

CINCINNATI nos.

**1-12
AND
1-18**

**PLAIN AUTOMATIC
MILLING MACHINES**



THE CINCINNATI MILLING MACHINE CO. CINCINNATI 9, OHIO, U. S. A.

CINCINNATI nos.

1-12
AND
1-18

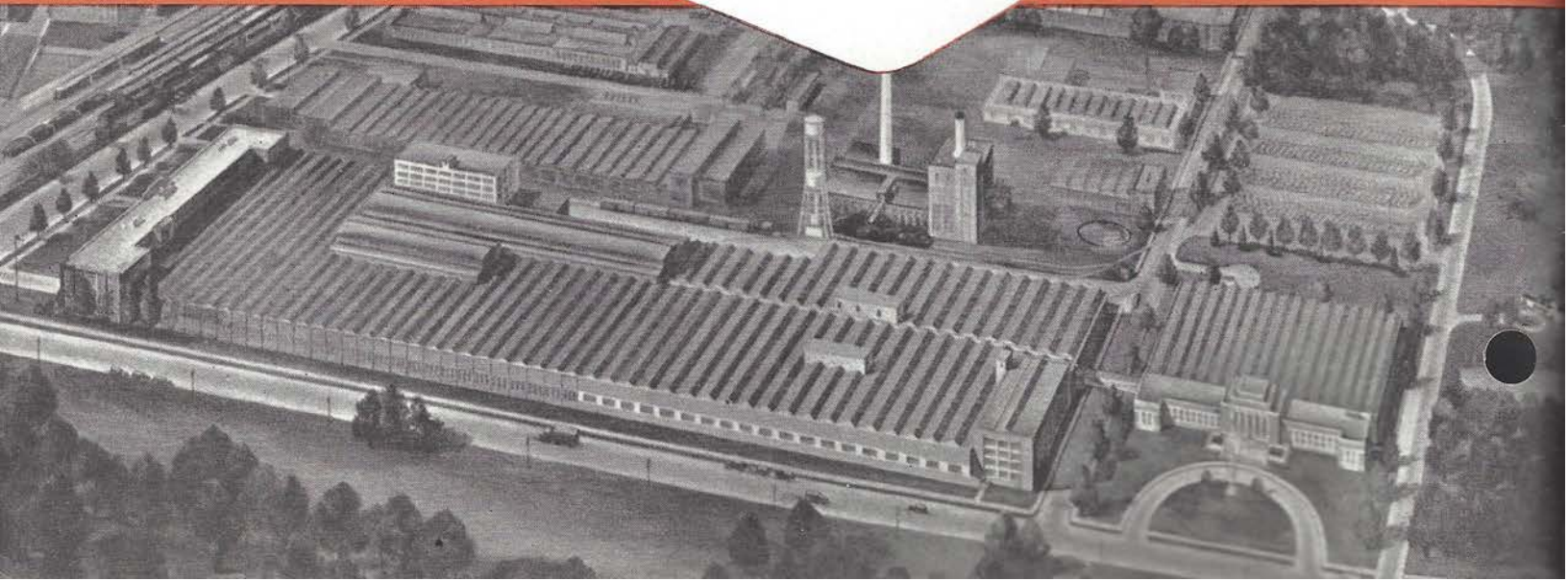
PLAIN AUTOMATIC MILLING MACHINES

. . . offer attractive cost-reducing possibilities to a wide classification of shops producing small to medium sized parts. Primarily, these machines are production-type millers, but they have many convenient and quick set-up features which make them just as profitable for small lots as for large lots; they have the wide speed and feed ranges required for milling steel, cast iron, bronze, and aluminum; they demand very little service attention. Illustrations, descriptions and specifications on the following pages fully outline the features and their relation to low cost milling operations.



PATENT NOTICE—The machines and attachments illustrated and described in this booklet are protected by issued and pending United States and Foreign Patents.

The design and specifications of the machines illustrated herein are subject to change without notice.



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Application

CINCINNATI 1-12 AND 1-18 PLAIN

Here is visual evidence, obtained from a number of shops, of the wide variety of work which may be assigned to Cincinnati Nos. 1-12 and 1-18 Plain Automatic Milling Machines. Notice the various types of set-ups . . . one-way feed; two-way feed; up milling; down milling; wet and dry milling; large and small cutters. All are typical jobs tooled up by the customer. And that leads to a point well worth considering: the 1-12 and 1-18 Millers readily lend themselves to efficient, productive tooling, and conveniently fit into any size or type of shop layout. Look at the features on the following pages, and you'll see why these machines are such low-cost producers on plain milling operations.

A group of three Cincinnati No. 1-18 Plain Automatic Milling Machines, arranged as a self-contained, high production center for three milling operations on sewing machine bodies.



AUTOMATIC MILLING MACHINES



← An excellent set-up for milling flats on small shafts. The fixture holds four parts (two pairs end to end) and the cutters are duplicates, each performing the same operation. The table rapid traverse rate of 300 inches per minute is a big time saver when the length of cutting stroke is as brief as this example.

A two-fixture, reciprocating milling set-up employing the automatic two-way feed cycle. The parts are upper feed dogs for sewing machines. Operation: straddle mill to width. →
Production: 130 parts per hour.

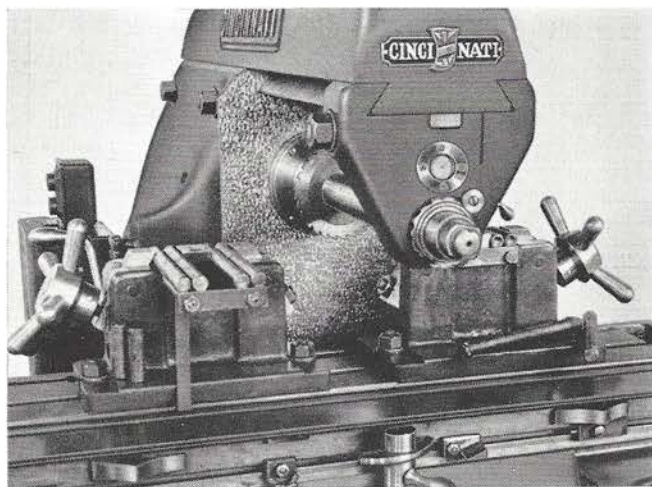


← Milling the end of a contact arm for electrical equipment. Automatic table feed cycles and high rate of rapid advance and return enable this operator to produce 120 parts per hour. And the automatic spindle stop assures safety in loading the fixture.



Application

CINCINNATI 1-12 AND 1-18 PLAIN



Tooled Up By Cincinnati

SLOTING—Two time-saving features available on CINCINNATI Nos. 1-12 and 1-18 Plain Automatic Millers are illustrated here . . . (1) up milling and down milling in the same cycle, and (2) automatic two-way feed cycles. Alternate up milling of the parts in the right-hand fixture and down milling of the parts in the left-hand fixture proceed almost continuously. Part name: transmission countershafts. Operation: mill slots. Production: 209 per hour.

GANG MILLING—An ingenious set-up for two different milling operations on transmission brake supports, using the automatic reciprocating cycle. In the fixture on the right-hand end of the table, a lug is milled, while an arm is straddle milled in the fixture at the left. Production: 78 parts per hour, complete.

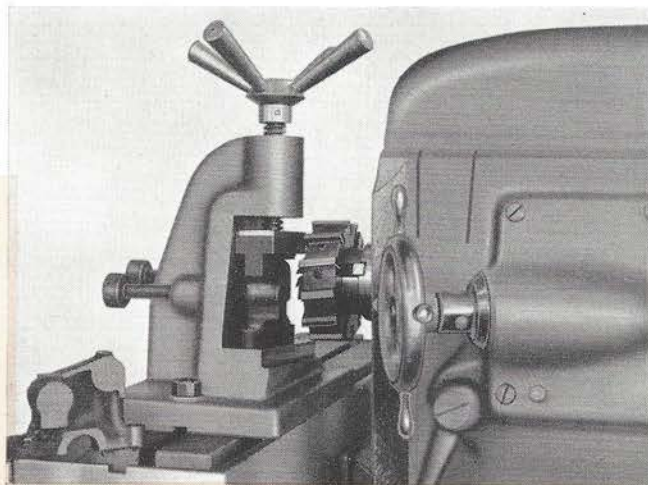
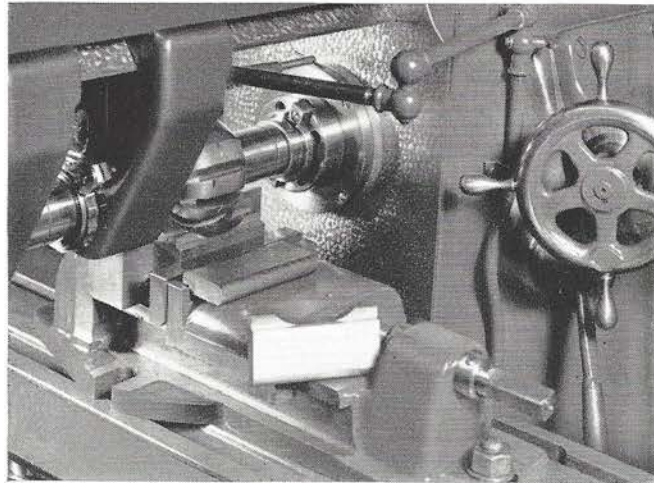


END MILLING—Another low cost, two-station milling operation; loading and unloading one fixture while the part in the other is being milled. The automatic two-way cycle offers the advantage of almost continuous milling. Fixtures are simple and easy to set up. Part name: rear bearing retainers. Operation: mill two bosses. Production: 148 per hour.

AUTOMATIC MILLING MACHINES

Application Engineers

FORM MILLING—Here's a job that requires plenty of rigidity; a valuable asset offered by CINCINNATI Nos. 1-12 and 1-18. Tooling is very simple, consisting of a CINCINNATI No. 3 Plain Vise with special jaws and a suitable form cutter. The entire cut, $\frac{11}{32}$ " deep by $2\frac{3}{8}$ " wide in forged steel material, is taken in one pass. Production 30 per hour. →



← **TWO-SURFACE END MILLING**—The set-up shown here utilizes two end mills nested together, one $5\frac{1}{2}$ " and the other 2" diameter, for milling surfaces in two different planes at the same time. The parts are cast steel counter gear brackets. Operation: mill bosses. Production: 87 per hour.

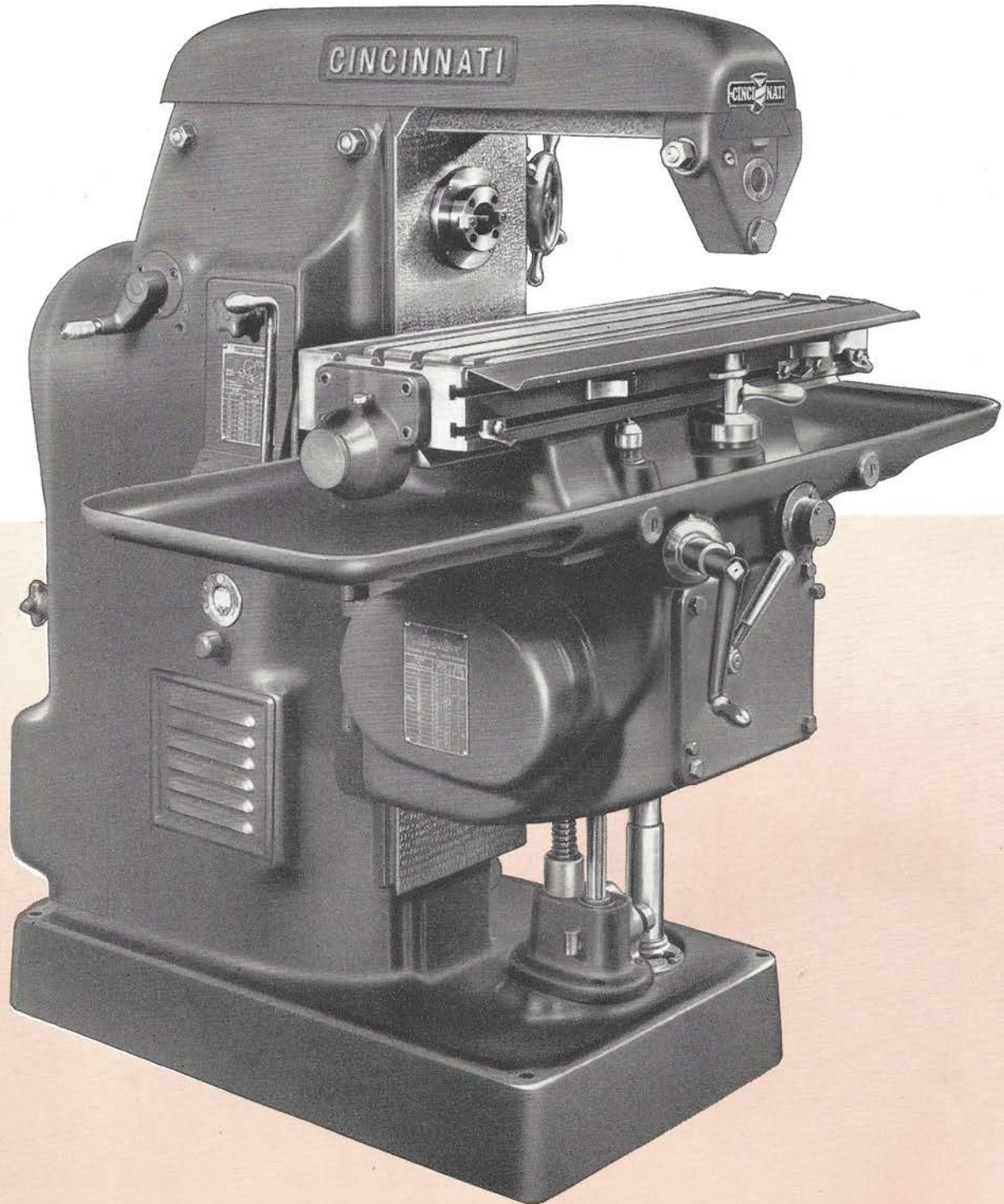
SAWING—The tooling illustrated here is a very productive set-up for a mill-saw operation. Four parts (two on each arbor) are held between the centers of an automatic two-spindle index head. The machine's rapid advance rate of 300" per minute, combined with automatic indexing, is responsible for milling 48 slots in torus hubs at the rate of 30 hubs per hour. →



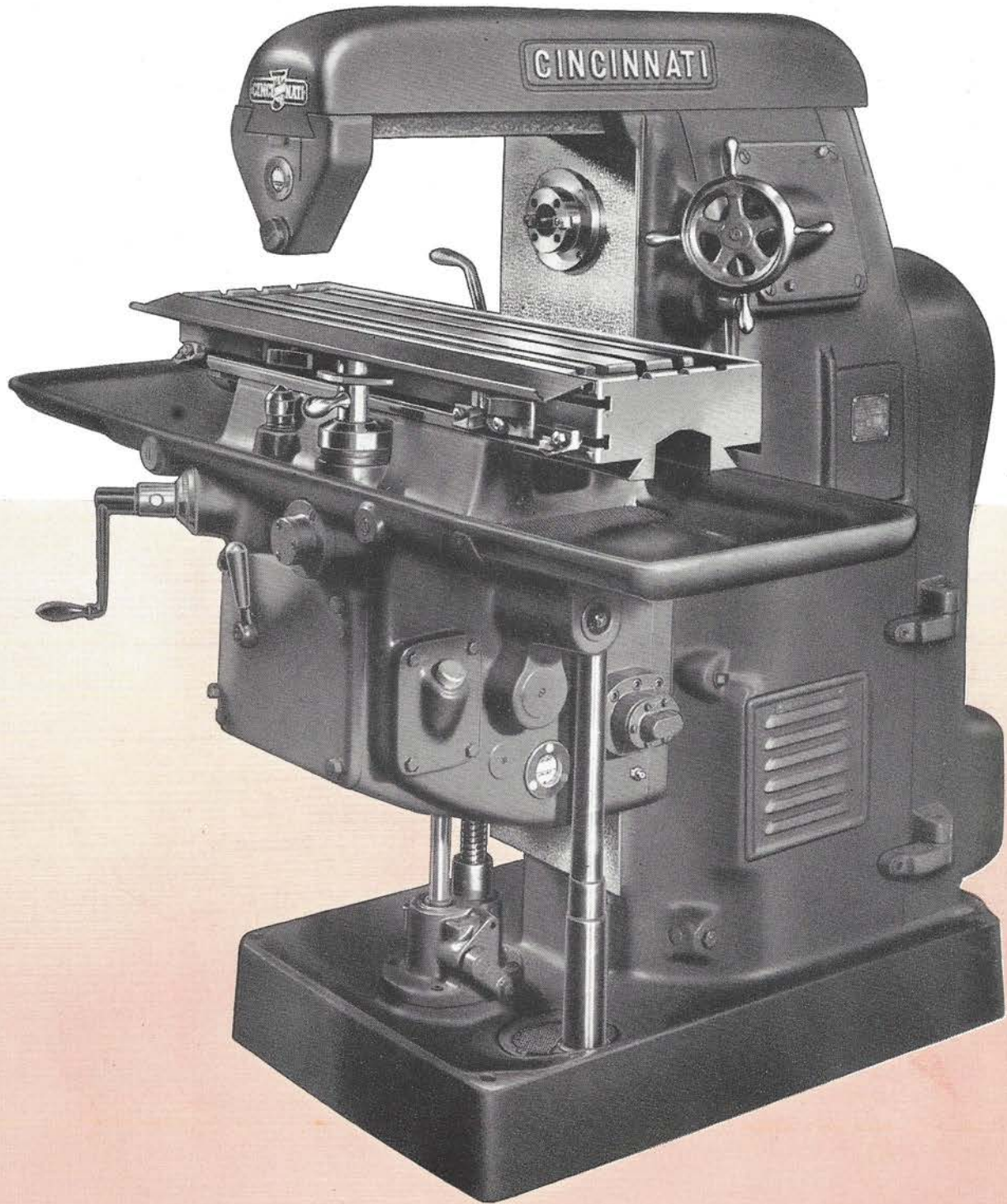


Full Dress Illustrations

CINCINNATI 1-12 AND 1-18 PLAIN



AUTOMATIC MILLING MACHINES



Features.



SIXTEEN SPINDLE SPEEDS 50 to 1500 rpm

Cincinnati Nos. 1-12 and 1-18 Plain Automatic Milling Machines offer the correct speeds for milling all the present day metals of industry—steel, cast iron, aluminum, bronze. There are sixteen spindle speeds from 50 to 1500 rpm, (30 to 1 ratio) and an additional low speed of 40 rpm is available as an extra. This wide range of speed also covers a large choice of cutters that may be required for the set-up. For example, assuming an arbitrary cutting speed of 80 feet per minute, cutter diameters could range from about $\frac{1}{4}$ " (running at 1500 rpm) to 6" (running at 50 rpm).

SIXTEEN Two-way TABLE FEEDS $\frac{3}{4}$ " to 30" per minute

To obtain high efficiency in milling, the feed rate must be right, too. The 1-12 and 1-18 feed ratio of 40 to 1 serves as a fitting companion feature to the wide speed range. There are sixteen feeds, arranged in approximate geometrical progression. This combination of wide speed and feed ranges, along with the sturdy construction of the machine, sets the stage for efficient milling with high-speed steel or sintered carbide cutters; positive or negative rake.

The standard feed series is $\frac{3}{4}$ " to 30" per minute. A high series of $1\frac{1}{2}$ " to 60", or a low series of $\frac{1}{2}$ " to $21\frac{1}{2}$ ", may be obtained as extra equipment.

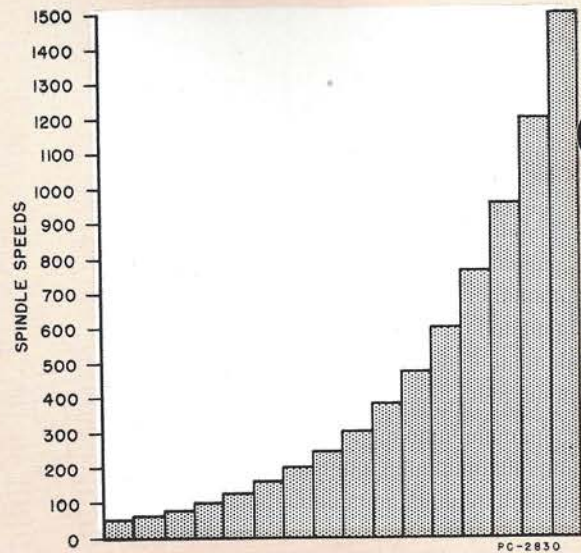
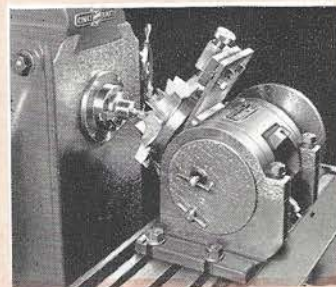


Chart of Spindle Speeds.



Left — This job — milling aluminum with a small cutter—takes advantage of the high spindle speeds.

Right — A low spindle speed is used in milling cast iron with these large cutters.

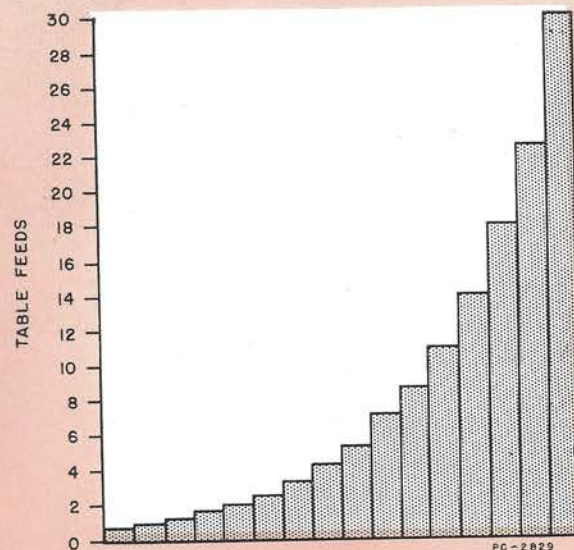
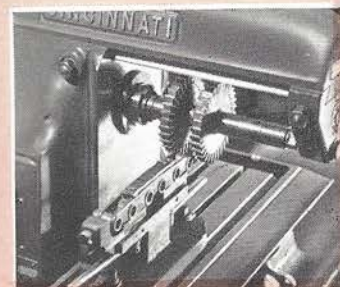
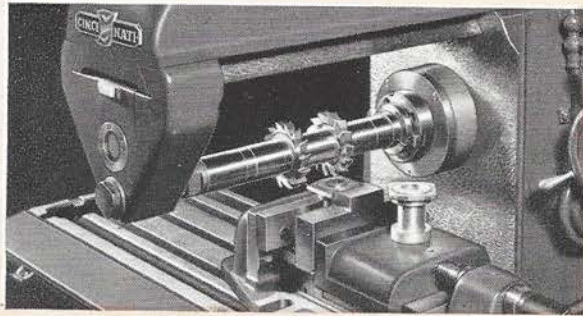
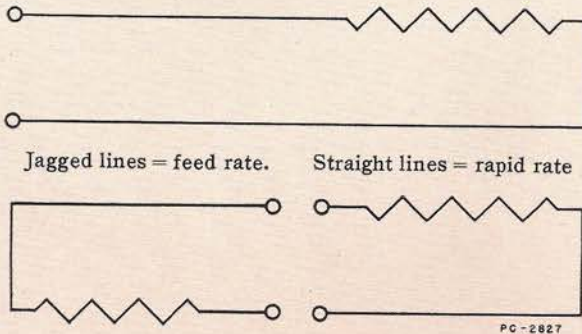


Chart of Table Feeds.



ONE-WAY feed cycle. Cycle diagram directly below.

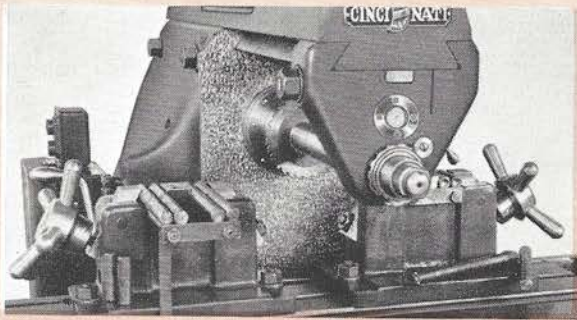


COMPLETELY AUTOMATIC Table Traverse Cycles

Several combinations of rapid advance and feed of the table, with automatic reverse and return, may be obtained on these machines. This includes (a) single or multiple cuts in one direction; (b) milling in two directions, with cycles repeating continuously or stopping midway between the fixtures, as desired. An example of each with their corresponding cycle drawings are shown at the left. The speed of rapid traverse . . .

300 inches per minute rapid advance and return of table

. . . brings the work to the cutter quickly; returns it to the starting point quickly. The time-saving possibilities of this feature can be demonstrated by a single example: Suppose the set-up requires 10" advance from the starting point to the cutter, and 12" return. Then rapid advance requires only 2 seconds, and rapid return requires only 2.4 seconds!



TWO-WAY feed cycle with a mid-way stop position is employed here. Cycle diagram directly above.

Below: A finger-tip control lever starts the table cycle.

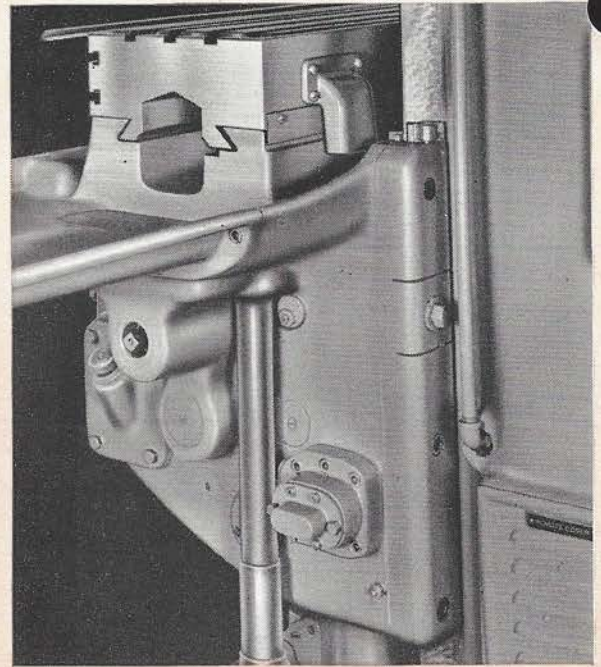


FINGER-TIP CONTROL LEVER STARTS TABLE CYCLE

A simple, two-position finger-tip control lever at the front of the knee, illustrated at the left, starts the table cycle and spindle rotation ("spindle stop" feature engaged). When the table returns to its starting position, a dog automatically stops the cycle. This feature offers exceptional ease of operation; and it's safe, too, for the operator need move only one lever, isolated from moving parts.

STURDY KNEE WITH LONG TABLE and COLUMN BEARING

Notice the long knee bearing on the column, illustrated in the side view at the right. This is one of the factors which contribute to the exceptional rigidity of these machines, so essential to taking heavy cuts up to the capacity of the motor. Another factor of vibrationless milling is the table bearing directly on top of the knee. The conventional saddle has been omitted, and with it, a possible source of vibration has vanished. Instead of the saddle, cross adjustment is obtained through a spindle quill. In the illustration, the table has been adjusted to the extreme left of its travel to show the construction.



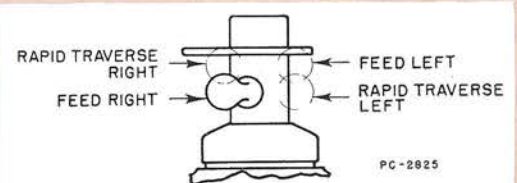
This view shows table ways in the knee and long knee bearing on column.

FOUR-POSITION HAND TABLE CONTROL LEVER

Hand control of power table traverse, as required when setting up the machine, is offered by the four-position lever illustrated at the right. The position of this lever, and also the feed trip plunger to which it is attached, indicates the direction of table travel and whether the table is moving at a feed or rapid traverse rate. The feed trip plunger actuates valves in a simple, self-contained hydraulic system which hydraulically shifts the clutches within the knee to the feed, rapid traverse, reverse, and stop positions. Response of the table is very quick, and when dog controlled, an accuracy of trip in feed within .005" at the stop and reverse positions will be obtained hour after hour.



Four-position hand table control lever. Action of table in various lever positions indicated below.

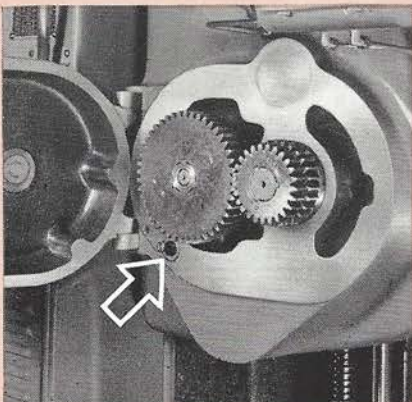




Left — changing spindle speeds, and below, changing table feeds.



Arrows indicate safety stop buttons. Left, spindle speed change gear station; below, feed change gear station.



SPEEDS and FEEDS Changed WITHOUT WRENCHES

The time required for two operations in setting up the machine—changing speeds and feeds to suit the job—has been minimized on the 1-12 and 1-18 Plain Automatics by making the gears easy to change. Both change gear stations are conveniently located on the same side of the machine (left). Wrenches or other hand tools are not required. The feed change gear cover is hinged, and when closed, it keeps the gears in place on the ends of their shafts. Spindle speeds change gears are held in position by means of a latch. These two features are real time savers in small lot production.

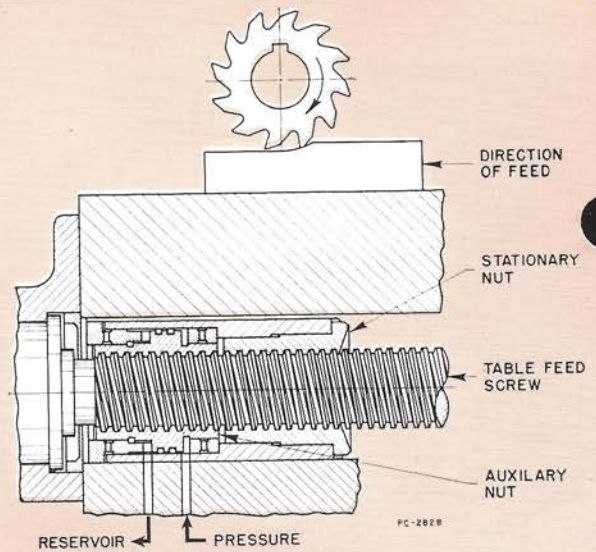
MOTOR automatically STOPS when CHANGE GEAR COVERS ARE OPENED

A desirable safety feature will be found in the built-in electrical cut-out switches for the speed and feed change gear stations, illustrated at the left. The arrows point to the contact buttons. They guard the operator in this manner: suppose he wants to change the speed or feed pick-off gears, but forgets to press the stop button before doing so. He's safe despite his oversight, for as soon as he unlatches the covers, the motor (and the gears, too) automatically stop rotating.

AUTOMATIC BACKLASH ELIMINATOR

Climb- or down-milling operations may be assigned to the 1-12 and 1-18 Plain Automatics, and they'll cut just as smoothly as when taking a conventional or up-milling cut. That's because they are equipped with an Automatic Backlash Eliminator. This device can be engaged or disengaged as desired through a knob type control, right. And when engaged, the device operates only during the cutting stroke. During rapid traverse of the table, the Backlash Eliminator is automatically neutralized.

The drawing at the top of the page shows how the device functions. For down-milling, the pressure and reservoir ports are as indicated. For up-milling, "pressure" and "reservoir" are reversed.



Cross section through automatic backlash eliminator.

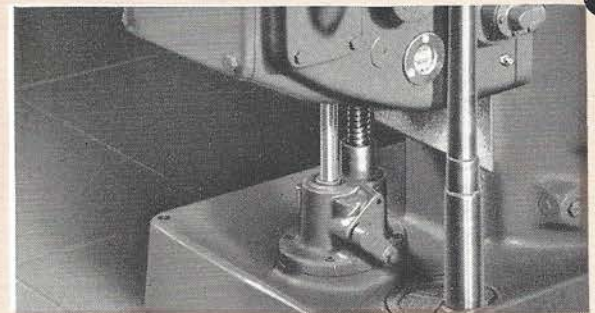


Control knob for engaging and disengaging automatic backlash eliminator.

AUTOMATIC SPINDLE STOP

Maximum safety while operating the machine is assured by the automatic spindle stop. This feature is controlled by the lever at the lower end of the vertical screw, illustrated at the right. With spindle stop lever engaged, the spindle rotates only when the table is moving at a feed rate; during rapid traverse, and while the table is stopped for loading and unloading the work, the spindle (and cutter) is motionless.

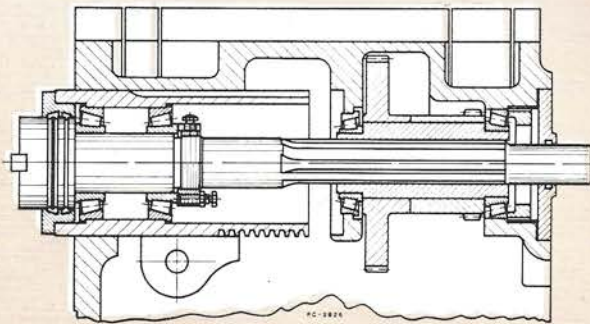
The set-up at the right, bottom illustration, uses to good advantage both features described on this page. *Backlash Eliminator*—for the automatic reciprocating cycle, up-milling one part and down-milling the other. *Automatic Spindle Stop*—cutter stopped while table is stopped in middle of cycle, increasing safety for operator while loading and unloading the fixture.



Lever for engaging and disengaging automatic spindle stop.

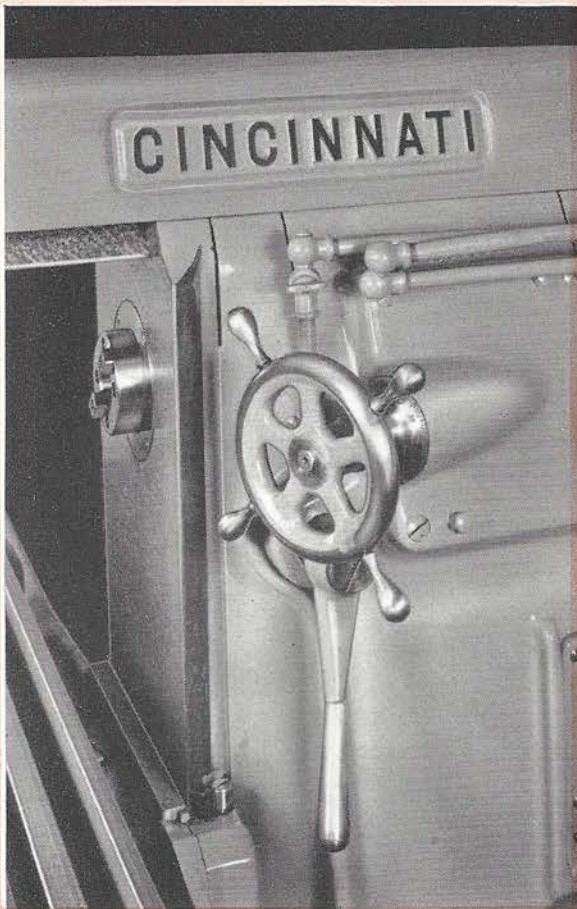


Both automatic spindle stop and automatic backlash eliminator are useful features for this job.



Section through spindle. Main drive gear is supported on both sides.

Lever clamp for quill and hand-wheel for quill cross adjustment.



FOUR-BEARING SPINDLE MOUNTING

Foremost among the features that contribute to the smooth, efficient cutting capacity of these machines is the spindle mounting, illustrated at the left. Notice the four-bearing support . . . two near the front end of the spindle, and one on each side of the main drive gear.

AUTOMATIC LUBRICATION

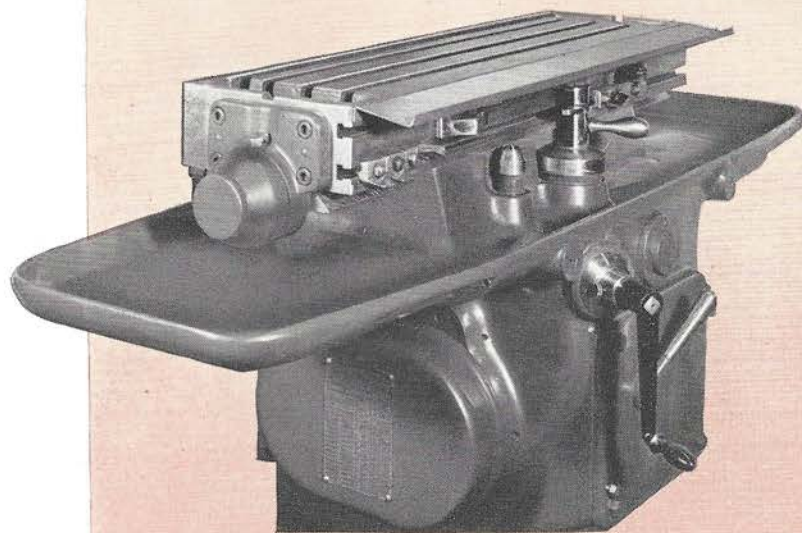
1-12 and 1-18 Millers have an unusually long life span of continuous performance, due in part to automatic lubrication of the principal units. Parts within the column are automatically lubricated by a splash system from a self-contained reservoir; knee parts, table ways and the feed screw are automatically lubricated from a circulating pump system; the arbor bearing collar has automatic gravity lubrication from a reservoir within the arbor support. A few individual oil cups are readily accessible . . . and require but a minute or two each day.

HANDWHEEL Adjustment and LEVER CLAMP of QUILL

Additional features that contribute to easy and quick set-ups are the handwheel adjustment and lever clamp of the spindle quill. They compare favorably with the convenience of saddle adjustment on a knee-and-column type miller, for the quill can be unclamped, adjusted in or out, and reclamped while standing at the front of the machine. A worm and wheel transmit the adjusting motion to the quill, while a micrometer dial indicates the amount of adjustment.

AMPLE COOLANT and CHIP GUARDS

The large cast-iron coolant guards under the table, right, are really appreciated by the operator. Even at the extreme ends of the table traverse, the guards catch the coolant and return it to the reservoir, keeping the floor dry and clean. And they're time savers, too, for the chips can be scraped from the guards into pans on the floor. Permanently affixed to the knee, these guards are standard equipment with the machine.



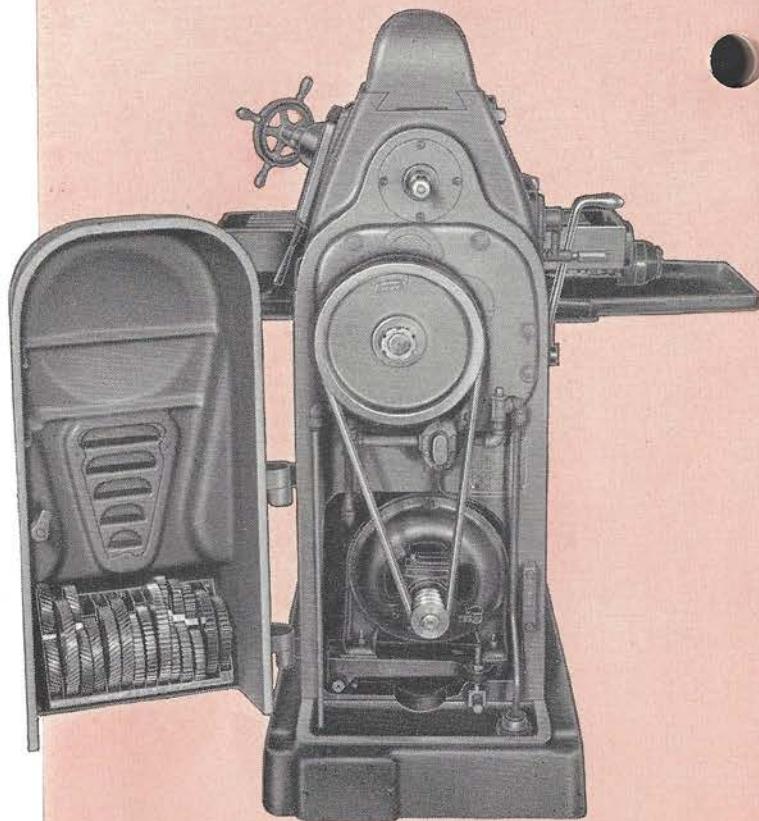
Cast-iron guards under the table catch the chips and coolant.

MOTOR ENCLOSED IN COLUMN

Enclosing the motor and driving sheaves in the column of the machine increases safety for the operator; improves appearance; saves floor space. In the illustration at the right, the hinged motor compartment cover has been opened to show the V-belt drive and the simple, easily adjusted motor mounting.

Change Gear Storage Rack built into the motor compartment cover at the lower end, aids the operator in keeping the gears in a handy place where they can always be found.

Coolant Equipment, available as an extra, consists of a small geared pump and the necessary piping with a swivel joint outlet. Part of the piping and the pump, mounted directly below the driven sheave, may be seen in the illustration at the right.

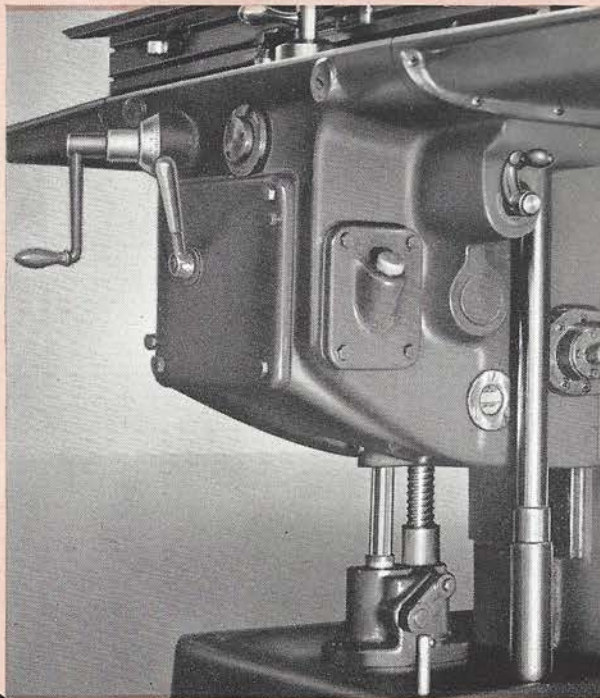


Motor compartment cover opened to show the drive, coolant pump, and change gear storage rack.



Arbor supports are easily removed and replaced on the overarm.

Hand cranks facilitate vertical and longitudinal adjustments.



RECTANGULAR OVERARM and ARBOR SUPPORTS

The overarm conforms to the standard Cincinnati "rectangular" design, which has a dovetail bearing in the column. This type of overarm offers the advantage of consistent, straight-edge alignment, produced by the clamping action which wedges the overarm against the solid locating side of the column. It's rigid, too, for the dovetail clamps are extremely effective and there's no chance for slippage. Arbor supports are easy to remove and replace (illustrated at the left).

One type "A" arbor support, for arbors having pilot ends, is supplied with the machine. Type "B" arbor supports, for arbors having bearing collars, may be obtained in two styles as extra equipment: (1) without lug, (2) with lug for braces.

HAND ADJUSTMENT Cranks for TABLE and KNEE

To supplement the automatic feed cycles and four-position hand table control lever, a hand traverse crank (at side of knee) is provided for the table. The hand crank in front of the knee serves to adjust this unit vertically when setting up the machine.

And these additional features:

COMPLETELY ANTI-FRICTION SPINDLE DRIVE; FEED DRIVE LARGELY ANTI-FRICTION.

QUIET HELICAL GEARS IN SPINDLE DRIVE.

PICK-OFF GEAR FOR SPINDLE REVERSE.



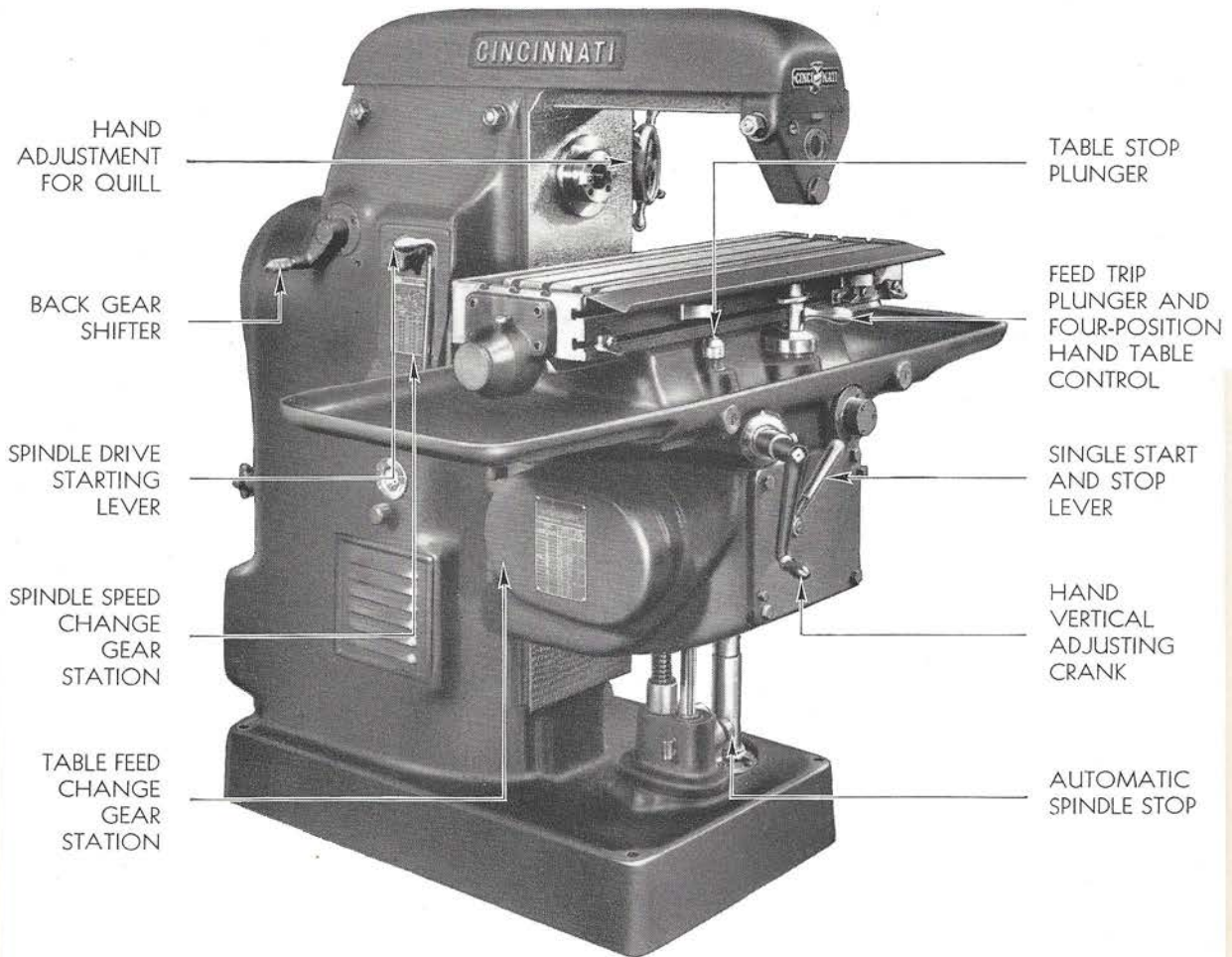
Specifications

CINCINNATI

1-12 AND 1-18

PLAIN

AN INDEX TO OPERATING CONTROLS



AUTOMATIC MILLING MACHINES

TABLE

Working surface.....	1-12 10" x 29 $\frac{1}{2}$ "	1-18 10" x 35 $\frac{1}{2}$ "
Size overall.....	10" x 35"	10" x 41"
T slots (number and size).....	Three— $\frac{11}{16}$ " wide	Three— $\frac{11}{16}$ " wide
Distance between T-slots.....	2 $\frac{5}{16}$ "	2 $\frac{5}{16}$ "
RANGE		
Longitudinal (power).....	12"	18"
Vertical (hand only—dial graduated in thousandths of an inch).....	8"	8"
Maximum distance from centerline of spindle to table.....	10"	10"
Minimum distance from centerline of spindle to table.....	1 $\frac{3}{4}$ "	1 $\frac{3}{4}$ "
Distance from centerline of table to face of column.....	8 $\frac{7}{16}$ "	8 $\frac{7}{16}$ "
FULL WIDTH		
Distance from the column face to inside of arbor support, without braces.....	18 $\frac{1}{4}$ "	18 $\frac{1}{4}$ "
Distance from the column face to inside of arbor support, with braces in place.....	16"	16"
QUILL		
Adjustment.....	2 $\frac{3}{8}$ "	2 $\frac{3}{8}$ "
Diameter.....	5 $\frac{1}{2}$ "	5 $\frac{1}{2}$ "
Maximum distance from end of spindle nose to centerline of table T slot.....	7 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "
Minimum distance from end of spindle nose to centerline of table T slot.....	5 $\frac{1}{8}$ "	5 $\frac{1}{8}$ "
Minimum distance from end of spindle nose to column face.....	1 $\frac{1}{8}$ "	1 $\frac{1}{8}$ "
OVERARM—Rectangular		
Distance from underside to centerline of arbor.....	4 $\frac{3}{4}$ "	4 $\frac{3}{4}$ "
ARBOR SUPPORTS		
Material.....	Cast Iron	Cast Iron
Number and style.....	One—Style A	One—Style A
DISTANCE FROM FLOOR to centerline of spindle.....	45 $\frac{1}{4}$ "	45 $\frac{1}{4}$ "
SPINDLE—Standard flanged spindle end with No. 40 series taper		
Diameter of nose.....	3 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "
Size of hole through.....	2 $\frac{1}{8}$ "	2 $\frac{1}{8}$ "
Speeds, number (made with pick-off gears).....	16	16
Speeds, range.....	50 to 1500 rpm	50 to 1500 rpm
50, 63, 79, 100, 126, 159, 200, 250, 302, 380, 475, 600, 760, 955, 1200, 1500.		
Reverse.....	Included	Included
TABLE FEEDS—In inches per minute		
Number of feeds (made with pick-off gears).....	16	16
Range.....	$\frac{3}{4}$ " to 30" per minute	$\frac{3}{4}$ " to 30" per minute
$\frac{3}{4}$, 1, 1 $\frac{1}{4}$, 1 $\frac{5}{8}$, 2, 2 $\frac{9}{16}$, 3 $\frac{1}{4}$, 4 $\frac{1}{4}$, 5 $\frac{3}{8}$, 7, 8 $\frac{3}{4}$, 11, 14, 18, 22 $\frac{1}{2}$ and 30 inches per minute.		
POWER RAPID TRAVERSE (to table only).....	300" per minute	300" per minute
DRIVE		
Number of "V" Belts.....	Four	Four
Motor recommended—constant speed. N.E.M.A. dimensions, AC or DC, 1500 to 1800 rpm.....	3 hp	3 hp
FLOOR SPACE		
Area.....	66 $\frac{7}{8}$ " x 55 $\frac{3}{4}$ "	66 $\frac{7}{8}$ " x 67 $\frac{3}{4}$ "
CUTTER COOLANT PUMP AND PIPING		
.....	Extra	Extra
SHIPPING DATA		
Net Weight.....	3050 lbs	3150 lbs.
Gross Weight—Domestic.....	3600 lbs.	3700 lbs.
Gross Weight—Export.....	3900 lbs.	4000 lbs.
Approximate Size of Case.....	60" x 60" x 46"	60" x 64" x 49"
Approximate cubic feet.....	103	106
CODE NAMES		
.....	ONEWT	ONATE



Specifications

CINCINNATI

**1-12
AND
1-18**

PLAIN

STANDARD EQUIPMENT SUPPLIED WITH THE MACHINE

Adjustable arbor tightening rod.

Arbor support, style "A" with adjustable arbor bushing for pilot end arbors.

Set of speed change pick-off gears.

Set of feed change pick-off gears.

Standard feed range, $\frac{3}{4}$ to 30 inches per minute.

Table dogs: one feed forward, one reverse and rapid return, one feed return, one reverse and rapid forward, two stop dogs.

Automatic spindle stop.

Automatic backlash eliminator.

Wrenches.

AUTOMATIC MILLING MACHINES

EQUIPMENT SUPPLIED AT EXTRA COST Not Included in Price of Standard (Basic) Machine

1. Arbor Supports:
 - (a) Style "B" with $1\frac{7}{8}$ " adjustable arbor bushing and without lug for braces. Code Name—ARLLS.
 - (b) Style "B" with $1\frac{7}{8}$ " adjustable arbor bushing and provided with lug for braces, **including braces**. Code Name—ARREY.
2. Pump—Cutter Coolant, including piping (gear driven from machine pulley bracket). Code Name—COOLP.
3. Additional Feed Dog. Code Name—ADLEF.
4. Additional Rapid Traverse Dog. Code Name—ADTRA.
5. Vises.
 - (a) Plain, Catalog No. 4DA, with jaws 4" wide, $1\frac{1}{2}$ " deep, 2" opening. Code Name—VIJAW.
 - (b) Swivel, Catalog No. 4DS, with jaws 4" wide, $1\frac{1}{2}$ " deep, 2" opening. Code Name—VIUNI.
6. Arbors—Style "A" without bearing collars but with pilot end:

Catalog Number	Diameter	Usable Length of Cutter Space	Size of Keyway		Code Name
			Width	Depth	
40- $\frac{7}{8}$ A10	$\frac{7}{8}$ "	10"	.....	.....	ARAAZ
40-1A11	1"	11"	$\frac{1}{4}$ "	$\frac{5}{32}$ "	ARBIZ
40-1 $\frac{1}{4}$ A11	1 $\frac{1}{4}$ "	11"	$\frac{5}{16}$ "	$\frac{11}{64}$ "	ARCCY
40-1A15	1"	15"	$\frac{1}{4}$ "	$\frac{5}{32}$ "	ARMUX
40-1 $\frac{1}{4}$ A14	1 $\frac{1}{4}$ "	14"	$\frac{5}{16}$ "	$\frac{11}{64}$ "	ARTUM

7. Arbors—Style "B" with one $1\frac{7}{8}$ " diameter bearing collar: Require use of additional Arbor Support Style "B"—See Items 1 (a) or 1 (b). The use of braces requires arbors with a minimum of *18" usable length of cutter space.

Catalog Number	Diameter	Usable Length of Cutter Space	Diameter of Bearing Collar	Size of Keyway		Code Name
				Width	Depth	
40- $\frac{7}{8}$ B15 $\frac{1}{2}$ -3	$\frac{7}{8}$ "	15 $\frac{1}{2}$ "	1 $\frac{7}{8}$"	.....	.....	ARDOY
40-1B15 $\frac{1}{2}$ -3	1"	15 $\frac{1}{2}$ "	1 $\frac{7}{8}$ "	$\frac{1}{4}$ "	$\frac{5}{32}$ "	AREER
40-1 $\frac{1}{4}$ B15 $\frac{1}{2}$ -3	1 $\frac{1}{4}$ "	15 $\frac{1}{2}$ "	1 $\frac{7}{8}$ "	$\frac{5}{16}$ "	$\frac{11}{64}$ "	ARFEB
*40-1B18-3	1"	18"	1 $\frac{7}{8}$ "	$\frac{1}{4}$ "	$\frac{5}{32}$ "	ARTIC
*40-1 $\frac{1}{4}$ B18-3	1 $\frac{1}{4}$ "	18"	1 $\frac{7}{8}$ "	$\frac{5}{16}$ "	$\frac{11}{64}$ "	ARWYZ

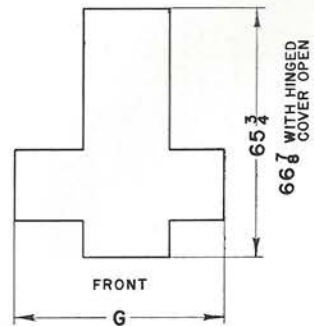
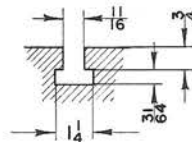
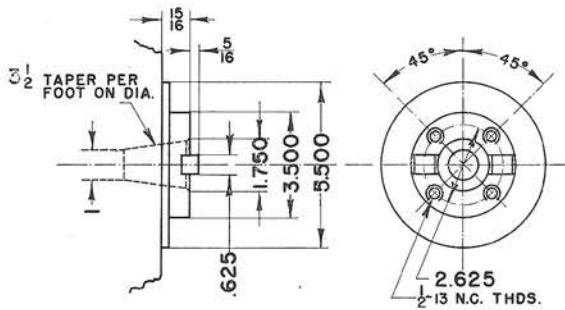
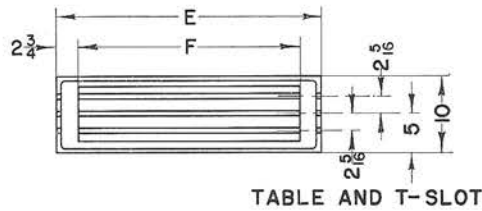
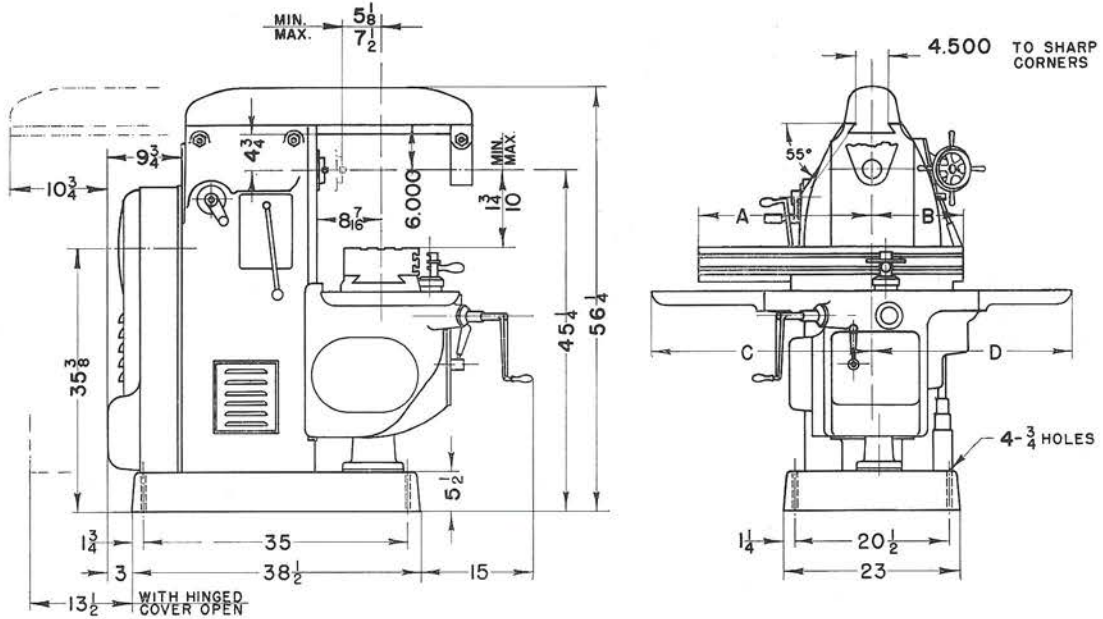
8. Shell End Mill Arbors, Quick Change Adapter, Collet and Arbor Adapters.
9. One additional slow speed of 40 rpm secured with one extra pair of speed change gears. Code Name—SPIDD.
10. High Series of Table Feeds, $1\frac{1}{2}$ " to 60" = $1\frac{1}{2}$, 2, 2 $\frac{1}{2}$, 3 $\frac{1}{4}$, 4, 5 $\frac{1}{8}$, 6 $\frac{1}{2}$, 8 $\frac{1}{2}$, 10 $\frac{3}{4}$, 14, 17 $\frac{1}{2}$, 22, 28, 36, 45, 60; supplied at factory only. Code Name—TAFDD.
11. Low Series of Table Feeds, $\frac{1}{2}$ " to 21 $\frac{1}{2}$ " = $\frac{1}{2}$, $\frac{9}{16}$, $\frac{3}{4}$, $\frac{15}{16}$, 1 $\frac{3}{16}$, 1 $\frac{1}{2}$, 1 $\frac{7}{8}$, 2 $\frac{3}{8}$, 3 $\frac{1}{16}$, 4, 5 $\frac{1}{8}$, 6 $\frac{1}{2}$, 8 $\frac{3}{16}$, 10 $\frac{3}{16}$, 13, 16 $\frac{1}{2}$, 21 $\frac{1}{2}$; supplied at factory only. Code Name—LOFEE.
12. Electrical Motor and Control Equipment.



Specifications

CINCINNATI 1-12 AND 1-18 PLAIN

DIMENSIONAL DRAWING



PC-759

	A		B		C	D	E	F	G
	Min.	Max.	Min.	Max.					
1-12	10 $\frac{3}{4}$	24 $\frac{3}{4}$	10 $\frac{1}{4}$	24 $\frac{1}{4}$	29 $\frac{1}{4}$	26 $\frac{1}{2}$	35	29 $\frac{1}{2}$	55 $\frac{3}{4}$
1-18	10 $\frac{3}{4}$	30 $\frac{3}{4}$	10 $\frac{1}{4}$	30 $\frac{1}{4}$	35 $\frac{1}{4}$	32 $\frac{1}{2}$	41	35 $\frac{1}{2}$	67 $\frac{3}{4}$

AUTOMATIC MILLING MACHINES

ELECTRICAL EQUIPMENT SPECIFICATIONS

The motors and controls listed below are suitable for the machines illustrated and described in this catalog.

Current	Cycles	Phase	Voltage	Speed rpm	hp	NEMA Frame No.
AC	60	2 or 3	220/440/550	1800	3	225
AC	50	2 or 3	220/440/550	1500	3	225
AC	50	2 or 3	380/500/etc	1500	3	225
AC	25	2 or 3	220/440/550	1500	3	254
DC	.....	.....	115 or 230	1750	3	.....

Note—Motors larger than frame No. 254 can not be used.

AC Motors—Standard make NEMA frame, normal torque, normal starting current, floor mounted with conduit box on left viewing shaft end.

AC Controls—Standard make, enclosed type full voltage magnetic starter with thermal overload protection. Control circuit transformer and 110 volt coils are supplied when voltage exceeds 220, providing low voltage at push button station.

DC Motors—Standard make shunt wound, constant speed, 40° C continuous, open, rotation clockwise viewing shaft end, floor mounted with conduit box on left viewing shaft end.

DC Controls—Standard make, enclosed type magnetic starter with definite time acceleration, thermal overload protection and without dynamic braking.

Push Button Station—Separate “start-stop” included with AC or DC controls.

Order Instructions—The following electrical data must accompany each order:

- (a) Voltage.
- (b) Current (AC or DC). If AC, also include:
 1. Phase.
 2. Cycle.
 3. Control circuit voltage.
- (c) Horsepower, speed, type of frame (open or enclosed) and motor bearing.



MILLING MACHINES

BROACHING MACHINES

CUTTER SHARPENING MACHINES

THE CINCINNATI MILLING MACHINE CO. CINCINNATI 9, OHIO, U. S. A.