N.J.B.A. Newsletter

NJBA Volume 21, Issue 1 10 Aug. 2017

If you haven't paid your 2017-2018 dues, this may be your last issue! Please use the ballot & renewal form on the back to vote and pay dues.

Upcoming Events

Remember most of our meets have an "Iron in the Hat" drawing, so be sure to bring a contribution. ***More details on later pages.***

Sun., Sep. 17. Red Mill Picnic. Our annual picnic and tailgate sale at the Red Mill, Clinton, NJ. (See next newsletter for more details.)

Oct or Nov? Anvil-Repair Workshop. NJBA is planning to hold another anvil-repair workshop. See p. 3.

Sunday, Dec. 3, Holiday Party. Hold the date. More details in next newsletter.

Official NJBA Address
NJBA, P.O. Box 224
Farmingdale, NJ 07727-9998

NJBA's Website:
http://www.njblacksmiths.org

NJBA's Facebook Page:
https://www.facebook.com/njblacksmiths/

NJBA's Private Yahoo Group…
Send an email to crankybellows@gmail.com , including your name e-mail address, and an invitation will be sent to you.

NJBA's IForgeIron subforum:
Scroll down at https://www.iforgeiron.com/.

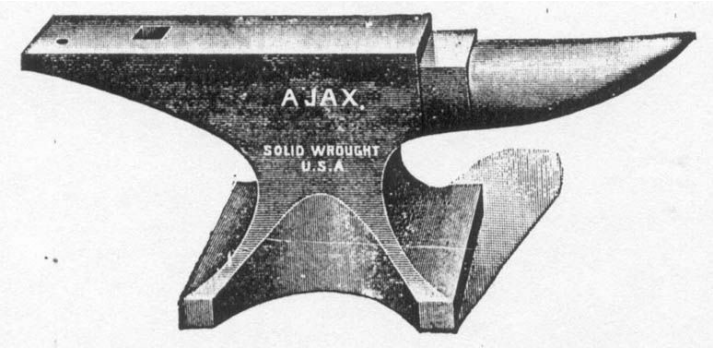
The Newsletter is at:
njblacksmiths.org/archive/index.htm or use the link on the NJBA web site for the newsletter.

NJBA Board of Directors

Directors are not listed on line

We like to thank those who joined NJBA as Business Members ($40 dues):

Marshall Bienstock



Anvil-repair Workshop

If we get enough interest, we will be holding another of our famous participatory anvil-repair workshops in October or November. The price per anvil will be $150, but additional charges may be assessed, depending upon the size and condition of the anvil.

Contact Al Mottram at crankybellows [at] gmail [dot] com if you are interested. Please provide high resolution photos of your anvil edges, top, each side and bottom are also appreciated in order for our experts to evaluate the scope of work.

As for all NJBA workshops, this one is open only to adult NJBA members, but anyone can join when registering for the event.

Report on the June 3 Picnic

The June 3 picnic was a partial success. It rained till about noon, but a fourteen intrepid folks showed up, despite the rain, to picnic and to try out our lightweight forges.

Open Forge Meets

Adult NJBA members are welcome to attend our open forge meets. Adult nonmembers are invited to try your hands one time. NJBA requires you to join before continuing. The application form is on the last page of this newsletter.

Monday Night Open Forge, Howell, NJ

Marshall Bienstock hosts an open forge meet every Monday evening at 7 PM, except major holidays. (Please call ahead on holidays to make sure: 732-221-3015.)

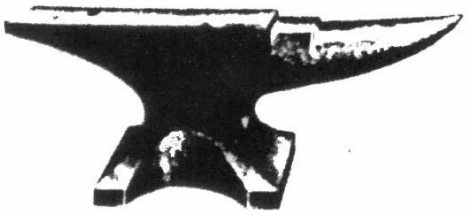
Sunday Open Forge, Smithtown, LI, NY

From the beginning of November through the end of April, Ron Grabowski will open his forge in Smithtown, LI, NY, to NJBA members. Please call ahead to confirm and get directions: 631-265-1564. Ronsforge @aol.com

Hightlights of the NJBA Board Meeting

On Monday, July 31, 2017, six NJBA Directors met at Marshall Bienstock's shop for the NJBA Board meeting: Ryan Amos, Marshall Bienstock, Al Mottram, Larry Brown, Bruce Freeman, Ben Suhaka. The highlights of the meeting are reported below.

- Bruce reported that our coal supply is now adequate for upcoming demonstrations.
- The Board decided to reissue NJBA heavyweight pocket T-shirts in sizes ranging from medium to XXXL. The designs will be the anvil on the pocket and the leg vise on the back as we have used in the past. The color will be dark blue. A few of the directors will be looking into sourcing this order.
- Bruce reported that all the lightweight equipment is finished and ready to use and that the toolboxes are mostly complete.
- Al reported on his investigations of whether other ABANA affiliates admit minors to hands-on events: Some do, some don't.
  - ◊ The Board voted to retain the policy, implemented last December, of closing to minors all NJBA hands-on events, including attendance at open forge meetings, for reasons of liability,
  - ◊ NJBA will remain open to assisting youth groups (e.g., schools, scouts) who wish to sponsor such events, by providing our equipment and expertise at their venues, under their rules and their insurance.
- The Board election is in progress. Few renewals or ballots have been received so far. Bruce has sent an email reminder.
- Bruce reported that we expect coverage for all seven days of the Middlesex Co. Fair.
- Al reports no response yet to the announcement of the anvil-repair workshop, but it will remain in the calendar
  - ◊ If we hold this workshop, the date would be in Oct. or Nov.
  - ◊ Tentatively, the Board set the price to $150, but with extra cost if special rod or wire is needed (as nickel prices have skyrocketed).
- Al read to the Board an email from Director Dan O'Sullivan with an idea for making anvils from heavyweight crane rail. (Dan has the rail.)
  - ◊ There was considerable interest in such a project. Marshall and Larry expressed willingness to do the oxygen cutting.
  - ◊ The Board raised several questions, and Bruce has since emailed Dan with these questions.
- Ryan reports that the paperwork is complete for a blacksmithing club at Princeton U., but no members have yet been recruited.
- The next Board meeting was set for Monday, Oct. 13, at 7:30 PM in Marshall's shop. NJBA members are welcome to attend Board meetings, especially if they have ideas for activities, etc.



Anvil for sale
210 pound, "American,"
$550 obo.
Contact Al Mottram,
amottram@gmail.com

The Old Millstone Forge
by Ben Suhaka

The Old Millstone Forge is believed to have been one of the oldest continuously operating blacksmith shops in the country up until the death of the last blacksmith, Mr. Edward Wyckoff, in 1959. The earliest deed that specifically mentions the transfer of the shop is dated May 29, 1837. There is indirect evidence that the shop, at the present location as early as 1768. A newspaper article dated March 28 describes the sale of a house, land, and blacksmith shop at the Somerset County Courthouse. At this time Millstone was called Somerset Courthouse and was the county seat of Somerset County. There is mention of a blacksmith shop in the area as early as 1691.

After Mr. Wyckoff died, the Old Millstone Forge Association was formed to acquire and maintain the shop. The building was restored from 1960 to 1966 and has been open to the public since then as a museum. The building is unusual in that it has two storeys; most blacksmith shops have only one storey. The lower storey is made of brick while the upper is of timber frame construction. Much of the brick and timber work dates to the early 1800's. The plank floor was added for the convenience of visitors and was not part of the original shop. Some years ago a grant was awarded to the shop for preservation and the wood floor was replaced with concrete.

Equipment on display on the ground floor of the shop show many years of the blacksmith trade. Open forge and bellows are typical of an early blacksmith shop. The hand cranked blower that is being used is a replacement for the bellows, it being easier to control and without leather to wear out. The anvils next to the forge are typical of the 18th century. On the floor nearby are two older and a rare big anvil, which looks like an anchor and eight blocks shaped and anvil. The last two are believed to have been brought from Holland in the late 1600's. There are a number of tools in the shop, some fashioned by the Smith, some by machine shops.

Besides the hammers, of the basic tools are tongs to hold hot pieces, punches for making holes, and swages which are similar to patterns, and are used to in part various shapes to the work-piece. There are numerous pieces of large machines representing the trade of the 1900's. One such piece is a tire shrinker used to restore the iron tires used on wagon wheels. At one time wagon repair was an important component of blacksmithing.

The techniques on display at the museum are little changed from those used over the course of centuries. The hearth and the tools are the same type as traditional. And while some tools are modern, the brick forge is old. The only real change from colonial times would be the use of the hand crank blower instead of the leather bellows. The bellows there are original but are not in usable condition.

The museum is owned and operated by the Old Millstone Forge Association, which is entirely made up of volunteers. The Association pays the expenses for the museum and makes sure volunteers are on hand to run demonstrations on Sunday afternoon in season. The Association always welcomes new members. All funds for operating the museum come from visitor donations. The Association is a 501 C3 tax exempt organization, so your contributions are tax deductible. Donations can be made at the museum or check made out to Old Millstone Forge Association and can be mailed to Old Millstone Forge Association, North River Street, Somerset, NJ 08873.

Report on Union Forge Heritage Association's "Forged with Fire" Show
by Ryan Amos

I arrived at the Solitude Heritage Museum at around 11AM on Saturday, May 20, and began setting up for the day. After 30 minutes of set-up, and 15 minutes of cookie raids, I got to work demonstrating.

The stock I had was far too large (around 6' length!), so first I demonstrated the process of hot cutting steel down to size. From there I began churning out nails. I also made a demonstration leaf, but the stem began to crack. Normally I would have scrapped it, but the attendees seemed interested in what goes wrong too. I continued to work the leaf to show how the crack spreads. I also made a replacement key for the vise, since the original was bent, untapered, and had fallen out.

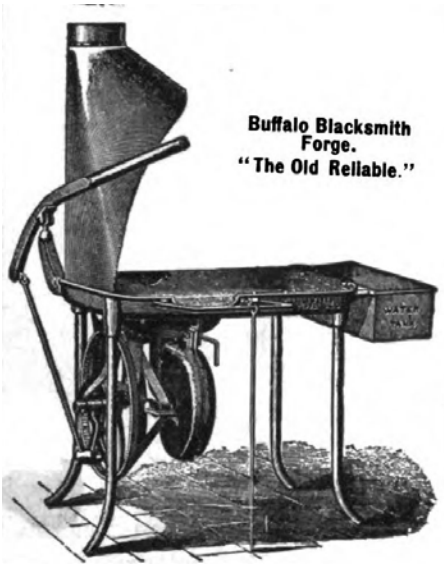
We had many visitors to our tent, ranging from people who have never seen live forging before, to people who have been hammering before I built my first forge.

An hour or two into the demonstration, Tony Fresolone, NJBA member, dropped by to observe. Pretty soon, he was demonstrating some knife-making. Tony put out several knives in various states of completion for visitors to check out, and hammered out an

example knife. After he completed his knife, I gave one a swing too.

Before we knew it, 5 o'clock rolled around. I mentioned that our demonstrator for Walnford the following day had gotten sick, and Tony enthusiastically offered to take his place. We transferred the forging equipment to his hands as we packed up the station.

[As I mentioned in the last newsletter, it was I who had got sick and couldn't make it to Walnford. Both I and the Walnford staff were very grateful that Tony stepped up and substituted for me. - Bruce Freeman]



Controlled Hand Forging Lesson 17

Drawing Out

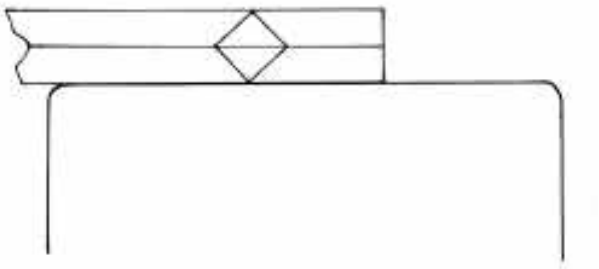
by Dan Nauman
Drawings by Tom Latané
Lesson #17: Forging a square bar into a round bar.

Definition: Reducing the cross-section of a bar
Intent: The student will learn to take a bar with a square cross section, and forge it into a bar with a round cross section, maintaining a consistent diameter throughout the length of the bar.
Tools: Basic tools, 1/2" "V" tongs.
Material: 1/2" square x 6". (One half inch square x six inches.)

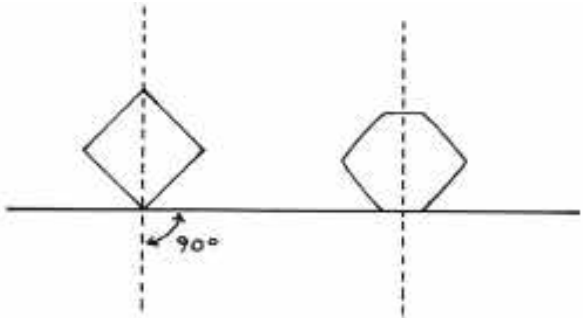
Step One

Heat 4" of the length of the bar to a bright yellow heat.
Note: Do not leave your tongs in the fire when heating the bar. Doing so could heat the tong jaws to a malleable temperature, and will cause the jaws to distort when pressure is applied by grasping the bar.
Your goal in this first step is to form the bar into an octagon.
Place the hot end of the bar, with one corner level on the anvil face. Make sure the opposing corner is directly above; not leaning to the right or to the left. (See drawing #1.)
Note: This initial position of the bar is important, as you will be making the square bar into a perfect octagon before forging it round. If the corners of the bar are not positioned correctly on this first step, the bar will twist, and you will get more of an oval cross section than a round cross section later in the process.

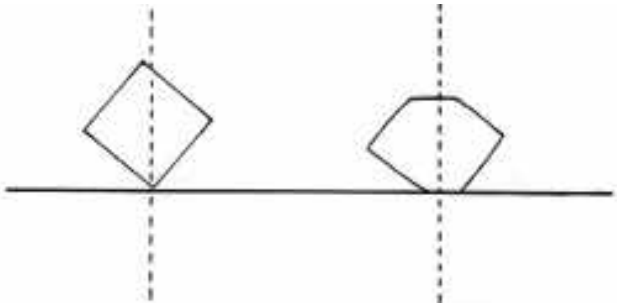
The end of the bar should be placed at the midpoint of the anvil face. Begin striking the end of the bar, with the hammer face parallel to the anvil's face. The facet you forge should be about 3/16"- 7/32".
Note: Do not chase the bar with the hammer. In other words, after each blow, feed the bar forward about half the width of your hammer's face. The hammer blows should remain concentrated in the



1a. The bar on the diamond, held level with the anvil face, resting on one corner.



1b. When the bar is held correctly, with the line between the top and bottom corners perpendicular to the anvil face, the resulting facets will be centered on that line.



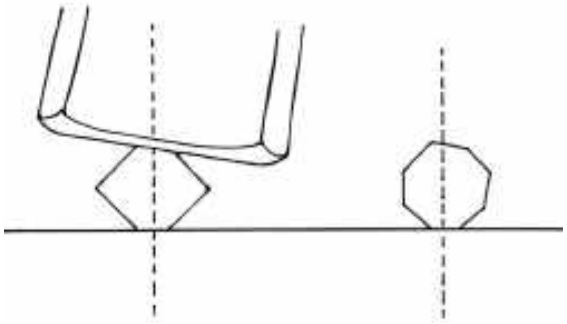
1c. If the bar is not held with the top and bottom corners lined up perpendicular to the anvil face, the first few hammer blows will cause the bar to twist and the resulting facets will be skewed.

same area of the anvil as your first blow. Since the position of the bar is moving, and the hammer direction is constant, you will find it easier to maintain control of the blows.

After each blow of the hammer, assess the impression to see if your hammer is maintaining a nice flat facet. If the previous blow shows a mark from the edge of your hammer, or a facet tendency to the right or to the left, adjust your hammer to make the correction. A proficient smith constantly assesses every blow, and adjusts the hammer head, the bar position, or both without breaking the rhythm of his/her blows.

Be attentive to maintain a constant material thickness along the length of the area you are forging.

Note: Right handed smiths will have a tendency to forge the facets with a lean to the right, and visa versa for left hand smiths. (See drawing #2.)

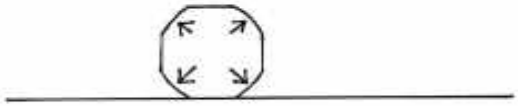


2. The result of the hammer blow tilted to one side.

Continue forging down the length of the heated bar. Then rotate the bar 90 degrees (right or left) to forge down another corner the full heated length of the bar. You have now forged four square corners of the square bar into facets.

Forging dynamics: The anvil is also flattening the opposing corner. Note that the width of that facet will be narrower, and will need to be dressed with the hammer.

The metal itself is acting as a shock absorber. The more stock between the anvil and hammer, the less force applied by the anvil Also, the original four facets will begin to slightly bulge. (See drawing #3.) This is caused by the force of the hammer blows, and since the bottom of the bar is supported by the anvil, the metal will seek the path of least resistance. These facets will need to be lightly dressed with the hammer to have eight uniform and flat facets.



3. The remnants of the four original faces of the bar are shown bulged by the displacement of the metal as the corners are forged.

These dynamics will be more apparent when working larger bar stock. The 1/2" bar that you are forging in this lesson may show little visible difference in facet width or bulging.

Rotate the bar 90 degrees in the same direction as you did earlier. This facet was forged by the anvil face, and will need to be lightly dressed, as will the next successive facet at 90 degrees.

As you are forging these facets, be aware of the width of the original four facets, as they are now becoming narrower, and have slightly bulged. The heat in the bar has diminished by this point. If the bar still has some dull orange color, begin to dress the all facets to a uniform width, with lighter blows. If the bar is more red than orange, reheat to a medium orange, and dress all the facets.

Note: Do not make the mistake of trying to dress the facets at a high heat. The facets of the bar are difficult to see when the bar is heated brighter than a medium orange. If the bar is forged, even though the facets cannot be readily seen, the result is a bar with mis-aligned facets, twisted facets, or corners

that have been nicked.

As the bar cools, and the facets and their respective corners are becoming uniform, lighter blows may be used to smooth the eight facets, and to sharpen the eight corners. This is often referred to as a "finishing heat."

Step Two

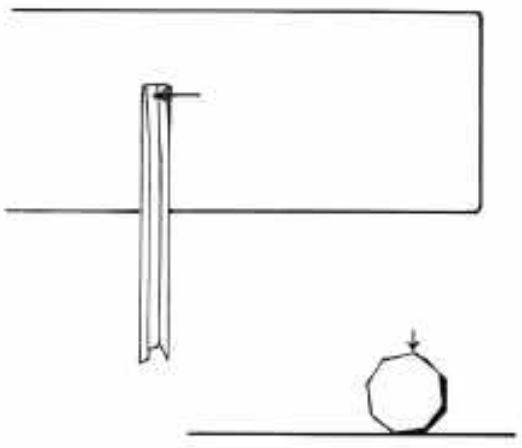
Turn the bar around, and heat four inches to a bright yellow heat. You will be heating the bar partially into where you have already forged. You do this so that the area you wish to forge remains hot enough to forge the rest of the bar into an octagon.

Proceed to forge the end of the bar as in step one, and gradually work towards the middle of the bar until the facets blend into one another. Be careful to maintain the bar level on the anvil, and to keep your hammer blows parallel to the anvil face.

Note: It is at this point you will find out if you have a tendency to forge with your hammer head to the right or to the left. When you forge the facet on the opposing side of the bar, the facets should meet on the same plane. If there appears to be a twist at the point where your facets meet, you are probably not forging with the hammer head parallel to the anvil face, or you are not holding the square corners of the bar perpendicular to the anvil face. The correction is a delicate matter. With lighter blows, dress the errant facet to the correct plane by altering the position of your hammer before proceeding to forge the succeeding facets.

If there is a constant twist throughout the bar, again this is a result of a right or left forging tendency. It could also indicate that you are holding the bar with the corners out of a vertical line. This twist is difficult to correct.

To correct a slight twist, reheat the twisted bar to a medium orange. Place a facet flat on the anvil face, with the middle of the bar at the near side of the anvil. (See drawing #4.) With light blows, strike the far end of the bar with the hammer face parallel to the anvil face.



4. Correction of a slight twist may be accomplished by light flat hammer blows to the high corner at the end of the bar while the middle of the bar rests with a facet flat on the near side of the anvil.

Proceed with your blows to the middle of the bar. Repeat this on all eight facets, or until the twist has been removed. Turn the bar around and repeat if necessary. The danger in this corrective action is that the bar's cross-section may be reduced undersize, and could require upsetting to regain the proper thickness. A radically twisted bar (more than 1/8 revolution) ore than likely will prove impossible to correct in this manner.

Of course, the bar could be heated to a dull orange, then placed in the vise and twisted to remove the twist. It is the aim of these lessons to teach the student to use the basic tools to increase hammer control, and less reliance on peripheral tools. The best way to avoid the twist is to be careful and forge square to the anvil, and also to hold the steel in the proper position.

Step Three

You should now have a uniform octagon.

Check the bar thickness on all sides with an outside caliper. The facets should all be uniform in width, and the corners sharp.

The bar should also be straight. Check with a straight edge. The bar should also be 6 5/8" long, and the width across the facets between 17/32" to 9/16".

Forging Dynamics: Note that the cross section of the bar appears to have grown in size. The measurement across the diamond of the parent square bar is just under 11/16". What has happened is that the metal in the corners has been redistributed by forging, and in actuality, the cross section has been reduced, and the length of the bar has increased.

You may also find that the ends of the bar are thinner than in the middle. This is because there is less resistance at the ends of the bar, so the bar stretches easier at these points.

If your bar's ends are thinner, you will need to upset them and redress the facets to obtain a uniform cross section.

Step Four

You are now ready to forge the bar into a round cross section. The bar is longer as you have drawn out the bar to make the octagon. Heat four inches of the bar to a medium orange. Place the end of the bar in the middle of the anvil face with the bar lying level on one corner. With quick light blows, proceed to forge down the length of the hot bar as you did in Step One. Rapidly repeat on all corners. (See drawing #5)

When you have knocked all the corners down, place the end of the bar back at the center of the anvil, and begin to rock the bar back and forth 180 degrees. Then with light rapid blows, begin to refine the bar into a round cross section. Your goal in this step is to erase any sharp edges and facets. Aim the hammer at any sharp edges that remain on the bar. If you continually strike the facets, they will increase in width and the bar will not be forged to round. Work the bar about one width of the hammer's face until the bar is round (no facets or sharp edges.) Then feed the bar forward, and repeat the process, consecutively working only the width of the hammer's face at a time. Reheat to medium orange if necessary to complete this side of the bar. Rotate the bar to the radius that faced the anvil, and proceed with the rocking motion and continue refining to round.

5. Sixteen rough facets are created by forging the eight corners of the octagon. Light rapid blows are then directed at the high spots while the bar is rolled back and forth. Continually rolling in one direction can cause a twist in the bar.

Note: Working the bar in hammer face width segments makes it easier to maintain a uniform diameter.

You may work the bar to a black heat (finishing heat) to refine the bar, but do so only with very light rapid taps, and only if the major facets and edges have been removed.

Forging dynamics: The black heat is a brittle heat, and cannot take the abuse of a heavy blow. Heavier blows at a black heat will result in cracking, splitting, or snapping.

Step 5

Turn the bar around, and repeat the process as in Step 4.

Targets –The bar should be straight.
–The bar should have no facets or edges.
–The bar should have a uniform 7/32-9/16 diameter throughout its length.
–The bar should be 6 3/4 inches long, plus or minus 1/16".

Tools: Basic forging tools only.
Material: Mild steel 1/4 inch by 1 inch and about 24 inches long (or as convenient to hold).

Exercise One- Step One

At a full yellow heat, lay one inch of the bar flat on the anvil face as in figure 5. Use a part of the front edge of the anvil that has a rounded corner when you do this. Imagine placing a square of the material on the anvil surface. Get used to making shape judgments by eye.

Fig. 5. One inch of the bar on the anvil face.

Hold the bar held horizontally and perpendicular to the front edge of the anvil. Reference figure 6.

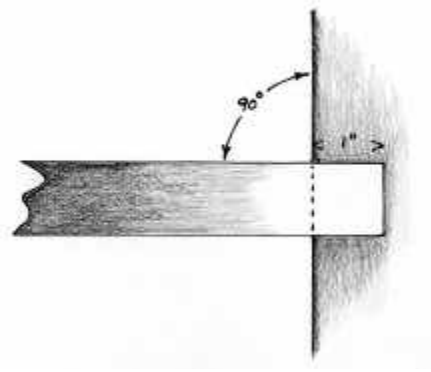


Fig. 6. Bar placed horizontally and perpendicular to the anvil edge.

Standing with your shoulders roughly perpendicular to the front edge of the anvil (see figure 7), strike with the peen in the middle of the square of material on the anvil face.

Hit with the peen parallel to the anvil

Fig. 7. Stand with shoulder of hammer hand facing the anvil.

surface but with about 75% to 80% of the peen length over the anvil face and the remainder off the face. This is a partial peen blow. (Figure 8.)

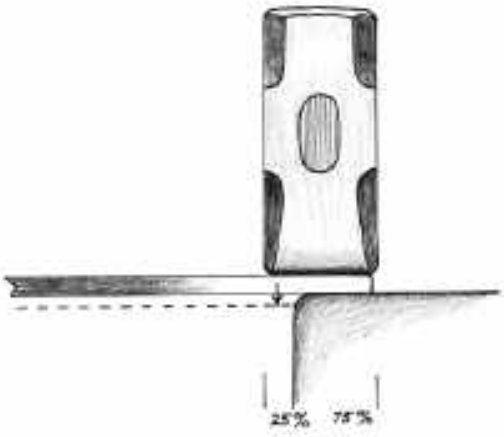


Fig. 8. Peen hits an overlapping blow– mostly on the anvil, but partially off.

Keep your bar-holding hand relaxed. Separate the action of the hand swinging the hammer from the other holding the work.

Having hit one blow in the middle of the bar, strike there repeatedly until a troughlike thin area develops, maybe 1/16 inch thick or less. When peening for width, always work the middle of the bar first, as this is the easiest

time to spread that center section. At the time of impact of the peen with the workpiece, the hammer handle should be horizontal. This helps insure that the blow is not inadvertently pulling or pushing the material unevenly. Figure 9 illustrates the result of a blow in which the peen hits at an angle. The spread you

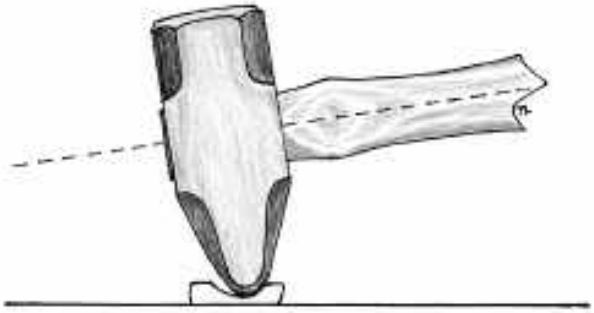


Fig. 9. Metal driven more in one direction by angled blow.

witness should be even and the shape you create symmetrical.

The end of the bar should look like figure 10 on the top side and like figure 11 underneath. Note that the rounded corner of the anvil will have begun a defined transition on the bottom of the workpiece.

Also note that all peen marks are parallel to each other and parallel to the length of the bar.

Step Two

Work each half of the peened section sequentially.

Forge the far half first as most people find peening away from themselves more awkward than peening toward themselves. It is always a good rule to do the hard or more awkward tasks first. Figure 12 illustrates the sequence of work: middle first, then the half farthest from you, finally the half nearest you.

Heat the bar on edge with the thick part you intend to work placed down in the fire and

Fig. 10. Top of the bar showing peened middle trough.

Fig. 11. Bottom of bar showing transition made by

Fig. 12. Work the middle, then the side furthest from you, then the side nearest you.

Fig. 13. Half to be worked placed edge down in the fire.

the part awaiting shaping uppermost. See figure 13. You should be able to get a full yellow heat on the edge without endangering either the thinned middle section or the thick opposite edge.

At a full yellow heat come back to the anvil as in Step One. Feel the slight shoulder you started rest against the rounded corner of the anvil.

Now hit just to the far edge of the central trough. The harder you hit and the higher the heat, the more smoothly the bar will move in front of your hammer blows. You want each hammer blow to be placed parallel to the one before and just slightly further into the thick bar. Keeping the hammer blows parallel to each other maximizes the sideways spread and (with practice) increases control of the final shape.

Try for a consistent pattern of parallel peen marks and a consistent average thickness in the bar. It will take time to develop the confidence and hammer control necessary to do this well, but practice will make it second nature.

Note that near the edge of the bar, as the path of resistance is lessened the metal moves more dramatically. It is, therefore, easy to get the edges much thinner than the middle. A consistent thickness is the goal.

At the end of this second heat the end of the bar should look something like figure 14.

Fig. 14. Top view of the bar with one half spread.

Step Three

The bar goes back in the fire but this time with the opposite, still-thick side down and the thinned edge uppermost. Once more you should be able to get a good yellow heat on the thick section without endangering the already thinned areas. See figure 15.

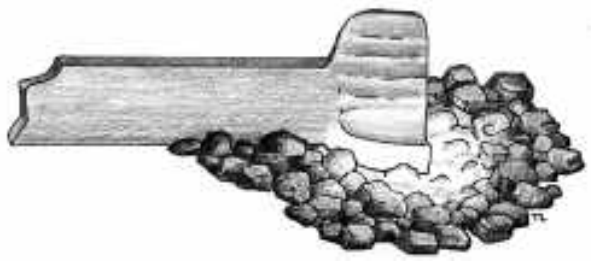


Fig. 15. Bar heating on edge with thinned area upper most and portion to be worked down

Proceed just as in Step Two, but instead of working your peening blows away from you, bring the hammer blows slowly toward you.

Hit hard and with confidence. If the bar is hot and you hit hard the shape will bloom before your eyes. It is actually better to hit hard and sacrifice (initially) some accuracy than to hit timidly. Your result should resemble figure 16. This is an exaggerated shape designed to

Fig. 16. Finished peening.

show the potential of peen work. Observe these points:

(1) the peen marks are parallel to each other
(2) the peen marks are aligned along the length of the bar
(3) the peen marks are even and the bar a consistent average thickness
(4) the shape is symmetrical

(5) on the opposite side of the bar there is a clean and definite shoulder.

You started with a 1 inch by 1 inch square of material on the anvil face that was 1/4 inch thick. The bar grew a little in length, but you ended with a wide oblong form that was much thinner. The mass of material was redistributed mostly to the sides, perpendicular to the run of the bar.

As an experiment you may want to try the same exercise but hitting only with the flat face of the hammer. You will end with a very different form, perhaps like figure 17.

Fig. 17. Flattened bar using the face of the hammer

Step Four

As a final step, take an overall light orange heat on the thinned part of the bar and come back to the anvil. Place the bar as before,

Fig. 18. The smoothed shape.

feeling for the shoulder underneath against the anvil corner. Using the face of the hammer, smooth the peened part the bar, allowing the anvil face to planish the opposite side to a near burnished finish. See figure 18.

Watch the rate at which the bar cools. Thicker areas will hold heat longer and show where more forging is needed. Areas that cool quickly are thin and you should stay away from these.

To test for how even you have forged the end of the bar, cool the bar and then use your fingers as a gauge to test for thicks and thins. Commonly, the middle is thick and the edges thin. Reheat the bar– being thin, this will be fast– and address any unevenness you find. If you have left the center heavy, it will thin with reluctance.

Exercise Two

Step One

The shape you achieve when you peen a bar in width is a thinner and sideways stretched version of the shape you started with. Exercise One started with a thick square and ended with a thin, oblong and roughly rectangular form Starting with a different initial shape we can create different, thinned expressions of it. These initial shapes are called “set ups.” Exercise Two introduces a different set up.

At a yellow heat, forge the end of your bar on edge to an even taper. Work at a high heat

Figs. 19 & 20. A triangle-shaped set up.

and hit hard to avoid or minimize the chance of a cold shut on the very tip.

Keep the taper short and retain the original 1/4-inch thickness of the bar. Figures 19 and 20 show what you are after. This triangular shape on the bar end is the set up for a different peened shape.

Step Two

Start peening as in Exercise One. At a yellow heat, place the base of the triangle that you created flat on the rounded edge of the anvil with the entire taper lying on the anvil surface.

Fig. 21. Place just the set-up flat on the anvil face.

See figure 21. The bar must be horizontal and perpendicular to the anvil front. Stand as you did in the first exercise: roughly perpendicular to the anvil with the shoulder of your hammer arm facing the anvil.

Begin peening in the middle as you did

Fig. 22. Central trough on triangle set-up.

before until you have a central trough like figure 22. Hit flat with the peen parallel to the anvil face and the hammer handle horizontal at the time of impact. Keep the length of the peen aligned with the length of the bar.

Step Three

Put what will be the far half of the shape down in the fire, but be careful of the tip as it is vulnerable to burning. At a yellow heat, peen the material working away from you. Keep an even average thickness and symmetrical shape. Concentrate on keeping the peening blows parallel to each other and the hammer handle horizontal at the time of impact.

Step Four

Reheat with the bar on edge in the fire. The thick part of the shape should be down while heating and the thinned area uppermost. This is

Fig. 23. Final peened triangle set-up.

just as you did in Exercise One.

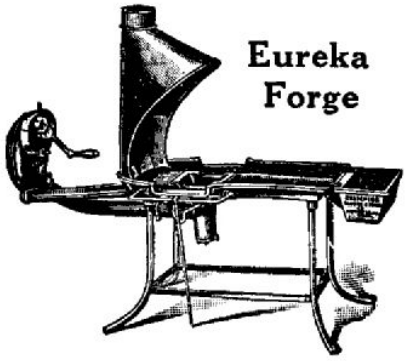
From a yellow heat peen the metal toward you in this step. Figure 23 shows the final shape. See the previous exercise for points to watch.

Step Five

Take an overall light orange heat to smooth the

Fig. 24. The smoothed shape.

shape with the face of your hammer. The results should look something like figure 24. To check for even thickness, cool the bar and use your fingers as a thickness gauge. If you find heavy areas, the thin shape will reheat quickly in the fire for additional attention. Troubleshooting One of the biggest issues to overcome is inaccurate hammer blows. A misplaced blow with the broad face of the hammer is often of little consequence and easily obscured or corrected. Hammers Blow



Northeast Blacksmiths Association

Northeast Blacksmiths holds its meets twice a year at the Ashokan Field Campus in New York State. The Ashokan campus is located in Olivebridge, N.Y., several miles west of Kingston, N.Y. The meets are held around the first weekend in May and in the first weekend in October every year. The main demonstration is in the blacksmith shop and there is a "Hands On" workshop for beginners. A different demonstrator is brought in for each meet. Food and bunkhouse style lodging are provided as part of the cost of the weekend long meet.

Contact : Tim Neu to register for hammer-ins or subscribe to the newsletter;
Tim Neu,
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