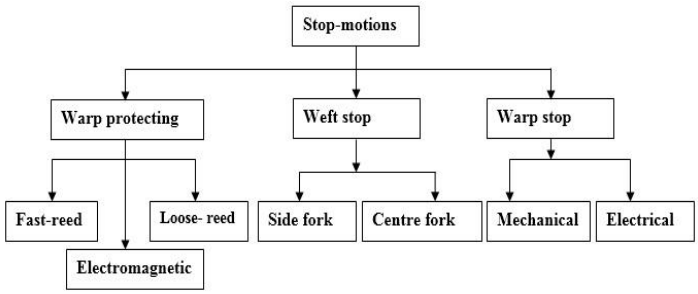
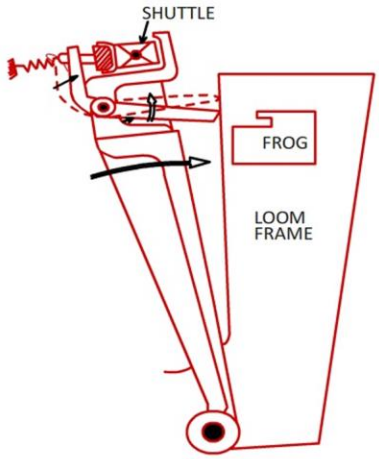


Warp Protecting Motion

It protects the warp sheet when the shuttle gets trapped inside the shed

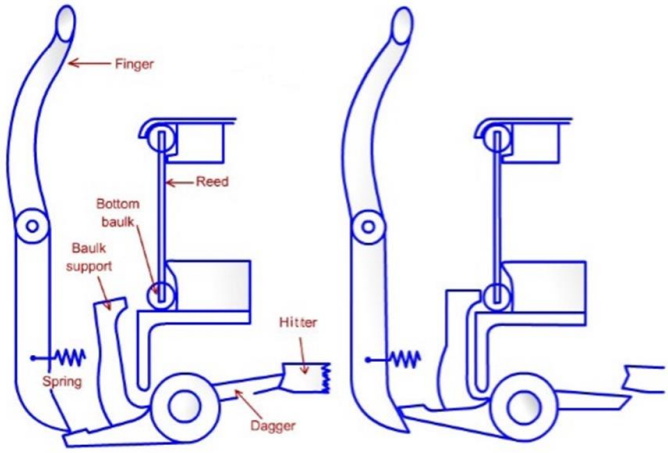
Fast-reed Motion

- The swell used for shuttle checking is attached with the back wall of the shuttle box.
- When the shuttle reaches the shuttle box safely, the swell retards the shuttle and in the process the swell is displaced towards the left.
- Therefore, the finger-dagger assembly rotates anticlockwise.
- Thus when the dagger moves forward with the sley, it clears the frog which is fixed on the loom frame.
- If the shuttle is trapped inside the shed, then the dagger hits the frog when the sley assembly moves towards the right (front centre) for performing the beat up. The frog is connected with the starting handle of the loom. The loom is stopped immediately with loud sound and it is known as 'bang-off'.



Loose-reed Motion

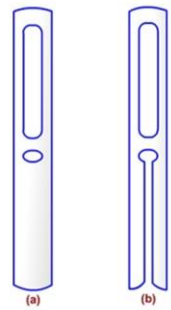
- The reed is supported by two baulks. The top baulk is fixed whereas the bottom one is loose.
- If the shuttle is trapped inside the shed, the reed experiences pressure when it moves towards the cloth fell for performing the beat up. This pressure rotates the bottom baulk support and the entire assembly in the anticlockwise direction.
- So, the dagger moves up to the level of the hitter which is fixed on the loom.
- The loom is stopped as the dagger hits the hitter.
- When the shuttle reaches the destination properly, a situation similar to what depicted at the right side of Figure is created. The dagger passes beneath the hitter and the bottom baulk of the loose-reed is supported by the finger for effective beat up.



Comparison of fast-reed and loose-reed motions

Fast-reed	Loose-reed
Shuttle should reach the swell at 250° and should displace the swell completely by 270°.	No such limitation of timing.
Less time available for shuttle flight. So, limitation imposed on higher loom speed.	More time available for shuttle flight. Higher loom speed can be attained.
For same loom speed, shuttle velocity will be relatively higher.	For same loom speed, shuttle velocity will be relatively lower.
Strain in warp yarn in lower in case of shuttle trapping.	Strain in warp yarn in higher in case of shuttle trapping.

Warp Stop-Motions



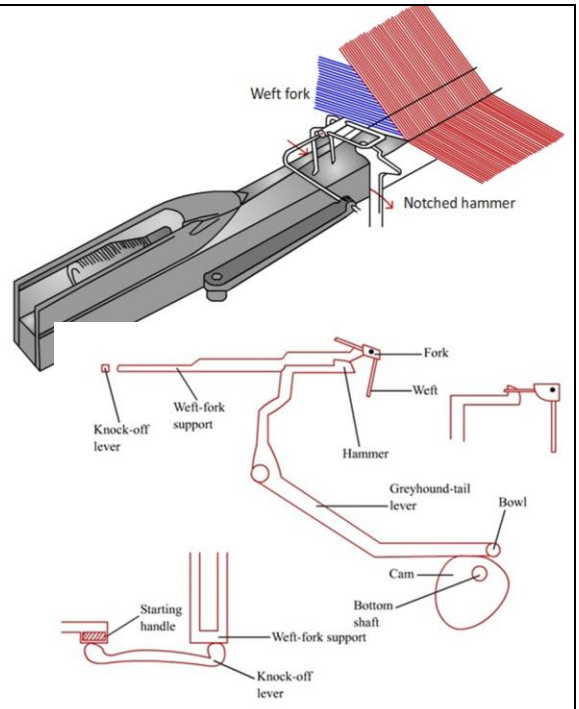
- Warp stop-motion stops the loom in the event of an end break.
- The system is activated by the lightweight metallic drop wires which have profiled shape.
- The large slot at the top is for the movement of the reciprocating bars which are used in both mechanical and electrical warp stop-motions.
- In case of mechanical warp stop-motion , one reciprocating bar moves between two stationary bars.
- The bars have profiles like step waves. The sideways movement of the centre bar is equal to the width of a step. In case of an end break, the drop wire will lose support from the tight yarn and will fall due to gravity.
- If it falls to the lowest possible height, then the reciprocating movement of the centre bar will be thwarted and the loom is stopped.

- In case of electrical stop-motion, the drop wire acts as an element that makes or breaks an electrical circuit.
- In case of warp break, the drop wire will complete an electrical circuit and activate a solenoid.
- The solenoid will attract a bar which will hit the knock-off lever.
- As a result the bar will disengage the starting handle through some other levers.

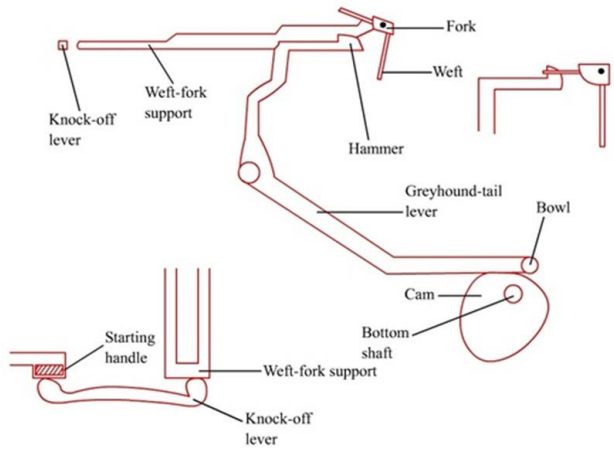
Weft Stop-motions

Side Weft Fork Motion

- Side weft fork motion operates at the left side of the loom at the vicinity of the starting handle of the loom.
- When the shuttle reaches the shuttle box inserting an unbroken pick, the trail of pick pushes the lower end of the fork as the sley moves forward as depicted in **Figure.**
- This creates anticlockwise movement in the fork.
- The movement of the fork will be clockwise. it can be understood that the notched hammer moves towards the front of the loom once in two picks as it gets motion from a cam mounted on the bottom shaft.



- In the absence of weft break, the movement of the fork created by the push exerted by the pick clears the upper end of the fork from the notched hammer when the latter is moving towards the front of the loom.
- Thus the loom continues to run.
- In the case of a weft break, the upper end of the fork is caught by the notch of the hammer.
- So, when the hammer is moving towards the front of the loom, the weft fork support pushes the knock-off lever and the latter dislocates the starting handle to stop the loom.



Center Weft Fork Motion

- Side weft fork system can detect the weft break after the insertion of one or two missing picks.
- Centre weft fork system checks the weft break at every pick and stops the loom before the beat up in case of a weft break.

- The centre weft fork is housed in the slot on the sley.
- The fork rotates clockwise to make a clear passage for the shuttle.
- This is done by the left sideways movement of the weft fork cam.
- In the presence of a pick, the fork is supported by the former when the sley moves forward for the beat up. If case of a weft break, the fork looses the support and thus weft fork bowl will be lowered and trapped in a notch restricting the movement of a rod which finally creates the loom stoppage.