

HABA DEMO NOTES MARCH 19, 2011

MORNING SESSION

PROJECT 1, LEAF KEYCHAIN

MATERIALS: ABOUT 18" OF 3/8" HOT ROLLED SQUARE BAR, KEYRING, WAX.

TOOLS: ANVIL, HAMMER, HARDIE, FLAT BIT OR HORSESHOE TONGS, SCROLLING TONGS, CHISEL, SMALL BALL PEIN HAMMER, WIRE BRUSH.

SKILLS: DRAWING OUT, SPREADING, INCISING, CUTTING, BENDING, SINKING.

PRODEDURE:

1. HEAT ABOUT 1-1/4" OF THE END OF THE BAR STOCK TO YELLOW HEAT AND FORGE A QUICK TAPER TO A POINT. DO NOT MAKE THIS A LONG TAPER, BUT POINT IT IN ABOUT 1" TO 1-1/2".
2. TAKE A NEW HEAT IF NEEDED AND PLACE THE BAR AT A 45 DEGREE ANGLE JUST BEHIND THE BEGINNING OF THE TAPER. STRIKE A HALF FACED BLOW TO SET A NOTCH OR SHOULDER. TAKE SEVERAL BLOWS UNTIL YOU HAVE SET THE SHOULDER ALMOST HALFWAY INTO THE BAR. TURN 1/4 TURN AND REPEAT. ONLY FORGE 2 ADJACENT SIDES. YOU WILL HAVE A PYRAMID SHAPED BLANK ON THE END OF THE BAR. CONTINUE TO DRAW OUT UNTIL THE STEM IS ABOUT 3/16" WHERE IT JOINS THE PYRAMID, BUT DO NOT ALLOW THIS TAPER TO BECOME TOO LONG OR TOO THIN SO IT DOES NOT BREAK OFF BEFORE YU ARE READY.
3. TAKE A NEW HEAT AND LAY THE PYRAMID SHAPED BLANK ON THE FACE OF THE ANVIL "ON THE DIAMOND", WITH ONE CORNER UP, ONE DOWN, AND THE OTHER 2 OUT TO THE SIDES. STRIKE WITH SEVERAL FIRM BLOWS TO FLATTEN AND SPREAD THE BLANK INTO A BASIC LEAF SHAPE. IF IT STARTS TO FORM UNEVENLY, TURN IT OVER AND IT SHOULD COME BACK TO SYMMETRY. WHEN YOU HAVE THE BASIC SHAPE, USE YOUR CHISEL TO INCISE THE VEINS, ONE DOWN THE CENTER AND 5 OR 6 ON EACH SIDE BRANCHING OFF THE CENTER 1. THEY CAN BE OPPOSITE OR OFFSET.
4. TAKE A NEW HEAT AND CUT OFF ON THE HARDIE LEAVING ENOUGH STOCK TO DRAW OUT TO A 2" STEM. SAVE THE BALANCE OF THE STOCK FOR THE AFTERNOON SESSION. TAKING HEATS AS NECESSARY, DRAW OUT TO A THIN STEM, BUT LEAVE SOME MASS AT THE VERY END. FLATTEN THIS END TO A ROUGHLY TRIANGULAR SHAPE LIKE THE END OF A NATURAL LEAF STEM. ON THE EDGE OF THE ANVIL, BEND THE LEAF STEM AT ABOUT A 40-45 DEGREE ANGLE RIGHT NEXT TO THE LEAF BLADE. USING SCROLLING TONGS, BEND THE STEM INTO A LOOP AND OVERLAP THE END OVER THE BASE OF THE STEM. LIGHTLY HAMMER IT TIGHT.
5. REHEAT TO ORANGE. IF YOU WANT TO APPLY YOUR MARK, DO THIS ON THE BACK AT THIS TIME. THEN, HOLDING THE LEAF FACE DOWN OVER THE PRITCHELL HOLE, USE THE SMALL BALL PEIN HAMMER TO SLIGHTLY DISH THE BLADE OF THE LEAF. WIRE BRUSH TO A SHEEN AND WAX WHILE STILL WARM.
6. WHEN COOL, ADD A KEYRING OR A NECK CHAIN.

THIS MAKES A GOOD PUBLIC DEMONSTRATION PIECE.

PROJECT 2, KNOT BOTTLE OPENER

MATERIALS: 8" OF 1/4" HOT ROLLED ROUND BAR, WAX.

TOOLS: LIGHT BALL PEIN HAMMER, BENDING FORK, ROD TONGS, VISE, ANVIL.

SKILLS: DRAWING OUT, CONTROLLED BENDING, TWISTING.

PROCEDURE:

1. HEAT 4" OF THE BAR TO A LIGHT ORANGE OR YELLOW. USING THE FORK, BEND INTO A 450 DEGREE LOOP. PLACE THE LOOP OVER THE PRITCHEL HOLE WITH THE SHORT END DOWN AND HAMMER LIGHTLY TO CAUSE THE END TO BEND AROUND THE STANDING PART OF THE BAR. MOVE THE TAG END OVER THE PRITCHEL HOLE AND HAMMER AGAIN TO MAKE IT BEND INTO A HOOK. BY HAMMERING AND CHANGING THE POSITION ON THE ANVIL, YOU WILL BE ABLE TO MAKE THE END GO THROUGH THE LOOP, TYING A KNOT. CONTINUE HAMMERING UNTIL THE KNOT IS TIGHT WITH AS SHORT AN END AS POSSIBLE. REHEAT AS NECESSARY DURING THIS PROCEDURE.
2. HEAT THE OTHER END, AND USING BOLT TONGS HAMMER THE UN-KNOTTED END TO A CHISEL POINT. THE KNOT WILL MOST LIKELY BE OFF CENTER, SO CONSIDER THE HEAVY SIDE THE BOTTOM AND MAKE THE CHISEL POINT HORIZONTAL, THE SAME WIDTH AS THE ORIGINAL STOCK.
3. BEND THE LAST 1" OF THE BAR DOWN UNTIL IT IS DOUBLED. PLACE IN THE VISE SO THAT 1/2" OF THE DOUBLED END IS HELD AND BEND THE CHISEL POINT INTO A U-BEND SO IT POINTS BACK TOWARD THE END LEAVING 1/4" GAP.
4. TAKE A LIGHT ORANGE HEAT ON THE MIDDLE AND PLACE THE END YOU JUST FINISHED IN THE VISE. MAKE SURE THE ENTIRE DOUBLED PORTION AND THE HOOK ARE IMMOBILIZED AND TWIST 1 FULL TURN. STRAIGHTEN THE TWIST AND THEN WIRE BRUSH AND WAX.

PROJECT 3, SPIRAL/CUP CANDLE HOLDER

MATERIALS: 48" OF 1/4" HOT ROLLED ROUND BAR, 3" OF 3/4" BLACK PIPE, 1" FLATHEAD MACHINE SCREW, WAX.

TOOLS: HAMMER, DUCK BILL TONGS, VISE, ANVIL, SPRING OR GATE FULLER, BOLT TONGS, 3/16" ROUND PIN PUNCH, HACKSAW, FILE, 7/32" DRILL, 1/4" DRILL, COUNTERSINK, WIRE BRUSH, SCREWDRIVER.

SKILLS: FORGING PIPE, DRILLING, TAPPING, SAWING, FILING, DRAWING OUT, BENDING.

PROCEDURE:

1. TAKE A YELLOW HEAT ON THE PIPE. IF YOU ARE USING A LONGER PIPE THAN NECESSARY, PLUG THE END TO PREVENT HEAT TRANSFER THROUGH THE PIPE. PLACE THE PIPE OVER THE TIP OF THE ANVIL HORN AND HAMMER LIGHTLY TO FLARE THE END OF THE PIPE. REHEAT AS NECESSARY TO GET A GOOD EVEN FLARE WITH NO CREASES.
2. TAKE ANOTHER HEAT AND, USING A SPRING FULLER OR GATE FULLER, GRADUALLY PINCH A CREASE AROUND THE PIPE ABOUT 2" FROM THE END. KEEP FULLERING AND TURNING UNTIL YOU HAVE AN INSIDE DIAMETER OF 3/16" AS MEASURED WITH A PIN PUNCH. ADJUST AS NECESSARY TO KEEP THE PIECE STRAIGHT AND HOLE CONCENTRIC. WIRE BRUSH, WAX AND SET ASIDE TO COOL.

- 3. TAKE A YELLOW HEAT ON THE ROUND STOCK AND FORGE A ROUND POINT. SMOOTH THIS UP AND FORM INTO A HOOK WITH ABOUT A 1" BEND. COOL THE HOOK AND HEAT THE OTHER END, THEN FORGE IT TO A SHORT CHISEL POINT. ROLL THIS INTO A RING 3/16" IN DIAMETER AND THEN BEGIN TO ROLL THE REMAINDER AROUND THIS CORE. KEEP IT TIGHT SO AS NOT TO HAVE GAPS BETWEEN THE COILS, AND FLATTEN AS OFTEN AS NECESSARY TO KEEP IT IN PLANE. ONCE YOU HAVE 2 OR 3 COILS MADE YOU CAN USE THE VISE TO HOLD THE COIL WHILE YOU PULL AND COIL. PULLING HELPS KEEP THE COIL TIGHT. BE CAREFUL NOT TO COIL ANY FURTHER THAN THE HEAT OR YOU WILL GET A KINK. LIGHTLY HAMMER OUT ALL GAPS AS THEY FORM. IT'S HARD TO GET RID OF THEM LATER IF YOU MISS THEM. CONTINUE TO COIL THE STOCK UNTIL YOU HAVE ABOUT 3 OR 4" LEFT, INCLUDING THE HOOK.**
- 4. MAKING SURE YOU HAVE A GOOD ORANGE HEAT, TAKE THE COIL IN THE VISE AND BEND THE STOCK AT RIGHT ANGLE TO THE COILED BASE. ADJUST THE HOOK SO IT POINTS TO THE OUTSIDE. REMOVE FROM THE VISE AND SET ON A FLAT SURFACE TO SEE THAT THE HOOK IS IN A GOOD POSITION TO BE USED AS A HANDLE. WIRE BRUSH, WAX AND SET ASIDE TO COOL.**
- 5. PLACE THE CANDLE CUP FORGED IN THE PIPE EARLIER IN THE VISE AND CUT OFF ABOUT 1/2" BELOW THE CREASE WITH A HACKSAW. BE CAREFUL TO CUT EVENLY SO IT CAN STAND LEVEL ON THE CUT. FILE AS NECESSARY. PAD WITH A RAG AS NECESSARY TO PROTECT THE CUP FROM SCRATCHING.**
- 6. CLAMP THE CANDLE CUP VERTICALLY IN THE VISE. USING A 7/32" DRILL, CAREFULLY BORE OUT THE 3/16" HOLE IN THE CENTER AND TAP WITH A 1/4-20 TAP. ONCE THE TAP STARTS CUTTING, REVERSE IT 1/4 TURN ABOUT EACH FULL TURN TO CLEAR THE SWARF FROM THE TAP THREADS. SET ASIDE.**
- 7. PLACE THE BASE IN THE VISE WITH THE CENTER HOLE ABOVE THE JAWS. BORE OUT THE CENTER HOLE WITH A 1/4" DRILL. COUNTER-SINK ON THE BOTTOM SIDE.**
- 8. PLACE A 1/4-20 BY 1" SCREW THROUGH THE BASE FROM THE BOTTOM UP. CAREFULLY THREAD THE CANDLE CUP ONTO THE SCREW AND TIGHTEN.**

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AFTERNOON SESSION

PINEAPPLE TWIST COOKING FORK

MATERIALS: ABOUT 16" OF 3/8" HOT ROLLED SQUARE BAR, WAX.

TOOLS: HAMMER, ANVIL, VISE, COMBINATION SQUARE, SCRIBE, CHISEL, TWIST WRENCH, FILE.

SKILLS: DRAWING, SPLITTING, INCISING, TWISTING, FILING.

PROCEDURE:

- 1. MEASURE 1" FROM THE DRESSED END OF THE BAR, MARK ALL 4 SIDES. MEASURE 5" FROM SAME END, MARK ALL 4 SIDES. USING THE COMBINATION SQUARE AND SCRIBE, MARK ALL 4 SIDES DOWN THE MIDDLE LONGITUDINALLY BETWEEN THE LINES. USING THE HAMMER AND CHISEL, LIGHTLY INCISE THE SCRIBE MARKS SO YOU CAN SEE THEM WHEN HOT.**
- 2. HEAT TO YELLOW AND INCISE THE MARKS TO MAKE A DEEP LINE DOWN THE CENTER OF EACH FACE. DO 1 SIDE, THEN THE OPPOSITE SIDE, THEN THE OTHER 2. STRAIGHTEN AS NECESSARY.**
- 3. REHEAT AND PLACE IN VISE SO THAT THE INCISED MARKS ARE EVEN WITH THE SIDE OF THE JAWS. USING TWISTING WRENCH, TWIST 2 FULL REVOLUTIONS. LAY 2 SMALL PIECES OF BAR STOCK ON THE TOP FACE OF THE BAR AND SIGHT TO BE SURE THE TWIST LINES UP. ADJUST AS NECESSARY. STRAIGHTEN.**
- 4. REHEAT TO YELLOW AND HAMMER THE TWISTED SECTION BACK TO SQUARE, LEAVING THE BAR THE ORIGINAL SIZE. THE FACES WILL BE FLAT AND THE CORNERS WILL BE UNEVEN. YOU WILL STILL SEE LINES WHERE THE CHISEL MARKS WERE.**
- 5. MAKE A NEW SET OF SCRIBE MARKS DOWN EACH FACE OF THE BAR AND CHISEL COLD TO MARK. HEAT AND CHISEL MARKS AS DEEP AS THE FIRST SET WERE.**
- 6. REHEAT AND PLACE IN VISE AS BEFORE, BUT THIS TIME TWIST THE OPPOSITE DIRECTION AND ONLY 1 FULL REVOLUTION. CHECK WITH BARS AS BEFORE. THE PINEAPPLE PATTERN WILL APPEAR. STRAIGHTEN, WIRE BRUSH AND REHEAT.**
- 7. AT A YELLOW HEAT, DRAW OUT THE LAST 3/4" OF THE TWISTED END TO ABOUT 1-1/2" AND FORM A HOOK TO HANG THE UTENSIL. WIRE BRUSH AND WAX, QUENCH TO COOL, WIRE BRUSH AGAIN TO POLISH.**
- 8. HEAT ABOUT 2" OF THE UNTWISTED END TO YELLOW AND FORGE DOWN ABOUT 1/3, WHICH WILL ALSO SPREAD THE END. KEEP THIS AN EVEN WIDTH.**
- 9. REHEAT AND USE A CHISEL TO SPLIT THE END 2", THEN SEPARATE THEM. REHEATING AS NECESSARY, FORGE TO 2 SQUARE TINES ABOUT 3-1/2" LONG, SMOOTHING OUT THE CHISEL MARKS. PAY SPECIAL ATTENTION TO REMOVING THE MARK AT THE TRANSITION TO THE HANDLE.**
- 10. BEING CAREFUL TO KEEP THE HANDLE CENTERED, BEND THE TINES SO THEY ARE PARRALLEL TO EACH OTHER AND THE HANDLE AND ABOUT 1" APART. CURVE THE TINES OVER THE ANVIL HORN SO THEY POINT SLIGHTLY UP, AND CURVE THE UNDERSIDE OF THE HANDLE TO A GRACEFUL CURVE IN THE 4" OR SO FROM THE TINES.**
- 11. HEAT A 3" SECTION OF THE HANDLE MIDWAY BETWEEN THE TWIST & TINES. PLACE IN VISE AND TWIST 1 REVOLUTION. STRAIGHTEN, WIRE BRUSH AND WAX.**