

Bi-fab Handloom – an Innovation



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(Views expressed in the article are the personal opinion of the author.)

Introduction

The discovery of several spindles, and a piece of cotton stuck to a silver vase, revealed that the hand spinning and hand weaving of cotton was known to the Harrappans, nearly five thousand years ago. References to hand weaving are also found in the Vedic literature and other prehistoric descriptions.

The foundations of the Indian textile trade with other countries began as early as the second century BC. In the 13th century, Indian silk was used as barter for spices from the western countries. Towards the end of the 17th century, the British East India Company had begun exports of Indian silks and various cotton fabrics to other countries. These included the famous fine Muslin cloth of Bengal. As per Handloom Census 2009-10, there are 23.77 lakh handlooms in India, which constitute almost 80% of world handlooms and provide employment to 43.31 lakh persons directly.

Type of Handlooms

In India, almost all States have handlooms of some kind or other engaged in producing unending varieties of fabrics. In North-East, each and every home is equipped with a back strap loom, called “Loin loom” which is very primitive but effective for those areas. Here it is customary for the women to weave their own wedding attire. Then, there are throw shuttle pit looms for weaving of delicate silk sarees of Benaras, Kanchipuram, Ikats of Odisha & Andhra Pradesh etc. as well as coarse durees of Panipat, Sitapur, Jaipur. There are, of course, fly shuttle pit loom, frame loom and semi-automatic looms. Many of the looms are attached with special devices like jala, adai, dobby, jacquard for weaving designed fabrics apart from some other gadgets like take-up, let-off, multiple-box, terry motion etc. As per Census, there are 58% frame looms, 26% pit looms, 13% loin looms, 1% pedal looms and 2% other kinds of looms



Pit loom



Winding Charkha

Present Level of technology

Handlooms produce the widest range of fabrics on as compared to those made on machine looms. Today the finest cotton muslin of 500M count is woven on handloom.

Contrast to that the thickest yarns like cotton sliver, sun grass etc. are also woven on handlooms. However, the level of technology available with the sector is not high. There is not scientifically approved line of weaving processes and looms for weaving of different kind of products of various fibres, yarns, dimensions. It is mostly based on the experience that has been descending from generation from generation and acts as a tradition of the sector. It thrives mainly on the skill of the weaver.



Frame loom



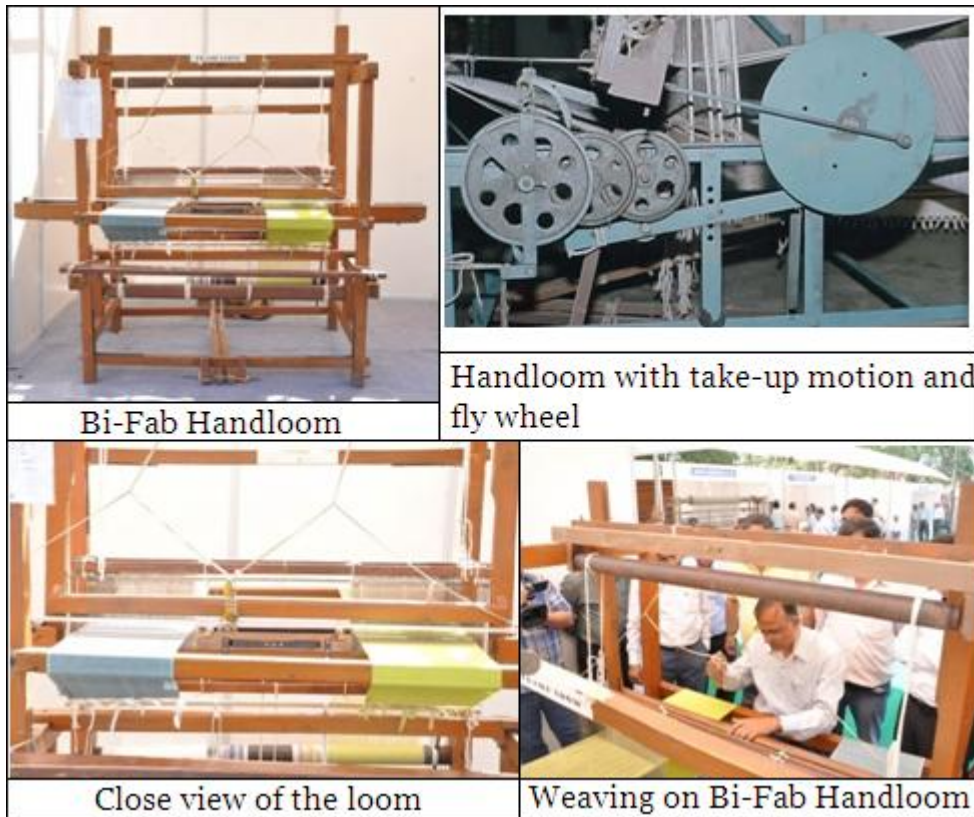
Back strap loom (Loin loom)

It has been experienced that the same loom is used for weaving of cotton, silk, wool products just with the change of reed and heald as per construction of the fabric. The same heavy sley is used both for fine and coarse fabrics. Even the same big loom is used for producing narrow as well as wide fabrics. This is really a matter of great concern that not much has been done for reducing the drudgery and fatigue of the weaver by using appropriate technology in the sector and whatever new has been done in this regard, the same has not become popular among the weavers due to various reasons. Many a times, the new technology developed for handloom is not user-friendly and hence not accepted by the weaver.

What is Bi-Fab Handloom

Is “Bi-Fab Handloom” not a buzz word? Certainly yes, because nothing has happened in that direction so far. Now I have developed a handloom which is capable of delivering two fabrics simultaneously with much ease. Hence, I name it as “Bi-Fab Handloom”. The weaver effortlessly can operate the Bi-Fab Handloom in the same style as he does on a conventional handloom and he/she gets almost double the production. This will obviously enhance his/her earning almost 200%. It has been experienced that any additional workload if put on a handloom during the process of its development or improvement is rejected by the weaver since he/she has to exert more effort to operate the same and hence gets fatigue quickly. Therefore, all precautions have been taken neither to add more workload to its innovation process nor to introduce any new style of its operation. I am very sure that “Bi-Fab Handloom” will certainly prove to be an important achievement for the development of the handloom sector because there will be phenomenal increase in the earning of the weavers who are engaged in manufacturing narrow width fabrics like Stole, Scarf, Muffler, Mats Napkins, Towels

and so on. These are the contemporary handloom products which have great export potential to various countries.



Why Bi-Fab Handloom?

Today in the age of machination, there is very stiff competition between handloom and machine looms. It has become difficult for the handlooms to survive, if engaged in producing similar kinds of products those are made on machine looms simply because the later has very high rate of production. It has become pertinent to enhance the productivity of handlooms as well as the quality of its product in one hand and to reduce the drudgery and fatigue of the weaver on the other hand. Presently, there are two techniques practised in handlooms for weaving narrow width fabrics like Stole, Scarf, Muffler, Mats Napkins and Towels etc. In one technique, the fabric is woven in double width size and then slit in the middle to get two products of narrow width. Disadvantage in this case is that the selvedge in one side is clean but its other side, which is slit, is not clean but hemmed. This reduces the price of the product. In the second technique, narrow fabric is woven on comparatively wider loom, since no separate loom is available for the particular purpose. This results in wastage of labour, time and machinery. Because of low productivity, the product becomes costlier and ultimately loses the market. Obviously, weavers also earn less and hence are reluctant to produce such fabrics though there is very good demand in the market. Stoles, Scarf and Muffler have become the part of fashion accessories today. Bi-Fab Handloom has been developed by me with the following reasons:-

1. To increase the productivity of handlooms that are engaged in production of narrow width fabrics like Stole, Scarf, Muffler, Mats Napkins, Towels and so on.
2. To reduce drudgery and fatigue of the weaver.
3. To enhance the quality of the product.
4. To create more marketability of the product.
5. To enhance the earning of the weaver and
6. To make the technology of hand weaving as appropriate and simple as possible so that it is actually adopted by the weavers not only for their benefit but also for the development of the sector.

How does it work?

An ordinary handloom has been made the base for the development, primarily because its adoptability will be easier by the weaver since he/she is already familiar to this loom. The sley has been modified by providing an additional shuttle box in the middle so now there are three shuttle boxes with pickers attached. These three pickers are connected with each other with the help of aluminium closed channel bar for giving equal and balanced force to propel the shuttles from one box to other. Right and left pickers are tied with picking handle in a conventional way. In starting position, one shuttle remains in the middle box and the other shuttle may be either in the right or in the left box as per convenience of the weaver. During picking from right to left direction, the shuttle from the right box travels to middle box and the shuttle of the middle box goes to left box. Similarly while picking from left to right direction, shuttle of the left box travels to middle box and shuttle of the middle box goes to right box. There is a swell spring in the middle box to prevent the shuttle from bouncing back after hitting the picker inside the box. This way picking of two shuttles for two narrow width fabrics continues in the same fashion as practised in conventional handlooms.

The loom is gaited up with two separate warps on the same warp beam for two fabrics. Care is taken that identical warp threads and weaves are used for both the fabrics to avoid difficulty in weaving due to different shrinkage/tension that is developed during weaving of two dissimilar threads and weaves. Efficiency of the loom may further be increased by attaching take-up and let-off motions. This will also ensure better quality of the fabric due to regular spacing between the picks in the fabric. Take up motion is activated with the swinging motion of the sley arm. Again, in order to get uniform take up of the ratchet, a fly wheel may be attached with sley with the help of arms, one end of which is fitted with the back of the sley and the other end engages with the hinge fixed on the fly wheel. This arrangement is made at both sides of the sley. Momentum of the fly wheel helps in easy and smooth movement of the sley. This also reduces the force required to move the sley by the weaver.



Handloom products on display

Conclusion

There is an urgent need for technological advancements in handloom weaving to increase productivity, enhance quality of the fabric and to reduce fatigue of the weaver so that its sustainability is ensured. While bringing new technology, it has to be kept in our mind that there is manual labour involved in the process of hand weaving. Any change or advancement that requires extra labour which develops quick fatigue to the weaver will be rejected. At the same time, one has to remember that in traditional handlooms which are famous for ethic designs and eco-friendly processes, the challenge is to introduce technology to enlarge production base and up-grade the process without tampering the unique selling propositions (USP), the distinctive features and emotional potential. Bi-Fab Handloom meets all such parameters like increase in production and quality and does not tamper the USP rather add more to it. This loom will certainly prove to be a milestone in the journey of tradition handloom weaving.

About the Author:

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