

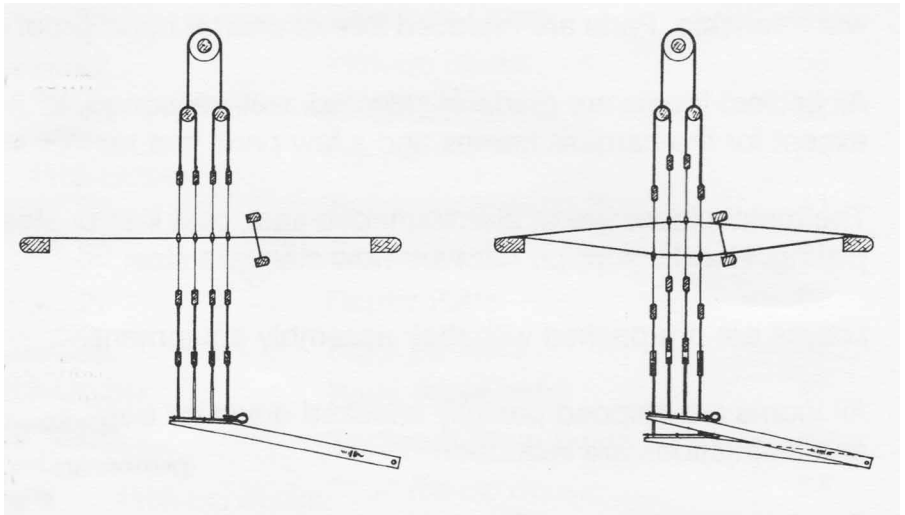
LOOM MECHANISM COMPARISON

There are 3 basic handweaving loom mechanisms used by Leclerc. These 3 plus a unique Leclerc Back-Hinge Treadle (BHT) variation are described and compared below.

1) Counterbalance Mechanism

In the rest position, the warp threads travel from the front to the back breast beam through the vertical center of the reed and eye of the heddles.

When shafts one and four are pulled down by the actions of one or two of the treadles, shafts two and three automatically move upward due to the action of the roller system at the top. This delivers a large clean shed with the warp threads either pulled up or down depending on which of the shafts they are connected to. All warp threads move.



ADVANTAGES

- *Large, clean shed.*
- *Effortless treading.*
- *Good for rug weaving where a high warp tension is required.*
- *Easy tie-ups with only the shafts that need to lower being tied up.*
- *Equal tension on upper and lower warp threads.*
- *Less expensive loom design.*

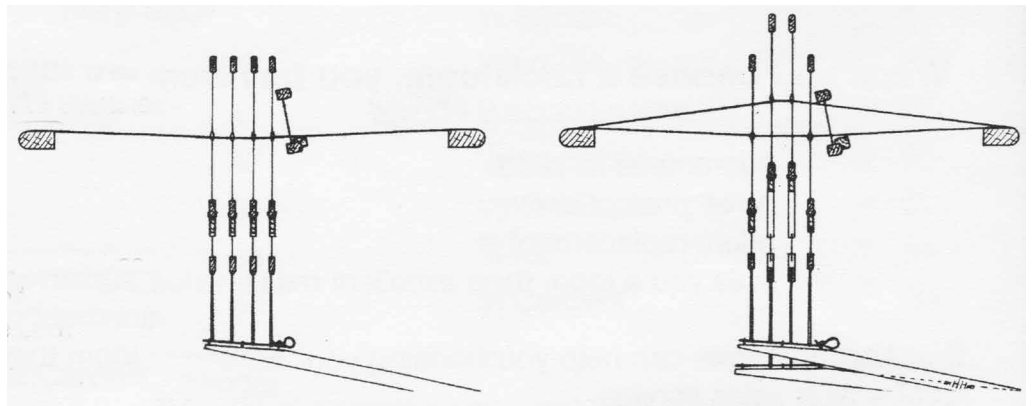
DISADVANTAGES

- *Limited to a maximum of 4 Shafts.*
- *More difficult to get clean shed with uneven threading (3 Shafts against 1) but Shed Regulator helps.*

2) Jack Mechanism

In the rest position, the warp threads travel from the front to the back breast beam across the shuttle race at the bottom of the reed and then through the eye of the heddles.

If a treadle(s) attached to shafts two and three are



depressed, these shafts will rise while all the other shafts remain stationary. The size of the shed is dependent upon the tension of the warp threads, how many threads there are and the strength of the weaver.

For example, it is easier to obtain a large clean shed on a 36 inch loom with 20 threads per inch than with a 60 inch loom with 40 threads per inch. The more warp threads and tension the project has, the greater the force that will be required by the weaver.

ADVANTAGES

- *No real limit to the amount of shafts (ie. 4, 8, 12, 16, etc.).*
- *Simple mechanism.*
- *Easy tie-ups with only the shafts that need to rise being tied up.*
- *Easy Loom Assembly.*
- *Switch from 4 to 8 to 12 shafts easily (even remove shafts to simplify).*

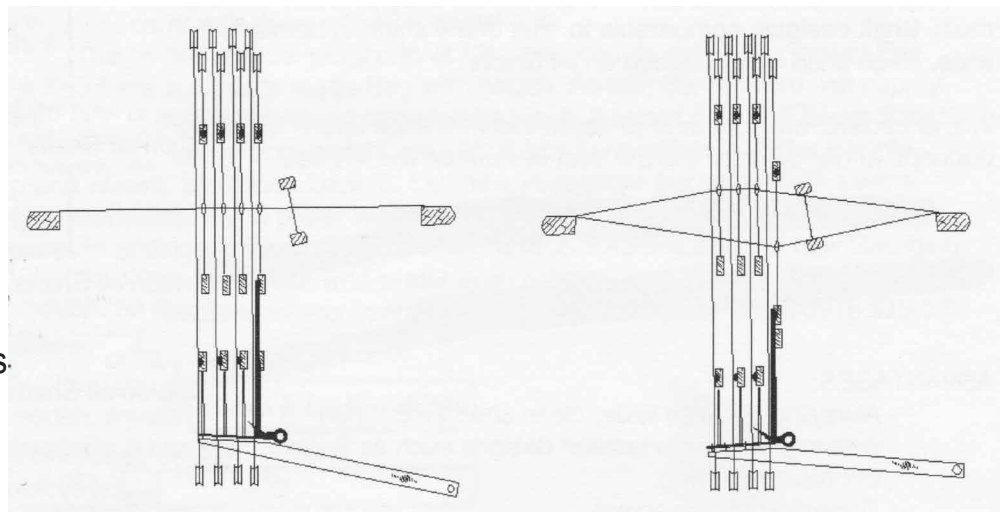
DISADVANTAGES

- *Higher warp tensions, larger number of warp threads, wider looms can increase the amount of force required by the weaver.*
- *More tension required on the upper warp threads to get the same shed as a Counterbalance or Countermarche loom.*
- *Some threading/tie-up configurations can cause shafts to “float up” requiring treadle springs or weights to control.*

3) Conventional Countermarche Mechanism

Similar to the Counterbalance loom, the Countermarche both raises and lowers shafts to create the shed. Instead of having rollers at the top of the loom, the system has one set of lams, two sets of pulleys above the shafts and one set of pulleys below.

In the diagram the treadle directly pulls down shaft one while simultaneously pulling up shafts two, three and four using the lam. In a Countermarche loom, every shaft is actively involved in producing the shed. Each shaft is either lifted or pulled down by the treadle that is depressed. There are no issues with unbalanced weaves (ie. 3 shafts against 1) and there are no limitations to the number of shafts the loom can be configured with.



ADVANTAGES

- *Always a Clean Shed.*
- *Effortless Treadling.*
- *Less Tension on upper warp threads to get similar shed as a Jack loom.*
- *No need for floating shaft control (springs, weights)*

DISADVANTAGES

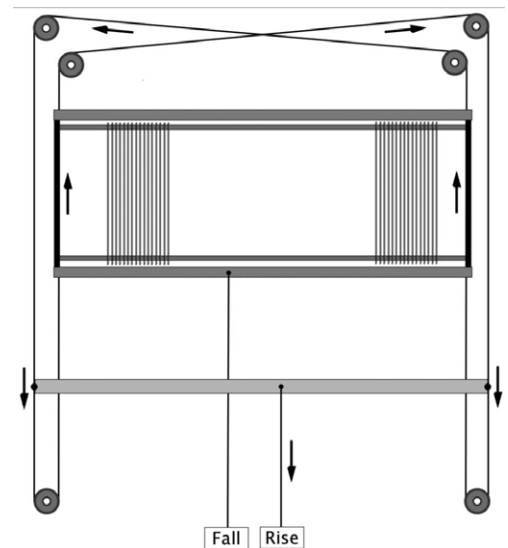
- *Many more Tie-ups required (every treadle has to be tied to every shaft).*
- *Underside of loom crowded with two sets of lams and many cords makes tie-up difficult and prone to mistakes.*
- *Use of cords that stretch or break with complicated tension system to keep cords from-jumping off pulleys.*

4) Leclerc Single Lam Countermarche Mechanism

By using full shaft frames instead of the simpler heddle bars, Leclerc Enhanced Parallel Countermarche design reduces complexity and tensioning problems.

ADVANTAGES

- *Only one set of Lams reduces Tie-up complexity/mistakes.*
- *Heddle flexibility (Wire, Inserted Eye, Texsolv, etc.).*
- *Easy adjustment of cable tension.*
- *Cables don't stretch and jump out of pulleys.*



5) Jack/Countermarche with Back-Hinge Treadles

This is a unique Leclerc feature that enhances the conventional Jack and Countermarche mechanisms by reducing the force needed to treadle the loom. With the longer treadles anchored at the rear of the loom, the weaver has an increased degree of leverage, drastically reducing the force required to lift the shifts. The loom is as easy to treadle as a 4 shaft Counterbalance regardless of the loom width, warp tension and number of threads and a wide shed is easy to achieve regardless of what is being woven.

ADVANTAGES

- *Always provides a wide, clean shed even when weaving projects with high warp tension like rugs.*
- *Effortless Treadling.*
- *Available in 8 and 12 shaft configurations.*
- *Easy assembly and low maintenance.*

DISADVANTAGES

- *Treadles must be unhooked to completely fold the loom.*
- *Weaver cannot rest their feet on the treadles not in use.*



Nilus II 36" 8s