

Mechanized Roller for Handmade Felt Making

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Abstract

Non-woven woolen ornamental felt making is a prominent handicraft cottage industry in many states of India and it is popular as livelihood in the states of Jammu and Kashmir and Rajasthan [1]. Felt is made by matting, condensing and pressing woolen fibers in hot water and soap solution. Non-woven woolen felt is amongst the oldest fabrics known to mankind. Traditional 'namda' felt, a popular floor covering and woolen felted nomadic tent fabric have been produced since ancient times in central Asia. Decoration on felt is created by embroidery, embedding colorful woolen motifs and applique work. Felt has wide ranging usages; such as bed and floors spreads, cushion covers, sofa covers, yoga mats, meditation mats, bags and use in fancy decoration items [2]. Handmade felt needs much less time in making as compared to that of handloom fabric. However, the process of felting involves strenuous physical work. Felt making requires pushing, rolling and kicking with pressure a roll of woolen bats by feet sprinkled with hot water and soap till the woolen fibers are felted. Due to its harsh and labor intensive process, the craft of making handmade felt has remained a part of men's profession, and over the years a large percentage of artisans have left the trade of making felt. Keeping in view, the need to reduce intensive physical labor involved in making handmade felt, a hand operated push-pull rolling device is designed, tested and introduced for making felt. This rolling device is much easier in operation, and has also been adopted by women groups for making felt. Due to ease in handcrafted felting process waste wool in various parts of the country can now be used for creating additional source of livelihoods. RuTAG IIT Roorkee has developed the equipment which can save a lot of labor and reduce physical stress.

In the present paper, design specification of the rolling device, process undertaken for felt craft and results on the quality of felt products made by using developed roller are discussed. The basic rolling structure has one roller made of pipe which is supported at both the ends by bearing brackets pinned at the end of equal size light beams. The pipe has a straight slot across the length for anchoring jute mat on which woolen bats are laid. Two wheels with a rotating shaft supported by bearings are located on the other end of beams which enable easy motion to the device when pulled and pushed. The beam ends are provided with jacks for lifting rolling pipe which helps in unwinding rolled mat. A 'U' shaped pipe is hinged on both the beams for pushing the device. Photograph of mechanized roller for felt making is shown in Figure 1. There is an option to use larger diameter roller instead of pair of wheels for energizing a small beater or weight drop on wool and also for adding rolling support to the main rolling pipe. Plastic bubble sheets are laid over woolen bats before rolling. It holds fibre at bubble points where as the spaces around help in movement of fibre during felting. In view of demand, RuTAG Centre at IIT Roorkee has now developed three sets of rolling device of different sizes.

In order to examine the quality of felt prepared by rolling device, felt samples were tested in the laboratory at Northern India Textile Research Association (NITRA), Ghaziabad. Quality of Namda was assessed on the basis of different parameters such as mass, thickness, tensile strength and thermal resistance. Based on the results, it is found that Namda with better quality fiber construction may enhance its utility for variety of felt fabrics such as apparel, floors spreads and yoga mats. The developed rolling device can save considerable labour as strenuous foot action is avoided. The rolling device is easily pushed and pulled. Women find it convenient to work on it and the device also helps in maintaining positions of embedded motif which tend to shift when rolled without the device.



Figure 1 : Rolling felt using mechanized roller

References

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