

Nov. 30, 1926.

M. HUTCHINSON

1,608,696

WOODWORKING MACHINE

Filed June 15, 1923

7 Sheets-Sheet 1

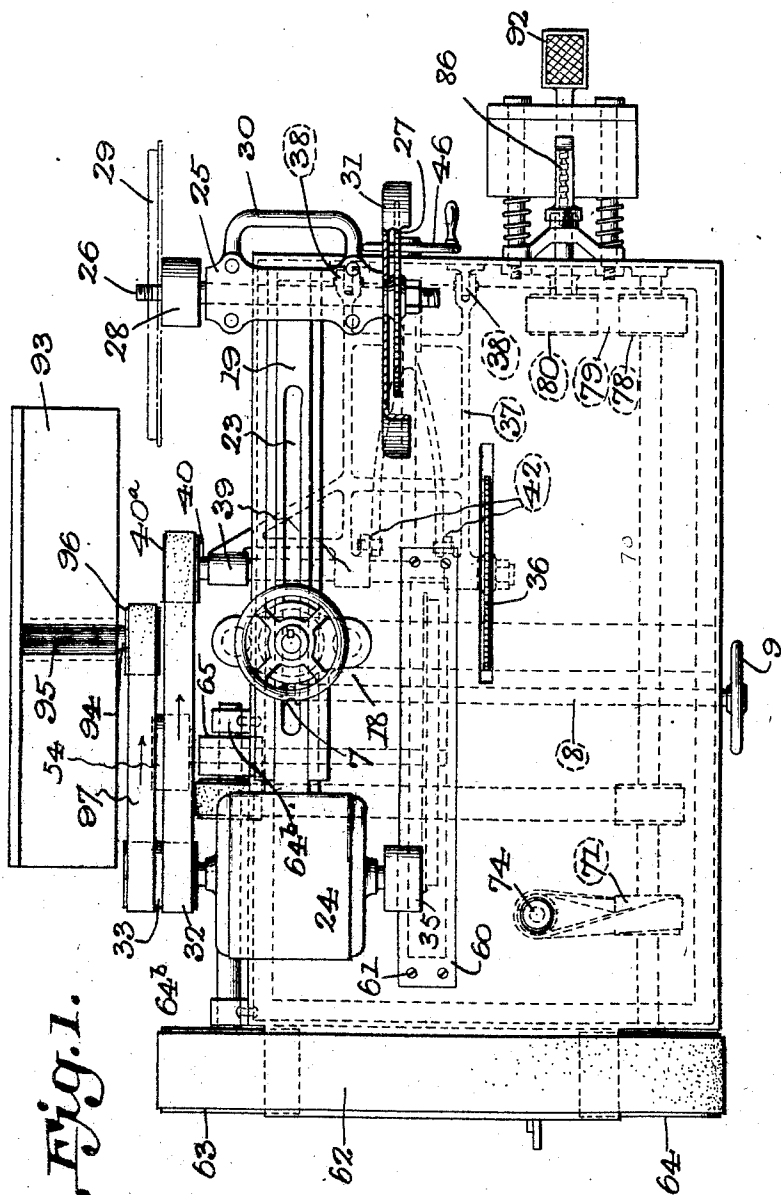


Fig. 1.

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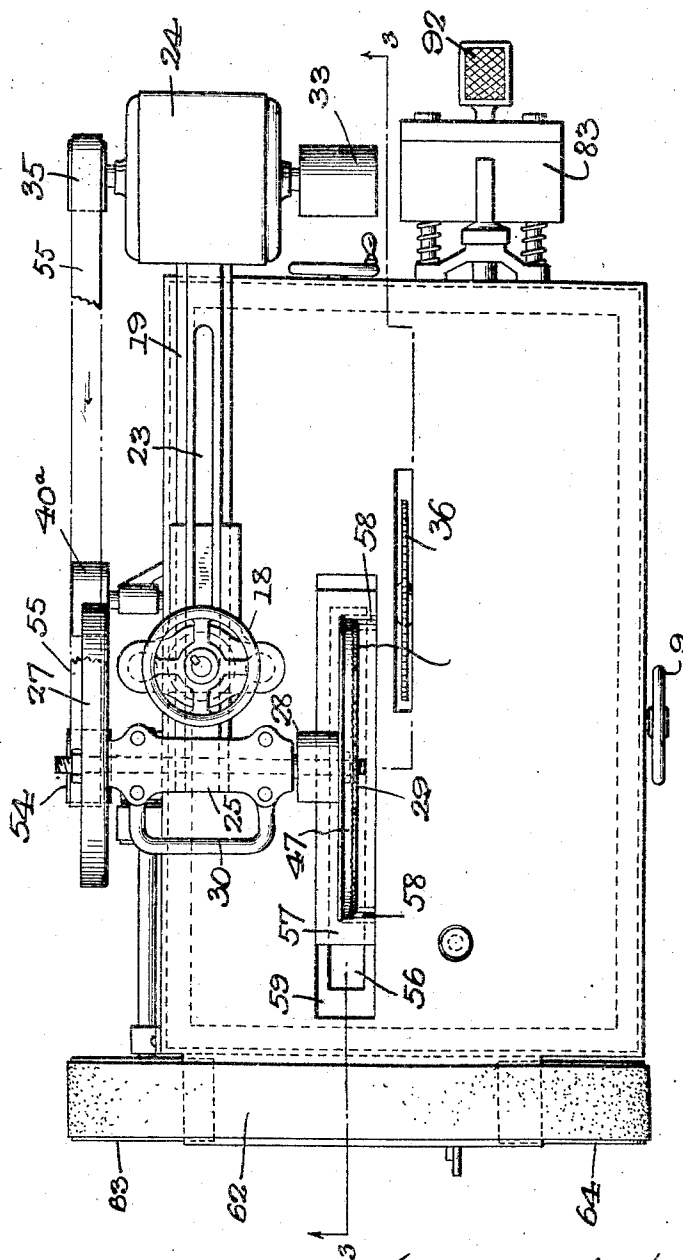
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7 Sheets-Sheet 2

Fig. 2.



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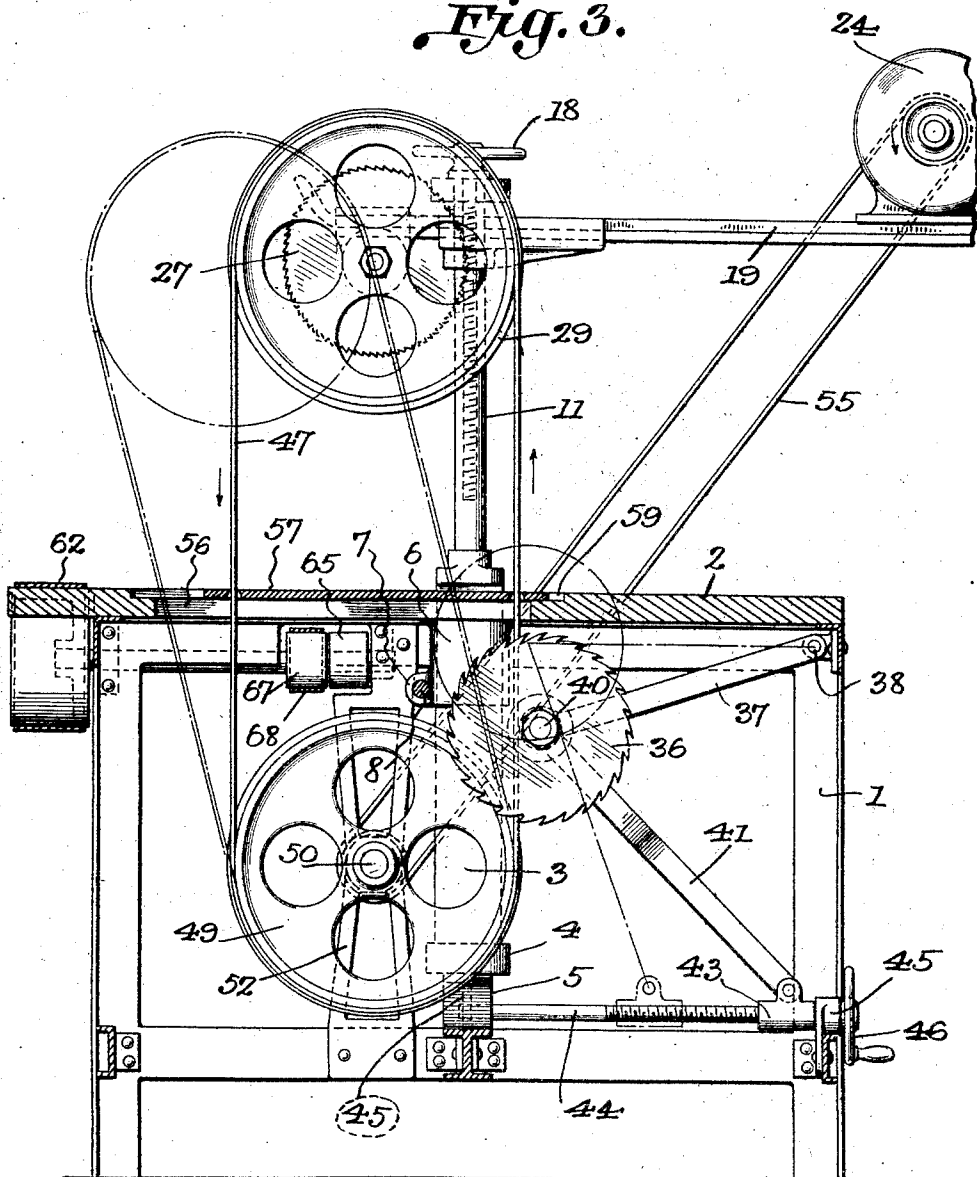
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WOODWORKING MACHINE

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Fig. 3.



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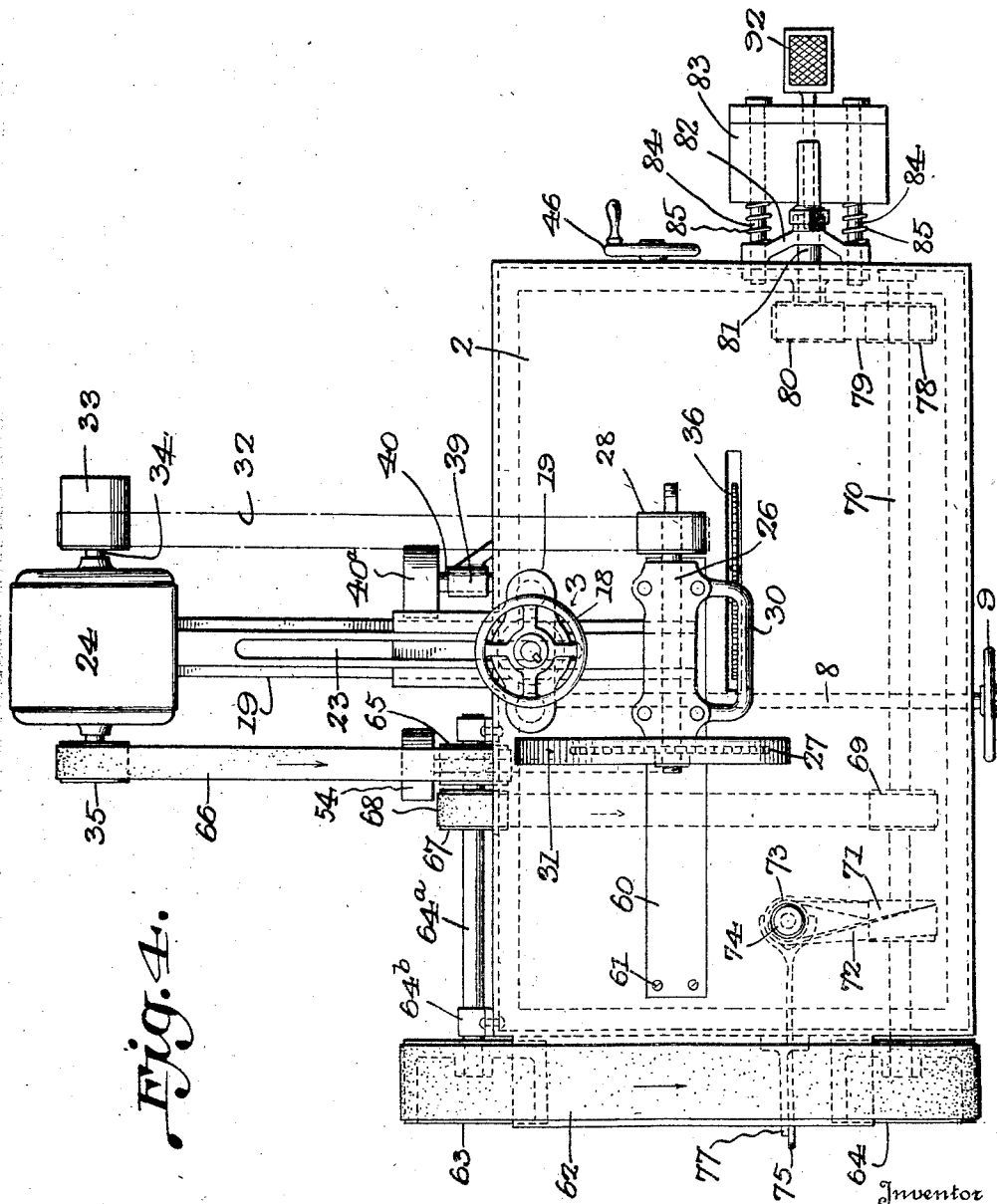
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WOODWORKING MACHINE

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WOODWORKING MACHINE

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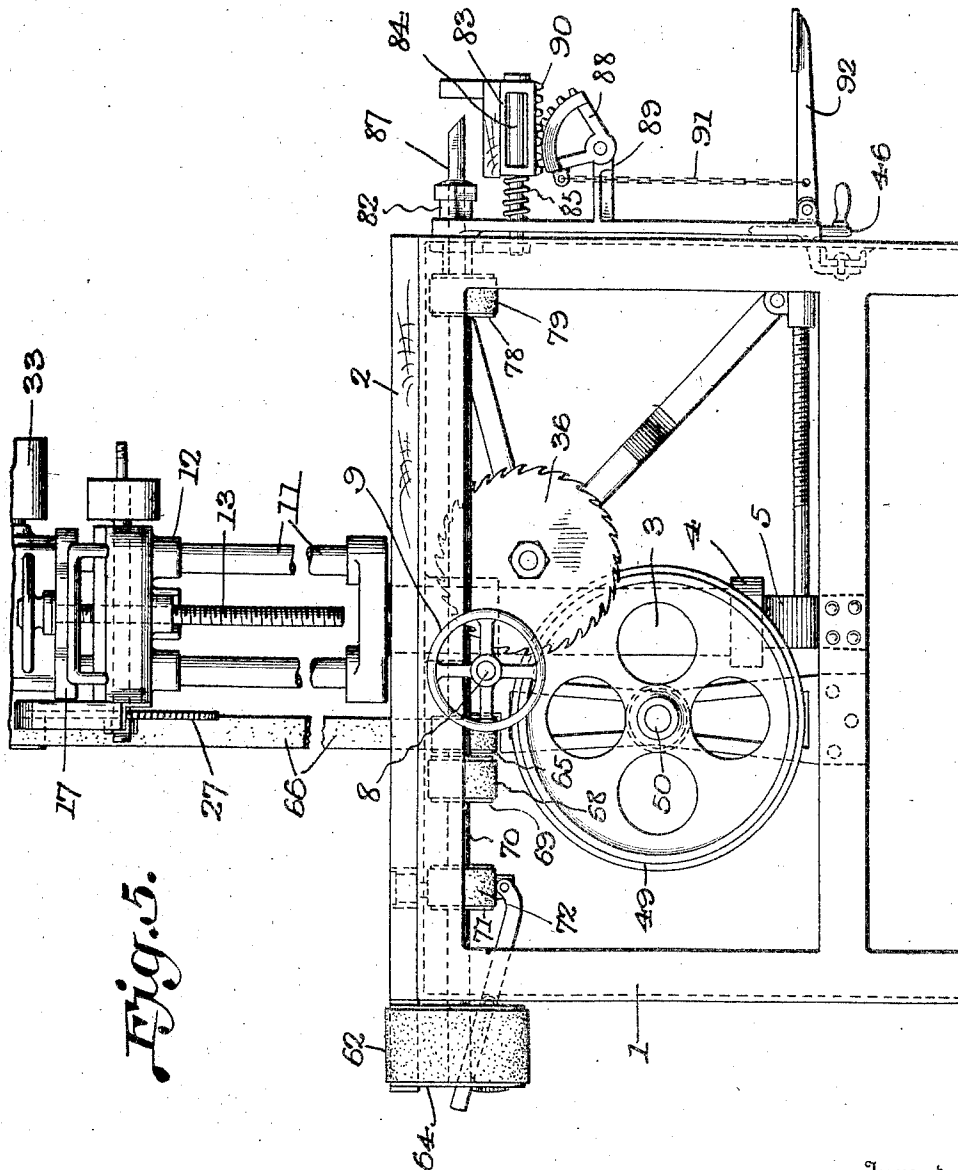


Fig. 5.

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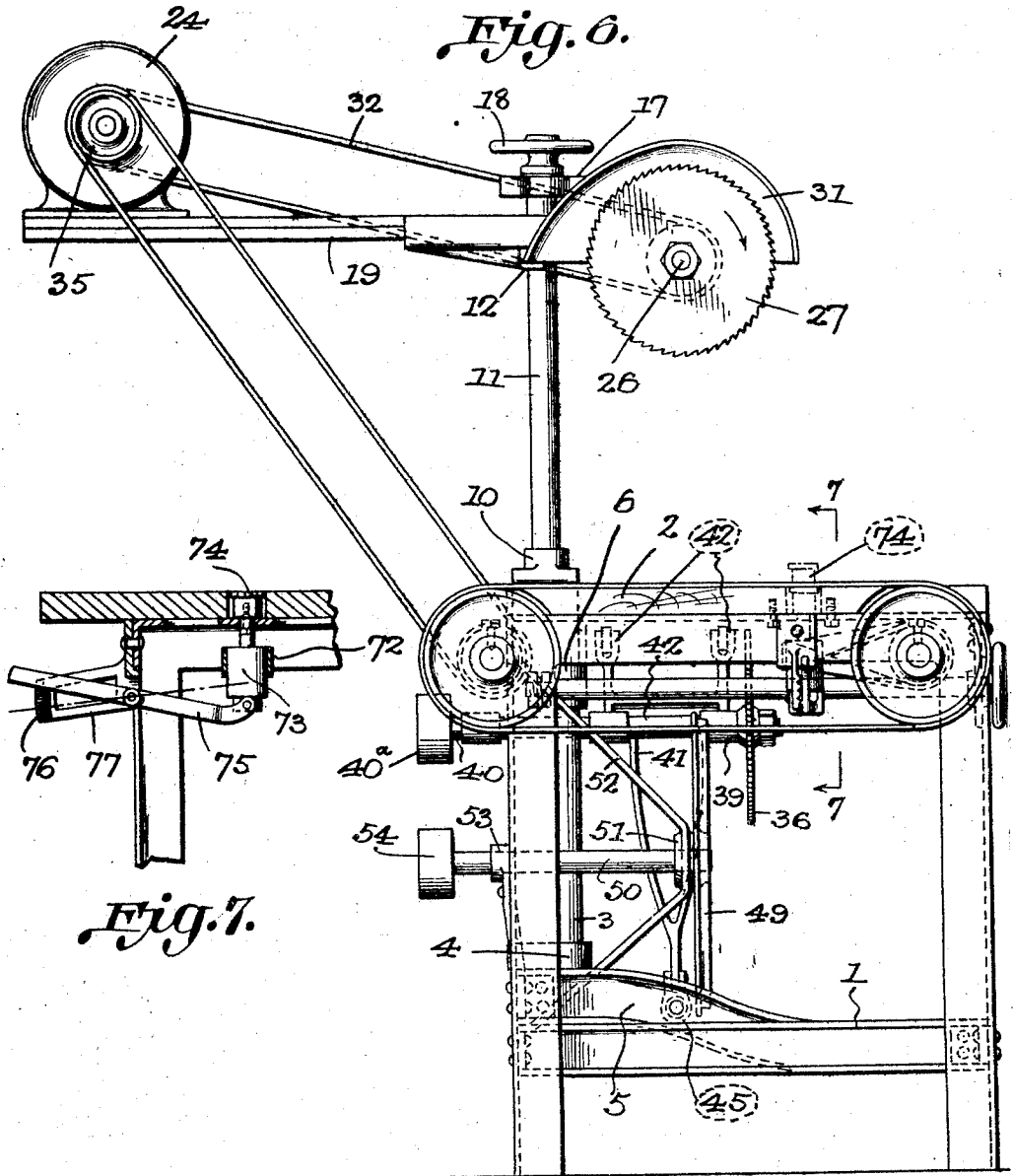
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7 Sheets-Sheet 6



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WOODWORKING MACHINE
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7 Sheets-Sheet 7

Fig. 8.

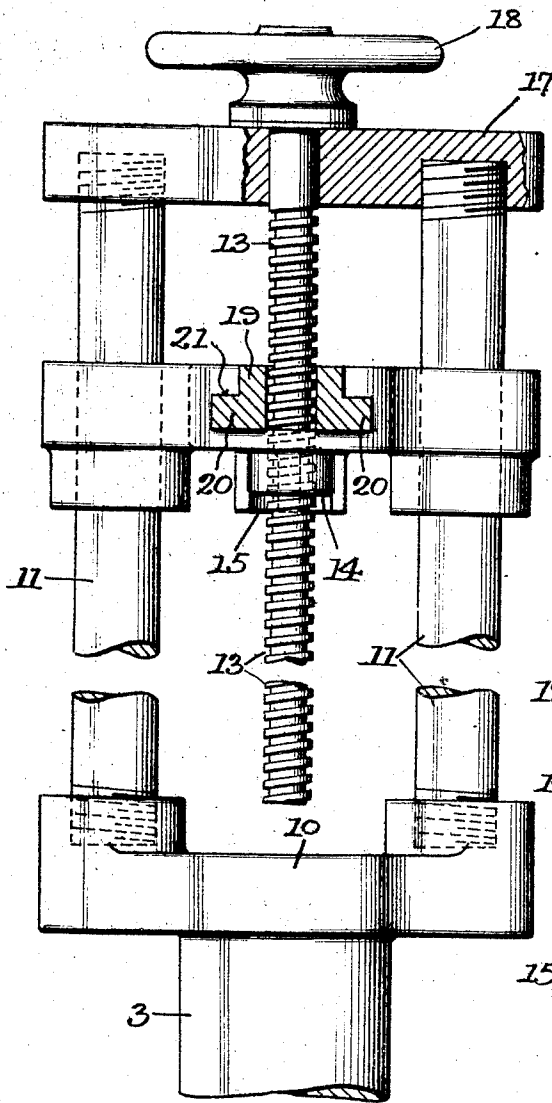


Fig. 9.

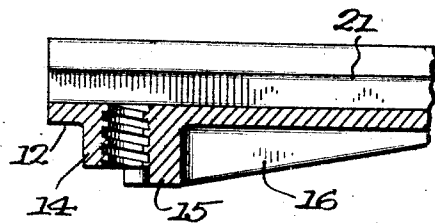
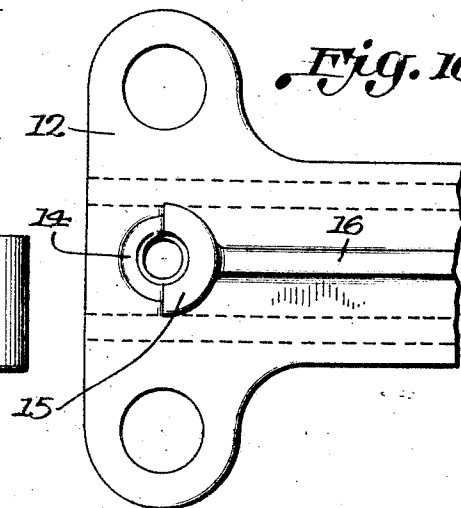


Fig. 10.



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UNITED STATES PATENT OFFICE.

MACKINTOSH HUTCHINSON, OF PHILADELPHIA, PENNSYLVANIA.

WOODWORKING MACHINE.

Application filed June 15, 1923. Serial No. 645,667.

My invention relates to wood working machines. It has for its objects to construct such a machine that different kinds of work and different kinds of sawing can be done by the same machine, the elements for the purposes being arranged in a relation one to the other that one or the other may be brought into operation as desired and all the elements driven from the same motor; also to provide improved features in construction of various parts whereby stability in the machine and efficiency as a whole are obtained.

To the accomplishment of the foregoing and such other objects as may hereinafter appear the invention consists in the features hereinafter particularly described and then sought to be clearly defined by the claims, reference being had to the accompanying drawings, in which

Figure 1 is a top plan view of the machine, showing the motor belted to rip saw and jointer;

Figure 2 a top plan view, showing motor belted to cross-cut saw arbor and band-saw applied to its wheel pulley on cross cut saw arbor;

Figure 3 a vertical section on line 3—3 of Figure 2, showing band-saw applied;

Figure 4 a plan view showing the motor belted to counter shaft to run a sand finishing belt, a shaper and a mortiser;

Figure 5 a side elevation, with parts broken away, showing an end view of a boring or mortising attachment;

Figure 6 an end elevation of the machine, looking at the sand finishing belt end;

Figure 7 a detail sectional view showing means for raising and lowering the shaper;

Figure 8 a detail elevation, partly in section, on an enlarged scale, of the upper portion of the rotatable post or pillar, track- and traveling carriage;

Figure 9 a central longitudinal section of trackway for the carriage;

Figure 10 a bottom plan view of the trackway.

In the drawings the numeral 1 designates a frame of suitable formation and material and having a top 2 of wood or other material. The numeral 3 designates an upright pillar or post supported so as to be rotatable, for instance, in a step 4 attached to a cross-bar or beam 5, or otherwise, and which

may be clamped to its rotative adjustment by a split or divided sleeve 6 projecting from a cross member of the table frame and encircling the post and formed with threaded ears 7 into which fits a threaded rod 8 formed with a hand-wheel 9 by which the clamp may be loosened or tightened around the post to permit the post to be rotated and also held to its rotative adjusted position. The upper end of post 3 carries a head 10 which supports upright posts or rods 11 which pass through a bracket or trackway 12 and on which the trackway is vertically adjustable by means of a screw 13 threaded into a socket 14 which may have a depending flange 15 with which connects a web 16 on the underside of the trackway, the flange and web giving additional strength to the trackway. The upper end of screw 13 passes through a cross head 17 connecting the two upright rods and is provided with a hand-wheel 18 by which to turn the screw to raise or lower the trackway. The trackway supports a traveling carriage which preferably consists of a rod or bar 19 having side flanges 20 fitting in grooves or guideways 21 formed in the side faces of the trackway, the carriage bar being formed with a longitudinally extending slot 23 through which the screw 13 passes so that the carriage may reciprocate or slide back and forth on its trackway. The traveling carriage supports an electric or other motor 24 and at its other end carries a suitable boxing 25 in which is journaled an arbor 26 provided with a cross-cut saw 27 and a pulley 28 and which may also be provided when desired with a wheel-pulley 29 for reception of a band-saw as hereinafter described, and a hand-grip 30 is provided for reciprocating the carriage back and forth, and also a housing or guard 31 may be provided for the cross-cut saw. The cross-cut saw mandrel 26 is driven by a belt 32 running from a pulley 33, which may be a broad faced pulley, on the motor-shaft 34 which will also carry a pulley 35 at its other end. In operating the cross-cut saw the carriage may be reciprocated to the extent desired to suit the work in hand, and by loosening the split clamp collar 6 the post or pillar 3 may be rotated to turn the carriage to present the cross-cut saw to cut at the angle desired, and by means of the

screw 13 the carriage and saw carried by it may be raised or lowered to bring the carriage and its associated parts within range of the work to be done.

5 A rip saw 36 is supported beneath the work table 2 by a suitable frame which will permit the saw to be raised and lowered to and from operative position in relation to the table. This rip saw frame designated
10 by the numeral 37 may be of the form illustrated in plan in dotted lines, Figure 1, being suitably hinged at 38 to the machine frame and at its free end formed with boxings 39 for the arbor or shaft 40 of the rip
15 saw carrying the pulley 40^a which will be in alinement with pulley 33 of the motor shaft when the carriage is turned to bring the pulleys into alinement so that the rip saw may be operated by the belt 32 connect-
20 ing the two pulleys. The saw is raised and lowered by suitable means, for instance, by a lever 41, which may be of yoke formation, which will have a hinged connection as at 42 with the swinging frame 37 and be
25 hinged at its other end to a sleeve 43 in threaded engagement with a screw threaded shaft or rod 44 journaled in suitable bearings 45 and provided with a hand wheel 46 so that by turning the shaft the sleeve 43
30 will be fed along the rod so as to lift the rip saw to operative position as shown by dotted lines, Figure 3, and by turning the rod in the opposite direction the rip saw and associated parts will be lowered into
35 inactive position as shown by full lines, Figures 3 and 5.

A band saw 47 will pass around the wheel pulley 29 and around another wheel pulley 49 mounted on a shaft 50 journaled in a
40 boxing 51 supported by a bracket 52 supported from the machine frame and in a boxing 53 bolted to a suitable part of the frame and provided with a pulley 54 from which a drive belt 55 will pass to and around
45 the pulley 35 of the motor shaft so as to be driven from the motor. The band saw passes through an opening 56 in the work table which may be covered by a slide plate 57 formed with laterally extending slots 58
50 to straddle the saw band and which will be free to slide back and forth in the recess 59 in which the plate seats in the adjustment of the band saw by movement of the traveling carriage, any slack occurring in the band saw
55 being taken up by vertical adjustment of the carriage through the instrumentality of the screw 13. When the band saw is not in use it is removed and the opening 56 covered by a plate 60 which will replace the slotted
60 plate 57 and be properly secured in place by screws 61 so as to afford a smooth unbroken surface to the work table. From the foregoing it will be observed that when a band saw is to be used the post or pillar is rotated
65 so as to move the carriage and motor from

the position indicated in Figure 4 to that indicated in Figures 2 and 3, the band saw applied to its wheel pulleys and a drive belt run from pulley 35 of the motor to pulley 54 of the shaft of the lower band wheel pulley 49, and thus the band saw is driven from the motor carried by the traveling carriage.

An abrading belt 62 having a sanded or other abrading surface for smooth finishing of work is supported at one end of the table
75 by band wheels 63 and 64, the wheel 63 being carried by a shaft 64^a journaled in suitable boxings 64^b attached to the machine frame and provided with a pulley 65 from which a belt 66 may extend to the pulley 35 on the
80 motor shaft so as to be driven therefrom, the shaft 64^a being also provided with a pulley 67 from which a belt 68 passes to and around a pulley 69 on a countershaft 70 which carries the abrading belt band-pulley 64, and
85 thus the abrading belt is driven from the motor carried by the traveling carriage. The countershaft is journaled in suitable bearings supported from the machine frame as indicated and carries also a pulley 71
90 from which a crossed belt 72 passes to a pulley 73 on a shaper-tool 74 supported so as to be moved vertically through the work table by a lever 75 fulcrumed on a part of the frame and held to its adjustment by
95 the lever engaging with teeth 76 on a bracket 77 supported from the machine frame as shown in Figure 7 of the drawing. The counter shaft 70 carries also pulley 78 from which a belt 79 passes to a pulley 80 on a
100 tool holder 81 supported by a bracket 82 attached to the side of the machine frame. In front of the tool holder is a table 83 slidably supported on rods 84 encircled by
105 springs 85 to restore the table to normal position when moved therefrom. If a piece of work is to be bored a boring bit or tool 86 will be coupled to the tool holder and the work placed on the table and the table
110 moved by hand to bring the work against the boring tool which will be rotated by the belt connection between the pulleys 78 and 80, the power being transmitted from the motor on the traveling carriage by the belt
115 connections described. If the piece of work is to be mortised the boring tool is encircled with a mortising chisel or bit 87, and the toothed segment 88 pivoted to a bracket 89 and having its teeth engaging with teeth 90
120 on the work table will be connected by a chain 91 with a foot pedal 92 so that when the work is placed on the table and the foot pedal depressed the work will be pressed against the mortising tool to form the mortise, and the springs 85 being placed under
125 compression will return the table to normal position when pressure is relieved. When the boring tool is used the mortising tool is removed from the boring bit without disconnecting the belt which transmits power
130

from the motor. It will thus be observed that when desired the boring tool may be operated from the motor carried by the carriage, and at other times a mortising tool may be used.

A jointer 93 is positioned alongside the machine and the shaft 94 of its tool 95 is provided with a pulley 96 which will be in alinement with the pulley 33 of the motor shaft when the carriage is turned to the position shown in Figure 1 so that the pulleys may be connected by a belt 97 for driving the jointer tool from the motor.

From the foregoing description it will appear that the machine is so constructed that it may perform the functions of a cross-cut saw, a rip saw, a band saw, a sand or abrading material belt for finishing the surface of the work, a shaper, a boring or mortising machine, and a jointer by merely changing the position of the carriage supporting the motor so as to bring the pulley carrying shaft of the motor into position for connecting its shaft with the pulleys through which power is transmitted from the motor to the particular part of the machine to be operated. The change from one position to another and the placing or removal of the transmission belts is quickly and conveniently effected because of the relative arrangements of the various parts.

The preferred details of each part for the most efficient action of the several parts are illustrated with some particularity but changes may be made therein and essential features retained.

Having described my invention and set forth its merits what I claim is:

1. In a combined woodworking machine the combination of a rotatable and vertically adjustable carriage; a motor and saw supported by the carriage; a band-saw; a pulley for the band-saw supported from the saw arbor of the carriage and a second pulley for the band-saw supported beneath the work table of the machine and with which the band saw pulley on the saw arbor may be brought into alinement on rotation of the motor supporting carriage; and means connecting the motor with one of the band-saw pulleys; the vertical adjustment of the

carriage compensating for adjustment of one band-saw pulley relatively to the other.

2. In a combined woodworking machine the combination of a rotatable carriage; a motor and saw supported by the carriage; a pulley for a band-saw supported from the saw arbor of the carriage and a second pulley for the band saw supported beneath the work table of the machine and with which the band saw pulley on the saw arbor may be brought into alinement on rotation of the motor supporting carriage; a band-saw passing around the pulleys and through an opening in the work table; and a plate covering the opening in the table and having the band-saw passing therethrough.

3. In a combined woodworking machine the combination of a rotatable traveling carriage; a motor and cross-cut saw supported by the carriage; a rip-saw supported beneath the work table of the machine; means for raising and lowering the rip-saw relative to the work table; driving means connecting the arbor of the rip saw with the power transmission shaft of the motor; a band saw, and means for driving the band saw from the power transmission shaft of the motor when the motor supporting carriage is rotated to bring the power transmission shaft of the motor into another position to drive the band saw.

4. In a combined woodworking machine the combination of a rotatable traveling carriage; a motor and cross-cut saw supported by the carriage; a rip-saw supported beneath the work table of the machine; a swinging frame in which the rip-saw is journaled for raising and lowering the saw; means for swinging the frame to bring the saw into and out of operating position relatively to the table; a band saw, and means for driving the band saw from the power transmission shaft of the motor when the motor supporting carriage is rotated to bring the power transmission shaft of the motor into another position to drive the band saw.

In testimony whereof I affix my signature.

MACKINTOSH HUTCHINSON.