

# Simplifying the Tie-up

BY MARJORIE CRANMER

ABOUT six months ago I decided to change my loom from a four-harness counterbalanced loom to an eight-harness jack-type loom. After studying the diagrams given in the Shuttlecraft Guild Bulletins of December 1932 and December 1934, I had a carpenter rebuild the loom for me. It seemed to me, however, that the rebuilt loom should have an easier method of tie-up, so while the carpenter was changing the framework of the loom, my father and I worked out a method of tying up the lamms and treadles which dispensed with a wrench and plyers to loosen nuts and open eye-bolts. This method could be used on any treadle loom. Any man at all handy with tools could do the work, or a carpenter could be called upon to do it. Once the loom is equipped, the most complicated tie-up can be made in a few minutes.

The rebuilt loom had only one set of lamms, the raising lamms, and ten treadles, so we bored ten holes in each of the eight lamms. Each hole was directly in line with a treadle;  $1\frac{3}{4}$ " 8-32 eye-bolts were cut off to  $1\frac{1}{4}$ ", the thickness of the lamms, and fitted in these holes with a nut to hold each eye-bolt in place. Then we bored four holes in each treadle. Two holes would be sufficient for a four-harness loom. Each hole was centered between two lamms; in other words, the first hole was bored so that it was in line with the space between the first and second lamms, the second hole in line with the third and fourth lamms, etc. In these holes which were bored in the treadles, we put  $\frac{1}{4}$ " x  $4\frac{1}{2}$ " carriage bolts. We cut the heads off these bolts and bent them to form a hook. The equipment described so far is permanent, and a nut once tightened never has to be loosened.

Our next step was to make what we shall term a locking device to put on the top side of each treadle. A piece of soft steel  $\frac{1}{16}$ " x  $\frac{7}{8}$ " x  $8\frac{3}{4}$ " long was used, but the width would depend upon the treadles which, in this case, were  $1\frac{1}{4}$ " wide. A slot was cut in each end of this piece of steel. The slot was cut  $\frac{3}{8}$ " from the edge,  $\frac{1}{8}$ " wide and  $1\frac{1}{8}$ " long. Notches were cut  $\frac{1}{2}$ " from one edge. The first notch was  $1\frac{3}{8}$ " from the end and  $1\frac{1}{8}$ " long. The second notch was  $\frac{1}{2}$ " from the first. There were four of these notches, as shown in the photograph. The locking device was placed on top of the treadle so that each notch was under a bolt. With the locking device held in position, we marked on the treadle the location of two holes to be bored in the treadle. One hole was at the inner end of one slot and the other hole was at the outer end of the other slot. The photograph will show the location of these holes. A machine screw was put in one hole and a thumb nut put on. In the other hole we put a round head wood screw just tight enough to allow the locking device to move. This means that by loosening the thumb screw the locking device can be moved the length of the slot. Moved in one direction, the solid part of the locking device closes the opening under the bolt, and moved in the opposite

direction the notches are under the carriage bolt and the locking device is open or in a position to allow a tie to be inserted.

We were now ready to make the ties. These were made up of what is known as a swivel-eye nickel-plated baby snap 337  $\frac{3}{8}$  attached to a piece of No. 6 Samson cord. The Samson cord was fitted with ferrules at each end and a No. 111 screw eye was fastened into each ferrule. We opened one screw eye, inserted the swivel end of the baby snap and closed the screw eye. We made thirty-two of these connections to cover practically every tie-up possible with eight harnesses and ten treadles. Of course, for a four-harness overshot pattern only twelve would be used, but with a special eight-harness summer and winter tie-up or the Bronson weave, for instance, more would be needed.

To connect the ties, we opened the snaps with the thumb and snapped them on the eye-bolts on the under side of the lamms, the lamms chosen depending on the tie-up necessary for the pattern to be woven. The locking device on the treadle directly beneath was opened and the screw eye on the tie inserted and the locking device closed. We made sure that the tie was connected in a straight line with the lamm. The bolt on the treadle will accommodate two ties, if necessary.

In buying snaps, make sure that the snaps fit the eye-bolt on the lamms. If the snap fits too tightly, it can be snapped on, but it is hard to release. We found the 337  $\frac{3}{8}$  size was the right size for the  $1\frac{3}{4}$ " 8-32 eye-bolt we used on the lamms, but there was not enough leeway if a smaller baby snap was used, because the tongue of the snap would be in the way when we tried to open the snap. It is important, therefore, to have the baby snap large enough.

Precision in boring holes and in cutting the lengths of Samson cord is also essential.

