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ANVILS—THE OLD RELIABLE TOOL, THAT GETS NO RESPECT

By Ivan Raupp and John Czekaj

The purpose of this article is to provide an overview of the anvil including its components, uses, a bit of history, an identification guide, and references so that interested readers may have a starting point to learn about anvils that they might find.

Fisher anvils at Josh Kavett's anvil museum.

What role does the anvil play historically?

An anvil is a hard block of iron and/or steel which is used with a hammer or anvil tool (hardy) to shape metal. The metal to be shaped historically was wrought iron and steel as that was refined from iron. The "blacksmith" forged items from iron in contrast to the "white smith" who shaped items from metal with a file. Iron or steel can only be shaped if it is first heated to a high temperature, 1500 degrees F or more, in order to soften it. Modern iron can be bent cold, but the traditional blacksmith softens the metal with a coal, coke, or gas furnace. Several "heats" enable the smith to achieve the desired form. As the iron cools the crystalline structure changes back to the original hardened state.

The blacksmith of old was a vital resource to a community. He made all manner of tools and hardware that a community needed. He repaired and rebuilt ironware that was broken. He would re-steel a goose wing axe, repair a cooking pot, make a betty lamp, or forge a plowshare. He was accorded a prime location in the center of many early towns.

Why does the anvil look like it does?

There are many ways to shape hot iron/steel and the shape and design of anvils reflect the needs of blacksmiths to move hot metal as efficiently as possible. The most commonly used techniques are:

1. Drawing out (making a thick piece thinner) as in making a nail. The horn of the anvil is important in this operation.
2. Upsetting, the opposite of drawing out (making a thin piece thicker) as in "heading" a nail or a bolt; also for thickening a piece of metal such as a hinge spike or log dog so that it can be struck squarely with a hammer.
3. Bending, as in shaping a hook.
4. Twisting, as in applying decoration to wrought iron railings.
5. Hot cutting, using a chisel or a hot cut in the hardy hole to sever a piece of hot metal.
6. Forge welding, (fusing pieces of hot metal together)
7. Punching, using the pritchel hole to create an opening in the red hot metal, to create an "eye" or an opening to be threaded.
8. Riveting

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April 7, 2013 - CRAFTS Meeting
HOST Masonic Lodge - Highbridge, NJ

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The purpose of CRAFTS of New Jersey is to encourage interest in early trades and industries, and in the identification, study, preservation and exhibition of tools and implements used and made in New Jersey as an integral part of our heritage.

Membership in CRAFTS is open to anyone who shares the above interests. Annual dues per person or couple are fifteen dollars for the membership year of July 1 through June 30.
Membership fees may be sent to: Hank Allen, 524 Harristown Road, Glen Rock, NJ 07452 (write check payable to CRAFTS of New Jersey).

CRAFTS of NJ meetings are held at the HOST Masonic Lodge in High Bridge, NJ.
Take I-78 to Route 31 exit at Clinton. Go north on Rte. 31 two miles to second traffic light at the High Bridge exit. Turn right and go about half a mile to Dennis Ave. Turn left, then straight to the Masonic Lodge (on the left).
Tailgate sales in the parking lot begin at 10 A.M., meeting starts at 1 P.M.

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CRAFTS WEBSITE
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Containing general information about CRAFTS and its activities including: meeting schedules, Tool Shed articles, etc.

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President's Corner

CRAFTS is turning 37 years old this year and is going strong. Starting off as a small club with less than fifty members we presently have over four-hundred members. Our members are trailblazers in the tool fraternity leading in the research, education, and publication forum. They are active dealers of antique tools, freely sharing their experiences with the newbies in the tool community. They are also quiet collectors or vintage tool users who are still learning about antique tools and their history.

I am very happy to report that I feel we are in the beginning of a renaissance of hand tool usage. I have seen a lot of action and movement toward understanding and using vintage tools. I recently finished reading a good book that I would recommend, the *The Anarchist's Tool Chest* by Chris Schwarz. It is a presentation and study of the use of hand tools. It is a wealth of information that takes a close look at woodworking when man created with his hands and not with the machine. It is a compelling piece of evidence of this new renaissance in vintage tool usage.

Fueling this renaissance are the woodworkers who are realizing that in this tight economy it is more economical to restore vintage hand tools then to purchase expensive new ones. Yet at the same time there is a growing emergence of new companies that are making hand tools following the designs of earlier tools and upgrading them with new materials and old fashion ergonomics. A good sample of this is some of the new saw manufacturers that are offering hand saws for the woodworker. They combine new high tech materials with old style designing.

Assisting this renaissance is the tool dealer who is hitting the road and getting their vintage tools to the new collector and user. eBay is a strong influence to getting into public view what is out there for collectors and users. At the same time dealers have put together websites to educate and offer tools for sale. These sites offer information about the tools developed and used by past generations. Also of importance is the many auction houses that have specialized in antique tools. These range from the large international auctions to the small local auction houses that hold "special" events. These become meeting places where collectors and users exchange experience and knowledge. It is also the place where young people come to realize there is a fraternity of people like themselves. If they are lucky they will join a club like CRAFTS.

As you may guess I am very optimistic about the future of CRAFTS. Please bring a friend to our next meeting and especially the auction. I know they will enjoy the experience. I know this because eighteen years ago a friend brought me to a CRAFTS meeting and I have attended every one since.

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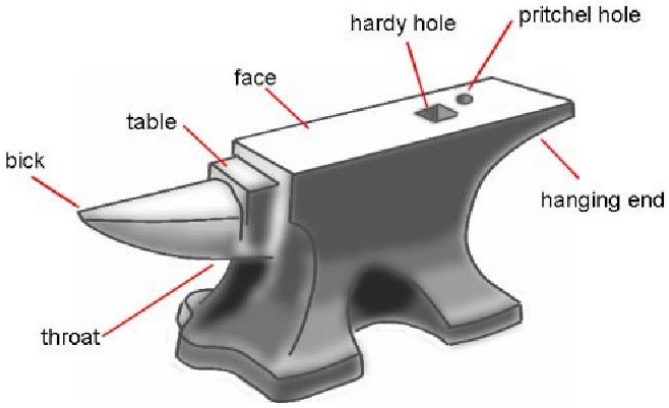
Anvil shapes and sizes have evolved over many centuries based on their ability to efficiently perform the techniques outlined above. The many styles, sizes, and weights of anvils can be understood when thinking about the blacksmithing techniques that were needed for the particular type of work. Each anvil was designed for a purpose specific to the blacksmith. Each was a valuable and trusted tool. Each anvil that you find today has a unique and likely interesting story to tell.



What does an anvil look like? *Components of the modern "London pattern" Anvil.*

A modern anvil is pictured above. This design represents the latest stage in the evolution of anvils commonly found in the United States today. The Continental anvils differ in that they have a bick at each end of the anvil, a round bick and a flat bick with sharp edges. They are made with the same materials as modern (cast steel) American anvils. There are some specialty anvils that push beyond this design that are used by farriers.

The weight of an anvil is usually stamped into the broad right side of the anvil (with the horn pointing to the right). Most American made anvils and modern anvils are stamped in pounds. Old English anvils use the ancient "stone" system" to indicate weight. There are three numbers stamped in the anvil. The leftmost number indicates "hundred weight" (112 lbs), the middle number indicates "quarter hundred weight" (28 lbs), the third number indicates the remaining pounds less than a "quarter hundred weight". An anvil stamped "2-2-20" would be tabulated as follows:

(2x112) = **224lbs** + (2x28) = **56lbs** + **20lbs** = **300lbs.**

By this calculation you would determine that your anvil stamped "2-2-20" weighs 300 lbs., a very big anvil. Often the actual anvil weight is less than the stamped weight because of metal loss due to rusting and corrosion.

The working height of the anvil is adjusted to the requirements of the blacksmith. As a "rule of thumb", if the blacksmith stands facing the anvil with his hands in a closed fist, his knuckles should be at the same level as the top of the anvil face.

The blacksmith will strike the hot work with a hammer that is comfortable to him usually from 1 to 3 lbs. Light work requires a smaller hammer and larger work could require a hammer up to several pounds. A sledge is usually used with a helper while the blacksmith uses his smaller hammer to guide the hammer blows of the helper. The metal to be shaped may go in and out of the fire in several "heats". With each "heat", grey metal scale will flake off and gradually remove mass form the metal being worked. The blacksmith must adjust for this if numerous heats are needed.

It is surprising to consider how many shapes and sizes comprise the Anvil portfolio. But if it is remembered that the anvil maker's goal was always to fit the anvil to the requirements of the work at hand, the variety makes sense. The smallest anvils used in jewelry making may weigh just a pound or two. The largest anvils used in heavy industrial work typically weigh hundreds of pounds. The largest recorded American "blacksmith" anvil was made by the Fisher and Norris Company in Trento N.J. and weighed 14 lbs. (Postman p. 15 Anvils used by blac smiths and farmers us ally weigh 80- 250 l These anvils were ma in the greatest numbe and are the anvils y are most likely to co across.

Colonial anvil.

A historical "time line" for anvils.

Richard Postman is a recognized authority on anvils and anvil history. I have condensed and taken his time line for dating anvils and I will summarize it here. (Postman p14-15)

1500-1780 Colonial Anvils - Colonial anvils evolved from the highly individualized armor makers anvils used in the Middle

Horned colonial anvil.

iron, almost square in side view but with a slight hour glass shape. The Colonial anvil may be horned or hornless. The horn looks like an "after thought" as it is not well inte-

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(continued from pg.3)

grated into th overall design the anvil. You ca often see whe the base of th horn was "jum welded" into th anvil body.

Old English anvil.

The feet on these anvils are pointed. Sometimes the Colonial anvil features a 5th foot. This 5th foot is usually in the middle of the side of the anvil. The Colonial anvil, if horned, has no table before 1780. These anvils may have a hardy hole usually located in the midline of the anvil face. Some Colonial anvils lack the hardy hole. The pritchel hole is absent on original Colonial anvils**.**

1780 - Around 1780 major evolution was occurring in anvil shapes. The anvil face becomes more rectangular, the horn grows longer and has a larger diameter. All anvils have hardies. The "Old English" style is developing.

1800 - By 1800 the "Old English" anvil style is established. This anvil was manufactured in the iron forges of England and imported into the United States. Attributes of anvils manufactured in this style include: A longer and thicker horn, a longer and narrower face, a longer heel, and a thinner waist. The anvil looks more harmonious in design. The horn appears to be designed into the anvil body. The feet spread out more widely and the anvil has a better balance. The feet are larger and blunted unlike the Colonial anvil feet. The feet show a sharp edge on top.

1830 - In 1830 the pritchel (punching) hole is being added to old English (London Pattern) anvils.

1850 - In 1850 Peter Wright of Dudley, England patented a two piece anvil. Prior to this, anvils were made up from blocks of iron forge welded together from scrap iron. Each of the four feet was "jump welded" on to the base of the iron block. The horn was also "jump welded" onto the anvil block before final shaping was done. The appearance may be crude if the weld joints are visible. The old style anvils were subject to breakage at the welds.

The two piece anvil was possible because of improvements in forging techniques, perhaps the innovations in steam driven hammer technologies. Success

Peter Wright anvil.

with this new technology yielded anvils of superior consistency, strength, and at reduced cost. These changes signaled the beginning of the end for smaller old style anvil makers.

Colonial anvil - horn jump welded.

1900-1920 - In this era anvil manufacturers had perfected their techniques. The best manufacturers all made a good serviceable anvil. In this period, price was the driver in making the purchase decision whether you were a blacksmith, a farmer, a factory manager, or a military contractor. Anvils were widely used in many manufacturing applications. However, the growing emergence and success of gasoline powered automobiles, machines and the widespread use of electrical power in machine shops began to reduce the need for the blacksmith and his tools.

1920 to present - By the 1920's the writing was on the wall. Gradually, the anvil market would be strangled, a victim of powered metal forming technology and mass production. Less than a handful of American anvil manufactures survived until the 1970's. Fisher and Norris was the last survivor, remaining in operation until 1979. (Pos ufacturing operations are all that remain of the venerable industry in the U.S. today. Most anvils that you find are truly antiques.

1900's Hay Budden anvil.

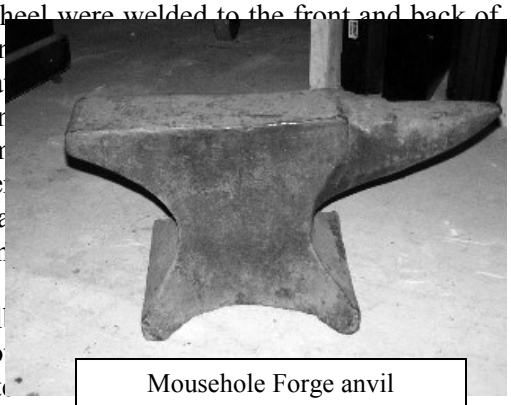
How are anvils used and by whom?

Function drives form when it comes to anvils. The blacksmith, the farmer, the jeweler, and the industrial shop mechanics were the primary users of anvils. The watch maker and the jeweler used tiny toy like anvils for delicate metal bending and riveting. The blacksmith, wheelwright, and subsequently the farmer used anvils for general purpose work. Anvils from 100 to 150 lbs were the most common size. You will find more of these anvils than any other at flea markets and auction sales. Heavy forging could require an anvil of

several hundred lbs. Big shops like railroad shops used anvils ranging from 800 to 1400 lbs.

What are the common types of anvils?

Forged anvils - The forged anvil is likely the earliest metal anvil form. It has a characteristic "ring" when struck and is the favorite form for most blacksmiths. Forged anvils required a lot of difficult manual labor to manufacture and were always more expensive than cast anvils. These anvils were made in England and Europe from around 1200 A.D. They continued to be manufactured in quantity until around 1950 (Postman p.257). There are still thousands of these anvils in use by modern blacksmiths and hobbyists. The forged anvil was originally "built up" from scrap "muck bar" that was welded together and shaped on a water driven trip hammer. A large block of iron became the core of the anvil. Four additional smaller blocks were "jump welded on" the core to become the feet. One block each for the horn and the heel were welded to the front and back of the anvil. On can appreciat the stamin that old tim anvil make must have ha as they har hammered 100 plus l "white ho anvils day aft day.



Mousehole Forge anvil

Mousehole Forge was an English iron manufacturer dating to 1635. Anvils were being made there by the late 18th century. (Postman p81) There were several English manufacturers of anvils and there were manufacturers in Sweden, Germany, France, and Spain. Amazingly there were no manufacturers of wrought anvils in America until the founding of Hay-Budden of Brooklyn N.Y. in late 1880's (Postman p283)

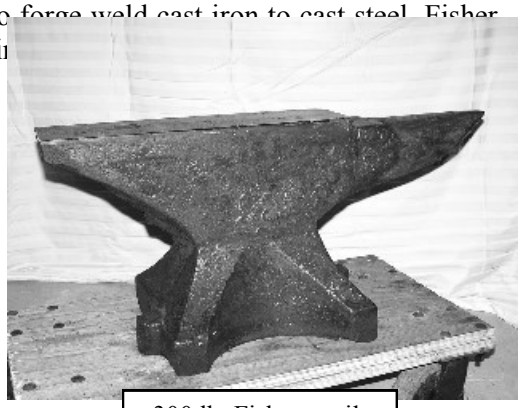
Iron making and forging techniques were closely guarded secrets. All anvils were imported into the U.S. In the mid 1850's Americans began to manufacture iron in quantity and learn the secrets of making crucible (cast steel). The old "jump welding" process was replaced by the two piece anvil welded at the waist. As improvements in steel making continued the Bessemer process and open hearth process dramatically reduced the cost of steel and ushered in the era of cast steel anvils, where the entire anvil could be cast from high quality tool steel.

Cast Anvils - Cast iron anvils are made from molten iron which was poured into a mold. Each size and type of cast anvil required an individual mold. Pattern makers created a wooden "positive" model (pattern) of the anvil. When the shaping was complete the halves of the molds were aligned with pins and clamped together, providing a hollow "negative" of the anvil. The molten iron was poured into the mold through the gate. The finished casting was removed from the mold and any excess molding marks were ground off.

Anvil makers like Fisher used a modified process that embedded a piece of cast steel that would become the anvil face plate and an additional cast steel plate which would become the top of the horn. After these steel plates were embedded in the mold molten cast iron was "washed" over them to complete the casting.

Cast iron anvils do not ring like a forged anvil does. For this reason they are referred to as "dead" anvils. Because there is considerably less labor in manufacturing a cast anvil than a forged anvil they could be sold more cheaply. In addition to price, some smiths like them because they are easy on the ears.

The most famous cast iron anvils were made by the Fisher and Norris Co. of Trenton N.J. Fisher and Norris have the distinction of building the very first American anvils beginning in 1859. The Fisher anvil manufacturing process is a remarkable discovery because it happened by accident. Prior to this time it was not known how to forge weld cast iron to cast steel. Fisher had a barn i through the remains he discovered a piece of steel welded to a piece of cast iron. He and his partner Norris perfected the technique and used it to manufacture cast iron anvils with pieces of cast steel welded onto the anvil face and on the top of the horn. The Fisher anvils sold many copies from 1859 to the early 1950's, making Fisher not only the first but also one of the longest surviving anvil makers. (Postman, p148)



300 lb. Fisher anvil.

Many Fisher anvils feature a beautiful cast eagle holding an anchor in its claws. It is a nice working anvil in the sense that it has no ring but a good rebound like a forged anvil. It is a tough anvil because the cast steel plates are forgiving while the cast iron foundation provides stability with no sagging in the face.

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How do I identify anvils? Here is a key to point you in the right direction.

Turn the anvil so that you are looking at the broadest side. If your anvil has a horn, face it to the right.

1. Named: If the Anvil has a name, refer to Richard Postman's book or Google the anvil name. If it has no name or an illegible name, continue.

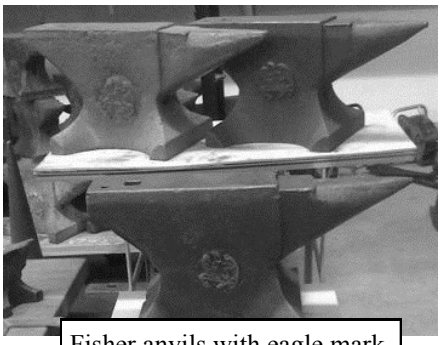
2. Forged or cast: Try to determine if the anvil is forged or cast. If the anvil has square holes under the horn, heel, base, or in the front foot it is forged. Cast iron anvils have no holes but may show evidence of grinding under the horn where the seams from the mold came together. Strike your anvil lightly with a hammer. If it rings continue, or else go to 6.

3. Forged Flat base or Stake Base: If the anvil has a flat base, continue **or else go to: 9.**

4. Forged Flat Base Horned or Hornless: If the anvil has a beak or horn, go to 5, or else continue. *Forged Flat Base Saw maker's Anvil* - If the anvil is fairly square (sometimes round) and blocky you probably have a "saw makers" anvil. These anvils have a large flat face and were used to align and straighten circular saw mill blades. They may be forged or cast. (See Postman or Google for details.) *Forged Hornless Colonial Anvil* - If the anvil has a wide face, 5 inches or wider and is quite blocky relative to its length you probably have a "hornless" colonial anvil. These anvils were made prior to 1800 and were likely imported from England. The body of the anvil is wrought iron. The face is made up of shear or blister steel plates welded on the anvil body. Sometimes the joints are visible. The anvil may or may not have a hardie hole. The pritchel hole should be absent unless it was drilled in after the anvil was made. The anvil may have a 5th foot in the middle of one of the long sides.

5. Forged Anvils with a Flat base and a beak or horn: These are the most common anvils to be found and cover most anvil applications. Look for a name on the anvil. With the horn to the right the makers name is usually punched into this side of the anvil. The weight of the anvil may also be punched in here. Names you might see include: Mouse Hole, Wilkinson, Hay-Budden, American, Trenton, Peter Wright, or several others. If you have a name Google up the anvil maker for more information or refer to Anvils in America by Richard A. Postman.

6. Cast iron anvils with a flat base and a horn: Cast iron anvils do not ring when struck. They go "clunk". Usually there is evidence of casting marks along the seams where the mold halves came together. Often these are ground off to some extent and the evidence remains. There is vast variation in the quality of cast anvils. The major manufacturers made nicely finished serviceable anvils. Some cast iron anvils are poorly made but make good door stops. Some like the Fisher, have a steel face plate and steel welded to the top of the cast iron horn. Fisher anvils, the first made in the U.S., were made in Trenton NJ for many years beginning around 1843. Fisher manufactured many anvils of various weights and forms until the 1979. Fisher Anvils often have a raised eagle with an anchor cast on them. The first two digits of the weight are often cast into their right front foot. A 100 lb. Fisher would have a "10" cast into the foot. There are two major groups of cast iron anvils. Cast Anvils that are 100% cast iron include: Alamo, Buffalo Forge, Bay State, Champion, Gem, Rock Island, Phoenix, and Gipsey. Cast Anvils that have steel faces like the Fisher include: Badger, Fisher, Samson, Southern Crescent, American Star, and Vulcan.



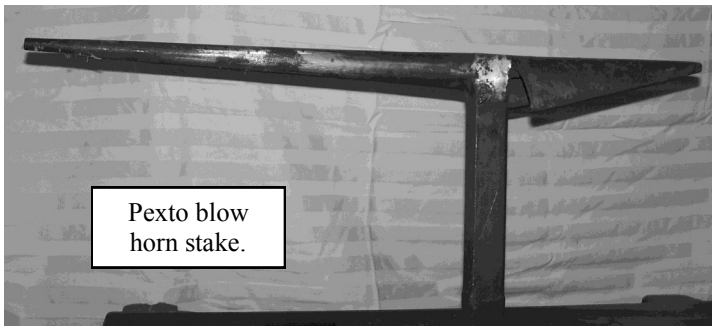
Fisher anvils with eagle mark.

7. Cast Steel anvils: Circa 1850 the Bessemer process and other steel making innovations made it economically feasible to manufacture an all cast steel anvil. Strike the anvil lightly with a hammer, if it rings it is cast steel. It is probably made from around 1880 to present. Cast steel anvils are made entirely of high quality tool steel. There is no face plate and no welding together of component pieces. It is almost impossible to break this type of anvil in normal use. Manufacturers of cast steel anvils include: Columbian, Fulton, Omsteel, Rockwood, REV-O-NOC, Skagit, Superior Steel, Vanadium Steel, West, Yost, Soderfors, and Kolswa. (Postman p135-228).

8. Modern Cast and Specialty anvils: *Ferrier's* - If your anvil falls into this category it could be a modern Ferrier's anvil. These anvils are characterized by wide flaring horns and unusual shapes suitable for shoeing horses. These anvils are light weight to enhance portability. Some of them are composites of steel and aluminum. Modern Cast anvils include: Across the Anvil, Bruce Daniels, A.P. Tool Co., Cliff Carrol's, Emerson Horse-

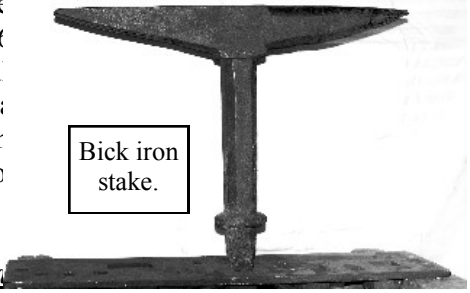
400 lb. Soderfors steel anvil.

shoe Supply, Delta, J.H.M. Manufacturing, Laurel Machine and Foundry, Mankel, N.C. Tool Co, Centaur Forge, G.E. Forge and Tool, Jim Linzey, Multi Products Co., Red Barn, and Southern Steel and Supply. *Miniatures* - These tiny anvils are salesman's samples or promotional pieces. They are highly prized collectibles.


Pexto blow horn stake.

9. Stake anvils: Stake anvils may be new or ancient. They are characterized by having a long narrow face and horn forged on top of a stake. The stake may vary in length from 12" to 36". *Tin Knockers stakes* - These stakes are true anvils but they are relatively modern. Look for very crisp uniform forging lines and smooth surfaces. These stakes were factory made and finished to a high degree. They are often signed. *Hand forged Bick Irons* - Blacksmith made "bick" irons are likely to be very old. (17th-19 century or before) These are ancient hand forged tools. They show hammer marks and the irregularities associated with hand or hammer forging.

Cooper's Anvils: Coopers Anvils are blacksmith made and date to the 17th 19th centuries. The have a long stake (3(so that the cooper cou work standing) that w anchored in a stump ar a relatively small sho face.


Bick iron stake.

How can I acquire a anvil? - Considerations

Why do I want an anvil?" Do I want an anvil to use or to display? Both uses are legitimate and desirable. If you want an anvil to use make sure that it is functional. It should be solid and not chipped, cracked, welded or otherwise beaten up. If it has a face plate it should be tight and not broken loose. Test it by tapping the face lightly with a hammer. If it is forged, it should ring in all places. All anvils should rebound the hammer smartly. If this is not the case, reject the anvil.

How do I plan to use it? Determine the size of the work to be done on the anvil. Heavier work requires a bigger anvil and conversely. A 100 lb. anvil is a good general purpose size. It does not bounce around much in normal use and is still fairly portable. It is a nice size if you are inclined to travel to shows to demonstrate your blacksmithing skills.

How much should I pay? If the anvil is in good condition, and will be used as a "worker" $2 per pound is a good price. If the anvil is old or rare the market will dictate price. You might Benchmark E-Bay prices for a similar anvil.

How will I transport the anvil? If the anvil weighs 100 lbs or less you can lift it fairly easily. To lift it, grasp it with both arms, one under the horn and the other under the hanging end. Keep your back straight! If it weighs more than 100 lbs, get some "corn fed" help and a truck.

Where can I purchase an anvil? *Auctions* - A good place to buy anvils but the price may go sky high. Beware if the price is over $2 per pound. Check out the anvil carefully before buying. *E-Bay* - This is a good place to buy if you know what you are getting. Competition will be heavy here and prices may be high. Make sure you know how far the anvil will need to be shipped and the means of shipping. A bad decision or poor home work can ruin your good deal! *Private sellers* - Probably the best way to buy a good anvil is to look it over thoroughly and test it carefully, as I have instructed above. Know what you are getting and beware of paint! A painted anvil could be a real prize but it could also be a "Trojan Horse". I once bought a cast iron anvil that was painted. The paint covered a plaster filled casting void in an otherwise perfect anvil. It was a real disappointment.

Where can I find additional information about anvils?

Books:

ANVILS IN AMERICA , Richard A. Postman, POSTMAN PUBLISHING, Berrien Springs, Michigan,1998

Internet sites:

ABANA.com, American Blacksmith and Artists Association
ANVILFIRE .com (see the Anvil Gallery)
IFORGEIRON.com

Ivan Raupp has been a tool collector for over 40 years. His main interest is in primitive farm and artisan made tools, especially iron edge tools. Ivan's background includes an AB in Anthropology from Franklin and Marshall College and graduate studies in Anthropology at the University of Manitoba. After a stint in the Army, Ivan built a career developing information systems and managing systems implementation teams. He is a published expert in business process management. After retirement, Ivan has followed his passion to develop his blacksmithing skills. He is focused on communicating the big picture connections between iron mining, canal and railroad transportation, iron manufacturing, and blacksmithing. He does blacksmithing demonstrations and lectures throughout New Jersey and Southeastern Pennsylvania.

The Stanley Rule & Level Company (Continued from December) By John Walter

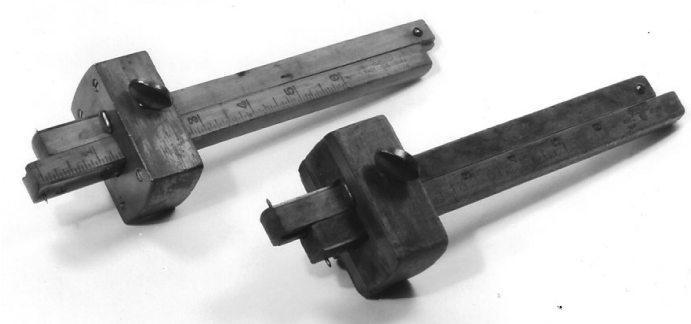
Leading Stanley into a New Century

President Charles Mead died in 1899 and was succeeded by Frederick Stanley, son of the company's first president Henry Stanley, after a reportedly memorable battle within the Stanley family and among shareholders. Frederick's 27 year old son, Alix, a graduate of Yale's Sheffield School of Engineering, joined the firm at this time with succession to the top apparently a clear route for him. But, Frederick died within seven months, and this time the family went outside for its new president, Charles Mitchell. Mitchellwas a New York patent attorney with many New Britain clients, former Commissioner of Patents, and a director of the Stanley Works. Mitchell died in 1911, and Alix Stanley succeeded to the presidency and served until the merger with the Stanley Works in 1920.

Left: Stanley No.G36 Gage smooth plane, 1919-23. Right: Gage Tool Company, Vineland, N.J. No.4 -1/2 smooth plane, 1886-1919

Acquisitions, so important to Stanley's formative years, were to spearhead its growth during the next two decades. The new era of expansion began in 1898 with a purchase involving only patent rights. Oscar Schubert of Berlin, Germany, had designed a new type of ruler, which in certain respects was superior to the traditional folding rules and was much less expensive to make. This was the spring joint rule, brought to Stanley's attention by Justus Traut. Stanley immediately acquired American rights to manufacture. Someone thought to call it a "Zig Zag," and when Stanley registered their new trademark for the proposed line of rulers in 1899 it was under this name. The Zig Zag rule was the object of at least 23 patent improvements from 1901through 1935, which gives some indication of the importance given to the new line. From 1900 through 1984 there have been 146 models of the Zig Zag rule produced. Stanley had manufactured a few screwdrivers. There were the turnscrew-type Nos. 64 and 86 introduced in 1870 and 1897 respectively, based 0n J.P. Curtis's 1871 patent for securing the shank, and the Victor line introduced in 1905. But, it was the acquisition of Hurley and Wood of Plantsville, Connecticut that opened the doors wide into the screwdriver market. Hurley and Wood had produced a quality driver coined the "Hurwood" based on George Wood's patent. Stanley applied this name to a redesign of their Victor line in 1907. Stanley also brought George Wood into the company to set up the new line. This proved to be the greater part of the bargain as he later developed and patented the Everlasting chisels, an admired Stanley product for many years.

One bit brace had been made by Stanley before the turn of the century, and for only one year, 1870. It was the No. 2 bit brace with a spring catch based on Augustus Stanley's 1869 patent. Harry Bartholomew's bit brace manufacturing company was acquired by Stanley in 1903. Back in 1861,Bartholomew had patented the exceedingly simple but apparently novel idea of anchoring a bit brace's sweep handle by applying fixed collars, sliding the rotating handle onto straight stock, and then bending the stock to form the bow of the brace. And Bartholomew had other patents that Stanley used. In 1905 Stanley introduced a new line of bit braces, offering 17 styles in that year. However, it was the purchase of the Bridgeport, Connecticut, John S. Fray Company in 1909 that gave Stanley the greater measure of highly skilled workmen and a complete line of drill and brace styles. The Fray Division of Stanley continued manufacturing in Bridgeport, publishing its own catalogs, and filling orders on site until 1924 when operations were



Left: Stanley No.74 double marking gauge, boxwood with full plated head, 1863-1935. Right: Stanley No.71 double marking gauge, beech with brass plated head and bars, 1863-1941.

moved to New Britain. Stanley developed a reputation for some of the finest braces ever manufactured, applying some 44 patents to the line. They introduced their first hand drills in 1911.

Jacob Siegley of Wilkes Barre, Pennsylvania, was a successful manufacturer who began selling his patent combination planes in 1879 in New York. He later introduced a line of iron bench planes. One innovation in which he preceded Stanley was the milling of corrugations into the soles of his iron planes as shown in his 1893 patent, a feature Stanley first offered in 1898. Siegley developed his patent iron combination plane over a 12 year period through 1891. His concept of providing hollow and round and various moulding and plow cutters was similar to the idea that Justus Traut patented in 1878. His competitive designs got Stanley's attention and they made the first of several agreements with him in 1901.

Stanley No.2 brass plumb bob with reel, Justus Traut 1874 patent, 1874-1937.

Stanley manufactured iron block and wood-bottom transitional planes under the Siegley name from 1901 through 1927. Apparently, customer preference for Siegley's brand prompted Stanley to obtain an agreement in 1903 giving extended rights to use Jacob Siegley's full name on products, labels, and catalogs. The same year Siegley contracted to work as a consultant for Stanley, agreeing to assign any further plane patents to them. Stanley purchased Siegley's plane business in 1905 and sold much of his inventory. His combination planes were distributed through the Union Manufacturing Company of New Britain, which sold this inventory until 1927.

Before 1911 Stanley had offered a few mallets and tack hammers, but no carpenter's or other hammers. They moved into hammers in a big way with the acquisition of Humason & Beckley of New Britain in 1912 and, more importantly, of The Atha Tool Company of Newark, New Jersey, which provided the most substantial contribution to Stanley's proposed line of steel percussion tools. Atha's history went almost as far back as Stanley's. It had accumulated important resources in timber and steel and offered a line of products including hammers, sledges, wedges, blacksmith's tools, chisels and punches, and a considerable number of related tools. Most importantly, they had developed a fine reputation built largely by their skilled craftsmen. Stanley preserved the organization intact as an operating division in Newark.

Stanley screwdrivers top to bottom: No.86 flat blade, 1888-1927; No.1001 “100 Plus,” 1929-1953; No.177, 1926-1964; Hurwood.

Since the 1860s Stanley had felt unable to compete in the manufacture of carpenter's steel squares. They, of course, had produced bevels, mitre squares, and try squares since the 1850s. But not the large steel framing square, which had to be precisely cut and welded and hand inscribed with divisions and tables for the computation of area and length of triangle sides. For almost 100 years the Eagle Square Company of South Shaftsbury, Vermont, had practically the entire market's preference for this product. While Stanley savored the idea of including this important item in their carpenter's tool line, they saw no prospect of

Left: Atha No.251 prospecting pick. Right: Atha/ Stanley No.51-1/2C claw hammer (orig. Stanley Rule & Level plant label).

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winning the trade. Eagle Square had also entered the housing market and had a prosperous side business supplying ready-cut lumber for building projects. By 1916 the company had passed through several hands, and their ownership in that year sold a majority interest to Stanley. With this control, Stanley acquired not only the right to put its trademark on the finest framing squares known, but also acquired the wood processing facility and its expertise. As Stanley's requirements for wood had increased so tremendously, this additional asset provided an important benefit for their growing operations. Stanley preserves the Eagle Square operation in South Shaftsbury, close to its supplies of hardwood. (Ed: The plant ceased operations in 2001)

Stanley's "Gage" plane line was acquired with the purchase of the Gage Tool Company of Vineland, New Jersey, in 1919. Owner and inventor John Gage was an established manufacturer of wood-bottom transitional planes who had secured three patents by 1886. By the number of these planes observed today, Gage enjoyed a fair amount of success and was actually in competition with Stanley's line for several decades. Following the acquisition, Stanley introduced a series of eight transitional planes identical to Gage's design except they were marked Stanley on the little metal plate attached to the face of the cutters. The toe of the plane was marked "G" followed by the model number. Both Stanley and Gage transitional planes were phased out over time ending in 1942.

The Merger and Aftermath

By 1920 it was time for the Rule & Level Company to merge with the Stanley Works. Their histories had been so intimately associated that, in fact, most people thought they were the same company. Just a few years earlier, William Hart, who had served the Stanley Works for 61 years, and as president since 1884, had retired, and the "sweetheart" logo had been adopted in his honor. The logo had the initials "S.W." (Stanley Works) inscribed in a heart. After the merger the Sweetheart mark of the Stanley Works and the notched rectangle of Rule & Level were merged. This well-known logo first appeared on Stanley tools in 1920 and was continued on production runs until 1934.

So, 1920 marked the end of the Stanley Rule & Level Company, and that was to be our story. However, Stanley hand tool buffs may be interested in a few significant dates that followed:

1923 - The "Four Square" line of tools for the home craftsman was introduced.

1929 - The name "Defiance," last used in 1880, was revived for a line of lower-quality, lower-priced tools. (Stanley had earlier used this name on tools made for others.)

1929 - Stanley acquired the Chapin-Stephens Company of Pine Meadow, Connecticut, the oldest rule and plane maker in the United States.

1930 - Stanley acquired the Farrand Company of Berlin, Connecticut, maker of the concave/convex, flexible/rigid rule. From this came the "Powerlock" tape measure.

1944 - Stanley purchased the Russell Jennings Manufacturing Company of Chester, Connecticut, makers of auger bits since 1840.

1946 - Stanley acquired the North Brothers Manufacturing Company of Philadelphia, makers of the famous "Yankee" brand tools.

In conclusion, a unique celebration was held in New Britain in 1993. John Walter and his wife, Randa, arranged a convention in Hartford, which was attended by over 300 Stanley collectors, to honor Stanley's 150th anniversary. Stanley executives and employees responded warmly, attending the exhibition and entertaining the collectors at Stanley headquarters. No one could have been more appreciative of this reception than those attendees who have made Stanley tools such a large part of their lives.

Ed: This article originally appeared in the September 1997 *Tool Shed*. With the growing interest in Stanley tools we are reprinting it in this issue. The article was with the permission of John Walter to excerpt this material from his book *Antique & Collectible Stanley Tools – Guide to Identity & Value.* That book is out of print now, but is eagerly sought by Stanley collectors at auction. It remains a magnificent book.

The photos for this article were taken by Walter Jacob of tools from the Jacob Collection.

WANTED – Member's email addresses. If you have not been receiving email notices from Stew May or dues acknowledgements from Hank Allen, please send your email address to hankallen@verizon.net.

Photographing Your Tools
By Bob Garay

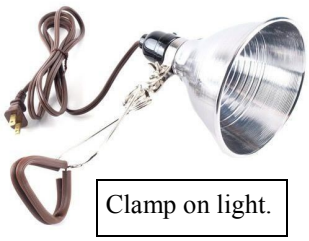
When in college studying for my Industrial Arts degree I was lucky enough to have photography classes and work on developing film in a dark room. Then in the 1990's I got a digital camera and learned how to use Photo Shop. The techniques of good photography did not change with this transition. As a seller on eBay over ten years ago I worked hard to have high quality photos that not only showed the tool but also expressed them as a piece of art.

For a few years I was editor of the Tool Shed and took a lot of the photos for our articles. I was honored about ten years ago when Herb Kean asked me to take the photos for his tool books; Restoring Antique Tools and A Price Guide To Antique Tools.

Above is a ready to use 24" square photo box you can purchase from eBay for about $50. It comes with lights and camera tripod.

There are many reasons for taking quality photos of antique tools. As collectors get experienced they want to catalog their collection. Showing their tools in the best light and all their details. Also as web sites become easier to produce the experienced collector might want to exhibit their tools on a web site. Giving a workshop to large groups can be enhanced with slides of small tools or details. Of course printed materials such as framed photos, calendars, newsletter articles or even books require high quality photography. Below are some considerations for top quality tool photos I have found to work.

- Natural lighting is best. Inside I use halogen lighting. Rarely do I use flash.
- Never shoot into a source of light.
- Use white sheets or rolled paper for base & background.
- Staging a tool on wood or with a clear workbench can enhance a tool as long as it is not distracting from the subject tool.
- Clean the tool of dust or dirt.
- Pay attention to vertical/horizontal lines.
- Try shooting the tool at different angles.
- Use auto focus, except for close-ups focus manually. This requires knowing your camera, and focusing properly. Take lots of pictures and re-focus many times.
- Frame the subject – get in close with the camera yet not using the zoom feature.
- Use a sturdy tripod, this enhances crispness & does make shooting easier sometimes.

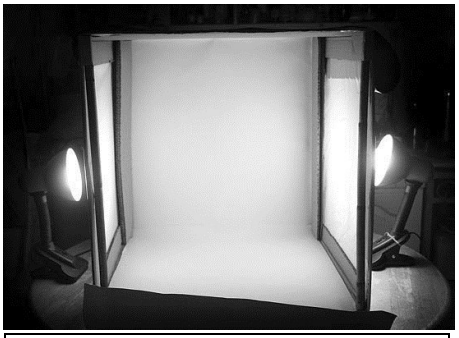


Clamp on light.

- Use photo editing software that came with the camera or purchase Photoshop Elements. This is cheaper abbreviated version yet very good software.
- Last but not least – take your time.

Put a sturdy work table having a top surface of at least 2 feet x 3 feet up against a wall. Mount your white background so it forms an arc from the wall to the front of the table with enough of the background resting horizontally on the table so your tools have a flat spot on which to sit. To light the tool on the table, I use two or three metal cone clamp on spot lights. These are inexpensive lamps that are available at most hardware stores. I use halogen lights as it more closely matches natural lighting than other common lights. This does a fine job for most photos I will be doing

A more professional photo box setup can be purchased for under $50 on the internet. Making one from a box is also easy. Just cut out the top and sides as shown in photo to the right. Then cover these openings with a sheer material like white muslim, or even a thin white sheet will do. Put in some white poster board or roll paper for your backdrop and bottom. Having the lights shine into the box this way diffuses most shadows and gives a even lighting.



Above top is sides cut out for photo box. Above bottom is finished box with lighting.

These are several tips that you can use to take higher quality pictures. It's important to take time to learn how your camera works, and to test different shooting scenario's (light, etc.). Try some or all of the above tips and I'm sure you will be satisfied with the quality of your photos.

The TOOL SHED

CRAFTS of New Jersey
15 N. River Styx Rd.
Hopatcong, NJ 07843

TOOL EVENTS

March 9: Bill Spicer Antique Tool Auction, North Kingstown, RI. Contact Bud Steere at 401-884-5049.

March 16: PATINA Spring Auction & Sale, Damascus, Maryland. Contact Dave Miller at millerdave1898@gmail.com or check the PATINA website at patinatools.org.

March 22-23: Live Free or Die Antique Tool Auctions. Indianapo-lis. Contact Martin Donnelly at mjd@mjdtools.com

March 23: David Stanley's 61st International Tool Auction, England. On the web at www.davidstanley.com.

April 5-6: 42nd Brown International Tool Auction and Sale. Camp Hill, PA. Contact Clarence Blanchard at ceb@finetoolj.com

April 7: CRAFTS of NJ meeting, Host Masonic Lodge, Highbridge, NJ. Speaker and directions on website craftsofnj.org. Contact Bob Garay at takeadip@optonline.net

April 13: CRAFTS Auction. Oldwick Fire House, Route 523 Oldwick, NJ. On the web at craftsofnj.org. Contact Greg Welsh at glwelsh@earthlink.net or 908-439-3266.

April 19-20: Live Free or Die Antique Tool Auctions. Nashua, NH. Contact Martin Donnelly at mjd@mjdtools.com

June 2: CRAFTS of NJ meeting, Host Masonic Lodge, Highbridge, NJ. Speaker and directions on website craftsofnj.org. Contact Bob Garay at takeadip@optonline.net.

June 29: Black Angus, Adamstown, PA. M-WTCA Area P Meet. Contact Don Stark **at starked@aol.com**

Sept 8: CRAFTS Picnic. Save the date.

WANT ADS

WANTED – Member's email addresses. If you have not been receiving email notices from Stew May or dues acknowledgements from Hank Allen, please send your email address to hankallen@verizon.net.

HELP WITH TOOL COLLECTIONS – As a retired shop teacher I can assist you with any size tool collection or shop. Putting them in an auction or finding buyers for your tools.
Call Bob Garay (973) 398-5875 or email- takeadip@optonline.net.

VINTAGE TOOLS for woodworking, machining, leather working and more. See us at New England area tool meets, the CRAFTS Auction and Picnic, online at www.TimelessToolsand Treasures.com or email jane@janebutler.com.

NEED HELP disposing of your tools or home items? Entire or partial house clean-outs available. Call Steve Zluky at 908-534-2710.

JIMBODETOOLS.COM – The largest antique tool website on earth buying and selling fine antique tools. Call Jim at 518-537-8665 or email jim@jimbodetools.com.

WANTED – Molding planes made of apple wood. Also, better molding planes from Hudson River valley makers.
Joe Hauck 908-236-2072.

THE TOOL EXCHANGE –Australia's home of fine old tools for sale. Our website has over 18,000 photos of tools. We ship to over 30 countries. www.toolexchange.com.au or Stuart@toolexchange.com.au.

WVTOOLS: a new CRAFTS member and eBay seller concentrating on bitstock tools and more.

CHECK OUT – Tom Lamond's yesteryearstools.com, an internet magazine on hand tools, their makers and their markings.