

WOVEN YARN AND FABRIC FAULTS CAUSED DURING THE WEAVING PROCESS

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ABSTRACT

The most frequent faults during weaving are investigated in this work. Analyzed are cause and consequences of errors in the yarn (the thick, a thin and a weak point) resulting in the spinning process and the process of processing yarn and processes of preparing the basis for weaving-warping and sizing. Fabric faults reduce fabric quality. According to the above analysis, the final decision on the possible use of fabric with an faults. Mode has been proposed and controls so that they can prevent their occurrence or minimize the incidence.

Keywords: Fabric quality, fabric fault, types of faults, fault systematization, waste textiles

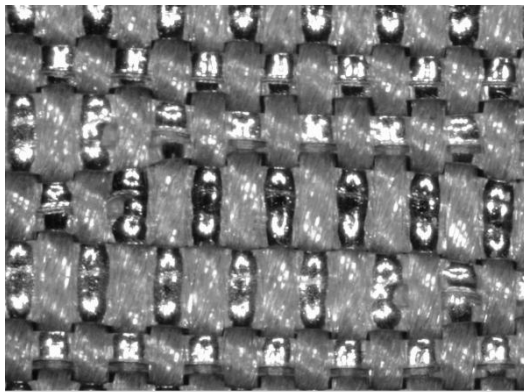
1. INTRODUCTION

Faults made in the process of weaving and finishing chemical commonly remain in the fabric and can not be removed, so it stays as direct impact on the final quality of the fabric. Analyzed primarily yarn fault and technological fault and their cause and consequences of the formation [1,2]. In this paper, an analysis is made of fabrics that have a fault in the weaving. To increase the faults in the fabric using the digital microscope Dino-Lite model AM413FVT, 10-50 times the magnification and resolution of 1.3 mpix. /nm, is shown in Figures 1-5.

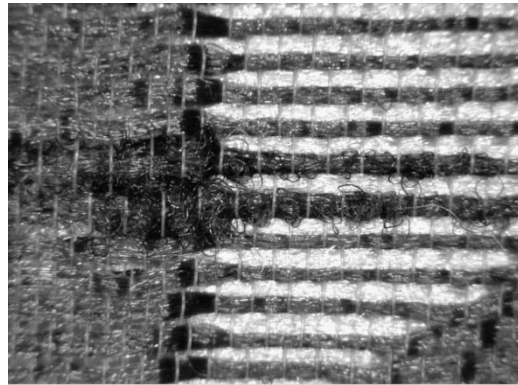
2. FABRICS FAULTS

The conceptual framework of the research of this paper is the analysis of unusable fabrics caused by a fault during weaving. In order to protect environment and because of difficulties in waste disposal, recycling of fabrics made of various raw materials, the cause of fault formation in the fabric during the technological process and the way how to avoid them was investigated. A part of unusable fabrics come from the industry and it is impossible to make use of them or to recycle. Registered in the fabric faults occur frequently in the process of preparing and spinning yarn in the process warping and sizing, and in the process of weaving in chemical processing. Irregularities in the yarn that distorts the appearance of fabrics are thick and thin places witch arose most often in the spinning process.

Yarn spun from staple (eg.cotton, wool, linen, sawed chemical fibers) have a certain unevenness that can not be avoided despite the latest technological capabilities of spinning. But that does not mean that all deviations in yarn unevenness detract from the look of the fabric. According to the coefficient of variation in the thickness of the yarn is possible to determine the degree of cleaning that will satisfy not only the quality of the yarn, but also utilization of the machine [3-5]. It is not possible to get a completely uniform cross from extremely uneven yarn that has a higher incidence of thin and thick places to excessive levels of cleaning significantly reduce the yield of the machine, and thus to get a larger number of sites connected or knots, is shown in Figure 1.



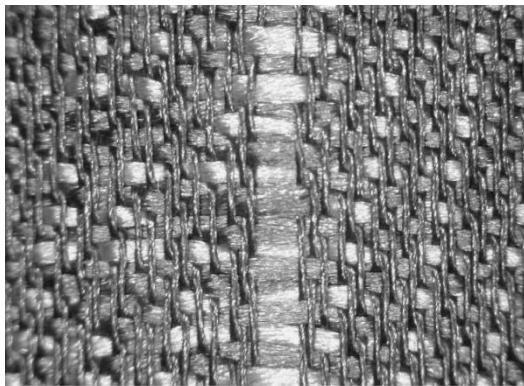
a) thinly place in weft



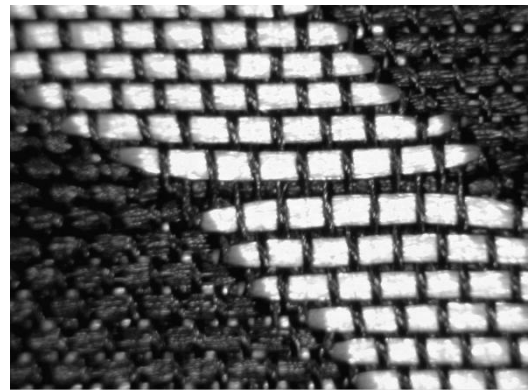
b) in the weft direction – callosity weft

Figure 1. Faults in the fabric caused by mistake in the yarn a) and b)

Faults occurred on warping usually can not be recovered and remain in the fabric as fault. The difference in tension or the point at has been warping winding roller or sectional drum has not been solved to date, and is a problem in warping. Nor are tense and unwinding at the following stages of the processing tighter causing disruption or stripe along the fabric, is shown in Figure 2.



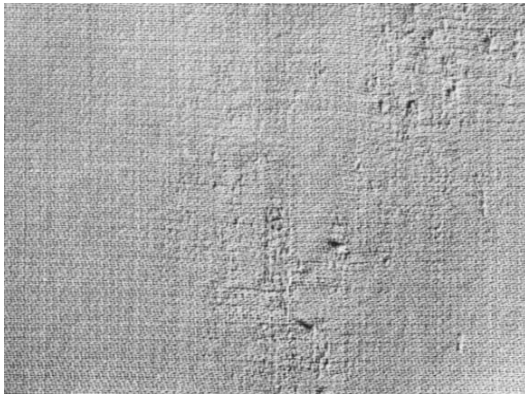
a) in the warp - the lack of warp threads



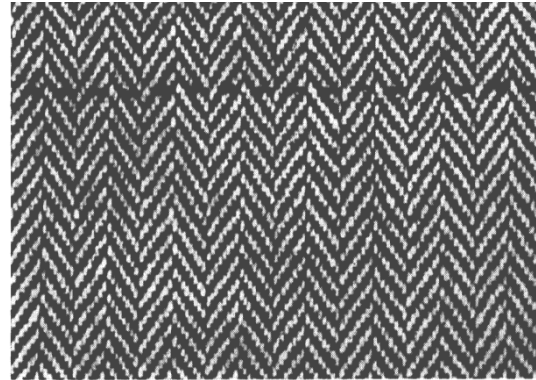
b) lack of weft

Figure 2. Faults in the fabric caused by mistake in the yarn a) and b)

The most serious error that occurs on the occurrence of one warping cruciate bobbin, or on the one or on other raw material composition. After chemical processing thread " intruder " is visible as brighter or darker than the other. Process of sizing can squeezing excess starch mass which leads to the so-called, stains that prevent and create holes in the fabric, is shown in Figure 3a. Faults occur most often in weaving warp disruption or where the fabric remains stripes, and sometimes holes, is shown in Figure 3b.



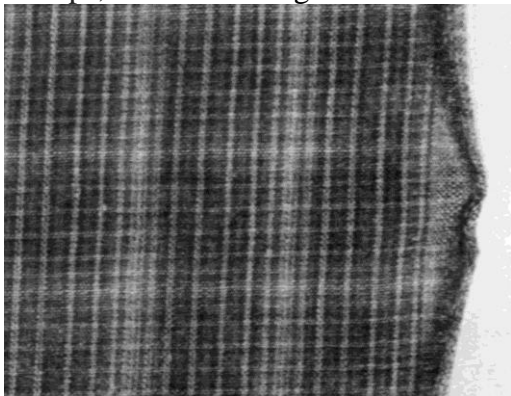
a) fault in sizing - a greater amount of starch



b) lack of one weft

Figure 3. Faults in the fabric a) and b)

Long standing loom comes to relaxation warp threads before weaving the fabric thereby shift lines leading to thick or thin stripes in the fabric. Poor warping for regions or disorder tension warp threads in the regions has resulted in frequent interruptions threads, and thus disordered or folded edges (loose or tight), and in the worst case, tearing a large number of warp threads or cops, is shown in Figure 4.



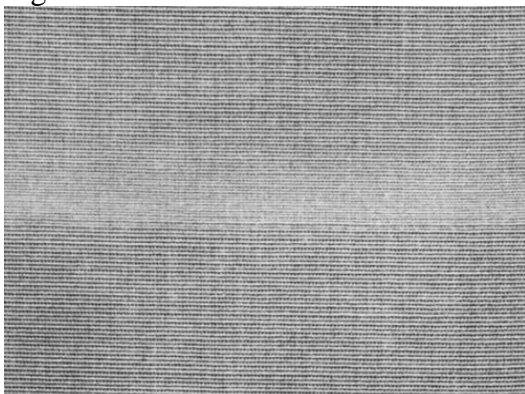
a) loose edges



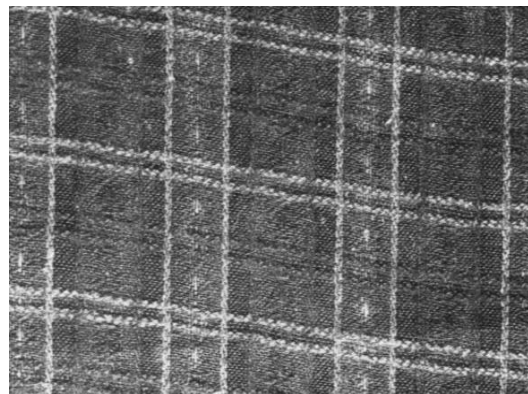
b) tense edges caused tearing fabric

Figure 4. Faults in regions a) and b)

In checkered fabrics in which a multi-coloured weft thread is inserted, there is a danger of weft breakage so that the weft colour sequence within the fabric is not disturbed, is shown in Figure 5.



a) thick stripe on weft



b) skew weft

Figure 5. Faults in the fabric produced in the process of weaving a) and b)

Faults arise in connection unclean yarn incurred as a result of incorrect lifting and lowering the warp threads, is shown in Figure 6.

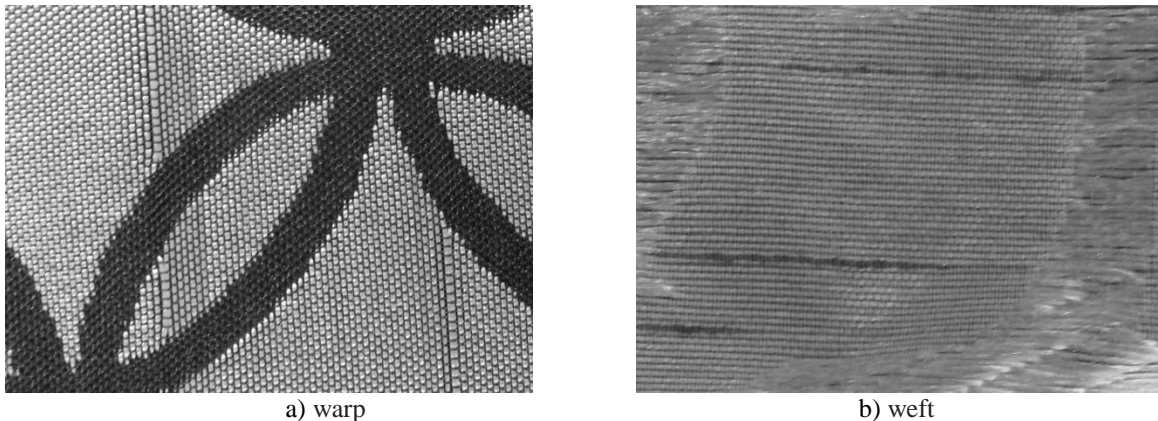


Figure 6. Faults weave connection in the warp and weft a) and b) (photo: Đurđica Kocijančić Šnidarić)

3. CONCLUSION

Greater control in the process of making fabric and the spinning process to the production of an clothing article can greatly reduce fault in the fabric. Spun yarn with a certain frequency thin, thick and weak points it is possible to get clean even more uniformed and higher quality yarn that will produce condition and quality fabrics. In the processing can occur faults by human or mechanical work of spinning, yarn preparation, weaving and chemical processing can also affect the quality of the fabrics and materials which are important to control throughout all stages of processing. The greater part of these faults can not be corrected and affecting the final quality of the fabric. Fabric faults reduce fabric quality. This is the reason why such fabrics are only partially used for the purpose for which it has been woven. Due to high demands on material quality, it is necessary to separate them during cutting which is the reason for making the production more expensive. They are often the cause of quality reduction; therefore, they are considered more and more unusable or as waste material.

4. REFERENCES

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