

# Part Five

## Soldering Findings

**Tips for Aligning Parts**

**Commercial Pin Catches**

**Annealed Findings**

**Heat & Age Hardening**

**Dealing w/ Annealed**

**Parts**

**Jump Rings**

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**Paste Solder**

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**Video on Stick Feeding**

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# Soldering Findings





- For findings with small footprints or pads (like earring posts, pin findings, etc.), you can do one of the following:

- “Sweat” or “tin” the bottom of the pad or foot by pre-melting solder to it then positioning it on your work piece and re-melting the solder thereby joining the finding to the work

Or

- Position the finding and secure (if possible), then place a tiny pallion or solder ball right at the base of the foot or pad – make sure the solder is touching both the finding and the work piece.

- Use liquid paper to avoid the risk of soldering moving parts together





## Tip For Aligning Pin Parts

*If your knuckle (hinge) and catch are not aligned properly, the pin stem will bend or look misaligned*

- One way to approach soldering pin parts to your work is to solder each part separately -- Solder the hinge part first, then solder the catch in a separate soldering operation; make a guideline with a ruler and Sharpee marker, or insert a wire or steel pin into the hinge as a “guide wire”
- Aligning and soldering will be much easier this way but it means an extra soldering/heating operation which would be avoided if you soldered both parts at the same time.

Or

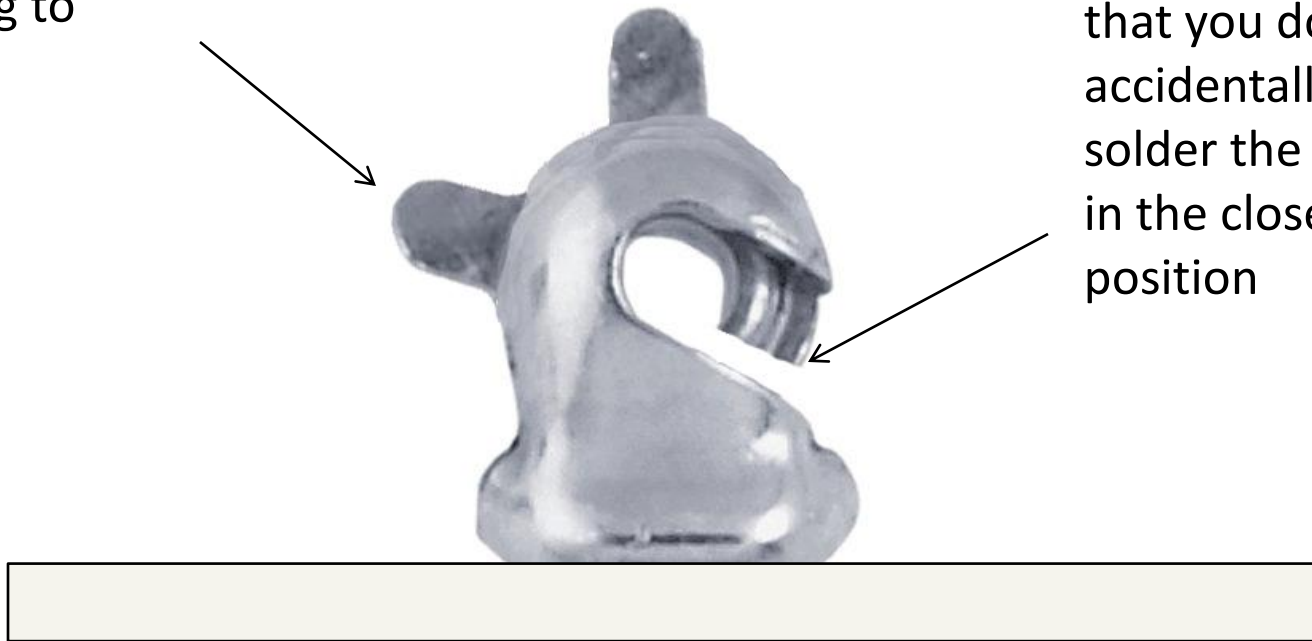
- Consider using a “sacrificial pin stem” or making a temporary pin out of nickel or steel wire to aid in the set-up

Note: In addition to using liquid paper on the pin catch to avoid soldering the moving parts of the catch, also be sure to adjust the lever in a partial open position – not closed but not completely open either.



Do not position  
lever not too far  
down; don't allow  
it to touch the  
base you are  
soldering to

Leave a slight  
open gap so  
that you do not  
accidentally  
solder the catch  
in the closed  
position



Commercial pin catch shown in partially open position.

As a consequence of soldering, earwires and other delicate parts can become annealed, and therefore will be too soft and will bend easily

Also, in findings with steel parts (such as springs) the steel can become annealed and will lose its spring or strength

Earring posts and other thin or delicate parts will become soft (annealed) during the soldering process.

### **To Heat Treat (harden) Sterling Silver:**

**First bring to annealing temperature (1200° F) and quench, then heat in kiln to 650° F for up to 2 hours**

Note: I have read many different instructions for this process with each calling for a slightly different temperature (anywhere from 536° F to 600° F) and different durations from 30 minutes to 2 hours! The exact time to achieve the maximum hardness is dependent on the thickness of the piece being treated.



- One jeweler wrote that you can prevent sterling ear posts from becoming too soft by quenching the earring immediately after solder flows and post is joined to the piece
- I think the idea here is to avoid letting the post heat up to annealing temperature (1200° F for sterling).
- Therefore, I believe this would only work if you were using extra easy solders – solders that melt below the annealing temperature of sterling silver

## Interesting Trivia Fact:

### Age Hardening:

- An effect that occurs at room temperature over a long period of time
- This is a very slow process!

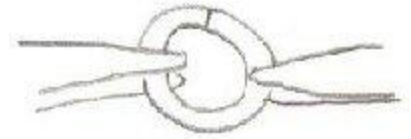


- Another trick for hardening ear wires is to grab the end of the earring post firmly with smooth-jawed parallel-action pliers and give the post a quick, slight twist
- Tumble finishing, as well as sandblasting, will work-harden posts somewhat

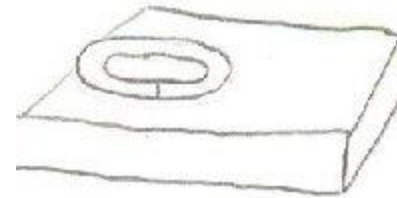


## Soldering Jump Rings Closed

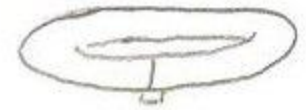
Make sure the ends come together cleanly and tightly



Place the jump ring flat on a charcoal block



Position solder pallion either under joint (with the jump ring resting on top of it)



Or

Place the pallion on top of the joint



*You can also use the pick and solder ball method, or  
paste solder method*

Don't Forget to Flux!

If you are worried about melting jump rings or other delicate parts, try soldering on a surface that dissipates the heat – like a perforated ceramic soldering block



Video

**Soldering a Jump Ring to a Bezel Cup**  
By Cool Tools Video

<http://www.cooltools.us/How-To-Solder-A-Simple-Bail-s/1156.htm>

6:12 minutes

Video

**Soldering Chain Ends**  
By Cool Tools Video

[http://www.youtube.com/watch?feature=player\\_embedded&v=9NbDL\\_N0gHw#!](http://www.youtube.com/watch?feature=player_embedded&v=9NbDL_N0gHw#!)

5:12 minutes



- You can “pick-solder” with *paste solder*
- Scoop up a small amount of paste solder on the tip of a soldering pick.
- After the solder is on the pick, apply a small amount of heat above the pick’s tip so the solder does not roll off, but forms a small ball at the tip of the pick.
- If you are using paste solder from a jar, warm the pick first, then dip into the jar and pick up a very small amount on the pick. Heat again to form the solder into a ball.



# Solder-filled wire, jump rings, etc.

- **From Rio Grande Website:**

Solder-filled silver wire is a tri-metal wire: a solder core surrounded by a copper shell and a fine silver outer layer (solder core: 6%; copper and fine silver shell: 94%). The overall composition is sterling, but the fine silver outer layer provides a better finish and luster than sterling silver. The core eliminates the need for additional solder, simplifying production. This wire is ideal for making chains and jump rings. Simply flux and use. This wire is packaged in coils and can be cut to any length you require.



- Solder-filled jump rings can be used to do final assembly of parts when no further soldering will be required

# Stick Feeding with Wire Solder



Pros:

- Expedient/Quick
- Less preparation

Cons:

- Often messy
- Risk of using too much solder
- Difficult to master and requires a steady hand



Video

# Stick Feeding Solder

by Karen at Cleverwerx

<http://www.youtube.com/watch?v=mt3aHb6MoKo>

5:55 minutes

# Solder “Inlay”

Using the Stick Feed Soldering Method

First, create deep texture  
on your sheet copper or brass by:

- Etching
- Roller-Printing
- Carving or filing
- Or any other method that will create suitable texture





Then, flood textured surface with solder

Use hard solder if you are planning on incorporating the inlay into a fabrication

Otherwise, use medium or easy solder

Use the stick feed method to apply solder all over textured surface

Curve piece for easier finishing

File surface until all excess solder is removed and “inlaid” design is visible

Sand with fine paper

Polish if desired, or finish however you like!

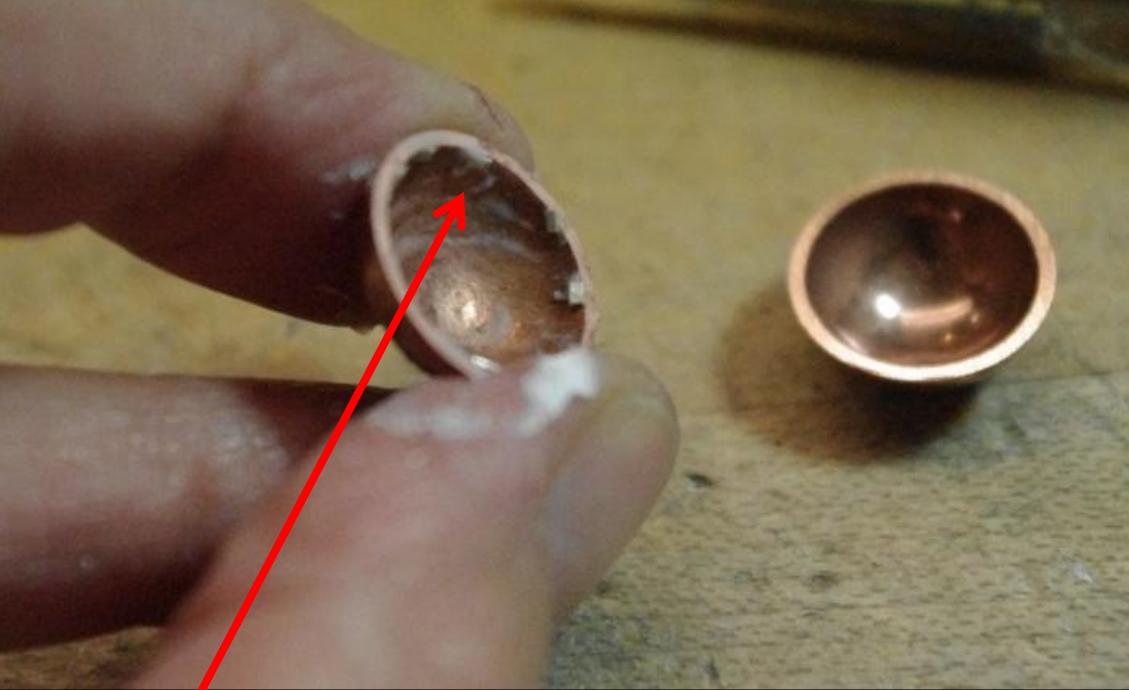
Note, however, that freshly polished surfaces will not show the color contrast very well



# Soldering Complex Forms

The image shows a close-up of a complex, curved metal form, likely a mold or a part of a machine. The form is made of a dark, possibly cast, metal and has several curved surfaces and edges. The lighting is dramatic, with strong highlights and deep shadows, emphasizing the three-dimensional shape. The entire image has a blue color cast. Overlaid on the center of the image is the text 'Soldering Complex Forms' in a bold, yellow font with a blue outline.





## Hollow Beads

Place solder just inside the rim of the dome which will be placed on top during soldering



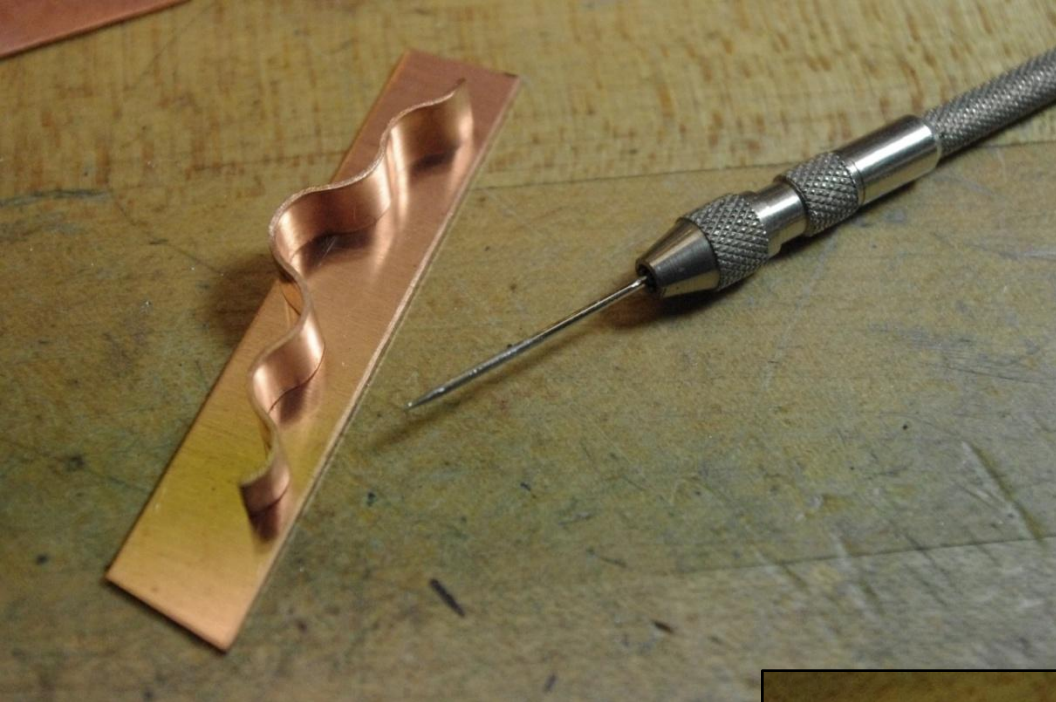
Solder Pallions

# Soldering a Hollow Bead

Use the drilled bead holes both as an air escape vent and also to pass a T-pin through for jigging/pinning your bead halves together



Remember to Drill an Air-Escape Hole!



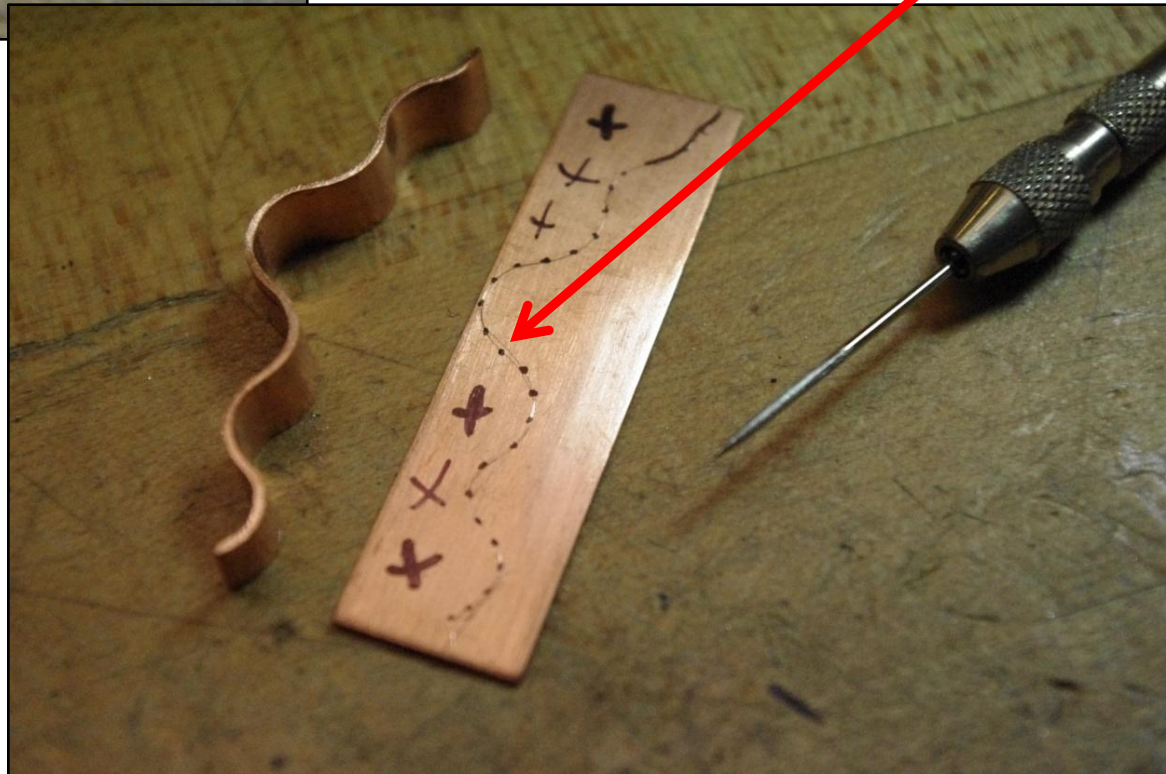
## Fitting an Edge to a Wavy Wall

*The black marker dots along the scribed line aid the eye in seeing/following the precise line*

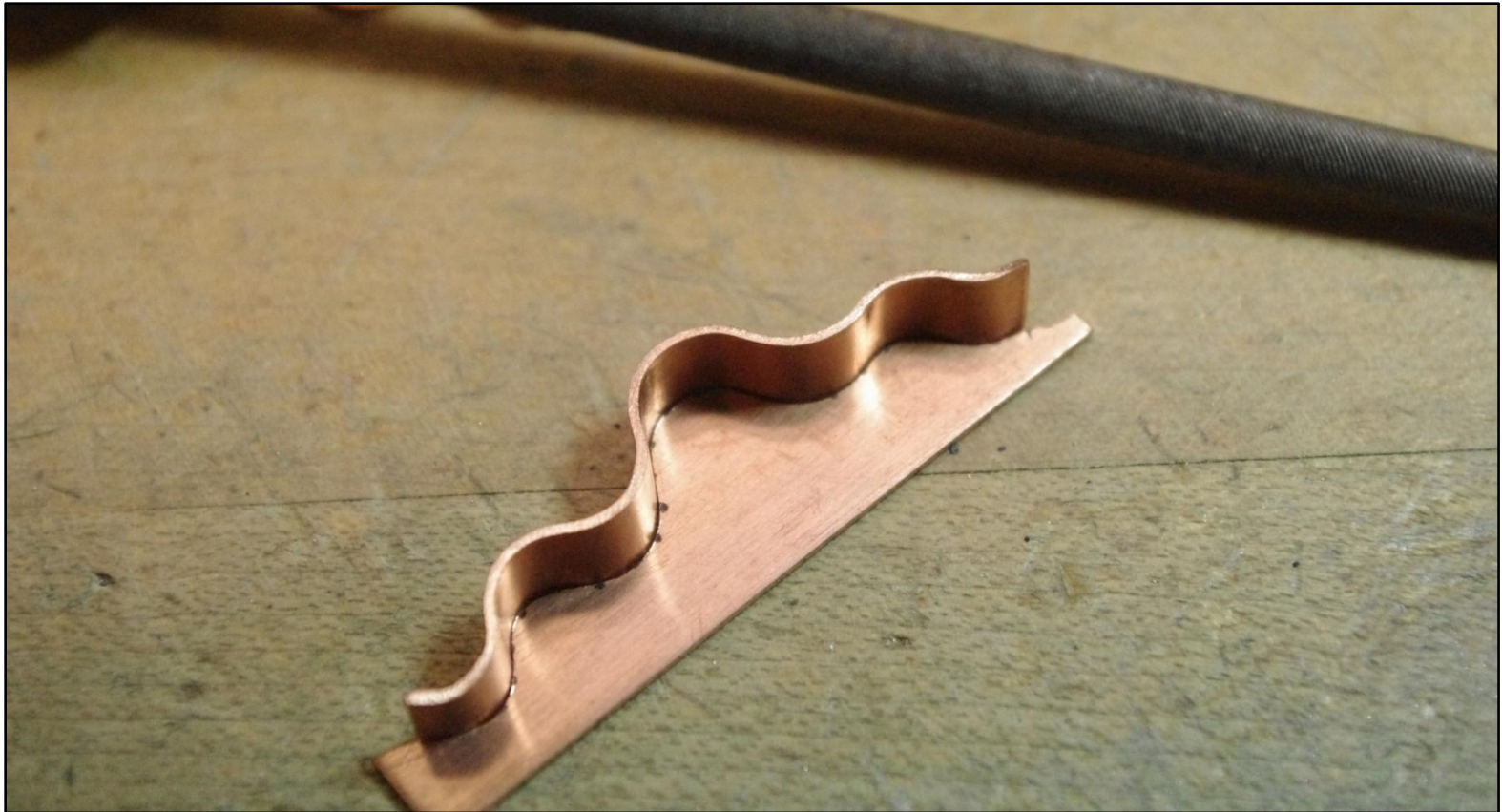
First, bend or curve the wavy wall to the desired shape

Next, place the wavy wall on a larger piece of sheet metal

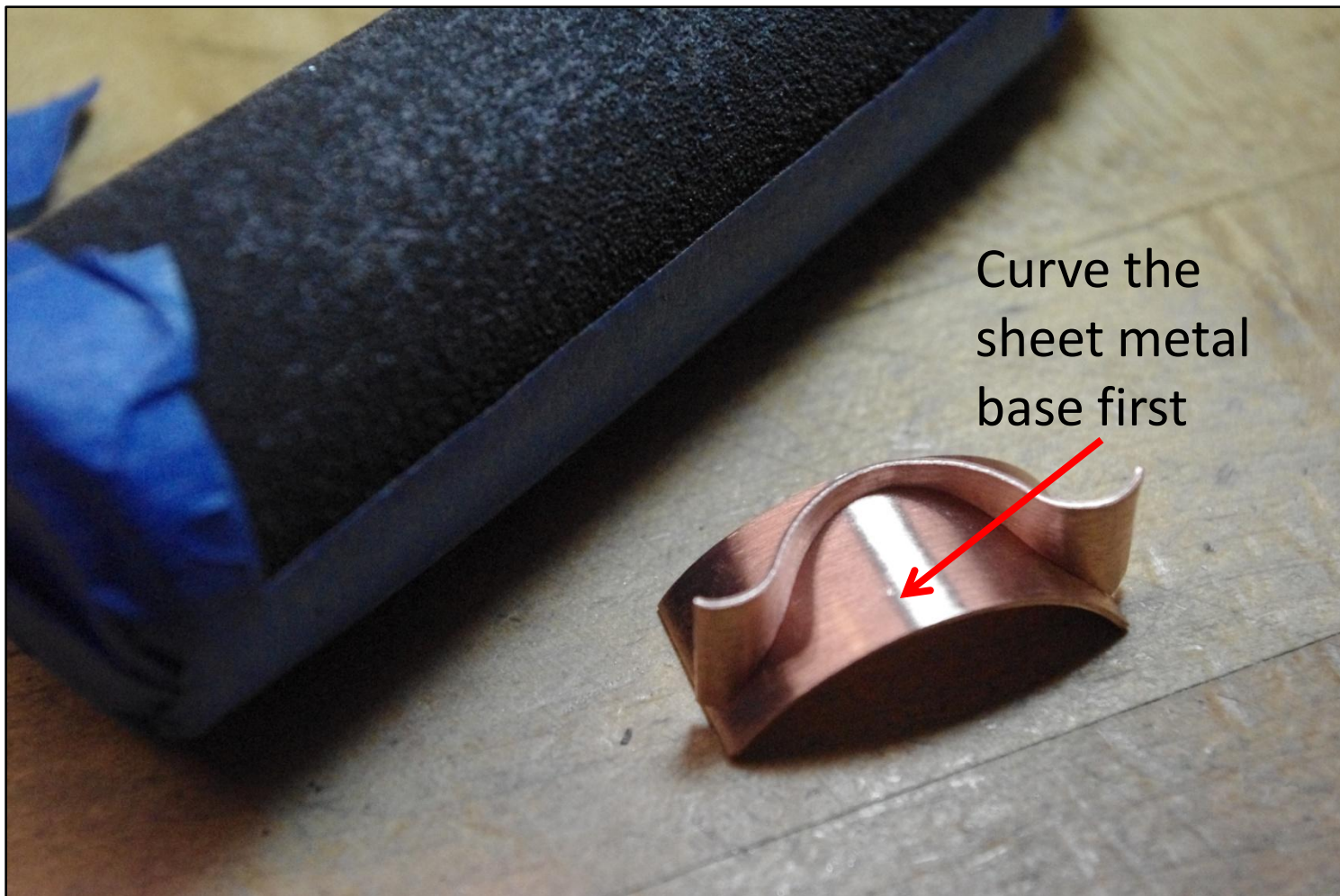
Carefully scribe a precise line at the base of the wavy wall....



Carefully cut the sheet along the scribed line  
Then file to perfect the fit  
Fit should be light-tight  
Secure with T-pins on soft fire brick  
Solder using solder balls or tiny pallions



# Fitting a Wavy Wall to a Curved Sheet Metal Base



# The Parts

**Next bend the wavy wall**

**Then cut and file wavy wall to fit curved sheet metal base**



# Cut a Fire Brick Support



# Pin and Solder





## **Exercise 11**

### **Pin Findings**

With the nickel pin findings provided, align and solder to a piece of 20 or 22 gauge brass or copper. Alternatively, you can solder it to the back of your brass sweat-solder exercise from the beginning of the class.

Use either the “tinning” method or the solder ball or pallion method – your choice.

## **Exercise 12**

### **Beads and Spheres**

Using 22 gauge copper or brass sheet, cut two discs and dap them into domes or half-spheres

Drill at least one hole

(If you are making a bead, it is best to mark the centers and drill the two discs before they are dapped into domes)

Sand the edges of the domes so that the domes sit perfectly flat; test flatness on the bench block

Solder following the procedure outlined in this presentation

## **Exercise 13**

### **Soldering an Edge to a Wavy Wall**

Following the procedures outline earlier in this presentation, bend a wavy wall, then cut, fit and solder a sheet metal edge to it.

End Part Five