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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.

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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.

**Feb 15
2020**

**KEN DETTMER'S SHOP
COLUMBUS, IN**

**Mar 21
2020**

**ANNUAL BUSINESS MEETING
KELLEY FARMS**

**Apr 18
2020**

TBD

**Apr 20
2019**



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Editors Message

Well I got surprised last month, consequently the January hammer in hosted by Sutton-Terock was not posted in last months Forge Fire. I will try to stay on top of things to keep everyone better informed. I did see multiple Facebook posts from the hammer in. It looked like a big turn out and good time was had by all, even with some dicey road conditions.

The February hammer in will be at Ken Dettmer's shop. Ken has a big shop, and we have a big turn out. I have not heard if there will be a featured demonstration. We usually have enough top notch smiths on hand that open forge leads to several entertaining demonstrations. Bring iron in the hat, a chair and something to share for lunch.

In March we will have our annual business meeting. The meeting will be at Kelley Farm again this year. Please attend if you have any IBA business matters or concerns to discuss with the board. Every satellite group is encouraged to have a representative at the business meeting.

Two board of director seats will be filled at the business meeting. Dave Kunkler and Jeff Reinhart have agreed to serve again. Ballots are on page 5. Be sure to vote and get your ballot to Steve King before the business meeting, or bring your ballots to the business meeting.

Brad Weaver is looking for awards nominations for *IBA Rookie of the Year* and *Clifton Ralph Blacksmith of the Year* awards as well as the Paul Moffet Service award. Contact Brad by phone at (812) 371-8674 or by email at bweaverhlw@yahoo.com. Nomination forms and instructions are available on the IBA website (scroll down to "Awards" at <http://www.indianablacksmithing.org/membership.html>.)

The 2018 IBA Rookie of the Year, Broadus Thompson, has been selected as a blacksmith apprentice at Colonial Williamsburg. Based on Broadus' skill and talent the selection seems obvious. However the honor is still great. Please congratulate Broadus on his achievement.

Snake Road Forge satellite is looking for an anvil in the 100-150 lb range. If you have an anvil that you could part with, please contact Rod Marvel at ph: (219) 241-0628.

Right now I do not have many details on this year's IBA Conference. Fred Oden is looking for iron-in-the-hat items. Like last year the format will be placing tickets for specific items. I spoke to JJ about group and individual contests. Participation has been low. If you value these contests, let JJ know and encourage others to participate. All conference attendees are asked to bring a 3 link length of chain to be joined at the conference. Stock size for the links are 3/8" x 6".

Dates to Remember

March 21 Annual
Business Meeting
at Kelley Farms

June 5-7
IBA Conference

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: 2nd Saturday at 9 AM
 Contacts: Doug Moreland (217) 284-3457
 Max Hoopengartner (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

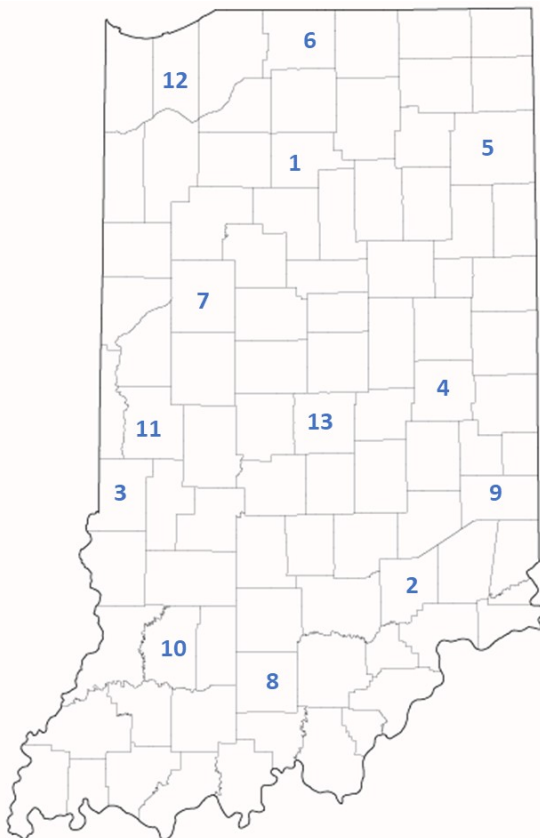
Meet: 1st Saturday
 Contact: John Bennett (812) 877-7274

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



Jennings County Historical Society Blacksmith Shop

The Jennings County Historical Society Blacksmiths met on the 11th at the forge of Paul Bray (me). Lots of good friends met, food consumed, stories told, and a great demonstration by Dave Good. This was a teaching demo of making a tomahawk. About 17 people actually signed in. The next month meeting will be at Kenny Dettmer's forge. 15721 S 250W Columbus, IN. March meeting will be at the forge of Kevin Welsh, 25619 Gill Rd. Nabb, IN. As usual, bring iron-in-the-hat and your bill-fold. Paul Bray

Meteorite Mashers

The Meteorite Mashers met at Jeff Reinhardt's shop in Floyd's Knobs this month. The shop was nice and warm when the first person arrived. Good thing as it was 32F at 6:30am and spit snow and sleet off and on all day. Had a new person to visit and she had a great time. Next meeting will be at Jason Bowman's shop in Elizabeth In.

IBA Satellite Groups and News (continued)

Bunkum Valley Metalsmiths

The Bunkum Valley Metalsmiths met Saturday February 1st. We had several first time guests of all ages as you can see in the pictures. Our regulars had a great time teaching them S hooks and spike knives. We are expecting to have them back again next month. We had a special trio from Vernon visit today also. aka Vernon meets Bunkum Valley! We had lots of good fun, fellowship, laughter and forging. We welcome visitors anytime! We meet the first Saturday of each month so mark your calendars!



Ballot
IBA Board of Directors
Vote for 2 Only

_____ David Kunkler

_____ Jeff Reinhart

Write in. _____
(Must be willing to serve)

Write in. _____
(Must be willing to serve)

Send ballot to:

Steve King
1155 S. Paoli Unionville Rd
Paoli, IN 47454

Mark the word 'Ballot' on envelope so it will not be opened until the business meeting in March.

Ballots may be cast at the business meeting.

Mailed ballots must be received by March 18th.

Ballot
Gary Phillips
14800 N SR 167 N
Albany, IN 47320

Steve King
1155 S. Paoli Unionville Rd
Paoli, IN 47454

Welded Hinge

Instructor Certification Demonstration

David Gottfredson, San Diego

Stock

1/4" x 3/4" x 20" (enough for both halves)
3/8" dia x 12" (for Pintle & Mandrel)

Tools

Blacksmith hammer w/cross peen.

3/8" tongs for holding round stock.

Tongs for holding/supporting end of bar stock (flat, box jaw, etc.).

Welding gear – low-IR glasses, borax, brush, light rounded hammer (optional).



This relatively simple welded hinge is useful where a durable hinge is desired. It is more durable than a turned-eye hinge because the welding prevents the eye from opening with use and abuse. A key aspect of the hinge is the square corner that provides a solid starting point for the weld and helps prevent the eye from peeling open.

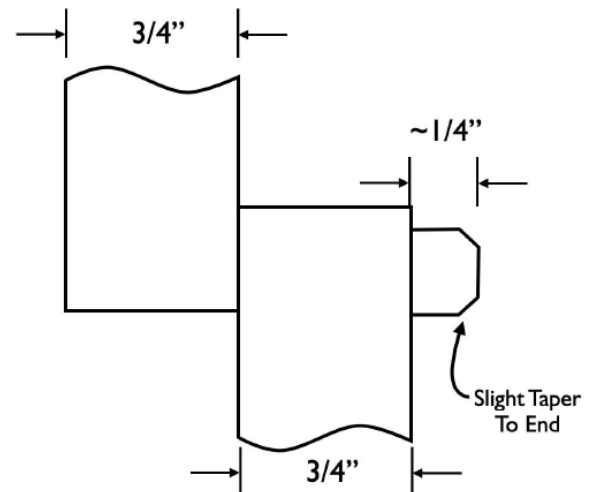
Note. These hinges can be made in a variety of shapes and sizes, but for this demonstration we will be using 1/4" x 3/4" fl at stock and 3/8" diameter round stock. For other sizes, simply adjust the following calculations and dimensions accordingly.

Pintle & Mandrel

Making the pintle and mandrel first is a good way to warm up for this project.

Pintle. The pintle is simply the pin that the hinge turns on. The length of the pintle needs to be double the hinge stock width plus a little extra. How much extra is primarily a matter of aesthetics. Another thing to consider is assembly of the overall project for which you are making these hinges. For example, say you are installing a door with three hinges. You might want to increase the length of the pintle on the hinges from top to bottom so that the bottom hinge engages first, followed by the middle hinge and then, finally, the top hinge. For this project we will just have the pintle extend about 1/4" above the hinge after assembly.

We are using 3/4" stock so the pintle length is $2 \times 3/4" + \sim 1/4"$
= $\sim 1 \frac{3}{4}"$.

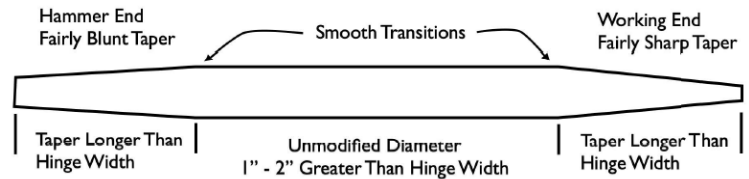


To aid in assembly, put a slight taper in the end that will be exposed, but don't extend the taper into where the barrel (eye) will be. Otherwise, the hinge could be a bit sloppy when it is assembled. If you do the tapering now, before cutting the pintle off your 12" length of material, you won't need tongs! Cut off to required length and set aside. (Don't lose it!) That's all there is to the pintle.

Mandrel. If you don't already have a 3/8" diameter mandrel, now is a good time to make it. Remember, a mandrel and drift are not the same thing. A drift is used to enlarge and shape a hole to a specific size and/or shape. A mandrel is an object around which the metal is forged and shaped. In this case we will be using the mandrel to help shape the hinge eye or barrel. The working area (i.e., 3/8" diameter) of the mandrel needs to be at least the width of the hinge material, preferably 1" to 2" longer.

Welded Hinge

Use the remaining 3/8" diameter stock that you used for making the pintle. You want the unaltered length of the 3/8" diameter stock sufficient to wrap the hinge material around. For this project, 2"-3" overall is good. You also need to taper the ends so that the mandrel can be easily inserted into or knocked out of the hinge barrel. The tapers need to be a bit longer than the width of the hinge material to ensure that it comes out easily. Make sure there are smooth transitions so that the mandrel doesn't hang up. The working end can be rather pointed; the hammer end should be blunter or it will mushroom and bend easily. An overall length of about 6" is a good size for this mandrel.

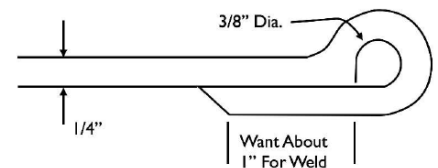


The Welded Hinge

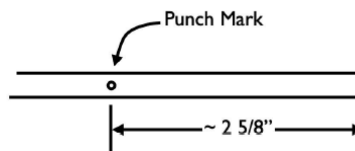
Layout. The first thing we need to do is determine the length of material required for the barrel and welded section. The general formula for the length of material required for the barrel is the circumference of the hole plus one thickness of the hinge material for every 180° of turn. So in this case, add two thicknesses.

$$L = \pi D + 2T$$

Using blacksmith math, $L = 3 \times (3/8) + 2 \times 1/4 = 1 \frac{5}{8}$ "

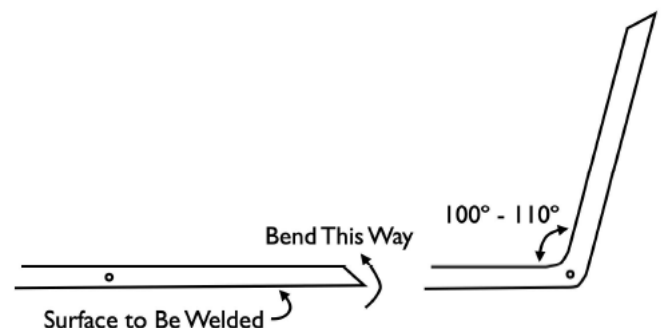


We also want a good inch of length for the welded section. So, we need to make the square corner about 2 5/8" from the end of the bar. Make a punch mark 2 5/8" from the end of the bar, and then scarf the end for the weld.



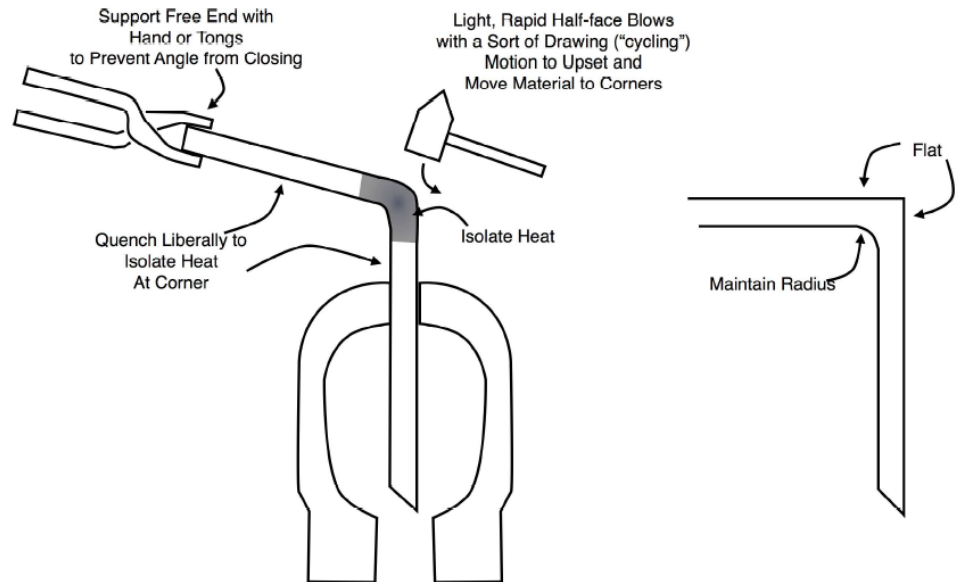
Note, making the scarf will increase the length of the bar slightly (~1/8") relative to the punch mark you just made. You can ignore this.

Using the edge of the anvil or a vise, make a relatively tight bend at the punch mark and away from the welded surface to an angle of 100° to 110°. Do not bend to 90° at this time or you will get cracking in the corner of the bend as you proceed.

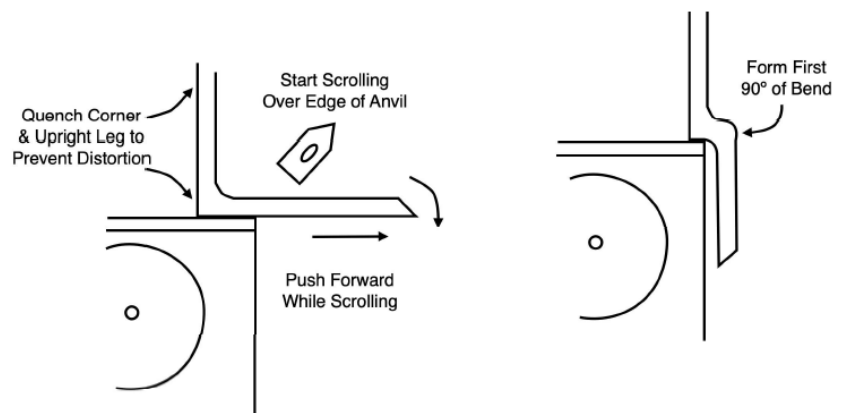


Welded Hinge

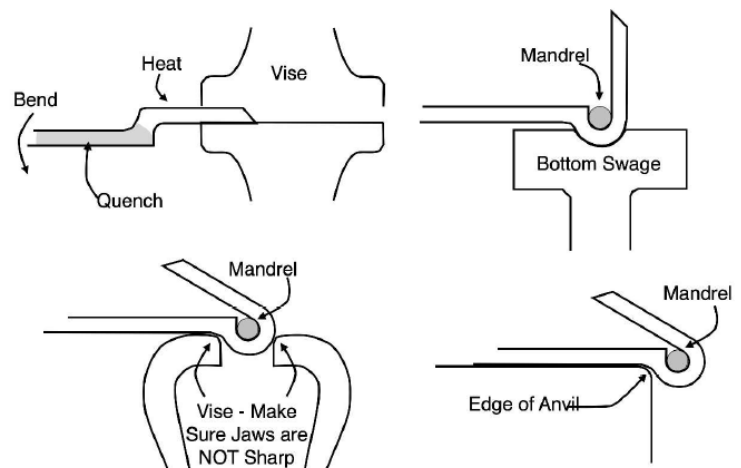
Forge the square corner using a light, rapid drawing motion of the hammer to upset and move material into the corner. Quench the ends liberally to isolate the heat in the corner. DO NOT let the angle close to less than 100° until the corner is completely formed. Once the corner is formed, close up the angle to 90° and true up the sides.



Begin forming the first 90° of the barrel by quenching the square corner and scrolling over the edge of the anvil. Take care not to distort the square corner and keep everything true.



Continuing the scroll to complete the barrel can be a bit tricky. Quench the parts that you are happy with and continue along the length until the barrel is closed. Use the mandrel as needed. Shown below are various methods for shaping the barrel.



It is often useful to freehand the entire barrel as much as possible so that the eye ends up a bit small (but not too small). Then heat the barrel to a near-welding heat; drive the mandrel in to reshape and open the barrel slightly, and then, with the mandrel in place, reclose the barrel.

Welded Hinge

Now we're ready to weld!

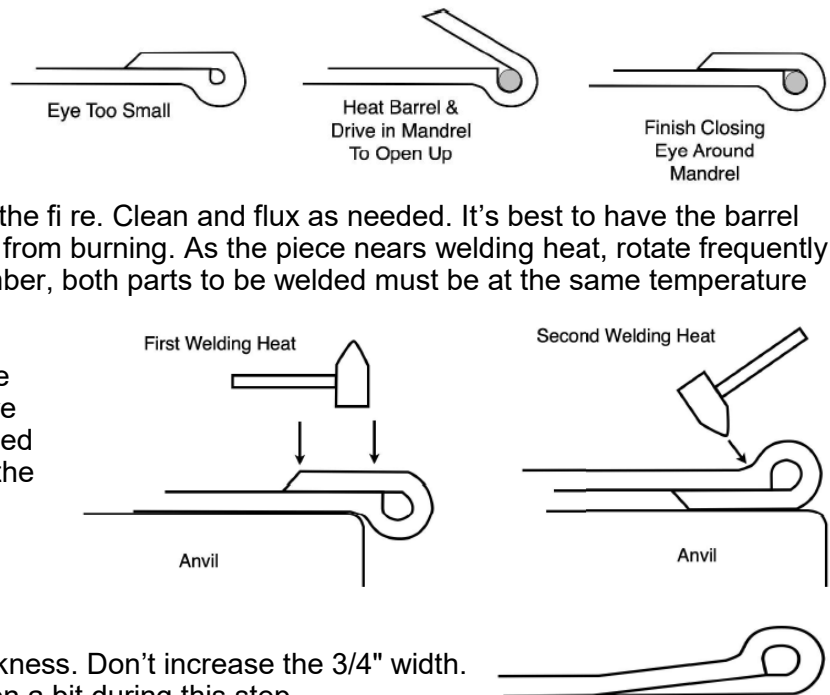
Clean up your fire, and remove any clinker that may have formed. Build up the fire. General rule of thumb is to have the coal/coke at least twice as deep as the fire pot.

Heat the metal evenly in the reducing part of the fire. Clean and flux as needed. It's best to have the barrel facing up for most of the heating to prevent it from burning. As the piece nears welding heat, rotate frequently in the fire to ensure uniform heating. Remember, both parts to be welded must be at the same temperature or they just won't weld.

On first welding heat, hang the barrel over the edge of the anvil and work at scarf and square corner. On second welding heat, use a rounded cross-peen to strike in the corner to help set the weld at the square corner.

Continue to work at welding heat, taking care to not burn the barrel or to distort the eye.

On subsequent heats, complete the weld and taper the material back down to 1/4" thickness. Don't increase the 3/4" width. Blend in the scarf joint. The hinge will lengthen a bit during this step.



The hinge has been welded!

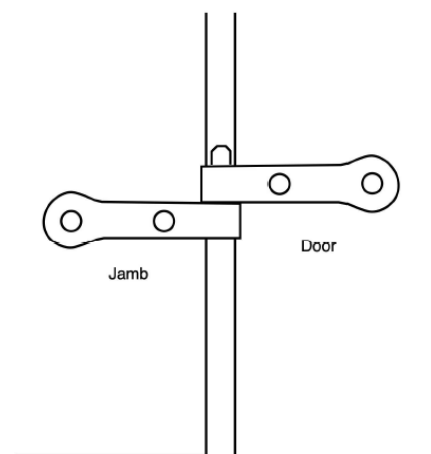
Before separating the hinges from the parent stock, complete the other hinge half on the other end of the bar. It's easier to handle the bar while completing the second half of the hinge BEFORE you install the pintle.

Install the Pintle

Once you have completed both hinge halves, BUT BEFORE separating the halves from the parent stock, it is time to insert the pintle. Remember the pintle you made at the beginning of this exercise?

The orientation of the pintle is important; it must be installed in the bottom (lower) half of the hinge, and it must point up. For example, if the hinge is being installed in a door jamb, you need to determine if it will be installed on the left side or the right side of the door and orient the pintle accordingly.

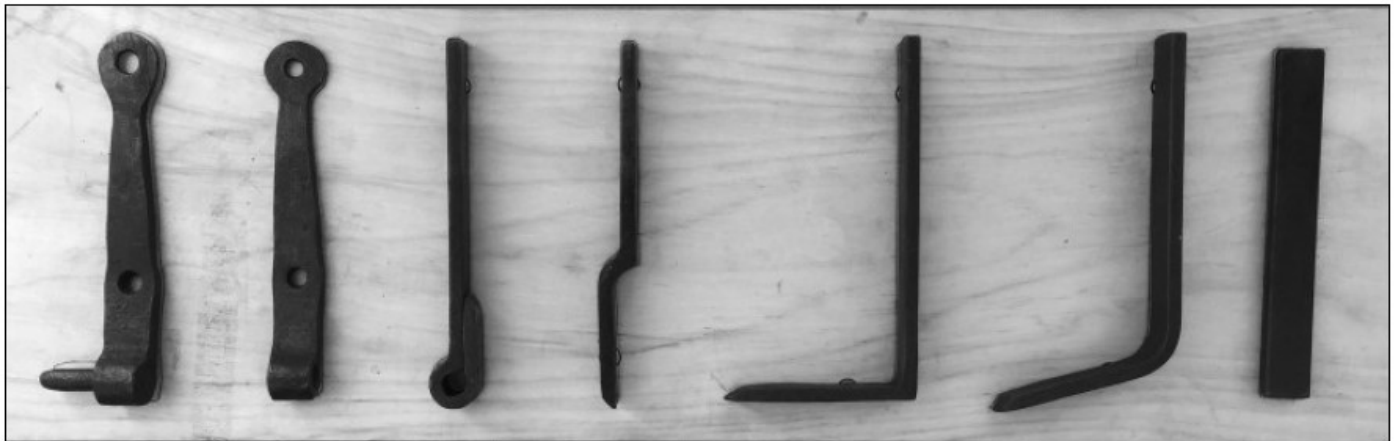
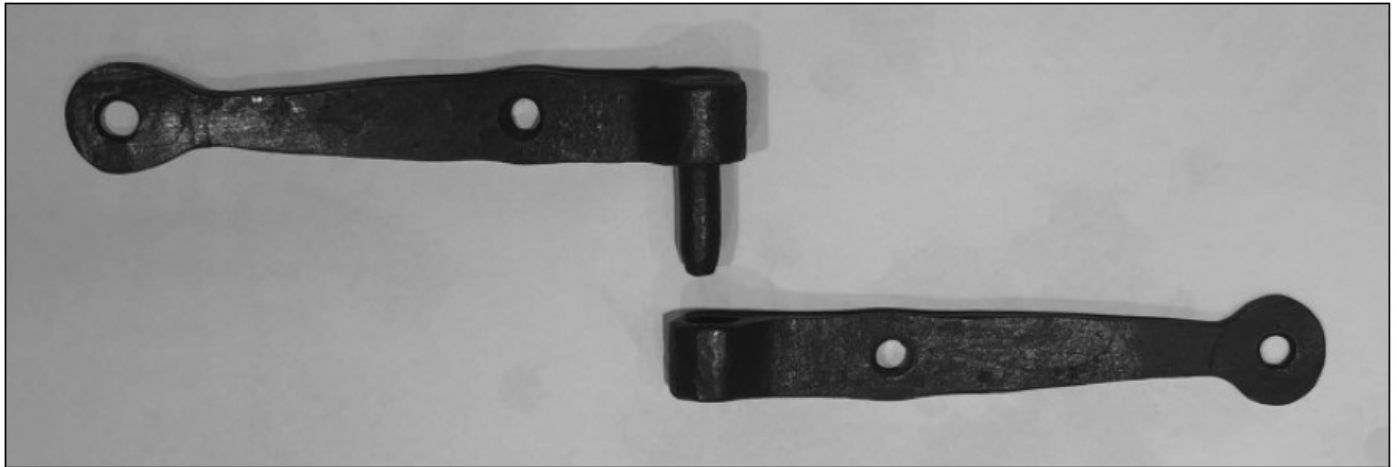
Hopefully, if anything, the barrel shrank a little during welding so that the pintle fits snugly. Once you determine the correct orientation for the pintle, heat the barrel to a near welding heat and drive the pintle through the barrel until the (non-tapered) end of the pintle is flush with the bottom of the hinge. Because we need both pieces to be at the same welding temperature, set the hinge aside for a few minutes to let the pintle absorb some of the heat from the hot barrel. This will make it easier to bring both pieces up to welding heat.



Welded Hinge

The pintle does not need to be welded with a full, tight 360° weld. Essentially, it just needs to be tack-welded to ensure it doesn't work its way out in use. Thus, focus the weld at the bottom. Don't point the pintle down into the fire, or it will burn!

Once the pintle is in place, cut the hinges to the appropriate length from the parent stock. Finish the ends with finials of your choosing, and punch holes as needed. Note that punching a hole through the welded area will add additional strength when the hinge is mounted.



That's it! Congratulations, you've made a welded hinge.
There are many different styles, so do some exploring. And have fun!

This article reprinted from the January/February 2020 edition of the California Blacksmith, the newsletter of the California Blacksmith Association.



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

Address Correction Requested
If Undeliverable return to
sender

February 15 Hammer In Kenny Dettmer's Shop

15721 S 250W Columbus, IN

From the North: take I 65 S to Ogilville / Walesboro (exit 64) turn. right. Go to the 1st cross-roads (300 W). Turn left. Approx 1 mile to the "T" . Turn left (600s). Go to 250W. Approx. 4 miles to a brick house on your left.

From the South: I 65N to Jonesville exit 55 turn. right, go to road 950 (in Jonesville). Turn left. Go to 250W turn. right. Kenny's house is approx 1/2 mile on your right .

March 21 IBA Business Meeting

Kelley Farms / Doc Ramseyer Shop

6032 W 550 N Sharpsville, IN 46060

Located just west of US-31. Approximately 6 miles north of SR-28 (Tipton) or 3 miles south of SR-26 (Kokomo).

Please bring a dish to share