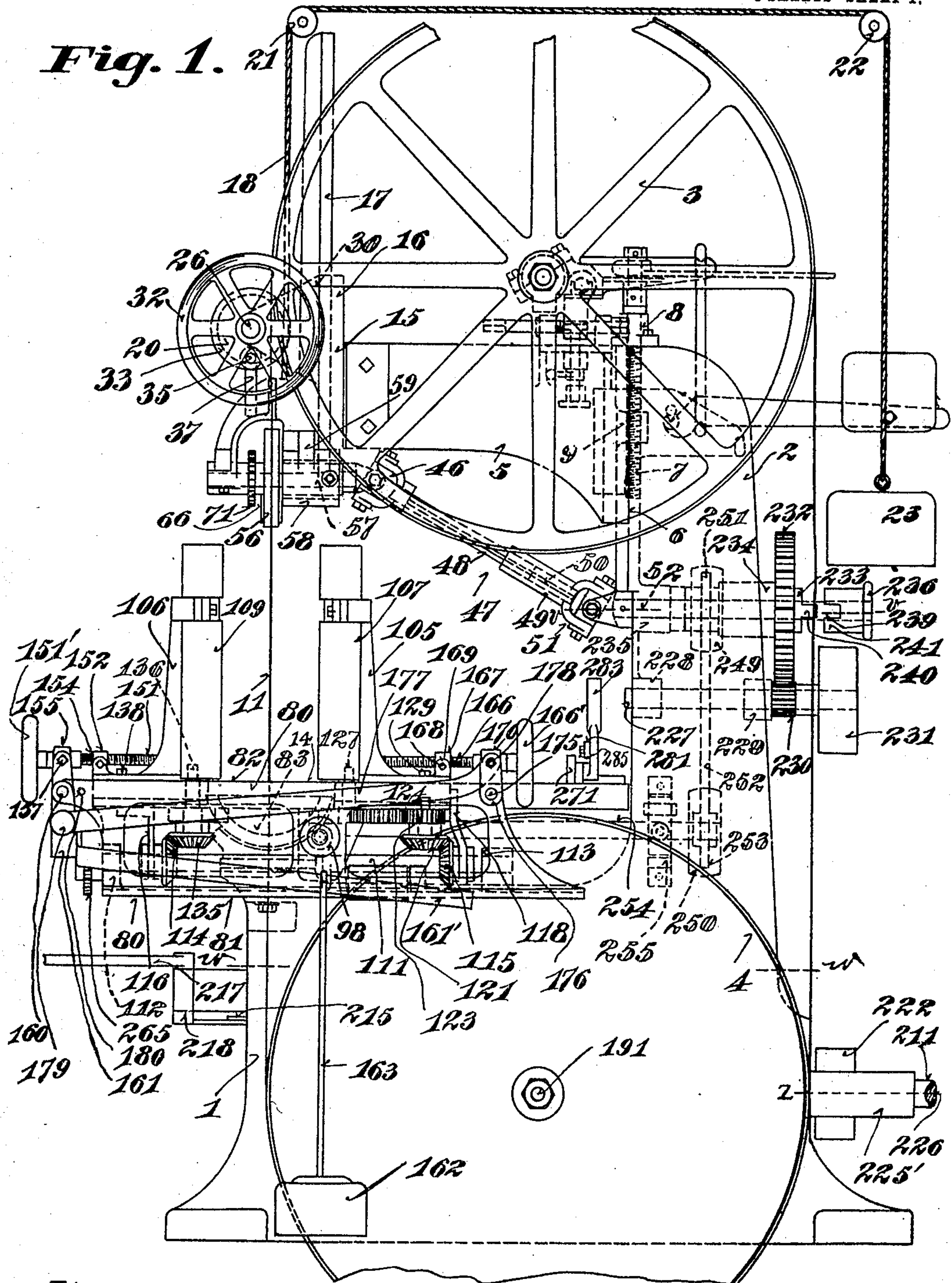


No. 871,119.

PATENTED NOV. 19, 1907.

L. J. HANHART.
BAND SAWING MACHINE.
APPLICATION FILED MAR. 27, 1905.

5 SHEETS—SHEET 1.



Witnesses.

Henry R. Bauer
John B. Behwig

Inventor.

Louis J. Hanhart,
by R. F. Verbeke, His Attorney.

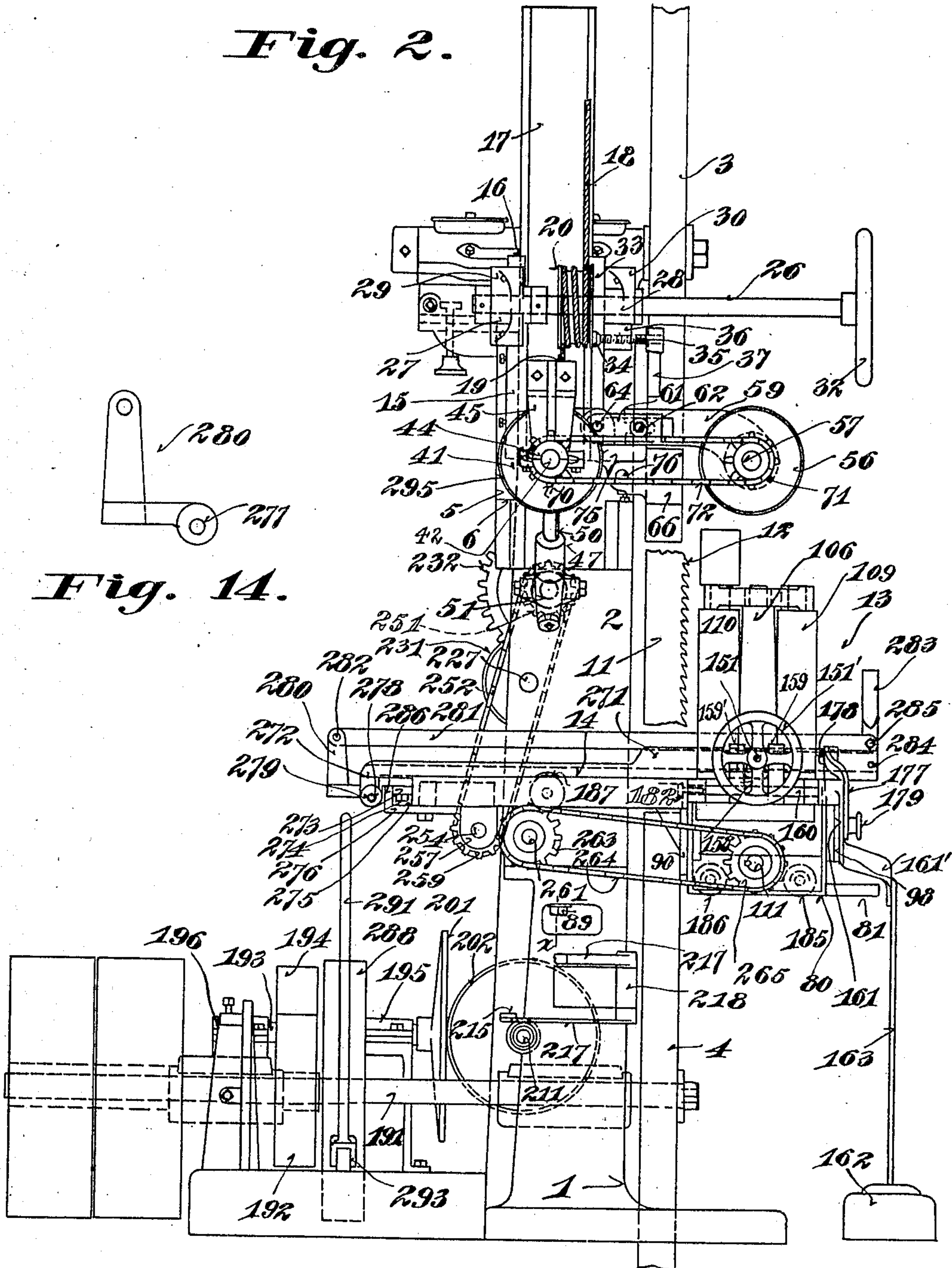
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5 SHEETS—SHEET 2.

Fig. 2.



Witnesses.

Henry H. Bauer
John B. Helwig

Inventor.

Louis J. Hanhart,
by R. D. Herbst, His Attorney.

No. 871,119.

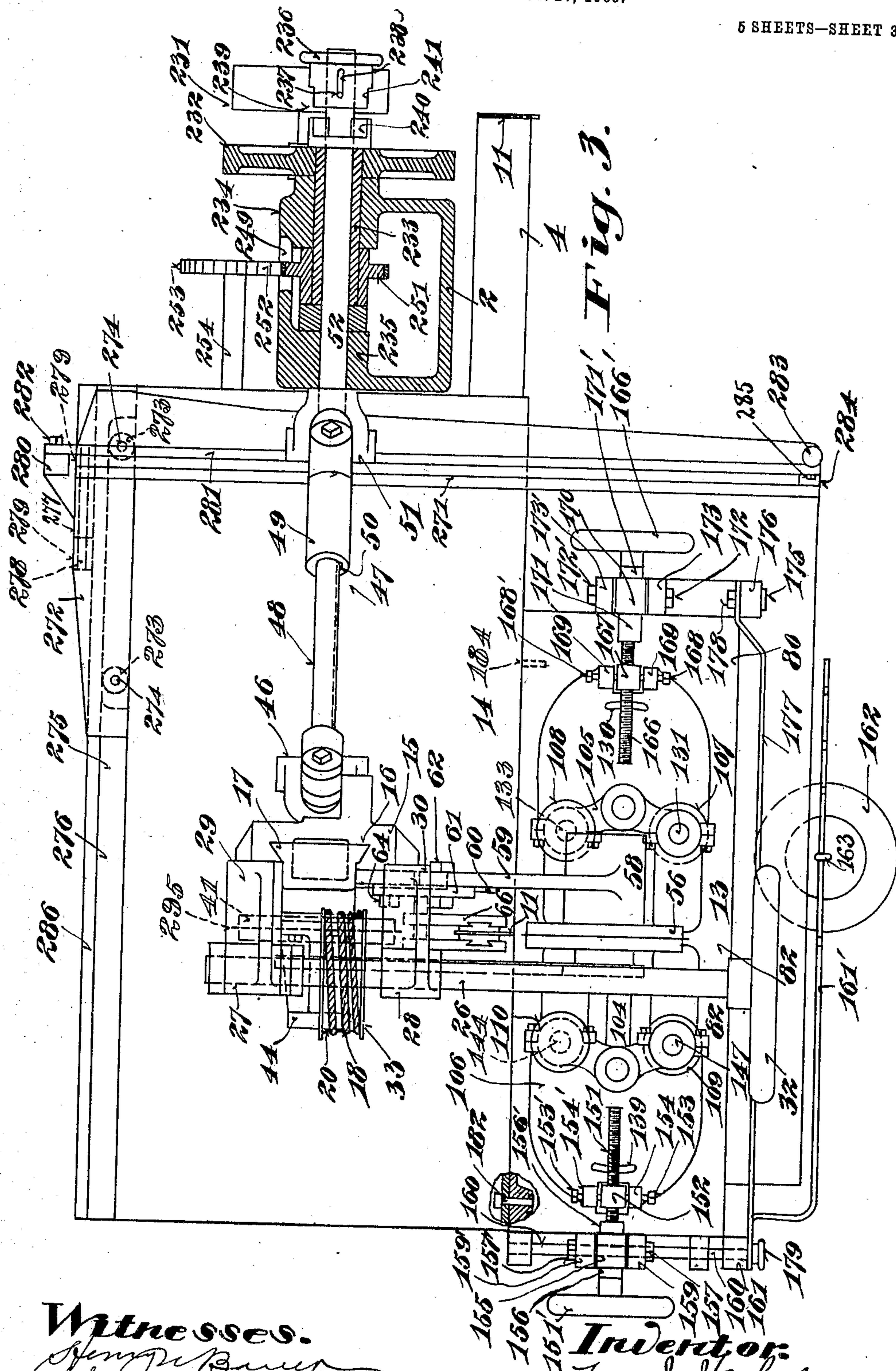
PATENTED NOV. 19, 1907.

L. J. HANHART.

BAND SAWING MACHINE.

APPLICATION FILED MAR. 27, 1905.

5 SHEETS—SHEET 3.



Witnesses.

John B. Stebbins

Inventor:

Louis J. Hancock

By A. D. Herbold, His Attorney.

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5 SHEETS—SHEET 4.

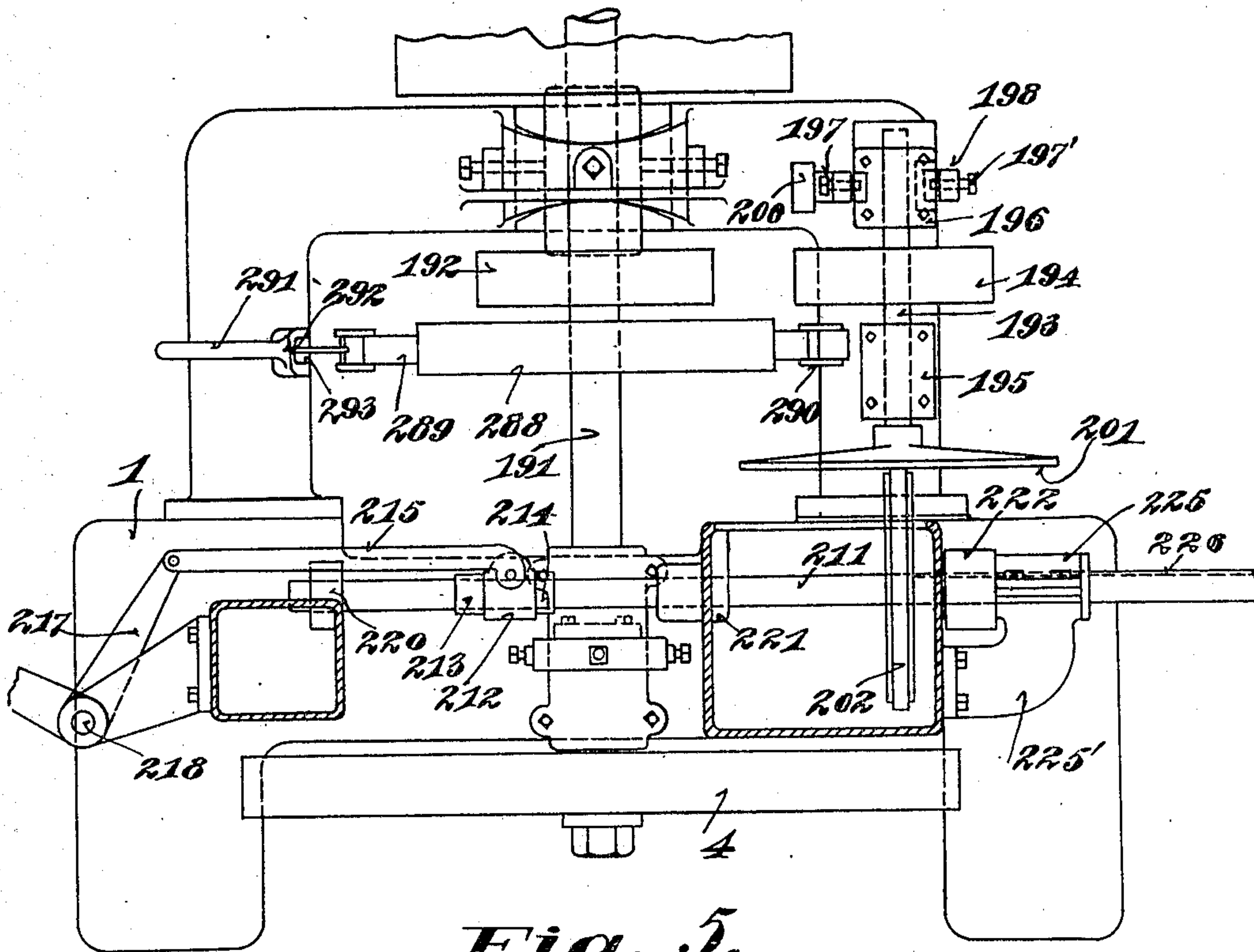


Fig. 5.

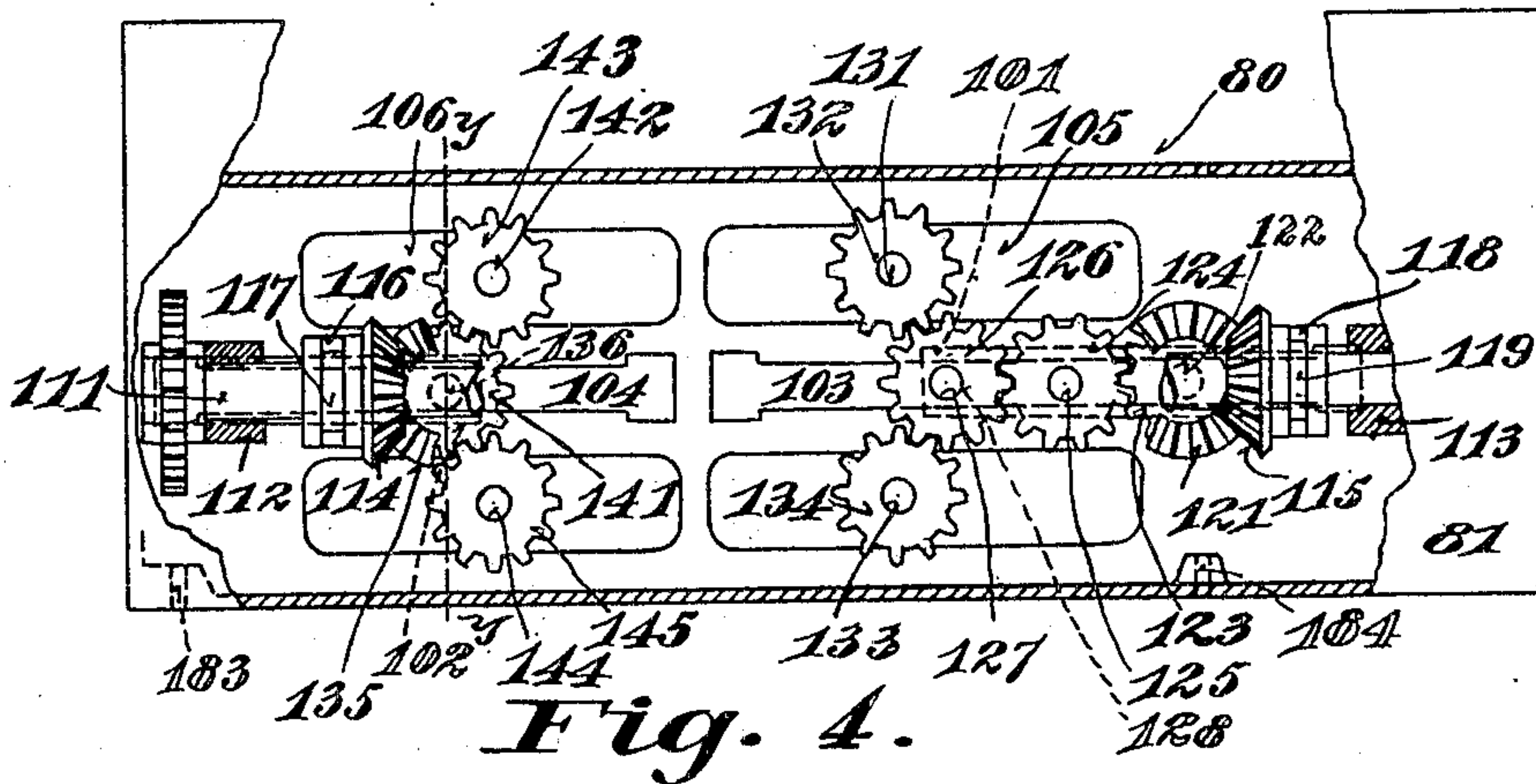


Fig. 4.

Witnesses.

Henry R. Bauer
John B. Gehrig

Inventor.

Louis J. Hanhart
By A. G. Verbeke, His Attorney.

UNITED STATES PATENT OFFICE.

LOUIS J. HANHART, OF CINCINNATI, OHIO, ASSIGNOR TO J. A. FAY & EGAN COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF WEST VIRGINIA.

BAND SAWING-MACHINE.

No. 871,119.

Specification of Letters Patent.

Patented Nov. 19, 1907.

Application filed March 27, 1905. Serial No. 252,245.

To all whom it may concern:

Be it known that I, LOUIS J. HANHART, 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 Band Sawing-Machines, of which the following is a specification.

My invention relates to band sawing machines, and has for its object the providing of a combined band rip-sawing and band resawing machine, and the invention consists in providing a machine of this character having a common feeding-in end whether employed as a band rip-sawing or as a band resawing machine; in providing a machine of this character in which the band-saw-blade is adapted to travel in the same direction with its teeth presented toward said common feeding-in end irrespective of whether being used as a band-rip or as a band resawing machine; in providing a common upper band-saw guide for the band-saw-blade in a machine of this character; in so arranging the feeding devices for the stock passing through the machine as to permit the feeding rolls to act upon the sides of the stock as well as upon the top thereof simultaneously; and the invention will be further readily understood from the following description and claims, and from the drawings in which latter:

Figure 1 is a front elevation of my improved device, partly broken away, showing the rip-sawing and resawing feeding devices in separated relation. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the same but showing the column in horizontal section on the line $v-v$ of Fig. 1, also showing the bracket proper at the top of column removed. Fig. 4 is a bottom view of the resawing feed-roll saddle, partly broken away for better illustration of parts. Fig. 5 is a plan view of the driving mechanism at the base of the machine, the frame being shown in horizontal section on the line $w-w$ of Fig. 1. Fig. 6 is a detail in side elevation of the yielding friction disk with its operative connections. Fig. 7 is a detail in rear elevation showing the tilting means for the feeding table and the cross-shaft connections for driving the resawing feed-rolls. Fig. 8 is a vertical sectional detail of the tilting support for the table taken on the line x of Fig. 2. Fig. 9 is an enlarged view in side elevation of the rip sawing feeding rolls and their connec-

tions. Fig. 10 is a plan view of the same. Fig. 11 is a sectional detail showing the mounting for the resawing roll-stand taken on the line $y-y$ of Fig. 4. Fig. 12 is a vertical sectional detail of the trunnion supporting means for the resaw-roll saddle taken on the line of the longitudinal axis of the trunnion. Fig. 13 is a detail showing the sleeve mounting for the pulley on the variable speed shaft, taken on the line z of Fig. 1. and; Fig. 14 is a detail in side elevation showing the cam-lever for the saw-table gage.

1 represents the frame, from which an upper band-saw wheel-supporting column rises.

3 is the upper band-saw wheel and 4 is the lower band-saw wheel.

5 is a bracket adjustable on the column, as on guide-ways 6, by means of a screw-rod 7, journaled in a bearing 8 on the column, and taking into an internally threaded lug 9 on the bracket. The upper band-saw wheel is suitably supported upon the bracket and provided with suitable adjusting and tensioning devices.

A band-saw blade 11 takes about the band-saw wheels and preferably has its teeth 12 projected toward the feeding-in end 13 of the feed-table 14 and it also preferably travels in the same direction, namely from above toward the feed-table, irrespective of whether the machine is used as a band-rip or as a band-resaw.

The bracket 5 is provided with a guide-way part 15 secured to its outer end, in which is a guide-way 16 in which a ram 17 is arranged to move up and down, as by means of having a cable 18 secured thereto at 19 and passing several times about a drum 20 and thence over suitable pulleys 21 22 and having a weight 23 attached thereto for partially counter-balancing the ram and parts supported thereby. The ram is preferably in rear of the band-saw blade. The drum is mounted on a shaft 26 journaled in bearings 27 28 in lugs 29 30 of the guide-way part 15. The shaft 26 has a hand-wheel 32 for operating the same. The drum has a friction-end 33 against which a shoe 34 is adapted to take, the shoe being loosely journaled on a screw-rod 35 threaded in a threaded bearing 36 in lug 30 and having a handle 37. The ram supports the band rip-saw feeding roll or rolls. Thus a roll 41 is mounted on a shaft 42, journaled in bearings 43 44 on the ram,

the bearing 44 being in a lug 45 secured to the ram. The shaft 42 has a flexible connection 46 shown as a knuckle-joint, with an extensible shaft 47, comprising telescoping sections 48 49 having spline-connection 50 therebetween, the extensible shaft having a flexible connection 51, shown as a knuckle-joint connection, with a shaft 52 journaled in the column, and driven in the manner hereinafter explained.

The ram has a second feed-roll 56 thereon. This feed-roll preferably has pivoted and slidable connection with the ram and preferably extends to the front of the band-saw blade. Thus the feed-roll 56 is mounted on a shaft 57 journaled in a bearing 58 of an arm 59. The arm 59 has a guide-way 60 into which a stump 61 takes, a bolt 62 taking through a slot 63 in the arm and into the stump, the stump being pivoted on a bolt 64 in a lug 65 of the ram. This construction permits the feed-roll 56, shown as the feeding-in roll, to have adjustment toward and from the feed-roll 41, shown as the feeding-out roll, permits removal of the feed-roll 56, and further permits the latter to be swung up out of the way. The feed-roll 56 may be swung out of the way or removed so as to have no interference with the resaw-feeding rolls hereinafter described and for permitting the upper band-saw guide 66 to be raised or lowered and brought into relatively proper position with the band rip-saw or band resaw-rolls when the machine is being used respectively as a band rip-sawing or as a band resawing machine.

The shaft 42 has a sprocket-wheel 70 and the shaft 57 a sprocket-wheel 71 secured thereto, a sprocket-chain 72 passing over said sprocket-wheels for providing power-connection for driving the feed-roll 56. A stop 73 on the stumps 61 rests on a shelf 74 of lug 75 on the ram and limits the downward swinging movement of the arm. The upper band-saw guide 66 is mounted on and moves with the ram. It is two-part and secured to a stud 76 on lug 75 by set-bolts 77, the two parts of the saw-guide being adjustable to and from each other. (See Figs. 9 and 10).

A resaw-roll supporting saddle 80 is supported by and reversible on the table 14 in manner hereinafter described, forming a turn-over table, and having a table-face 81 for rip-sawing and a table-face 82 for resawing. The table 14 has connection with the frame for permitting it to be tipped with relation to said frame. The table has an arc-piece 83 secured thereto which rests in an arc-piece 84 secured to the frame. A bolt 85 takes through a slot 86 in the arc-piece 83 and an aperture 87 in the arc-piece 84, its head 88 being above the slot 86 a nut 89 at the end of the bolt clamping the two arc-pieces together, thereby securing the table in

position. The tipping of the table also tips the resaw feed-rolls. For conveniently tipping the table it has a screw-rod 91 pivoted thereto at 92, a hand-wheel 93 being threaded to the rod 91 and connecting with a lug 94 of the frame. (See Fig. 7). The resaw roll-saddle has a bearing 95 upon which it is pivoted on a trunnion 96 secured to a lug 90 on the table 14. The trunnion has a reduced threaded end 97 for receiving a nut 98 whose hub 99 takes within the bearing 95 (see Fig. 12) for aiding in the support of the resaw roll-frame and permitting the latter to be moved away from the main table while having full bearing therewith for forming a space between the main table and resaw roll-saddle through which the band-saw blade may pass when being placed upon or removed from the machine.

The resaw roll-saddle carries slides 101 102 sliding in guide-ways 103 104 of the saddle. Resaw roll-stands 105 106 are adjustably secured to the respective slides. The roll-stand 105 carries resaw rolls 107 108 and the roll stand 106 carries resaw rolls 109 110.

The rolls 41 and 56 are herein termed the band rip-sawing feeding rolls. They have substantially horizontal axes and have the purpose of acting on the top of stock being fed through the machine flatwise on the table, whereas the rolls 107, 108, 109, 110, herein termed the band resawing feeding rolls, are additional rolls for the purpose of acting on the sides of stock fed edgewise on the table, and have their rotary axes extending up and down during operation. This relation of the respective rip-sawing and resawing feeding rolls brings them into proper relation to the table and to each other for permitting the stock to be fed on the table in most convenient manner for largest output and most rapid manipulation.

An operating-shaft 111 for the resaw rolls is journaled in bearings 112 113 on the resaw roll-saddle. Bevel-gears 114 115 are splined to the shaft 111. A fork 116 is secured to the slide 102 and takes into an annular groove 117 in the hub of gear 114. A fork 118 is secured to the slide 101 and takes into an annular groove 119 in the hub of gear 115. A bevel-gear 121 is journaled on a stud 122 on slide 101 and meshes with bevel-gear 115. (See Fig. 4.) A spur-gear 123 is secured to and rotates with bevel-gear 121 and meshes with a spur-gear 124 journaled on a stud 125 on the slide, the gear 124 in turn meshing with a spur-gear 126 journaled on a stud 127 secured to the resaw roll-stand 105, said stud 127 also being journaled in a bearing 128 in the slide 101 (similar to the bearing 137 in slide 102), and thus forming a pivot for said resaw roll-stand, a bolt 129 taking through a slot 130 in said stand and into the slide 101 for securing the stand and rolls thereon rigidly in position.

The resaw roll 107 is on a shaft 131 journaled in bearings in the stand 105, the shaft 131 carrying a gear 132 meshing with the gear 126, the resaw roll 108 being on a shaft 133 journaled in bearings in the stand 105 said shaft 133 carrying a gear 134 also meshing with gear 126. A bevel-gear 135 is journaled on a stud 136 secured to the resaw roll-stand 106, (see Figs. 4 and 11), said stud 136 also being journaled in a bearing 137 in the slide 102 and thus forming a pivot for said resaw roll-stand, a bolt 138 taking through a slot 139 in said stand and into the slide 102 for securing the stand and rolls rigidly in position. The pivoting of the resaw roll-stands permits the rolls to be adjusted for giving the stock the proper lead into the machine. The bevel-gear 135 has a spur-gear 141 secured thereto. The resaw roll 109 is on a shaft 142 journaled in bearings in the stand 106, the shaft 142 carrying a gear 143 meshing with the gear 141, the resaw roll 110 being on a shaft 144 carrying a gear 145 also meshing with gear 141.

For shifting the resaw rolls transversely toward and from the line of travel of the band-saw blade and for permitting automatic yield of one or both said rolls to inequalities in the stock the following instrumentalities may be provided. A screw-rod 151 having hand wheel 151', (see Figs. 1 and 3), is threaded in an upwardly extending lug 152 of slide 102, positioned between bolts 153 153' threaded into lugs 154 154' on the roll-stand 105. A bearing 155 takes about the rod 151 and is held against endwise movement with relation thereto by the collars 156 156' on the rod. The bearing is pivoted on bolts 157 157' in the forked ends 159 159' of an arm 158 (see Fig. 2) pivoted to the resaw roll-saddle, as on a shaft 160, the said shaft having an arm 161 having an extension 161' carrying a weight 162 on a rod 163, the arms and shaft forming a bell-crank lever. The rod 163 may be hooked over the extension 161' in suitable notches placed suitable distances from the end of the extension for increasing or decreasing the power. A screw-rod 166 having a hand-wheel 166' is threaded in an upward extension 167 of the slide 101 positioned between bolts 168 168' threaded in lugs 169 169' on the roll-stand 105. A bearing 170 takes about the rod 166 and is held against endwise movement with relation thereto by collars 171 171' on the rod. The bearing 170 is pivoted on bolts 172 172' in the forked ends 173 173' of an arm, similar to the arm 158, and pivoted to the resaw roll-saddle, as on a shaft 175, a second arm 176 being secured to said shaft 175 and having a link 177 pivotally connecting therewith as by a bolt 178. The link 177 may connect with the bell-crank lever for the roll-stand 106 by a pull-pin 179 taking through an aperture in the link and into an aperture in the arm 161

of the bell-crank lever, or it may connect with the resaw roll-saddle by having said pull-pin take into an aperture 180 (see Fig. 1) in the saddle. If the link 177 is connected with the bell-crank lever the rolls to either side of the path of the band-saw blade will yield equally, thereby self-centering the stock, if however the link 177 is connected with the resaw roll-saddle the outer rolls only will yield to the stock, the inner rolls remaining stationary.

When the machine is to be used as a resawing machine, the resaw roll-saddle is swung so as to bring the resaw feed-rolls above the table, the surface 82 thereof then forming part of the feed-table. When the machine is to be used as a rip-sawing machine, the resaw roll-saddle is swung so as to bring the resaw feed-rolls under the table, the surface 81 thereof then forming part of the feed-table. A pin 182 taking through an aperture in the frame and into suitably placed apertures 183 184 in said saddle definitely holds the saddle in either position. (See Figs. 2 and 4). The resaw roll-saddle may carry anti-friction rolls 185 186 at the surface 81 thereof, and the main table may have an anti-friction roll 187 journaled therein. (See Fig. 2). For driving the machine when employed as a band-rip and as a band-resaw, the following instrumentalities are preferably employed: The lower saw-wheel mandrel 191 carries a pulley 192. A shaft 193 carries a pulley 194 operated by a belt passing thereover and over the pulley 192. The shaft 193 is longitudinally rockable as by having slight endwise movement in a bearing 195 and being journaled in an end-thrust bearing 196 pivoted on bolts 197 197' threaded in a rocker-arm 198 pivoted at 199 to lugs 200 on the frame of the machine. The shaft 193 carries a friction-disk 201. A friction-pulley 202 is arranged to have contact made therewith by the friction-disk. The friction-disk is yieldingly urged toward the friction-pulley by a spring 203 taking about a rod 204 against the rocker-arm, a nut 205 adjusting the spring. The rod is connected with relation to the frame, as with the stand of bearing 195.

The friction-pulley is secured to a shaft 211 which is longitudinally adjustable for imparting selective speed to the band-rip and band resaw feed devices, as by rotating in a collar 212 secured against endwise movement on the shaft by collars 213 214 rigid thereon. A link 215 is pivoted to the collar 212 and to one member of a bell-crank lever 217, the other member of said bell-crank lever constituting an operating lever, the bell-crank lever being pivoted at 218 to the frame. The shaft 211 is journaled in bearings 220 221 in the frame and slides in a pulley 222, said pulley being secured to a sleeve 224 (see Fig. 13), forming a journal in a bearing 225 on bracket 225' extending from the frame 1, the pulley 130

222 having spline-connection 226 with said shaft. A shaft 227 is journaled in bearings 228 229 in the column. Said shaft carries a pinion 230 and a pulley 231, which latter is adapted to be driven by a belt passing there-
 5 over and about pulley 222. The pinion 230 meshes with a gear 232 on a sleeve 233 (see Fig. 3) journaled in a bearing 234 in the column. A sleeve 236 slides longitudinally on
 10 shaft 52 and has spline-connection therewith as see the pin 237 in the shaft and slot 238 in the sleeve 236. A clutch 239 is between the sleeve 236 and the sleeve 233. This is shown as a tooth-clutch having the clutch-faces
 15 240 on the sleeve 233 and the clutch-faces 241 on the sleeve 236. When the clutch is out of engagement power is transmitted through the sleeve 233 and connections presently to be described with the
 20 resaw feed-rolls, the rip-saw feed-rolls remaining at rest, but when the clutch is in engagement power is transmitted from sleeve 236 to the shaft 52 thereby operating the rip-saw feeding device through the extensible
 25 flexible shaft 47.

The sleeve 233 has a sprocket-wheel 251 secured thereto. A sprocket-chain 252 passes thereover and over a sprocket-wheel 253 on the shaft 254. This sprocket-chain
 30 252 preferably passes through the side of the column as see the openings 249 250 in the column. The shaft 254 is journaled in a bearing 255 on the column and in bearings 256 257 under the table (see Fig. 7) said shaft
 35 having a flexible joint 258, shown as a knuckle-joint, therein, for permitting tilting of the table. A gear 259 is on the shaft 254 and meshes with a gear 260 in front thereof on a shaft 261 journaled in a bearing 262 un-
 40 der the table, said shaft 261 having a sprocket-wheel 263 thereon, a sprocket-chain 264 passing over said sprocket-wheel 263 and over a sprocket-wheel 265 on the shaft 111. The sprocket-wheel 265 may be slipped
 45 endwise off its shaft for disconnecting the drive from said shaft and permitting swinging of the resaw feed-roll saddle.

A side-gage 271 for the rip-saw stock is provided. It has sliding connection with
 50 the feeding-out end of the table and is operated from the feeding-in end of the table. It is of L-form, having a lateral extension 272 at its feeding-out end and at said end carries anti-friction rollers 273 mounted on studs
 55 274 secured to the gage. These rollers operate in a groove 275 formed by the feeding-out end of the table and an angle-plate 276 bolted thereto. A cam 277 is mounted on a pin 278 in lugs 279 of the gage and has an arm
 60 280 to which a link 281 is pivoted at 282, a lever 283 pivoted to the gage at 284 having said link pivoted thereto at 285, said lever acting as an operating lever for said eccentric for clamping the tongue 286 of said angle-
 65 plate 276 between said eccentric and the

rollers 273 and thereby holding the gage rigidly in place, said lever 283 also acting as a handle for pushing the gage sidewardly.

It will be noted that in my improved device the feeding-in rip-sawing feed-roll and
 70 the resawing feed-rolls are brought close up to the cutting edge of the band-saw blade, that said rolls are one above the other, that there is a common upper band-saw guide for
 75 use in connection with both classes of rolls ready for use with either or both by simply adjusting the same to proper height, that provision is made for swinging the feeding-in
 80 rip-saw roll out of the way or removing the same if desired when using the machine as a band resawing machine; that my improved device is a self-contained band rip-sawing
 85 and band-resawing machine having a common feeding-in end; that if desired the band resawing feeding rolls may be employed in advance of the cutting edge of the band-saw
 90 blade and the rip-saw feed-out roll in rear of said band-saw blade when employing the machine as a band resawing machine, the feed-out roll preferably having a spreader
 95 295 in its periphery, which spreader may be used in common for the rip-sawing and for the re-sawing rolls; that the ram supporting the rip-sawing feed-rolls is located to rear of
 100 the band-saw blade position and that the feeding-in roll of said last-named rolls, located in front of the band-saw blade, may be moved and brought close up to the band-saw
 105 blade in front of said band-saw blade, while the upper band-saw guide, mounted on said ram, can be adjusted up and down into desired position closely adjacent to the stock
 110 being acted on by said resawing feeding rolls; and that the machine has a common feeding-in end for the rip-sawing and resawing devices thereof; any one or all of which
 115 advantages may be employed in a machine embodying my invention.

When using my improved device as a band resawing machine the rip-saw feeding rolls
 120 may be raised out of the way and clamped in desired position. When using my improved device as a band rip-sawing machine the rip-sawing feeding rolls are raised sufficiently
 125 above the table to properly contact the thinnest stock being operated on and the drum clamped in that position, the inequalities in the stock automatically raising the rip-saw feeding roll or rolls against the
 130 weight thereof and of the ram, forming a resilient pressure upon the stock.

The resawing feeding rolls are capable of being adjusted so as to bring the rolls on
 135 either side of the cutting plane of the band-saw blade close together for feeding thin stock, and the rip-sawing feeding rolls are capable of being adjusted to bring them
 140 close to the table for rip-sawing thin stock, parts of the resawing feeding roll devices and parts of the rip-sawing feeding devices occur-
 145

pying the same positions or space at different times.

In order to insure prompt stopping of the band-saw wheels, the lower saw-wheel mandrel is provided with a brake-wheel 288, a brake-band 289 being pivoted to the frame at 290 at one end thereof and to a lever 291 at 292 at its other end, the lever being pivoted at 293 to the frame, the brake-band having a suitable brake-shoe taking against the brake-wheel for promptly stopping rotation of the saw-wheels.

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

1. In a combined band rip-sawing and re-sawing machine, the combination, with a table, of band resawing feeding rolls, means for adjusting the same sidewardly above said table, a band rip-sawing feeding roll, means for adjusting the same up and down above said table in the path of adjustment of said re-sawing feeding rolls, means for permitting removal of said rip-sawing feeding roll out of the path of adjustment of said re-sawing feeding rolls, and means for permitting removal of said re-sawing feeding rolls from above said table.

2. In a combined band rip and re-sawing machine, the combination of band-saw wheels arranged for having a band-saw blade take thereabout, a band rip-sawing feeding-in roll in advance of the band-saw blade position, an adjustable ram therefor to rear of the band-saw blade position, a band-saw guide thereon, band re-sawing feeding rolls having rotary axes extending up and down in front of said band-saw blade position and under and in vertical plane with said feeding-in roll, and a releasable arm connecting said first-named feeding-roll with said ram, the release of said arm permitting said ram to be lowered into horizontal plane with said last named feeding rolls for adjusting said band-saw guide to a position below the top of said re-sawing feeding rolls.

3. In a combined band rip-sawing and re-sawing machine, the combination, with band-saw wheels arranged for having a band-saw blade take thereabout and a table, of band re-sawing feeding rolls, means for adjusting the same sidewardly above said table, a ram, a band rip-sawing feeding-in roll in advance of the band-saw blade position and a band rip-sawing feeding-out roll in rear of said band-saw blade position and a band-saw guide mounted on and moving with said ram, means for adjusting said ram up and down for bringing said feeding-in roll within the range of adjustment of said band re-sawing feeding rolls, means for permitting removal of said feeding-in roll out of the range of adjustment of said re-sawing feeding rolls, and means for permitting removal of

said re-sawing feeding rolls from above said table.

4. In a combined band rip and re-sawing machine, the combination of band-saw wheels arranged for having a band-saw blade take thereabout, a band rip-sawing feeding-in roll in advance of the band-saw blade position, an adjustable ram therefor to rear of the band-saw blade position, a band rip-sawing feeding-out roll on said ram in rear of the band-saw blade position, band re-sawing feeding rolls having rotary axes extending up and down in front of said band-saw blade position and vertically under said first-named feeding roll, and a releasable arm connecting said first-named feeding-roll with said ram, the release of said arm permitting said ram, and the feeding-out roll thereon to be lowered into horizontal plane with said re-sawing feeding rolls, and a band-saw guide mounted on said ram common to said first-named feeding-roll and said last-named feeding-rolls.

5. In a combined band rip and re-sawing machine, the combination of band-saw wheels arranged for having a band-saw blade take thereabout, a table, a band rip-saw feed-device comprising a ram adjustable up and down above said table, a feeding-in roll in advance of the band-saw blade position, a feeding-out roll to rear of the band-saw blade position, said feeding rolls having sidewardly extending rotary axes and a band rip sawing feeding device comprising feeding rolls having rotary axes extending up and down and located above said table, means for shifting said last-named feeding rolls under the level of said table, a releasable arm on which said feeding-in roll is mounted having releasable connection with said ram for permitting adjustment of said ram into horizontal plane with said re-sawing feeding rolls, and a band-saw guide common to both said classes of feeding rolls mounted on said ram.

6. In a band-rip and resawing machine, the combination, with a table, of band-saw wheels arranged for having a band-saw blade take thereabout, a band-rip sawing feeding roll having sidewardly extending rotary axis, flexible extensible shaft for driving the same, band resawing feeding rolls having rotary axes extending up and down, a flexible shaft for driving the same, means for adjusting said feeding rolls for causing the same to occupy similar horizontal planes above said table, means for removing said band rip-sawing feeding-roll out of the range of adjustment of said said band re-sawing feeding rolls, a common driving shaft for said flexible shafts, and clutch-mechanism between said common driving shaft and one of said flexible shafts, substantially as described.

7. In a band-rip and resawing machine,

the combination, with the table, of band-saw wheels arranged for having a band-saw blade take thereabout, a band-rip sawing feeding roll having sidewardly extending rotary axis, a shaft for driving the same, band resawing feeding rolls having rotary axes extending up and down, a shaft for driving the same, means for adjusting said feeding rolls in the same horizontal plane above said table, means for removing said band re-sawing feeding roll out of the range of adjustment of said band re-sawing feeding rolls, a sleeve taking about one of said shafts, a clutch between said sleeve and shaft, and operating means between said sleeve and the other of said shafts, substantially as described.

8. In a band rip and re-sawing machine, the combination with a frame comprising an upwardly extending column and a sidewardly extending bracket for forming an opening in the side of said frame, a table mounted in said opening, band-saw wheels arranged for having a band-saw blade take thereabout, a band rip-saw feed-roll having sidewardly extending rotary axis suspended from said sidewardly extending bracket above said table, a shaft for driving the same, a geared sleeve taking about said shaft and journaled at said column, a clutch connecting said geared sleeve with said shaft, band re-sawing feeding-rolls having rotary axes normally extending up and down, a shaft for driving the same having operative connection with said geared sleeve, means for driving said geared sleeve, and means for raising said band rip-saw feeding roll above the range of stock fed between and by said band re-sawing feeding rolls, substantially as described.

9. In a band rip and re-sawing machine, the combination with a frame comprising a base, an upwardly extending column and a sidewardly extending bracket for forming an opening in the side of said frame, a table mounted in said opening, band-saw wheels arranged for having a band-saw blade take thereabout, a band rip-saw feeding roll having sidewardly extending rotary axis suspended from said sidewardly extending bracket above said table, a shaft for driving the same, a geared sleeve taking about said shaft and journaled at said column, a clutch connecting said geared sleeve with said shaft, band re-sawing feeding rolls having rotary axes normally extending up and down, a shaft for driving the same, having operative connection with said geared sleeve, and means for driving said geared sleeve, said last-named means comprising a variable speed shaft, a sleeved pulley, a bearing at the base of said column in which said sleeved pulley is journaled, said sleeved pulley having spline connection with said variable speed shaft, and means for raising said band rip-saw feeding roll above the range of stock fed

between and by said band re-sawing feeding rolls, substantially as described.

10. In a band-rip and resawing machine, the combination of band-saw wheels arranged for having a band-saw blade take thereabout, a table, a band-rip sawing feeding roll above said table and band resawing rolls, means for rotating all said rolls for feeding stock in a common direction, and means for adjusting said band rip-sawing feeding roll and band re-sawing rolls for causing all said rolls to simultaneously contact said stock at its sides and top above said table.

11. In a band sawing machine, the combination of band-saw wheels arranged for having a band-saw blade take thereabout, a feeding-in roll in advance of the band-saw blade position, a feeding-out roll to rear of the band-saw blade position, and an extensible pivoted releasable connection between said rolls for permitting adjustment of distance between said rolls and the upward tilting or removal of one of said rolls, substantially as described.

12. In a band rip sawing machine, the combination of band-saw wheels arranged for having a band-saw blade take thereabout, and a band rip-saw feeding device comprising a ram, a feeding-in roll in advance of the band-saw blade position, an arm on which said feeding roll is mounted, and a stump having pivotal connection with said ram, said arm having releasable connection with said stump for permitting removal of said feeding-in roll.

13. In a band-sawing machine, the combination of band-saw wheels arranged for having a band-saw blade take thereabout, a table, a feed-roll ram above the table, means for adjusting said ram to elevation, said means comprising a drum, a flexible connection taking about said drum and having connection below said drum at one of the outer ends thereof with said ram for forming a strand between said drum and ram, a weight for counter-balancing said ram having connection with the other of the outer ends of said flexible connection, said flexible connection passing upwardly from said drum for forming a strand between said drum and weight, said last-named strand being continuously under the influence of said weight and said first-named strand being relieved from the influence of said weight when said drum is positioned for permitting said last-named strand to permit upward yield and limit downward yield to said ram, operating substantially as described.

14. In a band-sawing machine, the combination of band-saw wheels arranged for having a band-saw blade take thereabout, a table, a feed-roll ram above the table, means for adjusting said ram to elevation, said means comprising a drum having a friction face, a friction clamp taking against said

face for holding said drum in position, a
flexible connection taking about said drum
and having connection at one of the outer
ends thereof below said drum with said ram,
5 for forming a strand between said drum and
ram a weight for counterbalancing said ram
having connection with the other of the
outer ends of said flexible connection, said
flexible connection passing upwardly from
10 said drum for forming a strand between
said drum and weight, said last-named
strand being continuously under the influ-
ence of said weight and said first-named

strand relieved from the influence of said
weight when said drum is held in position 15
for permitting said last-named strand to per-
mit upward yield and limit downward yield
to said ram operating substantially as de-
scribed.

In testimony whereof, I have signed my 20
name hereto in the presence of two subscrib-
ing witnesses.

LOUIS J. HANHART.

Witnesses:

JOHN F. KRENKEL,
ROY P. STEVENS.