The TOOL SHED

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British Tools

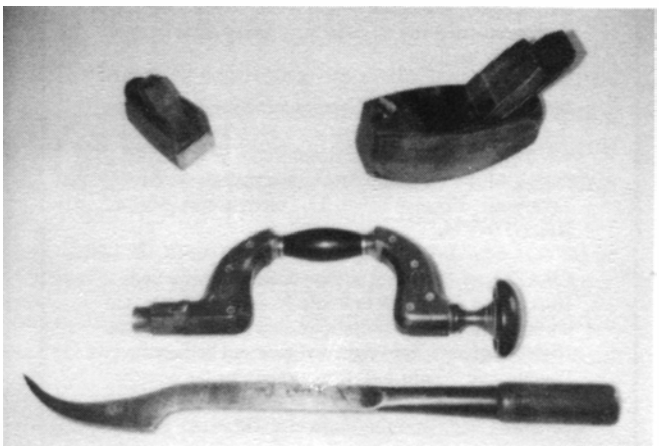
by Peter R. Habicht

More and more we are hearing reference of "English" tools, really we should say "British" tools. Many of us forget, or do not realize, that Scotland is not a part of England. Scotland, Wales, and Northern Ireland are a part of Britain or more correctly the United Kingdom (UK). It was not too long ago that Scotland had its own monarchy. Even today Scotland has its own parliament and bank. So let's not refer to these great tools made by Mathieson and Spiers, or tools from such towns as Perth or Aberdeen as "English" - they are "Scottish."

England followed by Scotland were the principal manufacturers of woodworking tools in Britain. There may have been a few planemakers in Wales in the late 19th century, such as Hawkins and Webb in Newport, and Munday in Holyhead. Likewise Keller and Mulholland in Belfast, Lewis in the Isle of Man, and John Hubert in Jersey each made tools around the turn of the last century.

What makes British woodworking tools different? They certainly are well made but aesthetics definitely sets them apart. British tools were often made of exotic woods (such as ebony, rosewood, padouk, and mahogany) and trimmed with brass fittings, or even of just a nice piece of beech or ash trimmed with brass. In the 1800s the British cabinetmaker's chest would be full of great-looking tools: maybe an Ultimatum or brass-framed brace, an ebony and brass mortise gauge, brass-backed saws, perhaps a Scottish level with its "fancy" brass top plate, and brass or gunmetal planes of all types and sizes stuffed with rosewood, ebony, mahogany, or some other fine woods. Even the chest itself would be beautifully veneered on the inside just as though it were a fine piece of furniture.

Until recently British tools have not been that popular with U.S. collectors. I remember my first few years as a tool dealer. I would often hear the passing remark, "Oh! He only has English tools." Many wives and girlfriends loved them - they could see the beauty of the British tools. The men could not see any collectible value or investment value. Supply and demand usually dictate price; it is not surprising therefore that the U.S. tool is higher priced than the British tool. This was also true several years ago with antique furniture. A fine chest or table made in the early 1800s in Philadelphia would be much higher priced than the same type of piece that was made in London, maybe 10 or 20 years earlier. In more recent years with the increasing popularity of antiques and the arts, and the greater knowledge of British antiques, there may be little if any difference in the price.



Unique British Tools (top to bottom): brass-fronted beech bullnose plane, adjustable wood compass plane, metal-framed or Ultimatum brace, goose or swan-neck lock mortise chisel.

(continued on page 4)

April 8 - CRAFTS Tool Auction
Flemington, NJ, Elks Club

April 9 - CRAFTS Meeting
High Bridge, NJ, Masonic Lodge
Design and joinery of a Queen Anne Lowboy
Program by Frank Klausz, Master Cabinetmaker

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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 twelve dollars for the membership year of July 1 through June 30. Membership fees may be sent to the Treasurer: Helen Whelan, 38 Colony Court, Murray Hill, NJ 07974.

CRAFTS of NJ meets at the HOST Masonic Lodge, High Bridge. 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 1 P.M.; meeting starts at 2 P.M.

The TOOL SHED

Published five times a year for members of CRAFTS of New Jersey. Editor: Stuart Shippey, 251 Hillside Ave., Chatham, NJ 07928-1732. Managing Editor: Hank Allen, 524 Harristown Rd, Glen Rock, NJ 07452. Articles, especially about early tools and trades, are encouraged and may be sent to the editors. Please send legible hand-written or typed text, or a PC disk with ascii, *Word Perfect®*, *MS-Word®* file, or send it by FAX to 201 301-9781 or 201 635-7939 (talk first).

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CRAFTS Calendar of Events

March 31 - *ToolShed* and free ad deadline

April 8 - CRAFTS Auction, Flemington, N.J.

April 9 - CRAFTS meeting, High Bridge, N.J.

Speaker's Profile

Frank Klausz

If you've ever picked up a chisel or smoothing plane with serious intent, you probably know about Frank Klausz. Frank has written numerous articles for *Fine Woodworking*, *American Woodworker*, and other publications. He has three videos and has given seminars and demonstrations around the U.S. and Canada. He has appeared twice on Scott Phillips' PBS *American Woodshop* (WNYW, 9:00 a.m. Saturdays).

When I visited Frank's Cabinet Shop in Pluckemin, I found one office wall covered with letters of appreciation from clients and friends, and family pictures prominently displayed at his desk. Frank's wife Edit manages the shop's financial affairs. "I couldn't have this business without her," he says proudly. They have one son, Frank III, a Harvard graduate who is now planning his MBA studies, and one daughter, Erika, a junior at the Boston College School of Education who plans to be a teacher.

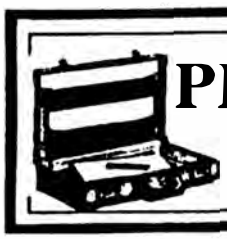
The main shop, and every adjoining space, was filled with furniture crafted for New Jersey's State House. I selected an exquisitely carved table to photograph for you. Every commission comes by recommendation, because Frank doesn't advertise. As we talk about work that he must turn down, Frank smiles as he admits that he will still repair an ordinary piece of furniture for one of his early customers.

For our meeting on April 9, Frank will bring one of two Queen Anne lowboys that he works on one night a week, as four of his students work on theirs. His students are advanced hobbiests who thought they could begin with the lowboy! "Show me first that you can make a lap joint," said Frank. So, after mastering basic tools, and making some joints and a small piece to Frank's standards, they were allowed to start the lowboys. Mastery of basic techniques underlies his teaching, and he laments this isn't more common.

Frank will tell us about the features of Queen Anne design, and describe the joints on his lowboy and why each is used. He'll also describe how he makes a cabriole leg and demonstrate how to make a proper mortise and tenon joint. Before the meeting you may want to reread Frank's article in the February 1993 *ToolShed*, and also Herb Kean's interesting profile of Frank in the same issue.

I'll remember my visit to Frank's Cabinet Shop for a long time. And, you'll remember this program.

Hank Allen



PRESIDENT'S CORNER

One of the most helpful of CRAFTS trustees, Greg Welsh, was stricken with a stomach aneurism and has been in intensive care at Morristown Memorial Hospital since Dec. 21. At this writing (Feb.7) he is recovering slowly, not yet able to receive visitors. He does welcome your cards and good wishes. Even more welcome would be a blood donation in his name (he has needed over 100 units).

On another sad note, Ray Townsend died December 2. A member of CRAFTS since 1978 and of many other tool clubs, he is well known for his many contributions to our literature. He obeyed his own pet admonition to: "Share your knowledge; don't save it for St. Peter."

The Mid-West Tool Collectors' regional meeting in York, PA, on January 28-29 was well worth attending. Bill Warner made everything run smoothly, from Barry Hurchalla's auction to an impressive range of dealers' displays. It was held in the Industrial Museum in York, which is well worth a visit if you are in the vicinity. CRAFTSmen Dan Ludwig and Don Stark took prizes for their tool displays.

The Museum of Early Trades and Crafts in Madison, NJ is planning an exhibit on New Jersey tools, and is seeking the loan of these for a period of one year. CRAFTSman Malcolm Dick will be coordinating this. Of particular interest are artifacts for leather working, hat making, Colt's Paterson operation, and pressing irons. Their owners will, of course, be credited. If you can contribute, please call the Museum at 201-377-2982.

Welcome to new members: Fred Bell, Lillooet, British Columbia; Jay Briggs, Cameron, WV; Arthur Burns, Everett, WA; Dave Casteel, Bowling Green, FL; Gregory Davis, Danbury, CT; John Eliasen Jr., Grand Marais, MN; Dave Englund, Seattle, WA; Bob & Sonja Falvo, Pound Ridge, NY; John Flory, Morristown; Robert Hall, Hauppauge, NY; Terry Hansen, Lavaka, AR; K.A. Henderson, New Castle, WY; Donald & Judith Johnson, Stroudsburg, PA; Robert & Maryann Maass, Pompton Plains; Melvin Parr, Tacoma, WA; Bill & Norma Rigler, Wartrace, TN; Frank Travis, Glenmont, NY; Bill & Linda Ward, Schenectady, NY; Bobbie & Greg Wilinski, Springfield, VA; and Cliff and Harriet Yaun, West Hurley, NY.

Meet Your Dealers

The purpose of this column is NOT to evaluate dealers, but simply to present useful and interesting information about sources of tools.

Frank Kosmerl's involvement with antique tools began with visits to flea markets and antique shows in the early eighties. Comparing weekend acquisitions with those of co-worker Bob Loftus (one of the founders of the Western New York Antique Tool Collectors Association) fanned his interest and increased his tool knowledge.

He never restricted his collecting to a narrow field, although he has special interests in braces, axes, saws, and New York State planes. Inevitably, space soon became a problem. The quarterly Western New York meetings didn't dissipate his duplications quickly enough, so he was forced to the more radical solution of becoming a dealer. Renting a booth in a group shop (later expanded to three more spaces), responding to ads in tool publications, appearing at tool auction dealer sales, and tailgating made the space problem at least manageable, if not solved permanently.

With his tools selling at an encouraging pace, there was justification for buying more and more tools. Frank warns that becoming a dealer will not alleviate your space problem! But it adds enormously to your fun!

Exposure to every opportunity to handle tools has developed his tool sense and made him a valuable source of information. He finds that every weekend yields sightings of different and interesting items, not only of tools but related mechanical, scientific, kitchen etc. items. You may find these on his sales tables. The better tools of the trades rarely gather dust on a vendor's table if caught by his eye and reasonably priced. Frank cheerfully agrees to buy them all and use his own dust to cover them until the collector or user appears. He always welcomes requests addressed to Frank Kosmerl, 432 Hollybrook Rd., Rochester, NY 14623.

Jack Whelan

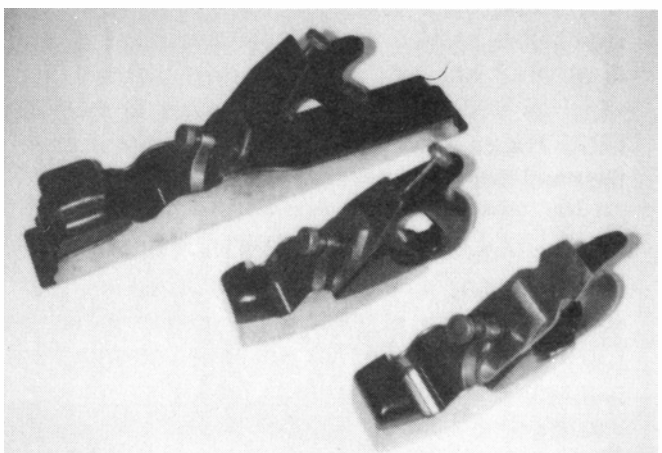
British Tools continued
by Peter R. Habicht

British tools are becoming more popular as collectors learn more about them and prices are rising, but for the most part they are still underpriced. Compare the price of a plane made in London by Wooding with a plane made by F. Nicholson in Wrentham, Mass. only a few years later. Just about any tool made in England or Scotland in the 18th century will be less expensive than its American counterpart. As with general antiques, I believe that the prices of British tools will increase dramatically over the next few years and become closer in value to American tools. We are already seeing significant increases in prices for rosewood-stuffed, dovetailed-soled planes made by Norris and Spiers. And what about some of those rare gunmetal planes made by Norris, or the plumb bob that sold at David Stanley's last auction for - £1050- ($1600). Lets face it, British tools are a great investment.

Let us look at some of the history of British tools. The earliest known wooden planes are those that were found on King Henry VIII's ship Mary Rose when it was discovered at the bottom of the English Channel. These tools date to about 1545 and have been described in detail in W.L. Goodman's book on British planemakers. The ship and its contents (including the tools) can be seen at the Royal Naval Maritime Museum in Portsmouth, England. More "recently," in the late 1600s, Thomas Granford 1687-1713, Robert Hemmings 1676-1695, and John Davenport -1680-, are known to have been planemakers in London. Several examples of Granford planes are known, but there are only four by Davenport, and none have been identified as being made by Hemmings. In America, F. Nicholson (Wrentham 1728-1753) was the first recorded American planemaker. Up until the middle 1700s there were only a handful of British planemakers, all of whom were in London. By the end of the 1700s there were at least 60, and most of these were in other large industrialized cities including Birmingham, York, Bristol, Edinburgh, Liverpool, Manchester and Glasgow. There were none in Sheffield; that is where the plane iron makers and some of the other tool makers set up their businesses. More on that later.

Through the 19th century British planemaking was at its peak and in many smaller towns throughout England and Scotland you could find a planemaker. This was similar to the spread of planemakers throughout the U.S. Many traditional British planemakers continued in business well into the 20th century. The British cabinetmakers, unlike their American counterparts, were slow to mechanize which extended the need for wooden planes. William Marples & Sons (for example), the last British wooden planemaker, closed shop in 1965.

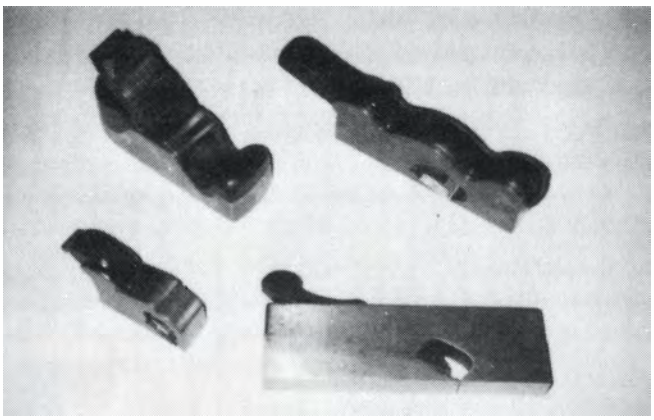
Metal planes have been known since at least Roman times. In Britain metal planes were first offered in the late 17th or early 18th century as high-priced tools to meet the demand of high-quality furnituremakers much as the Ultimatum brace was offered later. Although Stewart Spiers in Ayr, Scotland was the first to offer a "complete" line of such planes, there were a few metal planemakers in England. For the most part they made metal mitre planes having very fine mouths that proved outstanding for cutting end grain. Benjamin Frogatt, a well known maker of wooden planes, 1760-1790, was one such maker. These early planes were made from wrought iron with sides that were dovetailed to the wrought iron sole. Dovetailing is not usually associated with metal working, other than the coppersmiths, but is known by woodworkers for its strength and durability. Later, planes having brass or gunmetal sides dovetailed to wrought iron soles were made and included shoulder, rabbet, chariot, and bullnose planes. These planes were usually filled or stuffed with rosewood, mahogany or European or French walnut. By the middle 1800s a variety of metal planes with cast iron and gunmetal bodies were being made. Cast iron tends to be a brittle material so it is not unusual for these planes to be found with a chip or even a crack.



Wood-stuffed metal planes by Norris and Spiers.

Stewart Spier of Ayr, Scotland is one of the best known makers of high-quality, dovetailed-soled, metal planes. He offered a full line of planes through to the second half of the 19th century. A story is told that he started his business in 1840 after purchasing a metal plane casting for 1s.6d (about 12¢), finishing it and selling it in his native town for 18s. (about $1.50). Not a bad profit! Although many of the smaller planes had been made in England for many years, Spiers was probably the first manufacturer to make the larger smoothing and panel planes. In fact Spiers offering of such an extensive line of high-quality, wooden-filled planes probably led to their great popularity. Other manufacturers including Edward

Preston, Thomas Norris and Alex Mathieson soon got involved, and hundreds of these planes were made by the end of the 19th century. In addition there is a large number and variety of metal planes having only a user name. These were in fact often made by the user himself from castings and parts sold by his local plane dealer.



Examples of various wood-stuffed metal planes.

A plane is not much use without an iron or cutter. Some of the first plane iron manufacturers were in Birmingham, such as William Crosby (1718-1742), whose irons have been found in Robert Wooding planes. Through the 19th century, Sheffield was the principal center for the manufacture of plane irons. In fact, probably 95% or more of British plane irons were made in Sheffield. Remember, that Sheffield was the center of the British iron and steel industry. It was centrally located and had an abundant supply of raw materials. One of the most important developments in the world's iron and steel industry was the invention by Benjamin Huntsman (1740-1750) of Cast Steel or Crucible Steel. This was a high-carbon, purified steel which Huntsman invented for improved clock springs, but was soon found to be an outstanding steel for edge tools. Because of its brittle nature and high cost it was almost always forge welded to a more ductile piece of wrought iron which comprised the greater bulk of the cutting tool. Hence with an early plane iron, chisel or axe we look for this applied cast steel edge which is usually quite visible because of the significant difference in the material properties. It is noteworthy that this Sheffield invention was so important and resulted in such a superior cutting steel, that most of the early American planemakers used plane irons manufactured in Sheffield. In addition, prior to American Independence in 1766 the manufacturing industries in this country were suppressed or even outlawed. Britain wanted its colonies for their raw materials and, in turn, Britain sold them finished goods in exchange for even more raw materials. So, the close similarity between metal (brass, iron, steel) fittings on many American planes is because the parts were manufactured in Sheffield or Birmingham, England.

As an aside, Sheffield, Massachusetts, where I live is so named because it was one of the earliest centers of the American iron and steel industry with its local supply of bog iron (iron ore), limestone, and hardwood for the charcoal to fire the smelting furnaces.

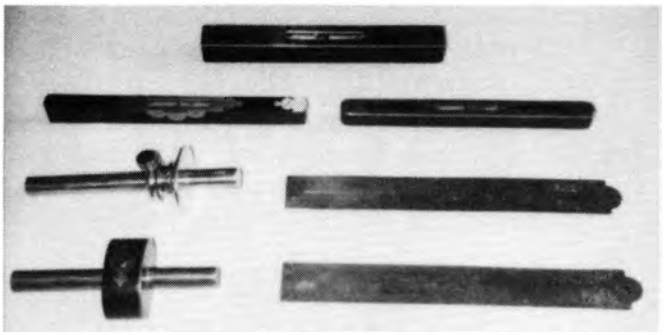
One British tool that has been very popular with the American collector for several years is the brass plumb bob. The British bobs tend to be more ornate and shapely than their American counterparts. The more well-known ones are onion or turnip shaped. Many of these were manufactured by Edward Preston and William Marples, and range in sizes from 00 (1½ oz) to 12 (4 lbs.). For the most part however the British bobs were unmarked, other than being stamped with the owner's initials or name. Another difference between British and American bobs is patented and mechanical plumb bobs. While American ones abound, I know of only fourteen patented or mechanized British plumb bobs. Any of you who have read The Plumb Line by Bruce Cynar are familiar with large numbers of mechanized, American-patented plumb bobs from the late 1800s into the early 1900s.

There are a number of British tools that were either not made in the U.S. or were only made in very small quantities. This may have been due to mechanization in the American cabinet shop or the fact that there was a different tool made by someone like Stanley that performed the same task. Examples of these tools include:

The Goose or Swan-Neck Lock Mortise Chisels
Adjustable Wooden Compass Planes
Sliding Box and Stopped Chamfer Planes
Metal-Framed or Ultimatum Braces
Iron and Bronze Chariot Planes
The Little Brass-Fronted Beech Bullnose Plane
The Badger Plane
The Sheffield-Style Wood Brace

In addition many of the great carriage or coachmakers planes were unique to the British manufacturer, such as: the wheelwright's jarvis and nelson, often fitted with brass wear plate and brass bands to strengthen the throat, and the various shaves, jiggers and routers that were used to shape around windows and door frames.

Along with the tools that were more unique to the British manufacturers there are many tools whose design and appearance are classic to the British Isles. As I mentioned earlier, the British craftsman demanded tools that in addition to being functional were aesthetically pleasing. Some of these classic British tools include ebony and brass mortise gauges, solid brass mortise gauges, and brass-topped levels. Levels were made in all shapes and sizes, in a variety of tropical woods, and with very ornate top plates. In addition, there were ebony and brass mitre squares and a whole variety of beech or boxwood planes and shaves that were trimmed with brass or had brass adjustments and wear plates. Even many of the screw



Classic British tools.

drivers or turnscrews, as they were more commonly known in Britain, were very shapely and often had ebony or rosewood handles with brass ferrules. This tool was a very important tool in the British shop and was used not just for driving screws, but also for adjusting and setting craftsmen's tools. Here is yet another point where a difference exists between British and American tools. British marking and mortise gauges and bevel squares required a screwdriver for adjustment, whereas an American tool often was fitted with a convenient thumb screw.

Although there is a great assortment of British woodworking tools, patented tools are few. The British crafts were steeped with tradition and new ideas were looked upon with suspicion. In fact most British craftsmen considered the design of a patented tool to be flawed such that it would probably not perform as well as the traditional tool. In some cases the craftsmen were right.

One of the better- known, successful, patented British tools is the Ultimatum Brace which was first patented by John Cartwright of Sheffield in 1848. Another is the A5 Norris plane with its patented iron adjustment, which still makes this a very popular user plane for a number of quality furnituremakers. Other successful patents include: the Kimberly patent plow plane, which had an iron adjusting screw for setting the fence which was supported on two iron rods or stems; the James Silcock patented metal combination plane; the Pilkington and Pedigor's patented "Sheffield-Style Brace;" and George Horton's beautiful brass-framed brace.

The second part of this article which will follow in the next edition of *Tool Shed* will describe some of the better known British tool manufacturers, provide some reference materials, and list a number of British dealers.

Peter Habicht was born in England. With a Master's degree in welding metallurgy, he has worked in the nuclear power industry, primarily in New England, and now has his own business as a consultant on materials corrosion. Starting in 1969, his wife, Annette, has built a business specializing in English antiques, including a few tools. It was natural for Peter to expand that line, and he has become a leading authority on British tools. Ed.

An Acre According to the OED
by Al Hodge

In Bob Fridlington's article on the transition from wooden to metal plows (Plowing Through, From Wood to Metal, April 1994 *Tool Shed*) he states that an acre of ground could be plowed in a day with an 18th century plow. The entry for "acre" in the Oxford English Dictionary (OED) confirms this:

> *Sense 2. A definite measure of land, originally as much as a yoke of oxen could plow in a day; afterward limited by statutes 5 Edw I, 31 Edw III, 24 Hen VIII to a piece 40 poles long by 4 broad or its equivalent of any shape. {Note: The pole (for agricultural land measurement) is the same as a rod and equals 5 1/2 yards. Thus 160 square poles equals 4840 square yards.} Normally the 4 pole width was understood to consist of 32 furrows of the plough, a furlong in length.*

For reasons I do not understand Scotish and Irish acres are considerably larger than an English acre.

What is striking here is the lack of improvement in plow work productivity over seven centuries or more.

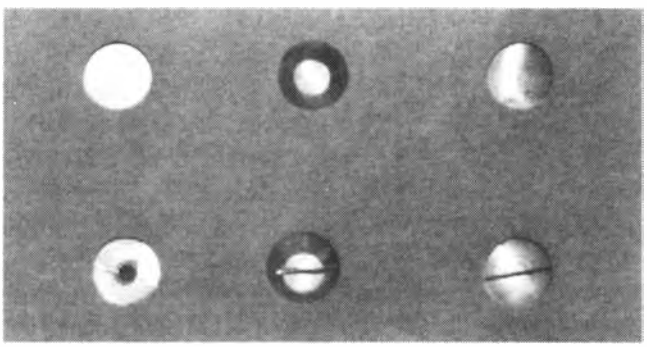
A furlong is described in the OED as originally the length of the furrow in a common field, and as early as the 9th century it was regarded as the equivalent of the Roman "stadium" which was 1/8 of the Roman mile. Today an acre is still 160 square rods or 4840 square yards or 1/640th of a square mile. A furlong remains 40 rods or 220 yards or 1/8th of a mile.

From the above you see the antiquity of our common land measures. I bring this to your attention to illustrate the utility of the OED for those interested in tools, crafts, measures and history in general. This is hardly an original thought. Henry Mercer's reference to the "New English Dictionary" puzzled me until I learned that the original title of the OED was A New English Dictionary on Historical Principles. First proposed in 1857 it was published in sections over the years 1884 to 1928.

Saw Screws by Hank Allen

My curiosity about saw screws was aroused by items in The Chronicle in 1992 and 1993 by Bob Gilmore, Larry Brundage and Ken Cope. Bob started by writing about a Harvey Peace saw with a patent date of Dec. 21, 1869 on the label screw. This was identified by both Larry and Ken as the Daniel Munger patent for a "Method of Heading Screws." It's a general patent for screws, but saw screws is the only use Munger mentions in the patent. Munger and Rufus Hithhcock, both from Watertown, Connecticut, were joint assignees of the patent. (I have just found that Cliff Fales wrote about the Munger patent in the September 1990 Chronicle.)

I collect saws, but for hand saws I collect only those with the early split screws. None of us is perfect, however, so I do have a few saws with modern screws. I have wondered when the transition took place from the early split screw to the modern screw. One clue was that saws marked *Henry Disston and Son* have split screws and saws marked *Henry Disston and Sons*, with few exceptions, have modern screws. So, my guess was that the transition came sometime after *Son* became *Sons* in 1871. And, I was pretty sure the change came after 1876 because the Disston catalog of 1876 (Roger Smith reprint) showed only saws with split screws. But when?



Split Screw Raised Screw Modern Screw

This article has to do with the screws that fasten saw handles to saw blades. You might think saw screws are really bolts since they have nuts. But some screws have nuts too, and every old catalog I have seen uses the term saw screws. Some inventors did call them bolts or screw-bolts in their patents. Before proceeding I want to define what I mean by *split screws* and *modern screws*. *Split screw* is what I call the early screw that has a flat head flush with the handle and a flat nut, flush on the opposite side, with a slot and a hole threaded to receive the screw shank. Thus, the slot is split by the shank coming through the nut, and a spanner-type screwdriver is required to tighten the nut. *Modern screw* is what I call the later flush saw screw, usually with slightly rounded head and nut, whose slotted nut has an integral tubular projection to receive the shank so that the connection is internal to the handle. Actually, there is an early screw that has an internal connection, but its head is not flush with the handle. Coexisting with the split screw for many years, the *raised* or *raised-cap* screw was used on the fancier saws of many firms. Wheeler, Madden and Bakewell's 1860 catalog (EAIA 1976 reprint) shows them on several saws, often with a steel plate on the handle covering the area where the screws are inserted. A *label screw* is the screw made with a broad head so that a logo or name can be stamped on it. It is also called a trademark screw. Sometimes *common screw* is used to mean other than a label screw.

One of the problems with early screws is that they are cast, usually of brass for appearance, and tend to be brittle. The first improvement of the cast saw screw that I know of came with the F. Washbourne patent of Dec. 31, 1867 (#72,766). Washbourne was from New York City. According to his patent, "Improvement in Bolts for Saw Frames &c.," Washbourne formed the head and shank of his screws separately from wrought brass which is tougher and stronger than cast brass. The shank was then soldered or brazed to the head (brazing is using fillers that melt above 800 degrees, soldering is under). Both label and common screws were made in this way. Washbourne claimed his screws were cheaper.

Munger's patent (#98,180) claimed that cast screws and soldered screws were, "not sufficiently strong to withstand the strain upon the saw". Munger formed his screw using a perforated disk for the head and a shank that had been upset to form a small head. Both were then placed together in a die and the shank driven into the head until fully embedded as shown in Fig. 5 of Illustration 1. Figures 2-4 show the parts before assembly, Fig. 6 shows a head and shank positioned in the die, and Fig. 1 shows the completed screw.

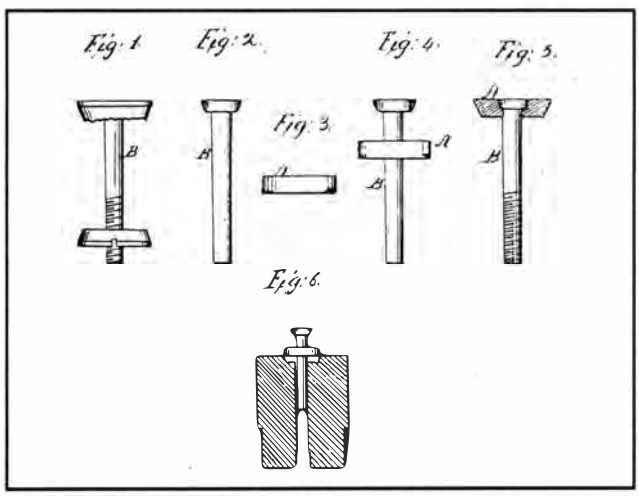


Illustration 1. Munger Patent, Dec. 21, 1869

Washbourne and Munger illustrated split screws in their patents, but their construction techniques were later applied to modern screws. You can usually spot a Munger common screw by the circle on the head where the head and shank are joined. I have not seen a Munger label screw of the split screw type. I have seen several of the modern screw type, but the circle is not visible.

There is one other early patent, which I include as a digression. On March 6, 1860 Henry Disston patented (#27,354) a headless, tapered pin with a nut to secure saw handles. See Illustration 2. It was designed for the combination saw which has a square formed by the top edge of the blade and a straight forward edge on the handle, and usually a rule etched on the blade and a scribe. Since the precision of a saw-square can be affected by loose screws, Disston's patent made two adjustments possible. First, if the blade is merely loose, you can remove the pins, ream out the holes slightly and replace the pins. Second, if the handle is out-of-square, you can remove the pins, file the holes in the blade with a round file as shown in Fig.3 of Illustration 2 to reposition the blade, and then replace the pins which force the blade into square.

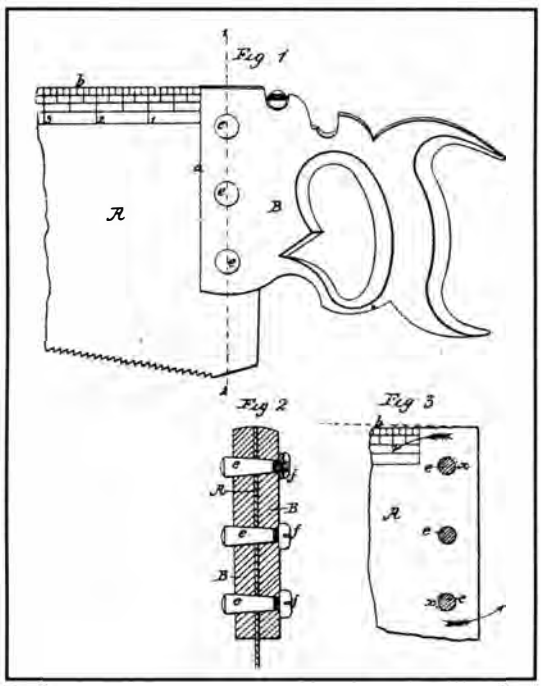


Illustration 2. Disston Patent, Mar. 6, 1860

If an old saw is dirty or rusty I take it apart for cleaning. The Gilmore-Brundage-Cope writings led me to pay more attention when cleaning my saw screws, which then led me to discover the Washbourne patent date on the back of a common screw head. Washbourne and Munger dates seem to show up often on the backs of screw heads, and I have even found them on the backs of screw nuts. Previously I must have cleaned dozens of screws without noticing dates. And, although I have only a few saws with modern screws, I have found both Washbourne and Munger patent dates inside these screws. So far these screws always have a narrow shank similar to the early split screw. The tell-tale circles still show on the heads of modern Munger common screws, but are not apparent on label screws. I have noticed differences in the way heads and shanks of Washbourne screws are brazed or soldered. For example, it's common to find a screw with a 1/8" long tube around the shank where it joins the head, undoubtedly to make the joint stronger.

In my quest for the inventor of the modern screw I looked everywhere I could think of: Index of US Tool Patents 1790-1873 by Cope, Grimshaw on Saws, and Subject Index of Patents for Inventions 1790-1873, and others. I had come to a dead end when two strokes of dumb luck occurred, almost simultaneously.

Dumb luck #1: At the Brown auction last October I bought a small Disston saw. I don't know why I bought it because it's not a great saw and it has modern screws. But when I took it apart, there it was on the backs of both screw heads, *Pat. Aug. 29, 1876*! Racing to the Newark Public Library I found this was Henry Disston's patent (#181,648) "Improvement in Securing Saw Handles to Blades" applicable to the class of saw screws in which both the head and nut are embedded in the handle. Thus, Disston is claiming only an improvement in the split screw and makes no claim applicable to the raised-cap screw.

Disston's main problem with the split screw related to the assembly of saws in the factory. After saw handles and blades were secured with split screws, the ends of the screw shanks had to be filed flush with the nuts. Disston termed this a "tedious operation". Also, saw handles could not be finished until after the screws were filed because the filing would disfigure them. Further, Disston noted that blades tended to become loose after time and that split screws, after tightening, "rarely present a finished appearance".

Illustration 3 shows Disston's 1876 patent drawing. Figure 1 shows a cross section of a saw handle ready to receive a screw. Note that the edges of the recesses that receive the screw head and nut are straight and not tapered. Also, Disston made them slightly smaller in diameter than the face of the head and nut. Figure 2 shows a cross section of a handle with a screw inserted. Note that both the head and the nut of the screw are slightly rounded on their faces for a pleasing appearance. They also have beveled edges which cause a solid bearing against the recesses in the handle when a screw is tightened. In Figure 2 the nut can be seen to have a tubular projection with internal threads to receive the shank of the screw. Internal connection of shank and nut, together with beveled edges on head and nut, permit attaching a prefinished saw handle to a blade and

eliminate Disston's objections to the split screw. The new nut is shown in Fig.3. This internal connection feature is not new, being a feature of the early raised-cap screws. Fig.4 shows the earlier split screw nut, and Fig. 5 shows how the shank passes through it before the end of the shank is filed flush with the nut. (Disston used "stem" in lieu of "shank".)

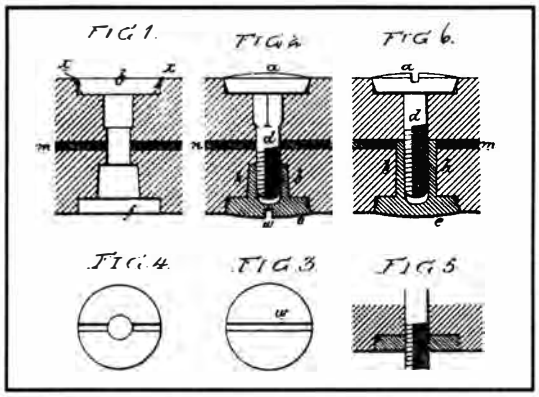


Illustration 3. Disston Patent, Aug. 29, 1876

Fig. 6 of Illustration 3 shows a variation of the Disston screw. Its slot is on the head rather than on the nut and there is no shoulder on the shank so it can turn freely. Then, rather than the blade being steadied by the shank of the screw, which has to allow some play so the threads will not be damaged when inserted through the blade, the blade is steadied by the projection of the nut which is longer and is turned to exactly engage the hole in the blade. No details of construction are given in the patent, but my example screw appears to have a brazed or soldered head and shank as per Washbourne.

Dumb luck #2: At the Hurchalla auction last November, Barry couldn't get a bid on a small hand saw made in St. Louis. I had looked at it, but didn't want it because the maker wasn't clear and it had modern screws. So, Barry looked at me and said, "You collect saws, whatzamatter?" At home with my new $5 saw I found a patent date of Dec. 27, 1887 on the label screw. Off to Newark again to learn that this was Charles Glover's patent (#375,350) for a "Saw Screw". Glover, from Hartford, claimed that screw heads and shanks that were brazed together (like Washbourne) were likely to pull apart. Or if they were swaged together (like Munger) a medallion head may come loose and turn so as to be difficult to read; and further that comparatively thick metal is required. Hum?

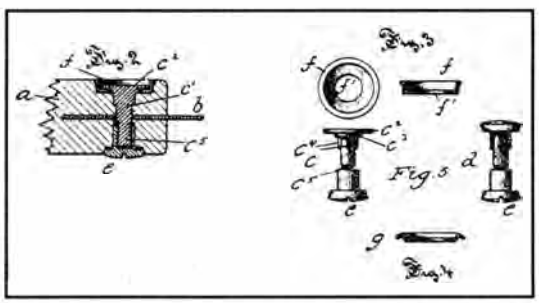


Illustration 4. Glover Patent, Dec.27, 1887

Glover's design for a common screw is shown at the right side of Fig. 5 of Illustration 4. The head is formed entirely by upsetting the end of the shank in suitable dies. This construction is obvious from the underside of my example screw, which has a smooth finish unlike earlier screws. Below the head are short, annular, integral ribs that add strength and, when driven into a hole the size of the shank, hold the screw from turning. Also adding strength is a sturdier shank whose diameter is about 1/16" larger than the Disston 1876 shank and most other early screw shanks. The Glover screw appears to be the modern screw of today. What remains unknown to me is who invented, or first introduced, the internal connection of shank and nut that first appeared on the raised-cap screw. It had to be before 1860. Help anyone?

Glover's patent focuses on the construction of the label screw as shown in Fig. 2. Briefly, he uses an integral flat head, upset as shown on the left side of Fig. 5, and a cup, shown in Fig. 3, which is forced on the head from below so that it engages a shoulder under the head. A variation of this label screw has an edge, or lip, that overlaps the recess in the handle rather than being set into it, as can be seen in Fig. 4. My example Glover label screw is made this way, as is another I found on a Simonds Saw. It's interesting that a Hartford patent first appears to me on two St. Louis saws.

There is another Henry Disston patent (#167,996) "Improvement in Handsaws" dated Sept. 21, 1875. The top butt of the blade is formed in an arc of a circle and the slot in the handle is cut with a circular saw to correspond to the arc on the blade. The shanks of the screws are tapered and the screw holes in the handle and in the blade are arranged so that, when the screws are driven in place, the arc on the blade is forced tightly against the arc in the slot. Forcing the blade against the handle seems to be more important than the shape of the bearing surface. Perhaps Disston realized this too because the arc was abandoned less than a year later when his 1876 patent was issued. Holding the blade more securely is a concept that Disston retained, but he used the projection of the nut rather than a tapered shank for this purpose. I have not seen an example of the 1875 patent.

In conclusion, patented saw screws are ubiquitous. I have them on saws by Boynton, Disston, Jefferson, Noble, Peace, Richardson, Simonds, Smith & Seltzer, Welch & Griffiths and Wheeler Madden & Clemson. We'll find more.

There is another group of saw patents relating to ways to attach saw blades to handles. More on that later. For copies of all 6 saw screw patents in this article, send $5 to Mail & More, 233 Rock Rd, Glen Rock NJ 07452.

Early New Jersey Toolmakers
A Continuing Search
by Alexander Farnham

Files and Rasps at Pompton

Not only was Pompton, New Jersey the town where famed author Albert Payson Terhune lived most of his life, but it was also home to many other celebrities. Among these was the pioneer motion picture director Cecil B. DeMille, who grew up on the property next to that of the Terhunes. As a child DeMille tossed mud balls into the air so that another neighbor, the world-renown Annie Oakley, could practice her marksmanship. Also living in Pompton were the Ryersons who were among the largest, individual landowners in Passaic County.

The Ryersons are thought to have been the original owners of the Pompton Furnace where cannonballs and grapeshot were cast during the Revolutionary War. By 1812 Martin J. Ryerson was the ironmaster. He continued to be in charge of the ironworks until his death in 1839. At that time his son, Peter M. Ryerson took it over. Under Peter's management the works became the largest iron manufactory in the United States. By the late 1850s, however, due to financial difficulties the Ryersons were forced to sell their interests in the company to James Ludlum and James Horner. Both men had come into the works at an earlier date. Eventually the firm was to become known as the Ludlum Steel Company. Among the products manufactured were J. Ludlum's Vulcan Files, which were sold exclusively by J. Horner & Co., 28 Cliff Street, New York.

The 1864 and 1872 broadsides, reproduced as an insert to the *ToolShed*, list the many types of files and rasps produced at Pompton.

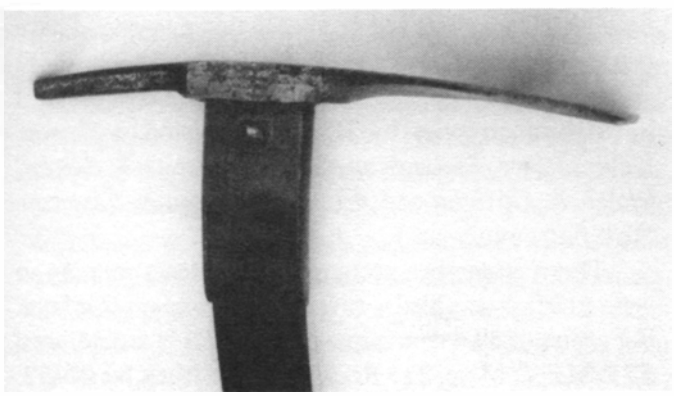
Inventor and Toolmaker
James E. Emerson, Trenton, N.J.

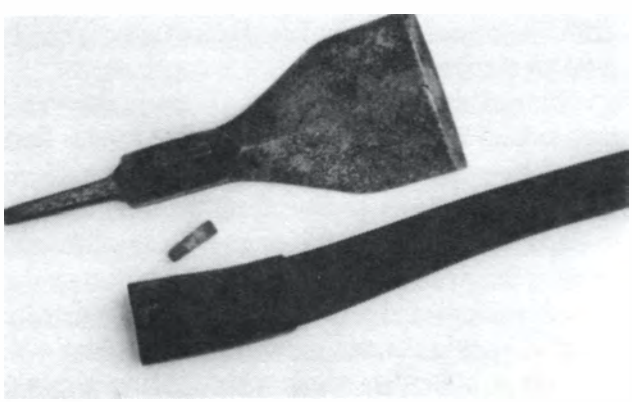
In my book. EARLY TOOLS OF NEW JERSEY AND THE MEN WHO MADE THEM, James E. Emerson is twice mentioned briefly. First is under the heading "American Saw Co.", where his patent movable-toothed saws are listed among the products that were manufactured by that Trenton, N.J. firm. The second time he is mentioned under "Edge Toolmakers" as a partner in the Trenton firm of Emerson & Silver. Emerson was born on November 2, 1823 in the state of Maine, and as a youth he was involved in farming and the operation of sawmills. After reaching his majority he pursued the trade of house carpenter. In Lewiston, where he erected some major buildings, he established a manufactory, the purpose of which was to produce woodworking machinery. While engaged in this business he made his first invention, a machine for boring, turning, and cutting the heads on spools or bobbins used in the cotton industry.

In 1852 Emerson disposed of his stock and machinery and sailed for California where he became proprietor of various sawmills. It was while engaged in this business that he developed his ideas for inserted teeth on circular saws, one of the many inventions for which he received patents. On March 29, 1859, while a resident of Sacramento, Emerson was granted parent #23,358 for a pick handle from which the pick could be removed and replaced. A year later, on April 10, 1860, he received patent #27,784 for a fastening for axe handles. Sometime around 1860 Emerson moved from California to Trenton, New Jersey, where he established the partnership of Emerson & Silver to manufacture edge tools. During the Civil War this firm produced swords and sabres which were considered the best of those supplied to the government. Among their other products were Emerson's patent tool handles and the tools which went with them.

The accompanying photographs show an adz from the collection of Hank Allen. Stamped into one side of the head is EMERSON & SILVER TRENTON, N.J. PAT. MAR. 20, 1860 BEST REFINED CAST STEEL WARRANTED. The cutting edge of the adz blade is four and one-quarter inches wide, and the distance between it and the tip of the octagonal pole is eleven inches. The thirty-four inch wooden handle is fitted with an iron, oblong socket. A block protruding from the top of the adz head was fitted into the socket and held in place by a tapered, metal pin fitted through a square hole in the side of the socket and a similar hole in the block.

During his lifetime James E. Emerson patented numerous inventions including that of inserted teeth for circular saws. For the manufacture of these saws the American Saw Company, of which Emerson was superintendent, was founded. Most of his inventions were tools for improving the manufacture and maintenance of saws. However, he also invented a combined anvil, shears, and punching machine which he patented in 1866. This invention was very useful for blacksmiths and others engaged in mechanical pursuits.





A Serious Note

I hope the title doesn't scare you off. I have written over 50 articles for the **Tool Shed** since 1978. Not many have been of a serious note. This one is.

From my early days with antique tools, I have harbored the Rodney Dangerfield feeling, "Tools don't get no respect." In those BC (Before CRAFTS) times, I felt that perhaps I wasn't operating in the right circles. Garage sales and flea markets might not be the right places for serious collectibles. However, when I moved up to antique shops, auctions and shows, tools were still on the bottom of the totem pole.

In the 80s, CRAFTS and the EAIA inadvertently created more frustration for me. Through these organizations I was able to confirm that not only were tools an important part of our heritage, but they had rarity, history, provenance, and many other exciting features. But respect from the outside world still didn't come. I had mixed emotions about this. If tools received more respect, perhaps prices would go up and I wouldn't be able to buy as well. If tools received more publicity, perhaps there would be more collectors to compete with me and I would get fewer tools. I was at the point where I had to fish or cut bait. Many of my fellow collectors have reached this same fork in the road, and most have opted, as I have, to try to bring the true meaning and value of tools to the general public, regardless of any possible disadvantages to us.

I'm aware that some people like it the other way, and any attempt to upgrade tools in the eyes of the public or solicit new collectors makes them uncomfortable. What they might not realize is that someday their tools will probably be sold. If their current views were to prevail there could well be a shortage of educated and eager collectors to buy them. So let's continue to write about, display and promote tools, and bring new collectors into the fold for their benefit and ours.

There's another thing we need to do as our sources of tools begin to yield diminishing returns; and that is to find ways to bring collections out of the closet, or barn, or basement. Now tool collectors are generally an easy-going bunch, and there are few topics that end up in serious disagreement - - EXCEPT WHEN IT COMES TO BUYERS' PREMIUM!!! The buyers' premium may be the most effective way to bring those closeted tools to market, but it is the one issue that boils over in the temperment of most tool collectors, even the gentlest souls.

To those who say, "A buyers premium provides no gain to the consignor," I say, "Think carefully how you actually bid." Many auctioneers know that the so called "subtract the premium from the bid" theory is a figment of most buyers' imaginations. Only astute, analytical bidders pay any real attention to this technique. Oh yes, everyone starts out that way, but the discipline quickly disappears in the heat of bidding. After awhile the buyers' premium becomes just another cost of collecting, the same as absentee commissions and sales tax.

"Ah-ha, so you admit that the cost of the product will go up," is fired back at me like a lawyer who has just trapped a witness. Yes, I agree that the price will go up, and to the consignor's benefit, and hopefully that will end that part of the argument.

The real issue is whether we want to recycle tool collections the same as other collections. When the treasure hunt yields only an infrequent find, we must face the reality that the future of the collectible is in the recycling. To this end, we must make it inviting for those retirees, widows, disenchanted collectors and the like to sell their collections in a less painful manner. To them, 10% is a lot less painful than 20%. People are willing to give up 10%, but 20% sometimes creates a mental block.

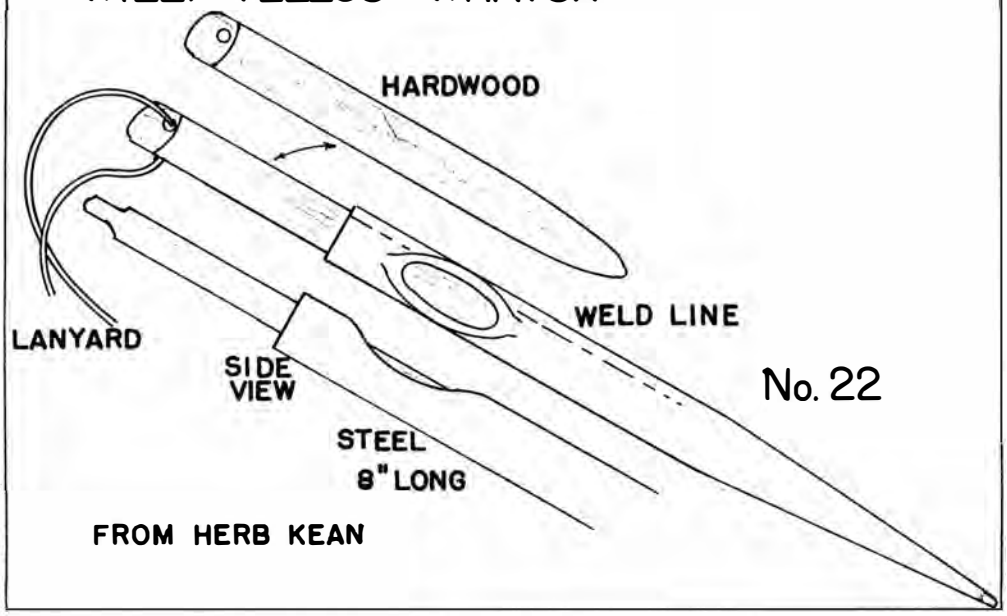
What does the buyer get for his 10% contribution? The ability to perpetuate his hobby: collecting fine antique tools. Does he lose that 10% forever? No sir! He is just making a 10% larger investment that will pay itself back at a later time. However, most of us have limited funds to spend on our hobby, so 10% higher cost does mean 10% less bought. But, if we can't get the good stuff out of the closets, eventually we won't find much that's worthwhile buying anyway. At this point, the buyers' premium becomes a cost of doing business - nothing more.

If we were to look backwards at the buyers' premium as it appeared in other collectibles, we might learn something. In each case, the auctioneers that were most identifiable with the product stated that they would never succumb to charging the buyer. They said so in an effort to pacify their clientele, who were outraged at the thought of such a thing. Then some auctioneer was able to negotiate a superb collection purely on the basis of charging only 10% to the seller and passing the other 10% on to the buyer. Did the buyers stay away from this auction? Not on your life! A few diehards maybe; but if the material is there, they will come.

Once the ice was broken, other auctioneers who didn't want to fall in and drown, followed suit. It has happened over and over and over again. And guess what? After a few auctions no one remembers the old system, and no one cares. AND THE COLLECTIBLE SURVIVES!

AUTHOR'S NOTE: Because CRAFTS has volunteers, consignors to our auction are charged only 10%. Therefore, there is no need for a buyers' premium, and there are no plans to have one in the future. *Herb Kean*

WILLY TELLUS WHATSIT



FROM HERB KEAN

WANTED

DOMESTIC and HOUSEKEEPING TOOLS. Particular interest in KITCHEN tools — cast iron eggbeaters, unusual churns, mechanical nutmeg graters, other patented devices — sewing tools — figural clamps and third-hands, toy and child-size sewing machines — ironing tools — pressing irons with patented features or used for special purposes, i.e. fluters, combos, liquid-fuel, goffering, sleeve, etc. ☎ 914 876-7818. ✍ Carole Meeker, Box 169, Kelly St., Rhinecliff, NY 12574.

Information/ author(s) for a *ToolShed* article on trade & tools of the PATTERNMAKER and how these have changed over the years. ☎ 201-444-9440. ✍ Hank Allen, 524 Harristown Rd., Glen Rock, NJ 07452.

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LIGNUM VITAE — All Heartwood . . Highest Quality . . Fully Waxed Billets: 3 5/8" x 6" and better x 18" to 30". Approx. 20 to 30 lbs ea. Available NOW! Inquires invited. ☎ 516 825-0330 or 516 596-1281. ✍ Larry Cohen, 10 Cohill Rd., Valley Stream, NY 11580.

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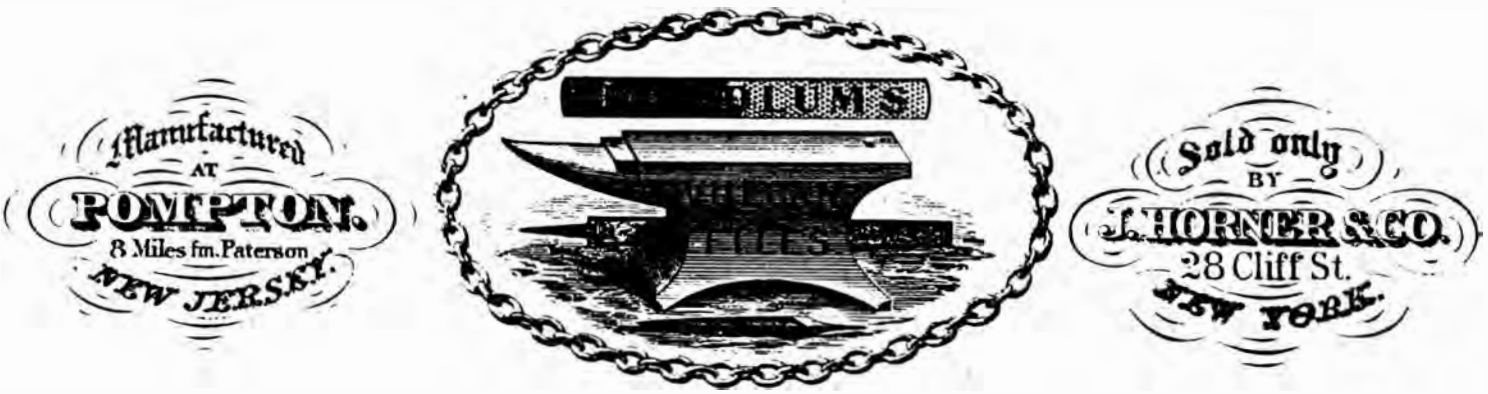
Williamsburg Tool Exhibit to Run through Labor Day

Tools: Working Wood in 18th-Century America is extended thru Sept. 4. This exhibit displays Colonial Williamsburg's extensive collection of 18th-century tools along with many other tools from public and private collections (including several CRAFTS members). Its creator is Jay Gaynor, Curator of Mechanical Arts at Williamsburg, who is Pres. of EAIA and a member of CRAFTS. A Tool Symposium was sponsored by Colonial Williamsburg, May 19-22, 1994 in connection with the exhibit. The symposium papers will be published, probably as an issue of the Historic Trades Journal. After Labor Day, an intensive study and analysis of the tools that were assembled for the exhibit will begin. A book documenting this research is planned. If you haven't seen this exhibition, plan to visit Williamsburg this spring or summer. We may never see anything like it again. Hank Allen

Walter Jacob (with Charles) using one of several early Stanley combination planes at Feb. 5 CRAFTS meeting



ALL MADE FROM BEST REFINED CAST STEEL.

SIZES,	3	3½	4	4½	5	5½	6	7	8	9	10	11	12	Inches.
3 Sqr. Tapers, 2nd Cut Single	9.00	9.00	10.25	11.50	12.75	14.50	17.50	23.00	28.00	34.00	44.00	54.00	65.00	Per Gross.
Do Single Cut to point, -	12.75	12.75	14.25	16.00	19.50	23.25	25.50	31.50	37.50					" "
Do Double Cut to point, -	14.25	14.25	15.88	18.38	21.84	25.50	28.00	34.50	40.50					" "
Frame, or Pit Saw Files, -		12.00	13.13	14.50	16.50	19.50	22.50	28.50	36.00					" "

SIZES,	3to4	5	6	7	8	9	10	11	12	13	14	15	16	18	Inches.
Mill Saw—(fine Bastard,) - -	1.00	1.16	1.38	1.67	2.00	2.44	2.94	3.44	4.13	4.88	5.75	7.13	8.63	12.00	Per Doz.
Dble Cut Mill Files & Wood Rasps	1.00	1.16	1.50	1.75	2.13	2.62	3.13	3.75	4.63	5.38	6.50	8.00	9.50	13.00	" "
Horse and Shoe Rasps, - - -	1.00	1.16	1.50	1.75	2.13	2.63	3.13	3.75	4.63	5.38	6.50	8.00	9.50		" "
Flat and Square Bastard, - -	1.00	1.16	1.38	1.67	2.00	2.44	2.94	3.44	4.13	4.88	5.75	7.13	8.63	12.00	" "
Half Round and Round Bastard,	1.04	1.25	1.50	1.75	2.13	2.62	3.13	3.75	4.63	5.38	6.50	8.00	9.50	13.00	" "
Hand (safe edge) do	1.08	1.25	1.66	2.00	2.44	2.94	3.44	4.13	4.88	5.75	7.13	8.63	10.25	13.75	" "
Flat, Mill Saw & Sqr. 2d Cut,	1.18	1.33	1.55	1.88	2.38	2.87	3.44	4.12	5.00	6.00	7.00	8.50	10.00	14.25	" "
Half Round and Round do	1.29	1.50	1.75	2.13	2.62	3.13	3.62	4.50	5.50	6.50	7.50	9.00	10.75	15.00	" "
Hand (safe edge) do	1.25	1.69	1.88	2.38	2.87	3.44	4.13	5.00	6.00	7.00	8.50	10.00	11.75	16.75	" "
Flat Smooth and Cabinet Files,	1.38	1.54	1.88	2.30	2.70	3.13	3.68	4.38	5.25	6.50	7.50	9.00	11.00	16.00	" "
Half R'd Smooth & Cab't Rasps,	1.44	1.69	2.00	2.37	2.88	3.37	4.00	5.00	6.13	7.50	8.50	10.00	12.00	17.00	" "
Hand (safe edge) Smooth, -	1.46	1.71	2.30	2.70	3.13	3.69	4.38	5.25	6.50	7.50	9.00	11.00	13.50	18.50	" "

Beveled Edge Horse Rasps advance 50c. per dozen.
Tanged Horse Rasps advance 3 in. on Flat Bastard Prices.
Hook Tooth Saw Files same as Hand Smooth.

Dead Smooth Files are double the price of Smooth.
Equalling and Parallel Files of whatever kind advance 2 in. on their respective descriptions.

NEW YORK, October 15th, 1864.

July 1st

Vulcan File Works

J. LUDLUM'S VULCAN FILES WARRANTED

Revised Price List.

1872.

ALL HAND CUT, AND MADE FROM BEST REFINED CAST STEEL

INCHES,	1 to 3	3½	4	4½	5	5½	6	6½	7	8	9	10	12
Taper Saw Files, 2d Cut, Single Cut.....	1.00	1.00	1.13	1.25	1.88	1.63	1.88	2.13	2.38	3.00	3.88	4.88	7.25
Do. do. do. Double "	1.19	1.19	1.31	1.50	1.63	1.88	2.13	2 38	2.75	3.38	4.25	5.25	7.75
Do. Single Cut to point and Blunts,....	1.25	1.25	1.88	1.63	1.88	2.13	2.88	2 63	3.00	3 88	4.88	6.00	8.50
Do. Double do. do. do.	1.63	1.63	1.88	2.13	2.88	2.63	3.00	3.37	3.88	4.88	6.00	7.25	10.00
Frame or Pit Saw Files, 2d Cut Single....	1.19	1.19	1.31	1.44	1.63	1 88	2.13	2.88	2.63	3.88	4.00	5.00	7 50
Cant or Gin Saw do. do. do.	1.88	1.88	1.88	2.06	2.19	2.44	2.69						

INCHES,	1@4	4½	5	5½	6	7	8	9	10	11	12	13	14	15	16
MILL SAW.															
Fine Bastard, Single or Double Cut, with one or two square edges	1.19	1.31	1.44	1.56	1.75	2.13	2.63	3.00	3.75	4.50	5.38	6.25	7 50	9.00	10.75
Second Cut do. do.	1 38	1.50	1.69	1.88	2 06	2.44	3.00	3.38	4.25	5.00	6.00	6.75	8.25	9.75	11.75
BASTARD — Flat, Square..... Round and Half Round...	1.19	1.31	1.44	1.56	1.75	2.13	2.63	3.00	3.75	4.50	5.38	6.25	7 50	9.00	10.75
BASTARD — Hand, one safe edge.	1.31	1.44	1.56	1.75	2.13	2 63	3.00	3.75	4.50	5 38	6.25	7.50	9.00	10.75	12.50
BASTARD — Warding	1.31	1 44	1.56	1.75	2.13										
BASTARD — Knife.....	2.13	2.38	2.63	2.75	3.00										
SECOND CUT — Flat, Square..... Round and Half Round...	1.38	1.50	1.69	1.88	2.06	2.44	3.00	3.88	4.25	5.00	6.00	6.75	8.25	9.75	11.7.
SECOND CUT — Hand, one safe edge.....	1.50	1.69	1.88	2.06	2.44	3.00	3.38	4.25	5.00	6.00	6.75	8.25	9.75	11.75	13.75
SECOND CUT — Knife.....	2.44	2.69	3.00	3.19	3.88										
SMOOTH — Flat, Square.... ..... Round and Half Round..	1.69	1.88	2.06	2.25	2.88	2.88	3.38	3.88	4.75	5.75	6.63	7.50	9.00	10.50	13.00
SMOOTH — Hand, one safe edge.	1.88	2.06	2.25	2.38	2.88	3.38	3.88	4.75	5 75	6.63	7.50	9.00	10.50	13.00	15.75
SMOOTH — Knife:.....	2.88	3.06	3.38	3.63	3.88										
RASPS — HORSE, Half-file.....									3.75	4.50	5.88	6.25	7.50	9.00	10.75
RASPS — " Beveled									4.25	5.00	5.88	6.75	8.00	9.50	11.25
RASPS — " Tanged									5.38	6.25	7 50	9.00	10.75	12.50	15.00
RASPS — SHOE.....															
RASPS — WOOD, flat and ½ Round					1.75	2.13	2.63	3.00	3.75	4.50	5.38	6.25	7.50		
RASPS — CABINET " "															
RASPS — " Files..					2.38	2.88	3.38	3.88	4.75	5.75	6.63	7.50	9.00		

Equalling same as Hand files. Hook Tooth Saw files advance one inch on half round second cut. Dead Smooth files advance 50 per cent on Smooth prices. Single Improved Shoe Rasps advance half inch, and Double Improved Shoe Rasps one inch on Flat prices.

Terms _____ per cent. discount from list. Settlements to be made monthly by Note at 4 Months or Cash, less 8 per cent. payable in New York, or exchange added.

Address

James Horner & Co.

Pompton, Passaic Co. N. J.