

# THE HISTORY OF LOOMS



- **The first developments**

The first looms didn't start to evolve dramatically until the Middle Ages, machines such as this one were used. The treadles lift several different heddles allowing complex patterns to be obtained. This invention is likely to be of Chinese origin.

However the first known fabrics date from the end of the Neolithic period and were found in Turkey and Palestine.

The draw loom is a model which allows the weaving of patterns using treadles or some other mechanism, the heddles are raised and lowered to open the shed in the warp threads. These different combinations were attached to numerous runners that a second person would lift in turn.

Its use was simplified at the beginning of the 18<sup>th</sup> Century thanks to French weaver, Claude Dagon.

- **A major innovation: the Flying Shuttle**

For a long time, a shuttle was used to push the weft thread through the warp: the shuttle enclosing the weft thread had to be slid into the opening by hand, which limited the width of the material.

In order to make large pieces on a loom, to weavers had to pass the shuttle to each other.

**In 1733, British weaver John Kay developed the Flying Shuttle.**

This mechanical system was a major upgrade as it allows the shuttle to « fly » from one end to another and sped up the weaving process.

The Flying Shuttle was omnipresent for more than 2 centuries, until the creation of mechanical looms.



- *The Jacquard loom*

In the 19th Century, the invention and the generalisation of automated looms such as the Jacquard loom invented in 1801, was a major technical and social revolution in the profession.

The Jacquard loom, also nicknamed by the French “bistanclaque” (relating to the noise made by the machine), holds the name of its inventor: Joseph Marie Jacquard, from Lyon.

The loom is controlled by cards with punched holes, each row of which corresponds to one row of the design. Multiple rows of holes are punched on each card and the many cards that compose the design of the textile are strung together in order.

This invention simplifies the process of manufacturing textiles with complex patterns such as brocade, damask and matelassé.



- *Power looms*

In 1786, the steam engine enables rapid automated looms to be put in place. The first power loom using steam appeared 1786. Cost efficiency dictated the ratio of steam engines to looms at 1:10 minimum.

The arrival of electricity, at the beginning of the 20<sup>th</sup> Century, allowed the replacement of steam machines by large electric motors, whilst still keeping the pulley system.

The mechanisation of looms was practically finished in the late 1940s. The shuttle, too heavy and therefore limited in speed was replaced by a tool called a projectile from 1945. This innovation was then replaced by an even simpler technology: fluid jet looms, thanks to the Swiss loom constructor **Sulzer**.

This technology, during which the weft thread is pushed through the warp by a pressurised jet of either **water or air**, is currently the leading technology used today in mass production.

## *Weaving*

Weaving is a method of fabric production in which two distinct sets of yarns or threads are interlaced at right angles to form a fabric or cloth. The longitudinal threads are called the warp and the lateral threads are the weft or filling.

The method in which these threads are interwoven affects the characteristics of the cloth. The way the warp and filling threads interlace with each other is called the weave. The majority of woven products are created with one of three basic weaves: plain weave, satin weave, or twill.

