

Forged and Cut Iron Nails

BY GREGORY LEFEVER

THE IRON HAND-WROUGHT NAIL CAME TO AMERICA WITH THE FIRST EUROPEANS, AND THE MACHINE-CUT IRON NAIL HELPED BUILD IT INTO A GREAT NATION. TODAY A HANDFUL OF DEDICATED BLACKSMITHS AND A LONE NAIL COMPANY KEEP ALIVE A TRADITION AS OLD AS RECORDED HISTORY.

Time has not made nails better, only cheaper. Today's cut-wire steel nails are so weak that, with a bit of brawn and a claw hammer, you can pry one out of a board fairly easily. But two hundred years ago you'd find it far easier to burn a building down and sift through the ashes than to try to lever out hand-forged iron nails that held four times better.

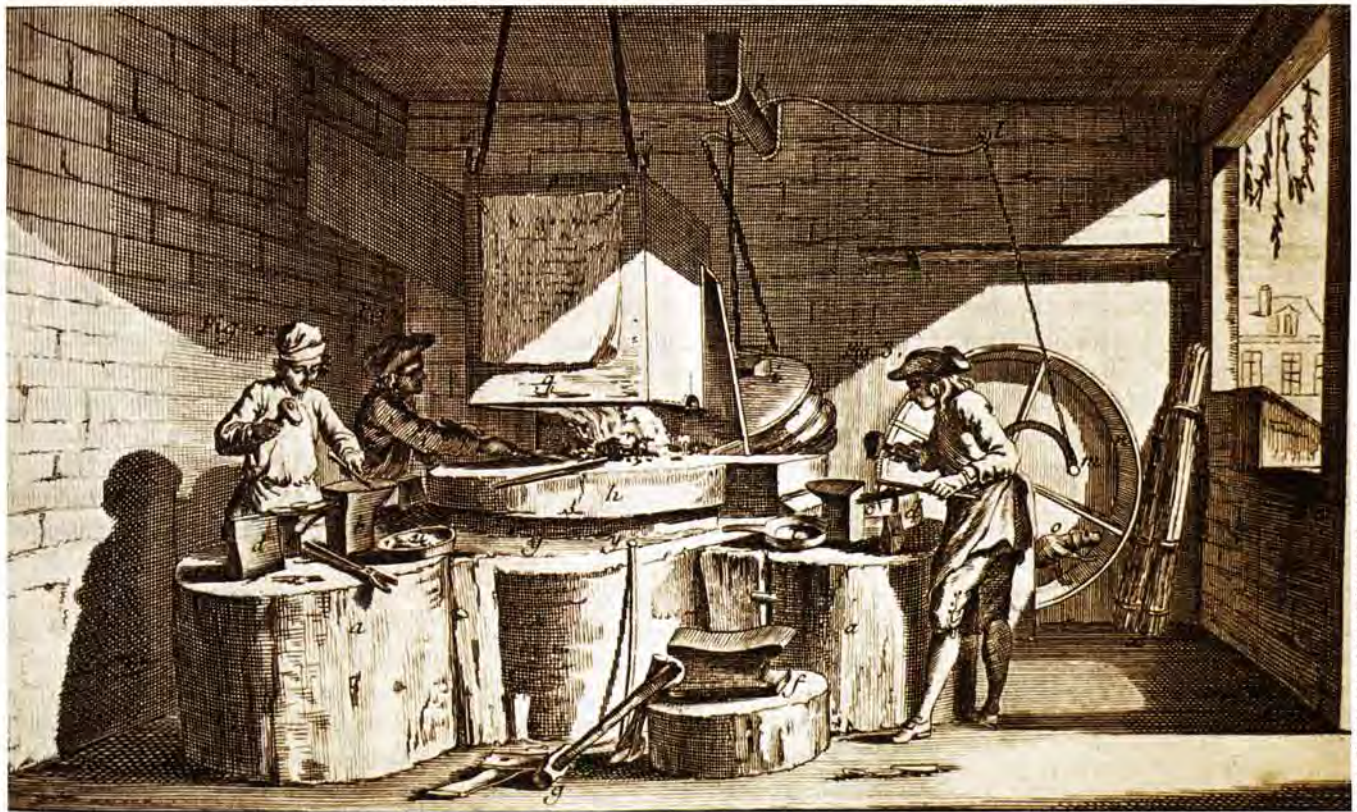
In 17th-Century America nails were so tenacious—and precious—that by 1645 the Virginia House of Burgesses had outlawed the arson of vacated plantations, instead granting former owners a quantity of nails equivalent to what had been used to construct the buildings.

Those high-holding-power, square nails have been around for at least five thousand years, ever since Bronze Age blacksmiths first pounded a nail's shank to give it four straight edges. As sharp as knife blades, these edgy nails—ancient hand-wrought as well as the machine-cut ones of the 1800s—sliced the wood's fibers along the length of the tapered shank so that when the wood swelled with even the slightest dampness, the nail was bound into the wood with great strength.

Mark Atchison, head blacksmith at Plimoth Plantation in Massachusetts, portrays William Palmer, believed to have been the colony's first blacksmith in 1623. He creates a head on a nail using a rudimentary header and small block anvil. His workbench is a sturdy stump. "At this time, nail-making was pretty unsophisticated in England and New England—mostly long days of hard work," he noted.



PLIMOTH PLANTATION, PLYMOUTH, MASSACHUSETTS



COLONIAL WILLIAMSBURG FOUNDATION, WILLIAMSBURG, VIRGINIA

This 1763 French pen-and-ink drawing by Jean-Michel Moreau from Diderot's *Encyclopédie* depicts the essential steps of 18th-Century commercial nail making. The nail-smith in the shadow heats a piece of nail rod at the forge. The smith at left pounds a nail shank from the heated rod, while the one at right uses a header to create the head on a nail. An unusual aspect of Moreau's drawing is the dog running on the tread-wheel against the back wall to operate the forge's bellows.

Modern steel-wire nails have cylindrical shanks that slip between wood's fibers and are estimated to have only one-quarter of the square nails' holding power. But wire nails—factory-made by the millions—are the cheapest in history and come in 300-plus varieties, more than making up for their weaker grip.

Hand-wrought and machine-cut nails remain in use in both restoration and reproduction projects undertaken by individual homeowners and America's largest historical sites not for their strength but for their beauty and the drive for historic accuracy.

Only a handful of American blacksmiths remain willing to hammer out wrought-iron nails at their forges, and but one New England factory still maintains its clattering 19th-Century machinery, which cuts 800,000 pounds of square nails a year. These dedicated few are perpetuating one of the longest manufacturing traditions in mankind's

history and making available to you historically accurate nails for period construction and restoration.

ANCIENT AS CIVILIZATION

No one knows exactly when metal nails first eased the burden of hewing, notching, and pegging every beam and board of wooden buildings. Copper and bronze nails have been unearthed dating back to 3,500 B.C. in Mesopotamia, where agriculture took hold and people began constructing residences of greater durability than rock, wattle, and daub. There are references to nails from ancient Egypt, but wood shortages there obviated any large demand for nails.

Nails are more frequently mentioned in documents from the Iron Age, when wrought iron and steel came into being. One of the earliest books of the Bible, Judges, from about 1,300 B.C., tells how the Israelite tentmaker's wife, Jael, offered

hospitality to the fleeing enemy general, Sisera—whom the Israelites had just defeated on the plain of Esdraelon—by giving him warm milk and hiding him in her tent. When Sisera nodded off, Jael took a nail in one hand and a hammer in the other and literally nailed the Canaanite general's head to the floor through his temples, killing him and earning for herself a position of praise in the Song of Deborah.

History's most infamous use of nails is the crucifixion of Jesus of Nazareth. In fact, the Romans were the earliest mass producers of nails, a fact demonstrated on an extraordinary scale at the site of Inchtuthil, a Roman fortress near Dunkeld, Scotland. The fort was constructed in 83 A.D., occupied for three or four years, and then vacated.

When Sir Ian Richmond excavated the site in the mid-20th Century, he eventually found a large pit containing 875,000 iron nails.

Roman troops, upon their departure from the fort, had concealed the nails to deprive the Caledonians use of them, fearing the Highlanders would melt them down into weapons. Although the remains of Inchuthil had been explored since the 1700s, the hidden pit of nails remained undisturbed until 1961.

Nails remained basically unchanged through the Middle Ages and into England's Tudor period, as witnessed by the recovery of Henry VIII's flagship, the *Mary Rose*, off the shore of the Isle of Wight in 1982. Mired in the mud was a barrel from the *Mary Rose*—built in 1509 and sunk in 1545—containing a number of nails encased in tar. These well-preserved 16th-Century specimens were basically the familiar, hand-wrought iron variety in use for three thousand years.

Colonial Williamsburg master blacksmith Ken Schwarz oversees the James Anderson Blacksmith Shop, where he and a handful of other smiths create nearly 30,000 nails a year to handle the requirements for the large historic site.

ARDUOUS PROCESS

Nail making had always been a two-phase process. First the blacksmith—called a nailsmith or nailer if he specialized in making nails—transformed raw metal into thick sheets of iron and from those into thin rods. Then he created the nails from the rods.

A major boon to nailsmiths, called the “slitting mill,” was invented in 1580 in what is now Belgium and was operating in Dartford, England, by 1590. A slitting mill used waterpower and a huge cleaver to shear—or “slit”—large sheets of iron into thin rods, which then were sold to nailsmiths.

Still, the creation of nails by hand remained arduous. The nailsmith heated the iron rod—usually about five feet long and a quarter-inch square—and hammered the shank to a point, lengthening or “drawing” the shank in the process. He inserted the shank's sharpened end into a handheld tool called a “header,” enabling him to more easily hold the rod. He then laid the rod across a chisel-like attachment on

his anvil, called a “hardy,” and with two whacks of his hammer severed the newly formed shank from the rest of the rod, leaving about a quarter-inch of rod still attached to the top of the shank. Using the header, he lowered the shank into a hole in his anvil and pounded the nail's head into shape.

The most common head shape was a shallow four-sided pyramid, or “rosehead,” for use in most building construction, for some furniture, and on wheels. Other popular heads were a broad “butterfly” head as well as T-heads and L-heads for finer trim boards, stairways, and flooring. An accomplished nailsmith could produce dozens of types of nails, spikes, rivets, and tacks for everything from clapboard to horse-shoes—up to 1,000 nails a day.

As England achieved world leadership in nail production, a sizeable portion of the population became involved. The typical English nailery of the pre-Industrial age measured about twelve feet square with one door, two unglazed windows, and a centrally located hearth. Bellows,



COLONIAL WILLIAMSBURG FOUNDATION, WILLIAMSBURG, VIRGINIA

anvils, and tables of sharpening tools lined the perimeter.

"The majority of these work-places are very much smaller and filthy dirty and on looking in upon one of them when the fire is not lighted presents the appearance of a dilapidated coal-hole," according to a Midland Mining Commission report from as late as 1843. "In the dirty den there are commonly at work a man, his wife and daughter, with a boy or girl hired by the year. The filthiness of the ground, the half-ragged, half-naked, unwashed persons at work, and the hot smoke, ashes, water, and clouds of dust are really dreadful."

PRECIOUS COMMODITY

English settlers heading for the New World in the early 1600s hefted as many nail kegs aboard their ships as space allowed, and after weeks spent crossing the sea, pried the kegs open again to begin building forts, houses, barns, and sheds for their new lives in the new land. Supplies, including more nails, were slow in arriving, so settlers often resorted to making nails in their own forges and fireplaces.

In tidewater Virginia, APVA Jamestown Rediscovery has excavated extensively on the site of James Fort—the original settlement site from 1607 to 1624—and the nearby original statehouse complex, constructed in the 1660s. "By far the most common type of nail is the hand-wrought roseheaded nail with spatula tip," according to Bly Straube, Jamestown Rediscovery's senior curator. "The Jamestown nails were both imported and made on site. We've found nail rod—the raw material for making nails—in some of our earliest contexts, circa 1610."

Straube said excavators have unearthed small brads and tacks probably used in wooden chests and boxes, as well as large studding nails with heavy roseheads for reinforcing everything from wheels to doors. To date, Jamestown archaeologists have recovered 57,000 nails, most of them coming from the earliest days of the settlement.

THOMAS JEFFERSON, NAIL MAKER

Two dominant aspects of Thomas Jefferson's personality are evident in his decision in 1794 to add a nailery to his Mulberry Row blacksmith shop at Monticello—his belief in the nobility of all labor, and his penchant for new technology.



THOMAS JEFFERSON FOUNDATION/MONTICELLO

Isaac Jefferson began working in Monticello's nailery in 1796, where he was periodically recognized as the operation's most efficient nail maker. In Isaac's first year as a nailer, he made 507 pounds of nails in 47 days and wasted the least amount of nail rod, earning 85 cents a day, according to the nailery's records.

Jefferson's plan was to make and sell enough nails to provide adequate income while he restored his farm's depleted soil. He acquired nail stock—the quarter-inch-square wrought iron rods from which nails were made—from sources in Philadelphia and had it shipped to Monticello. He maintained a nailery workforce of about a dozen young male slaves to hammer the nails.

It's clear from Jefferson's journals that he did not consider nail making a lowly job. "In our private pursuits it is a great advantage that every honest employment is deemed honorable," he wrote. "I am myself a nail maker."

In a letter to J. N. Demeunier in April 1795, he wrote: "I now employ a dozen little boys from 10 to 16 years of age, overlooking all the details of their business myself and drawing from it a profit on which I can get along till I can put my farms into a course of yielding profit. My new trade of nail-making is to me, in this country, what an additional title of nobility or the ensigns of a new order are in Europe."

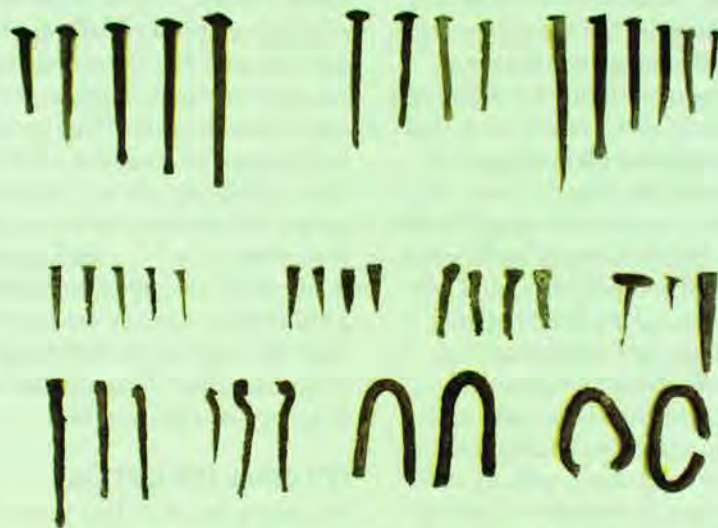
The Monticello nailery was profitable in its early years. By July 1795, Jefferson wrote to James Lyle, "A nailery which I have established with my own Negro boys now provides completely for the maintenance of my family."

By that time, Jefferson's young slaves were producing up to 10,000 nails a day in seven different sizes. He sold the nails in stores throughout Albemarle and Augusta Counties in Virginia, grossing more than \$2,000 in 1796.

That same year he also took a technological leap and acquired a cut-nail machine. The machines had been patented a few years earlier, but it would be another fifteen years before such machines reached satisfactory levels of productivity.

Jefferson's nailery continued for several more years, but eventually its profitability dwindled due to competition, some say, from the Virginia Penitentiary, and then British interference during the War of 1812 with his shipments of nail stock from Philadelphia.

THOMAS JEFFERSON FOUNDATION/MONTICELLO



Nails made at Jefferson's nailery during its two decades of operation: top row, common nails, including rose-heads at left and some T- and L-headed nails, center and right (note how some shafts have points while others are spade-tipped); center row, smaller tacks and brads; bottom row, various types of larger fasteners.



Nick Vincent of Nathan's Forge uses tools typical of an 18th-Century nailsmith. Resting on top of the heavy anvil, from top, are a piece of nail rod, a nail header, a blacksmith's hammer, and a hardy.

As the Jamestown colonists struggled to survive, some six hundred miles up the Atlantic coast Pilgrim settlers in 1620 rolled kegs of nails down gangplanks in anticipation of building their first New England colony.

"The most common nail here was the roseheaded board nail," said Mark Atchison, resident blacksmith at Plimoth Plantation in Plymouth, Massachusetts. "As far as types of nails used in house construction, there were no nails used in framing a house. Roseheads were used in cladding (siding) and planishing nails were used in flooring. Strips of decorative molding were not applied—the edge of the board was planed—so a special nail was not required. Lath nails were used in plastering and daubing but they were small rose-head nails, about four-penny.

Imported hand-wrought nails remained scarce in the colonies during the 17th Century, making them extraordinarily expensive. Individual blacksmiths throughout the colonies became more adept at making nails, but England's trade laws discouraged any larger-scale operation

to protect the English nail industry. It became common for colonial families to set up small nail-making operations in their homes, using fireplaces as forges and creating dozens of nails at night both for their own use and for barter.

Shortages discouraged the use of nails for framing buildings and prolonged the use of pegged timbers in many locales. This shortage and resulting high price of nails encouraged the practice of burning down vacated buildings simply to retrieve nails from the ashes. That practice had become so prevalent in Virginia by 1645 that the colony's legislature agreed by law that owners vacating their plantations "... shall receive so many nails as may be computed by 2 indifferent men as were expended about the building thereof for full satisfaction," thus alleviating the need to burn down the building.

COLONIAL UTILIZATION

For nearly two hundred years—from the first European settlement of America through the period of the Revolutionary War—countless nailsmiths in both Europe and America

hammered millions of wrought-iron nails for use throughout the colonies. Two of America's leading experts on early American nails are Willie Graham, Colonial Williamsburg's curator of architecture, and the museum's master blacksmith, Kenneth Schwarz.

"Products of the English nail industry were sold by merchants here in Williamsburg, as was the case in most colonial cities near the coast," Schwarz said. "There's evidence of small-scale nail production in colonial shops and on larger plantations, but most nails were imports.

"That changes with the (Revolutionary) war economy," he continued, "when nails were increasingly difficult to acquire as imports. Williamsburg blacksmith James Anderson, as an example, advertised for '8 to 10 healthy boys as apprentices' and reported to the Virginia colonial government, 'I have 8 lads that are nailers and they can produce 25,000 nails a week' for Virginia's use. Following the war, trade fell back to pre-war patterns and nails once again were imported from England. The need to manage a balance of trade once England was a competing



PLIMOTH PLANTATION, PLYMOUTH, MASSACHUSETTS

Nails from the mid-1600s, top, were unearthed at a site south of Plymouth and are typical of those used in the earliest American settlements. Shown from left: a flat-pointed board nail, a clout nail for attaching iron plate to wood, a deck nail and a clasp nail for flooring, a board nail for exterior siding, a lath nail, and two broad-headed tacks like those used for upholstery. Atchison's reproductions are shown below.

economy helped to spur technological improvements, such as cut nails.”

It would be difficult to find an authority who knows more about the different ways nails were used in early structures than Graham, who has spent decades researching and examining up close countless colonial-era buildings. “Rosehead nails with spade points were common for framing, sheathing, and siding,” he said, “while smaller roseheads with sharp points were typical for plaster lath and shingles. Occasionally roseheads were used for face-nailing flooring in secondary rooms, outbuildings, and in the houses of the poor.

“The ‘clasp’ or T-head nails—a type fashioned from a common nail but with a little more refinement—were for trim work and face-nailing treads and risers together,” Graham continued. “Increasingly throughout the 18th Century, L-head brads were used for trim work and some flooring. Often, small sprigs—a version of an L-head brad—were used in conjunction with larger finish nails to join woodwork.”

The same pattern of colonial nail use is evident in buildings of the period found in Deerfield, Massachusetts. There, William Flynt, architectural curator at Historic Deerfield, said the wrought-iron rosehead also predominated. “The L-head was often used for flooring and the T-head for finish work,” he said. “Framing was pegged. The attic end-walls sometimes were nailed at their tops with a rosehead, and siding was commonly installed with rosehead nails.”

AMERICAN INGENUITY

With the end of the Revolution in the early 1780s, citizens were eager to get on with building a new nation. Every man wanted his own house and barn, and he scanned acres of ready timber stretching to the horizon. The problem was nails. The bulk of America’s nails still were imported from England and prohibitively priced at 25 cents a pound.

What America needed was its own nail industry, one to rival—perhaps even surpass—England’s domi-

nance. In a surprisingly bold move, the nation’s first Congress in 1789 levied a 1-cent duty on imported nails, raising their price even more. The purpose, voiced by congressmen James Madison and Fisher Ames, was to spur American ingenuity, to turn the nation’s inventors loose on the nail problem.

Previous efforts to invent a high-quantity nail machine had been only marginally successful, starting with Jeremiah Wilkerson in Cumberland, Rhode Island, in 1775 and then meeting greater success with Ezekiel Reed of Bridgetown, Massachusetts, in 1786.

“The technology for machine-manufacture of cut nails was patented in this country in the 1780s and began to make a significant contribution to nail production by 1800,” said Schwarz. “This new technology revolutionized the industry.”

Refinements continued, and by 1810 machines capable of making 100 nails a minute appeared in America’s burgeoning nail factories. Even better, machines that formed both shanks and heads for total nail manufacturing were online by 1820, and

by 1828 the price of American-made nails had dropped to 8 cents a pound. The United States had slashed its reliance on English nails and, in the process, had become a global competitor in the nail industry.

The new abundance of nails and the standardization of lumber sizes led directly to the invention of the balloon-framed house in Chicago in 1833. This new type of structure featured two-by-four studs nailed together to form a strong but lightweight frame that revolutionized construction and made houses affordable to middle- and lower-income families.

But technology never rests. While machine-cut nails enabled an explosion in American building, they were inadequate for tiny uses. American entrepreneurs in the 1850s turned their attention to some French machines that made tacks and brads from steel wire. With the invention of the Bessemer process in the 1880s for creating soft steel, round nails from steel wire of all sizes became possible, and steel-wire machines began producing thousands of nails a minute at a fraction

Tremont Nail Company in Mansfield, Massachusetts, still produces 800,000 cut nails a year on these machines, which date from the early 19th Century. Similar operations usually housed 40 to 100 nail machines, and the clatter emanating from these factories was deafening. Iron sheets first were cut into strips at a slitting mill—with the width of the strip determined by the desired length of the nail—and the strips then were fed into the nail machines.



TREMONT NAIL COMPANY

of the cost of cut nails. By 1913, 90 percent of the country's nails were steel wire.

The iron nail that had built most of the civilized world since long before the Roman Empire had become a thing of the past.

EARLY NAILS NOW

Any lover of early houses or furniture can attest to the romance of the wrought-iron square nail, an item synonymous with historic authenticity. Historic sites and living-history museums are by far today's largest users of hand-wrought and cut nails, acquiring them either from Tremont Nail Company, from individual blacksmiths, or from their own on-site naileries.

"We make all of our nails here—except on rare occasions—and most of what we make are from iron, from scratch," said Atchison.

The scale of nail production is magnified considerably at Colonial Williamsburg, where Schwarz oversees operation of the James Anderson Blacksmith Shop and its five blacksmiths. "We make most of the reproduction nails used in the historic area," he said. "We try to produce about 100 or so nails a day in between our other work. If we produce 25,000 to 30,000 nails annually, we can supply what's needed here."

Of the hundred or so professional blacksmiths working in America today, most won't bother with nails. It's hard for them to recover their investment in time, and most would rather work on something more challenging or lucrative. As a result, hand-wrought nails today are the purview of a select group of traditional, historically focused smiths.

JYMM HOFFMAN

Jymm Hoffman is well versed in the techniques of historic blacksmithing—he's been doing it fulltime for twenty-five years and has traveled a good part of the Northeast giving classes with his portable 18th-Century forge—but he's particularly proud of a special nail-making technique he's developed using a modern, self-contained air hammer.



COURTESY OF JYMM HOFFMAN

Faced with the challenge of creating thousands of large, chunky-headed spikes called "strake nails" for the Fort Ligonier restoration, blacksmith Jymm Hoffman created a new production method using a compression-powered air hammer to pound the metal and innovative tooling to retain the hand-wrought appearance. His strake nails are used mostly on cannon carriages, like that shown above, and wagon wheels at the reconstructed fort near Pittsburgh. Other samples of his work are shown below.



Necessity was the mother of invention when Hoffman, who lives near Pittsburgh, was hired to make a large amount of hardware for the Fort Ligonier reconstruction project near Pittsburgh, including several thousand large strake nails used on the massive wheels of cannon carriages.

"When Fort Ligonier confirmed the order, I decided it was time to find a faster way of making the nails," Hoffman recalled. "And I couldn't justify hiring somebody and training them to swing a sledgehammer, so I took the self-contained air hammer and developed tooling so that the nails still appear to be handmade."

That was important because Hoffman's focus and reputation has been based on authenticity, which is one reason he was selected for the Fort Ligonier project. He holds a

bachelor's degree in museum studies from West Virginia's Salem University and since 1981 has specialized in museum-quality reproduction cooking utensils, fireplace equipment, architectural hardware, and lighting devices. He also has served as director of interpretative programs at Old Fort Niagara in upstate New York.

Reconstruction of Fort Ligonier is on a different scale from anything he has tackled before. "It's a huge project," said Hoffman, who has been hammering hinges of all sizes, door handles, and the hardware for numerous cannon, wagons, and carts at the fort. "I can safely say I've done over 4,000 strake nails for that site alone and I'd have to go back to my books to figure out how many smaller nails I've made for it."

Hoffman is one of just a handful of blacksmiths willing to make nails for the regular consumer. His ability to take on a nail project depends on the type of nail, amount, timeframe, and an agreed-upon price, usually starting at around \$1.50.

KELLY SMYTH

When Kelly Smyth talks about hand-forging nails, she could be talking about something quite different than what usually comes to mind. Much of Smyth's forge and anvil work has been as a shipsmith, hammering out the thick, heavy hardware for 17th-Century sailing vessels.

Smyth's career as a blacksmith has covered a few decades and never far from the living-history environment where she first learned the trade. Her first exposure was at the Ashokan Field Campus, an environmental education center with an early American slant in the Catskill foothills at Olivebridge, New York. There she taught a variety of pioneer-living crafts, with blacksmithing among them.

"When I first started this work, I was given very little instruction," she recalled. "But some techniques I taught myself in those early days have allowed me to forge certain items with relative ease, such as the buttonhead bolts—nearly a thousand of them to date—that I've made

for the historic ships."

It wasn't until she moved to Mystic Seaport's living maritime museum a few years later that she focused on shipsmithing. "That's where I learned about doing big, heavy ship's hardware," Smyth said.

Skills she learned at Mystic enabled her to participate in five major historic ship-building projects in recent years—each taking from about eight months to nearly three years to complete—including Jamestown's *Susan Constant* and *Discovery* from 1607, the *Kalmar Nyckel* from 1638 on Delaware's Christina River, plus the John Smith 400 *Shallop* and the *Sultana* from 1768, both in Chestertown, Maryland.

Lately, Smyth has turned land-lubber again. She worked for a year forging all of the hinges, latches, slide bolts, and other hardware for the Print House at Historic St. Mary's City, the ongoing reconstruction of Maryland's 17th-Century capital. Today she's back in the living-history environment, demonstrating in the blacksmith shop at Newlin Grist Mill near Chester, Pennsylvania, where she says she will create nails as custom orders.



The scarcity of nails in early America prompted innovative salvage efforts, such as welding together scraps of nail rod, demonstrated above by Kelly Smyth, one of the few women blacksmiths practicing today. She has created hand-wrought hardware for America's most notable recent historic ship-building projects. Examples of her traditional rosehead nails are shown below.



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More than just a brush with history



Traditional blacksmiths often use old tools, such as this 19th-Century hammer and nail header bar. Antiques courtesy of Joseph W. Irvin, Candlelight Antiques.

Like Hoffman, Smyth will hammer out nails for folks, depending on her availability, the type of nail, amount, timeframe, and agreed-upon price. She charges in the vicinity of \$1.50, but prices will vary.

NICK VINCENT

Nick Vincent's first paying job as a blacksmith twenty-six years ago was making nails, "and I got really good at it," he said.

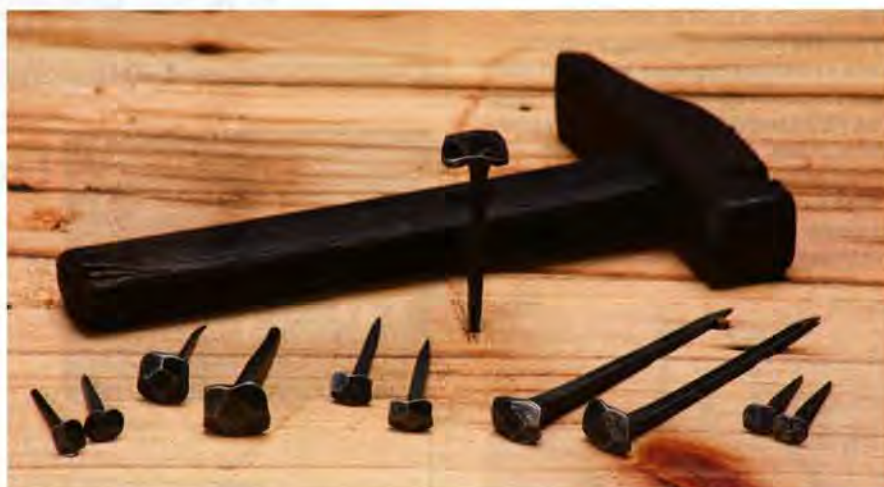
That's because his first order was for nearly 8,000 nails for the State of Delaware's restoration project at the 1740 John Dickinson Plantation in Dover. He parlayed his pay into new equipment for his business—Nathan's Forge in Uniontown, Maryland—where he specializes in hooks, hinges, hangers, and a wide range of custom blacksmithing projects.

Vincent admitted he was drawn immediately to blacksmithing as a youth. "It started as just a hobby," he recalled. "It's something that has all those things that, as boys, we were told to stay away from—fire,

smoke, loud noises, hammers." He is now a frequent teacher of the craft and an active member of several regional and national organizations, including past president of the Mid-Atlantic Smith's Association.

The largest job Vincent has undertaken was related to restoration of the 1794 Government House on St. Croix in the Virgin Islands. "I did all the hinges, shutters, and door hardware for Government House," he said. "They replaced all of the windows and shutters, and the hinges alone amounted to several hundred pairs."

Of the three blacksmiths featured here—and certainly on a national scale—Vincent is one of the few who makes hand-wrought nails on a regular basis. When we talked to him, he had sold 300 nails a couple of days earlier at a historic home show. His prices range generally from 75 cents to \$1.50 per nail but can climb as high as \$10 or more, depending on the size and requirements of certain nails.



Nick Vincent is one of the few blacksmiths who regularly create nails as part of a standing inventory. Samples of his nails are shown with an antique blacksmith hammer, courtesy of Ohio antiques dealer Joseph W. Irvin.



To keep its machines running, Tremont Nail Company has created new molds and castings to replace worn parts and rebuilt some machines from the ground up.

TREMONT NAIL COMPANY

Tremont Nail Company has been a tradition for nearly two hundred years, but it has undergone tremendous change in the last few years to stay alive.

Tremont began business in 1819 and until a few years ago prided itself on operating out of the same buildings in Wareham, Massachusetts, as it had for 150 years and using the same nail-cutting machines dating from the mid-1800s. But as cut nails have all but disappeared from the general market due to the popularity of the steel-wire nail, maintaining a customer base and even the nail-cutting machinery itself has proved challenging.

However, a dedicated management willing to make tough decisions has given Tremont a new lease on life. The company changed ownership a few times during the 1800s and was purchased in 1927 by James S. Kenyon Sr., who kept it until 1989, when the W. H. Maze Company of Peru, Illinois, bought Tremont.

That arrangement lasted until 2006, when Tremont became a subsidiary of its current owner, Acorn Manufacturing Company of Mansfield, Massachusetts. It's a good fit because Acorn is the country's largest manufacturer of forged-iron items, such as hinges, straps, and

door hardware.

The Tremont site in Wareham is on the National Register of Historic Places but was becoming an increasing liability to the company. OSHA prohibited visitor tours because of potential dangers, and the historic attributes of the building were no longer conducive to an efficient manufacturing environment. Acorn decided to move the nail-making operation from Wareham to the Acorn plant at Mansfield, about thirty-five miles west of the original site.

Machinery was a problem not so easily solved. After more than a century of use, the nail-cutting machines tend to break down, and no replacement parts remain. "We have a couple machines we've rebuilt from the old patterns, pretty much from the ground up," said Larry Bickett, Tremont's production controller. "But sitting side by side, they're identical to the machines that are over one hundred years old."



Tremont sells an impressive range of cut nails with a variety of shank and head shapes, available in several standard quantities. Examples, from left, are a sheathing nail, floor nail, rosehead clinch nail, wrought head nail, common siding nail, masonry nail, fine finish nail, shingle nail, clout nail, and slating nail.

Tremont sells its 800,000 nails a year to historic sites and national parks, but the largest customer segment is homeowners. "Most of our nails are going to individuals doing restoration or flooring projects on their own, and we do sell quite a bit to flooring companies," Bickett said. "The vast majority of the nails we sell today are used in flooring." ★

Oregon writer Gregory LeFever is a contributing editor to *Early American Life*.

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