

Spinning and Spinning Wheels

A Brief History of Machines for Making Thread and Yarn

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Making thread and yarn is as old as clothing made of fibers. Originally fibers were twisted together by hand, but some bright soul in the dim past discovered that a weighted stick could be spun and if fibers were attached to it they would twist into thread or yarn. This device is called a drop spindle. The twist, by the way, is what holds the short fibers (from ½ to 3 inches long) together so they stick firmly to one another and do not come apart.

At the demonstrations of this craft by members of CROFT, you will see two historically accurate methods of spinning: The drop spindle and the spinning wheel. Drop spindles look like this, with the weight either at the top or bottom of the stick.



The spinner holds a mass of teased and fluffed fibers in one hand, and with the other hand gives the spindle a spin with a flick of the thumb and fingers to set it spinning. The fibers have been initially twisted into a string at one end and that end is attached to the spindle (the fiber on the left-hand spindle above). The spinner then slowly feeds the handful of fibers through her fingers in a process called “drafting”, which forms a consistent set of fibers. As the spindle spins these fibers tightly wrap around one another to form the thread. Then when the spindle reaches the floor... since it “drops” as the fibers are fed through the fingers... the spinner raises it and wraps the string around the shaft of the spindle and starts again. It is both tedious (if you really need a lot of thread fast) and soothing (if you are not in a hurry and have developed some skill).

In Medieval and Renaissance Europe, spinners were almost always women. By the time weavers (who are the spinners’ customers) had treadle looms, five spinners could not keep up with the needs of one weaver. This was a problem.

The solution to the problem was the spinning wheel. The original spinning wheel came from China and India. The earliest clear illustration of this wheel comes from Baghdad and is dated 1237.



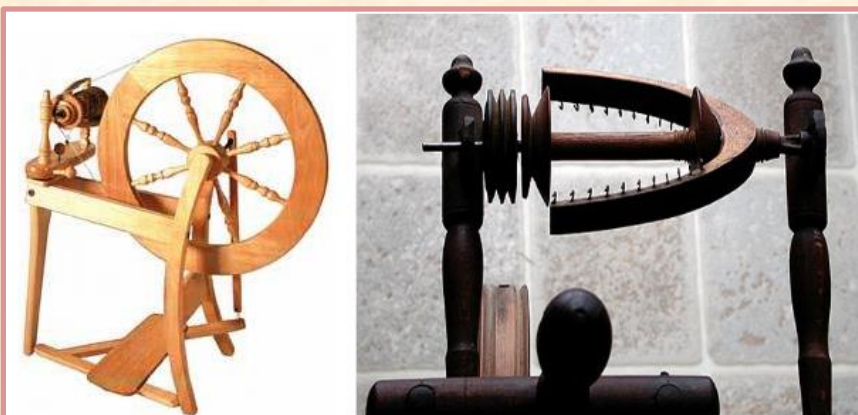
The “great wheel” was merely a large spoked wheel with a belt that drove a thin shaft which twisted the fibers, and around which the thread was wound by hand after it had been twisted. The spinner turned the wheel, often with a stick, and drafted the wool with the other hand. Partly because this innovation greatly improved the efficiency (and therefore the economic status) of spinners and weavers (who were usually members of the same family) there was significant resistance to its use for commercial fabric.

In the wool industry in particular, merchants felt that the wheel produced inferior yarn. In 1280, the drapers guild banned its use. Weft thread (which runs cross-wise) did not need to be as strong as warp thread (the long dimension of the cloth), so eventually, the wheel was accepted for that use.

Even with the use of the great wheel, the chronic imbalance between spinners’ output and weavers’ needs led to further innovation. About 1480, craftsmen developed a U shaped device which was driven by the wheel, but which had at first a brake (Scotch drive) and later two driven pulleys, one for the spindle and the other for the “flyer” so that the flyer spun around the spindle at a faster rate than the spindle turned, thus winding the thread on the spindle continuously. This was a dramatic technical innovation. As the historian Lynn White says,

“...(I)t is the first instance of belt transmission of power and a notably early example of the flywheel principle...(and) it focused attention upon the problem of producing and controlling various rates of speed in different moving parts of the same machine.” (p.119.)

The drafting principle was the same on the new wheel as on both predecessors. With the flyer, however, the spinner almost doubled her output because the flow of work was uninterrupted, as she no longer needed to stop and take up her thread.



Because of the efficiencies of the flyer spinning wheel and the horizontal treadle loom, there was an increase of ten-fold in the quantity of cloth produced between 1150 CE and 1500. This increase (in part) resulted in a decline in prices, wider availability and an increase, however modest, in the standard of living for textile workers. It further had the effect of moving cotton fabric out of the realm of luxury cloth and into the homes and onto the bodies of the growing middle class.

References

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