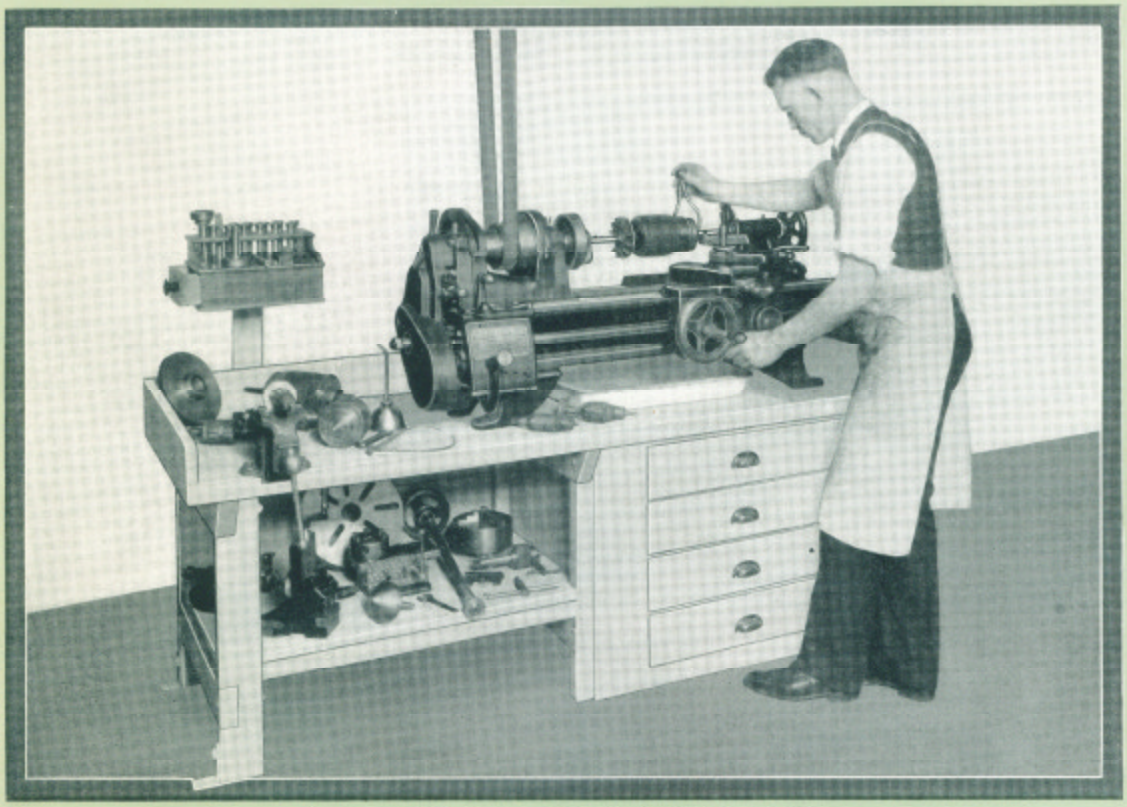
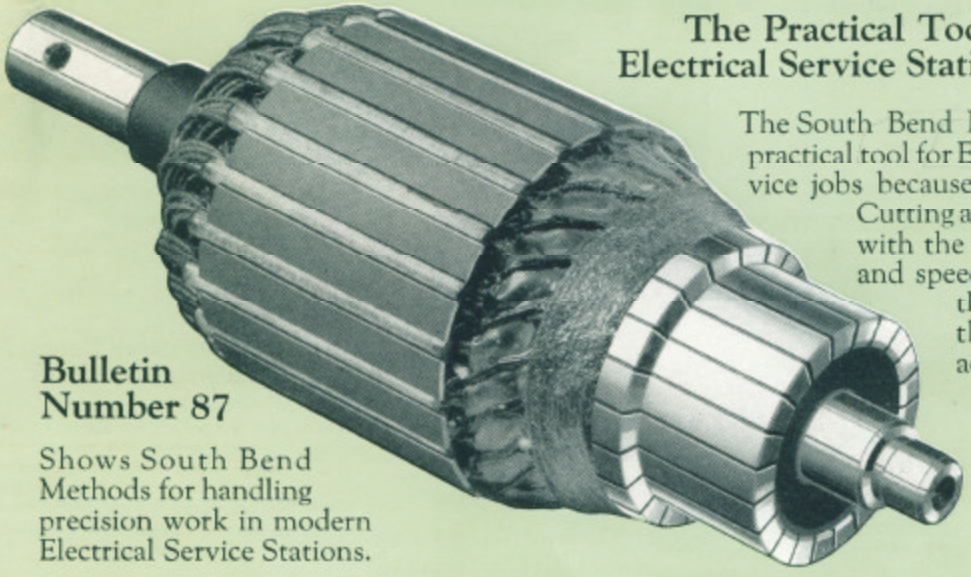
South Bend Shop Methods for Electrical Service Stations



Armature Work on an 11 inch South Bend Lathe



The Practical Tool for Electrical Service Station Work

The South Bend Lathe is the practical tool for Electrical Service jobs because it is Screw Cutting and equipped with the proper feeds and speeds for doing the work with the required accuracy and precision.

Bulletin Number 87

Shows South Bend Methods for handling precision work in modern Electrical Service Stations.

South Bend Lathe Works
725 East Madison St., South Bend, Indiana

The Modern Method of Truing Commutators

The Screw Cutting lathe is the only practical tool for turning a commutator true. No special attachment is required because the regular equipment of the lathe is sufficient for doing the work. This is a precision job and should be done on a Screw Cutting lathe.

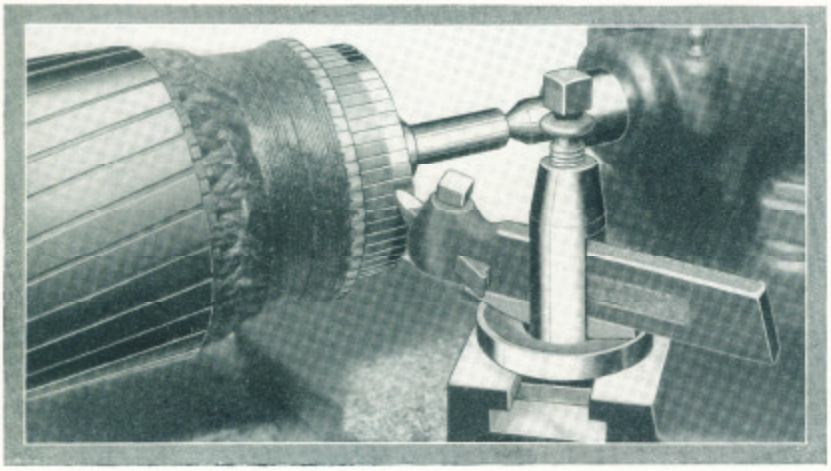


Figure 3 E—The Regular Equipment of the Lathe is Sufficient for Turning Commutators.

Turning the Commutator True

Figure 3 E

The illustration shows an armature mounted between centers in the lathe. The turning tool is fed across the commutator by the automatic feed of the carriage. Job Instruction Sheet No. 87 explains how to grind and set the turning tool and also the proper speeds and feeds for machining copper.

Cutting a Recess in the Commutator

Figure 4 E

Some commutators can be machined more easily if a groove or recess is cut near the armature windings, as is shown in the illustration, Figure 4 E. This permits the mica to be relieved to a definite depth and length on each segment and maintains the armature in balance. This operation is fully explained in the Job Instruction Sheets.

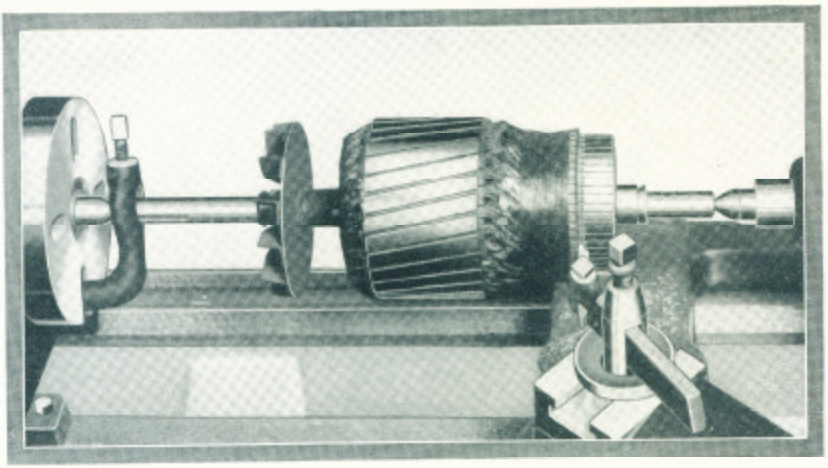


Figure 4 E—Cutting a Recess in Commutator for Convenience in Machining.

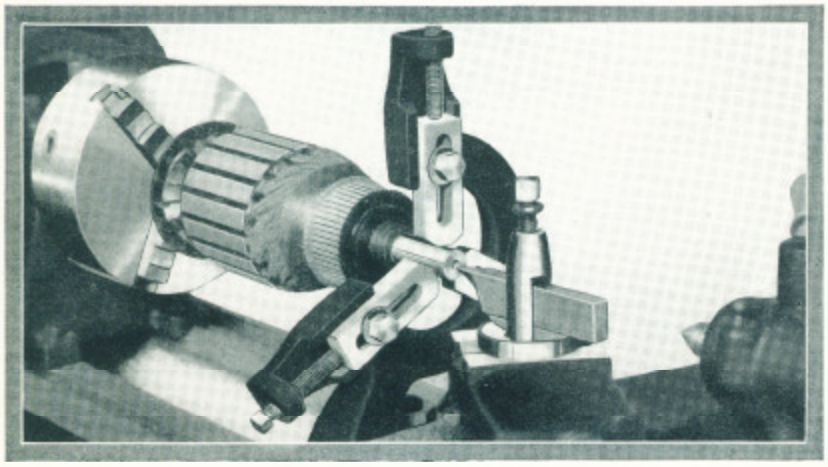


Figure 5 E—Restoring a Center Hole in an Armature Shaft.

Restoring a Damaged Center Hole in an Armature Shaft

Figure 5 E

Occasionally it will be necessary to restore a damaged center hole in an armature shaft before the commutator can be accurately machined. The illustration shows the armature mounted in the lathe for restoring the center. The compound rest is set at an angle of 30 degrees. See Job Instruction Sheets.

The South Bend Method of Undercutting Mica Insulation

After an armature commutator has been turned it is necessary to relieve the mica insulation below the diameter of the segments. The undercutting can be done in the lathe quickly, as outlined below. Job Instruction Sheet No. 87 explains this operation in detail.

How the Undercutting Tool Operates

Figure 6 E

The cutting tool is fed across the commutator by the hand feed of the carriage, relieving the mica to 1-32 inch below the diameter. The commutator is then rotated so that the tool can relieve the mica between the next two segments. This operation is continued on each mica groove without changing the position of the undercutting tool.

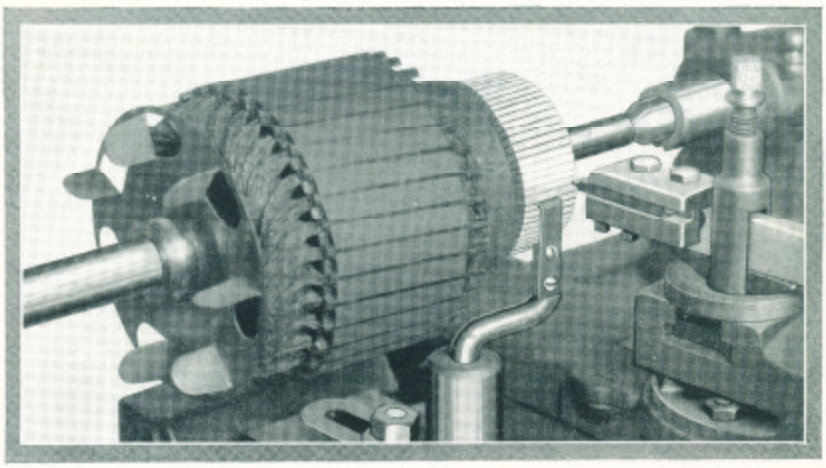


Figure 6 E—Undercutting Mica with South Bend Undercutting Tool

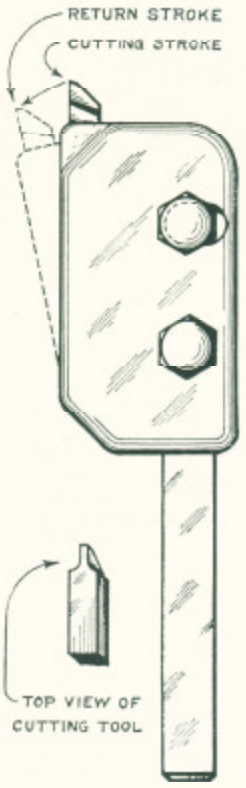


Figure 7 E—Undercutting Tool

Construction of Special Undercutting Tool

Figure 7 E

The tool used for undercutting mica insulation is of a special construction. A spring relief and swivel arrangement are provided to prevent the tool from dragging on the return stroke. This tool is clamped in the tool post of the lathe.

No. 8 Undercutting Tool with Spring Stop Holder and Cutter, Shipping Weight 5 lbs. Net Factory Price each.....$7.50

Spring Stop Indexes Commutator for Each Cut

Figure 8 E

A spring stop, which fits between the segments of the commutator, holds the armature stationary while the undercutting tool is taking a chip. This stop indexes the armature so that the next segment to be undercut is brought in exact alignment with the cutting tool.

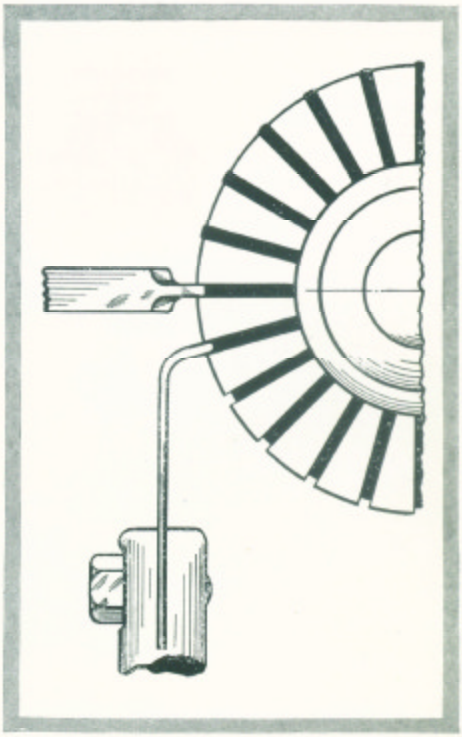


Figure 8 E—Depth of Cut 1-32 Inch

Making Brass or Bronze Bushings in the Lathe

New bushings of all kinds and sizes can be quickly machined in the lathe. Worn or damaged bearings can be reconditioned and new parts can be made when necessary. Once you become equipped, it is surprising the amount of bushing work that will develop.

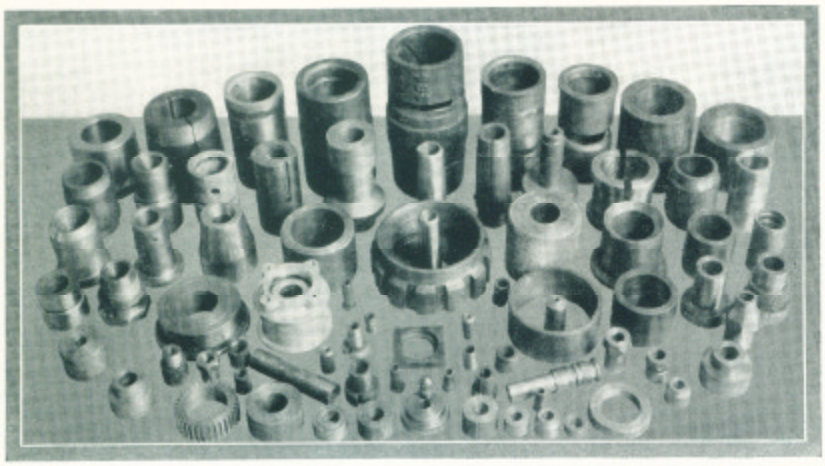


Figure 9 E—Bushings Made in the Lathe.

Any Size or Style of Bushing Can Be Made

Figure 9 E

Bushings can be made in the lathe to meet every requirement. Large bushings are as easily made as small ones and the various shapes illustrated can be readily machined.

Machining a Small Bushing

Figure 10 E

When small bushings are to be made it is customary to machine the job in the lathe in one set-up. After the bushing has been drilled, bored and reamed, it is turned on the outside diameter and then cut off at the proper length. See Job Instruction Sheets.

Figure 10 E—Making a Bushing in the Chuck.

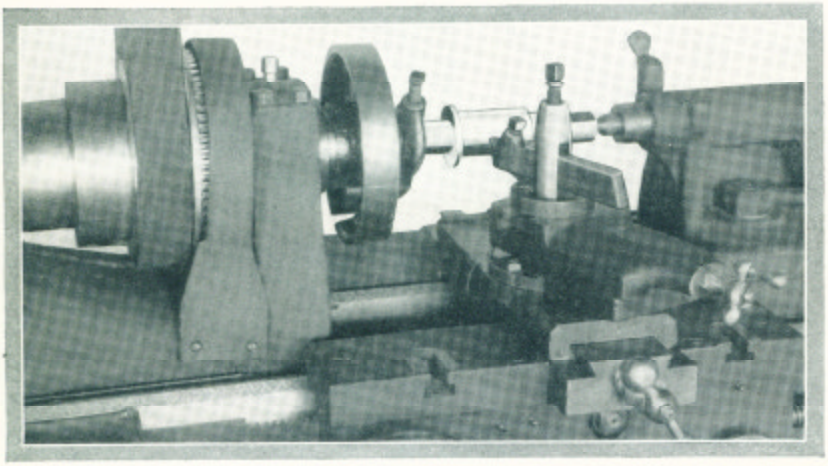


Figure 11 E—Turning a Bushing on a Mandrel

Turning the Bushing to the Desired Diameter on a Mandrel

Figure 11 E

Bushings 2 inches in length, and longer, are drilled, bored and reamed in the chuck, then removed and finished between centers on a lathe mandrel to the required diameter. This method is explained in our Job Instruction Sheets.

Miscellaneous Jobs for the Screw Cutting Bench Lathe in the Electrical Shop

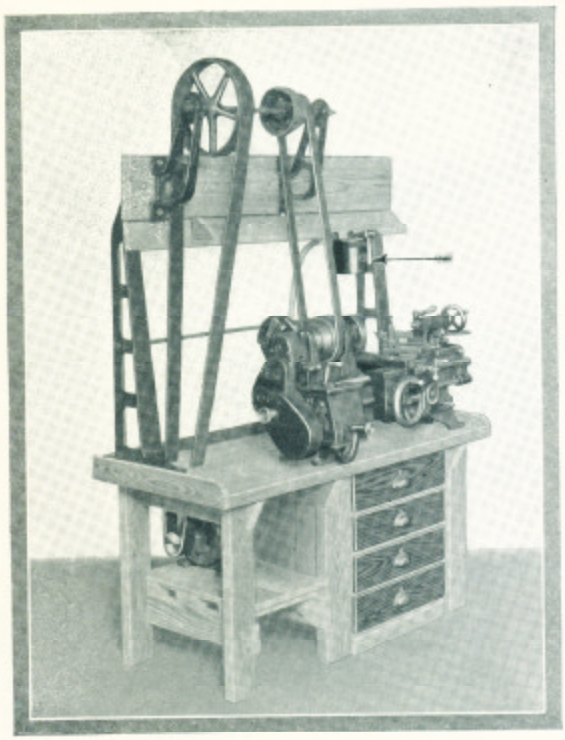


Figure 12 *E*—Simplex Motor Drive Lathe.

This is an excellent motor drive arrangement for the small screw cutting bench lathe. The motor which drives the lathe is bolted to a shelf beneath the bench. The reversing switch (see arrow) allows the starting, stopping and reversing of the lathe spindle from an easy working position in front of the lathe.

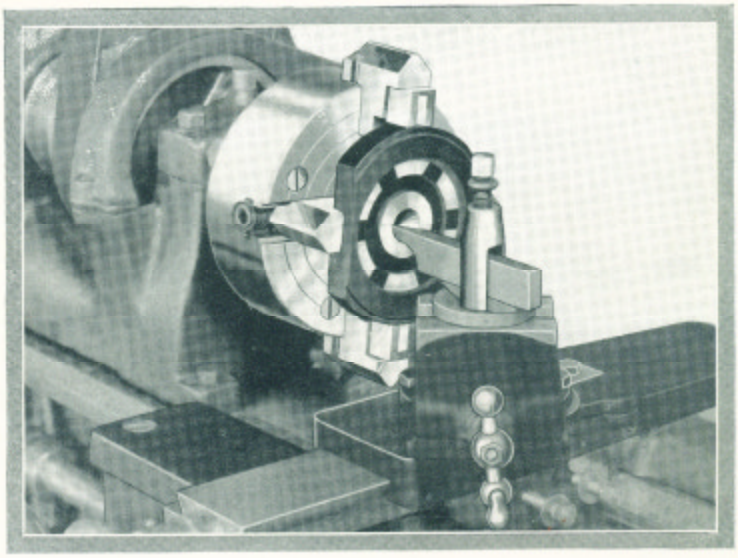


Figure 13 *E*—Facing a Worn Magneto Distributor.

The illustration shows a magneto distributor plate mounted in the lathe chuck for refacing. This simple operation makes the contact points of the distributor as good as new.

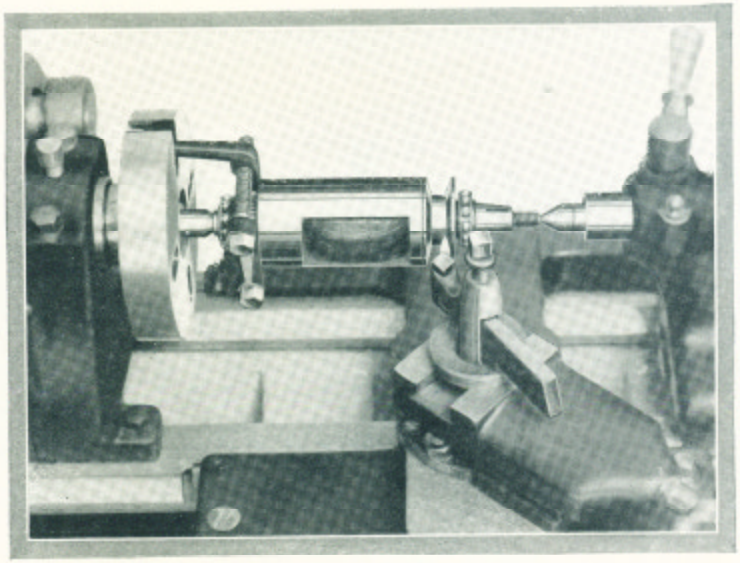


Figure 14 *E*—Truing a Magneto Collector Ring.

A worn magneto collector ring can be quickly and accurately made true by machining between the lathe centers as is illustrated above.

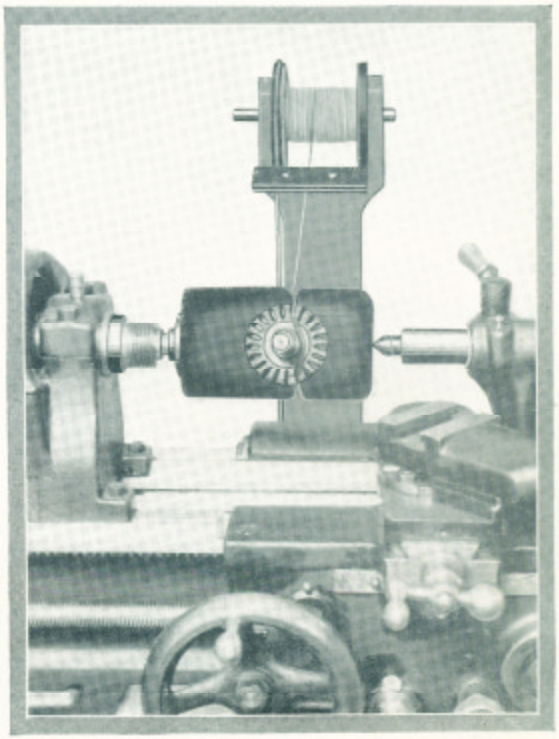


Figure 15 *E*—Winding an Armature on the Lathe.

Wood templets of various sizes are required for holding the different types of armatures between centers of the lathe.

Miscellaneous Lathe Jobs in the Electrical Shop

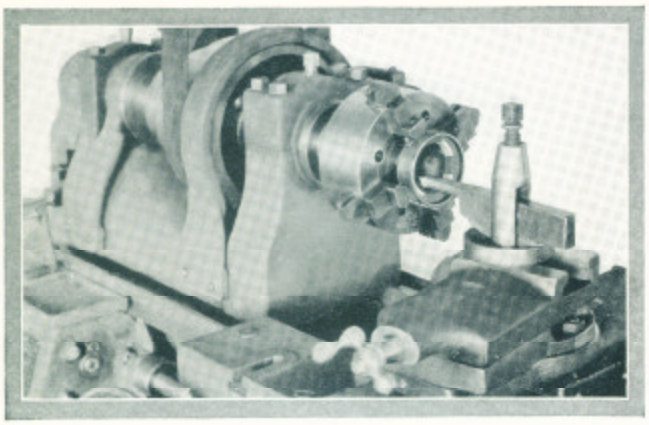


Figure 16 E—Restoring the Contact Points of a Ford Timer Shell in the Lathe.

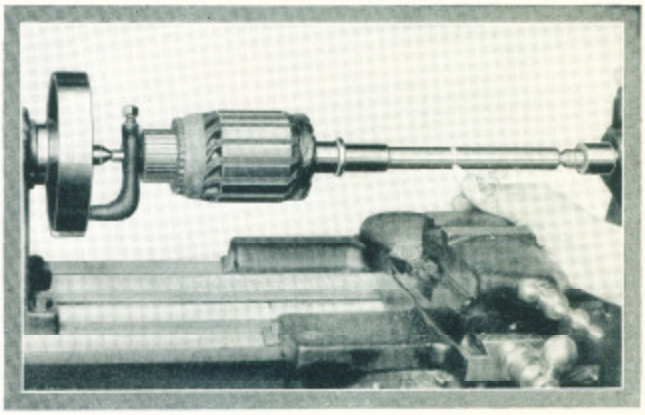


Figure 17 E—Testing and Straightening a Bent Armature Shaft Between Centers in the Lathe. See Job Instruction Sheets.

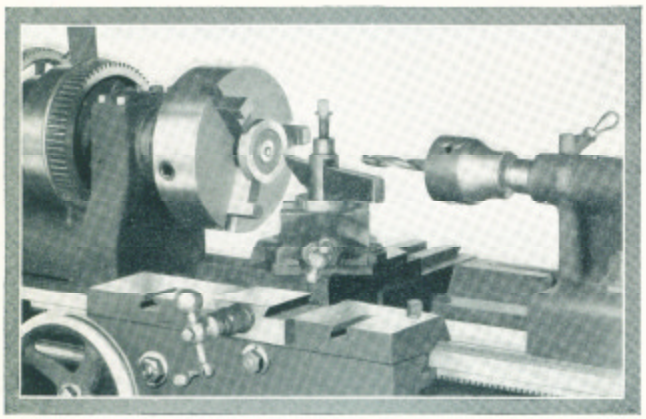


Figure 18 E—Machining a Small Gear Blank in the Lathe Preliminary to Cutting Teeth.

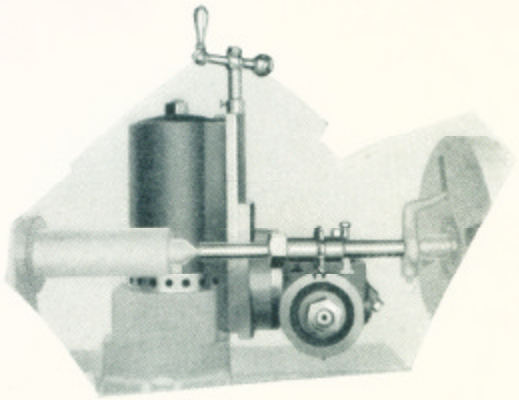


Figure 19 E—Cutting a Small Gear on the Lathe, Using a Millerette Gear Cutting Attachment.

High Speed Steel Tool Bits for Lathe Tool Holders

Made of high speed steel, properly hardened, and require only grinding before using.

Figure 20 E

Net Factory Prices

Size Squares	Length Cutter	Price Each	Size Squares	Length Cutter	Price Each
5/32 in.	1 1/2 in.	$.15	3/8 in.	3 in.	$ .55
3/16 in.	2 1/4 in.	.20	7/16 in.	3 1/2 in.	.90
7/32 in.	2 1/2 in.	.35	1/2 in.	4 1/4 in.	1.30

Combined Center Drill and Countersink

Figure 21 E

Used for centering work machined between centers in the lathe. Made of carbon tool steel, hardened and ground.

Net Factory Prices

Catalog No.	Diameter of Work	Diameter of Drill	Diameter of Body	Price Each	Price Dozen
1	1/8 to 3/8	3/32 in.	1/4 in.	$.25	$2.25
2	3/8 to 1	1/8 in.	5/16 in.	.30	2.75
3	1 1/4 to 2	3/16 in.	5/16 in.	.30	2.75
4	2 1/4 to 4	1/4 in.	3/8 in.	.40	3.50

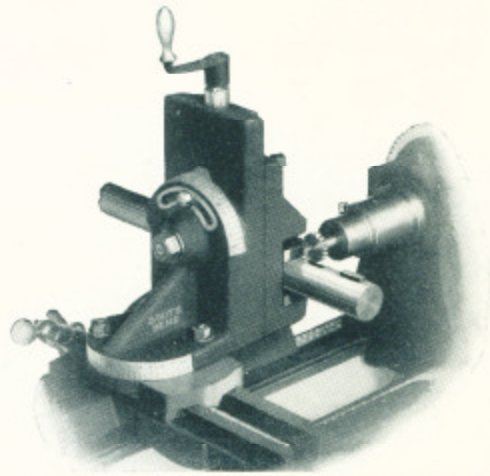


Figure 22 E—Milling a Key Seat in a Steel Shaft.
This illustration shows a practical milling and keyway cutting attachment for the lathe. See Bulletin No. 90, "Milling Attachments."

Ideal Jobs for the Screw Cutting Bench Lathe

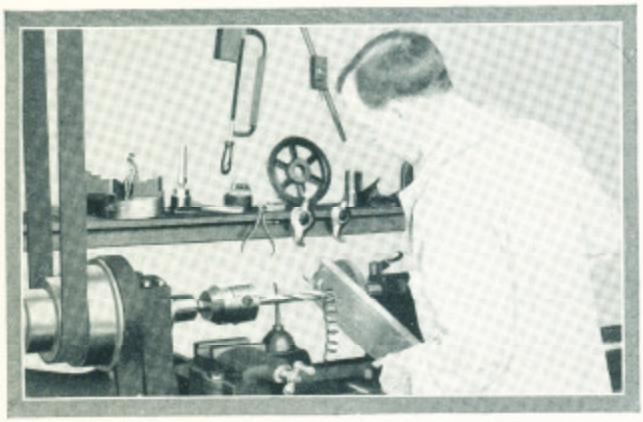


Figure 23 E—Using the Lathe as a Drill Press with Drill Chuck in Head Stock Spindle and Drill Pad in Tail Stock.

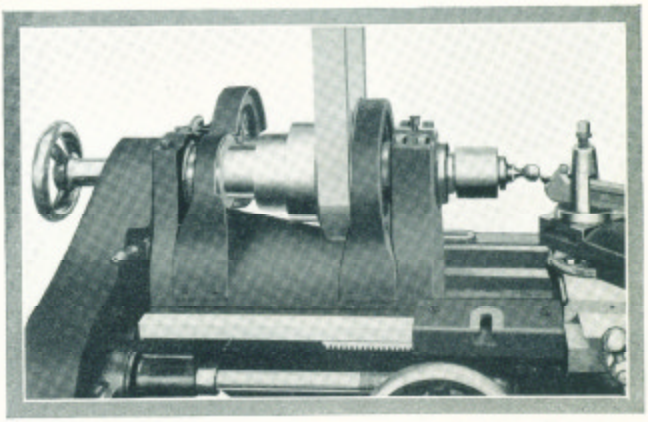


Figure 24 E—Machining Small, Accurate Work in the Draw-in Collet Chuck Attachment. See Bulletin No. 92, "Draw-in Collet Chucks."

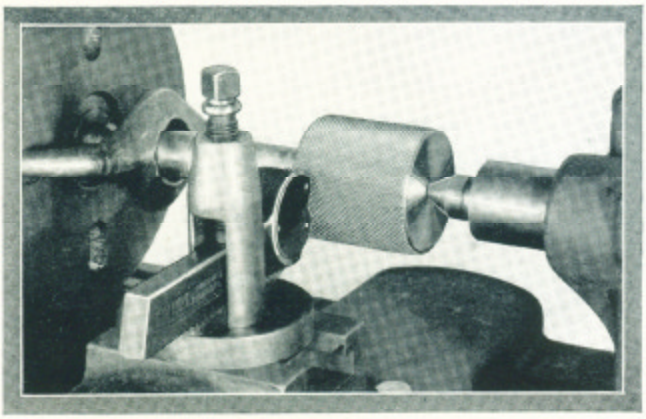


Figure 25 E—Shows a Knurling Tool in Operation on Work Driven Between Centers in the Lathe.

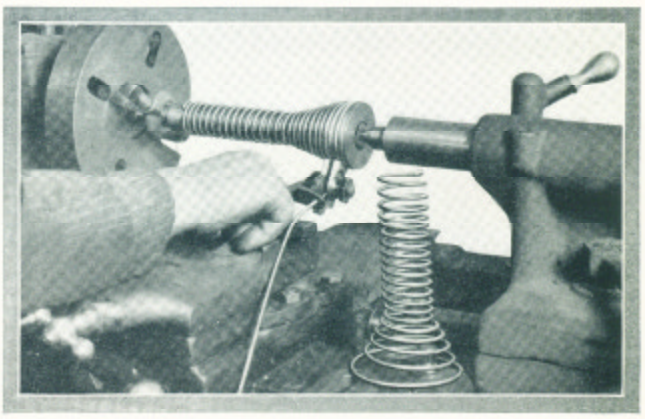


Figure 26 E—Winding a Spiral Spring in the Lathe. Springs of all kinds can be wound in the lathe.

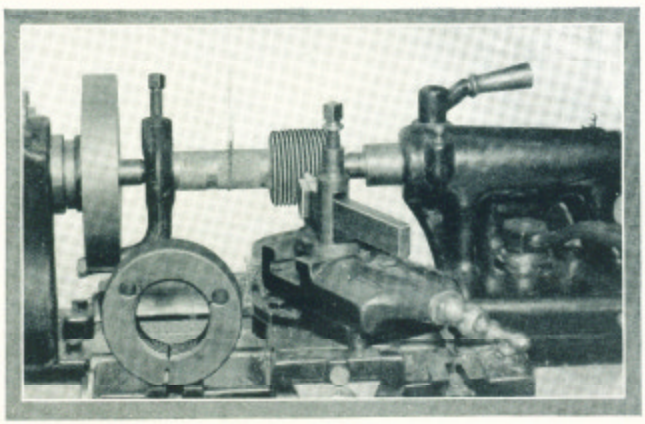


Figure 27 E—Cutting a Screw Thread on the Lathe. See Handbook No. 25, "How to Run a Lathe."

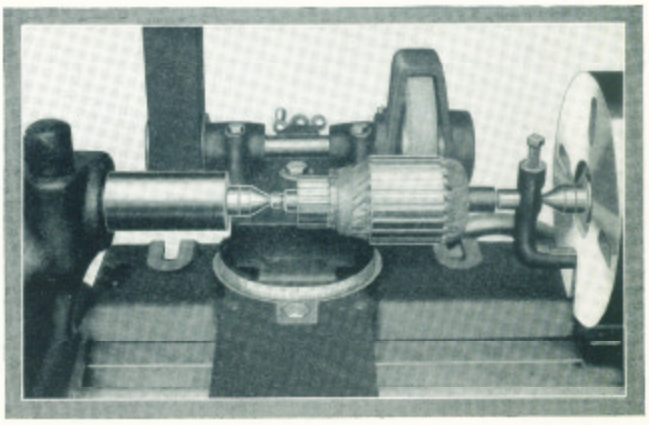
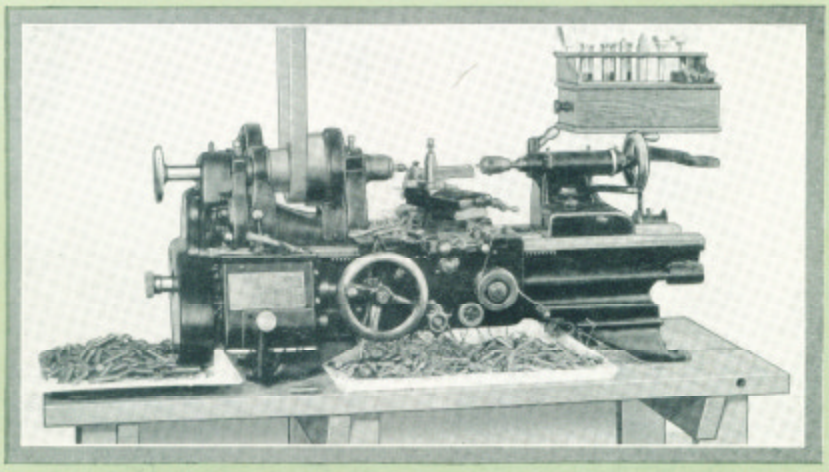


Figure 28 E—Truing the Diameter of an Armature by Grinding. See Bulletin No. 91, "Precision Grinding."

Is Your Shop Properly Equipped for Electrical Repair Work?



The 11 in. x 4 ft. South Bend Quick Change Gear Screw Cutting Bench Lathe

The Proper Type of Lathe for Electrical Repair Work

In order to do the various jobs illustrated in this Bulletin the lathe used must be equipped with the following features:

Lead Screw and Change Gears for thread cutting,
An automatic Cross Feed and Longitudinal Feed,
Set-over Tail Stock for taper turning,
Back Gears for power and slow speed,
Graduated Compound Rest for machining bevels and tapers,
Precision Accuracy necessary for fine machine work,
Hollow Spindle for Draw-in Collet Chuck and rod work,
Various Attachments if required (see Bulletin No. 98).

The 11 inch South Bend Lathe illustrated above has all these features. It will take care of all the jobs shown in this Bulletin—and hundreds of others.

The Bulletins Listed Below Show How to Do Important Jobs in Auto Repair Shops. They are Free. Order by Number.

No. 85 Piston Bulletin
Machining oversize and semi-finished pistons on the lathe.

No. 86 Valve Bulletin
Turning and grinding valve faces. Straightening valve stems, etc.

No. 87 Electrical Bulletin
Truing commutators, undercutting mica, making bushings, etc.

No. 88 Ring Gear Work
Machining flywheels for starter ring gears and truing crankshafts.

No. 89 Cylinder Regrinding
Regrinding and reboring cylinders on the lathe.

No. 90 Milling Attachment
Milling and keyway cutting on the lathe.

No. 91 Precision Grinding Bulletin
External and internal grinding on the lathe.

No. 92 Draw-in Collect Chuck
The draw-in collect chuck attachment for fine, accurate work on the lathe.

No. 93 The Lathe as a Screw Machine
The lathe as a screw machine for making studs and small parts.

No. 94 Turret Attachment Bulletin
The lathe as a turret lathe for manufacturing.

No. 95 Special Jigs and Fixtures
Special jigs and fixtures for holding work on the lathe in manufacturing operations where accuracy and interchangeability of parts are required.

No. 96 Taper Attachment Bulletin
Boring and turning tapers on the lathe. Also the practical use of the center rest and follower rest.

No. 97 Chucking Work on the Lathe
The use of Independent, Universal and Combination Chucks for holding work on the lathe.

No. 98 Other Lathe Attachments
Various lathe attachments to insure accuracy and precision on a special machine work.

Job Instruction Sheets

Explain How to Do the Work Shown in Each Bulletin

The work outlined in each Bulletin is explained step by step in special Job Instruction Sheets supplied with each attachment, making it easy for the mechanic to do the work.

How to Run a Lathe

An Authoritative Manual Containing Over 300 Practical Illustrations

In the 160 pages of **How to Run a Lathe**, the best and most practical methods of the fundamentals of modern lathe practice are put at your service.

Price 25¢

How to Run a Lathe furnished free with Lathe or Attachment orders

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