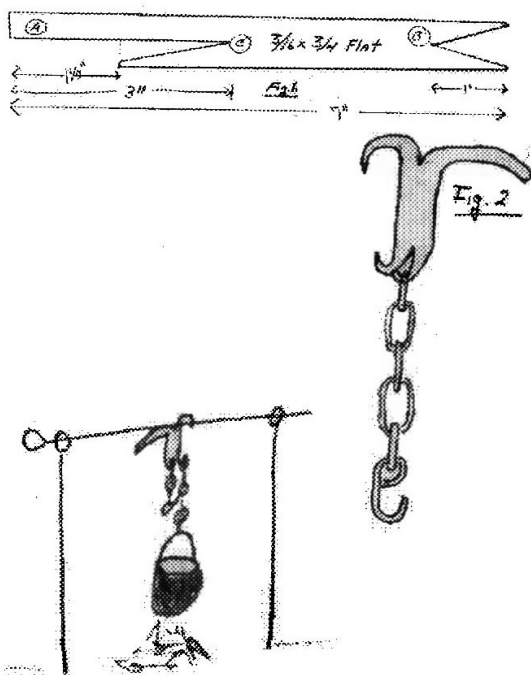


Tips and Scrap Corner From The Prairie Blacksmiths Association 12/2000

Campfire Pot Hook (Adjustable)

Jr. Strasil

1. Make cuts with hacksaw per fig. 1 in a piece of flat iron $3/16" \times 3/4" \times 7"$
2. Heat and round the long part of end 'A'.
3. Heat at end of cut 'C', lay across edge of anvil and bend 90 degree, but not real sharp. See fig. 2. Then while still hot, lay on horn of anvil and roll end down a little, this is the handle. Hammer out any saw marks.
4. Heat short part of 'A' and form hook. This hook goes on the top piece of the campfire irons.
5. Heat end 'B' and form small hooks. See Fig. 2. Have a piece of side link chain from a set of car tire chains ready to put in closed hook, before closing hook. Chain should be about 18-20 inches long. Cut the last link on one side and form hook to hold pot.
6. Pot height can be adjusted by putting any link of chain in the second bottom hook.



Portions of the last issues Scrap Corner were also from the Prairie Blacksmiths Association by JR. Strasil.
I apologize for the omission

When Hot Punching Holes

Jr. Strasil

1. When hot punching holes, hit the punch twice and then remove and cool the tip. Keep a container of fine coal dust handy and dip the wet end of the punch in dust before punching. Some of the dust adheres to the punch and helps release the punch from the hole. Old—timers used to sprinkle some dust in the hole.
2. Do not punch over the hardy or pritchel hole, use the top face of the anvil. Hit twice, remove and cool the punch until you feel the punch bounce. The turn over and punch from the other side at the dark spot. The slug will usually be lying on the anvil.



Formula for Bending Circles

Jr. Strasil

To determine the required length of stock to form a ring or circle, measure the inside diameter and the thickness of the metal. Add the inside diameter and thickness together and multiply by 3.1416. This will be a center-line measurement. When bending the inside shrinks and the outside stretches, but the center-line remains relatively unchanged.

Formula For Heading Rivets & Bolts

Jr. Strasil

1. To forge the head on a rivet, allow 1 1/2 to 2 times the diameter of the rivet
2. To forge the head on a bolt, allow 3 to 3 1/2 times the diameter of the bolt.

Tips and Scrap Corner

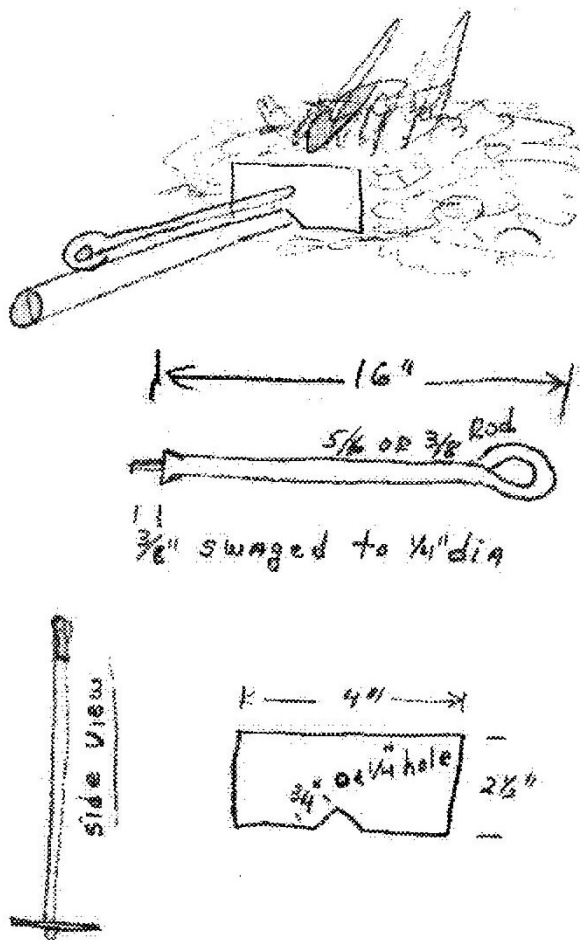
From The Prairie Blacksmiths Association 12/2000 Part 2

Heat & Hand Saver

Jr. Stasil

When heating short or heavy pieces in the forge, the fire has a tendency to shoot back over or under the piece you want to hang onto. Sometimes it is awkward or unhandy to hold it with tongs. You also tend to lose part of your heat when you hold the handle in water to cool it enough for your hand. By using the heat shield, it will deflect much of the heat and doubles as a coal rake.

For flat stock, put the straight side down. Use the notched side for round or square stock

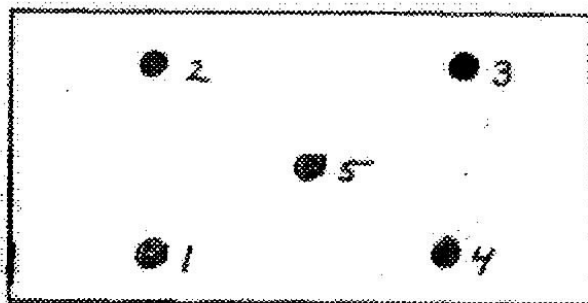


Hammer Technique

Jr. Strasil

At the workshop held at Halan Krueger's on May 20-21 I noticed that some participants were having a hard time hitting where they wanted. Over the years all of the employees I have hired had the same problem, eye-hand coordination. This problem causes a person to take short rapid blows because they are afraid to hit it hard and do possible damage with a miss-aimed blow. It is nothing to be ashamed of and with practice it can be cured.

The follow describes the method I have used to teach employees and others how to improve their eye hand coordination with a hammer. Take a piece of 2 by 4 about 6 inches long and put 5 common nails (10-16 penny) and number them 1 to 5.



Start with the smallest hammer and tap the nails in order, the object is to tap not drive the nails. Do this for about 15 minutes twice a day. With practice you will be able to tap the nails faster. When you become fairly proficient, do the exercise with your eyes closed. You should also practice with your non-dominant hand. Soon you will be able to hit where you want and heavier blows can be made when working. The reason to become proficient with both hands is in case something happens to one, you can still work (make a living) with the other.

Building Blocks

A "Back to Basics" project
the Anvils Ring/Spring 1987
by Dorothy Stiegler
Part 2

"Well, hello again. I hope you had fun making those leaves! For the next phase you will need two pieces of 1/4" long by 3/4" flat stock—one 36" long and one 44". We'll work with the 36" piece first. On one end we will make a very simple ribbon scroll.

Heat the end of the bar and rasp it to make sure it is flat and square on the end. Reheat, and with the piece laid flat on the anvil, deliver flat, overlapping blows to taper the end nicely to about 3" up the stock. Aim for a smooth taper, down to 1/16 or so. Let the stock spread on the sides to about 1" wide or a little more (see Fig. 1). Try to get it evenly spread on both sides of the center line so it will roll up evenly.

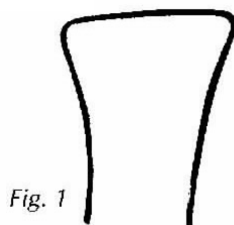


Fig. 1

After quenching, turn the piece around and heat the other end, squaring it up as before. Take a second heat about 2" back from the end and with 1" hanging over the far side of the anvil, hold it on its edge and hammer a neck into the bar as shown in Fig. 2. This narrow neck area will be more than 1/4" thick now, so turn the flat side to the anvil and reduce the neck back down to 1/4". Turn it onto its edge again and rework it until the piece is nicely tapered at the neck. The neck area just toward the shoulder should be a somewhat thinner taper (1/4" to 1/8"). Leave the block 1" x 1/4" - you'll need the mass to make a fiddle head scroll on this end.

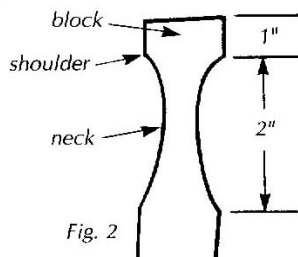


Fig. 2

Now you will want to heat to a nice orange-yellow and use a crosspein hammer for the next step. Lay the steel flat with the 1" block area on the center of the anvil. With the

cross-pein end of the hammer at 45° to the piece, hammer out toward the left ear (Fig. 3). This will spread the left ear out somewhat as in Fig. 4. To repeat this process for the other ear you can reheat this area and either turn it over to the other side, or you can work from the same side, turning the work so you are hammering to the right instead of the left. Keep the cross-pein of the hammer at a 45° angle to the center line of the piece, then stretch the steel forward by starting at the center and making a series of overlapping fullerings out to the end. The steel will move ahead of the pein if you go slowly and aim carefully. Don't hammer out on the end first and then jump to the center because you will be pushing the steel back into the center of the block. When you are finished it should look something like Fig. 5. Try to get it about 1 1/2" wide at the end and about a 1/2" taper at the neck. If the piece looks rough, take the time to rasp the edges and square the end. I like to take the extra few minutes here and there to clean the work and straighten up the piece—it always pays off later. Now to scroll this baby up—this is the fun part. Heat the first 2' of the end and hold it flat side down on the anvil positioning the flared end just at the far edge of the anvil. (Keep it all on top of the face but right at the edge.) A "cold run" might be helpful here. Hold the piece with a loose hand while aiming the hammer blows into the far edge of the anvil at 30 deg. (see Fig. 6). The hammer will not be used to fuller the piece over the edge, but rather to break a radius using the edge of the anvil to do it. Be careful not to hammer hard enough to crease the scroll on the inside run. As you come down with the hammer, slowly advance the scroll with your hand so

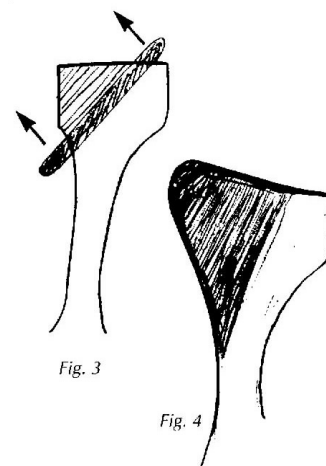


Fig. 3

Fig. 4

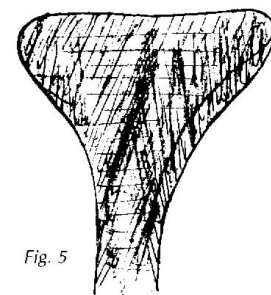


Fig. 5

it goes over the edge of the anvil as you hammer with light glancing blows (hold the hammer at a 30° angle to the edge). Each time you raise the hammer advance the scroll a small amount—about 1/4" or so. Remember, you are making a series of radii and if you hold too long in one place or advance too quickly, a flat spot will result. Move the steel ahead until you have hammered about 3/4" of it into a small curve. If you started at the very edge of the piece, everything will curl.

Now take a new heat and hold the piece on its back with the curl up (see Fig. 7). With the hammer behind the curl, strike toward yourself and bend it up into an elongated curve (Fig. 8). Keep the left wrist and shoulder loose, allowing the shoulder and elbow to drop and the wrist to rise as you do these scrolls. Also, let the arm swing in an arc out from the body as you raise the wrist (try it a couple of times first). Next, heat the piece and position the work so that the last part of the bend is down on the anvil and the curve is up.

It's helpful to keep a mental image of a scroll in mind but right now yours should look similar to the one in Fig. 9. Position area 9-A on the anvil so that it rests as shown. Strike lightly on the tip of the scrolled end to round out the part between the tip and the bend. You will need to keep the left hand moving (shoulder and elbow down, wrist rising) moving away from the body. Keep the contact points of the anvil and hammer changing, and everything between the two will

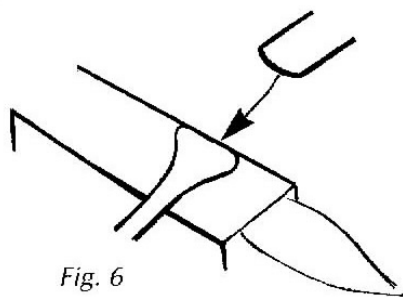


Fig. 6



Fig. 7



Fig. 8

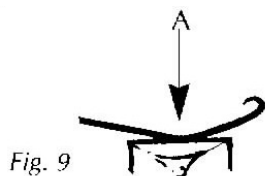


Fig. 9

round out.

It's a good idea to reread this and do a couple of dry runs. I'm sure you will find you are actually doing quite well. If you do get a flat spot, heat the flat area and position the piece so that one point of the flat area is touching down on the anvil and one is not. Tap with your hammer on the point that is not on the anvil and the piece will round out, if you have it hot.

Now back to the fiddle scroll—it should be fairly tight on the end. Reheat it, and repeat the procedure described earlier—with the left hand moving, hold the piece on the anvil and tap it into a smaller curve. Reheat again and hang the curl over the far edge of the anvil, gently tapping with the hammer to close it up. Then move the piece back to the top of the anvil and curve it up a little more. You should end up with a piece as shown in Fig. 10. It's only curved up on the tip at this point, but we are going to curve it up even

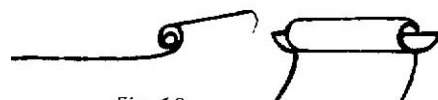


Fig. 10

more, so hang the entire existing curl over the far edge of the anvil with the curl down and pull the piece back until it touches the anvil. Using the scroll technique again, advance the work as you tap or lightly hammer the piece coming in at 30° to the anvil edge. Bring it back onto the top of the anvil and again lifting with the left hand and hammering toward yourself, take out the straight part.

Now we will make the bends. Take a heat about 4" long on the end, just past the fiddle scroll (and overlapping a little); with the scroll up, hold it over the horn just past the scroll. Now heat area 11-A and quench out both the curve and curl.

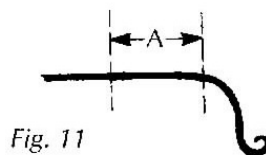


Fig. 11

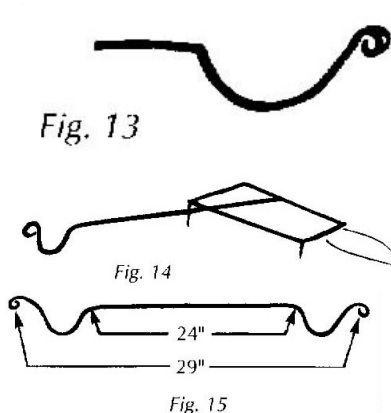
Hold it over the horn with the curve up this time (Fig. 12), hammer lightly on the tip end and make the curve go down (see Fig. 13). straighten it round and true it up.



Fig. 12

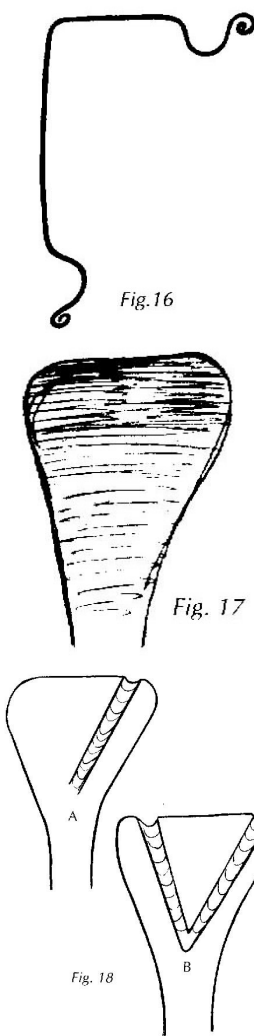
Quench and turn the piece around to the other end and position it on the anvil as shown in Fig. 14.

Now repeat the above procedure to this end. Your piece should end up looking like the one in Fig. 15.



The next scroll will be an 'S' scroll. Measure back about 18" from one end and bend it to look like Fig. 16 (it shouldn't take much heat for this). Take the 44" piece of stock and heat 2" at one end. With the flat face of the hammer, deliver flat overlapping blows to make a nice flat end on the piece. Taper the thickness down from 1/4" to 1/16" and allow it to spread a little on the width. Again, keep the spread equal on both sides of center. Rasp it until rounded on the end (Fig. 17) and clean it up. Now take a round bar or a rounded fuller and hold it on the heated spade as shown in Fig. 18-A.

With the piece hot and the bar cold, strike the bar with a good sharp quick blow; use a heavy hammer—a striker is handy here. This will fuller the piece. Then reheat and repeat the process on the other side (Fig. 18-B). If you like, you can put one down the center, too (Fig. 19), or maybe up the neck a ways. Now hold it over the far edge of the anvil, fullers up, and again use the scroll technique we discussed to roll the piece up a bit. We will continue to curl this one



around farther than the last one until we have the shape shown in Fig. 20. to roll the piece up a bit. We will continue to curl this one around farther than the last one until we have the shape shown in Fig. 20.

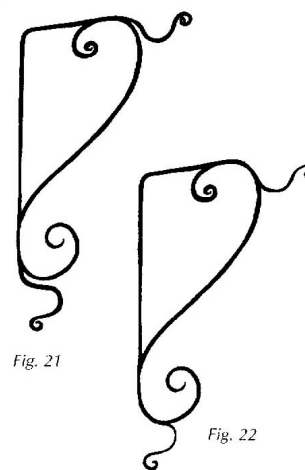
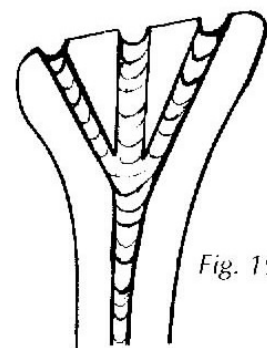
Continue to advance the piece over the anvil, tap at 30° with the hammer, bring the piece to the face of the anvil and scroll it up a little, then repeat the process.

Next, turn the work around and with the scrolled end up, repeat the entire process on the other end.

This time, when you turn the scroll you will find it has turned into an "S" overall with the fullered scrolls on the outside of their curve. These scrolls will fit together as shown in Fig. 21. Heat the bracket curves and, laying the work flat on a table, use a pair of tongs to squeeze and fit them around the cold "S scroll (Fig. 24). Next time we will add the leaves, hot collars and punch holes. See you then.

Dorothy Stiegler is an artist-blacksmith from Rochester, WA. She serves as vice-president on the ABANA Board of Directors. (1987)

The Anvil's Ring/Spring 1987



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Foundations:

A Resource for Beginners. . .

by Bud Oggier

the Anvil's Ring/Winter 1986/87

Part 4

"Hi, Jean, good to see you again. The second time you were here we were upsetting and made a piece of 1/2" round bar with two upsets in it. I've saved those pieces and today we're going to put a 1/2" hole through 1/2" round bar. Instead of using a round punch to put in the hole, we're going to use a slot punch. The punch is oblong 3/16" x 1" with a full radius on each end. After punching we'll upset the slotted section some more and then finish up the hole. The reason for doing it this way, rather than with a round punch, is that we need to spread the slot to give us a wall all around the hole. This kind of hole is used when you want to pass one bar through another and they are both close to the same size. Well, here's the two pieces we made earlier. Let's see what happens when we do all this good stuff.

"Jean, this kind of hole is used quite a lot in making gates, fences and grills, and sometimes on decorative pieces, so it's well worth learning. My piece is hot now, so watch how it goes. I line my slot punch up in the middle of the upset, parallel with the length of the bar, and drive the slot punch just the way we did with the round punch last time. I'm trying to get it lined up as close as I can to keep the hole in the middle of the bar. Hear the sound change as the punch gets closer to the anvil? Now I'll turn the piece over and punch out the plug from the opposite side. There, that's not too bad. See, the extra time spent lining up the punch paid off. I have just about the same amount of stock on each side of the slot.

"Time for you to try it. Is your piece ready? Don't forget to cool the punch. Good, hit hard. There, turn over and knock out the plug. Great! Let's look. Your slot is well-punched, but off to one side a little. I think we can fix that later, though.

"Now, Jean, we'll upset the sides to give us more stock around the hole. We'll have to heat the piece,

then cool the bar on each end of the slot so the sides will upset. I'm going to upset until my slot has become a square. Now I'm hot enough. First, I cool with my water can, then upset. I still have to be careful about bending and not hitting too hard - many light blows are better than a few heavy ones. I've got to straighten the piece — see how much shorter my slot is? I'll reheat, cool right up to the slot and continue upsetting. Just a little more...now my slot is a square.

"Try yours, Jean. Since the sides of the slot are quite thin they will cool rapidly, so don't waste any time getting to the anvil just as soon as you get the bar cooled up to the slot, go! Good light clean blows get the job done. Straighten before it gets out of line too much. That's good. Get another heat and go again. You're hot enough now, so cool quickly and go. Good. Keep an eye on your slot and keep forging until it's about square. That's great! Straighten it up and let's take a look. Jean, you got the little square okay, but the two ends of the bar are out of line with each other, so we'll have to fix that. I'd like to do it for you so you can see how it's done; then you won't have trouble when you have to do it again. Once the bar is hot, I'll lay it on the anvil with the upset part down in the hardie hole and hit the out-of-line portion of the bar on the anvil face to make it straight, okay? Here we go. Upset in the hole, hit the out-of-line end on the anvil face and turn it over to be sure it's straight.

"There — see how that was done?

"Now, Jean, we're going to use a new tool called a drift. Here are two, one for 3/8" and one for 1/2" holes. Notice they look a lot like a cigar, with a long taper on one end and a short taper on the other. To use them, the long tapered end is put in the hole and driven through. The center section of the drift is straight and when you reach the short taper, the drive goes right through. Since the square hole we have in our pieces now is only about 5/16" square we'll have to use the 3/8" drift and then the 1/2" drift. The 1/2" drift wouldn't fit into the square, so we'll open it up some first. Here we go. Put the long tapered end in the square, drive it down (check to see that it is going straight and that the walls are of even thickness) and drive it through. See how that went? Now I have a 3/8" round hole where I had a 5/16" square before.

"Jean, since your slot is a little off center, only

New Jersey Blacksmiths Newsletter

drive the drift in about half way up the taper and then let's look. Get your piece quite hot, Jean. The cold drift cools it fast. Okay, don't drive in too far. Now, let's take a look. First, knock the drift back out — you can see the hole is quite a bit off center. To correct that after your piece is hot, pour water on the side opposite the way you want the hole to move and then drive in the drift. What we're trying to do is to make the drift move in the line of least resistance and since one side of the hole is cooler than the other, the drift will migrate to the hot side. We'll probably have to do this two or three times because heat is running into the cooled area while we're working and we don't want that side to stretch any more. Okay, cool just the side you don't want to move, drive in the drift about an inch further up the taper. That's far enough. Let's look. See, the hole is larger, but it has moved closer to the center - let's keep going. This time I think you can drive the drift right through, but cool the side just like before.

"Okay - cool, put in the drift, drive it through. Don't pick up that drift! Didn't mean to sound so rough, hut that drift is hot and you would have gotten some burned fingers. That's coming along great looks like about one more cooling ought to take care of it. Let me finish drifting mine and then you can finish. This time I'll use the 1/2" drift and drive right through, turn the piece over, hit it once just over the hole to drive down any swelling around it, and drive the drift through again from the opposite side. The drift will be hot so I'll have these tongs handy to pick it up. Here goes! I set the drift in, drive it down all the way through, turn over the piece, knock down the swelling and drive the drift through again. There, that's done.

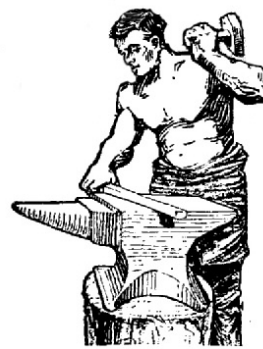
"Let's finish yours up, Jean, but go only halfway through in case we have to cool the wall again. Cool the side you don't want to move, go only half way and then let's look. Good. See, your hole is back in line now and the walls are the same size on both sides. Now you can reheat and finish drifting, but you won't have to cool this time. Go for it, Jean, drive the drift through. Good. Now, turn it over, hit over the hole, put the drift back in the hole with the tongs and drive it through. There, now you've put a 1/2" hole in a

1/2" bar with a good wall all around the hole. Do you understand why the drift moved over when we cooled one side of the hole? Sure, the cool side didn't want to stretch and the hot side would, so it went that way.

"Great Jean, you're a good student.

See you next time!

This article was reprinted courtesy of the author Bud Ogier, The Anvil Ring and ABANA. It was originally published in the Spring Issue of the Anvil Ring 1986, Volume 14 Issue 3. Reprinting of this article must be cleared through the ABANA publishing committee.



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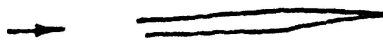
Hot Tips

REPRODUCTION CANDLE HOLDER

Submitted by: Buster Grubbs - Shady Rest Forge

Reprint from THE OCMULGEE BLACKSMITH GUILD NEWSLETTER May-June '96, #42
Recently Dennis Sutton came to visit from Kentucky. While working in my shop, Dennis showed me how to make a reproduction of a candle holder that was dug up at Williamsburg. He thinks! Well, if it wasn't, it should have been. Here's how he did it.

- 1 - With about a 3 1/2 foot length of 3/16 round stock, heat one end to bright red and taper to a point.



- 2 - Heat pointed end again and bend 90 degrees for about 1/2 inch.

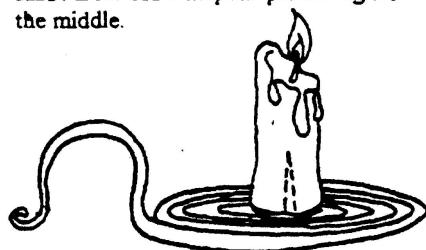


- 3 - Heat at bend and bend again at 90 degrees opposite other bend.



- 4 - Heat about 8 to 10 inches at end and catch point in vise jaws. Let vise jaws cool point just enough so it won't twist off. Start making a coil by going around and around keeping coil tight.

- 5 - Keep heating and coiling tight and flat until you have about a 3 to 3 1/2 inch flat circle made from coil with point protruding from the middle.



- 6 - This should leave about 4 or 4 1/2 inches to form a handle. Heat handle end and bend to form handle.

Note: I have watched our president, Jeff Mohr, demonstrate so much that I have taken up his habits. Notice that all measurements are about. This will give you a little room for self expression and me a little room for error. Thanks Jeff!

Reprinted from The Indiana Blacksmith Assoc. newsletter, "The Fire Forge"

North West Blacksmith Association