

Thomas Passmore: Tinsmithing Entrepreneur in the Early American Republic, Part II

by Karl J. Schmidt

This is the second article about Philadelphia tinsmith Thomas Passmore (1774–1824). While the first article I wrote about Thomas Passmore provided an overview of his work and life as a tinsmith and tinware manufacturer, this second article focuses on his business records, his journeymen, along with a discussion of the tinware manufactory he established and what kinds of tinware selected customers purchased. The James M. Gaynor Award through EATA funded my travel to complete archival research in Philadelphia for both articles.

Thomas Passmore's Business Records: A Detailed Look

As with the first article (June 2023), Passmore's business records—the multiple volumes of bound books and files of loose documents housed at the Historical Society of Pennsylvania in Philadelphia—form the source material for this current article. Only a portion of the original records survive. According to a list compiled by Thomas Cadwalader, Passmore's lawyer, in 1803, which appears near the end of Volume 25, more of Passmore's business records existed at the time, including three daybooks covering 1792–1798, a journal, three ledgers, three memorandum books, a journeymen's book, a manufactory book, a letter book, four blotters, a manufactory daybook, bill books, two receipt books, four bank books with the Bank of the United States, a bank book with the Bank of Pennsylvania, and one bank book with the Bank of North America.¹ The material culture of Passmore's work begins with these records. Indeed, as archivist Ala Rekrut points out, "Archival records, whether born digital or analogue, are material culture; they are material traces of events and actions arising from within particular historical contexts."² In that vein, the Passmore records help us understand what kinds of tinware he produced (and how much), for whom he produced it, and what his prices were (Figure 1). The records also tell us about his purchases of tinsplate, wire, and other supplies, along with details of his business practices, such as his own purchases made on credit (for bulk items like boxes of tinsplate), as well as sales of tinware offered to his wholesale customers on credit.

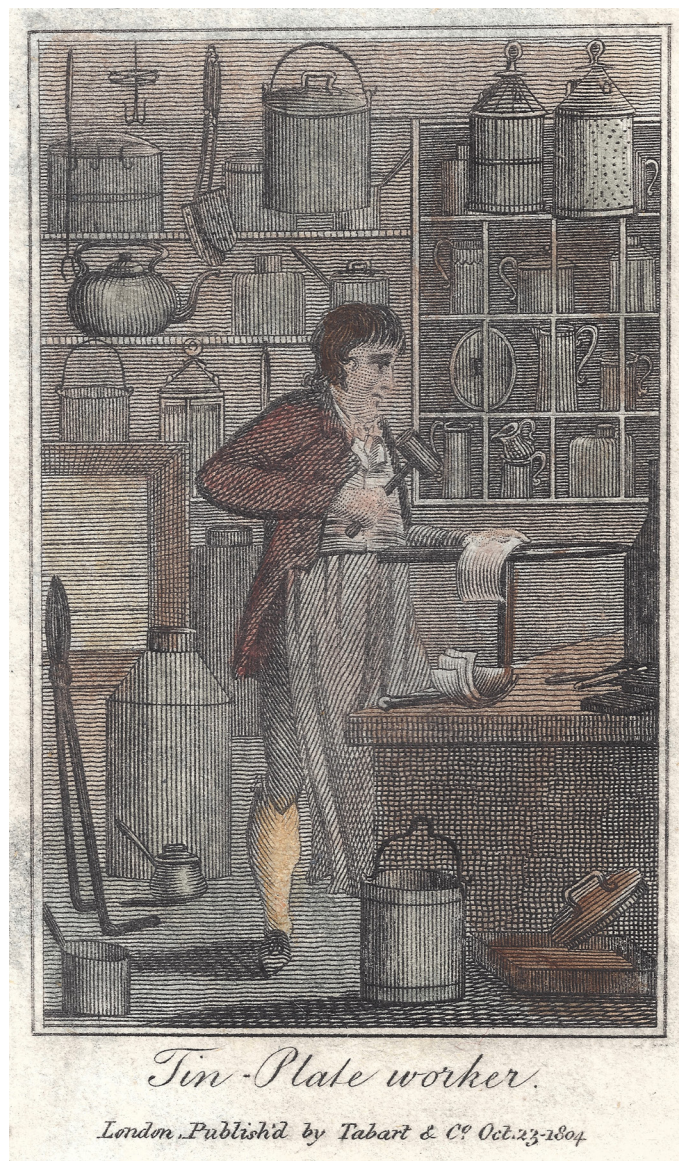


Figure 1. *A Tin Plate Worker*, 1804.

THE BOOK OF TRADES, LONDON: TABART & Co., 1804. AUTHOR'S COLLECTION.

The surviving Passmore records consist of seven hardcover bound volumes and four folders of loose documents. The bills payable/bills receivable book (Volume 19) lists loan notations, including dates of loans, loan amounts, and to whom and when the amounts were due. Like many small tradesmen of the time, Passmore procured supplies on credit and paid the bills when he

had ready cash, usually on terms of sixty days. Volume 19 starts with the bills payable. Flipping the book around and opening it from the back cover, the book becomes bills receivable. Passmore extended credit to some of his best customers, with the money due, in most cases, within sixty days. Interestingly, the amounts listed are all in dollars and cents, unlike in his other record books, which are all denoted in pounds, shillings, and pence.

The first daybook (Volume 20), covering the years 1792 to early 1796, consists of daily entries, both credits and debits, of the first three-and-a-half years of Passmore's tinsmithing business. In it, he records the name of each customer, what they purchased from him, along with the price of each item. While comprised mostly of credits, it does contain some debits, noting items Passmore had purchased, including boxes of tinplate and other supplies. Virtually all the transactions were calculated in a pounds-shillings-pence format. Only occasionally are dollars mentioned and then only in sporadic entries. Books of this sort are sometimes called sales books.³

Although the Historical Society of Pennsylvania classified a second volume of Passmore's records as a daybook (Volume 21), covering the period from January 1797 to the beginning of March 1799, the record book is unlike the first daybook. It is primarily a register of production on the part of his several journeymen tinsmiths who are named specifically, along with the production attributed to his manufactory, or "factory" as it appears in the volume. In some cases, cash payments are also noted, primarily to his journeymen. The kind of information in this volume combined with the fact that entries are marked with two diagonal slashes, noting that these entries had been transferred by recopying them into another record book, suggests that this is actually a memorandum book, a book of short notations that would later get transferred into a proper ledger.

A third volume of records (Volume 22), which HSP calls a "journal," is labeled as "Journeyman's Books" in what appears to be eighteenth-century handwriting on the cover page. This volume, which begins in June 1800 and ends in December 1801, is a record of payments due each journeyman as wages. Passmore paid his journeymen either a daily wage or by the piece, depending upon what the individual journeymen chose. This journeymen's book is especially valuable for historians as it gives concrete details about the names of the various journeymen in Passmore's employ, the specific items of tinware they produced and in what amount of time, how often they got paid, and how much they got paid. More than half of this volume remains blank, because shortly after he made the last entry, Passmore was arrested and put in jail for

contempt of court. The details of this event are outlined in my first article on Thomas Passmore.

Volume 23 is a letterbook, tabbed alphabetically at the front to allow for the insertion of written letters ready to post, while the remainder of the letterbook consists of handwritten pages comprising copies of business correspondence. The letterbook begins with a letter dated August 12, 1799, and ends with a letter dated July 5, 1802. This volume's letters detail Passmore's business dealings, which had extended well beyond his original tinsmithing business by the end of the 1790s.

Volume 24 is a ledger, covering the years 1792-1795. The first part of the ledger contains alphabetical tabbed entries of customers and creditors, with page numbers referring to the daybook. Following the tabbed section are bookkeeping entries. Entries on the left page are debits (Dr.) and entries on the right page are credits (Cr.). This ledger duplicates the same entries as the first daybook (Volume 20). The final volume of records is Volume 25, a memorandum book. It consists largely of handwritten notes about money Passmore lent or paid back to various individuals. Most of this volume is blank.⁴

In sum, Passmore's business records offer us a variety of insights into his work. They provide us with the names of many of his customers, what they bought, and how much the items cost. The records give us insights into tinware consumption, particularly about specific households, such as George Washington's while he was president. Culling out what types and quantities of tinware Passmore made can also tell us broadly what tinware items that people commonly purchased. Newspaper advertisements can tell us what tinsmiths offered to the public for sale, but detailed records like these tell us what the public actually bought and in what quantities.

Although they all contain useful information, the most valuable of the volumes for understanding Passmore's work is number 20 (the daybook covering 1792-1796), number 21 (the daybook covering 1797-1799), and number 22 (the Journeymen's Books), as they help us understand the production and sale of tinware, as well as the specifics of production by the manufactory and his journeymen. They also provide insights into wages and earnings.

Tools of the Eighteenth Century Tinsmith

While Passmore mentions in Volume 20 that he had a set of tinman's tools when he established his shop, he does not detail what those tools might have been; he only describes them in the aggregate as "Sundry tools," which he valued at £15. However, the tools of a tinsmith of his era were no doubt similar to ones from 1767 described in the records of the London-based Worshipful Society of Tinplate Workers alias Wire Workers, which included the following items valued at £13:

1 large Anvil, 1 stall Anvil, 3 pair of large Shears, 2 pair of small Shears, 3 large Beak Irons, 7 smaller Beak Irons, 2 Smoothing Hammers, 2 Planishing Hammers, 7 Hollowing Hammers, 8 Flat Faced Hammers, 16 Creasing Hammers, 8 Creasing Irons, 3 Cannister Stakes, 1 Horsehead Stagg, 7 Hollow Punches, 36 Flat Punches, Chisells [sic], and Gouges, 3 pair of Knipers [sic], 5 pair plyers [sic], 2 Squares & 1 Rule, 4 pair of Soldering Shanks and some Coppers, 1 Vice & 1 broken Stall Anvil, 2 Fire pots, 3 Swages, 1 pair of large & 3 pr. of Small Compasses.⁵

We also have scattered references to tinmen's tools in American newspapers during Passmore's time that highlight specific tools. A 1796 newspaper advertisement from Charleston, South Carolina, for example, notes several tinmen's tools for sale at an auction, including "a Pair of Sheers [sic], a Beek [sic] Iron, a Swage, a Creasing Iron, and a Set of 14 Hollow Punches." While only a partial list of tools, this list suggests that people used the same tools during Passmore's time in the United States as were found in the 1767 list from Britain, including using the same terms to describe them.⁶

In this instance, it might be useful to use the 1767 list and these newspaper references as a basis for a detailed discussion of the tools of the eighteenth-century tinsmith, as many of these might be unfamiliar to readers. In the 1767 list, unless the anvils were part of an unmentioned blacksmithing aspect, people used them for rough work, like riveting and flattening or shaping wire, among other tasks. The large shears might have referred to bench shears (Figure 2), which were mounted at one end to a socket or hole in a workbench or stump. Small shears, most likely handheld, were used for finish cuts in the tinplate (Figure 3). Beak irons, sometimes also

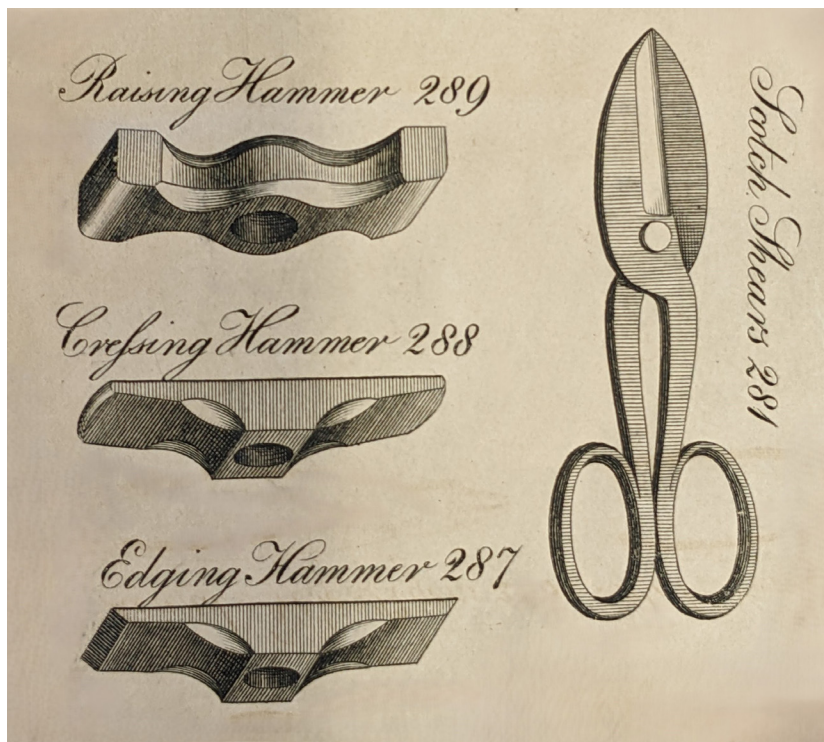


Figure 3. Small tinman's shears, along with various hammer heads, including one for a creasing hammer.

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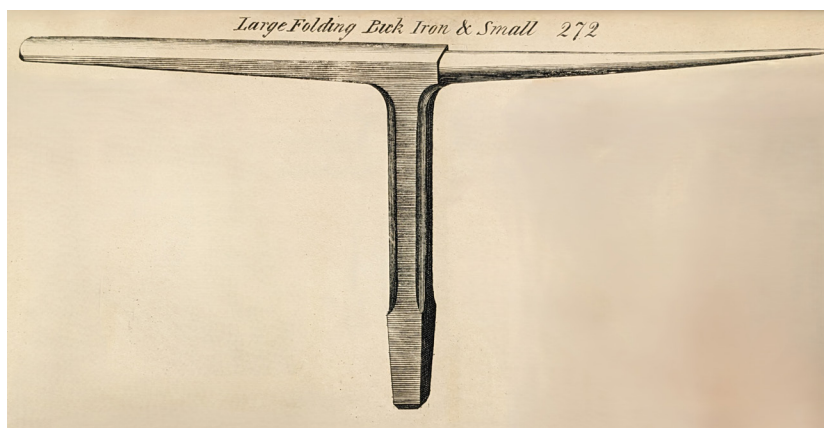


Figure 4. Large beak/beek/bick iron.

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES, GB127.L24/1/Box 25 (GREEN 6056).

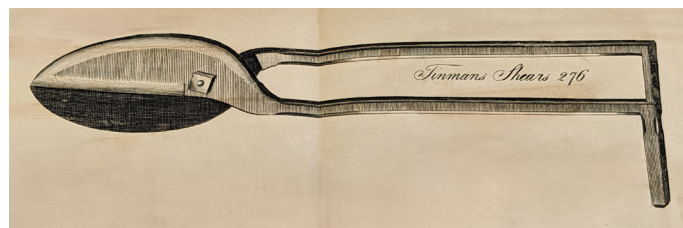


Figure 2. Large tinman's shears.

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES, GB127.L24/1/Box 25 (GREEN 6056).

referred to in the period as 'bick irons' were the largest (and typically the heaviest) tinsmith's stakes available (Figure 4). They often came in different sizes, typically listed by weight. The largest size of beak or bick iron weighed forty pounds or more. One end had a long, tapered horn, while the other end consisted of a long, flat iron. The horn was used to shape sheet metal into roundness, such as rings, cup handles, and the like, while the long, flat end was used for flattening seams or shaping long edges, such as those to receive a wire. Smoothing hammers were used, as the name implies, to smooth out imperfections in the tinplate, typically after it had been worked in some way. Planishing

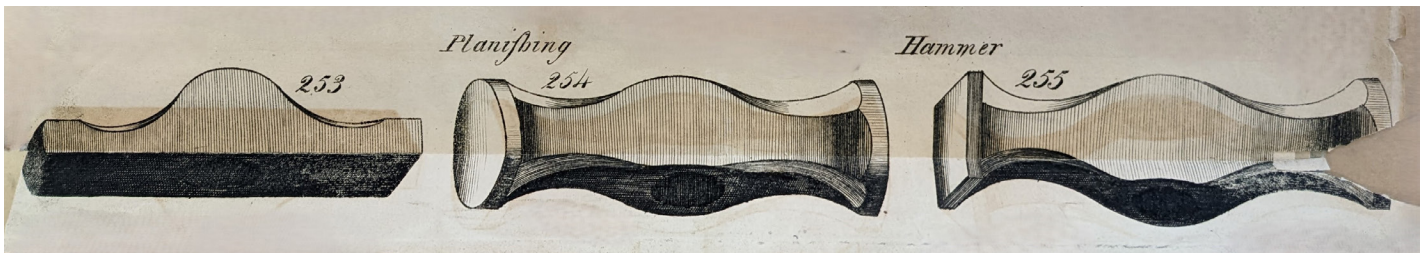


Figure 5a. Various planishing hammer heads. IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES, GB127.L24/1/Box 25 (GREEN 6056).

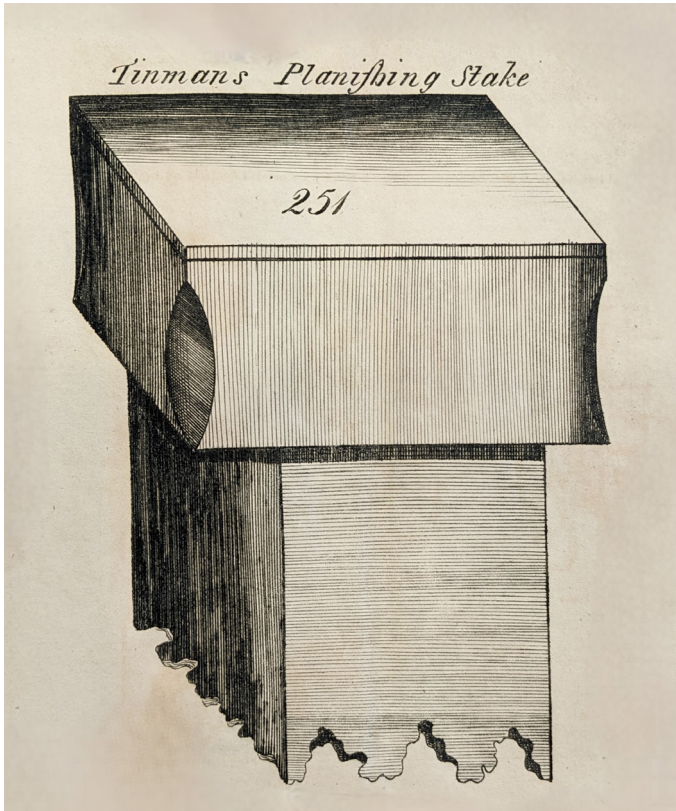


Figure 5b. Tinman's planishing anvil or stake.

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Figure 6. Block hammer, used for doming and raising tinplate.

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Figure 7. A creasing iron or stake.

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES, GB127.L24/1/Box 25 (GREEN 6056).

hammers were used to planish or flatten irregularities in tinplate. The hammers were used in conjunction with a highly polished planishing anvil (Figures 5a and 5b). Planished tinplate was considered highly-desirable when done properly, the finish could be polished and made shiny like silver. As mentioned in my first article, Thomas Passmore advertised his planished tinware and it was known for its high quality.⁷ Hollowing (or block) hammers were used to force sheet metal into concave shapes, in this case, perhaps to create a deeper body for a soup plate or serving platter made in tinplate (Figure 6). The flat-faced hammers were used to smooth the opposite side of the hollowed tinplate when used in conjunction with a ball-shaped stake. Creasing hammers (Figure 3) were used in conjunction with a creasing iron (Figure 7), another of the common tinsmith's stakes. Used for wiring tinplate and other sheet metals, the grooves in the creasing iron are

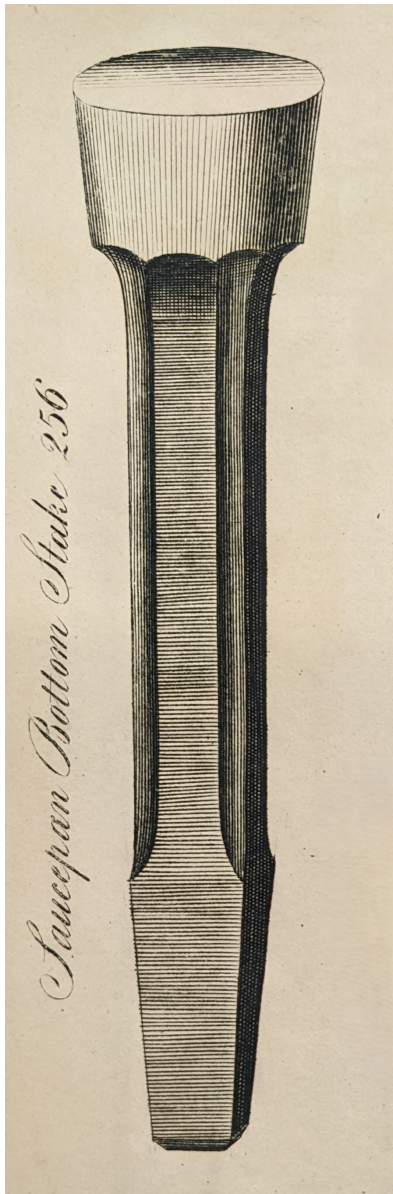


Figure 8. Canister or bottom stake.

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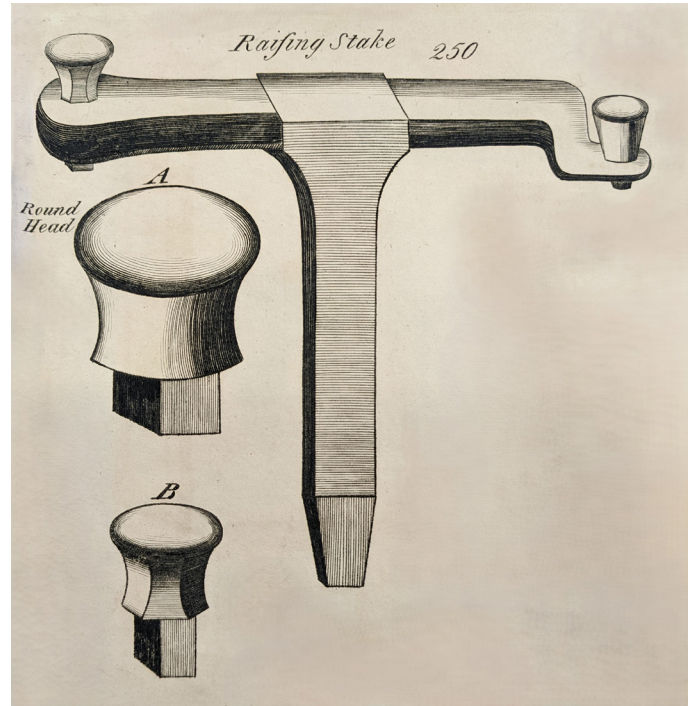


Figure 9. Horsehead stagg/tinman's horse/raising stake and heads.

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES, GB127.L24/1/Box 25 (GREEN 6056).

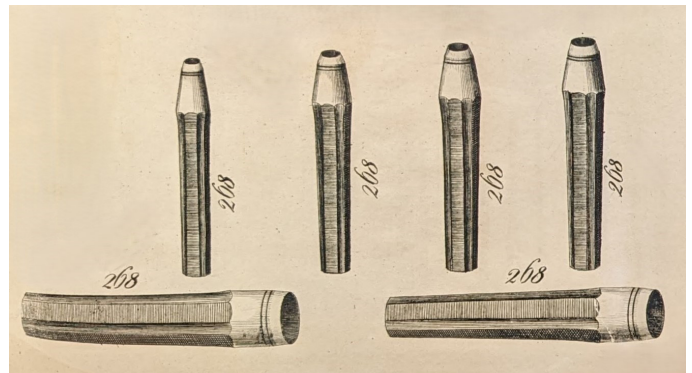


Figure 10. Hollow punches.

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES, GB127.L24/1/Box 25 (GREEN 6056).

of gradually increasing diameters to allow for different gauges of wire. The flat end of the stake could be used, anvil-like, for setting rivets, for bending wire, or for forming a lip on a vessel to receive a wire, as the edges of that part of the stake were often rounded. Canister stakes, also called bottoming stakes, were used for setting the bottoms on canisters and other cylindrical items made from tinplate (Figure 8). The sides of a canister stake provided a rigid surface against which a wooden mallet could work the tinplate. The “horsehead stagg” was also sometimes called a “tinmen’s and brazier’s horse” or a “raising stake” and was used in conjunction with various interchangeable heads which fitted into holes in the stake (Figure 9). Tinplate could be shaped over the heads with a wooden mallet into various forms, depending upon the shape of the head used. Hollow punches were used to punch holes of varying dimensions in tinplate or other thin sheet metals (Figure 10). Flat punches have a solid end

with a flat face and were used, like the hollow punches, to form holes in tinplate. These may also have been used for decorative purposes, in making, for example, pierced tin lanterns, and would have included what we today would call “cold chisels” and “pin punches” (Figure 11).

The other tools in the above list that may need explanation might be the “soldering shanks” and “coppers” and the fire pots. The shanks were handles made from iron rods and inserted into blocks of shaped copper to be used for soldering tinplate. The fire pots were used for heating the coppers. The swages (or swedges) were bench-mounted, fixed hammer tools used to make decorative beading on tinplate and other sheet metals, which also served to add strength to the thin metals.

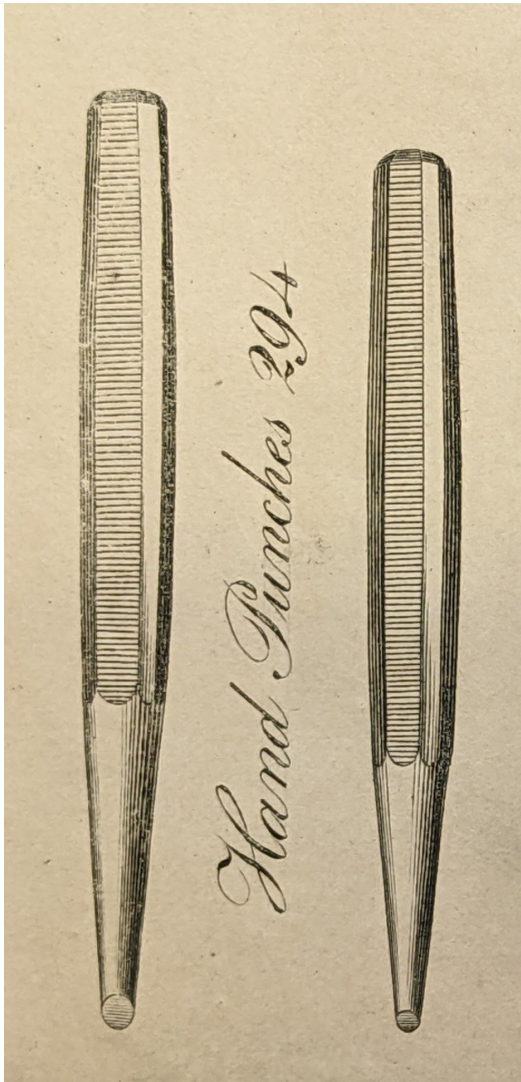


Figure 11.
Flat punches/
hand punches.

IMAGE COURTESY
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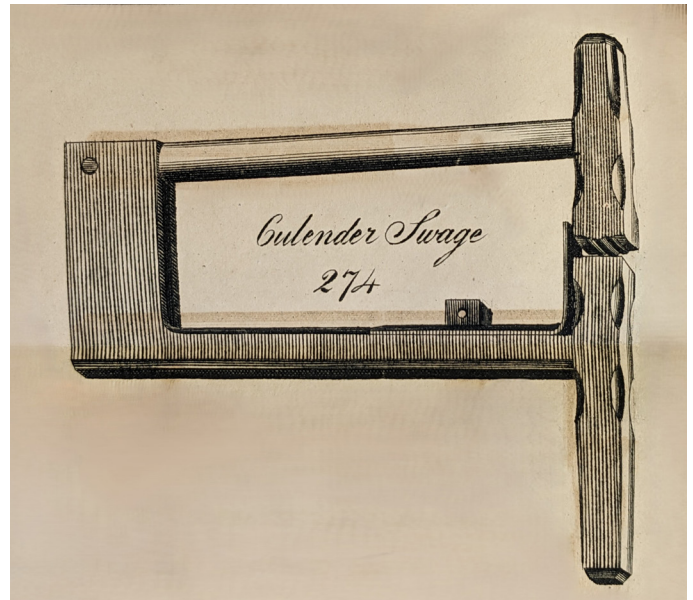


Figure 13. Culender swage (swedge).

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES,
GB127.L24/1/Box 25 (GREEN 6056).



Figure 12. Dish cover swage (swedge).

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES,
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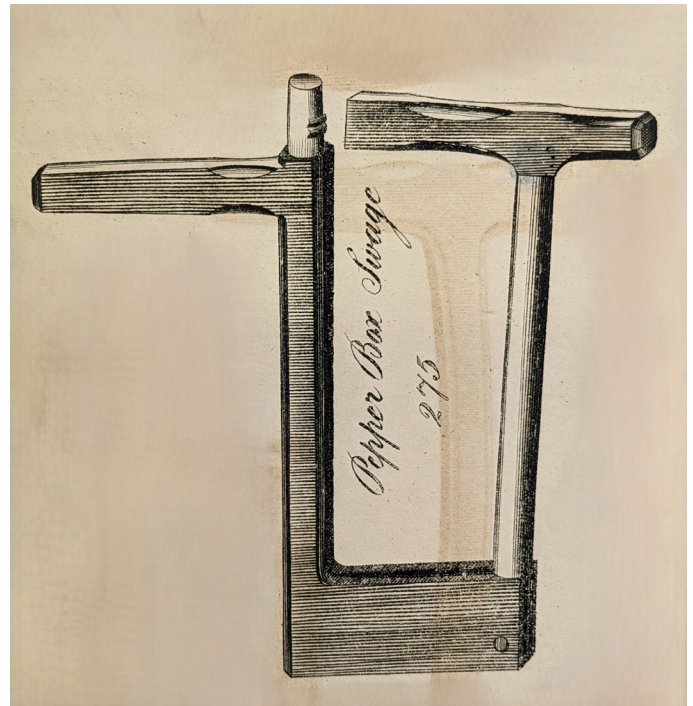


Figure 14. Pepper box swage (swedge).

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES,
GB127.L24/1/Box 25 (GREEN 6056).

The most common swages of the time included a “dish-cover swage,” which created an ogee-shape in the conical portion and/or sides of a tinplate dish or plate cover (Figure 12). A second common swage was the “culender swage,” used for creating a decorative and strengthening three-bead (or three-thread) shape in tinplate (Figure 13). The three beads consist of one larger and wider bead in the middle, flanked by two smaller and thinner beads. The name “culender” is an older spelling for the word we

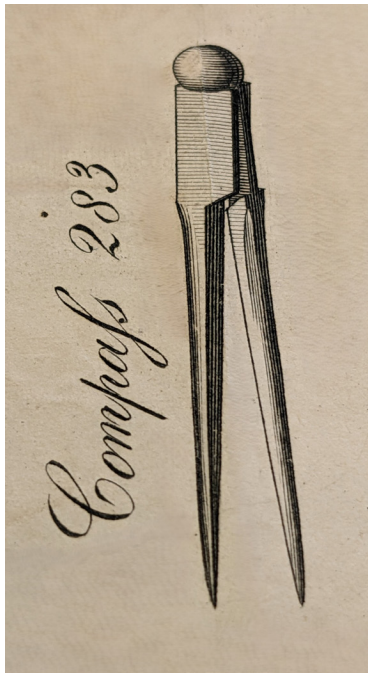


Figure 15. Compass (or dividers).

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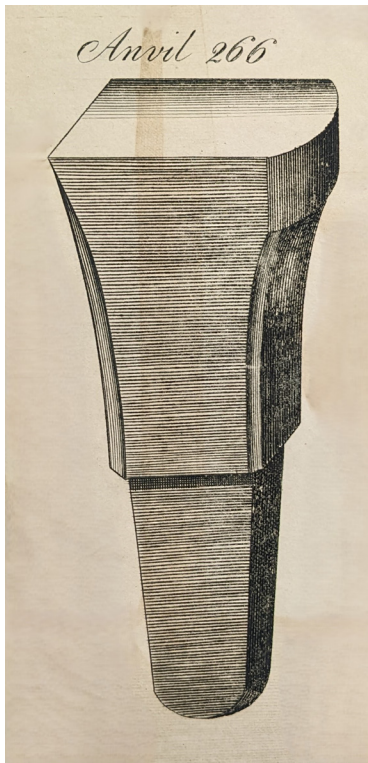


Figure 16. Tinman's anvil.

IMAGE COURTESY MANCHESTER (UK) LIBRARIES, INFORMATION AND ARCHIVES, GB127.L24/1/Box 25 (GREEN 6056).

more often see spelled today as colander. A third common swage was the “pepper box swage,” used for forming the outer-facing ring on the cylinder of a pepper box, acting as a stop for the cap (Figure 14). Finally, the compasses, sometimes called dividers, were used for marking out circles on tinsplate or for marking long edges of a certain width (Figure 15).

While the Passmore records do not detail all of the tools he used, there are references in the records to “planishing hammers” (as part of a household inventory) and “tinmen’s anvils” (Figure 16) and “bottoming stakes” (both noted in

a purchase receipt).⁸ The latter two purchases came at the end of January 1797, just as Passmore was hiring a number of journeymen for his expanded tin manufactory.

The Factory

As early as November 1793, when Passmore placed his first advertisement in a Philadelphia newspaper, he referred to his tin shop as a “manufactory.” As noted in my first article on this subject, it seems unlikely that he had at that time anything more than a modest tin shop and initially was the only one working in it, although there is evidence that he had, by early Fall 1793, taken on an apprentice, a boy of 12 named Jeffery [sic] Scaife, who was the young nephew of William Gazzam, one of Passmore’s Philadelphia customers.⁹

At the time, Passmore’s concept of a privately-owned tin manufactory was a relatively new one. The first mention of such an establishment that I’ve been able to find in a keyword search in any British newspaper is in an advertisement from December 1781 placed by Hugh Jones, a prominent tinsplate worker on Oxford Street in London. By contrast, the first such mention of a tin manufactory in the United States is in an advertisement placed in October 1786 by Jeremiah Jessop, a tinsplate worker in New York City. Both Hugh Jones and Jeremiah Jessop advertised a complete range of tinware to their customers.¹⁰

So, what exactly was a manufactory? A manufactory of that time was a transitional production facility that we can place somewhere between a one-person craftsman’s shop and the nineteenth century factory dependent on inanimate power and machinery. As historian Harvey A. Wooster points out in his 1926 article, “Manufacturer and Artisan, 1790–1840,” about early furniture-making:

The former craftsman now turned entrepreneur, had to devote himself more and more to mere supervision of the work of others and to the development of his business and the risks of his market, becoming thus primarily a merchant. The store of such a merchant, with the activities of furniture making carried on in the basement or attic, or in some small building in the rear or elsewhere not far distant, or perhaps in connection with a furniture warehouse, constituted the furniture ‘factory’ down to the thirties of the last century [that is, the 1830s].¹¹

This was essentially the path Passmore followed after 1795. When it became clear that Passmore could no longer manage tinware production and sales solely from his original shop at 228 Market Street, he expanded his production through the hiring of journeymen and creating a new manufactory location “not far distant” from the original shop. Production at Passmore’s manufactory was



Figure 17.
Interior of a
tin shop or
manufactory.

EDWARD HAZEN,
THE PANORAMA
OF PROFESSIONS
AND TRADES,
PHILADELPHIA: URIAH
HUNT, 1836.

unlike the later textile mills at Lowell, Massachusetts—it was not big and mechanized—but more like the next step beyond what historian Jonathan Prude calls “craft manufacturing (under which artisans toiling alongside journeymen and apprentices fashioned products in their entirety and sold them principally to local customers).”¹² Likewise, historian Bruce Laurie defines manufactories simply as “non-mechanized factories.” But Passmore’s manufactory also shared things in common with what Laurie calls the “artisan or neighborhood shop,” which employed journeymen who made products “from beginning to end.”¹³ The reliance on handwork, therefore, was borne out not just by the prefix of the term manufactory, but in actual practice.

Although the shop depicted in Figure 17 comes from a later period than Passmore’s, it provides some idea of what a small tin manufactory like his might have looked like. No machines are present, only tinsmiths using hand tools and stakes. To the left, a man uses a planishing hammer to planish tinplate on a special planishing anvil sunk into a wood base. To the right are three more men at an elongated, narrow workbench: one is working tinplate on another stake, another is cutting tinplate with a large pair of bench shears, while a third is raising or doming

tinplate on a tree stump that has been dished out to provide the curvature needed to create concave forms in tinplate, such as coffee pot lids. Note the tinner’s stove at the far end of the workbench in which the tinsmiths can heat soldering coppers. On the floor are crates of new tinplate.

Volume 21 of the Passmore records also contain references to work done by the “Factory.” It’s not clear from the records how production by the Factory was different from work done directly by the journeymen, as their individual work is recorded separately from that produced by the Factory. As Passmore’s advertised intention was to employ journeymen in the factory, it’s unclear why he would note individual journeymen’s work alongside more anonymous work produced in the aggregate by the Factory.

Culling through Volume 21, I’ve noticed that while many of the journeymen got paid for specific items they made, some of the journeymen had no such notations, only periodic notes that they got paid “cash” for the day, along with the amount of the cash payment. Since the cash payment was often the same each time, such as 7/6 [7 shillings/6 pence], it stands to reason that although all of the journeymen worked *from* the manufactory,



Figure 18. Part of a stereograph from ca. 1865. The building that housed Thomas Passmore's second tin manufactory (from 1796 to 1804) is the brick building at right, No. 13 N. Seventh Street, Philadelphia. The building no longer exists.

IMAGE COURTESY LIBRARY COMPANY OF PHILADELPHIA.

some of them opted for the day rate of pay. This suggests that the tinware attributed directly to the factory was in fact produced by journeymen working on a daily rate. In other words, when they got paid the daily rate, they worked *for* the factory. Since there was an agreed-upon pay schedule for journeymen who worked by the “piece,” journeymen who earned only the daily base rate were making tinware and performing work services, such as repairs or miscellaneous “jobs,” that is attributed to the factory in the records. Interestingly, while some of the journeymen more often worked for the factory and got paid the daily rate almost exclusively, many of the rest of the journeymen worked at piece rates, and only occasionally worked for the factory, earning just the daily pay rate when they did so. Daily pay rates varied from journeyman to journeyman, ostensibly based on their skill level and whether they were willing to commit to a longer contract period. Unfortunately, no journeyman contracts have survived, but Passmore refers to shorter or longer commitments and differential pay rates in his various newspaper advertisements soliciting journeyman tin plate workers. In September 1796, for example, in

advertising for 20 journeymen tin plate workers, Passmore offered “Good workmen, that will agree for one or more years, may have piece work, or 12s. [s = shillings] per day, and those for a less time 11s. 3d. [d = pence] per day, or piece work.”¹⁴

Passmore developed his manufactory business model by having his journeymen make and complete tinware in batches, producing typically a minimum of a dozen of one thing, sometimes even six or twelve dozens of it, before moving on to another—and different—batch of items. The first tinsmithing machine was not patented until 1804, so Passmore’s manufactory relied on skilled journeymen using hand tools and tinsmith’s stakes to do the work. Judging by the products made by his individual journeymen, Passmore seems partly to have achieved economies of scale by assigning his journeymen the task of making products they were individually good at making, and the records show most of the journeymen making many of the same types of items repeatedly. John Stiff, for example, who began working for Passmore in January 1797, spent much of the fall of 1797 and the first five months of 1798 making primarily tea kettles of various sizes. Likewise, Andrew Lindsey, who first appears in the Passmore records on March 15, 1797, spent most of the remainder of the year making coffee pots and patty pans almost exclusively.¹⁵

Passmore’s new tin manufactory on North Seventh Street, was a three-story brick structure (which he owned outright) that measured 32 feet by 20 feet (640 square feet on each of the primary floors) and sat on a lot that measured 32 feet wide by 119 feet deep (Figure 18). The property, including the building, was valued at \$2,500, according to a 1798 tax list.¹⁶ While no evidence survives detailing the layout of the manufactory, we can surmise a few things based on its purpose.¹⁷ We know it was in a three-story building, so perhaps the main or first floor may have been devoted to storage of completed tinware, while the second and third floors, to take better advantage of natural light, were the location of two well-equipped workshops. Because the manufactory employed several journeymen, and any given number of them worked at the same time, there likely was multiple workbenches and multiple sets of tools and tinsmith’s stakes, so that none of the workmen wasted time waiting for tools to be available. Indeed, since the manufactory was non-mechanized, economies of production was also affected primarily through the

speed of the journeymen in producing tinware. Having to wait for tools and stakes to be available slowed down that process (I personally have experienced having to wait for tools to be available, both as a student and teacher of tinsmithing). Passmore makes what might be an oblique reference to this situation in an early advertisement for journeymen, in which he asserts that journeymen “will find it of great advantage to them by working for the subscriber, as he has everything convenient for carrying on the business to perfection.”¹⁸

There was probably a large assembly and layout table in addition to workbenches, perhaps in the center of the workroom, as that would have allowed the journeymen to lay out larger items, like house pipe (rain gutters and the like) and the multi-piece “Portable Kitchens” (discussed later) that were produced in the manufactory. Another likely aspect of the workshop layout was a dedicated space for soldering that would have included multiple firepots burning charcoal to heat the soldering coppers to accommodate multiple journeymen working at the same time. The firepots would logically have been located on an outer wall, so that the smoke was vented outside.

In addition to the conventional patterns tinsmiths used to transfer shapes to tinplate before cutting, the journeymen in the manufactory—in this pre-tinsmithing machines era—might also have employed gauges, jigs, fixtures, forms, and shop furniture to help speed production. In the late eighteenth century, jigs were commonly used in other settings, like furniture and leather manufactories.¹⁹ Because Passmore’s journeymen were batch-producing large numbers of the same items, using simple jigs and fixtures enabled them to complete the work more quickly and uniformly. In describing furniture workers at Nichols and Stone, ethnographer Tom Juravich noted “The workers . . . worked on a piece-rate system, so the more they produced, the more they were paid. So, there was a built-in incentive to figure out ways to routinize and speed production, and creating jigs was one way to accomplish this.”²⁰ While Juravich was describing an early twenty-first century manufacturer, he could easily have been describing one from the late eighteenth century. References to tinsmithing jigs in the historical literature are scarce, but we do see a mention of “wooden forms” in the inventory of the tools of the tin shop in a California prison in 1859.²¹ The ephemeral nature of jigs might perhaps explain why they have not survived. To the untrained eye, they might have just looked like so many scraps of wood or metal. It is important to note, however, that we do not have any specific evidence of the use of jigs and other time-saving devices in Passmore’s manufactory, but it is worth speculating about them nonetheless as it may suggest a future avenue of research.

A final thought on production, drawn from my own

experience, is that producing tinware in batches (as was the case among Passmore’s journeymen, who produced items almost exclusively by the dozen or multiples of a dozen, up to a gross), is faster if one makes and shapes all of the same parts in one location. In making a dozen cups, for example, which I have done on numerous occasions, I shape all of the handles in one spot, then all of the cup bodies, then all of the bottoms. Making individual cups from beginning to end and then starting on another cup slows the process down considerably because of all of the extra steps involved in moving from one spot to another in the workshop, so one way of grafting a small aspect of mass production onto craft production was to have the journeymen tinsmiths produce the parts as I described above before assembling the items into a batch of the final product.

An analysis of Volume 21 details that the production of tinware was in batches in increments of one dozen or more, up to a gross, as previously noted. Journeymen tinsmiths were paid a piece rate according to a published agreement, or they could choose to be paid a daily wage rate.²² Most of Passmore’s journeymen seem to have chosen the piece rate as in many cases they could earn more money per week if they could do quality work more quickly. There would not have been any loss of tinsmithing skills in this early manufactory, as the evidence shows that each of the journeymen tinsmiths made their products from start to finish before turning them in for pay. They weren’t producing only one part of the whole as later mass production, with its division of labor, entailed.

Presidential Tinware: A Glimpse into Tinware Usage in the Washington Household

George and Martha Washington moved into what became known as the “President’s House” in the autumn of 1790. They remained in residence there throughout Washington’s presidency, until March 1797. The mansion, located near the southwest corner of 6th Street and Market, had been owned by wealthy financier and former US Senator from Pennsylvania, Robert Morris, who agreed to lease the house to the city of Philadelphia so that it could then serve as the executive mansion while the federal capital was temporarily located in that city from 1790-1800 (Figure 19). Washington brought many household items needed by the family from Mount Vernon, but he purchased others, like tinware, in Philadelphia.

Passmore’s first recorded sale was to Samuel Fraunces who bought a 10-shilling chocolate pot on July 13, 1792.²³ Fraunces was the former owner of a well-known tavern in New York City that bore his name, Fraunces’s Tavern. At the time of his visit to Passmore’s tin shop, he was

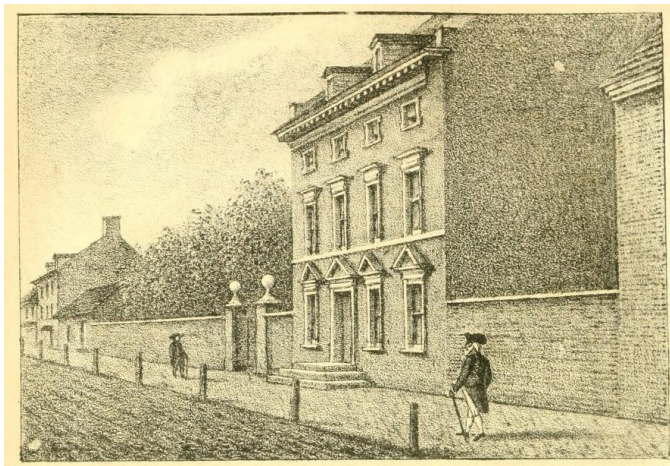


Figure 19. *The Presidential Mansion, occupied by the Washington family, 1790-1797.*

JOHN WATSON, *ANNALS OF PHILADELPHIA*, PHILADELPHIA: CARY & HART, 1830.

President George Washington's household steward, a post he held until June 1794. Fraunces soon became one of Passmore's most frequent customers, purchasing a range of tinware for use by the Washington household. One can easily imagine Fraunces visiting Passmore's business while he was out for a walk, as the presidential mansion was located only two blocks east of the tin shop.

In this instance, historians can use Passmore's business records to compile a list of tinware that the Washington household bought and used during his presidency. Washington's account books mention tinware purchases from Thomas Passmore, but only in the aggregate; they include no details of what the purchases consisted of, only that an invoice was paid and the total amount.²⁴ Given the ephemeral nature of tinware, it wears out under constant use, and if it cannot be repaired, it is discarded. Knowing what specific tinware was in use can help us understand the material culture of the time period and interpret it accurately. We know that Martha Washington sometimes directed Samuel Fraunces to buy tinware for use by the household, and for which he was then reimbursed, as this information is noted in the Washington household account books.²⁵ The Passmore records also note repairs and other work performed by Passmore's shop for the presidential family (see examples in the lists below).

Most of the tinware Samuel Fraunces purchased for the Washington household was of a culinary nature. Passmore's daybook (Volume 20) provides complete details of these purchases the entire time Fraunces was in Washington's employ. After buying the initial chocolate pot in mid-July 1792, Fraunces bought a large assortment of tin items from Passmore over the next two years for use in the Washington household in Philadelphia (prices are in pounds-shillings-pence).²⁶

July 13, 1792. One chocolate pot (£0-10-0)

July 23, 1792. One flour box (£0-2-0), 1 pepper box (£0-1-6), 1 colander (£0-3-9), 1 dripping pan (£0-7-6), 1 coffee biggin (£1-2-6) [a coffee biggin was an early drip coffee device], 1 [large] cake pan (£0-3-9), 1 [small] cake pan (£0-2-6), 2 [large] pudding pans (£0-7-6), 2 [small] pudding pans (£0-4-6), 1 dust pan (£0-2-6), 2 sugar canisters (£0-15-0), 2 pie pans (£0-2-6), 1 [large] sauce pan (£0-3-0), 1 [small] sauce pan (£0-2-6), 1 grater (£0-3-9), 1 egg slice (£0-0-9). [an egg slice was a type of spatula]

August 29, 1792. Four dozen cake pans @ 3/9 per dozen (£0-15-0), funnel (£0-1-0), 2 dozen cake pans @ 3/0 per dozen (£0-6-0).

September 22, 1792. Twelve candle molds (£0-7-6), 1 candle box (£0-3-6), 1 coffee biggin (£1-2-6), 1 dozen [large] patty pans (£0-5-0), 1 pair of scales (£0-5-0), 'hedge hogg' [a food mold] (£0-6-0), 1 dozen [small] patty pans (£0-3-9).

November 2, 1792. Eleven candle molds (£0-6-0).

In January 1793, Passmore's customer notations in the 1792-1796 daybook changed regarding purchases for the President's household. While Samuel Fraunces is still noted as a customer among the entries, Passmore also records other sales that are attributed directly to the "President of the United States." It seems doubtful that George Washington himself stopped by Passmore's shop to buy items of tinware, so these purchases must have been made on his behalf by someone in the household other than Samuel Fraunces. Those purchases are as follows:

January 10, 1793. One ventilator (£0-7-6), camp kettle bottoming [a repair] (£0-1-10 ½).

February 19, 1793. 18# of whiting [powdered calcium carbonate, used for cleaning tinplate], tin pipe for lighting lamp (£0-2-6), bottom for small box [a repair] (£0-0-11).

March 26, 1793. Tea pot mending (£0-1-0).

May 29, 1793. Two colanders (£1-2-6), tea pot mending (£0-1-0).

June 22, 1793. Jack stand (£0-15-0). [a jack was a cup which held 1/8 pint]

June 28, 1793. One half-gallon measure (£1-0-0), pot cover (£0-11-0).

July 10, 1793. Two ice cream pots (£1-2-6).

August 14, 1793. Gravy strainer (£0-1-10), egg slice (£0-1-3).

October 25, 1793. Lamp mending (£0-11-11½).

November 13, 1793. Two one-pound canisters (£0-3-9), canister mending (£0-0-11).

At this point, purchases by Samuel Fraunces directly resume and are as follows:

November 21, 1793. Folding fender (£0-14-0). [a decorative border used in front of a hearth]

December 4, 1793. 6# whiting (£0-3-0), 6 lamp glasses (£0-9-0) [panes of glass used in lamps], mending molds (£0-0-11).

December 10, 1793. 6 lamp glasses (£0-9-0).

December 27, 1793. Two blancmange molds (£0-7-6) [blancmange was a cold dessert common in the late eighteenth century], dressing case (£1-10-0), ½ doz. patty pans (£0-2-9), sundry molds mending (£0-1-0).

December 31, 1793. Susmelon [sic] mold [likely some kind of melon mold] (£0-5-0).

January 10, 1794. ½ dozen lamp wicks (£0-1-3).

January 14, 1794. Six dozen lamp wicks (£0-15-0).

January 23, 1794. Lamp mending (£0-1-0), pan bottoming [a repair] (£0-3-9).

January 31, 1794. 46 pounds cheese (£1-10-9).²⁷

February 21, 1794. Glass lantern mending (£0-7-6).

February 27, 1794. Two coffee pot mending (£0-1-6), glass frame (£1-2-6).

March 7, 1794. Glass mending (£1-2-6).

April 11, 1794. One dozen lamp glasses (£1-13-0).

June 1, 1794. Tea pot mending (£0-3-0).

In June 1794, Samuel Fraunces left President Washington's employ as chief steward and started his own tavern in Philadelphia, located on South 2nd Street.²⁸ Purchases for the Washington household, however, continued, as the examples below detail:

June 14, 1794. Four pans (£0-12-0).

June 19, 1794. Parrot cage for Miss Nelly (£1-10-0).²⁹

July 23, 1794. Two ½-gallon measures (£0-4-9).

July 26, 1794. 7# of whiting (£0-3-6).

August 21, 1794. Canister mending (£0-4-6).

September 29, 1794. Box (£0-7-6).

October 8, 1794. Candlestick and tea pot mending (£0-1-10½).

October 18, 1794. Fish kettle & plate tinning (£1-2-6).

November 7, 1794. Basket lining (£0-15-0).

The Washington household continued to be a steady customer at least through the end of February 1796, when records recording purchases by individual customers ends.³⁰ The items purchased for the Washingtons are too numerous to continue to list them fully in this article. The list above, however, while abbreviated, highlights the range of tinware purchased by the president's household and provides examples of repairs Passmore made to items in daily use. It also suggests that the quality of Passmore's work kept the presidential family as a customer for several years.

The Conjurer,

Made and fold by

THOMAS PASSMORE,

No. 228, Market street, Philadelphia,

For boiling a tea-kettle of water for tea, in six minutes, with a single sheet of paper, also for cooking beef-steaks, mutton chops, veal cutlets, haffing meats of any kind, boiling fish, eggs, &c. &c.

It will drefs you a steak very nicely in three minutes and a half. The Conjurer is very convenient for gentlemen in chambers, as it quite precludes the necessity of lighting a fire, it is also very convenient on a fishing party, as the fish may be boiled immediately as they are taken out of the water.— Come and see the Conjurer, it is perfectly innocent and harmless.

N. B. Orders from any part of the United States will be attended to—The Conjurer is small, not more than twelve inches diameter.

A number of Journeymen Tinplate workers are still wanted by the subcriber.

December 7

mwf tf

Figure 20.
Facsimile
of Thomas
Passmore's first
advertisement
for the Conjurer,
his portable
cooking
apparatus.

THE PHILADELPHIA
GAZETTE &
UNIVERSAL DAILY
ADVERTISER,
DECEMBER 7, 1796.
TRANSCRIBED AND
FORMATTED BY THE
AUTHOR.

The Conjurer

Thomas Passmore produced a wide range of tinware for his customers. One of the more unusual items was something called a “conjurer,” a portable cooking apparatus that included a tea kettle and a stew pan. No documentation survives for how Passmore conceived of and developed this device, but the first documented mention of it to the public appears in the December 7, 1796, issue of the *Philadelphia Gazette & Universal Daily Advertiser* (Figure 20).³¹

No drawing or diagram of Passmore's conjurer survives, nor is there a surviving physical specimen, but we do have an idea of what it might have looked like, based on two diagrams of a conjurer included in a mid-nineteenth century cookbook (Figures 21 and 22).³² A conjurer was a fuel-saving device that cooked simple meals or boiled small amounts of water all in a short amount of time. Ostensibly, a sheet of brown paper, torn into shreds and placed inside the body of the conjurer and ignited, would produce enough heat to cook, as the advertisement states, a beef-steak, a small amount of water, or a variety of other items. The principle of the conjurer boiling water quickly was based on the fact that the tea kettle had a wide, flat bottom, so that the water was spread over a large surface area, enabling the heat to transfer quickly to it though conduction. Because it was self-contained, the conjurer could be used outdoors, or even indoors, as long as the smoke it produced could be vented through an open window or fireplace chimney.

Passmore continued to advertise the conjurer in the *Philadelphia Gazette* every two days through December 28, 1796. The following day, the advertisement ran again, but from December 29th onwards, the device was listed

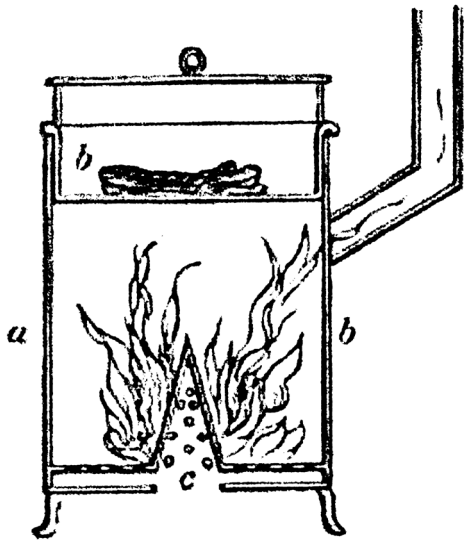


Figure 21.
Interior
arrangement
of a typical
Conjurer.

THOMAS
WEBSTER, *AN
ENCYCLOPEDIA
OF DOMESTIC
ECONOMY*;
LONDON:
LONGMAN,
BROWN, GREEN,
AND LONGMANS,
1844.

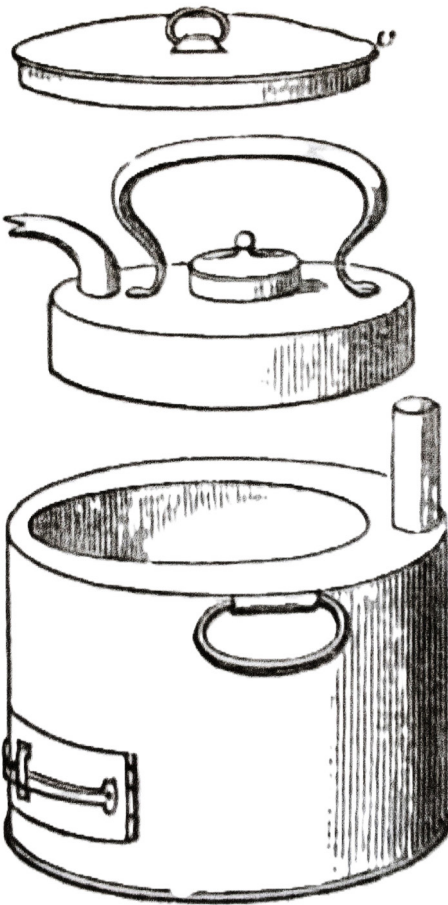


Figure 22.
The parts
of a typical
Conjurer.

THOMAS
WEBSTER, *AN
ENCYCLOPEDIA
OF DOMESTIC
ECONOMY*;
LONDON:
LONGMAN,
BROWN, GREEN,
AND LONGMANS,
1844.

as “The Patent Conjurer.” Passmore received a US patent for his conjurer on December 14, 1796, signed by the Secretary of State, Timothy Pickering, and by President George Washington (Figure 23). It was only the 138th patent issued by the US State Department.³³

Although Passmore patented the device, he was not actually the first one to create and sell a conjurer. On August 5, 1796, Arnold Finchett in London advertised

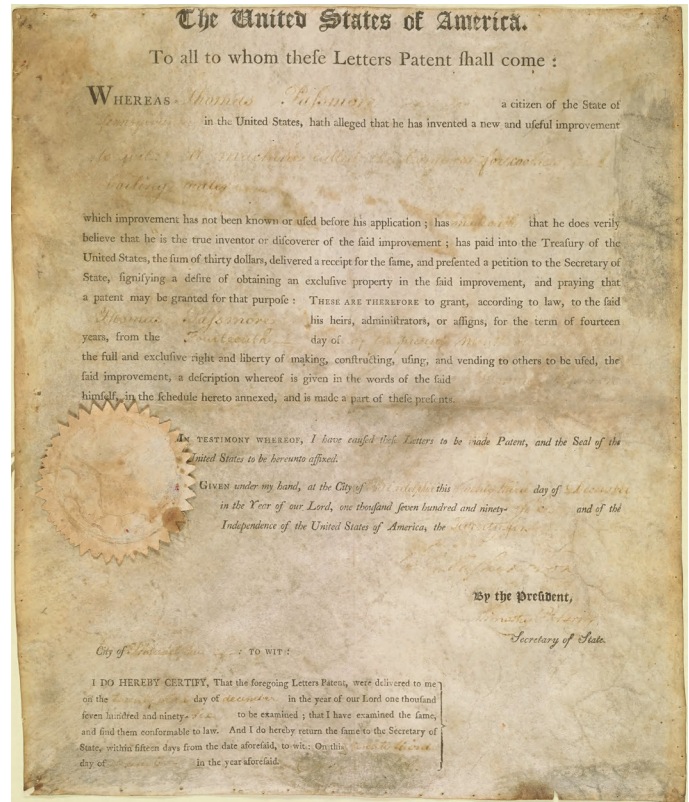


Figure 23. Thomas Passmore’s 1796 Letters Patent for his “machine called the Conjurer, for cooking, and boiling water.”

IMAGE COURTESY THE SMITHSONIAN INSTITUTION.

in *The Times* that they had for sale “Conjurers, or New-invented Cooking Furnaces” and that the device was “particularly useful” for “Gentlemen in chambers.”³⁴ This last phrase is repeated in Passmore’s first conjurer advertisement, published four months later. It seems clear that Passmore did not invent the device, but likely obtained a conjurer from England, perhaps modified it slightly rather than make an exact copy, and then patented his version in the United States. If Passmore learned of the new device from Arnold Finchett’s August advertisement by early September (a ship bringing newspapers from England might take 4-6 weeks to make the transatlantic voyage), that left approximately two months for Passmore to develop his own conjurer and receive a US patent for it. In the eighteenth century, it was not uncommon for tinsmiths to copy each other’s designs. While Passmore might have developed his own conjurer from an English one, he shrewdly did not want to have others in the United States copying him in the same manner, which is likely why he pursued the patent on it.

The first evidence that Passmore’s manufactory produced the conjurer is found in the first entry of Volume 21 on January 10, 1797, which credits journeyman tinsmith Samuel Biggs with “making one doz middle size Conjurers (planished) (pans & tea kettles).” Biggs was apparently good at making conjurers, along with the

accompanying pans and tea kettles, as he continued to be tasked with making them through the end of March that year. On January 14, Biggs submitted a dozen planished frying pans for the large-size conjurers. For that work, he received 7 shillings and 6 pence. His remaining work on conjurers and related items during the spring of 1797 was as follows:³⁵

- Jan. 19, 1797** By making one doz large planished [planished] Tea Kettles for Conjurers
- Feb. 7, 1797** By making one doz each kettles & pans large size planished for Conjurer
- Feb. 17, 1797** By making 1 doz each tea kettles & pans Large size for Conjurers (planished)
- Feb. 24, 1797** By making 1 doz each large size planished Conjurers 15 dollars
- Mar. 4, 1797** By making 1 doz each kettles & pans for Conjurers plensih'd Large size 15 dollars
- 1 middle Size Tea Kettle for Conjurer
- Mar. 21, 1797** By Making 1 doz plensih'd Conjurers – pans & Kettles Large size 15 dollars
- Mar. 29, 1797** By 1 doz each Kettles & pans for Conjurers 15 dollars

The dates and the work accomplished give us a concrete view of how long it took Biggs to produce one dozen of various conjurer-related items and, in several cases, how much he got paid for the work.

Another of Passmore’s journeymen tinsmiths, William Casady, was also enlisted in the work of making conjurers. Casady was first assigned this task in February 1797. Between early February and early March, Casady made the following conjurer-related items:³⁶

- Feb. 15, 1797** By making 1 doz each Large size Common Conjurers
- Feb. 24, 1797** Makg I doz planish'd Conjurers Kettles & Pans
- Mar. 6, 1797** By Making 2 doz common small Conjurers kettles & pans
- Mar. 11, 1797** By making 2 doz small Conjurers Kettles & pans (Common)

The Portable Kitchen

A related item produced in Passmore’s manufactory was a “portable kitchen,” which first appears in the records in May 1797.³⁷ Like the conjuror, there is, unfortunately, no surviving example, but we can surmise what the “portable kitchen” might have looked like based on items of that sort for which we do have visual evidence, like Frenchman Louis Nivert’s 1780 *Nouveaux fourneaux économiques et portatifs* (new economical and portable



Figure 24. Frenchman Louis Nivert’s 1780 *Nouveaux fourneaux économiques et portatifs* (“New economical and portable furnace”), a portable cooking apparatus, or “portable kitchen.”

IMAGE COURTESY BIBLIOTHÈQUE NATIONALE DE FRANCE

furnace), a portable cooking apparatus (Figure 24). It included a sheet iron casing, along with several sizes of cooking pots and pans as well as an oven on which meat roasted on a spit (called a “roaster” in English at the time or later a “tin kitchen”). Interestingly, Passmore ceased advertising the generic “portable kitchen” and by 1803 was marketing something called a “Salisbury Kitchen.” The latter was actually a device patented in Britain by William Redman of Salisbury, England, in 1780. It consisted of a cylinder made from sheet iron or copper with a fire grate inside. Smoke was carried off by a tube on the back. The front had an opening to access the fire, as well as in front of which to place a reflector oven. The reflector oven is described as having a spit. Juices from the meat dripped into a pan below. A person opened a door at the top of the reflector oven to access the meat for basting.³⁸ The Salisbury Kitchen sounds exactly like Louis Nivert’s *fourneaux économiques et portatifs*. Which device came first, however, is unknown. At any rate, Passmore could have easily learned of these devices through various newspapers available in Philadelphia. His shift from using the more generic expression (“portable kitchen”) to a more specific one (“Salisbury Kitchen”) might be because by 1800 the patent on William Redman’s device would have

lapsed and Passmore need not have worried about any claims of patent infringement by using the more specific name. Passmore's version of the Salisbury Kitchen came in round or oval and in different sizes: small, middling, and large in the round form, and small and large in the oval form.³⁹

In the 1790s, a portable kitchen was an expensive item, available only to those who could afford its premium price. A small portable kitchen sold for \$40, while a large portable kitchen sold for \$50. Between May 5, 1797, and August 28, 1797, Passmore's manufactory made and sold forty-eight portable kitchens. While the records of most of the portable kitchens produced in Passmore's manufactory do not include information noting for whom they were made, a few do, providing some insight into who was buying this apparatus. For example, a June 14, 1797, entry in the daybook noting the production of a portable kitchen for £18-15-0 (which would have made it the most expensive portable kitchen produced) the name "Bordely" appears next to the price in parentheses. In consulting the Philadelphia Directory of 1797, one finds only one person named Bordely, a John B. Bordely, at 7 Union Street. His occupation is listed as "gentleman." Union Street has since been renamed Delancey Street and is one of the streets in the famed (and rich) Society Hill neighborhood. He had been a lawyer and judge before the Revolution and was uncle to Edmund Randolph, the first attorney-general of the United States. Among the nearly fifty purchasers of a portable kitchen were also hotel owner John Francis and merchant George Plumstead.⁴⁰

Of Passmore's journeymen tinsmiths, four were tasked with making portable kitchens in 1797 (the only year for which we have production records on this item): William Casady, Thomas Loudon, John Stiff, and a "Mr. Foster" (for whom we do not have a first name). Of the four journeymen, William Casady made most of the portable kitchens. Pay rates were not always recorded in the daybook for each portable kitchen made, but in several instances the pay rate for William Casady in making them was, in fact, noted. He was paid \$6 for making each small portable kitchen and \$9 for making each large portable kitchen, which means that for his labor he was paid 15% of the retail value of a small portable kitchen and 18% of the retail value of a large portable kitchen. This kind of information is invaluable, as we rarely have the ability to determine actual labor costs tied to specific goods produced in the eighteenth century.

Tinware for the Lewis and Clark Expedition

While at the time it was a minor transaction and from our perspective today it might just be an interesting historical footnote, it is nevertheless noteworthy that Thomas Passmore supplied tinware used

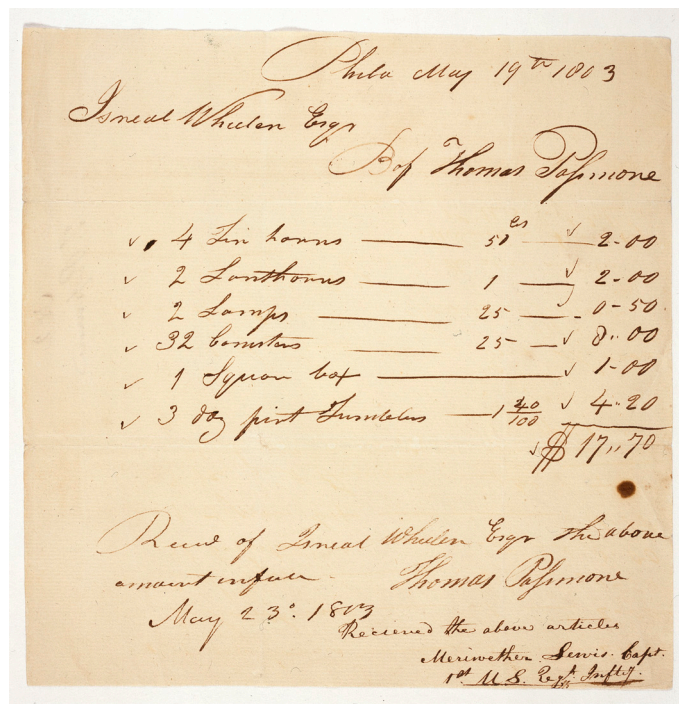


Figure 25. Receipt for tinware purchased from Thomas Passmore for the Lewis and Clark Expedition, dated May 19, 1803.

IMAGE COURTESY THE NATIONAL ARCHIVES, WASHINGTON, DC.

by the Lewis and Clark Expedition, 1803-1806. Because a receipt for the tin goods survives in the National Archives as part of the expedition's records, there is complete documentation on what the tinware was (Figure 25). The receipt, dated May 19, 1803, shows that Israel Whelan, in his role as Purveyor of Public Supplies, purchased the following items from Thomas Passmore: 4 tin horns (at 50 cents each), 2 lanthorns (at 1 dollar each), 2 lamps (at 25 cents each), 32 canisters (at 25 cents each), 1 square box (1 dollar), and 3 dozen pint tumblers (at \$1.40 per dozen). The total purchase came to \$17.70. Captain Meriwether Lewis signed for the tinware a few days later on May 23.⁴²

We know little about how these items were used, but they were all included in Lewis's inventory of camp equipage, i.e., items the expedition took with them on the journey west. Lewis does note in the inventory the function of two items: the canisters and the square box. The former were used to store the famed (or infamous) 'portable soup' that the men used as a meal of last resort, while the latter was used to store "small articles." What those small articles were is unknown.⁴³

There is much more to be learned from the Passmore records about late eighteenth century tinsmithing. The amount of detail in the records precludes using them fully in even two magazine articles. My hope, however, is that readers of these two articles will have a greater appreciation for Thomas Passmore and his life and work as a tinsmith and tinsmithing entrepreneur in the early American republic.

Acknowledgments

Historical research of this sort cannot be completed without the kind assistance of others. I'd like to acknowledge the following individuals who helped make this research possible: the late William McMillen, master tinsmith at Historic Eastfield Village in New York, for training me in historical tinsmithing, being a most excellent mentor and friend, and for his enthusiasm for this project, including writing a letter of reference; John Verrill, executive director of EAIA, for encouraging me to apply for an EAIA research grant; Heidi Campbell-Shoaf and the EAIA grants committee for funding my project; Steve Smith, Director of Research Services at the Historical Society of Pennsylvania (HSP), Briana Giasullo, former Access Services Librarian at HSP, and the many members of the HSP Reading Room staff that facilitated my research there. I owe a special debt of gratitude to Professor Scott Gordon, Andrew W. Mellon Chair at Lehigh University, who generously diverted time from his own research to take some initial photographs of the Thomas Passmore records, so I'd have a better idea of what to expect when I arrived at the Historical Society of Pennsylvania. Finally, I want to thank my family for their support and patience over the past year as I traveled and conducted the research for this project.

Notes

1. Thomas Passmore Memorandum Book, 1800-1802, Vol. 25, Cadwalader Family Papers, Collection 1454, Historical Society of Pennsylvania [hereafter HSP].
2. Ala Rekrut, "Matters of substance: materiality and meaning in historical records and their digital images," *Archives and Manuscripts* 42:3 (2014), 238.
3. See P. Kelly, *The Elements of Book-Keeping* (London: J. Johnson, 1805).
4. For an explanation of these types of books as business records, see *Third American Edition of Nicholson's British Encyclopedia or Dictionary of Arts & Sciences*, Vol. II (Philadelphia: Mitchell, Ames & White, 1819), 5-8.
5. Quoted in Ted Brake, *Men of Good Character: A History of the Sheet Metal Workers, Coppersmiths, Heating and Domestic Engineers* (London: Lawrence and Wishart, 1985), 25ff.
6. *City Gazette and Daily Advertiser* [Charleston, SC], August 16, 1796, 2, col. 5.
7. See Karl J. Schmidt, "Thomas Passmore: Tinsmithing Entrepreneur in the Early Republic." *The Chronicle* 76, no. 2 (June 2023), 45.
8. See List of Articles Sold to the Estate of Joseph Mussi, n.d., Folder 9, and receipt Thomas Passmore to A & G Humphreys, January 31, 1797, Folder 10, both folders in Thomas Passmore - Bankruptcy Papers, Cadwalder Family Papers, Collection 1454, HSP.

9. See *The Scaife Company and the Scaife Family, 1802-1952*, Will and Maxine Schoyer, eds. (Pittsburgh: The Scaife Co., 1952), 3. After Jeffery completed his seven-year apprenticeship, he moved to Pittsburgh, then a frontier town, and established his own tin manufactory.
10. See *Jackson's Oxford Journal*, Dec. 8, 1781, 1, col. 3, and *The New-York Morning Post and Daily Advertiser*, Oct. 5, 1786, 3, col. 1.
11. Wooster, Harvey A. "Manufacturer and Artisan, 1790-1840." *Journal of Political Economy* 34, no. 1 (1926): 61-77. <http://www.jstor.org/stable/1822275>. Accessed 2/3/2023.
12. Prude, Jonathan. "Capitalism, Industrialization, and the Factory in Post-Revolutionary America." *Journal of the Early Republic* 16, no. 2 (1996): 237-55. <https://doi.org/10.2307/3124248>. Accessed 2/3/2023.
13. See Bruce Laurie, "The Sources of Industrial Diversity." *Working People of Philadelphia, 1800-1850*, 3-30. Temple University Press, 1980. <https://doi.org/10.2307/j.ctv6mtdkn.6>. Accessed 2/3/2023.
14. See Passmore's advertisement in *Philadelphia Gazette*, September 1, 1796, 3, col. 5.
15. Details culled from Thomas Passmore daybook, 1797-1799, Vol. 21, Cadwalader Family Papers, Collection 1454, HSP.
16. Ancestry.com. Pennsylvania, U.S., U.S. Direct Tax Lists, 1798 [database on-line]. Lehi, Utah: Ancestry.com Operations, Inc., 2012. Accessed 2/3/2023.
17. Per a Facebook conversation with Steve Delisle, Master Tinsmith at Colonial Williamsburg (hereafter CW) on 5/23/2024, the CW tin shop is approximately 16' x 24'. While they've traditionally had only three people working in the CW tin shop, Steve suggests that perhaps four people could work in there comfortably, if the central workbench, which is based on the one at the Historical Eastfield Village tin shop, were smaller. If four people could work in a 16' x 24' space, each person would have approximately an 8' x 12' space or 96 square feet. If one floor of Passmore's tin manufactory on North Seventh Street was 32' x 20', that means that at least 6—almost 7—journeymen tinsmiths could have worked on one floor at a time, using that same scale from CW. Since they weren't interacting with the public at Passmore's, and he advertised for 20 journeymen tinsmiths, could he have been thinking that 10 men could work on each floor? If so, given the 640 square feet on one floor, that would mean each of the 10 journeymen would have 64 square feet (an 8' x 8' square) allocated to them to avoid crowding. Of course, not all of the men would likely be working on the same day, but Passmore seemed like the kind of planner who would anticipate contingencies.

18. *The Philadelphia Gazette & Universal Daily Advertiser*, Sept. 3, 1796, 2, col. 2.
19. See Don C. Skemer, "David Alling's Chair Manufactory: Craft Industrialization in Newark, New Jersey, 1801-1854." *Winterthur Portfolio* 22, no. 1 (1987): 1–21. <http://www.jstor.org/stable/1181145>.
20. Tom Juravich, "Artifacts of Workers' Knowledge: Finding Worker Skill in the Closing and Restructuring of a Furniture Manufacturer." *Ethnography* 18, no. 4 (2017), p. 503. <https://www.jstor.org/stable/26359201>. Accessed 6/15/2024.
21. See *Appendix to the Journals of the Senate of the Tenth Session of the Legislature of the State of California* (Sacramento: John O'Meara, State Printer, 1859), 40.
22. See *A book of prices of journeymen's wages for making tin-ware: agreed on by the Master Tinplate Workers, of the City of Philadelphia, at a meeting held the 18th of April, 1796*. Winterthur Museum, Garden & Library, Rare Book Call Number HD9539 T58.
23. Thomas Passmore Daybook, 1792-1796, Vol. 20, 1, Cadwalader Family Papers, Collection 1454, HSP.
24. See "Washington's Household Account Book, 1793-1797 (Continued)." *The Pennsylvania Magazine of History and Biography* 31, no. 1 (1907): 53–82. <http://www.jstor.org/stable/20085371>. Accessed 1/20/2023.
25. See "Washington's Household Account Book, 1793-1797 (Continued)." *The Pennsylvania Magazine of History and Biography* 31, no. 1 (1907), 392, <http://www.jstor.org/stable/20085371>. Accessed 1/20/2023.
26. Thomas Passmore Daybook, 1792-1796, Vol. 20, page 1, Cadwalader Family Papers, Collection 1454, HSP.
27. It was not uncommon for century tradesmen and merchants to have for sale items that might appear odd or incongruous to our modern eye.
28. <https://share.phmc.pa.gov/markers/>. Accessed 6/13/2024.
29. "Miss Nelly" is a reference to Eleanor Park Custis (1779-1852), Martha Washington's granddaughter and step-granddaughter to George. Eleanor's own father died in 1781, and she lived with the Washingtons until she married in 1799. For more about "Miss Nelly," see David L. Ribblett, *Nelly Custis: Child of Mount Vernon* (Mt. Vernon Ladies' Association, 1994).
30. Thomas Passmore Daybook, 1792-96, Vol. 20, last page [unnumbered], Cadwalader Family Papers, Collection 1454, HSP.
31. *The Philadelphia Gazette & Universal Daily Advertiser*, Wed., Dec. 7, 1796, 3, col. 5.
32. See Thomas Webster, *An Encyclopaedia of Domestic Economy* (London: Longman, Brown, Green, and Longmans, 1844), 838.
33. The original patent document is in the Smithsonian Institution library and is available online at <https://library.si.edu/digital-library/author/passmore-thomas>. At the time of Passmore's patent, there was no patent office, only a patent board, housed within the US State Department. Passmore's patent document is one of the few that survived the Patent Office fire in 1836.
34. *The Times* (of London), Fri., Aug. 5, 1796, 1, col. 3.
35. Thomas Passmore Daybook, Vol. 21, Cadwalader Family Papers, Collection 1454, HSP.
36. Thomas Passmore Daybook, Vol. 21, Cadwalader Family Papers, Collection 1454, HSP.
37. Thomas Passmore Daybook, Vol. 21, Cadwalader Family Papers, Collection 1454, HSP. See entry for May 5, 1797.
38. The text of the patent document is reprinted in *The Repertory of Arts and Manufactures*, Vol. VII (London: 1797), 105-106.
39. See *Aurora*, June 3, 1803, 3.
40. Thomas Passmore Daybook, Vol. 21, Cadwalader Family Papers, Collection 1454, HSP; *Philadelphia Directory for 1797*, <https://archive.org/details/philadelphiadire1797phil>, 29. Accessed 6/16/2024.
41. Thomas Passmore Daybook, Vol. 21, Cadwalader Family Papers, Collection 1454, HSP; *Philadelphia Directory for 1797*, <https://archive.org/details/philadelphiadire1797phil>, 29. Accessed 6/16/2024.
42. Thomas Passmore, Receipt No. 2, Records of the Office of the Quartermaster General, 1774-1985, RG92, Box 560A, National Archives, Wash., DC.
43. See Kenneth C. Walcheck, "Portable Soup: Ration of Last Resort." *We Proceeded On*, August 2003, 24-27; for a copy of the camp equipage inventory, see Donald D. Jackson, ed., *Letters of the Lewis and Clark Expedition: With Related Documents, 1783-1854* (Urbana, IL: University of Illinois Press, 1962), 95ff.

Author

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