

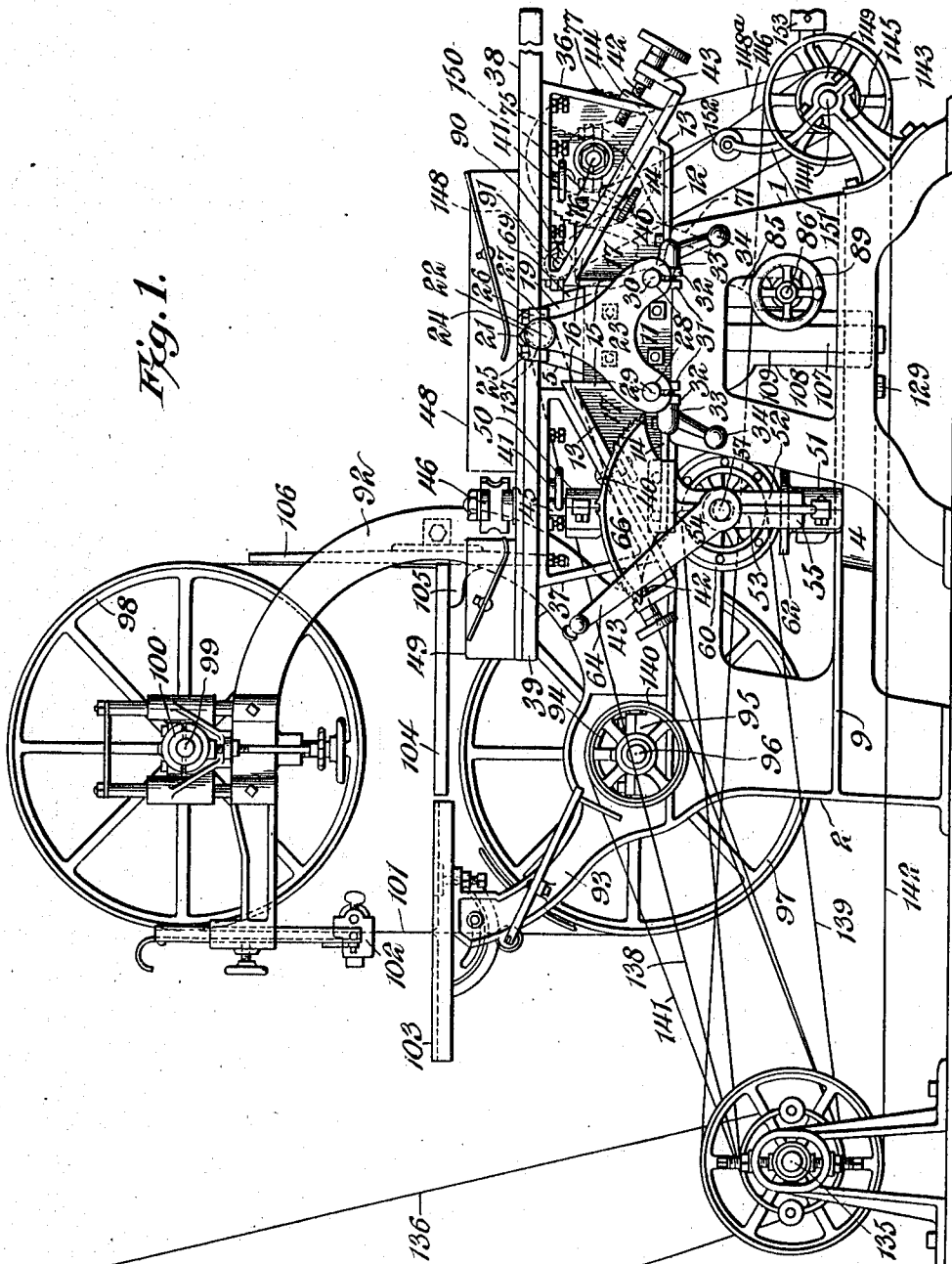
A. C. GETZ.
 UNIVERSAL WOODWORKING MACHINE.
 APPLICATION FILED JUNE 22, 1910.

970,917.

Patented Sept. 20, 1910.

8 SHEETS—SHEET 1.

Fig. 1.



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8 SHEETS—SHEET 2.

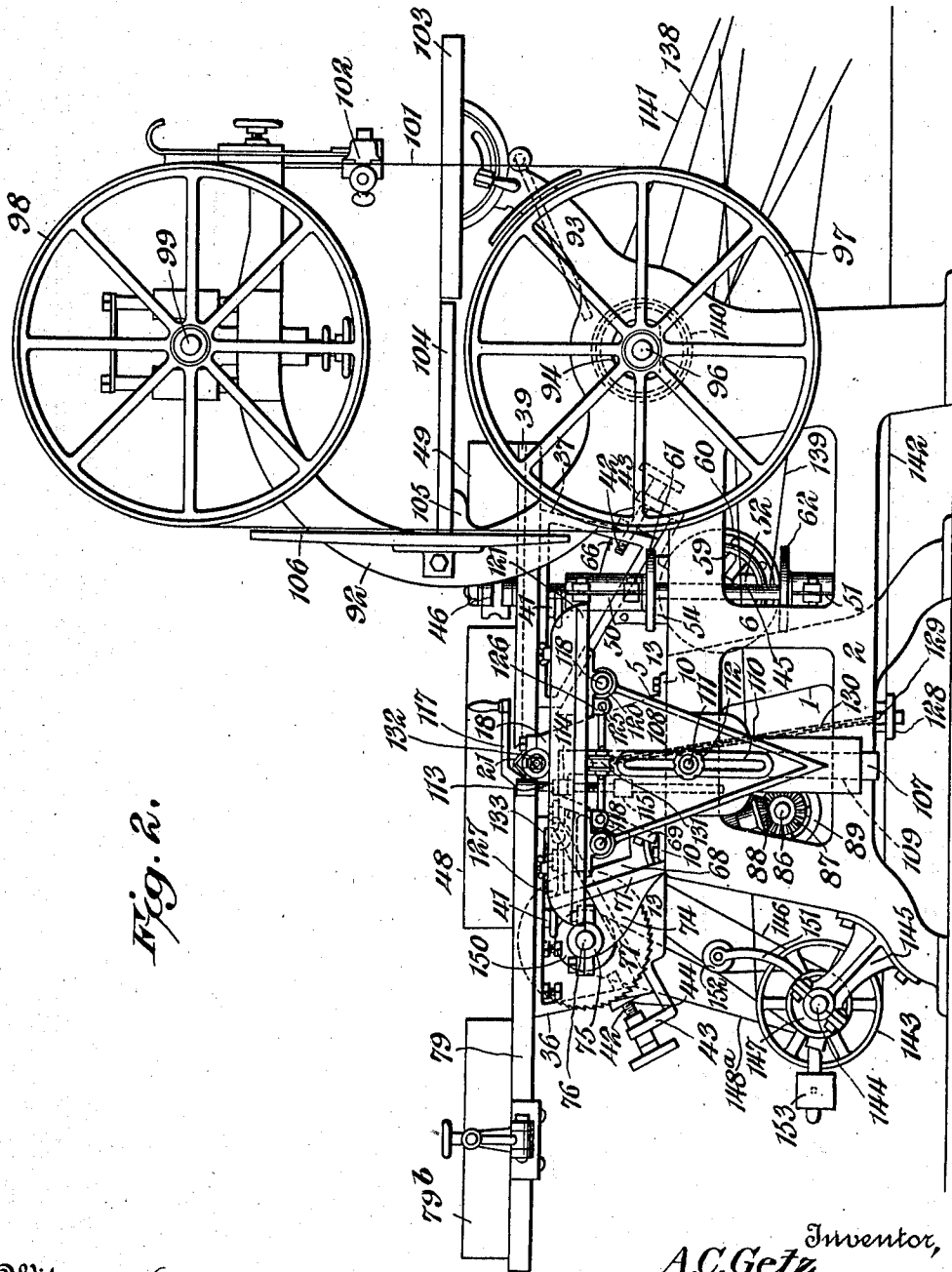


Fig. 2.

Witnesses

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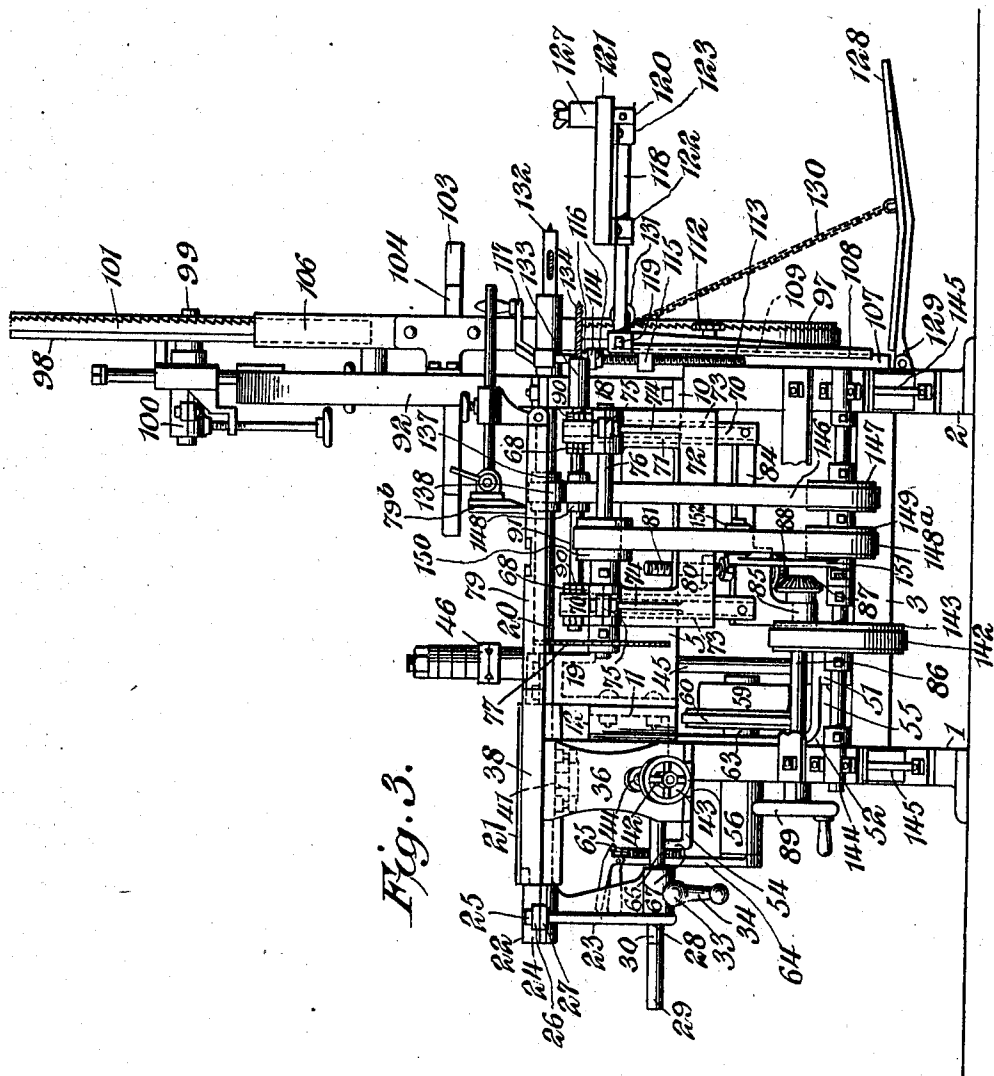


Fig. 3.

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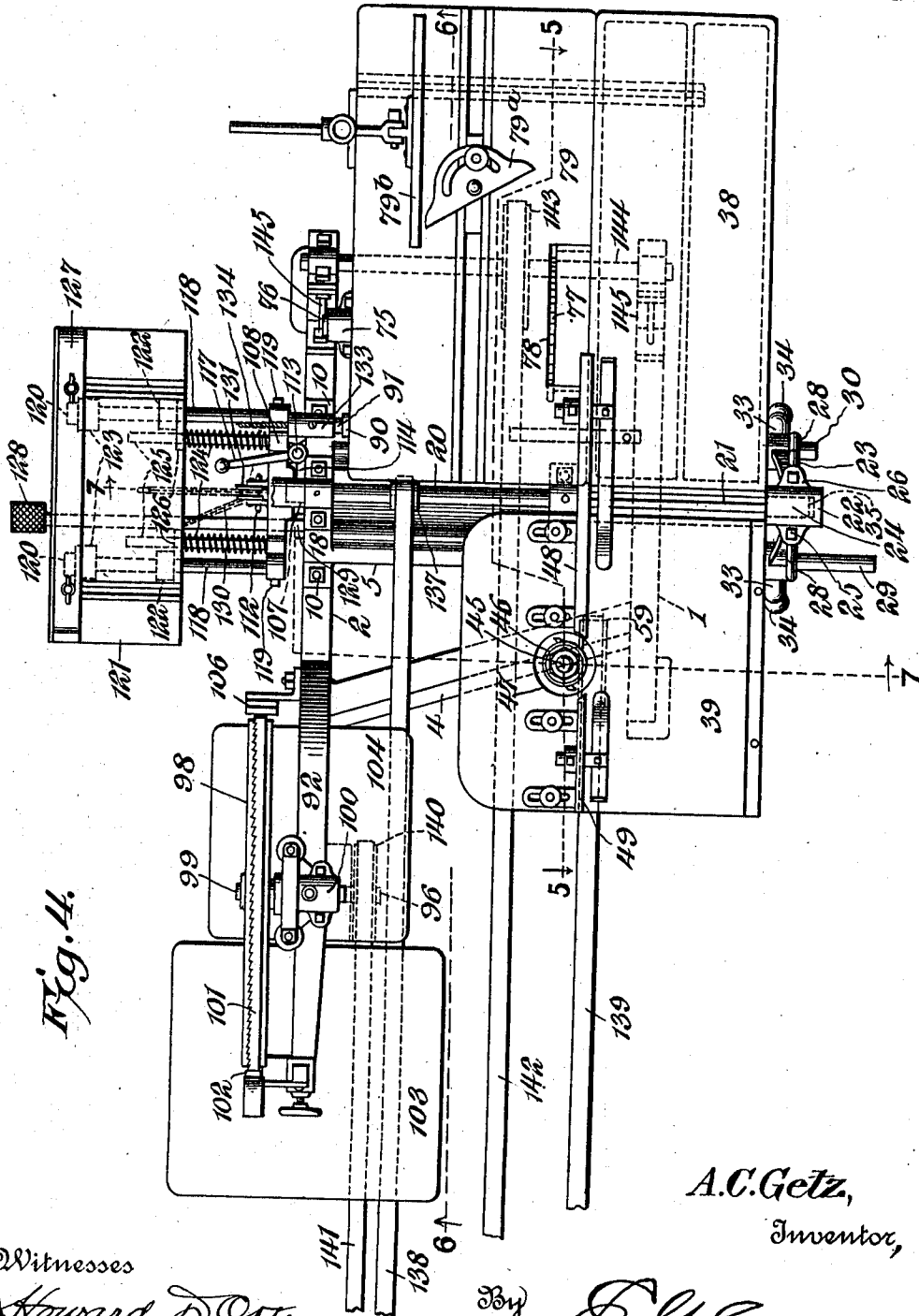


Fig. 4.

Witnesses

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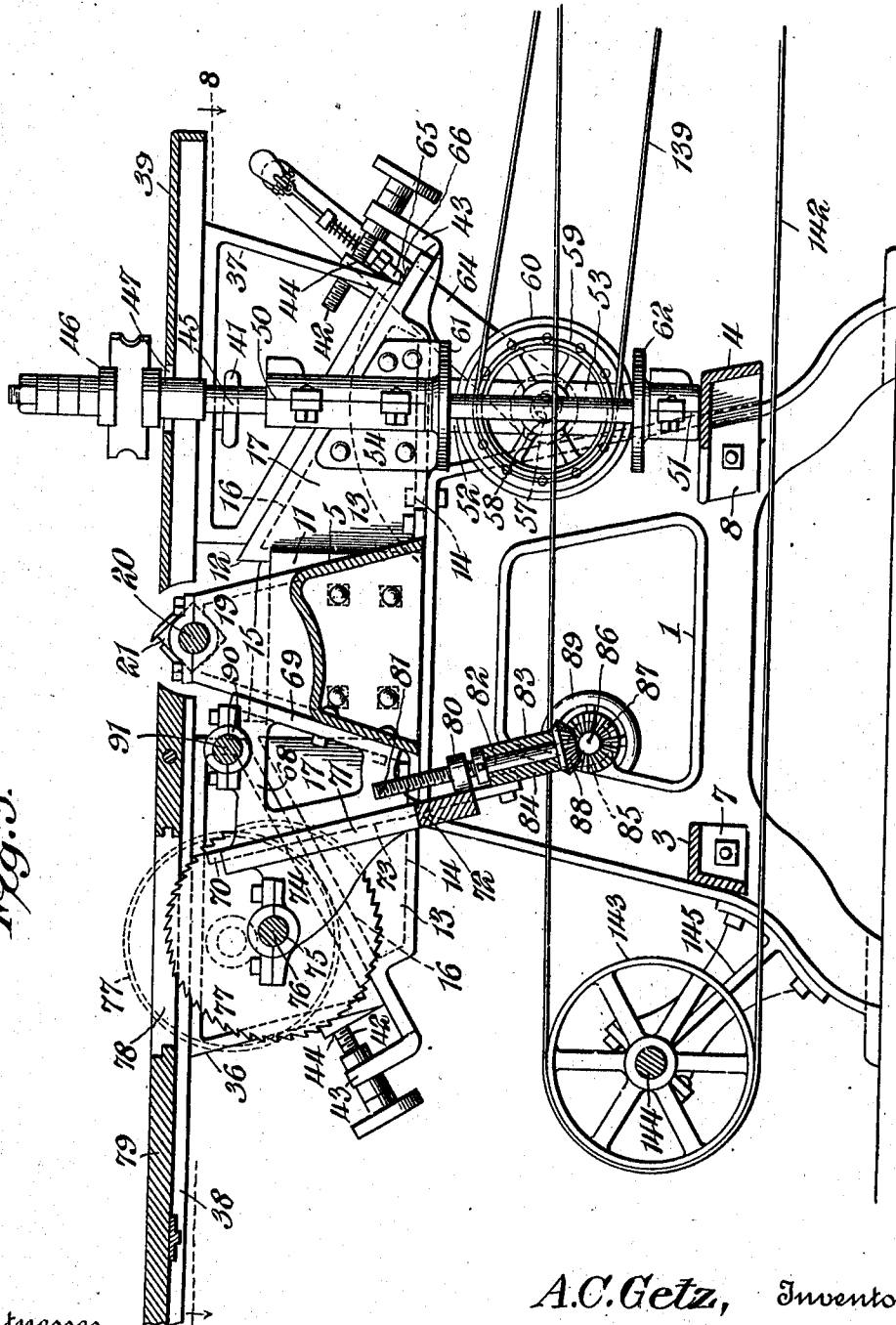
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8 SHEETS—SHEET 5.

Fig. 5.



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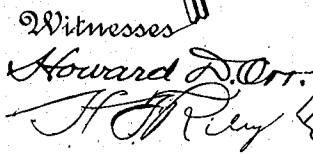
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8 SHEETS--SHEET 6.



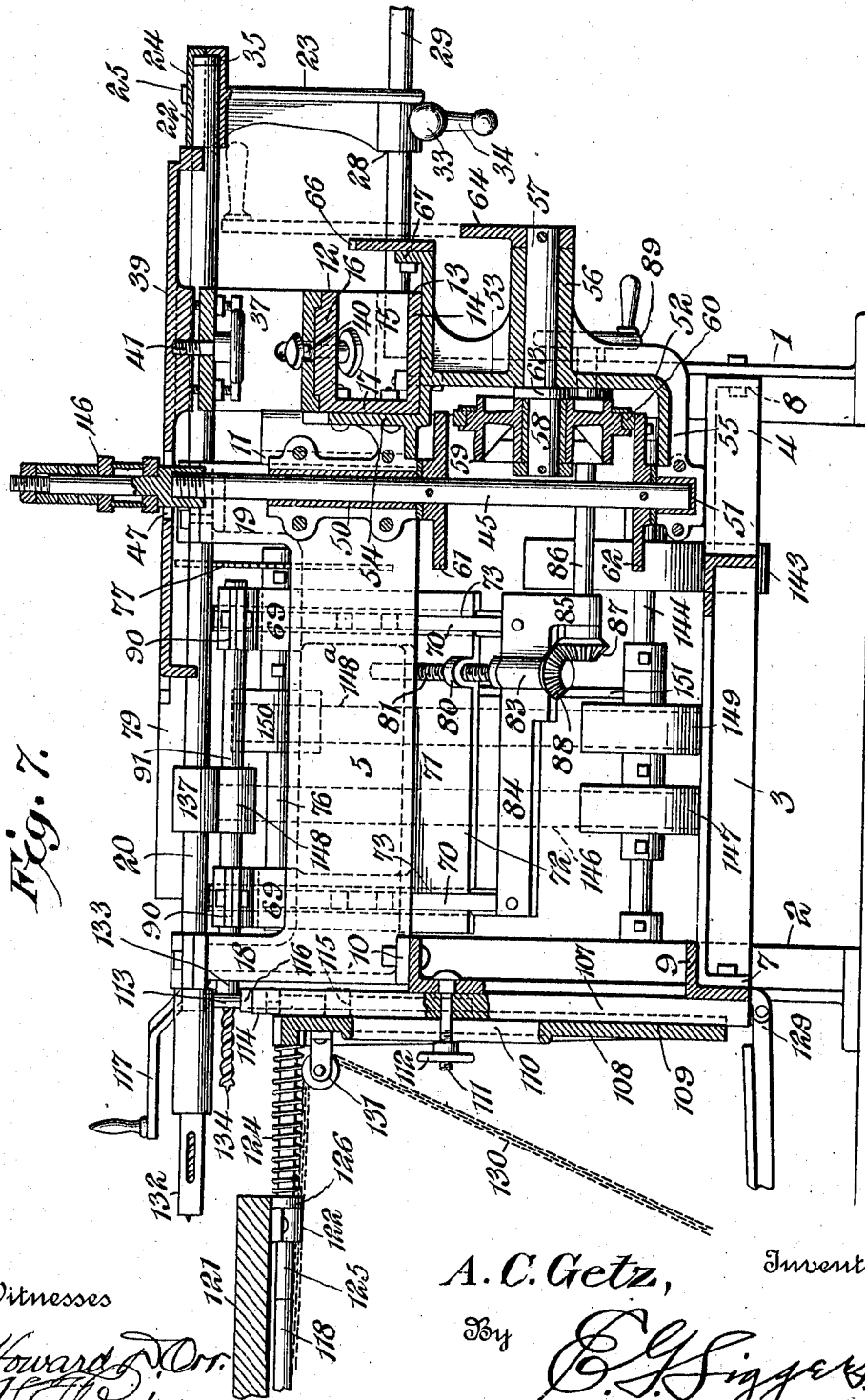
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8 SHEETS—SHEET 7.



Witnesses

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8 SHEETS-SHEET 8.

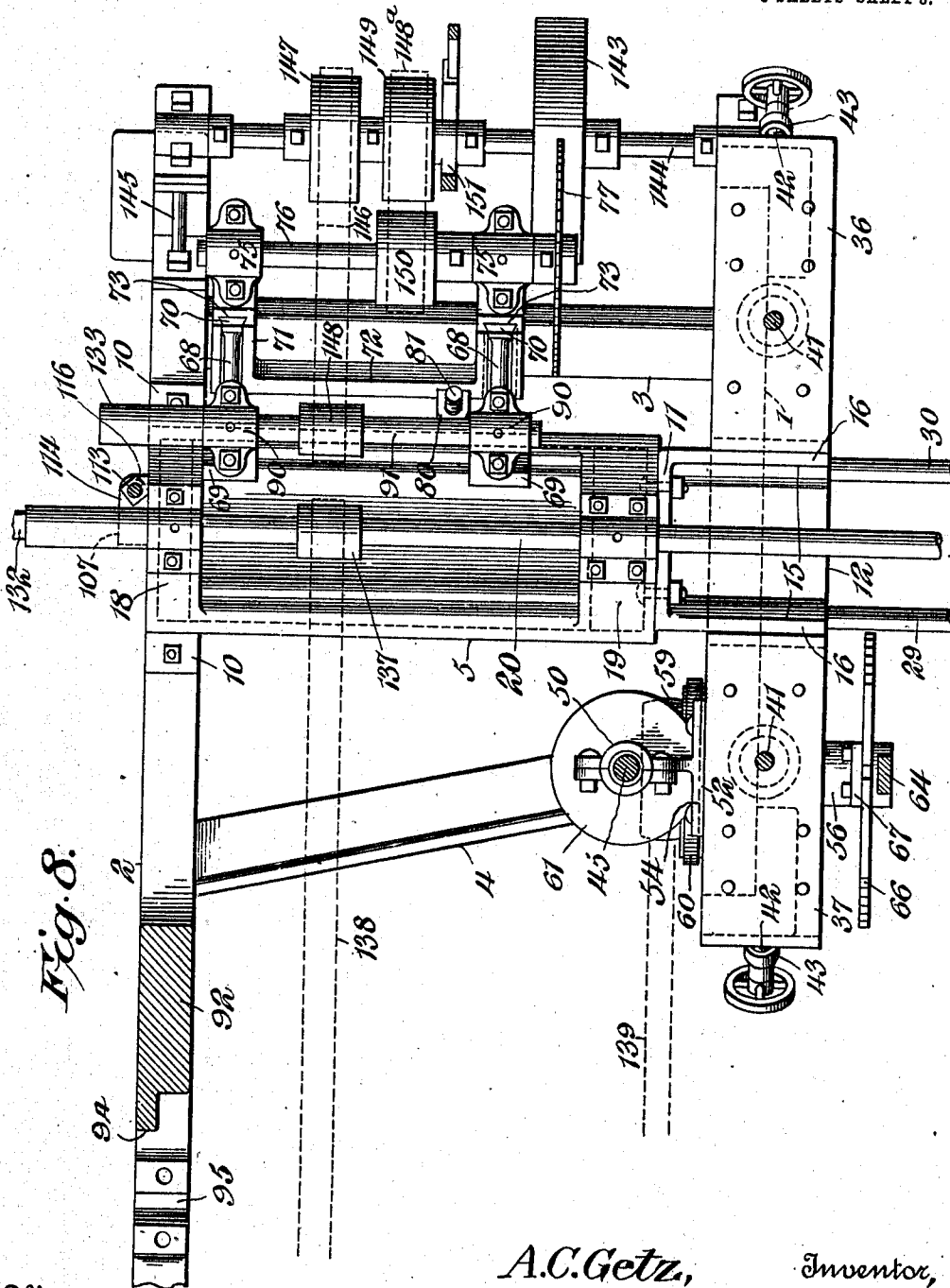


Fig. 8.

Witnesses

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UNITED STATES PATENT OFFICE.

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UNIVERSAL WOODWORKING-MACHINE.

970,917.

Specification of Letters Patent. Patented Sept. 20, 1910.

Application filed June 22, 1910. Serial No. 568,371.

To all whom it may concern:

Be it known that I, ALFRED C. GETZ, a citizen of the United States, residing at Sidney, in the county of Shelby and State of Ohio, have invented a new and useful Universal Woodworking-Machine, of which the following is a specification.

The invention relates to a universal wood-working machine.

10 The object of the present invention is to improve the construction of woodworking machines, and to provide a simple, compact and efficient universal woodworking machine of comparatively inexpensive construction, adapted to admit of the operation of any portion of it without dismembering the machine and removing parts and substituting other parts for the same, and capable also of enabling a plurality of operations to be simultaneously performed by individual workmen without one interfering with another.

With these and other objects in view, the invention consists in the construction and 25 novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

35 In the drawings:—Figure 1 is a side elevation of a universal woodworking machine, constructed in accordance with this invention. Fig. 2 is an elevation showing the opposite side of the machine. Fig. 3 is an end elevation. Fig. 4 is a plan view. Fig. 40 5 is a longitudinal sectional view on the line 5—5 of Fig. 4. Fig. 6 is a similar view on the line 6—6 of Fig. 4. Fig. 7 is a transverse sectional view on the line 7—7 of Fig. 4. Fig. 8 is a horizontal sectional view taken approximately on the line 8—8 of Fig. 5.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

50 In the embodiment of the invention illustrated in the accompanying drawings, the frame of the universal woodworking machine comprises in its construction spaced parallel sides 1 and 2, connected at the bottom by transverse beams 3 and 4 and at the

top by a transverse bridge or frame member 5. The sides 1 and 2, which are constructed of suitable material, consist of legs and upper and lower horizontal integral connecting portions. The side 1 is relatively short and the other side 2, which is relatively long, extends beyond the side 1 at one end of the machine, and it is provided with a central vertical post 6, formed integral with and connecting the upper and lower horizontal portions of the extended side of the frame. The beams 3 and 4 are constructed of angle metal, and are provided with terminal attaching flanges 7 and 8, which are bolted to the inner faces of the sides of the frame. The extended side of the frame is provided at the upper edge of the lower horizontal portion with an inwardly extending horizontal flange 9, and the adjacent ends of the transverse beams 3 and 4 are fitted against the lower face of the flange 9. The sides are also preferably reinforced by marginal flanges, but they may be varied to secure the desired strength, and the beam 3, which is arranged at right angles to the planes of the sides of the frame, is fitted against the adjacent marginal flange of the said sides. The other beam 4 is arranged diagonally and extends from one end of the short side 1 of the frame to a point intermediate of the ends of the extended side of the frame.

The transverse bridge or frame member 5 is hollow, being composed of upwardly and inwardly inclined sides, an inclined connecting top portion and integral end walls. The frame member 5 is open at the bottom and has one end seated upon the top of the extended side 2 of the frame, and provided thereat with horizontally projecting lugs or ears 10, which are secured by bolts to the side 2 of the frame. The other end wall of the transverse frame or bridge member is bolted to an intermediate vertically arranged plate or web 11 of a longitudinally disposed vertical member 12, consisting of the said intermediate plate or web 11 and approximately triangular end portions 13, seated upon the top of the short side 1 of the frame and secured to the same by bolts, or other suitable fastening means. The triangular end portions 13 of the longitudinal frame member are located at the ends of the short side 1 of the frame of the machine, and each consists of a horizontal bottom flange 14, an inner vertical flange

15, an inclined upper flange 16, and a longitudinal side plate or web 17, connecting the said flanges 14, 15 and 16 at the inner edges thereof and formed integral with the same.

5 The intermediate plate or web, which connects and spaces the triangular end portions of the longitudinal frame member, is approximately U-shaped and is located centrally of the short side 1 of the frame and
10 supports the adjacent end of the transverse bridge or frame member in spaced relation with the short side 1 of the frame.

The transverse bridge or frame member is provided at its ends with hollow vertical
15 extensions 18 and 19, equipped with horizontally alined bearings for the reception of a jointer shaft 20, extending entirely across the frame of the machine and provided at the jointer side of the machine
20 with a cutter head 21, which may be of any preferred construction. The terminal of the shaft beyond the cutter head is supported in a bearing 22 of an approximately inverted Y-shaped brace or support 23, forming
25 upwardly extending arms and a pair of depending arms. The bearing 22, which is at the upper end of the arm, is sectional, the upper section 24 being removable and secured by bolts 25 passing through projecting
30 ears 26 of the upper section 24 and engaging threaded openings of ears 27 of the lower section of the bearing. The lower arms of the support or brace 23 are provided with openings 28 for the reception of horizontal
35 rods 29 and 30, fixed at their inner ends to and extending outwardly from the longitudinal frame member and arranged at opposite sides of the intermediate portion 11 thereof. The lower ends of the depending
40 arms are split at the openings 28 and are equipped with spaced inner and outer lugs 31 and 32. The outer lugs 31 have smooth openings through which pass screws 33, and the latter engage threaded openings of the
45 inner lugs 32. The screws are provided with relatively heavy operating handles 34, and are adapted to clamp the support or brace on the horizontally projecting rods. The rod 29 is extended beyond the rod 30
50 to form a pivot to permit the brace when drawn outward beyond the end of the shaft and the end of the rod 30 to swing downward to afford access to the cutter head to permit the same to be removed from and
55 placed on the jointer shaft. The bearing 22 is closed at the outer end and is preferably equipped with the disk 35 to receive the end thrust and the wear of the jointer shaft.

60 The inclined flanges, which constitute the tops of the triangular end portions of the longitudinal frame member, form guides for approximately wedge-shaped slides 36 and 37, which support front and rear sections 38 and 39 of a jointer table. The
65 slides consist of open triangular frames

having horizontal top portions to receive the sections of the table, and inclined bottom portions to fit the inclined guiding flanges to which they are secured by set
screws 40. The table sections are adjustable
70 longitudinally of the supporting slides and are secured in their adjustment by set screws 41. The slides are adjusted inwardly and outwardly by means of inclined screws 42,
75 mounted in upwardly projecting terminal arms 43 of the longitudinal frame member and engaging threaded openings 44 of the outer ends of the wedge-shaped sides. The
adjusting screw and the set screws permit all the necessary adjustment of the jointer
80 table.

The universal woodworking machine is equipped with a vertically disposed shaper spindle 45, having a removable upper section
46, operating through the opening 47
85 of the rear section of the jointer table, and adapted to be equipped with any suitable cutter or shaping tool. The shaper is adapted to be used either independently of or simultaneously with the jointer, and the
90 table is equipped with suitable gages 48 and 49, located in advance and in rear of the shaper and at the inner end of the cutter head, as clearly illustrated in Fig. 4 of the
95 drawings. The shaper spindle is mounted in upper and lower bearings 50 and 51 of a bearing bracket 52, consisting of a flanged vertical portion 53 and an approximately
100 L-shaped top portion 54. The flanged vertical portion 53 is provided at its lower end with an inwardly extending horizontal arm 55, carrying the lower bearing, which rests upon and is supported by the diagonally arranged connecting beam 4. The upper and
105 lower bearings are sectional having removable sections, secured to the fixed sections by bolts, or other suitable fastening means, and the lower bearing is cup-shaped being closed at the bottom to receive the lower end of the shaper spindle, which is stepped in the
110 bearing 51. The L-shaped top of the bearing bracket consists of vertical and horizontal flanges, fitting against the bottom and inner side faces of the adjacent terminal triangular portion of the horizontal frame
115 member and secured to the same by bolts, or other suitable fastening devices. The bearing bracket is hung from the longitudinal frame member, and is located at one end of the short side 1 of the frame of the machine,
120 as clearly shown in Fig. 5 of the drawings. The bearing bracket is also provided with a horizontal bearing 56, receiving a horizontal shaft 57, having an eccentrically arranged inner portion 58 upon which is mounted a
125 pulley 59, carrying a friction member 60, which is shiftable by a partial rotation of the shaft 57 to engage it with either an upper friction disk 61, or a lower friction disk 62, or to carry it to an intermediate posi-
130

tion out of contact with both the upper and lower horizontal friction disks 61 and 62 for the purpose of throwing the shaper spindle out of operation. The shaft 57 is provided at an intermediate point with a collar 63, arranged at the inner end of the bearing 50, and the outer end of the shaft 57 is equipped with an operating arm or lever 64, arranged at the outer end of the said bearing 56. The shaft is held against longitudinal movement in the bearing 56 by the collar 63 and the operating arm or lever 64. The operating arm or lever 64 carries a spring actuated detent 65 for engaging a toothed segment 66, which is bolted to a vertical flange 67 extending upwardly from the outer edge of the horizontal flange of the L-shaped head 54 of the bearing bracket.

The transversely disposed frame member 5 forms a support for a pair of spaced brackets 68, located at the space between the arms or portions 18 and 19 and tapered downwardly and having inner and outer inclined flanges 69 and 70. The brackets, which are arranged vertically in parallelism, are approximately triangular and are preferably provided with openings to lighten the structure. The inner inclined flanges 69, which extend upwardly and inwardly, are fitted against and bolted to the adjacent inclined side of the transverse connecting member 5 of the frame. The outer flanges 70, which extend upwardly and outwardly, are beveled at their side edges to form dove-tail guides for a movable saw supporting frame or bracket 71, composed of spaced sides and a connecting transversely disposed bottom portion 72. The saw supporting frame is movable upwardly and downwardly, and its sides are provided with longitudinal dove-tail grooves 73, receiving the dove-tail guiding flanges 70 and slidably interlocking the saw carrying frame with the brackets 68. The saw carrying frame is also provided at opposite sides with projecting flanges 74, equipped with bearings 75 for a transversely disposed saw arbor 76, upon which is mounted a circular saw 77. The circular saw operates through an opening 78 in a saw table 79, arranged at the inner side of the front section 38 of the jointer table and preferably carried by the same. When it is desired to use the circular saw for cutting or ripping, the saw carrying frame is moved upwardly to raise the saw from the position illustrated in full lines in Fig. 5 of the drawings to the dotted position indicated in the said figure, and when not in use the circular saw is dropped below the saw table 79.

The transverse bottom portion of the saw carrying frame is provided with a projecting lug 80, having a threaded opening and engaged by a screw or threaded shaft 81, having a smooth lower portion 82, which is

journaled in a bearing 83 of a transverse bar or member 84, secured to and connecting the brackets 68 at the lower ends of the outer inclined flanges 70. The transverse connecting bar is also provided at one end with a depending arm 85, having a bearing for the inner portion of the horizontal operating shaft 86. The inner end of the shaft 86 carries a bevel gear 87, which meshes with a bevel gear 88, mounted on the lower end of the jointer 81. The outer end of the horizontal operating shaft 86 is equipped with a hand wheel 89, provided with a suitable crank handle and adapted to be rotated to actuate the threaded shaft or screw 81. When the shaft or screw 81 is rotated, it raises or lowers the saw carrying frame according to the direction the hand wheel 89 is turned. The saw table 79 is equipped with a miter gage 79^a and a straight gage 79^b, capable of adjustment with respect to the saw. The miter gage is slidably connected with the saw table, but as the particular construction of the gage does not constitute any portion of the present invention, further description thereof is deemed unnecessary. The spaced brackets 68 are also provided at the top with transversely aligned bearings 90 in which is journaled a boring spindle 91, disposed transversely of the machine and arranged at one side of the jointer shaft slightly below the horizontal plane of the same, as clearly illustrated in Fig. 5 of the drawings.

The side 2 of the frame of the machine has one end arranged in the same plane as one end of the relatively short side 1, and its other end extends beyond the short side of the frame and is provided at the top of its outer end with a goose neck standard 92 of approximately C-shape, formed integral with the side 2 of the frame and arranged in the vertical plane thereof, and curved upwardly and inwardly and then upwardly and outwardly, the upper terminal portion of the standard 92 being disposed horizontally and extended outwardly to the vertical plane of a lower upwardly extending arm 93, also formed integral with the side 2. The side 2 of the frame is provided with a circular opening 94, located between the lower ends of the standard 92 and the arm 93. Within the opening 94 is arranged a sectional bearing 95 in which is journaled a lower horizontal shaft 96, extending through the side 2 of the frame and projecting beyond the inner and outer faces of the same. The lower section of the bearing 95 is formed integral with the side 2 of the frame and extends upward from the bottom of the opening, and the outer portion of the shaft 96 has mounted on it a lower band saw wheel 97. The standard 92 supports an upper band saw wheel 98, mounted on a horizontal shaft 99, which is arranged in vertical ad-

justable bearings 100. The upper and lower band saw wheels receive a band saw 101, and the terminal portion of the said standard 92 is equipped with a saw guide 102. The arm 5 93 supports a pivotal saw table 103, located in advance of a fixed table 104, supported by a bracket 105, which is mounted on the standard 92 at the back thereof, and also forming a support for a rear guard 106. Also the 10 particular construction for adjustably mounting the upper band saw wheel and the particular construction of the saw guide and the supporting means for the band saw tables 103 and 104 do not constitute a portion of the present invention, and as these 15 parts may be varied in construction, further description thereof is deemed unnecessary.

The side 2 of the frame is provided at its outer face with a vertical guide 107, consisting of a bar either secured to or formed integral with the sides of the frame, and extending above the same and receiving a vertically slidable carriage 108 of triangular form, provided in its inner face with a vertical groove 109 to receive the guide 107. The 25 carriage 108, which tapers downwardly, is provided with a central vertical slot 110 through which projects a screw 111, mounted at its inner portion on the frame and equipped with a nut 112, which is in the 30 form of a hand wheel. The screw preferably pierces the side of the frame and the guide bar 107, as clearly shown in Fig. 7 of the drawings, and the nut 112 is adapted to be operated to clamp and release the carriage. The carriage is raised and lowered by means of a vertical adjusting screw 113, swiveled to a lug 114 of the guide bar and engaging a threaded opening of a lug 115 40 of the carriage. The lug 114 extends horizontally from one side of the guide bar 107, and the screw is preferably swiveled to the same by means of collars 116 fixed to a smooth portion of the screw and arranged at 45 the upper and lower faces of the lug 114. The lug 115 is arranged at the inner face of the carriage and is preferably formed integral therewith. The upper end of the vertically disposed adjusting screw is equipped with a crank handle 117, adapted to be operated to rotate the screw 113 for raising and 50 lowering the carriage.

The carriage is provided at the top with outwardly extending horizontal guide rods 55 118, preferably secured at their inner ends in openings of the carriage by screws 119 and provided at their outer ends with collars 120 for limiting the outward movement of a slidable work holder 121. The slidable 60 work holder, which is provided at its lower face with inner and outer eyes 122 and 123 to receive the horizontal guide rods 118, is normally held in its extended position by coiled springs 124, disposed on rods 125 and 65 interposed between the carriage and the

work holder. The rods 125 are mounted on the carriage and extend horizontally therefrom, and their outer portions pass through openings of lugs 126, preferably formed integral with the inner eyes 122 and forming 70 the bearing for the outer end of the springs 124. The slidable work holder 121, which is provided at its front edge with an abutment 127, is moved inwardly against the action of the coiled springs by means of a 75 treadle 128, consisting of a lever pivoted at its inner end 129 to the side 2 of the frame adjacent to the lower end of the guide 107, and provided at its outer end with a foot plate and connected at an intermediate point 80 to the lower end of a chain 130, or other suitable flexible connection. The chain 130 extends upwardly to and passes over a guide pulley 131 mounted on the carriage adjacent to the top thereof in a suitable bracket or 85 support. The chain extends outwardly from the guide pulley 131 to the slidable work holder, and is connected at its outer end to the lower face of the same.

The jointer shaft is equipped at its inner 90 end with a hollow mortising chisel 132, and the boring shaft is equipped with a chuck or head 133 for holding an auger 134, or other analogous tool. The work to be operated on is placed upon the work holder, 95 and is pressed inward against the tool by the foot lever or treadle, and is moved outwardly away from the tool by the coiled springs 124.

The machine is driven from a transversely 100 disposed main driving shaft 135, located beyond one end of the machine and connected by a belt 136 with any suitable source of power. The jointer shaft is equipped with a pulley 137, and is connected by a longitudinal belt 138 with the main driving or 105 counter shaft 135. The pulley 53 of the shaper actuating gearing is connected by a belt 139 with the counter shaft 135, and the inner portion of the shaft 96 carries a pulley 140, which is connected by a belt 141 110 to the counter shaft. The counter shaft is also connected by a belt 142 with a pulley 143 of a transverse shaft 144, journaled in bearing brackets 145, which are secured to 115 the sides of the frame at the opposite end from that at which the counter shaft is arranged. The transverse shaft 144 is connected with the boring spindle by a belt 146, arranged on pulleys 147 and 148, fixed to 120 the transverse shaft 144 and the boring spindle, respectively. The saw arbor is also connected with the transverse shaft 144 by a belt 148^a, arranged on pulleys 149 and 150 and engaged by a belt tightener 151. The 125 pulleys 148 and 149 are fixed to the saw arbor and the transverse shaft 144, and the belt tightener 151, which may be of any preferred construction, consists of a lever, fulcrumed at an intermediate point on the shaft 130

144 and provided at one of its arms with an idler pulley 152 and equipped at its other end with an adjustable weight 153, adapted to hold the idler pulley in engagement with the inner flight of the belt 148^a to maintain the latter taut throughout the adjustment of the circular saw.

In practice the machine will be equipped with suitable belt shifters for throwing the band and circular saws, the jointer shaft and the shaper and boring spindles into and out of operation. The machine is so arranged that any one of these parts may be used, or a plurality of them may be operated simultaneously. It will admit of four workmen using the machine, one at the band saw, one at the circular saw, one at the jointer and one at the mortising or boring tool without interfering with each other. The integral character of the frame of the band saw insures perfect steadiness and stability and thereby enables a practical band saw to constitute a part of the universal woodworking machine. Various rotary devices, such as a grind stone, a disk sander, and the like may be mounted on the jointer shaft and used in connection with the slidable work holder. The slidable work holder may be readily detached to permit a felly rounder, or other device to be applied to the machine at that end of the jointer shaft.

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

1. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon and secured to one of the said sides and provided with bearings arranged to receive a jointer shaft, and a longitudinal frame member mounted upon the other side of the frame and secured at its ends to the same and having an intermediate portion connected with and supporting the adjacent end of the transverse frame member.

2. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member extending across the frame and secured to one of the sides thereof and provided with spaced upwardly extending supporting portions having bearings adapted to receive a jointer shaft, and a longitudinal frame member mounted upon the other side of the frame and consisting of terminal guides, and an intermediate connecting portion secured to and supporting the adjacent end of the transverse frame member.

3. A universal woodworking machine including a frame comprising spaced sides, a hollow transverse frame member mounted upon one of the sides of the frame and composed of sides, a connecting top portion, and spaced supports extending upwardly from the top portion and having bearings to

receive a jointer shaft, said transverse frame member being also provided with an end wall, and a longitudinal frame member mounted upon the other side of the frame and provided with terminal guiding portions and having an intermediate web or plate secured to the end wall of the transverse frame member.

4. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member secured at one end to one of the sides of the frame, and a longitudinal frame member consisting of approximately triangular terminal guiding portions, and an intermediate connecting web or plate secured to and supporting the adjacent end of the transverse frame member.

5. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member connected at one end to one of the sides and having bearings adapted to receive a jointer shaft, and a longitudinal frame member mounted upon the other side of the frame and consisting of flanged triangular terminal guiding portions, and an intermediate connecting portion secured to and supporting the adjacent end of the transverse frame member.

6. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member connected at one end to one of the sides and having bearings adapted to receive a jointer shaft, and a longitudinal frame member mounted upon the other side of the frame and consisting of approximately triangular end portions, and an intermediate connecting portion secured to and supporting the adjacent end of the transverse frame member, said triangular end portions being provided with upper inclined guiding flanges and having horizontal attaching flanges secured to the side of the frame.

7. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member connected at one end to one of the sides and having bearings adapted to receive a jointer shaft, and a longitudinal frame member mounted upon the other side of the frame and consisting of approximately triangular end portions, and an intermediate connecting portion secured to and supporting the adjacent end of the transverse frame member, said triangular end portions being composed of inner vertical flanges, horizontal bottom flanges, inclined upper flanges, and vertical longitudinal side plates connecting the said flanges at the inner side edges thereof.

8. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member connected at one end to one of the sides and having bearings adapted to receive a jointer shaft, and a

longitudinal frame member provided with triangular end guides and having an intermediate approximately U-shaped connecting portion secured to and supporting the adjacent end of the transverse frame member, said end guides consisting of inner vertical flanges arranged at opposite sides of the intermediate connecting portion, horizontal bottom flanges secured to the side of the frame, inclined upper flanges, and side plates connecting the said flanges at the inner ends thereof.

9. A universal woodworking machine including a frame comprising spaced sides, a hollow transverse frame member extending across the space between the sides of the frame and seated upon one of the sides and provided thereat with attaching ears secured to such side of the frame, said transverse frame member being also provided with spaced upwardly extending supports arranged to receive a jointer shaft, and a longitudinal frame member seated upon the other side of the frame and composed of an intermediate plate secured to and supporting the adjacent end of the transverse frame member, and flanged end guides secured to the side of the frame and having upper inclined guiding portions.

10. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member extending across the space between the sides and having bearings to receive a jointer shaft, a longitudinal frame member mounted upon the other side of the frame and connected to and supporting the adjacent end of the transverse frame member, horizontal rods extending outwardly from the longitudinal frame member, and a vertical brace mounted upon the rods and having a bearing aligned with the bearings of the transverse frame member and adapted to support the end of the jointer shaft.

11. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides of the frame and provided with bearings adapted to receive a jointer shaft, a longitudinal frame member mounted upon the other side of the frame and connected to and supporting the transverse frame member, spaced horizontal rods extending outwardly from the frame, and a bracing plate having depending arms mounted on the said rods, said bracing plate being also provided with an upwardly extending arm having a bearing aligned with the bearings of the transverse frame member and adapted to support one end of the jointer shaft.

12. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides of the frame and provided

with bearings adapted to receive a jointer shaft, a longitudinal frame member mounted upon the other side of the frame and connected to and supporting the transverse frame member, spaced horizontal rods extending outwardly from the frame, and a vertical bracing plate mounted on the horizontal rods and having a bearing adapted to support one end of the jointer shaft, said bracing plate being movable on the rods and one of the latter being extended beyond the other and forming a pivotal support to permit the bracing plate to swing downward from its normal position.

13. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides of the frame and provided with bearings adapted to receive a jointer shaft, a longitudinal frame member mounted upon the other side of the frame and connected to and supporting the transverse frame member, spaced horizontal rods extending outwardly from the frame, and a vertical bracing plate provided at the bottom with openings to receive the rods and having clamping means for engaging the same, said bracing plate being also provided at the top with a bearing arranged in alignment with the bearings of the transverse frame member and adapted to support one end of the jointer shaft.

14. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides of the frame and provided with bearings adapted to receive a jointer shaft, a longitudinal frame member mounted upon the other side of the frame and connected to and supporting the transverse frame member, spaced horizontal rods extending outwardly from the frame, and a bracing plate provided at the top with a bearing and having openings at the bottom to receive the horizontal rods and having clamping means for engaging the same, one of the rods being provided with an extended rounded portion forming a supporting pivot and adapted to permit the bracing plate to swing downward when the same is moved outward beyond the other rod.

15. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member having one end mounted upon one of the sides of the frame, a longitudinal frame member mounted upon the other side of the frame, spaced brackets fixed to the transverse frame member and provided with guides, and a slidable bracket movable along the guides of the fixed brackets.

16. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member, means for connecting the same with the sides of the frame,

fixed upright brackets mounted on the transverse frame and provided at their outer sides with guides and having bearings located between the guides and the transverse frame member, and a slidable bracket having spaced sides movable upwardly and downwardly along the guides of the fixed brackets and having bearings.

17. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides, a longitudinal frame member connecting the transverse frame member with the other side of the frame, upright brackets fixed to one side of the transverse frame member and provided at their outer edges with guiding flanges, and an adjustable bracket provided with grooves to receive the guiding flanges and slidably interlocked with the same and movable upwardly and downwardly along the said guiding flanges.

18. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides of the frame, a longitudinal frame member connecting the transverse frame member with the other side of the frame, approximately triangular brackets tapered downwardly and fixed to one side of the transverse frame member and provided at their outer edges with inclined guides, said brackets being also provided with bearings located between the upper ends of the guides and the transverse frame member, and an adjustable bracket having spaced sides movable upwardly and downwardly along the said guides and provided with bearings.

19. A universal woodworking machine including a frame comprising spaced sides, a hollow transverse frame member having inclined sides and mounted upon one of the sides of the frame, a longitudinal frame member mounted upon the other side of the frame and supporting the transverse frame member, approximately triangular brackets fixed to one of the inclined sides of the transverse frame member and provided at their tops with bearings and having inclined flanges at their outer edges, and an adjustable bracket composed of spaced sides interlocked with the guiding flanges of the fixed brackets and provided with bearings.

20. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides of the frame of the machine, a longitudinal frame member connecting the transverse frame member with the opposite side of the frame of the machine, spaced brackets fixed to one side of the transverse frame member and provided with guides, an adjustable bracket having spaced sides slidably mounted on the guides of the fixed

brackets, said adjustable bracket being also provided with a connecting transverse portion, and a transverse bar or member connecting the fixed brackets and arranged to support means for operating the adjustable bracket.

21. A universal woodworking machine including a frame comprising spaced sides, a transverse connecting portion mounted upon one of the sides of the frame and having upwardly extending supporting portions provided with bearings, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the transverse frame member and provided with terminal guiding portions, fixed brackets mounted upon the transverse frame member at one side thereof and provided at the top with bearings and having guides at their outer edges, and an adjustable bracket slidably mounted on the guides of the fixed brackets and movable upwardly and downwardly and provided with bearings.

22. A universal woodworking machine including a transverse frame comprising spaced sides, a transverse frame member secured to one of the sides of the frame, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the adjacent end of the transverse frame member and having terminal guiding portions, and a bracket depending from one of the terminal portions of the longitudinal frame member and provided with vertically aligned bearings located at the space between the sides of the frame.

23. A universal woodworking machine including a transverse frame comprising spaced sides, a transverse frame member secured to one of the sides of the frame, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the adjacent end of the transverse frame member and having terminal guiding portions, and a bracket depending from one of the terminal portions of the longitudinal frame member and provided with upper and lower vertically aligned bearings, and a transverse beam connecting the sides of the frame and arranged beneath and supporting the lower bearing of the said bracket.

24. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member secured to one of the sides of the frame, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the transverse frame member and having terminal guiding portions, and a vertical bracket provided with an approximately L-shaped upper portion fitting one of the terminal portions of the longitudinal

frame member and secured to the same, said bracket being also provided with upper and lower alined bearings.

25. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member secured to one of the sides of the frame, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the transverse frame member and having terminal guiding portions, and a vertical bracket depending from one of the terminal portions of the longitudinal frame member and provided with an L-shaped top portion to fit the same and having an inwardly extending arm at the bottom, said bracket being also provided at the top and bottom with alined bearings.

26. A universal woodworking machine including a frame comprising spaced sides, one of the sides of the frame being extended beyond the other and provided at its extended end with an integral goose neck standard and having an arm also formed integral with the extended end of the side of the frame, a transverse frame member mounted upon the extended side of the frame, and a longitudinal frame member mounted upon the other side of the frame and connected with the transverse frame member.

27. A universal woodworking machine including a frame comprising spaced sides, one of the sides being extended beyond the end of the other side and provided at its extended portion with an integral upwardly and outwardly extending arm and having an integral goose neck standard extending upwardly and inwardly from the lower end of the said arm and then upwardly and outwardly to a point above the terminal of the said arm, the standard and the arm being arranged in the plane of the extended side of the frame, a transverse frame member secured at one end to the extended side of the frame, and a longitudinal frame member mounted upon the other side of the frame and connected with the adjacent end of the transverse frame member.

28. A universal woodworking machine including a frame comprising spaced sides, one of the sides being extended beyond the other and provided with an integral upwardly and outwardly extending arm and having an integral goose neck standard extending upwardly at the inner end of the said arm and then outwardly to a point above the outer terminal of the arm, a transverse frame member secured at one end to the extended side of the frame, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point to the longitudinal frame member and having terminal guiding portions, spaced brackets fixed to one side of

the transverse frame member and having guides, an adjustable bracket movable along the guides of the fixed brackets, and a vertical bracket located at the opposite side of the transverse frame member and supported by the terminal guiding portion of the longitudinal frame member.

29. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member secured to one of the sides of the frame and provided with upwardly extending supporting portions having alined bearings, and a longitudinal frame member mounted upon the other side of the frame and secured at an intermediate point to the transverse frame member and having terminal guiding portions, a jointer shaft mounted in the bearings of the transverse frame member, and table sections located in advance and in rear of the jointer shaft and having slides mounted on the terminal guiding portions of the longitudinal frame member.

30. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides of the frame and having bearings, a longitudinal frame member mounted upon the other side of the frame and secured at an intermediate point to the transverse frame member and having terminal guiding portions, horizontal rods mounted on and projecting from the longitudinal frame member, and a vertical bracing plate mounted on the rods and extending upward therefrom in spaced relation with the adjacent side of the frame and provided at the top with a bearing alined with the said bearings, a jointer shaft mounted in the bearings of the transverse frame member and the bracing plate, and table sections located in advance and in rear of the jointer shaft and having slides mounted on the guiding portions of the longitudinal frame member.

31. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member mounted upon one of the sides of the frame, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the transverse frame member and having terminal guiding portions, a horizontal beam connecting the sides of the frame at the lower portions thereof, and a depending bracket hung from one of the guiding portions of the longitudinal frame member and seated upon the transverse beam and provided with upper and lower alined bearings, and a shaper spindle mounted in the bearings of the bracket.

32. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member connected with one of the sides and provided with bearings, a longitudinal frame member mounted upon

the other side of the frame and connected at an intermediate point with the transverse frame member and provided with terminal guiding portions, and a bracket depending from one of the terminal bearing portions and provided with upper and lower bearings, a jointer shaft mounted in the bearings of the transverse frame member, a shaper spindle journaled in the bearings of the depending bracket, and table sections located in advance and in rear of the jointer shaft and having slides mounted on the terminal guiding portions of the longitudinal frame member.

33. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member secured to one of the sides, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the transverse frame member and having terminal guiding portions, a table supported by one of the guiding portions and having an opening, spaced brackets fixed to one side of the transverse frame member and provided with guides, an adjustable bracket movable along the guides of the fixed brackets, and a saw arbor carried by the adjustable bracket and having a saw operating through the opening of the said table.

34. A universal woodworking machine including a frame comprising spaced sides, one of the sides being extended beyond one end of the other side and provided at its extended end with an integral upwardly extending arm and having an integral goose neck standard extending upwardly at the inner end of the arm and then outwardly over the said arm, said extended side being also provided between the inner end of the arm and the lower end of the standard with an opening and having a bearing therein, a lower shaft journaled in the said bearing, an upper shaft supported by the standard, upper and lower band saw wheels mounted on the said shafts, and a band saw arranged on the band saw wheels.

35. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member provided with bearings and secured to one of the sides of the frame, and a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the transverse frame, a shaft journaled in the said bearings and extending from opposite sides of the frame, a vertical guide mounted on the frame at one side thereof, a carriage slidable vertically along the guide, and a work holder mounted on the carriage.

36. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member provided with bearings and secured to one of the sides of the frame, and a longitudinal frame mem-

ber mounted upon the other side of the frame and connected at an intermediate point with the transverse frame, a shaft journaled in the said bearings and extending from opposite sides of the frame, a vertical guide mounted on the frame at one side thereof, a carriage movable vertically along the guide and provided with horizontal rods, and a work holder movable inwardly and outwardly on the rods and cooperating with the shaft.

37. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member provided with bearings and secured to one of the sides of the frame, a longitudinal frame member mounted on the other side of the frame and connected with the transverse frame member, spaced brackets secured to the transverse frame member at one side thereof and provided with bearings, shafts mounted in the bearings of the transverse frame member and the brackets, a carriage movable vertically at one side of the frame, and a horizontally slidable work holder mounted on the carriage and cooperating with the said shafts.

38. A universal woodworking machine including a frame comprising spaced sides, a transverse frame member provided with bearings and secured to one of the sides of the frame, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the transverse frame member and provided with terminal guiding portions, rods extending from one side of the frame, and a bracing plate mounted on the rods and provided with a bearing aligned with the bearings of the transverse frame member, a jointer shaft journaled in the said bearings and supported at one end by the bracing plate, a vertical guide mounted on the frame at the opposite end of the shaft, a carriage movable along the guide and provided with a work holder, and table sections mounted on the terminal guiding portions of the longitudinal frame member and arranged in advance and in rear of the jointer shaft.

39. A universal woodworking machine including a frame comprising spaced sides, one of the sides being extended and provided at the extended portion with an integral arm and having an integral goose neck standard, a transverse frame member secured to the extended side of the frame, a longitudinal frame member mounted upon the other side of the frame and connected at an intermediate point with the transverse frame member and provided with terminal guiding portions, a depending bracket hung from one of the guiding portions of the longitudinal frame member and arranged at one side of the transverse frame member, fixed brackets secured to the other side of

the transverse frame member and provided with guides, and an adjustable bracket movable along the guides of the fixed brackets, a jointer shaft mounted on the transverse frame member, a shaper spindle supported by the said depending bracket and arranged at one side of the jointer shaft, a saw arbor supported by the adjustable bracket and located at the opposite side of the jointer shaft and provided with a saw, table sections located in advance and in rear of the jointer shaft and supported by the terminal guiding portions of the longitudinal frame

member, upper and lower shafts mounted, respectively, on the goose neck standard and on the frame, band saw wheels mounted on the said upper and lower shafts, and a band saw arranged on the band saw wheels. 15

In testimony, that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses. 20

ALFRED C. GETZ.

Witnesses:

CHARLES EICHER,

BROOKE GETZ.