

I was blessed to receive a BAM scholarship to attend a course at John C. Campbell Folk School this past July. I hope in reading this, others will be inspired to apply for scholarships and attend classes there as well.

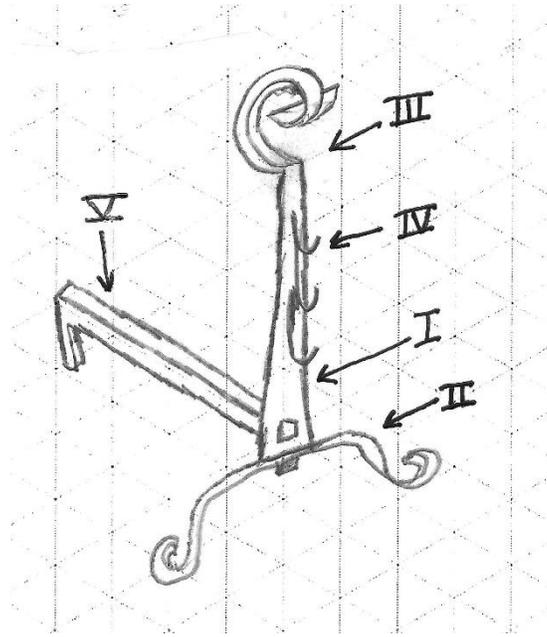
I am a high school Ag teacher/FFA Advisor in Greenville, Missouri and a Chaplain in the United States Army Reserve. Those responsibilities, along with the many other hats worn in the small community in which I live, have kept my blacksmithing (mostly bladesmithing) at the hobby level most of my life. As a shop/Ag teacher, I have been able to incorporate some basic blacksmithing into the courses I teach at Greenville High School. The students always look forward to it (and I enjoy the extra forge time!). I was searching for training on new techniques that I could master and pass on to my students. The course at John C. Campbell was exactly what I was looking for.

This year, my summer calendar allowed time to attend a class, so I applied and received a scholarship to attend. The application process was painless and the people were very friendly to work with and answered all of my questions. For those of you who have not been to JCCFS, I would encourage you to go. The campus is a beautiful and peaceful place. The staff are friendly and the instructors are very knowledgeable.

The course I attended was Colonial Hearthwork, taught by Jerry Darnell and Bob Alexander. Bernie Tappel attended the same course. He, Jerry, and Bob were very patient and helpful each time I had a question. We built fishtail scroll andirons, a potsway, and an apple roaster. Their projects turned out much more photogenic than mine! The typical workday was 9:00 – 4:30. However, Jerry and Bob were very gracious and came in early/stayed late for students to work. There was no wasted time and I felt like the course was well worth the cost.

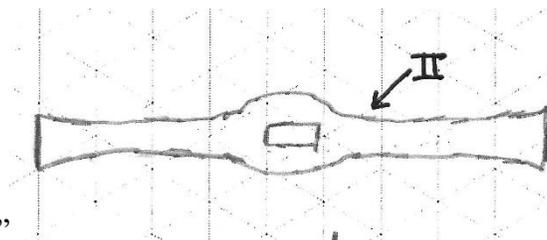
The projects are outlined below. If you have any questions about the projects, John C. Campbell Folk School, or I may be of help in some other way, please do not hesitate to contact me. Thank you again to Jerry, Bob, and Bernie for all of your help. Thank you BAM for allowing me the privilege of attending this course!

Scott Payne, Greenville High School  
573-625-8135 cell (call/txt)  
[chapspayne@gmail.com](mailto:chapspayne@gmail.com)



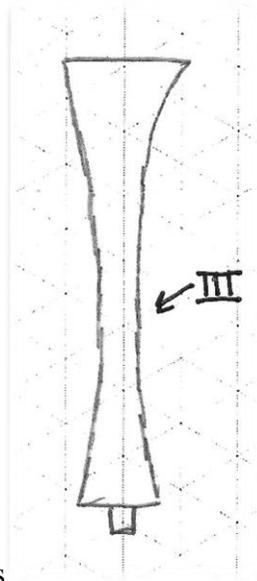
## Fish Tail Scroll Andirons

- I. The uprights or fronts - 2 pieces  $3/8'' \times 2'' \times 30''$ 
  - a. Pinch off  $3/4''$  on a good square corner of an air hammer die (or with a set hammer and a friend)
    - i. Lay flat and hammer side set in
    - ii. Keep moving from edge to flat until desired dimensions are reached
      1.  $1 \frac{1}{4}'' \times \frac{1}{4}''$  tennon
    - iii. Drop into an upsetting block (match tennon size)
      1. Upset with heavy blows moving side to side to square the shoulders while upsetting
        - a. Keep the tennon straight



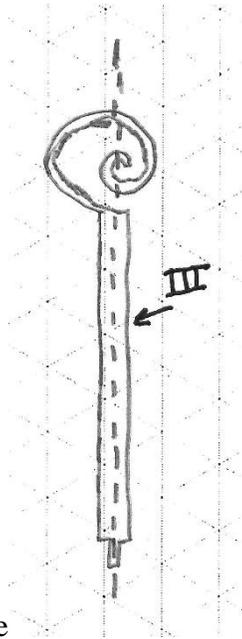
- II. Legs - 2 pieces  $1/2'' \times 1'' \times 16''$ 
  - a. Mark center with a punch
    - i. Slot punch through until it meets the cutting plate (gets tight)
    - ii. Flip over, find the dark spot where the opposing slot was, and punch through until the biscuit falls out over the block or hardy hole

- iii. Dress and flatten, chamfer and exaggerate the bulge
- b. Hold tightly with a good pair of locking tongs and start the draw in the center, moving back and forth, leaving the last two inches untouched (for the scroll) – mark the distance with dividers and repeat for other end (and second leg)
  - i. Spread the end 2 – 2 ½” on side of power hammer or fuller with a 2” fuller and a helper
  - ii. Draw to 11” from end of slot
  - iii. Chamfer edges
  - iv. Repeat other end and other leg
- c. On backside of scroll, start over horn
  - i. Extend little by little, tap, extend, tap, extend, etc.
  - ii. Flip over and roll in from top
  - iii. Move up to fat part of horn and start leg bend
  - iv. Don’t try for perfection now, just get it symmetrical
  - v. Shoot for a 12” spread with a 4 ½” – 5” height
  - vi. Match with the uprights
    - 1. Both legs must be the same height!



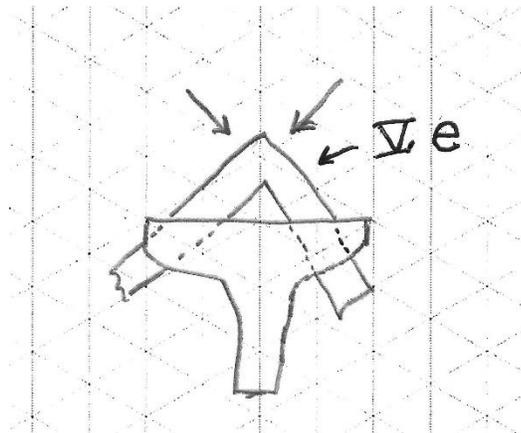
III. Scrolling the tips, drawing the taper on the fronts

- a. 10" from fantail end, bend a crisp 90 degree angle over the sharp corner of the



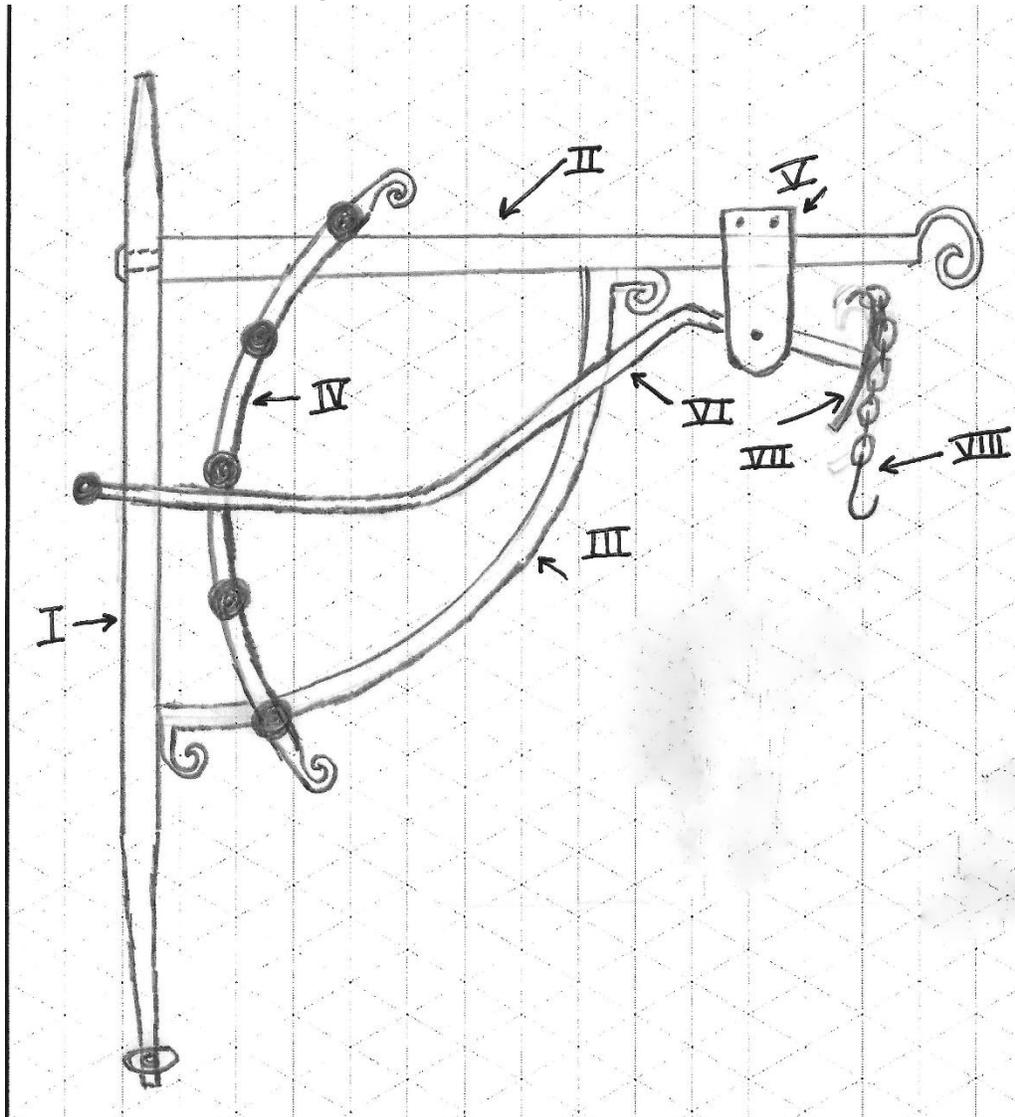
anvil face

- i. Take to vice and make a sharp, square corner
  - ii. Starting on anvil face, scroll like the legs
  - iii. Move to horn to continue scroll
  - iv. Make both the same
- b. Mark 1" from tongue – drill a 1/2" hole – square with 1/2" taper punch
- i. Note: size to 5/8" when fitting to dogs
- IV. Spit rests – 3/16" x 1" stock as needed
- a. The bottom rest is 2" above the tennon, the top is 2" from right angle bend at bottom of scroll
  - b. Scroll the rests as the ends of the legs and forgeweld to the uprights
- V. Dogs – 2pcs. 27" x 1" square stock
- a. Mark 6" from end with a heavy center punch mark
  - b. Bend over the horn at the mark to about 120 degrees
  - c. Hit on your side to start the knuckle
  - d. Lift up so the front end is on the horn
  - e. Clamp in vice with knuckle showing (just sticking up)



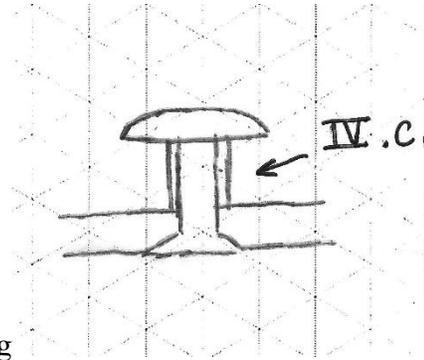
- i. Using two hammers weighted the same
- ii. Hammer in at the same time about two inches down from the knuckle
- iii. Rapid fast blows
- iv. Move up the bar as needed
- v. Reverse the bar between heats (to compensate for hitting harder with one hand than the other)
- vi. Repeat until hammers touch at corner
- vii. As corner squares, hold one hammer to back the other
- viii. Stand on end and with heavy hammer, beat out the remaining knuckle
- ix. Square up over edge of anvil
- x. Dog should take two to three heats (mine took many more!)
- xi. Pinch off 1/2" to forge down to 5/8" tennon
- xii. A good starting point is to measure how much is needed to make the dog level, remove one inch, and start the taper
- xiii. Use the power hammer for the sides and a hammer/flatter for the foot taper.

### 3 Movement English Potsway

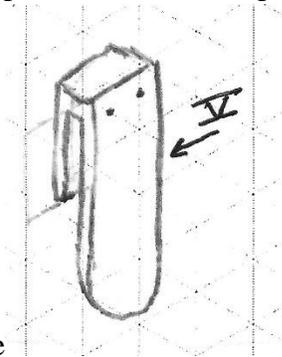


- I. The Upright – 36” of 1” square stock
  - a. Draw down taper from 4” from top end to 5/8” round
  - b. Draw down taper at 6” from bottom end to a long 5/8” taper round
    - i. Turn a length of 1/2” square stock in to an eye and cut off on side cut hardy
    - ii. Cut eye off one way, then flip over and cut the other way – must leave about a 1/4” gap
    - iii. Flux and weld in a two inch swage rolling from side to side
      1. Place hammer blows on back corner to make a donut shape
      2. Trim tennon to 5/8” long and dress
  - c. At 1” below end of top taper, punch and drill a 1/2” hole
    - i. Hot drift to 1/2” square – drive the drift through to dress the hole
  - d. Chamfer the edges
- II. The Arm – 1/2” x 1” x 36”

- a. Upset one end till it is about 1 ½” wide, keeping it ½” thick
  - b. Set 1” over the back edge of the anvil and using half on-half off blows, set down to ½” (the upset end)
  - c. Draw to ½” x ½”
    - i. Chamfer edges
  - d. Start the draw about halfway and keep ½” thick. Taper to ½” x ½” at end
    - i. Top – straightedge
    - ii. Bottom – taper
    - iii. Smooth the top with flatter
    - iv. Come back 3” on small end and set down as before
    - v. Draw out last two inches to ½” x 3/16”
    - vi. Fishtail end to 1” if possible
    - vii. Start the bend over the front of the anvil with the set down corner facing up
    - viii. Extend out and upset the bend and square the corner
    - ix. Start at the tip and scroll as before
- III. The Brace – ½” x ¾” x 36”
- a. Set 4” over the edge – same set down as the arm
    - i. Draw the taper as in the arm
    - ii. Bend over the edge and square the corner as before
    - iii. Start the scroll – BUT INWARD
    - iv. Scroll up to a distance of about 2”
    - v. Repeat for other end
  - b. Start bend in the center
    - i. Hot on a large cone or
    - ii. Hammer down into a shallow swage block or
    - iii. Cold in forks or a vice
    - iv. Trial fit brace, arm, and upright
    - v. Mark spots for drill points, drill for ¼” rivets – two on each end Be sure to mark orientation of brace
    - vi. Do not drill until arm is squared and tenoned to upright!
- IV. The Handle Keeper
- a. ¼” x 1 ½” x 28”
    - i. Draw out about 6” over the horn
    - ii. Let it spread a little as you go
    - iii. Scroll up the end as before
    - iv. Repeat other end
    - v. Chamfer edges
    - vi. Edge bend in shallow swage block or railroad iron jig
    - vii. Trial fit on frame, mark and drill, DO NOT rivet at this time (temporarily bold together if needed)
  - b. Lay out stop positions – 5 equal spaces
    - i. Punch and drill 3/8” holes, countersink the back



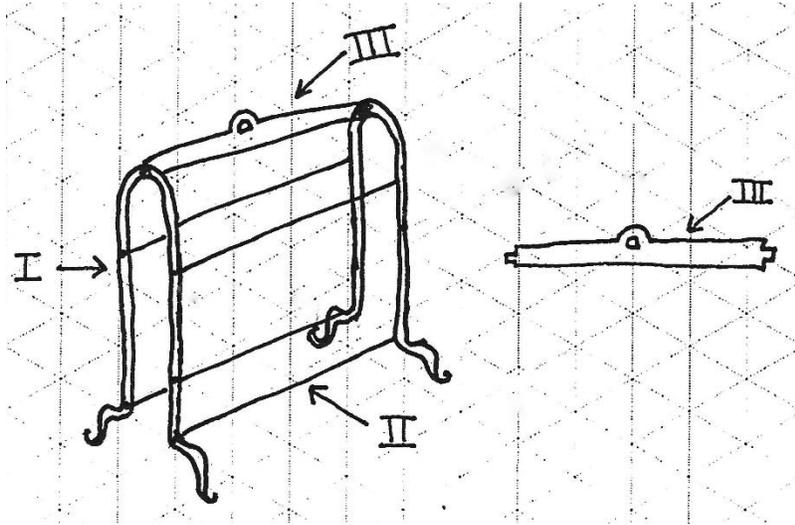
- c. Stops – 5 pieces  $\frac{3}{8}$ " round stock 2"-3" long
  - i. Upset 1" in vice to  $\frac{1}{2}$ " conical
  - ii. Drop into a  $\frac{3}{8}$ " bolt header and upset the cone (quickly, drive evenly) to about  $\frac{3}{4}$ " diameter. Center the head and bevel the edges out to about  $1\frac{1}{4}$ " diameter
  - iii. Make five stops total
  - iv. Cut 5 pieces  $\frac{1}{2}$ " diameter pipe to  $\frac{3}{4}$ " long
  - v. Drift or drill to  $\frac{3}{8}$ " inside diameter
  - vi. Fit each stop, trim, and rivet in place Rivet keeper to frame



- V. Arm hanger for handle
  - a.  $\frac{1}{4}$ " x  $1\frac{1}{2}$ " x 11"
  - b. Nose off both ends
  - c. At 4", bend a sharp right angle and square it up
  - d. Roll it over a  $\frac{9}{16}$ " x  $1\frac{1}{2}$ " spacer
  - e. Square second corner in vice with spacer
  - f. Drill  $\frac{3}{8}$ " hole centered  $\frac{3}{4}$ " from long end
  - g. Trial fit to arm
  - h. File arm smooth if necessary
  - i. Optional rollers
    - i. Cut two slices of  $\frac{3}{4}$ " round stock  $\frac{7}{16}$ " long (thick)
    - ii. Locate center and drill  $\frac{13}{64}$ "
    - iii. Drill two holes in hanger  $\frac{1}{4}$ " in and  $\frac{1}{2}$ " down – from inside edge. Drill holes  $\frac{3}{16}$ "
    - iv. Place cardboard shims between rollers and hanger. Gently tap the rivets over
- VI. The Handle –  $\frac{3}{8}$ " x 1" x 30"
  - a. Upset 1 end to about  $1\frac{1}{4}$ " to  $1\frac{1}{2}$ " wide, maintaining thickness

- i. Saw out the tennon to 3/8" x 3/8" x 1/2" long
    - ii. Dress and file
  - b. Move back 6" and drill a 3/16" hole. Drift to 1/4" then 5/16" then 3/8" diameter, preserving the bulge.
    - i. Chamfer the face side
  - c. Move back 6 more inches, fuller down half way, and start the draw
    - i. Draw from 3/8" x 1" to 5/8" tapered to 1/2" round to 3/8" round with a blob on the end to forge a ball.
    - ii. Forge ball on end of handle
- VII. The Chain Guide – 3/16" x 1 1/2" x 9 1/2"
  - a. Fuller back 1/2" and pinch that section to a taper about 1/4" diameter and 2" long
    - i. This becomes the chain hook
    - ii. Nose off the other end
  - b. Heavy chamfer bevel on both sides the entire length
  - c. With a ball peen hammer in a 2" swage, dish out the guide
    - i. Go the entire length in the middle
    - ii. Make several passes
    - iii. Then start on the sides, alternating one to the other
    - iv. Hammer in the bend by hanging it off the back edge of the swage
  - d. Forge the hook to about 3/4" diameter
  - e. Mark the center of the guide
  - f. Drill a 3/8" hole and drift square
  - g. File to fit tennon on handle
- VIII. Chain and Hook
  - a. Forge chain and pot hook to suit from 3/16" or 1/4" round stock

# 18<sup>th</sup> Century Apple Roaster



- I. Frames – 2 pcs.  $\frac{1}{4}$ " x  $\frac{3}{4}$ " x 29"
  - a. Nose off ends – on edge
  - b. Forge end edge down to tongue
  - c. Taper to 3" (it can fish tail a little)
  - d. Roll a small scroll on the end (no wider than full width of stock)
  - e. Clamp on edge in vice at 4  $\frac{1}{2}$ " mark
    - i. Pull around quickly and hammer at the same time (light taps) to make a nice short edge bend with a sharp inside corner
      1. Make multiple heats to lessen buckling
    - ii. Cool the corner
      1. Set it on the horn and tap down over the 2" diameter area of the horn
    - iii. Repeat for other side
  - f. Grab both sides with good, side locking tongs and pull around cone or mandrel – even bend up by eye
  - g. Repeat for second leg
  - h. Dimensions to shoot for: 2  $\frac{1}{2}$ " inside width (about as wide as an apple), 3" leg height
    - i. countersink all holes on the outside (both sides if tapering tennons on stretchers, outside only if grinding tennons on stretchers)
    - ii. Lay frames on top of each other and adjust until they are the same
    - iii. Drift top hole to  $\frac{1}{4}$ " square
- II. Stretchers 4 pcs.  $\frac{1}{4}$ " round stock 13" long
  - a. Taper (or grind) each end about  $\frac{3}{4}$ " to a blunt taper with the tip less than  $\frac{3}{16}$ "
  - b. Top stretcher  $\frac{1}{4}$ " x  $\frac{3}{4}$ " x 13"
    - i. Saw out  $\frac{1}{4}$ " x  $\frac{1}{4}$ " tennons on each end
  - c. Find center of top stretcher and mark off center
    - i. Slit punch with a half round chisel

- ii. Bulge out the side but don't split it out
    - iii. Drift to about 5/16"
  - d. Forge 4" of 1/4" round stock to a chain link
    - i. Fish it through the just punched hole
    - ii. Flux and weld
    - iii. Round it out into a ring on a small cone
- III. Top Extender
  - a. Forge a blunt point on each end of a piece of 1/4" round stock 12" long
  - b. Turn 1 1/4" to 1 1/2" cold eyes on both ends
  - c. Forge a second one with a hook on one end
  - d. Assemble and close the all of eyes except the lower one (leave it open to attach to frame later)
- IV. Assembly
  - a. Use 1/4" spacers to make vice more effective in holding round stock
  - b. Tennon together on edge of vice
  - c. Start on one side of a frame at the bottom
  - d. Heat and peen down the 3/16" portion of the rivet sticking up through the frame
  - e. Do all of one frame first, then attach second frame
  - f. Correct any racking of the frame
  - g. Attach hanger and close final eye
  - h. Heat, smoke, and wax