

Photo Tutorial: Rivets –A Cold Connection

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Cold connections are used when you cannot solder or don't want to solder two pieces of metal together. There are many kinds of cold connections, but in this tutorial we will be making rivets from wire to hold or connect two pieces of metal together.

Rivets are like a two-headed nail. You drill a hole in the two pieces of metal to be joined or connected and pass a snug fitting wire through them. This is how they hold the pieces together.

When using rivets for your design, it is best to think out and draw your design before hand so that you can use the rivets as part of the design. Rivets can actually offer fun and intriguing design possibilities in a well thought out project.

What you will need:

- Vise (One with a smooth steel head, not one that is covered in rubber.)
- Ball Peen Hammer
- Drill/Dremel with small drill bits
- Block of Wood
- A steel punch
- Wire (gauge size depends on the size hole you drill)
- Steel bench block or anvil
- A piece of Sheet Metal
- Safety Glasses

1. Create your design in your metal pieces...

a. ... and decide where you want to rivet the two pieces together.



2. Then mark the top piece with a pencil or marker, where you want to drill the holes to place the rivets. (Sometimes with the right design you can tape the two pieces together because it is easier to drill both pieces at the same time, so you are, spot on, with your holes.)



3. Place your first piece on a wooden block. Take a steel punch and place it on the marks you made and tap it with your hammer to make an indentation. This is done so that when you place the drill bit on the metal and begin to drill it has a place to sit and won't skitter across it, scratching your piece.

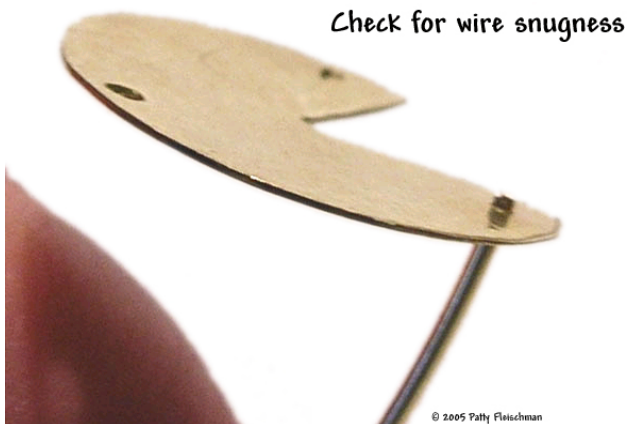


Here is what it looks like when you don't punch the metal for the drill to sit on. Notice the right side, how it looks all scratched up. The left side is a clean drilled hole. I will fix it by texturing the metal to cover the scratches. Otherwise you



would have to sand it down a number of times and polish, polish, polish to get those scratches out!

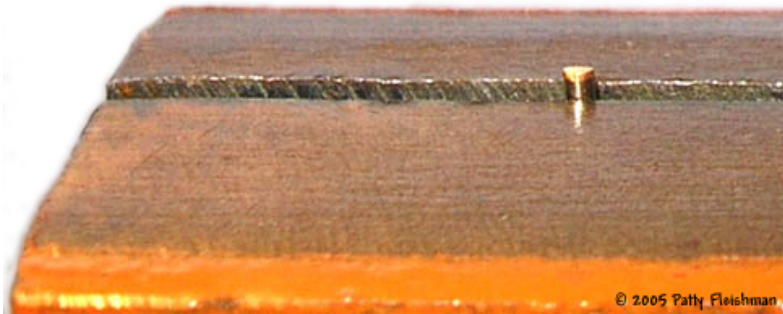
4. Put your safety Glasses on at this point.
5. Keeping your piece on the wooden block, take your Dremel/drill and place the drill bit into the indentation. Holding your drill straight and with light pressure begin drilling your hole while you hold it securely on the wooden block. (If you press too hard on your drill bit you can and will break the bit. The last thing you want is a piece of metal flying at high velocity near you!)



6. Once your holes are all drilled, place your wire through the holes to make sure you have a snug and tight fit. You may have to twist the wire to get it in or if that doesn't work, use a round tapered jewelers file to file the hole a little until the wire fits.

7. Take the wire and place it into the vise so that only a very small amount is just peeking above the surface of the vise. Now close the vise so that it holds the wire in place tightly. (It should look like this.)

View of wire in vise



8. Take the ball end of your hammer and gently tap the edges of the end of the wire in a circle. You keep doing this until you see a head develop on the end of the wire. If you hit the wire too hard it will bend it and you don't want to bend the wire, you want to stretch the wire so it forms a flat head.



9. The rivet should look like this.

First Rivet

end 1

end 2



10. Once you have formed the head, take your wire out of the vise and put it into the holes of your metal pieces to make sure the head is big enough not to slip through.

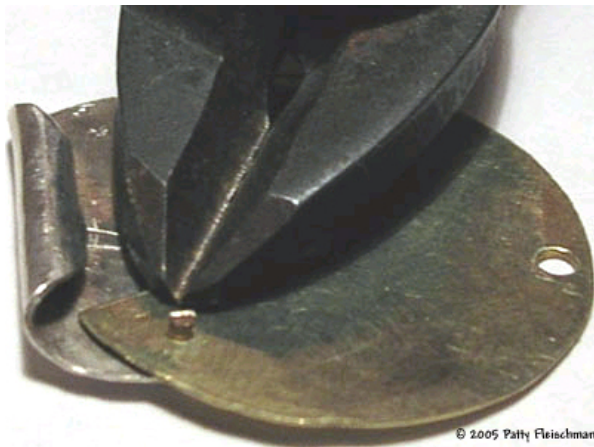
11. If it is a good fit then turn your piece over so that the wire is coming out of the other end.



View of both pieces with
one end rivet uncut



12. Cut the wire, close but not flush to the metal. You need only a small portion sticking up.



Cutting wire to form back rivet

13. Now you begin tapping the cut wire on the edges like you did in step 7 to form another head. Once you have done that you can then give it a gentle tap with the flat head of the hammer on both sides to make sure you have a tight and somewhat flush fit.



Forming backside rivet
with ball of hammer

14. Continue steps 6 through 11 for each rivet needed in your piece.

Final Design concept-ready to polish then wire components



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You can then sand or file the rivet so it is smooth and then polish your piece and you are finished! That is all there is to it!

TIP: If you want to connect two pieces together and want them to swing or move, you can add a piece of thin cardboard or card stock under the first rivet and leave it there when making the head on the other side. This will keep a small space between the metal and the rivet head. To remove the paper you can either soak it in water and tear it away or you can burn it. I prefer the water method so as not to mar the surface of my metal. Once removed you should have enough play for the

piece to move or swing freely. The thicker the cardboard the more play you will have between the two pieces.

NOTE: If you don't want your rivet to show, you can counter sink your holes and place the head into the area so that it is flush with the metal. Sometimes you will need to file some of the rivet flatter to get an even surface. If done right, you will not even know the rivet is there and you will have an invisible connection once the piece is polished.

Here is another piece I used the riveting technique on.



Although Patty focuses most of her attention of art shows, you can occasionally catch an item on eBay, but you'd better be fast.

Her eBay ID is: [ITS SO PATTY DESIGNS](#)

When she doesn't have any auctions listed, you can always check her online store within eBay: its name is "**Fleischman Jewelry Collection**" and the URL is: <http://stores.ebay.com/Fleischman-Jewelry-Collection>

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