



MILLING MACHINE DIVISION

THE CINCINNATI MILLING MACHINE CO.

CINCINNATI 9 OHIO



HORIZONTAL
KNEE & COLUMN

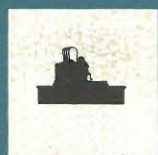


VERTICAL
KNEE & COLUMN

MILLING MACHINES



HORIZONTAL &
VERTICAL BED TYPE



RISE & FALL AND
TRACER CON-
TROLLED BED TYPE

Products of the Milling Machine Division of The Cincinnati Milling Machine Co. are listed and symbolized here.

Products of The Cincinnati Milling Machine Co.'s other divisions include a complete line of centertype grinding machines, centerless grinding machines, roll grinding machines, surface grinding machines, chucking grinding machines, micro-centric grinding machines, special grinding machines, heat treating machines, metal forming machines, broaching machines, special machine tools and complete production lines, special machinery, cutting fluids and precision grinding wheels.



VERTICAL



HORIZONTAL

DIE SINKING MACHINES



NOS. 1 & 2
MONOSET



CONTOUR-
OPTICAL

CUTTER SHARPENING MACHINES



Cincinnati

TOOLMASTER

MILLING MACHINES



Cincinnati

TOOLMASTER MILLING MACHINES

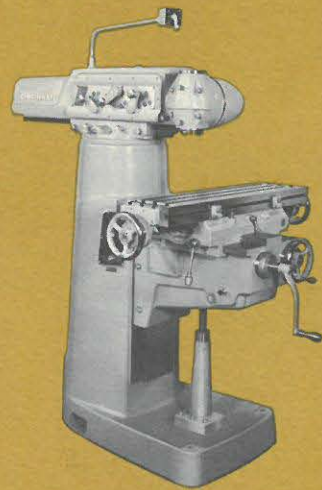
*Help you cut costs in toolroom
and production operations —*

Toolmaster Milling Machines are available in four different styles: 1B, 1C, 1D and 1E; each having its own particular cost reducing benefits. The difference between these Toolmasters is in the spindle carrier design; all other machine extras are identical.

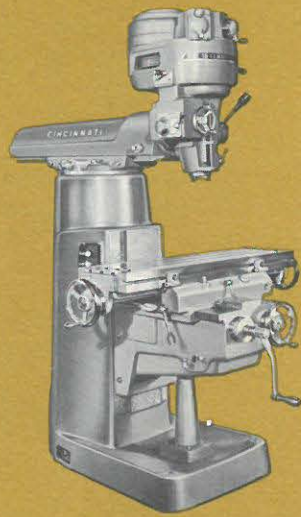
Basically, Toolmasters have the same overall strong sturdy construction necessary for long dependable machine life. The wide knee with narrow center guide and square gibbing provide ample support and alignment to the extra long saddle, design features usually found only on larger machines. And look at that wide column bearing. Here you can see another example of Toolmaster big machine extras. For the operator there are large easy to read dials and each sliding member has its own hand clamp. The saddle and table units are lubricated by just a single pull of a one shot lubrication system. The Cincinnati dovetail rectangular overarm is mounted on a 360° swivel turret; a shaping attachment mounted on the rear of the overarm is instantly available when needed. Consider the Toolmaster illustrations and brief descriptions contained in this brochure. You may find an answer to time-savings and cost-reducing benefits for your shop.



1B Toolmaster



1C Toolmaster



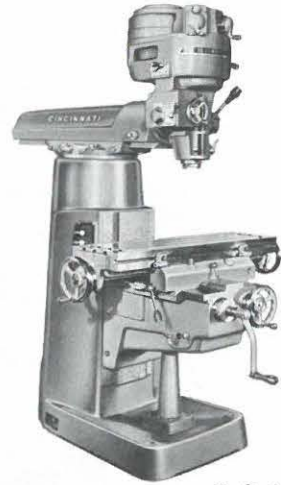
1D Toolmaster



1E Toolmaster

Inside this publication—

Design highlights and benefits	3A and 6A
Full length views	4A to 5A
Toolmasters on the job	6 and 7
Toolmaster exclusives and plus values	8 to 15
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Accessories and attachments	20 - 23



DESIGN

... AND ACCRUING

Infinitely Variable Spindle Speeds . . . speeds are changed instantly while machine is running with single crank type control (1D machine).

Extra Long Quill Stroke . . . provides cutting action over a 5" range (1D & 1E machines).

Square Gib Saddle—Knee Bearing . . . an outstanding contribution to smooth milling at maximum horsepower capacity.

Cincinnati Rectangular Overarm . . . more rigid; more convenient to position than any other construction.

Extra Long Saddle . . . an aid in assuring surface-plate flatness of table traverse.

Generously Proportioned Knee . . . another factor of rugged construction and smooth cutting action.

Extra Wide Knee Bearing on Column Face . . . promotes rigidity, greatly improves resistance to deflection.

Anti-Backlash Device on Table Feed Screw . . . operator can feed table to right or left.

Clamps for Table, Saddle and Knee . . . two hex head knee clamps for solid locking. Saddle clamping lever adjustable to position desired.

Extra Large Micrometer Dials . . . for knee, saddle and table handwheels. Graduations are large and clearly legible.

Oil-Shot Lubrication . . . for parts within knee; for parts within saddle and table.

Micrometer Table Stop Dogs . . . for micrometer accuracy in length of cut.

HIGHLIGHTS

BENEFITS . . .

Eight Spindle Speeds . . . conveniently selected; direction of rotation reversible.

Spindle Lock . . . for convenience in changing cutters.

Turret Mount for Overarm . . . can be swiveled as desired to cover extra large cutting area; convenient for overarm mounted attachments.

Swivel Mounting of Motor Driven Spindle Head . . . for taking cuts at any angle up to 90°.

Several Toolmaster Attachments Available . . . intermediate swivel for spindle head; Shaping Attachment; Precision Measuring Equipment.

Micrometer Quill Stop for Accurate Depth Setting . . . readily adjusted at operator's working position (1B, 1D and 1E machines).

Worm Positioning of Spindle Head . . . for positive adjustment to angle desired.

Collet Chuck Type of Spindle Nose . . . takes standard collets (1B machine).

No. 40 National Standard Taper Spindle Nose . . . positive drive from spindle nose; use any 40 series collet or toolholder (1C, 1D and 1E machines).

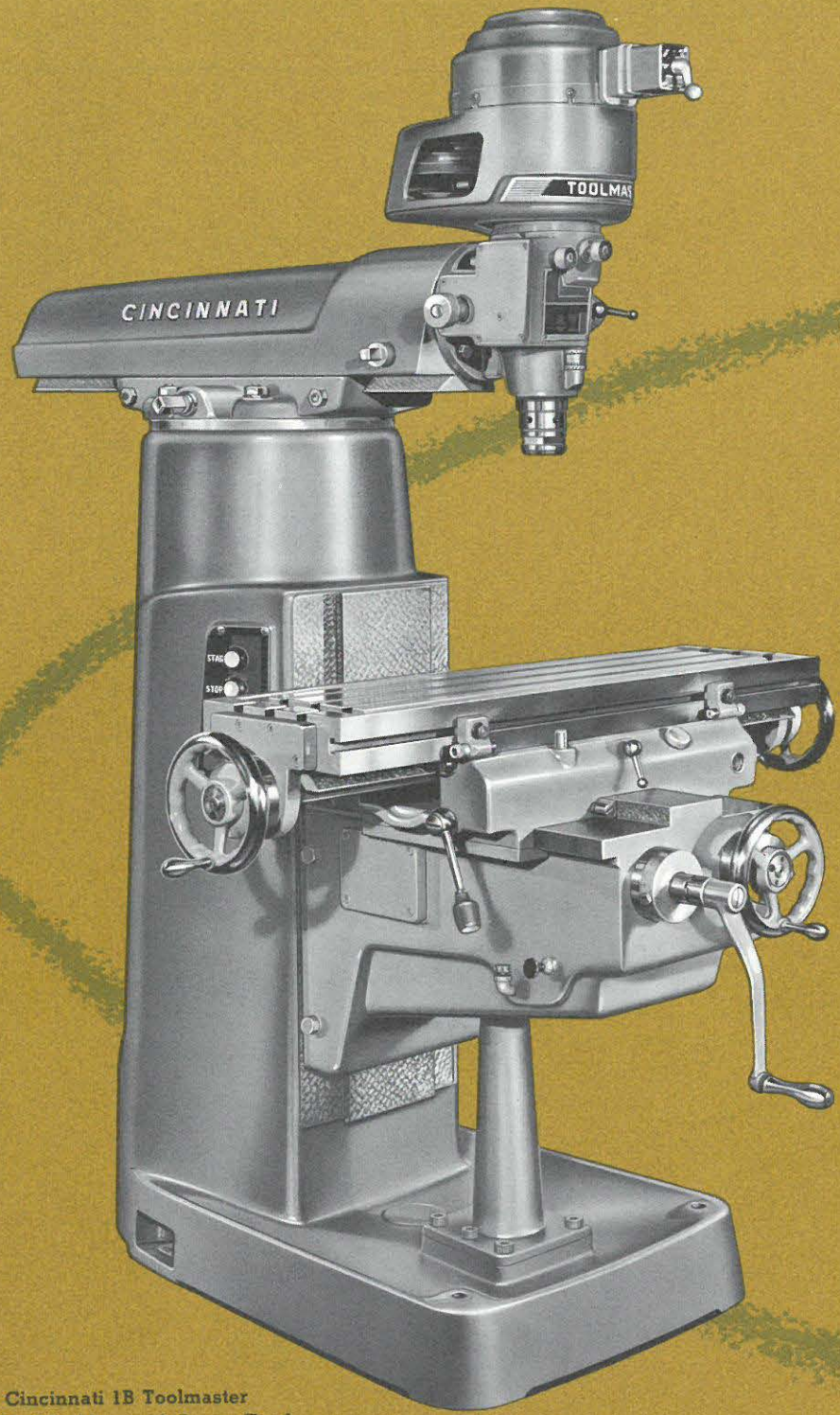
Power Feed to Quill . . . knob selection of high and low feed rates (1B machine). Dial selection of three feeds for 1D and 1E machines (extra cost).

Heavy Duty Spindle Head . . . doubles the power available at the cutter with 2 hp direct drive; eight gear-driven spindle speeds, lever selected; standard milling machine spindle nose (1C machine).

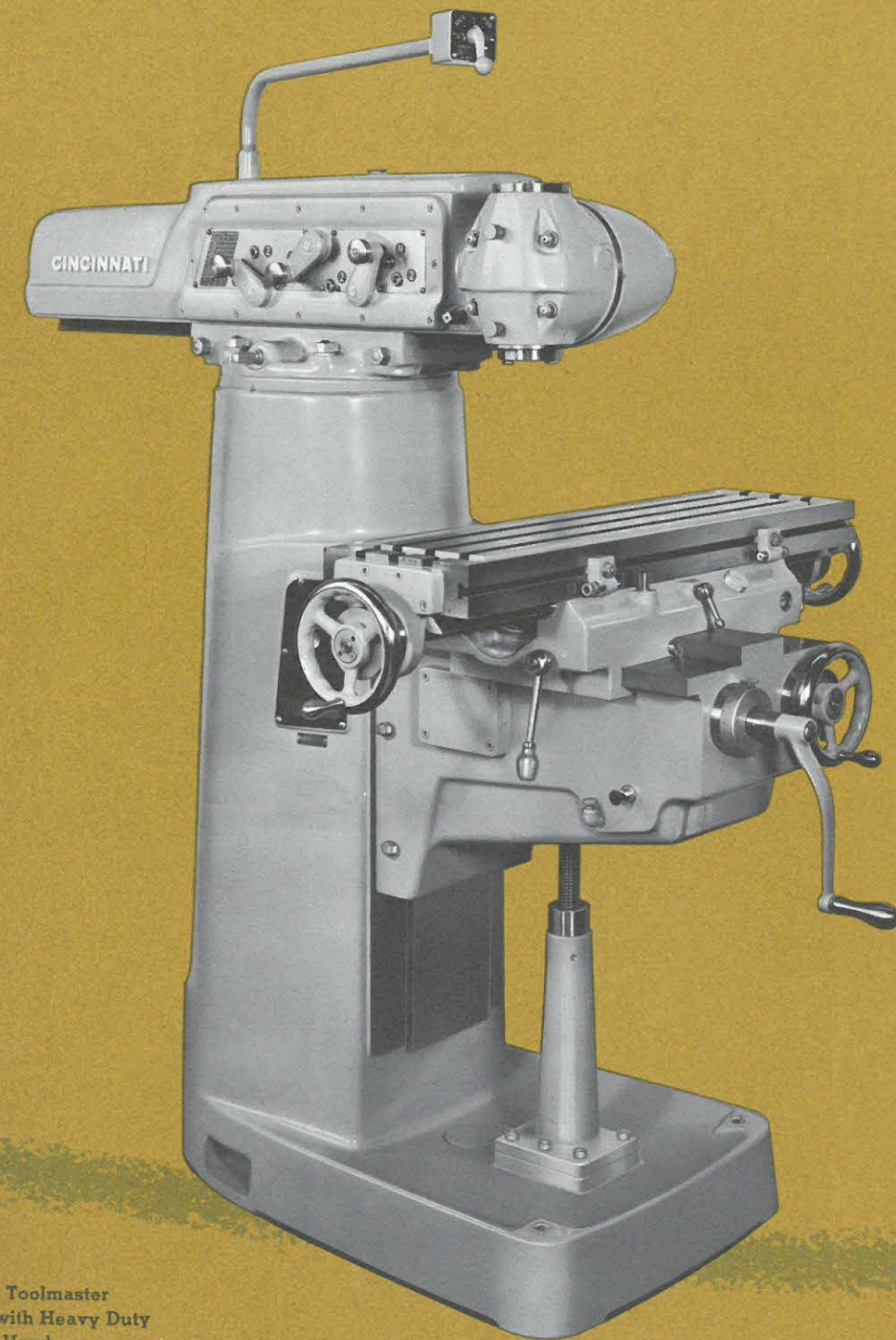
Pendant Control . . . places spindle control switch at operator's fingertips (1C machine).

Cincinnati

TOOLMASTER

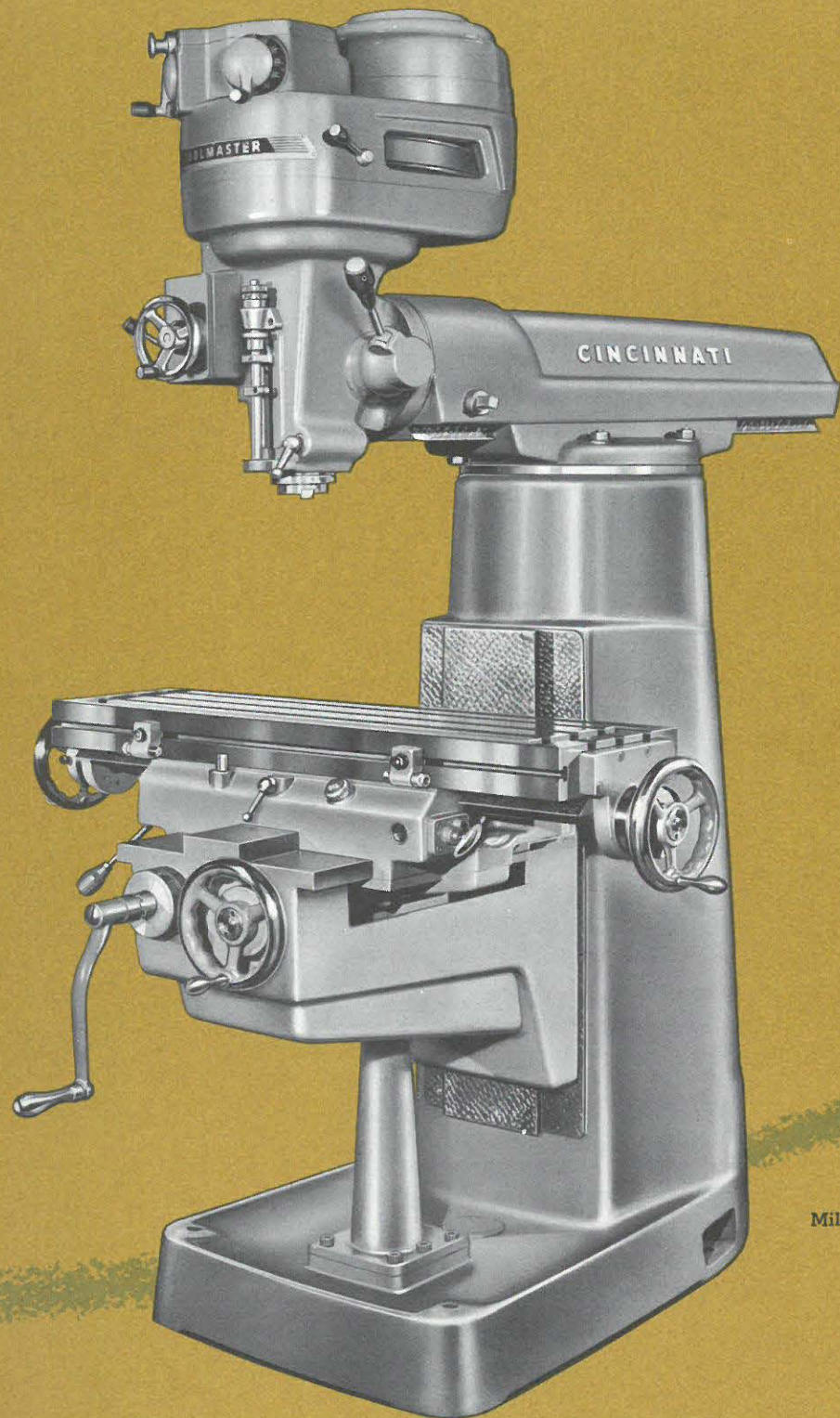


Cincinnati 1B Toolmaster
Milling Machine, with Power Feed
to Quill.

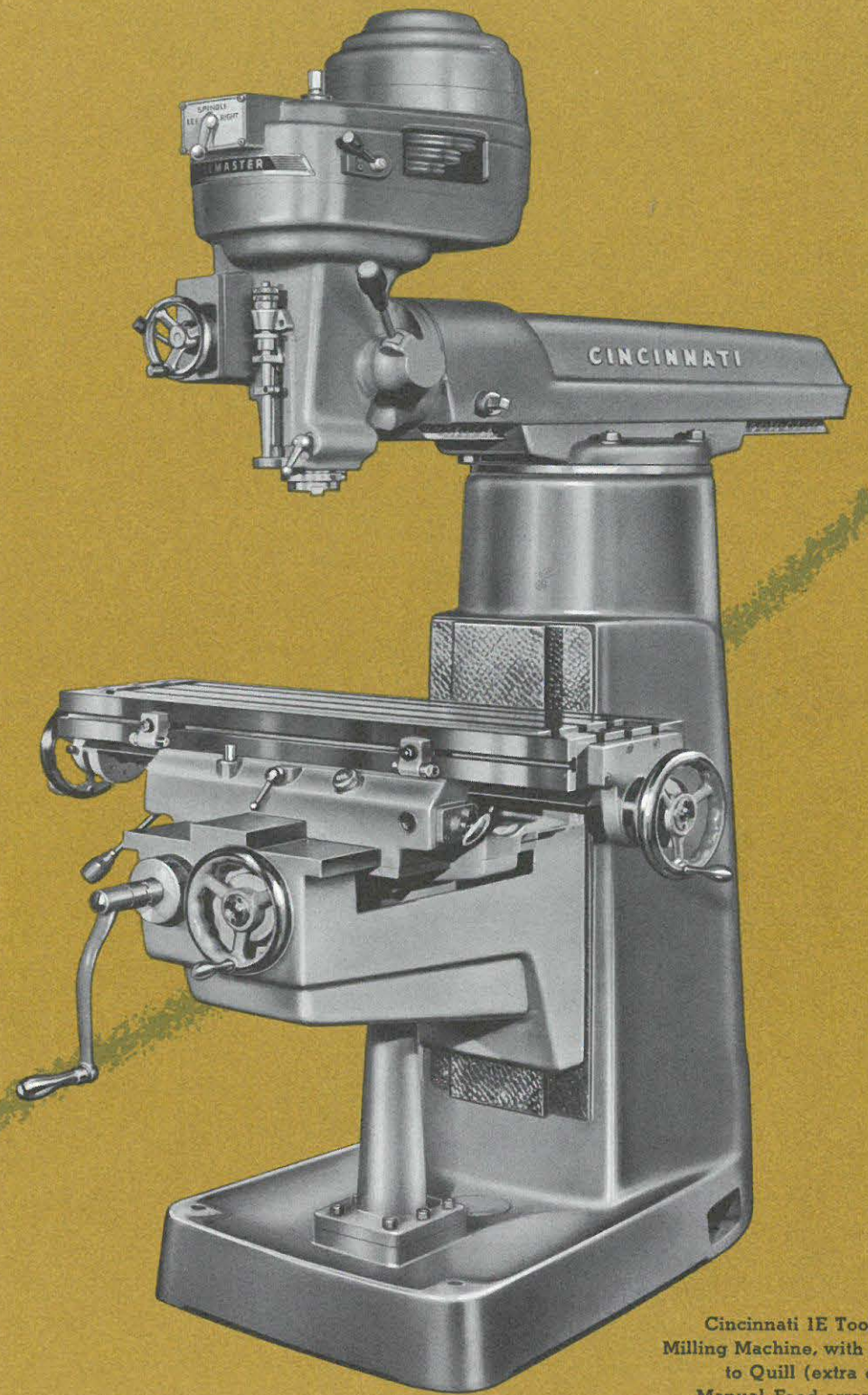


Cincinnati 1C Toolmaster
Milling Machine, with Heavy Duty
Spindle Head.
Intermediate swivel shown here
is extra equipment.

MILLING MACHINES

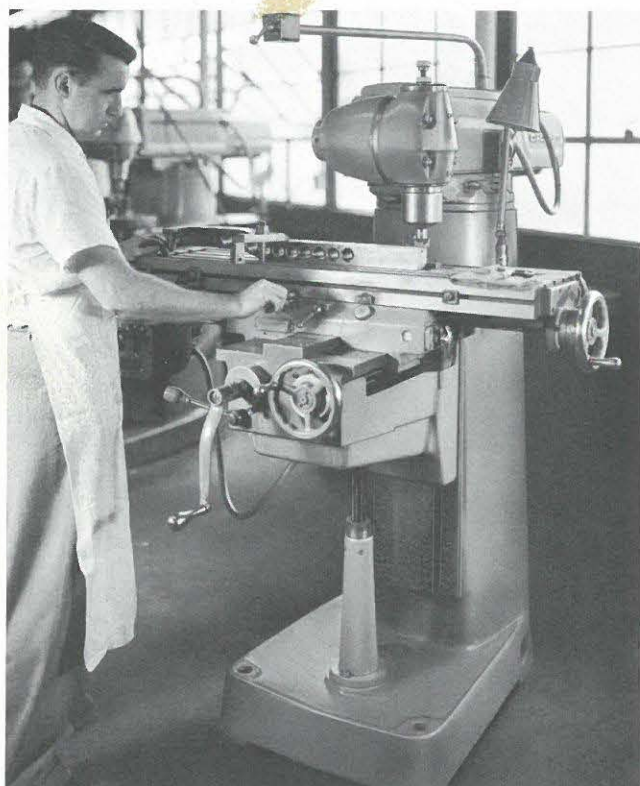


Cincinnati 1D Toolmaster
Milling Machine, with Power Feed
to Quill (extra cost).
Manual Feed arrangement
is standard.



Cincinnati 1E Toolmaster
Milling Machine, with Power Feed
to Quill (extra cost).
Manual Feed arrangement
is standard.

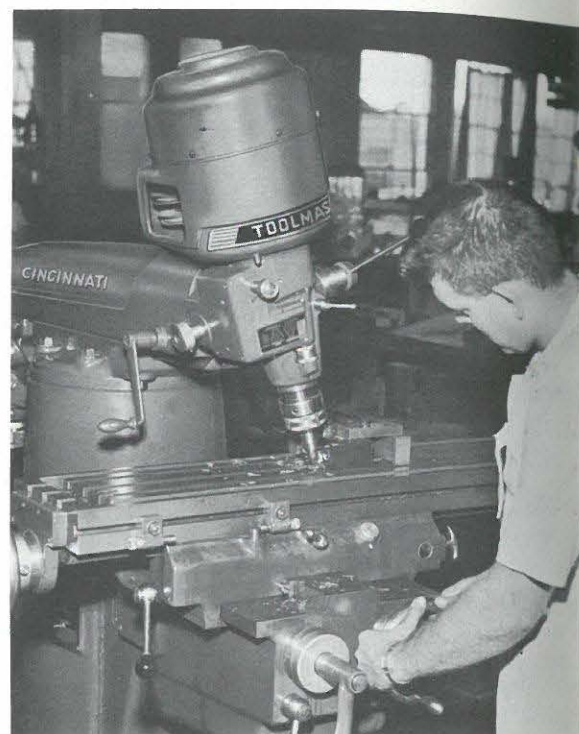
ON THE JOB



Photograph courtesy of Bennett Metal Products, Wilmington, Ohio

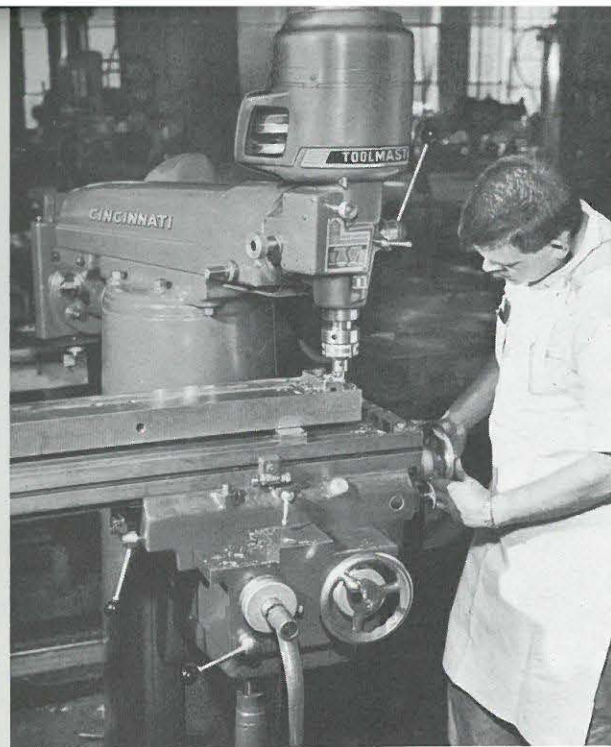
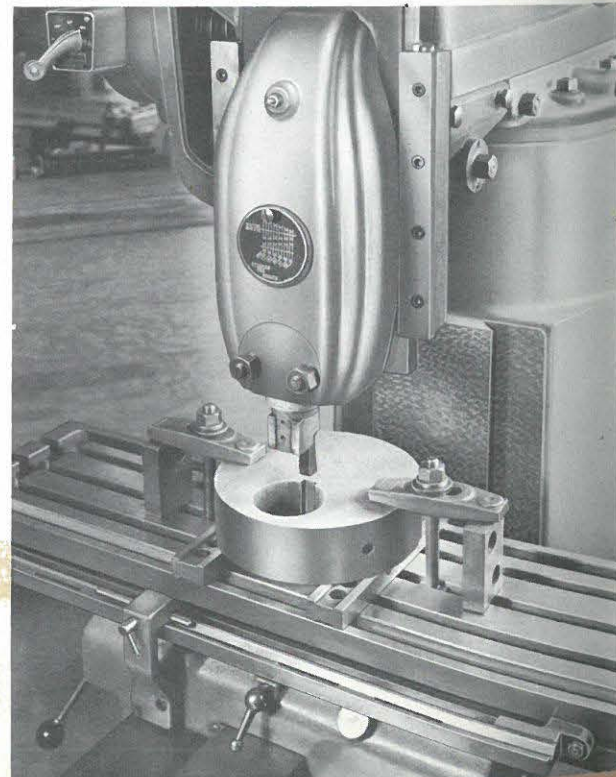
Power feed attachment to table of Toolmaster provides for those production operations where heavy cuts will tax the full hp of the spindle motor.

The Shaping Attachment adds shaping and slotting operations to the variety of milling jobs handled by the Toolmaster. The illustration to the right shows how a keyway is machined in a simple stamping type cam.

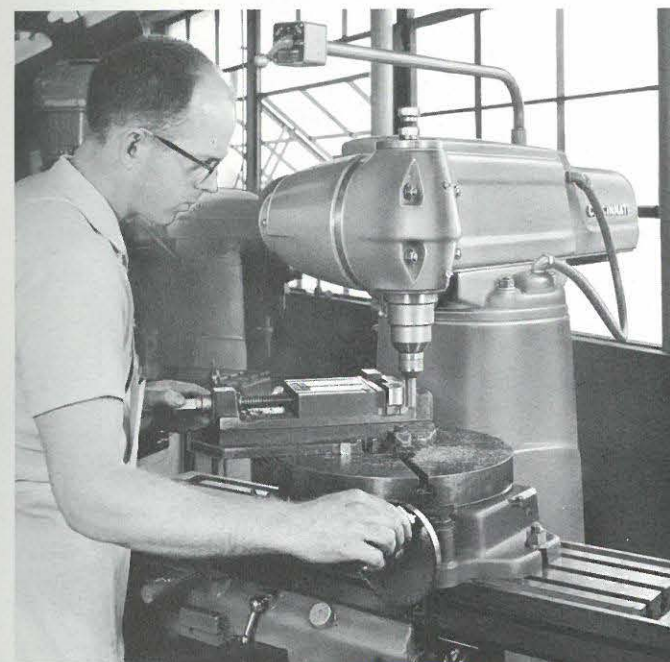


Accurate, angular milling operations, like the one illustrated above, are completed quickly on the Toolmaster. Crank adjustment of the spindle head swivel, 90° right and left, gives the operator the versatility he needs for work of this type.

Photograph courtesy of Bennett Metal Products, Wilmington, Ohio

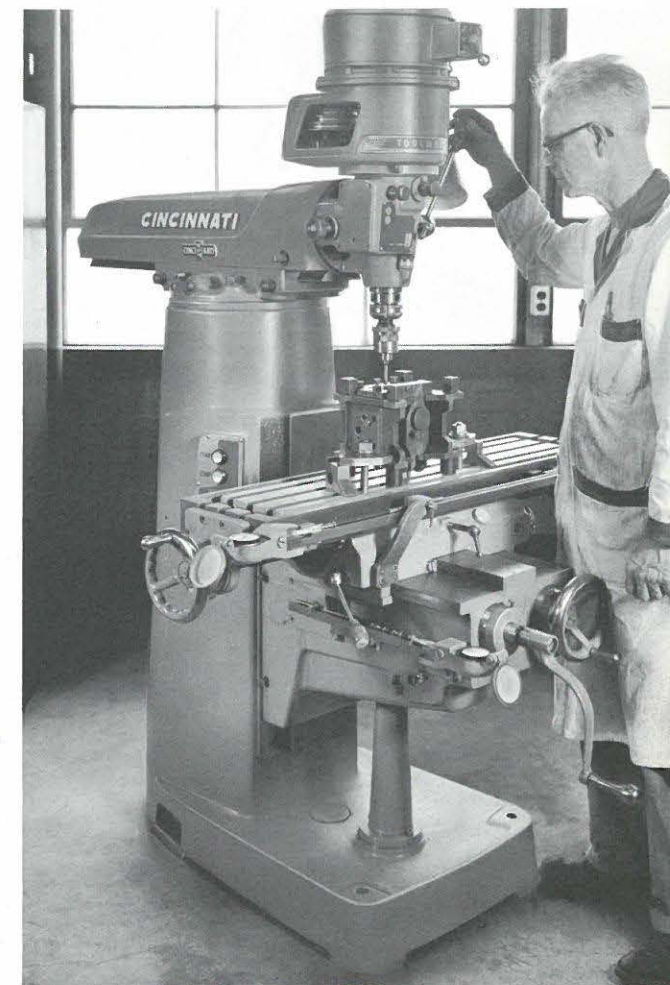


Maximum range setups on the Toolmaster have no appreciable effect on cutability. The cutting action is just as smooth for the long reach job illustrated above as for any other.



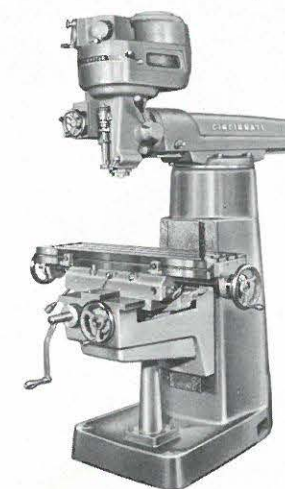
Photograph courtesy of Bennett Metal Products, Wilmington, Ohio

Rugged construction of knee and wide knee bearing of column face permits heavy workloads on machine table without deflection of machine units. The 1C machine shown here is equipped with a 90° intermediate swivel on the face of the overarm.



Photograph courtesy of Bennett Metal Products, Wilmington, Ohio

Accurate boring or drilling operations are no problem for the Toolmasters. Hand lever at side of head provides for manual positioning; power feed is engaged for finish operations.





Rugged Construction

CINCINNATI Rectangular Overarm



Heavy Duty Overarm with Built-in Motor, for 1C Machine.

The Toolmaster spindle head is mounted on the most substantial overarm to be found on any milling machine. Cincinnati's rectangular design, with its dovetail mounting and clamping, prevents deflection; easy to reposition when making setups.

Overarm for 1B, 1D and 1E Machines. Ample proportions are quite evident in these pictures.

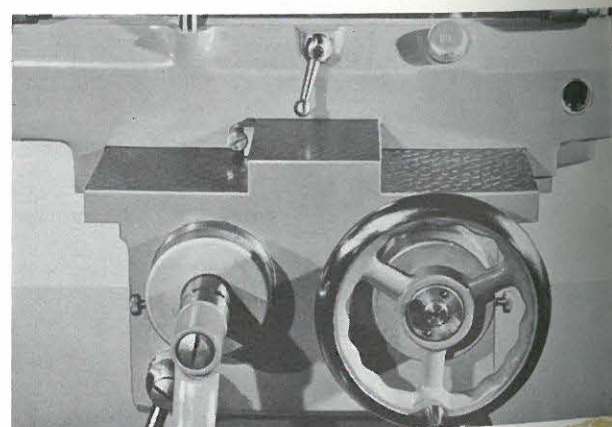


Rugged Construction

Square Gibbed Saddle-Knee Bearing



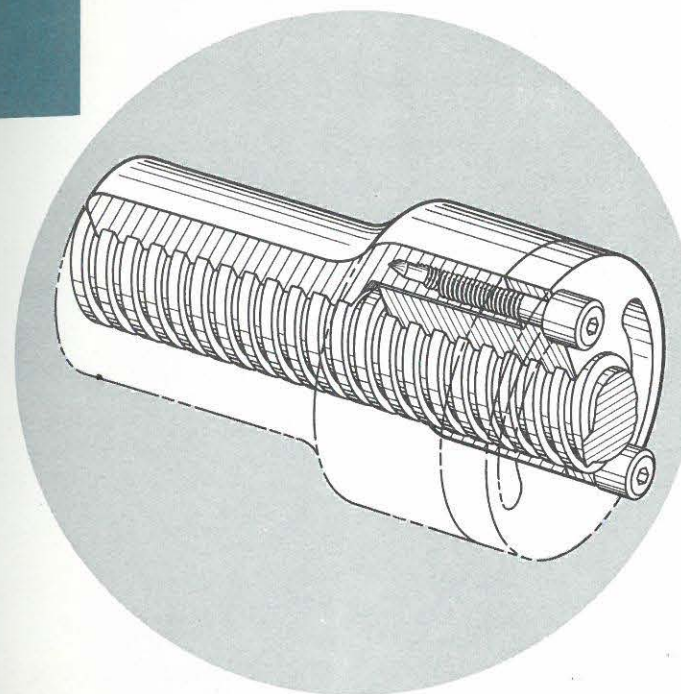
This big-machine feature is an outstanding factor in the rugged construction of the Toolmaster. It provides the dual advantage of wide bearing for maximum strength and narrow guide for smooth cross adjustment. Width of knee bearing is nearly 70% the length of the saddle! It is readily apparent that taking the maximum hp cut is no trick at all on the Toolmaster.



Rugged Construction

Anti-Backlash Adjustment

Oil-shot lubrication of the Toolmaster table feed screw and nut is an excellent deterrent to wear between these two critical elements. Nevertheless, some wear is inevitable, so an anti-backlash device has been incorporated in the table feed elements. Simplicity of adjustment is evident in the illustration. This Toolmaster feature of high quality construction enables the operator to feed the table to the right or left.



Rugged Construction

Ample hp at the Cutter...All Usable

Toolmaster features of rugged construction—Cincinnati rectangular cast-iron overarm . . . square gibbed saddle-knee bearing . . . maximum width knee-column bearing—assure smooth cutting action when the operator desires to take a cut that taxes the full hp of the motor.



1 hp

2 hp

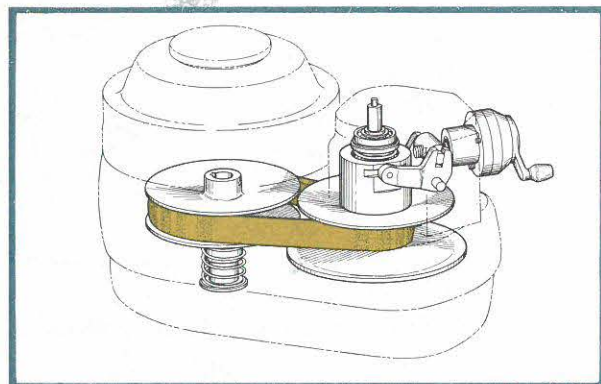
Cincinnati

TOOLMASTER

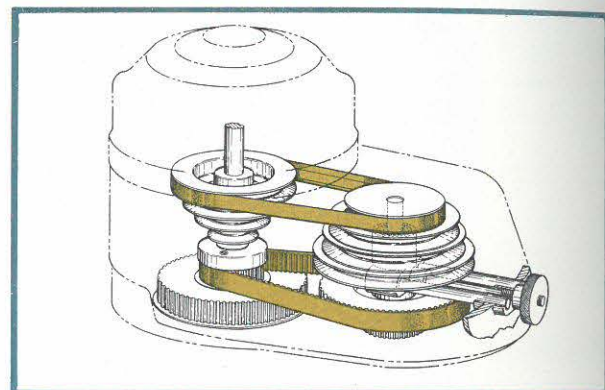
EXCLUSIVES

Operating Convenience

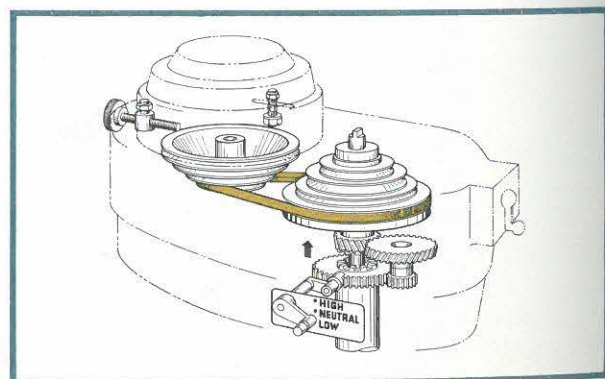
Easy to Change Spindle Speeds



As you turn the speed selector of the 1D spindle drive arrangement, the pulley sheaves open or close and the drive belt automatically shifts to a different drive position. Speeds are changed instantly by selecting high or low range and, then, simply rotate speed crank. Speeds are dial indicated.



An ingenious drive mechanism on the 1B machine enables the operator to change spindle speeds in a minimum of time. One set of pulleys is shifted by means of a knob on a threaded stud; at which time either one or both belts can be changed to another step on their respective pulleys. This arrangement provides a change of eight spindle speeds.

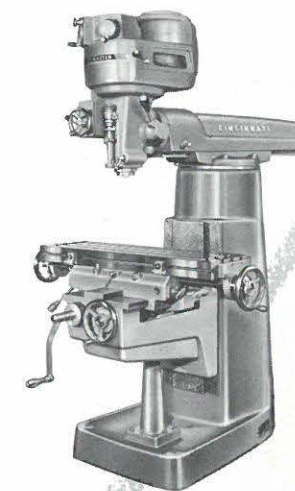
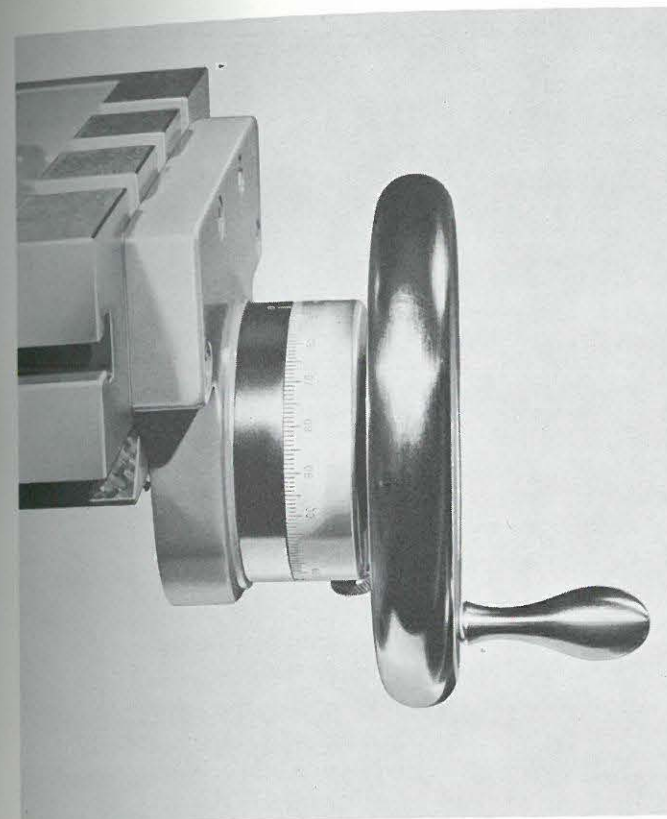


Maximum operating convenience is quite evident with this 1E drive mechanism. The lever operated back gear arrangement selects the high or low range. The stepped pulley is shifted by means of a knob on a threaded stud to permit easy belt adjustment. This drive provides a change of eight spindle speeds.

Operating Convenience

Extra Large Easy-to-Read Feed Screw Dials

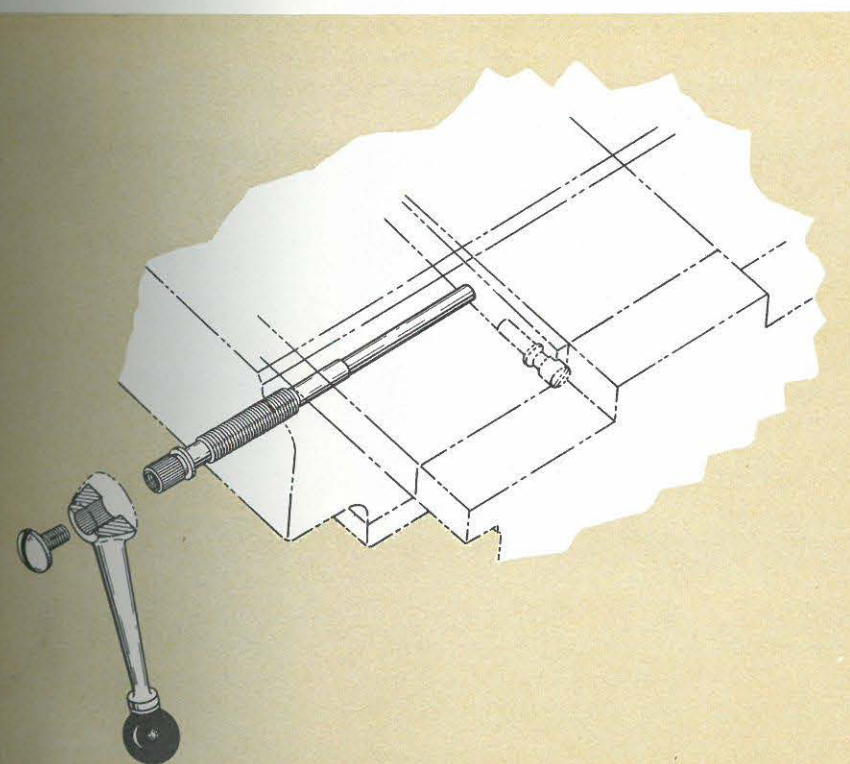
There's no straining or squinting of the eyes when the operator matches two graduation lines or resets the micrometer feed screw dials. They are extra large, legibly stamped and easy to read. This is another of the many Toolmaster conveniences liked so well by operators.



Operating Convenience

Adjustable Saddle and Knee Clamps

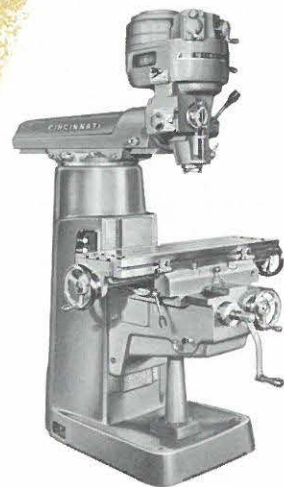
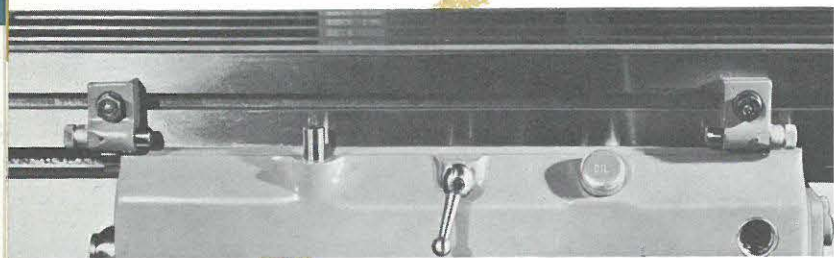
Here's a refinement in milling machine design that will win instant operator approval . . . clamping levers for the saddle can be adjusted to the position desired. This is accomplished through serrations on the end of the clamping screw and in the mating bore of the lever, as illustrated. *No more skinned knuckles.*



 Operating Convenience

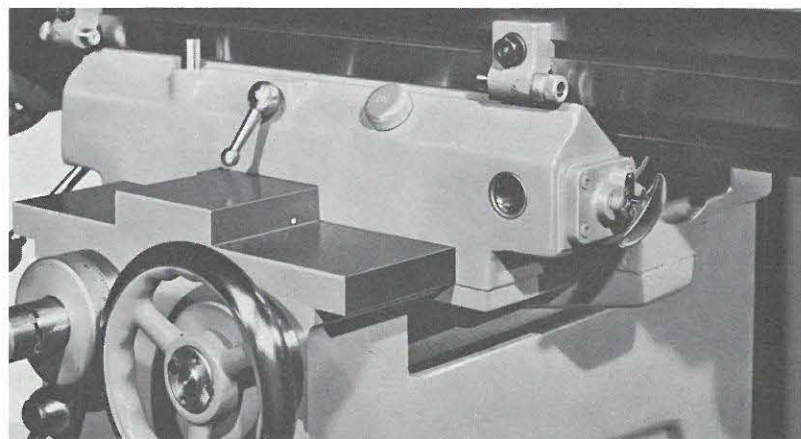
Micrometer Table Stop Dogs

When accurate length of cut is desirable, the micrometer table stop dogs may be set and adjusted to limit the length of table traverse. They are fitted with a knurled adjusting screw, graduated in thousandths of an inch. This operating convenience saves time by reducing the number of "cut and try" operations.



 Extra Long Saddle

The saddle, intermediate member between the knee and table, is extra strong . . . more than half the standard table length . . . giving extra support to the table at the extreme end of its traverse. This is one of the many plus values found only in Cincinnati Toolmaster Milling Machines.

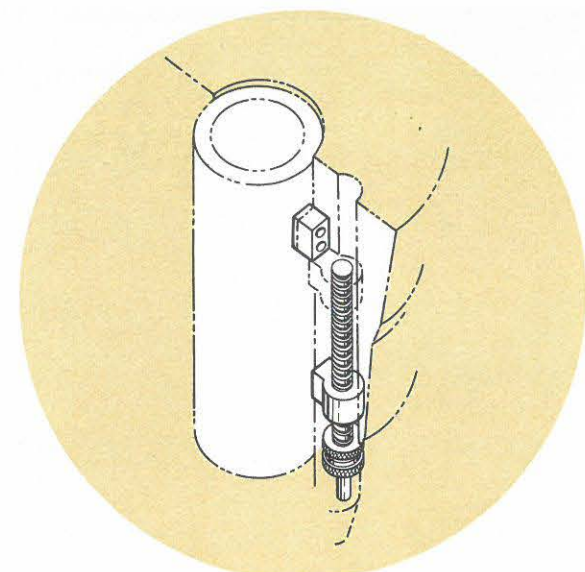


 Operating Convenience

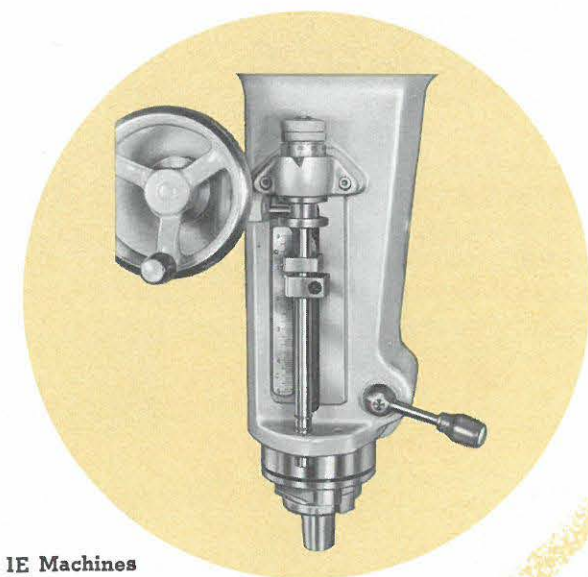
Micrometer Quill Stop

The style 1B Toolmaster is equipped with a built-in micrometer quill stop device, having a graduated and knurled adjusting sleeve partly exposed for convenience in resetting the stop nut; another Toolmaster feature that the operator will appreciate and use.

Styles 1D and 1E Toolmasters are equipped with a micrometer quill stop that is fully exposed for use with precision gage blocks. When the micrometer adjustment is not practical precision gage blocks can be used anywhere along the quill stop traverse. A built-in scale and pointer permits easy positioning for simple settings and an adjustable feed dog provides for "trip out" of power feed.



1B Machines

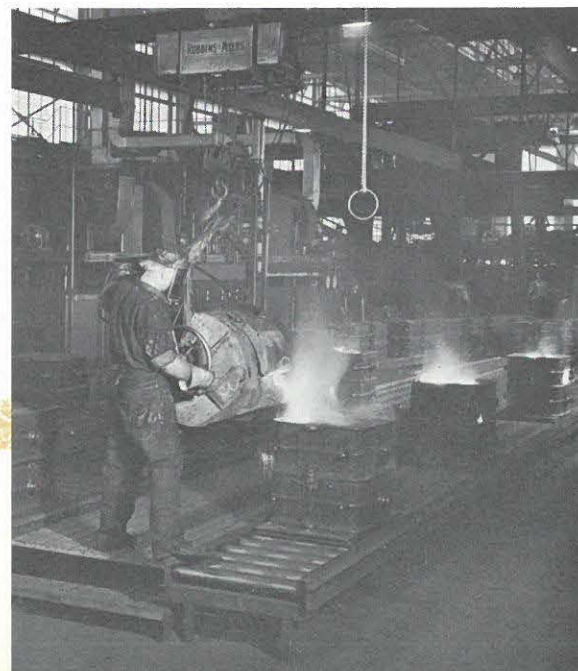


1D and 1E Machines

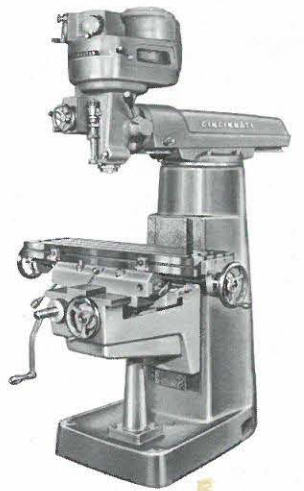
 Long Life

Castings made by Cincinnati Milling

Cincinnati Milling's foundry is the largest and most modern in the machine tool industry. In this Division, castings are made for the entire Cincinnati line of machine tools. Each cast iron part is foundry engineered to meet specific requirements such as extra strength, or resistance to wear. Yes, the "iron story" is definitely a quality control factor which extends the long useful life-span of Toolmaster Milling Machines.

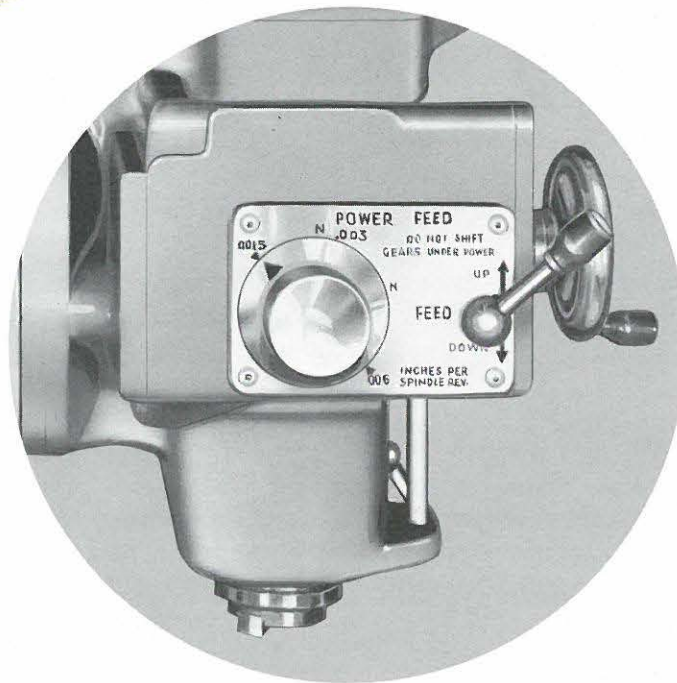


PLUS VALUES



★ **Shaping Attachment
Withstands Hard Usage**

During actual field tests, jobs that would ordinarily have gone to another machine were assigned to the Toolmaster equipped with the Shaping Attachment. The attachment is ruggedly constructed; self-contained 1/2 hp motor; 4" adjustable stroke; both clapper box and solid tool holders. The timesaving potential of this equipment alone is well worth the entire machine investment.

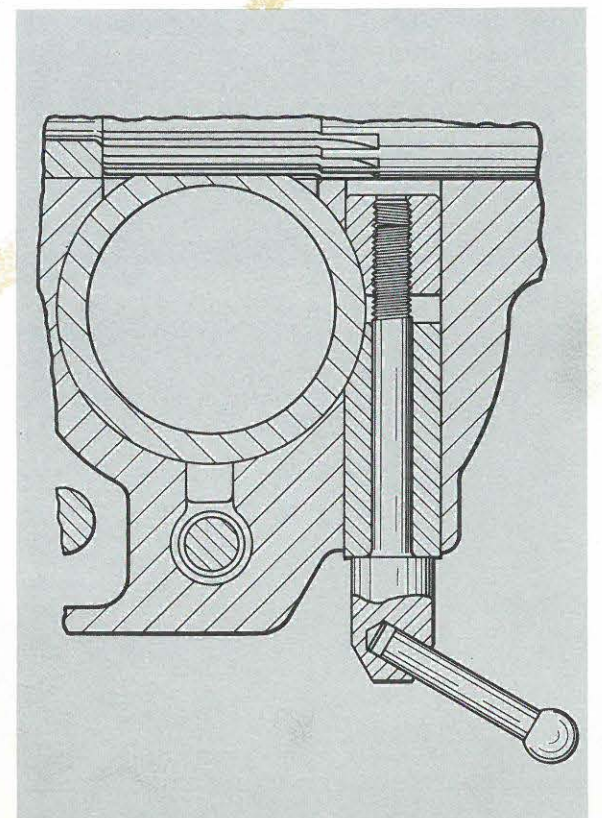


★ **Dial Selection
of Three Feed Rates**

Boring and drilling operations are no problem on the 1D and 1E Toolmasters as three feed rates can be selected by merely turning a dial. What is more, either up or down feed of quill is possible; directional power feed lever engages mechanism. These are real quality control features and a prime contributing factor to the precision of Toolmaster Milling Machines.

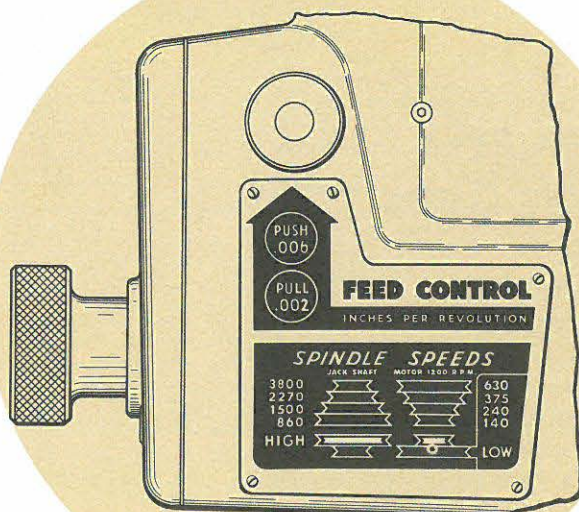
★ **Tight Grip
Quill Clamp**

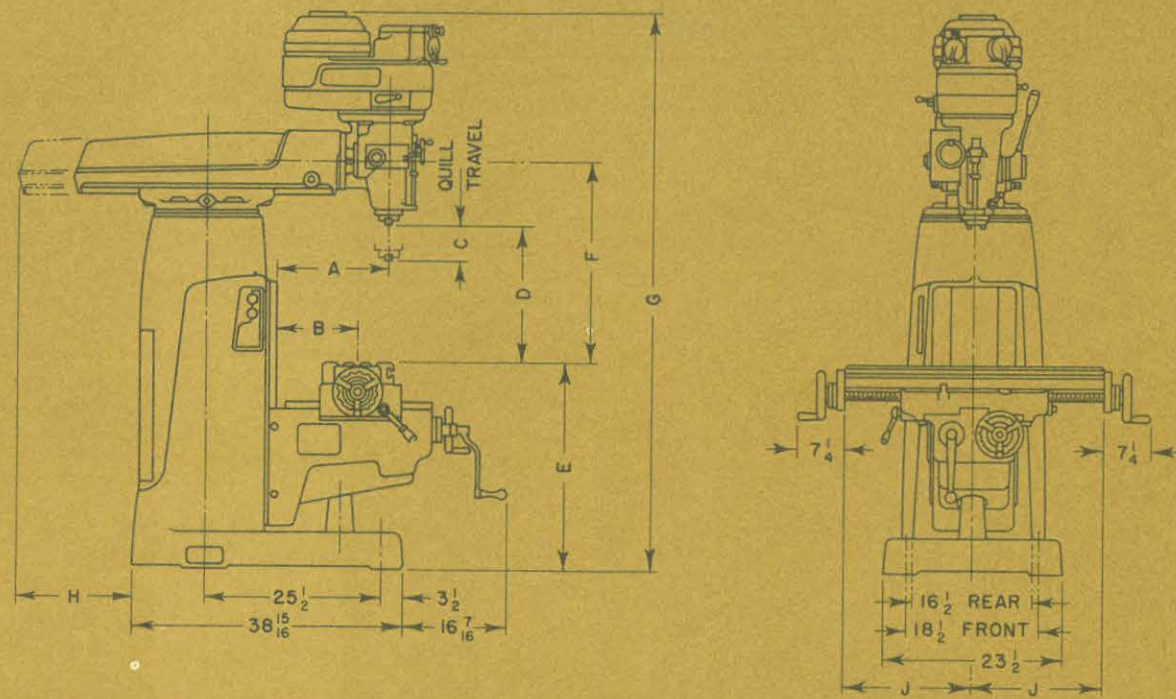
The Toolmaster quill clamp is exceptionally effective, and prevents slippage of the quill when taking the heaviest cuts. It's conveniently located, too; about eye level at the operator's working station.



★ **Knob Selection
of Hi-Lo Feed Rate**

It's easy to change the quill feed rate on No. 1B Toolmaster; just pull out or push in the knob indicated on the speed-feed plate. This plate is located at eye level, and it's easy to read. The knurled knob extending from the left-hand side of the spindle head engages and disengages the power feed.





Machine	A		B		C	D		E		F	G	H			J
	Max.	Min.	Max.	Min.		Max.	Min.	Max.	Min.			Max.	Max.	Min.	
1B	22 1/4	4 3/4	16 1/4	6 1/4	3 1/2	20 1/8	3 3/8	46 3/4	29 3/4	27 3/4	10 3/4	74 1/2	17	32	10
1C	25 3/4	5 3/8	16 1/4	6 1/4	3	22 3/4	5 3/8	46 3/4	29 3/4	27 3/4	10 3/4	73 1/2	20	32	10
1D	23 3/4	6 1/4	16 1/4	6 1/4	5	19 3/4	2 3/4	46 3/4	29 3/4	27 3/4	10 3/4	78 1/2	17	32	10
1E	23 3/4	6 1/4	16 1/4	6 1/4	5	19 3/4	2 3/4	46 3/4	29 3/4	27 3/4	10 3/4	78 1/2	17	32	10

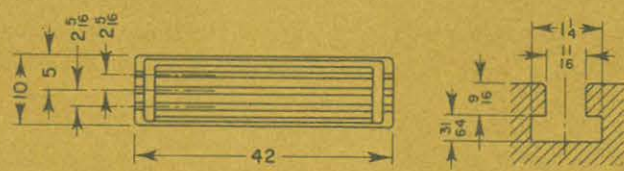
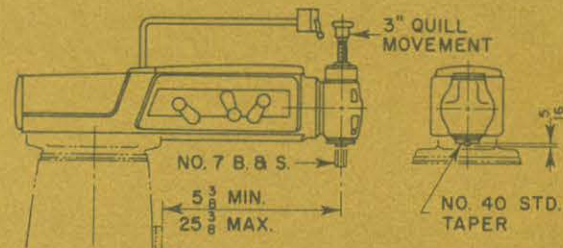
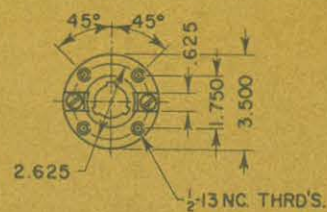


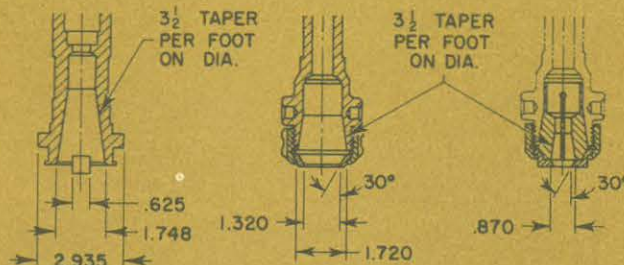
TABLE & TEE SLOT



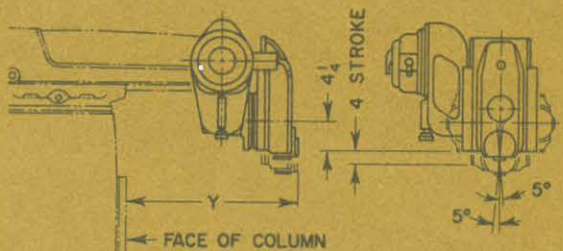
MOTOR DRIVEN OVERARM & SPINDLE NOSE (1C MACHINE)



SPINDLE NOSE ASSEMBLY AND ADAPTER (1B MACHINE)

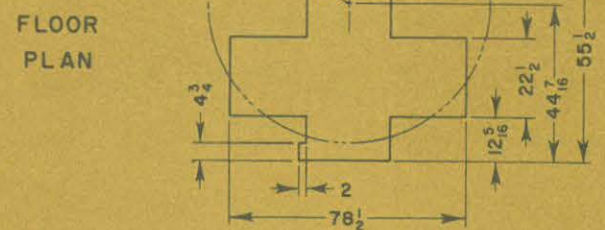


SPINDLE NOSE NO. 40 STD. TAPER (1D & 1E MACHINE)

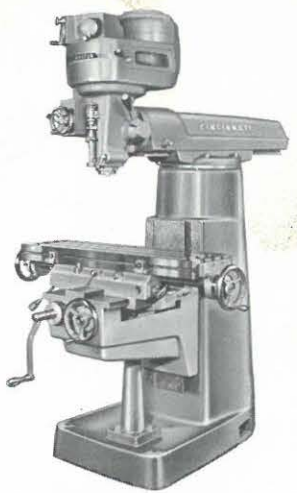


SHAPING ATTACHMENT

Machine	X		Y		Z	
	With Attach.	Without Attach.	With Attach.	Without Attach.	With Shaping Attach.	Max. Min.
1B	33 1/2	37 3/8	24	15		
1C	37 1/8	38 1/4	28 1/2	15		
1D	33 1/2	39 3/4	24	15		
1E	33 1/2	39 3/4	24	15		



FLOOR PLAN



Cincinnati TOOLMASTER

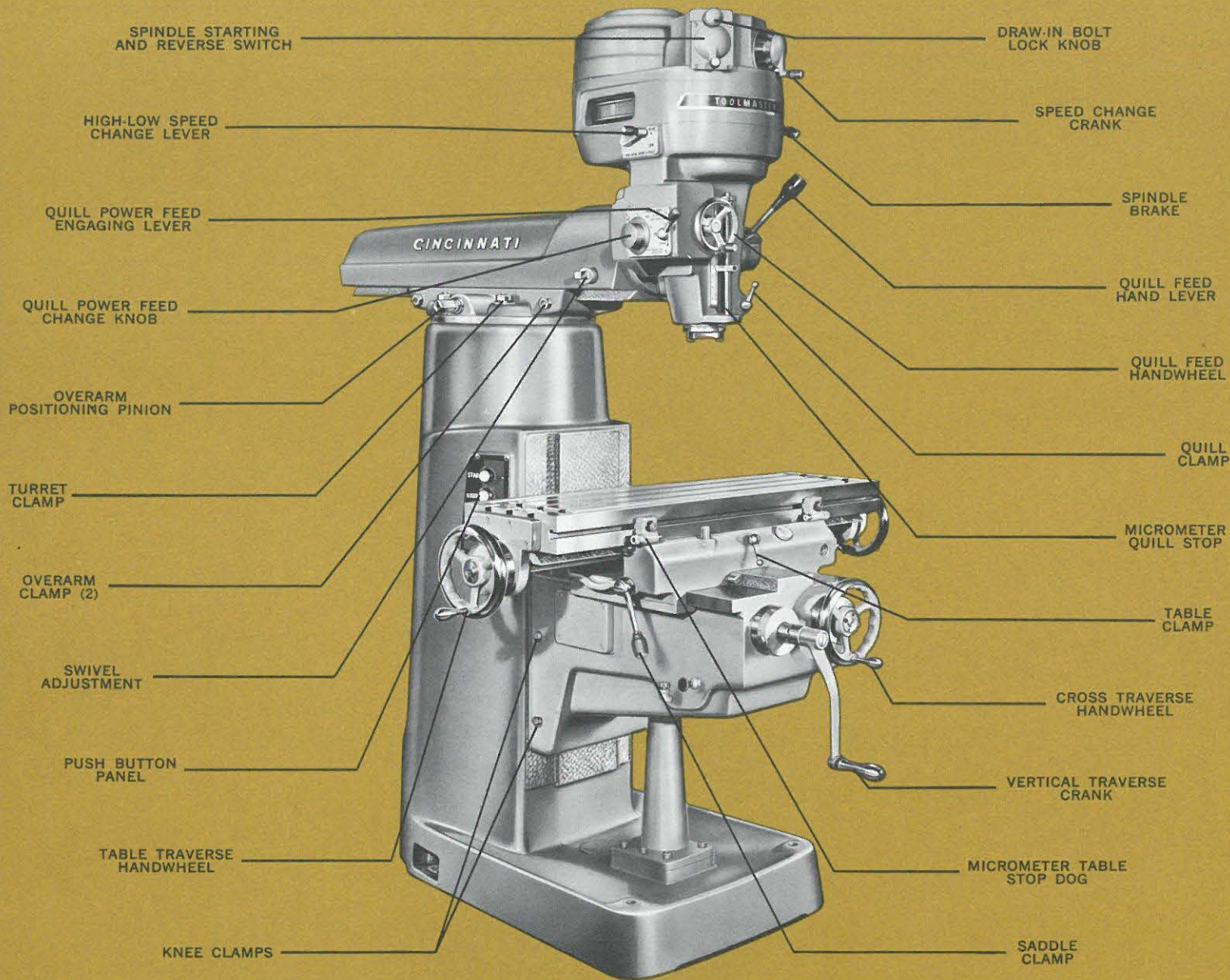
GENERAL SPECIFICATIONS

RANGE	1B	1C	1D	1E
Longitudinal table traverse	22"	22"	22"	22"
Cross	10"	10"	10"	10"
Vertical-knee -quill	17"	17"	17"	17"
Spindle nose to top of table	3 1/2"	—	5"	5"
Maximum	20 1/8"	22 5/8"	19 3/4"	19 3/4"
Minimum	3 3/8"	5 5/8"	2 3/4"	2 3/4"
Throat distance, center of spindle to column face				
Maximum	22 1/4"	25 5/8"	23 3/4"	23 3/4"
Minimum	4 3/4"	5 5/8"	6 3/4"	6 3/4"
Face of column to center line of center				
T-slot in table				
Maximum	16 1/4"	16 1/4"	16 1/4"	16 1/4"
Minimum	6 3/4"	6 3/4"	6 3/4"	6 3/4"
TABLE				
Working surface	42" x 10"	42" x 10"	42" x 10"	42" x 10"
Size overall	42" x 10"	42" x 10"	42" x 10"	42" x 10"
T-slots (Number & Size)	Three-1 1/16"	Three-1 1/16"	Three-1 1/16"	Three-1 1/16"
Distance between T-slots	2 5/8"	2 5/8"	2 5/8"	2 5/8"
SPINDLE				
Spindle nose	Collet chuck type	No. 40 Standard	No. 40 Standard	No. 40 Standard
Spindle speeds	8	8	Infinitely variable	8
Speed ranges	108 to 2825, 140 to 3800 or 215 to 5650 rpm	100 to 1530, 310, 490, 700, 1070, 1530 rpm	100-3800 rpm	80-3000 rpm (80, 137, 234, 400, 600, 1030, 1750, 3,000 rpm)
Reverse	Yes	Yes	Yes	Yes
DRIVE				
Type	Belt	Gear	Belt	Belt
Motor	1 hp-108 to 2825 rpm, 1 hp-140 to 3800 rpm, 1 hp-215 to 5650 rpm	2 hp	1 1/2 hp	1 hp
FLOOR SPACE				
Area	78 1/2" x 83 1/4"	78 1/2" x 83 1/4"	78 1/2" x 83 1/4"	78 1/2" x 83 1/4"
SHIPPING DATA				
Net weight	2350 lbs.	2500 lbs.	2450 lbs.	2450 lbs.
Shipping weight domestic	2750 lbs.	2900 lbs.	2850 lbs.	2850 lbs.
Shipping weight, export	3250 lbs.	3400 lbs.	3350 lbs.	3350 lbs.
Size of case, export	76" x 69" x 59"	76" x 69" x 59"	80" x 69" x 59"	80" x 69" x 59"
Cubic contents, export	179 cu. ft.	179 cu. ft.	189 cu. ft.	189 cu. ft.
CODE NAMES				
Manual feed	TOOLB	TOOLC	YUWBD	YUWBY
Power feed			YUWBC	YUWBZ

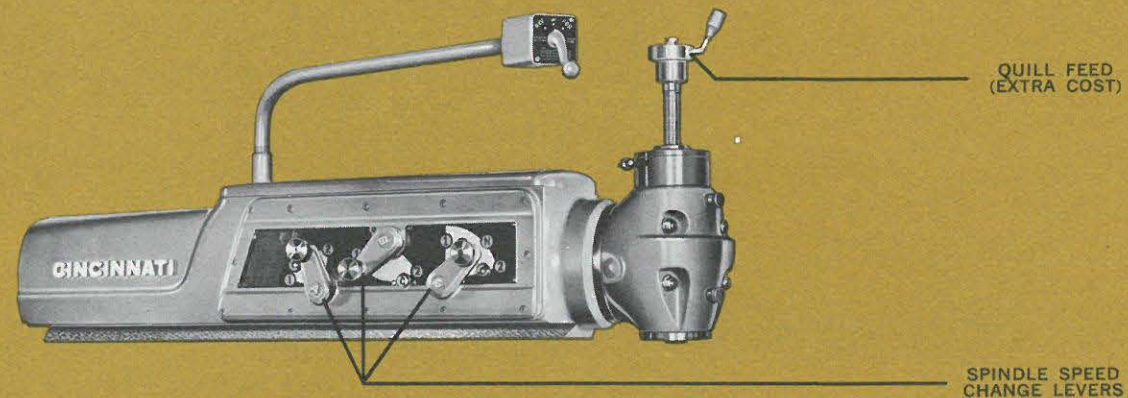
Cincinnati TOOLMASTER EQUIPMENT

STANDARD

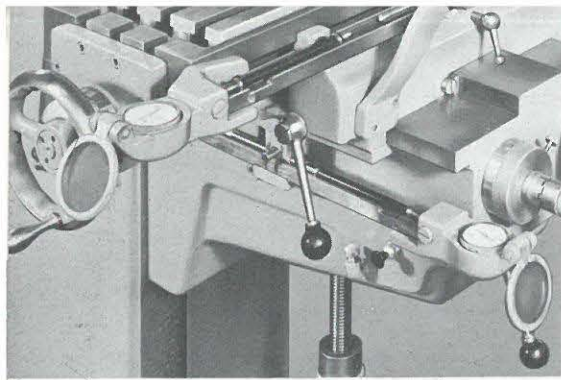
SUPPLIED WITH THE MACHINE



FUNCTIONAL DIAGRAMS



<p>STYLE 1 B POWER FEED TO QUILL</p>	<p>Two table-stop dogs with micrometer adjustment (not included with Power Feed to Table). Anti-backlash device on table feed screw. Spindle drive motor; 1 hp pancake type. Power feed to quill .002" and .006" per revolution. Spindle lock. Complete electrical equipment for 50 or 60 cycle, 2 or 3 phase, 220 to 550 volts AC and wired in accordance with "Machine Tool Electrical Standards".</p>
<p>STYLE 1 C HEAVY DUTY HEAD</p>	<p>Two table-stop dogs with micrometer adjustment (not included with Power Feed to Table). Anti-backlash device on table feed screw. Pendant mounted control. Includes start-stop and reversing switch. Heavy duty single swivel head with 2 hp built-in motor and eight speeds; 100, 140, 215, 310, 490, 700, 1070 and 1530 rpm. Draw-in bolt. Complete electrical equipment for 50 or 60 cycle, 2 or 3 phase, 220 to 550 volts AC and wired in accordance with "Machine Tool Electrical Standards".</p>
<p>STYLE 1 D MANUAL FEED TO QUILL</p>	<p>Two table-stop dogs with micrometer adjustment (not included with Power Feed to Table). Anti-backlash device on table feed screw. Spindle drive motor 1 1/2 hp. Manual Feed to Quill. Draw-in bolt. Draw-in bolt lock. Complete electrical equipment for 50 or 60 cycle, 2 or 3 phase, 220 to 550 volts AC and wired in accordance with "Machine Tool Electrical Standards".</p>
<p>STYLE 1 E MANUAL FEED TO QUILL</p>	<p>Two table-stop dogs with micrometer adjustment (not included with Power Feed to Table). Anti-backlash device on table feed screw. Spindle drive motor 1 hp. Manual Feed to Quill. Draw-in bolt. Complete electrical equipment for 50 or 60 cycle, 2 or 3 phase, 220 to 550 volts AC and wired in accordance with "Machine Tool Electrical Standards".</p>



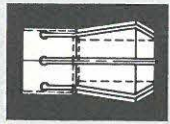
Precision Measuring Equipment

... for accurate spacing of drilled and bored holes, milled notches and steps, etc., within a length of about one-half the length of machine saddle. Available for one or any combination of slide movements (longitudinal, cross, vertical). Should be attached to the Toolmaster at our factory.

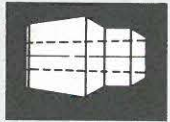
Straight Cylindrical and Taper Hole Collets



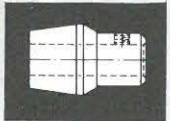
A SERIES $\frac{1}{8}$, $\frac{5}{32}$, $\frac{3}{16}$, $\frac{7}{32}$, $\frac{1}{4}$, $\frac{9}{32}$, $\frac{5}{16}$, $\frac{11}{32}$, $\frac{3}{8}$, $\frac{13}{32}$, $\frac{7}{16}$, $\frac{15}{32}$, $\frac{1}{2}$
(These collets require collet adapter)



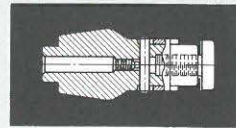
C SERIES $\frac{3}{8}$, $\frac{13}{32}$, $\frac{7}{16}$, $\frac{15}{32}$, $\frac{1}{2}$, $\frac{17}{32}$, $\frac{9}{16}$, $\frac{19}{32}$, $\frac{5}{8}$, $\frac{21}{32}$, $\frac{11}{16}$, $\frac{23}{32}$, $\frac{3}{4}$, $\frac{25}{32}$, $\frac{13}{16}$, $\frac{27}{32}$, $\frac{7}{8}$, $\frac{29}{32}$, $\frac{15}{16}$, $\frac{31}{32}$, 1



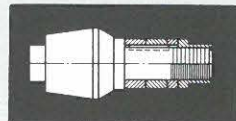
TAPER HOLE COLLETS
No. 2 Morse, No. 3 Morse
No. 5 B&S, No. 7 B&S.



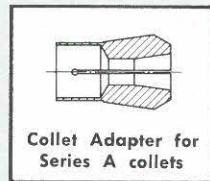
Adapter for Double End Straight Shank End Mills. Sizes: $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " (fits directly into spindle nose)



ADAPTER FOR SHELL END MILLS
Sizes: Stud Diameter, $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1".
(Dimension denotes size hole in cutter)



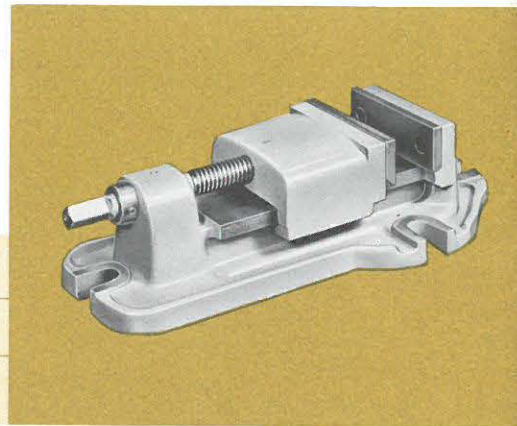
STUB ARBORS
(Includes Collar and Nut)
Sizes: $\frac{3}{4}$ ", $\frac{7}{8}$ " and 1" arbor diameter.
(Dimension denotes size hole in cutter)



Collet Adapter for Series A collets

Plain and Swivel Vises

... for holding parts with smooth sides during milling, drilling or shaping operations. Standard jaws can be replaced with jaws of special design conforming to irregular work. Plain Vise illustrated. Swivel Vise is the same in all respects except for the swivel plate under the body.



SIZE	DEPTH JAWS	WIDTH JAWS	JAWS OPEN	OVERALL HEIGHT		NET WEIGHT	
				PLAIN	SWIVEL	PLAIN	SWIVEL
No. 2	1 $\frac{1}{16}$ "	5"	3 $\frac{1}{4}$ "	3 $\frac{3}{16}$ "	5 $\frac{7}{16}$ "	44 lbs.	60 lbs.

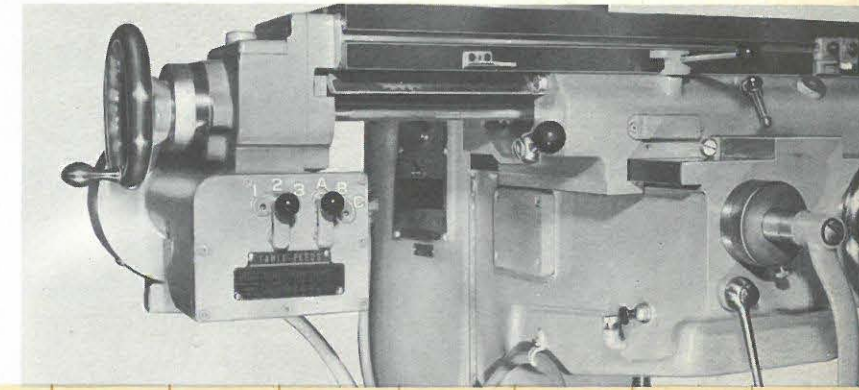
Universal Vise

... for holding parts firmly while milling angular surfaces or drilling holes at an angle. Can be swiveled 90° in vertical plane; 360° in horizontal plane. Upper part can be removed and used as a plain vise.

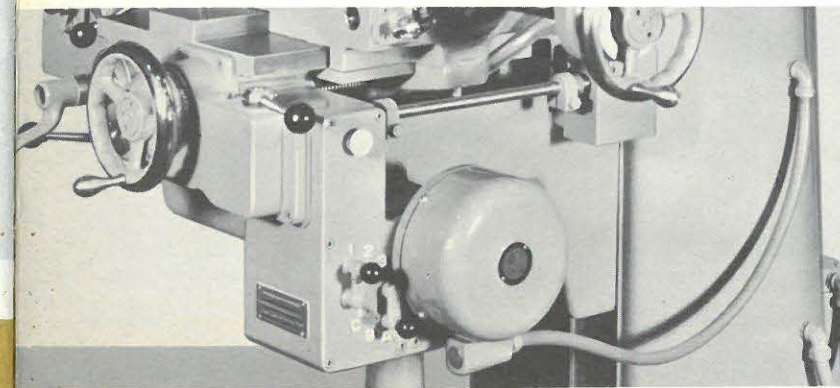
SIZE	DEPTH JAWS	WIDTH JAWS	JAWS OPEN	OVERALL HEIGHT	NET WEIGHT
No. 2	1 $\frac{1}{16}$ "	5"	3 $\frac{1}{4}$ "	10 $\frac{1}{8}$ "	104 lbs.

Power Feed to Table

... for repetitive milling operations requiring table feed. Nine feed rates are selected by shifting the levers to the positions indicated in the table below. This feature must be built in at the factory.



LEVER POSITIONS	1A	1B	1C	2A	2B	2C	3A	3B	3C
FEED RATE, INCHES/MIN.	.75	1.1	1.7	2.4	3.4	5.2	6.6	10	15



Power Feed to Saddle

... for repetitive milling operations requiring cross feed. Especially useful in conjunction with power feed to table. Nine feed rates are selected by shifting the levers to the positions indicated in the table above. This feature must be built in at the factory.

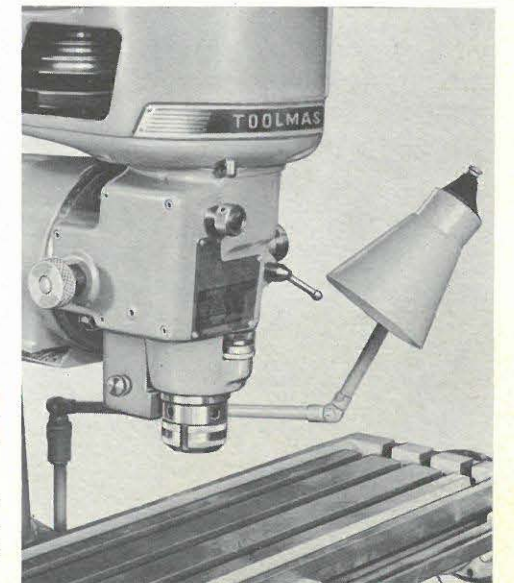
Overarm Adapter

... provides an additional swivel for the spindle head, at right angles to table T-slots. Overarm adapter for No. 1C Toolmaster illustrated. Also available for 1A and 1B styles.



Cutter Illuminating Attachment

... directs a beam of light to the cutter at the point of action. Attachment consists of one light and toggle switch.





MILLING MACHINE DIVISION

THE CINCINNATI MILLING MACHINE CO.

CINCINNATI 9 OHIO



HORIZONTAL
KNEE & COLUMN



VERTICAL
KNEE & COLUMN

MILLING MACHINES



HORIZONTAL &
VERTICAL BED TYPE



RISE & FALL AND
TRACER CON-
TROLLED BED TYPE

Products of the Milling Machine Division of The Cincinnati Milling Machine Co. are listed and symbolized here.

Products of The Cincinnati Milling Machine Co.'s other divisions include a complete line of centertype grinding machines, centerless grinding machines, roll grinding machines, surface grinding machines, chucking grinding machines, micro-centric grinding machines, special grinding machines, heat treating machines, metal forming machines, broaching machines, special machine tools and complete production lines, special machinery, cutting fluids and precision grinding wheels.



VERTICAL



HORIZONTAL

DIE SINKING MACHINES



NOS. 1 & 2
MONOSET



CONTOUR-
OPTICAL

CUTTER SHARPENING MACHINES



Cincinnati

TOOLMASTER

MILLING MACHINES

