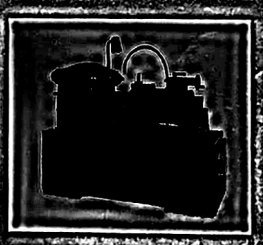
RIVETT 1020 F

PRECISION TOOLROOM LATHE



The model 1020F boasts a number of refinements over the original 1020 — the lathe which has won enduring friendship during the past 14 years with a host of good machinists. These improvements will help you in meeting the challenge for greater accuracy in your work.

The Rivett Man symbolizes the knowledge of many people in many places . . . he is at the drawing board or in the testing lab at the Boston headquarters . . . he is in all the great cities of our country . . . researching a new technique, a new application.

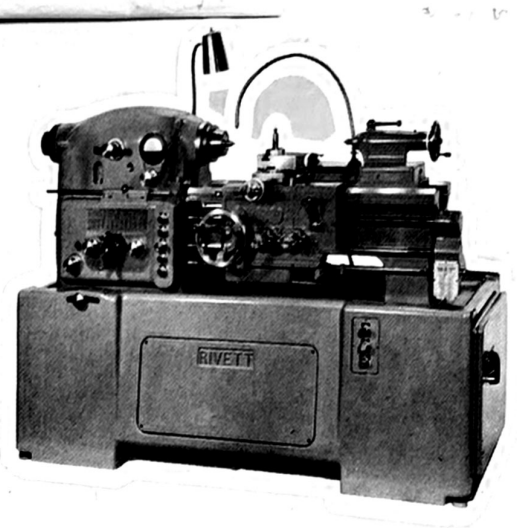
Bulletin No. 1020 D

Rivett Lathe & Grinder, Inc., Brighton 35, Boston, Mass.

Added Productivity

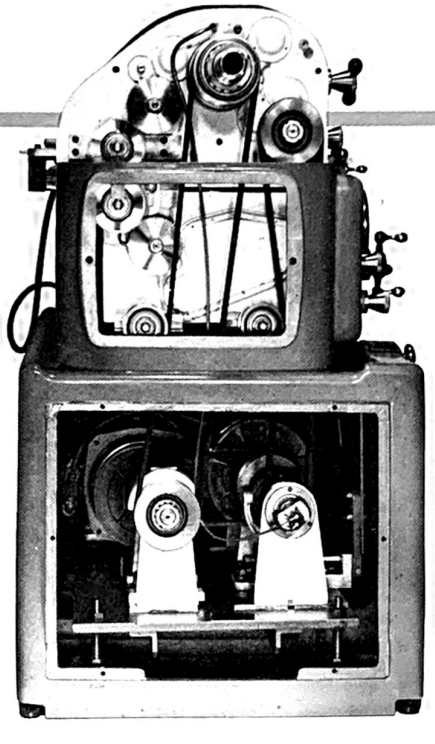
by RIVETT

With this new machine you can put your ideas into practical form — your ideas for greater productivity, for more versatility and most importantly for the ability to bring those profitable super precision jobs into the shop and handle them speedily and with little effort.



Sensitive Precision

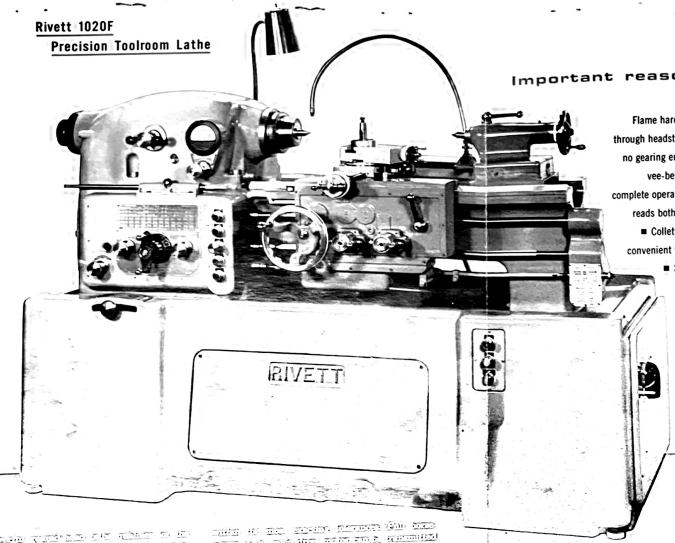
Any fine product is a reflection of the maker. In its craftsmanship you can see his knowledge, his experience — and his love. But above all, you can see his conscience — the innate sense of responsibility to produce something which is a little better. And this is particularly true of a fine lathe such as the 1020F. Here you see the maker's mark ! The Rivett Man with his knowledge of precision machinery — accumulated in years of designing and building lathes — gives substance to his heritage in this fine machine. Its accuracy is derived from a way of life at Rivett — where precision is always in the minds and hands of all.



Power for any job

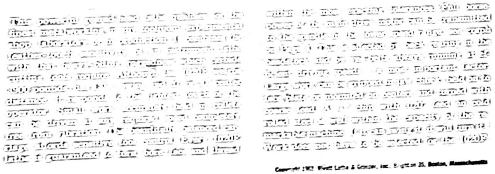
The 1020F will replace both a precision instrument lathe and a heavier engine-toolroom lathe and do the work of both. For small diameter pieces requiring high turning speeds, the spindle is driven by direct belt, free-running, with no gearing engaged, from 400 to 3600 r.p.m. Large diameters and work requiring heavy cuts are turned with spindle driven selectively through two sets of back gears. One set has 12½ to 1 reduction, driving the spindle from 22 to 200 r.p.m. The other has 6¼ to 1 reduction for speeds from 44 to 400 r.p.m. The driving vee-belts retain their full efficiency as their running speed never drops below 300 feet per minute.

Rivett 1020F
Precision Toolroom Lathe

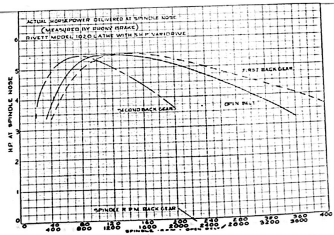


Important reasons for ADDED PRODUCTIVITY

Flame hardened bed ways uniformly hardened to 70-72 sceleroscope ■ Turning power through headstock back gearing at low spindle speeds ■ Free spindle by direct belt drive with no gearing engaged ■ Swing over bed is 13½" ■ Infinite spindle speeds through smooth, vee-belt, mechanical transmission ■ Push button control for speed changing and complete operation ■ Neutral clutch for stopping spindle without stopping drive ■ Tachometer reads both forward and reverse and indicates selected speed before starting spindle ■ Collets mount directly in spindle mouth to assure greatest precision ■ Handwheel for convenient turning of headstock spindle ■ Feed dials are contrasting black on white ■ Spindle index for multiple threads ■ Gear box for 72 feeds and 84 threads including every world standard from 2 to 240 per inch ■ Wide 12¼" V and flat ways to distribute and absorb cutting load ■ Multiple splined feed rod ■ Weight 3900 lbs.; Floor space 29" x 73".



Horsepower Available at the Spindle

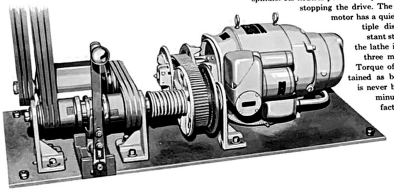


Save Operator's Time

Simple means for setting-up and well-marked dials and handles assure top efficiency, based on over-all machining time for the job in hand. The operator's convenience and comfort are assured by the functional grouping of all controls. Fatigue is avoided. Higher quality work and greater output result.

VARIABLE SPEED DRIVE

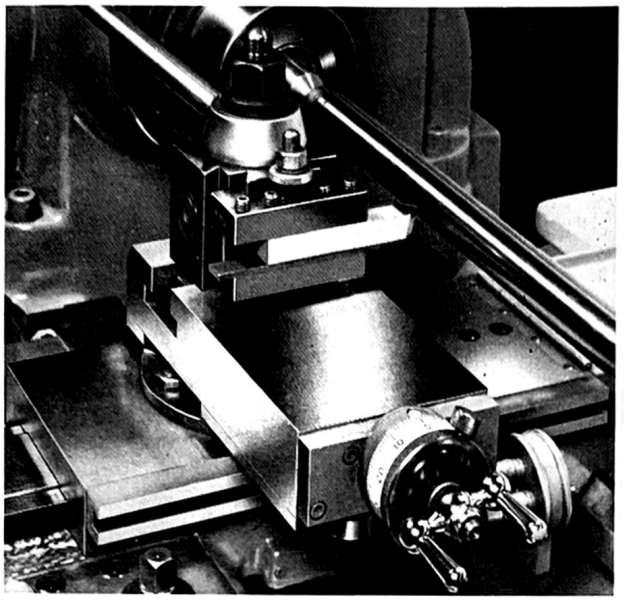
A complete unit assembly, the drive is mounted within the lathe base, easily accessible through panelled openings or removable through end door. Push buttons control main drive motor FORWARD, REVERSE and STOP. Push buttons marked FAST and SLOW operate a small independent motor to select desired spindle speed indicated by tachometer on lathe headstock. Speed can be selected before starting up spindle to avoid dangerous speeds for heavy work. Power transmission from standard, constant-speed motor is by variable pitch vee-belt drive. A selector clutch engages direct belt or back gear drive to the headstock spindle. Its neutral position stops the spindle without stopping the drive. The standard 5 h.p. motor has a quiet operating multiple disc brake for instant stopping. Power to the lathe is transmitted by three matched vee-belts. Torque of spindle is maintained as belt surface speed is never below 300 feet per minute. This essential factor is achieved by headstock back gears at low r.p.m.



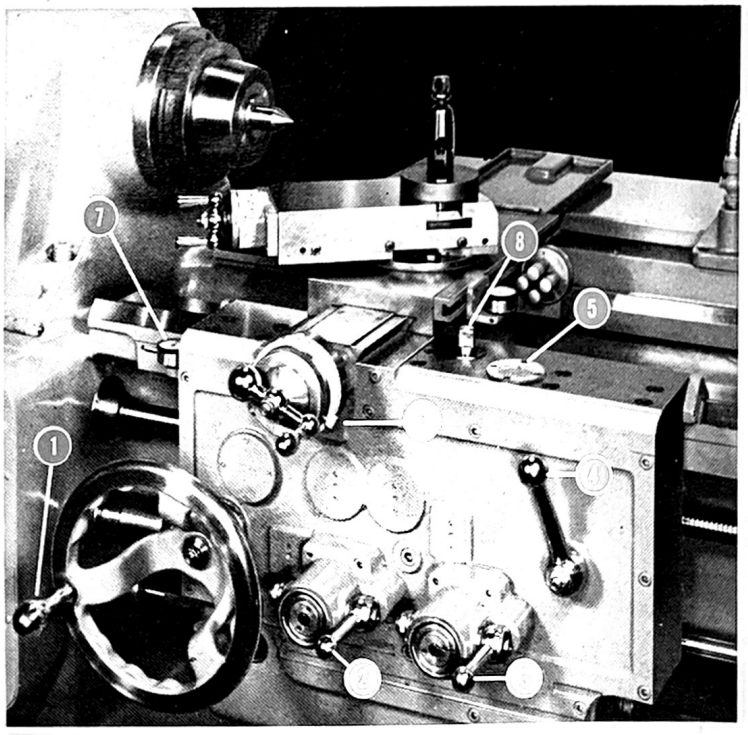
The broad, flame hardened bed will serve for years and years of use. No unrelieved stress or soft slide area can endanger its original accuracy. Bedways 12¼" in width support saddle under cutting load. Carriage saddle has 55½ square inches of bearing on the flame hardened ways. Carriage and tailstock ride on separate flats and vees. Heavy cast base fully encloses drive and all electrical equipment. Yet both are instantly accessible. Base top has deep well for chip collection and coolant.

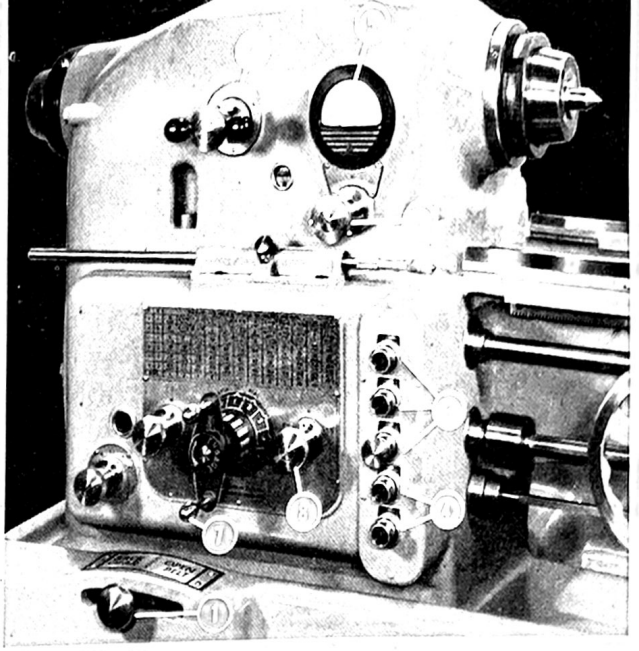
Good Design

provides added productivity



Compound and Cross Slide have generous bearing areas and full-length gibs with lock screws to maintain adjustment. Feed screws are heat-treated steel, precision ground. Feed screw nuts are adjustable to eliminate backlash. Dials are large with black graduations on a white background that read in thousandths. Compound swivel is graduated 180° either side of zero. Cross slide feed screw has adjustable ball stop for retracting and resetting threading tool without loss of micrometer reading.





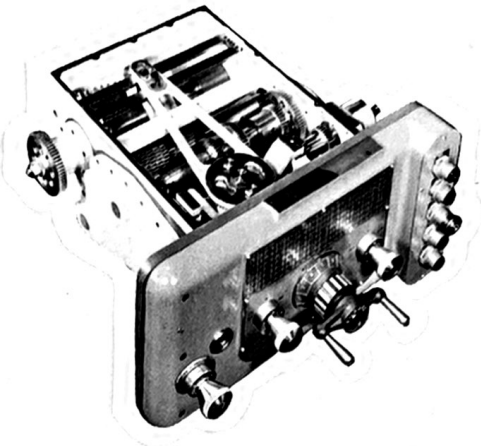
Headstock Spindle Controls

1. Lever selects drive to spindle by open belt or through back gears and also brings spindle to a coasting stop when desirable, without stopping main drive. Spindle is then free to roll by hand.
2. Knob sets up spindle drive by open belt, or through back gear trains.
3. Push buttons marked FORWARD, REVERSE and STOP govern main drive motor. Stop by automatic brake is instantaneous.
4. Push buttons marked FAST and SLOW set spindle speed within the open belt and back gear ranges.
5. Tachometer shows the spindle r.p.m. both forward and reverse. It can record selected speed before starting spindle.
6. Knob engages drive from headstock to gear box and selects drive to carriage for threading or for power feed.
7. Knobs and selector dial set up desired thread or feed.
8. Knob sets up carriage drive for right-hand or left-hand threading or turning. Neutral position disconnects.

Carriage Controls

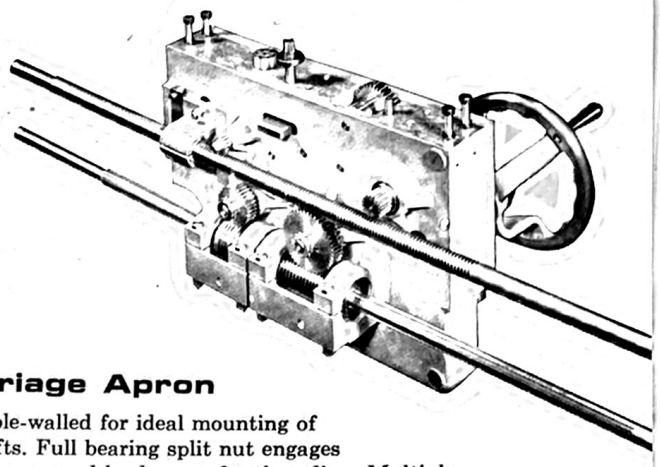
1. Handwheel moves carriage one inch per revolution graduated in sixty-fourths.
2. Lever operates clutch for power longitudinal feed. Operator may optionally move lever up or down to engage.
3. Lever operates clutch for power cross feed. Operator may move lever up or down to engage.
4. Lever engages split nut with lead screw for threading.
5. Threading dial in immediate view of operator directs correct engagement of split nut.
6. Adjustable stop permits retracting and resetting threading tool without losing micrometer reading.
7. Carriage stop consists of precision dial indicator and adjustable rod with micrometer head.
8. Carriage clamp uses standard tool holder wrench.

Electrical Carriage Control is an added accessory most valuable for chasing external or internal threads to limit the travel of carriage in either or both directions. Stops with screw adjustment simultaneously arrest the carriage and work rotation. The carriage travel is reversed by touching the convenient FORWARD or REVERSE push button. Perfect threads are assured as the lead screw nut is continuously engaged.



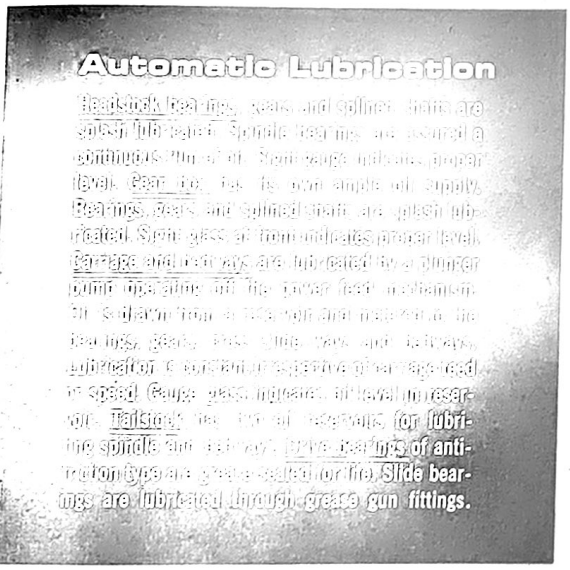
Gear Box

built as an independent assembly — is installed within the bed enclosure. Dials afford 72 feeds and 84 threads. Thread range includes every world standard from 2 to 240 threads per inch. Special or metric leads are conveniently set up with pick-off gears. Idlers run on grease-sealed bearings. All gears are made of heat-treated alloy steel, shaved or ground. All sliding gears move on six-tooth involute splined shafts. All bearings are anti-friction.



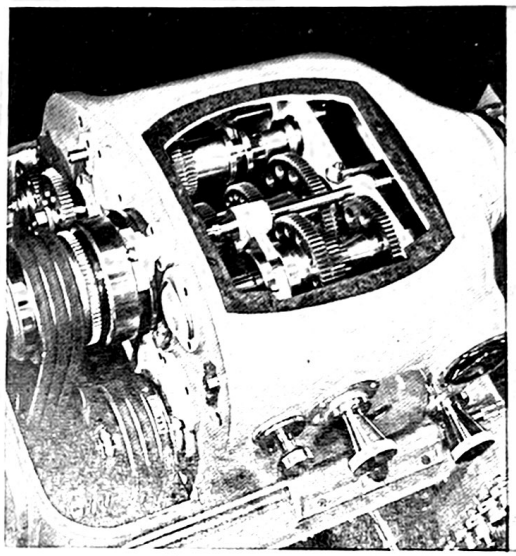
Carriage Apron

is double-walled for ideal mounting of all shafts. Full bearing split nut engages precision-ground lead screw for threading. Multiple-splined feed rod has ball-bearing support. Safety interlock prevents simultaneous engagement of lead screw and feed rod. Cutting tool retracts from work if cross feed is engaged while longitudinal feed is operating forward. Carriage clamp is centrally located to prevent deflection. All bearings are anti-friction.



Headstock

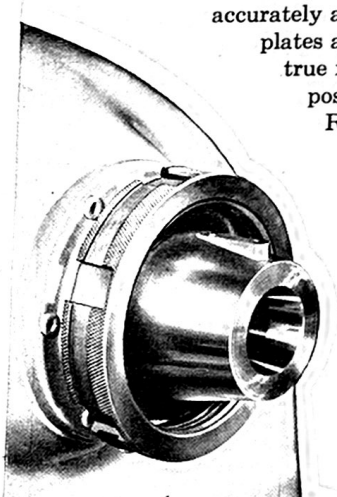
is a self-contained unit. All elements can be serviced through the top opening. All gears are made of heat-treated alloy steel, shaved or ground. All sliding gears move on six-tooth involute splined shafts. Spindle runs on super-precision ball bearings. There are no sliding gears on the spindle. All bearings are anti-friction.

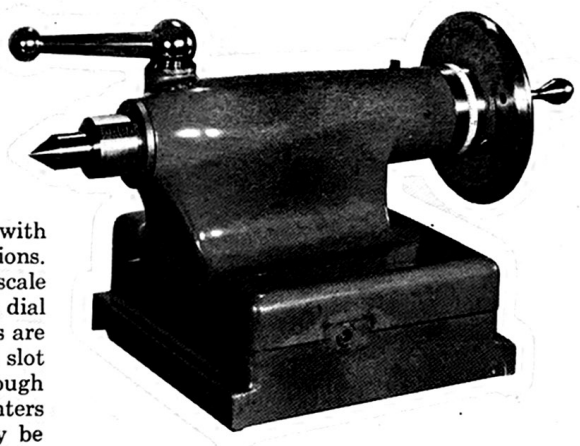


GOOD DESIGN provides added productivity

Long Taper Key-Drive Spindle Nose

accurately and firmly mounts chucks, plates and fixtures. The long taper assures true running while the key provides positive drive in either direction. Rivett 6R collets mount directly in the spindle mouth for ultimate precision. Camlock Spindle Nose—3″-D-1 is available on request. Requires nose adapter or spindle nose type chuck for collet use.



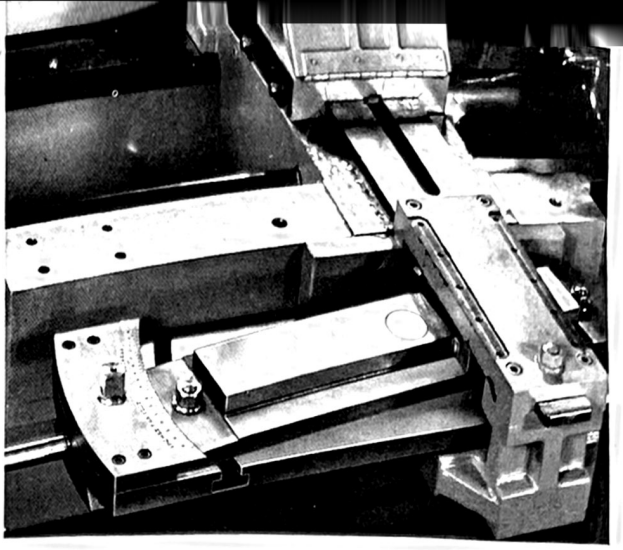


Tailstock

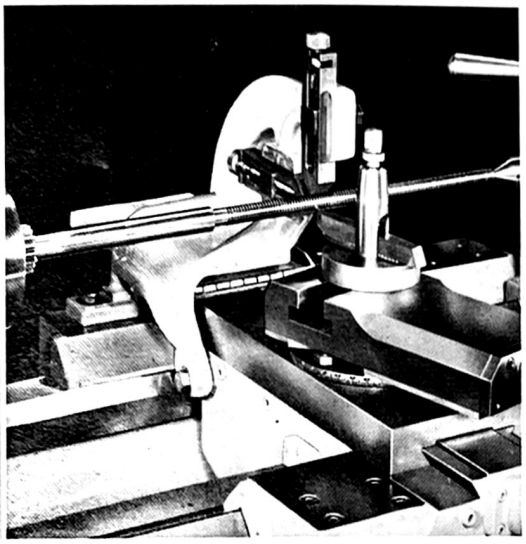
has hardened spindle with full bearing in all positions. Travel is graduated by scale in sixteenths and by dial in thousandths. Drills are driven by an inside slot which does not break through wall. Screw ejects centers and drills. Frame may be offset by screw adjustment.

ACCESSORIES

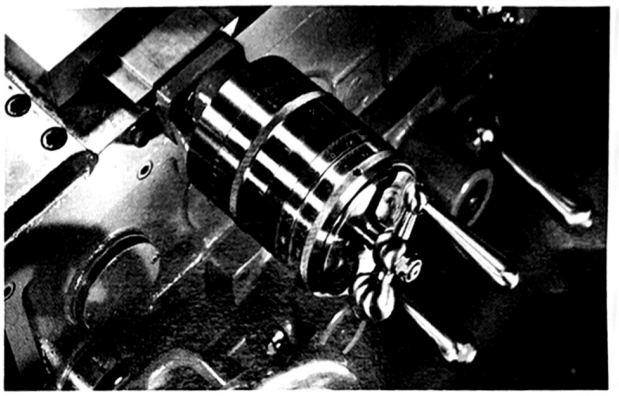
furnish added productivity



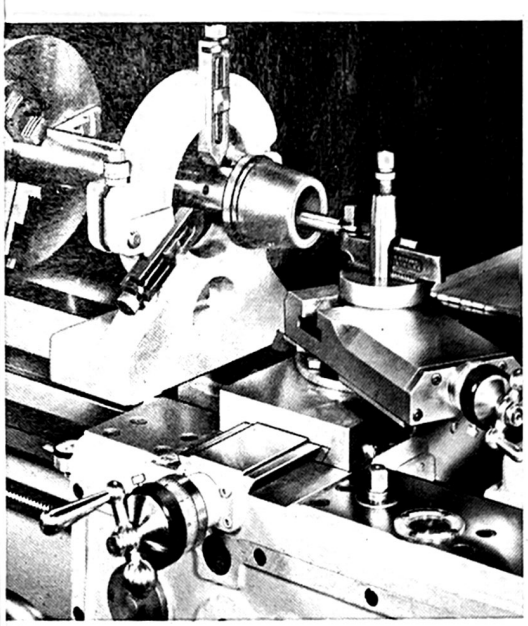
Taper Attachment may be used for turning tapers up to 18° included angle and 8″ length at one setting. The slide is set at desired angle by geared adjustment. The setting is measured by hairline graduations in both degrees and inches per foot. (Hinged guards for protecting the taper slide are removed in the above illustration.)



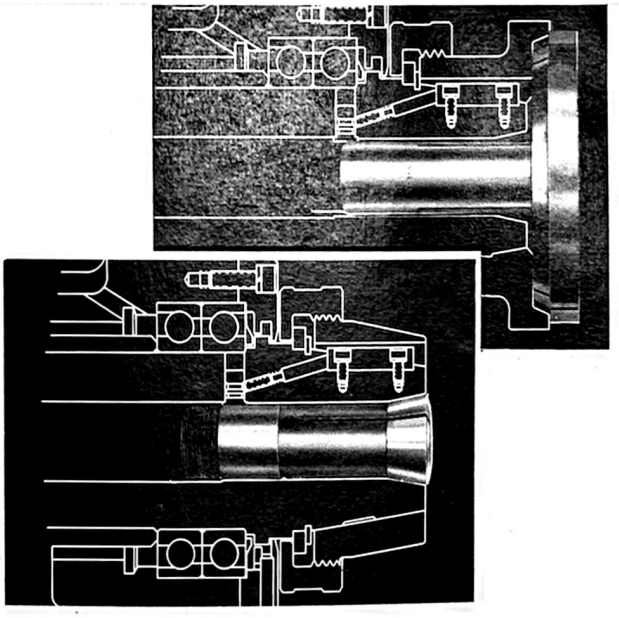
Follower Rest has two adjustable jaws to provide vertical and horizontal support for work up to 2″ diameter.



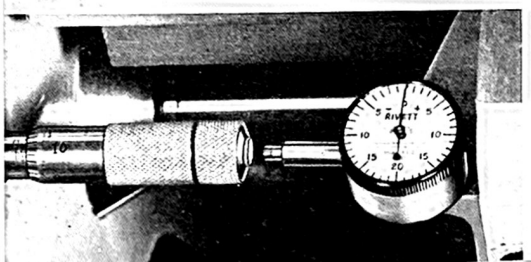
Accumulator Dial replaces standard cross feed dial. The outer dial, calibrated in thousandths of diameter, has separate numbering for turning and for boring. The inner dial accumulates and records the reading of the outer dial in hundreds of thousandths and in sixty-fourths.



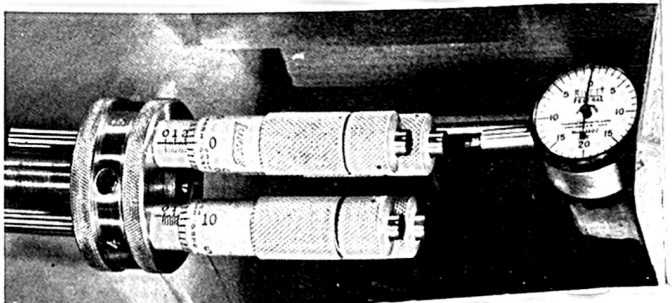
Steady Rest is hinged and has three adjustable jaws. Standard steady rest has 4″ diameter capacity. Steady rest with 6″ diameter capacity is available.

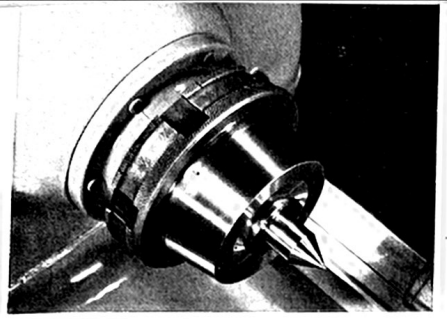


Draw-In Collets and Step Chucks mount directly in LO spindle mouth (without adapters) and run true. Step chucks above 2″ capacity use closing rings.



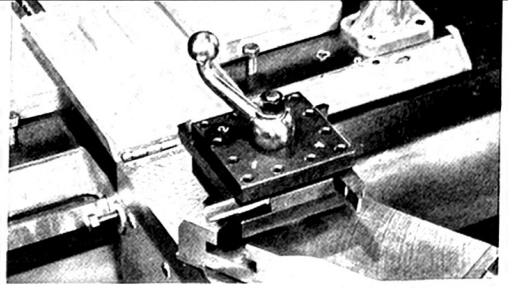
Carriage Dial Indicator Stop accurately locates carriage at any position on bed. The stop rod has a micrometer head which contacts the stem of a precision dial indicator.



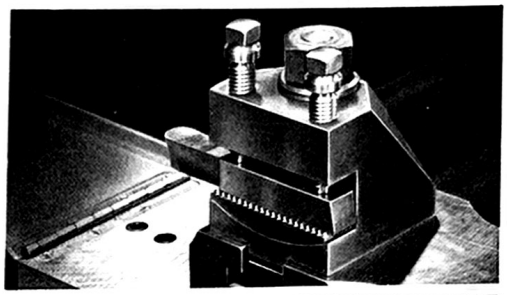


Multiple Thread Indexing is accomplished with standard equipment. The nut on the LO type spindle nose is graduated for engaging the spindle gear to start 2, 3, 4, 5 or 6 threads. With the 3″-D-1 cam lock nose the spindle itself is graduated.

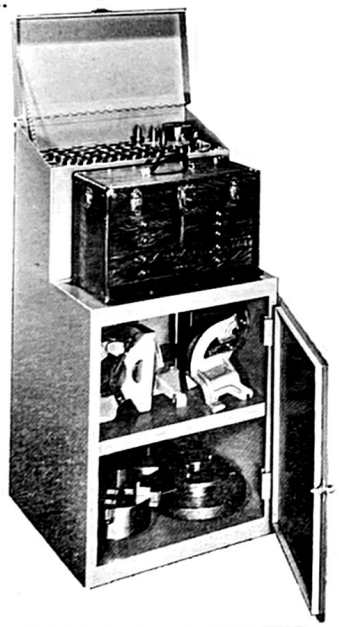
Turret Tool Post fitting directly on compound carries four tools ½″ square and indexes to twelve positions.



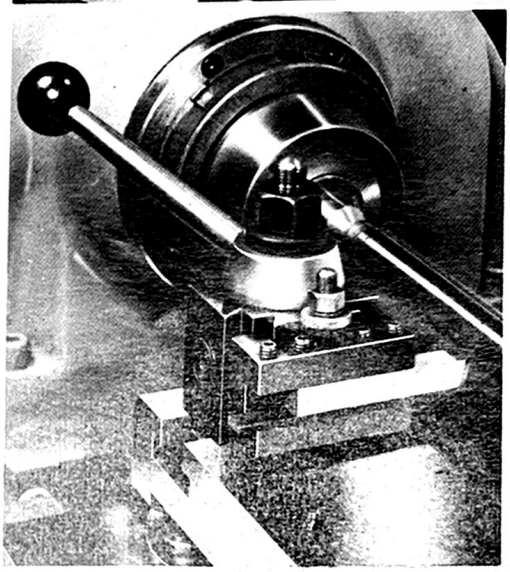
Side Mounting Tool Block has rocker for tool height adjustment. Maximum tool sizes, ⅝″ square.



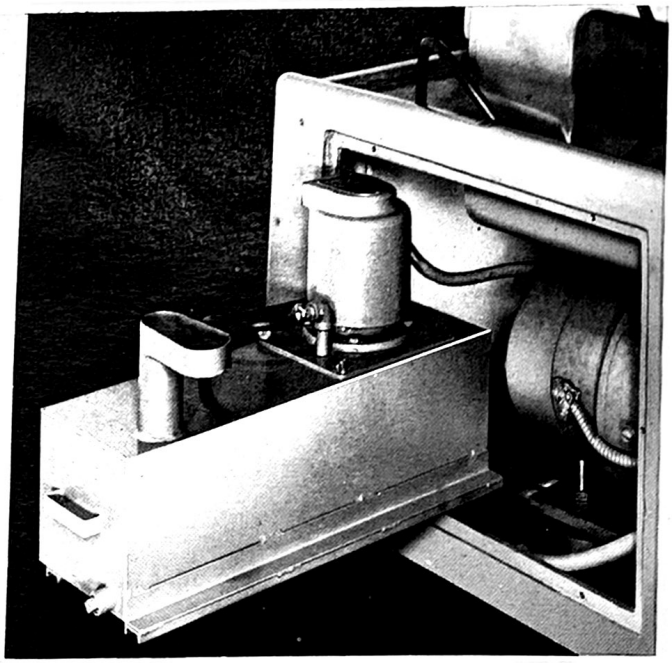
Floor Cabinet provides orderly storage for standard equipment, collets and special accessories.



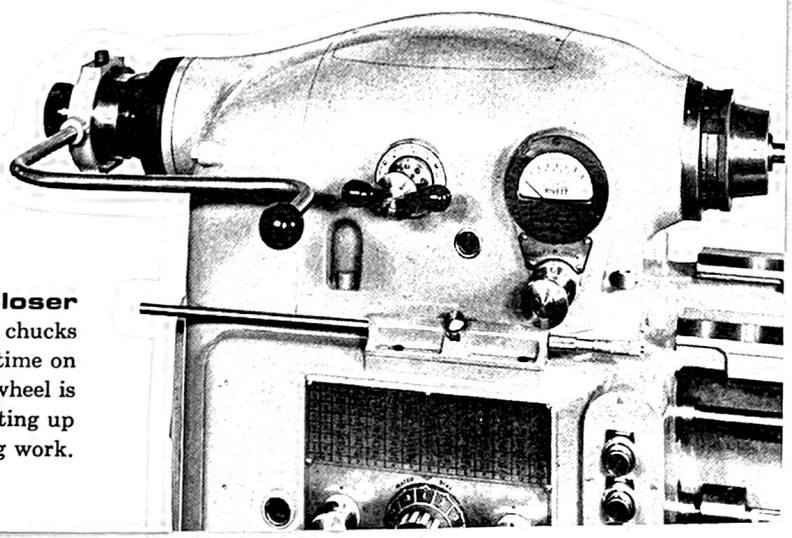
Aloris Tool Post mounts an assortment of interchangeable tools.



Cross Feed Stop with four adjustable micrometer heads. (See illustration Page 6.)



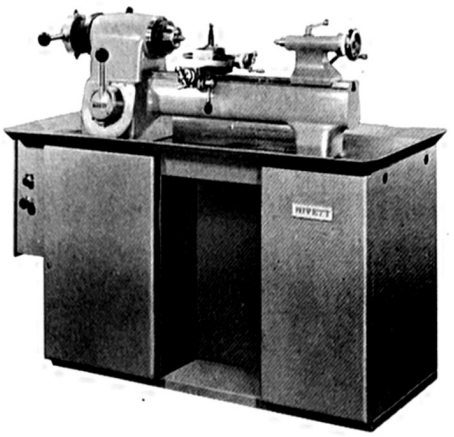
Coolant Pump a unit motor-driven immersion pump and 5-gallon reservoir. Flexible metal gooseneck with nozzle and shut-off attaches to carriage saddle and moves with cutting tool.

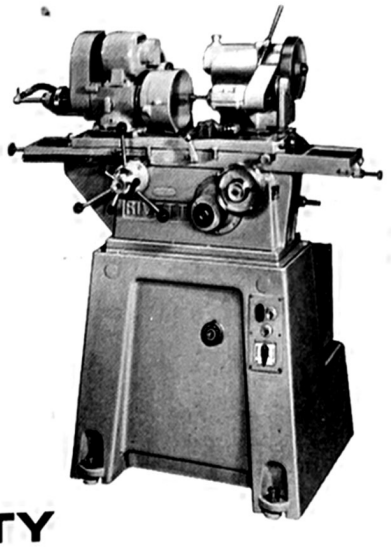


Multiple Carriage Positioning Stop mounts interchangeably with standard dial indicator stop. Any one of four adjustable micrometer heads can be indexed.

Lever Collet Closer used with collets and step chucks greatly reduces chucking time on duplicate parts. Handwheel is convenient when setting up and gauging work.

Rivett 60 Series Speed Lathe, 9⅛" swing, 18" between centers. "One-motion control" of unlimited speeds to 4800 r.p.m., instantly reversed. 1⅛" collet capacity. New bed form has both double-bevel and dovetail. Distortion-free mounting. Write for bulletin.

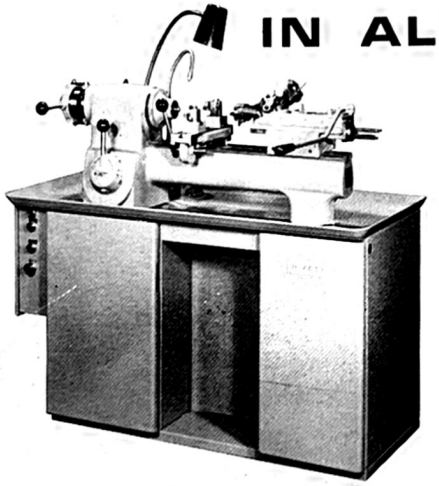


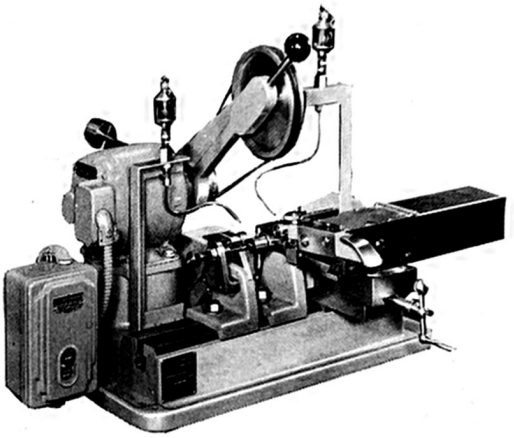


Rivett Model 84 Internal-External Grinder. Hole grinding and, or, external grinding up to 3" dia. and up to 4" length. Write for bulletin.

ADDED PRODUCTIVITY IN ALL RIVETT MACHINES

Rivett 60 Series Turret Lathe, 9⅛" swing. "One-motion control" of unlimited speeds to 4800 r.p.m., instantly reversed. 1⅛" capacity draw-in collet, or 15/16" capacity stationary collet. New bed form has both double-bevel and dovetail. Distortion-free mounting. Write for bulletin.





Rivett Model 1AL Armature Turning Lathe. 8" swing, distance between holders 2⅞" to 8". Turning tool automatically cuts required depth and length on commentator. Write for bulletin.

SPECIFICATIONS

General

Distance between centers with tailstock flush	20" or 30"
Swing over bed, dia.	13½"
Swing over carriage, dia.	7¼"
Height, work centers from floor	43"
Floor space	29" x 73"
Automatic Lubrication.	

Headstock

Long taper key-drive spindle nose (standard)	ASA No. L0
Draw-in collet mounted directly in LO spindle, max. dia.	1⅛"
Step chuck mounted directly in LO spindle, max. dia.	6"
Hole through LO spindle, max. dia.	1¼"
Camlock spindle nose (optional)	ASA 3"-D-1
Draw-collet used with Sjogren collet chuck, max. dia.	1⅜"
Jacobs rubber-flex collet used with collet chuck, max. dia.	1⅜"
Hole through camlock spindle, max. dia.	1⅜"

Tailstock

Travel of tailstock spindle	3½"
Dia. of tailstock spindle	1⅝"
Taper of hole	Morse No. 3
Scale graduations	3½" by 16ths
Dial graduations	.001"
Offset adjustment	½"

Gear Box

Number of feed changes	72
Feed range through gear box	.001" to .060"
Number of thread changes	84
Thread range through gear box	2 to 240

Actual threads through gear box: 2, 2¼, 2⅜, 2½, 2¾, 2⅞, 3, 3⅛, 3¼, 3⅜, 3½, 3¾, 4, 4½, 4¾, 5, 5½, 5¾, 6, 6¼, 6½, 6¾, 7, 7½, 8, 9, 9½, 10, 11, 11½, 12, 12½, 13, 13½, 14, 15, 16, 18, 19, 20, 22, 23, 24, 25, 26, 27, 28, 30, 32, 36, 38, 40, 44, 46, 48, 50, 52, 54, 56, 60, 64, 72, 76, 80, 88, 92, 96, 100, 104, 108, 112, 120. Following threads are cut by setting knob No. 6, Page 6, at "Feed" which doubles pitch of the twelve previous threads: 128, 144, 152, 160, 176, 184, 192, 200, 208, 216, 224, 240.

Bed

Width	12¾"
Depth	9"

Carriage and Compound

Carriage travel	20" or 30"
Length of carriage bed bearing	17¾"
Carriage bridge width	5"
Carriage saddle bearing on bedways	55½ sq. in.
Cross slide travel	7¼"
Compound slide travel	2"
Dial graduations	.001"
Size of lathe tool	⅜" x ⅜"

Motor

Size	1750 r.p.m., 5 h.p.

Spindle Speeds

Infinite through back gears	22 to 400 r.p.m.
Infinite by direct belting	400 to 3600 r.p.m.

Taper Attachment

Max. length of taper	8"
Max. included angle in degrees	18°
Max. taper inches per foot	3½"

Follower Rest

Max. opening	2¼"

Steady Rest

Max. opening (standard)	4"
Max. opening (special)	6"

Shipping Information

Net weight with motor and standard equipment	3900 lbs.
Crated for domestic shipment	4500 lbs.
Boxed for export shipment	4900 lbs.
Cubic feet, boxed for export shipment	130

Rivett Lathe & Grinder, Inc., Brighton 35, Boston, Mass.

Printed In U.S.A.