

## LENO CLOTHS.

BY WILL NELSON.

Leno stripes are added to nearly every kind of cloth that is made, the stripe being woven on worsted, woolen, silk, linen and cotton cloths, so that a knowledge of their construction is necessary to every designer.

Mosquito netting is the simplest form of cloth made on the leno principle and is obtained by passing or crossing a thread from one side to the other by means of another thread, which acts as a foundation for the crossing thread, with one pick of filling between the threads. All other leno cloths are made by adding more picks before the crossing takes place, varying the picks, or adding more warp threads.

Leno cloths require the use of an additional harness, which is in the form of a loop, and is made from a specially prepared worsted or ramie thread. The remainder of the harnesses are like those used for ordinary cloth.

There are two distinct kinds of doup heddles, Figs. 1 and 2. Fig. 2 is the better, because the slot allows the loop to slide more freely when it has to be lifted by the yarn. Fig. 3 shows the construction of a doup. Fig. 2 is used as a base or standard harness. The number required is placed on an ordinary harness shaft and the thread that forms the loop is then passed through the slot and back through the lower eye, as indicated by the arrows. Both ends are then fixed to the lower portion of a separate harness shaft, which might be termed a skeleton harness, as only the lower ends of the loops are attached to it. This harness is often called the loose half, but the more general term is the doup shaft. This doup shaft is connected to the head motion in the ordinary manner.

Meaning of terms:

**Doup Shaft:** The harness shaft to which the loops are fixed.

**Standard Harness:** An ordinary harness to which the loops are attached by passing through the eyes of the heddles.

**Ground Thread:** The thread on which, or around which, the crossing thread works.

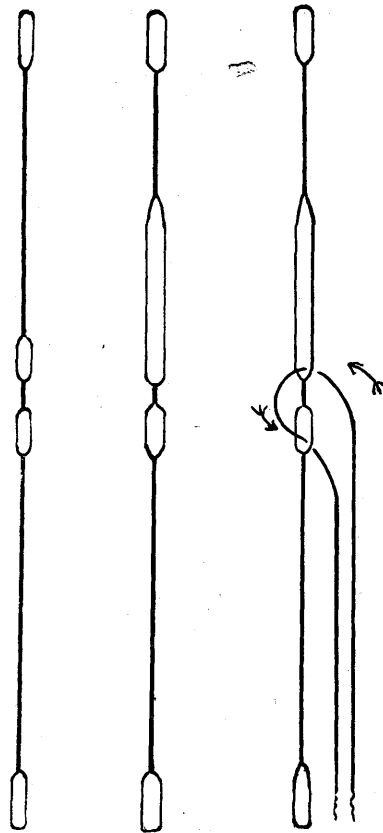


Fig. 1.

Fig. 2.

Fig. 3.

Sometimes there are several ground threads but they perform the same function.

**Crossing Thread:** The thread that passes through the loop and crosses from side of the ground thread. It is sometimes called the leno thread.

Fig. 4 is an outline of the simplest form of leno cloth. The heavy circles represent the crossing threads; the light circles, the ground threads with cross lines for the picks. Four

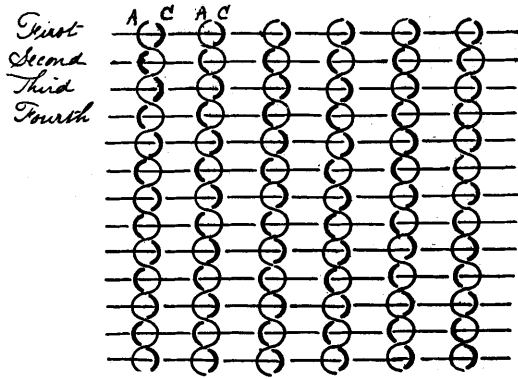


Fig. 4.

harnesses are required to weave Fig. 4, and the warp threads would be drawn in as shown at Fig. 5. A. is the ground thread; B, the ground thread harness which is raised higher to keep the lines distinct; C, the crossing thread; D, the crossing thread harness; E, the

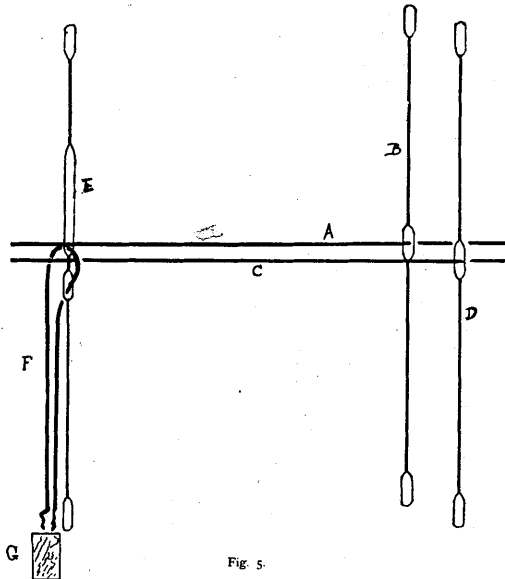


Fig. 5.

standard harness; F, the doup; and G, the doup shaft.

In this case the ground thread is drawn to the left of the crossing thread harness, through the eye of the ground thread harness, and to the right of the doup standard. The crossing thread is drawn through the eye of

the crossing thread harness, then through the loop of the doup which turns out at the right of the standard. This thread does not go through the eye of the standard harness.

Fig. 6 shows the position of the harness lifted for the first pick. The crossing thread harness and the doup shaft are raised, lifting the crossing threads straight and leaving the ground threads down in the position shown at Fig. 5. This is commonly known as the plain pick. It will be noticed that the ground

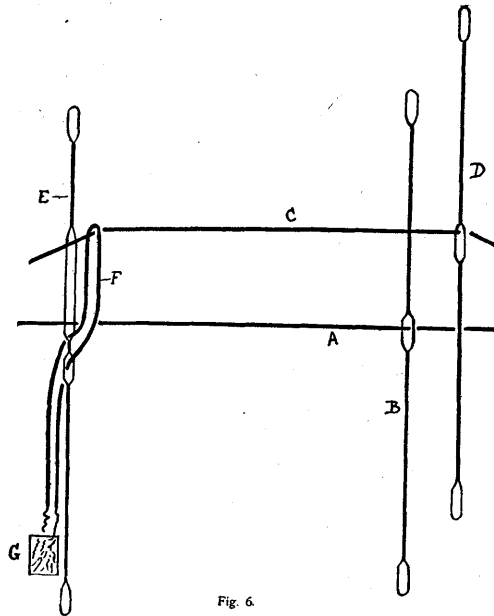


Fig. 6.

thread is between the standard heddle and the doup, the crossing thread still being to the right of the ground thread, as is also shown in Fig. 4.

Fig. 7 shows the harness lifted for the second or crossing pick. For this pick the ground and crossing thread harness are left down, only the standard and doup shaft being raised. The ground thread remains in its original position but the crossing thread is to the left of the ground thread, having been drawn underneath, as is shown by the crossing of the threads at X. Fig. 4 also shows the crossing thread to the left of the ground thread in the second pick. The third pick is the same as the first, and the fourth the same as the second.

Figs. 8 and 9 show the gradual passing of the crossing thread around and up to the left of the ground thread.

The doup can be raised without lifting the standard harness, and when the doup shaft and crossing thread harness are raised it is for the plain pick. The standard harnesses can-

not be raised without the doup, and when these harnesses are raised the crossing pick takes place. When the standard and doup are raised the crossing thread harness must

be down or there will be no shed formed for the shuttle to pass through. The same number of harness is required

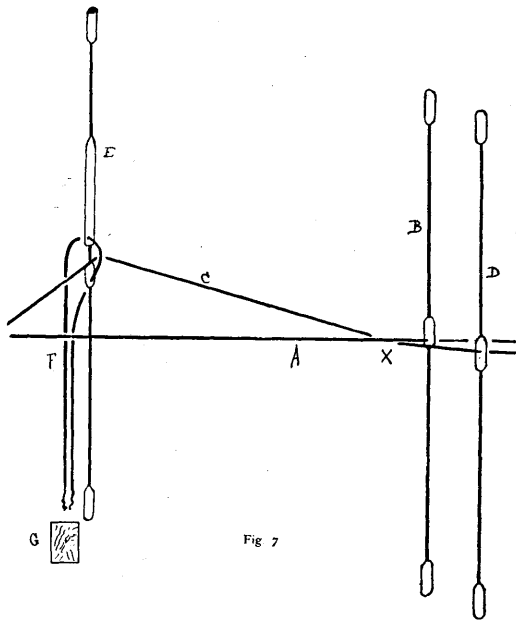


Fig. 7

not be raised without the doup, and when these harnesses are raised the crossing pick takes place. When the standard and doup are raised the crossing thread harness must

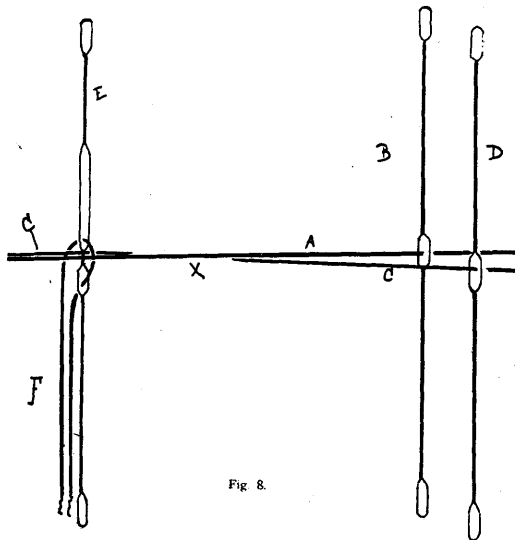


Fig. 8.

always be down, and when there is only one ground thread the ground thread harness

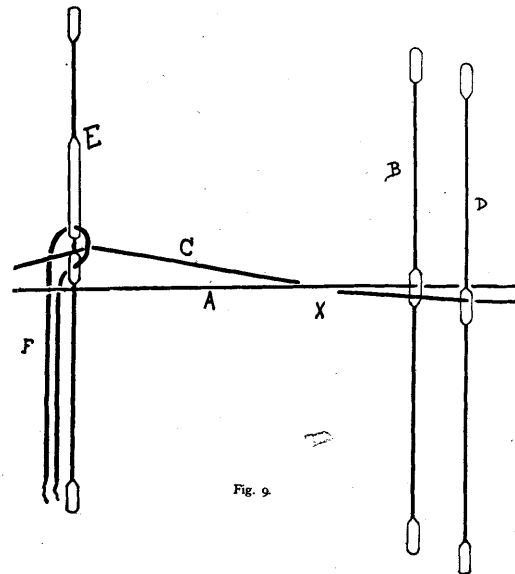


Fig. 9.

to make Fig. 10 as Fig. 4, the only difference being that two picks of filling are placed in the cloth while the doup is raised, and two picks while the standard is raised. This is

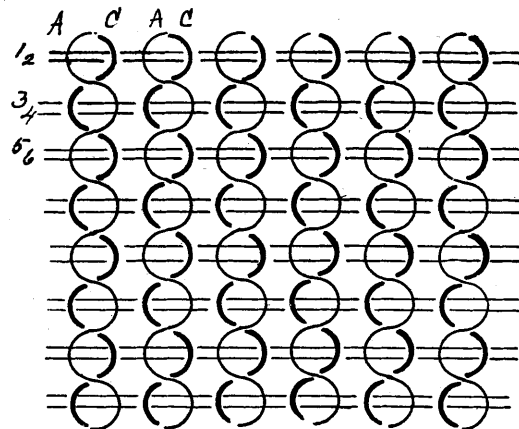


Fig. 10.

called the hemstitch leno. The fifth and sixth picks are the same as the first and second.

(To be continued.)