bed adapted to support said removable top portions, and means for raising and lowering said planer-bed.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN WARREN.

Witnesses:
CHARLES R. WERNER,
J. K. GRANT.