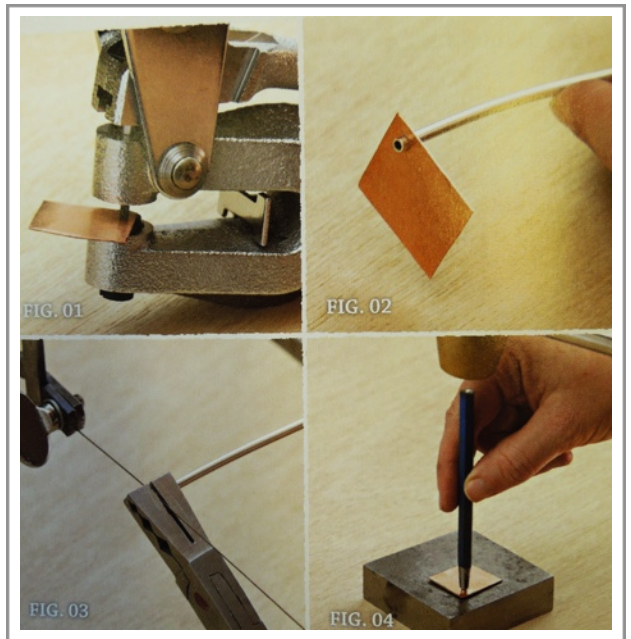
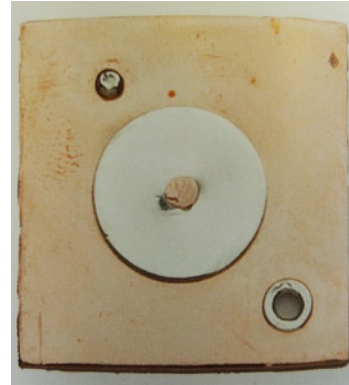


# Sampler. Square 4:

# Tube Riveting

## TOOLS

- Power-punch pliers, drill, or awl
- Needle files
- Permanent marker
- Tube-cutting pliers or table vice & tape
- Jeweler's saw, 4/0 saw blades & lubricant
- Bench block
- Center punch
- Brass-head hammer
- Riveting hammer
- 1.25 mm hole-punch pliers
- Flush cutter
- Chasing hammer



## TUBERIVET

\*\*\*NOTE:

Using copper tube will work just as well as sterling. Aluminum tube should never be used on a piece where soldering or heating is required. It will melt and may be toxic.

## STEPS

1. **FIG. 01** - Punch a 3/32" hole in the corner of the tile about 1/8" from the edge.
2. **FIG. 02** - Insert the rivet tube into the hole with about 1.5 mm. protruding from one side.
3. The tube should fit snugly. Use a small round file to enlarge the hole if needed. Mark the opposite side of the tube at 1.5 mm with the permanent marker. The length of the tube should be about 3 mm from the end to the mark.

## CUTTHE RIVET

4. **FIG. 03** - Use a tube-cutting pliers or apply masking tape around the tube and secure in the table vice. Apply lubricant to the tube or wax to the blade of the Jeweler's saw. Cut the tube at the mark.
5. **FIG. 04** - Insert and center the cut piece of tube into the howl and place the tile on your bench lock so one end of the tube is sticking up. Place the tip of the punch in the end of tube and gently tap the top of the center punch with a brass hammer to flare out the edge of the rivet.
6. Flip the piece over and repeat step 6.

# Sampler.

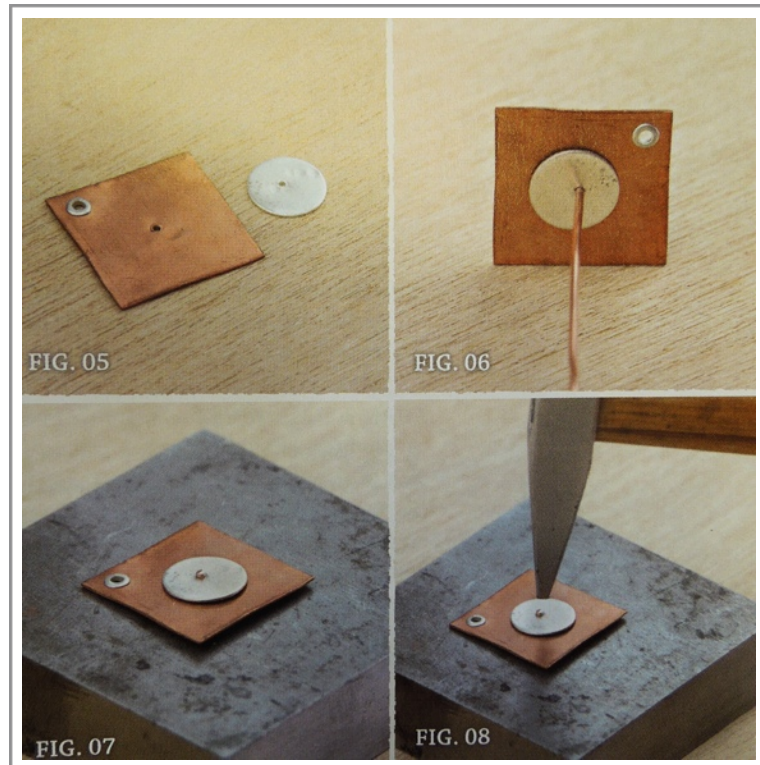
## Square 4 cont.: Wire Riveting

### STEPS

1. **FIG. 05** - Using 1.25 mm hole-punch pliers or drill, punch a hole in the center of the tile and another hole in the center of a 24 gauge silver circle.
2. **FIG. 06** - Stack the circle blank on top of the tile, lining up the holes. Use a round needle file to enlarge the hole if needed. Use the flush cutter to cut a piece of 16 gauge copper or sterling silver wire. Insert the wire through the holes in the circle and the tile.
3. Cut the other side of the wire flush, leaving about 1.5 mm on each side of the hole.

### RIVET THE WIRE & CIRCLE BLANK IN PLACE

4. **FIG. 07** - Place the tile, circle, and wire on the bench block.
5. **FIG. 08** - Use the tapered side of the riveting hammer to gently flare the rivet wire by tapping across the top of the wire vertically and horizontally in a cross-shaped pattern. This will coax the metal in all directions, like rolling out a tiny piecrust.
6. After the wire has flared over the edge of the hole, turn the piece over and repeat on the other side. Continue turning and tapping until the rivet head has noticeably spread. To finish, tap the rivet flush to the surface of the metal on both sides using the large side of the rivet hammer.



# Sampler.

## Square 4 cont.: Ball Rivet

### STEPS

1. **FIG. 09 - PREPARING THE HOLE & WIRE.** Just as before, punch or drill a hole in the opposite corner from the tube rivet. Cut 1.5 inches of 16 gauge fine silver wire (not sterling) with your flush cutter. The wire should sit tightly in the hole.

2. **FORM A BALL RIVET.** Position the wire in your soldering tweezers so that it is perpendicular to the tweezers. Tilt it so that the wire is at a slight angle between vertical and horizontal and the bottom end is over your quenching cup.

3. The secret to drawing a ball on the end of a wire is how you position the wire and the torch in relation to each other. Heat the bottom portion of the wire.

4. **FIG. 10** - When the wire starts to glow, rotate the torch so that the flame lines up with the wire and is directly heating the end.

5. **FIG. 11** - When the end of the wire becomes a ball, molten and shiny, flick the tip of the torch up the length to the wire to coax the ball upward. Remember, that the molten metal will follow the flame.

6. Remove from heat as soon as the ball is bigger than the drilled hole. Quench it!!!

\*\*\*NOTE\*\*\* - If experimenting with sterling silver or copper wire, dip the tip of the wire in flux before applying heat. This will help the melting process and prevent fire scale.

7. **FIG. 12 - RIVET THE BALL IN PLACE.** Place the ball rivet in the hole in your tile, ball side to the front of the piece.

8. Use a flush cutter to cut the excess wire leaving 1.5 mm of wire sticking up through the hole on the back side of the piece.

9. **FIG. 13** - Cushion the surface of the bench block by placing an old Pro Polish pad on the surface. Lay the piece ball-side down on the pad. Use the tapered end of the riveting hammer to gently tap the end of the wire in the cross pattern as before until the wire has spread. Finish with the long side of the riveting hammer until the metal is flush.

