

PROJECT 2: CD/DVD STORAGE RACK

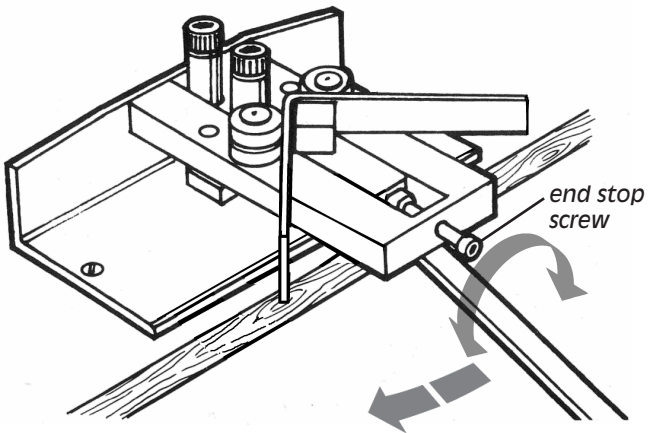
BEFORE STARTING this project read the instructions for the Practical Riveting, Bending and Rolling tool, the Practical Punch/Shear tool and the MK 1/2 Scroll Former. Then familiarise yourself with these instructions and the accompanying Design Template Sheet.

- 1

Take a length of 12mm x 2mm (1/2" x 14 Gauge) steel strip and cut a length of 300mm (11 13/16") using the Practical Punch/Shear tool. If you don't have a tape measure or ruler simply place your steel strip alongside Template No.1 on the accompanying Design Template Sheet. Mark on the steel strip where you need to cut using a fine tip marker pen or pencil. For a neater finish you can trim the corners off each end of the bar as shown here. Then use a cloth to remove any excess oil or grease from the bar before bending or punching.
- 2

Repeat Step 1, so that you end up with two strips of steel exactly the same length. Next place these two cut strips alongside Template No.1 and with a fine tip marker pen or pencil mark on the bending position (A) and hole punch positions (X). Make sure you extend the marked lines to the top and bottom edges of the strip so that you can line these up accurately in the Practical Punch/Shear tool and Practical Riveting/Bending/Rolling tool later on. Note - it is important that these are marked carefully and the marks on the two bars line up with each other so that the right angle frame stays as square as possible.
- 3

With a spare piece of material set up the Practical Riveting/Bending/Rolling Tool to bend an angle until you reach the angle shown in Diagram 1 (90 degrees) on the accompanying Design Template Sheet. To check the angle lay the bent metal on this diagram. When achieved adjust the end stop screw with an allen key (supplied with the tool) to limit the bend so that this angle can be bent repeatedly.
- 4

With the angle set correctly place one of these bars into the Practical Riveting/Bending/Rolling Tool and bend the bar at the position marked A to form a right angle frame. Repeat with the other bar and check both right angle frames line up with each other.
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- 5

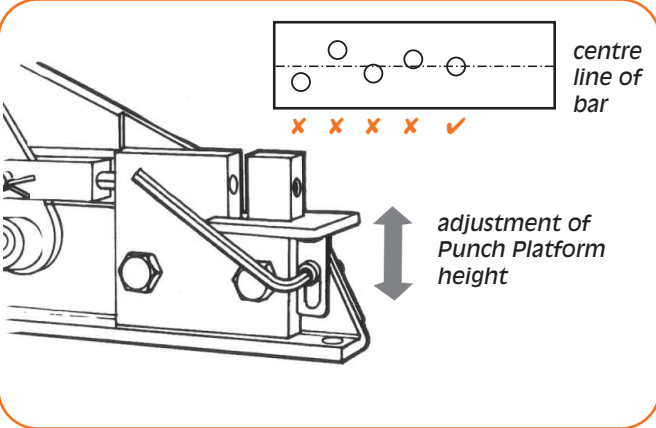
Next take a length of 12mm x 2mm (1/2" x 14 Gauge) steel strip and cut 4 lengths of 270mm (10 5/8") using the Practical Punch/Shear tool. Again trim the corners for a neater finish. If you don't have a tape measure or ruler simply place your steel strip alongside Template No.2 shown on the accompanying Design Template Sheet and lay each bar alongside the template and mark the length required for cutting. Once all four pieces are cut, lay each bar against the template and mark bending position B.

- 6

Next place the first of these four bars into the centre of the Mk 1/2 Scroll Former making sure you place the opposite end to that marked for bending Position B into the centre of the scroll former tool. Then carefully draw the material around the scroll former (dropping the second segment into place) to form a full scroll (so that scroll just touches the very end of the 2nd segment as shown in Diagram No.2. Repeat this with the other 3 bars you should have four identical scrolls when you place one of top of the other.
- 7

Next with a piece of spare material form an angle of 110 degrees using Diagram No.3. When the correct angle is achieved use end stop screw to produce this angle repeatedly. Then bend the ends of each of the 4 scrolls away from the scroll at position B as shown in Diagram 4 on the accompanying Design Template Sheet.
- 8

On a flat surface arrange two of the scrolls within the angle as shown in Diagram 4 on the accompanying Design Template sheet. If required, open the scrolls out a little by hand bending so that the bent ends of the scrolls are as close to the ends of the angle pieces as possible. Then mark on the edges of the bars the 5 points where the scrolls and the frame touch and are to be riveted together.
- 9

Next adjust the platform on the Practical Punch/Shear so that it is ready to punch holes in 12mm x 2mm (1/2" x 14 Gauge). To do this take a small piece of leftover 12mm x 2mm (1/2" x 14 Gauge) material and punch a sample hole. The hole should be on the centre line as shown in the picture below. If not adjust the punching platform height with the allen key provided on the adjustment bolt, either up or down (as necessary). Move the sample piece of bar and punch another hole to test if alignment is correct. When you have got the hole central tighten up the adjustment bolt.
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- 10

Then take the angle piece formed in Step 4 and punch the holes marked in Step 2 (X). Then punch all holes on the angles and scrolls marked in Step 8 using the Practical Punch/Shear tool.
- 11

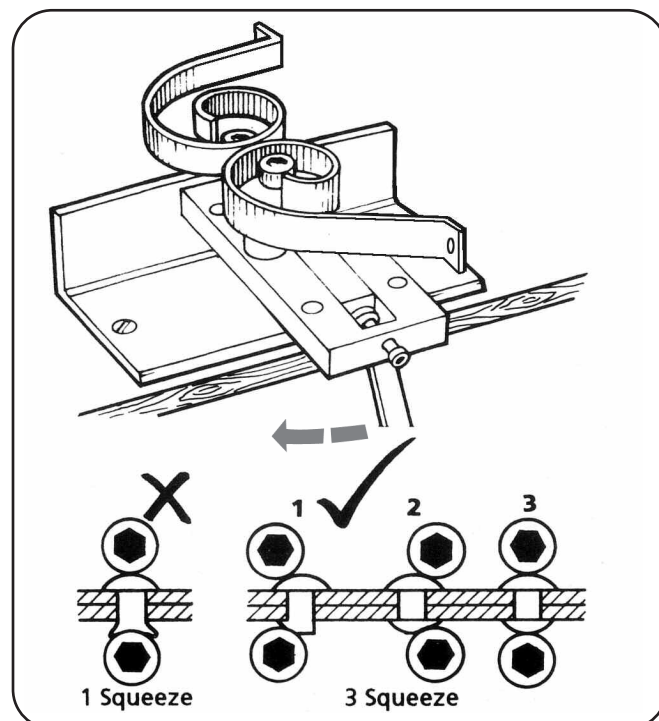
Before riveting it is recommended that the two scrolls and angle are bolted together first using 5 sets of 6mm x 3mm (1/4" x 1/8") Nuts & Bolts. This checks that everything is aligned correctly and holds the pattern together when you start riveting. If the holes are not properly aligned you may need to re-punch holes to make them slightly bigger or longer.

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- 12** Next, set up the Practical Riveting/Bending/Rolling Tool for riveting by ensuring the two rivet posts are fitted and the Winding Handle (for rolling) is removed. Then undo one of the nut and bolt fastenings and replace with a 6mm x 3mm (1/4" x 1/8") rivet and use the tool to rivet (as shown in the diagram below) the two pieces of metal together. Then move on to the next nut & bolt undo that and replace with another rivet, and then rivet the joint. Repeat for all remaining joints and repeat the whole process for the other angle and scrolls.



- 13** From two 920mm (3ft) lengths of 12mm x 2mm (1/2" x 14 Gauge) steel strip, cut 4 lengths each measuring 457mm (18") using the Practical Punch/Shear tool. If you don't have a tape measure or ruler simply place your steel strip alongside Template No.3 shown below. Mark on the steel strip where you need to cut using a fine tip marker pen or pencil. At the same time mark position Y 5mm (3/16") away from one end of the bar. For a neater finish you can trim the corners off each end of the bar as shown here.

- 14** Next punch the hole at position Y on each of these four bars using the Practical Punch/Shear tool. Then offer just one of the bars up to Template No.3 and mark position Y at the other end of the bar.

- 15** Use the first bar to mark the position of the other hole in the other three bars. Then with the Practical Punch/Shear punch these marked holes. Then test that the distance between the two holes on each of the four bars are the same. A good way to do this is to use two long rivets as shown in Diagram 5. If any holes are slightly out of position, simply elongate the hole by re-punching. Finally, punch holes M & N on two of the four cross rails as these will be used to fix the dividers to the top and front cross rails.

- 16** Using the 4 cross rails created in Step 15 join the two end sections together at hole positions X. Use the 6mm x 3mm (1/4" x 1/8") Nuts & Bolts provided to assemble the unit in readiness for riveting each joint. REMEMBER to put the two cross rails with the extra two holes (M & N) at the top and front. The Nut & Bolt fixing helps to keep the frame straight during the riveting process and also make it easier to hold and manoeuvre the DVD Rack. However, you might find it easier to enlist the help of someone to hold the frame whilst you rivet.

- 17** Replace one of the nuts and bolts with a 6mm x 3mm rivet and rivet this joint together using the method shown in step 12. Repeat this process, a joint at a time, for the remaining three joints.

- 18** To make the two dividers take a length of 12mm x 2mm (1/2" x 14 Gauge) steel strip and use a cloth to remove any excess oil or grease. Next cut 2 pieces each measuring 220mm (8 5/8") long using the Practical Punch/Shear tool. If you don't have a tape measure or ruler simply place your steel strip alongside Template No.4 shown on the accompanying Design Template sheet. Mark on the steel strip where you need to cut using a fine tip marker pen or pencil. At the same time mark bending position P and hole position Q and trim line R.

- 19** Next with a piece of spare material form an angle of 130 degrees using Diagram No.6 When the correct angle is achieved use end stop screw to produce this angle repeatedly. Then bend the ends of each divider at position P to this angle.

- 20** Next punch the two holes at the ends of each divider at Position Q. Then use the Shear function on the Punch/Shear to trim the excess off each end of the two dividers along position R. Then match the holes in the divider (Q) with the corresponding holes previously punched in the Front & Top cross rails (M & N).

- 21** Again use 6mm x 3mm (1/4" x 1/8") Nuts & Bolt fixings to assemble the dividers to the front and top cross rails. Then replace the first nut and bolt with a with a 6mm x 3mm (1/4" x 1/8") rivet and rivet joint using the Practical Riveting/Bending/Rolling tool as shown previously. Go round the other joints in turn replacing the Nut & Bolt with a 6mm x 3mm (1/4" x 1/8") rivet and rivet up the frame until all joints are firmly closed. The DVD/CD Rack is complete.

The finished storage rack can now be painted in a wide variety of finishes (smooth, satin, hammer and metallic) either by aerosol or by brush application. Powder coating and plastic dip finishes can also be applied but these type of finishes are more for commercial/industrial scale finishing.

However, even with aerosol or paint finish you can make your finished item look professional. In this case we used paints from the Plasti-kote and Hammerite ranges - available from most DIY and Painting/Decorating outlets. For best results, always follow instructions on the tin and make sure the metal is free of all scale, dirt, grease or rust.

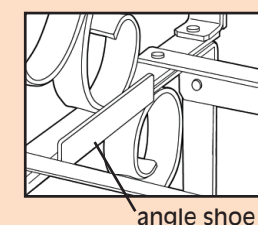
The finished item can be used store DVD's, Computer Games, CD or Computer Disks and can be desk mounted (if so fix the adhesive rubber feet provided to the underside of the unit to protect surfaces from scratching.) Alternatively you can mount the unit to a wall and always make further units to increase your storage capacity.



Development of DVD/CD Storage Idea

Once you have gained confidence making this straightforward but attractive idea, you can develop other storage solutions using Metalcraft.

For example, you can take this design and modify it to make square end sections. By adding angle material (shown below), you can fix this to the top of each unit to enable units to stack safely one on top of the other as shown here in this photograph.



angle shoe



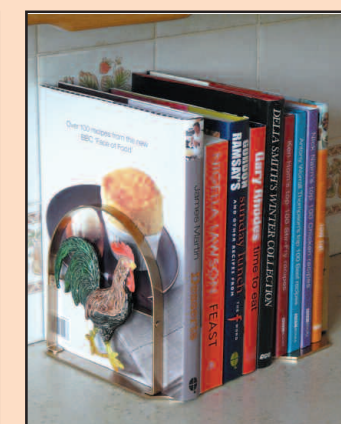
Alternatively, an endless range of shelving units can be designed and made as shown here. This simple design combines steel and wood to make an attractive shelving unit. (Note the use of a decorative star accessory to add that all important finishing touch and hide possible fixing points.)



For heavier items such as books you can provide a more solid base by using conventional shelving. Here this substantial wooden shelf is supported by contemporary looking shelf brackets made with Metalcraft. If preferred you could design and make more traditional style brackets incorporating scrolls and circles.



To keep your books in place, you can even use Metalcraft to make attractive book ends (note the use of our new base/wall plates to form the heavy base). Again these can be finished off with one of the many items from our range of self fix accessories which can be painted in one colour, handpainted or airbrushed and then attached using our new adhesive system.



Starter Pack 1 PROJECT 2: DVD/CD STORAGE RACK - DESIGN TEMPLATE SHEET

