

## Make a simple metal book

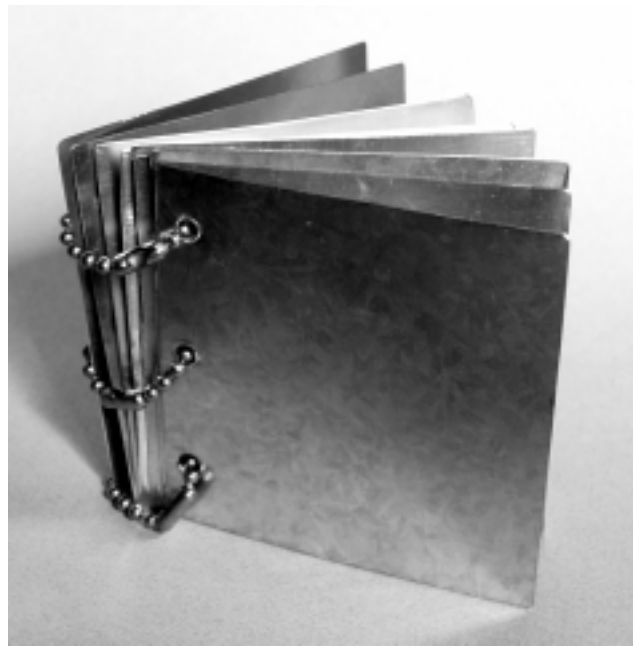
**Safety:** To avoid injury be sure to observe safety rules. When drilling, wear eye protection. Never hammer the end of a screw driver or wooden handled tool to make holes. Check the labels of glue for warnings about fumes. Be aware of the safety precautions necessary for the tools you use.

**Summary:** These are guidelines for making a simple metal book. You may have many of the tools already. It would be good to make the first book quickly, buying only the most necessary supplies, to see how you like the results. For people who like a primitive look in their work, these very simple techniques may be all they would ever need.

The pages are made with aluminum flashing (galvanized or plain) or brass shim. They are bound with ball chain. All supplies are available in larger hardware stores, except for the optional molding paste. The galvanized aluminum flashing is slightly heavier than the other two metals. I find it very nice to work with. Both kinds of aluminum would not show finger prints. The brass will show some, depending on the chemistry of your body. If you want to minimize them, you could work with gloves on, and use a paste furniture wax to protect the pages in the end. Or you might decide the patinaed brass is what you want (over time it will get darker in uneven blotches).

### Tools and supplies:

aluminum flashing, galvanized aluminum flashing or brass shim (the heavier gauges are easier to work with - I used 008). When buying the metal, look for some that doesn't have a lot of masking tape residue or scratches on it.  
about 12 inches of ball chain and 3 chain connectors  
leather or plastic mallet  
hammer  
awl - store this with a cork on the point  
two box nails, approximately 6 penny and 8 penny  
metal shears (old household scissors will cut very light metals, but don't ruin your good scissors)  
a fairly fine file, mill smooth is good  
400 grit wet or dry sandpaper  
a stick of wood, like a paint stick  
wire cutters  
leather gloves  
a piece of scrap wood



### Optional items:

Golden molding paste, 5 minute epoxy or another glue meant to attach objects to metal  
gesso and paints

16 gauge brass wire, a #52 drill bit for metal (to make holes for the brass wire)

24 gauge copper wire, a #60 drill bit for metal to make holes for the copper wire, (a #70 would give a snugger fit, but often #60 is the smallest you can find in a hardware store)

needle nose pliers

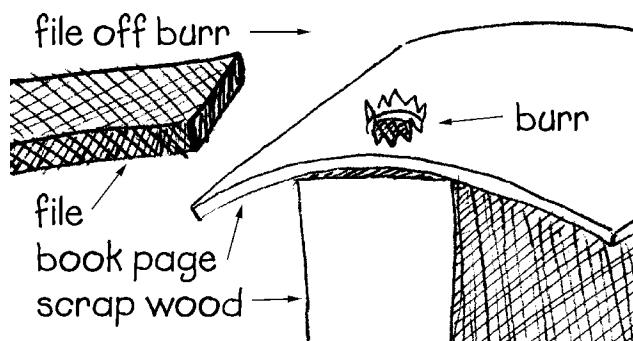
drill

And of course, any items you want to attach to your pages.

**The Book:** Before you start, straighten your metal if it has a curve in it from being stored in a roll. Roll it in the opposite direction wearing leather gloves. Mark off your pages on the metal with a pencil. Again wearing the gloves, cut small pages (mine are 3 x 3 inches) from your sheet metal. To cut the metal, use a smooth forward action with the shears. Don't close the shears all the way; this causes a ripple in the metal. Try to avoid creating jagged edges. It's particularly easy to cut the back of your hand as you cut through a large piece of metal, where you aren't watching what's happening. To prepare the pages for filing, tap gently around the edge with the mallet to flatten ripples caused by cutting. File edges with the mill smooth

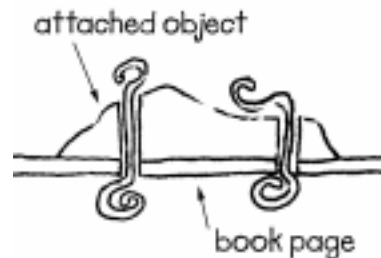
file. Also file the corners to round them a little. Test the edge very gently with your finger or thumb to make sure all burrs are removed. Think of a sharp knife; don't press. For a smoother edge, wrap a piece of the sandpaper around a small stick of wood, using it like a file; do a final sanding on all edges. If the metal is soft or very thin, it may need some support for filing. If so, support the edge of the metal along the edge of a scrap of wood, and file it.

The next step is to make holes in the pages. Make a hole with the 8d nail in the scrap wood. This hole will allow you to drive a nail through your metal page without having to pull the nail from the board each time. Using a pencil, mark a place for three holes on each page. They should be centered about 1/4 inch from the edge. They should also be in the same spot on each page. Then make a small dent with the 6d nail in each spot where the holes will be. Position each potential page hole over the large hole in the scrap wood to drive the 6d nail through the metal. Then, holding the awl with the handle in the palm of your hand, push the point into the metal, enlarging the hole to the full diameter of the awl. Place the page on the edge of a piece of scrap wood, bow the page slightly, and file off most of the burr caused by the awl. If you file the burr completely, you'll begin to scratch the metal with the file. Use the mallet to flatten the burr the rest of the way on the back side of the hole. Each hole should be fairly smooth and slightly larger than the diameter of your ball chain.



**Embellish the pages:** There are a number of ways to embellish the pages. Copper wire can be used to attach small objects. You can drill small holes in some objects and through your page. A twist in the wire on both sides of the page holds the object in place. The twisted wire ends can be flat or stand up to add texture.

Sewing objects on with the 24 gauge wire is also possible. For objects that are too hard or too fragile to drill holes in, you can often drill through the page in strategic places and hold the object in place with wire. Use a #60 drill bit and 24 gauge copper wire for these techniques.

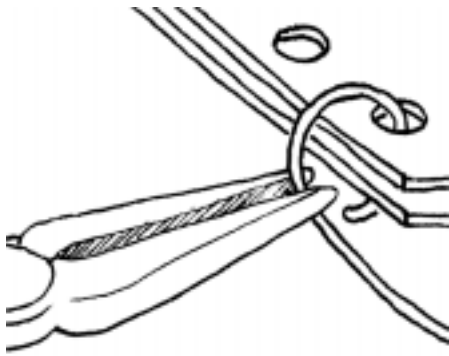


**NOTE:** some materials give off fumes or dangerous dust when drilled. Use a mask and ventilation, and never drill plastic that smells like it's burning. Very soft plastics can't be drilled because they do melt.

Your pages could also be painted with the proper preparation, or have things glued on. Before painting the metal needs to be perfectly clean. Use the wet or dry sandpaper to sand the surface thoroughly. When water sheets off, it's clean. Don't touch the clean metal with your fingers. Allow to dry. Air drying is best, but for this quick project, you can dry it with a clean paper towel. To paint on the surface apply two coats of gesso first. To attach things with glue, clean the metal as for painting.

You can make a simple staple with 16 gauge brass wire. Use it to hold objects to the page. Cut the wire slightly longer than you expect to need (you lose a little length as you bend it) Drill holes with the #52 drill bit to attach things with this staple. Using needle nosed pliers, bend the staple legs to right angles from the main part. Slip them through the holes and hammer them down.

**Bind the book:** When the pages are finished, bind them. Cut three short lengths from the ball chain. They need to be long enough to accommodate all your pages. For the 9 pages in my sample book, I used 2 1/2 inches of ball chain for each hole. Thread the ball chain through each hole and join the ends with a chain connector.



Or you can use the needle nose pliers to twist brass wire around in the hole several times, making a low-tech jump ring. Make your first loop, slip it through the pages, then turning the loop in the hole, continue to bend the wire in a circle. Be sure to make your jump ring large enough to allow the two pages to lie flat and next to each other.



**Other ideas:** If you live near a source of scrap materials, you might find some interesting light-weight metals you could use to make books. Any nonferrous metal that's fairly thin would be easy to work with.

I often use jewelry techniques for my metal books. Very small rivets can be used to attach many objects. A jeweler's saw cuts metals, also museum and Davey boards. You can make or buy jump rings for binding. You can make your own hinges and clasps. These techniques require more time invested in learning and more expensive tools. A large jewelry supply company, like Rio Grande ([www.riogrande.com](http://www.riogrande.com)) would have catalogs showing the variety of tools available. There are several good books on basic jewelry techniques. One I am biased toward is Tim McCreight's *Jewelry: Fundamentals of Metalsmithing*. (he included a photo of one of my pieces.)

For more pictures of my metal books, check out the gallery section of my web site at <http://home.earthlink.net/~hoffish/> Or search on "Judith Hoffman" at google.com.