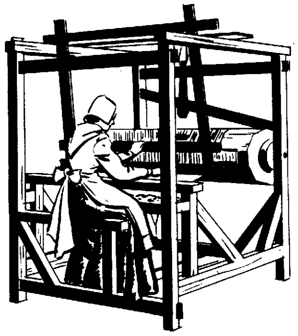


Introduction to Weaving

by LILLIAN HOLM

This is one of a series of articles describing in a simple and practical way how to operate a loom as well as how to weave.

With weaving it is to be understood that one gets a connected surface, thicker or thinner, of soft fiber, which result one gets through regular connection or crossings of the threads, all depending upon the quality of the crossings. The weave is then divided into three different types:

I Proper Weave or Cloth
II Jerseyart, or Knit or Weaving
III Tullart, or Fusian lace or Weaving

The real weaving is formed through crossings of two opposite rectangular thread systems in warp and weft. See Fig. 1.

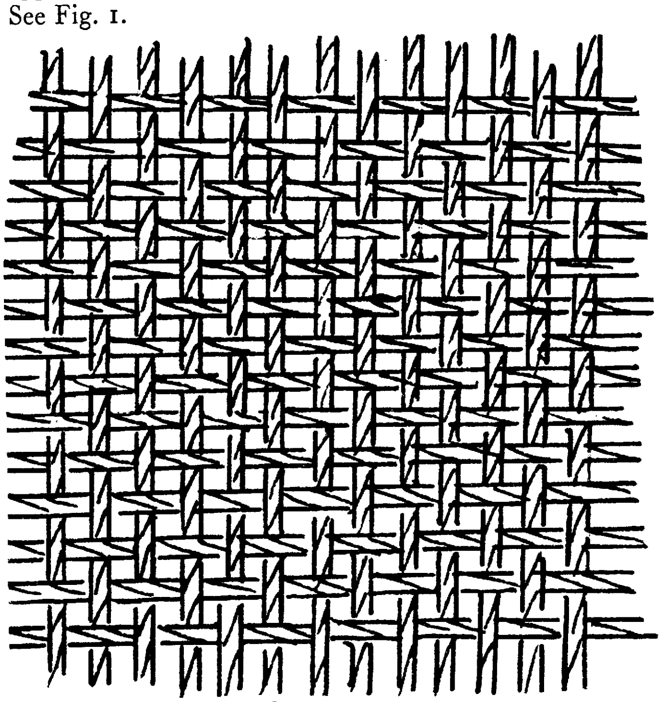


Fig. 1

The Jerseyart weaving one gets through one or many fast running threads that bind to loops and catch each other and therefore form one connection of more or less thick fiber surface In this group we place plain jersey, knit and crocheted material, and also tied net. See Fig. 2.

The Tullart or Lace weaving we start with many threaded small spools, moving from one side to the other and winding around each other to one tight net. In this group Tulle and Lace etc. are classified. See Fig. 3.

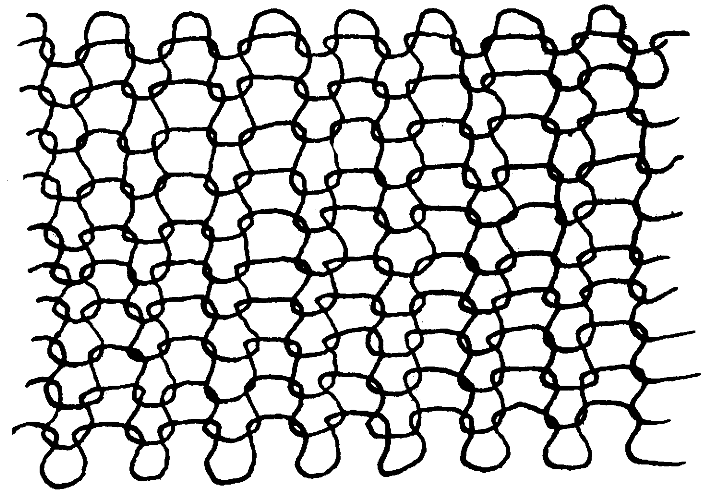


Fig. 2

In our daily talk we give the word *weaving* the more definite meaning of *cloth,* made of warp and weft, and this is the type of weaving that we shall now treat.

For the producing of the two thread systems' crossing, we need certain tools. Learning the names of these tools is called loom weaving education.

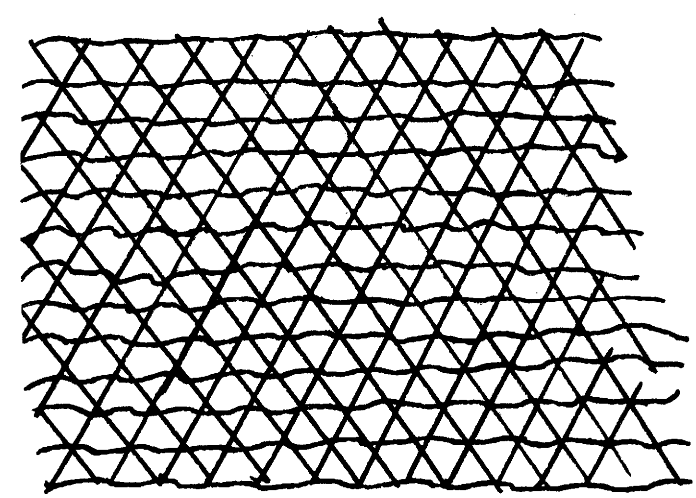
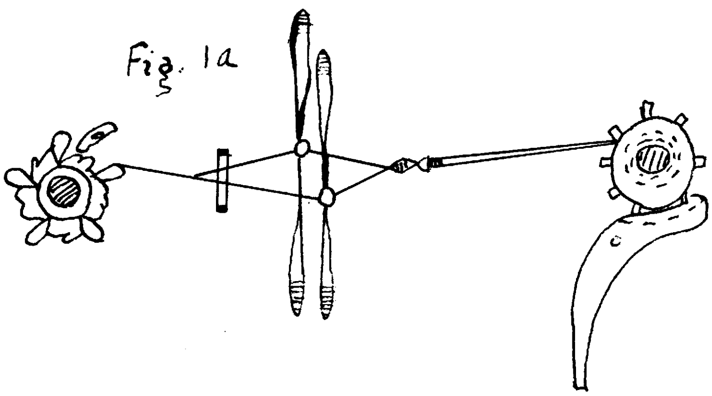


Fig. 3

The tools that apply to weaving can be simple or of more intricate types, but they must all have one thing in common: they must be able to divide in advanced order and beside each other tighten the warp-threads in two layers. See Fig. 1a.

This is called forming a shed. The weft threads go between, back and forth, from one side to the other. In this way, the weft threads will be going every other time over and under the warp-threads. After the weft thread has been pushed forward and the warp divided, one will find a new shed. The second weft thread will now go through and be pushed forward close to the former.

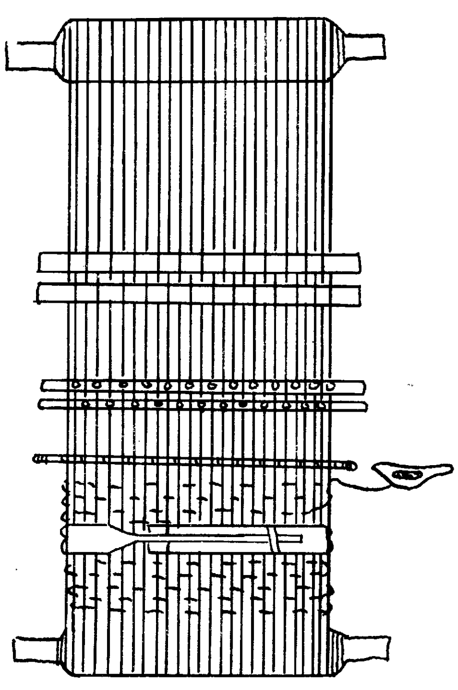
Fig. 1a



Through the pushing forward of weft threads in different order winding in the warp's thread system one forms a weave. See Fig. 1b.

The most primitive tools consist of wood beams that are fastened vertically or horizontally to the floor and in between which the warp threads are stretched.

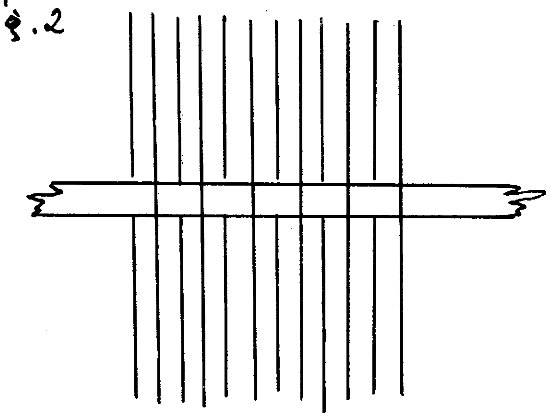
Fig. 1b



This warp system we very often see in old paintings, among others the old Egyptian, Greek, Oriental primitive people, and also among a few nowadays.

The shed that one gets here is formed through a stick that goes through the warp threads so that every other thread lies above and every other under the same. See Fig. 2.

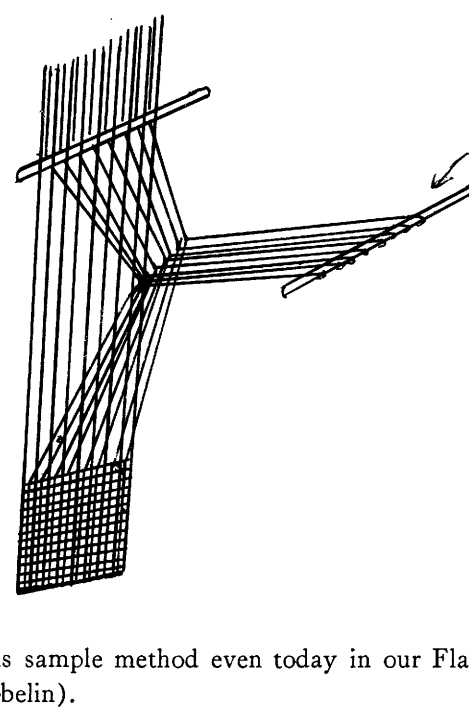
Fig. 2



In this rectangular form the weft thread goes through.

To get the opposite movement in the warp threads, one must see that the threads behind the stick are pulled forward, which is accomplishedwith the help of loops that are fastened to a stick. See Fig. 3.

Fig. 3



We use this sample method even today in our Flamsk weaving (Gobelin).

The most important tool that we need for our weaving is the *loom*. See Fig. 4.

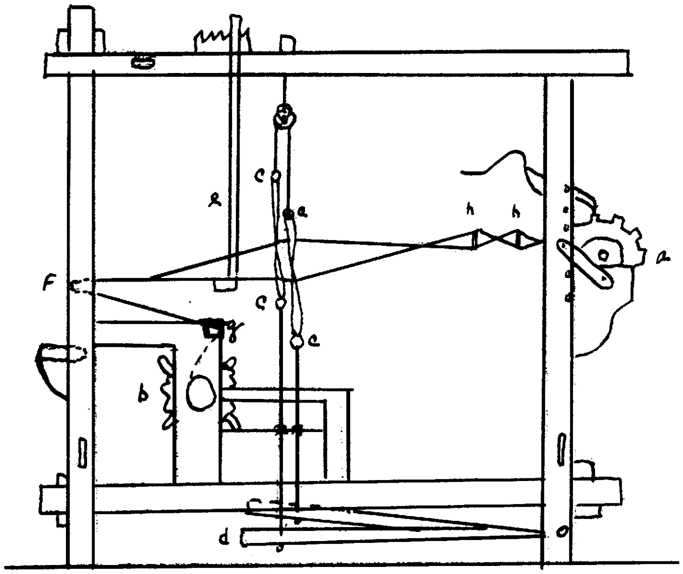


Fig. 4

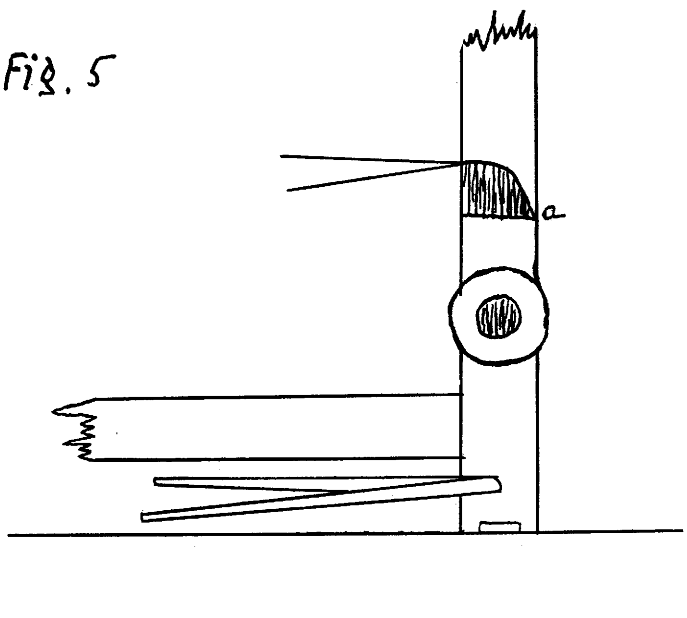
The most important parts of the loom of today's construction are the *yarnbeam A, clothbeam B, heddleharness C, pedals D, beater E,* which are all carried on two sidepieces and held together with a few wooden beams. This is called the Loom body or Frame.

On the yarnbeam we wind our warp and the warp must, during the process of weaving, have a certain stretch, which can be done in a few different ways.

The most common is that the yarnbeam on the one side is provided with a cog-wheel and a hook that will catch as you turn.

The yarnbeam, as you see in Figure 4, is placed in the back of the loom. Sometimes you will find the yarnbeam further down and another beam above, which is called the *stretchingbeam.* a See Fig. 5.

Fig. 5



The reason for having a stretching beam is to keep the warpsurface even. This is quite necessary if you are dealing with long warp, which would make the yarnbeam very thick.

The clothbeam provided with cog-wheel and hook receives the ready made cloth and is placed in front of the loom.

This beam could also be placed in the same line as the warpbeam, but this would be quite inconvenient, as the cloth which rolls around the beam will then grow thicker and the warpsurface will change. To avoid this the clothbeam is to be put further down in the frame. See Fig. 4 B.

There is another beam in front of the loom that is called the breastbeam (see Fig. 4 F) around which the ready made material winds down to the clothbeam.

Above the clothbeam is another beam called the kneeroll (see Fig. 4 G), and, thanks to this beam, we get more freedom when stepping on the pedals.

To divide the warp in two levels, or to make what we call the shed, we must have the heddleharness (see Fig. 4 C), of which there must be at least two. Every harness requires two sticks on which are threaded a large or small quantity of heddles.

The number of heddles on each harness depends on the threadnumber in the warp and on the number of threads that go through the heddles. Usually one thread goes through each heddle.

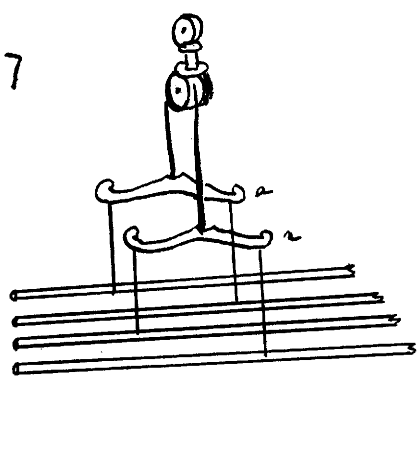
For handweaving, the heddles that should be used are tied with hard twined cotton thread, with knots dividing them into three sections, — one above where the upper harness goes through, one below for the under harness stick, and one in between, which is called the heddle eye and through which the warpthread goes. (See Fig. 6).

Fig. 6

Heddles can vary in size. The following four types are most common in handweaving. The ordinary heddle is the one in which the over and underpart measure in length about 13 cm. and the length of heddle eye 2½ cm. is mostly used.

Another type very practical in handweaving with many harnesses is the one where the over and underpart measure about 14 cm. and the heddle eye 1 cm.

Fig. 7



A third type has over and underparts which measure about 13 cm. and a heddle eye of 8 or 9 cm. This heddle is mostly used on harness for plain weaving in all looms that are arranged with *Harneskrustning* (Pattern harness).

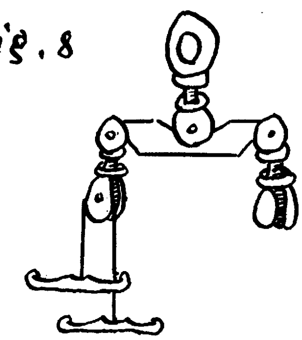
The fourth type that is used for Harneskrustning in the loom that we have just described has heddles in which the overpart measures 25 cm., the underpart about 33 cm., and the heddle eye 1½ cm.

When weaving, the heddles must hang very evenly. The harness will then be hung up by *Nickor* (Heddle horses). a See Fig. 7.

Every heddle horse carries 2 harnesses. For 4 heddle-harnesses, 2 heddle-horses are needed on both sides of the loom. The heddlehorses are then joined with a string and run through an overhead pulley that is fastened to the loom.

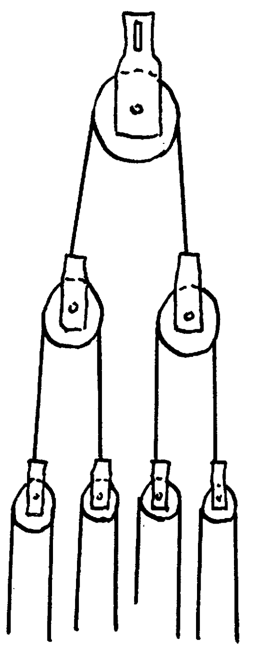
For 8 harnesses another type of pulley is used, and this is called *Lunor.* (See Fig. 8.)

Fig. 8



Every Luna carries 4 harnesses and is movable like the heddlehorses. Another type can also be used, and this is called *Trissor* (Pulley). See Fig. 9.

Fig. 9



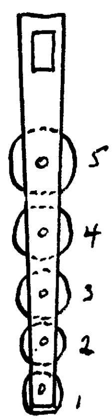


Fig. 10

For the tying of harness for *Drallpattern* or weaving on 8 or 10 harnesses, the pulley arrangement in Fig. 10 is very often used.

The string over wheel No. 2 goes to harness 4-7 obs., the string over wheel No. 3 goes to harness 3-8, the string over wheel No. 4 goes to harness 2-9, and the string over wheel No. 5 goes to harness 1-10.

A string runs over every one of the 5 wheels and is then tied to the harness, so that the string over wheel No. 1 fastens to harness 5-6, the string over wheel No. 2 goes to harness 4-7 obs., and the string over wheel No. 5 goes to harness 1-10.

The heddleharness movements are done by the pedals with strings which are connected to the harness.

In using many pedals, the passage between harness and pedals necessitates the use of so-called *Lams.* See Fig. 11.

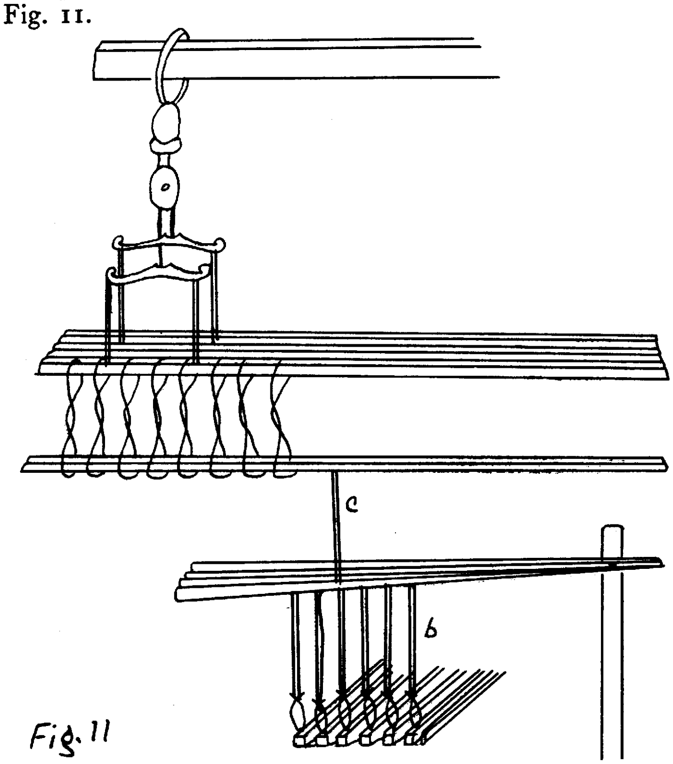


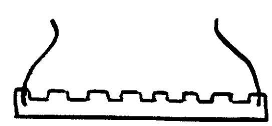
Fig. 11

These are fastened on to the middle of the heddle-harness's lower stick, and one must have the same number of lams as harnesses. The lams are then tied to the pedals. See Fig. 11,B.

It might sound simpler to tie the lower heddlestick directly to the pedal, but the advantage of using lams is that the pedal string can be tied directly over the pedals in a straight line.

Every lam should therefore be provided with many holes, one for every pedal and one for the string that connects the heddleharness to the lam. The pedals should also have holes, in which loops made of strings are to be placed, and in which the strings coming from the lams are to be tied.

Fig. 12



Before the tying, it is very important to see that the harness is at the right height according to the warp. When the warp is stretched, the warp-threads ought to be nearer the heddle eye's under edge; they should also lie even so that they may be checked very easily by using harness holders. See Fig. 12.

The number of heddleharnesses and pedals to be used is all according to your tabbypattern's square. We shall describe this later in our binding instruction.

After the warpthreads have gone through the heddles, they must also go through the reed, which is placed in the beater.

The swing of the beater can come either from the top of the loomframe or from the bottom but must be movable forward and backward.

If the beater is hung from above and is to give a good pound, it must be hung forward as much as possible. If the beater comes from down below, it must be fastened further back. One never gets the same musical pound from a beater that comes from the bottom as one gets from a beater that comes from the top.

For the reed, see Fig. 13.

The reed is made of fine steel or brass, with small spaces in between, called dents, through which warp threads are pulled with the help of a reed hook. See Fig. 14.

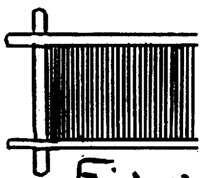


Fig. 13

In choosing a reed for weaving, it is better to use a coarser reed and thread several threads through a dent than to take one that is too fine. In a fine reed the warp threads will wear out, and, in case of knots, they will not go through.

When deciding on a reed, it is best to thread a few warp threads through the reed that is chosen.

If the threads make an even and smooth surface over the reed edge, then the reed is the right size. If they crowd each other, then the reed is too fine. If there are spaces between the warp threads, then the reed is too coarse, and that depends on what you are going to weave. If you wish a hidden warp, then you must have spaces between the warp threads so that the weft threads can easily pack together. If you wish the warp threads to cover the weft thread, then the warp threads must stand almost twice as thick.

In order to get the weft thread through, after one has stepped on the pedal and formed a shed, a shuttle is used. See Fig. 15.

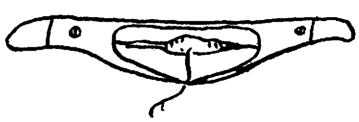


Fig. 15

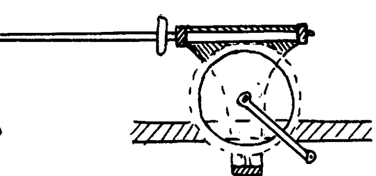
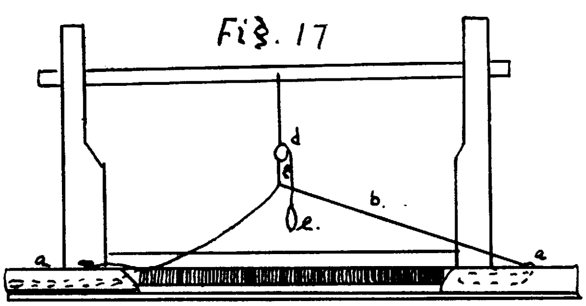


Fig. 16

This little shuttle is made of wood, the center part being carved out, big enough for a paper spool on which the weft thread is to be wound. When winding this spool, a bobbin machine is needed. See Fig. 16.



The size of the spool is all according to what you make, but all spools should be wound evenly and hard.

The shuttle will then be thrown back and forth by hand, but this can also be done by *Ryckverk* (Flying Shuttle). See Fig. 17.

Fig 18

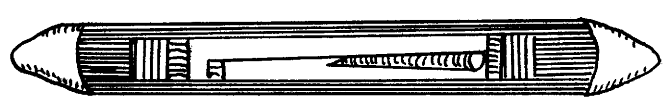
The beater must then be longer and provided with a box (see Fig. 17 A) in which the shuttle has its place. The beater moves on an iron rod. See Fig. 18 A.

There is also a bouncer, and, when the beater is moving, the bouncer moves. See Fig. 18 B.

The bouncer consists of a wooden block, the inner side of which is lined with thick leather and is hit by the shuttle point.

The bouncers are connected with each other by a string (see Fig. 17 E), to the middle of which is tied another string.

Fig. 19



On the top of the beater, the string is fastened to a wheel (see Fig. 17 D) and connected at the end of the string with a handle. See Fig. 17 E.

By pulling this handle to the right and left, the bouncer will move and push the shuttle over to the other shuttle box.

The shuttles used in the flying shuttle loom should be straight and pointed at both ends, and the points should be made of metal, to give plenty of weight to the shuttle. See Fig. 19.

Continued in the next number.