Examples of the Greek key motif are everywhere in ancient Greek architecture, textiles, and decorative arts, such as pottery. The pattern is still striking in this modern, easy chain. As you work, use the metric system to measure the links, keep the length of the wires uniform, and adhere to the measurements for each bend. Use your brass slide gauge to measure in millimeters; it’s easier than finding $\frac{5}{16}$ in. and $\frac{5}{64}$ in. on a ruler. You’ll soon be surprised at how accurate you are at making the links without measuring.

Using a brass slide gauge is key to making this modern variation on the Greek key motif.

by Jan Matzen

The brass and copper necklace measures 23 in. (58.4 cm).
Make copper springs. Use a piece of 10-gauge (2.6mm) brass wire as a mandrel. Wrap 22-gauge (0.6mm) copper wire around the mandrel [1]. Keep the wraps tight and uniform. While the spring is still on the mandrel, mark it with a permanent black marker every 8mm (⅛ in.). Slide the spring off the mandrel, and stretch it slightly at the marks to make cutting easier [2]. Cut the spring at each mark with flush cutters, and sand the clipped ends. Squeeze the springs back together to make tight 8mm (⅛-in.) springs [3]. Make a total of 51 copper springs.

Cut the brass wire. Cut 26 85mm (3⅞-in.) pieces of 18-gauge (1.0mm) brass wire. Bundle the wires with masking tape. Place 400-grit sandpaper on a smooth, level surface and use firm, figure 8 motions to rub the ends of the bundled wires against the sandpaper. Set 13 wires aside.

Make 13 key links. Using chainnose or flatnose pliers, grasp 3mm (¼ in.) of the wire end and bend the wire 90°, making an L. For more precise corners, hold the measured section of wire in the pliers and use the edge of one jaw to sharply bend the wire. Measure 3mm (¼ in.) from the first bend and make a 90° bend to form a U [4]. Measure 6mm (¼ in.) from the second bend and make a 90° bend. Measure 6mm (¼ in.) from the third bend and make a 90° bend. Slide a copper spring on the wire [5]. Measure 9mm (⅜ in.) from the fourth bend and make a 90° bend. Measure 9mm (⅜ in.) from the fifth bend and make a 90° bend. Slide a copper spring on the wire [6].

Finish the links. Measure 11mm (⅜ in.) from the sixth bend and make a 90° bend in the opposite direction. Measure 9mm (⅜ in.) from the seventh bend and make a 90° bend. Slide a copper spring on the wire. Measure 9mm (⅜ in.) from the eighth bend and make a 90° bend [7]. Measure 6mm from the ninth bend and make a 90° bend. Measure 6mm from the tenth bend and make a 90° bend. Measure 3mm from the 11th bend and make a 90° bend [8]. Repeat this pattern for the remaining 12 key links. Use flush cutters to trim any extra wire. To work-

harden the links, use a tumbler with steel shot.

Make the connecting links. Measure 35mm (1¼ in.) from each end of a brass wire and mark the wire. Slide a copper spring on the wire and center it between the two marks. Grasp the wire with flatnose pliers at one mark and make a 90° bend. On the other side of the spring, make a 90° bend in the opposite direction [9]. Repeat for the remaining 12 wires.

On each side of the wire, measure 9mm (⅜ in.) from the last bend and make a 90° bend in the opposite direction [10]. Slide the copper spring of a finished brass link on one side of the wire, and then finish the bending pattern [11]. Repeat on the other side of the link. Repeat with the remaining links to complete the chain, leaving the last half of the last link unbent.

Make a clasp. Cut 15cm (6 in.) of 18-gauge (1.0mm) copper wire. Leaving a 19mm (⅝-in.) tail, wrap the wire around the 10-gauge (2.6mm) mandrel, leaving a 19mm (⅝-in.) tail at the other end [12]. Bend one tail 90° so that both tails are parallel on the same side of the spring [13]. Measure 6mm (¼ in.) from the spring and make a 90° bend in both parallel wires. Measure 6mm (¼ in.) from the last bend and make a 90° bend in both wires. Measure 3mm (¼ in.) from the last bend and make a 90° bend in both wires to complete the double hook. Slide it onto the last connecting link of the necklace [14] and finish bending the last link.

• To straighten and clean the wire after cutting, grasp one end with pliers and pull it through a polishing cloth.
• If you need to correct a mistake, use flatnose pliers to straighten the bends.
• Lay the links out end-to-end as you assemble the necklace to keep them organized.
• Remove permanent ink with rubbing alcohol.

materials
- Copper wire: 22-gauge (0.6mm), round, dead-soft, 8 ft. (2.4m)
- Brass wire: 18-gauge (1.0mm), round, dead-soft, 7¼ ft. (2.2m)
- Copper wire: 18-gauge (1.0mm), round, dead-soft, 6 in. (15cm)

tools & supplies
- Round mandrel: 10-gauge (2.6mm) brass wire
- Flush cutters
- Pliers: chainnose, flatnose
- Permanent marker: black
- Brass slide gauge
- Sandpaper: 400 grit
- Tape: masking
- Tumbler, steel shot, burnishing compound
- Polishing cloth (optional)
- Rubbing alcohol (optional)