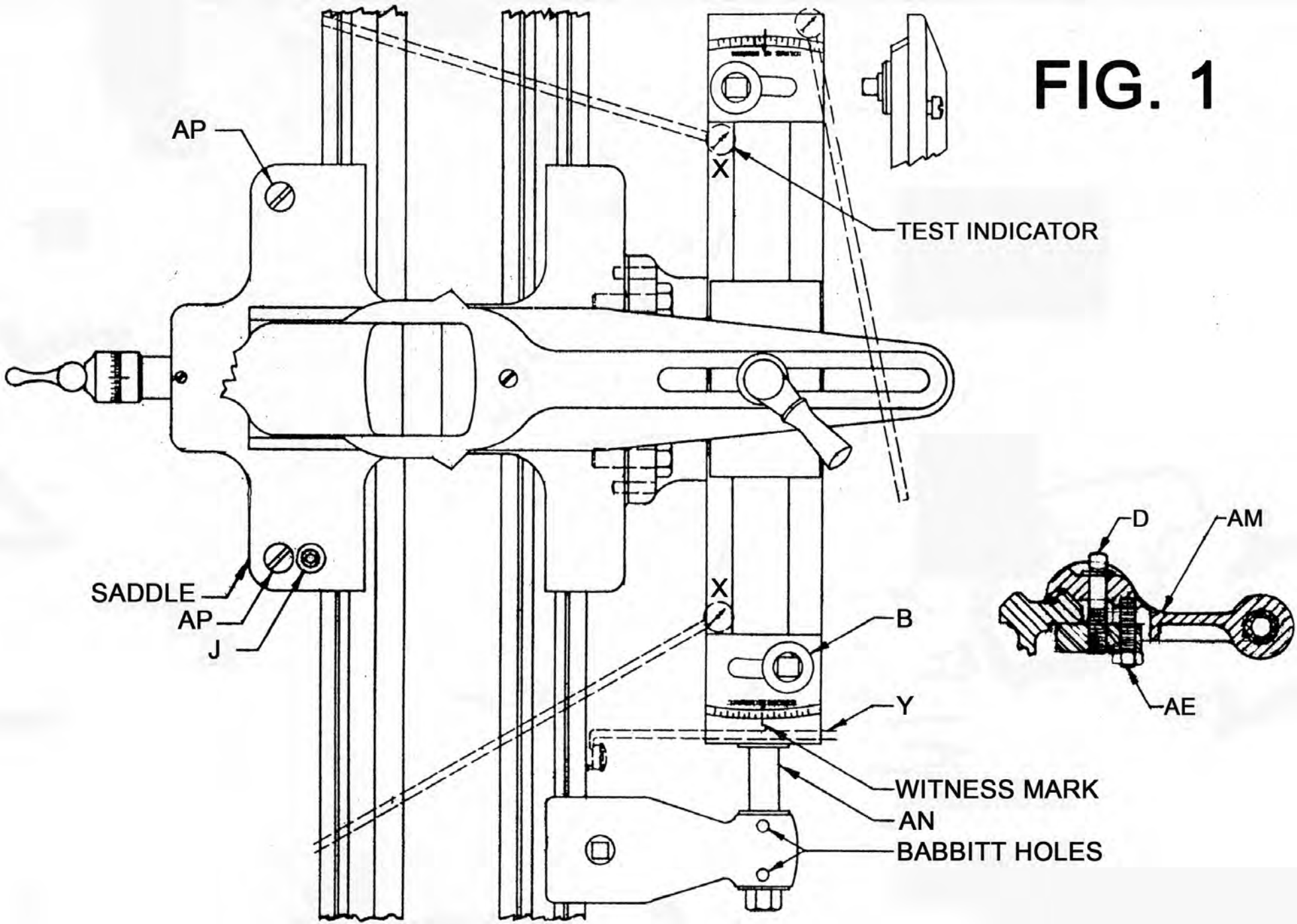


FIG. 1



HOW TO INSTALL A TAPER ATTACHMENT ON 9" A SOUTH BEND LATHE

Refer to Drawing E.P.-133

Tools and Cleanliness

It is essential that all parts be scrupulously clean and all finished surfaces are oiled before assembling. Use properly ground screw drivers and correct wrenches for all screw nuts.

1. Be sure lathe bed is perfectly level both crosswise and lengthwise. See **page 16** in book **"How to Run a Lathe"**. Some lathes have the saddle pads machined and drilled to receive a taper attachment. Check the saddle and if pads are machined, disregard **Item 2.**

2. Remove compound rest base and top by cranking them toward rear and sliding them off saddle. Remove carriage lock screw **"J"** and screws **"AP"** from saddle. Remove saddle gib screws **"AR"** and saddle gib from underneath saddle at rear. Lift saddle straight up to remove from bed. Machine the surface marked finish in **Fig. 3** to dimension given from centerline of saddle V-way to finished pad. This dimension is very important and must be held in order to fit taper attachment to lathe. These two pads must be machined parallel with saddle V and square with dovetail. See **Fig. 3**. Use a 5/16" drill, 7/8" deep, and 3/8"-16 tap, 3/4" deep. Drill and tap according to dimensions in **Fig. 3**. Reassemble saddle to bed. Be sure saddle is free of dirt and chips. Replace carriage lock screw **"J"**, screws **"AP"**, saddle gib and screws **"AR"**. Run saddle back and forth to check for bind and play. If any occurs, recheck fitting until bind and play is out.

CAUTION: *Do not scrape or surface saddle V-ways for this will throw compound rest dovetail out of square with spindle.*

3. Fit new compound rest base and gib to saddle, omitting cross feed nut for ease in assembling. Scrape base to fit saddle dovetail using Prussian blue to get a good bearing on the sliding surfaces. Adjust gib screws for correct operating tension. Remove compound rest base from saddle. Mount cross feed nut loosely in place. Lubricate with a good grade of machine oil. Reassemble saddle. Crank back and forth while tightening screw "U". Be sure nut does not cock sideways while tightening. If a bind occurs between cross feed nut and cross feed screw, remove cross feed nut and scrape or fit it to base. Repeat until a smooth running fit exists between nut and screw. See **Fig. 2**.

4. Remove binder and washer "C". Fasten bed bracket to saddle with hexagon cap screws. Bed bracket must be perfectly parallel with outer edge of lathe bed. Prove alignment by testing with a dial indicator as outlined in **item 5**. See **Fig. 1**.

5. Adjust the gibs between the bed bar "F" and bed bracket, swivel bar "E" and slide block "G" so they will slide full length of dovetail freely without bind or play. See **Fig. 2**. Fasten dial indicator as shown at "Y", **Fig. 1**. Indicator reading must show slide bar "F" perfectly parallel with edge of bed. Test full length of bed to determine straightest portion and do all fitting at this point. Fasten dial indicator to compound rest base. Take indicator reading across bed bar "F" when cranking compound rest base back and forth. Bed bar "F" must be perfectly must be perfectly in line with compound rest base dovetail. See **Fig 1**. If either of these two tests shows misalignment, surface or scrape taper attachment bed bracket pads where fastened to saddle. These two alignments are very important and must be perfect before continuing. See **Fig. 1**

6. Take dial indicator reading of surface "X" of swivel bar "E" with top of bed when swivel bar "E" is central. Lay a straight edge on top of bed with a dial indicator touching surface "X" of swivel bar "E". Check both ends. Tap bed bracket up or down until swivel bar "E" is parallel with bed. Tighten bed bracket securely to saddle. Drill and ream saddle using bed bracket holes as a guide. Press dowels in place. See **Fig. 1**.

7. Adjust tie-rod bracket "AM" to bed so cored hole will be central around tie-rod "AN". Adjust clamp screw "AE" if necessary. Scrape or surface tie-rod bracket "AM" to bed. Tie-rod bracket must have even tension full length of bed, and cored hole should be central around tie-rod "AN". Repeat above procedure until this has been accomplished. See **Fig. 1**. Put washers and nuts on tie-rod "AN". Babbitt cored hole in place through holes on top of tie-rod bracket "AM". See **Fig. 1**.

8. Oil all moving parts just assembled. Recheck each item to see that it has been followed to the letter. Tighten binding lever "C" and locking screws "B" so swivel bar will be tight. Lock carriage to bed by tightening screws "J". Loosen tie-rod clamping screws "D" slightly. Slide taper attachment back and forth in bed bracket by holding on to tie-rod bracket. If there is bind or play in this final test, refit the tie-rod bracket. See **Fig. 1**.

9. Tighten binding lever "C". Lock carriage to bed by tightening screw "J". Loosen locking screws "B" and tie-rod screw "D". Slide taper attachment guide bars back and forth until you are sure swivel bar "E" does not move. Tighten screws "B" and stamp a fine line witness mark at each end of bar "F" directly in alignment with zero on graduated swivel "E". This completes the fitting of a taper attachment for lathes having English graduations.

FOR LATHES HAVING METRIC GRADUATIONS :

A graduated plate is furnished which is to be fastened on base "F" at the end of bar "E" graduated in inches, after the witness marks have been stamped per instructions in the preceding paragraph. Make sure the zero mark on the swivel bar "E" is in line with the witness mark on base "F". Lay the graduated plate on base "F" close to the inch graduations that are on graduated swivel "E" and with the zero mark of the plate in alignment with the zero mark on swivel bar "E", clamp each end of the plate securely to base "F" with c-clamps or similar clamping devices. Next, drill a size #31 (.120) hole next to the "zero" and between the "zero" and the edge of the plate through the plate into base "F". Be careful not to drill into tie rod "AN". Drive 1/8" dia. by 3/16" pin into drilled hole by tapping lightly. Pin should extend a little over top of plate. Peen pin over with light taps. When this has been done, remove the clamp from one end of graduated plate and, using the drilled hole in the end of the plate as a guide, drill a 7/64" dia. hole through base "F" and tap this hole using #6-32 by 1/2" flathead machine screw. Countersink the hole in the graduated plate at angle of 82 deg. so the top of the #6-32 by 1/2" flathead machine screw will be flush with the plate. Tighten the screw securely in place and then repeat this procedure on the other side. After the pin and two screws have been fastened according to the above procedure, file finish the top of the graduated plate to make the pin and screw heads flush with the plate. Do not file hard enough to remove graduations from plate.

SOUTH BEND LATHE WORKS

4-5-49

FIG. 2

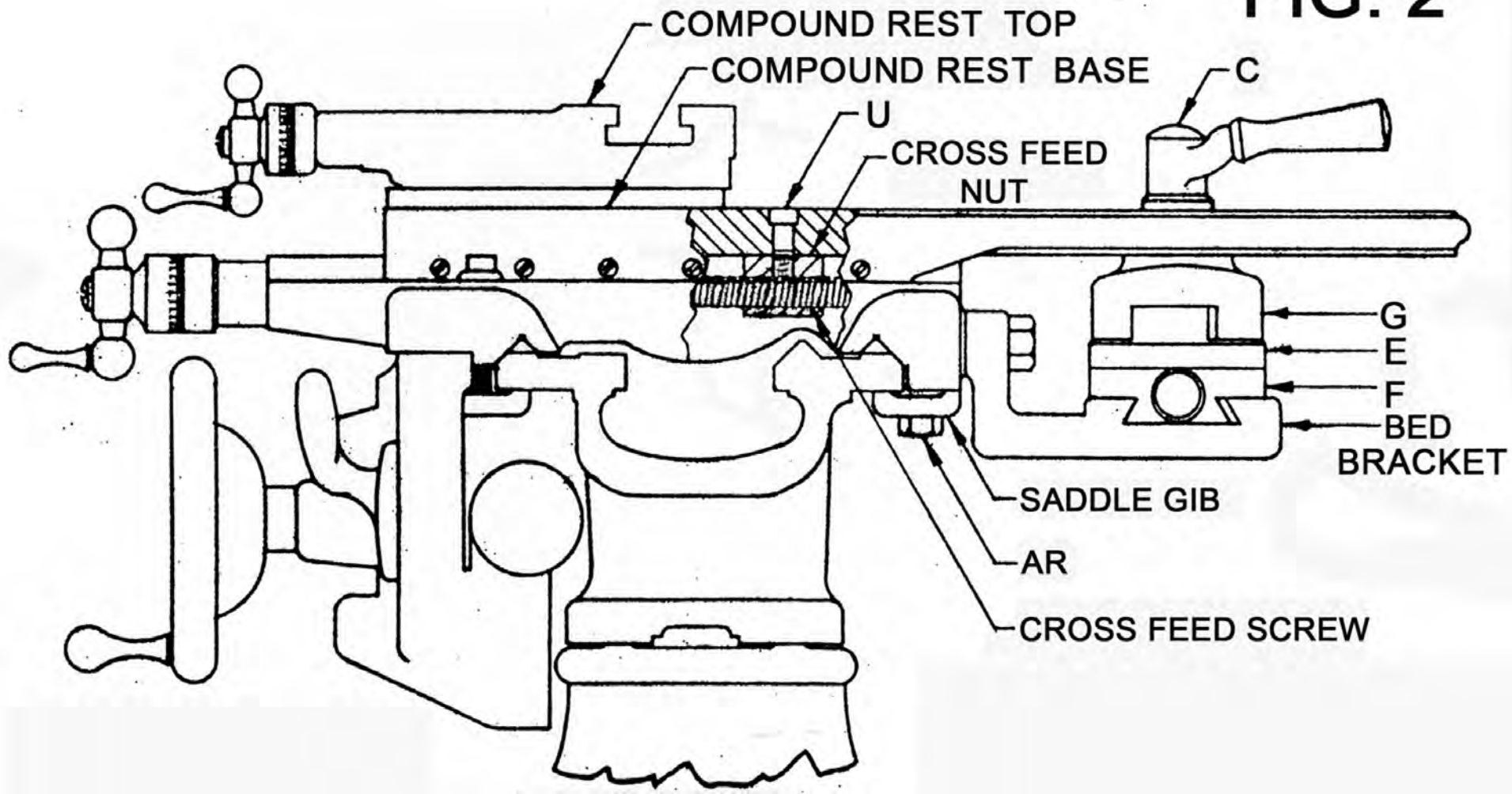
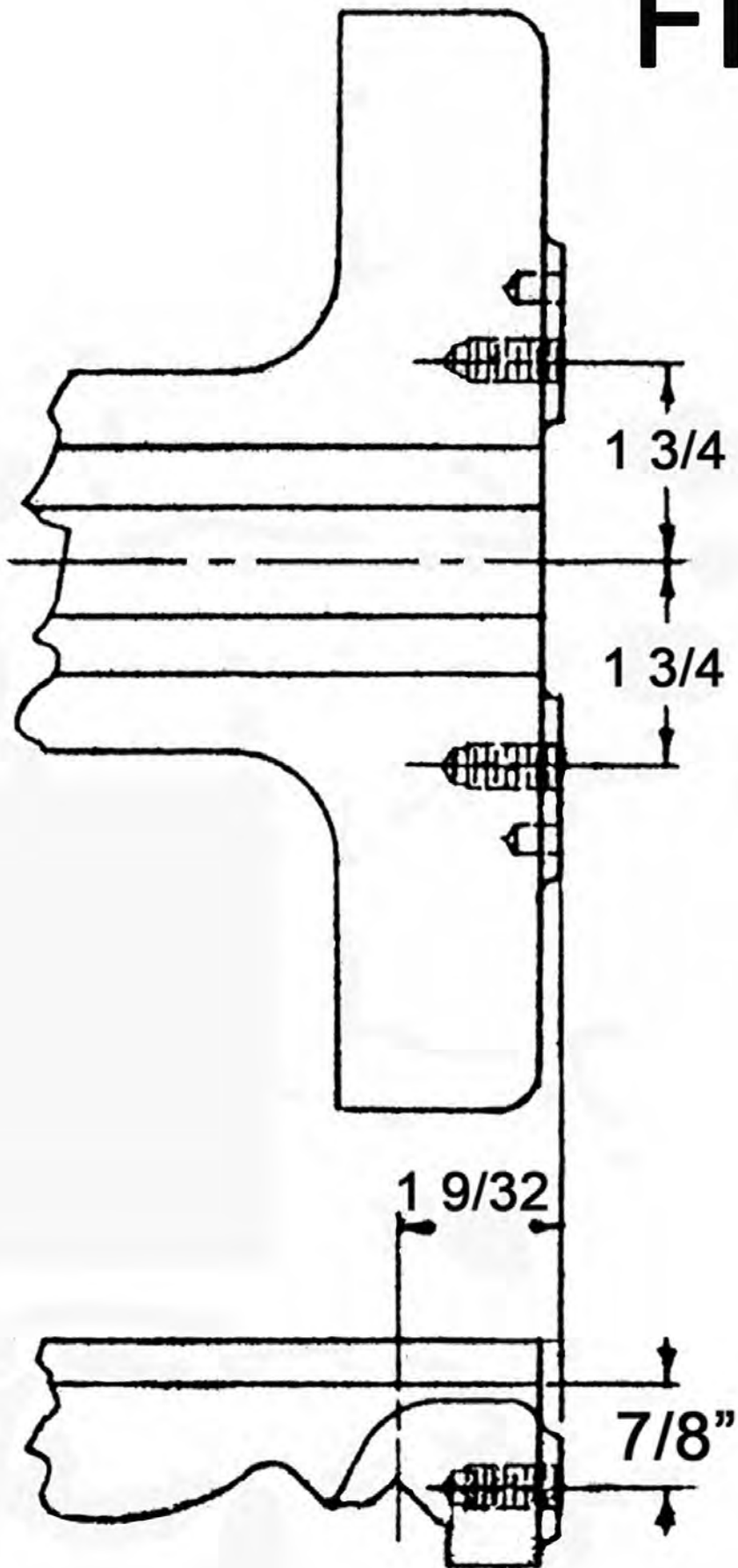


FIG. 3



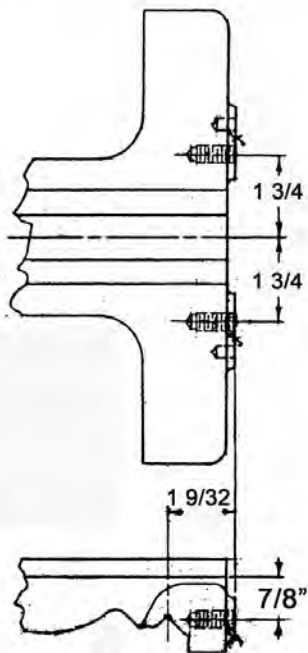


FIG. 3

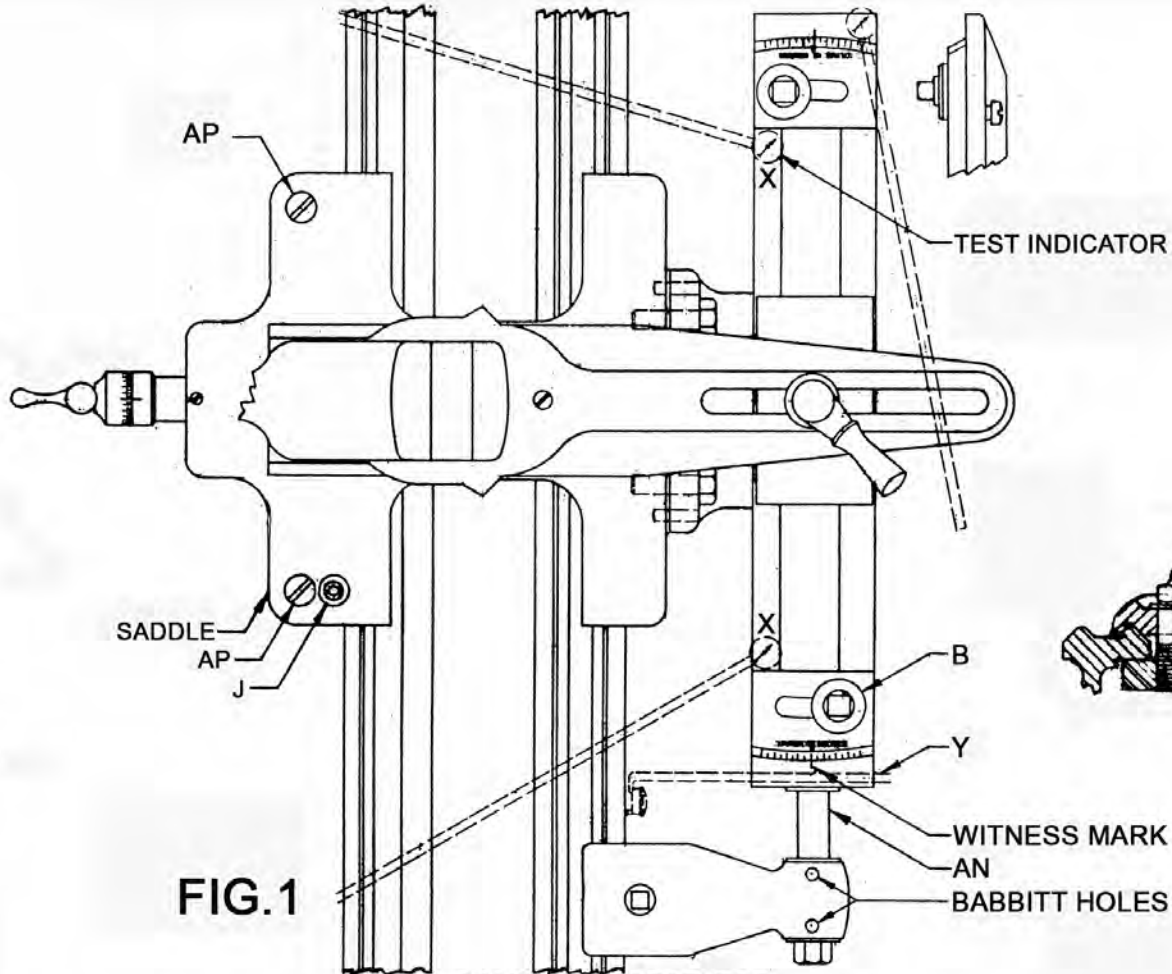


FIG. 1

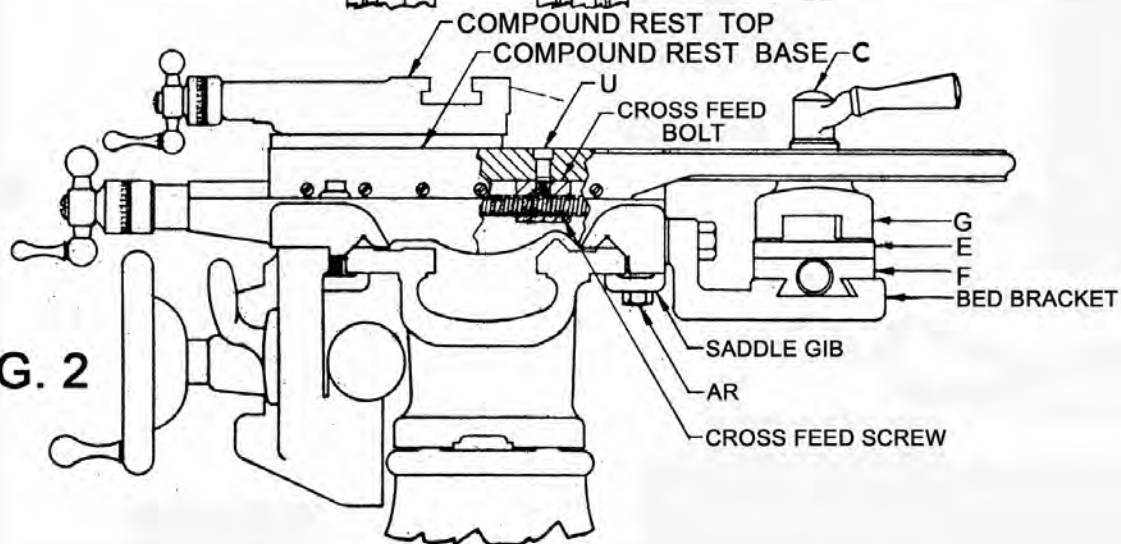
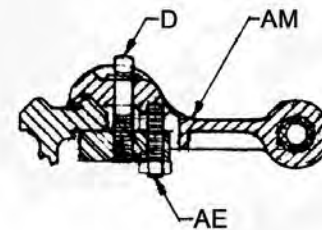


FIG. 2

No. EP - 133		
HOW TO INSTALL TAPER ATTACHMENT TO 9" LATHE		
SOUTH BEND LATHE WORKS SOUTH BEND, IN.		
W. P. R. O. S. S. B. E. N. D.		
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