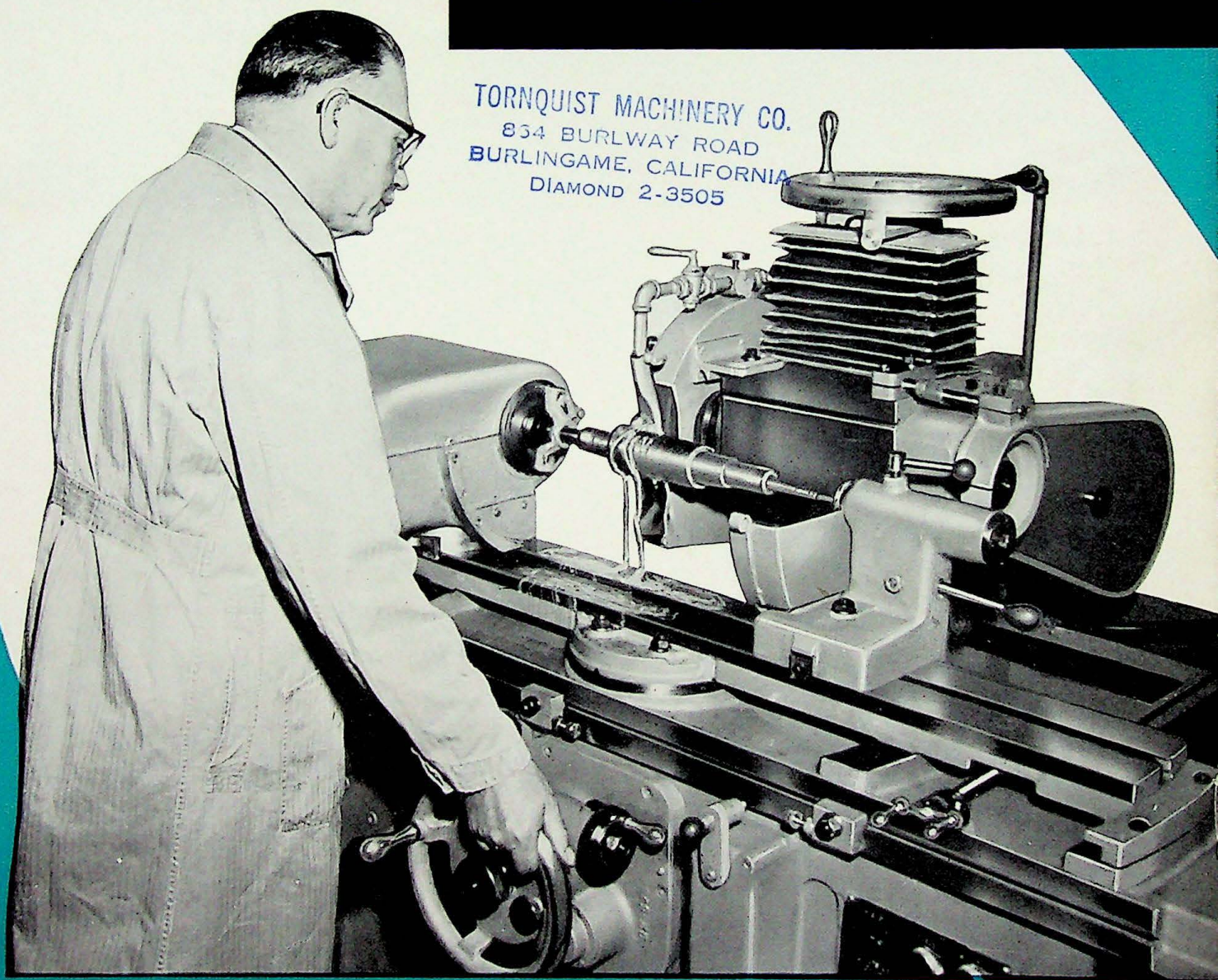


**No. 32**

**COVEL**

TORNQUIST MACHINERY CO.  
834 BURLWAY ROAD  
BURLINGAME, CALIFORNIA  
DIAMOND 2-3505



**UNIVERSAL AND  
TOOL GRINDER...**



# **COVEL**

## **No. 32**

### ***A Universal Grinder in Every Sense,***

Covel No. 32 Universal and Tool Grinder sets a new standard of adaptability with precision. No. 32 is the result of painstaking research and engineering, critical testing and checking. Production and tool men will readily recognize the outstanding advantages which the Covel No. 32 Universal and Tool Grinder offers.

**... a large capacity  
machine for**

**EXTERNAL,  
INTERNAL  
and  
CIRCULAR  
FORM TOOL  
GRINDING**

#### **EXTERNAL GRINDING**

Set-up for wet dead center cylindrical grinding of a shaft, using infinitely variable speed motor-driven headstock. Front splash guards have been removed to show details. Set-ups like this are quick and easy to make on the Covel No. 32.

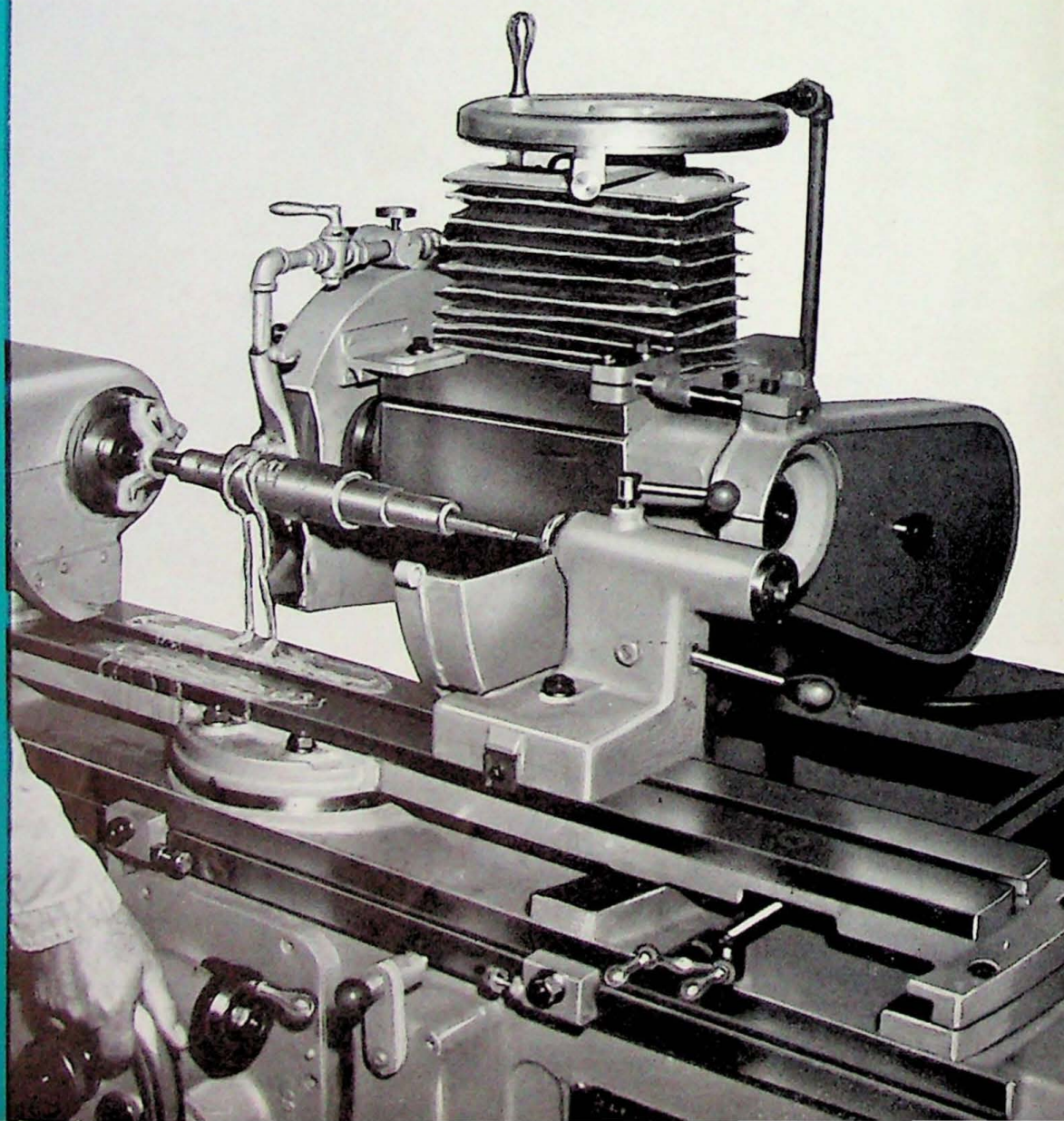


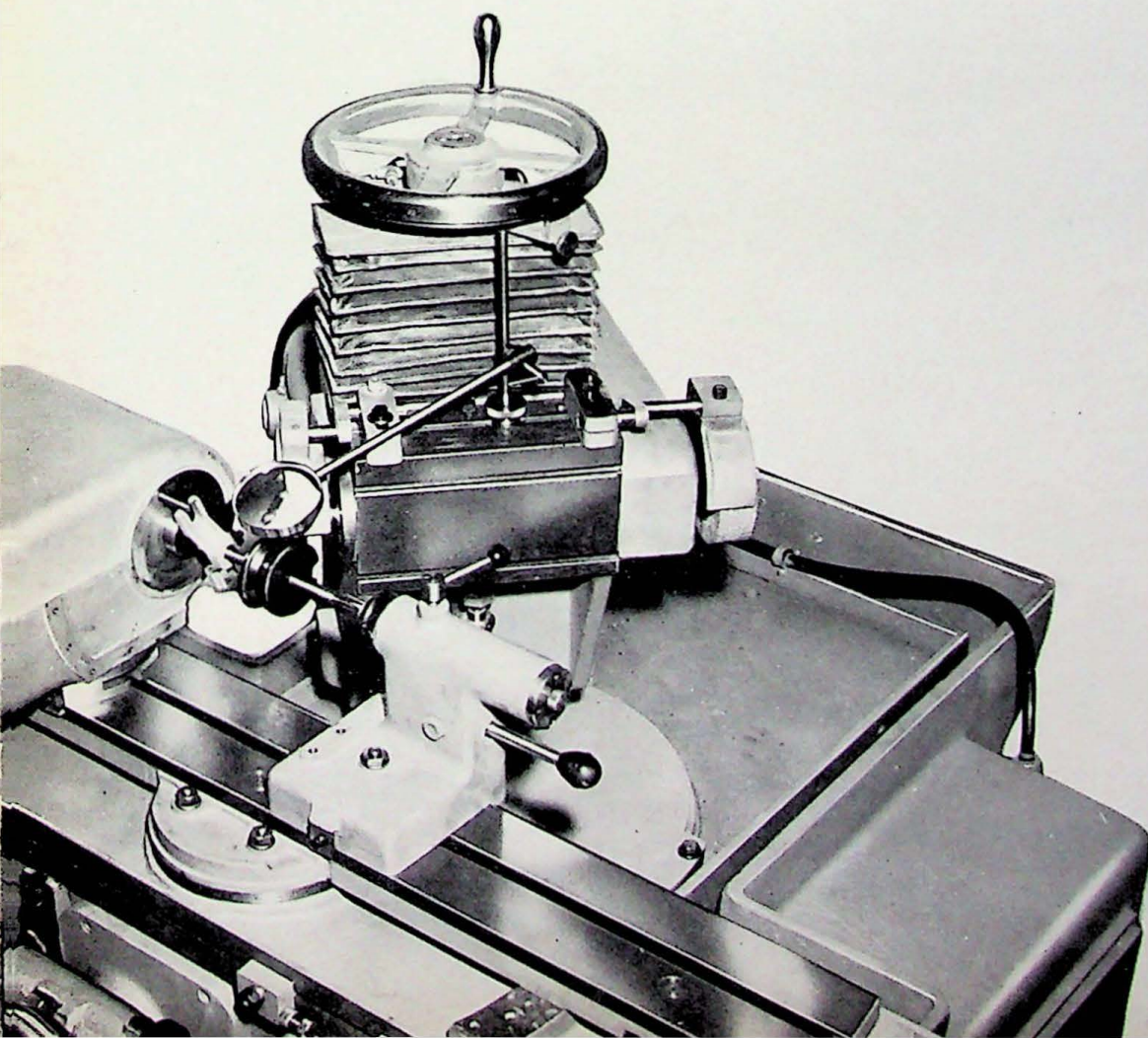
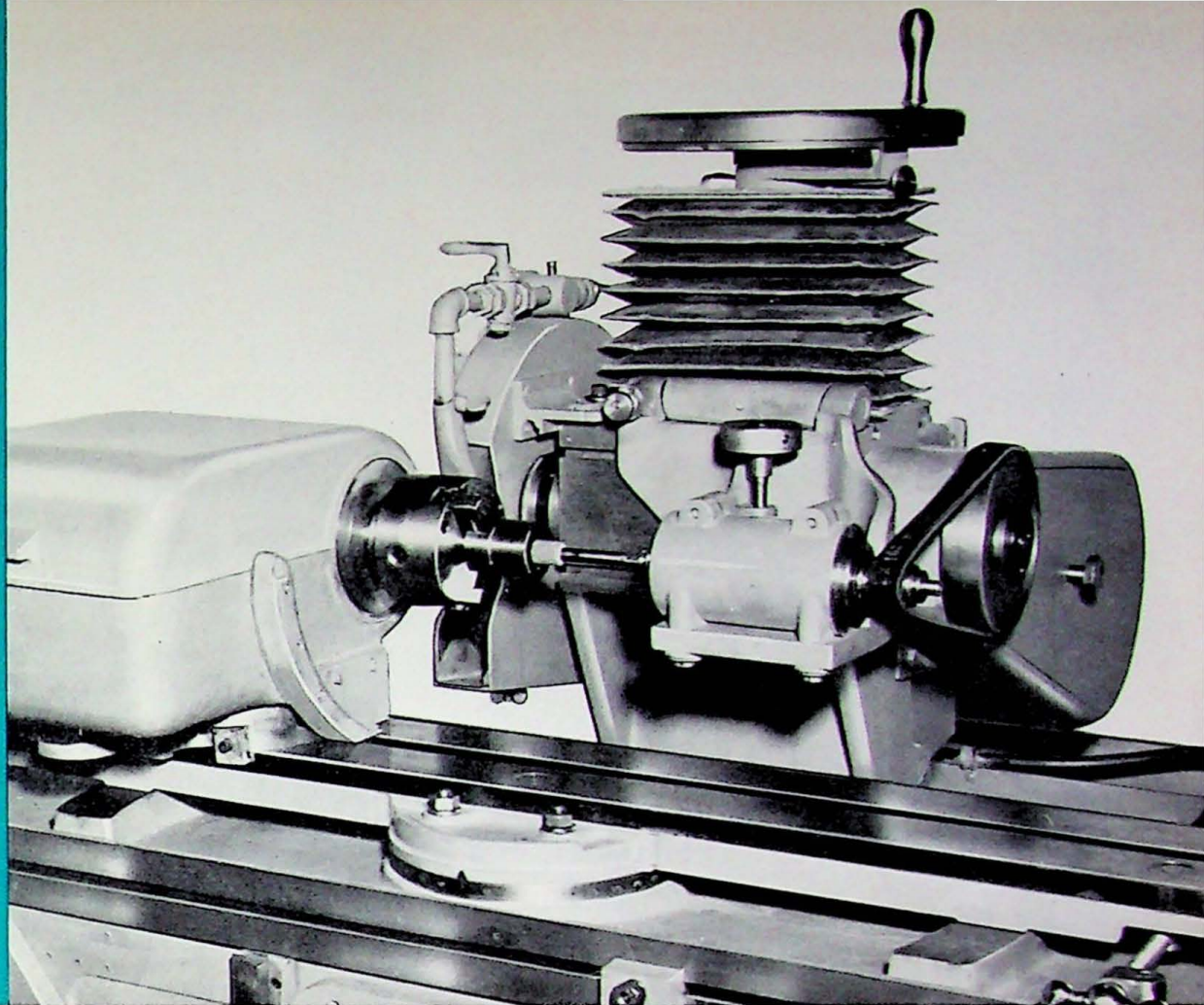
Figure 1



## INTERNAL GRINDING

The No. 32 set-up for internal grinding. Workpiece is held by chuck on motor-driven headstock which can be swiveled for grinding tapered holes. Quill type precision high speed spindle is driven by flat belt from main spindle. Hinge mounting allows attachment to be swung up out of the way. The work may then be internal and external ground in one chucking.

Figure 2



## CIRCULAR FORM GRINDING

The No. 32 excels in producing angular and radial forms on circular form tools. The head swivels  $110^\circ$  each way, precise settings being assured by an easily read vernier scale. Cross travel has fine feed graduated in .0001" and direct reading dial indicator. Longitudinal feed has gage block trough and dial indicator. Magnifying glass has adjustable mounting.

Figure 3



**CLEAN-CUT DESIGN  
RUGGED CONSTRUCTION  
EASY PRECISION CONTROL  
READY ACCESSIBILITY**

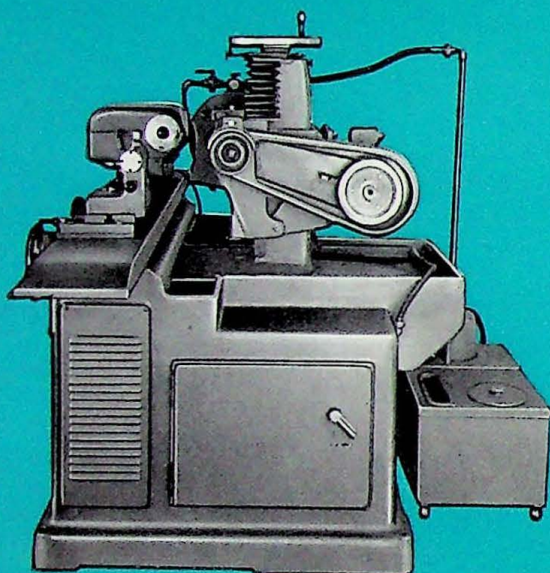


Figure 4

Right side view of No. 32 arranged for wet grinding, with guard removed to show detail of spindle drive. Shown are pipe, integral coolant trough and tank.

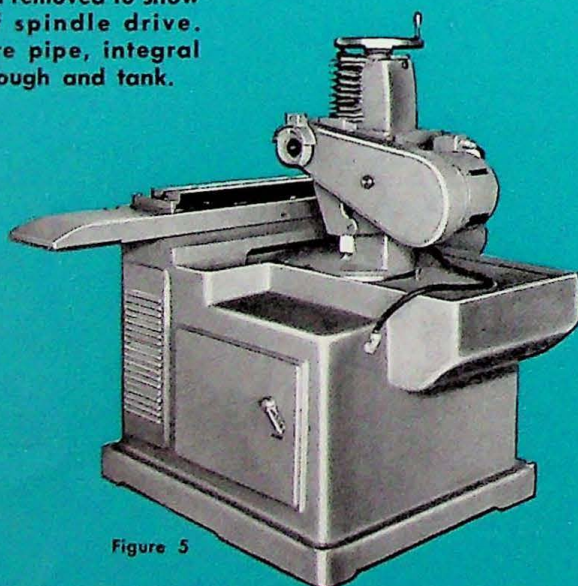


Figure 5

Three-quarter rear view illustrates the smooth, clean, functional lines of the No. 32 and its rugged construction. Infinitely variable power feed to table is readily accessible through door.

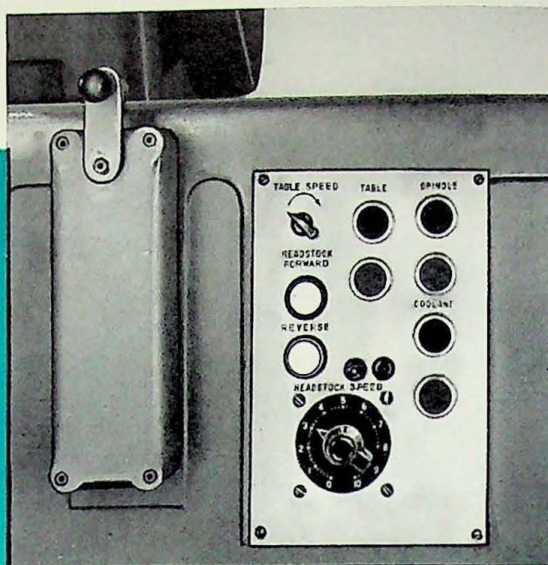


Figure 6

Carefully arranged push-button panel actuates the No. 32's electronic controls.

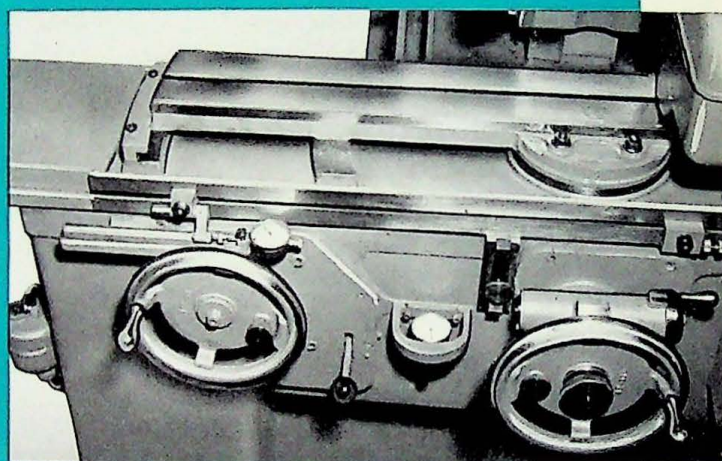


Figure 7

View of front shows table control for "bumping" where operator desires to move table just a slight amount at a time. Table indicator is available at extra cost.



Figure 8

Compact, completely enclosed motorized headstock has infinitely variable speed, electronically controlled.



# COVEL

## No. 32

### FEATURES...

2-speed longitudinal table travel with "bumping" control

One-shot lubricator

Three-position Table Clutch:  
1. Table feed and headstock running together.  
2. Headstock running alone.  
3. Neutral.

Retractable positive table stop

Fine cross feed

Power feed reverse lever

Elevating hand wheel

Spindle lock

Vertical slide dust protector

Table end clamp

Fine-screw adjustable table dogs

Control compartment

Control panel



## STANDARD ATTACHMENTS

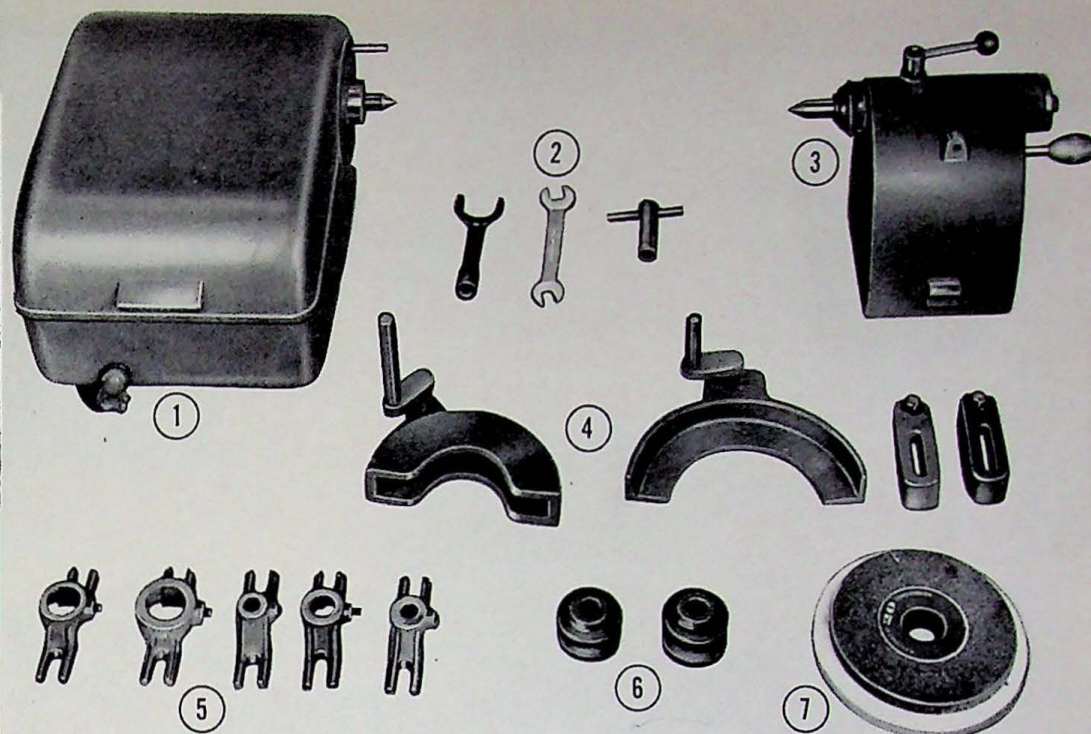


Figure 10 — Code Word Twaot

**No. 1.** Motor Drive Headstock. Swivels 180° each way. 1/6 HP motor drives quill type spindle through timing belts. High speed range 50 to 400 RPM, low speed range 0 to 120 RPM. Spindle Taper #12 B. & S. Spindle rotation is reversible by push-button control. Live and dead centers.

**No. 2.** Wrenches.

**No. 3.** Right Hand Tailstock has lever-operated

removable center. Boot protects against entry of dirt. Center has No. 6 Jarno taper.

**No. 4.** Wheel Guards with mounting brackets.

**No. 5.** Five Driving Dogs, capacity 1/4" to 1 1/2".

**No. 6.** Two Grinding Wheel Collets to fit wheels with 1 1/4" hole.

**No. 7.** Grinding Wheels. One 7" x 1/2" x 1 1/4", one 6" x 1/2" x 1 1/4".

## UNIVERSAL ATTACHMENTS

### SPINDLE EXTENSIONS (Figure 11)

Used where spindle is not long enough to reach work or to accommodate grinding wheels with 1/2" hole. One end fits tapered end of main spindle. Same collet or grinding wheel fits other end. Two are regularly furnished. One with tapered end 4" long, one with straight end 1/2" diameter, 2" long. Other lengths available. Single end wrench furnished with each pair. Net weight, each 2 lbs.

### STYLE "G" TILTING SWIVEL VISE (Figure 12)

Removable hardened steel jaws. Has both swivel base 360° and tilting 90° arrangement graduated for accurate adjustment. Capacity, 2 3/8"; with jaws removed, 3 1/8". Jaws (hardened steel) 4 1/4" long by 1 1/8" high. Height, 5 3/8".

### CHUCK (Figure 13)

4" or 6" three-jaw universal or 4-jaw independent chuck with inside and outside jaws mounted on adapter to fit spindle of headstock.

### INTERNAL GRINDING (Figure 14)

Quill type internal grinding ball bearing spindle is driven by pulley and flat belt from main spindle. Hinged mounting allows the attachment to be swung up out of the way so that cylindrical or other grinding may be done without removing the attachment from the machine. Grinding wheel is mounted on a removable spindle extension that fits taper hole in spindle. One extension regularly furnished. Minimum diameter hole, 9/16". Maximum length, 2".

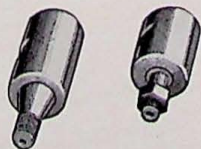


Figure 11 — Code Word Nigdt

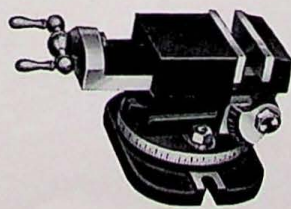


Figure 12 — Code Word Night

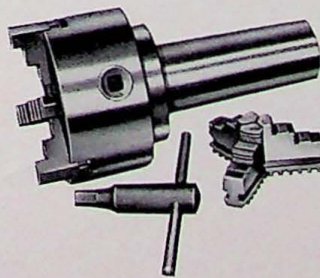


Figure 13 — Code Word Niget

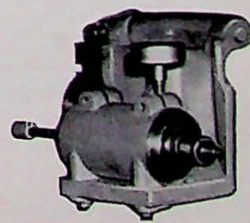


Figure 14 — Code Word Twaot



# CUTTER AND TOOL GRINDING ATTACHMENTS

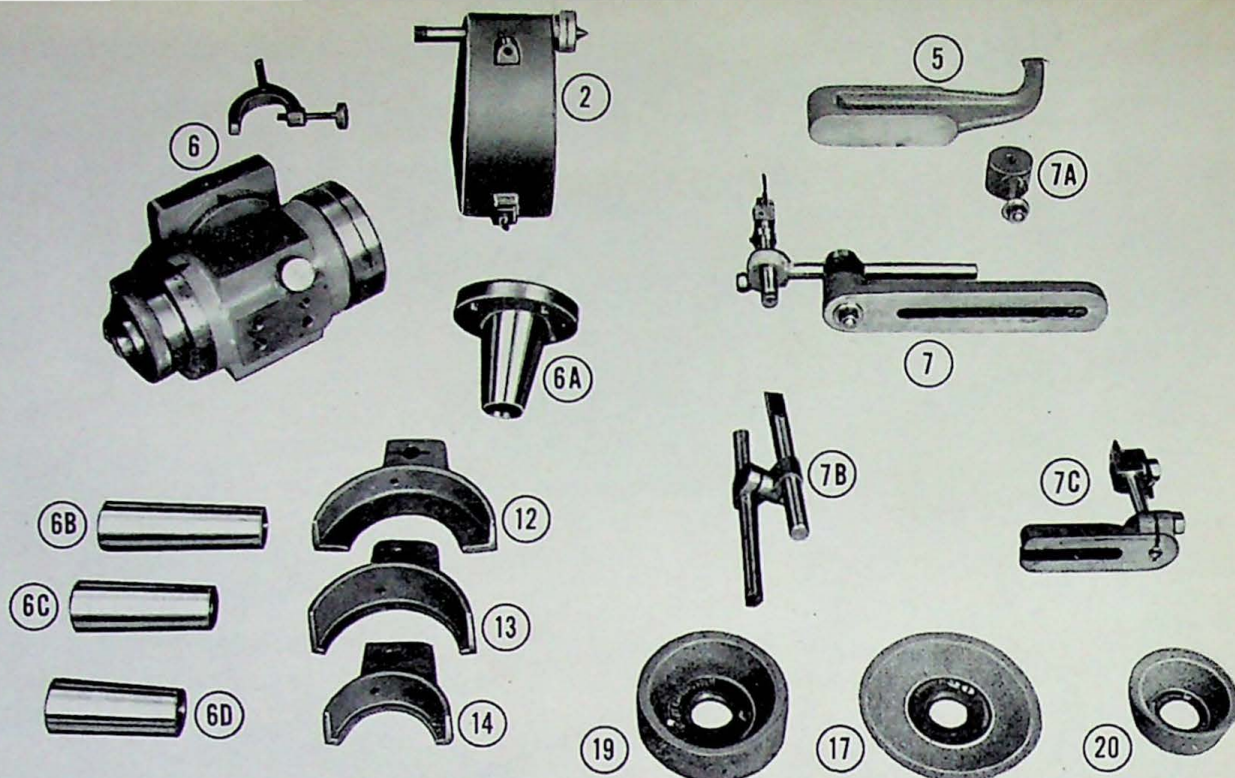


Figure 15 — Code Word Twobt

**No. 2** — L. H. Tailstock with clearance setting dial.

**No. 5** — Center gage locates spindle in line with headstock and tailstock centers. Net weight, 12 lbs.

**No. 6** — Universal Face Mill Grinding Attachment (work head). Swivels 360° vertically or horizontally. Spindle housing can be used on either side of upright stand. Anti-friction spindle (without end play) takes No. 50 National Standard on one end and No. 12 B. & S. taper on the other. Furnished with collets to reduce No. 50 N. S. to No. 12 B. & S. (item 6-A), No. 12 to No. 10 B. & S. (item 6-B), No. 12 to No. 9 B. & S. (item 6-C) and No. 12 to No. 7 B. & S. (item 6-D). Has ample provision to fasten lip rests to spindle housing or upright. Has spindle lock and complete clearance setting dial. Net weight, 86 lbs.

**No. 7** — Universal Tooth Rest with micrometer adjustment, furnished with angular knuckle (item 7-A), straight tooth rest (item 7-B), plain tooth rest (and diamond holder) with

offset blade and short bracket (item 7-C), net weight, 11 lbs. per set.

**No. 12** — Adjustable grinding wheel guard, with bracket, to mount on left side. Net weight, 5 lbs.

**No. 13** — Adjustable grinding wheel guard, with bracket, to mount on right side. Net weight, 4 lbs.

**No. 14** — Adjustable guard for cup grinding wheel. Net weight, 3 lbs.

**No. 17** — (1) 6" dia. x 3/4" face dish wheel. Net weight, 3/4 lb.

**No. 19** — (1) 5" dia. x 1 1/2" face cup wheel. Net weight, 1 1/2 lbs.

**No. 20** — (1) 3 1/2" dia. x 1 1/4" face flaring cup wheel. Net weight, 1/2 lb.



# SPECIAL ATTACHMENTS

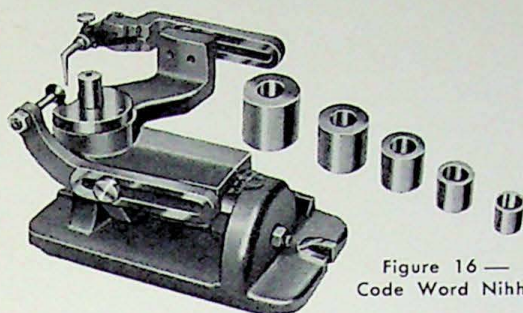


Figure 16 —  
Code Word Nihft

## GEAR CUTTER GRINDING

Used for sharpening or grinding straight or staggered tooth gear and similar cutters with straight or angle face. A gage is furnished to line up the face of cutter to the grinding wheel in relation to the hole in cutter. An adjustable spring tooth rest is provided for accurate indexing. Adjustable for right or left hand face cutters up to 20°.

Capacity, cutters up to 10" diameter with holes 7/8", 1", 1 1/4", 1 1/2", 1 3/4" and 2"—from 36 to 1 diametral pitch. Size of base, 6 1/4" x 11 1/2". Height from base to working surface, 5 3/4". Net weight, 49 lbs.

Figure 17 — Code Word Twopt

## STEADY REST

Standard design with top half hinged on one side. Shoes adjusted by knurled screws and securely locked in place. Height from center to base, 6". Capacity, 2 1/4" dia. Net weight, 11 1/2 lbs.

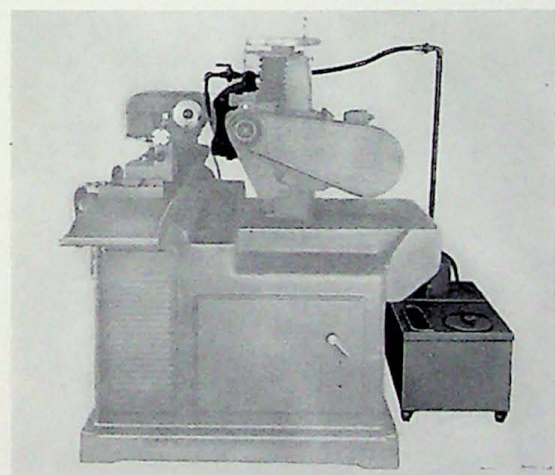
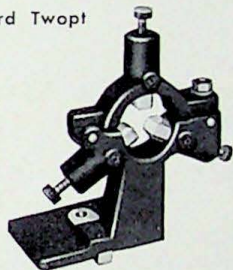


Figure 18 — Code Word Twowg

## WET CYLINDRICAL ATTACHMENT

Includes 12" x 1" x 3" grinding wheel with adapter, wet wheel guard, splash guards, coolant pump with motor, all connecting hoses, valve and nozzle.

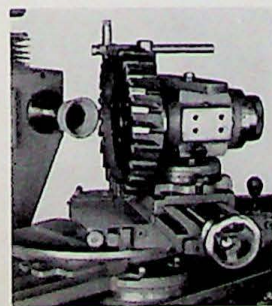


Figure 19 —  
Code Word Nigyt

## LARGE RADIUS GRINDING ATTACHMENT

For grinding radii 0" to 2" on face mill cutters 2" to 14" dia. Top part is face mill attachment (Fig. 15, Item No. 6).



Figure 20 — Code Word Nihft

## SMALL END MILL GRINDING ATTACHMENT

This attachment is used for grinding small end milling cutters (and similar tools) with a No. 7, or smaller, Brown & Sharpe taper shank. The end mill which is being ground is held in a long, round, 1" diameter bar. The bar slides very easily and smoothly in a hardened adjustable split collet. The collet is in turn held in the spindle of a medium size Face Mill Grinding Attachment (item 6, Fig. 15). Feeding, as well as indexing, is accomplished by moving the bar, which operates freely. It is thus unnecessary to move the heavy carriage of the machine. Overall length, 14". Net weight, 10 lbs.



Figure 21 —  
Code Word Nigmat

## FACE PLATE WITH EXTENSION COLLET

Mounted on No. 9 Brown & Sharpe taper shank and used to hold small cutters (such as Fellow gear cutters) when grinding on face. Cutter is mounted against face plate and screw driver is used to expand center split bushing to hold cutter tight. Dia. face plate, 6". A 1" diameter center split bushing regularly furnished. Other sizes can be furnished at extra cost. Net weight, 5 lbs.

Figure 22 — Code Word Twomg

## MAGNIFYING GLASS

Attached to head by adjustable arm. Provides operator with enlarged close-up of the work.

Figure 23 — Code Word Twoid

## TABLE DIAL INDICATOR

For making accurate longitudinal adjustments of the table. Indicator graduated in .0005" with .400" travel, easy to read at a glance. Gage trough 8" long is furnished.

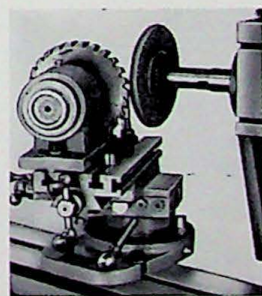


Figure 24 —  
Code Word Nihat

## STANDARD RADIUS GRINDING ATTACHMENT

For grinding a radius, bevel or combination of these on milling cutters, form tools, etc. Consists of two micrometer adjustable cross slides and 360° pivot. Height from base to top of table 6". Top slide 4 5/8" wide x 12" long and moves 6". Has three 1/8" slots. Cross slide moves 4". Spindle of top part has No. 12 B. & S. taper hole 3 1/4" high center of spindle. Diamond bracket (without diamond) mounted on table used to form dress grinding wheel. For a starting point to generate a radius, the "0" lines are lined up (top one goes clear across top table) and center "T" slot is located in center of pivot. Two stops regulate amount of swing. Equipment—Standard attachment with top part, diamond holding bracket (without diamond) and lip rest. Net weight, complete, 60 lbs.

Figure 25 — Code Word Twod

## DUST COLLECTOR

Cabinet style. Includes 1/2 HP, 3450 RPM or 2850 RPM magnetic motor control, with filters, flexible steel tube and nozzle. Net weight, 300 lbs., crated, 380 lbs., boxed for export, 500 lbs., 40 cu. feet boxed.

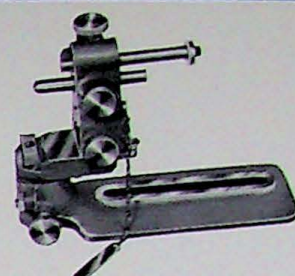
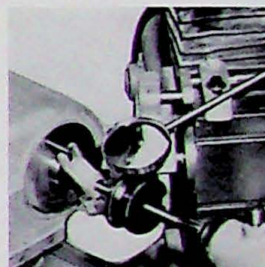


Figure 26 — Code Word Nihit

## RADIUS GRINDING WHEEL DRESSER

Dresses grinding wheel with predetermined concave or convex radius from 0 to 3/4". Diamond nib is mounted in holder which is set by gage block inserted in rear of setting gage. For concave radius diamond nib set in upper hole and set by setting gage. For convex radius a special diamond nib (size to suit radius) is mounted in the lower block and set by setting gage. Furnished standard for concave radius with diamond nib. Furnished for convex radius at extra cost (please specify radius to be dressed so proper diamond nib can be furnished). Height from base to diamond, 5 5/8". Size of base, 3 1/2" x 7 1/2". Net weight, 12 lbs.





## SPECIFICATIONS

Maximum distance between right and left hand tailstocks .....	33 $\frac{1}{2}$ "
Maximum distance between headstock and right hand tailstock .....	30"
Maximum swing over table .....	12 $\frac{1}{8}$ "
Longitudinal travel of table .....	28"
Cross movement of saddle .....	10 $\frac{5}{8}$ "
Vertical distance spindle to top of table:	
Maximum .....	12 $\frac{3}{16}$ "
Minimum .....	31 $\frac{1}{4}$ "
Table Surface .....	51 $\frac{1}{2}$ " x 48"
Table T-slot .....	$\frac{9}{16}$ "
Back edge of table to center of T-slot .....	23 $\frac{3}{4}$ "
Height from table to floor .....	37 $\frac{3}{4}$ "
Distance in line of cross travel from head and tailstock centers to center of grinding spindle:	
Maximum .....	12 $\frac{3}{4}$ "
Minimum .....	17 $\frac{7}{8}$ "
Headstock: Swivels each way .....	180°
Taper in spindle .....	#12 Brown & Sharpe
Speeds infinitely adjustable in	
2 ranges .....	0 - 120 RPM
	50 - 400 RPM

Right hand handstock, taper in spindle .....No. 6 Jarno

Table feed infinitely variable .....0 - 144 in./min.

Spindle speeds: Standard range 2900; 4200; 6000 RPM  
Cylindrical grinding .....1800 RPM

Grinding wheels: For cylindrical grinding ..12"x1"x3"  
For form tool grinding 6"x1½"x1¼"  
For cutter and tool grinding .....See fig. 15

Motors: Table drive .....1/6 H.P.  
Main spindle drive .....1½ H.P.  
Headstock .....1/6 H.P.  
Wet attachment .....1/4 H.P.

Floor space: At right angle to spindle .....57¾"  
Parallel with spindle .....114"

Weights:

	<i>Net</i>	<i>Crated</i>	<i>Boxed</i>
With standard attachments .....	4350 lbs.	5100 lbs.	6300 lbs.
With standard & tool grinding attachments .....	4500 lbs.	5250 lbs.	6450 lbs.
Extra for wet attachment .....	230 lbs.	320 lbs.	430 lbs.
Dust collector .....	300 lbs.	380 lbs.	500 lbs.

Size, boxed for export .....79"x76"x135"

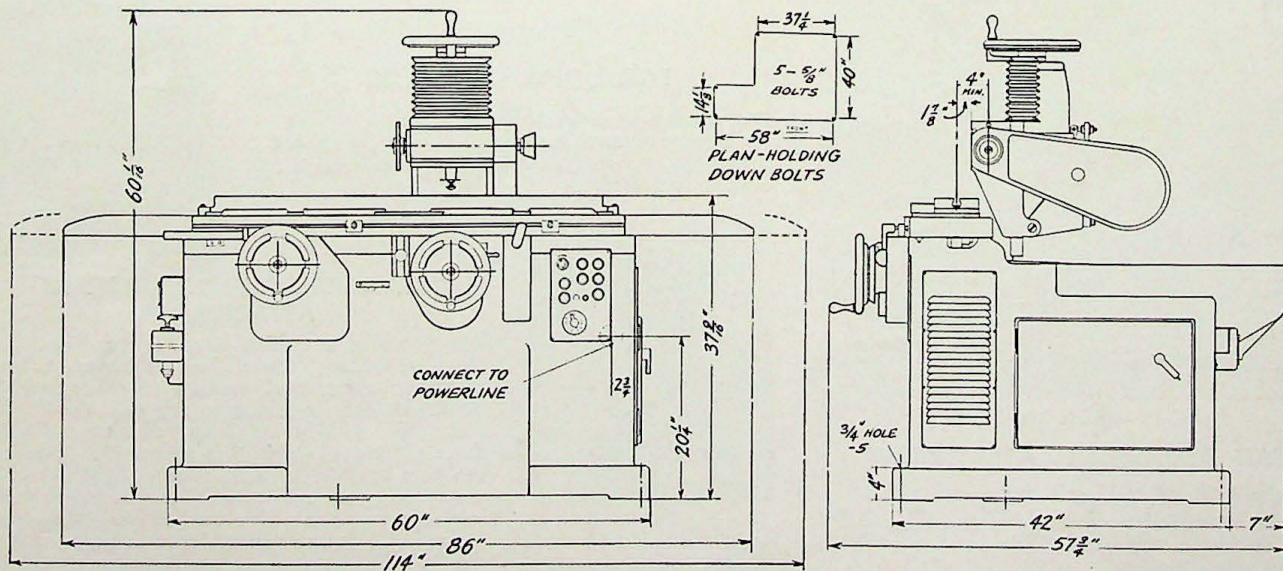


Figure 27

# COVEL MANUFACTURING COMPANY

## Precision Grinding Machinery Since 1874

**BENTON HARBOR, MICHIGAN, U.S.A.**

Printed in U.S.A.