

## 18th. Century Shovels and Spades

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A group of Revolutionary War reenactors/living history enthusiasts approached me to produce 14 shovels and spades that would be correct for this time period. As I have been experimenting with producing these occasionally over the past 20 years, I decided that I would take on the task. In part of the discussions that ensued, I explained many of the differences of materials and manufacturing techniques used in the 18th. Century vs. the 20th. Century, as well as the differences in how they were used. From what I have been able to determine through many sources including prints by Vauban and Diderot, shovels are not shown to be used for digging. Plus the material that was typically used, (wrought iron), this tool would not stand up to being used as I and many others today use a modern shovel in digging holes. For example, while attempting to dig a hole, how many times have you, or someone you have seen, jumped on the top wide part of the shovel to push it into the ground, then to vigorously rock it back and forth? A shovel made out of wrought iron will not stand up to this for very long because the material is softer, while modern shovels are made out of a modern alloy steel designed to stand up to this type of use.

Using a typical shovel from the 18th. Century would also be harder on ones shoes and feet as there normally was not a bent over surface to step on as with modern shovels. The period prints of Vauban and Diderot show more than one person involved in a digging operations, both in warfare (trenches and saps,) and mining. Normally the first one digging (sapper,) is generally using a pick or mattock to break loose the soil while the sapper with a shovel is throwing or

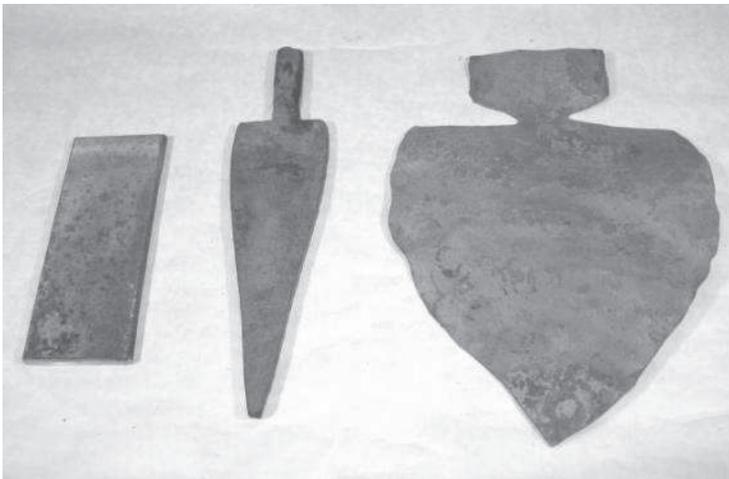


shoveling the loose soil. A shovel made of wrought iron could be used in this method for a very long period of time. Many will also assume that shovels were made out of sheet iron. While some may have been, this does not seem to be the norm. Instead, a bar of iron would have been used and spread out to resemble sheet. There are many advantages to this technique. One is the ability leave the finished piece thicker in an area that would help to re-enforce it as some spades and shovels were done. There is also the argument that this type of manufacturing produces a stronger material from pounding the bar down and compressing the material in a different manner than what was used to produce sheet. It may have also been a matter of economy for the producer of shovels and spades. It was normally less expensive to purchase and transport quantities bar iron to shops that produced shovels and spades. Sheet iron was normally produced by a water powder "tilt" hammer, a very large trip hammer for refining iron to desired shapes and size prior to rolling mills. Nor were spades and shovels normally made at the local blacksmith shop, even though the local smith may have been called upon to produce such an item on occasion.

Another advantage of using a bar to be spread is the ability to add steel to what will end up being the cutting edge as was common practice in making axes and other tools requiring a cutting edge that needed to be hard and serviceable for extended periods of use. As I have only been able to scratch the surface in production techniques and the history of producing shovels and spades, this much I have learned, the shops that specialized in producing spades and shovels normally had a water power trip hammer to do the heavy pounding. Not as large as the refinery forges, but still a piece of equipment that was not as typical in an everyday village blacksmith shop. A colleague that was traveling in Ireland in one of the areas known for producing shovels and spades happened to stop by such a shop that is now a museum. While the bellows and anvil were clearly of the 19th. Century variety, the shop had been in this location and type of production since the 18th. Century.

There was also a water powered trip hammer and set out on the forge was the different stages of producing a shovel from bar iron. I am uncertain of when and how much steel was being used. While there is some evidence that some had steel cutting surfaces, the predominant material being used in the 18th. Century was wrought iron.

Not only from the shape, but also some handle designs do suggest that spades were used in a fashion more closely relating to the modern method previously mentioned. Some spades have been found with the top of the blade bent over or even an additional flat piece of iron across the top where one would be inclined to step on to push into the soil. Another spade design found in Lake Champlain had a wooden shaft or handle that resembled a plank that fit into the socket of a spade with the handle portion narrowed down leaving a place to step. This design reminds me of a simple stilt that children use. Once again, most of the spades studied were made of iron and certainly would not stand up to the abuse of modern spades and shovels. There were even wooden spades with an iron covering, some covering just the front face, some with iron just on the "cutting edge," as well as some that were two sheets covering the wooden blade, frequently forge welded at the cutting edge. It also appears that spades were frequently used to cut sod. Based on what I have learned in how sod was frequently used as a type of brick to face trenches and ditches as was initially done in the reconstruction



of the ditch of the fascine gun battery at Ft. Ligonier, it was necessary to use a quantity of rectangular shaped pieces of sod several inches thick keeping the roots in tact.

The method I have chosen to produce the latest batch of shovels and spades is spreading out from a bar. Instead of wrought iron, I chose to use spring steel, discarded leaf springs from a semi-truck. As I fear that someone that is unfamiliar with 18th. Century techniques and uses of these tools will use one of these in a modern method, bending or breaking the shovel or spade, then cursing me for producing an inferior product. The steps for forging out the bar into a spade can be seen in the attached photo. After final forging and shaping the shovels and spades they are annealed overnight to soften the material as I found it was too brittle my simply letting them air cool. Then to clean off the scale and welding flux they were pickled in a solution of muriatic acid.

Jymm Hoffman is offering Classes in Basic Blacksmithing projects this Winter  
Check out his web site for a descriptive explanation of the classes and class hours.

Spoon fed—January 2  
Strap Hinges—January 4 & 11  
Working on the Chain Gang—February 8 & 15  
Poking around the Fire - March 1 & 8  
Forks—March 6

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*Example of Jymm's Strap Hinges*

