

New Jersey Blacksmiths Newsletter

Controlled Hand Forging Lesson 18, Conclusion

*This text was inadvertently omitted from Newsletter V.21 No.1.
It should have followed page 16 in that newsletter. -Ed.*



Figs. 25 and 26. Corrections to alignment.

Text and photos by Jay Close

When you are attempting to push material in front of the peen, especially as the material is getting thinner with each blow, a misplaced blow is sometimes hard to correct. The beginner will often become timid in the use of the peen, taking short pecking blows, and multiple heats to achieve the shape. This should be avoided. High heats and hard hammer blows are the key to successfully thinning a set up. The only way to achieve the accuracy needed is to force yourself to forge with confidence and hit with purpose.

Sometimes a significant asymmetry emerges as the peening progresses. If you are certain that the peening was accurate and even, then that asymmetry

may have existed in the original set up. Even a slight unevenness in the set up will be magnified many times as the bar gets thinner. Just make the set up as even and symmetrical as possible and deal with emerging asymmetry as you work. Sometimes this involves leaving half the flattened area a bit thicker than the other. Some selective peening to spread one area more than another may also be needed.

In making these in-process corrections, there is no “step by step” or easily followed formulations. Forging with confidence helps. Keeping the peen marks parallel to each other even when making corrections also seems to help. Practice is the most important aid.

Frequently the peened shape will be even but slightly canted from the center line of the bar. With the shape already thinned, it is not advisable to correct the shape by a simple straightening blow on the edge of the thin shape. Rather, slightly thin (with peen or face of the hammer) the base of the shape to stretch material and move the thinned form in the needed direction. For example, stretch the base of the thinned triangle on the left side to swing the form to the right; stretch the base of the triangle on the right side to swing the form to the left (figures 25 and 26).

Forging Dynamics

In drawing down, the mass of a piece of iron is retained but the distribution of that mass is altered by often dramatic reduction of the cross-sectional area. By creating different prepared shapes called “set ups” and by use of the hammer peen, you can control the final shape of a thinned section with economical use of material.

The center section of a bar being peened is most resistant to shape change. This is because the hammer blow must push against material in all directions to make a change in thickness. The edges are easiest to thin as they have little resistance to their spread.

As the bar gets wider, even if thinner, this re-

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sistance of the middle to shape change only increases. The hammer blow must now push against stiff edges that are being forced to move through their thickest dimension. This is why in thinning a bar we try to work the center of the bar first. This is also why it is so easy to get a thinned section that is relatively thick in the middle and thin on the edges.

Targets:

- The peened shape should be even thickness and symmetrical.
- The peened shape should be in alignment with the length of the bar.
- The surface texture on both sides of thinned area should be smooth without obvious hammer marks.
- Take one or two heats for more complex set ups like the triangle taper.
- Take three heats to peen these shapes and a single heat to smooth them.

Remember, these are targets or goals. It will take much practice to achieve these results.

Author's Note: All forging for this lesson was done with the inexpensive hammer shown in figures 2 and 3. You do not need esoteric or expensive equipment to practice and improve your forge work.

Thanks to Bob Ouellette who posed for figure 7. Bob is a student of mine in the American College of the Building Arts bachelors' degree program in forged architectural metals.

Participation in Hands-On Events

Participation in NJBA-sponsored hands-on events is now limited to adults (i.e., 18 years or older).

This change was effected last December when NJBA was having problems with its insurance coverage (which has since replaced).

This policy applies to workshops, open forge meets, demonstrations, etc.

This policy *does not* apply to open forge meets and similar events that are sponsored by youth-oriented organizations such as scouts or schools with the aid of NJBA equipment and members.

The Scrap Corner

by Tim Suter

I'm going to tell you about my favorite candy store. Not jelly beans, gum drops and peppermint sticks, but more solid stuff.

The place is Fazzio's Contractor Supply and Equipment. Here you can browse to your heart's content on somewhere near ten acres of warehouse and yard area. They carry used, surplus, salvaged and new merchandise at mostly very reasonable prices. They have the most astounding selection of nuts, bolts, screws and washers that you will ever see, priced at \$1 a pound. They also have a good assortment of brass and stainless fasteners, appropriately priced.

For the machinist, there is a large selection of good used machine tools at ridiculously low cost compared to new. If you are looking for material to make smithing tools, there's a large selection of used and surplus pneumatic tools, bull points, drill rod, chisels, etc., to select from. They have carpentry, plumbing and electrical supplies.

In the metals area you can find brass, copper, aluminum and stainless material. The steel warehouse has plate from gauge thickness to, maybe, one inch, floor plate and expanded metal. Shear drops are sold at 30¢/lb. In most cases you can find a drop to satisfy your needs and save by not paying a premium price for a sheared-to-order piece.

Hot-rolled bar stock can be found in most any size or shape, flat, angle, channel, square or round. There is no charge to cut full lengths in half to fit in your truck. They also have a good selection of cold-rolled, pipe, tube, square tube, large diameter shafting and structural shapes.

Congenial, helpful employees, and the privilege to browse unrestricted make this an enjoyable place to shop. The stock is always changing and you will shop there a number of times before you feel that you have explored all the nooks and crannies. Every trip there is like an adventure.

Fazzio's is east of Glassboro, NJ, on Cross Keys Road, about midway between Route 47 and Co. Rt. 555. Don't mistake Fazzio's Machine for Fazzio's Contractor Supply.

The above article is a reprint from NJBA Newsletter, Vol. 2, No. 5, May, 1998.

Joseph Fazzio's now has a location at the Rt.33/Rt.34 circle in Wall Twp. They're constructing a replacement for the Wall store near the intersection of Rt. 524 and Rt. 524A, west of Farmingdale.

Many of us rely on Fazzio's as a "supermarket" for steel and hardware, as well as tools, supplies and equipment. I use flux-core welding wire from Fazzio's. The Lightweight forge apparatus was build principally with materials from Fazzios. - Bruce Freeman

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Alternative Green Quench

by Eric Chang, Sunnyvale, CA

I was chatting over lunch with Peter Fels about my discovery of an environmentally friendly quench. He mentioned that I should write an article about it for CBA. Here is how I made my discovery: I was searching for a benign, easily sourced quench for use with steels, such as 5160, that will crack when quenched in water. Oil smokes, fumes and burns and is environmentally unfriendly. It also makes a mess. I discovered that the soluble portion of disposable diaper absorbent is made primarily out of polyacrylic acid, which has ideal properties for moderating a water quench. I did an experiment with a (used and therefore free) diaper and simple carbon steel. The quench was sufficiently gentle that the carbon steel did not harden appreciably, indicating a successful experiment. One diaper will provide approximately three gallons of quench. This quench is safe enough to toss on your lawn or in your compost pile. You cannot put oil or brine in compost.

I was almost certain that my discovery was not new. Almost nothing is in the world of blacksmithing. I did a quick web search and found out that it is patented by Houghton, a well established company in the field of advanced polymer quench. I doubt anybody would mind if a few blacksmiths mix up a batch for their casual use since it would come from a diaper that was purchased. Besides, I suspect that anyone who tries to enforce patent on this application of polyacrylic acid will be found to be all wet and the lawsuit will go where it belongs – in the toilet.

The Blacksmith's Christmas Eve

by Allan Green Nov./Dec. 2012

The Blacksmiths' Guild of the Potomac, Inc

Many years ago, a North Carolina blacksmith was awakened after midnight on Christmas Eve by the ringing of a hammer on an anvil. The sound was coming from his forge. He peered out the window and saw the sparks flying from his forge chimney, so he quickly dressed and went out to his shop, wondering who could be using the forge at this hour. His heart began to pound as he saw, parked in the pasture beside the forge, a sleigh, and a team of reindeer grazing on the good grass that was still green this late in the

year. Quietly opening the forge door, he saw an elderly, bearded man in long red underwear and wearing the blacksmith's own apron busily shaping something on the anvil. The sudden draft alerted the old man, and he looked up.

"I wish that thee not mind, my friend," he said, "but I have need of thy shop for my team in yon pasture".

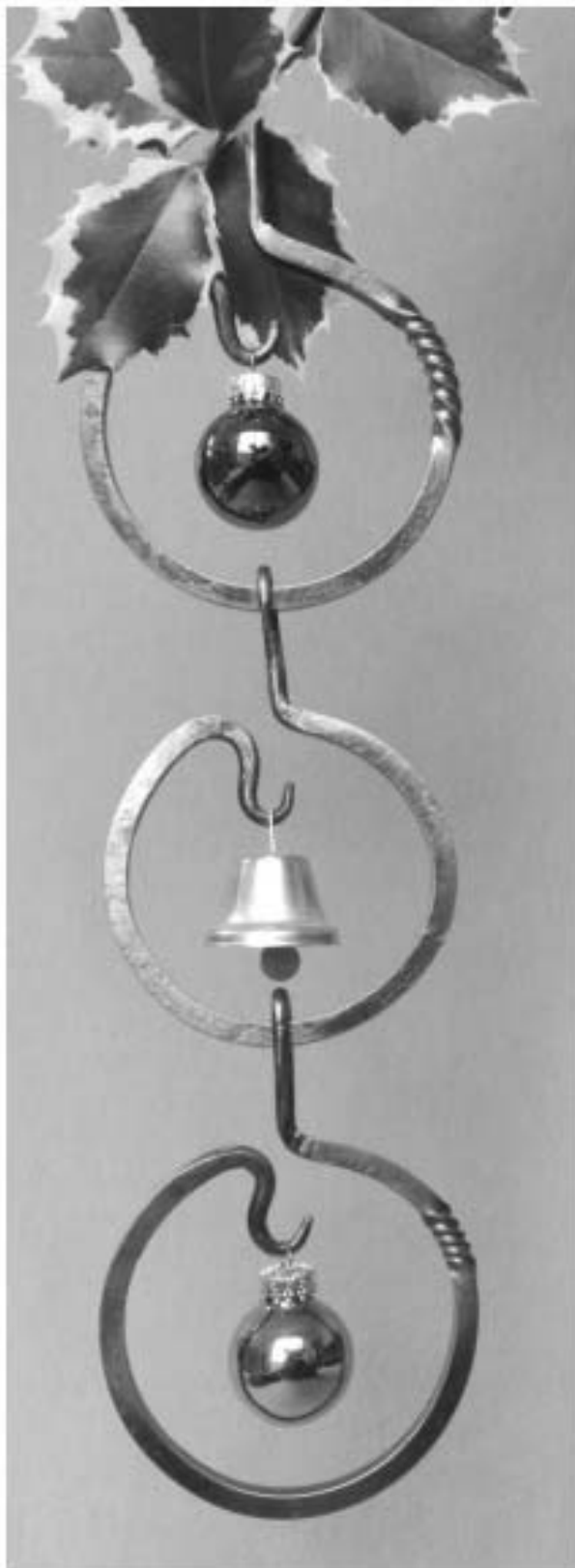
His accents were strange, but the old fellow obviously knew what he was about. "My shop is at your service, Sir," the blacksmith replied, and settled back to watch a master smith at work. At first it was not clear what his guest was so energetically forging. Singletree ends? Harness rings? Shaft stays? Whatever it was, he had 4 irons in the fire at once – a sure invitation for disaster for a lesser smith. The blacksmith watched as the old man quickly removed each piece from the fire and expertly shaped it into a U over the horn. A few last blows flattened the pieces into matching tiny horseshoes – except for the delicately shaped ends which belonged on no horse the blacksmith had ever seen.

"Tis about half my route, this far, and my wheel boys need shoes again," the old man explained. "I'm much obliged for your hospitality." And with that, he took the shoes from the slack bucket and headed for his team. A quick lift of each leg, a few expert taps for each nail, and the job was done before you could say "Cookies and Milk." Stowing his tools, the old man jumped in the seat and gathered the reins.

"Wait!" the blacksmith shouted. "Leave me the throws and next year I'll have 4 sets waiting for you!" The old man laughed, tossed him a pair of used shoes, and called, "Its a bargain, my friend! 'Till next year then! Ho Dasher! Ho Dancer!" Then he shook the reins, and the sleigh gained speed over the snow and vanished into the night.

And so it is that blacksmiths in this part of the country fashion "Reindeer Shoes" for their red-suited fellow Smith, who brings his team through here each Christmas Eve.

(Note to Readers: The naturalist in me reels at the thought of nailing a horseshoe to a cloven hoof! For a more accurate rendition of forging shoes for cloven hooves, visit njblacksmiths.org, select "Newsletter Archive," and then "Vol. 1 No.5," and read the story starting on p. 3. - Ed.)

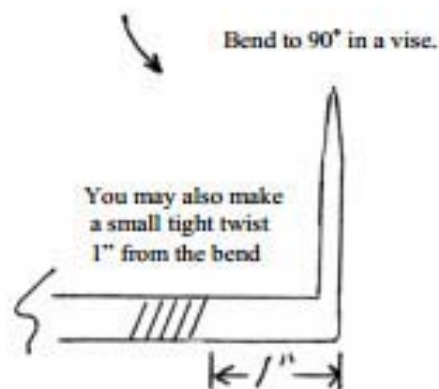
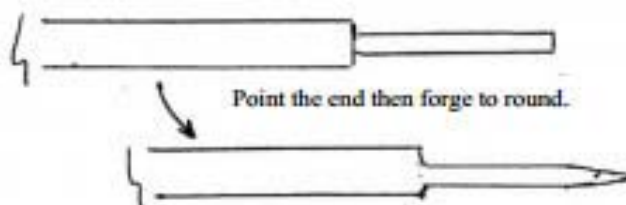


Christmas Ornament Hanger

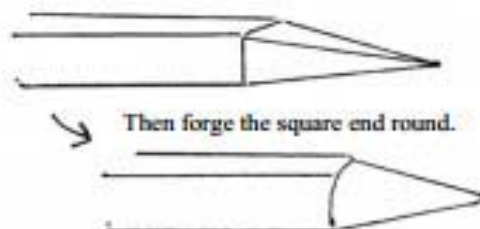
By Steve Anderson,
a MABA member

Stock: 3/16" square x 9-3/4"

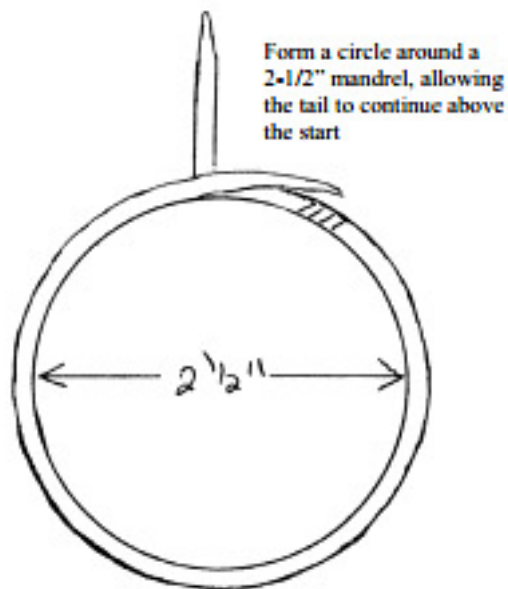
Starting 1-1/4" from the end, forge to 1/8" square.



Forge a long square taper starting 1" from the other end.

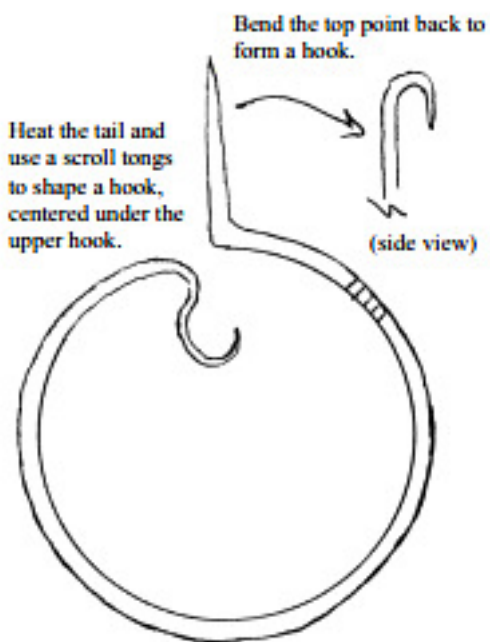


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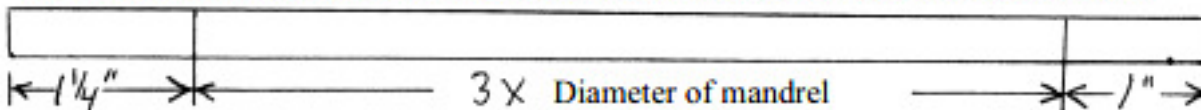


Editor's note: When Steve Anderson sent us a sample of the ornament hangers with his article for the newsletter, we knew the large 3-1/2" diameter hanger would be perfect for a chip carved ornament made by my cousin, Dick Baker.

We hope you enjoy making these hangers to accent your special ornaments. Happy Holidays!



To finish, use hot wax or use a wire wheel and a clear coat to finish. Using a brass brush is optional.
For a different size mandrel, use the dimensions below, you may want to go up to 1/4" square stock for larger hangers.



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PABA Membership Application
2018 (Jan. 1 - Dec. 31) \$25

Name _____
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Do you have any particular skills (welder, accountant, carpenter, doctor) that may be helpful to the group or membership? _____

Please circle your skill level...
Beginner Intermediate Advanced Professional

Note - Membership is per household.

Make Checks payable to PABA.
Send completed application and \$25 (one year) to: PABA Treasurer - Barbara Plant
207 Lexington Road, Schwenksville, PA 19473

PABA USE Cash _____ Check # _____
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Northeast Blacksmiths Association

Northeast Blacksmiths holds its meets twice a year at the Ashokan Field Campus in New York State.

The Ashokan campus is located in Olivebridge, N.Y., several miles west of Kingston, N.Y. The meets are held around the first weekend in May and in the first weekend in October every year. The main demonstration is in the blacksmith shop and there is a "Hands On" workshop for beginners. A different demonstrator is brought in for each meet. Food and bunkhouse style lodging are provided as part of the cost of the weekend long meet.

Contact : Tim Neu to register for hammer-ins or subscribe to the newsletter;
Tim Neu,
511 Beaverkill Rd.,
Olivebridge, N.Y. 12461
For more information check the web site;
www.northeastblacksmiths.org

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How to Join or Renew your Membership in NJBA

NJBA Membership Dues are \$20 per year.

NJBA Business Membership Dues are \$40 per year.

Please make your check out to "NJBA" and mail it to

NJBA, P.O. Box 224, Farmingdale, NJ 07727-9998

Please include payment with the information listed below.

I want to join NJBA, and I am enclosing my check for \$20 (\$40 for a business) to cover annual membership dues and newsletter subscription. I understand and acknowledge that NJBA dues are credited from June to June, that I will receive for my first year's dues the current volume, and that dues will be payable again in June.

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NJBA Volunteers List

Please put my name on the list of potential volunteers:

Availability: Saturdays Sundays Weekdays

Interests: Demonstrating Coaching novices
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Experience: Novice Intermediate Experienced
 Professional