

PROJECT

SKILLS

- forging
- stone setting
- soldering



OPENING PHOTO: JIM LAWSON;
PROJECT PHOTOS: BY THE AUTHOR

Mokume Gane Heart Pendant

Combine alternative metals with conventional materials

BY ROGER HALAS

Like a living, breathing entity, mokume is one of those things that is never exactly predictable, which makes it fascinating to work with. It will inspire you, let you experiment, and if you're accustomed to working with precious metals, it will let you save some money.

This project covers the basics of mokume coupled with some rudimentary fabrication skills. It will familiarize you with the principle of annealing a laminate, which can be tricky. It also covers forging, and how this affects the ultimate pattern, plus finishing and how a patina can really charge some life into a piece. Altogether, this is a challenging exercise, but if you keep your head clear you will end up with a result that will dazzle that special someone in your life.

MATERIALS

- One ounce mokume gane billet
- 12 gauge round sterling silver wire
- 14 gauge sterling silver sheet
- 26 gauge fine silver sheet
- 8mm gemstone, any variety
- Ferric chloride patina

TOOLS

SOLDERING TOOLS: torch setup.

FORGING TOOLS: medium weight hammer, anvil, large mushroom dapping set.

OTHER TOOLS: flex shaft; round carbide cutting bur; $\frac{5}{16}$ " and $\frac{5}{64}$ " drill bits; sanding drum

HAND TOOLS: jewelers saw, small file, bezel pusher, duct tape

FINISHING TOOLS: 400 grit sandpaper, 400 grit radial bristle brush

SOURCES

Most of the tools and materials for this project will be available from well stocked jewelry supply vendors, many of whom can be found in our Advertiser's Index, page 134.



Photo 1 Start out with a mokume gane billet. The most readily available choice is a sterling silver and copper combination, which works fine, but you can go with something else. Here, I used a laminate involving four metals: sterling silver, bronze, and two traditional Japanese alloys, shibuichi and shakudo. The reason: mokume gane is all about contrasts. More metals, more contrast. More fun.

Photo 2 Anneal the billet, being careful not to melt the edges. When doing this, flux the billet and spread medium silver solder around the edges. This binds it, which prevents it from splitting apart during forging.

Photo 3 Using the medium weight hammer, forge the billet. I find it best to start out in the center and then work my way out in a circular pattern. The billet will cool fast, so when it starts to harden, it will make a clanging sound. At that point, stop hammering, and heat up the metal again. Continue forging to about 5mm in thickness.

Photo 4 With the round cutting bur, start cutting divots on one side of the billet. By doing this, you'll expose the metal layers beneath, revealing a series of bull's-eyes.

Photo 5 Use the sanding drum to grind a sweep across the other side of the billet, making it thinner as you move toward the edge. This will create the impression that the finished heart has two distinct sides.

Photo 6 Heat the billet again, then forge it level. Here, it's extremely important that you forge evenly in every direction, using calculated hammer blows, otherwise the bull's-eyes will start to distort. I find this to look messy so I avoid it. Forge the metal down until it's about the equivalent of 12 gauge sheet.

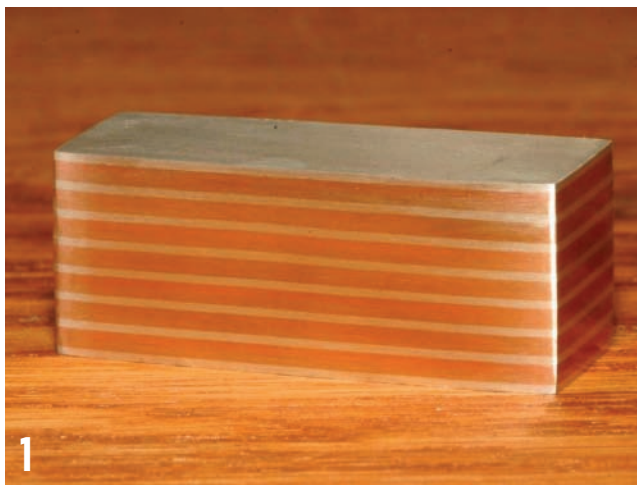




Photo 7 Grind the edges of your new mokume sheet into the shape of a heart. File the top of the heart to refine the cusp. Although it is a slower process, using the small hand file provides more control than a motorized tool.

Photo 8 Use the $\frac{5}{64}$ inch bit to drill a hole near the base of the cusp. This will accommodate the 12 gauge wire that will ultimately rivet the bail to the heart. Drill a hole on the right side of the heart with the $\frac{5}{16}$ inch bit for the 8mm stone setting. The opening will allow light to pass through the setting and will brighten the stone color.



Photo 9 Dome the heart. To make this easier, heat the piece, but don't get it too hot. Then work it over with the large mushroom head in the appropriate dapping block. Adding this curvature gives the finished piece a sense of dimension, rather than just sitting flat. It's not totally necessary, but I think it looks better.

Photo 10 When domed, sand the top layer of metal to refine the mokume pattern. The flex shaft with an aluminum oxide sanding drum works fine, or you can do this by hand with sandpaper — either method works.

Photo 11 Cut 1.5mm x 26.5mm strip of 26ga. fine silver sheet. Bend this around the $\frac{5}{16}$ inch drill bit to create a bezel for the 8mm stone. Solder ends together.

Photo 12 Before soldering the bezel to the heart, go over the heart with the 400 grit radial bristle brush. This creates a nice, even finish on the piece which makes it semi-polished while still porous enough to respond effectively to a patina.





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Photo 13 Solder the bezel onto the heart.



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Photo 14 Set the stone with the bezel pusher, being careful not to chip the stone. Here, because of the colors of the metals, I decided to use a garnet.

Photo 15 Make the bail. Cut 1.75" x 1.25" of 16ga. sterling sheet. Round off the ends with a file. Drill two holes with the $\frac{5}{64}$ inch bit.



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Photo 16 Bend the bail by hand around the $\frac{5}{16}$ inch drill bit. Then, saw it down the middle with the jeweler's saw and pull the two sides apart — like bunny ears. Refine with 400 grit sandpaper. Polishing the bail with a buffer looks better, because it creates contrast, but that's up to you.



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Photo 17 Cover the front of the piece with duct tape to protect it while you're riveting the bail. Cut 8mm of the 14 gauge round sterling wire. Hammer the rivet into place. Patina the piece with ferric chloride, then buff it with a rouge cloth. Since this is a larger piece, I put mine on a fairly thick chain.



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ROGER HALAS is a self-taught lapidary, metal-smith and jewelry designer in southern California. When not making jewelry he works as a professional photographer, martial arts instructor and aspiring screenwriter who encourages others to explore their creativity.