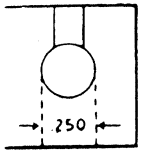
4 UNIVERSAL INDICATING ATTACHMENTS

recision set-ups with speed and accuracy demanded modern machine work, is now possible by using ne or another of these interchangeable attachments. ith this Wiggler, you can indicate from toolmakers uttons or holes, ground surfaces, gauge blocks, the ide of round work, and true to layout lines. The nt shaft holds indicators of all types, and allows e ball of the indicator to be positioned on the pindle center.

low to use the BALL SHAFT



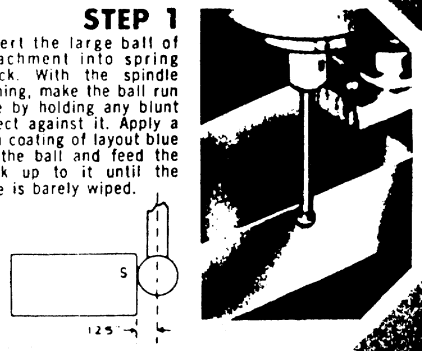
PRECISION BALL the ball applied to surfaces is hardened and ground to an exact diameter of .250". In making measurements, taking half its diameter, or .125", gives a precise center.

Indicating from ground or machined surfaces, gauge blocks, etc.

he ball shaft is used for set-ups where locations e to be made from ground or machined surfaces, auge blocks, or sides of round work. This attach- ent is the one you will use most frequently, as you ill find that it simplifies many difficult indicating roblems. DISC CONTACT POINT (.100") permits use more confined areas, such as slots, holes, etc.

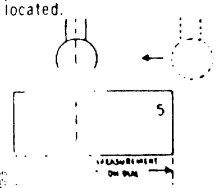
STEP 1

Insert the large ball of attachment into spring chuck. With the spindle turning, make the ball run true by holding any blunt object against it. Apply a thin coating of layout blue on the ball and feed the work up to it until the blue is barely wiped.



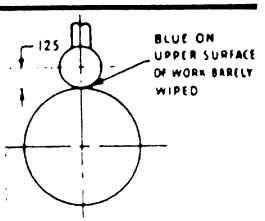
STEP 2

Lower the table and move it .125" (half the diameter of the ball) to bring the reference surface (S) directly under the spindle center. By using the micrometer collar on the lead screw, any desired distance from the original position can then be located.

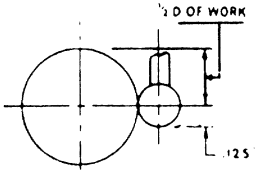


Locating TRUE vertical center lines of round bars

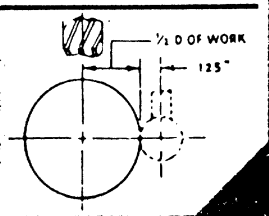
STEP 1 Apply layout blue to the upper surface of the work. Then, with the ball shaft running true raise the table gradually while moving it slightly back and forth until the blue is barely wiped by the precision ball. This locates the height of the upper surface of the work.



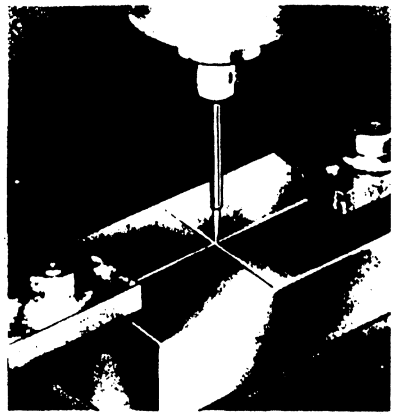
STEP 2 Next, with spindle running, move the work away from the spindle and raise it a distance of one-half the known diameter of the work plus .125" (one-half the diameter of the precision ball). This places the center line of the ball and of the work in the same horizontal plane. Blue the ball and move the work toward it until the blue is barely wiped. This gives you the location of the side of the work.



STEP 3 Now you can locate the spindle center precisely above the vertical center line of the work by lowering the table and moving it toward the spindle one-half the diameter of the work plus .125" (one-half the diameter of the precision ball.)



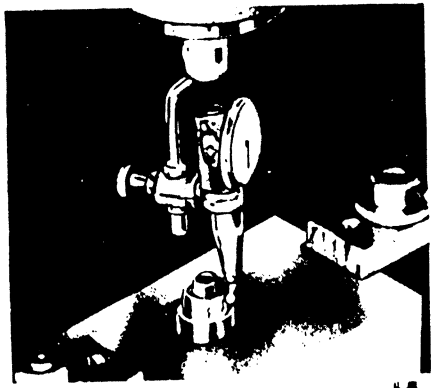
the "NEEDLE-POINT" sha



The sharp, slender point is used to find cente and for truing to layout lines. It insures accura and is readily replaceable.

The "Needle-Point" is held in a rigid friction gri To replace with new point, merely use pliers. grinding is needed – the shaft retains its origir length. It is the same precision point used o other "Needle-Point" tools.

Bent shaft holds ALL INDICATORS



This indicator shaft is used with an indicator to locate from tool-

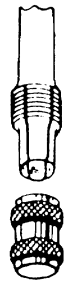
Shafts snap into the Spring Chuck

Knurled Collar Adjusts the Chuck Spring Tension and Maintains Adjustment

ALWAYS LOOSEN KNURLED CHUCK NUT OR COLLAR BEFORE INSERTING OR REMOVING THE SHAFT ATTACHMENTS

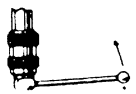
Various attachments may be interchanged without removing the wiggler.

Balls and body are hardened.

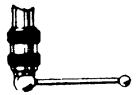


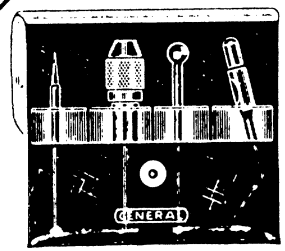
Interchange shafts this quick, easy way

TO REMOVE



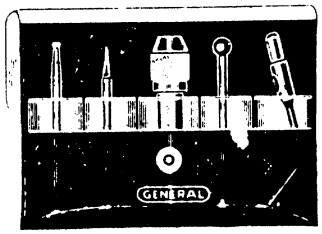
TO REPLACE





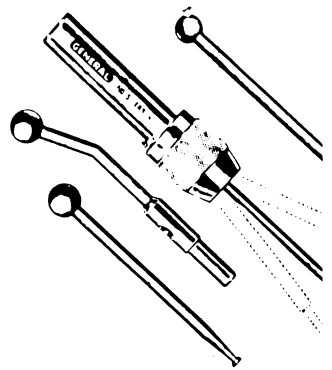
No. S-389-3 WIGGLER SET with Needle Point, Ball Point and Indicator Holder in snap-button Vinyl Case. Packed 1 set to a box. Weight 3 ounces.

UNIVERSAL WIGGLERS



No. S-389-4 WIGGLER SET with Needle Point, Ball Point, Disc Point and Indicator Holder in snap-button Vinyl Case. Packed 1 set to a box. Weight 4 ounces.

REPLACEMENT PARTS
84-P Needle Point



how to use the GENERAL® Universal