

L. F. PARKS.
COMBINATION WOODWORKING MACHINE.
APPLICATION FILED JAN. 22, 1910.

989,285.

Patented Apr. 11, 1911.

5 SHEETS-SHEET 1.

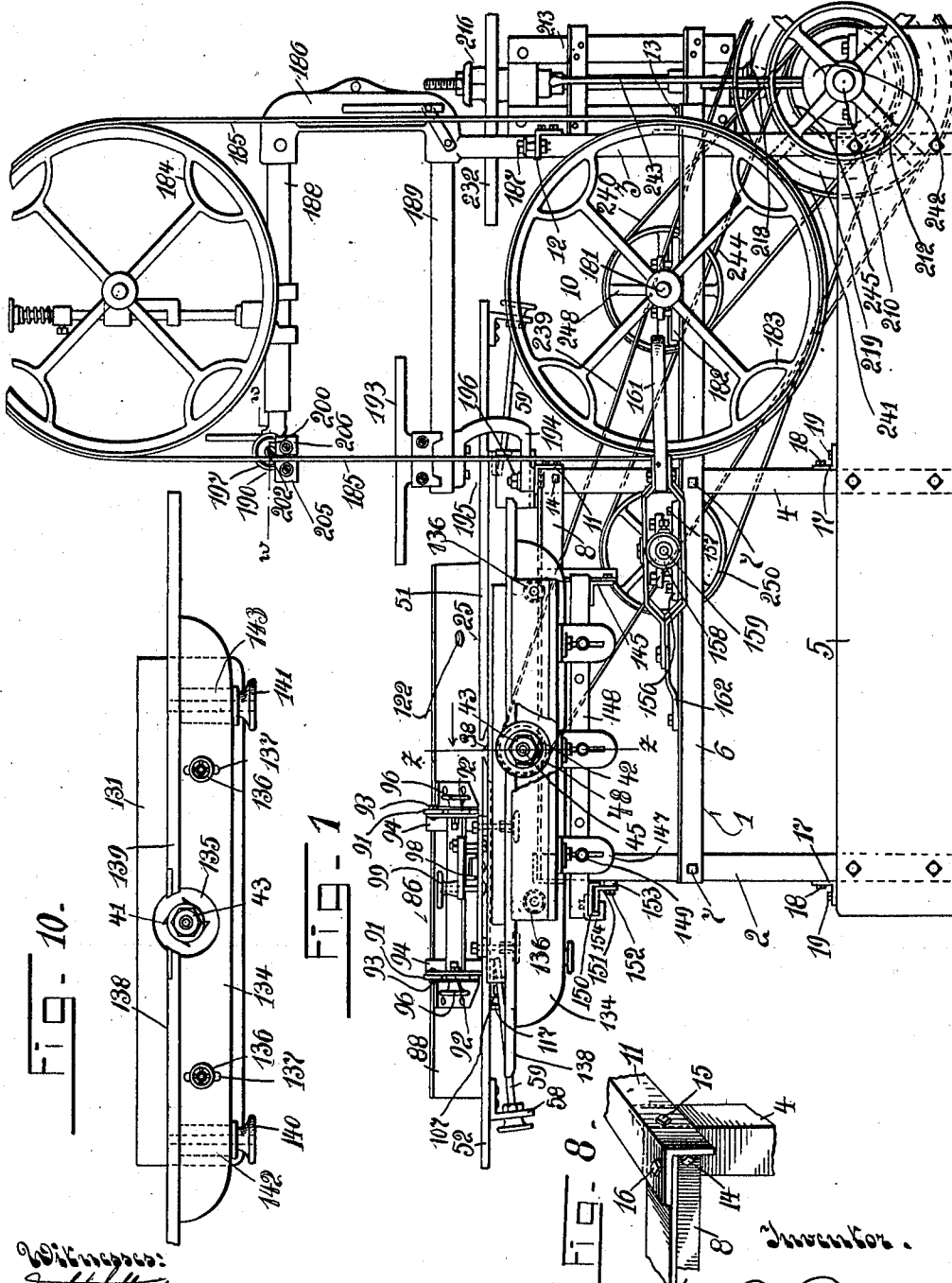


FIG. 10.

FIG. 1

FIG. 8.

Witnesses:
Jacob H. Hollander
Lillian Burnett

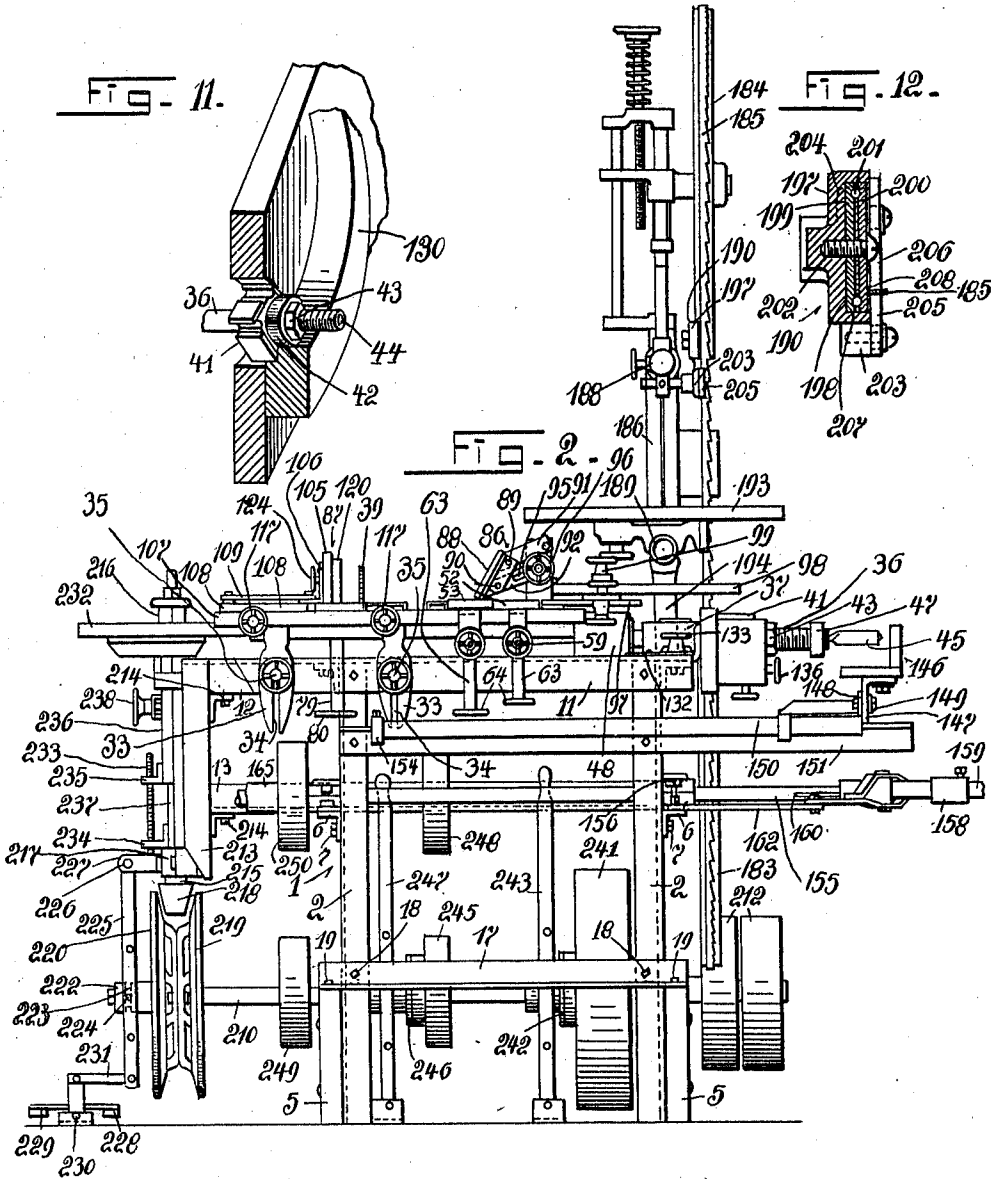
Inventor.
Lewis F. Parks,
by R. F. Gabel
His Attorney.

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6 SHEETS—SHEET 2.



Witnesses:

James H. Hender
Ellen Burnett

Inventor.

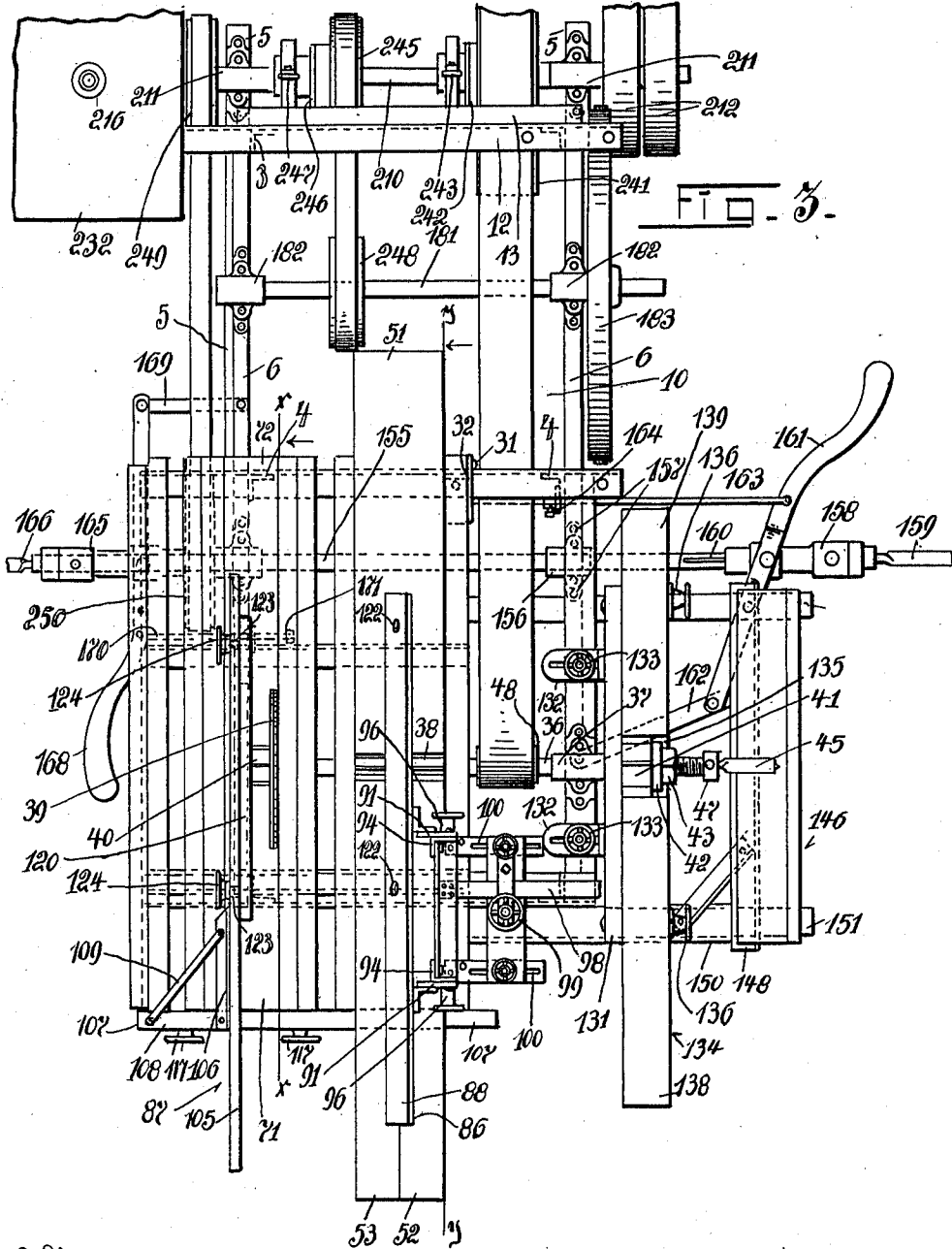
Lewis F. Parks,
by R. A. Hensley
Attorney.

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5 SHEETS—SHEET 3.



Witnesses:

James H. Hollander
Lillian Burnett

Inventor.

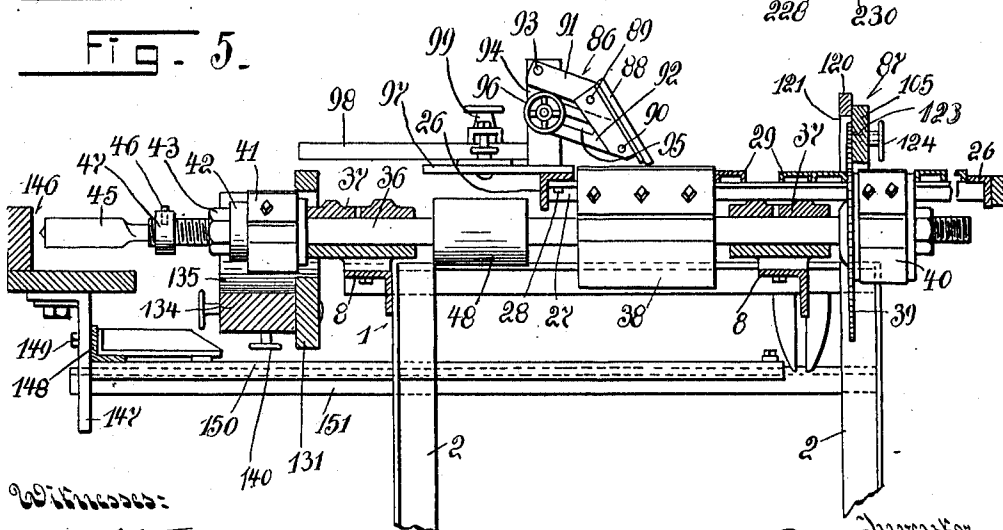
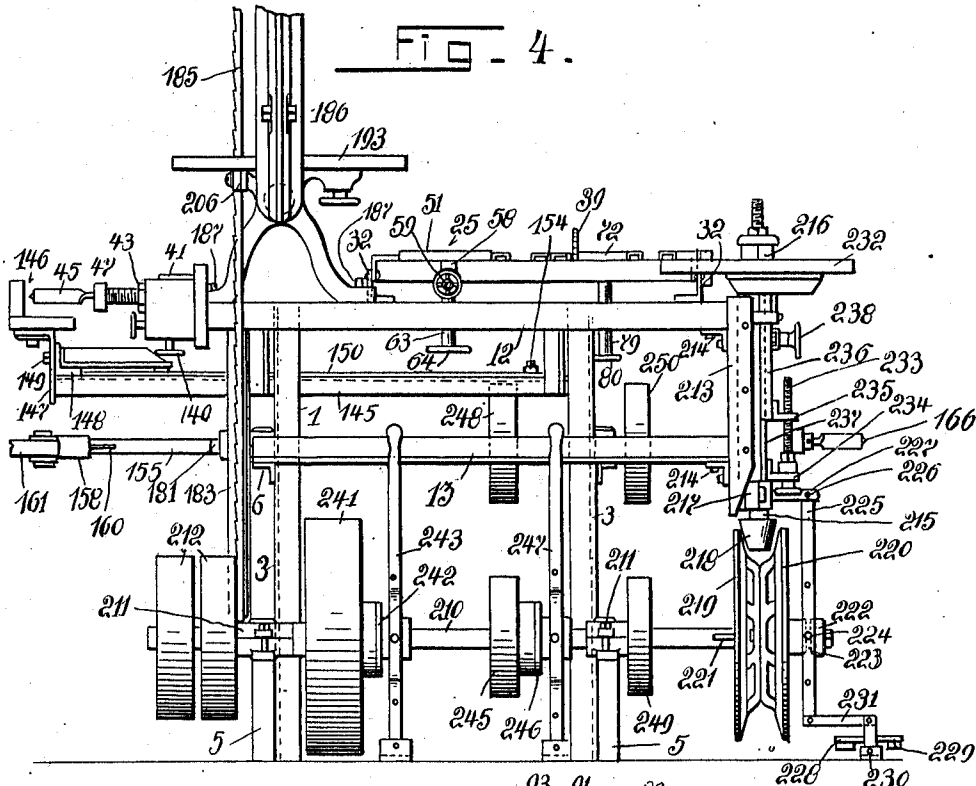
Louis F. Parks,
by R. D. Hershleb
His Attorney.

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5 SHEETS—SHEET 4.



Witnesses:

James H. Portlander
Lillian Burnett

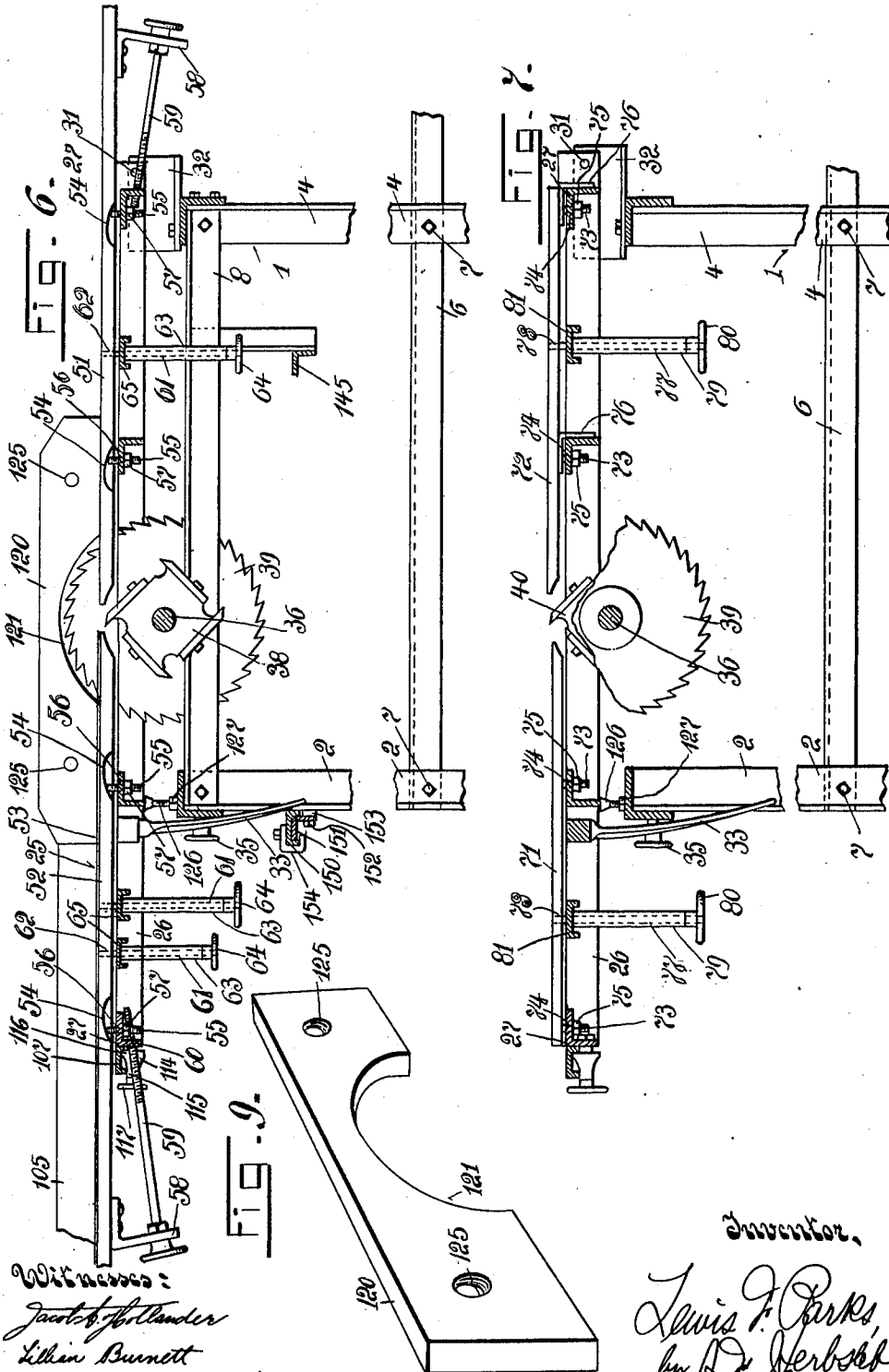
Inventor.
Lewis F. Parks,
by R. F. Heikel
His Attorney.

L. F. PARKS.
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5 SHEETS—SHEET 6.



Witnesses:
Jacob H. Hollander
Lillian Burnett

Inventor,
Lewis F. Parks,
by R. D. Herbold
His Attorney

UNITED STATES PATENT OFFICE.

LEWIS F. PARKS, OF CINCINNATI, OHIO.

COMBINATION WOODWORKING-MACHINE.

989,285.

Specification of Letters Patent. Patented Apr. 11, 1911.

Application filed January 22, 1910. Serial No. 539,586.

To all whom it may concern:

Be it known that I, LEWIS F. PARKS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Combination Woodworking-Machines, of which the following is a specification.

It is the object of my invention to provide a combination wood-working machine comprising various cutting instrumentalities so combined and arranged that the same may be used conjointly or in close relation without interference with each other and be so mounted as to economize in space and cost of construction, and the invention will be readily understood from the following description and claims, and from the drawings, in which latter:

Figure 1 is a right side elevation of my improved device. Fig. 2 is a front elevation of the same. Fig. 3 is a plan view of the same partly broken away, and with the upper saw-wheel frame omitted for better illustration of parts. Fig. 4 is a rear elevation of the same, partly broken away. Fig. 5 is a longitudinal section taken on the axial plane of the main mandrel, on the line $z-z$ of Fig. 1, showing said mandrel and its attendant parts. Fig. 6 is a cross-section on the line $y-y$ of Fig. 3, the rear end of the frame and the parts mounted thereon being broken away. Fig. 7 is a cross-section on the line $x-x$ of Fig. 3. Fig. 8 is a perspective detail of the corner connection of the main frame. Fig. 9 is a perspective view of the guard-block for the circular saw-blade. Fig. 10 is a side elevation of the auxiliary table. Fig. 11 is a perspective view, partly in vertical section, of the vertical stock-support for the same, showing a piece of stock guided thereby into range of the lower side of the auxiliary cutter-head; and, Fig. 12 is a horizontal section of the band saw-guide, taken on the line $w-w$ of Fig. 1.

I do not herein broadly claim the arrangement of the plurality of tables in front of the cutter-head and common rear table, and the side-gage therefor, showing, describing and claiming said features in a separate application therefor filed by me August 5, 1910, Serial No. 575,740; nor do

I herein broadly claim the manner of mounting and driving the upright spindle, showing, describing and claiming the same in a separate application filed by me August 5, 1910, Serial No. 575,741; nor do I herein claim the band-saw guide herein shown and described for the reason that I show, describe and claim the same in a separate application filed by me August 5, 1910, Serial No. 575,755.

1 represents the main frame which is shown constructed of angle-irons bolted together and which has a reinforcing base composed of side beams, preferably of wood. Thus the main frame comprises front angle-iron uprights 2, rear angle-iron uprights 3, and intermediate angle-iron uprights 4, which are connected at their bottoms at the respective ends of the machine by base-beams 5 set up on edge. Intermediate angle-iron cross-girts 6 are bolted to all of said uprights at the respective ends of the machine by bolts 7. Upper angle-iron cross-girts 8 are bolted to the front uprights and intermediate uprights at the respective ends of the main frame, and arranged for forming a gap 10 between the intermediate uprights and rear uprights above the intermediate cross-girts. The front and intermediate uprights located in front of said gap are respectively connected at the respective ends of the main frame by an upper angle-iron longitudinal girt 11 and the rear uprights are connected by an upper angle-iron longitudinal girt 12 and an intermediate angle-iron longitudinal girt 13. The manner of connecting the uprights and upper longitudinal and cross-girts where they meet to form corners is preferably as follows (see Fig. 8): One of the wings of the upper cross-girt and one of the wings of the upright are bolted together by a bolt 14, one of the wings of the longitudinal girt and the other of the wings of the upright are bolted together by a bolt 15, and the other of the wings of the longitudinal girt and the other of the wings of the cross-girt are bolted together by a bolt 16, the flat faces of said wings which are bolted together being presented toward each other. The uprights and base-beams (see Figs. 1 and 2) are connected by angle-iron longitudinal girts 17, bolted to said uprights

and base-beams respectively by bolts 18 19, thereby bracing the frame.

25 is a main table, the frame work of which is constructed of end angle-irons 26 (see Figs. 5, 6 and 7), connected by longitudinal angle-irons 27 secured thereto by bolts 28. The table has inverted channel-irons 29 extending at right angles to the main mandrel and secured to the frame-work. The end angle-irons of the table extend beyond the rear of the rear longitudinal angle-irons, where they are pivoted to the main frame adjacent to the intermediate uprights on pins 31, located on angle-iron clips 32 secured to the main frame. The table is provided at its forward end with depending bars 33 having slots 34 (see Fig. 2) through which clamp-bolts 35 are received into the main frame, by means of which the table is clamped in adjusted positions at various elevations.

36 is a main mandrel journaled in bearings 37 on the main frame. (See Figs. 3, 5, 6 and 7). This mandrel as shown has a main cutter-head 38, a circular saw-blade 39, and a supplemental cutter-head 40 secured thereto, one of the bearings 37 for the main mandrel being located between said main cutter-head and circular saw-blade, the inverted channel-irons 29 being located above said bearing between said main cutter-head and circular saw-blade. The main mandrel also has thereon an auxiliary cutter-head 41 located adjacent its end, (see also Figs. 2, 10 and 11) adjoining which there is a rubbing-collar 42, the auxiliary cutter-head and rubbing-collar being clamped in place by a clamp-nut 43. The end of the main mandrel is also shown provided with a bore 44 in which the shank of an auger-bit 45 is received, the latter being clamped in place by a set-screw 46 threaded into a collar 47 and through an opening in the wall of the bore against the shank of said auger-bit. The main mandrel is provided with a pulley 48 for operating the same. The bearings 37 are secured to the upper cross-girts 8 between the front uprights 2 and the intermediate uprights 4.

An adjustable table-plate 51 is located (see Figs. 1, 3 and 6) at the rear of the main cutter-head, and a plurality of table-plates 52 53 (see also Fig. 2) are located at the front of said main cutter-head, either or both of said plurality of front table-plates acting in conjunction with said single rear table-plate. By this means a roughing and a finishing cut may be imparted without intermediate adjustment of tables, or greater depth of cut may be obtained at one side of stock which is for instance of irregular shape in cross-section, and other operations performed without readjustment of parts. These table-plates are each provided with inclined guides 54, formed within the bodies

of said plates by under-cutting, forming a cheap construction, arranged to rest on set-screws 55 adjustable in threaded apertures 56 in the horizontal angles of the longitudinal angle-irons of the frame-work of the table, clamp-nuts 57 holding the set-screws in adjusted positions. Each of the table-plates has a depending lug 58 in which a hand-screw 59 is journaled against end-wise movement, said hand-screws being adjusted in threaded apertures 60 in the vertical wings of the front and rear angle-irons of the framework of the table. The set-screws 55 adjust the table-plates to the desired level and the hand-screws 59 adjust the same to elevation and toward and from the main cutter-head 38. Each of the table-plates is clamped in adjusted positions by a clamp-screw 61 received in a threaded aperture 62 in the table-plates and surrounded by a tube 63 having end abutment against a hand-wheel 64 of the clamp-screw and a cross-bar 65 received shiftably against the lower face of the rigid frame-work of the table.

Adjustable table-plates 71 72 are received respectively at the front and rear of the supplemental cutter-head 40. Each of these latter table-plates is adjusted to level position by means of set-screws 73 received in threaded apertures 74 in the horizontal wings of the longitudinal angle-irons of the framework of the table and held in place by nuts 75. For elevating the rear table-plate I provide shims 76 of right angular form in cross-section, the horizontal wings of which are arranged to be received between the upper ends of the set-screws 73 and the lower face of the table-plate, and the vertical wings of which are arranged to be placed against the vertical wings of the angle-bars of the framework of the table for positioning said shims. Each of these table-plates is arranged to be clamped in adjusted position by a clamp-screw 77 threaded into a threaded aperture 78 of the table-plate and encompassed by a tube 79 having end abutment against a hand-wheel 80 and a cross-bar 81 clamped against the lower face of the rigid framework of the machine.

86 is a side-gage at one side of the circular saw-blade 39 and 87 is a side-gage at the other side of said saw-blade, the side-gage 86 operating adjacent the main cutter-head 38 and the side-gage 87 operating adjacent the supplemental cutter-head 40. (See Figs. 1, 2, 3 and 5). The side-gage 86 comprises a gage-plate 88 which is articulated at 89 to links 91 92, the link 91 being pivoted at 93 to a slide 94 and the link 92 being adjusted with relation to said slide by having a slot 95 through which a clamp-screw 96 passes into threaded connection with said slide. By these means angular adjustment

is given the gage-plate. The slide is mounted on brackets 97 secured to the framework of the table and has a bar 98 received in a clamp 99, the clamp being adjustable lengthwise of the brackets in slots 100 therein. These means provide lateral adjustment for the side-gage 86. The side-gage 87 (see Figs. 2, 3, 5 and 6) comprises a gage-plate 105 rigidly secured to an angle-iron 106.

107 is an inverted channel-iron, which forms a slide for the angle-iron, which is spaced from the gage-plate by a block 108 for raising the latter so as to ride freely on the table-top at either side of the circular saw-blade.

109 is a brace rigidly secured to the angle-iron 106 and to the rear end of the block 108, the angle-iron 106 being also secured to said block.

The inverted channel-iron 107 rides on clamp-collars 114, the outer flange of the channel-iron riding upon the reduced ends 115 of said collars and said collars being provided with flanges 116 which are received in the under recess of said channel-iron and is clamped by clamping the rear depending flange of said inverted channel-iron between said flanges of the collars and the framework of the machine by means of clamp-screws 117 threaded into the framework of the table.

120 is a guard-bar (see also Fig. 9) for the circular saw-blade and has an arc-recess 121 in its lower face in which the upper portion of the periphery of the circular saw-blade is arranged to be received. This guard-bar is releasably attachable to either side-gage 86 or 87, the side-gage 86 being provided with apertures 122 and the side-gage 87 being provided with apertures 123 through which clamp-screws 124 are arranged to be selectively received and to be threaded into threaded apertures 125 in both sides of the guard-bar.

For limiting the downward movement of the main table, (see Figs. 6 and 7), set-screws 126 are threaded into the main frame and held in place by jam-nuts 127, the main table being arranged to rest upon the set-screws when in normal or level position.

Operating in conjunction with the auxiliary cutter-head 41 at the end of the main mandrel, (see Figs. 2, 3, 5 and 10), there is a vertical stock-support 131 which surrounds said mandrel and is adjustably secured to the main frame, and enables stock of various forms to be guided in vertical positions about the auxiliary cutter-head from all radial directions. Thus in Fig. 11 I have shown the same as applied in providing a curved strip 130 with a rabbet, the curved strip being passed about under the auxiliary cutter-head against the stock-engaging surface of said stock-support. The vertical stock-support is arranged to be adjusted

axially of the main mandrel by having slotted bars 132 secured thereto, clamp-screws 133 being received through the slots in said bars and threaded into the main frame for exposing more or less of the length of said cutter-head to the stock being operated on. When operating on stock from the upper part of said auxiliary cutter-head, I provide an auxiliary table 134 which is provided with a recess 135 in its upper face, in which the cutter-head rotates, the auxiliary table being a one-piece structure for insuring that the stock-surfaces shall be level with each other irrespective of any adjustment for elevation which may be given either end of said table. The adjustment for elevation is permitted and the auxiliary table clamped in adjusted positions by clamp-screws 136 received through slots 137 in said table and threaded into said vertical stock-support. If desired, the table surfaces of said auxiliary table may be on plates 138 139 adjustable toward and from the auxiliary cutter-head and held in adjusted positions by clamp-screws 140 141 received through slots 142 143 in said auxiliary table and threaded into said plates.

146 is a boring table slidable axially with relation to the main mandrel toward and from the boring-bit 45 in the end of the latter. (See Figs. 1, 2, 3, 4 and 5). It is mounted on slotted uprights 147 adjustable on an angle-bar 148, to which it is clamped by bolts 149. One end of the angle-bar 148 has an inverted channel-bar 150 bolted thereto, the latter being slidable on the horizontal wing of an angle-bar 151 secured to the main frame by bolts 152 about which collars 153 are received for spacing said angle-bar from the uprights of the main frame for accommodating the rear flange of said inverted channel-bar. A clip 154 secured to said inverted channel-bar and received under the horizontal wing of said angle-bar holds the parts in sliding relation. The other end of said angle-bar 148 is slidable loosely on an angle-iron 145 secured to the main frame, forming an economical construction which is accurate and in which all danger of binding is avoided. This manner of construction avoids all finishing of the sliding faces.

155 is a boring mandrel journaled in bearings 156 releasably secured by bolts 157 to the intermediate cross-girts 6 between the front uprights 2 and intermediate uprights 4. (See Figs. 1, 2, 3 and 4.) At one of its ends said boring-mandrel is provided with a socket-block 158 for a boring-bit 159, the socket-block having spline-connection 160 with said mandrel and arranged to be shifted lengthwise of said mandrel by a lever 161 articulated with the main frame through a link 162 and having a stop-rod 163 thereon provided with a stop 164 for limiting

the endwise movement of said boring-bit. At its other end said boring mandrel is provided with a socket-block 165 for a boring-bit 166. The socket-block 165 has
 5 spline-connection with said boring mandrel similar to the spline-connection 160 and is arranged to be shifted lengthwise thereof by means of a lever 168 articulated with the main frame through a link 169 and having a
 10 stop-rod 170 thereon provided with an adjustable stop 171 for limiting the endwise movement of the socket-block 165.

181 is a lower band saw-wheel mandrel (see Figs. 1 and 3) journaled in bearings 182
 15 releasably secured to the intermediate cross-girts 6 between the intermediate uprights 4 and rear uprights 3 in the lower portion of the gap 10 between said intermediate and rear uprights. The said mandrel supports
 20 a lower band saw-wheel 183. 184 is an upper band saw-wheel, a band saw-blade 185 being received about said band-saw wheels.

186 is an upright supported on the rear upper longitudinal girt 12 of the main
 25 frame and releasably secured thereto by bolts 187. Tubes 188 189 project forwardly from said upright, an upper band-saw guide 190 being secured to the upper tube 188. The forward end of the lower tube 189 supports
 30 the table 193 and is in turn supported from the intermediate longitudinal girt 11 of the frame by the recessed yoke 194, the recess 195 whereof opens forwardly and provides clearance between the table 193 and the main
 35 table 25, the table 193 being located above the horizontal plane of the main table and at the rear thereof. The recessed yoke is releasably secured to the main frame by a bolt 196. The construction permits at-
 40 tachment or removal of the band sawing device.

The upper band saw-guide 190 (see Fig. 12) comprises a casing 197 in which there is a pocket 198 which receives disks 199 200
 45 wholly therein and having ball bearings 201 therebetween and centered and held in place by a screw 202. The disk rotates about said bolt. The casing has lugs 203 and 204 to which side-blocks 205 206 for the band
 50 saw-blade are secured, the blocks being received against the outer edge of the wall 207 of said pocket which extends forwardly of the outer face of the outer one of said disks for distancing said blocks from said
 55 outer disk and insuring its easy running, the said outer edge of the said wall being provided with notches 208 in which the band saw-blade is received against said disk. A band saw-guide of few parts which are
 60 easily assembled is thus formed.

210 is the drive-shaft (see Figs. 1, 2, 3 and 4) and is supported in bearings 211 at the rear of the rear uprights 3, preferably on the rear ends of the base-beams 5. This
 65 drive-shaft is common to all wood-cutting

devices. It is provided with tight and loose pulleys 212 for operating the same.

213 is a supplemental overhanging frame (see Figs. 1, 2 and 4) constructed of angle-irons bolted together and in turn bolted by
 70 bolts 214 to the rear upper and intermediate longitudinal girts 12 13 for forming a construction in which said supplemental frame may be releasably attached to said main frame. This supplemental frame forms a
 75 support for an upright shaping or friezing device, of which 215 is the upright cutter-carrying shaft arranged to have a cutter 216 secured thereto. This upright shaft is journaled in bearings 217 secured to the supple-
 80 mental frame. It is in vertical plane coincident with the vertical plane of the drive-shaft and has a friction bevel-wheel 218 at its lower end.

219 220 are connected friction bevel-wheels
 85 which as shown have spline-connection 221 with the drive-shaft, the hub 222 of said connected friction-wheels having an annular groove 223 in which pins 224 of a yoke-lever
 225 are received, the yoke-lever being pivoted at 226 to a bracket 227 of the supplemental frame and operated by connected
 90 treadles 228 229 pivoted at 230 to the floor and having articulated connection with the yoke-lever by a link 231.
 95

232 is a table which is adjustable up and down by means of a screw-rod 233 journaled against endwise movement in a bracket 234 on the supplemental frame and having
 100 threaded connection with a lug 235 on a slide 236 secured to said table, the slide slidable on a guideway 237 of the supplemental frame and held in adjusted position by a clamp 238. The table 232 is located to rear
 105 of the main table 25 and is substantially at the same normal elevation therewith.

The drive-shaft is provided with a pulley 241 which is loose on said drive-shaft but is arranged to be connected therewith for rotating with the same by a clutch 242, shifted
 110 in and out by a lever 243. When connected with said drive-shaft the pulley 241 is arranged to operate the main mandrel 36 by means of a suitable belt 239 passing there-
 115 over and over the pulley 48 on said main mandrel. 245 is a pulley also loose on said drive-shaft but arranged to be connected therewith by a clutch 246 operated by a lever 247 and when so connected is arranged to
 120 operate the lower band-saw wheel mandrel by means of a belt 240 passing thereover and over a pulley 248 secured to said mandrel.

249 is a pulley secured to the drive-shaft and is arranged to operate the boring mandrel by means of a suitable belt 244 passing
 125 about said pulley 249 and a pulley 250 secured to said boring mandrel.

By referring to Fig. 1 it will be seen that the various shafts are so arranged that operation of the same may be had without inter-
 130

ference with each other. The relative location between the main mandrel, the auger mandrel and the lower band-saw wheel-mandrel and drive-shaft is such as to allow the longest belt to be passed over the pulleys on the drive-shaft and the main mandrel, this main mandrel requiring the greatest relative power to be applied thereto. It is located so that a right line drawn between its rotary axis and the rotary axis of the drive-shaft will be between a right line drawn between the rotary axes of the auger mandrel and drive-shaft and a right line drawn between the lower band-saw wheel-mandrel and said drive-shaft, thus permitting said various mandrels to be operated within compact space and without interference, by straight belts which pass directly between the drive-shaft and said respective mandrels.

My improved device forms a construction in which the various wood-working agencies and their attendant parts may be selectively embraced or added as desired, and so arranged that the same may be conjointly or selectively employed without interference with each other and so arranged as to be operated by a common drive-shaft. It further forms a cheap construction which is readily assembled and by means of which a great variety of operations may be performed.

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

1. In combination, in a combination wood-working machine, a main frame embracing sides comprising base-beams at the bottoms thereof set up on edge, angle-iron uprights secured to said base-beams, and top and intermediate angle-iron cross-girts secured to said uprights, said main frame further embracing longitudinal angle-irons secured to said sides, a drive-shaft journaled at the rear of said base-beams, bearings selectively secured to said top and intermediate angle-iron cross-girts, and wood-working mandrels journaled in said bearings and driven from said drive-shaft, substantially as described.

2. In combination, in a combination wood-working machine, a main frame embracing sides comprising base-beams at the bottoms thereof, angle-iron uprights one of the wings whereof is secured to said base-beams and angle-iron cross-girts secured to said wings, and angle-iron longitudinal girts, one of the wings whereof is secured to said base-beams and the other of the wings whereof is secured to the other of the wings of said angle-iron uprights, a drive-shaft journaled at the rear of said base-beams, and a wood-working mandrel journaled in said frame and arranged to be driven from said drive-shaft, substantially as described.

3. In combination, in a combination wood-working machine, a main frame embracing sides comprising base-beams at the bottoms

thereof set up on edge, angle-iron uprights one of the wings whereof is secured to said base-beams, and upper and intermediate angle-iron cross-girts secured to said wings, and lower angle-iron longitudinal girts one of the wings whereof is secured to said base-beams and the other of the wings whereof is secured to the other of the wings of said angle-iron uprights, said frame further embracing rear angle-iron longitudinal girts extending beyond one of said sides and forming a sideward extension to said frame, an upright wood-working mandrel journaled in said extension, a drive-shaft journaled at the rear of said base-beams under said upright mandrel, and wood-working mandrels selectively journaled to the cross-girts of said frame, said wood-working mandrels arranged to be driven from said drive-shaft, substantially as described.

4. In a combination wood-working machine, the combination of a main frame comprising a front support, a rear support, and having a gap between said supports, at the bottom of which an intermediate support is formed on said frame, a horizontal mandrel journaled on said front support, a table on said front support for said mandrel, a vertical spindle and a table therefor secured at one end of said rear support, a lower band-saw wheel-mandrel journaled on said intermediate support, an upper frame spanning said gap and secured to the other end of said rear support and said intermediate support, and an upper band-saw wheel and table on said upper frame, substantially as described.

5. In a combination wood-working machine, the combination of a main frame comprising a front support, a rear support, and having a gap between said supports at the bottom of which an intermediate support is formed on said frame, a horizontal mandrel journaled on said front support, a table on said front support for said mandrel, a vertical spindle and a table therefor secured at one end of said rear support, a lower band-saw wheel-mandrel journaled on said intermediate support, an upper frame spanning said gap and secured to the other end of said rear support and comprising a recessed yoke secured to said front support, the recess of said yoke being presented toward said front support and extending rearwardly thereof and above the horizontal plane of said table on said front support, and an upper band-saw wheel and table on said upper frame, said last-named table being above the horizontal planes of said first and second named tables, substantially as described.

6. In a combination wood-working machine, the combination of a main frame comprising a front support, a rear support, and having a gap between said supports at the bottom of which an intermediate support is formed on said frame, a horizontal mandrel

journaled on said front support, a table on
 said front support for said mandrel, a ver-
 tical spindle and a table therefor secured at
 one end of said rear support, a lower band-
 5 saw wheel-mandrel journaled on said inter-
 mediate support, an upper frame spanning
 said gap and secured to the other end of said
 rear support and said intermediate support,
 an upper band-saw wheel and table on said
 10 upper frame, a drive-shaft journaled at the
 rear of said rear support in vertical plane
 with said vertical spindle, friction bevel-
 wheels between said drive-shaft and vertical
 spindle, a pulley on said lower band-saw
 15 wheel-mandrel, a mating pulley therefor
 normally loose on said drive-shaft, a pulley
 on said horizontal mandrel, a mating pulley
 therefor normally loose on said drive-shaft,
 and clutches for selectively securing said
 20 pulleys normally loose on said drive-shaft to
 said drive-shaft, substantially as described.

7. In a combination wood-working ma-
 chine, the combination of a main frame, a
 mandrel journaled therein, a cutter-head
 25 and a circular saw-blade secured to said
 mandrel, a table pivoted at the rear to said
 main frame, the framework of said table
 consisting of angle-irons secured together, a
 table-plate respectively at the front and rear
 30 of said cutter-head, adjusting bolts for said
 table-plates having threaded connection with
 one of the wings of said angle-irons, said
 table-plates being provided with inclined
 faces between the planes of their top and
 35 bottom faces, said inclined faces resting on
 said adjusting bolts, and adjusting rods be-
 tween said table-plates and framework for
 adjusting said table-plates toward and from
 said cutter-head and at the side of said saw-
 40 blade, and means at the front of said table
 for adjusting the same to elevation, and con-
 structed and arranged for lowering the top
 of said table into range of operation of said
 cutter-head and elevating the same beyond
 45 said range of operation at the side of said
 saw-blade, substantially as described.

8. In a combination wood-working ma-
 chine, the combination of a main frame, a
 mandrel journaled therein, a circular saw-
 50 blade secured to said mandrel, a cutter-head
 secured to said mandrel at each side of said
 saw-blade, a side-gage for each of said cut-
 ter-heads, a hooded guard for said circular
 saw-blade common to both said side-gages,
 55 securing means therefor for each of said
 side-gages, and means for adjusting said
 side-gages laterally with relation to said re-
 spective cutter-heads and for bringing either
 side-gage having said hooded guard secured
 60 thereto adjacent to said circular saw-blade
 with said hooded guard received over said
 circular saw-blade, substantially as described.

9. In a combination wood-working ma-
 chine, the combination of a main frame,
 65 mandrel-bearings thereon, a mandrel jour-

naled therein, a table adjustable to elevation
 on said frame, a circular saw-blade and a
 cutter-head secured to said mandrel, one of
 said mandrel-bearings being between said
 circular saw-blade and cutter-head, said
 70 table having a framework of angle-irons and
 inverted channel-irons secured to said angle-
 irons, said inverted channel-irons located
 above said last-named mandrel-bearing be-
 tween said circular saw-blade and cutter-
 75 head, and table-plates adjustable toward and
 from said cutter-head at the side of said in-
 verted channel-irons, substantially as de-
 scribed.

10. In a combination wood-working ma- 80
 chine, the combination of a main frame
 built up of angle-irons and comprising
 strengthening beams at the base thereof, a
 mandrel journaled in said frame, a table com-
 85 prising a framework of angle-irons and hav-
 ing pivotal connection at its rear with said
 said frame-work, means at the front of said
 table for adjusting the same to elevation
 with relation to said frame, table-plates re-
 90 spectively at the front and rear of said cut-
 ter-head, adjusting bolts for said table hav-
 ing threaded connection with one of the
 wings of said respective angle-irons and ar-
 ranged for adjusting said table-plates to re-
 95 lative elevation, clamping means acting be-
 tween said table and said table-plates for
 clamping said table-plates in adjusted posi-
 tions and constructed and arranged for ad-
 justing said table with relation to said cut-
 100 ter-head and said saw-blade, and for rais-
 ing the top of said table out of horizontal
 range of said cutter-head while maintained
 within operative relation with said saw-
 blade, substantially as described.

11. In a combination wood-working ma- 105
 chine, the combination of a main frame
 built up of angle-irons and comprising
 strengthening beams at the base thereof, a
 mandrel journaled in said frame, a circular
 110 saw-blade and a cutter-head secured to said
 mandrel, a table comprising a framework of
 angle-irons and having pivotal connection at
 its rear with said main frame, means at the
 front of said table for adjusting the same to
 elevation with relation to said main frame,
 115 table-plates respectively at the front and
 rear of said cutter-head, adjusting bolts for
 said table-plates having threaded connec-
 tion with one of the wings of said respective
 angle-irons and arranged for adjusting said
 120 table-plates to relative elevation, clamping
 means acting between said framework and
 said table-plates for clamping said table-
 plates in adjusted positions and constructed
 and arranged for adjusting said table with
 125 relation to said cutter-head and said saw,
 shims of angle-form in cross-section, one of
 the wings whereof is received between said
 adjusting bolts and the other of the wings
 whereof is received against the vertical 130

wings of the angle-irons of said framework of said table, substantially as described.

12. In a combination wood-working machine, the combination of a main frame comprising angle-irons bolted together, a mandrel journaled in said main frame, a circular saw-blade, a main cutter-head and an auxiliary cutter-head secured to said mandrel, a main-table comprising a framework of angle-irons bolted together, means for adjusting said main table to elevation on said main frame adjacent to the cutting edges of said circular saw-blade and main cutter-head, a main side-gage having a guiding extension adjustable laterally with relation to said main cutter-head and circular saw-blade, a vertical stock-support for said auxiliary cutter-head under said extension, an auxiliary table for said auxiliary cutter-head, and means for adjusting said auxiliary table up and down on said vertical stock-support with relation to said auxiliary cutter-head and below the horizontal plane of the top of said main table, substantially as described.

13. In a combination wood-working machine, the combination of a main frame composed of angle-irons and base-beams bolted together and comprising intermediate cross-girts and upper cross-girts of angle-iron and front, intermediate and rear uprights of angle-iron, the said intermediate cross-girts being secured to all said uprights and said upper cross-girts being secured to said front and intermediate uprights for forming a gap between said intermediate and rear uprights above said intermediate cross-girts, a lower band-saw wheel-mandrel journaled in said gap, an upper band-saw wheel-mandrel journaled above said gap, and a table for the band-saw blade received about said band saw-wheels located in horizontal plane between the horizontal planes of said band saw-wheels and in vertical plane above said gap, a boring mandrel journaled on said intermediate cross-girts between said front and intermediate uprights, a cutter-head mandrel journaled on said upper cross-girts between said front uprights and intermediate uprights, a drive-shaft journaled on said base in rear of said rear upright, a vertical mandrel journaled on said frame in rear of said uprights and in coincident vertical plane with said drive-shaft, and driving-means on said drive-shaft for said mandrels, a right line drawn between the rotary axis of said cutter-head mandrel and drive-shaft being between a right line drawn between the rotary axis of said boring mandrel and drive-shaft and a right line drawn between the rotary axis of said lower band-saw wheel-mandrel and drive-shaft, substantially as described.

14. In a combination wood-working machine, the combination of a main frame,

bearings on said main frame, a mandrel journaled therein, a main cutter-head secured to said mandrel between said bearings, an overhanging cutter-head secured to said mandrel outside said bearings, a main table adjustable up and down above said mandrel, a vertical stock-support surrounding said overhanging cutter-head and having a stock-engaging face at substantial right angles to the top of said main table, a removable auxiliary table adjustably secured to said vertical stock-support and means for adjusting said vertical stock-support axially of said mandrel, said auxiliary table being located below the horizontal plane of the top of said main table, substantially as described.

15. In a combination wood-working machine, the combination of a main frame, a mandrel journaled therein, a circular saw-blade, and a cutter-head secured to said mandrel at each side of said circular saw-blade, a table adjustable to elevation on said main frame, a pair of table-plates for each of said cutter-heads adjustable on said table toward and from said respective cutter-heads, said table comprising rigid table-top between said pairs of table-plates, said rigid table-top being located between said circular saw-blade and one of said pairs of table-plates, substantially for the purpose described.

16. In a combination wood-working machine, the combination of a mandrel, a circular saw-blade and a cutter-head at each side of said circular saw-blade on said mandrel, a pair of side-gages for said respective cutter-heads adjustable above said respective cutter-heads and movable closely adjacent to said circular saw-blade, a guard-block having a recess therein for said circular saw-blade arranged to be interchangeably secured to either of said side-gages, and interchangeable securing means between said respective side-gages and guard-block, substantially as described.

17. In a combination wood-working machine, the combination of a main frame comprising bottom beams and angle-iron uprights, angle-iron cross-girts and angle-iron longitudinal girts secured together at the corners of said main frame by having one of the wings of said angle-iron uprights and one of the wings of said angle-iron cross-girt presented toward each other and secured together, the other of the wings of said angle-iron upright and one of the wings of said angle-iron longitudinal girt presented toward each other and secured together, and the other of the wings of said angle-iron longitudinal girt and the other of the wings of said angle-iron cross-girt presented toward each other and secured together, one of the wings of said respective angle-iron uprights being secured to said bottom beams, and angle-iron longitudinal

girts secured to said bottom beams and the
other of the wings of said respective angle-
iron uprights, mandrel-bearings secured to
said angle-iron cross-girts, a mandrel jour-
5 naled in said bearings, and a rotary cutter-
head secured to said mandrel, substantially
as described.

In testimony whereof, I have signed my
name hereto in the presence of two subscrib-
ing witnesses.

LEWIS F. PARKS.

Witnesses:

CONSTANT SOUTHWORTH,
LILLIAN BURNETT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
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