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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.

Nov 16 2019	COVERED BRIDGE BLACKSMITH GUILD SHOP
Dec 14 2019	TBD
Jan 18 2020	TBD
Feb 15 2020	TBD



INDEX

PGS 3-5
SATELLITE NEWS

PGS 6-8
COAL FIRE
MANAGEMENT

PGS 9-11
SNOWMAN

Editors Message

We had a very good October hammer-in hosted by Keith Hicks. About 10-12 people were there. Marty Geisen demonstrated making a copper rose that was beautifully done. A brief description of the process and some photographs are included on page 4.

We did not have a quorum for a board meeting in October. I am not sure if a board meeting will be held during the November hammer-in at the Covered Bridge Blacksmith Guild, or if a separate meeting will be scheduled.

As stated above we have a November hammer-in hosted by the Covered Bridge Blacksmith Guild. The hammer-in will be at the 4-H fairgrounds in Rockville, IN. Dave Wells will be demonstrating steps in making a trap. There will be a trade item exchange for those interested. The trade item is a ladle. Lunch will be ham and beans. Bring a complimentary side dish or desert.

Gary Phillips is working on scheduling hammer-ins for the next few months. Check the next edition of the Forge Fire or check the IBA Facebook page for updates. If you are interested in hosting a hammer-in please contact Gary Phillips at (260) 251-4670 or behere@netdirect.net

Gary did tell me the IBA has a new satellite group. At the March business meeting, Rod Marvel expressed an interest in forming a satellite group in the North West corner of Indiana. Snake Road Forge in Valparaiso is now our newest satellite group. They meet on the 1st Saturday of each month starting at 9:00 (central time). For more details contact Rod at (219) 241-0628.

Gary also told me there is some interest in forming a satellite group in the Evansville area. I expect to hear more about that in the next month or two.

On a sad note, I saw an announcement that Judy Berger has passed away. Judy was the person who brought us Blue Moon Press. Judy was a good friend to the IBA and to many of our members. Please keep Judy's family in your prayers.

Dates to Remember

November 16
Hammer-In at
Covered Bridge
Blacksmith Guild

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
 Dennis Todd (574) 542-4886

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

77) 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

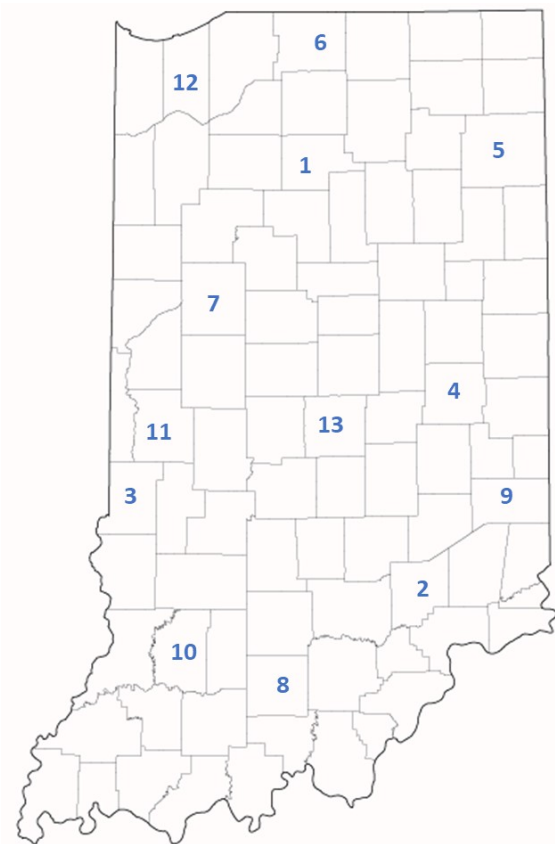
Meet: 1st Saturday
 Contact: John Bennett (812) 877-7274

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



Meteorite Mashers

October's meeting was held at Steve King's newly expanded shop in Paoli. Steve now has 2 separate complete forges and room for several anvil positions so much more room. Rained all day but we were snug in the shop. Bill Corey visited and made a very nice ladle. Steve demonstrated a steak flipper bottle cap lifter combo with a horse head handle. Jason Bowman sent 3 very nice items for the iron in the hat along with Jeff Reinhardt since Jason is out of town working. After iron in the hat and lunch, Jeff Reinhardt had brought the top to a new special Anvil he is making and once heated thru, it was drifted through for a 1" square hardy hole.

The next meeting will be the now infamous Smoked Turkey Hammer-in. It will be the Saturday after Thanksgiving. Held at Jeff Reinhardt's shop in Floyd's Knobs there will be hickory smoked turkey for the entree, and since Jeff is clearing out a many years accumulation there will be a rather large iron in the hat again this year. Several years running now we have had great weather and had multiple forges running outside with team striking and huge fun. And just in case the shop has heat.

IBA Satellite Groups and News (continued)

Jennings County Historical Society Blacksmith Shop

The Jennings County Historical Society Blacksmiths met at Vernon on the 12th. Nathan Pelvor tutored Roland Cook on some basic skills. Dave Good made tripods the old style. Bill Newman was making a hatchet from a ball pen hammer on the 50# hammer. George Good worked on his basic skills. Brad Weaver finished a pair of tongs. Brett Luker made a forge rake and poker. There were 16 people who signed in.

Our November meeting will be the last one, this year, at Vernon. Please try to make it to this meeting.

The December Meeting will be at John Cummins, January - Paul Bray, February -Kenny Dettmer, March - Kevin Welsh. April will be back to Vernon. Address for meetings will be announced. Remember Iron in the hat. Paul Bray

IBA October Hammer In



Marty Geisen demonstrates making a copper rose at the October hammer in. The petals are cut from 16 oz copper roofing sheet, following templates. Marty used a guillotine tool and monkey tool to reduce top 3/8" of the stem and to create a square shoulder. The stem is also planished to create a more natural appearance.

As received the roofing copper is half hard. Marty annealed the petals to facilitate sculpting to the finished form. Two leaves are soldered to the stem and act like legs to allow a single rose to lay on a table or shelf.

Marty said that he originally polished the finished roses, but later found that people preferred the natural coloration.



IBA Satellite Groups and News (continued)

Snake Road Forge

Here are some photographs of the work being done at our newest satellite group in Valparaiso, IN. The group meets at 9 AM (Central time) on the 1st Saturday of each month.

If you are in the North West part of the state be sure to check it out.

Rod Marvel is the forge master. Rod can be reached at (219) 241-0628.



This 3 page article reprinted from- New England Blacksmiths, Summer 2018

Coal Fire Management by Russ Jennings

Last year I took a class at the Adirondack Folk School, called "forging transitions and setups", it was taught by Bob Valentine. I had been blacksmithing as an amateur for about 3 years at that point. Bob Menard told me this class would help me take my smithing to the next level, and reminded me that the scholarship program would cover the majority of the cost.

I started as a smith watching You Tube videos, and then built a small coal forge in my garage. I used it for a summer, in the evenings after work and on weekends. I soon built a propane forge and didn't use coal again. Unless I was taking a class somewhere, and I always tried to get some time in the green coal tent at NEB meets. Often with some cranky old smith telling me I was doing it wrong.

He was right, but I didn't realize it at the time. After all, when I used a coal forge, it got hot when I cranked it or turned the blower up. I may burn a piece here or there, but that's just life as a blacksmith, right?

My class at the folk school was a five day, 8 hour a day class, using a hand cranked coal forge. There was only one other student. You couldn't ask for better, more personal instruction than I got; not unless you get to intern or apprentice somewhere.

The first day of the class I did alright and kept up, but I struggled with the fire. By the middle of the second day, I had burned several pieces and was getting frustrated, and tired. My usual go to plan of "crank the blower faster" meant I was exhausted, and I wasn't learning much since I had to start over. Mr. Valentine took the time to go over the finer details of coal fire management with me, and by the morning of day three I had the fire under control. Now I could focus on the actual class material because I had a clean, hot fire to go to every time.

The class ran until Friday. On Saturday there was a tool making day, where the experienced smiths and instructors had been invited to make tools. Those 9 teaching stations all need punches, fullers, and other tools. I had the opportunity to stay that Saturday and make tools with them. The skills I learned all week paid off in spades as I was able to keep a hot, clean fire all day and was able to forge weld with ease.

This class did live up to my expectation as something that took my skills to the next level. In addition to everything I learned about swinging a hammer, I learned how to control a coal fire and what I learned on that topic is as valuable as anything else I learned that weekend.

First, let's talk about how I used to manage my fire. I thought I was doing decent on this topic, but that's mainly because I was using a coal fire for short periods. I would get home from work around 6, fire up the forge, and if I was lucky I got two solid hours in before it was late.

I would clean out my forge and look for good pieces of coke. Then I would take some wood shavings and kindling, light it, and add the coke around it. Once the flames are going well I'll turn up the blower and after a minute or two of that I would start to put my remaining coke around the edge of the fire, and begin moving raw coal to the edge and turning it into coke.

I'll pull my piece out, hammer away for a bit, and then slide it right back where it was. Wait a minute or two, maybe take a sip of water while my electric blower does the work, and then pull the piece out. As the fire burns I'll keep adding coal to the edges and bringing coke into the fire itself, but otherwise I'm not doing much maintenance. Maybe every once in a while I'll look for clinkers or use the ash dump. After an hour or so of this, my fire isn't doing great. I'm lucky if I get a dull red heat every time I pull the piece out. If I want it hotter, I have to jab it down deeper into the fire instead of laying it flat. This sure does get them hotter; this is when they might start to burn. Maybe I crank up the blower higher, but this too begins to diminish in returns. I'm not getting the big clean clumps of coke I used to, and sometimes it's even a struggle to get the fire to grow.

But, it's now getting late, so it doesn't matter. I turn everything off, stop forging, and do other things while I wait to ensure it's all safe and cold before I call it a night. The next time, I go through the same process of cleaning up. The big chunks of clinker at the bottom are easy to find. My fire burns well for a while, but by the end of my forging session it's back to the same dull, smoky, dirty fire.

That's not how I manage my fire anymore. Before we talk about the right way to do it, let's figure out what's going on when we do it the wrong way.

When we put a piece in the fire, we want a clean, hot heat. The ideal would be something akin to a Bunsen burner in a laboratory; a pure flame with no byproducts or contamination. And we CAN get something like that out of our dirty chunks of coal. In the beginning of the fire, those big pieces of coke I put in to get it started, they burn pretty clean and hot. As I start to bring in more coal and turn it into coke that starts to change. Two factors are happening. First, the coke and coal is breaking down

into smaller pieces. These smaller pieces fall down and pack themselves together more tightly than bigger pieces do, so they slowly start to block airflow from your tuyere. Second, as I bring in more coal and it turns to coke, I'm also generating slag and clinker.

In small quantities, this stuff isn't too big a deal. It's not great, but it's one of those unavoidable byproducts of burning coal. When that raw coal starts to emit blue and green sulfurish smoke, it's also emitting hot pieces of solid contaminants into the fire as well. They trickle to the bottom and stay hot, and they somehow find each other. Just like the small pieces of coke do, these ever growing chunks of slag block the airflow. Even worse, they contaminate it. The clinker literally sucks the heat out of your fire, so even though you may add more fuel and crank the air more, you don't see the same heat you used to. Your piece builds up more scale and takes more work to clean up when you're done. Not to mention how much harder it is to forge when the iron doesn't get hot!

Those big pieces of clinker might be easy to find, but that's the only upside. In reality they are a sign that the fire isn't being cleaned or managed well enough. Take a look at some of the behemoths we find at green coal during a meet; they didn't magically appear after a single shovelful of coal. Small bits of slag began to fall down and congeal together over time, leading to a solid plug of glass at the bottom of the firepot. No wonder the fire burns better when that stuff is taken out.

What did I do differently, and what did I learn?

The fire needs maintenance every heat. Normally this is as simple as fluffing it up a little before returning your piece to the heat. Reach into the bottom of the fire pot with the poker and, with a lifting motion, pull the fire up and let the pieces re-settle. Then slide your piece in, horizontally, and let it heat back up.

The ideal speed to turn your hand crank is between 30 and 60 rpm. It doesn't take much effort, and if it does seem to require a strong stream of air to keep your fire hot, then it's time for more cleaning.

As your fire burns, every 3rd or 4th heat you should twist the clinker breaker a few times and open the ash dump as many times as needed until it comes clean. This may result in hot embers and even unburned fuel to spill out, but it's also dumping out all of those small pieces of clinker you can't see yet.

To add fuel, start by adding raw coal to the edges of the fire. If your forge allows it, the base of the chimney is a great spot. The hot air from the fire will blow over the raw coal, turning it to coke faster.

Raw coal is small, black, and shiny. When you begin to heat it, it'll smoke up and turn to coke. Coke is puffy and lightweight, and burns without smoke. As the fire consumes fuel, you need a steady flow of new fuel. That means you will be adding raw coal to the edge, moving coke into the fire, and emptying the ashes out regularly. This is another reason not to add any more air than you need, because the more fuel you burn the more you have to add.

If you are proactive about maintaining your fire, you will fix problems before they become noticeable. You will find that it only takes a little airflow to keep things white hot, and you aren't getting as much scale as you used to.

Once you are comfortable with the basics of fire management, here are a few other things I learned. First and foremost is the importance of keeping things flat in the fire. Make sure if you are working on a piece like a hook or a leaf that the thin part is up out of the fire.

You can take this a step further, too. Now that you've got this clean, consistent fire, you can control the heat in your metal much more.

To get an even heat, be patient and let the piece soak in the fire. Let's say you've got a small fire, which creates a small heat, but you want to work a larger section of the piece. If you stop adding air to the fire and let it sit for a minute in the hot coals, that large heat will spread out, and try to equalize itself. For bending this is invaluable; you can heat up the section you want to just shy of yellow, then stop the blower and just step back for a few seconds. The piece won't burn, and instead you'll end up with a very even orange heat that bends smoothly.

Another great tip to prevent overheating a piece. You need fuel on both sides of the piece to burn it. If you bury your metal in the coals and crank away, that's risky! So for a small piece, use your poker and scrape coals away so there is nothing on top of your piece. Let the metal sit atop the coals, and it's just about impossible to overheat it.

The most advanced use of your fire comes when you want to forge weld. Forge welding requires that the smith control both the heat and the atmosphere of the fire within pretty tight guidelines, and doing it on two separate pieces.

So far I have covered controlling the heat, so let's talk a little more about atmosphere. The coal needs oxygen to burn, but too much oxygen joins with our steel and creates scale. But if we stop adding air, then the fire stops getting hotter, so how do we control that?

More fuel is the answer, ideally in a deeper fire. When I forge weld, I start by getting a good clean fire going, and I create a depression or hollow. I want to be able to see the piece as it heats up. I also want all the hot fuel underneath my work to consume all of the oxygen before it can get to the steel.

Since it's impossible to create a 100% oxygen free environment, you'll still get scale on your work. The secret to getting easy forge welds is watch your piece until it heats up enough, pull it out and brush it, flux it, then put it back in immediately and stop adding air. There will be enough residual heat left in the fire, and the piece will be so close to forge welding temperatures that you probably won't have to crank at all, and it will heat back up in a few seconds.

How do you know if it's hot enough? There are three ways I determine if I'm at forge welding temperature. The most difficult in a coal fire, is to watch the surface of the metal. When you reach the right temperature the steel becomes wet and glossy looking. This is much easier to do in a propane forge. In a coal forge, it's easier to look for the right color. It just so happens, hot burning coke is the right color! So once your piece disappears into the fire and you can't tell the difference between the hot steel and the burning fuel, you're very close to the right temperature. And finally, as soon as you start to see sparks, you're at the upper end of the forge welding temps. You can forge weld metal that has just started to spark, that's just barely white hot, but it's a sign that you went a little past the ideal heat.

If you have good control over your fire, you don't even need flux. Flux simply keeps scale from building up on the piece while it's heated, and I've been able to forge weld without flux using the technique I described above. Get the steel up to temperature, brush off the scale, and put it back in a fire with no airflow and things tend to stick!

The tools we use as smiths are all full of extra capabilities, and require skill and experience to learn how to use. The way I use my anvil now is very different than it was when I started out. The fire is just as subtle and complex a tool, and the better you can manage it, the better off you'll be. The coal fire may take more skill than a propane fire, but in exchange you get more control over the size and temperature of your fire. Propane forges have a hot zone of a specific size and generally uniform temperature. A coal forge allows you to vary the size and heat which makes it flexible. I can create small red heats for bending, or heat a large and irregularly shaped object which would never fit through the doors of any practical propane forge.

The biggest hurdle for me was remembering how dynamic a coal fire is. A propane forge is set and forget; as long as you have pressure left in the tank, the fire burns the same way the whole time. A coal fire is changing every minute, and you as the smith have direct control over every single variable. Don't leave it to chance; decide what you want from the fire.



Artist Blacksmith's Association of North America - ABANA

October 31 at 12:02 PM · 🌐

We lost a great friend and resource this morning. Judy Berger, owner of Blue Moon Press, passed away at 6:06 this morning, after a long fight with brain cancer.

Anyone who got to know Judy was in awe of the benefit she brought to blacksmithing. More than a bookseller, Judy reprinted valuable out of print books, and found new authors to publish. She did more to spread blacksmithing knowledge than any other single individual I know. Her dry, sharp wit and her enjoyment of springing surprises on people made her so much fun to be around. Our blacksmithing world is dimmer with her loss.

Our best wishes go out to her family.

Kirk Sullens

Snowman

Mike Mumford, Ridgecrest

Based on a snowman seen in the newsletter of the Saltfork Craftsmen of Oklahoma, and trying to replicate their work.

Sample pieces done at RoadRunner Forge.



This is one of those projects that you can resize to suit yourself or your customer. The test pieces were done in 3/4" black iron pipe, resulting in a snowman about 3 1/2" tall.

Stock. 12" of pipe. It helps to have extra to serve as a handle until you cut it off.

Saltfork Craftsmen
Artist-Blacksmith Association
January 2019

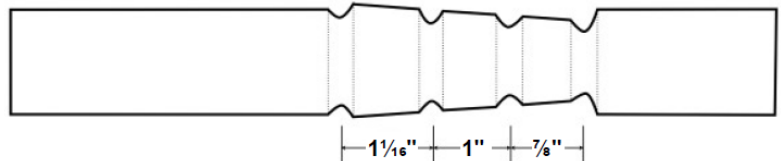
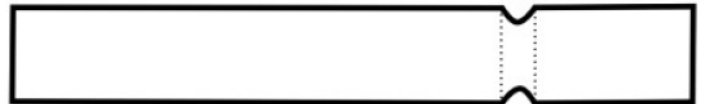


Snowman By Byron Doner

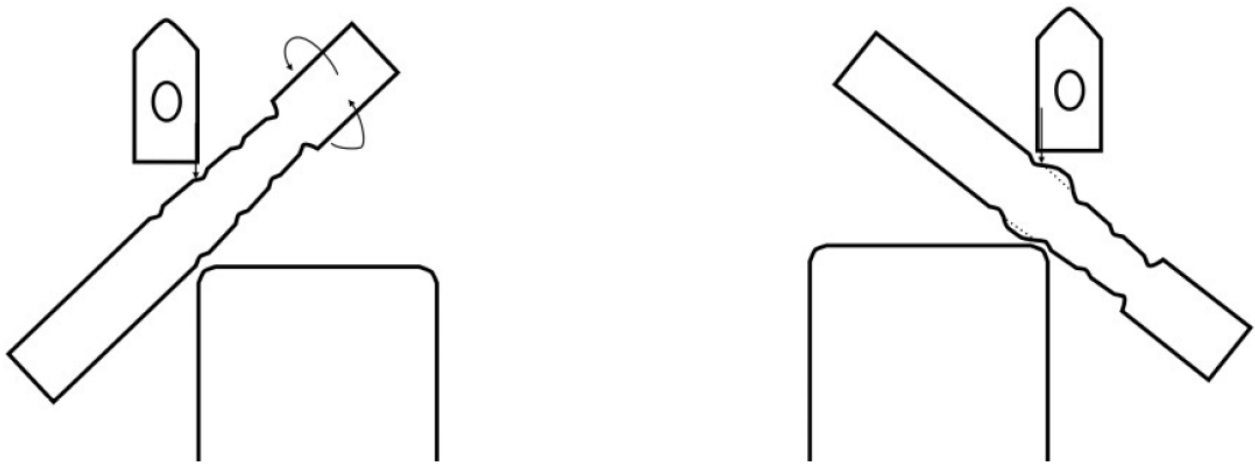
The inspiration for this story.

Several years ago, Frank Trousil advised me that, when forging pipe, to leave some extra on the ends to serve as a reference

1. Fuller a round indent, about a third of the width of the pipe. Leave a few inches on the end of the pipe, to be cut off later. Giving a reference or unforged section will help maintain roundness. The fuller I used is a guillotine tool with 1/4" dies.
2. Draw a round taper of about 3" to the first fuller. Remember, in forging pipe, you want to use a hit/rotate process, working all around the pipe. Little by little does it.
3. Mark, and then fuller in a little way, to define each of the snowman ball sections. You will have a flattish pipe section between the fuller marks. Decrease the spacing between the indents as you get to the smaller sections.



Snowman



4. Now make the flattish sections into spheres. Hammer on the corners of the fullered areas, with the pipe at 45° to the anvil. An alternative to using the anvil is to use rounded dies of a swedge block. Use a fairly square-ended hammer as you will want to be able to get the corner of your hammer into the corner of the emerging ball.

As you hammer, rotate and also swap back and forth between near and far sides of the anvil. This will seem to start and initially change very slowly. Then, all of a sudden, the ball will begin to emerge. You should see the cylindrical section slowly diminish as you bring the pipe towards a ball.

5. Cut off the base and top of the head.
6. Clean, decorate and enjoy!



Elijah Burnett is using this same process in his demonstration at Spring Conference 2019.

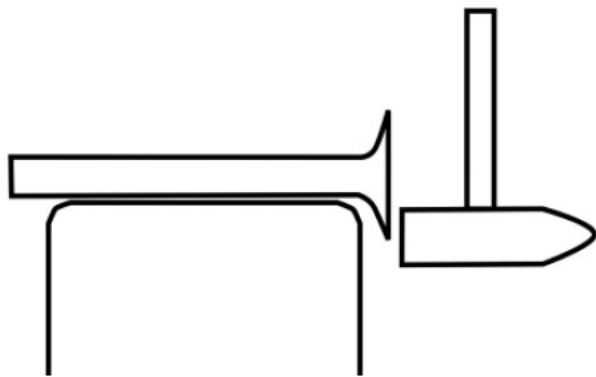
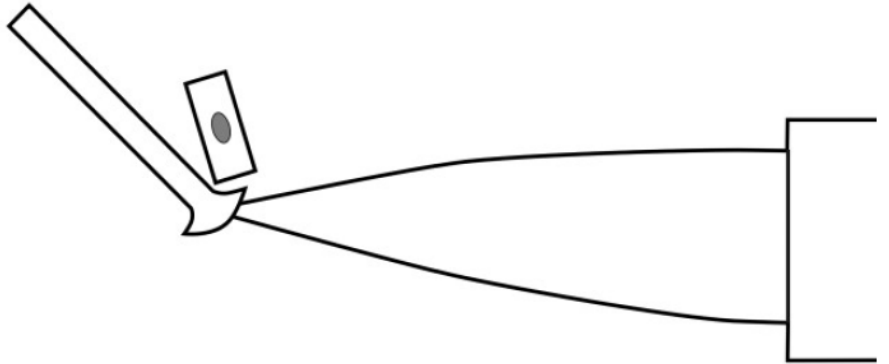
Snowman

Making the Top Hat

Stock. Black iron pipe, one size smaller, e.g., $\frac{1}{2}$ " pipe for a hat for a snowman made from $\frac{3}{4}$ " pipe.

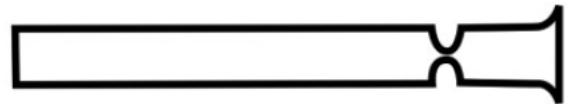
Length is your choice, but leave it long enough to support the hat on the end.

1. Flare the end of the pipe. Starting with the pipe at about 45° up from the horn, hammer just off the horn tip. As you hammer, rotate. I use a leather mallet to avoid leaving hammer dings on the hat. Take several heats to draw the brim as far out as you can.



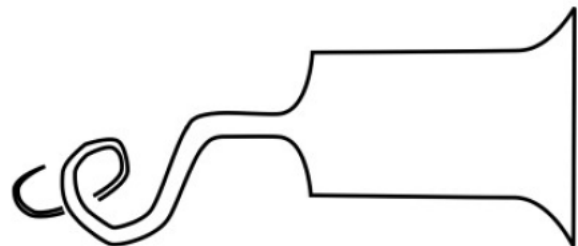
2. Complete and flatten the brim by going to the far side of the anvil to hammer the brim flat over a rounded edge.

3. Decide where the top of the hat will be, and then fuller (guillotine, $\frac{1}{4}$ " dies). If you fuller almost all the way down, it will probably break off the neck of the fullered section, which is fine. You can leave a hole and a section sticking up. After all, who would give a snowman their best top hat?



Or you can flatten over a mandrel.

Or, you can leave a tag end to curl about.





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

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First Class Mail

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November 16 Hammer In Covered Bridge Blacksmith Guild Shop

It is being hosted by the CBBG at the 4H blacksmith shop at the fairgrounds north of Rockville. It is a pitch in lunch with ham and beans. If anyone wants to participate in the trade item it will be a ladle.

Doors open at 9. Dave Wells will be demonstrating techniques required to make traps.