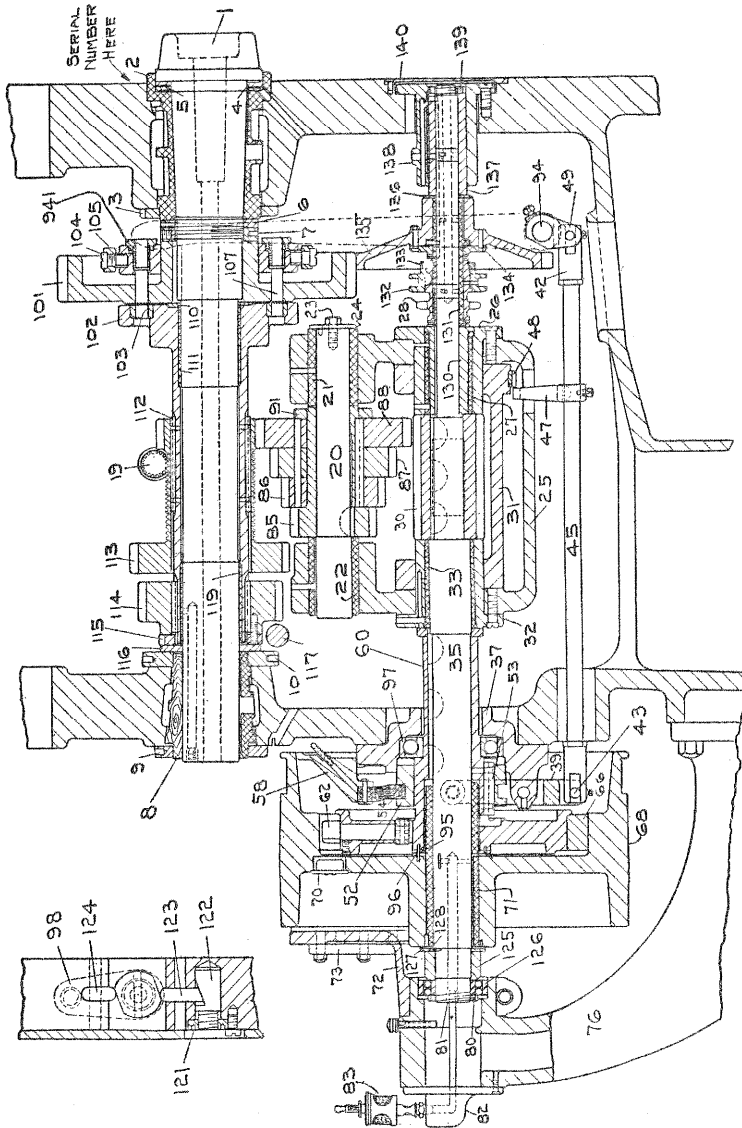
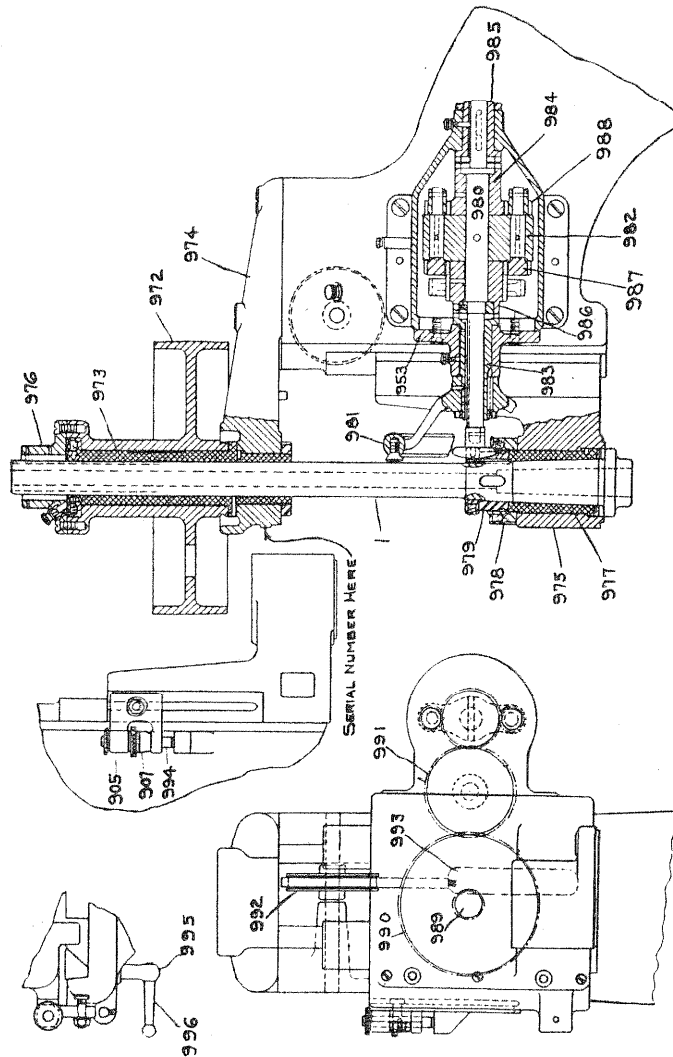


When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



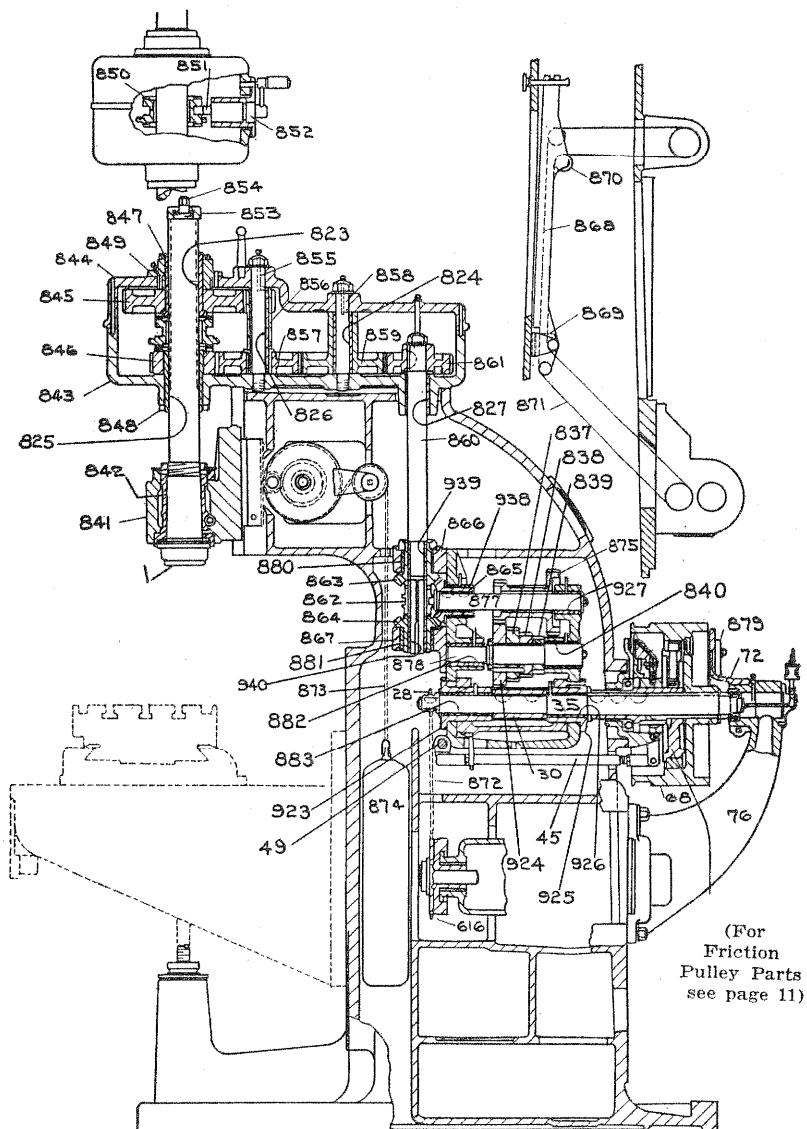
Vertical Section Through Spindle, Nos. 1A With Back Gears, 2A, 3A, 3A Heavy, 4A and 4A Heavy Universal Milling Machines, Nos. 1B with Back Gears, 2B, 2B Heavy, 3B, 3B Heavy, 4B, 4B Heavy and 5B Heavy Plain Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



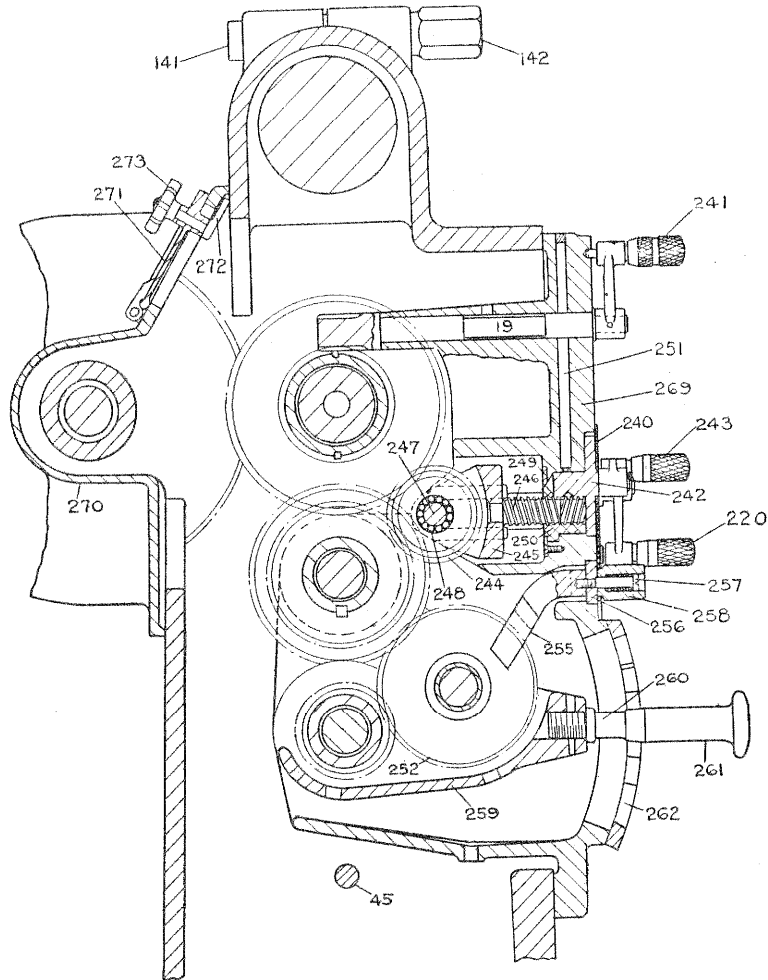
Vertical Section Through Spindle, No. 1 Vertical Spindle Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



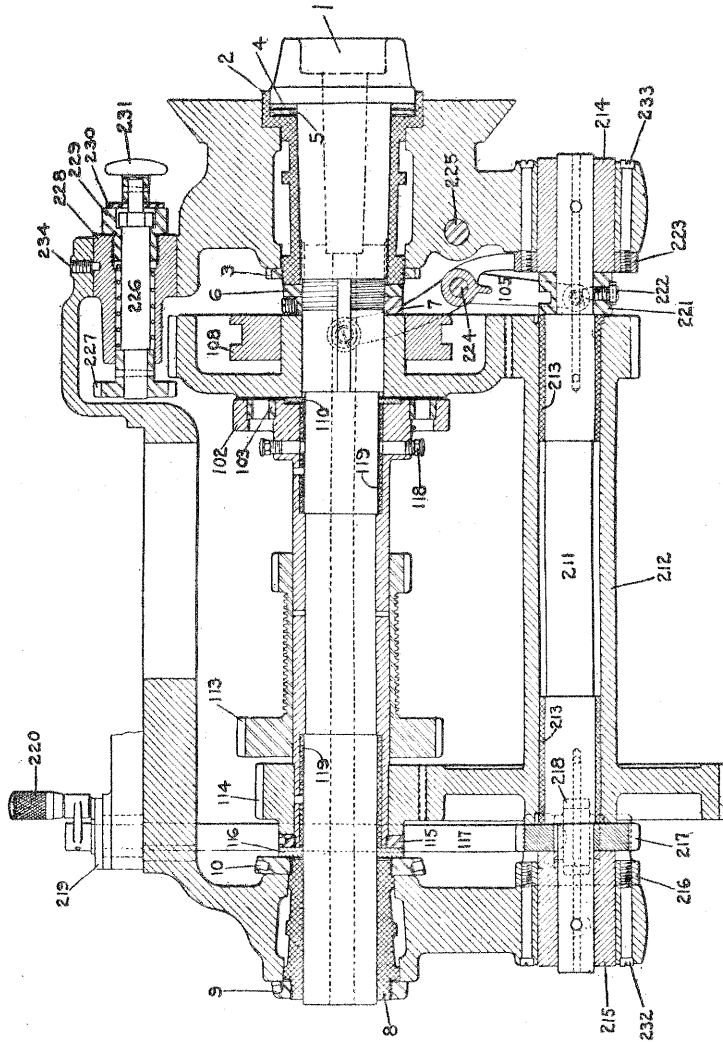
Vertical Section Through Spindle, Nos. 2 and 3
Vertical Spindle Milling Machines

When ordering parts, specify the style, size
and serial number of machine, in addition
to the part number.



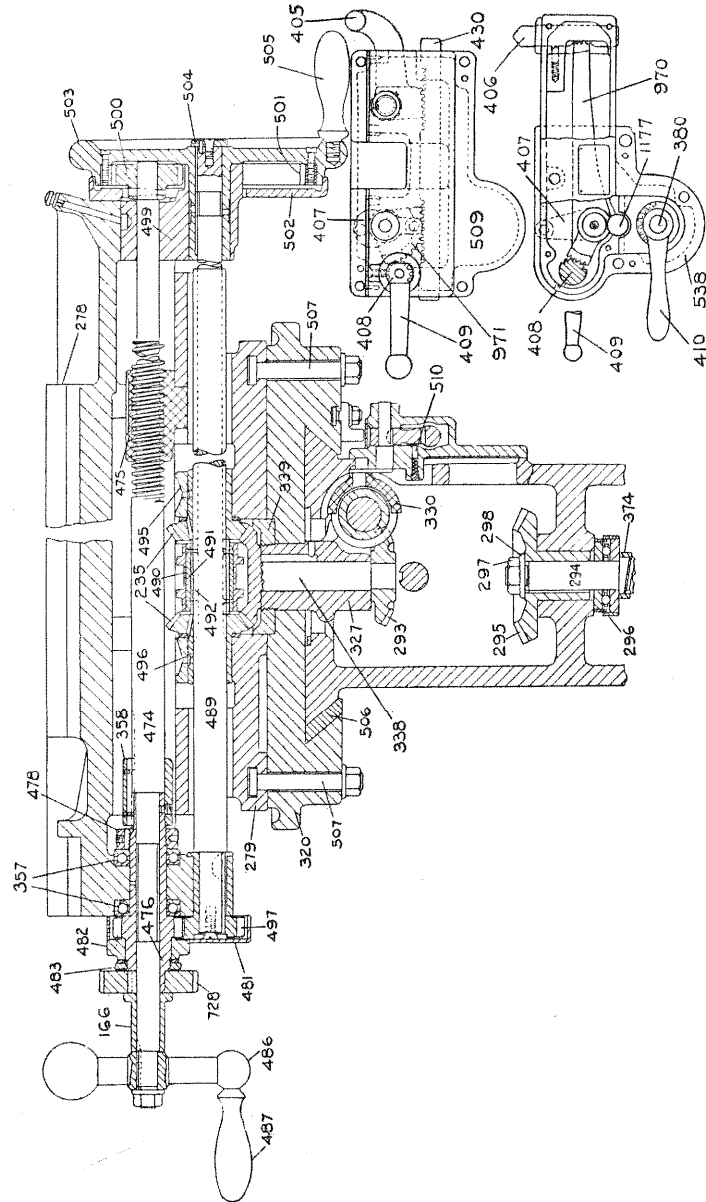
Cross Section Through Spindle Speed Mechanisms, Nos. 1A With Back
Gears, 2A, 3A, 3A Heavy, 4A, 4A Heavy Universal Milling
Machines, Nos. 1B With Back Gears, 2B, 2B Heavy,
3B, 3B Heavy, 4B, 4B Heavy and 5B Heavy
Plain Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



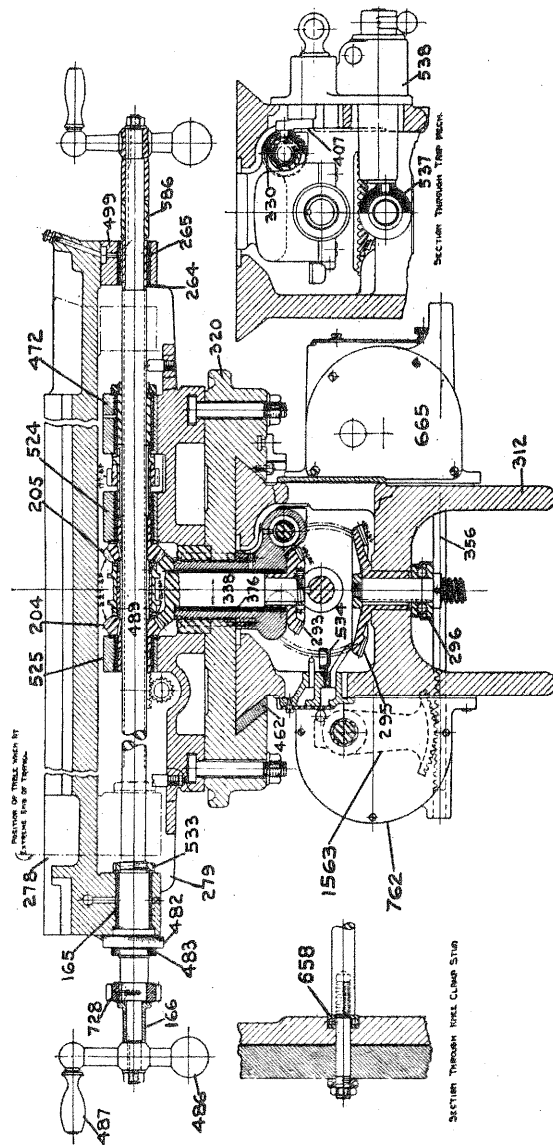
Horizontal Section Through Spindle, Nos. 1A With Back Gears, 2A, 3A, 3A Heavy, 4A and 4A Heavy Universal Milling Machines, Nos. 1B With Back Gears, 2B, 2B Heavy, 3B, 3B Heavy, 4B, 4B Heavy and 5B Heavy Plain Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



Section Through Table, Nos. 1 With Back Gears, 1A With Back Gears, 2 and 2A Universal Milling Machines, Nos. 1 Without Back Gears, 1 With Back Gears, 1B With Back Gears, 2 and 2B Plain Milling Machines, No. 1 Vertical Spindle Milling Machines.

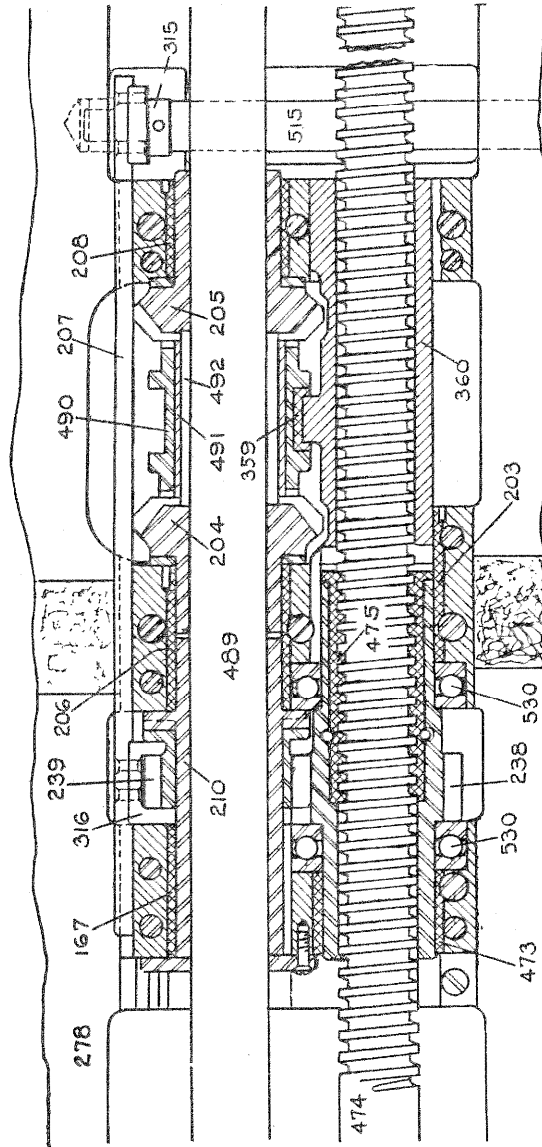
When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



Section Through Table, Nos. 3, 3A, 3A Heavy, 4A and 4A Heavy Universal Milling Machines.

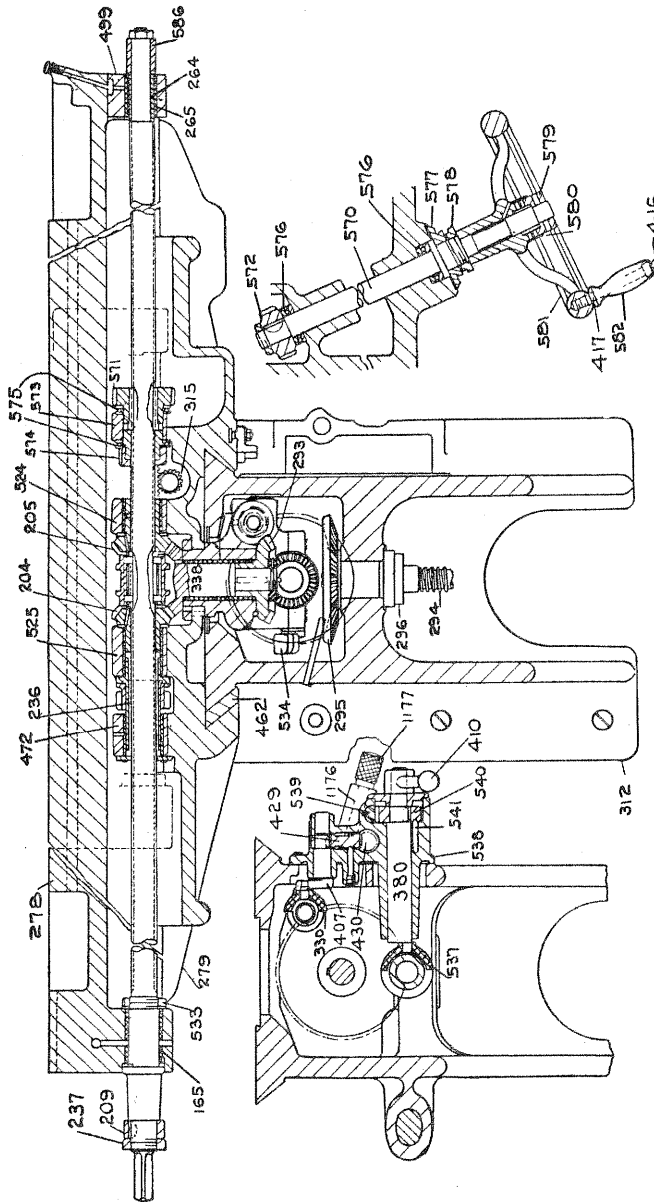
(For enlarged view of Table Feed Clutch and Feed Screw, see page 18.)

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



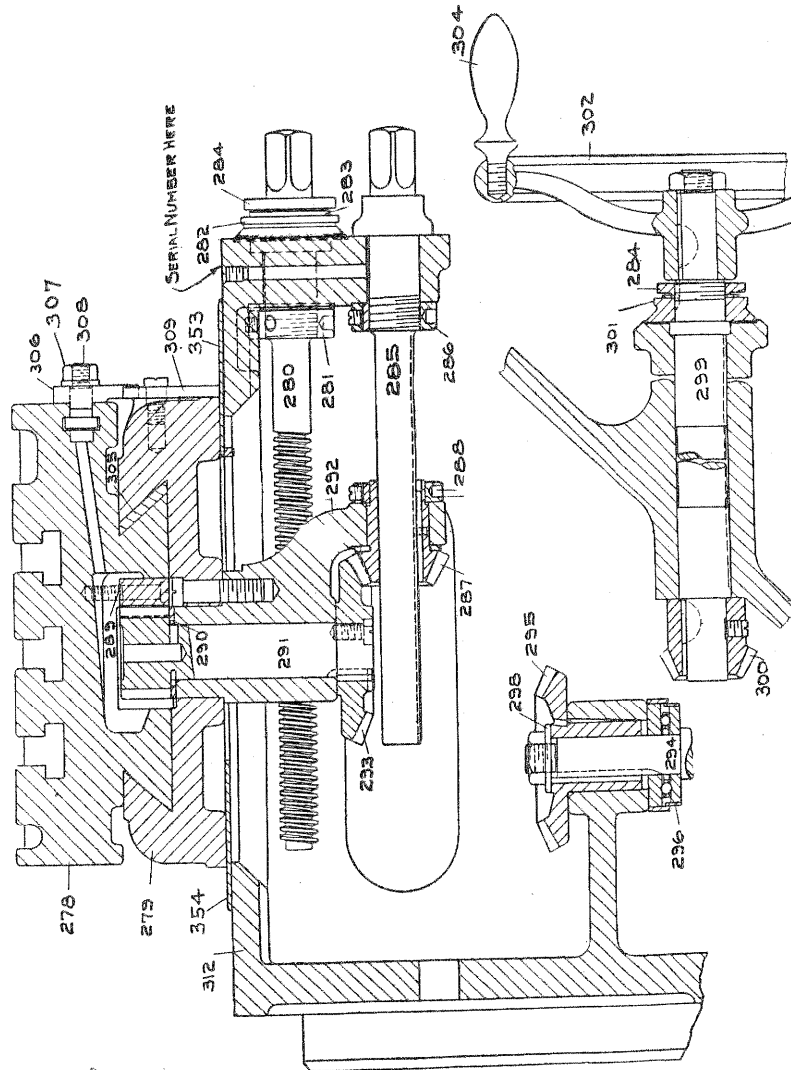
Enlarged View of Table Feed Clutch and Feed Screw, Nos. 3, 3A, 3A Heavy, 4A and 4A Heavy Universal Milling Machines, Nos. 2B Heavy, 3, 3B, 3B Heavy, 4B, 4B Heavy and 5B Heavy Plain Milling Machines, Nos. 2 and 3 Vertical Spindle Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



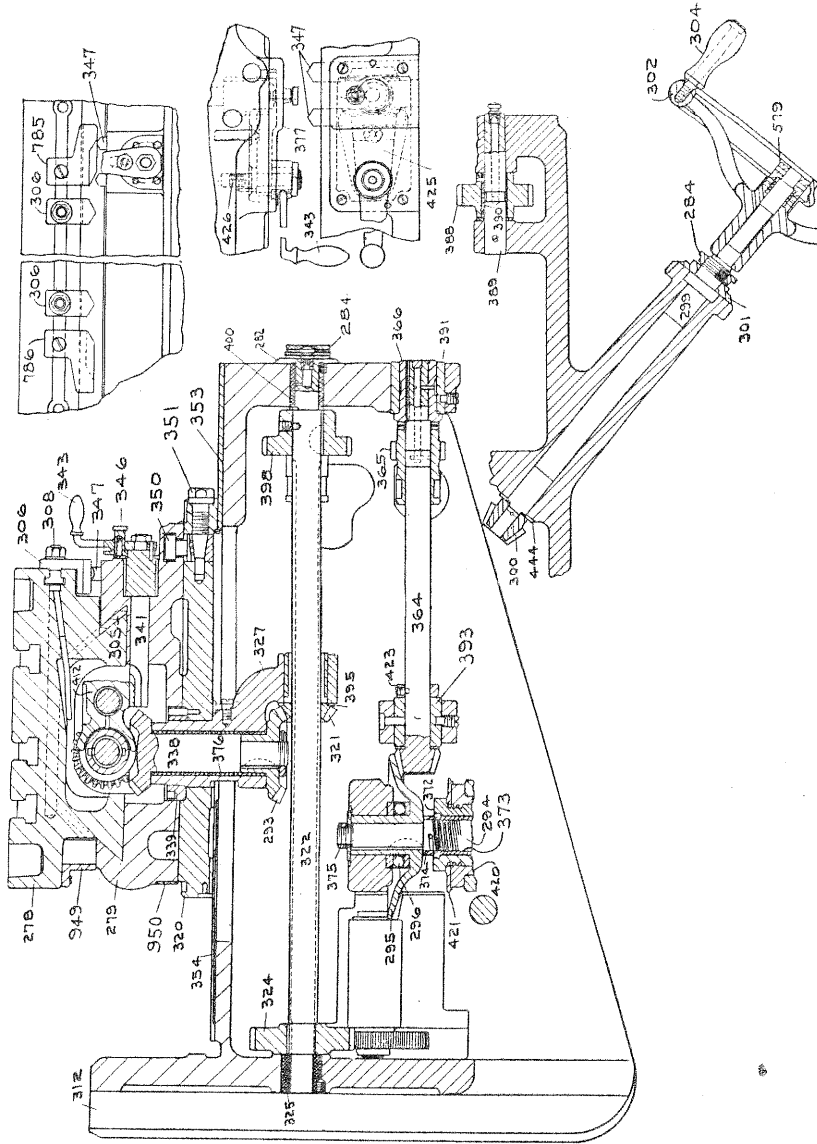
Section Through Table, Nos. 2B Heavy, 3, 3B, 3B Heavy, 4B, 4B Heavy and 5B Heavy Plain Milling Machines, Nos. 2 and 3 Vertical Spindle Milling Machines.
(See opposite page for enlarged view of Table Feed Clutch and Feed Screw.)

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



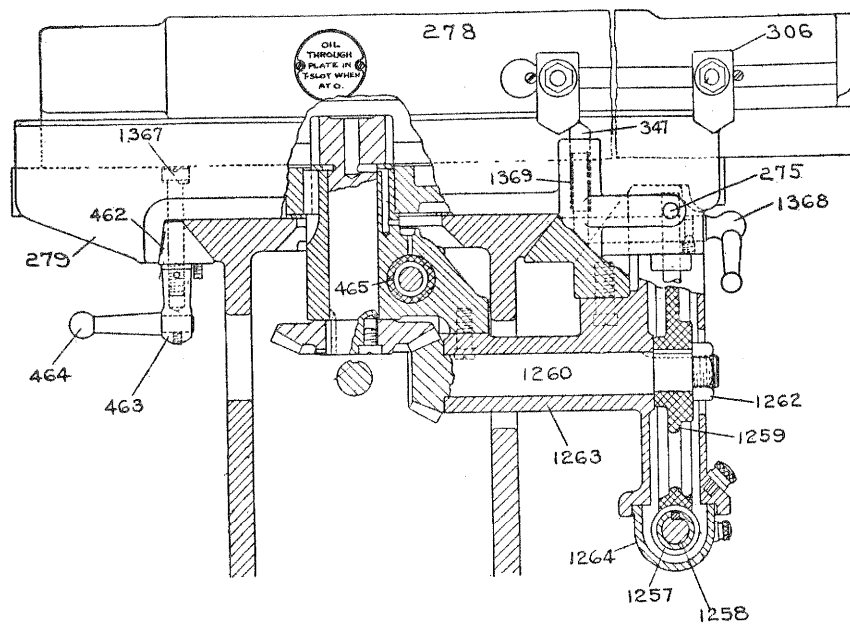
Section Through Knee, Nos. 0Y, 1Y Without Back Gears and 2Y Plain Milling Machines.

When ordering parts, specify the style, size
and serial number of machine, in addition
to the part number.



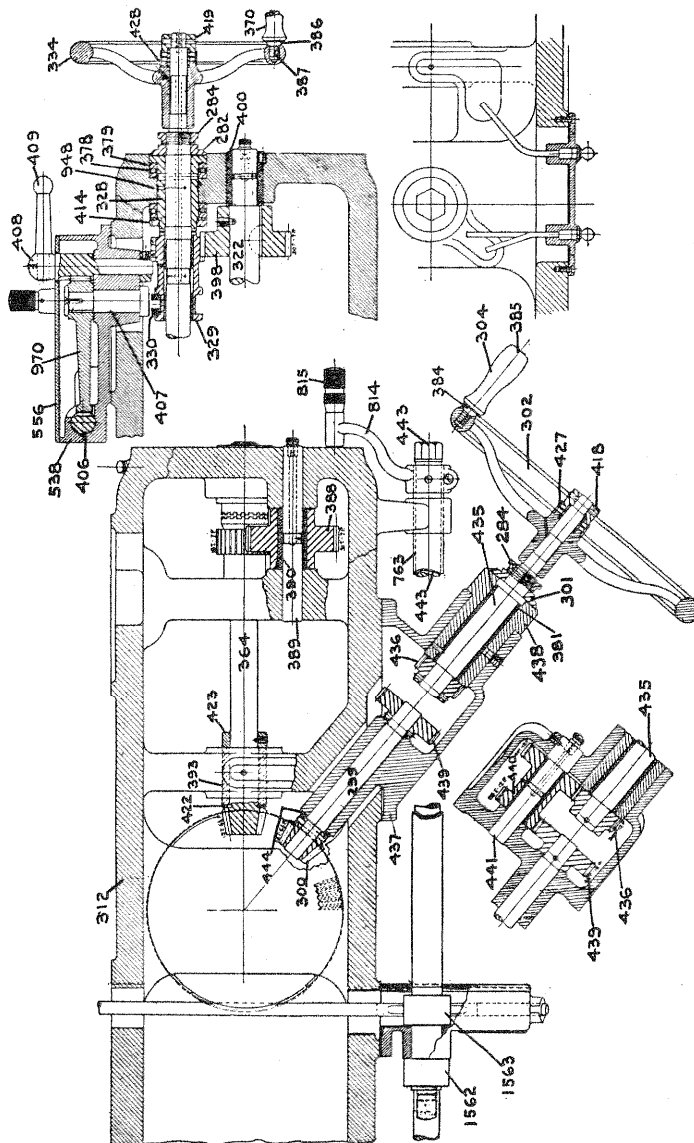
Section Through Knee, Nos. 3, 3A, 3A Heavy, 4A and 4A Heavy Universal Milling
Machines, Nos. 2B Heavy, 3, 3B, 3B Heavy, 4B, 4B Heavy and 5B Heavy Plain
Milling Machines, Nos. 2 and 3 Vertical Spindle Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



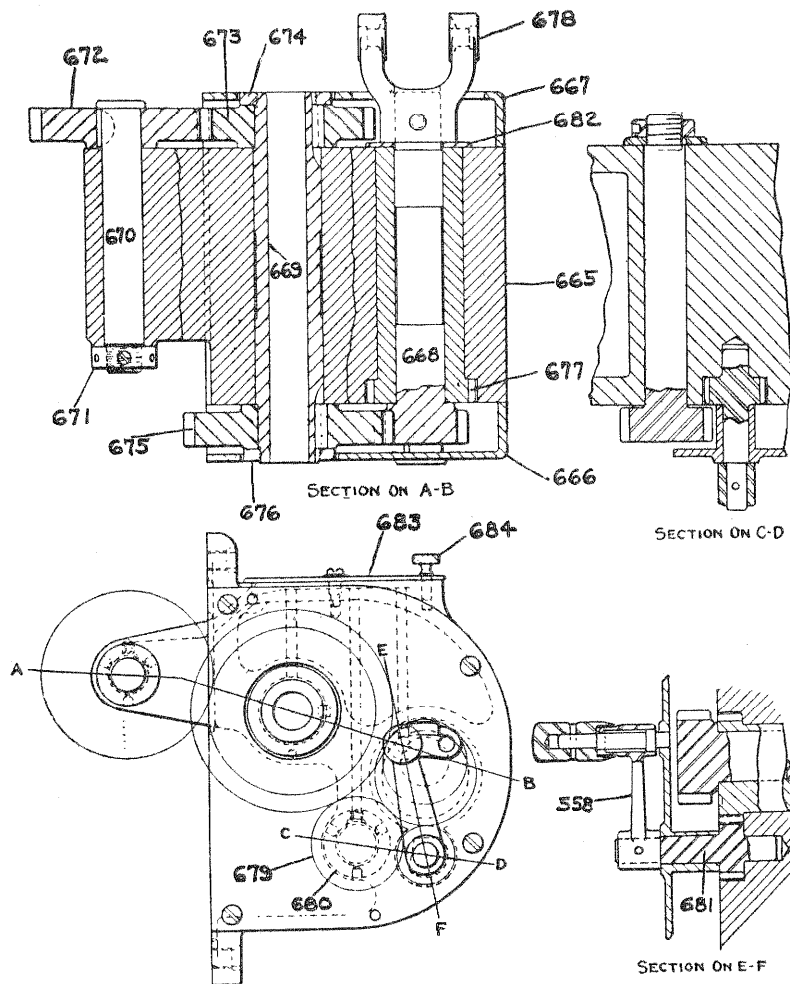
Miscellaneous Section Through Knee, Nos. 0Y, 1Y Without Back Gears and 2Y Plain Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number..



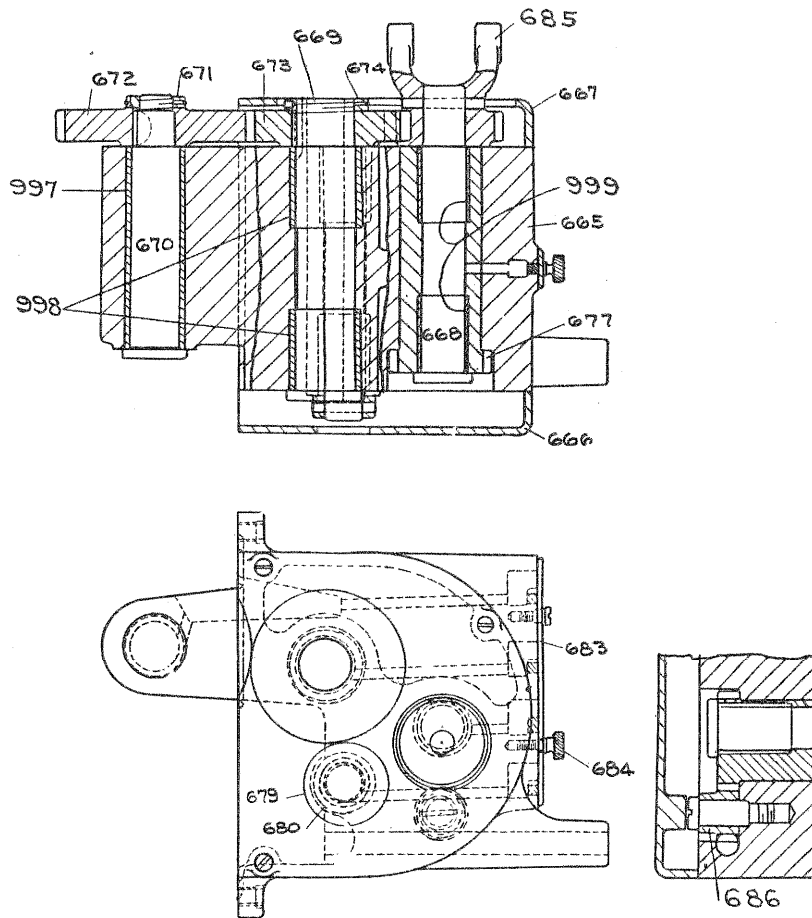
Miscellaneous Section Through Knee, Nos. 3, 3A, 3A Heavy, 4A and 4A Heavy Universal Milling Machines, Nos. 2 B Heavy, 3, 3B, 3B Heavy, 4B, 4B Heavy and 5B Heavy Plain Milling Machines, Nos. 2 and 3 Vertical Spindle Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



Feed Reversing Mechanism, Nos. 1 With Back Gears, 1A With Back Gears, 2 and 2A Universal Milling Machines, Nos. 1 Without Back Gears, 1 With Back Gears, 1B With Back Gears, 2 and 2B Plain Milling Machines, No. 1 Vertical Spindle Milling Machine.

**When ordering parts, specify the style, size
and serial number of machine, in addition
to the part number.**



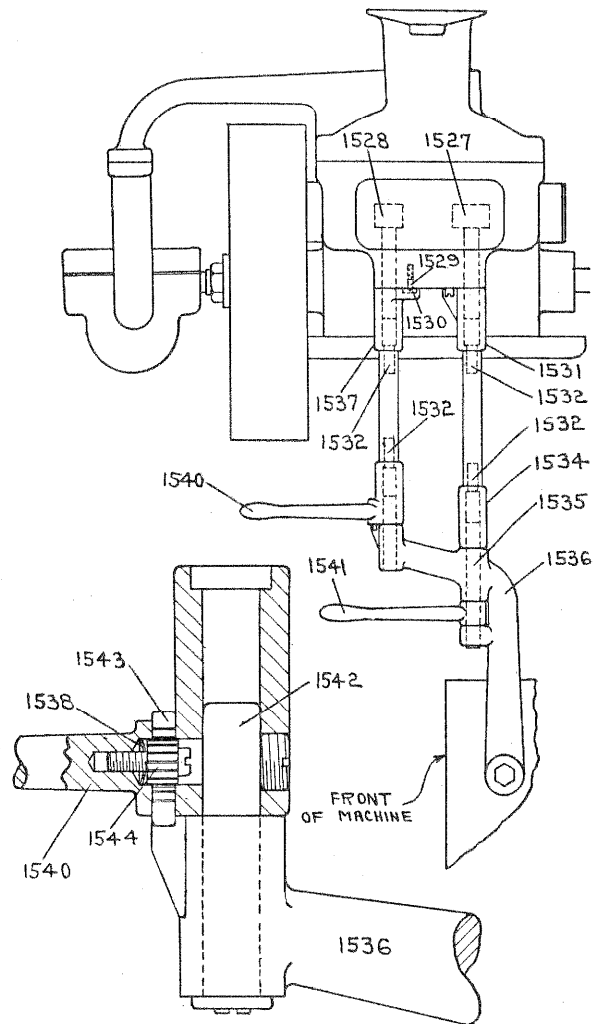
**Feed Reversing Mechanism, Nos. 3, 3A, 3A Heavy, 4A and 4A Heavy
Universal Milling Machines, Nos. 2B Heavy, 3, 3B, 3B Heavy,
4B, 4B Heavy and 5B Heavy Plain Milling Machines,
Nos. 2 and 3 Vertical Spindle Milling Machines.**

The image contains two technical drawings of a mechanical assembly, likely a valve or pump component.

The top drawing is a cross-sectional view of a housing or casing. It shows internal components such as a central shaft or piston rod, a valve or plunger, and various seals and gaskets. The drawing is labeled with numerous callouts, including 154.5, 154.6, 154.7, 154.8, 154.9, 155.1, 155.2, 155.3, 155.4, 155.5, 155.6, 155.7, 155.8, 155.9, 156.1, 156.2, 156.3, 156.4, 156.5, 156.6, 156.7, 156.8, 156.9, 157.0, 157.1, 157.2, 157.3, 157.4, 157.5, 157.6, 157.7, 157.8, 157.9, 158.0, 158.1, 158.2, 158.3, 158.4, 158.5, 158.6, 158.7, 158.8, 158.9, 159.0, 159.1, 159.2, 159.3, 159.4, 159.5, 159.6, 159.7, 159.8, 159.9, 160.0, 160.1, 160.2, 160.3, 160.4, 160.5, 160.6, 160.7, 160.8, 160.9, 161.0, 161.1, 161.2, 161.3, 161.4, 161.5, 161.6, 161.7, 161.8, 161.9, 162.0, 162.1, 162.2, 162.3, 162.4, 162.5, 162.6, 162.7, 162.8, 162.9, 163.0, 163.1, 163.2, 163.3, 163.4, 163.5, 163.6, 163.7, 163.8, 163.9, 164.0, 164.1, 164.2, 164.3, 164.4, 164.5, 164.6, 164.7, 164.8, 164.9, 165.0, 165.1, 165.2, 165.3, 165.4, 165.5, 165.6, 165.7, 165.8, 165.9, 166.0, 166.1, 166.2, 166.3, 166.4, 166.5, 166.6, 166.7, 166.8, 166.9, 167.0, 167.1, 167.2, 167.3, 167.4, 167.5, 167.6, 167.7, 167.8, 167.9, 168.0, 168.1, 168.2, 168.3, 168.4, 168.5, 168.6, 168.7, 168.8, 168.9, 169.0, 169.1, 169.2, 169.3, 169.4, 169.5, 169.6, 169.7, 169.8, 169.9, 170.0, 170.1, 170.2, 170.3, 170.4, 170.5, 170.6, 170.7, 170.8, 170.9, 171.0, 171.1, 171.2, 171.3, 171.4, 171.5, 171.6, 171.7, 171.8, 171.9, 172.0, 172.1, 172.2, 172.3, 172.4, 172.5, 172.6, 172.7, 172.8, 172.9, 173.0, 173.1, 173.2, 173.3, 173.4, 173.5, 173.6, 173.7, 173.8, 173.9, 174.0, 174.1, 174.2, 174.3, 174.4, 174.5, 174.6, 174.7, 174.8, 174.9, 175.0, 175.1, 175.2, 175.3, 175.4, 175.5, 175.6, 175.7, 175.8, 175.9, 176.0, 176.1, 176.2, 176.3, 176.4, 176.5, 176.6, 176.7, 176.8, 176.9, 177.0, 177.1, 177.2, 177.3, 177.4, 177.5, 177.6, 177.7, 177.8, 177.9, 178.0, 178.1, 178.2, 178.3, 178.4, 178.5, 178.6, 178.7, 178.8, 178.9, 179.0, 179.1, 179.2, 179.3, 179.4, 179.5, 179.6, 179.7, 179.8, 179.9, 180.0, 180.1, 180.2, 180.3, 180.4, 180.5, 180.6, 180.7, 180.8, 180.9, 181.0, 181.1, 181.2, 181.3, 181.4, 181.5, 181.6, 181.7, 181.8, 181.9, 182.0, 182.1, 182.2, 182.3, 182.4, 182.5, 182.6, 182.7, 182.8, 182.9, 183.0, 183.1, 183.2, 183.3, 183.4, 183.5, 183.6, 183.7, 183.8, 183.9, 184.0, 184.1, 184.2, 184.3, 184.4, 184.5, 184.6, 184.7, 184.8, 184.9, 185.0, 185.1, 185.2, 185.3, 185.4, 185.5, 185.6, 185.7, 185.8, 185.9, 186.0, 186.1, 186.2, 186.3, 186.4, 186.5, 186.6, 186.7, 186.8, 186.9, 187.0, 187.1, 187.2, 187.3, 187.4, 187.5, 187.6, 187.7, 187.8, 187.9, 188.0, 188.1, 188.2, 188.3, 188.4, 188.5, 188.6, 188.7, 188.8, 188.9, 189.0, 189.1, 189.2, 189.3, 189.4, 189.5, 189.6, 189.7, 189.8, 189.9, 190.0, 190.1, 190.2, 190.3, 190.4, 190.5, 190.6, 190.7, 190.8, 190.9, 191.0, 191.1, 191.2, 191.3, 191.4, 191.5, 191.6, 191.7, 191.8, 191.9, 192.0, 192.1, 192.2, 192.3, 192.4, 192.5, 192.6, 192.7, 192.8, 192.9, 193.0, 193.1, 193.2, 193.3, 193.4, 193.5, 193.6, 193.7, 193.8, 193.9, 194.0, 194.1, 194.2, 194.3, 194.4, 194.5, 194.6, 194.7, 194.8, 194.9, 195.0, 195.1, 195.2, 195.3, 195.4, 195.5, 195.6, 195.7, 195.8, 195.9, 196.0, 196.1, 196.2, 196.3, 196.4, 196.5, 196.6, 196.7, 196.8, 196.9, 197.0, 197.1, 197.2, 197.3, 197.4, 197.5, 197.6, 197.7, 197.8, 197.9, 198.0, 198.1, 198.2, 198.3, 198.4, 198.5, 198.6, 198.7, 198.8, 198.9, 199.0, 199.1, 199.2, 199.3, 199.4, 199.5, 199.6, 199.7, 199.8, 199.9, 200.0, 200.1, 200.2, 200.3, 200.4, 200.5, 200.6, 200.7, 200.8, 200.9, 201.0, 201.1, 201.2, 201.3, 201.4, 201.5, 201.6, 201.7, 201.8, 201.9, 202.0, 202.1, 202.2, 202.3, 202.4, 202.5, 202.6, 202.7, 202.8, 202.9, 203.0, 203.1, 203.2, 203.3, 203.4, 203.5, 203.6, 203.7, 203.8, 203.9, 204.0, 204.1, 204.2, 204.3, 204.4, 204.5, 204.6, 204.7, 204.8, 204.9, 205.0, 205.1, 205.2, 205.3, 205.4, 205.5, 205.6, 205.7, 205.8, 205.9, 206.0, 206.1, 206.2, 206.3, 206.4, 206.5, 206.6, 206.7, 206.8, 206.9, 207.0, 207.1, 207.2, 207.3, 207.4, 207.5, 207.6, 207.7, 207.8, 207.9, 208.0, 208.1, 208.2, 208.3, 208.4, 208.5, 208.6, 208.7, 208.8, 208.9, 209.0, 209.1, 209.2, 209.3, 209.4, 209.5, 209.6, 209.7, 209.8, 209.9, 210.0, 210.1, 210.2, 210.3, 210.4, 210.5, 210.6, 210.7, 210.8, 210.9, 211.0, 211.1, 211.2, 211.3, 211.4, 211.5, 211.6, 211.

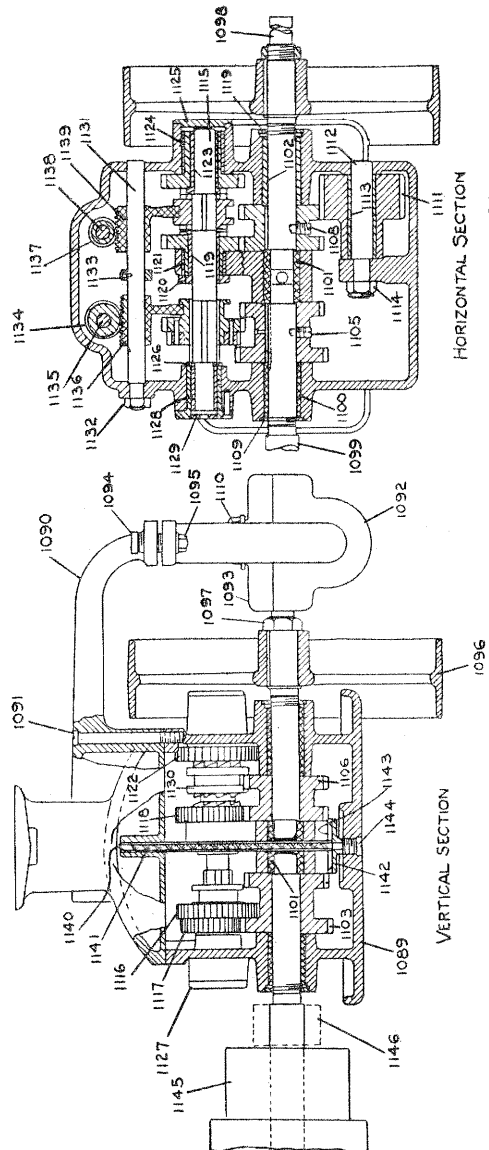
Variable Feed Mechanism, Nos. 3, 3A, 3A Heavy, 4A and 4A Heavy Universal Milling Machines, Nos. 2B Heavy, 3, 3B, 3B Heavy, 4B, 4B Heavy and 5B Heavy Plain Milling Machines, Nos. 2 and 3 Vertical Spindle Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



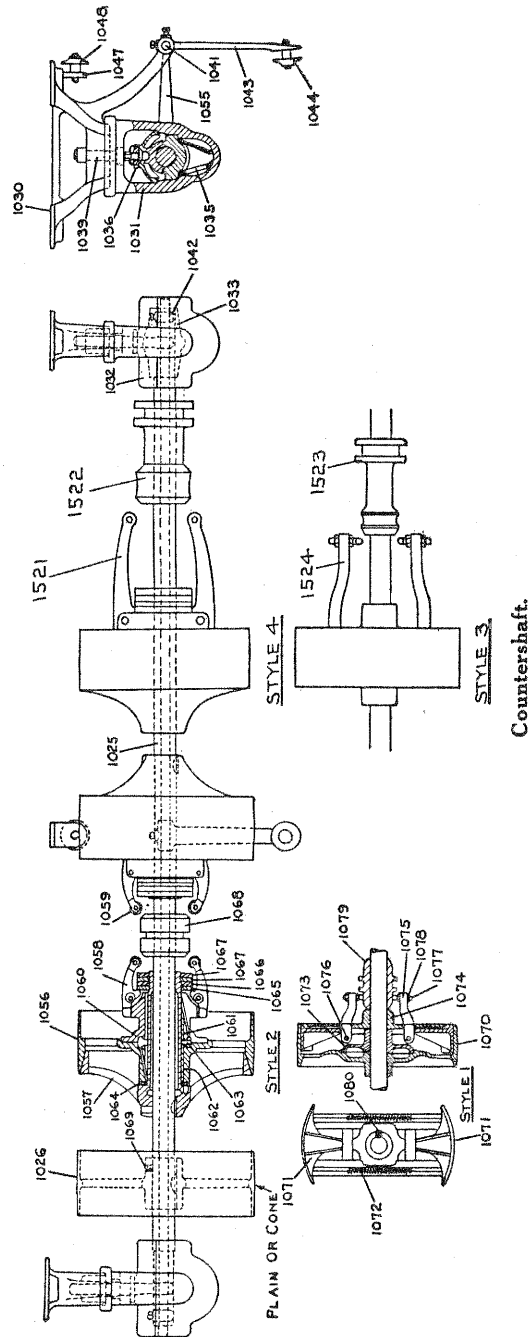
Geared Countershaft, Bracket and Operating Levers, Nos. 1 With Back Gears and 2 Universal Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

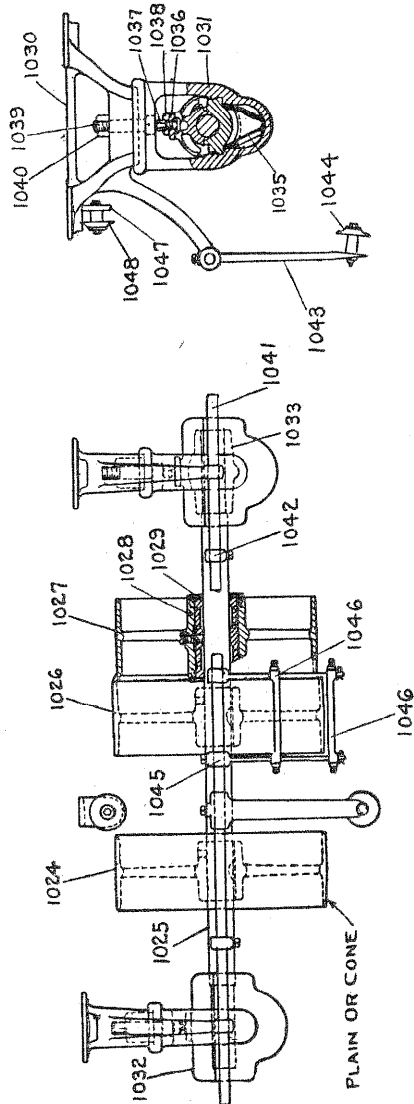


Geared Countershaft, Nos. 1 With Back Gears and 2 Universal Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

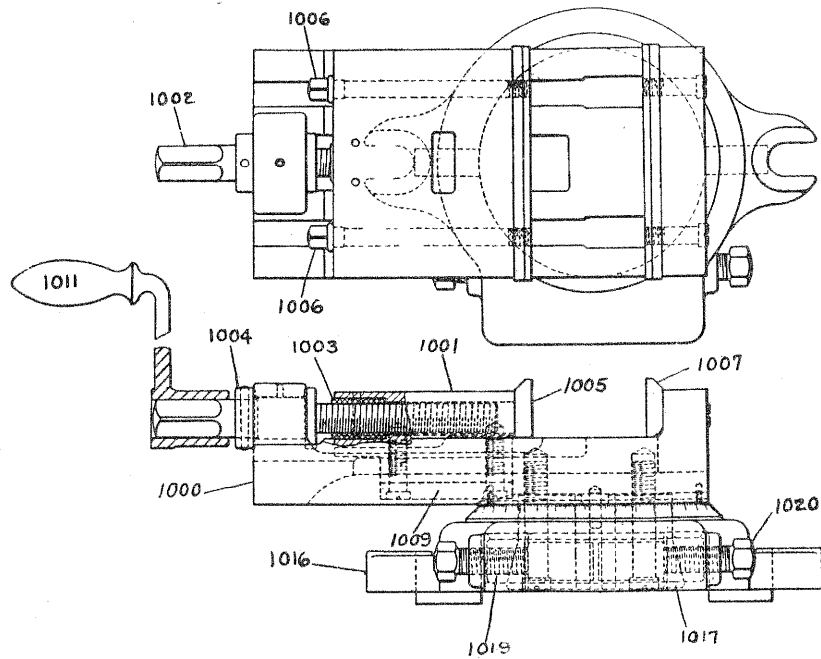


When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

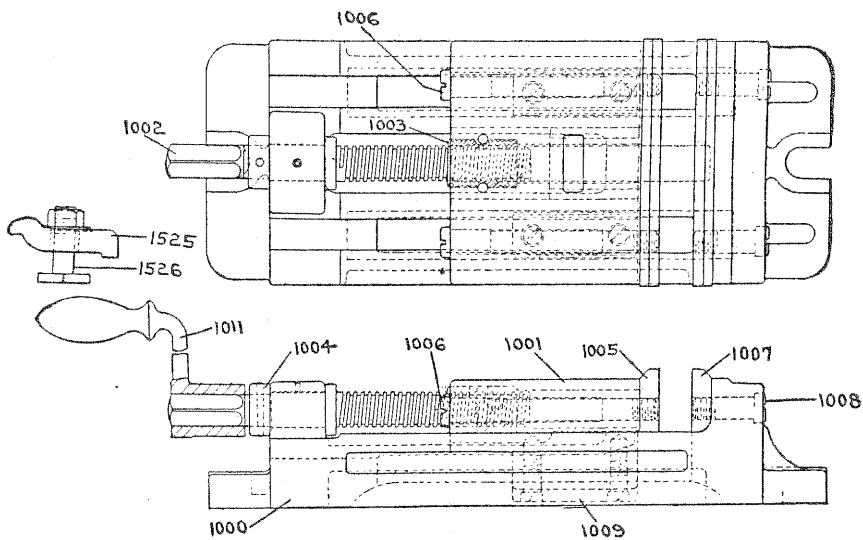


Spiral Head, Nos. 1 With Back Gears, 1A With Back Gears, 2, 2A, 3, 3A, 3A Heavy, 4A and 4A Heavy Universal Milling Machines.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

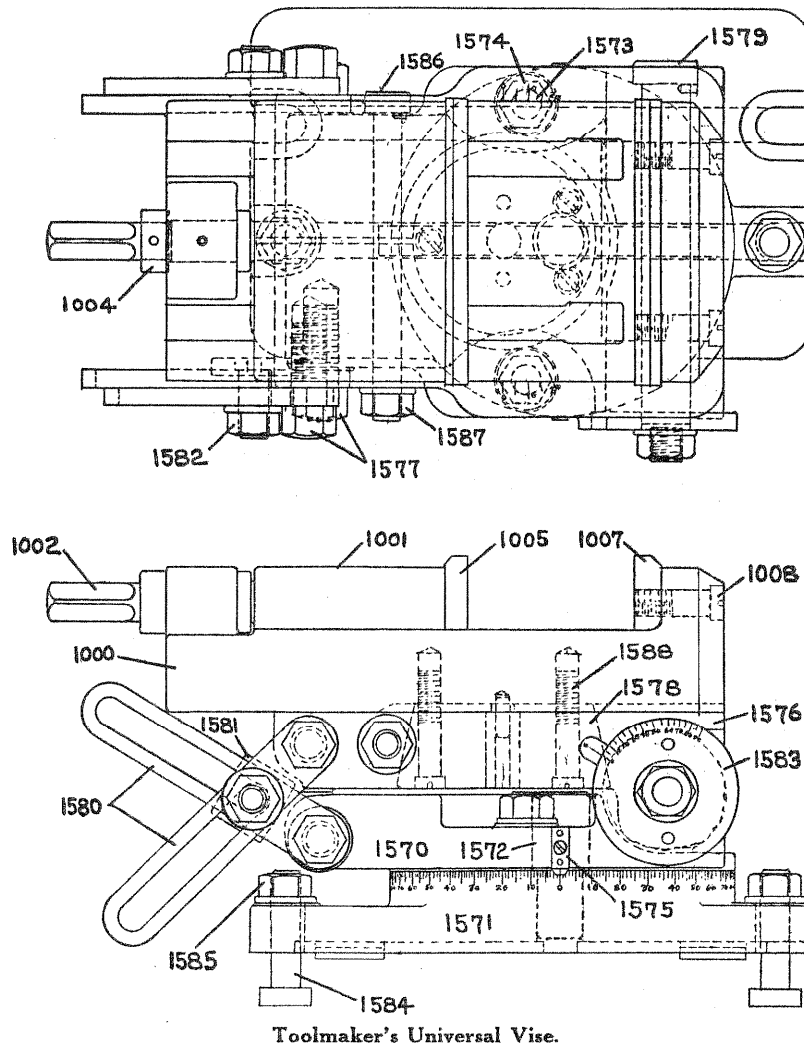


Swivel Vise.

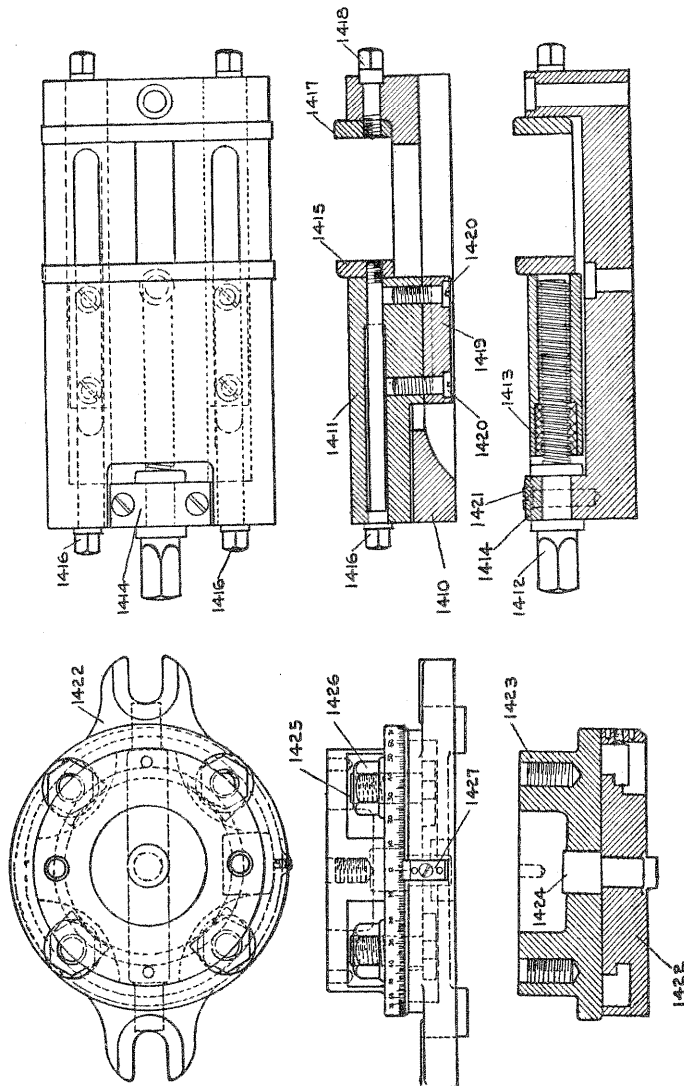


Flanged Vise.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

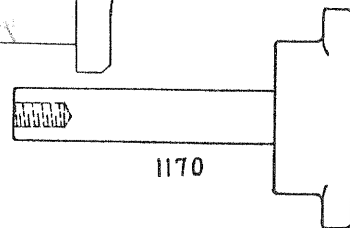
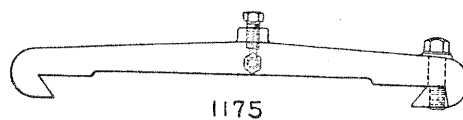
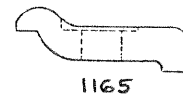
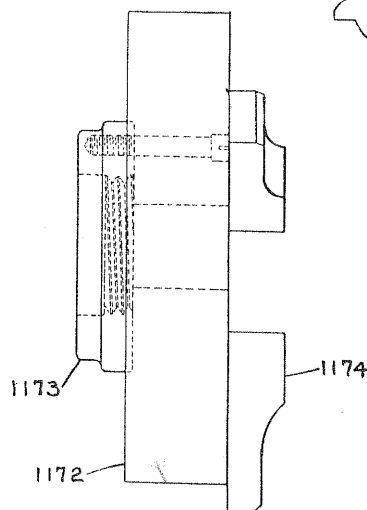
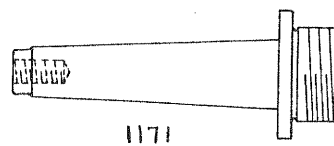
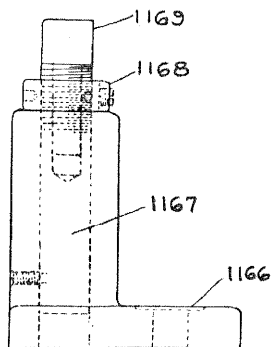
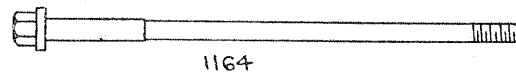
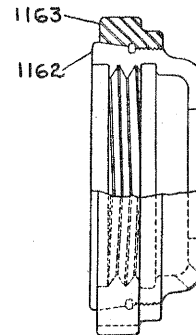
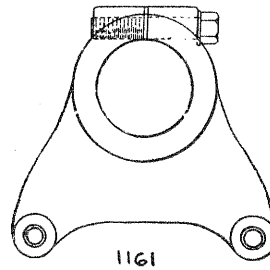
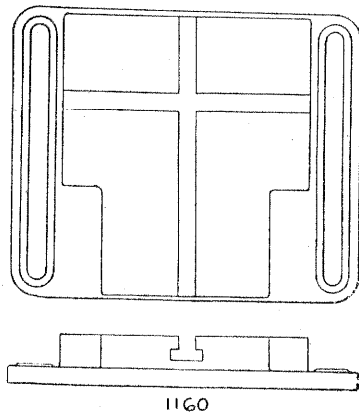


When ordering parts, specify the style, size and serial number of machine, in addition to the part number.



Plain and Swivel Vises (Old Style).

When ordering parts, specify the style, size
and serial number of machine, in addition
to the part number.



Miscellaneous Parts.

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

Serial Numbers of Universal and Plain Milling Machines Are Stamped in Quarter-inch Figures on the Top Front of Table, Top Front of Knee and Top Front of Column; Nos. 1, 2 and 3 Vertical Milling Machines on the Top Front of Table, Top Front of Knee and on the Front of Spindle Slide

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For Universal, Plain and Vertical Milling Machines (KNEE TYPE)

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|---|--|
| 1 Spindle. | 26 Long Pinion Bearing (Front). |
| 2 Spindle Front Box. | 27 Long Pinion Bearing Bushing (Front). |
| 3 Spindle Front Box Nut. | 28 Feed Sprocket (Driver). |
| 4 Spindle Thrust Washer. | 30 Long Pinion. |
| 5 Spindle Thrust Washer. | 31 Intermediate Gear Bracket. |
| 6 Spindle Nut Thrust Washer. | 32 Long Pinion Bearing (Rear). |
| 7 Spindle Nut. | 33 Long Pinion Bearing Bushing (Rear). |
| 8 Spindle Rear Box. | 34 Driving Shaft Filling-in Collar. |
| 9 Spindle Rear Box Nut (Rear). | 35 Driving Shaft. |
| 10 Spindle Rear Box Nut (Front). | 37 Driving Shaft Bearing. |
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| 12 Arm. | 42 Friction Clutch Connecting Rod End. |
| 13 Arm Clamp Rod. | 43 Friction Clutch Connecting Rod Pin. |
| 16 Friction Clutch Connecting Rod Pin (Rear). | 45 Friction Clutch Connecting Rod. |
| 17 Arm Clamp Nut (Front). | 46 Friction Clutch Connecting Rod Clamp Nut. |
| 18 Quill Gear. | 47 Intermediate Gear Locking Stop. |
| 19 Spindle Quill Gear Pinion. | 48 Intermediate Gear Locking Stop Rack. |
| 20 Change Gear Shaft. | 49 Friction Clutch Connecting Rod Lever. |
| 21 Change Gear Shaft Bushing (Front). | |
| 22 Change Gear Shaft Bushing (Rear). | |
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| 24 Change Gear Shaft Washer. | |
| 25 Variable Spindle Speed Case. | |

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

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53	Friction Clutch Siding Key.	114	Spindle Sleeve Gear.
54	Friction Oiling Felt.	115	Spindle Sleeve Gear Nut.
58	Friction Clutch Guard.	116	Spindle Rear Washer.
60	Friction Clutch Body.	117	Quill Gear Adjusting Shaft.
62	Friction Clutch Plunger.	118	Spindle Sleeve Oil Stop.
66	Friction Clutch Ring.	119	Spindle Sleeve Bushing.
68	Friction Clutch Pulley.	121	Friction Clutch Adjusting Nut.
70	Friction Clutch Adjusting Cover	122	Friction Clutch Adjusting Screw.
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73	Belt Guard (Left).	125	Driving Shaft Collar or Pump Driving Pulley.
76	Driving Shaft Outer Bearing.	126	Driving Shaft Ball Bearing.
80	Driving Shaft Nut.	127	Driving Shaft Washer (Rear).
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83	Oil Cup.	131	Feed Sprocket Bushing.
85	Change Gear.	132	Feed Sprocket Shoe.
86	Change Gear.	133	Feed Sprocket Shoe Nut.
87	Change Gear.	134	Fine Feed Clutch Plate.
88	Change Gear.	135	Fine Feed Gear.
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98	Friction Clutch Plunger Link.	142	Arm Clamp Screw Nut.
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110	Spindle Sleeve Washer.	166	Table Feed Shaft Collar (Left).
112	Spindle Quill Gear Key.		

When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

167	Table Feed Shaft Sleeve Bushing.	215	Quill Gear Shaft Bearing (Rear).
168	Spindle Gear.	216	Quill Gear Adjusting Spiral Gear Bearing.
169	Spindle Gear Dog Plate.	217	Quill Shaft Spiral Gear.
170	Locking Dog Plunger.	218	Quill Gear Adjusting Spiral Gear.
171	Locking Dog Bushing.	219	Quill Gear Adjusting Shaft Bearing.
172	Locking Dog Plunger Knob.	220	Back Gear Adjusting Lever.
175	Spindle Cone Washer.	221	Quill Shaft Cam.
176	Spindle Cone Gear.	222	Quill Shaft Cam Screw
179	Back Gear Eccentric Shaft.	223	Spindle Dog Pin Lever Bearing.
180	Eccentric Shaft Gear.	224	Spindle Dog Pin Lever Pin.
182	Back Gear (Small).	225	Quick Return Operating Shaft.
183	Back Gear (Large).	226	Spindle Adjusting Gear Shaft.
184	Back Gear Bushing.	227	Spindle Adjusting Gear.
186	Back Gear Thrust Washer.	228	Spindle Adjusting Gear Shaft Bearing.
187	Back Gear Oil Drip.	229	Spindle Adjusting Gear Shaft Bearing Bushing.
188	Back Gear Shaft Bearing.	230	Spindle Adjusting Gear Shaft Washer.
189	Back Gear Shaft Bearing Plug.	231	Spindle Adjusting Gear Shaft Knob.
190	Arm Center.	232	Quill Gear Adjusting Spiral Gear Bearing Screw.
192	Arm Center Adjusting Screw.	233	Spindle Dog Pin Lever Bearing Screw.
193	Center Bushing Clamp Bolt.	234	Spindle Adjusting Gear Shaft Bearing Screw.
194	Spindle Nut (Rear).	235	Table Feed Clutch Gear.
200	Arm Clamp Nut (Rear).	236	Table Feed Shaft Sleeve Key.
201	Arm Clamp Screw.	237	Table Feed Shaft Nut.
202	Arm Clamp Screw Nut.	238	Table Screw Gear.
203	Table Screw Gear Bushing (Right).	239	Table Feed Shaft Gear.
204	Table Clutch Gear (Left).	240	Spindle Speed Plate.
205	Table Clutch Gear (Right).	241	Spindle Quill Gear Locking Lever.
206	Table Clutch Gear Bearing Bushing (Left).	242	Reverse Operating Gear.
207	Table Feed Operating Rack.	243	Spindle Reverse Locking Lever.
208	Table Clutch Gear Bearing Bushing (Right).	244	Reverse Gear.
209	Table Feed Shaft Collar (Left).		
210	Table Feed Shaft Sleeve.		
211	Quill Gear Shaft.		
212	Quill Gear.		
213	Quill Gear Bushing.		
214	Quill Gear Shaft Bearing (Front).		

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245	Reverse Gear Carriage (Lower).	273	Quill Gear Guard Cover Knob.
246	Reverse Gear Carriage Screw (Lower).	274	Tank Cover (Outside).
247	Reverse Gear Stud (Lower).	275	Table Feed Trip Locking Pin.
248	Reverse Gear Roller.	276	Table Feed Trip Plunger Pinion Handle.
249	Carriage Screw Nut Washer.	277	Cross Feed Screw Thrust Washer.
250	Reverse Gear Carriage Screw Nut (Lower).	278	Table.
251	Locking Pin.	279	Saddle.
252	Intermediate Gear.	280	Cross Feed Screw.
253	Intermediate Gear Shaft.	281	Cross Feed Screw Thrust Nut.
254	Intermediate Gear Bushing.	282	Cross Feed Screw Dial.
255	Intermediate Gear Shoe.	283	Dial Washer.
256	Intermediate Gear Shoe Slide.	284	Dial Clamp Nut.
257	Intermediate Gear Stop Screw.	285	Hand Feed Shaft.
258	Intermediate Gear Stop.	286	Hand Feed Shaft Thrust Nut.
259	Intermediate Gear Bracket.	287	Hand Feed Shaft Pinion.
260	Intermediate Gear Bracket Stop Stud.	288	Hand Feed Shaft Pinion Nut.
261	Intermediate Gear Bracket Stop.	289	Table Rack.
262	Intermediate Gear Locking Plate.	290	Rack Pinion Shaft Washer.
264	Table Feed Shaft Bushing.	291	Rack Pinion Shaft.
265	Table Feed Shaft Bearing Bushing.	292	Rack Pinion Bearing.
266	Universal Joint Guard (Front).	293	Lower Vertical Shaft Gear.
267	Pump Pocket Cover.	294	Knee Screw (Inner).
268	Universal Joint Guard, Rear (For Plain and Universal Machines).	295	Knee Screw Gear.
268	Spindle Feed Chain Guard (For Nos. 2 & 3 Vertical Machines).	296	Knee Screw Ball Thrust.
269	Variable Spindle Speed Case.	297	Knee Screw Gear Nut.
270	Quill Gear Guard.	298	Knee Screw Gear Washer.
271	Quill Gear Guard Cover.	299	Knee Shaft.
272	Quill Gear Guard Cover Latch.	300	Knee Shaft Pinion.
		301	Knee Screw Dial.
		302	Knee Shaft Handwheel.
		304	Knee Shaft Handwheel Handle.
		305	Table Gib.
		306	Table Dog.
		307	Table Dog Clamp Bolt Nut.
		308	Table Dog Clamp Bolt.
		309	Feed Trip Lever.

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310	Feed Trip Lever Stud.	360	Table Feed Clutch Fork.
312	Knee.	361	Feed Pulley (Small) Nut.
314	Cross Feed Safety Stop (Front).	362	Feed Pulley (Small).
315	Table Feed Operating Rack Pinion.	364	Power Knee Shaft.
316	Table Feed Operating Shoe.	365	Power Knee Shaft Clutch Gear.
317	Cross Feed Safety Stop (Rear).	366	Knee Shaft Clutch.
318	Reverse Operating Rack Coupling (Left).	370	Cross Feed Screw Hand- wheel Handle.
319	Reverse Operating Rack Coupling (Right).	372	Knee Screw (Outer).
320	Clamp Bed.	373	Knee Screw (Inner) Nut.
321	Feed Shaft Pinion.	374	Knee Screw Collar.
322	Feed Shaft.	375	Knee Screw Gear Nut.
324	Feed Shaft Gear (Rear).	376	Vertical Shaft Gear Bush- ing.
325	Feed Shaft Bushing (Rear).	377	Table Feed Trip Cover.
327	Cross Feed Screw Bracket.	378	Cross Feed Clutch Ball Retainer.
328	Cross Feed Clutch.	379	Cross Feed Clutch Ball Thrust Washer.
329	Cross Feed Clutch Gear.	380	Vertical Feed Clutch Eccentric Shaft.
330	Cross Feed Clutch Shoe.	381	Vertical Feed Handwheel Shaft Bushing.
334	Cross Feed Screw Hand- wheel.	384	Knee Shaft Handwheel Handle Stud Collar.
338	Vertical Shaft Gear.	385	Knee Shaft Handwheel Handle Stud.
339	Cross Feed Screw Bracket Nut.	386	Cross Feed Screw Hand- wheel Handle Stud Collar.
341	Table Feed Trip Lever Shaft.	387	Cross Feed Screw Hand- wheel Handle Stud.
343	Table Feed Trip Lever.	388	Vertical Feed Intermediate Gear.
346	Table Feed Trip Lever Stop Knob.	389	Vertical Feed Intermediate Gear Stud.
347	Table Feed Trip Plunger.	390	Vertical Feed Intermediate Gear Bushing.
350	Saddle Clamp Stud.	391	Knee Shaft Clutch Bushing.
351	Saddle Clamp Screw.	393	Power Knee Shaft Bushing.
353	Knee Dust Guard (Front).	395	Feed Shaft Pinion Washer.
354	Knee Dust Guard (Rear).	398	Feed Shaft Gear (Front).
355	Reverse Operating Rack (Left).	400	Feed Shaft Bushing (Front).
356	Reverse Operating Rack (Right).	405	Cross Feed Trip Lever.
357	Table Feed Screw Gear Ball Thrust.		
358	Table Feed Screw Gear Coupling.		
359	Table Feed Clutch Shoe.		

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406	Cross Feed Trip Plunger.	444	Knee Shaft Pinion Washer.
407	Cross Feed Clutch Eccentric Shaft.	445	Feed Cone Pulley (Small) Nut.
408	Cross Feed Trip Pinion.	446	Feed Cone Pulley (Large).
409	Cross Feed Trip Pinion Handle.	447	Feed Pulley (Large).
410	Vertical Feed Clutch Lever.	448	Feed Pulley (Large) Nut.
412	Table Feed Clutch Fork.	462	Saddle Gib.
414	Cross Feed Clutch Nut.	463	Saddle Gib Clamp.
416	Table Feed Handwheel Handle Stud.	464	Saddle Gib Clamp Handle.
417	Table Feed Handwheel Handle Stud Collar.	465	Cross Feed Screw Nut.
418	Knee Shaft Handwheel Clutch.	466	Worm Wheel Nut.
419	Cross Feed Handwheel Clutch.	472	Table Feed Shaft Sleeve Bearing.
420	Knee Screw (Outer) Nut.	473	Table Screw Gear Bushing (Left).
421	Knee Screw Nut Cover.	474	Table Screw.
423	Power Knee Shaft Collar.	475	Table Screw Nut.
425	Table Feed Trip Sector.	476	Table Feed Screw Gear.
426	Table Feed Trip Stud.	478	Table Feed Screw Gear Nut.
427	Knee Shaft Handwheel Clutch Guard.	481	Table Feed Gear Guard.
428	Cross Feed Handwheel Clutch Guard.	482	Table Screw Dial.
429	Cross Feed Tripping Segment.	483	Table Screw Dial Nut.
430	Cross Feed Tripping Rack.	486	Table Screw Ball Crank.
431	Universal Joint Shell (Outer).	487	Table Screw Ball Crank Handle.
432	Universal Joint Shell (Inner).	489	Table Feed Shaft.
433	Feed Cone Pulley Bracket.	490	Table Feed Clutch.
434	Feed Cone Pulley (Small).	491	Table Feed Clutch Sleeve.
435	Vertical Feed Handwheel Shaft.	492	Table Feed Clutch Sleeve Key.
436	Vertical Feed Handwheel Shaft Gear.	495	Table Clutch Gear Bearing Cap (Right).
437	Knee Shaft Bracket.	496	Table Clutch Gear Bearing Cap (Left).
438	Knee Shaft Bracket Bushing.	497	Table Feed Shaft Gear.
439	Knee Shaft Gear.	499	Table Screw Bearing.
440	Vertical Feed Quill Gear.	500	Table Quick Return Pinion.
441	Vertical Feed Quill Gear Stud.	501	Table Quick Return Gear.
443	Knee Clamp Shaft.	502	Table Quick Return Gear Guard.
		503	Table Quick Return Gear Body.
		504	Table Quick Return Gear Body Washer.
		505	Table Quick Return Gear Body Handle.

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506	Clamp Bed Gib.	579	Table Feed Handwheel Clutch.
507	Saddle Clamp Bolt.	580	Table Feed Handwheel Clutch Guard.
509	Cross Feed Trip Bracket.	581	Table Feed Handwheel.
510	Cross Feed Trip Lever Catch Pin.	582	Table Feed Handwheel Handle.
511	Cross Feed Trip Dog (Front).	586	Table Feed Shaft Collar (Right).
512	Cross Feed Trip Dog (Rear).	594	Variable Feed Case.
513	Cross Feed Trip Dog Clamp Bolt.	595	Sliding Gear Shaft.
515	Table Operating Rack Pinion Shaft.	596	Feed Change Pinion Shaft.
517	Table Feed Operating Rack Lever.	597	Change Gear Shaft.
519	Rack Pinion.	598	Quill Gear Shaft.
522	Feed Cone Shaft Yoke.	599	Intermediate Gear Shaft.
524	Table Clutch Gear Bearing (Right).	600	Intermediate Gear.
525	Table Clutch Gear Bearing (Left).	601	Quill Gear.
530	Table Screw Nut Ball Thrust.	602	Piston Yoke.
533	Table Feed Shaft Round Nut.	603	Change Gear.
534	Feed Shaft Pinion Oil Trough.	604	Change Gear.
537	Knee Shaft Clutch Shoe.	605	Change Gear.
538	Cross and Vertical Feed Trip Bracket.	606	Change Gear.
539	Vertical Feed Trip Rod.	607	Locking Pin Lever.
540	Vertical Feed Trip Pinion.	609	Intermediate Gear Locking Pin.
541	Vertical Feed Trip Pinion Catch Pin.	611	Feed Change Pinion Shaft Gear.
556	Trip Bracket Cover.	612	Sliding Gear (Small).
558	Feed Reversing Lever.	613	Sliding Gear Shaft Rack.
570	Table Hand Feed Shaft.	614	Sliding Gear Shaft Collar.
571	Table Hand Feed Gear.	615	Sliding Gear (Large).
572	Table Hand Feed Pinion.	616	Sprocket Wheel (Driven).
573	Table Hand Feed Gear Bearing.	618	Sprocket Shaft Bearing.
574	Table Hand Feed Gear Nut.	619	Feed Case Intermediate Gear Bracket.
575	Table Feed Ball Thrust.	620	Feed Case Intermediate Shoe.
576	Table Hand Feed Shaft Ball Thrust.	621	Feed Case Intermediate Shoe Slide.
577	Table Hand Feed Dial.	622	Feed Case Intermediate Shoe Slide Cover.
578	Table Hand Feed Dial Nut.	624	Feed Change Pinion (Front).
		625	Locking Lever.
		626	Feed Change Pinion (Rear).
		627	Oil Cover (Right).

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628	Oil Cover (Left).	679	Feed Reversing Intermediate Gear.
629	Small Sliding Gear Nut.	680	Feed Reversing Intermediate Gear Nut.
631	Feed Change Pinion Shaft Gear Nut.	681	Feed Reversing Lever Pinion.
632	Feed Sprocket (Driven) Hub.	682	Universal Joint Shaft Pinion Washer.
633	Safety Plunger Adjusting Nut.	683	Feed Reversing Gear Case Oil Cover.
634	Feed Sprocket Safety Plunger.	684	Oil Cover Clamp Screw.
640	Clutch Thimble Pinion.	685	Feed Reversing Gear and Yoke.
642	Quick Return Operating Rack.	686	Feed Reversing Rack Pinion.
643	Quick Return Pulley.	690	Spiral Head Swivel.
644	Clutch Thimble Bearing.	691	Spiral Head Base.
646	Clutch Thimble Shoe.	692	Spiral Head Spindle.
647	Locking Pin Pinion.	693	Spiral Head Spindle Nut.
648	Locking Pin Pinion Knob.	694	Spiral Head Spindle Plug.
649	Quill Gear Sleeve.	695	Spindle Bushing Front.
651	Spindle Feed Sprocket.	696	Index Worm Wheel.
652	Spindle Feed Sliding Gear.	697	Index Worm Wheel Nut.
653	Feed Change Pinion Shaft Gear (Small).	698	Worm Shaft.
654	Feed Sprocket Bearing.	699	Worm Shaft Bushing.
658	Roller Thrust Washer.	700	Small Index Plate Sleeve.
665	Feed Reverse Gear Case.	701	Intermediate Gear (On Head).
666	Feed Reverse Gear Case Cover (Front).	702	Index Stop Pin.
667	Feed Reverse Gear Case Cover (Rear).	703	Worm Shaft Adjusting Screw.
668	Universal Joint Shaft Pinion.	704	Swivel Clamp Bolt (Lower).
669	Feed Gear Shaft.	705	Swivel Clamp Bolt (Upper).
670	Feed Intermediate Gear Shaft.	706	Spindle Stop Pin Pinion.
671	Feed Intermediate Gear Shaft Nut.	707	Spindle Stop Pin.
672	Feed Intermediate Gear.	708	Index Crank.
673	Feed Driving Gear.	709	Index Crank Plunger Pin.
674	Feed Driving Gear Nut.	710	Index Plate (Small).
675	Feed Gear (1st Driven).	711	Index Plate (Large).
676	Feed Gear (1st Driven) Nut.	712	Spiral Head Base Tongue.
677	Feed Reversing Eccentric Sleeve.	713	Worm Shaft Bushing Nut.
678	Universal Joint Shaft Pinion Yoke.	714	Worm Shaft Bushing Pinion.
		715	Worm Shaft Bushing Nut Pinion.
		716	Worm Shaft Bushing Nut Pinion Knob.

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717 Worm Shaft Bushing Pinion Knob.	762 Reversing Operating Rack Bearing.
718 Spiral Gear Stud.	763 Reversing Operating Shaft.
719 Intermediate Stud Gear.	764 Clutch Hand Lever (Right).
720 Spiral Gear (Driven).	765 Clutch Hand Lever (Left).
721 Spiral Gear (Driver).	766 Table Stop.
722 Spiral Gear Shaft.	775 Arm Support Slide.
723 Spiral Gear Shaft Nut.	776 Arm Support Stand.
724 Spiral Gear Guard.	777 Arm Support Stand Gib.
725 Index Crank Collar.	780 Footstock Center Adjust- ing Worm Bushing.
726 Index Sector (Upper).	782 Footstock Center Adjust- ing Worm Bearing.
727 Index Sector (Lower).	783 Footstock Rack Bolt.
728 Spiral Head Change Gear.	785 Table Feed Safety Stop (Right).
729 Reversing Gear.	786 Table Feed Safety Stop (Left).
730 Reversing Gear Plate.	787 Table Clamp Lever.
731 Intermediate Gear Plate.	794 Arm Support.
732 Headstock Center.	795 Arm Support Knee Clamp.
733 Work Driver.	796 Spindle Gear Guard (Right) or (Left).
734 Face Plate Screw.	797 Vertical Feed Trip Dog Bracket.
735 Footstock Base.	798 Eccentric Shaft Pinion.
736 Footstock Adjusting Block.	799 Eccentric Shaft Pinion Locking Lever.
737 Footstock Center.	800 Eccentric Shaft Pinion Bearing.
738 Footstock Center Clamp Bolt.	801 Center Arm Head.
739 Footstock Clamp Bolt.	806 Vertical Feed Trip Dog.
740 Footstock Center Adjust- ing Worm.	809 Quick Return Idler Pulley.
741 Footstock Center Adjust- ing Worm Handle.	810 Quick Return Idler Pulley Bracket.
742 Footstock Base Clamp Bolt.	812 Arm Support Stud (Right).
743 Spindle Thread Guard.	814 Reverse Operating Lever (Front).
744 Intermediate Gear Nut.	815 Reverse Operating Lever Front Handle.
745 Intermediate Gear Stud on Head.	818 Fine Feed Eccentric Shaft.
746 Worm Shaft Nut.	819 Fine Feed Eccentric Shaft Bearing.
747 Worm Adjusting Screw Washer.	820 Fine Feed Locking Lever.
748 Index Crank Adjusting Screw.	
753 Footstock Pinion.	
755 Oil Can.	
756 Oil Can Bracket.	
757 Knee Clamp Crank.	
758 Spiral Head and Swivel Vise Pan.	
759 Stand.	

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823	Spindle Clutch Gear Bushing (Upper).	856	Spindle Driving Gear (Small).
824	Vertical Driving Shaft Intermediate Gear Bushing.	857	Spindle Driving Gear (Large).
825	Spindle Clutch Gear Bushing (Lower).	858	Vertical Driving Shaft Intermediate Gear Shaft.
826	Spindle Driving Gear Bushing.	859	Vertical Driving Shaft Intermediate Gear.
829	Vertical Feed Safety Stop (Upper).	860	Vertical Driving Shaft.
830	Vertical Feed Safety Stop (Lower).	861	Vertical Driving Shaft Gear.
831	Universal Joint Shell.	862	Spindle Driving Clutch.
832	Universal Joint Shell Yoke.	863	Driving Clutch Gear (Upper).
833	Universal Joint Piston.	864	Driving Clutch Gear (Lower).
834	Universal Joint Piston Yoke.	865	Spindle Driving Clutch Gear.
835	Arbor Yoke.	866	Spindle Driving Clutch Gear Bearing (Upper).
836	Arbor Bushing.	867	Spindle Driving Clutch Gear Bearing (Lower).
837	Change Gear.	868	Chain Tightener.
838	Change Gear.	869	Chain Tightener Bracket.
839	Change Gear.	870	Chain Tightener Roll.
840	Change Gear Shaft Bushing (Rear).	871	Spindle Feed Chain.
841	Spindle Slide.	872	Feed Driving Chain.
842	Spindle Lower Box.	873	Counterweight Chain.
843	Spindle Head.	874	Counterweight.
844	Spindle Head Cover.	875	Variable Speed Quill Gear.
845	Spindle Clutch Gear (Upper).	877	Variable Speed Quill Gear Shaft.
846	Spindle Clutch Gear (Lower).	878	Change Gear Shaft.
847	Spindle Clutch Gear Bearing Nut (Upper).	879	Belt Guard (Right).
848	Spindle Clutch Gear Bearing Nut (Lower).	880	Spindle Driving Clutch Gear Bearing Bushing (Upper).
849	Spindle Bearing (Upper)	881	Spindle Driving Clutch Gear Bearing Bushing (Lower).
850	Spindle Speed Clutch.	882	Change Gear Shaft Bushing (Front).
851	Spindle Driving Clutch Shoe.	883	Long Pinion Bearing Bushing (Front).
852	Spindle Driving Clutch Eccentric.	884	Spindle Feed Worm Gear Bracket.
853	Spindle Cap Nut.	885	Spindle Feed Pinion Outer Bearing.
854	Drawing-in Bolt.		
855	Spindle Driving Gear Shaft.		

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886	Spindle Feed Worm.	918	Spindle Slide Strap.
887	Spindle Feed Worm Gear.	919	Spindle Slide Gib.
888	Spindle Feed Worm Shaft.	920	Spindle Feed Clutch Shaft Nut.
889	Spindle Fine Feed Hand- wheel.	921	Spindle Quick Return Handwheel Handle.
890	Spindle Feed Clutch Shaft.	922	Spindle Fine Feed Hand- wheel Handle.
891	Spindle Feed Worm Clutch.	923	Long Pinion Bearing (Front).
892	Spindle Feed Clutch Shaft Sprocket.	924	Change Gear.
893	Spindle Feed Clutch Shaft Bearing.	925	Long Pinion Bearing (Rear).
894	Spindle Feed Clutch Shaft Bearing Cap.	926	Long Pinion Bearing Bushing (Rear).
895	Spindle Feed Clutch Sleeve.	927	Variable Speed Quill Gear Shaft Bushing.
896	Spindle Feed Trip Rod.	929	Friction Shipper.
897	Spindle Feed Trip Pinion.	930	Friction Shipper Rod Handle.
898	Spindle Feed Throw-out Lever Pinion.	931	Friction Shipper Bracket.
899	Spindle Feed Clutch.	932	Quick Return Operating Lever.
900	Spindle Quick Return Throw-out Pinion.	933	Oil Can Rod.
901	Spindle Quick Return Throw-out Lever.	934	Oil Can Arm.
902	Spindle Feed Throw-out Lever.	935	Oil Can Spout.
903	Spindle Feed Pinion.	936	Friction Hand Lever (Right).
904	Spindle Quick Return Handwheel.	937	Driving Clutch Eccentric Locking Lever.
905	Spindle Stop Bracket.	938	Spindle Drive Clutch Gear Bushing.
906	Spindle Stop Lever.	939	Driving Clutch Gear (Upper) Bushing.
907	Spindle Stop Dial.	940	Driving Clutch Gear (Lower) Bushing.
908	Spindle Slide Rack.	941	Spindle Dog Pin Bushing.
909	Counterbalance Chain Drum Stud.	942	Spindle Head Cover Handle.
910	Counterbalance Chain Drum.	943	Spindle Driving Clutch Eccentric Bearing.
911	Counterbalance Chain Drum Gear.	944	Clutch Lever Eccentric Shaft.
912	Counterbalance Chain Drum Bracket.	945	Spindle Feed Driving Clutch Lever.
913	Counterbalance Idler Stud.	946	Variable Speed Quill Gear Locking Lever.
914	Counterbalance Idler Pulley.		
915	Spindle Slide Clamp Shaft.		
916	Spindle Slide Clamp Nut.		
917	Spindle Slide Clamp Lever.		

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947	Belt Guard Cover.	983	Spindle Feed Handwheel Clutch.
948	Cross Feed Clutch Bush- ing.	984	Spindle Feed Differential Gear.
949	Table Chip Guard.	985	Spindle Feed Differential Gear Clutch.
950	T-Slot Cover.	986	Spindle Feed Gear Driver.
951	Spindle Feed Gear Case.	987	Differential Gear Pinion Shaft.
952	Spindle Feed Gear Case Cover.	988	Differential Gear Pinion.
953	Spindle Feed Gear Case Cap.	989	Spindle Head Rack Pinion.
954	Idler Pulley.	990	Spindle Head Rack Pinion Gear.
955	Idler Pulley Stud.	991	Spindle Feed Intermediate Gear.
956	Idler Pulley Bracket.	992	Counterweight Pulley (Front).
957	Counterweight Pulley (Rear).	993	Spindle Head Rack.
958	Chain Guard.	994	Micrometer Stop Stud.
959	Feed Sprocket.	995	Spindle Head Gib Clamp.
960	Cone Shaft.	996	Spindle Head Gib Clamp Handle.
961	Cone Shaft Nut.	997	Feed Intermediate Gear Shaft Bushing.
962	Cone Pulley.	998	Feed Gear Shaft Bushing.
963	Cone Shaft Pulley.	999	Feed Reversing Eccentric Sleeve Bushing.
964	Cone Shaft Outer Bearing Bracket.	1000	Vise Bed.
965	Cone Shaft Outer Bearing Bushing.	1001	Vise Slide.
966	Cone Shaft Bearing.	1002	Vise Screw.
967	Cone Shaft Bearing Bush- ing.	1003	Vise Screw Nut.
968	Spindle Feed Handwheel.	1004	Vise Screw Collar.
969	Quick Return Idler Pulley Fork.	1005	Loose Vise Jaw.
970	Cross Feed Tripping Seg- ment Lever.	1006	Loose Vise Jaw Screw.
971	Cross Feed Tripping Seg- ment.	1007	Fixed Vise Jaw.
972	Spindle Driving Pulley.	1008	Fixed Vise Jaw Screw.
973	Spindle Driving Pulley Sleeve.	1009	Vise Strap.
974	Spindle Driving Pulley Sleeve Bracket.	1011	Crank.
975	Spindle Head.	1016	Vise Base.
976	Spindle Driving Sleeve.	1017	Swivel Pin.
977	Spindle Head Box.	1019	Clamp Ring.
978	Spindle Head Box Nut.	1020	Swivel Ring Clamp Screw.
979	Spindle Adjusting Collar.	1024	Driving Pulley.
980	Spindle Feed Gear Shaft.	1025	Overhead Works Shaft.
981	Spindle Feed Handwheel.	1026	Standard Tight Pulley.
		1027	Standard Loose Pulley.

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1028	Standard Loose Pulley Bushing.	1079	Thimble.
1029	Standard Loose Pulley Cap.	1080	Friction Pulley Back Set Screw.
1030	Countershaft Hanger.	1089	Case.
1031	Hanger Drip.	1090	Support.
1032	Hanger Drip Cover.	1091	Support Screws.
1033	Countershaft Box (Comp.).	1092	Drip.
1035	Countershaft Hanger Wick.	1093	Drip Cover.
1036	Drip Cover Washer.	1094	Drip Adjusting Screw.
1037	Drip Cover Washer Screw.	1095	Drip Screw.
1038	Drip Cover Screw Lock.	1096	Driving Pulley.
1039	Hanger Bolt.	1097	Driving Pulley Nut.
1040	Hanger Bolt Nut.	1098	Driving Pulley Shaft.
1041	Shipper Rod.	1099	Cone Pulley Shaft.
1042	Shipper Stop.	1100	Driving Shaft Bushing (Right).
1043	Shipper Arm.	1101	Driving Shaft Bushing (Center).
1044	Shipper Arm Washer.	1102	Driving Shaft Bushing (Left).
1045	Belt Guide.	1103	Speed Change Quill Gear.
1046	Belt Guide Yoke.	1105	Speed Change Quill Gear Set Screw.
1047	Shipper Bracket.	1106	Reverse Quill Gear.
1048	Shipper Bracket Washer.	1108	Reverse Quill Gear Set Screw.
1055	Shipper Fork.	1109	Case Washer (Large).
1056	Friction Pulley.	1110	Drip Cover Screw Lock.
1057	Friction Pulley Back.	1111	Reverse Gear.
1058	Friction Lever.	1112	Reverse Gear Shaft.
1059	Friction Lever Roll.	1113	Reverse Gear Bushing.
1060	Lever Carrier.	1114	Reverse Gear Shaft Nut.
1061	Lever Carrier Bushing.	1115	Clutch Shaft.
1062	Friction Pulley Bushing.	1116	Speed Change Sliding Gear (Large).
1063	Oil Ring.	1117	Speed Change Sliding Gear (Small).
1064	Spring Washer.	1118	Clutch Gear.
1065	Lever Washer.	1119	Clutch Gear Bushing (Inner).
1066	Loose Washer.	1120	Clutch Gear Nut.
1067	Adjustable Nut.	1121	Clutch Gear Bushing (Outer).
1068	Thimble.	1122	Reverse Clutch Gear.
1069	Tight Pulley Set Screw.	1123	Reverse Clutch Gear Bushing (Inner).
1070	Friction Pulley.	1124	Reverse Clutch Gear Bushing (Outer).
1071	Friction Pulley Slide.		
1072	Friction Pulley Spring.		
1073	Friction Pulley Hub.		
1074	Friction Pulley Back.		
1075	Friction Pulley Lever.		
1076	Lever Pin.		
1077	Lever Screw.		
1078	Lever Screw Check Nut.		

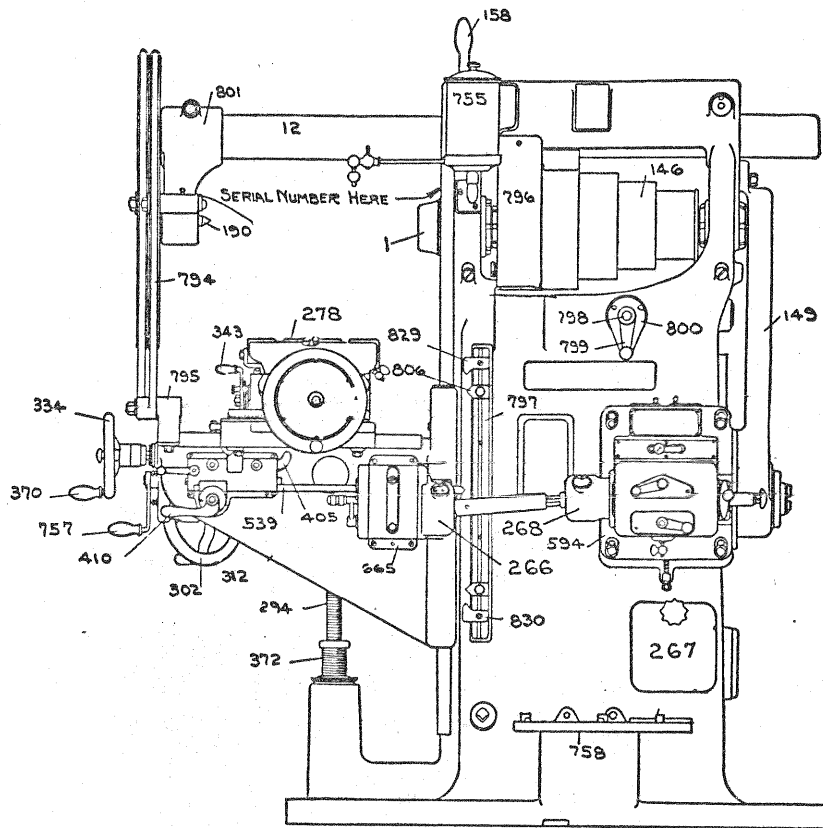
When ordering parts, specify the style, size and serial number of machine, in addition to the part number.

1125 Clutch Shaft Bearing Plug.	1171 Chuck Collet.
1126 Clutch Shaft Washer.	1172 Chuck Body.
1127 Sliding Gear Shaft Bearing.	1173 Chuck Plate.
1128 Sliding Gear Shaft Bushing.	1174 Chuck Jaw.
1129 Case Washer (Small).	1175 Saddle Top.
1130 Clutch.	1176 Locking Shaft.
1131 Fork Shaft.	1177 Locking Shaft Knob.
1132 Fork Shaft Nut.	1179 Center Bushing.
1133 Fork Shaft Collar.	1257 Worm.
1134 Fast and Slow Operating Pinion.	1258 Worm Shaft.
1135 Fast and Slow Operating Pinion Shaft.	1259 Worm Gear.
1136 Fork (Right).	1260 Bevel Pinion Shaft.
1137 Direct and Reverse Operating Pinion.	1262 Bevel Pinion Shaft Nut.
1138 Direct and Reverse Operating Pinion Shaft.	1263 Worm Gear Case.
1139 Fork (Left).	1264 Worm Shaft Bearing.
1140 Oil Returning Pipe.	1367 Saddle Gib Clamp Screw.
1141 Oil Returning Rod.	1368 Table Feed Trip Plunger Pinion.
1142 Oil Returning Rod Gear.	1369 Table Feed Trip Plunger Spring.
1143 Oil Returning Pipe Cup.	1378 Table Feed Trip Lever Stud (Upper).
1144 Oil Returning Rod Adjusting Screw.	1379 Table Feed Trip Lever.
1145 Cone Driving Pulley.	1380 Table Feed Trip Lever Stud (Lower).
1146 Pump Driving Pulley.	1381 Worm Shaft Bearing Bushing.
1153 Footstock Adjusting Block Guide Bolt.	1382 Worm Thrust Washer (Front).
1154 Headstock Index Finger.	1383 Worm Thrust Washer (Rear).
1155 Differential Index Center.	1384 Universal Joint Guard Collar.
1160 Spiral Head Raising Block.	1385 Shell Yoke.
1161 Arm Support Bracket.	1386 Table Oil Cock.
1162 Arbor Holding Nut.	1387 Reducing Bushing.
1163 Arbor Holding Locking Nut.	1388 Worm Shaft Yoke.
1164 Drawing-in Bolt.	1395 Feed Link.
1165 Vise Clamp.	1396 Feed Lever.
1166 Center Rest Stand.	1397 Feed Gear Shaft Yoke.
1167 Center Rest Shell.	1410 Vise Base.
1168 Center Rest Shell Nut.	1411 Vise Slide.
1169 Center Rest Piston.	1412 Vise Screw.
1170 Cutter Driver.	1413 Vise Screw Nut.

**When ordering parts, specify the style, size
and serial number of machine, in addition
to the part number.**

1414	Vise Screw Cap.	1546	Sliding Gear Shaft Bush- ing (Left).
1415	Loose Vise Jaw.	1547	Sliding Gear Shaft Bush- ing (Right).
1416	Loose Vise Jaw Screw.	1548	Long Pinion Bearing Bushing (Left).
1417	Fixed Vise Jaw.	1549	Long Pinion Bearing Bushing (Right).
1418	Fixed Vise Jaw Screw.	1550	Long Pinion Bearing (Left).
1419	Vise Strap.	1551	Change Gear Shaft Bearing (Right).
1420	Vise Strap Screw.	1552	Change Gear Shaft Bushing (Left).
1421	Vise Screw Cap Screw.	1553	Change Gear Shaft Bear- ing Bushing (Right).
1422	Lower Plate.	1554	Quill Gear Sleeve Bushing (Left).
1423	Graduated Plate.	1555	Spindle Feed Driving Gear.
1424	Center Pin.	1556	Quick Return Pulley Bushing.
1425	Vise T-Bolt.	1557	Clutch Thimble.
1426	Vise T-Bolt Nut.	1561	Quick Return Friction Ring.
1427	Index Finger.	1562	Reverse Operating Lever (Rear).
1521	Friction Lever.	1563	Reverse Operating Segment.
1522	Thimble.	1570	Lower Vise Bed.
1523	Thimble.	1571	Base.
1524	Friction Lever.	1572	Swivel Pin.
1525	Vise Clamp.	1573	Base T-Bolt.
1526	Vise Clamp Bolt.	1574	Base T-Bolt Nut.
1527	Fast and Slow Operating Pinion.	1575	Index Finger.
1528	Direct and Reverse Operating Pinion.	1576	Upper Vise Bed.
1529	Locking Pin.	1577	Lower and Upper Vise Bed Bolt.
1530	Locking Pin Plate.	1578	Bed Swivel.
1531	Lever Shaft Connection (Upper).	1579	Pivot Bolt.
1532	Operating Pipe Stud.	1580	Brace.
1534	Fast and Slow Lever Shaft Connection.	1581	Brace Bolt.
1535	Fast and Slow Lever Shaft.	1582	Brace Bolt Nut.
1536	Operating Lever Bracket.	1583	Washer Dial.
1537	Clutch Operating Shaft Connection.	1584	Base Clamp Bolt.
1538	Rack Stop Pin Pinion Washer.	1585	Base Clamp Bolt Nut.
1540	Direct and Reverse Operating Lever.	1586	Clamp Bolt.
1541	Fast and Slow Operating Lever.	1587	Clamp Bolt Nut.
1542	Direct and Reverse Lever Shaft.	1588	Bed Swivel Screw.
1543	Rack Stop Pin.		
1544	Rack Stop Pin Pinion.		
1545	Feed Sprocket Bearing Bushing.		

When ordering parts, specify the style, size
and serial number of machine, in addition
to the part number.

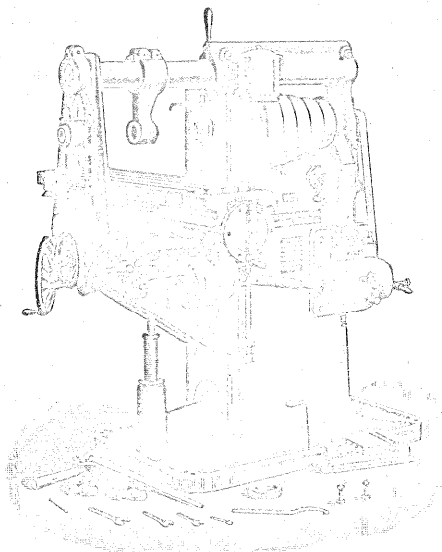


Side Elevation, Nos. 1 With Back Gears, 2 and 3
Universal Milling Machines.

BROWN & SHARPE PLAIN HORIZONTAL MILL
#3 CIRCA 1910-1920 QUANTITY (4)
HOLYHOKE WAREHOUSE & MACHINERY CO.
HOLYHOKE, MASS.

No. 3

34 in. x 10 in. x 20 in.

PLAIN MILLING MACHINE.Hand or Automatic
Transverse and Vertical Feeds.Patented Aug. 29, 1899; Feb. 6, 1900; Jan. 13, 1903; July 11,
Dec. 12, 1905.

The table has an automatic longitudinal feed of 34"; hand or automatic transverse feed of 10" and hand or automatic vertical feed of 20".

When furnished with spiral head centres swing 12" and take 3s" in length.

No. 3

34 in. x 10 in. x 20 in.

PLAIN MILLING MACHINE.

Spindle. Of crucible steel. Bearings ground. Bronze boxes provided with means of compensation for wear. Front end threaded, 3 1/4" diameter, 3 1/2, L.H. Has No. 11 taper hole. Recess across the end and cap nut for arbor or collet with clutch collar. Hole through, 3/4" diameter.

Drive. Cone, 4 steps, largest 11 1/2" diameter, 3" belt. Back geared. With 2 speeds of counter-shaft, 16 changes of spindle speed, 13 to 439 revolutions per minute. Speeds in geometrical progression.

Overhanging Arm. Solid steel. Both bearings clamped with one lever. Centre of spindle to under side of arm, 6 3/8". End of spindle to centre in arbor support, without arm support, 26 1/4".

Arbor Support. Bronze bushing for arbor bearing, hole 2 1/16" diameter. Arm support furnished. End of spindle to arbor bushing, with arm support, 21 1/4". Face of column to arm support, 23 1/2".

Table. Including oil pans and channels, 63"x 12 1/4". Working surface, 53"x 12 1/4". 3 T slots, 5/8" wide. Quick return operated by internal gear and pinion. Elevating screw, telescopic.

Feeds. Positive. All spur gears driven by chain. 20 changes in geometrical progression, from .004" to .200" per revolution of spindle. No loose change gears. Changes made by adjustment of index slide and levers. Longitudinal, 34". Transverse, 10". Vertical, 20". Feeds automatic. Furnished with hand transverse and vertical feeds when desired. Feed tripping mechanism, double plunger type. Hand wheels clutched.

Adjustable Dials. Graduated to thousandths of an inch. Vise. Flanged. Hardened jaws, 6 1/8" wide, 1 9/16" deep, open 3 5/8".

Counter-shaft. 2 tight and 2 loose self-oiling pulleys, 14" and 18" diameter. 3 1/2" belts. Speeds: 308 and 120 revolutions per minute.

Floor Space. At right angles to spindle, 111". Parallel to spindle, 61".

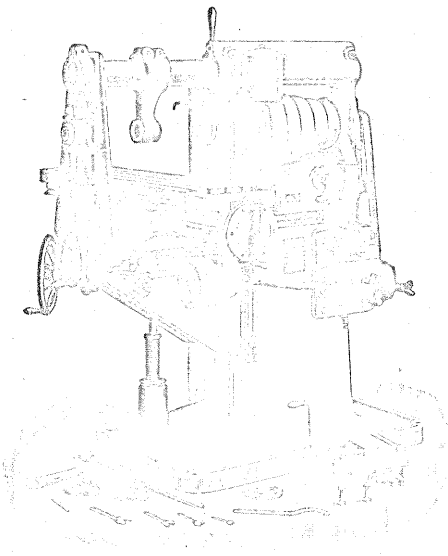
Weights. Net, about 4150 lbs.; ready for shipment, about 4750 lbs. Dimensions for shipment, 69"x 38"x 72". Space occupied, about 100 cubic feet.

Equipment. No. 3 Flanged Vise, oil can, "G" collet, wrenches and everything else shown in cut, together with overhead works.

Prices. F.o.b. Providence, R. I. \$
With Pump, \$
Hand Transverse and Vertical Feeds, \$
With Pump, \$
Arbors, Collets, Tapers and Attachments, pages 50 to 95.

No. 3

34 in. x 10 in. x 20 in.

PLAIN MILLING MACHINE.Hand or Automatic
Transverse and Vertical Feeds.Patented Oct. 18, 1892; May 23, 1893; Aug. 29, 1899; Feb. 6, 1900;
Jan. 13, 1903; July 11, Dec. 12, 1905.

The table has automatic feeds as follows:
Longitudinal, 34"; transverse, 10"; vertical, 20".

No. 3

34 in. x 10 in. x 20 in.

PLAIN MILLING MACHINE.

Spindle. Of crucible steel. Bearings ground. Bronze boxes provided with means of compensation for wear. Front end threaded, 3 1/4" diameter, 3 1/2, L.H. Has No. 11 taper hole. Recess across the end and cap nut for arbor or collet with clutch collar. Hole through, 3/4" diameter.

Cone. 4 steps, largest 11 1/2" diameter, 3" belt. Back geared. With 2 speeds of counter-shaft, 16 changes of speed, 13 to 439 revolutions per minute. Speeds in geometrical progression.

Overhanging Arm. Solid steel. Both bearings clamped with one lever. Centre of spindle to under side of arm, 6 3/8". End of spindle to centre in arbor support, without arm support, 26 3/8".

Arbor Support. Bronze bushing for arbor bearing, hole 2 1/16" diameter. Arm support furnished. End of spindle to arbor bushing, with arm support, 21 1/4". Face of column to arm support, 23 1/4".

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Floor Space. At right angles to spindle, 111". Parallel to spindle, 61".

Weights. Net, about 4350 lbs.; ready for shipment, about 5000 lbs. Dimensions for shipment, 68"x 43"x 72". Space occupied, about 110 cubic feet.

Equipment. No. 3 Flanged Vise, oil can, "G" collet, wrenches and everything else shown in cut, together with overhead works.

Prices. F.o.b. Providence, R. I. \$
With Pump, \$
Hand Transverse and Vertical Feeds, \$
With Pump, \$
Arbors, Collets, Tapers and Attachments, pages 54 to 99.