

Backstitch: A Brief History of Needles, Bobbins and Stitches

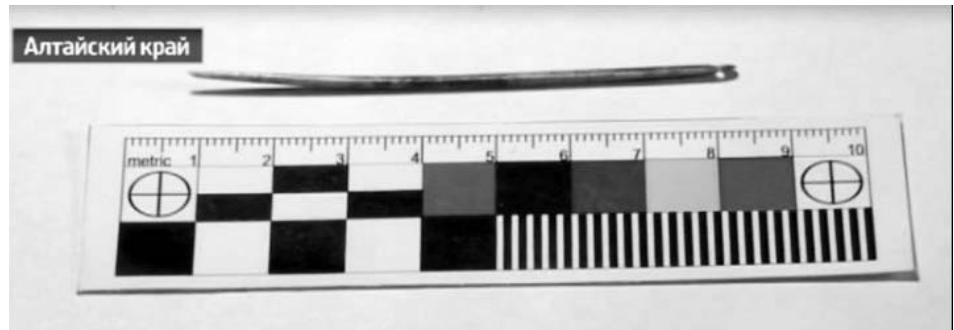
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Educational Objectives

- Participants will understand the evolution of sewing technology.
- Participants will explore the diversity of stitching techniques and when and how to use different stitches.
- Participants will analyze the societal impact of sewing machines.

Needles: Where it all started

The first known use of an eyed sewing needle, the style we are familiar with today, dates back 50,000 years (Siberian Times, 2016). The needle was made of bird bone and measured 2.75 inches (Siberian Times, 2016).

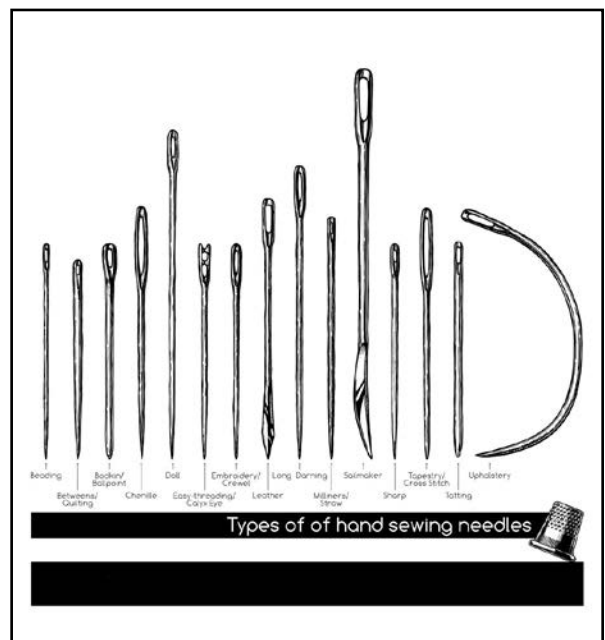


Needle made of bird bone found in Siberian cave. Siberian Times, 2016

Needle size and purpose varied by the region, textile used, needle material used and purpose of the garment.

The evolution of the sewing needle has led some anthropologists to believe that this small tool may be responsible for early humans' ability to travel long distances, endure harsh climates and settle the rest of the world. (Pagano, 2019).

With the ability to manipulate metal to

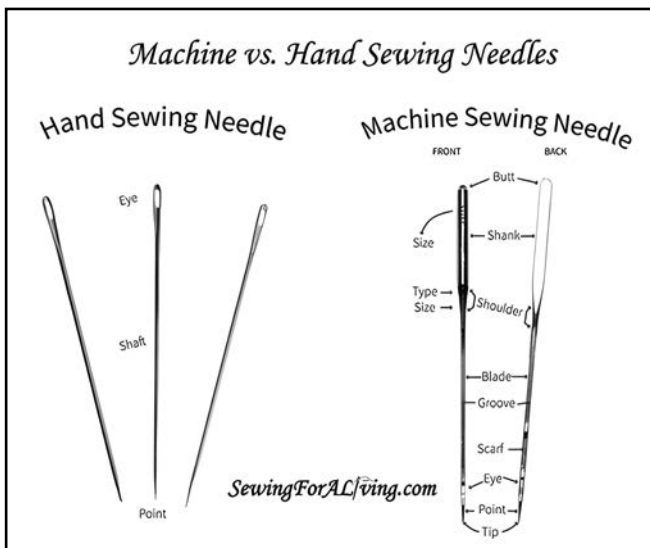


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make needles, mass-production of not only needles, but the use of them, spread farther than ever before. Not only did more people have access to needles for hand-sewing, but because of the increased durability and abundance of metal sewing needles, machines could be invented to use the metal needles at far greater speeds than human hands.

In 1775, the first successfully working sewing machine was made. The sewing needle used was double pointed with an eye at one end. With the evolution of sewing machine designs over the next 75 years, a variety of needles were experimented with:

- A barbed needle which passed downward through the cloth to grab the thread and pull it up to form a loop to be locked by the next loop.
- A hooked needle which did much the same as the barbed needle.
- Curved needles.
- And finally, around 1800, an inventor developed the sewing needle we see today with a single point and an eye close to that point.

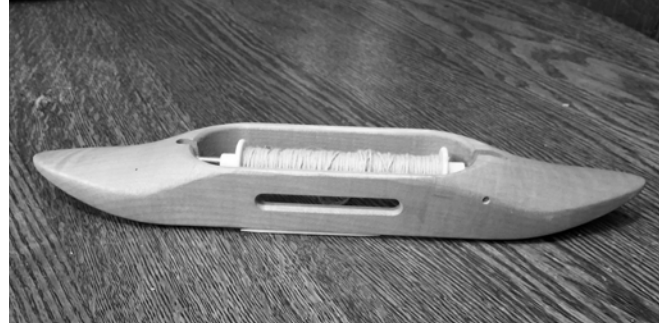


Bobbins

The first sewing machines used a single thread to make a chain stitch. In 1846, a sewing machine was patented that used two threads to create a much more reliable locking stitch. The locking

stitch was made possible by implementing a bobbin wound with thread on one side of the material while another thread ran through the sewing needle's eye on the other side.

The first bobbin use mimicked the bobbin and shuttle used with weaving on a loom. Called a Boat Shuttle, the bobbin was long and sat down in the shuttle body which was shaped much like a boat.



Boat Shuttle used with loom weaving (Photo by Lynn Yurkiewicz, 2024).

For the sewing machine, the shuttle and bobbin were made of metal and instead of the bobbin being secured in the shuttle by a metal rod, it fit snugly or clipped into the shuttle.

While the shuttle shape mimic those of loom weaving, it's movement when engaged in the sewing machine also mimicked loom weaving. Called the Transverse Shuttle action, the shuttle moved from side to side across the length of the sewing machine base in a straight line behind the needle.

The next variation of shuttle and bobbin was known as the Bullet Shuttle. A solid cylinder with a point at one end that resembled the shape of a



bullet, this shuttle still used a long bobbin. Bobbins for a Bullet Shuttle were inserted into the open end of the shuttle with the tail thread





being passed through a slit in the side of the shuttle and locked under a tension piece.

These Bullet Shuttles came about by 1850 and were used in sewing machines known as Vibrating Shuttle (VS) machines. The key movement for these shuttles and bobbins was an arc motion passing front to back.



The Boat and Bullet Shuttles, with their long bobbins, were used from 1845 until the famous Issac Singer introduced a smaller Rotary Hook shuttle case and bobbin in 1895. The movement of this shuttle design was stationary while the bobbin was still free to move and allow the thread wound on it to be pulled off. This new design significantly decreased the movement and vibration of the sewing machine and allowed it to function at much higher speeds than other sewing machines.

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The final evolution of the bobbin was for the case (formally a shuttle) to become a fixed part of the sewing machine and only the bobbin would be mobile and removable. This allowed



Bobbin and bobbin case for a shuttle hook sewing machine, introduced by Singer for the "Improved Family" model in 1895 (Wikipedia, 2023).

an increase in the speed of the sewing machine. The speed was particularly important when sewing machines transitioned from manual operation with a hand crank or treadle, to electric.

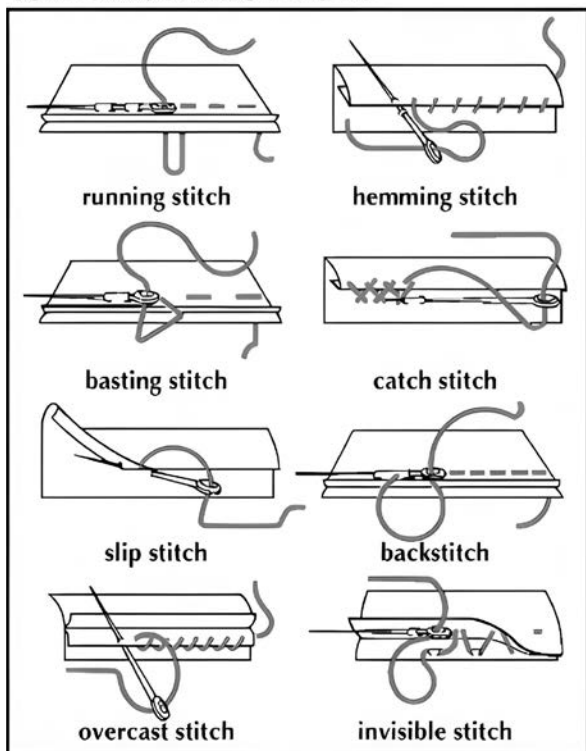
Stitches: Hand-stitch vs. Machine

Stitches, whether done by hand or machine, are separated into two categories, utility and decorative.

Utility stitches are basic, or foundation stitches used for the construction of the product. These stitches are designed to be strong so they can hold up to constant wear through friction, washing and general product use.

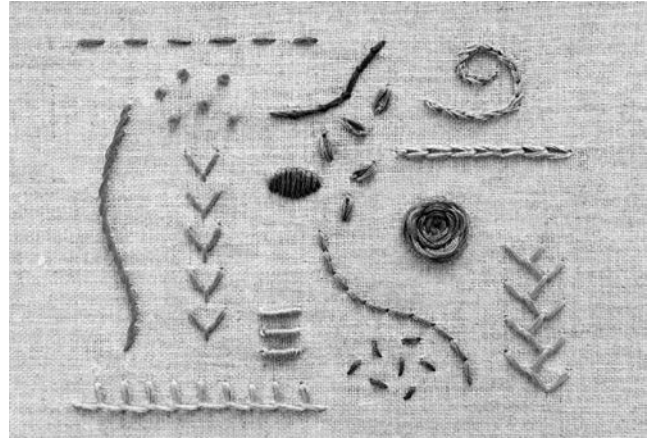
Decorative stitches are exactly that, decorative. They serve no structural purpose to the product but to be eye catching and add appeal.

SOME BASIC SEWING STITCHES



Hand stitches vs. Machine stitches

The first sewing machines used a single thread to make a chain stitch. In 1832, a machine was invented that used two threads to create a lock stitch. Between 1854 and 1856, an attachment was patented to make buttonholes. By 1873,



15 Hand Embroidery Stitches by Mollie Johanson (Johanson, 2022).

the zig zag stitch was introduced to machine sewing. Sewing machines continued to have improvements and attachments.

Hand embroidery was not safe from mechanization either. As early as 1828, an embroidery machine was developed, but just like the traditional sewing machine, the early embroidery machines had their faults and were not popular. In the 1840s, alongside the sewing machine's success, inventors of embroidery machines found the right combination to make them marketable (Design Drawing of the Hand Embroidery Machine Developed by Josua Heilmann - Josua Heilmann - Google Arts & Culture, n.d.).

Sewing and embroidery machines would continue to advance in technology and replace the necessity of hand sewing.

Sewing Machines' Impact on Society

Whether in factories, town shops, or at home, sewing required nimble fingers to accomplish prior to the mid-1700s. But with the Industrial Revolution (1760 to 1840), inventors were designing and manufacturing ways to mechanize sewing.

By 1830, a well-functioning sewing machine was designed and manufactured by Barthélemy Thimonnier. But in 1831, around 200 rioting tailors, who feared that the invention would ruin their businesses, destroyed the machines.





Barthélemy Thimonnier sewing machine (Sewing Machine - Barthélemy Thimonnier - Google Arts & Culture, n.d.).

Thimonnier's design, in any event, had mechanized the straight stitch of hand-sewing successfully and started a frenzy of sewing machine inventors.

Up until 1856, sewing machines were manufactured as industrial machines (Wikipedia contributors, 2024). Machines could sew significantly faster than women and children, as demonstrated by a sewing machine in 1845 that performed 250 stitches per minute, out sewing five people (Alfred, 2009). By 1851, Isaac Singer's sewing machines "could sew around 900 stitches per minute, reducing the time taken to create a garment drastically. In the past, a shirt would take 15 hours to make. With Singer's, a shirt would take just one hour to produce" (Team, 2020).

Faster sewing meant more products available to the public and more money for the company,

2024

but it also meant less jobs for the working folk as well as more hazards in the workplace due to the fast-moving parts of the machines. Mass production of ready-made clothes also greatly impacted tailors and seamstresses who made a living making and altering cloths.

In domestic use, sewing machines empowered women to have more flexibility in how they used their time. Additionally, having a sewing machine in the home could increase creativity in patterns and started influencing the fashion industry.

The mass production of ready-made clothes meant previously high fashion that was unaffordable to middle or low classes was now attainable. Although sewing machines impacted hand sewing negatively at first, as the years wore on, hand sewing found its own sought-after niche for its skill and craftsmanship.

Resources

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