



*Standard*  
**KEY DRIVE TAPER**  
*Spindle Nose*

**FEATURES**

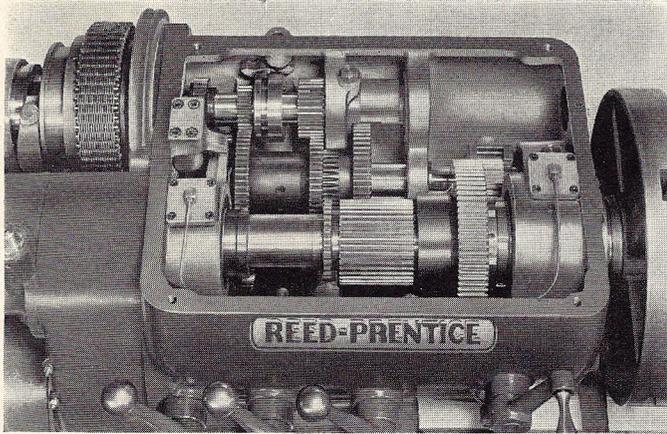
1. Greater Accuracy
2. Longer Life
3. Low Inventory of Chucks
4. Labor Saving
5. Simple Mounting
6. Easy to Clean
7. Less Overhang
8. Utmost Safety

**Model "B"**

***REED-PRENTICE***  
*Precision*  
***14" Toolroom Lathe***

***REED-PRENTICE CORP.***  
WORCESTER  MASS., U.S.A.

Circular B10-315-3



## Headstock

### Speeds

Eight (8) or sixteen (16) spindle speeds obtained through nine (9) or thirteen (13) accurately cut spur gears shaved to a true involute form concentric with pitch line and operated on heat treated multiple spline shafts by three or four levers at front of headstock. Increased or decreased spindle speeds can be obtained by changing overhead drive or motor speeds. Construction suitable for high spindle speeds to 1500 R.P.M. and for use with Tungsten Carbide cutting tools.

### Materials

Gears are chrome molybdenum S.A.E. 4150 electric furnace steel heat treated and hardened to Rockwell C52-55. Initial drive shaft is heat treated high manganese steel, intermediate shaft heat treated nickel chromium steel. Spindle forging S.A.E. 6140 Chrome Vanadium alloy steel heat treated and hardened to Rockwell C36-40; spindle nose hardened to Rockwell C55-58.

### Bearings

Anti-friction bearings used throughout headstock, end works and quick change gear mechanism—illustrated in line drawing.

### Clutch and Brake

A self contained unit with bracket supporting initial shaft on outer end, unit securely bolted to headstock. Clutch and brake control levers mounted on apron and directly under headstock. Clutch is easily adjusted by removing guard on end of initial shaft and adjusting lock and index collar.

### Lubrication

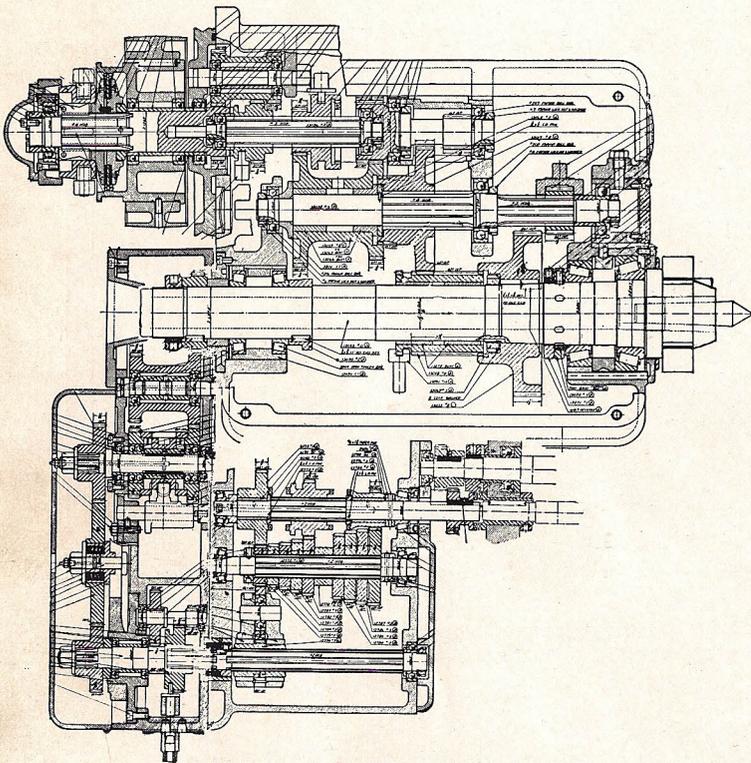
Combined pump and splash system. Oil for spindle bearings automatically pumped through filters. Sight oil level gauge and drain plug provided.

### End Gears

End gears are mounted on anti-friction bearings with Alemite system of lubrication and lower gears run in bath of oil with sight oil level gauge.

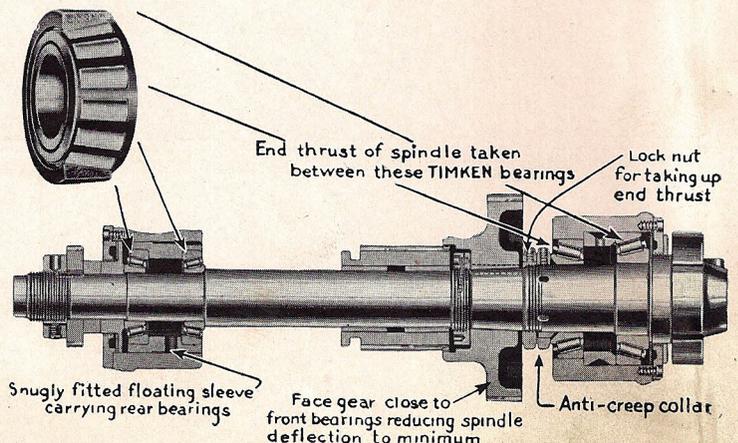
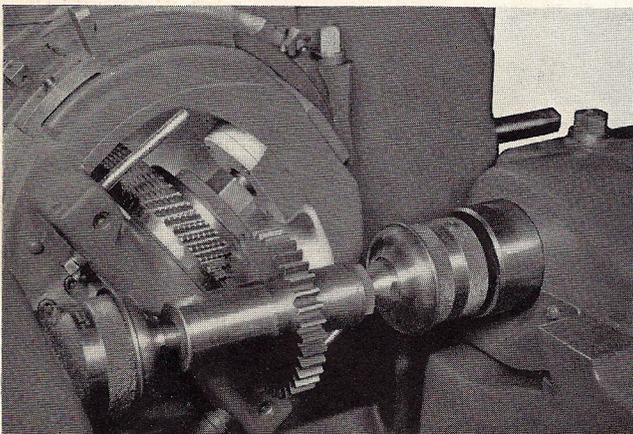
### Spindle Bearings

Spindle bearings are TIMKEN "zero" precision type; four bearing mounting, thrust adjustment taken on two front bearings, rear bearings mounted in floating sleeve to compensate for slight variations in spindle and housing resulting from temperature changes. Phantom drawing below clearly illustrates. Both front and rear bearings mounted in solid housings eliminating cap construction.



## Gear Finishing

Below is shown closeup view of spur gear being shaved on Fellows Gear Finishing Machine.



# SPECIFICATIONS

## 8 Speed Index Plate

<b>SLIDING GEAR HEAD</b>		POSITION OF LEVERS ON HEADSTOCK		BACK GEAR LEVER	
		↘ ↙	↘ ↙	↘ ↙	↘ ↙
DRIVING PULLEY	<b>560 RPM.</b>	↘ ↙	↘ ↙	22	136
SERIAL No.		↘ ↙	↘ ↙	36	212
CONTRACT No.		↘ ↙	↘ ↙	58	342
DATE OF MANUFACTURE		↘ ↙	↘ ↙	91	536
INSPECTION		14331			

## 16 Speed Index Plate

<b>SLIDING GEAR HEAD</b>		POSITION OF LEVERS ON HEADSTOCK		BACK GEAR LEVER	
		↘ ↙	↘ ↙	↘ ↙	↘ ↙
DRIVING PULLEY	<b>560 RPM.</b>	↘ ↙	↘ ↙	18	110
SERIAL No.		↘ ↙	↘ ↙	22	136
CONTRACT No.		↘ ↙	↘ ↙	29	171
DATE OF MANUFACTURE		↘ ↙	↘ ↙	36	212
INSPECTION		↘ ↙	↘ ↙	47	276
INSPECTION		↘ ↙	↘ ↙	58	342
INSPECTION		↘ ↙	↘ ↙	73	432
INSPECTION		↘ ↙	↘ ↙	91	536
INSPECTION		13605			

# THE NEW REED-PRENTICE 14" Model "B" Lathe

THREADS PER INCH									
IN THOUSANDTHS					END LEVER				
48	52	56	64	72	80	48	32	96	1
24	26	28	32	36	40	44	46	48	2
12	13	14	16	18	20	22	23	24	3
6	6½	7	8	9	10	11	11½	12	4
3	3½	3¾	4	4½	5	5½	5¾	6	5
1½	1½	1¾	2	2¼	2½	2¾	2¾	3	6
5	4½	4¾	3¾	3½	3	2¾	2¾	2½	1
10	9	8½	7½	7¼	6	5½	5½	5	2
20	18	17	15	14½	12	11	10½	10	1
40	37	34	30	29	24	22	20¾	20	1
80	74	68	60	56	48	44	41½	40	2
160	148	137	120	116	96	87	83	80	2

Thread and feed index plate

### Range:

- Swing over bed ways ..... 16½"
- Swing over carriage bridge with cover ..... 10¾"
- Swing over carriage bridge with taper attachment 9½"
- Distance between centers, tailstock flush end of bed ..... 30"
- Distance between centers, tailstock overhung .... 33"
- Steady rest, capacity ..... ½"-4¾"
- Tool post takes tool ..... ⅝" x 1¼"
- Collet capacity, lever operated spindle nose type 1¼"

### Taper Attachment:

- Turns tapers per foot ..... 3½"
- Turns tapers, length ..... 18"

### Headstock:

- Number of spindle speeds ..... 8 or 16
- Range of spindle speeds, R.P.M. } 16 ..... 18-536\*
- } 8 ..... 22-536\*

\*Adapted for high spindle speeds 1500 R.P.M. max.

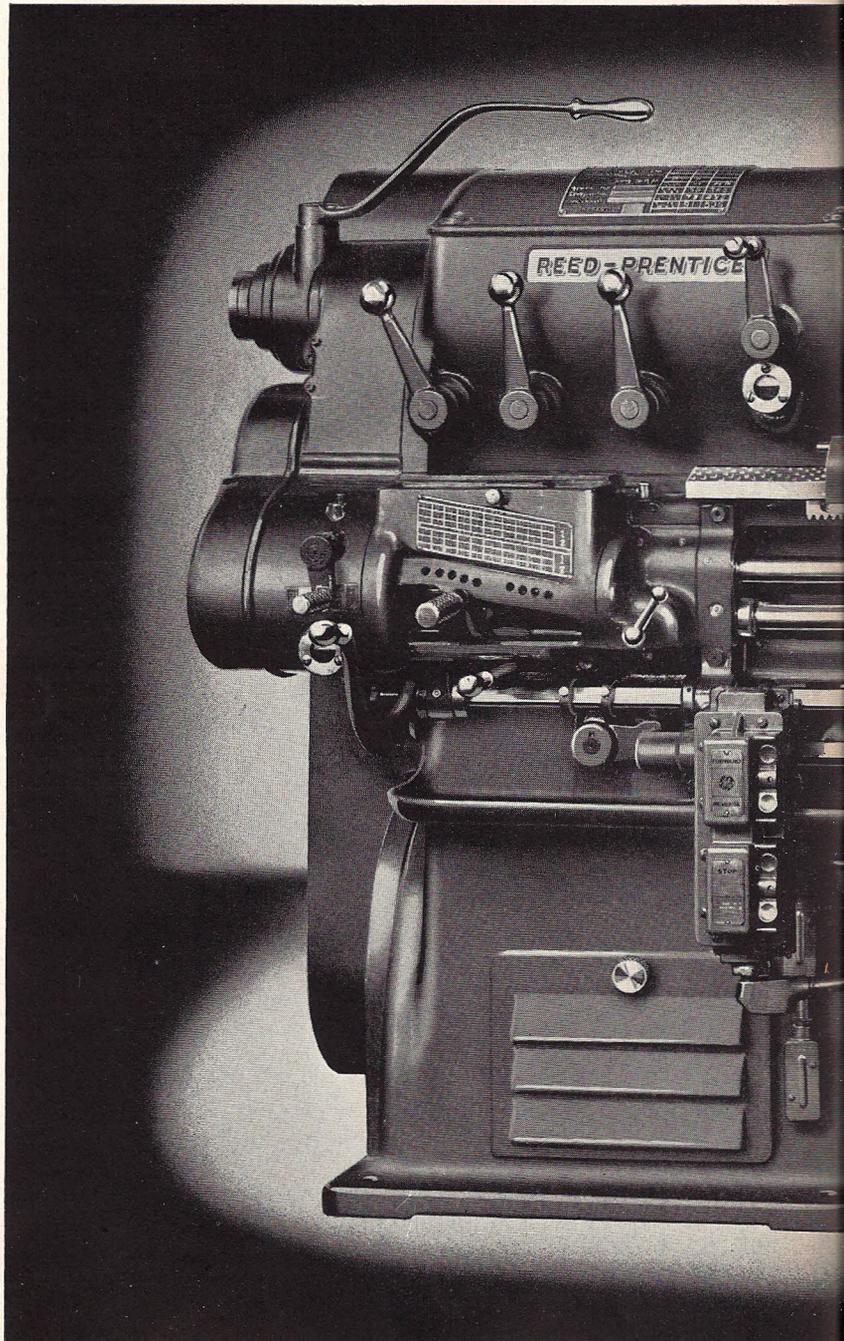
- Headstock base length .....
- Hole through spindle .....
- Taper hole in spindle, with ad .....
- Driving pulley, diameter .....
- Driving pulley speed, R.P.M. ...
- Spindle bearings, precision Tim ..
- Diameter spindle in front bearin ..
- Diameter spindle in rear bearing ..
- Spindle nose ..... Stand

### Tailstock:

- Tailstock base, length .....
- Tailstock spindle, diameter ...
- Tailstock traverse and set-over ..
- Tailstock taper hole, Morse tap ..

### Carriage and Bed:

- Carriage length and bearing on ..
- Carriage bridge, width .....
- Carriage compound rest travel ..
- Cross feed screw diameter and ..



..... 22 $\frac{3}{4}$ "  
 ..... 1 $\frac{1}{8}$ "  
 pter, Morse taper #4  
 ..... 10"  
 ..... 560  
 en ..... 4  
 gs ..... 3 $\frac{1}{2}$ "  
 s ..... 2 $\frac{1}{4}$ "  
 ard Key Drive Taper

..... 11 $\frac{1}{2}$ "  
 ..... 2 $\frac{3}{8}$ "  
 ..... 7"- $\frac{1}{2}$ "  
 r ..... #4

ways of bed .. 25 $\frac{1}{2}$ "  
 ..... 8"  
 ..... 4"  
 reads per inch  $\frac{3}{4}$ "-5

Bed width over ways ..... 15"  
 Bed depth over vees ..... 10 $\frac{5}{8}$ "

**Quick Change Gear Mechanism:**

Number of thread and feed changes ..... 49  
 Range of threads per inch including 11 $\frac{1}{2}$  ..... 1 $\frac{1}{2}$ -96  
 Range of feeds in thousandths per revolution 2 $\frac{1}{2}$ -160  
 Diameter of leadscrew and threads per inch 1 $\frac{7}{8}$ "-4  
 Diameter of feed rod ..... 1 $\frac{3}{8}$ "

**Motor Recommended:**

Horsepower and speed of motors ..... 3-5-7 $\frac{1}{2}$ -1200  
 (For high spindle speeds motors of 1800  
 R.P.M. should be used)  
 (Motor drives can be either flat belt, multiple vee belt or silent chain)

**Floor Space:**

Base length 6' x width x height, without taper  
 ..... 92"x44"x55"  
 Base length 6' x width x height, with taper  
 ..... 92"x46"x55"

**Weights:**

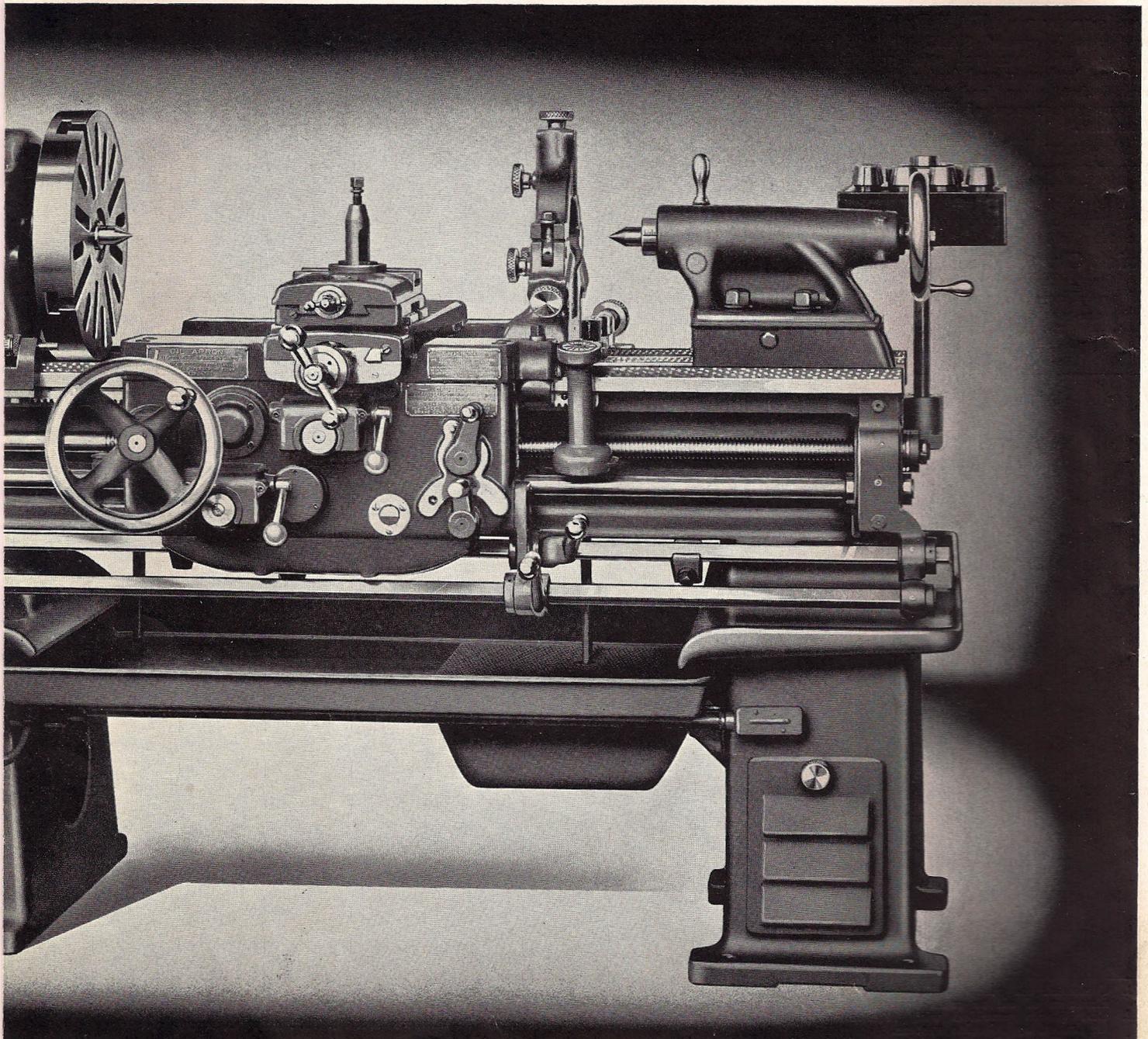
Net weight, standard equipment and motor drive  
 without electrical equipment ..... 3800 lbs.  
 Net weight, each two ft. bed additional ..... 360 lbs.

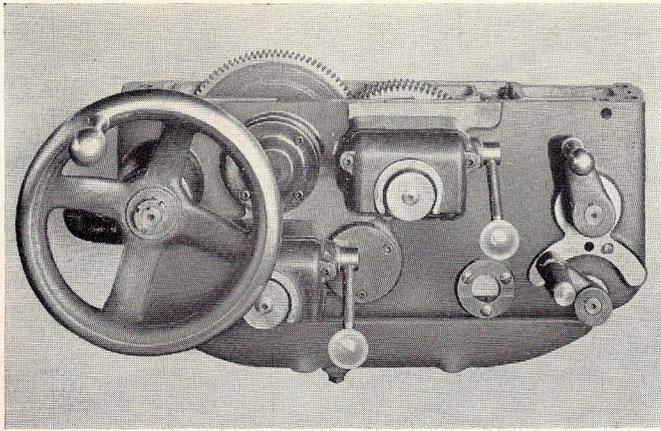
**Standard Equipment:**

Includes leadscrew reverse mechanism, large and small face plates, compound rest with steel top block and tool post, steady rest (casting heat-treated aluminum), micrometer chasing stop, cabinet leg tailstock end, oil pan, No. 4 Morse sleeve for headstock, thread chasing dial, centers, wrenches and motor drive arrangement without electrical equipment. All handles, handwheels and knobs chromium plated and polished. Two plastic knobs on apron handles.

**Extra Equipment:**

Attachments such as oil pump and piping, follow rest (casting heat-treated aluminum), taper attachment, collet attachment and collets, chuck plates, etc., can be supplied.





### Apron

One piece box construction, double bearing type. All gearing S.A.E. 1045 steel. Quick acting independent levers operate cross and longitudinal feeds. Clutch adjustment made by removing



### Lead screw and Feed Rod

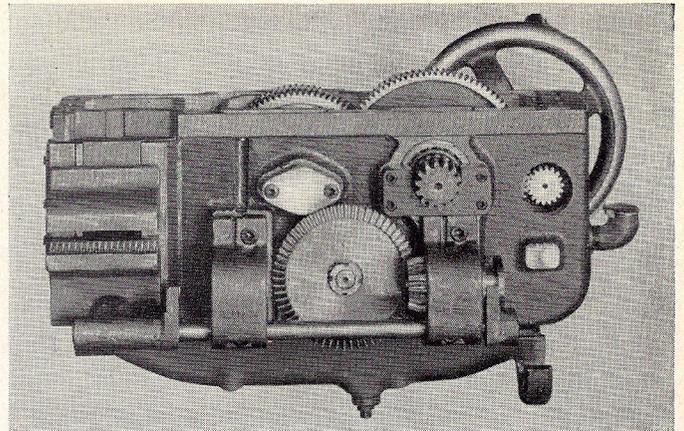
Lead screw is ground S.A.E. 1040 steel mounted in radial ball bearings, with hardened steel and bronze washers for thrust. Separate lead screw and feed rod construction, lead screw does not rotate when using feed rod, and vice versa. Safety interlock prevents engagement of both feed rod and the lead screw at the same time.

### Lead screw Reverse Mechanism

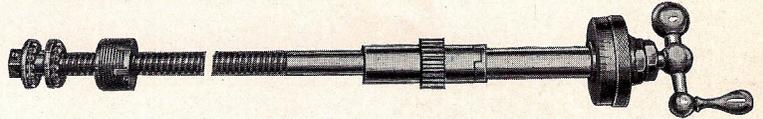
Reverse to carriage is furnished for either feeding or threading without reversing the direction of rotation of lathe spindle. Reverse lever is located at right hand side of apron and adjustable stops provide for automatically stopping carriage for feeding or threading in either direction at any predetermined point.

### Quick Change Gear Mechanism

A self contained unit rigidly bolted and dowelled to front of bed and providing 49 changes of feeds and threads, see index plate. Gears are steel accurately cut with shafts mounted on anti-friction bearings. Reservoir with "one shot" system for sliding yoke provides lubrication for all bearings.



guard and adjusting nuts on end of clutch shaft. Interlocking mechanism prevents engaging feeds and threads at the same time. Rack pinion S.A.E. 3250 hardened steel. All bearings in apron anti-friction construction. Gears and bearings automatically oiled—see illustration below.



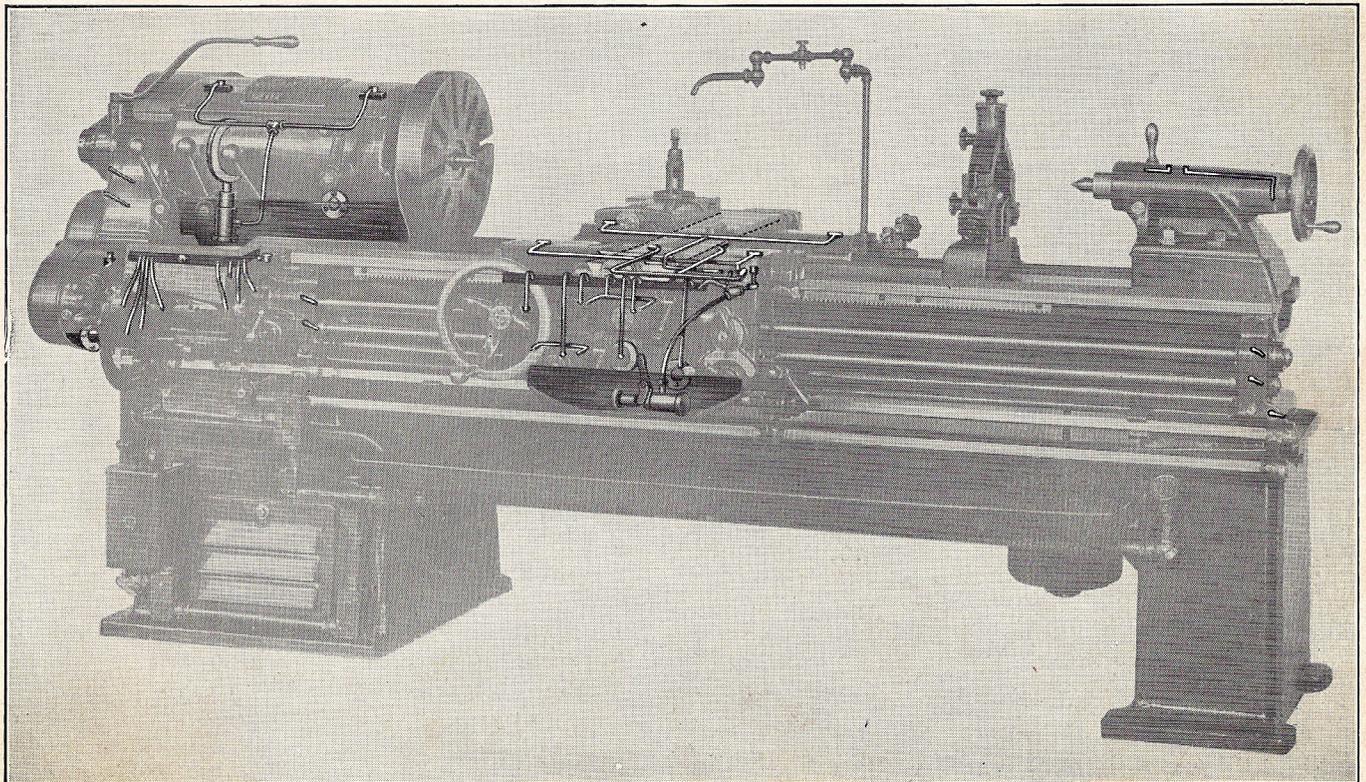
### Cross Feed Screw

S.A.E. 6150 chrome Vanadium steel heat treated to Rockwell C36-40, with two direction ball thrust. Cross slide is provided with micrometer chasing stop for regulating depth of cut. This construction permits withdrawing tool up to approximately three revolutions of the cross feed screw and running it in again to stop without changing the micrometer reading.

### Tailstock

Massive two bolt type with lateral adjustment for taper turning. Body of tailstock is offset to permit setting compound rest parallel to bed. Spindle which is graduated is high manganese steel and provided with improved type of binder with equalizing action. One movement forward or back, of lever at top of barrel, locks or releases spindle without affecting alignment.

### Oiling Diagram Below



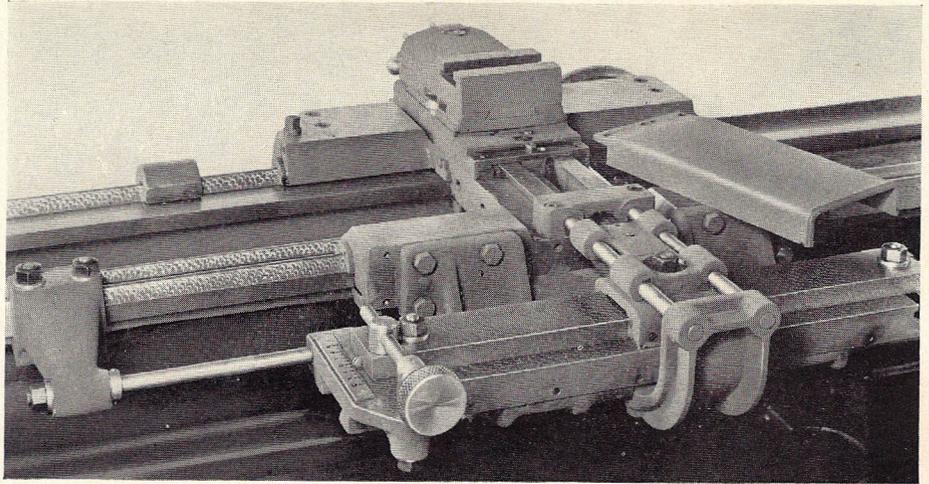
1. Combined oil pump and splash lubrication to headstock with filtration of oil to main spindle bearings.
2. End Works provided with reservoir for gear bath; bearings lubricated by Alemite system.
3. Quick Change Gear Mechanism provided with reservoir and "one shot" lubrication system for sliding yoke.

4. Apron furnished with oil pump and reservoir providing automatic lubrication to all bearings, bed ways and carriage cross slide.
5. Oil cups for tailstock spindle, feed rod, lead screw, etc.
6. All bearings, apron, quick change, end works and headstock antifriction type either ball or roller.

# Attachments

## Taper Attachment

Carriage type arranged to travel with the carriage. Attachment is of the telescopic type and does not interfere with the in and out movement of the cross feed screw. One end of slide graduated in taper inches per foot, the other end in degrees. Micrometer screw for adjusting and suitable clamping bolts provided. Capacity is 3" or 15° included angle. Turns tapers 18" in length at one setting. Right or left hand tapers can be turned.



## Collet Attachment

Lever operated type having capacity to 1 1/4" diameter, and with the push rod construction similar to a hand screw machine. The operating lever is mounted directly over the headstock, permitting easy operation. Lever with end guard casting is always left in position when removing closer unit at spindle nose.

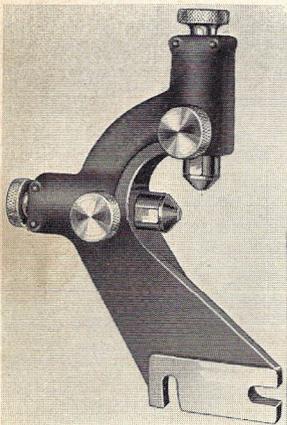


## Micrometer Bed Stop

Attaches to front V of bed, with indexing dial graduated in thousandths. Valuable for accurately feeding carriage to pre-determined depths.

## Follow Rest

For long bed lathes and for shaft work this attachment shown at left is recommended. Readily attached to carriage and easily removable. (Casting heat treated aluminum.)



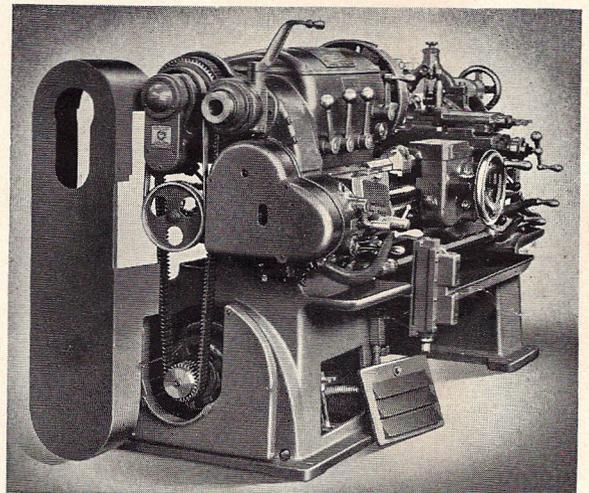
## Self Contained Motor Drive

(Flat or "V" Belt and Chain Connected)

Motor is mounted in cabinet leg on hinged bracket with screw adjustment for proper belt or chain tension. Motor is readily accessible for lubrication and repair and belt or chain is completely enclosed by removable guard.

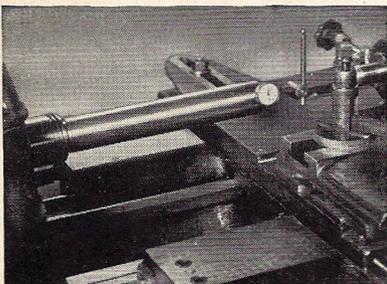
Motors recommended 3, 5 or 7 1/2 H.P., 1200 R.P.M. Latter size is recommended with chain drive for heavy duty. 1800 R.P.M. motors are recommended for use with Tungsten Carbide steels and for high spindle speeds to 1500 R.P.M.

On belt drives (either flat or "V") belt motors should not run faster than 1200 R.P.M. For high speeds chain drive should be used. Where chain drives are used with 1800 R.P.M. motor armature shaft should not be larger than 1 1/4" diameter. Reversing electrical control is required if reverse to spindle is desired.

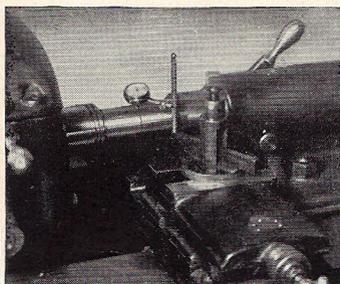


It is recommended that electrical equipment be sent us for mounting and wiring in conduit. This insures correct installation of electrical equipment and operation before shipment.

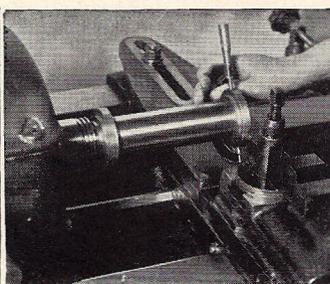
## Accuracy



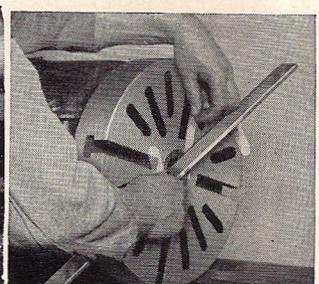
Spindle alignment—12" bar, .0005 up or down, in or out. Spindle run out at nose .0002; at end 12" bar within .001.



Head and tailstock Spindle alignment, straight to .001 high on tail.



Boring test, 8" bar with collars turned and "miked" to straight with .0005 large at outer end.



Face plate test, straight to concave .0005.

LUBRICANTS FOR REED-PRENTICE LATHES

HEADSTOCK

For spindle speeds up to 536 RPM use Socony SAE 60 or equivalent motor oil.

For spindle speeds over 536 RPM, use a standard medium machine oil of good quality.

END FEED WORKS

Use Socony SAE 60 or equivalent motor oil.

CHANGE FEED BOX

Use Socony SAE 60 or equivalent motor oil.

APRON

Use the standard medium machine oil of good quality similar to SAE 20.

PRESSURE FITTINGS

Use a cup grease such as Alemite #33 lubricant or equal.

MISCELLANEOUS LOCATIONS

Use a standard machine oil such as SAE 20.