THE FORGE FIRE

The Newsletter of the Indiana Blacksmithing Association, Inc.

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

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

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

If you would like an IBA membership application form, please contact Farrel Wells, Membership Secretary (765) 768-6235.
BULK LOTS ARE AVAILABLE TO DEMONSTRATORS,
SHOPS, SHOWS AND OTHERS WILLING TO MAKE THEM AVAILABLE.
WE APPRECIATE YOUR HELP.

More nearby resources and organizations for blacksmiths:

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

IBA MEETING SCHEDULE

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

Jan 15 2021	TBD—CONTACT STEVE KING IF YOU WOULD LIKE TO HOST
Feb 19 2021	KEN DETTMER'S SHOP
Mar 19 2021	TBD—ANNUAL BUSINESS MEETING
Apr 16 2021	TBD—CONTACT STEVE KING IF YOU WOULD LIKE TO HOST

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Dates to Remember

March 19 Annual Business Meeting location TBD

June 3-5
IBA Conference

Editor's Message

In the September Forge Fire I reported that Farrel Wells was in the hospital. He has been in the hospital or rehabilitation facility for about three months. Farrel notified me in mid-November that he was home and recovering. Since then, I received word that his wife passed away. I encourage you to send a card or letter to Farrel (his address is on the front and rear cover).

For those who do not know Farrel, he does a tremendous amount of work for the IBA as treasurer and membership chair. Farrel also mails the Forge Fire to people who get the hard copy versions. Some folks told me they received their October and November Forge Fires in the same week. The personal issues were the reason for the delay. The December issue may be arriving late, but that is my fault as I am over a week past due on sending it to the printer.

Farrel has a new email address. If you need to connect with him regarding membership issues, be sure to use his new address: flwells2647@gmail.com.

We are drawing close to the end of 2021. I want to thank the IBA board and the volunteers that have put a great deal of time and effort into the IBA. Along with the current board, John Bennett, Jim Malone and Fred Oden did an outstanding job organizing regional conferences to move us out of the pandemic doldrums.

A board meeting was held during the December hammer in held at Don Reitzel's shop. I did not make the meeting, so I do not have any information to share. I did get confirmation the annual conference will be held June 3-5 at Tipton County fairgrounds. I expect more details coming soon.

I do not have details regarding locations for upcoming hammer ins, other than February at Ken Dettmer's shop. If you would like to host a hammer in, please contact Steve King.

Looking toward 2022, think about your role in the IBA:

- We have two board positions up for election. I have not spoken to Steve King or Gary Phillips about their intentions to run for re-election.
- I am feeling quite stale as the Forge Fire editor. I think a change would benefit the organization. If you have an interest in taking on this role, please let me know. The job is extremely interesting as you network with blacksmiths in the IBA and across the country.

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

IBA Satellite Groups and News

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

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

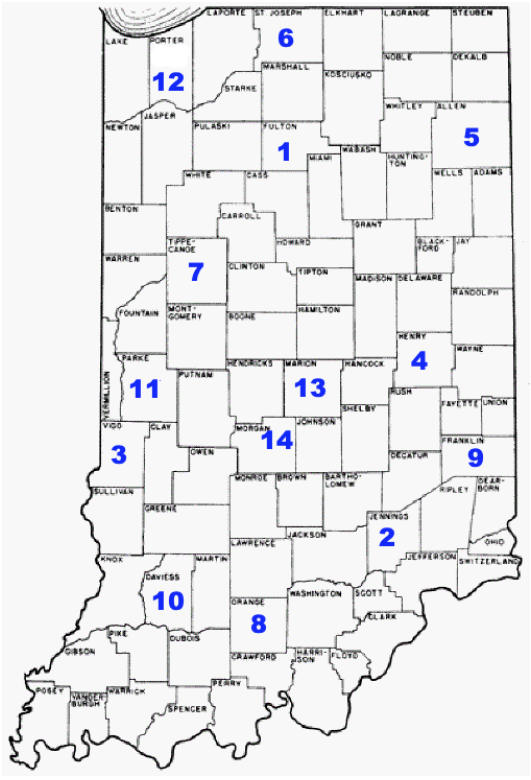
3) Wabash Valley Blacksmith Shop
Meet: 3rd Saturday at 9 AM
Contacts: Bill Cochran (812) 241-8447
Max Hoopengarner (812) 249-8303

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).

Jennings County Historical Society Blacksmith Shop

Roland Cook was mentored by Kevin Welsh on some of the basics. Nathan and Samantha Pelvor worked on the basics on the other anvil. Dave Good spent some time on both big hammers reducing a large bar into a hardy cut off tool .

Dec hammer in at John Cummins, Jan at Dave Good (603 S Chestnut St, Seymour), Feb at Kenny Dettmer.

Attendance was 16,good turnout. Kevin was good enough to supply us with a propane heater.

Many thanks!And don't forget iron in the hat!
Paul Bray

IBA Satellite Groups and News (continued)

Meteorite Mashers

The IBA State monthly meeting in conjunction with the monthly Meteorite Mashers meeting was held at Jeff Reinhardt's shop. The meeting in November is also the now infamous Smoked Turkey Hammer-in.
The Smoked Turkey hammer-in is known for the very nice iron in the hat and this year was no exception. Since the iron in the hat proceeds went to a Smith in need, everyone stepped up their game. We had a warehouse cart of items that required $5 each tickets, and there were VERY nice items on that cart (the cart itself was a $5 ticket item). Steve king and Chuck Henderson put hand made hammers on the cart and Steve King put 2 handled hot cuts. Jeff Reinhardt put a small self contained hydraulic system on the cart a wood lathe, as well as a split cross from copper. There was a lovely copper soup ladle and Other items. That was the just the put a ticket in the cup cart. There was also perhaps 75 nice items in the $1 iron in the hat and a truck bed full of scrap to choose from. Almost $400 was raised for our brother smith in need.

We had several new to the Meteorite Mashers visitors form the North as well as a beginner. Bob Hunley did a beginners class with him. The food was excellent with a chili from John Jones, Jeff's hickory smoked turkey and a spicy bean soup. No one left hungry And as predicted, a good time was had by all.

Due to Christmas day being our normal meeting date there will be no meeting in December. Our January meeting will be at Steve King's shop in Paoli. NOTE: he has a nicely heated shop. Happy Holidays to all.

Looking for Background Information

Barbara Kummerer is looking for information on an antique that was sold to her as a blacksmith's nail bench. If you recognize this piece and can share any information please contact Barbara directly at email: barbara.kummerer@gmail.com.

Barbara writes: "Back in 1974, my husband and I purchased this piece of craftsmanship from an antique dealer in Indiana. It was identified to us then as a blacksmith's nail bench. It is entirely hand-made in its construction, from the use of wood in its basic structure to the formation of the copper bins and metal work. The upper bins are numbered 5, 6, 7, and 8. The upper and lower 'platforms' swivel and the piece is on wheels. The piece is quite unique and maybe, one-of-a-kind.

I recently wrote to the Museum of Early Trades and Crafts in New Jersey for their help in identifying this piece. The curator responded: I have not seen a piece like this before, so I cannot assist you further. Occasionally, many craftspeople created objects that "worked" for them and their business, so this object could potentially serve a specific purpose for the maker - a holder or some sort or something along those lines." Shelly Cathcart, Curator of Collections & Exhibits.

Although purchased in Indiana at an antique show, I cannot say that this piece was made in Indiana."

Hinge Eye Bender

AFC President Travis Fleming provided these pictures of a tool he made for rolling the eyes for some hinges. The hinges go on a restored chuck wagon. Travis cited some pages from George Dixon's Traditional Metalsmith as a source for the idea. There may be other sources.

This seems like an idea that's been out there for a long time. To use the tool, hold the piece to be rolled in the vise, fit the slot in the tool over the stock, and hammer the tool over the stock. The stock will "flow" around the inside of the hole, forming an eye for the hinge pin. If the piece is wider than the tool, just work the tool back and forth while hammering to roll the whole edge. Do a little bit at a time, all along the edge. Don't try to finish a section the width of the tool and then move over!

To make the tool, first drill the hole, then saw the slot to match. The hole should be the pin size plus twice the stock thickness. For 1/8" stock and a 1/4" pin, the hole should be 1/2".

Travis said he drilled just a little larger, 33/64", and cut the slot just a little larger than 1/8".

Machinists might do this with a wire EDM, but we're talking about working in a blacksmith shop here!

Travis made his out of H13 steel. S7 might also be a good choice. Either of these steels will air harden and be difficult or impossible to drill after forging, but the steel is typically provided in the annealed – soft – state, so Travis does the drilling and sawing first and then draws out the end to hammer on.

Tool with rolled eye on hinge

Three sizes of hinge tool

Hinges installed on a chuck wagon box

Reprinted from the Bituminous Bits, newsletter of the Alabama Forge Council

This tool was seen in Donald Streeter's Book "Professional Blacksmithing,

DRILLING HOLES:
A Few Pointers From A Machinist

*By **Mike Clifton***

INTRODUCTION

When working with metal, frequently the need arises to drill a hole. I'm sure you have multiple personal examples of when you have had a small drill bit break, or a larger drill bit becoming dull because the cutting edge overheated, or some other drilling struggle. Here, I will talk about how to adjust your RPM and drilling pressure, along with what cutting fluids might help you, based on what type of drilling you are doing. I will also mention some different cutting speeds for different metals. A very common fabricating material is low carbon steel, so many of my examples will be for low carbon steel.

"Cutting speed" or "Surface Feet" (240 divided by drill bit diameter equals RPM)

Tips FOR YOUR Shop

When drilling a small hole, the initial tendency is to have your RPM too slow. This often results in the drill bit breaking, because the pressure being applied (the "feed rate") at low speed results in too much "chip load," meaning it's trying to cut too much in one revolution. If you were to calculate your RPM using formulas for "cutting speed" or "surface footage" (they are the same thing) you might be surprised at what the speed should be.

For example, if I were to run a ½" drill bit at 480 RPM, that would generate the same amount of "cutting speed" as if I ran a 1/8" drill bit at 1920 RPM. If you are running a small bit at a higher speed the same amount of downward pressure will create a much smaller chip and put less torque on the drill bit. This will help you with 2 things: One, you will have less tendency to break the drill; and two, you will get through the hole faster.

From my observations, people naturally tend to get the correct "cutting speed" when using a drill around ½ inch. What I have seen commonly is the tendency to run smaller drills at too low an RPM, which puts too much torque on the drill, and it tends to break. Conversely, the tendency is to run larger drills at too high an RPM, which generates too much heat, and the cutting edge will tend to burn up in a very short time – sometimes less than one second.

For example, if I were to run a ¾ inch drill bit at 500 RPM that would be too fast. The RPM that would equal the "cutting speed" in the ½ inch example would be 320 RPM. A lot of drill presses and larger hand drills have trouble going that slow. To take this one step further, if I ran a 2-inch hole saw, the RPM would be 120 to achieve the same "cutting speed."

HOW TO DETERMINE YOUR "CUTTING SPEED"

Here is the simplest formula to come up with an RPM that will work with a wide variety of low-carbon steels:

$$\frac{240}{\text{drill bit diameter}} = \text{RPM}$$

Here is the math behind the formula. For all low and medium carbon steels, a "cutting speed" of 60 will work, and for high carbon and stainless steels, 30 will work. For aluminum, a "cutting speed" of 400 will work. There is a range of "cutting speeds" and many variables for these metals, but this is me keeping it as straightforward as possible. You can get these numbers from the internet, cutting tool manufacturers, the Machinery's Handbook, an experienced person, or many other sources. There is a more complex formula called out in technical reference manuals;

Drilling Holes

however, I have reduced it here. This more complex formula matters if you are machining at over 10,000 RPM, but this is simpler and works just fine for our purposes here. This formula will work for a lathe, a mill, a band saw – anywhere you have a cutter moving across metal.

You would take the 60 times 4, divided by the diameter of your drill bit.

$$\frac{60 \times 4}{\text{drill bit diameter}} = \text{RPM}$$

For example, if I wanted to run a ½" drill bit at a cutting speed of 60, I would take 60 times 4 and divide by .5, which would equal 480 RPM. After teaching machining for over 20 years, I found many sources that said for mild or low-carbon steel using a high-speed steel drill bit (versus carbide), you can run at a cutting speed between 40 and 120. I found that 120 works well when using a CNC machine and running some kind of a cutting fluid to keep the heat down. I found that with beginning students, running a cutting speed between 60 to 100 surface feet worked out well for them. Many times, they had cutters that were a little dull or setups that were a little weak, and very rarely were they running cutting fluid (sometimes used to cool, sometimes used to lubricate). I would use a cutting speed of 40 surface feet if I were using a very low-quality drill bit.

ESTIMATING YOUR RPM AND USING COOLANT

So, what do you do when using a hand drill and you don't know what RPM you are running? Start with guessing. We all can tell if the drill is running at its full speed or barely turning. For small drills, pay attention to your chip. If you start seeing your chip get very thick, you need more RPM and less pressure. For larger drills, if your chips are blue you are starting to run too fast.

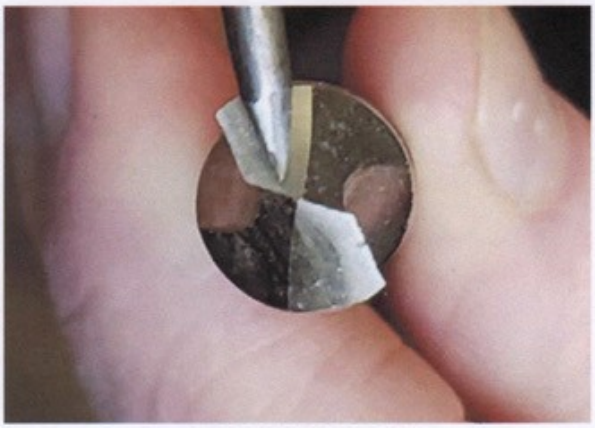
Let's take the problem of blue chips and let's say that you're running as slow as your drill will go. What you then need is something to remove the heat. The 3 most basic choices are air, oil, and water. Compressed air can help remove the chips and cool the drill bit. Oil does have a cooling effect but tends to smoke and does not cool nearly as well as water. Oil is much better at lubricating than cooling. If you have the choice, "coolant" works the best. Coolant is water-soluble oil or synthetic mixed with water. There are many on the market. Most coolants are over 90% water and for that reason if you don't have coolant, use water. If you spray water or coolant on the drill bit and it steams, it is helping cool the drill. If it doesn't steam you probably don't need it. (The only reason not to use it is that it is messy).

I was drilling a hole in an implement for my tractor, using a hand drill, and I needed a 7/8" diameter hole. The drill I was using ran at 600 RPM which was too fast; it would have burned up the cutting tips on my drill. I needed to get rid of the heat, but I didn't have flood coolant (coolant from a hose versus a spray bottle or mister); however, I did have a hose and water. My friend held the hose on the drill bit with a slow water flow, and we made it through a piece of 3/8" steel without having to sharpen the drill bit.

DRILLING A LARGE HOLE

When drilling larger holes, a common practice is to drill a small hole in your material, and then work your way up. The reasoning is that it takes less force or pressure to move the drill through the material. The problem is that the drill bit tends to grab, which can break the bit, or it can get stuck. For example, if you are drilling a ½" hole, the tendency is to drill a 3/16", then a 3/8", and then your ½" hole. I am recommending that you try using a pilot hole just a bit larger than the chisel point on your final drill bit, and drill the hole in two steps. (Drill a 3/16" hole, and then your ½"). This reduces the pressure needed and still avoids most of the grabbing and chattering. Of course, as in all of these examples, there are so many variables that there is no one guaranteed solution. Variables can include hot-rolled versus cold-rolled steel, high-helix versus low-helix drill bits, drills with extra wide webs for good strength, using a hand drill versus a drill press versus a milling machine, cutting dry versus using fluids; the list is considerable.

Another tip to note: A drill bit with a split point will take less pressure than a drill bit with a chisel point.



SPLIT POINT DRILL BIT

Drilling Holes

If you look at the center of the drill you can see the chisel point is split, creating two cutting edges on the point. This will take less pressure because the chisel point only pushes metal away whereas the split point is actually cutting.

CHISEL POINT DRILL BIT

TYPES OF DRILL BITS

What kind of drill bit works best for drilling steel? This is a very complicated question and there are entire companies that are devoted to creating all different kinds of drill bits. Gehring is one that will show you the astonishing variety of drill bits. Their printed catalog of drill bits looks like an old-fashioned city phone book. I am not going to attempt to go into any depth on drill bits. I am going to look at the three drill bits for metal I see most commonly in a hardware store.

One will be black and most likely the least expensive there. It may have a lower quality finish grind, and many times does not have a split point. Works well for drilling wood. Another will have a gold coating and it's probably a very good choice. This gold coating is harder and more slippery and works better than the substrate that the drill is made of. That doesn't mean you can't sharpen one of these drills - you just lose the benefit of the coating.

The third common option you may have at the hardware store will be a cobalt drill bit and this is usually the best drill bit you can find there for drilling steels. These are usually better-quality drills in regard to grind and finish, but they are usually the most expensive. Cobalt increases what is called "red hardness." Red Hardness means that the cutting edge stays strong even when it gets red-hot. The cobalt gives it strength and keeps it from breaking down. Notice that your drill bit may not be red-hot but the very fine cutting edge that is doing the bulk of the work can become red-hot. If you buy your drill bits from a tool supply house or some other source that has more choices you will see that some of the most common choices are cobalt at 3%, 5% and 7%. As the percentage of cobalt goes up, the drill will do a better job of holding up to heat.

STAINLESS STEEL

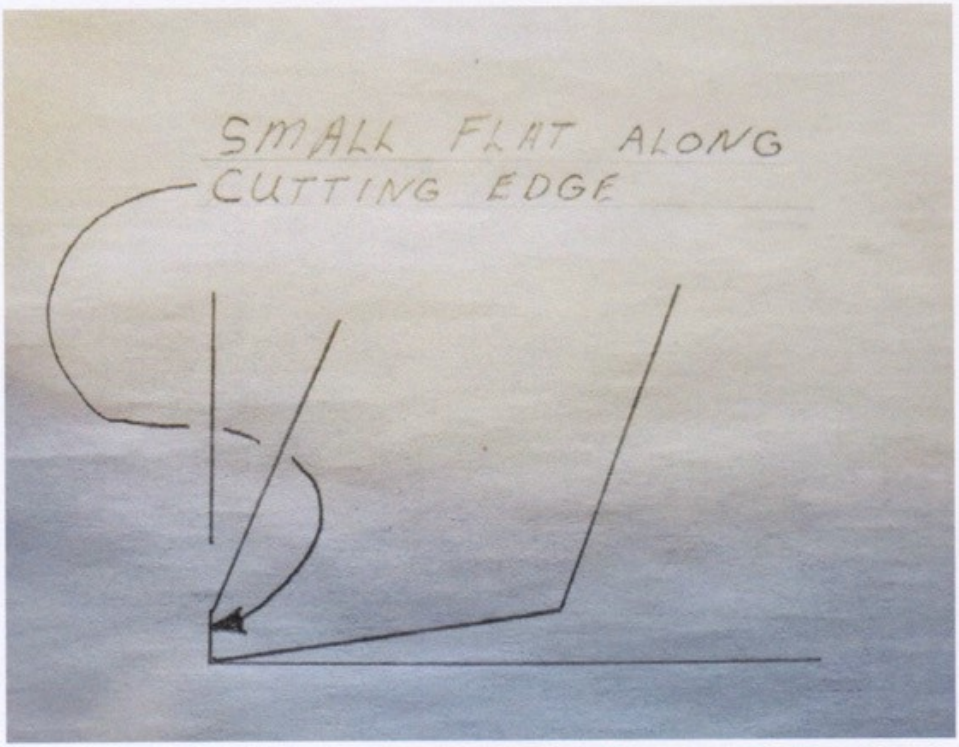
When drilling stainless steel, I have found at least 5% cobalt holds up well. I will very briefly cover helix and web thickness. When a drill has a "high helix," or a lot of twist, the cutting angle changes. This can work well in stainless steel and aluminum. When your drill has a thick "web" (the center shaft), this makes your drill much stronger, but you will need more force. You need that web thickness if you are being aggressive and drilling through a tough material like stainless. I'm not going to cover carbide drills because most of us can only get the carbide drills available for drilling concrete.

Stainless is tougher than low carbon steel but it is not necessarily "harder" so it's more like drilling rubber than glass. Toughness is the metal's ability to resist impact, and hardness is the metal's ability to resist penetration. For stainless, you need a sharp drill bit (Will the cutting edge of the drill scratch your fingernail? If not, it's not sharp enough for stainless). You'll need to slow your cutting speed down to somewhere close to 35 to calculate your RPM. You do not want your drill bit to rub. This can cause "work hardening." To keep your drill bit from rubbing you need a little higher feed rate or more pressure. If you're not making a chip you're rubbing. What is "work hardening"? Hardening a metal as a result of "cold-working." "Work-hardening" is when your drill rubs and creates a hard spot a few thousandths thick where you are drilling. (Hammering can also cause "work hardening"). There are three grain structures in steel, including stainless: Austenitic, Ferritic, and Martensitic. "Work hardening" for the most part only happens in Austenitic stainless. Knife steel is usually Martensitic. Austenitic is frequently used in marine hardware. Ferritic may be the exhaust system on a motorcycle.

I would use oil, or coolant with a higher percent of cutting fluid, not water. Stainless needs the lubrication. The other thing that can help is to peck drill. This can help any time you are drilling a

Drilling Holes

deep hole or need to keep the cutting fluid at the tip of the cutter. Peck drilling is when you drill a little and then pull your drill out of the hole to remove the chips and to get cutting fluid down in the hole.



BRIEF NOTE ON ALUMINUM AND BRASS:

When drilling in aluminum, you can run at a very high cutting speed. 400 to 600 surface feet is common. That means a ½" drill bit could run at 4,000 to 5,000 RPM. One problem you will start to see is that the material will start to melt and stick to your drill bit. A small amount of cutting oil can greatly improve your success when drilling aluminum. Even though I may not be running at the high speeds mentioned above, I quite commonly will put a little cutting fluid on my drill bit. When I'm at home I've been known to use WD-40.

When drilling brass, you typically don't need any cutting fluid. But if you are drilling a deep hole in brass, you may experience the problem that your drill bit gets stuck in the hole. The brass is slippery enough that the drill starts working like a screw and cannot eject the chips as fast as it's being pulled into the material. A common solution for this is "dubbing" the drill bit.

"Dubbing" the drill bit is using a stone or lightly touch it to a grinding wheel to remove the helix, or "rake angle," from the cutting edge. The flat needs to be greater than your chip thickness, typically between .005 and .030 thousandths.

The diagram above shows the small flat, or removal of the helix, parallel to the center of the drill.,

There are many techniques and tips in here that can be done in different ways, using different methods and numbers. My goal was to introduce you to a lot of these concepts and try to keep things simple.

DUBBED DRILL BIT

Reprinted with permission from The Newsletter of the Kootenay Blacksmiths

Ergonomics at the Anvil Patrick Beck, Pori, Finland

This is the first part of a three part series of articles. The follow-up articles will be about ergonomics in the smithy in general, and gymnastics for the blacksmith. Even though the article has been written together with a physiotherapist, don't apply it to your workshop without questioning. Your body, age and overall condition might require a different approach. Talk to your local physiotherapist or other specialist to find tailored solutions to your situation. Your body will thank you.

The smith's and metalworker's most important tool is the body. Everyone with chronic pain would happily pay a lot to get rid of it. Most of the time though it is not possible to reverse the damage done. Therefore, it is important to prevent as much as possible. Especially because the pain doesn't stop after work and one has to bear with it also in private time.

I had the pleasure to experience a disc issue myself which has changed my life and the way I can work. When I went back to the workshop I asked my physiotherapist how to change the workshop and the way I work, so I can stay in good working condition. Since full-time professional blacksmiths are only a few, little attention has been given to the ergonomics of the craft. Here are some hints my physiotherapist gave me. I hope they would be helpful to you.

Even though the article has been written together with a physiotherapist, don't apply it to your workshop without questioning. Your body, age and overall condition might require a different approach. Talk to your local physiotherapist or other specialist to find tailored solutions to your situation. Your body will thank you.

Change The Working Position Often

A good principle to improve the efficiency of work is to serialize the work. The less one has to switch tools or move around, the faster the work is done. Staying in the same position over longer periods of time though, causes stiffness in the body. Sometimes when moving to another work one notices this.

One possible solution is to incorporate minor changes in position while one stays at the same spot. This can be for example a wooden block or brick beside the workplace. Something one can step on switching the foot's positioning and height. The whole body adjusts to this and the necessary amount of change in position is accomplished.

At the Anvil, the wooden block can be positioned under the horn. This keeps it out of the way and one does not stumble upon it. Makes sense to have similar block or step placed at all the working places.

If one has a workshop with gravel or dirt floor this is a bit different. The slight differences in height cause a similar effect. Yet another possibility would be a rubber mat. But close to the anvil this might be difficult due to the fire risk.

Another approach would be to move more during the forging process. It is recommendable to not only use the wrist but the whole body to swing the hammer. Also, a slight dancing movement with the feet might be helpful. But this is just an inspiration, everyone has to give it a try and experience yourself what works best.

A Stepping Block Helps In Constantly Changing The Position Within The Work Process

This 2-page article reprinted from the November/ December issue of the California Blacksmith Online, the newsletter of the California Blacksmith Association

Ergonomics

Rather A Bit Too High Than A Bit Too Low

The height of the anvil face should be the same height as your knuckles when you stand upright.

This is how many texts about the anvil height start. This is a starting point, but reality is more complex. Factors like

- most common stock size
- measurements of the hammerhead
- additional tooling used (for example a fuller)
- is a striker assisting in the forging process play a significant role. Ideal would be a height adjustable stand or having several anvils in different heights. Probably most smiths don't have either as an option. If one is further interested, Mark Aspery goes into Detail about this in his book "Fundamentals of Blacksmithing I."

In my opinion it boils down to how can one work in a comfortable standing height, but apply the maximum force of the hammer blow to the work. To save the back one might consider putting the anvil rather a bit too high, than a bit too low. If it is too high though, one will notice it in a hurting elbow or arm.

Suggested Starting Point for Anvil Height

Patrick Beck is a CBA member, from Pori, Finland. He is in a Journeyman Blacksmith educational program there.

have the face of the anvil at the height of my palm when standing upright. This allows me to stand upright without bending over while forging. It sacrifices some force of the hammer blow. But probably one rarely does heavy forging and if so has a power hammer. The power hammer should be in a height, which allows standing upright too.

In addition, a swage block mounted at knuckle height is great. This is useful for working with top tooling and sometimes for cooperation with a striker. This also allows to clamp a workpiece with the legs, if both hands are needed. A shipping palette can be acquired for free and can improve ergonomics for a striker. The palette is also helpful when working with children.

Of course this would be a relatively luxurious set up. The swage block could be replaced with a big block of scrap metal mounted in the proper height. It is of course not as fancy as a swage block, but cheaper and will serve until better equipment can be acquired.

Suggested Height For Second Anvil To Be Used With a Striker Or Tooling

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

February 19 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 .

Please bring a dish to share.