December 2022

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 Forge Fire is the newsletter of the Indiana Blacksmithing Association Inc. (IBA) IBA is an affiliate of the Artist-Blacksmiths Association of North America Inc. Permission is granted to other similar non-profit organizations to reproduce uncopyrighted articles originally appearing in *The Forge Fire* provided credit is given the original source.

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.

Dec 10 2022	**DON REITZEL SHOP STILESVILLE, IN**
Jan 21 2023	**STEVE KING SHOP PAOLI**
Feb 18 2023	**KEN DETTMER SHOP COLUMBUS, IN**
Mar 18 2023	**ANNUAL BUSINESS MEETING TBD**

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Dates to Remember

Hammer Ins
Dec 10 Don Reitzel
Jan 21 Steve King
Feb 18 Ken Dettmer

Business Mtg
Mar 18

Editors Message

We are closing in on the end of the year. Now is a good time to begin thinking about 2023. In March we will have the annual business meeting with voting for two board of director positions as well as the appointed positions. If you think you would be interested in serving on the board or taking on one of the other functions, I encourage you to notify a current board member. Board members and contact information is posted on the left side of the Forge Fire front cover. Appointed positions are listed below the directors.

This is also the right time to think about blacksmith of the year and rookie of the year candidates. Nomination guidelines are posted on the IBA website (www.indianablacksmithing.org). Brad Weaver is the awards chairman. If you have any questions you can contact Brad at (812) 371-8674, or email: bweaverhlw@yahoo.com.

For those of you who are interested in learning new techniques or just improving your existing skills, the IBA does offer scholarships. The current maximum amount is $350, but the board is discussing increasing that limit. In return for receiving a scholarship, you are asked to write an article for our newsletter and to give a demonstration at one of our hammer-ins within one calendar year of taking the course.

We have a good string of hammer-ins on the slate. The next three hammer-ins will be in large well heated shops. This month is at Don Reitzel's shop in Stilesville. Don has hosted the December hammer-in for several years. January will be at Steve King's shop in Paoli. I know Steve expanded his shop in the last year or two. I have not seen the expanded shop, but I know the old shop was quite large. February will be at Ken Dettmer's shop. Ken has hosted in February for many years. His shop has lots of space and many interesting tools, including the large Williams, White & Co power hammer.

If anyone is looking for a propane forge, check out page 5. Chaz Kaiser has a portable forge with folding stand for sale. Chaz tells me he is still smithing, but no longer goes to shows or public demonstrations.

MERRY CHRISTMAS AND HAPPY NEW YEAR

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

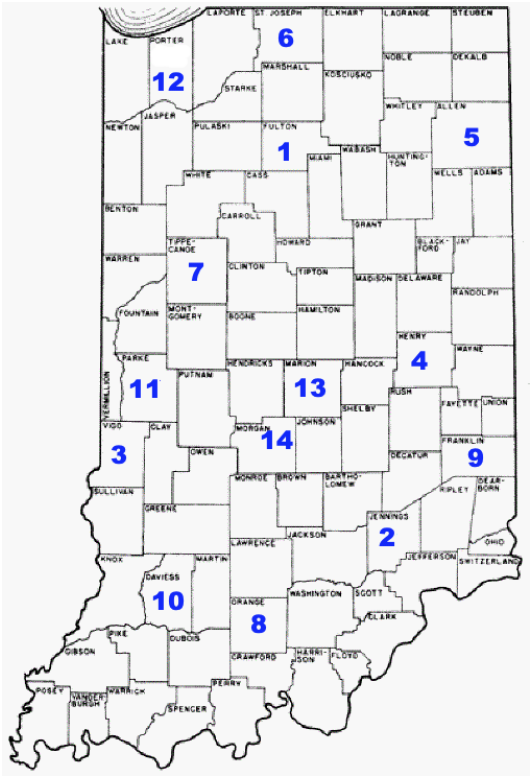
3) Wabash Valley Blacksmith Shop
Meet: 3rd Saturday at 9 AM
Contacts: Bill Cochran (812) 241-8447
Max Hoopengarner (812) 249-8303

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).

Meteorite Mashers

This month the Meteorite Mashers met at Jeff Reinhardt;s Floyd's Knobs shop. This Hammer-in was also the Smoked Turkey Hammer-in, Had visitors from South bend In to Elizabethtown Ky. Had 3 forges going as the weather was superb and much outside activity. The BFH did a 2" round bar to spike and forged out a wizard face that is part of an anvil. Had 4 beginners with Mike Mills leading the teaching efforts assisted by several. Steve King and Josh Sampson forged a set of tongs, And Brian Borton forged a RR spike wizard. The food was great, the fun had by all even better.

Our next meeting will be at Steve Kings shop in Paoli, and since it is a State hammer-in it will be the third Saturday of the month.

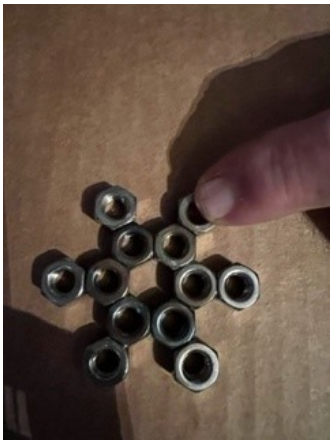
IBA Satellite Groups and News (continued)

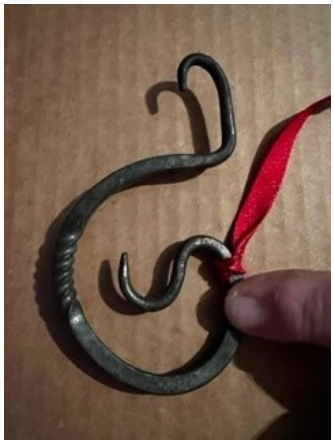
Jennings County Historical Society Blacksmith Shop

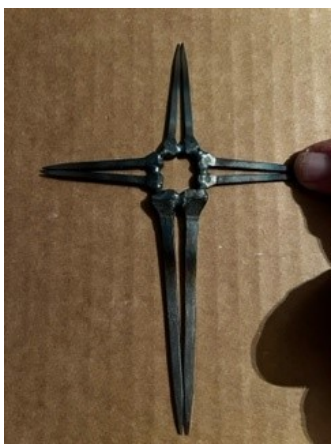
Dave Good worked on a piece from a fork off a fork-lift with Kevin Welsh as striker. He then made a scribe and a bottle opener. Josh Simson worked on a pair of tongs with Steve King assisting him. Chuck Henderson made a back scratcher. Kevin ran his new torch for us. Very impressive! 18 signed in. Next meeting Dec.10 at John Cummins, 14473 Chesterville Rd.,Moors Hill IN 47032. From Hwy 350, South on Palmer Rd. ManchesterSt. Left (at 2nd stop sign) on Main ,right (approx.3 blocks) on Chesterville Rd. 8th house 0n right. Have trouble, John's no.is 812-744-3115 Hope to see you then. Paul Bray

Bunkum Valley Metalsmiths

The Bunkum Valley Metalsmiths met Saturday, December 3. We had our annual handmade Christmas ornament raffle. In addition to open forges an addition was being constructed. An old Perkins engine had been salvaged and rebuilt during the last month. The addition was to cover the engine. The engine now runs the Helve hammer and will eventually run the line shaft. It was started and operated! Good job and thank you to the volunteers who came and helped! They were rewarded with a hot chili lunch. Enjoy the pictures and join us next month on the first Saturday. Merry Christmas everyone!







Portable Propane Forge For Sale

Portable propane forge that I built for taking places to demonstrate. It has a Beinstock burner, AND a forced air burner - if you are in a public building with strong restrictions on CO2.

It is a clam shell design with fire brick and KAO wool inside. It is on swivel casters and it collapses for easy storage. I also have a plexi-glass panel surround for people to get up close, but not get hurt, that I will also sell separately.

Forge as you see in the pictures $400.00
Plexi-glass panels (not shown) $50.00 (Sorry, prices are non-negotiable.)

The last picture you can see it in background at a local fest I was demoing at.

Contact Chaz Kaiser at phone (812) 212-2222 or email chaz@amstudio.us

The following 1 1/2 page article is reprinted from the November—December 2022 issue of the The Upsetter, the newsletter of the Michigan Artist Blacksmith Association

Gotta Find a Specific Curve

By Jeff Seeyle, a MABA member

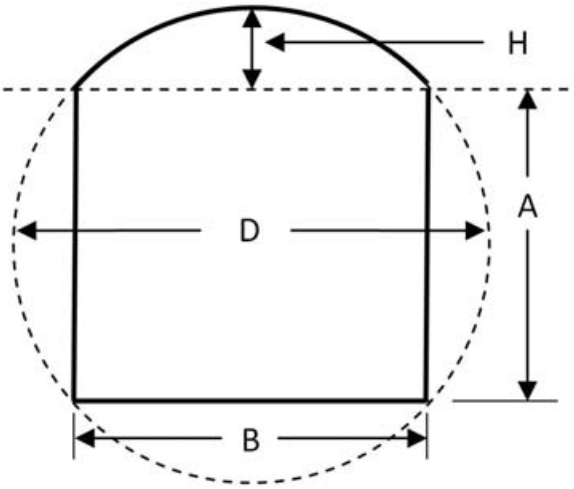
Occasionally I have a job where it requires me to lay out curves that I don't know the original size and it's hard to guess. I had a job where someone wanted their fireplace covered with a steel plate so they could put in a woodstove and the opening had a round top with a larger radius than the width of the opening. This formula has helped me many times.

So, here is the problem, I had a fireplace opening with an arc larger than the opening of the fireplace (see dimension D compared to B). To begin, on the jobsite, all I need is the measurement of the rough opening (B & A) and the height (H) from the arc base (chord) to the arc top.

Let's say (B) = 36", (H) = 8" and (A) = 24".

Knowing this, I can order my steel-(B x (A+H)) or 36" x 32".

What you eventually need to find to *cut* the steel is the radius of the arc.



Once you have these measurements, you can plug the numbers into this formula to find the radius.

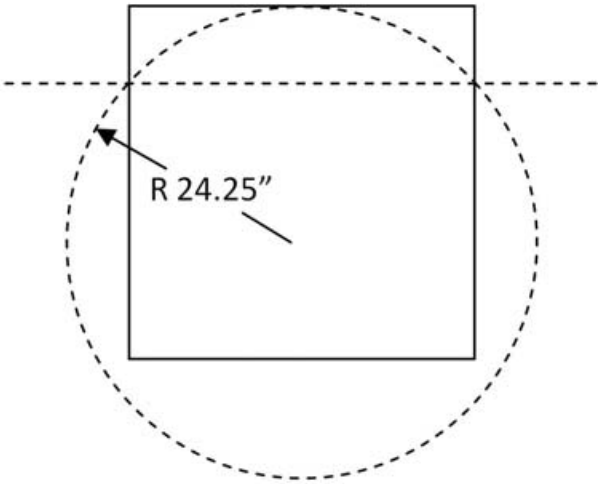
$$R\ (\text{radius}) = \frac{B^2 + 4H^2}{8(H)}$$

So let's put this to use. Notice measurement "A" is not needed in this formula but was needed to find steel plate size.

$$R = \frac{36^2 + 4(8^2)}{8(8)} = \frac{1296 + 256}{64} = \frac{1552}{64} = 24.25$$

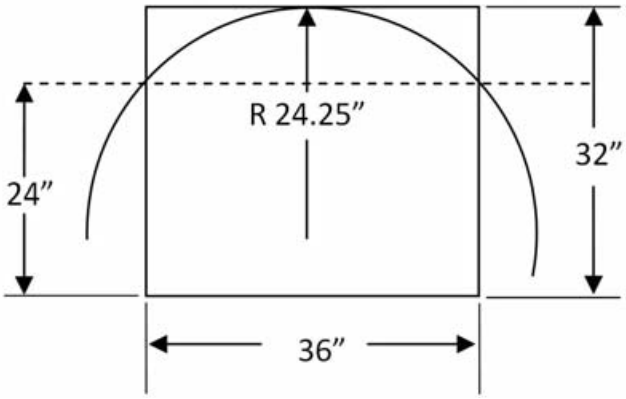
So 24.25" is our radius.

I can now make my radius starting 24.25" from the top of the plate and centered from side to side.



Many times I know roughly the size I need or I can lay it out on my shop table or shop floor. Sometimes I want a round gate top where the radius is not a half circle or make a headboard with a different radius than a half circle.

Once you use this formula, you will find other uses for it. This helps if you just have to have a specific curve.



WIRE HANDLED HOT PUNCHES AND CHISELS

USING ATHA-PNEU S-1 TOOL STEEL

Russ Swider introduced me to a fantastic tool steel for hot punches, hot chisels, and punch or drift combinations. Called ATHA-PNEU S1 it is manufactured by Crucible Tool Steel Co., and available from your local tool steel supplier or Crucible Tool Steel Company, Arlington, Texas. Originally designed as a drop forging die steel, it has some unusual characteristics which prove to be quite valuable for the blacksmith. First of all, it is extremely tough and durable material for hot, hammered applications. AISI classification "S-1" is a shock resistant tool steel with the following alloy analysis: 0.55% carbon; 2.15% tungsten; and 1.25% chromium. You'll know you have something tough when you first forge ATHA-PNEU.

Secondly, though by design it is an oil quenching steel, it seems to work quite well as an air hardening tool steel. In other words, forge it and use it. Perhaps the only negative aspect is the price... 3/4" round delivered is usually around $1.00 per inch -- but once you've tried it the price doesn't seem so intolerable.

In some typical uses when punching or slitting through 1" square bar stock, the punch or chisel will come out of the bar with a visible dull red color and not have lost its cutting edge -- and that's with an air quenched tool! Also, the hot durability of this steel allows the smith to forge it to a thinner cutting edge and not sacrifice strength.

I normally use 3/4" round stock for hot tools and on my first set I split and drifted eyes for wooden handles. This used more of a fairly expensive tool steel, and wooden handled top tools always seem to be loose. By using a handle made of 1/4" round rod, typical of some of the English flatters and punches, 3" of stock is adequate to make a tool and the handle will last a lifetime.

FORGE IT HOT! With 2.75% tungsten if it's not yellow it just won't move. The manufacturer's recommended forging range is 1975 degrees F to 2075 degrees F. **DO NOT** forge below 1650 degrees F, so when it cools only to a good red, it's time to stop and take another heat. I forge about 1" of the end to an even octagon and then fuller two concentric 1/8" radius grooves into the stock about 3/4" from the end for handle attachment (See Figure 1).

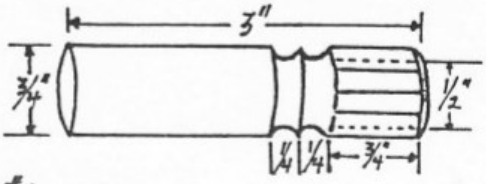


Figure #1

The 1/4" grooves can be ground into the stock or fullered hot, which requires making a double groove fullering tool. This tool can be an intricate hinged or guillotine type, but one made of 1/4" mild steel rod will get the job done (See Figure 2).

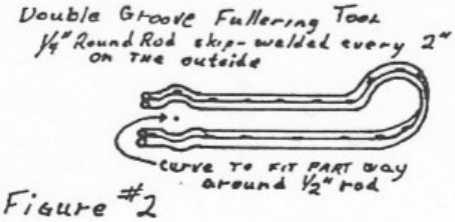


Figure #2

The remaining 1-3/4" or so of stock is plenty to draw out to whatever type of hot tool desired. For example: round, square, rectangular, oval, heart or hex punches, hot grooving or slitting chisels, hot slit and drift combinations, hammer eye punch and drift tools....No end! (See Figure 3). After forging, allow the tool to air cool.

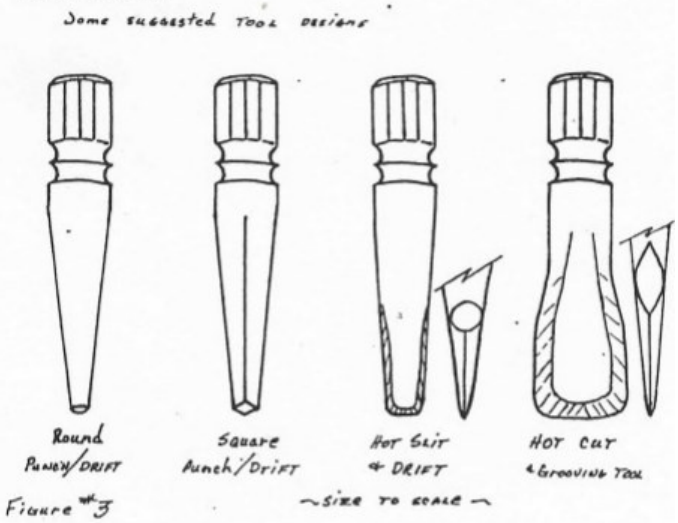


Figure #3

I recommend grinding or polishing away the scaled surfaces at least on the business end of the tool, as this allows it to slide through the hot iron with less effort. You'll notice that ATHA-PNEU scales more than some others.

A suggestion for polishing your tools: 3M Products makes "Scotch Brite" surface conditioning discs, in at least 4 grits, which fit (Velcro attached) on your air grinder or 4" or 7" electric grinders. You won't believe how well they work, and once you've tried them you'll probably find yourself polishing your anvil face and horn, a few hammers, and a host of other tools. The hardness of the steel matters very little to the "Scotch Brite" disc.

As indicated my initial approach to handle installation on ATHA-PNEU hot punches and chisels was to split and drift eyes in the stock for wooden handles, which was a lot of trouble and used more of the fairly expensive tool steel. The second generation had a single 1/4" groove hot fullered into the stock and one wrap of 1/4" rod from which a handle was fashioned. After some use, this handle loosened up and allowed the tool to rock.

The third time around I settled on 2 grooves and 2 concentric wraps of the 1/4" steel rod. This makes a nice looking and suitably secure handle; thus the 2 grooves discussed above.

Grind or file an 1/8" radius diagonal groove connecting the double fullered grooves in the tool (See Figure 4). This allows for the crossover of the 2 wraps of rod around the tool. The location of this crossover diagonal groove is critical to the tool orientation in the handle. It is the point where the handle will come off the tool at right angles. Tools can be made right or left-handed or straight on the handle, depending on your preference. Round punches are usually the only tool where handle orientation doesn't matter.

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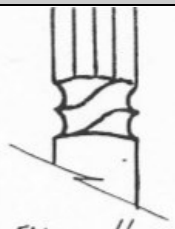


FIGURE 4

For the wrapped handle cut 29'' of 1/4'' mild steel rod. Mark off 9'' from one end and 3'' from the other end. At the 9'' mark forge a tight l/4'' offset in the rod and fit this offset into the crossover diagonal groove of the tool (See Figure 5) with the tool clamped in the vice. Keep the offset in the crossover groove, heat and wrap both rod ends in opposite directions into their respective grooves keeping them as tight as possible. Bring the rod ends back around to the offset.

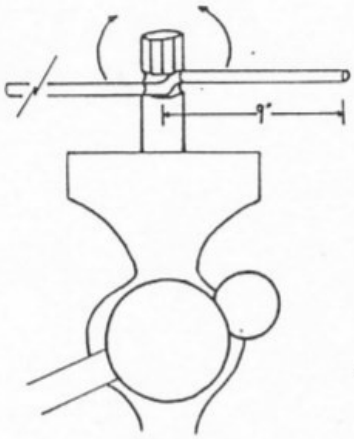


FIGURE 5

A torch to localize the heat on the 1/4'' rod while wrapping and twisting is best; however, it can be done in the forge because the ATHA-PNEU works well as an air hardening tool steel, and you don't have to be concerned about losing the temper.

Carefully plan the direction of twist at this point so as to tighten across the offset. 360 degrees of twist is usually adequate; more can be done for decoration if desired. Be sure to keep both wraps around the tool tight as well as the twists, so that your tool doesn't rattle in the handle (See Figure 6).

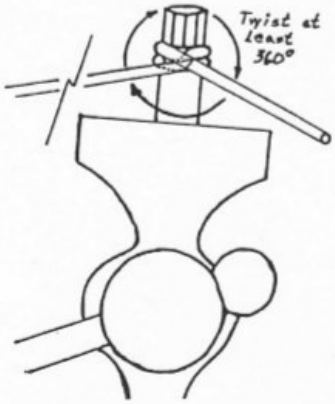


FIGURE 6

Straighten and parallel both l/4'' rods after twisting and make sure the handle is perpendicular to the tool. On the longer handle rod, forge the last 3'' to a long, consistent taper and then stand this entire tapered end up at right angles to the handle. Next, bend a slight angle on this longer rod at the point where the shorter rod ends (See Figure 7).

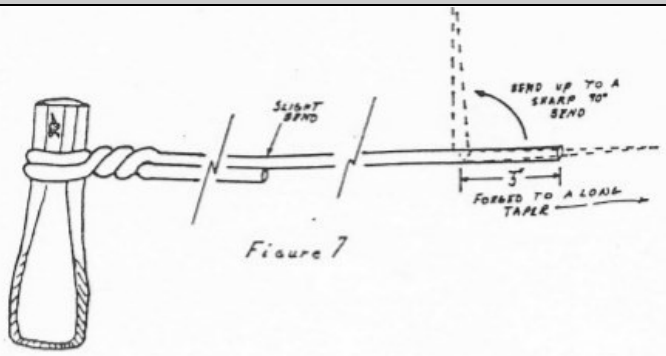


Figure 7

Heat the center of the longer handle rod and form to a nice tear drop shape, returning the 3'' tapered end to touch the shorter handle rod (See Figure 8).

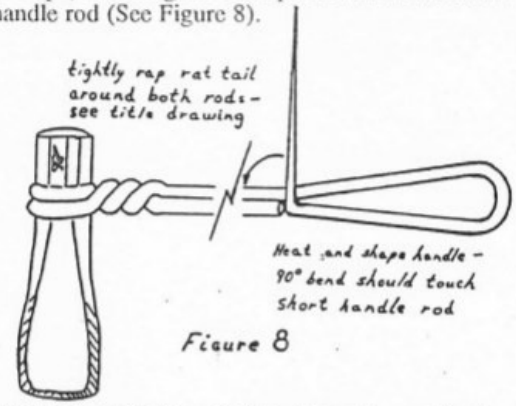


Figure 8

Stand the tear drop handle up in the vice and wrap the tapered end around both handle rods localizing the heat while wrapping. Reheat and thoroughly wire brush the handle. Then coat with wax or your favorite iron finish. Remember, it needs to feel nice in your hand.

One of the primary benefits of this handle design is that the 2 different length rods which make up the handle dampen and virtually eliminate any vibration traveling up the handle and into your hand -- an important consideration on a metal handled tool.

If you want to get fancy, a tear drop shaped wood insert can be installed in the wire handle as it's being formed. Also, the same handle design can be used for larger tools by changing to larger rod sizes such as 5/16'' or 3/8''.

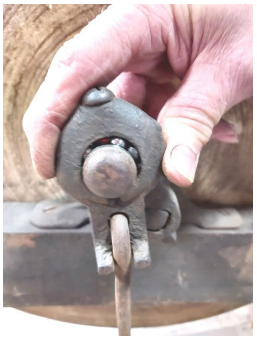
(Editor's Note: In talking with Robb he indicates that instead of fullering the grooves for the handle wrap he now drills a 1/4'' hole through the tool stock. The rest of the handle forming is as described above)

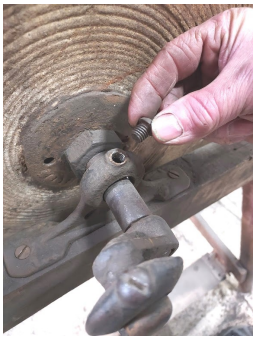
(Based on article by Robb Gunter, From: The Poundes Press, March/April 1988 and May/June 1988).

Daily Grind by Bob Pickens

This article reprinted from the February 2022 edition of the Pittsburgh Area Artist—Blacksmith Association

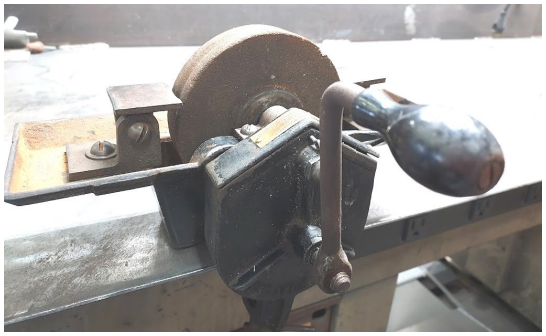
For those that have an interest in old sharpening implements, you might have a wet stone grinder in the back of your shop and been planning to put it to good use. These were used to sharpen knives, wood chisels, planers, and various farm equipment. Most of the antique grinding wheels you find will have imperfections such as: a flat spot, it may have grooves in it, and be out of round. To rectify these problems, you will need a way of dressing the wheel with a wheel dressing tool. The flat spot on some of the wheels was caused by the grinding wheel sitting in water and becoming soft in that particular area. The water trough was designed to be drained after use, but this proce-dure was not always followed. Bob has a collection of grinders dating from the late 1800's to present day. He has found creative solutions in some of the designs.





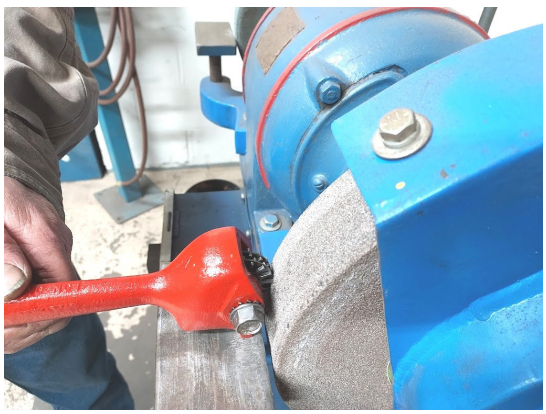
For instance on the oldest one Bob owns, the bearings can be inserted through the screw hole located on the bearing block. (Photos-Left)) One of his newer models from the 1940's ironically has wooden bear-ings. The smallest one he acquired is from the turn of the century and measures 12" by 6" overall. It is a hand cranked grinder with a 5" wet stone. Each has its own unique design, but all were used to sharp-en implements using a spinning grinding wheel.

Any grinder wheel old or present day needs dressed in some point in time. If you have a flat spot, the wheel must be ground to the lowest point on the wheel. First, make sure the wheel is completely dried out. The correct-ing procedure takes time, patience and precision. If the wheel has a groove, the wheel must be ground to eradicate the groove. The most common is a hand held star type dresser. For more precise dressing a diamond wheel dressing tool is suggested. There are a number of manufacturers, but they all will correct a wheel with more precision.



Present day high speed wheels are manufactured with a resin and has a shelf life which is determined by the manufacture. This was not an issue in the old days because grinder wheels spun at a very low RPM. Today, the grinder wheel industry has developed in uses not even imagined in days of the past.

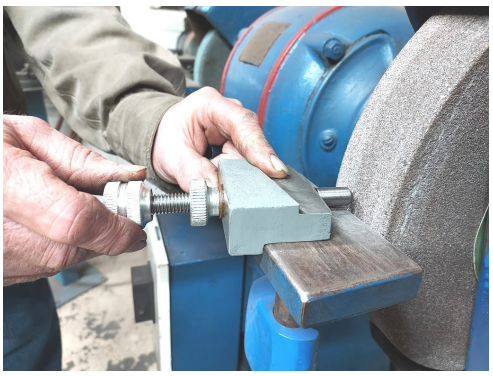
Following safety procedures is imperative when dressing a wheel, all precautions must be followed. Dressing cleans away foreign particles and exposes sharp new cutting edges. How to: 1. Place cutter head on tool rest. 2. Firmly push dresser into grinding wheel. 3. If sparking occurs, press harder on dresser. 4. Traverse cutters back and forth across wheel.



Safety Glasses are a must!

Above: Smallest hand-cranked grinder with 5" wheel. Left: Hand held star dresser on a present day grinder. Right: Dia-mond wheel dressing tool used for more precision.

If you have questions about your unique grind-ing wheel, call Bob Pickens @ 412-496-9389



Project - Sunflower Hook

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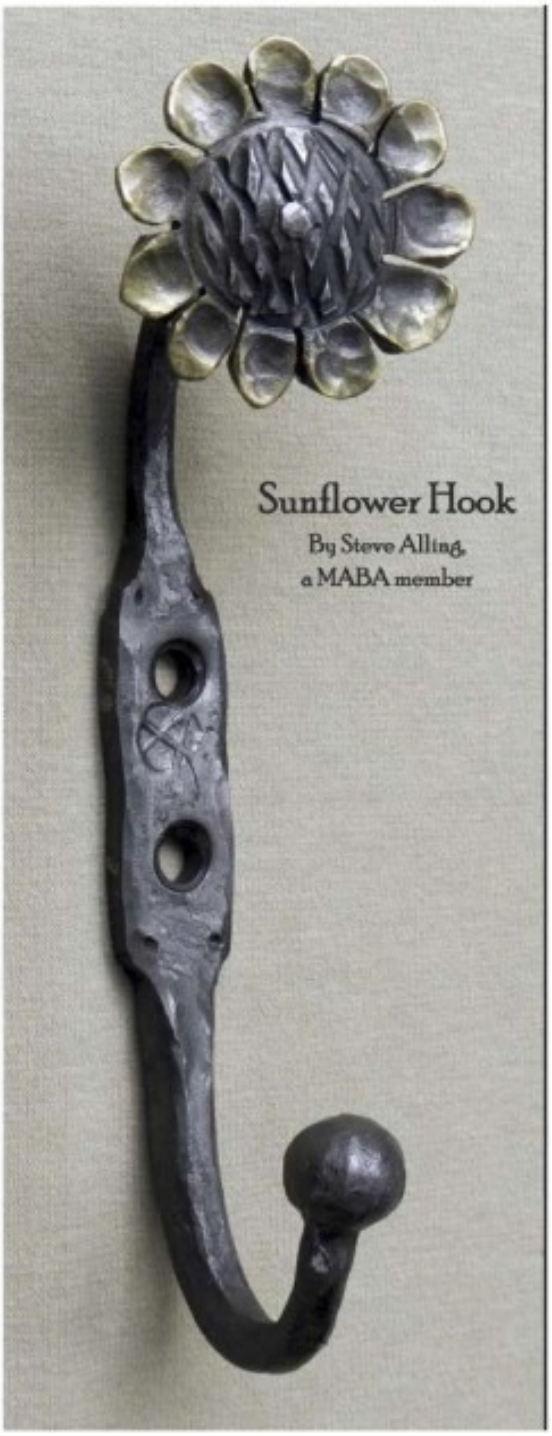
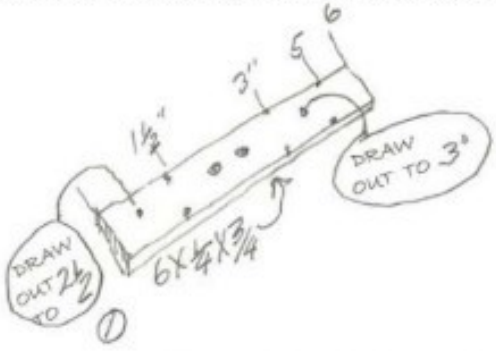
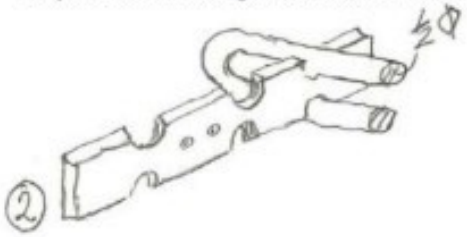


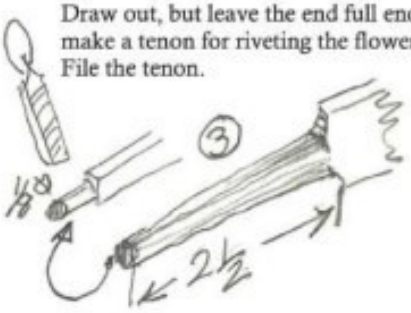
Mark stock out, this may be used as the backside.



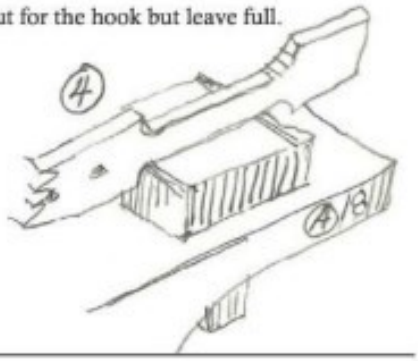
Put your three fullerings in, I used a ½ inch fuller.



Draw out, but leave the end full enough to make a tenon for riveting the flower. File the tenon.



Draw out for the hook but leave full.



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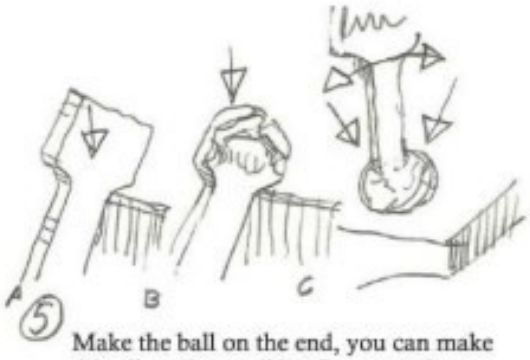
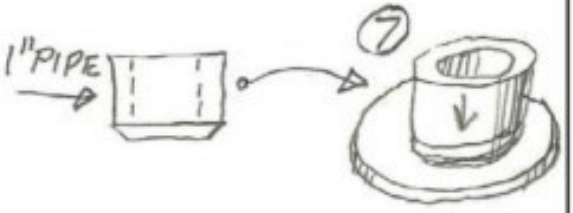


Make the ball on the end, you can make this all on the anvil but I sweeten it up with a fullering tool.

Draw out and round up for the hook.

Cut out a round disc 1¾ inches in diameter out of 11 or 18 gauge sheet metal. I made a round fuller out of a short length of 1 inch black pipe by putting a sharp edge on it that gives you a nice round definition for the seeds.



Fuller for the seeds making the lines cross at a 45 or so degree angle so the seeds look like diamonds.

Cut the petals with a 4 ½ inch grinder with a ⅛ inch cutting wheel. This leaves a gap that you wouldn't get by hot cutting and you'll need the gap so the petals don't overlap when fullered out.

File the petals to shape.

With a ball end fuller shape the petals.

Depress from the back with appropriate size ball peen hammer into either wood or a short piece of pipe. Adjust any distortion. By riveting the flower on while the hook is straight you can clamp it in the vise which makes riveting easier. Drill and rivet the flower into place. Now heat the whole thing and bend to the appropriate shape, holes can be drilled for fastening. Clean up and finish.

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

Farrel Wells *Membership Secretary*
8235 E 499 S
Dunkirk, IN 47336-8807

First Class Mail

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sender

December 10 Hammer In & Board Meeting

(2nd Saturday)

Don Reitzel's Shop

4113 W County Road 900 S, Stilesville, IN 46180

Directions: Take I-70 west of Indianapolis to exit 59 (SR 39). North on SR 39 for 1 mile. Turn left on County Road 900. Shop is about 6 miles on left.

January 21 Hammer In

Steve King's Shop

1155 S. Paoli Unionville Rd.

Paoli, IN 47454