

## LATHE ATTACHMENTS

Lathe attachments fall into two general classes: (1) Those which increase speed and accuracy of general lathe operations: (2) Those which equip the lathe to handle work such as milling, grinding, etc., which usually require a single purpose machine.

### NO. 7108 FOLLOWER REST

The follower rest provides support for long, slender work mounted between centers.

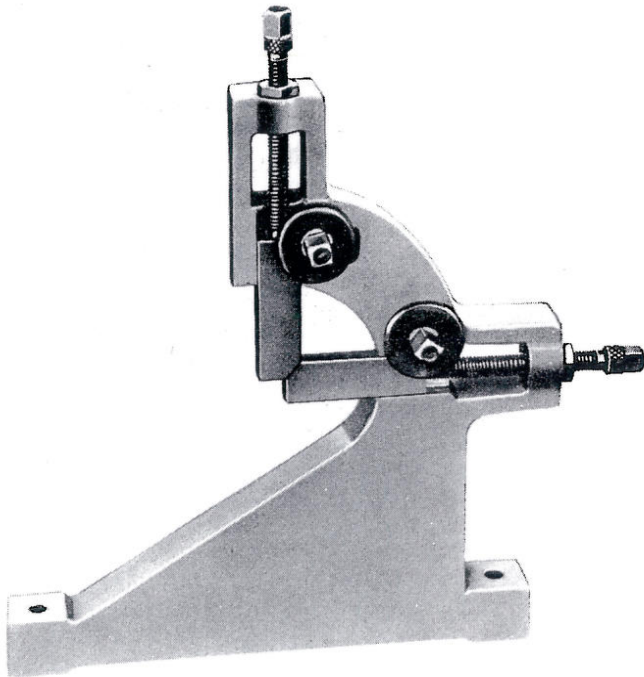


Figure 26

The two adjustable jaws hold the work in rigid position, preventing it from springing away from tool -- refer to figure 26.

The jaws must be accurately positioned to form a true bearing for the work, allowing it to turn freely but without play. The following method is recommended for most work: First, clean saddle dovetail ways. Mount work in lathe, remove the cross feed screw chip guard, and clamp the follower rest to the dovetail. Start the first cut and turn approximately one-inch. Adjust both jaws to the turned diameter, making sure they do not bind or twist the work piece -- cellophane paper is sometimes inserted between jaws and work to obtain proper clearance. After both jaws have been properly adjusted, tighten the adjusting screw lock nuts and the jaw clamp screws.

During the cutting operation, apply plenty of lubricant on the work at the point of bearing with the jaws. After each cut the jaws must be adjusted to the new diameter being turned.

### NO. 7109 STEADY REST

The steady rest supports long work during turning, boring or threading operations.

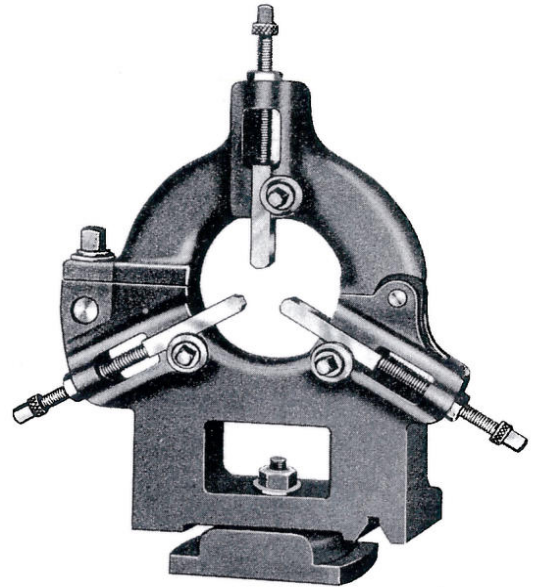


Figure 27

The base clamps to the lathe bed ways -- the adjustable jaws form a bearing for the work and hold it in exact position -- refer to figure 27.

Work that is less than  $3/4$ " diameter and machined more than 5 or 6-inches away from headstock should be supported by a steady rest.

Accurate positioning of the steady rest jaws to the work is important. The jaws must form a true bearing for the work, allowing it to turn freely but without play. To install, clean the bed ways, mount work in lathe, then clamp steady rest to lathe bed close to headstock. Adjust bottom jaws first -- then bring top jaw into light contact with work -- cellophane paper is sometimes used between the jaws and the work to obtain proper clearance. After all three jaws have been properly adjusted, tighten the adjusting screw lock nuts and the jaw-clamp screws. Slide the steady rest near the point where the work is to be machined and clamp it to the bed. During the cutting operation, apply plenty of lubricant on the work at the point of bearing with the jaws.

Scoring is usually caused by the top jaw being too tightly clamped, or by lack of oil. Chatter is caused by the top jaw being too loose.



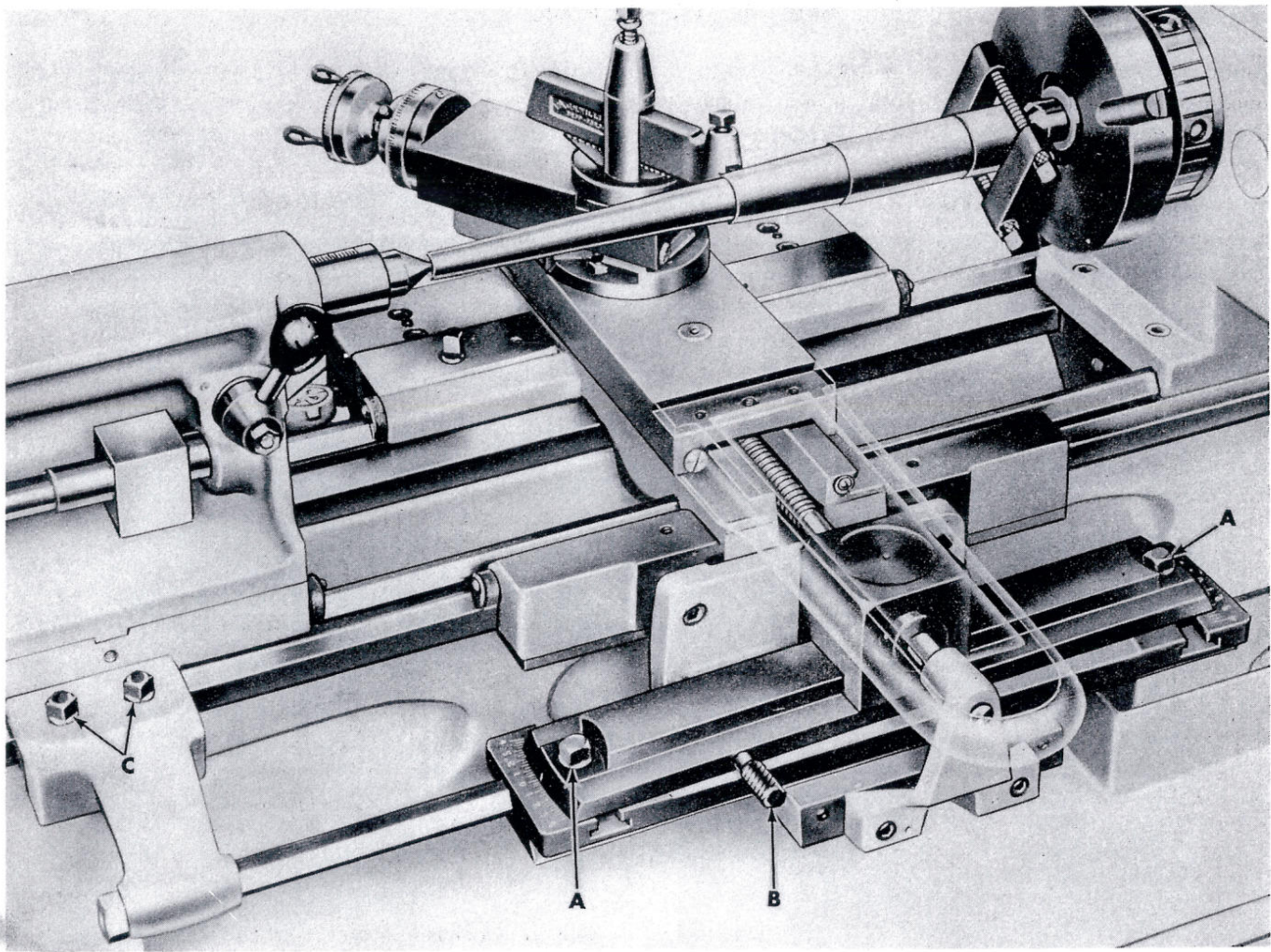


Figure 28

## NO. 7114 TELESCOPIC TAPER ATTACHMENT

The Clausing telescopic taper attachment is of sturdy construction, precision machined and easy to operate. Capacity is 4" maximum taper per foot and 10" maximum travel at one setting.

### TO OPERATE:

1. Mount work in the lathe – whenever possible the cut should be from the small diameter toward the large diameter.
2. Set point of tool bit on exact center line.
3. Lathe cross slide and taper slide should move freely, but with no up or down play. Adjust the tension with the gib screws in the cross slide and support bracket.
4. Position taper attachment so it is about in the center of the work. Lock clamp bracket to lathe bed.
5. Move the carriage by hand to make sure there is sufficient travel to complete the taper cut. If there isn't, adjust the compound rest, move the carriage or the taper attachment to a different position.
6. Set the taper bar to taper desired – graduations on left end of bar are marked in degrees (graduations indicate included angle) – the right end in inches per foot.
7. To set the attachment for taper desired –
  - A. Loosen the two lock screws (A, fig. 28) on each end of taper bar.
  - B. Turn taper adjusting screw (B) to taper desired.
  - C. Tighten the two taper bar lock screws (A).
  - D. Be sure clamp bracket (C) is locked to lathe bed.
8. Engage feed with tool approximately 1" away from beginning of cut to be sure backlash is removed before tool commences to cut.

Caution: When taper attachment is not in use, loosen clamp (C) so it will slide freely along lathe bed with the movement of the carriage and lock taper bar at zero degrees.



### NO. 7118 MICRO CARRIAGE STOP

The carriage stop indicates the proper stopping point of the carriage for accurate duplicate work.

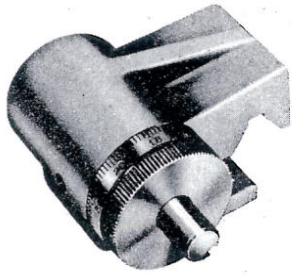


Figure 29

The stop clamps to front bed way of lathe -- clean ways before installing refer to figure 29. Micrometer dial, graduated in thousandths, permits exact settings.

Micro carriage stop does not automatically disengage carriage feed -- carriage should always be fed manually the last part of the cut.

If carriage runs into the stop under power feed, it may break the stop or damage the lathe.

### NO. 7529 THREAD CUTTING STOP

The thread cutting stop indicates the proper depth at which to stop the cross feed. It is especially valuable for threading and turning down a rough diameter. The thread cutting stop is mounted on the cross slide dovetail, either in front of or behind the compound rest.

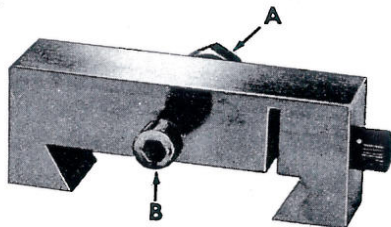


Figure 30

An adjustable screw (B, fig. 30) and lock nut (A) permit accurate setting. In mounting the cross slide stop on the cross slide dovetail, first remove the guard. Then clean the dovetail ways and clamp the stop in the approximate position required. Turn the adjusting screw into exact position and lock with the knurled nut. Place a small piece of paper or cardboard over the cross feed screw to keep it free from dirt and chips during the cutting operation.

During threading operations or whenever the tool is feed in with the compound, the cross feed is used only to back the tool out of the end of each cut. The thread cutting stop, combined with the micrometer graduations of the cross feed control handle on the lathe, assure an accurate "zero" reading before the compound rest feed is advanced for the next cut.

*Do not force cross slide against the stop.*

### NO. 7002 MILLING ATTACHMENT

Equips lathe for face milling, cutting keyways and slots, milling dovetails, squaring shafts, making dies and moulds, etc. Quickly and easily installed by removing compound rest and clamping base of milling attachment in its place.

The attachment can be swiveled to hold work at any angle -- loosening the two lock screws releases it for turning.

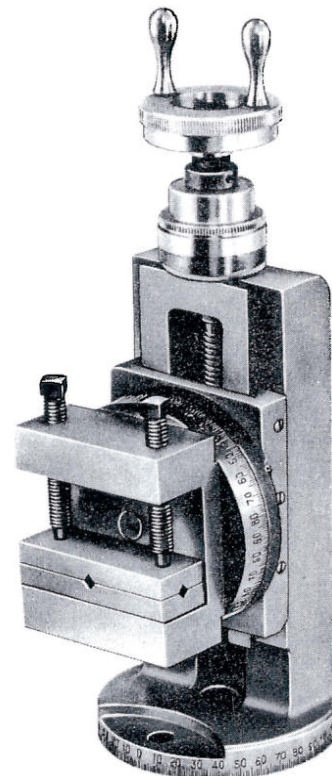


Figure 31

Position of vise is controlled by handwheel with micrometer graduated collar, refer to figure 31. Vise slide is graduated in degrees. Vise can be quickly set at any angle.

A milling cutter holder or collect attachment is recommended for holding the milling cutter -- chucks are not satisfactory for such use.

Cutting speeds for milling should be approximately 2/3 of the speeds used for general turning. When milling, take light cuts and use a slow even feed. Never force the work into the cutter.

## NO. 7651 TOOL POST GRINDER

The tool post grinder is used for both external and internal finishing whenever precision and a polished surface are required. Grinder mounts in tool post slide of lathe compound rest.

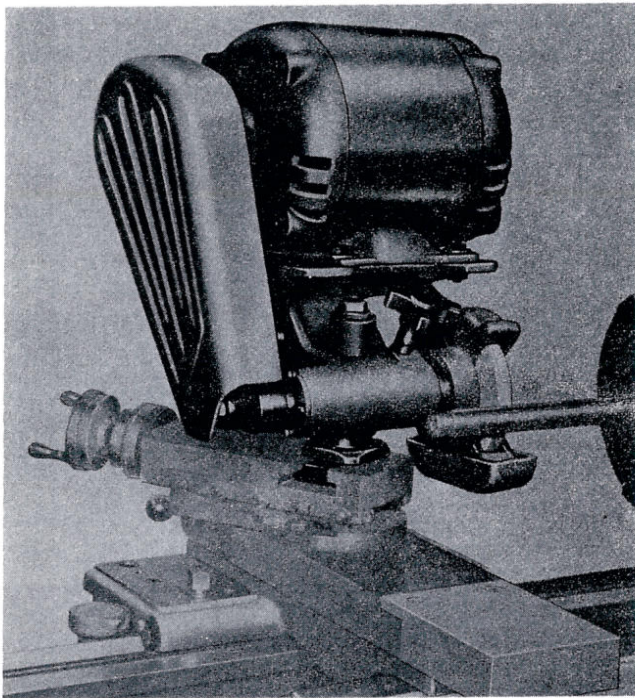


Figure 32

For most operations, grinder spindle is on the exact center line of lathe -- refer to figure 32.

When grinding a surface parallel to lathe center line, set the compound rest at 0 and feed the carriage back and forth by hand or by power feed. When grinding at an angle, the compound rest is set at the proper angle and the grinder is fed back and forth with the compound rest feed.

**IMPORTANT:** Protect the lathe from grinding dust.

Grinding dust is a mixture of abrasive dust and fine particles of steel. This dust is extremely abrasive -- when allowed to remain on the lathe bed ways and cross slide it can cause rapid wear. Always cover the bed ways and cross slide during grinding operations. After grinding, thoroughly clean the bed ways and carriage dovetails, and apply plenty of clean oil.

Before grinding, dress the wheel.

The dressing tool mounts in a holder clamped to lathe bed.

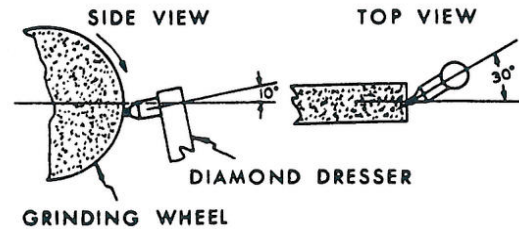


Figure 33

The diamond point should be at an angle and slightly below center as shown in figure 33. Run the wheel back and forth, taking light cuts until the diamond cuts evenly and has removed the glazed surface from the wheel. For a fine, accurate finish, the grinding wheel must be dressed before each operation.

The grinder has two spindle speeds, low speed for external grinding and high speed for internal grinding.

**WARNING:** Never run the large grinding wheel at the higher speed -- this speed is for internal grinding wheels only.

When grinding, work must rotate in a direction opposite that of the grinding wheel.

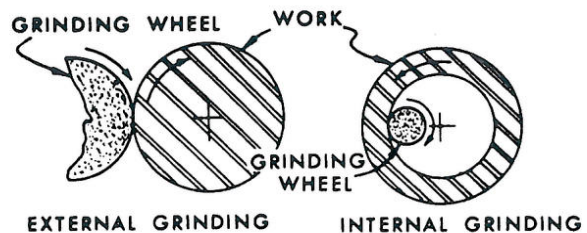


Figure 34

The rotation of the lathe spindle shown in figure 34 must be clockwise (reverse) for external grinding, and counterclockwise (forward) for internal grinding.

**External Grinding** -- the work should be turned as close to the final finish size as possible before the grinding operation is begun -- grinding is a finishing operation.

With work and grinder in proper position, take light cuts across the entire length of work. The finishing cut should be less than .001 inch.

**Internal Grinding** -- be sure to remove the external wheel before mounting internal grinding wheel. When grinding internally, take light cuts and feed in very slowly because of overhang of grinding wheel and arbor. After the last cut, allow the wheel to pass back and forth across work several times without advancing feed.