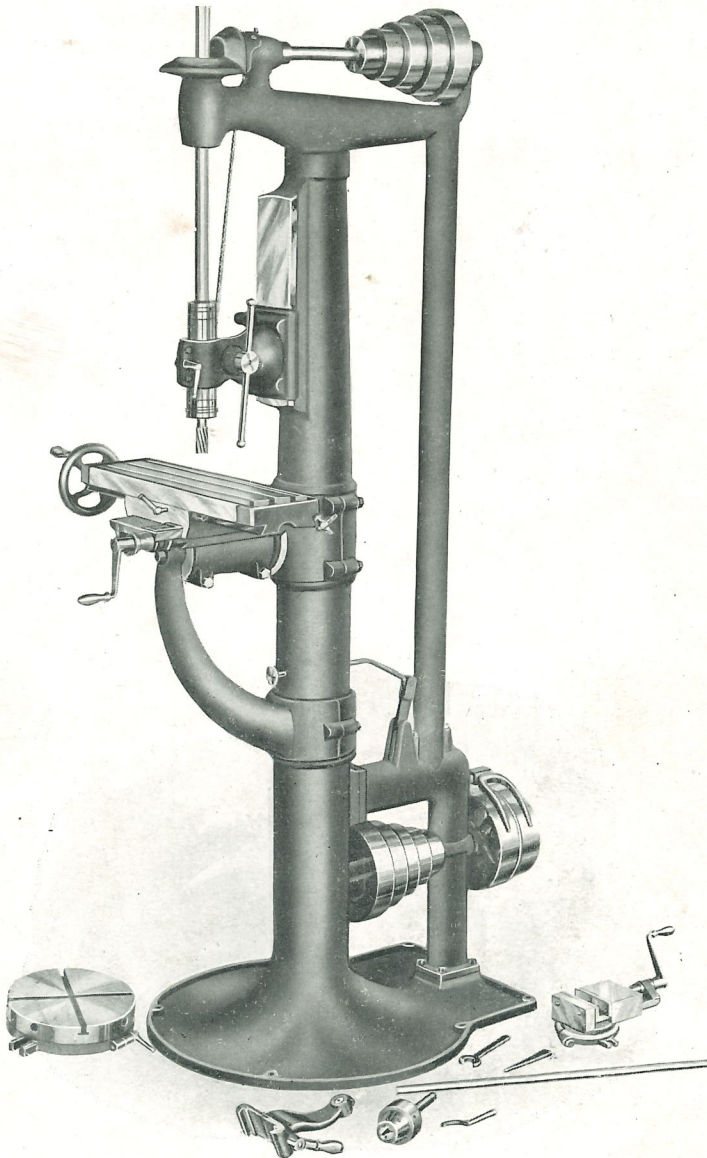
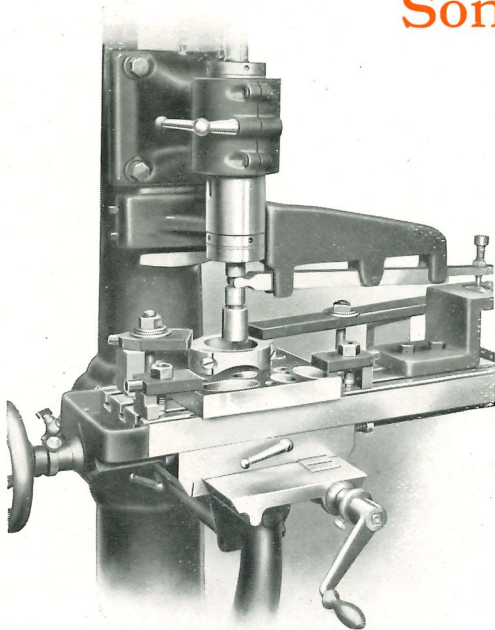


# Knight Milling and Drilling Machine

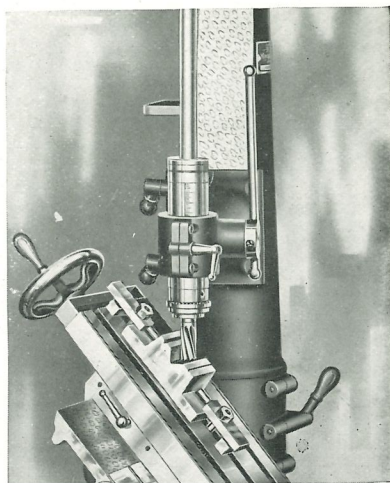


No. 1

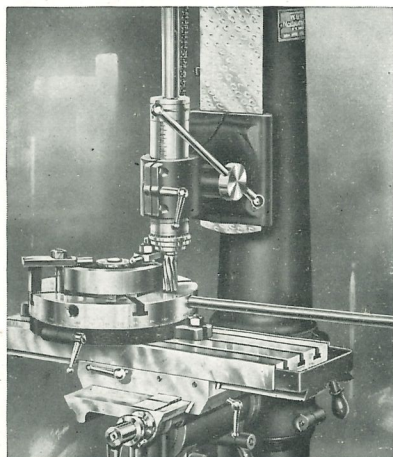
## Some Work Done



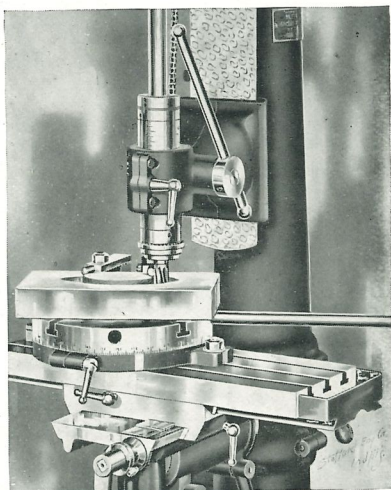
A Profiling Job



Milling V Block with a  
Straight Cutter



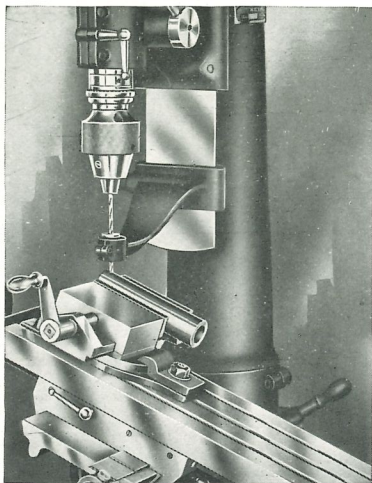
Using Circular Attachment



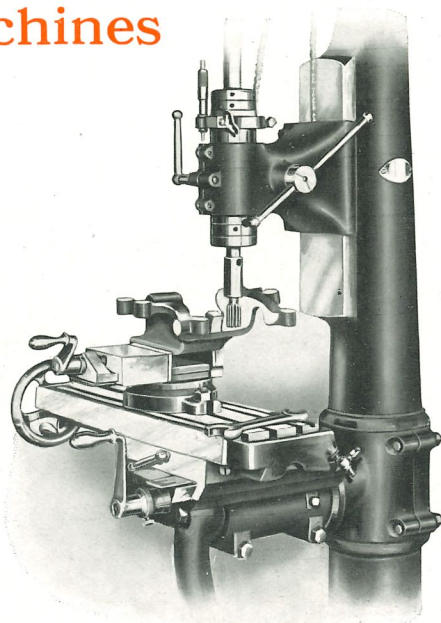
Milling Segment Die on  
Circular Attachment



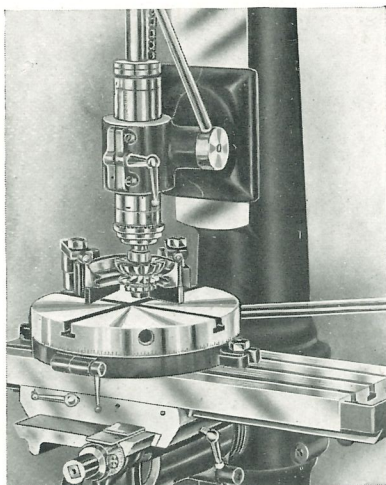
## on Knight Machines



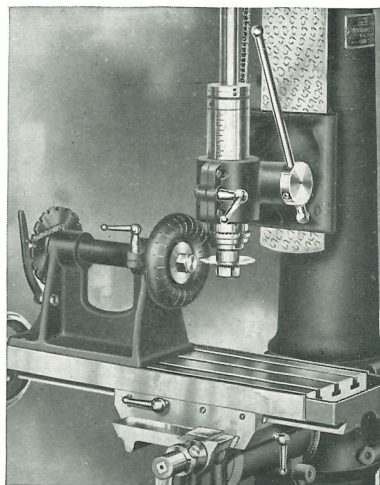
Showing Drill Guide in Use



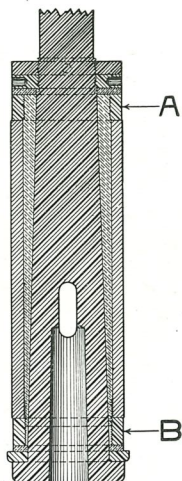
Where the Vertical Spindle  
is Almost a Necessity



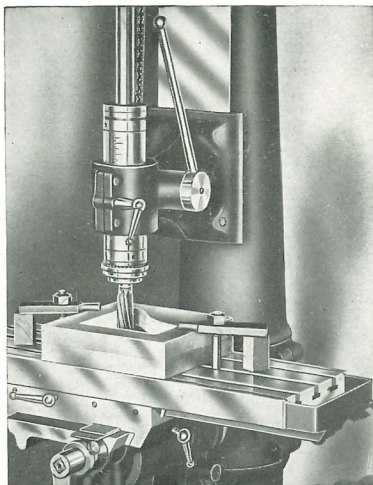
Internal Milling on Ring  
(Cut away to show in photo)



Slotting Burner Caps  
for Gas Stoves



Sectional View of Spindle Bearing  
To take up wear, slacken nut A and  
tighten nut B



Milling Metal Core Box

## DESCRIPTION

The Knight Milling and Drilling Machine combines two very useful tools, each with distinctive features. It is a milling machine with a vertical spindle, tilting table and circular attachment; and it is a drill press with a milling machine table, a drill guide and an adjustable spindle bearing.

On many parts that call for accurate milling and drilling the time required to set up is greater than the actual operating time. By making it possible to do both the milling and the drilling on several faces and at different angles with one setting, the Knight effects big economies and insures greater accuracy.

The tilting table is a great convenience in giving draft to dies, patterns, etc., and frequently saves resetting the work.

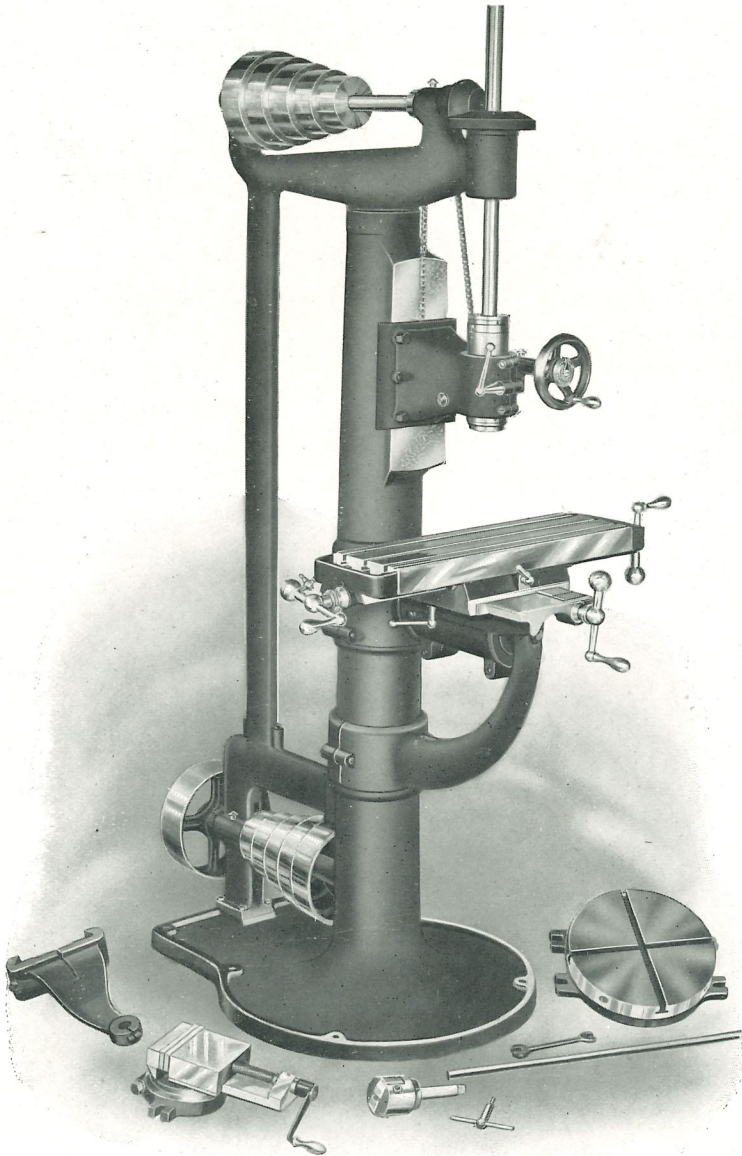
## SPECIFICATIONS No. 1

Vertical movement of spindle....	3"
Vertical adjustment of head....	8½"
From column to center of spindle..	7"
Working surface of table.....	6x18"
Longitudinal movement.....	12"
Transverse movement.....	6"
Maximum distance, table to chuck.....	9½"
Speed of Spindle.....	120 to 600
Speed of tight and loose pulleys..	425
Size of tight and loose pulleys.....	7½x1⅞"
Hole in end of spindle, Brown & Sharpe.....	No. 7
Drill chuck capacity .....	0 to 17/32
Diameter of circular attachment..	9"
Vise—Length of jaws.....	4"
Depth of jaws.....	1"
Jaws open.....	2¼"
Floor space.....	40x28"
Weight, net.....	600 lbs.
Weight, crated.....	700 lbs.

W. B. KNIGHT MACHINERY CO.

ST. LOUIS, MO., U. S. A.

# Knight Milling and Drilling Machine



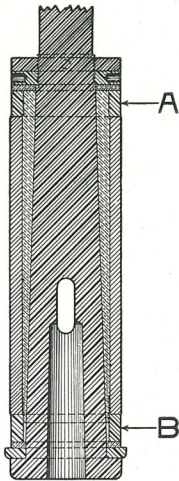
No. 1 1/2



## A Few Reasons for Buying a Knight Milling and Drilling Machine

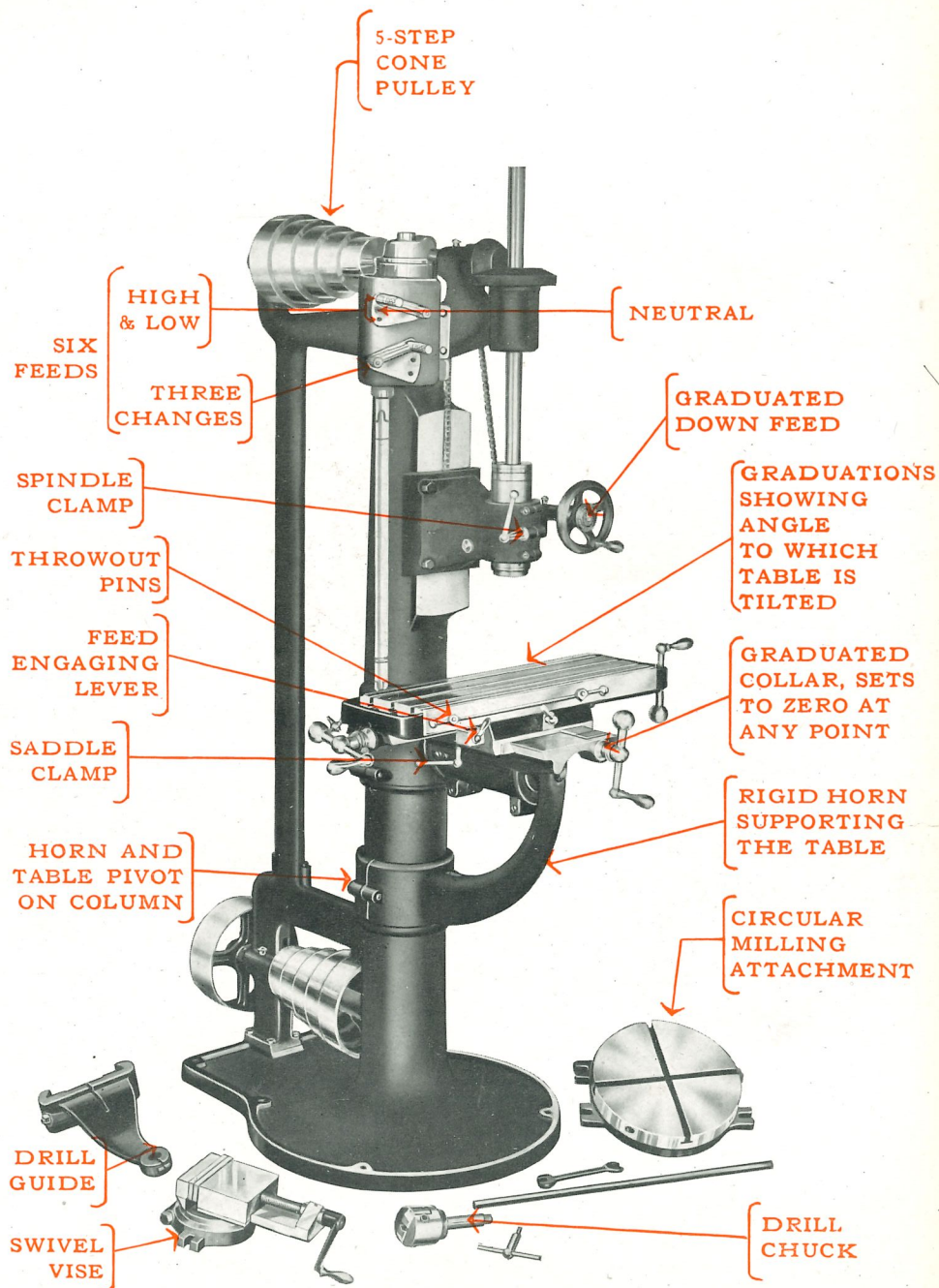
Vertical spindle milling machines are coming into more general use as a result of saving time in chucking the work, and the fact that the operator can **see what he is doing** much better than on the horizontal type of miller.

The advantages of the vertical spindle are particularly noticeable on small jobs that require close watching, such as dies, jigs, and tools. On this same line of work it usually happens that holes are to be drilled at right angles to milled surfaces, or that several surfaces must be finished on one piece.



It is here that the Knight Milling and Drilling Machine effects big savings in time—the tilting table allows you to finish **several sides at one setting**, and at **any desired angle**; then you can locate holes with the graduated collars on feed screws, and drill them at right angles to one of the surfaces, or tilt the table and do boring at some other angle.

The sectional view on this page shows the construction of the spindle on Knight Milling and Drilling Machines. A tapered bronze bushing of ample dimensions is adjusted longitudinally to take up wear. This adjustment is made by loosening nut A and tightening nut B. On the No. 1½ Machine the inside diameter of this bushing is 2" at the lower end and 1<sup>13</sup>/<sub>32</sub>" at the top; the length is 7".



No. 1 1/2 with Longitudinal Power Feed

## No. 1½ Specifications

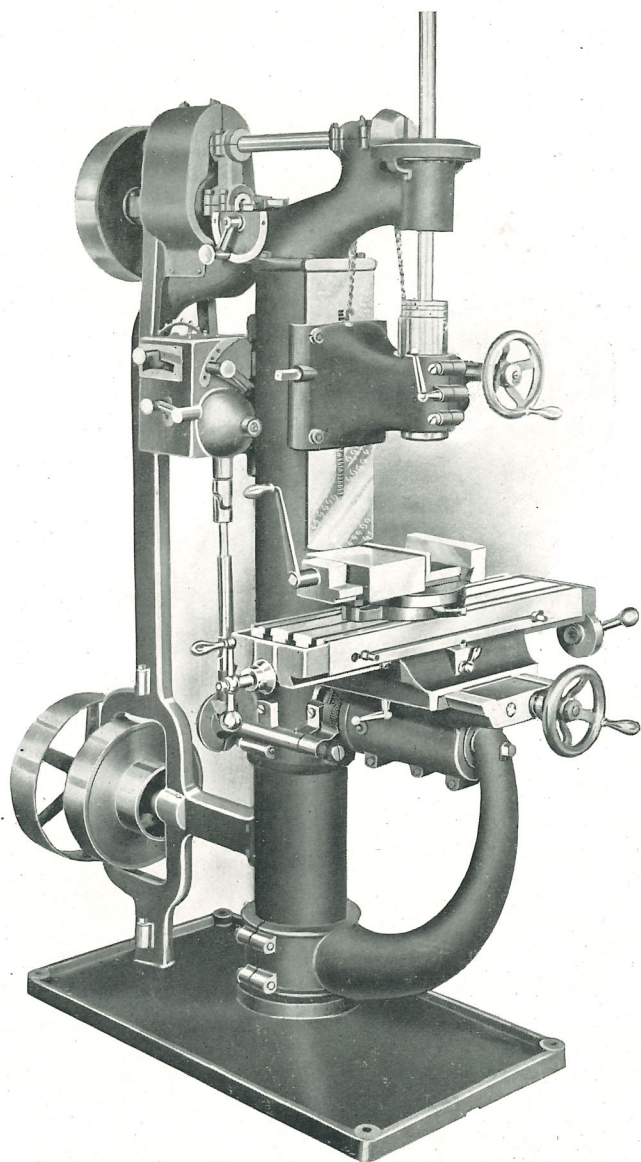
	Plain	Power Feed
Vertical movement of spindle . . . . .	4"	4"
Vertical adjustment of spindle head . . .	10"	10"
From column to center of spindle. . . . .	8½"	8½"
Working surface of table . . . . .	7½x24"	7½x29"
Longitudinal movement of table . . . . .	16½"	16½"
Transverse movement of table . . . . .	8"	8"
Maximum distance from table to spindle . . . . .	15½"	15½"
Hole in end of spindle, Brown & Sharpe taper . . . . .	No. 9	No. 9
Drill chuck capacity . . . . .	1/16 to ¾"	1/16 to ¾"
Diameter of circular attachment . . . . .	12"	12"
Vise—		
Length of jaws . . . . .	5"	5"
Depth of jaws . . . . .	1⅜"	1⅜"
Jaws open . . . . .	3⅜"	3⅜"
Countershaft—		
Diameter . . . . .	1⅞"	1⅞"
2 clutch pulleys . . . . .	3x10"	3x10"
Driving pulley . . . . .	3x10"	3x10"
Hangers . . . . .	10"	10"
Revolutions per minute . . . . .	275	275
Power feed (6 changes), range . . . . .	.005" to .040"	
Floor space . . . . .	48x50"	48x50"
Weight, net . . . . .	1200 lbs.	1300 lbs.
Weight, crated with countershaft, about . . . . .	1325 lbs.	1425 lbs.

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# Knight Milling and Drilling Machine

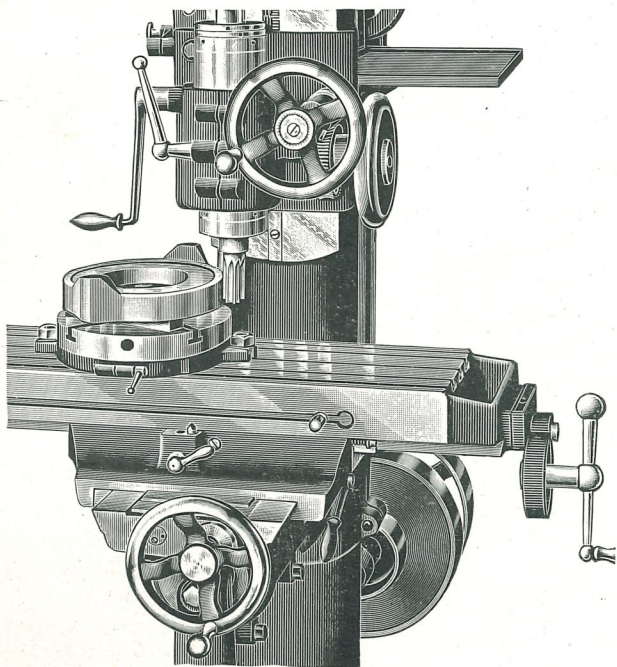
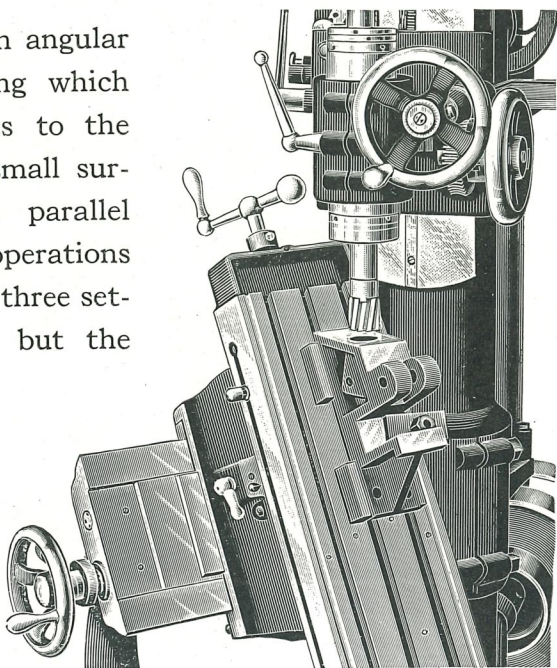


No. 2

## A Few Operations for which Knight Machines are Adapted—

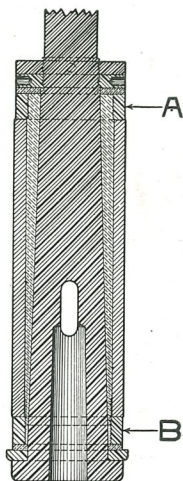
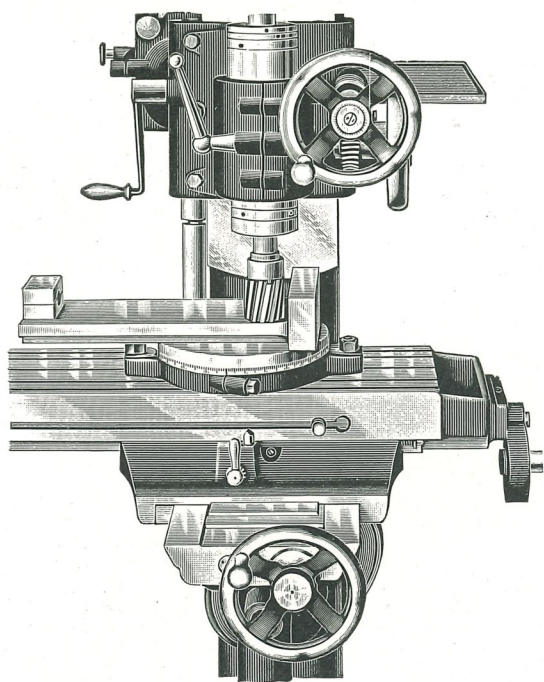
The first cut shows an angular milling job on a casting which is bored at right angles to the milled surface. Also a small surface on top is milled parallel with the base. These operations would ordinarily require three settings on two machines, but the Knight does **all at one setting.**

The graduated dial insures an accurate setting of the table.



This illustration shows a double cam which is finished with the aid of our circular milling attachment. At the **same setting** you could mill other faces of this cam or do any drilling that might be required, either parallel with the axis, or at an angle.



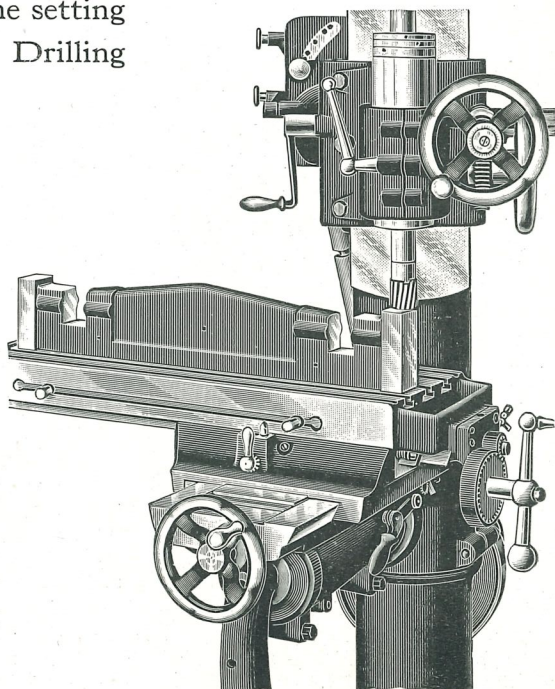


Sectional View of Spindle Bearing

To take up wear, slacken nut A  
and tighten nut B

The cut above shows a casting with **thirteen faces**, any or all of which may be finished at one setting on the Knight Milling & Drilling Machine.

Here is a casting longer than the travel of the table, but it is finished on **both ends** at one setting by swiveling the knee about the column. The transverse cuts through casting are also finished at this setting.





# Specifications

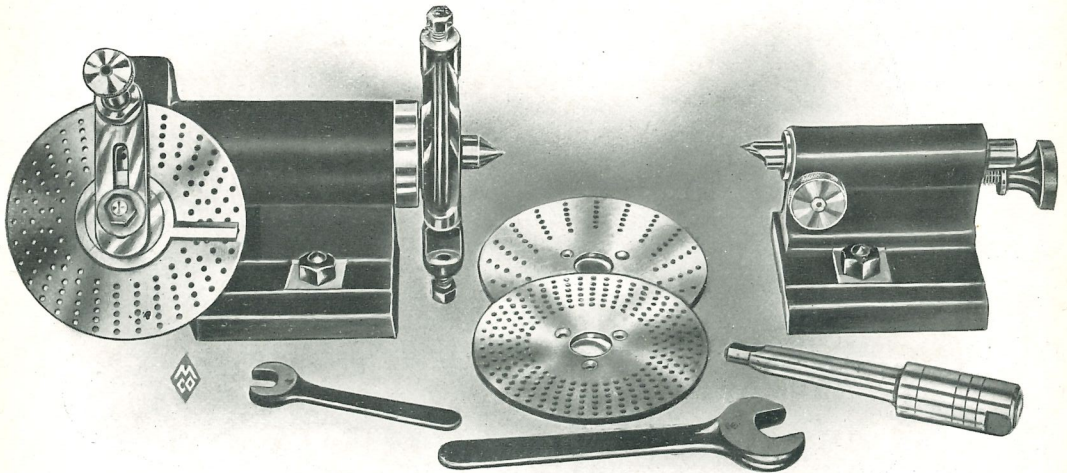
## No. 2 Knight Milling and Drilling Machine.

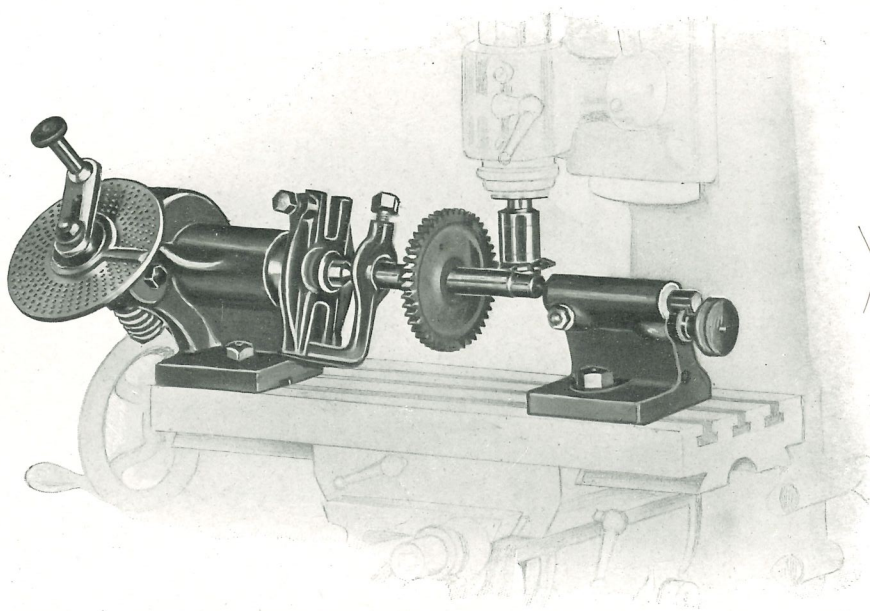
Spindle speed changes.....	8
Vertical movement of spindle.....	4 $\frac{1}{2}$ "
Vertical adjustment of spindle head.....	12"
From column to center of spindle.....	9"
Working surface of table.....	8 $\frac{1}{2}$ x29"
Longitudinal movement of table.....	20"
Transverse movement of table.....	8"
Maximum distance from table to spindle.....	18"
Hole in end of spindle, Brown & Sharpe taper ..	No. 10
Power feed (8 changes), range.....	.008 to .060"
Vise—	
Length of jaws.....	7"
Depth of jaws.....	1 $\frac{3}{4}$ "
Jaws open.....	5"
Countershaft—	
Diameter . . . . .	1 $\frac{7}{16}$ "
2 clutch pulleys.....	4x12"
Driving pulley.....	4x14"
Hangers . . . . .	10"
Revolutions per minute.....	200
Floor space.....	60x68"
Weight net, about.....	2200 lbs.
Weight, crated with countershaft, about.....	2500 lbs.

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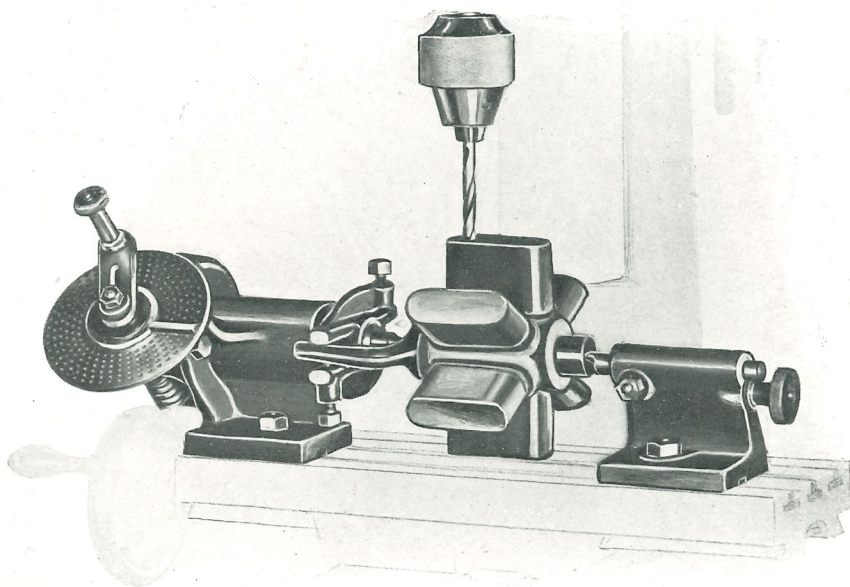
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# Index Centers for the Knight Milling and Drilling Machine



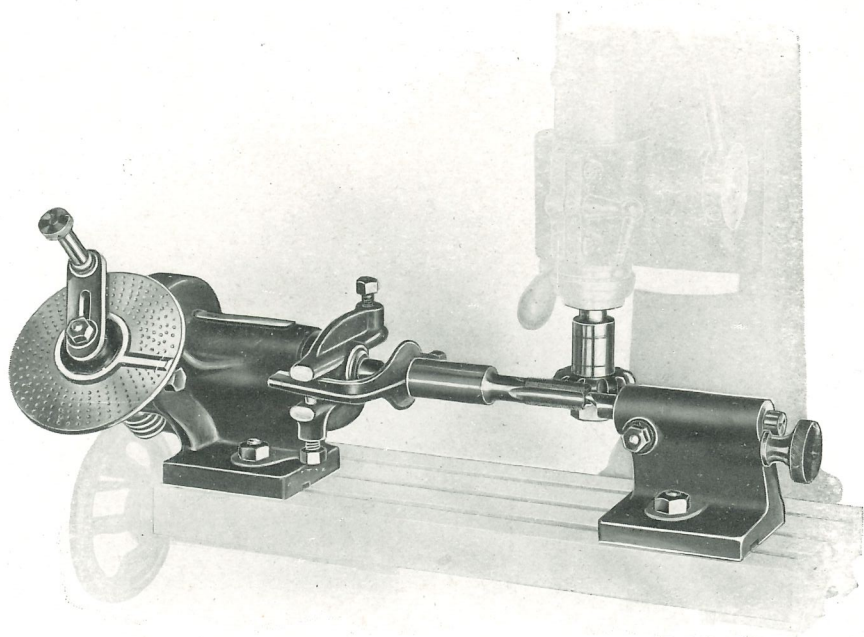


No. 1. Cutting Spur Gear

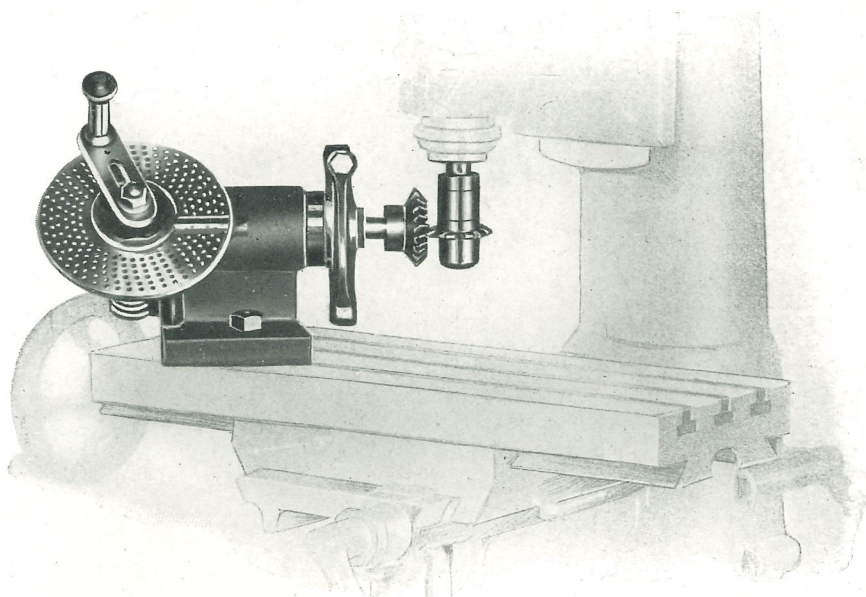


No. 2. Drilling Holes Accurately in Sprocket





No. 3. Fluting Tap



No. 4. Cutting Bevel Gear

## Knight Index Centers

These centers are especially designed to be used on our Milling and Drilling Machines, and are made in two sizes, Nos. 1 and 1½.

They are accurately made and a great variety of work can be done with them, such as cutting all standard gears within their swing, fluting taps and reamers, milling squares, hexagons and semi-circles where there are projections preventing the work from being turned, and for laying off work.

EQUIPMENT of centers, as shown in cut on first page.

### DIMENSIONS

	No. 1	No. 1½
The Centers swing .....	6¼ inches	10½ inches
Cutter Arbors B. & S. Taper.....	No. 7	No. 9
Weight of Centers complete.....	25 pounds	42 pounds
Weight, when boxed.....	30 pounds	48 pounds

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