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The Underhill Family

A Century of Fine Edge Tool Making

By Joyce & Eric Robinson

The Underhill edge tool dynasty began with Josiah Underhill, who many consider to be the patriarch. He was born about 1758 and was the son of Hazekiah Underhill (1727-1800) and Tabitha Sargent (died 1803). Hazekiah was the youngest child of the first New Hampshire Underhill, Sampson Underhill, who was born 1692 and was married to Elizabeth Ambrose.

Josiah Underhill is the first known Underhill to be involved in the edge tool business, and he lived in Chester NH. There are tools found today marked 'Josiah Underhill'. There seems to be conflicting evidence as to when he was actually in the business. Davistown Museum writes his work can be dated to the 7th decade of the 18th century or 1870's. I have found printed information that he was in business as late as 1832, however he passed in 1822 according to other Underhill sources. One explanation could be that one of his sons continued work under his name.

In 1784, Josiah Underhill married Anna Melvin (1763-1847). They had ten children of which three of them became involved with edge tools. Those three were Jesse Johnson Underhill (1784-1860), Jay Temple Underhill (1802-1839) and Flagg Temple Underhill (1805-1890).

They lived and worked in Chester NH or in the surrounding area, including Auburn (Auburn was a part of Chester), Derry, Manchester and Boston. Several tools have been found stamped FT Underhill & Co, FT Underhill Manchester, and FT Underhill (Flagg Temple Underhill). It is known that Jay Temple Underhill worked in Auburn and in Derry New Hampshire however there is an advertisement dated 1827 of selling and making tools in Boston on Mill Pound Street.

All these edge tool shops where these Underhill's worked were quite small, in one reference it was said the shop had three hands, and only producing four tools per day. One man would strike the iron, one needed to keep the fire burning and another was there to assist. These early forges were often set up near streams. They could use water power to operate the bellows, and as well as for cooling for the heat treating, an important operation in edge tool making.

The Edge Tool Making Grew

You could almost say the real growth of the dynasty started when Jesse Johnson Underhill married Elizabeth Gordon and they had seven children: three girls and four boys. All four boys went into the edge tool business. Samuel Graham (1809-1885), George Washington (1815-1882), Rufus K. (1819-1894), and Hazen K (1821-1898).

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CRAFTS Auction - April 25, 2020

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of New Jersey

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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 $15 for the membership year of July 1 through June 30. Membership fees may be sent to: Stew May, 300 Winston Dr. Unit 1909, Cliffside Park, NJ 07010 (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.

The TOOL SHED
Published four times a year for members of CRAFTS of New Jersey. Editor: Bob Garay 15 N. River Styx Rd. Hopatcong, NJ 07843—(973)398-5875 - Articles, especially about early tools and trades, are encouraged and may be sent to the Editor. Email—takeadip@optonline.net

CRAFTS WEBSITE
www.craftsofnj.org

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

NEW MEMBERS

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President's Corner

Hello to all. Winter seems to be drifting to a pleasant close. I hope not to jinx anything, but so far it's been an easy season at least here in New Jersey. Never the less, I have burned 5 cords of ash wood harvested from trees brought to an early demise by the dreaded emerald ash borer. Ash trees are devastated here and in eastern Pennsylvania.

I hope that you all are well and that you might have had some good luck buying a nice tool or two at local auctions. Winter can be a slow season but things will pick up fast going forward! Martin Donnelly and Jim Gehring's auctions will offer a great selection of rare and user tools They are coming up just around the corner! Jim Bode always has fine fresh tools to whet the appetite! Please check out their web sites.

On Feb 16th we had a great Directors meeting. We are firing on all cylinders. Ed reports that our cash on hand is good. Our membership stands at around 400. We continue to add new members at a reasonable pace. Our picnic is locked in on September 13th at Camp Tecumseh.

Our auction collection is already complete! We are scheduling our auction and tailgating for April 25th at the Oldwick Fire House. The dynamic Paul Willmott will be the master of ceremonies! There are many great items in the auction, so please check the CRAFTS Web Site from time to time to see new items that are being added. Please also note the newly designed CRAFTS web site format. Scott Fulmer working with James Travis has created a new look that is inviting and easy to access. Scott has shared plans for new features which will add even more value to the CRAFTS Educational site! So thanks to all CRAFTS Directors and your teams for keeping us on schedule with great events and improvements! http://craftsofnj.org/index.php

Please remember that the CRAFTS Board of Directors is comprised of unpaid member volunteers. Each Director is a busy person who is involved in his own business activities. Work that is done to support CRAFTS is "over and above" their day jobs! We are grateful to all CRAFTS Directors as they make everything happen smoothly, regularly, and without complaint!

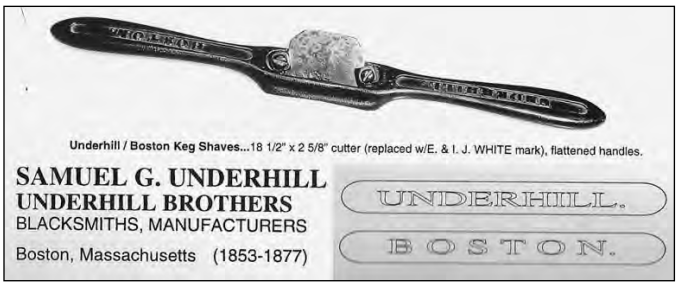
Having said that, I want to let you know that we need some additional help. We are growing our services in tool education and outreach to other tool and historical organizations. So we are looking for a person to step up and undertake the role of Education and Promotion Director. This Director will lead our initiatives to design educational services and promote these services. You will have a lot of opportunity to create content for CRAFTS steadily improving web site. Please let me know if you would like to lead this important initiative and to join our dynamic Executive team. We welcome all who step up to participate.

We also are hoping that one or more of you would volunteer to write up the educational speakers that we host at our regular meetings. Your write ups will appear in the CRAFTS "Tool Shed". If you have suggestions for speakers please pass them along to George Duin or me. Please consider helping our team. We all work together!

Thank you!

(Continued from pg. 1)

Samuel Graham Underhill learned the business from his father in Chester New Hampshire. He then moved to Boston and began producing tools, alongside his father in the early 1830s. During this early period, George W. and Rufus K. made tools for and sold by Samuel in Boston as well. William Leighton apprenticed with Samuel, so the Leighton mark is also found on many of these tools.

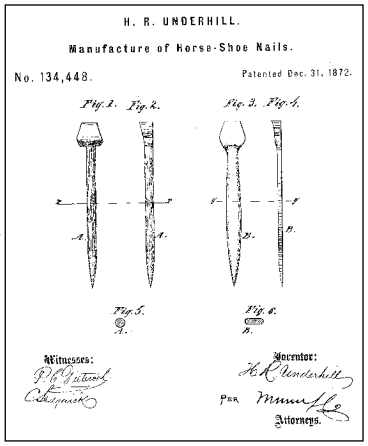


Excerpt from Manufactured and Patented Spokeshaves and Similar Tools * Thomas C. Lamond, Pg. 299

George Washington Underhill, the second son born of Jesse Johnson Underhill, learned the edge tool making directly from his father. There is one reference (The History of Nashua NH) that shows George learning the trade from his father in Boston on Haverhill Street. Another reference shows him learning and working with his father in Chester NH. He also worked for his older brother, Samuel Graham, and this was most likely in Boston. This may have resulted in the early mark of 'Underhill Bros. Boston.' In 1939, George Washington moved to Nashua New Hampshire, then a small town, and now the second largest city in New Hampshire. Building further on his learned training, it is believed he and his brother Rufus made tools for their brother Hazen, who distributed them in Boston. Some of the stampings on these tools include, 'Underhill Brothers Boston', and 'Underhill Boston 1842.' In the 1841 Nashua New Hampshire directory, George W. Underhill was listed as an edge tool maker working at Underhill Blacksmith Works on Water Street. This was a relatively short road along the Nashua River, which is a tributary to the Merrimac River. This location was eventually lost to fire.

Rufus K. Underhill additionally learned the trade from his father. Some would believe this was in Chester New Hampshire, and some would believe alongside his brother and father in Boston Massachusetts. Starting in 1840 he did go to work for his brother George W. in Nashua at Underhill Blacksmiths Works on Water Street.

Hazen R. Underhill learned edge tool making from his father, who was now back in Chester New Hampshire. Hazen had a shop in Auburn from about 1842 to 1849. He then partnered with Leighton, one of his brother's former apprentices' as Underhill Leighton in Manchester. He has a short stint in Nashua with his brother George W and finished his career in Derry NH.


H. R. UNDERHILL.
Manufacture of Horse-Shoe Nails.
No. 134,448. Patented Dec. 31, 1872.
Fig. 1. Fig. 2. Fig. 3. Fig. 4.
Fig. 5. Fig. 6.
Witnesses:
Inventor:
Per
Attorneys.

Hazen was issued a patent for improvement in the manufacture of horseshoe-nails. The patent drawing is shown to right. A notice was sent locally -

To all whom it may concern:

Be it known that I, HAZEN 1t. UNDERHILL, of Derry, in the county of Rookingham and State of New Hampshire, have invented a new and useful Improvement in Horseshoe-Nails

There are several different marks on tools from this era including; SG & HR (Samuel Graham & Hazen Underhill), George Underhill, GW & Company, and GW & Leighton., Underhill Bros., along with a host of other names. As with their father and uncles, and but for the exception of George Washington Underhill, these were all smaller forges. There were partnerships, and ventures among the brothers, and many other members of the community. Some of these firms were Underhill & Brown, Underhill Brown & Leighton, Hazen Underhill, Rufus K Underhill. There is a list of many of these names later in this article.

<u>Underhill Edge Tool Co.</u>

In 1852, George Washington Underhill, with a capital investment of $40,000.00, partnered with John Gage, a machinist, and Hiram Goodrich as clerk, to establish Nashua Edge Tool Co. At some later point it became Underhill Edge Tool Co., there is some claim that this was in 1869. The factory was about a mile out of town on the Nashua - Lowell Railroad Line, and located on the Salmon Brook. Around 1856, C. B. Hill became Treasurer and John Gage became President, George W. was Superintendent. Each were on the Board of Directors, along

Large chisels made by the many Underhill companies over time.

(Cont. on pg. 4)

(Continued from pg. 3)

Underhill Edge Tool Co. framing chisel. Lower right is closeup of makers mark.

with William Beason, the president of Indian Head Bank of Nashua, D. H. Dearborn, Superintendent of Nashua Iron Co., and Reuben Goodrich stove dealer.

This 'Works' was in a building that was 400 feet long, and was powered by a 100 HP steam engine. It also had a counting house, a store room, an adjacent building and five houses. This area was known as Edgewood. The company employed as many as 60 people.

Underhill Edge Tool Co. used several different trade names as well as several different trademarks. One of the tradenames included Underhill Boston. Boston may have been a sales office with a warehouse. There are also known tradenames of KENT, BOSS, CROWN and I am sure many more.

Haines pattern Underhill Edge Tool Co. half hatchet. Inset above is makers mark.

Later Underhill Edge Tool Co. trademark.

George W. Underhill retired as superintendent in 1875 but continued on as a member of the Board of Directors until his passing in 1882.

The story of the Underhill Edge Tool Company cannot be complete without at least touching on Amoskeag Ax Company and Blodgett Edge Tool Company. Amoskeag Ax was the successor to Blodgett Edge Tool Mfg. Company. Henry C. Reynolds was agent for Amoskeag Ax and also worked for Blodgett Edge Tool Co. He held two patents; one I cannot find any reference to, however the other is for a design of a "Bit" for chopping axes. His axe bit had rounded corners thus assisting in not chipping on the heal or toe when splitting hardwoods. This is commonly found today in "Michigan" pattern chopping axes. This was US Patent: D3,662 Granted: September

Above is a fine example of Henry C. Reynolds patent axe with the patent date stamped on the back. It is in unused condition with the original paper label made for a dealer in New York.

14th 1869.

Blodgett Edge Tool was in Manchester New Hampshire. They started in 1853 and continued until 1862 when they were either succeeded by or purchased by Amoskeag Ax. Records indicate Amoskeag Ax of Manchester New Hampshire, started in 1862 and continued until they were purchase by Underhill Edge Tool Company in 1879.

This purchase enlarged Underhill Edge Tool Company to the point where they now had 100 hands, making 120,000 axes per year as well as several other edge tool.

The Final Bell

In 1890 Underhill Edge Tool Co. was purchased by A. A. & T., American Axe & Tool, due to financial difficulties. They remained operating at the Nashua facility until the equipment was moved to East Douglas Massachusetts. The Underhill label remained on many tools long past this move.

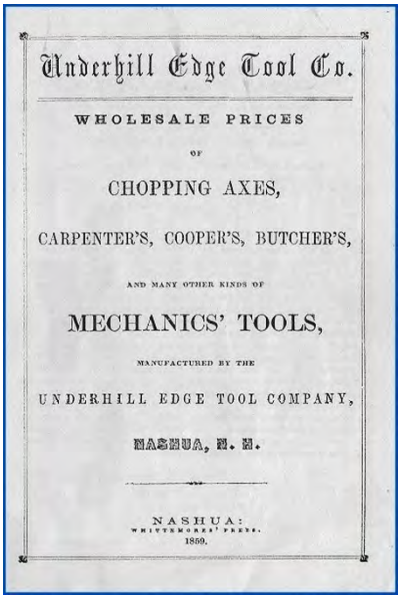
This is an "Underhill Pattern Lathing Hatchet" with the "True Temper" marked as well as a "Genuine Underhill" stamp.

Special Notes:

(A) An Underhill Edge Co. axe was the murder weapon in the trial of Lizzie Borden.

(B) Authors note. What is considered the Edgewood area of Nashua today is nowhere near the Salmon Brook.

To the right and below is a copy of some of the pages from the 1859 Wholesale Price Catalog



Underhill Edge Tool Co.

WHOLESALE PRICES

OF

CHOPPING AXES,

CARPENTER'S, COOPER'S, BUTCHER'S,

AND MANY OTHER KINDS OF

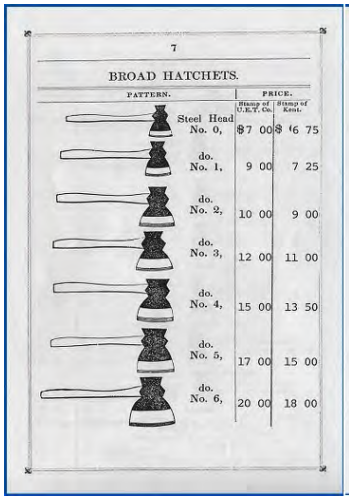
MECHANICS' TOOLS,

MANUFACTURED BY THE

UNDERHILL EDGE TOOL COMPANY,

NASHUA, N. H.

NASHUA:
WHITTEMORES' PRESS.
1859.



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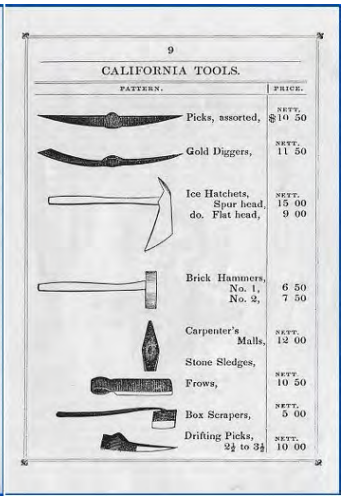
BROAD HATCHETS.

PATTERN.	PRICE. Stamp of U. E. T. Co.	Stamp of Kent.
Steel Head No. 0,	$7 00	$ 6 75
do. No. 1,	9 00	7 25
do. No. 2,	10 00	9 00
do. No. 3,	12 00	11 00
do. No. 4,	15 00	13 50
do. No. 5,	17 00	15 00
do. No. 6,	20 00	18 00



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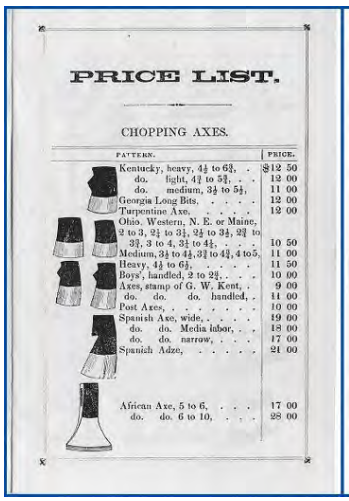
CALIFORNIA TOOLS.

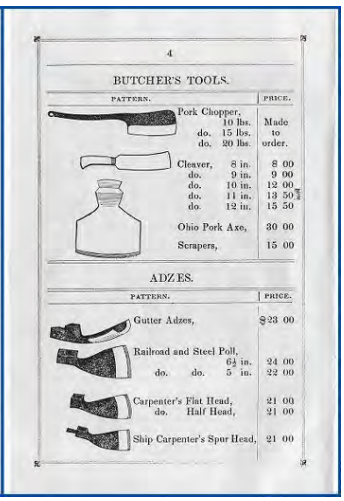
PATTERN.	PRICE.
Picks, assorted,	NETT. $10 50
Gold Diggers,	NETT. 11 50
Ice Hatchets, Spur head,	NETT. 15 00
do. Flat head,	9 00
Brick Hammers, No. 1,	6 50
No. 2,	7 50
Carpenter's Malls,	NETT. 12 00
Stone Sledges,	
Frows,	NETT. 10 50
Box Scrapers,	NETT. 5 00
Drifting Picks, 2½ to 3½	NETT. 10 00



PRICE LIST.

CHOPPING AXES.

PATTERN.	PRICE.
Kentucky, heavy, 4½ to 6¾,	$12 50
do. light, 4½ to 5¾,	12 00
do. medium, 3½ to 5½,	11 00
Georgia Long Bits,	12 00
Turpentine Axe,	12 00
Ohio, Western, N. E. or Maine, 2 to 3, 2½ to 3½, 2½ to 3½, 2¾ to 3¾, 3 to 4, 3½ to 4½,	10 50
Medium, 3½ to 4½, 3¾ to 4¾, 4 to 5,	11 00
Heavy, 4½ to 6¾,	11 50
Boys', handled, 2 to 2¾,	10 00
Axes, stamp of G. W. Kent,	9 00
do. do. do. handled,	11 00
Post Axes,	10 00
Spanish Axe, wide,	19 00
do. do. Media labor,	18 00
do. do. narrow,	17 00
Spanish Adze,	21 00
African Axe, 5 to 6,	17 00
do. do. 6 to 10,	28 00



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BUTCHER'S TOOLS.

PATTERN.	PRICE.
Pork Chopper, 10 lbs.	Made
do. 15 lbs.	to
do. 20 lbs.	order.
Cleaver, 8 in.	8 00
do. 9 in.	9 00
do. 10 in.	12 00
do. 11 in.	13 50
do. 12 in.	15 50
Ohio Pork Axe,	30 00
Scrapers,	15 00

ADZES.

PATTERN.	PRICE.
Gutter Adzes,	$23 00
Railroad and Steel Poll, 6½ in.	24 00
do. do. 5 in.	22 00
Carpenter's Flat Head,	21 00
do. Half Head,	21 00
Ship Carpenter's Spur Head,	21 00

Below is a list of names the Underhill Family and Underhill Edge Tool traded under.

American Axe Co
Amoskeag Axe Nashua
Blodgett Edge Tool
FT Underhill Manchester
FT Underhill
FT Underhill & Co
George Underhill
GW & Company
GW & Leighton
GW Underhill
GW Underhill Co Nashua
GW Underhill Nashua
Josiah Underhill
Jay T Underhill
Leighton Auburn
Leighton Luftin Auburn
Leighton Manchester
Leighton Manchester
SG & HR Underhill
SG & IT Underhill Boston
True Temper
True Temper Genuine Underhill
Underhill
Underhill & Co
Underhill Auburn
Underhill Boston
Underhill Boston 1842 Stamp
Underhill Bros
Underhill Brothers Boston
Underhill Brown
Underhill Brown Auburn
Underhill Brown Auburn
Underhill Brown Leighton
Underhill Co Nashua
Underhill Company
Underhill Edge Tool
Underhill Edge Tool Co
Underhill Edge Tool Co Nashua
Underhill Leighton
Underhill Leighton Boston
Underhill Leighton Lufkin
Underhill Manchester
Underhill Nashua
Underhill True Temper

References;

- *Don Dollard, Collector, Historian, Auburn NH*
- *Axe Manufacturers & Major Purveyors in Northern New England - C. 2013, Tom Lamond*
- *Underhill Edge Tool Co. 1859 Wholesale Price Reprint January 1980 - C. Ken Roberts (with pub lisher's notes)*
- *History of Nashua N. H. - Edward Parker 1887*

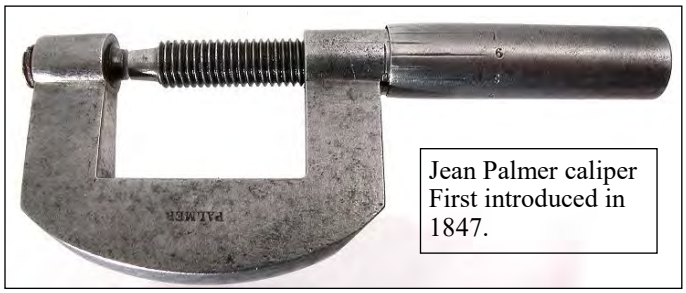
Joyce & Eric Robinson are the owners of The Vintage Tool Shoppe in Fremont NH. You will find their website filled with great unplugged user tools, and you can catch them personally in their shoppe Fridays, Saturdays, and Sundays from 10-4. We are one of the largest plane parts sellers in the world. We inventory approximately 1500 parts on eBay, with thousands more available.

Web site - website - www.thevintagetoolshoppe.com
eBay store - http://stores.ebay.comnewhampshireplaneparts/

The Micrometer Caliper: Early Development Years 1847 - 1884
by Richard A. Weymer

"The modern micrometer caliper, like so many important inventions, is the result of gradual evolution and the result of many minds and hands." (*Burlingame, L. D., (1915, June). How We Came to Have the Micrometer Caliper, Historical Sketch of The Development of Fundamental Principles and Improved Features. Machinery, P. 777).*

The first micrometer caliper ("mike") is attributed to Jean Palmer of Paris, France. Palmer devised and patented this device in France on September 7, 1847. It was a measuring tool that made use of a movable, accurately machined screw thread with a graduated thimble and graduations on the non-movable hub or frame. Palmer called his invention a "Screw Caliper" or "The



Jean Palmer caliper First introduced in 1847.

Systeme Palmer." Palmer's mike made it possible to directly read measurements quickly and accurately without having to make calculations. The Palmer mike was difficult to read and had no wear compensation features.

The first practical mike was developed by J. R. Brown and Lucian Sharpe of Providence RI. Brown and Sharpe saw Palmer's mike during a visit to the Paris Exposition in 1867. In spite of the difficulty in read-

Brown & Sharpe mike first introduced in 1868.

ing the Palmer mike, Brown and Sharpe saw the tool's promise. Upon returning to the U.S.A., The Brown and Sharpe Manufacturing Co. developed a "Pocket Sheet Metal Gage." This tool was developed at the request of an American brass manufacturing company which was concerned with a lack of national and international thickness standards for gauging sheet metal products. *Brown and Sharpe Mfg. Co. Catalog No. 142, 1941, p., 131*. Oddly, Brown and Sharpe never patented their mike. It was first introduced in 1868. This mike featured wear compensation with an adjustable anvil set in the end of the "U" frame and easy to read graduations on the thimble and frame.
Its capacity was .325" and was not meant to be used on products other than sheet metal.

Another Frenchman, Antoine Bonnaz, received an American patent for the development of the friction stop. This U.S. patent No. 141,915 granted on August 19, 1873; claimed "an improvement in micrometer gages." Burlingame, L. D., (1915, June). P. 777. This inno-

Antoine Bonnaz caliper introduced in 1873.

vation prevented damage to the mike by overtightening. After a reasonable amount of force was applied to the mike, its screw would slip and limit the amount of measuring force that could be applied. The Bonnaz mike shown is calibrated in metric measurements. This was an important innovation since overtightening a mike would bend its frame and make it useless for accurate measuring.

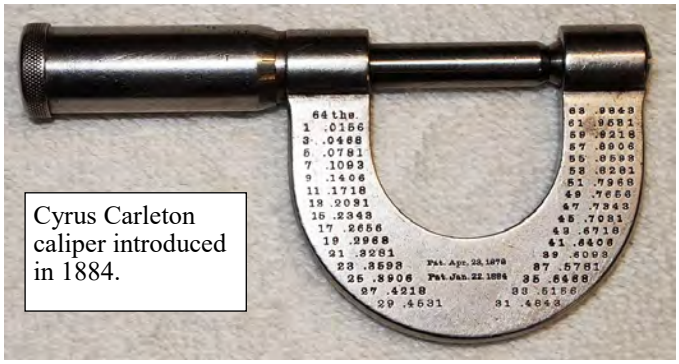
G. M. Pratt of the Victor Sewing Machine Co. Middletown, Connecticut developed a significant improvement to the mike. On April 23, 1878 Pratt received a patent for hardened inserts, or measurement points, to

G.M. Pratt caliper introduced in 1878.

be installed in the end of the micrometer screw and the on the inside of the anvil. Hardened inserts were more durable than the mild steel measurement points in use in other mikes produced at the time. This improvement

prevented distortion of the wear points and potential false measurements. Of note here are two issues: 1.) Victor mikes had a 1" capacity as opposed to the .325" capacity of the Brown and Sharpe's mike, and 2.) Victor mikes were made to the highest possible quality standards. Brown and Sharpe recognized these two points and in 1883 bought out the remaining Victor mike stock and the rights to Pratt's patent. Soon Brown and sharp would make mikes in additional inch sizes.

A new micrometer caliper was marketed in 1884 under U.S. patent no. 292,409 January 22, 1884, awarded to Cyrus Carleton and assigned to Brown and Sharpe. The Carleton patent mike claim was an improved method of taking up wear of the adjusting screw. This mike has two additional features: 1.) it does not have an exposed micrometer screw but a plain cylindrical arbor, and 2.) it is the first mike to have stamped decimal equivalents on the frame.


Cyrus Carleton caliper introduced in 1884.

In a period of 37 years, the micrometer caliper evolved from a relatively primitive and hard-to-use instrument to a practical and indispensable tool for use in all fields of precision measurement. The following improvements were made during that 37-year time period between introduction of The Systeme Palmer and the Brown and Sharpe Carleton patent mike of 1884:

Improvements to the Micrometer Caliper: 1847 – 1884

1. Precision-machined screws for measurement accuracy
2. Accurate calibrations on the frame and thimble
3. Wear compensation with the addition of an adjustable anvil
4. Inclusion of hardened steel measurements points
5. Friction stop to prevent overtightening
6. Increased capacity for measurement of larger items
7. Improved method of taking up wear on the adjusting screw
8. Plain cylindrical arbor to eliminate wear on the screw
9. Stamped decimal equivalents references on the frame
10. Additional sizes introduced (increments of one inch)

References and U.S. Patents Cited

Brown & Sharpe Manufacturing Co. Machinery and Tools Catalog No. 142, (1941). p. 131.

Burlingame, L. D., (1915, June). "How We Came to Have the Micrometer Caliper, Historical Sketch of The Development of Fundamental Principles and Improved Features". Machinery, P. 777 - 781.

Bonnaz, Antoine; Paris France, (1873, May 9). U.S. Patent No. 141,915

Carleton, Cyrus; Providence RI, (1884, January 22). U.S. Patent No. 292,409

CRAFTS Auction - April 25, 2020
Oldwick Fire House, Route 523, Oldwick, NJ
Inspection Starts at 7:30 Auction start 9:30
500+ tools for collectors & users

Tailgate sales of tools start at sunrise
Free setup for CRAFTS members - Non-members $15 to join
Set up a table & sell some tools to make some cash for the auction

The Taintor Saw Set

By Mark Conley

C. C. Taintor circa 1908.

Charles Chelsea Taintor was an inventor of one of the most popular saw sets and had a total of seven saw set patents. He was born June 25, 1838 in Sandisfield, Mass. to Jason Adkins Taintor and Maria Teresa Taintor. The picture of Charles is from 1908 edition of Taintor's "Care of Saws" booklet published by Taintor Manufacturing in New York City.

From an obituary in "Iron Age", he was a building contractor for a number of years in Springfield, Illinois. In 1871 he moved to Elisabeth, NJ and in 1878 started working for the publisher of "The Iron Age", "The Metal Worker" and "Carpentry and Building" Magazines. He worked as an advertisement solicitor for the above magazines and also contributed articles, sometimes writing as "Wood Butcher". He worked for the company until 1907. That year, Charles was the president of both Taintor Manufacturing and The Taintor Company. The saw sets were made by Taintor Manufacturing Company and the Taintor patent framing tool and the Meyer saw clamp were made by The Taintor Company. He was president of both of these companies until his death in 1914.

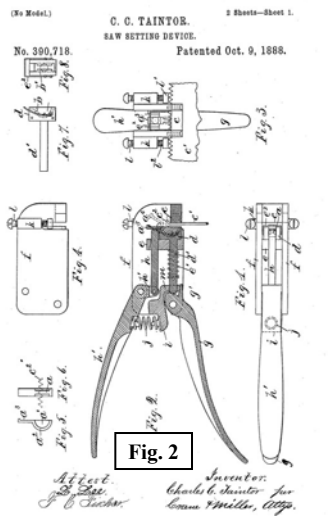


Fig. 2

Taintor's first saw set patent.

Taintor Manufacturing Company was the longest running and most successful of the independent saw set companies. By 1928 one of their advertisements in "Carpenter Magazine" stated that they had sold 1 million Taintor's positive saw sets. The company then continued for another 37 years until 1965, so the total output was far in excess of 1 million.

Charles patented his first saw set on October 9, 1888, Fig. 2. It incorporated the idea that as the handle was squeezed the punch grabbed the tooth and another section pushed the saw blade. Named Positive, it was a description of how the saw blade was held during setting. All of the Taintor saw sets have this pinch and set feature. It is not unique but it was one of the first to use this feature. All of the Taintor saw sets are two handled punch and anvil type. No examples of the original 1888 patent design are known by the author to exist.

Taintor's next two patents were in May 5, and May 10, 1891 Fig. 3. This saw set was known to have been manufactured, although the final saw set design is a combination of both patents. It was sold as the "Taintor Saw Set" and came in its own wooden box and Wiebush & Hilger, LTD were the sole agents for this design. It is fairly rare and is one of the two that are made out of cast iron. This patent has a marked adjustable anvil that can be adjusted for different tooth pitches. Although not called out by pitch or TPI, each section of the anvil has a mark. This feature is one of the first patents to use marked anvil. The name "Taintor MFG CO. NY" is stamped on the top of the anvil lock screw.

Fig. 3

Taintor's 2nd & 3rd patent saw set. Photo from the late Ron White.

Fig. 4

Taintor saw set with marked anvil.

The next patent was one year later on May 24, 1892 Fig. 5. This saw set was sold as the "Taintor's positive saw set" and has that cast into the handle along with "pat 88, 91& 92. This is the first time that that name was used for his saw sets. This was the second of the two cast iron saw sets and is also fairly rare as the 1891 patent is. This patent bears no resemblance to the actual saw set that was made. It uses the same pinch and set feature of all of the Taintor's and had a marked anvil with 16 different marked sections. There isn't any real call out for the TPI or pitch as on later saw sets. The anvil has A, B, C and D sections each broken into 1, 2, 3 & 4 sub-sections. This design was now sold by Taintor Manufacturing removing Wiebush & Hilger, LTD as sole agents.

Taintor's next patent was in June 13, 1893, again one year after the last patent Fig. 5. This design matches the patent and is the first saw set to be made out of sheet metal. Not just the first Taintor to be made out of sheet metal, the first saw set to be made out of sheet metal. Why he decided to do this will never be known, but the amount of parts and the simplicity of this design would have reduced the cost quite significantly. Almost no hand polishing was needed and a simple nickel plate or bluing was all the finishing that was needed. It again used the pinch and set feature and an adjustable rotatable anvil as on the 1892 patent. The anvil was simplified reducing the sections to three, F, M, and C. For fine, medium and coarse with 2 division labeled 1 & 2 for fine. Both medium and coarse had 4 each, labeled 3, 4, 5, 6 for M and 7, 8, 9 10 for C. To distin-

guish this from the 1892 design, it was named the "Taintor's Positive No.93". These are not as rare as the previous 2 cast iron designs and were made until the next patent design in 1900.

As with the last group of Taintor saw sets, the October 23, 1900 patent, does not look much different from the previous patent Fig. 5. They were named "Taintor's Positive 1900", and the main way to tell the difference can be seen in the picture, the spring changes from a double coil spring to a single coil spring. There is some change in the handle shape, but overall it looks very similar. These were sold until the next patent in 1907 and are about as rare as the 93.

Fig. 5

In July 30, 1907, Taintor patents his last saw set. This one is named "Taintor's Positive No.7" and is the biggest seller, perhaps of all saw sets Fig. 5. This design was sold until 1965 and is very common in all flea markets and on the internet. It was sold in both nickel plate as well as a gun type blue. Again there is not much difference between this and the 1900 other than the type of spring in the handle. Gone is the coil spring and replaced by a special spring.

The next design was sold as the "Taintor's Positive No.7 1/2" and it was sold as early as 1908 Fig. 5. The No.7 1/2 is identical to the No.7 with the exception having a reversible punch and hardened tooth guides. For smaller teeth (higher TPI) a thinner punch could be swiveled around by removing a small screw. The formed ears of the No. 7 are replaced with replaceable hardened ears. The hardened tooth guides or ears are small right angle pieces, which snap onto the side of the frame. At one time these must have been sold as replacements. The main way to tell the difference between this and the No.7 is the smaller punch hanging down under the front. It is not known how long the No.7 1/2 was made, it is fairly hard to find. So it may not have been for many years.

In 1908 Taintor released the "Taintor's Positive No. 8" Fig. 5. This design has all the same design features of the No.7 1/2 along with an adjustable lower handle. The handle slid into the lower handle and could be locked in place with a small thumb screw. This is about as rare as the cast iron saw sets and really must not have sold well.

Finally we come to the last Taintor saw set, the "Natural Grip Taintor's Positive No. 27" Fig. 5 The No. 27 is a No.7 with handles that are bent to try and simulate a pistol grip saw set that both E. C. Stearns and Stanley were selling. The No. 27 has the hardened ears just like the No. 8 and the No. 7 1/2. It was sold in 1927 which keeps with their naming scheme. Archie must have designed this saw set, because Charles had passed away by this time. Again an unpopular design that did not sell well. These are about as common as the 1900 and the No.93 and are sold either painted or gun blued.

Taintor manufacturing private labeled the No.7 to many different companies. Some of the other names seen on the No.7 are: E.C. Stearns, General, Danley, Setwell, and Henry Boker.

The saw sets were shipped to the hardware stores in wooden boxes, one half dozen per box Fig. 5. For some reason the boxes seemed to have survived and are not that uncommon. They came with the logo stamped on the end and also with a paper label. All of the boxes are for the largest seller, the No. 7.

Charles died on September 27, 1914 in Elizabeth, NJ at age 76. After his death his son Archie Raymond Taintor continued the business until August 1965 when he announced in "Hardware Age" that at the age of 84 he decided to close the company down because he was getting to old to run it. Archie was born in 1879 and he died in 1972 in New Jersey.

Taintor's Positive saw sets became one of the most successful saw sets of all time, by making a uniquely made product. The product evolved from a very expensive polished cast iron design to a stamped sheet metal design. When Taintor made these out of sheet metal he must have been on the leading edge of stamping design. Not much was made like this in 1893, when the first design was made. By using this method of manufacturing, the cost must have been dropped significantly. This might explain why Taintor manufacturing made it through the depression years and continued into the 1960's. If you work with saws try a vintage Taintor saw set - it shapes a good even set for hand sawing.

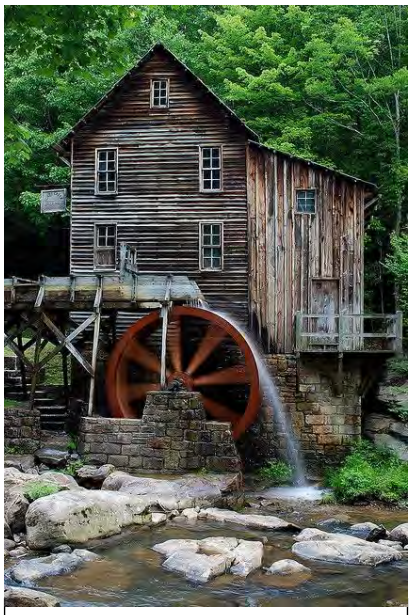
Grist Mills: Marvels of technology! Mega Machines made with hand tools!

By Ivan Raupp

Jeff Donat gave a presentation about local gristmills to CRAFTS.

Jeff Donat is a lover of grist mills. They have been his interest for over 30 years. He knows a lot about them especially grist mills in eastern Pennsylvania and New Jersey. He presented a detailed look at these wonderful old mechanical structures to CRAFTS members at our meeting on February 2nd, 2020.

Grist is defined as cereal grain. Cereal grains include wheat, corn and rye which were grown on the farms in Pennsylvania and New Jersey. A grain is a small, hard, dry seed, with or without an attached hull or fruit layer, harvested for human or animal consumption. Grinding to various levels of fineness and sifting are fundamental to the grist mill process.



Grist mill building with a overshot

Critical to the success of any colonial grist mill is a source of water or wind power, a system of transportation which moves the grain from the farm to the grist mill and the flour back to the farm, and skilled workers including the miller and the mill stone dresser.

The history of grist mills began with the earliest humans who planted and harvested grain. Jeff described early mills that were two simple stones that were rotated against each other by hand. Other early mills included larger stone mills and mills made of rotating tree trunks.

As civilization developed and populations got larger more sophisticated mills were built. The Greeks and Romans got into the milling game early. These mills were run by water power and they could efficiently produce much more flour. Several approaches were tried. Portuguese turbine mills were in use around 25 B.C. Roman "conical" wheels were also early inventions but they did not work well and were superseded by better designs. Vetruvian mills used the first vertical water wheels. The inventor of the gearing system was Vetruvious in 25 B.C. These mills are referred to as the Vetruvian mills.

Eventually the best mill design came to be two large stone wheels set on top of each other. The bottom stone or "nether" stone was secured unmoving on the mill floor. Placed above it was a top stone which was rotated by a shaft passing through a hole in the nether stone. The separation between the two stones could be adjusted to fine tolerances, As the top "runner stone" revolved grain was ground between the heavy stones. A mill stone crane was used to raise the runner stone so that it could be tipped over and regrooved after being dulled buy grinding.

Typical gristmill grinding stone showing the grooved pattern.

Mill stones were often made of French Burr stone and weighed approximately 1 ton each. The French burr stones were imported into the United States as ship ballast. Grooves were carefully cut in each mill stone. They had to be recut from time to time because of wear. A skilled mill stone dresser specialized in this work. He had a set of special tools to do this. Included were a pillow to kneel on, a couple of stone hammers a trammel and a level. The trammel is a wooden board placed on the millstone axle and used with a feather quill to locate high and low areas of the bottom stone. The mill stone dresser also used a type of steel level called a proof staff. Millstones had to run level. Plaster of Paris was applied to the top of the runner stone to help achieve balance.

Powerful water wheels drove the gears and shafts that powered the runner stones. The most effective wheel was the overshot wheel which maximized the potential energy in the weight and momentum of the water. The breast wheel received its water half way down and the undershot wheel received its water at the bottom.

Some of the wood gears used in a gristmill.

Friction was a source of concern in all grist mills. Friction in grinding could scorch and ruin the quality of the flour produced. Dust was ever present and posed a real danger in the form of explosions and fires. Over time, stone mills replaced wooden mills wherever possible.

Oliver Evans was a genius millwright who lived between 1755 and 1819. He revolutionized the

design and performance of grist mills. He developed a system whereby water power not only drove the mill stones but also powered an integrated system of augers, linked buckets, elevators, and winches which automated much of the labor involved with milling. The three floor mill became common. Each floor had sifters and related equipment powered by water. Mills became ever larger and more efficient. With the development of the iron industry from 1840 on, cast iron turbines began to replace the old wooden water wheels. The year 1840 was the high point for the number of grist mills in the US. There were 4,300.

Jeff gave us an overview of other types of mills including tower mills, wind "pumping" mills and tide mills.

The Nathan Cooper Gristmill is a historic gristmill on the Black River in Chester Township, Morris County, New Jersey. From the 1760s until 1788 Isaiah Younglove milled flour on the site. Several other millers owned the mill, until Nathan Cooper constructed the present mill in 1826.

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Westward expansion changed the character of the local grist mill over time. Roller mills replaced grind stones. Gradual reduction milling was born as was the dreaded "white" lung disease caused by flour dust. The vast abundance of midwestern grains and development of Railroads shifted the center of milling to the midwestern states. Huge structures with hundreds of roller mills were constructed. Rail roads distributed the raw materials and finished goods across the nation.

Grist mills and their attraction are important elements of our culture. Jeff described several local mills in New Jersey and across the Delaware in the Lehigh Valley. He has a wonderful collection of old post cards showing grist mills which he shared with us. They included the notorious "Grovers Mills" and a book, The Secret of The Old Mill ,featuring the Hardy Boys.

Check out "Spoom": "Society for the preservation of old mills" https://www.spoom.org/

Thanks Jeff for a very interesting presentation!
Jeff Donat can be contacted at jeffdonat@hotmail.com

Haines Mill Museum in nearby Allentown offers tours: https://www.discoverlehighvalley.com/listing/haines-mill/3106/

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March 14 - David Stanley Auction - Leicestershire, England. www.davidstanley.com. phone - 011-44-1530 222320

March 20-21 - Donnelly Antique Tool Auction, Indianapolis, IN. - www.mjdtools.com

April 3-4- Brown Tool Auction , Radisson Inn, Camp Hill, PA. Jim Gehring, 800-248-8114 - www.finetoolj.com

April 5 – Crafts of NJ Monthly Meeting, Masonic Lodge, High Bridge, NJ, Ivan Raupp, ivanraupp@aol.com.

April 17-18 - Donnelly Antique Tool Auction, Nashua, NH - www.mjdtools.com

April 25 - CRAFTS Auction, Oldwick Fire House, Rt 523, Oldwick, NJ - Cliff Nagle - 908-722-2955

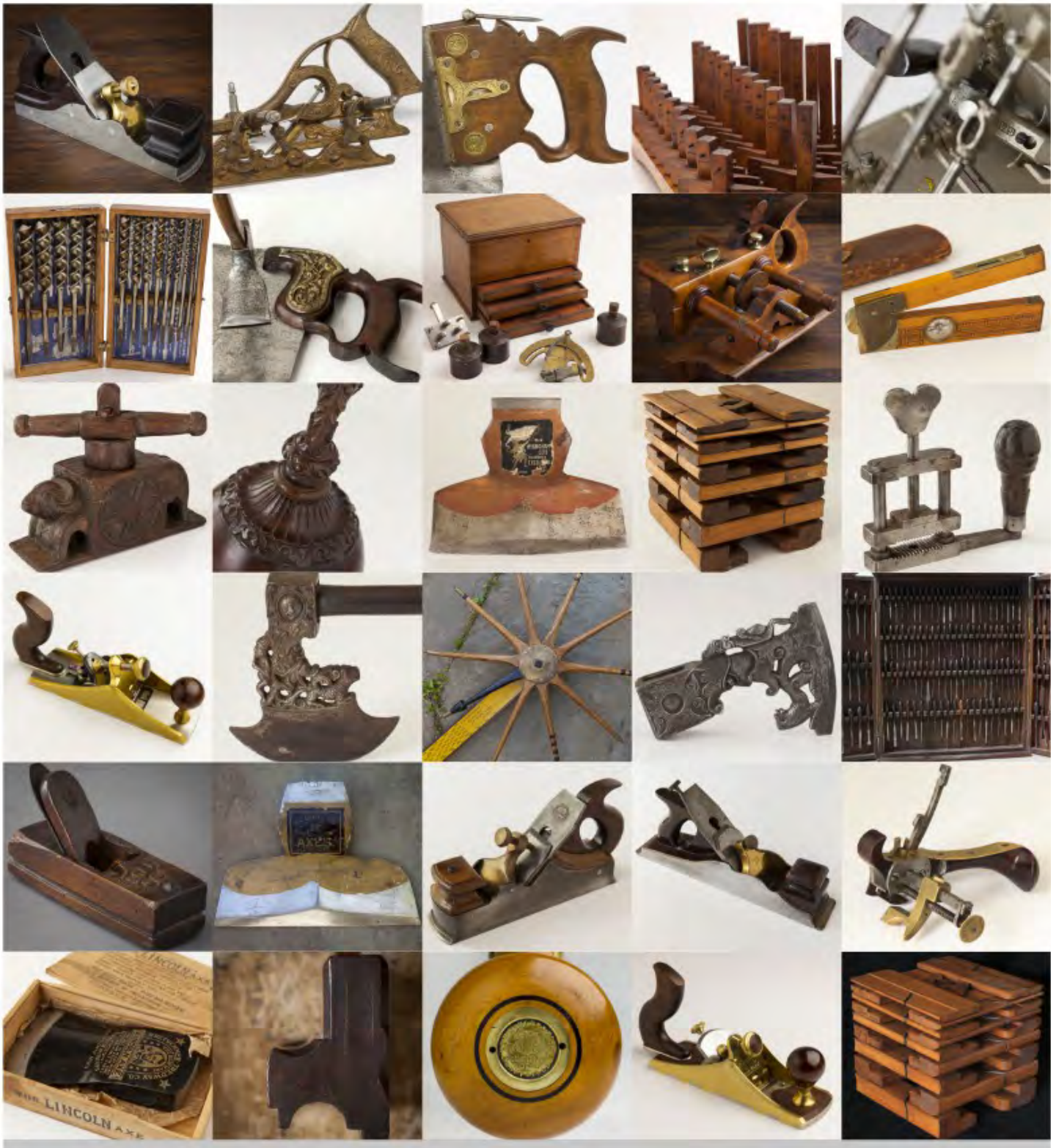
April 26 - M-WTCA Area P Meet, Adamstown, PA, 2800 North Reading Road, Don Stark, Starkcd@aol.com, 717-367-5207.

May 15 - David Stanley Auction - Leicestershire, England. www.davidstanley.com. phone - 011-44-1530 222320

CRAFTS Director Hank Allen Passes Away

Hank Allen holds his presidents Award

It is with a sad heart that I have to report that CRAFTS member and good friend Hank Allen has passed away. Hank was a long time member of CRAFTS and was a very active director of the club. During the 1990's and early 2000's he was the editor of the Tool Shed, and later took on the position of treasurer. I took over for Hank as editor and was lucky to receive his guidance with the Tool Shed. When I started attending the Nashua Donnelly auctions I often was a part of Hank's dinner group. Hank assembled these groups very carefully to draw together some of the most knowledgeable antique tool collectors around. Later in the evenings he would lead the festivities in the hotel lounge till closing time. He did this for 60 consecutive auctions, and I was lucky to attend many of these get-togethers. I was always amazed with his quick wit and great intellect. He was a giant of a personality and will surely be missed. I will be sure to honor his inspiration at the upcoming Nashua auction lounge gathering.



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