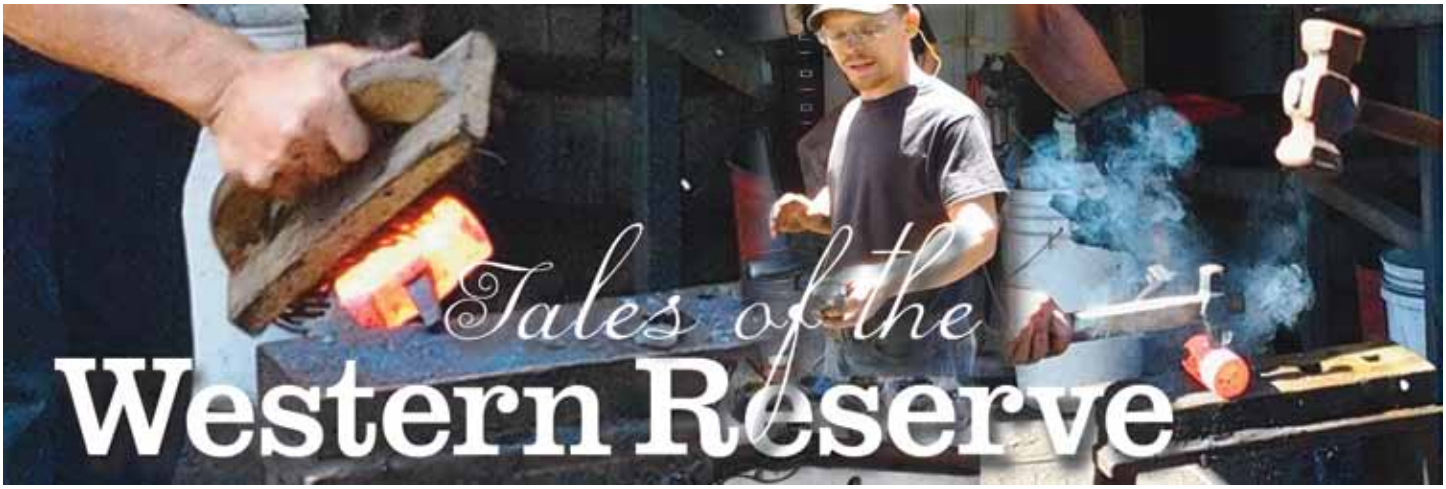

WRABA

Western Reserve Artist Blacksmith Association

IN THIS ISSUE:

Club Officers 2
Events & etc 3
President's Letter 4
Club Project 4
Amish Knife Maker 5
Brad Webber Hammer-In 6,7
WRABA Conference 8-11
Conference Details 10
Classifieds 11

UPCOMING EVENTS:

September 9
Work day for tool maintenance.

September 16
WRABA Board meeting..

September 22, 23, 25
SOFA Quadstate,

October 7
Hammer-in at Don Pfaff's

October TBA
WRABA Board meeting. way to help the club and maintain its vitality!

November TBA
WRABA hammer-in Bruce Hale

December TBA
V

Dave Custer holds the punch and hammer billet as John Klingler supplies the muscle with an 8-pound sledge made by Dave.

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Board meetings are held quarterly or as need requires.

The Western Reserve Artist Blacksmith Association (WRABA) is a non-profit, educational organization, an affiliate of the Artist Blacksmith Association Of North America (ABANA).

We are dedicated to preserving and promoting the art and craft of hand forging iron. WRABA, our group of blacksmiths meet monthly to share information and techniques at the smithy of one of its' members or at Century Village in Burton, Ohio.

A note from the editor:

My appologies for the lateness of this issue. It was a very frustrating process trying to finish it this time. I will be far more inclined in the future to ask some of you to write an article. Your help will be appreciated.

Newsletter deadlines for articles are supposed to be: March 15, June 15, Sept. 15, Dec. 15th (these dates are in the month prior to the issue that is supposed to come out on the 1st).

WRABA Events +

August 13
WRABA Picnic at Burton Century Village

August 19
PAABA hosts Dave Custer

August 20

Beginner blacksmith class at Burton, by Jason Nass

September 9
Work day for tool maintenance.

September 16
WRABA Board meeting, at 3pm Burton Forge Building

September 22, 23, 25
SOFA Quadstate, Miami County Fairgrounds

October 7
Hammer-in at Don Pfaff's Saturday October 7: (bring a dish to share plus an item for the iron in the hat sale)
28151 Township Line Road (Mountz Rd.), East Rochester Ohio 44625

November 11
WRABA hammer-in host: Bruce Hale
JayMac Body & Frame
1801 Ivydale Ave SW
Canton Ohio 44706
brucehale@gmail.com

November 18
WRABA Board meeting. All members are welcome. (But only the board can vote) Get involved, get on a committee or offer to volunteer. This is a great way to help the club and maintain its vitality!

December 9 Saturday
WRABA Christmas party. Burton Church Basement. Bring a dish to share and items for the gift exchange and auction

Open Forge Summer at Burton 5:00 pm to 9:00 pm Tuesdays

This is one of the main reasons to join WRABA. If you need a forge to use, help or advice with a project, or just to learn something—come to one of the open forges all summer long from **5:00 pm to 9:00 pm** at the Burton Century Village, Ohio 44021

Volunteer to help out!

Beginning Blacksmithing Class

Hosted by Jason Nass, Blacksmith

Sunday, August 20 at 9 AM - 5 PM

Century Village Museum, 14653 E Park St.,, Burton, Ohio 44021

This beginning level class will include lecture, demonstration, and hands-on instruction in the fundamentals of blacksmithing. Topics will include: proper fire maintenance, hammer technique and control, tool usages, and an introductory examination of the 7 basic processes of hand forging steel. All materials and tools will be provided. Lunch will NOT be provided, so please remember to pack one. Class fee is $30 per student, ($10 going to support WRABA).

Ediquette at Our Meetings

The open forge is a great place to gather, make friends and learn the craft. It is also for those who do not always have access to such facilities. So when you do show up, please contribute to cover the cost of coal, grinding belts and maintenance.

For our hammer-ins, remember to bring a pot luck dish to share at lunchtime. We have had a couple of sparsely provisioned events this year. Also bring something for Iron-in-the-hat. This can be something you made, tools, supplies or other desirables the membership would like to bid on. Thus money is raised to help keep the club running.

President's Letter

It has been a pretty good summer. We had a work day to prepare for our conference. Dave Custer did a wonderful job at the WRABA Conference on June 23, 24 & 25. Thursday & Friday he taught classes on making punches and chisels. Saturday he made a cross peen hammer, and a set of tongs. Sunday he showed us how to make a nifty little key chain fob. We learned quite a lot.

The club is growing in ways we would not have predicted few years ago. Melissa Paul is now the new club secretary and is working on an updated membership form. Jason Nass is Communications Officer. Rob Volanski is heading up our Facebook pages: public and for members only. We also now have Instagram and Twitter accounts. Mike Caslow is the new club librarian. He is taking inventory of materials at present.

Our board meetings happen every quarter and any member may attend, though only board members can vote. We need ideas and input on fund-raisers, shows, and community outreach. We also have a scholarship fund available.

Our weekly open forge in Burton has been very popular. But we need more experienced members to volunteer as Doc and Grant are getting burned out. All help is welcome.

We will have a presence at each of the Burton Century Village events, so keep your eye on their schedule.

SOFA Quad State is coming up and they have a new website.

One last thing: bring a dish to share plus an item for the iron in the hat. A couple hammer-ins this year have been sparse on food offerings.

See you at our events and keep that hammer swinging,

Ralph N.

Club Project: Spring Vises

by Bill Fisher and James Hyde

On March 25 at 9:00am, a vise making class was held at the J.F. Martt Co. in Sebring, Ohio. WRABA had a great turnout with 20 workers and our host was member, Randy Barker.

With approximately 12 precut steel pieces, a spring and a handful of fasteners for each unit, we began to visualize and learn the task ahead of us. Working in mixed teams, we all pitched in and began to fabricate foot operated spring return vises.

With great guidance from Randy, we set up and organized the class into a sequential production line. We had one team cutting, grinding and deburring; another team dedicated to drilling and thread tapping; a separate work station for tack welding and another for punching out the foot lever pivot hole with the ironworker. Three additional teams formed to fit the internal springs, connect up the foot levers, weld the jaws and weld on the foot pads.

Each vise was rigorously tested for quality by Rob Volanski before being sent to the painting team. A few units along the way needed minor adjustments and we fed these vises back into the production line for spring adjustments and necessary corrections.

When lunch time came the production line was temporarily stopped and pizza was ordered from the local pizza shop down the street. It was delicious.

After lunch, team activity resumed with a little more standing, talking and watching as we pushed to finish up the last of the vises. All things were moving along smoothly until we discovered late in the afternoon that we were short one foot lever. The ironworker team scrambled and in no time the missing foot lever was made and installed.

Our precision finishing team was staffed by Bob Rupert and Joe Moravec. They started off slow but performed well under pressure. They improvised by making a height adjustable painting rack using the tines of a Toyota forklift. All the finished vises coming off the production line hung from the forklift to receive a quality primer and grey finish coat. By 3:4:45pm all that remained was to step back, look at our accomplishment and wait for the paint to dry.

We finished out the day successfully making 17 spring vises. A great work day was had by all.

Amish Knife Maker

Story & Photos by Ralph Bacon

Saturday April 15 at Burton we were privileged to see Chris Burkholder demonstrate how he makes knives. An Amishman of few words, he seldom spoke while working, but answered any question asked.

Chris uses spring steal for his blades, purchased in Middlefield at the carriage supply. He sort of just showed us how to heat the metal, beat on it this way, then that, now and then comparing it to a paper pattern.

He first heat the tip and drew it out to a point. If the blade started to bend in the process, he'd simply get it to heat and tap it straight. Another heat to chamfer the cutting edge and tap it straight. Satisfied with its profile, he used the hot cut hardie tool to trim the excess.

Next step was to upset and draw out the tang. Once it was cool enough to handle, the edges were ground just shy of sharp. He held the blade over the coal to temper it to a straw yellow.

Mixing up some 5-minute epoxy, Chris sent the tang home into a piece of deer bone he had cut, charred and hollowed out. He pointed out that part of the trick was to mix just enough, since the excess pushed out by the tang makes clean-up a challenge. Once the epoxy set, Chris put a crucible in the heat to melt lead. He wrapped a strip of tin around the handle and poured in the molten lead to make a ferrule (So much for health standards). I imagine lead-free solder would serve the same purpose.

Since Mr. Burkholder finished early, Jason Nass and Grant Michener showed us a way to make a nail set. Jason found a chunk of round stock about 1-1/2-inch diameter to start with. They had to shape one end to a round dome and draw out the handle end quite a bit. I'd include photos but I can't access them and I have to get this issue to print! -rb

Hammer-In at Brad Weber's

Story & Photos by Ralph Bacon

It was a beautiful spring day in east central Ohio. Brad Weber's home and forge provided a splendid get-together. There were over three dozen folks there from WRABA and PAABA.

Jason Nass demonstrated making a bottle opener with an ibis head design. He started with flat stock and drew out the tip by resting it on the anvil, leaving the rest hanging. Then he hung it over the edge of the anvil at about 45° to create the head (almost as if he were making a set of tongs—see photos above right). Jason refined the head, using a punch for the eye. The bill required turning the piece 45° to apply a chamfer to a diamond cross section. The beak was given its required bend, then the neck was narrowed somewhat, head bent in typical ibis posture. The opener end was punched through and enlarged with a drift. Final step is a round punch to make the catch that lifts the bottle cap.

Roy Troutman was conned into making a horseshoe, which he did with expert ease.

There was also some great work on display by Chuck Hughes (see on page 12) as well as a great variety of historical items brought by Doug Plance, black powder enthusiast. His story is on the next page, borrowed from Chris Holt of PAABA

Doug Plance

Story by Chris Holt, Photos by Ralph Bacon

The following is an excerpt from Chris Holt's article in the spring newsletter from PAABA, in which you can read the entire thing. -rb

During the Revolutionary War, our ports were blockaded and that made securing powder and lead more difficult. Black powder and lead [were] always a premium. Most of these supplies were imported. In central Pennsylvania, Fort Roberdeau was established to mine and smelt lead ore. It was cast in ingots and put on pack horses that took it to the Juniata River, were it was shipped east. Powder can be made by combining potassium nitrate, charcoal, sulphur and stale urine. Patching material was often discarded linen material, which is a product of the flax plant. In preparing the flax plant fibers for spinning into thread, a by-product called "towe" is produced. The towe is used to clean the fouled black powder from the rifle barrels, and then is reused as an aid in fire starting.

In the 1700's, the longrifles were completely hand made. The barrels were hand forged and reamed and rifled by hand. The locks were forged and filed by hand. The brass and iron hardware were cast and forged by hand. The stocks were carved by hand. All the early guns used flintlock ignition. That is to say a piece of flint strikes a hardened frizzen sending a shower of sparks into the priming pan in turn igniting the powder charge in the barrel. By the end of the 1700's there were smiths specializing in barrel, lock, and hardware manufacturing. During this period, a gun could be assembled from components losing much of the art form of the earlier guns. By the 1820's the percussion lock had been perfected. This lock used a foil cap with fulminate of mercury to ignite the charge in the barrel.

Pittsburgh was a stopping off point for people heading west. There were a great many rifle makers in the western Pennsylvania area and there were rifle factories being developed as well.

Doug Plance was on hand with a wonderful display. he had of black powder rifles–flintlocks, cap & ball, and associated tools and supplies. He freely shared his knowledge and history on the subject. We even got to make ball shot with his molds and lead pot. Some of this stuff is a good example of what the Lewis & Clark expedition would have used.

WRABA Conference with Dave Custer

By Ralph Bacon

Dave Custer came up from Kentucky on the Wednesday before the WRABA Conference, loaded with all manner of tools for sale, for students to use, and for his own use in teaching and demonstrating. Also on board was a power hammer made by Dave and purchased by Jason Nass.

Thursday and Friday were classes on making punches and chisels. He prefers using 5/8-inch round stock 5160 steel because it is durable and won't chip. Dave pointed out that coil springs tend to be 5160.

To make a punch, Dave's first blows struck at a steep angle, flipping and rotating between blows with the flat of the hammer. He works the tip to a 1/4-inch square. From that point it is easy to make it a diamond. This method yields these shapes at whatever size you need (of course triangles need coaxing on three sides only). For an eye shaped punch, you can round off the shoulders of a diamond, put it in the vise and use a center punch to the face of the diamond for the eye detail.

We made all sorts of hot- and cold-cutting chisels, fullers of various sizes, and punches for making holes in hot iron or for making designs and patterns into the same.

He had a nifty method of drawing out iron: he'd hang it over the edge of the anvil a half-inch or so, hitting with half the hammer face and draw it out a little from there up, leaving a glob on the end. Since the glob was still hot he could then draw it out to a point.

Tips for making chisel tools:

- Rotate and hit round all 360° (wrist rotates at a natural 90°)
- Heat treat tools for cold steel work, don't bother to for hot work tools
- Quench in oil rather than water

Tempering:

- Heat end to non-magnetic
- Quench in oil no more than 2 inches & move it around
- Grind away some of the face so you can see the tip turn color
- When color is done running, quench again and set on floor to cool

Above: Hammers, tongs and punches made by Dave Custer for sale.

- You can also heat to 400° for 2 hours for tempering

This process allows hardened tool edges with softer striking end that is easier on your hammers.

Side and top view of a tong blank.

Mr. Custer also makes a lot of tongs and hammers. For tongs he likes to use the same 5160. He works in progression, the current steps setting up for the next steps. His first tong piece was a great display of using hammer and all parts of the anvil to best advantage. Then the trick is to make another half exactly like the first one—a twin.

Hammers. Dave makes some cool looking hammers. He numbers them sequentially in order of completion.

For his demonstration, he started with a billet of 5160 steel 4 inches long and 1-7/8 inches in diameter, he measures to mark the center on each side and taps it with a center punch. Then when it gets up to heat,

Top: The billet rests in the cup swage waiting for the top swage. Above: A red hot billet rests on the 'monkey swages', which keeps the troughs healthy and supports the piece in a way that prevents any malformation.

it's easier to start with a punch. Dave used a bunch of volunteer strikers to get the punch through the billet. After several heats, blows and rotations and doing so from alternated sides of the billet, a slug was born from the center.

The billet gets its cheeks tweaked.

This hole allows for a drift (a rectangle with round corners) to be inserted in order to work the hammer head to completion. It is important to work the drift from both sides to assure all-round consistency inside and out.

Dave has a cup swage for rounding out a hammer face, again with the help of a striker. He also uses a pair of matched bottom swages welded to flat stock especially to drive the drift and support the hammer head.

At this point he marks the trough lines to outline the cheeks. His hammers have a pronounced "cheek"—that part that hugs the wood handle—and trough lines that seperate the cheeks from the faces.

Using a big top and bottom swage and a striker, the cheeks get shaped and flattened-in around the drift, first in a series of hits in line with the hammer head, then 90° to that in line with the hammer handle. Hit, move over, hit, move over, reheat, repeat. This process also provides Dave's stylish texture on the sides of the hammer. Be aware that a space appears around the tip of the drift because it has been worked from both sides of the hammer. Therefore, the cheeks must be worked from the center away from the tip of the drift, which acts as an anvil.

The next step is planishing the trough lines. Using the same top & bottom swage, he enlarges and deepens the previously marked lines, rotating at 45° to include the corners as well. Tap lightly at first, then with a firmer blow, rotate, hit, rotate again.

Dave stresses the importance of learning to do your punching and drifting by eye. It will speed up your production and there is always loss of iron from scaling, the punched out plug and finishing work.

At this point, you have the choice of adding a peen or keeping a flat face. For the demo, Dave chose to make a cross peen. In the interest of brevity, it required a lot of blows, drawing out the iron, a lot more heat and hits using the swages. (It ended up being a

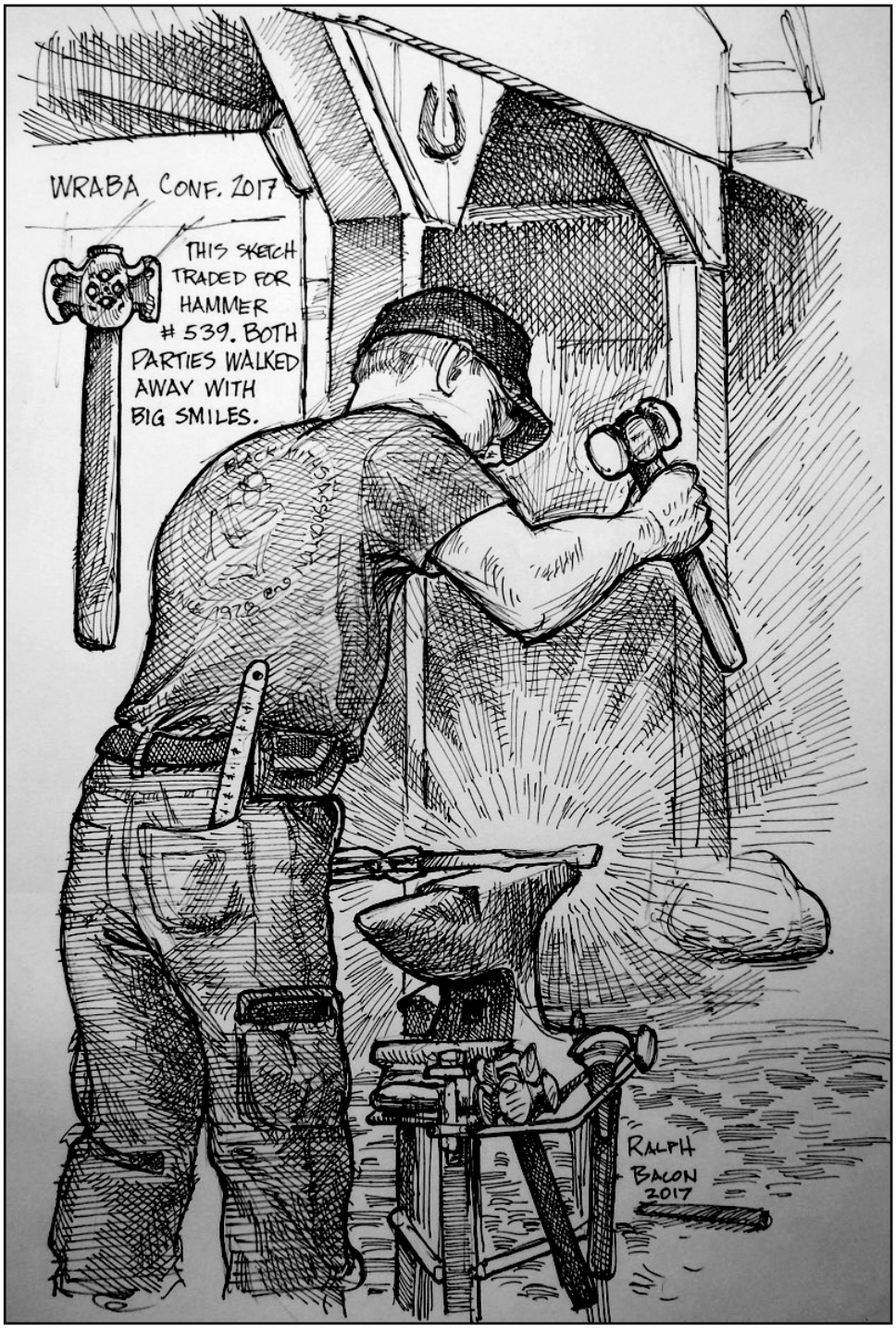
Top & middle: Dave and Jason working on the peen.

Above, tempering process: You can see the head starting to go to a straw color. The face of the hammer had to be quenched first because of the length of the peen, which took a little longer.

tad long, but Roy Troutman bought it anyway later on at iron-in-the-hat.)

By now the basic shape of the hammer head is done and it is time to grind. Dave grinds the round face east to west, north to south, rotates a bit with 30-40 grit to the get scale off. He uses 60 grit for roughing out each face. Once that is done, the next step is heat treating.

Heat to red cherry (just at non-magnetic) and quench in water to harden. To temper, heat up to 300-400°, but not as high as dark cherry. When in the fire, flip to get each face hot, quench in water, actively swishing it around—the scale will pop off. Then begin to finish after hardening with 120 grit on the wheel, and proceed to slack wheel. Do this on both faces of the hammer.



My sketch of Dave on Sunday. I had it framed so he can hang it at his house, and I use the new hammer. His tongs are nice to use, also.

To temper:

Heat up two drifts. While one is still in the heat, place the other into the eye of the hammer, then into other side in order to spread the heat evenly. Take turns with drifts until you start to see results. Look for straw color at the faces. For the first one that turns, quench in oil. Blue on the cheeks is fine. Once tempering is done, quick quench in water then let cool. Final weight of this hammer head was 2 pounds, 6 ounces.

Fitting the handle:

Dave uses ash or hickory for his handles. Pound in the handle and mark it so that you can replace it the same way it went in. Tap off the head to reveal black marks—these must be ground off with 120 grit to fit. Cut a slot with a hacksaw a little deeper than the socket and parallel with the length of the hammer head. Put the handle back in and tap in the wooden wedge, then trim off excess wood. Finally, center the steel wedge across the wood wedge and pound it home!

Dave likes to torch his handles. It protects, provides a good finish and look for his hammers.

Dave also showed us how he makes a great little key fob, but in the interest of actually getting this issue to print, I will save that for the next issue.

Thank you Dave Custer for a great presentation at our 2017 WRABA Conference in Burton, Ohio!

Tips:

• When giving a demonstration, stroke the wire brush towards you to keep the hot stuff off of your audience.

• The more heats, the more scale, and therefore more weight is lost.

• Grind without gloves so you can feel if the metal gets too hot.

• Use a scrap piece of belt to round out the bottom edge of the hammer eye. This prevents the wood handle getting out or damaged.

• When grinding, brace yourself in order to steady the contact.

• An angle grinder with flap wheels works well if you do not have a belt grinder.

• If grinding and shaping a hammer handle, use a new belt.

• Dave's source for tool handles is Nick Thrane of Thrane Ax and Saw at http://thraneaxeandsawco.com/

Jason Nass admires his new power hammer made by Dave Custer, who brought it up with him from Kentucky. It is a sweet reliable design.

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