

WEAVING

Is the method of textile production in which two distinct sets of yarns or threads are interlaced at right Angles to form a fabric or cloth.

Other methods of making fabrics are;

- Knitting.
- Crocheting.
- Felting.
- Braiding & plaiting.

The cloth is usually woven on a loom. A loom is a device that holds the warp threads in place while the wefts or filling threads are woven through them.

There are three basic weaving methods;

- Plain weave.
- Satin weave.
- Twill weave.

One warp thread is called **an end** and one weft thread is called **a pick**.

Weaving can be summarised as a repetition of these actions;

❖ **Primary motions of a loom.**

1. SHEDDING. Is where the warp threads (ends) and are separated by raising or lowering heald frames (heddle) to form a clear space where the the pick can pass.
2. PICKING. Is where the weft or pick is propelled across the loom by hand, an air jet, a rapier or shuttle.
3. BEATING UP OR BATTENING : Is where the weft is pushed up against the fell of the cloth by the reed.

The warp is divided into two overlapping groups or lines (most often adjacent threads belonging to another, so that the shuttle can be passed between them in a straight motion. Then the upper group is raised (shedding), allowing to pass the shuttle in the opposite direction, also in the straight motion.

Continous repetition of these actions for a fabric mesh but without beating up, the final distance between adjacent wefts would be irregular and too large.

❖ **The secondary motions of the loom are;**

- (a) LET OFF MOTION : Is where the warp is let off the warp beam at regulated speed to make the filling and of the required design.
- (b) TAKE UP MOTION: Takes up the woven fabric in a regulated manner so that the density of filling is maintained.

❖ **The tertiary motions of a loom are;**

To stop the the loom in the event of a thread break, there are two main stop motions;

- (a) Warp stop motion.
- (b) Weft stop motion.

PRINCIPAL PARTS OF A LOOM ARE;

- The frame.
- The warp beam/weavers beam.
- The cloth – roll (apron bar).
- The heddle and their mounting.
- The reed.

The warp beam is a wooden or metallic cylinder on the back of the loom on which the warp is delivered. The threads of the warp extend in parallel order from the warp – beam to the front of the loom where they are attached to the cloth roll.

Each thread or group of threads of the warp passes through an opening (eye) in a heddle. The warp threads are separated by the heddles into two or more groups, each controlled and automatically drawn up and down by the motions of heddles.

In case of small patterns, the movements of the heddle are controlled by “**cams**” which move up the heddles by means of a frame called a **harness**.

In large patterns, the heddles are controlled by a **dobby mechanism**, where the threads are raised according to pegs inserted into revolving drum.

On a conventional loom, the weft thread is carried on a **pirn** in a shuttle that passes through the **shed**. A hand loom weaver could propel the shuttle by throwing it from side to side with the help of a picking stick.

CLASSIFICATION OF LOOMS

Looms are classified according to operational mechanism and these are;

- Hand looms. These are manually operated eg the rigid heddle and inkle Looms.

- Power looms. They are electrically driven and are meant for mass production of clothes.
- Projectile looms. They use a bullet like shuttle to insert the weft thread through the shed.
- Water jet looms. These use water jet technology to insert wefts through the shed.

TYPES OF LOOMS

❖ FRAME LOOM.

This is a very simple loom made up of four pieces of wood joined together at right angles to form a rectangular frame that keeps the warp threads taut and straight so that the wefts can pass through with ease.

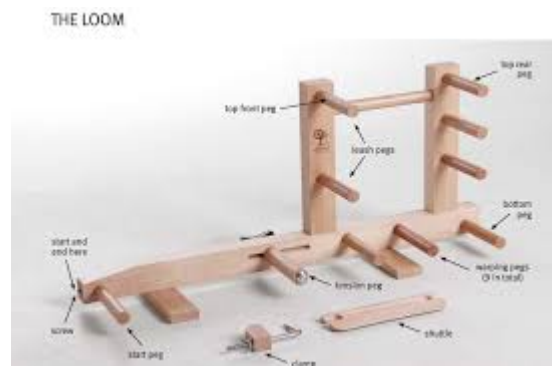
ILLUSTRATION SHOWING A FRAME LOOM.



❖ INKLE LOOM.

Is a portable loom characterised by a wooden frame upon which the dowels are fastened to hold the warp threads. It's suitable for weaving belts, straps, ribbons, or garment hems.

ILLUSTRATION SHOWING THE INKLE LOOM.





PARTS OF INKLE LOOM:

- (a) HEDDLE: Is a string looped over the upper set of warp threads to hold them in place and allows the weaver to change sheds.
- (b) HEDDLE BAR: Is the bar on which the ends of heddles are secured.
- (c) Shed: Is a space between two or more sets of warp threads through which the shuttle or boat passes during weaving process.
- (d) TENSION BAR: Is an adjustable piece of wood attached to the front bar which can be loosened to keep an even tension on the warp threads during weaving.
- (e) BEATTER: Is a stick used for beating the weft threads to ensure that parking is done tightly.

ADVANTAGES OF USING AN INKLE LOOM.

- It doesn't require a lot of space for operation.
- It is a fast method of weaving.
- Beautiful and intricate patterns can be woven.

- The fabric produced is warp faced.

DISADVANTAGES OF USING AN INKLE LOOM

- Fabrics produced are usually of small size.
- It is expensive if compared with a frame loom.
- Large scale production is limited.

OTHER TYPES OF LOOMS ARE;

- ❖ Rigid heddle loom.
- ❖ Electric loom.
- ❖ Dowel loom.
- ❖ Paper loom.
- ❖ Serrated loom.

BASIC WEAVING OPERATIONS/MOVEMENTS

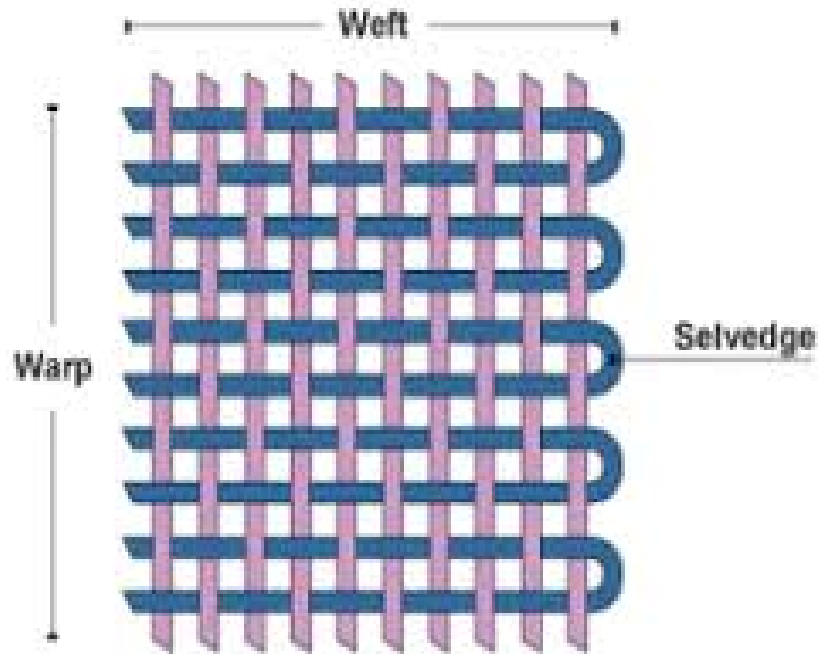
- **SHEDDING:** Is the space created by lifting some warps and lowering some in order to allow the wefts to go through.
- **PICKING/FILLING:** It refers to the passing of weft threads across the warp through a shed. A single cross is called **a pick**.
- **BEATING UP/BATTENING:** Is the pushing of a newly inserted length of wefts known as pick into the already woven fabric at a point known as the **fell** using the **reed/heddle** in order to make a fabric firm.
- **TAKING UP:** Is the. Operation in which the newly woven fabric is wound on the **cloth beam**.
- **LET OFF:** Is the process of Un wounding the warp threads from the **warp beam**.

TYPES OF WEAVES

The following are the different types of weaves;

1. **PLAIN WEAVE:** Is the foundation of all other types of weaves in which the weft threads is made to go over and under alternately through a single piece of warp .

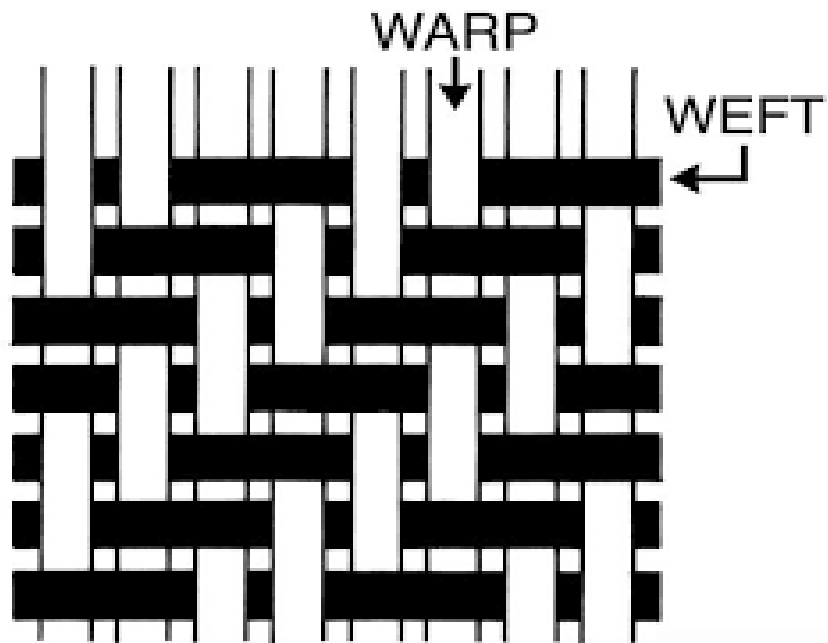
ILLUSTRATION SHOWING A PLAIN WEAVE



Plain weave is further categorised into;

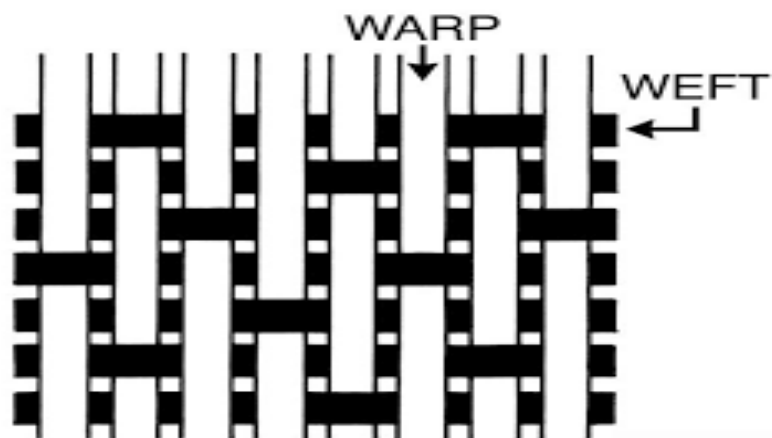
- (a) BASKET WEAVE: Is created by lacing two pieces of weft over and under two pieces of warps.
- (b) RIB WEAVE: It is referred to as the type of weave in which the filling (wefts) are larger in diameter than the warp thus creating a ridge - like effect.
 - 2. TWILL WEAVE: This is the type of weave characterised by visible diagonal lines on the face/back of the weave /fabric and can use several wefts over and under the warp threads.

ILLUSTRATION SHOWING THE TWILL WEAVE



3. SATIN WEAVE: The weft is made to pass under four or more pieces of warp threads and goes over just one of warp.

ILLUSTRATION SHOWING SATIN WEAVE:



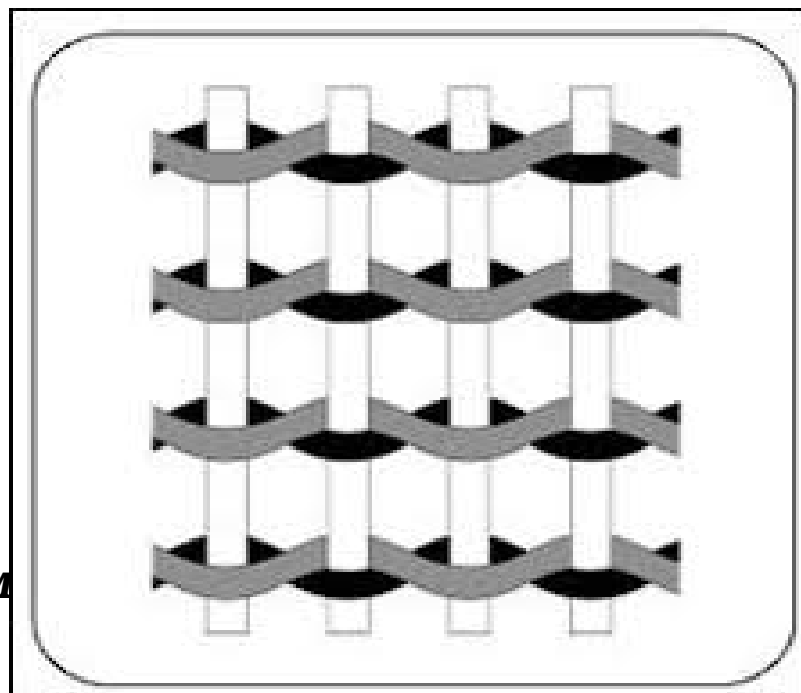
4. JACQUARD WEAVE: It combines the aspect of plain, twill and satin weaves that is why many fabrics are made by the jacquard techniques.

ILLUSTRATION SHOWING THE JACQUARD WEAVE:



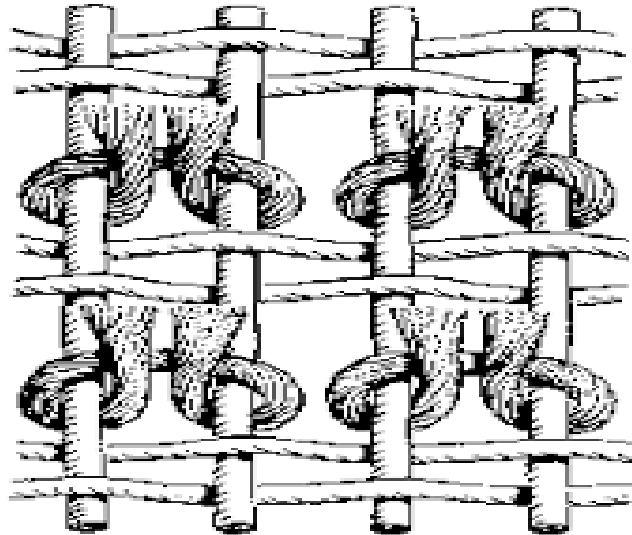
5. A TWINING WEAVE: This is a technique where the weft threads cross every time they entwine a warp. This method is used to make very thick fabrics like blankets, sweaters, shawls etc.

ILLUSTRATIONS SHOWING A TWINING WEAVE:



6. GHIORDES KNOT/TURKISH KNOT: This is a type of weave in which a weft yarn/thread is passed over two warp thread is passed over the two warp threads and pulled through between them and then cut to form a **pile**.

ILLUSTRATION SHOWING GHIORDES KNOT



TECHNIQUES OF MAKING FINISHES IN WEAVING

- (a) Braiding:** The cut ends can be joined into one or more strand braids and knotted to prevent them from separating

ILLUSTRATION SHOWING BRADING TECHNIQUE.



(b) Cording: It's done by taking two small groups of end threads and twist them separately in the same direction and then twist the two together in other direction as you make a knot.

ILLUSTRATION SHOWING CORDING

(c) Knotting: Simple over hand knots can be used to secure the end by leaving them free for a fringe or with rows of knots like in macrome.

ILLUSTRATION SHOWING KNOTTING:



(d) Tassels: This is done by gathering yarns together and then tie them in a bundles in a middle part.

ILLUSTRATION SHOWING TASSELS:



- (e) Sewing:** Use a sewing machine or use free hand to apply stitches as you may desire. Examples of stitches may include; running stitch, zigzag stitch, blanket stitch and others.
- (f) Wrapping or Whipping:** In this technique, a piece of cloth or yarn or cord is used to wrap around a bundle of warp ends in order to secure them.

