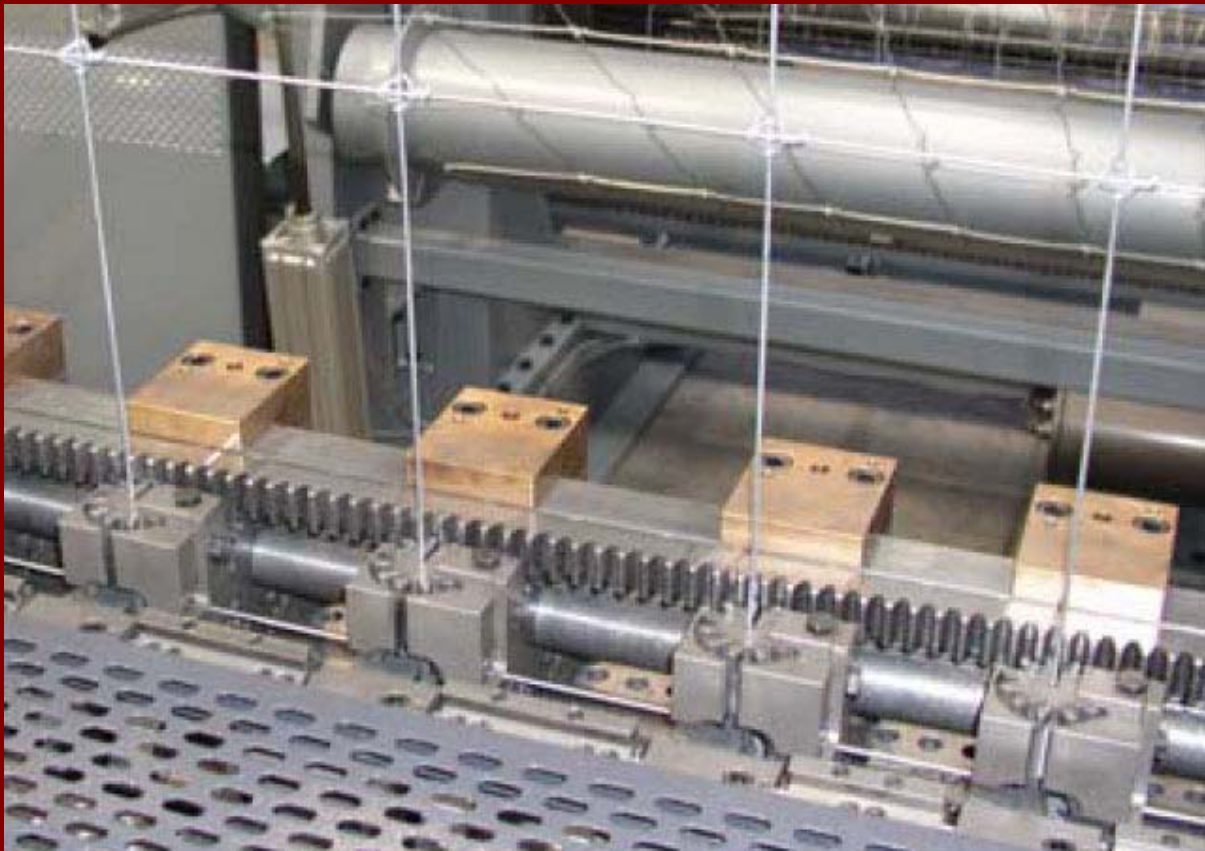


*A New Concept to Minimize
Loom Stoppage Time during
Knotting Operation and to
Improve Productivity*



*By:
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Knotting operation is carried out when there is no requirement for drawing-in and when the pattern is to be continued at the same loom. This continuity is maintained in the conventional or usual method though a sequence of operations for which the loom remains in idle condition. In other words, the downtime gets increased hampering the productivity.

Such operations include brushing of the warp sheet, combing and fixing both the ends face to face in sheet form in a fixed stand. The knotting unit or tying unit inserts knots and joins both the warp yarn from the yarn sheets at a speed of 500 to 600 knots per minute depending on the count and density of threads.

In an effort to reduce knotting operation time, the author has developed a new concept whereby certain operations are eliminated during knotting to save time and improve utilization.

The new proposed concept reduces the knotting operation time drastically while it increases the efficiency of the loom shed (by at least 0.25 to 1.35 %). Though more floor space will be required to implement this concept, the merits are much higher and hence worth implementing. The benefits and success rate expected are more in the case of coarse counts and less denser fabrics. However, it is worth taking trials and modifications for finer and highly denser varieties also, he added.

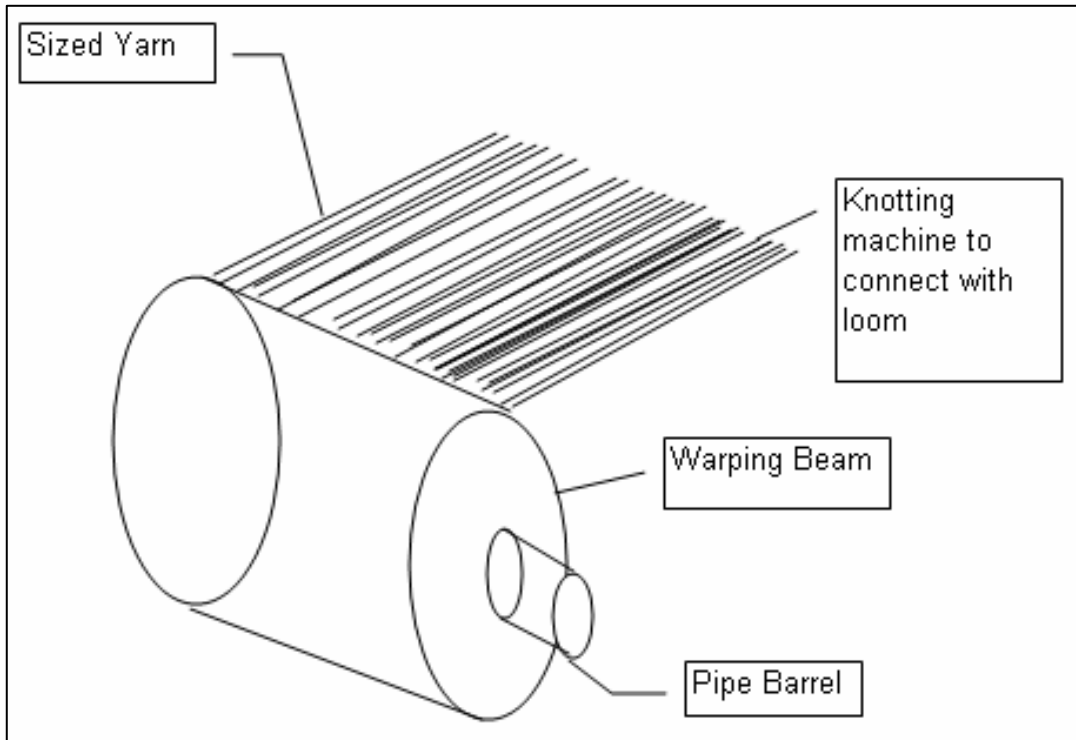
Highlighting the new concept and comparing it with traditional system operations, he said, "Normally, loom has to be stopped for knotting and restarted after completion of knotting with new warped/sized beam, but in the new concept, warping beam/sized beam is hollow from inside (like barrel) through which the yarn sheet (converted into rope form) during sizing gets passed and this hollow beam is knotted with earlier running warp beam by distributing rope with help of cello tape."

Adding further, he said, "Once, running warp beam is completed, rope is removed from hollow section through slot in hollow barrel as well as side aluminum disc. Following this, the new beam will be directly connected with loom and without losing much time, we can start the loom. Also, if there is any twist in rope due to running of warp beam, we can rotate new beam and remove twist."

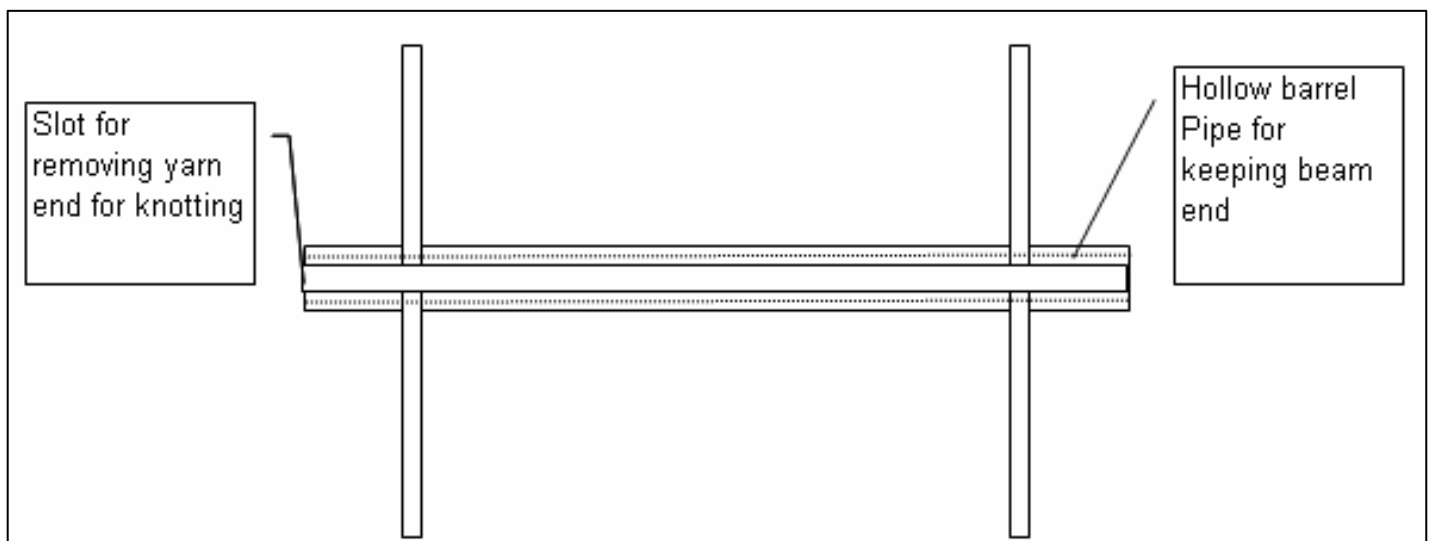
Talking about the merits and demerits, he said that through this new arrangement, the overall installed efficiency of the loom shed is expected to increase by almost 0.5-1.5 %, while the loss on account of Knotting operation time will substantially reduce. Not only this, the benefits also include lesser human involvement and time consumed to complete the operation. However, there will be few disadvantages too, such as- (a) The space requirement may increase in the existing set up; (b) Leasing will be a difficult task; (c) Chances of entanglement will be there, if not handled carefully; and (d) The new operation may create problem for denser and finer counts.

For better understanding of the concept, he has made drawings which give a fair idea for all those who wish to implement the concept to achieve reduced downtime and enhanced productivity. With the drawings, he writes following notes to help those implementing the concept:

In present knotting, loom was stopped when old beam empty and new beam will be knotted by knotting machine.

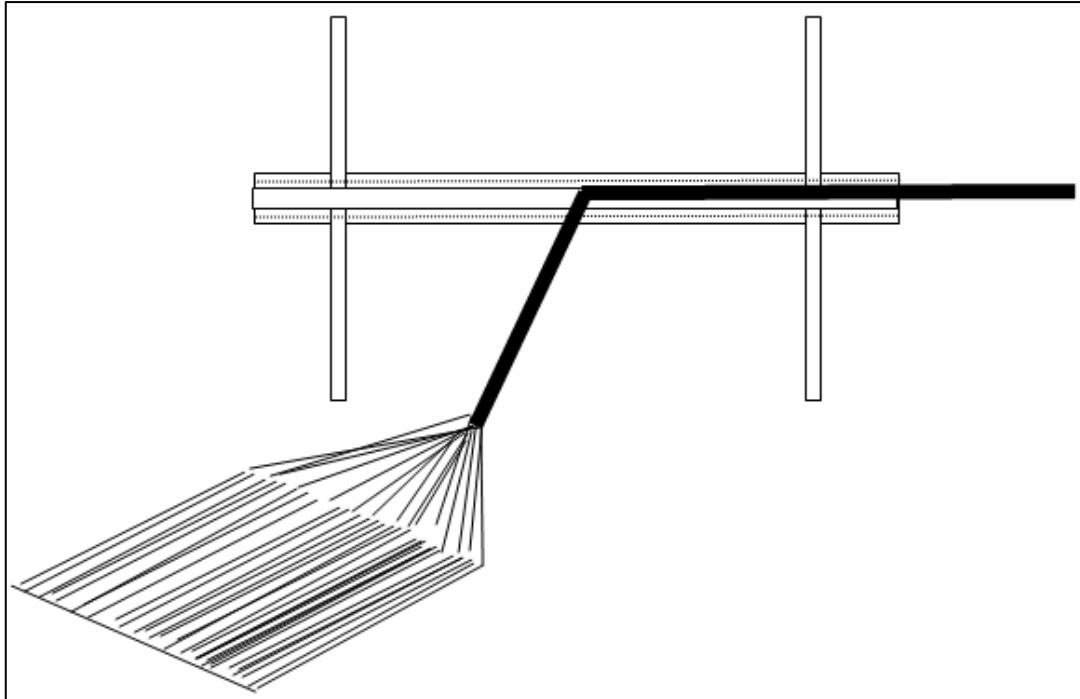


In new conceptual idea, beam end will be put in side slotted hollowed pipe barrel.

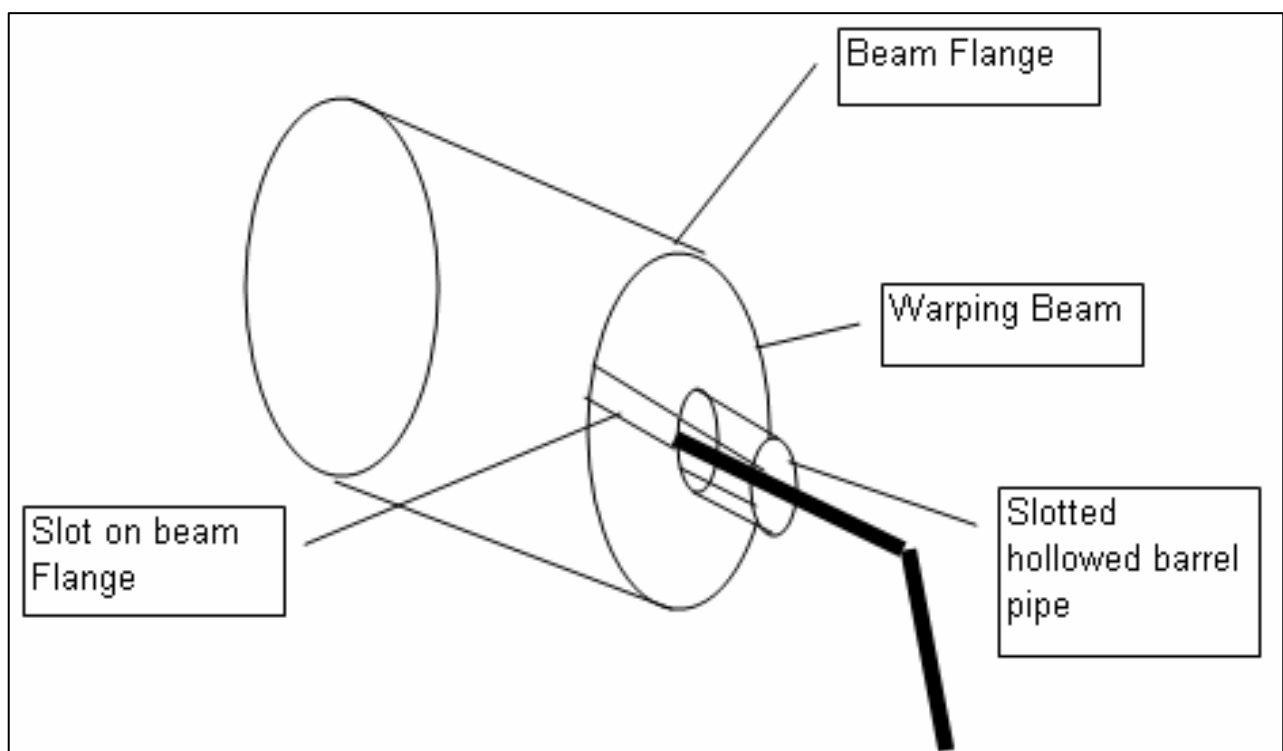


Before starting warping beam on sizing machine, Cellotap will be put on size yarn and make Rope

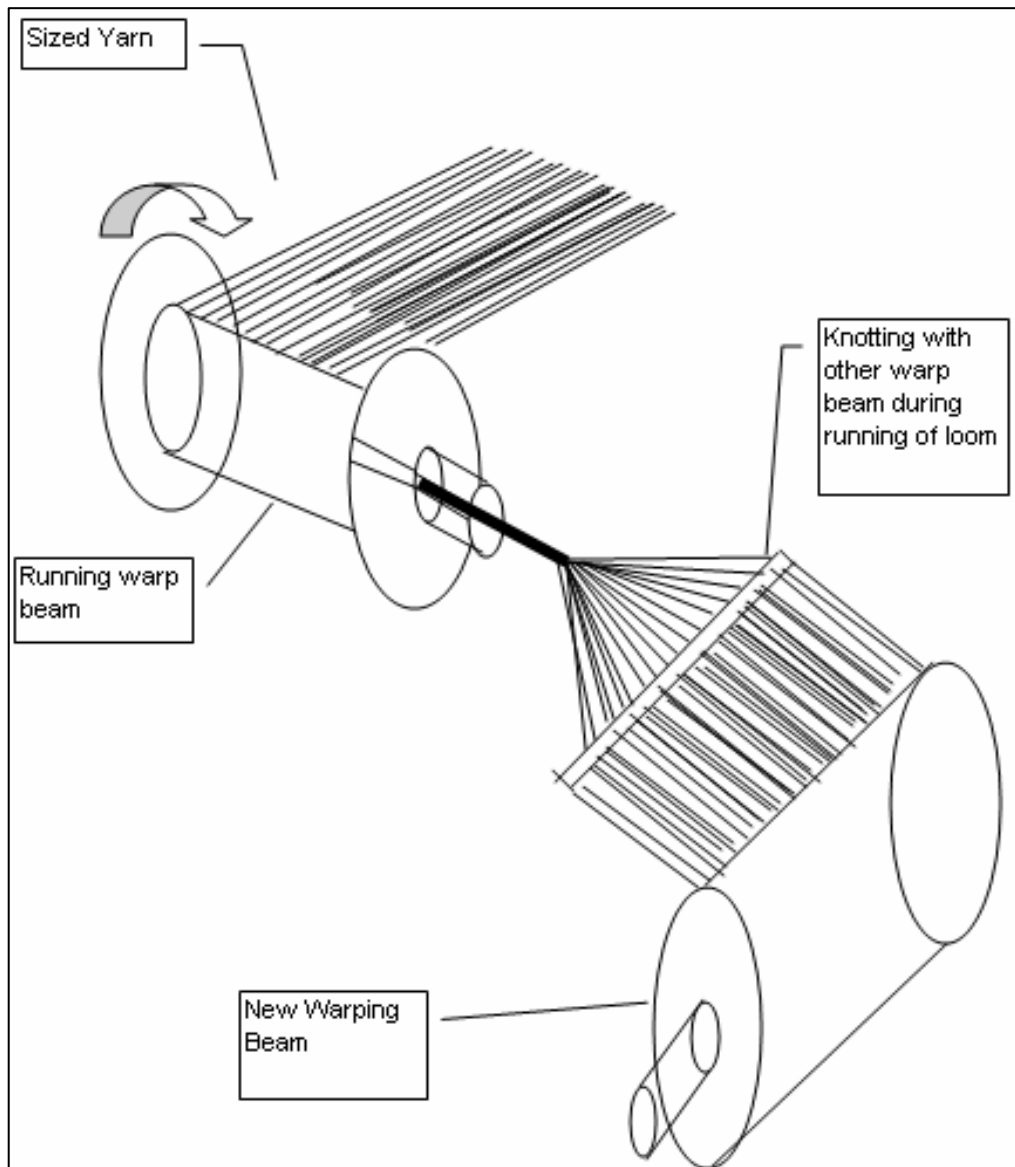
This rope will be put inside hollow section of Pipe barrel through slot on pipe.



After sizing of beam, Starting of yarn end will be in the hollow section of barrel and come out through one end of barrel pipe.



During running of loom, end of running warping beam will be knotted with next sized beam.



1. Once the running warp beam is exhausted, knotting is also parallelly finished. Yarn from the new full beam will be removed from the slot of the running Beam.

2. Now, running beam will be separated from the yarn and there is direct connection of new sized beam with loom.

3. Due to knotting during running of beam, there may be twist of yarn bunch. Such twist will be removed by rotating new beam.

About the Author

Piyush Chandarana, an engineering graduate and post graduate in business and material management, using his experience and knowledge gained during his long stint with the

textile industry has developed a new concept whereby the productivity can be increased while working on a loom.

He is currently working as General Manager-Supply Chain Management with reputed company M/s.Parixit Industries Ltd located Ahmedabad.

Beginning his career as Maintenance Engineer with Orient Abrasive Ltd, he soon joined Mardia Chemicals as Senior Engineer and later as Assistant Manager-Purchase with Anil Products Ltd; as General Manager-Purchase & Stores with Soma Textiles; as HOD-SCM with Birla Century, Bharuch and then Jobanputra Group, Uganda as Group Head of Plant, Commercial Purchase & Planning. He has also worked with RSWM ltd as General Manager-Material

Views presented in this article are from the practical experiences of the author

Image Courtesy: <http://www.southfence.co.nz/images/machine-fkm-01.jpg>