

# Making a Hollowware Coronet

By Carl W. Lemke



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The following instructions describe the methods I use to make hollowware coronets. The instructions assume you have knowledge of basic jewelry and metal working techniques. This is not a good project for a beginner.

## Layout

It's possible to layout the design directly on the metal but I've found it's better to make a template in cardboard. The template allows for the easier correction of errors and the template saves time for identical coronets in the future.

I use a plain piece of white poster board for the template. The coronet that I'm making here has sides that slant out at the top. The layout for the slanted side coronet is as follows:

Determine the circumference to the coronet by measuring around the head at the middle of the forehead. Add three inches to this measurement (you may have to adjust this fit before you cut the metal). Make the coronet oversize. Metal to skin contact is not comfortable. This coronet will have a padded roll inside that fits against the head.

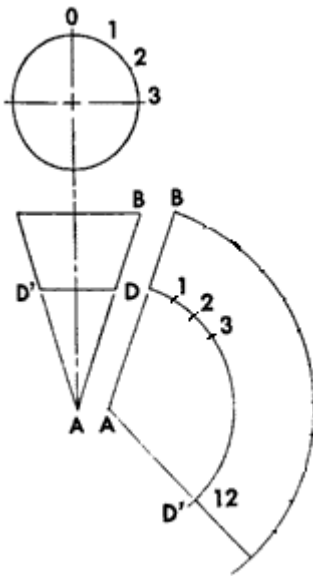


Figure 1

the actual top and bottom of the coronet and the point where I will raise a beaded line on the outside of the coronet.

Refer to figure 1 for the following directions. Draw a centerline down one side of the cardboard. On this centerline draw a bottom and side view of the coronet. In the side view the distance B-D is the actual height you would like the coronet to be plus one-inch. The extra inch is the edge that will be folded in later. You also need the extra metal when embedding the blank metal in pitch prior to doing the repoussé. Divide the circle into four parts and, with a divider, divide one of the quarters into three equal parts. The distance 0-1 equals 1/12 the circumference of the bottom of the coronet. Mark distance A-B. Using point A as the center and A-B as the radius, draw an arc. Repeat using A as the center and A-D as the radius. Using a divider set to the distance 0-1 mark 12 lengths on the D Arc. At the twelfth mark draw a line from D-B back to A.

Draw radial lines from A through each of the twelve marks on the D arc. Use these lines and a compass to mark the six points on the top of the coronet. Lay out the points so the ends fall between two points. Figure 2 is the end of an actual template. The close together parallel lines are

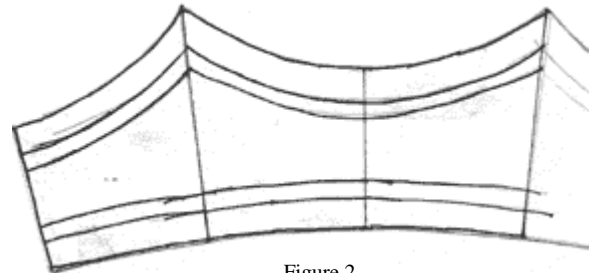


Figure 2

Tape the ends of the template together and check the fit. The coronet should fit with about a half inch or so gap all around the inside. Remember there will be a 1/4 inch folded edge inside and you need room for the padding.

## Cutting the Blank

For most coronets I use 22 gauge metal. I've made coronets using metal as thin as 28 gauge but this is almost impossible to polish without polishing through the repoussé. It's also really difficult to shape without wrinkling the metal. Tape your template to the metal and scribe around the outside of the template. Cut out the blank coronet on the scribed lines using shears. (Warning: Very sharp edges here.)

Using the cardboard template set a pair of dividers to the inside line closet to the outside edge and scribe this line on the top and bottom of the blank. Set the dividers to the inside line and scribe this line on the blank. You should now have a metal blank that looks like the template (Figure 3). Anneal and pickle the blank.



Figure 3

## Repoussé

(Warning: Pitch was the original Napalm. Remember the medieval descriptions of defenders pouring boiling pitch on the attackers. Hot pitch will stick to your skin and cause a severe burn. Always oil your hands well before touching the pitch.)

I use a pitch made of equal parts (by volume) of black pitch and plaster with a small amount of linseed oil. The linseed oil controls the hardness of the pitch. The pitch should be just soft enough that it will dent without cracking when struck with a hammer. Don't make the pitch too soft. It's better to have it a little hard than too soft.

I have a 1/2 to 3/4 inch layer of pitch spread on a board that I use for the following. See figure 4. Soften the surface of the pitch with a torch. Keep the torch moving so you don't burn the pitch. When the pitch is softened, oil the back of the coronet blank lightly and place it into the pitch with a rocking motion. You don't want any air trapped beneath the blank. Mould the pitch over the edges of the coronet blank. Don't cover the scribed lines for the repoussé. Let the pitch cool completely.



Figure 4

Hammer the area between the scribed lines using a rectangular repoussé tool the same width as the scribed lines. Stop the repousséd line about one half inch before the end of the blank. The repousséd lines will be connected after the ends are soldered closed. Remove the blank from the pitch by heating slightly with a torch. Anneal the blank. (Note: There's always some pitch stuck to the blank. I just burn this off. Burning it off makes a lot of smoke so if you don't have a really great ventilation system, do it outside. You can also dissolve the pitch in alcohol.) When the blank is cool replace it in the pitch using the method described above. Use a dapping tool in a size that will just fit into the groove you

repousséd in the previous step. Raise the beads the along both sides. After the beading remove the blank from the pitch and anneal it again. Pickle the blank.

Shape the blank into a circle by shaping it gently around a large piece of pipe. Work the blank into a circle gently to avoid wrinkling the metal. Flatten and square the ends with a file. Butt the ends together and solder using a high temperature, hard silver solder. Pickle the piece.

Place the soldered joint into the pitch as in Figure 5. Connect both lines using the repoussé tool and add the beading. Remove the coronet from the pitch and clean any pitch from the surface.

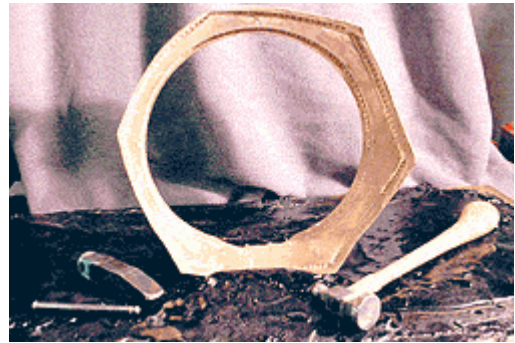


Figure 5

## Forming the Edges

Shape the coronet into an oval by squeezing the side gently. Place the solder joint at one end of the oval. The solder joint will be the back of the coronet. Check the fit of the coronet like you did with the cardboard template. (Note: Be careful...sharp edges.) Fold the bottom edge with a hammer and stake. Work it down gradually and re-shape the oval as necessary. Shape the bottom edge so that it lies flat against the table when the coronet is flat. After the bottom is done, shape the top edge in the same manner. I like to leave the top edge at a slight angle instead of folding it to 90 degrees.

After the edges are folded, re-check the fit. Take a divider and scribe around both edges with one leg of the divider against the outside of the coronet. Set the divider to mark about ¼ inch of folded edge. Cut or grind away the excess edge and file the edges even with a half-round file.

## Adding Ornaments or Bezels

Shape and solder any ornaments or bezels to the coronet at this point. Figure 6. Use medium temp silver solder. If you're soldering an ornament or bezel over the seam in the back use low temp silver solder so as not to unsolder the seam. Sweat soldering the ornaments makes the cleanest join. I solder one ornament at a time as shown in the photo. After soldering all ornaments pickle the coronet and make sure the inside edges are true.



Figure 6

## Soldering the Inside Band

Using the same cardboard template cut another blank band. Cut this about ½ inch over size on all sides. Start with the end of the band between two points (different point than the outside seam) bind the back to the front using heavy binding wire. I make my own binding wire from 16-gauge electric fence wire that I anneal in the kiln. I notch the blank (Figure 7) to hold the wire in place and to place it against the outside so that it pulls the back tight against the front. Work your way around the coronet until the opposite ends of the inside bands overlap. Don't try to but the edges of the inside band. The expansion and contraction during soldering make it all but impossible. After the coronet is bound, cut away as much excess metal from the inside band as you can. Use a low temperature silver solder in wire form. Heat from the inside only. The causes the inside band to expand and press tightly against the outside. It also helps the solder flow into the joint and not down the outside of the coronet. I set the coronet on movable base so I can rotate the coronet as I solder. Solder around the top of the coronet first. Don't expect to achieve a perfect solder joint on the first attempt. After soldering around. Cool the coronet in a bucket of water and remove the binding wire. Pickle the coronet and check for places on the top edge that are not soldered. You can lightly hammer any gaps closed. Bind any spots that need to be re-soldered. I mark these places on the outside with a red grease pencil so I can find them when I'm soldering. After the top is completely soldered turn the coronet over and repeat the process for the bottom. (Note: If you're making a plain band with no openings in the top drill holes in the inside band to allow the pickle to escape and to prevent a dangerous pressure build-up inside the coronet.) I have a bucket filled with a strong ammonia water mixture that I immerse the coronet in after I remove it from the pickle. This helps to neutralize any acid left inside the band.



Figure 6

Carefully trim the excess metal from the joints and file smooth. Drill a series of holes in the inside band to allow pickle to drain from the band.

## Add the Top Ornaments

The six silver balls on the points are made with a dapping punch and die. Solder the two halves together. Don't forget to drill a hole in one half of the ball to allow gases to escape during soldering and to allow pickle to drain. Use a bezel mandrel to make the holes in the points on the coronet round. Solder the balls one at a time to the points.

## Finishing

I polish the coronet using Bobbing compound, Tripoli and them red rough. I usually use small 1-2 inch buffs on a flex shaft. The small buffs give me more control than trying to polish the coronet on a polishing lathe. After polishing mount any stones. I finish the inside of the coronet with a wire brush mounted in a flex shaft.

## Padding

The padding I make consists of a padded roll of velvet with Velcro on one side. The Other half of the Velcro is glued to the inside of the coronet. This makes the headband removable for washing. Pad the headband with an appropriate amount of material.

Contact Me:

If you have questions or comment you can write me at:

Carl W. Lemke  
5301 Anchorage  
El Paso, TX 79924-3346

clemke1@elp.rr.com

My web site is <http://www.signetring.com>

Below are some pictures of the finished coronet.

