

Box Catch

By Peter Keep

The Box Catch project has been in the traditional apprentice program for decades and requires moderate to advanced jewellery making and soldering skills. This type of catch would usually be incorporated into a bracelet or necklace design.

During this lesson you will learn how to create sharp angled mitre joints and a work hardened mechanism.

The finished box dimensions for this sample will be 10mm wide x 4mm high by 16mm long.



Step 1:

This project requires Brass or Sterling silver sheet measuring 0.8mm x 13mm x 50mm for the box part. The spade clip requires 1.5mm x 5mm x 12mm & 0.5mm x 11mm x 25mm sheet.

File the edges flat and the corners perfectly square. Mark off at 10mm, 4mm, 10mm and 4mm. Use your set square to scribe across the strip to ensure the box will fold perfectly square.



Step 2:

Begin the mitre cut along the scribed lines with your piercing saw. You will need to hold the blade down with your thumb to cut into the middle part of the strip. Follow the saw cut with a three-square needle file. File over two thirds into the thickness.

Now use a square needle file to finally shape the mitre cut and go a little deeper into the thickness to ensure the bend will be sharp.



Step 3:

Cut a 1.5mm wide x 2.5mm long slot into the centre of one of the wider sections. This will accommodate the button later. Use the 1.5mm strip of brass to test fit.

Cut slightly outside the final scribe line and file a 45° angle on both ends.



Step 4:

Now start to fold the box. It should bend easily at the mitre joints and create a sharp right-angle joint, as long as they are cut deep enough. To avoid bending the metal in the wrong place, you can use chain nose pliers to hold the strip but be careful not to damage the metal surface.



Step 5:

Bring the ends together and force them to overlap both ways. This will add tension to the joint. It is unlikely that the final joint is the correct shape and angle, so very carefully cut through with your saw blade. Repeat this until the angles are correct and the joint is tight. Do a final check with a set square.



Step 6:

Use binding wire to keep the box closed during soldering. Apply flux to all the joints. Place hard solder at both ends of the joints to ensure the solder runs all the way through.

Once you have completed all the solder joints let it cool, then remove the wire before pickling.



Step 7:

Now turn your attention to the spade clip. Mark off 12mm along the 0.5mm strip. Bend the strip making sure that you bend it at a perfect square angle. You can use nylon pliers & parallel pliers to limit tool marking. Insert a pen knife blade and hammer the bend to sharpen it.



Step 8:

Trim the strip until you can insert it into the box. It must be free moving but not too loose. Check that the bend of the clip does not protrude from the box when fully in position. Trim the clip end if need be.

Push the clip all the way in and scratch a mark through the slot onto the clip surface. This is where the button will be soldered later.



Step 9:

Use the 1.5mm strip of brass for the clip end and position it ready for soldering. You will need to cut back the clip first so that there is a 1mm gap between the 1.5mm strip and the top of the clip. You will also need to rest the clip on some scrap sheet to ensure the clip end will line up with the box when it closes. Carefully hard solder the joint.



Step 10:

Cut a button from the left over 1.5mm strip. Now line up the button with the location marks that you scratched on earlier. Easy solder and allow it to cool down. Now carefully insert the clip into the box to make sure it lines up to the cut out.

Pickle once all the necessary adjustments are made.



Step 11:

Now cut a 1mm strip from the 0.8mm remaining brass and wedge it into the top of the box. This is where the clip will spring into place. Easy solder, then cut the slot out in the middle to allow the button to pass.

You can now seal the other end of the box by soldering a piece of sheet on. Trim off any overhanging metal and emery finish ready for polishing



Step 12:

The spade clip needs to be hardened to enable the clip to spring into the box. Insert a penknife to open it slightly and hammer harden at the bend. Hammering the conventional way may distort the metal so use an electric hammer tool or a modified bent bur to apply rapid impact burnishing.

Cut some grip lines into the button.



Self-Assessment

Test fit the components and keep hardening and adjusting until you can hear an audible click.

The clip should fit snug with minimal movement or gaps between the box and the clip end.

The video tutorial for this lesson can be found in the Silver level (Apprentice courses) <https://jewellery-training-solutions.thinkific.com/courses/box-catch>