**October 2021**

# THE FORGE FIRE

**The Newsletter of the Indiana Blacksmithing Association, Inc.**

***An Affiliate Of The Artists-Blacksmiths' Association of North America, Inc.***

**IBA is a Not For Profit Indiana Corporation recognized by the IRS under section 501(c)(3)**

9:30 AM is the regular meeting time for IBA Hammer-Ins
with beginner training available at 9:00 AM.
PLEASE MAKE SURE TO ASK FOR HELP!

**If you would like an IBA membership application form, please contact Farrel Wells, Membership Secretary (765) 768-6235.**

BULK LOTS ARE AVAILABLE TO DEMONSTRATORS,
SHOPS, SHOWS AND OTHERS WILLING TO MAKE THEM AVAILABLE.
WE APPRECIATE YOUR HELP.





More nearby resources and organizations for blacksmiths:

**Rural Smiths of Mid-America:**
Meetings are on the first Saturday of each month
Call Ron Gill
317-374-8323 for details

## IBA MEETING SCHEDULE

Check the latest *Forge Fire* for monthly **IBA** revisions.

| | |
|---|---|
| **Oct 16 2021** | **STEVE KING'S SHOP PAOLI, IN** |
| **Nov 20 2021** | **TBD—CONTACT STEVE KING IF YOU WOULD LIKE TO HOST** |
| **Dec 11 2021** | **DON REITZEL'S SHOP STILESVILLE, IN (BOARD MEETING)** |
| **Jan 15 2021** | **TBD—CONTACT STEVE KING IF YOU WOULD LIKE TO HOST** |

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**Dates to Remember**

Oct 16
IBA hammer in at Steve King's shop

Dec 11
IBA hammer in at Don Reitzel's shop

# Editors Message

Apologies for the late Forge Fire delivery this month. A computer issue had me out of commission for a few days.

Steve King will be hosting an IBA hammer in on October 16. Don Reitzel will be hosting on December 11. Note the December hammer in is held on the 2nd Saturday to avoid conflicts with Christmas festivities. Anyone wishing to host a hammer in should contact Steve King by phone at (812) 797-0059 or by email at kingstephen228@gmail.com. I know Steve is looking for a November host. I do not know if a January location has been established. Ken Dettmer is planning to host in February.

In other news, our new IBA director Bob Hunley has reached out to the Indiana 4-H leader for non-animal projects in regards to 4-H blacksmithing. The discussions have just started. I hope to share more in future issues about county level programs and about displaying at the state fair.

This month I am including a single project article. The article is from the California Blacksmith Association's online newsletter. The CBA offers an education program with there levels of proficiency: Level I: Basic Blacksmithing, Level II: Apprentice, and Level III: Journeyman.

The article in this month's Forge Fire is part-4 of the Level III Journeyman's grille project. I am not intending to bring the entire grille project to the Forge Fire. You can find more details about the grille and the various proficiency levels at the CBA website: www.calsmith.org . Details can be found in the Education and Resources areas. I selected this article because it walks through the thoughts and processes of making a set of top and bottom dies. Based on the instructions, it should be relatively easy to create your own dies for other shapes and purposes.

**ABANA Memberships:** ABANA membership options and pricing changed as of April 15, 2021. ABANA now offers two membership options: ABANA Digital or ABANA Print. Each option offers the same membership benefits. The only difference is in the delivery method of ABANA's premier publications, the Anvil's Ring and the Hammer's Blow.

- **ABANA Digital** membership is available world-wide for **$55/year**. (This is your only choice if you live outside of North America.) ABANA will send publications digitally to the member's e-mail address on file; no print copies will be mailed.

- **ABANA Print** membership is a **$65/year** option for those whose mailing address is in North America (Canada-USA-Mexico); publications will be delivered to the Canada-USA-Mexico mailing address on file by the USPS.

**IBA website: www.indianablacksmithing.org IBA Facebook page: www.facebook.com/groups/IndianaBlacksmithingAssociation/**

# IBA Satellite Groups and News

**1) Sutton-Terock Memorial Blacksmith Shop**
Meet: 2nd Saturday at 9 AM
Contacts: Fred Oden (574) 223-3508
Tim Pearson (574) 298-8595

**2) Jennings County Historical Society Blacksmith Shop**
Meet: 2nd Saturday at 9 AM
Contact: Ray Sease (812) 522-7722

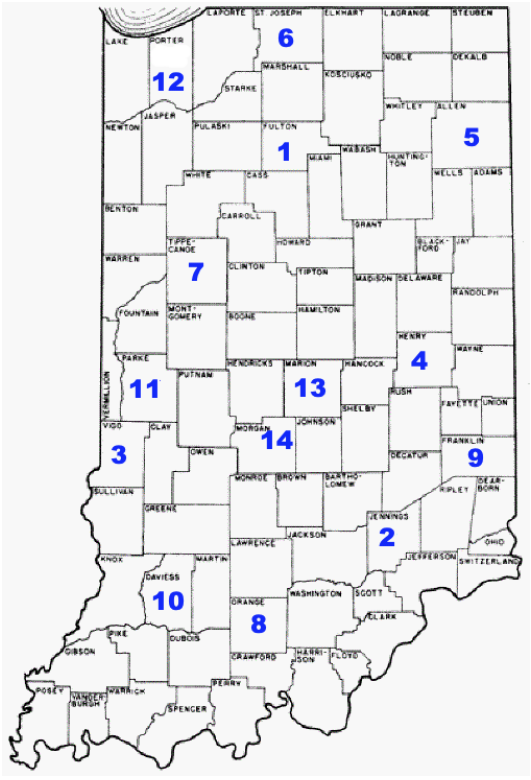
**3) Wabash Valley Blacksmith Shop**
Meet: 3rd Saturday at 9 AM
Contacts: Bill Cochran
Max Hoopengarner (812) 249-8303

**4) Fall Creek Blacksmith Shop**
Meet: 4th Saturday at 9 AM
Contacts: Gary Phillips (260) 251-4670

**5) Maumee Valley Blacksmiths**
Meet: 2nd Saturday
Contacts: Clint Casey (260) 627-6270
Mark Thomas (260) 758 2332

**6) St. Joe Valley Forgers**
Meet: 4th Saturday at 9 AM
Contacts: Bill Conyers (574) 277-8729
John Latowski (574) 344-1730

**7) Rocky Forge Blacksmith Guild**
Meet: 2nd Saturday at 9 AM
Contacts: Ted Stout (765) 572-2467




**8) Meteorite Mashers**
Contacts: Mike Mills (812) 633-4273
Steve King (812) 797-0059
Jeff Reinhardt 812-949-7163

**9) Whitewater Valley Blacksmiths**
Meet: 2nd Saturday
Contact: Keith Hicks (765) 914-6584

**10) Bunkum Valley Metalsmiths**
Meet: 1st Saturday
Contacts: Jim Malone (812) 725-3311
Terry Byers (812) 275-7150
Carol Baker (317) 809-0314

**11) Covered Bridge Blacksmith Guild**
Meet: 1st Saturday
Contact: John Bennett (812) 877-7274

**12) Snake Road Forge**
Meet: 1st Saturday
Contact: Rod Marvel (219) 241-0628

**13) Satellite 13**
Meet: 4th Saturday
Contact: Darrin Burch (317) 607-3170
Doug Wilson (317) 439-7684

**14) Old Town Waverly Blacksmiths**
Meet: 2nd Saturday
Contacts: Mike Lyvers (317-728-5771),
Kenny Hale (765-318-3390),
Mike Jackson (317-509-9115).

## Jennings County Historical Society Blacksmith Shop

The Vernon blacksmiths opened with the pledge of allegiance followed by Drew Davis making a towel holder. Brett Luker made a leaf. Dave Good worked on making a spring fuller, which he later forge welded and tested. Samantha Pelvor tried her hand at making a leaf, while being mentored by Nathan Pelvor. We had 14 people to sign in and many had the pleasure of tasting coffee made by Drew in the Bunn industrial coffee pot he is temporarily loaning us. Thanks Drew! Plan to meet with us on Oct. 9th with lots of iron in the hat, and, yes money!

Paul Bray

Added note: November will be the last 2021 hammer in at the Vernon shop. In December we will meet at John Cummins shop at 14473 Chesterville Rd., Moores Hill , IN 47032. Directions: From Hwy 350, ap-prox. 3 miles east of Milan turn south on Palmer Rd. Turn left at 2nd stop sign. Turn right on Chesterville Rd. to 8th house on right.

# IBA Satellite Groups and News (continued)

## Bunkum Valley Metalsmiths

The Bunkum Valley Metalsmiths met Saturday October 3. We had a great time demonstrating at the White River Valley Antique Show last month. An estimated 17,000 people from around Indians and Ohio etc visited during the 3 1/2 day show. Thank you to everyone who came and visited us we did Steve King stop by.

Saturday we had a new family attend whose teenage son wants to learn. Below is a picture of his first S hook. He did a great job and has the start of a leaf to bring back next month to finish. We love starting and helping anyone who wants to learn.

Randall Kinnamon demonstrated aluminum sand casting. He poured small anvils and ducks as seen in the pictures. He used bentonite clay, sand and water to set his molds. Thanks Randall!

Please join us the first Saturday of each month at Malone Farm, 14586 N 1100 E, Odon, In.

# IBA Satellite Groups and News (continued)

## Wabash Valley Blacksmith Shop

The Wabash Valley Blacksmith Club demonstrated at Pioneer Days on October 2-3 at Fowler Park. On Saturday, we had Bill Cochran, Max Hoopengardner, Bob Hargis and William Pratt demoing. Sunday, Bill, Max, Bob and William were back along with Bob Hunley, Jeremy Moore, Marcus Vogus and Jim Staley. Despite the rain, all had a great time!

Our club has recently changed the dates of our monthly meetings. They are now on the 3rd Saturday of each month starting at 9:00 at the Fowler Park Blacksmith shop in the Pioneer village. We are also working with the parks department to offer beginner blacksmithing classes. For more information, contact Max Hoopengardner or Bill Cochran.

This article reprinted from the March/April 2021 online edition of California Blacksmith the newsletter of the California Blacksmith Association

# The CBA Level III Grille
# Part-4
# Mark Aspery

Continuing on from the article in the last issue of the CBA online magazine, this article looks at the welded collars on the center stile of the grille.

There are two welded collars on the bar. The collars are elliptical in cross section, welded to a necked in portion of a rectangular bar.

*An example of the welded collar on rectangular stock featured on the Level II grille*

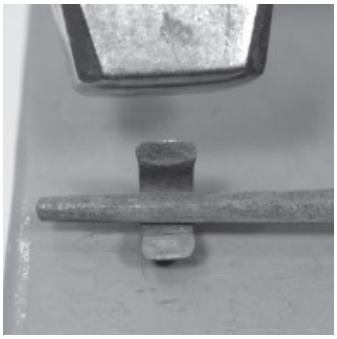
The rectangular bar is going to dictate the method used to create the weld.

Firstly, lets look at a welded collar on a round bar - a good example of this may be a collar used to form the hip of a rose stem.

We know that when we bend a flat bar the easy way, that the sides are deflected away from the bend.

*A welded collar on round stock forming the hip of a rose at the base of the flower*

A flat bar bent the easy way has deflected the edges away from the bend

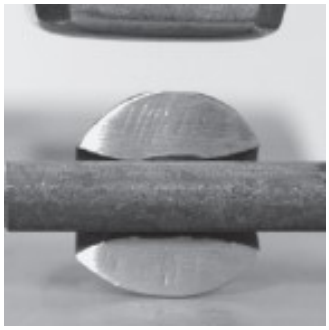


*The collar material is also deflecting its edges away from the bend as it is wrapped around the stem of the rose*

Looking at the photographs above, you can see the deflected edge material of a bend, and if you look at the collar being wrapped around the stem of the rose, you can see the same deflection.

The photographs below show a more detailed view of the collar.

The issue doesn't cause us too many problems, as we just make the weld in two steps, weld the middle of the collar and then weld the edges.



*Welding a collar onto a length of round bar is a two step process, first weld the middle of the collar and then weld the edges of the collar at the edge of the anvil*

## ***Level III Part IV***

Looking at the rose, hold the rose stem horizontal as you complete the first step in welding the collar, then hold the stem at a 45-degree angle to the nearside edge as you complete the second step of the weld.

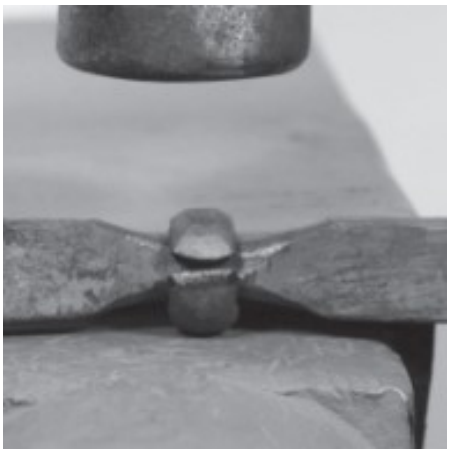
Having a round bar as the material to which you are welding the collar gives you clearance for the toe of your hammer as you complete the second step of the collar weld.

*Welding a collar onto a rose stem to form the rose hip*

If we look again to the grille, we are welding a collar onto rectangular flat stock, and the clearance for the toe of the hammer is now removed.

We have to find another way to weld the edges of the collar to the bar.

For me, I see using a set of top and bottom dies to capture the bar and collar to help make the weld complete once the collar is wrapped around the necked-in bar.



*A collar wrapped around the necked-in rectangular bar of the center style of the grille*

I have two options, an open die or a closed die method.

The open die method allows the collar material to spread and has a small contact patch on the collar which can sometimes form flat spots on the collar - rather like looking at the perimeter of a cross section of an orange cut horizontally.

That's not the look that I want, so I'm going with a closed dies method of capturing the collar and bar.

*A clam shell that makes my closed die tooling to complete the welded collar*

The tooling pictured above is of two bottom swages, one of which has had a portion of the peg cut off and flipped over to make a top tool.

These two parts of my dies are electrically welded to a staple make from 1-inch by 1/4-inch thick flat bar to give me a hands-free operating tool.

I need one hand on my hammer, and another on the hot bar, rotating the bar between the dies as I hammer from above.


*The stock is rotated within the clam shell to complete the weld; this dictates some features of the tooling*

## ***Level III Part IV***

But what does the inside of the tooling look like, and how do we achieve it?

The first thing to note from the last photograph, is that the stock is rotated under the dies.

Because the rectangular bar is rotated within the clam shell, we have to treat the flat stock as if it were round bar, and our tooling should reflect that understanding.

*A blank to help make the clam shell tooling, shown above the desired outcome*

To give myself some clearance, I choose a round bar that is slightly bigger that the dimensions of the flat bar. I went with 1-inch diameter in the picture above, but I suspect that ⅞-inch diameter will work just fine.

Using a guillotine tool with off-set fullering dies (blunt butcher dies), I fullered in on either side of what would become the collar, isolating the mass.

A little wipe over with a half-round file and or a belt sander finishes the job.

What I need to say now is that the collar is larger than 1-inch in diameter. An off-set fuller has more surface area on one side of the working edge than the other.

As the edge enters the hot mar, the tool will move towards the path of least resistance, and that's the side with less surface area.

That movement is going to push material into the isolated collar.

Moving on to the tooling, I know that I have a lot of work to do to 'let-in' the blank that I just made.

As I want some room between the bottom of the welded bar and the face of the anvil, I'm going to make my bottom tooling blanks a little taller than I would normally, which means that they will form a slightly smaller square of material when viewed from above.

I am for 1⅜-inch to $1^{1}/_{2}$-inch tall by whatever I get square.

Now I'm going to look at the blank that we made. In essence, it is two tapered cones leading into an elliptical shaped object.

The cones do not come to a point, but are truncated, so I consider this a third piece of the blank, and that's a round bar the same size as the truncated cone that runs through the whole tool.

I start to let-in the blank starting with this imagined round bar.

*A half round groove a little under 3/8" wide is used to start the letting in process.*

I believe that the collar will wrap around a forged $^{7}/_{16}$-inch round bar.

I necked in some center-style bar material to conducted test pieces on the result. The test pieces have shown me that I yield a $^{7}/_{16}$-inch round bar at the necking in point.

To allow for a little cleanup of the top and bottom swages, I'm going to go a little under that measurement for my first step in making the top and bottom tools.

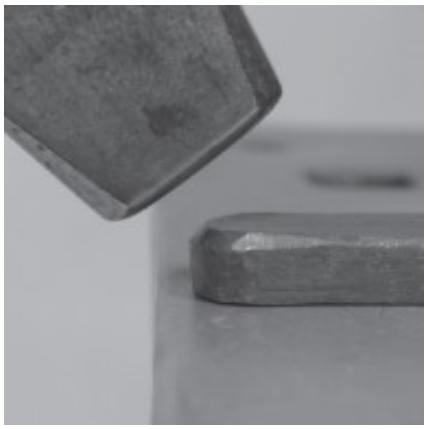
## ***Level III Part IV***

After forging and filing, I have a hand-held fuller that is a little under ⅜-inch thick.

Why hand-held? Because I intend to use it later on in the process to let in the cones of the blank.

Next I let in the area for the collar. I need that now - even though it runs the risk of being damaged, as I need to know where the cones stop.

I know from the suppled drawing that the collar is 1-inch in diameter and a 1/2-inch thick.



*Shaping the end of a flat bar to look like the intended result of the welded collar*

Putting a half-round end on a piece of 1-inch wide by .- inch thick flat bar, I drive that into the middle of my bottom swage.

Ultimately, the tool needs to be driven in to a depth of .- inch deep from the top surface of the bottom swage - but don't go there yet, allow yourself a little room for cleanup.

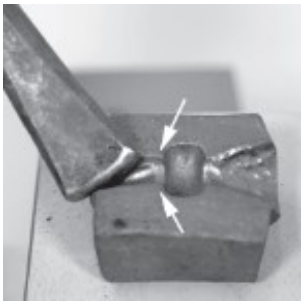
*The result of driving in the half-round end of the flat bar to make the recess for the collar material*

Reaching for the hand-held fuller, I now start to let in for the cone material.

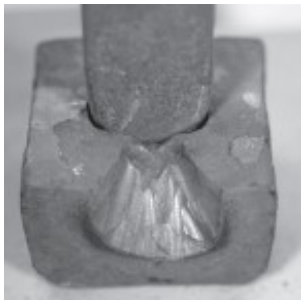
Take care when you do this, don't crush the material on the sides of the depression for the collar.

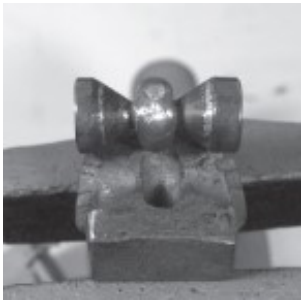
You cannot go too deep, as the object here was to allow clearance of the flat bar during welding.

But, going too deep is extra work and it will squash your bottom tool height.



*Using a hand-held fuller to let-in the recess for the cone material of the blank*





*Left: cleaning up the recess for the collar material and right: the result with the blank shown for comparison*

Once you have moved the material away to allow for the cones, go back and clean up the collar depression with the 1-inch by 1/2-inch flat bar.

The last photograph in the series shows the blank above the work that you have done. Note that there is a flat spot on the collar material of the blank.

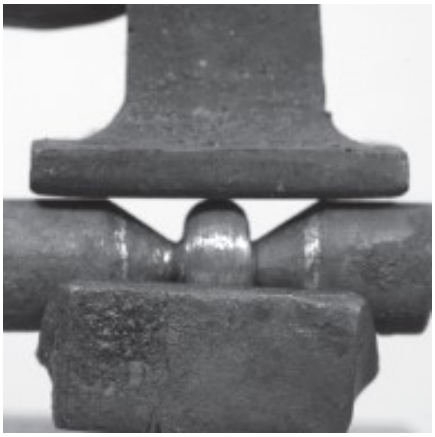
Remember that the collar material was swelled due to the creep of the off-set fullers earlier?

## ***Level III Part IV***

The blank needs to be covered with a flatter when driven home into the bottom swage.

I have found that using a hammer directly cracks that tight area (stress riser) around the sides of the collar material at the top of the cones.

Bring the collar material back down to level with the remainder of the bar at the point where you'll place the flatter.



*Using a flatter to deliver an even blow will help prevent damage to the blank*

Heat up the bottom swage and drive the blank into place using a hammer and flatter.

This is a stout move and one that makes you appreciate the effort going in to moving a lot of the excess material out of the way initially.

Keep the bottom swage hot, this may be a two heat move.

*The result on one half of the clam-shell tooling*

Allow the bottom swage to cool and then run a round file around the cone to collar transition point, bringing the area back to $^{7}/_{16}$-inch diameter.

After you have made two of these, place them together with the blank between the two, to assist in alignment, and then weld on the staple.

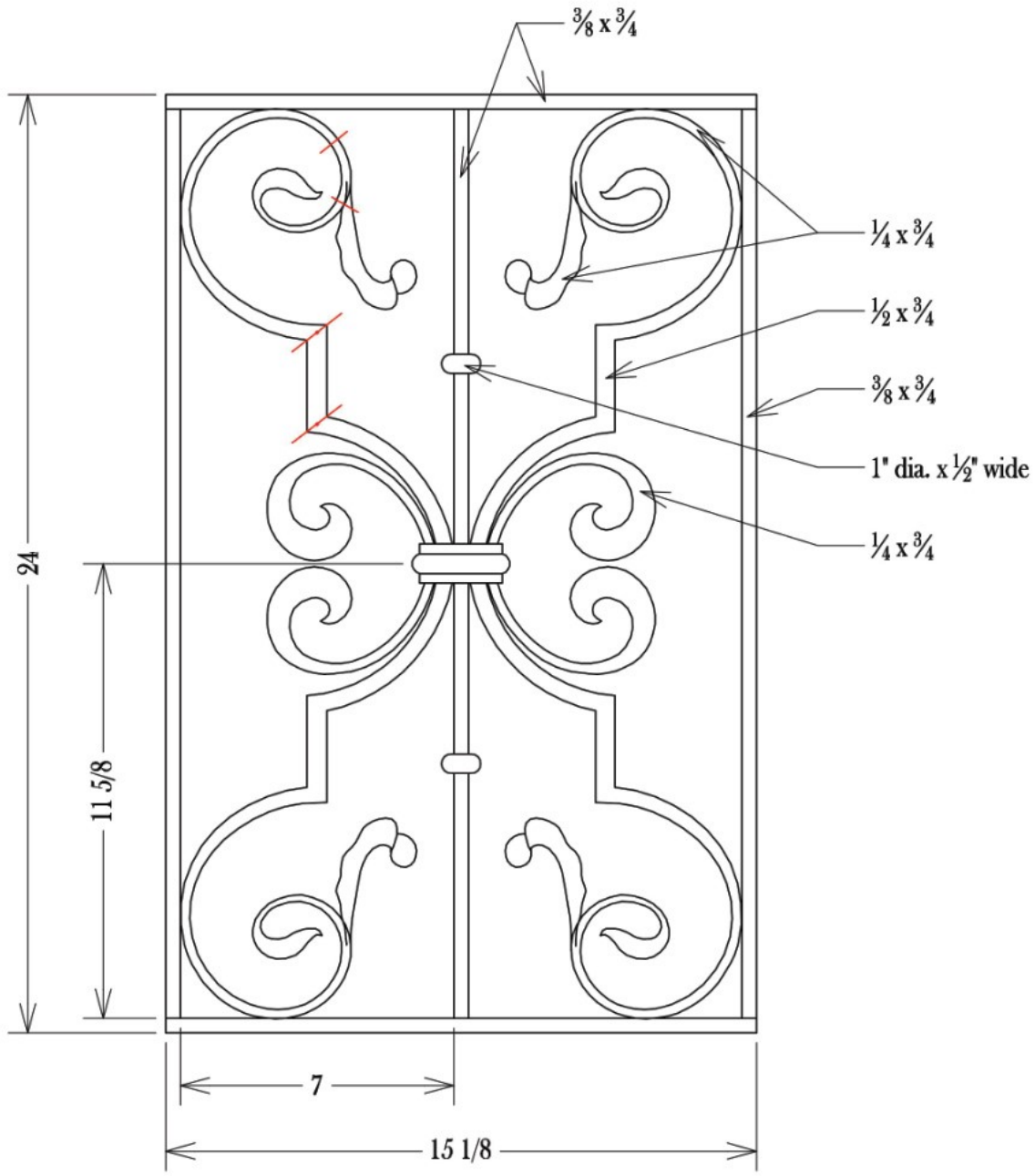
I typically use the tool a couple of times before I worry about case hardening it.

*The blank wired in place to keep both sides in alignment as the staple is welded in place*

*My hammer is keeping the dies apart as I place the hot material between the clam shell tooling*

Placing your hammer between the sides of the staple keeps the dies apart when you are positioning the collar for welding.

This article was written to support the CBA Level III Grille curriculum and the corresponding CBA Zoom tutorials, both CBA initiatives.

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|---|---|---|---|
| Grill | | Sheet Number | 000 |
| Date | 09/08/07 | Revised | 02/17/11 |
| Scale | 3" = 1'-0" | Drawn by | John McLellan |

**The *FORGE FIRE***
Newsletter of the
Indiana Blacksmithing Association, Inc.

**Farrel Wells** *Membership Secretary*
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Dunkirk, IN 47336-8807

First Class Mail

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sender

# October 16 Hammer In—Steve King's Shop

1155 S Unionville Rd
Paoli, IN
Ph: 812-797-0059

Driving Directions: From IN-56 on the west side of the Paoli courthouse, turn south on IN-37 (SW 1st St). About 3/4 mile bear right onto S. Unionville Rd. Turn right onto the driveway about 1/2 mile on the right. The driveway is shared. Steve's house/shop is over the crest of the hill.