

July 2020

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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.

The Indiana Blacksmithing Association, Inc., its staff, officers, directors, members, and hosts and the *Forge Fire*, specifically disclaim any responsibility or liability for damages or injuries as a result of any construction, design, use, manufacture or other activity undertaken as a result of the use, or application of, information contained in any articles in the *Forge Fire*. The Indiana Blacksmithing Association, Inc. And the *Forge Fire* assumes no responsibility or liability for the accuracy, fitness, proper design, safety, or safe use of any information contained in the *Forge Fire*.

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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.

No July Hammer In

**Check IBA Facebook site for up
to date news about hammer ins**



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Editors Message

With this year's conference canceled, Brad Weaver made the rounds to present awards for The Clifton Ralph Blacksmith of the Year, IBA Rookie of the Year and Paul Moffett Service Award. Eric Shotwell is the 2020 Clifton Ralph Blacksmith of the Year. Oak McKean is the 2020 IBA Rookie of the Year. Ray Sease is the 2020 Paul Moffett Service Award recipient. Photos of each recipient are on page 4.

I have not heard any updates relative to IBA state level hammer ins. I will publicize any event information that comes my way.

Thinking about IBA state level events triggered a question about our usual August support for the Indiana State Fair. The **2020 Indiana State Fair is canceled**: <https://www.indianastatefair.com/p/events/covid-19>

I do know many of the satellite groups are holding hammer ins. If you are interested in attending a satellite group function, I would recommend that you contact the satellite forge master to confirm the hammer in time and location. Some of the satellite groups meet at public sites (parks or fair grounds) that may have restrictions defined by the site governing body.

Satellite Group Forge Masters: please check the information listed on page 3 for your group. Send me updates (bill.d.kendrick@cummins.com, or text 812-344-1021)

Nationally we are seeing an increase in COVID-19 cases. For those of you who do not believe the test reports, I would say just look at increased hospital cases. To my knowledge we currently have no effective treatment for this virus, and it is deadly. Especially at risk are older people, so note the number of gray haired people at hammer ins.

If you attend a hammer in, please exercise reasonable caution. Eric Shotwell included the following statement in the RSMA July letter. I think it covers the topic quite well. "We recommend you bring a mask to wear and hand sanitizer. It is hard to stay 6 feet apart in the shop, so you may want to bring your own chair and spread out."

**Dates to
Remember**

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

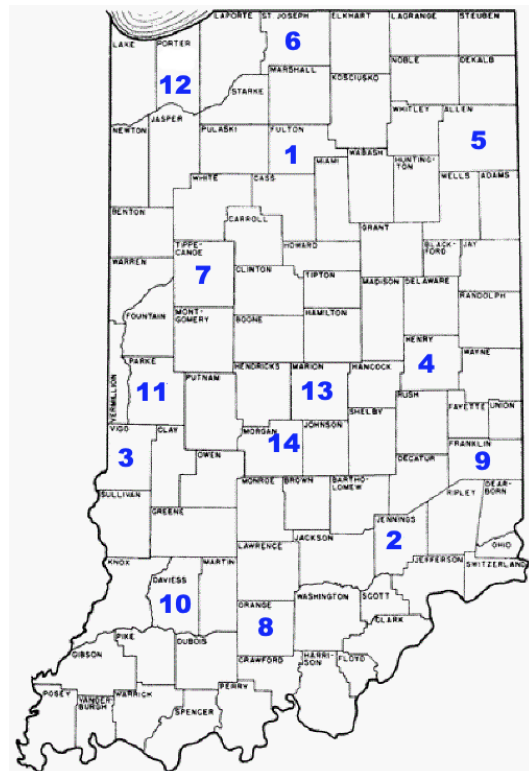
Meet: 1st Saturday
 Contact: Rod Marvel (219) 241-0628

13) Satellite 13

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

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 Jennings County Historical Society Blacksmiths finally got back to Vernon. Our first blacksmith was Brett Luker (fairly new to the trade) made some angle brackets from flat stock. Kenny Dettmer worked on a test piece. Charlie Helton made some scrolls from pattern pieces in the shop. Nathan Pevlor made handles for tongs to hold a touch mark tool. Looking forward to seeing you next month on the 11th. Bring iron in the hat and money. Paul Bray

2020 IBA Awards

The winner of the **2020 Paul Moffett Service Award is Raymond Sease!** For those of you who don't know, Ray founded the Vernon Blacksmith Group and has kept it together all of these years. He has helped countless blacksmiths along the way. This was long overdue!
Thank you Ray and **Congratulations!**



The Indiana Blacksmithing Association
Clifton Ralph Blacksmith Of The Year
for 2020 is.....**Eric Shotwell.**
Congratulations Eric!

It is my honor to present to you the **2020 Indiana Blacksmithing Association Rookie of the Year...Oak McKean** from the Whitewater Valley Blacksmiths! This was a big night for Oak. Not only did he receive this award, He demonstrated for the first time to-night and he did an excellent job.

Congratulations Oak!



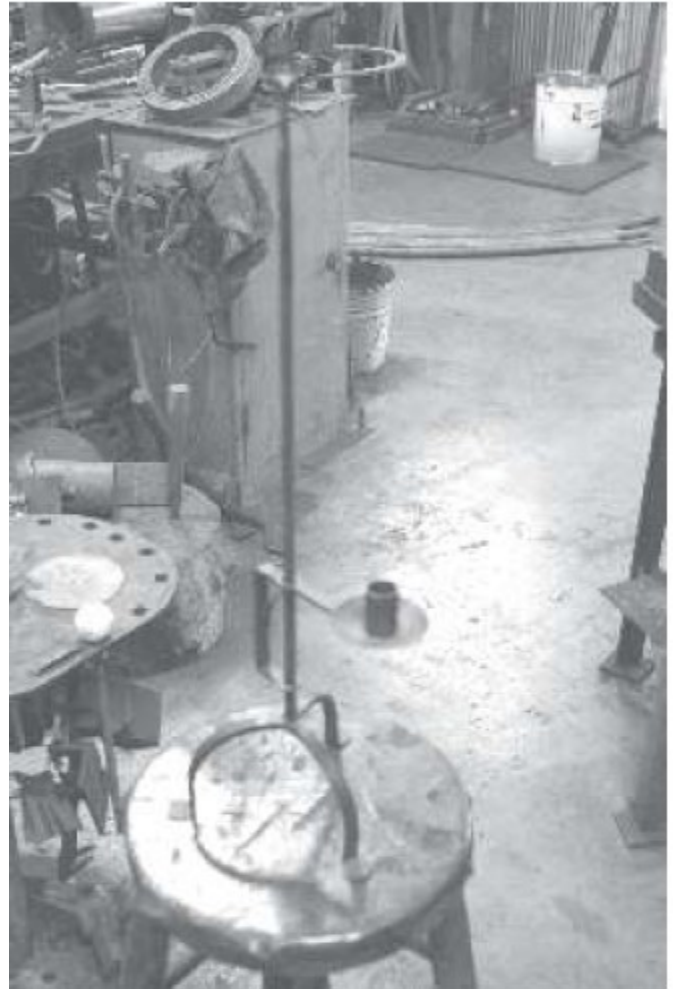
Adjustable Candle Holder

I think of these three-legged adjustable candleholders as one of those classic projects. Al Stephens came up with this version for a class he was teaching. He avoided the need for forge welding by forging the three legs from a single piece of flat bar.

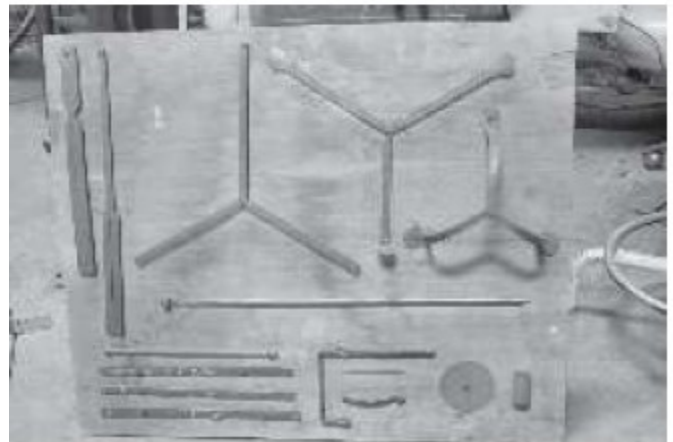
The legs start out as a piece of $\frac{1}{4} \times 1 \times 12$ flat bar. Al cuts from one end with a bandsaw 7 inches along the center of the bar. Hot cutting with a chisel would also work. Draw out the third leg – the part of the bar that wasn't cut – about 8 inches long. Bend the legs so they're 120 degrees apart and draw all three to the same length, and width. In the end you can cut the legs all the same if necessary. Find the centers of the legs and extend to the middle of the "star" to find the center for the vertical piece. Drill or punch a $\frac{3}{16}$ inch hole.

Mark about $\frac{3}{4}$ inch from the end of each leg. Isolate the material using half-on-half-off blows on the edge of the anvil. Then spread and round the corners to make a penny foot on the end of each leg. Any decoration on the legs and feet – such as chased designs or toes on the feet – should be done before bending the feet and legs.

Bend the feet up and then bend each leg to a smooth, uniform curve. Al had a jig to bend the legs the same.

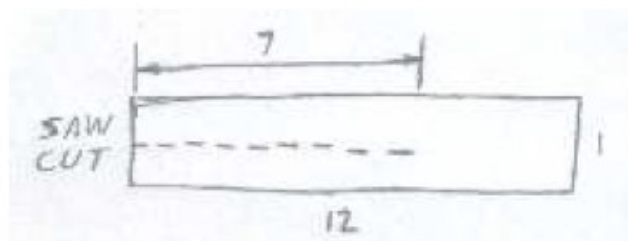


Finished Candle Holder

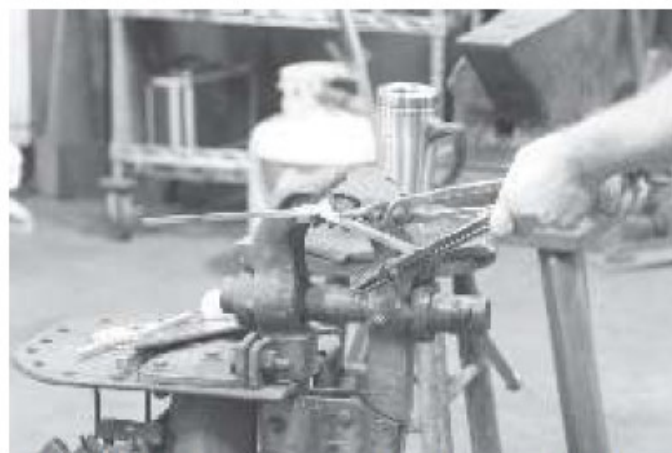
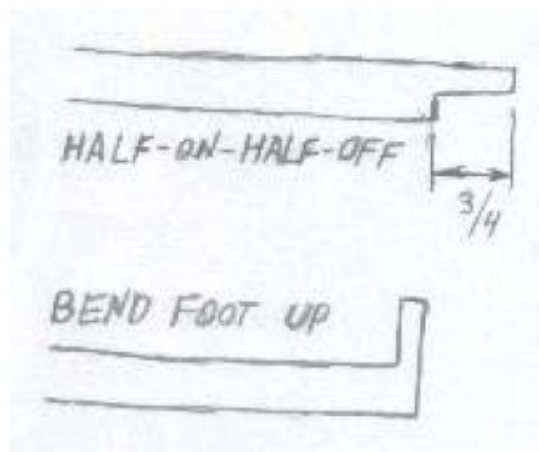


Story board showing all the parts and forging steps

This 5-page article reprinted from the May-June 2020 edition of Bituminous Bits, The Journal of the Alabama Forge Council



Layout for foot piece



Bend the legs apart and make sure they're separated by 120 degrees



**Forging a foot on the end of each leg:
Isolate the material with half-on-half-off blows.**

**Spread the material with the cross peen.
Round the corners to make a penny foot.
Bend up so the feet will be flat after bending the legs.**

(Next page shows the leg bending jig.)



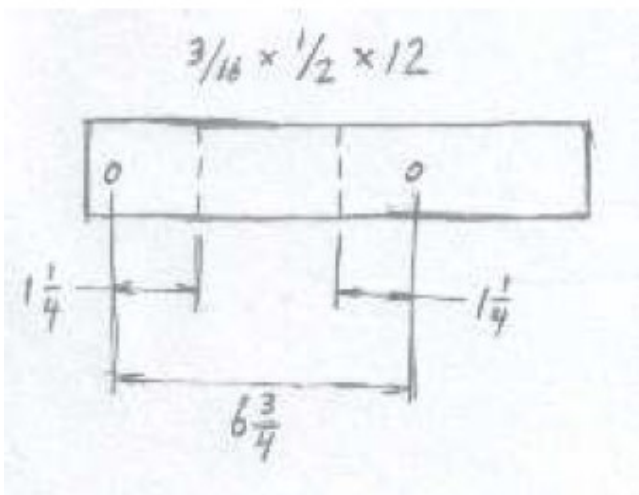
Artist Blacksmith Association
of North America
Membership applications are now online.
www.abana.org



Jig for making sure the legs are 120 degrees apart



Leg bending jig



Layout for cage piece

After the legs, Al moves on to the “cage”, the piece that moves up and down on the upright and holds the spring and the candle. Al starts the cage by flattening 10 inches of 3/8-inch round bar to 3/16 x 1/2 x 12.

Al punched a 3/16 hole near one end for a hole to pass the upright. Then he used a long tapered punch to drift this hole to nearly 1/2 inch. He repeated this process 6-3/4 inches along the bar to make the other hole for the upright.

Mark the bar 1-1/4 inch from the hole centers for bending. Drill two 1/8-inch holes 1/2-inch apart just above the lower bend. These holes are for rivets that hold the spring in the cage. Drill another 1/8-inch hole near the long end of the cage for the candle cup rivet.

Hot punching is one of those blacksmith skills. The metal flows out from the hole so that the loss of metal is much less than the amount that would be removed with a drill bit. Starting with hot stock, drive the punch in until you feel it bottom against the anvil. Don't keep hammering or you'll upset the end of the punch and possibly get it stuck in the hole. When you turn the stock over there will be a shiny spot where the punch bottomed out. Use the punch to shear this shiny spot out, leaving the hole all the way through the stock.

Al told us to lift the punch with each blow so that it doesn't get so hot from contact with the hot bar. Lifting the punch also allows the smith to look and see that the hole is centered.



Bottom bend on cage



Top bend on cage



Tenon tool

When drifting a punched hole, if the punched hole is off center, you can cool the thin side with water so that the drift pushes the fat side out more, bringing the hole back to the center.

Make the spring by flattening 3/8 round bar to 3/16 thick. Cup one end to fit the upright. Drill holes to match the rivet holes in the cage and bend the spring so it will contact the upright.

The upright is made from 18 inches of 3/8 round bar. A 3/16 tenon is needed on the bottom end to attach the legs. Al talked about making the tenon by turning in a lathe or by filing, but then he forged it. Forging the tenon started by cutting all around with a hardie hot cut to form a shoulder, then drawing out the material before rounding the tenon in a tenon tool. A monkey tool made the shoulder flat and square. Al drew out a taper on the top end and then used a threading die to cut threads for the top finial.

The finial was a 14-sided shape that I've come to think of as a signature element in Al's work. There was a description of this element in the January/February 2015 issue of the Bits where it was called a "cuboctahedron". A smartphone search at the meeting turned up a different name, "tetradecahedron". Whatever it's called, Al described making them by either filing or forging. To forge one of these elements on the end of a 3/4-inch square bar, use a guillotine tool to isolate a little less than 3/4 inch of material on the end of the bar. Then forge opposite corners of the cube until the facets are all even and edges and corners are crisp and clean. Drill and tap one side to thread onto the top of the upright.



Dip wet edge of cup in brazing flux



Start forging a finial by isolating material with a guillotine tool



Heating braze in forge - watch for flux to flow as it begins to glow, then the filler melts and flows



Forge in the corners over the edge of the anvil



Cup and pan after brazing. Clean off flux by soaking in pickle, like vinegar, or by boiling in water.



Finial as forged

Jeffrey Funk's Rectangular Punching Tool by Josh Swalec

This article is written as part of the generous scholarship I received through the NEB. I attended a class at The New England School of Metalwork last fall, named Unity of Form and Function, "Designer Tool Making", taught by Jeffrey Funk (the smith who forged an eyed axe out of igneous rock at the 2014 ABANA conference).

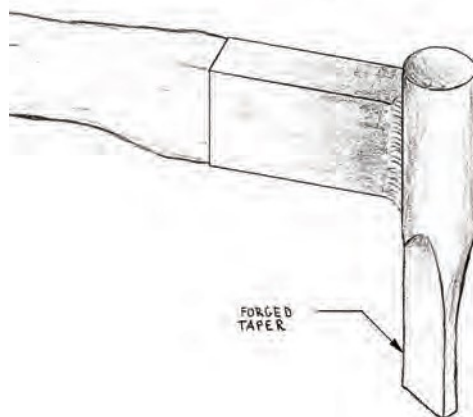
The tool which this article focuses on is a tool Jeffrey brought to the class, and we used it extensively to punch rectangular holes to forge hammer and mattock eyes. Upon return to my own shop I immediately built 2 different sizes of this type of punch, having had mixed results in the past using pointed slitting punches.

First, procure some H13 tool steel. This is very highly recommended, as it keeps its integrity at high heats. It is expensive, but in my opinion, worth it for punching and drifting tools. I ordered $\frac{7}{8}$ " diameter rod from Hudson Tool Steels in NH. Next time I would order 1" diameter, as it would make a beefier tool. (Don't buy it from Online Metals, I think they are price gouging.) I also needed 4" of schedule 40 1" steel pipe (1.05" ID) and an extra large size framing hammer handle (designed for rectangular eyes). I bought the handle at Sears, as it seemed I would be able to buy more that size in the future.

As seen in Figure 1, the H13 is drawn down to the rectangular working end. This can be done over the horn of the anvil or under rounded power hammer dies. The H13 must be worked at a good yellow heat. For punching full sized hammer eyes the tool end should be about 1" by $\frac{3}{16}$ " thick after grinding.

The 1" steel pipe is formed on a mandrel to become a rectangular tube into which the handle is inserted, and which is welded to the H13. This protects the wood handle from the occasional missed blow of the striker. Not having a handle eye also allows the punch to retain its full strength. After measuring my wood handle, I forged a mandrel on the end of a piece of 1" square bar to the dimension of $1\frac{1}{8}$ " by $\frac{3}{4}$ ", with a very slight taper down towards the working end. With 2 or 3 heats of judicious smushing and mandrel-driving, the pipe is formed into a rectangular tube. Use adequate heat, as the pipe likely will have an inherent seam weld which could fail.

FIGURE 1
RECTANGULAR PUNCH

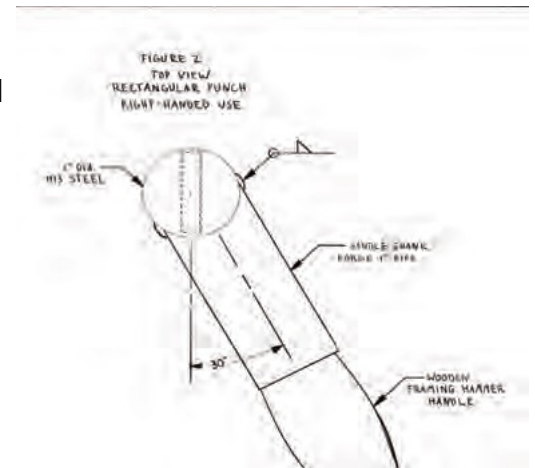


Rectangular Punch Tool continued

One end of the pipe is ground out a bit to fit against the diameter of the H13 in preparation for welding.

It is recommended to do a pre and post-heat treatment to weld to the H13, so you may want to weld before heat treatment.

The working end will likely get a nice high temper during the first use while it's stuck in a block of yellow hot steel regardless. As H13 has such a high tempering range, the following steps could also temper the tool if done carefully. As shown in Figure 2, the handle should stick out at a 30 degree angle from the line of the tool, so as to have a clear, comfortable view of the punching operation. I tacked it up, preheated to perhaps 800 degrees with a torch, and TIG welded all around with stainless filler rod, then hit it with the torch a bit more and put the tool in my (turned off) propane forge to cool down slowly.



Another method for heat treatment is to heat the tool to its critical temperature (around 1800 degrees for H13) and then immediately burying the struck end of tool in vermiculite, whilst leaving the working punch end sticking out to air-harden. Doing something of this nature is recommended, so as not to inadvertently harden the struck end and risk spalling/flying shrapnel during use.

Upon mounting the handle, I fit a foxtail wedge into the handle end before inserting it into the rectangular shank. If this punch is used accurately one will get a nice thin rectangular slug when finishing the hole.

Using the punch

First, carefully mark the top and bottom of the piece you are punching with large center punch marks. If the distance between marks are a bit more than the length of your rectangular punch, the punch can be registered nicely on center of your desired hole. The following steps are all much easier with a striker. Use the first 1 or 2 heats to make clearly defined, centered, straight marks on both sides of your work with the rectangular punch. Then, drive the punch in from one side about $\frac{1}{2}$ to $\frac{2}{3}$ of the way through the work's thickness. Every 3 or 4 hammer blows, cool the tool end with water and lubricate, preferably with powdered graphite. The graphite will only stick to a wet tool so the tool must be cool enough. Then flip and drive the tool from the reverse side of your work, hopefully driving the slug out. Always cool the punch every 3 or 4 blows! If the tool gets stuck in the work, take forceful action to knock the work off of the tool and cool. Once the hole is formed, start stretching it out with a tapered rectangular drifting punch (another good application for H13). Then stretch and drift eye to desired shape.



The *FORGE FIRE*

Newsletter of the
Indiana Blacksmithing Association, Inc.

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sender

Another Patina Tip

A couple notes from John Guenther about the “Better Projects Through Chemistry” article in the November/December 2019 issue:

You can turn copper a nice deep red by first heating to a wet orange color and immediately plunging the piece into a super saturated solution of borax in water. The key is to heat the piece from the back side with a torch while watching the surface. Just as soon as the surface starts to look wet, get it into the borax solution.

[Editor’s note: when we did this in Bob Taylor’s copper rose class we had our roses right above the solution while heating them!]

Rinse in clean water and apply clear lacquer or wax finish when dry.

This tip reprinted from the May-June 2020 edition of
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Council