The Pawn

Material: Brass or Aluminum

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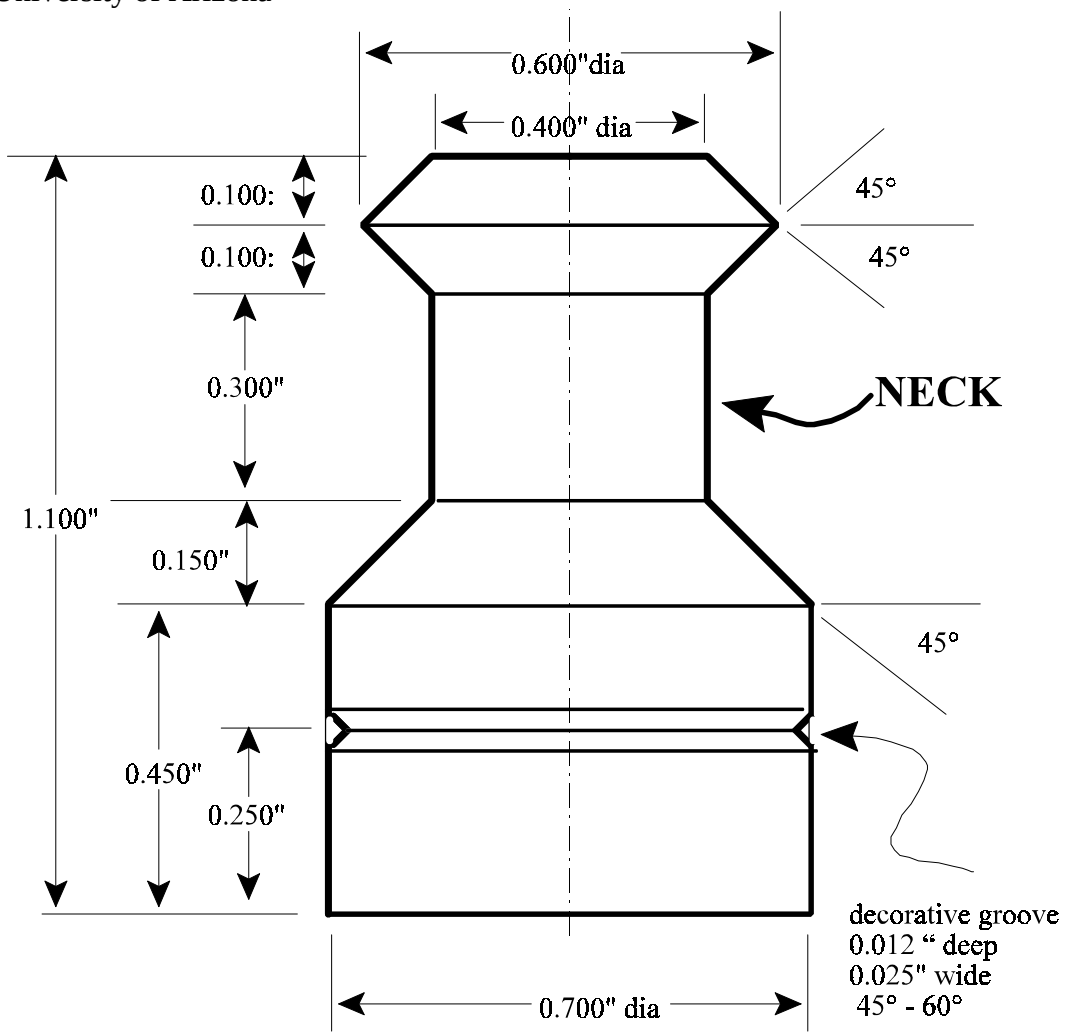

Students are encouraged to make design changes, but they should be by design (on a drawing) before they are done, rather than happy accidents.

First Suggested order of operations in making a pawn

1. Cut Stock
   a. Measure and mark a 1.5 inch length of stock. Mark circumference with tape
   b. Hold it in the vise and cut with a hacksaw.

2. Cut the base.
   a. Set top slide so it moves parallel to the axis of rotation.
   b. Cut bottom
      i. Mount the piece in the lathe chuck, bottom sticking out
      ii. Square the bottom, advancing the cutter parallel to radius. and face of tool almost parallel to radius. (Lock main saddle in position) depth of cut is controlled by top slide.
      iii. You may wish to hollow the base a bit so that when sitting, the piece only contact the table around its edge and ths sits better.
   c. Turn base to diameter.
      i. Measure as you go
      ii. Tool moves parallel to axis toward chuck, and depth of cut controlled by radial motion.
   d. Mark position of decorative groove and beginning of narrow NECK
   e. Cut decorative groove.
      i. Use tool with 90° end and plunge it in set 45° to piece.

3. Cut upper
   a. Cut top
      i. On bottom, mark position of lathe chuck jaw # 1
      ii. Remove piece from chuck, wrap base in tape for protection.
      iii. Mount the piece in the lathe chuck, upper end sticking out. (Jaw #1 matching previous position.)
      iv. Turn the piece to length and square the top, and cut advancing the cutter parallel to radius. and face of tool almost parallel to radius. (Lock main saddle in position) depth of cut is controlled by top slide.
      v. Mark the position of the narrower part (the NECK)
      vi. Turn the NECK to just over the desired diameter. and just shorted of its ends. Cutting toward chuck.

4. The 45° cuts.
   a. There are two basic ways to make the 45° cuts
      i. Set the top slide to move at 45°.
      ii. Set the long straight cutting face of a tool at 45°.
   b. For either method think about which operations have the same setup of top slide and/or cutter.
   c. Make these cuts to the final diameter of the NECK
   d. After the 45° cuts are made finish diameter of the NECK.

OR (next page)

Second Suggested order of operations in making a pawn

1. Preparation
   a. Start with a piece of stock 2.5-12 inches long
   b. If necessary,
      i. measure and mark a 12 inch length of stock.
      ii. Mark circumference with tape
      iii. Hold it in the vise and cut with a hacksaw.
   c. Mount piece of stock in the lathe chuck with about 2 inches projecting.
   d. Set top slide so it moves parallel to the axis of rotation.

2. Cut upper
   a. Cut top
      i. Square the top, by cut advancing the cutter parallel to radius. and face of tool almost parallel to radius. (Lock main saddle in position) depth of cut is controlled by top slide.
      ii. Mark the length of the piece,
      iii. Turn the entire length of the pawn to the diameter of the base.
         (1) Measure as you go
         (2) Tool moves parallel to axis toward chuck, and depth of cut controlled by radial motion.
      iv. With the stock still in the lathe, mark the positions of the pawn's features along its length.
      v. Turn the NECK to just over the desired diameter. and just shorted of its ends. Cutting toward chuck.
      vi. Cut decorative groove.
         (1) Use tool with 90° (or 60°) end and plunge it into piece.

   b. The 45° cuts.
      i. There are two basic ways to make the 45° cuts
         (1) Set the top slide to move at 45°.
         (2) Set the long straight cutting face of a tool at 45°.
      ii. For either method think about which operations have the same setup of top slide and/or cutter.
      iii. Make these cuts to the final diameter of the NECK
      iv. After the 45° cuts are made finish diameter of the NECK

3. Cut the base.
   a. Mount a short cutoff tool.
      i. Tool must plunge straight in along the radius.
      ii. Tip must be exactly at the center height.
   b. Square the bottom, advancing the cutter parallel to radius until the piece is cut free. (Lock main saddle in position) .