

the spindle gears and run it approximately 1500 R.P.M. for 8 hours. Again, change the gears and run it approximately 2000 R.P.M. for 8 hours. Continue this procedure until we have run 8 hours at 2500 R.P.M., then at 3000 R.P.M. for 8 hours. Pay close attention to the bearings that may run hot. If any bearing does run hot, drop back a step, check that bearings are getting lubrication, and run until it remains normal.

Then proceed to the next faster speed. After the machine has been in operation for several days, it should be inspected very carefully to make sure all nuts and screws are tight.

Coolant tanks should be filled with a good grade of cutting oil for the job to be run. You can be producing parts while the machine is breaking in. Select from the charts at approximately 750 R.P.M. the same effective revolutions as is required to do the job at the desired R.P.M. Repeat this procedure until you have obtained the desired cycle time and R.P.M. Chucks and feed fingers should be removed occasionally and thoroughly cleaned. Also the inside of the inner spindle and the inside of the nose of the outer spindle should be wiped clean with an OSHA approved solvent and boiler brush to remove the sludge which accumulates and would effect the chucking and feeding mechanism. After cleaning, swab with lubricating oil. Now oil and insert collets and feed tubes.

The work spindles always revolve forward or counterclockwise as in a lathe, making it possible to use right hand cutting tools exclusively. The work spindle carrier also indexes in a counterclockwise direction bringing the work from position to position.

The work spindle carrier has an outer support which carries the weight of the wire case carrier, and is so designed that the feed tubes may be removed without disturbing this support. The support is indexed on rolls. The rolls are adjusted by means of an eccentric.

#### INDEPENDENT AND ADJUSTABLE FEED FOR EACH TOOL

Each tool is operated by an independent cam and cam lever and is easily adjusted for depth of cut by the use of a turnbuckle which requires no clamping.

All regular cam levers have a graduated face on which the sliding block may be raised or lowered to vary the feed of the tool on most by 20% (all end working 20%; cross slides 1st, 2nd, 4th, and 5th position arm 20%; 3rd position arm is 10%). All these levers have a 3/4 diameter roll. In the third tool spindle position a special 2:1 cam lever can be used, and in the fourth tool spindle position a special 2.5:1 cam lever. These cam levers have 5/8 diameter rolls.

Independent and adjustable compensating stops for 1st, 2nd, and 4th forming slides and 3rd position rear tool arm insure the same size work from all spindles. A special stop can be mounted on the cutoff arm to allow light forming to be done on the work in the burring spindle after the piece is cutoff.