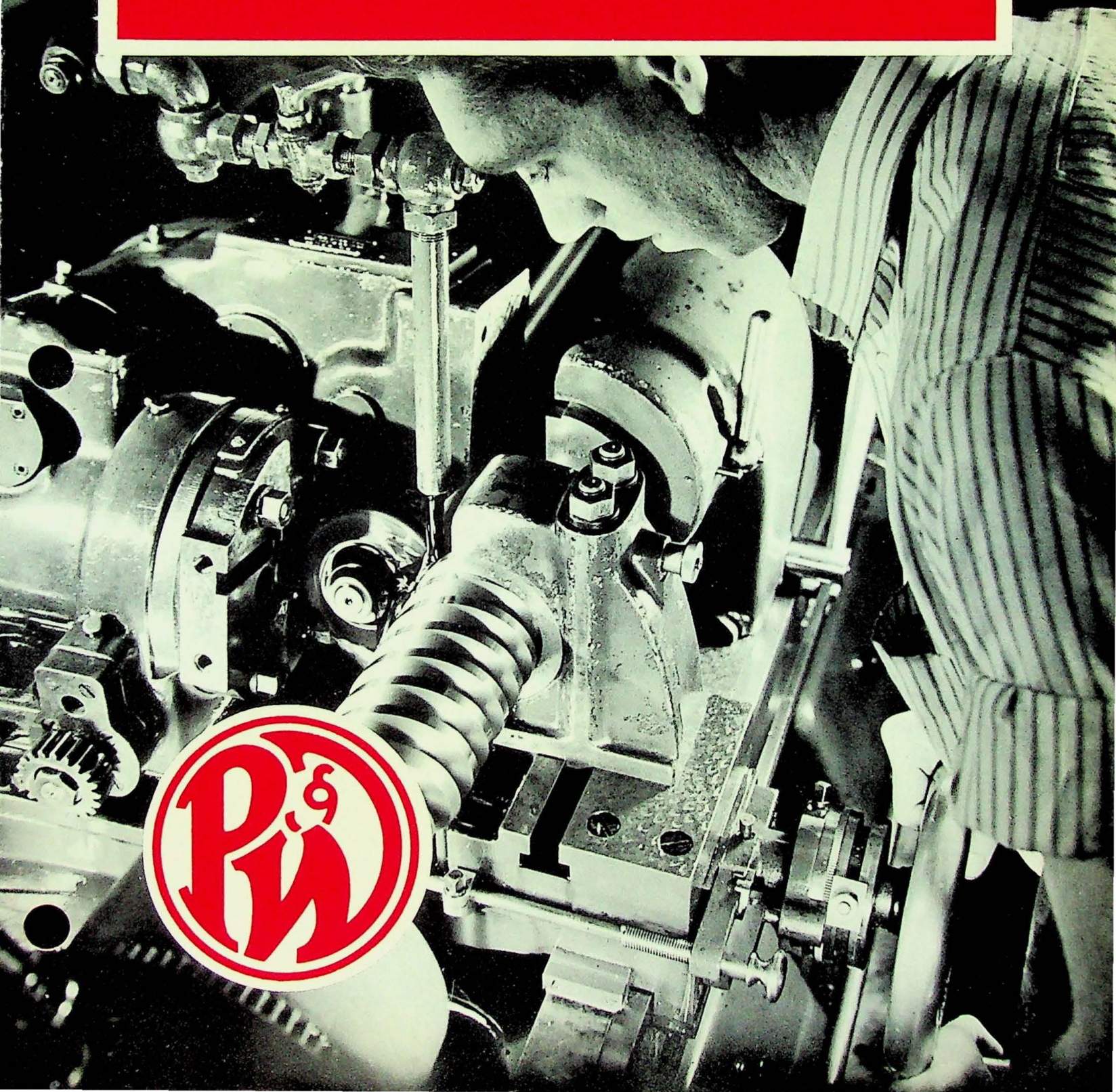


PRATT & WHITNEY

Model "C" Thread Millers





PRATT & WHITNEY

Thread Millers

Model "C" 4½ - Inch and 6 - Inch

Pratt & Whitney Thread Millers have set new standards for speed, economy, finish and accuracy. These sturdy machines are unusually flexible, with all the improvements that have marked modern thread milling progress. Pratt & Whitney Thread Millers bring tool room precision to the production line.

The 4½" and 6" P&W Thread Millers provide for a very wide range of thread milling, both in work diameter and work length. The 4½" machine is available in two lengths with maximum center distances of 12" and 36". The 6" machine is available in four lengths with maximum center distances of 20", 60", 90" and 120".

"Climb milling" is the most important development in recent thread milling practice. This "gear wise" method of milling threads permits faster cutter speeds . . . steps up production . . . produces a finer finish . . . greatly increases cutter life. Pratt & Whitney Thread Millers are designed to do either "climb milling" or conventional milling. Backlash is eliminated from the gearing by a friction device, which operates only during the cutting cycle, being automatically disengaged during hand traverse or rapid power traverse.

The work spindle, cutter spindle and coolant pump are

driven by individual motors. The work spindle motor is arranged to stop automatically if the cutter spindle motor or coolant pump motor should fail, thus preventing damage to either the work or the cutter. Work or cutter can be rotated in either direction and the wide selection of speeds assures maximum efficiency and fine finishes with either "climb milling" or conventional milling methods. The spindles are carefully designed and precision built to provide maximum accuracy and rigidity, free from chatter and backlash.

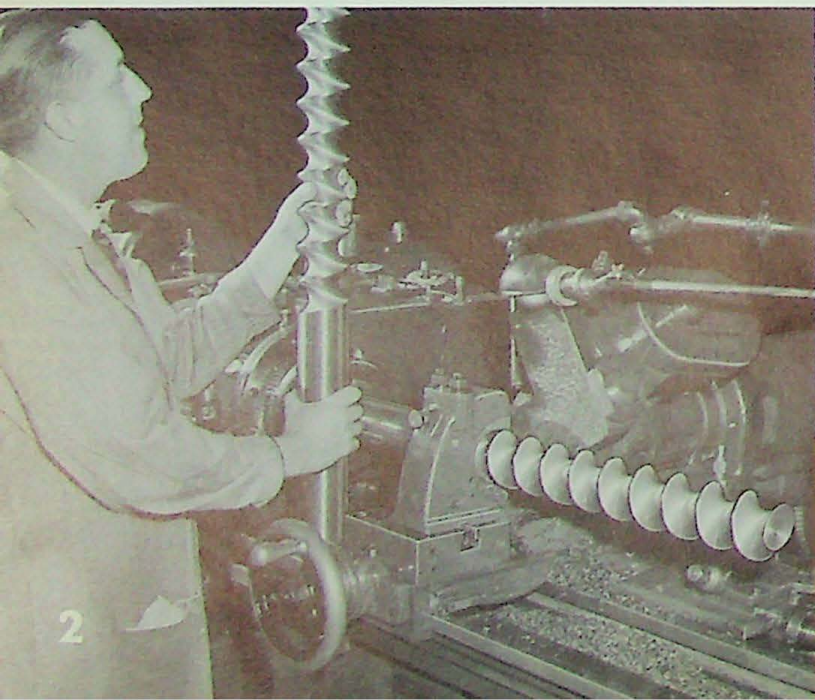
The cutter head may be swiveled to any desired helix angle up to 45° from the vertical for right hand leads and 90° for left hand leads.

Indexing, for multiple start work, is fast, accurate and easy. Standard equipment will accommodate 2, 3, 4, 6, 8, 12 and 24 start work. Other indexes require special index plates which are quickly and easily changed during the set up.

If you will give us your thread milling requirements, our engineers will be glad to show you how to cut your threading costs and make recommendations as to the proper method and equipment for producing more accurate threads with a finer finish.

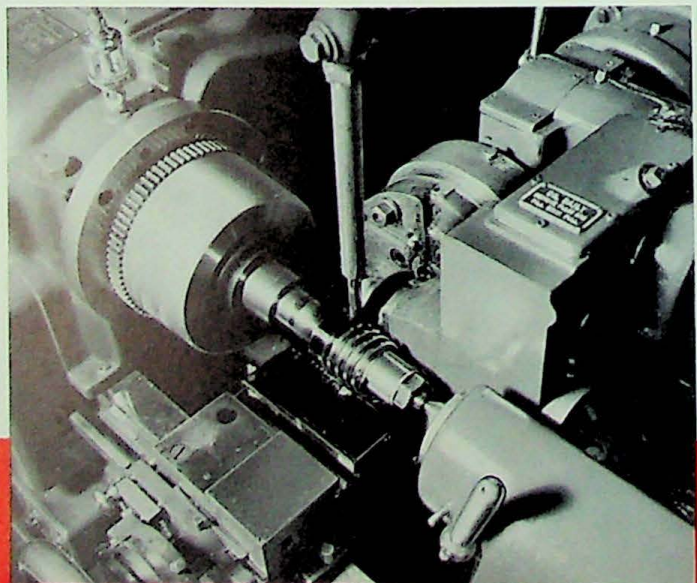
MILLING A CONVEYOR SCREW

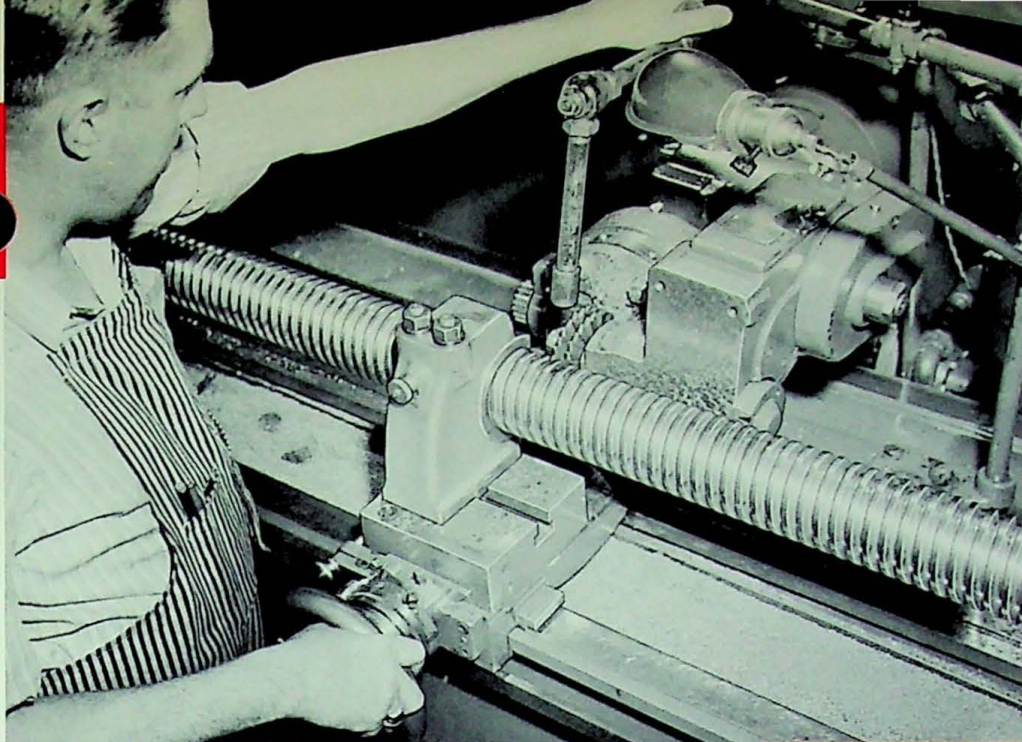
These screws were milled in one cut using a ¼" wide straight sided milling cutter with corner radius. The helix angle is set to produce the desired form.



MILLING A WORM THREAD

The picture below shows a typical thread milling job in process. One cut produced a smooth accurate thread from a solid worm blank, using "climb" cutting.





MILLING A PRECISION LEAD SCREW

This long lead screw is being milled on a Pratt & Whitney 6' x 120' Thread Miller. Double cutters were used to mill the two start thread and both starts were finish-milled simultaneously.

**"There's no better paying
investment than the
Right Tools for the Job"**

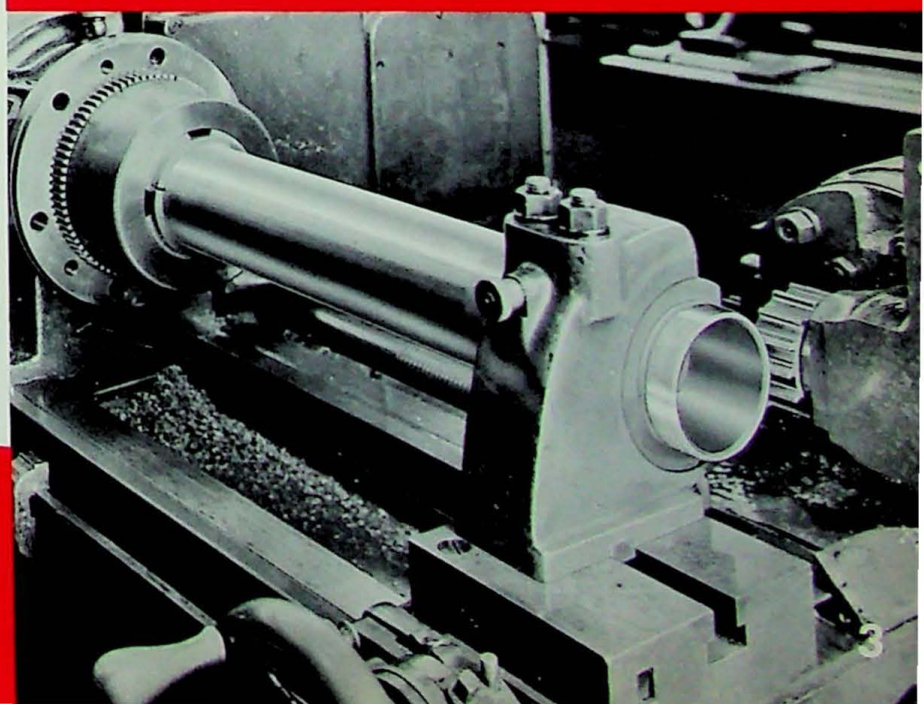
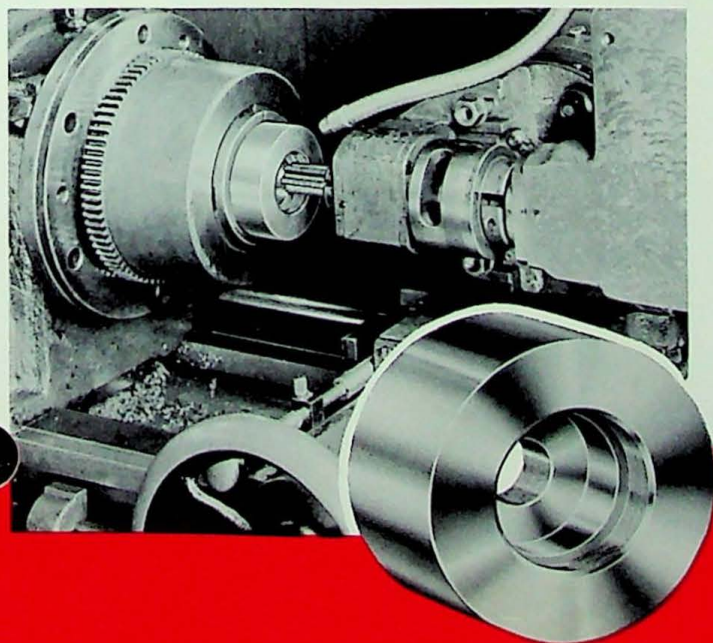
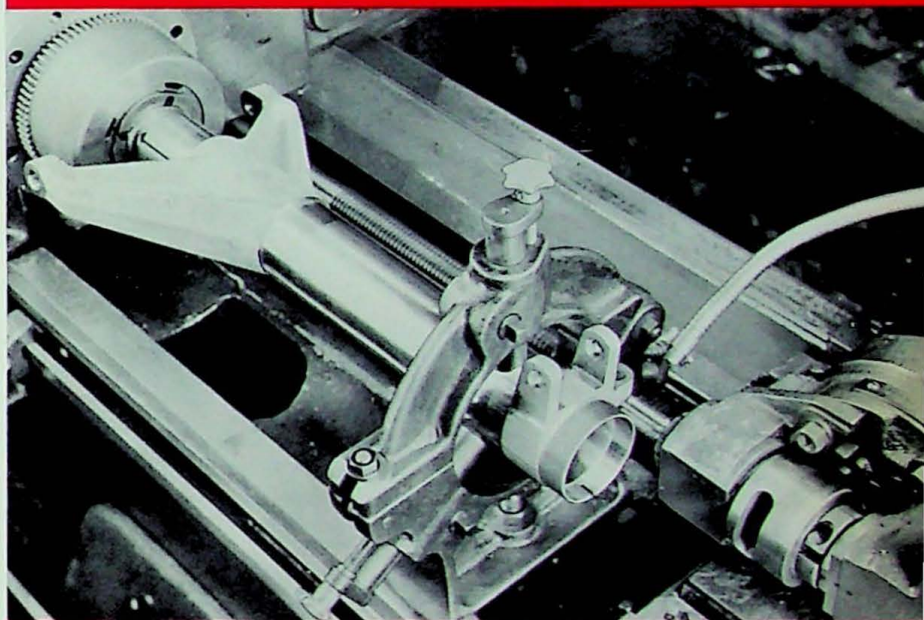
RING THREAD HOBGING — USING MULTIPLE THREAD MILLING CUTTERS

This method of cutting threads produces short, fine pitch threads at high production. The multiple cutter is merely a gang of single cutters made in one piece in either shell type or shank type. The cutter, being slightly wider than the length of thread to be cut, completes the thread in slightly over one revolution of the work.

RIGHT — Thread hobbing an external thread using a shank type multiple thread milling cutter in order to cut the thread close to three lugs.

LOWER RIGHT — An external thread hobbing operation on the end of a cylinder. Multiple thread milling cutters up to 3' in length can be used on the 6' machine to cut external threads at any point on the length of a shaft.

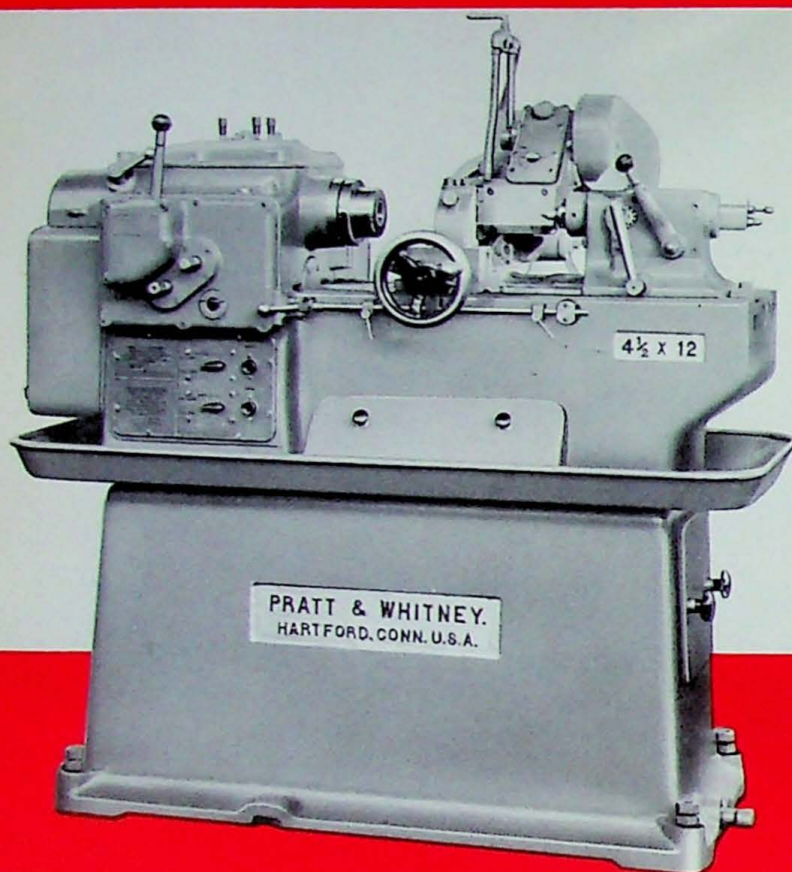
BELOW — Thread hobbing an internal thread. Photo of the part itself shows two finished internal threads.



PRATT & WHITNEY

4½-Inch

Model "C"

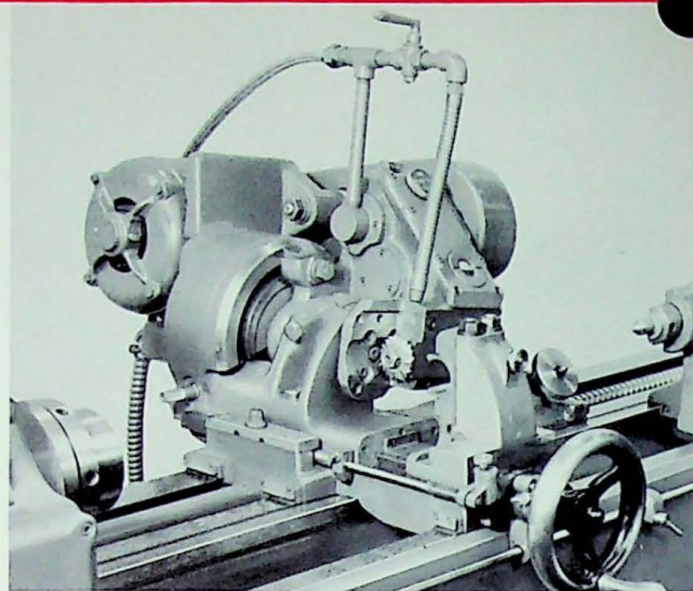


FRONT VIEW

The 4½" x 12" machine illustrated here is the smallest of the Pratt & Whitney Thread Millers. The 4½" Thread Miller is built regularly in two standard bed lengths having center to center capacities of 12" and 36".

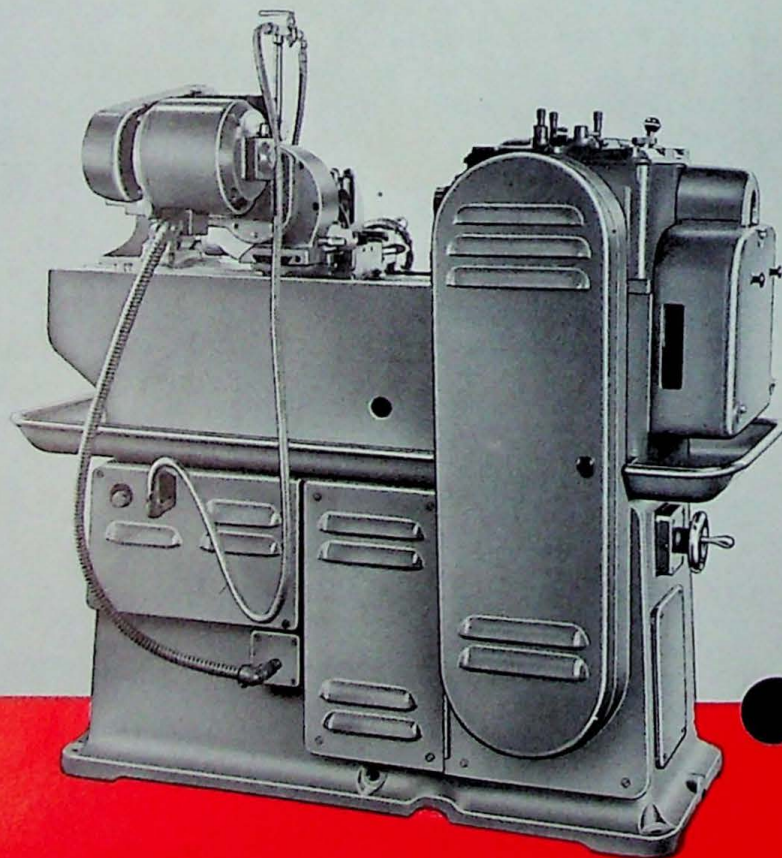


REAR VIEW

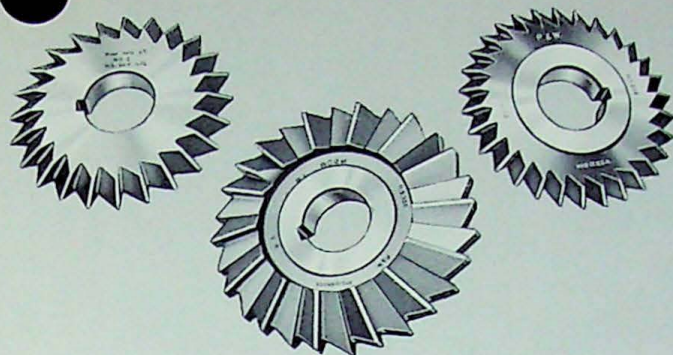


CUTTER HEAD

The cutter spindle is driven by a ¾ H.P. reversible motor through a vee-belt drive and suitable gearing enclosed in the cutter head. Five cutter spindle speeds are provided, with changes made through reversible step sheaves which are easily accessible by removing the belt guard. The cutter head swivels by means of a worm actuated crank, and a graduated ring and vernier provide accurate helix angle settings.

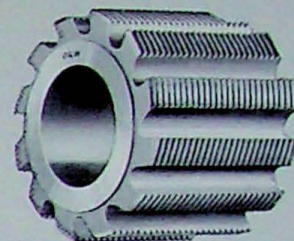


Thread Miller

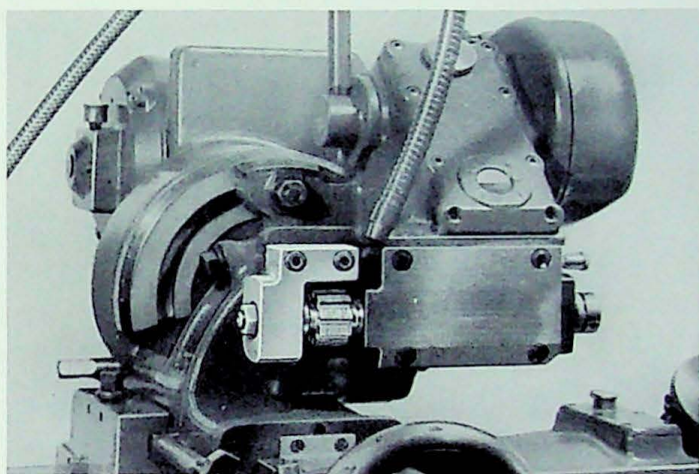


THREAD MILLING CUTTERS

These cutters are properly designed for Pratt & Whitney Thread Millers and are known for their efficiency and long life. Single cutters for cutting National, V, Acme or Worm threads are carried in stock. Complete details should be given when ordering shank type or shell type multiple thread milling cutters. See Pratt & Whitney No. 17 Small Tools Catalog.



• • ATTACHMENTS • •

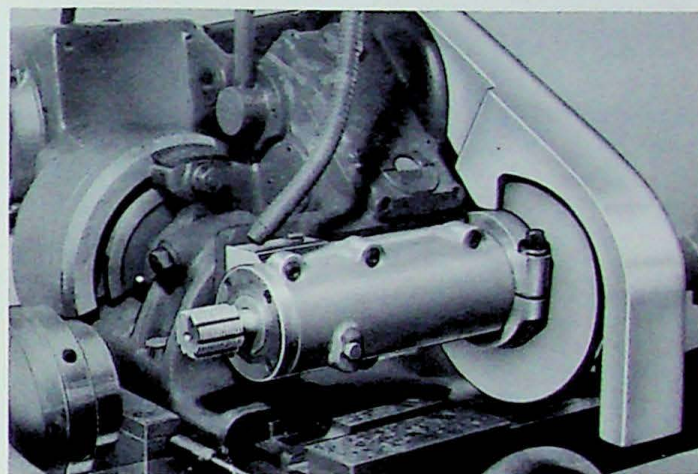
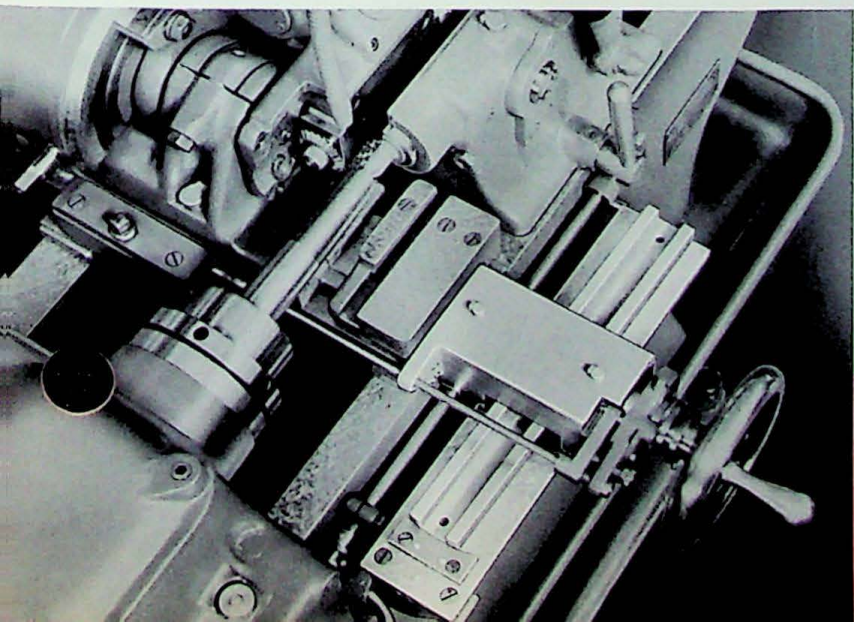


EXTERNAL THREAD HOBGING ATTACHMENT

Accommodates shell type multiple thread milling cutters (ring hobs) up to $1\frac{1}{2}$ " long, for milling short length external threads in slightly over one revolution of the work.

TAPER ATTACHMENT

This attachment provides an easily adjusted path for a follower block which moves the cutter in or out to produce accurate taper threads up to 12" long and a maximum taper of $1\frac{1}{2}$ " per foot included angle.

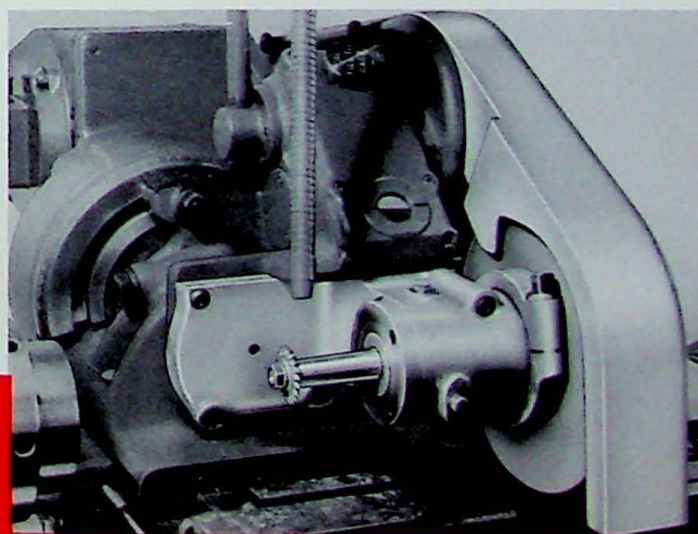


INTERNAL THREAD HOBGING ATTACHMENT

For cutting short length internal threads in slightly over one revolution of the work, using shank type multiple thread milling cutters (ring hobs).

INTERNAL THREAD MILLING ATTACHMENT

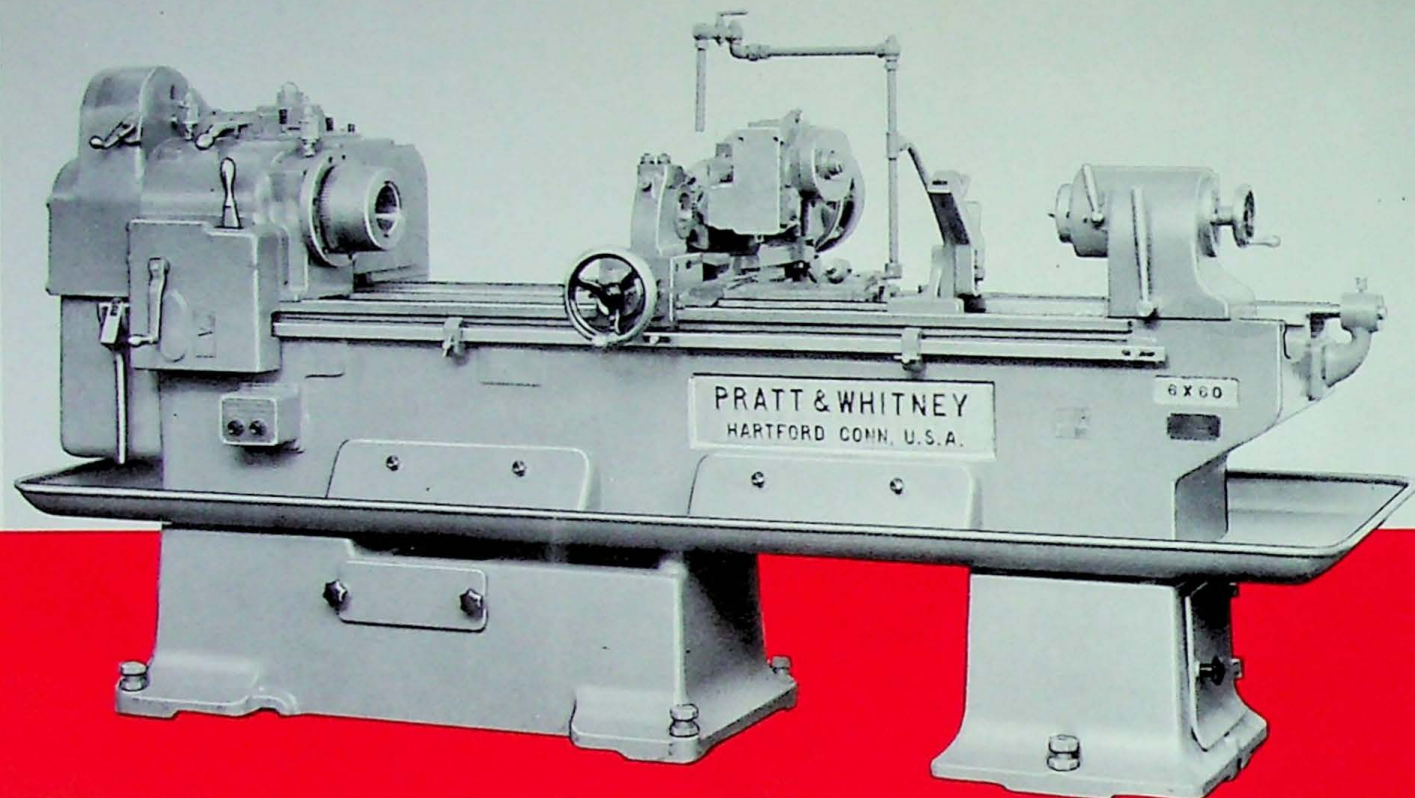
For milling internal threads of such form that swiveling of the cutter to the helix angle of the thread is required to avoid excessive side cutting. Furnished with arbor for cutters with $\frac{7}{16}$ " hole.



PRATT & WHITNEY

6-Inch

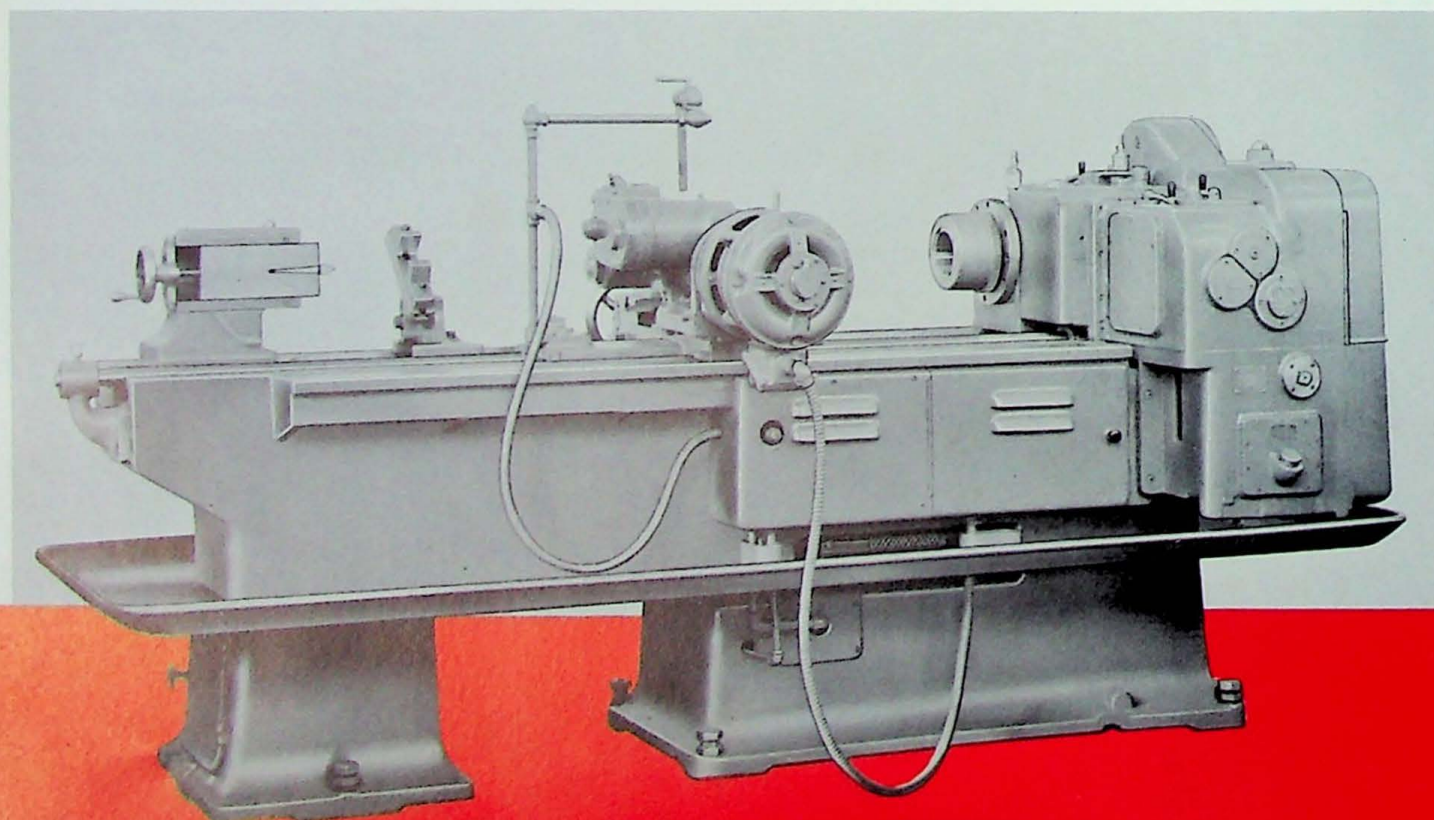
Model "C"



FRONT VIEW

The machine illustrated above and below is a P&W 6" x 60" Model "C" Thread Miller. The 6" Thread Miller is built regularly in four standard bed lengths having center to center capacities of 20", 60", 90" and 120".

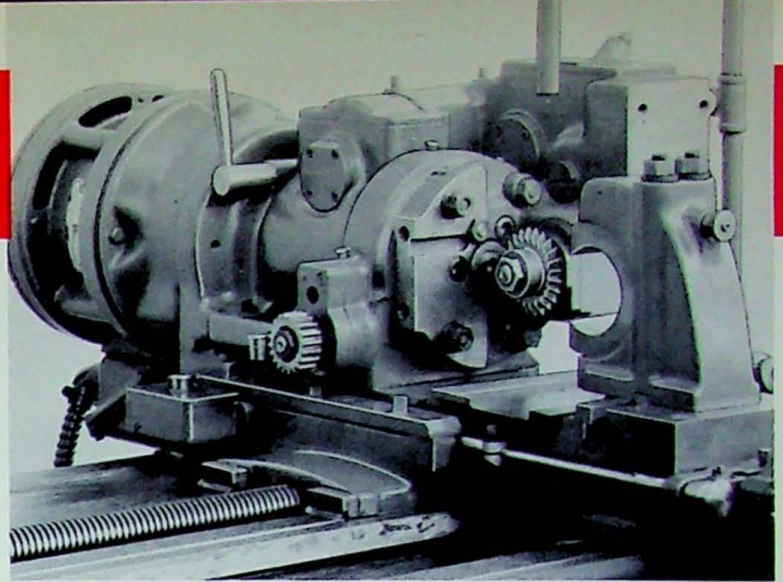
REAR VIEW



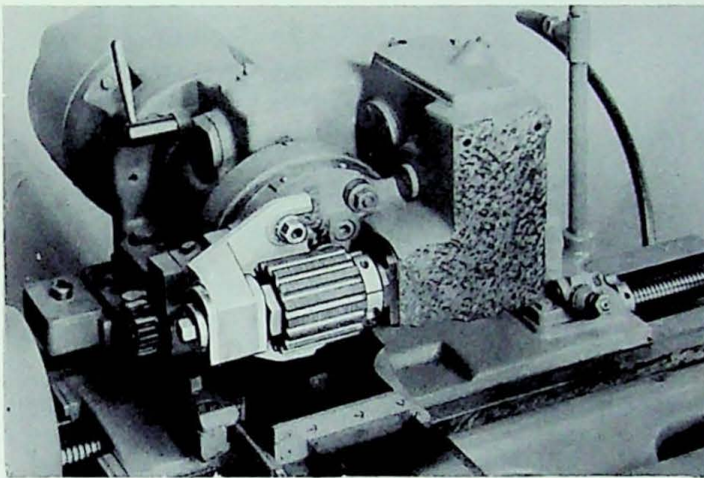
Thread Miller

CUTTER HEAD

The cutter head is of rigid design and provided with anti-friction roller bearings. The spindle is driven by a 3 H.P. reversible motor through alloy steel ground, helical gears, specially heat treated for strength and durability. Eight cutter spindle speeds are provided, with changes obtained through slip gears which are easily accessible. A worm actuated adjustment is provided for swiveling the cutter head to the desired helix angle setting.



• • ATTACHMENTS • •

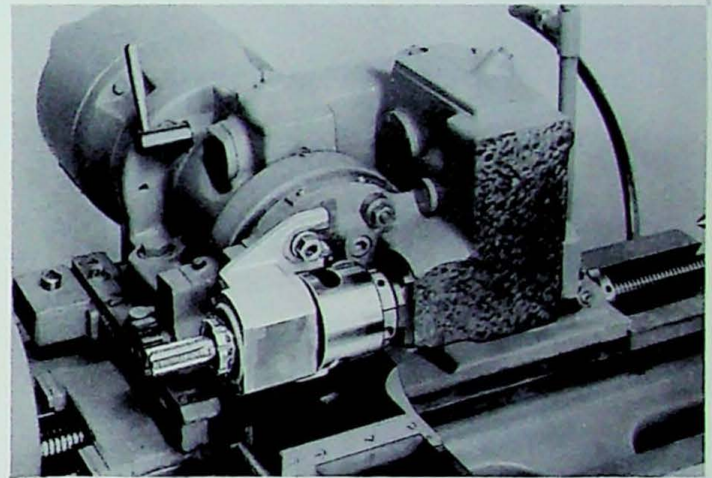


EXTERNAL THREAD HOBGING ATTACHMENT

Accommodates shell type multiple thread milling cutters (ring hobs) up to 3" long, for cutting short length external threads in slightly more than one revolution of the work.

TAPER ATTACHMENT

For producing accurate taper threads up to 12" long and a maximum of $1\frac{1}{2}$ " per foot included angle. Bolts securely to the front of the bed.

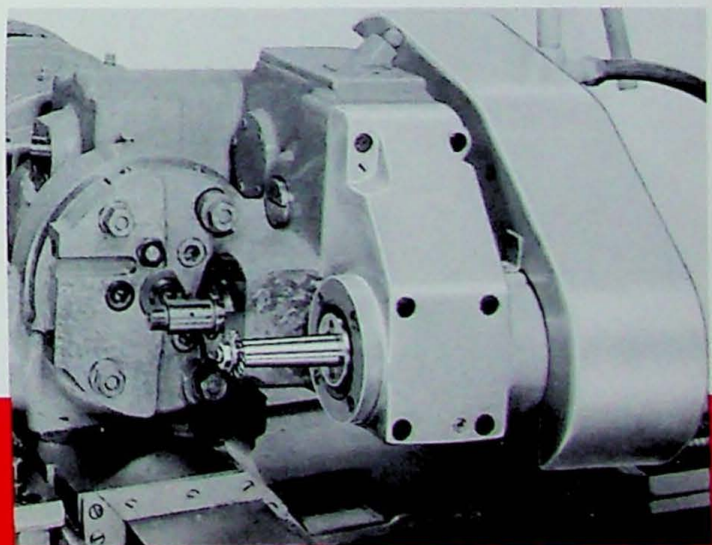
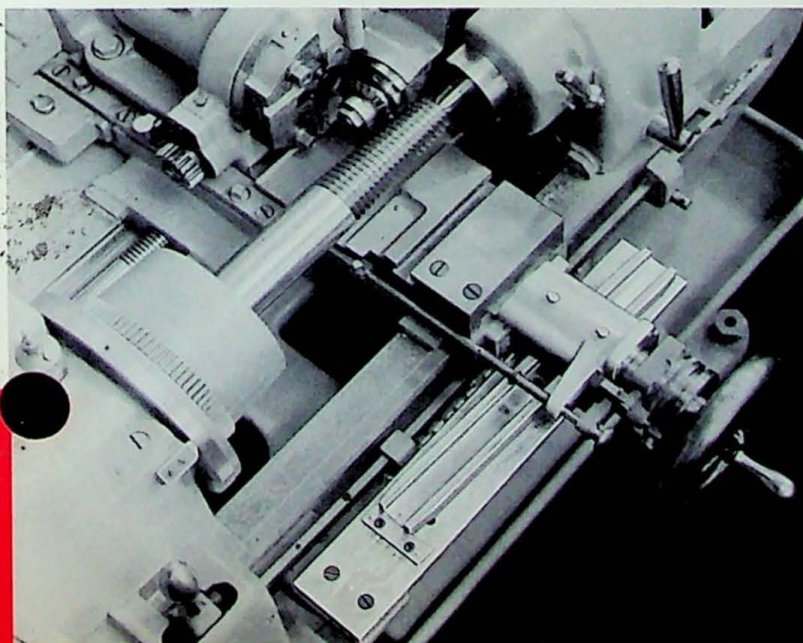


INTERNAL THREAD HOBGING ATTACHMENT

Adapts the 6" Model "C" Thread Miller for using shank type multiple thread milling cutters (ring hobs) to produce internal threads in slightly more than one revolution of the work.

INTERNAL THREAD MILLING ATTACHMENT

For milling internal threads of such form that swiveling the cutter head to the helix angle of the thread is required to avoid excessive side cutting. Furnished with arbor for cutters with $\frac{7}{16}$ " hole.



Model "C" Thread Millers

SPECIFICATIONS

RANGE:

Length between centers, max.	.....
Work diameter, max.	.....
Swing over bed	.....
Swing over carriage	.....
Depth that can be cut, max.	.....
Helix angle adjustment from vertical:	
R.H. leads, max.	.....
L.H. leads, max.	.....
Collet capacity, spindle	.....
Collet capacity, drawback	.....
Hole through spindle	.....
Follow rest capacity	.....
Index plate, standard, for 2, 3, 4, 6, 8, 12 and 24 starts	.....

4 1/2" Machines

12" and 36"
4 1/2"
12"
7"
1 1/32"
45°
90°
1 1/2"
1"
1 9/16"
1 5/8"

6" Machines

20", 60", 90" and 120"
6"
16"
9 1/2"
1 1/16"
45°
90°
4"
1 1/4"
4 1/32"
4"

CUTTERS:

Single cutters:	
Hole	.....
Cutter diameters	.....
Multiple cutters:	
Shell type, max. length	{ for regular cutter spindle
Shank type for internal work—(should have engineering recommendations)	{ for External Hobbing Attachment

1 1/2"	1"
1 3/4", 2 1/8"	3 1/4", 4"
1 1/2" (3/4" hole)	2" (1" hole)
No. 3 Morse Taper Shank with 1/2"-13 thrd. hole for draw rod.	3" (1 1/2" hole)

SPEEDS AND LEADS:

*Work spindle speeds, R.P.M.	.....
*Cutter spindle speeds, R.P.M.	.....
**Leads with regular gears, L.H.	.....
**Leads with regular gears, R.H.	.....

(16) .25 to 20	(21) .140 to 5
(5) 205 to 810	(8) 113 to 452
24 p.i. to 12"	24 p.i. to 24"
24 p.i. to 12"	24 p.i. to 18"

FLOOR SPACE:

Length	58"
Width	41"

4 1/2" x 12"	4 1/2" x 36"	6" x 20"	6" x 60"	6" x 90"	6" x 120"
58"	82"	71"	116"	145"	175"
41"	41"	56"	56"	56"	56"

WEIGHTS: (Approx. lbs.)

With regular equipment	2200
Crating material (domestic)	375
Boxing material (foreign)	500
Box, cu. ft.	92

2700	4750	5850	7000	7500
475	700	1150	1325	1500
625	930	1350	1550	1900
110	200	270	350	410

REGULAR EQUIPMENT FOR 4 1/2" MACHINES:

Includes machine arranged for motor drive only with 3/4 H.P. reversible motor for cutter spindle and 1/2 H.P. reversible motor for work spindle, both motors to be 2 or 3 phase, 50 or 60 cycle, 220 or 440 volt A.C. as ordered, each complete with built-in automatic starter and push button control; motor driven coolant pump and piping; one spindle collet, any standard size up to 1 1/2"; one follow rest; one follow rest bushing, any size up to 1 1/2" diameter (can also be used in tailstock); one tailstock center; live center and work driver; cutter spindle, 1/2" diameter; two V thread cutters; one set of lead change gears; one index ring; set of wrenches.

REGULAR EQUIPMENT FOR 6" MACHINES:

Includes machine arranged for motor drive only with 3 H.P. reversible motor for cutter spindle and 1 1/2 H.P. motor for work spindle, both motors to be 2 or 3 phase, 50 or 60 cycle, 220 or 440 volt A.C. as ordered, each complete with built-in automatic starters and push button control; motor driven coolant pump and piping; one spindle collet, 4" hole; one spindle collet bushing, round, any size ordered up to 3 1/2" diameter; one follow rest; one follow rest bushing, any size

ordered up to 4" diameter (can also be used in tailstock); stationary rest, 4" capacity (one with 6" x 60" machine, two with 6" x 90" and 6" x 120" machines); one live center and work driver; one tailstock center; one index plate; one lead screw; one cutter spindle, 1" diameter, with fly wheel; two V thread cutters; eight cutter speed change gears; 22 work speed and lead change gears; set of wrenches.

ADDITIONAL EQUIPMENT: (To order only)

Spindle collets; Spindle collet bushings; Cutters (See P&W Small Tools Catalog); Drawback collets; Drawback collet attachment; External thread hobbing attachment; Internal thread hobbing attachment; Internal thread milling attachment; Taper attachment; Follow rest bushings; Tailstock spindle bushings; Index Plates; Metric equipment; Electrical equipment for D.C. or 25 cycle A.C.

NOTES:

*Work and cutter spindle speeds listed are for 60 cycle motors. With 50 cycle motors, speeds are reduced one-sixth.
**By using special gears these maximum and minimum leads can be altered.

The descriptions, illustrations and specifications in this circular are correct at the time of printing. Since the policy of Pratt & Whitney is constantly to improve its machines and equipment, we reserve the right to change the design and specifications of any product without notice.

PRATT & WHITNEY COMPANY

INCORPORATED

WEST HARTFORD 1, CONNECTICUT, U.S.A.



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for Accuracy

S. 56-4MG Circular No. 527-2

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