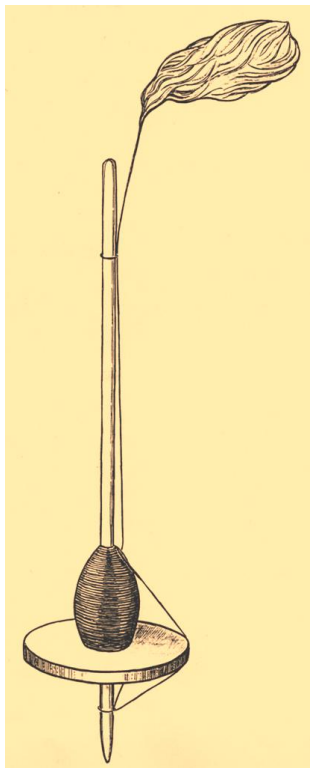


# *Trowbridge Museum Cloth Manufacture*

## *Fact Sheets*

### **Spinning**

Wool is easy to spin because the scales on each fibre cling together, helping to make a continuous thread. Twisting this thread increases the strength and durability of the yarn.



Using prepared wool, early hand spinners used a drop spindle to draw out and twist wool fibres to make yarn. Today, hand spinners still use a drop spindle to create the exact yarn they need. The spindle is made of either wood or bone with a weight or whorl at the base acting as a flywheel. The spinner or “spinster” was generally a woman. She pulled out a few fibres from a roll or “rolag”, turning the spindle to put twist into the fibres; the more twist the stronger the yarn. Warp yarn was spun harder to increase its strength. As the spindle twisted, its weight pulled more fibres from the roll.

***Drop spindles***



When a length of yarn has been spun (the height of the spinner is the controlling factor here), the spinning is stopped and the thread wound onto the spindle. A small notch at the top of the spindle enables the spun thread to be anchored, ready for the process to be repeated.

By the 14th Century, spinning was done on a “great” or “cottage” wheel. The spinner generally stood to spin her yarn. A spindle mounted horizontally onto a frame is connected to a wheel which the spinner turns by hand. The carded fibres are held at an angle to the spindle so that with each turn, they slide off the end of the spindle and

another twist is added. Yarn is wound onto the spindle by holding it at right angles to the spindle and then turning the wheel.



***The great wheel was an improvement on the drop spindle, allowing yarn to be made more quickly***

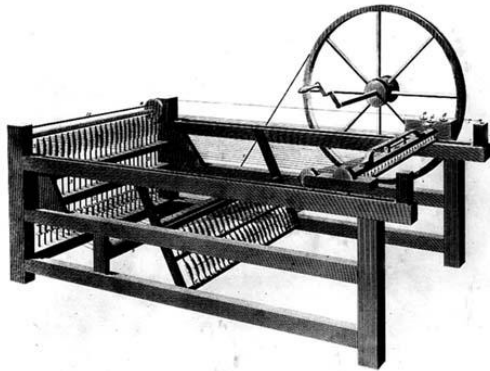


***A Saxony Wheel, with foot pedal***

The Saxony wheel was the next type of spinning wheel to come into use. The spinner could be seated at a wheel operated by a treadle, which meant that both hands were free to draw out the fibres. Spinning was also much faster because the spun yarn was automatically wound on to a bobbin using a flyer, meaning spinning and winding were done at the same time. Carded fleece is threaded through a small hole in the end of flyer and tied onto the bobbin. The flyer is U-shaped with a series of hooks over which the spun yarn passes to be wound onto the bobbin. As in the previous methods of spinning, only one bobbin of yarn is made by each spinner.

## **Spinning Jenny**

The first machine made to spin yarn was the spinning jenny, invented by James Hargreaves in 1764. Hand operated by one person, the jenny produced dozens of lengths of yarn at the same time. The patent describes a machine with 16 spindles, all operated by one spinner.



*Engraving of a spinning jenny*

By using a jenny, a woollen cloth manufacturer could reduce the number of hand spinners he had to employ, and supply his weavers with yarn more quickly.



*A spinning jenny being used in Palmer and Mackay's factory in Trowbridge*

When Palmer and Mackay's closed, their spinning jenny was passed to the Science Museum for safekeeping. This was then loaned to Trowbridge Museum in 1990 when the collection moved to new premises in Salter's Home Mills, and is the only place in the country where an original and complete jenny can be viewed.

## **How the spinning jenny works**

This machine is entirely hand operated and can be run by a single worker. Before any wool is attached to the jenny, it is combed and slightly twisted into long even lengths called "slubbings". The slubbings are wound onto bobbins placed on a movable bar at the front of the machine.



***Spinning jenny bobbins***

Their ends are fed through a clamp and tied onto the spindles on the back of the frame. The back of the jenny carries spiked metal spindles which all turn when the handle is cranked. A roller and its bearings beneath the machine drive the spindles which can turn at two speeds, fast for putting in twist and slow for winding on. The jenny carries out three separate actions; drawing, twisting and drafting, and winding on. The start of the sequence sees the movable bar containing bobbins of slubbings at the back of the machine, up against the spindles of spun yarn.

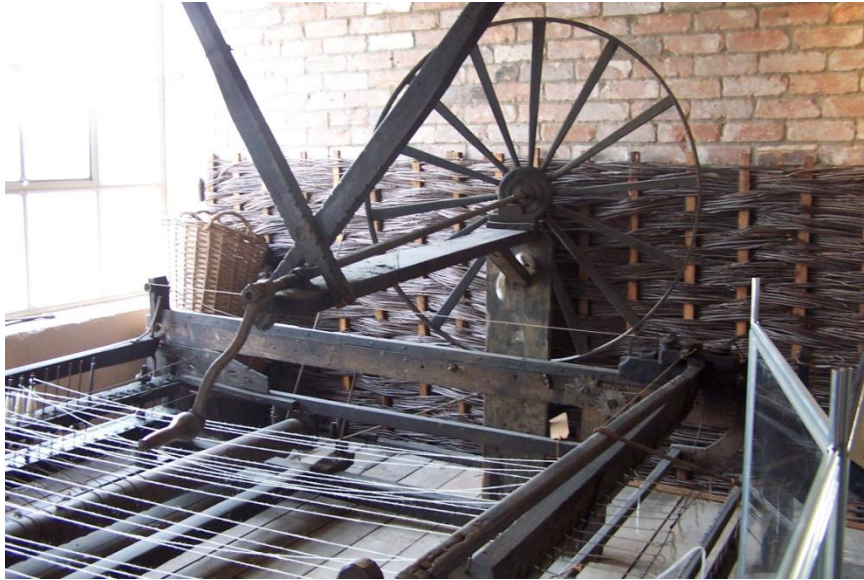
### **Drawing**

The slubbings need to be thinned out as well as twisted to make a yarn. This is done by pulling the movable beam towards the operator who stands at the front of the machine. The clamp is closed to stop the bobbins feeding out too much wool so that the yarn can be properly stretched.

### **Twisting and drafting**

The spinner turns the large wheel which in turn moves the spindles. When the slubbings are at the top of the spindles, the threads are twisted. The skill of the operator must

have been used to gauge the amount of twisting and stretching. Walking backwards with the clamp closed would stretch the newly twisted yarn.



*The wheel and turning*

*handle of the Trowbridge spinning jenny*

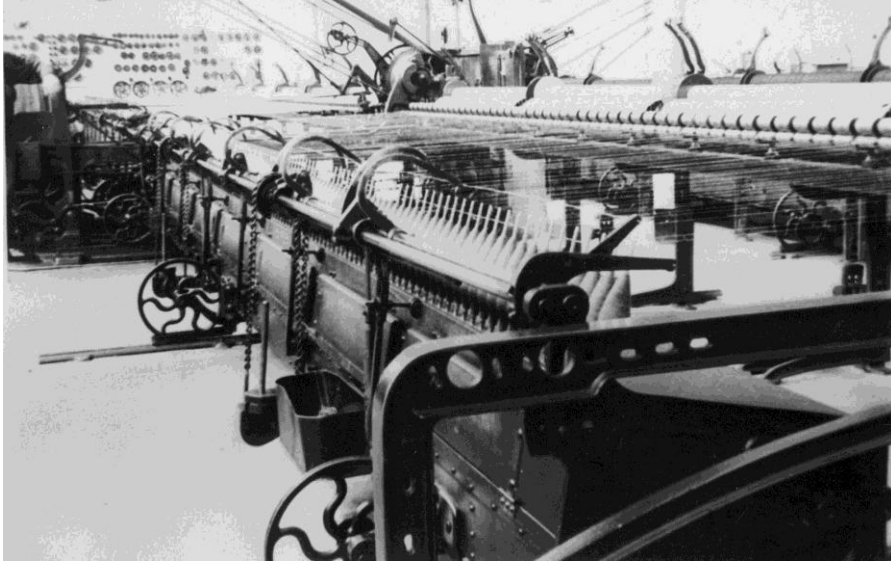
### **Winding on**

By reversing the direction of the spindles, the yarn will drop from the point to the lower part of the spindle. A faller wire helps to guide the yarn ready to be wound on. Turning the wheel forward again and also moving the bar of bobbins forward while holding the clamp closed was the most difficult part of the process. The yarn should wind neatly onto the spindle forming a “cop” of evenly spun yarn.

The cycle can then be repeated until all the slubbings are used or the cops are full.

### **Spinning mule**

Crompton began work on a new spinning machine in 1774 and 5 years later, he successfully produced yarn on his “mule”. The new machine was a cross between Hargreaves’ spinning jenny and Arkwright’s roller frame which used rollers for spinning. Arkwright had adapted an idea put forward by John Wyatt of Birmingham in 1738. The spindles in Crompton’s mule were held in a movable carriage which proved to be a significant advantage. The carriage was still moved by hand with the use of a fly wheel.



*Mechanised spinning mules*