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DEVELOPMENT STRUCTURE AND METHOD FOR OBTAINING A DOUBLE-SIDED PLUSH WEAVING ON THE BASIS OF A DOUBLE-WINDOW JERSEY

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Annotation:
The issues of expanding the range and improving the quality of plush knitwear, creating new structures and developing effective methods of knitting knitwear with optimal parameters are currently being dealt with by many researchers both in our country and abroad. Knitwear produced from ground threads by any main, derivative or patterned weave with knitting additional threads or bundles of staple fibers into the ground, forming increased platinum arcs or pile broaches, is called knitted plush weave.

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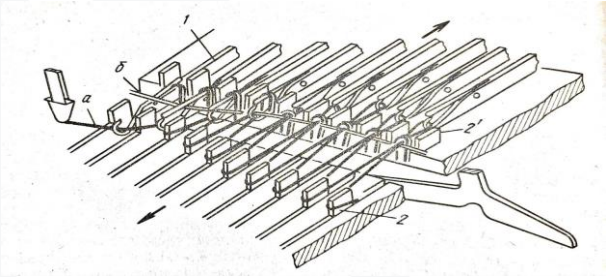
Key words: patterned knitting, two layers, loop step knitting, yarn, tissue types, glad tissue, rubber fabric

Introduction

The most important feature of the structure of plush knitwear is the way 1/9 pinning plush thread in ground knit. From this indicator fastening the plush thread to the ground of knitwear. The quality of knitwear, its appearance, the consumption of raw materials during production, etc. depend on this indicator.

Plush knitwear can be obtained on the basis of the main, derivative, patterned and combined weaves. Plush knitwear based on the main weaves is obtained by introducing an additional thread into the structure of the knitwear of the weaves of the derivative satin stitch and the derivatives of the eraser [1-4]. Changing the structure of knitwear in the base weave, i.e. the production of plush knitwear based on various main, derivative, patterned and combined weaves, mainly affects the physical and mechanical properties of plush knitwear. And the creation of a patterned effect on the canvas is achieved through the use of different colors of an additional thread, the alternation of a smooth plush surface on the canvas, the formation of broaches of different heights on the canvas and, at the same time, broaches using different colors of an additional thread, etc. The advantages of producing plush knitwear are the simplicity of obtaining both looped and cut plush and high productivity of the equipment. In the manufacture of plush knitwear, it is easy to control the consumption of raw materials, the thickness of knitwear by changing the length of the plush broaches, and also to reproduce various patterns on the canvas, using raw materials with different properties and different colors. Another direction in the production of knitwear with high heat-shielding properties is the production of knitwear with double-sided pile. The production of plated plush knitwear with double-sided arrangement of plush broaches is significantly expands its range [5-15].

In [16], in order to improve the heat-shielding properties and expand the range of knitted products, a method was developed for producing double-sided plush knitwear on a reverse machine.



Picture.1. The process of forming a plush row on a reverse machine.

Before proceeding to the development of technology for knitting double-sided plush knitwear on a circular knitting machine, it is necessary to determine the necessary conditions for the normal course of the looping process, taking into account the features of the machine that allow not to make large changes in the design. As you know, to get plush knitwear on all knitting machines, it is necessary to lay ground and plush threads on needles. The process of laying plush thread on different machines is different depending on the knitting conditions and the design of the machine. Since double-sided plush has plush broaches located on both sides of the knit, the plush thread needs to be lay on the needles of one or the other needle bed, while maintaining the parameters of the supply of plush threads. Plush thread feeding parameters are needle and loop angles. The parameters for feeding the plush thread depend mainly on the location of the rebound line for stopping this thread. From the analysis of existing methods for the production of plush knitwear, it was found that in order to form a plush loop, it is necessary to have on the machine not one, but two breaking lines. Relative to one rebound line, the thread is culled into ground loops, and relative to the other, the thread is culled into plush loops. Since to obtain elongated plush broaches it is necessary to cut the plush yarn to a greater depth than the ground yarn, the ground yarn break line can be used to cut the plush yarn.

It is known that from the structure of double-sided plush knitwear, plush broaches come out on both sides, and therefore the rebound line for the cool plush thread should be on both needle beds, as well as for ground ones. To obtain plush broaches of the same size on both sides of the knitwear, the depth of their culling must be the same. The formation of plush broaches on the other side of the knitwear occurs in the next loop-forming system. In this case, the process is repeated with the only difference that the plush thread is culled on the breaker teeth of the lower needle bar, and the ground thread on the breaker teeth of the upper needle bar. In order to expand the range of outerwear made of plush knitwear, as well as improve the heat-shielding properties and quality of manufactured knitwear, scientists from the department “Knitwear Technologies “ NamMTI developed the structure and method for obtaining double-sided plush weave based on double-sided knitwear on reverse machines with improved heat-shielding properties.

Double-sided plush jersey of a new structure, consisting of two plush threads knitted with a ground thread on each side of the jersey in one row, increases the volume surface, increases heat-shielding properties, also in this weave fastening plush threads is increased, which improves the quality of knitwear

Picture.2. the structure of double-sided plush knitwear on the basis of a double-purl stitch is shown; rice. 3 knitting process of double-sided plush jersey.

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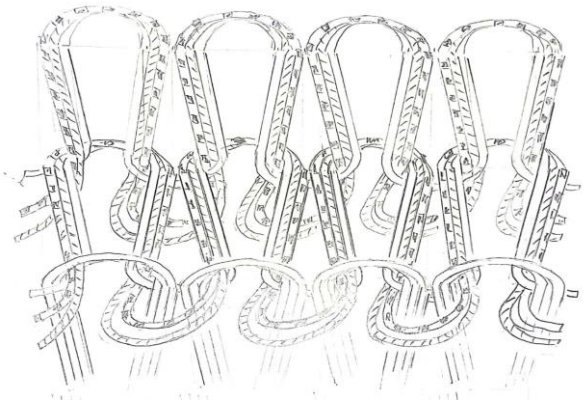
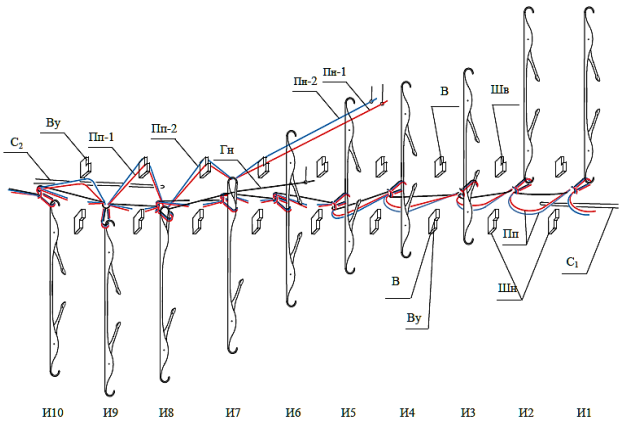


Picture.2. The structure of double-sided plush jersey.

Double-sided plush knitwear consists of a ground thread Gn, which forms weaves of a two-sided surface and plush threads Pn-1, Pn-2 knitted in place with Gn threads into loops and forming plush broaches Pp-1, Pp-2 on both sides of the jersey. Knitting process of double-sided plush jersey on revolving machines is carried out as follows (Picture 3).



Picture.3. Knitting process of double-sided plush jersey.

Initially, on the needles I., I, I, plush rows of two threads were formed with plush broaches, which were formed on the recess B and on the upper section Vu with the pins Shn of the lower cylinder, the plush broaches were dropped with pullers C. With further rotation of the loop-forming systems, the needles are transferred from the upper cylinder to the lower one, and at the same time, a plush thread Pn-2 is laid on the needles and on the pins of the upper cylinder Shv section Vu, plush thread Pn-1 is laid on the grooves B of the upper cylinder. two needle beds (Picture. 3). Further, between the needles I., I., I., a plush is formed broach puller C2. Pl-1 and Pp-2. Reset plush broaches provides Thus, the formation of a two-sided plush jersey on the basis of a two-sided surface.

The advantage of the proposed structure and method for obtaining a double-sided plush weave based on double-sided knitwear is that the plush row can be obtained from two plush thread knitted ground thread on both sides of the knitwear, which increases the volume surface, increases the heat-shielding properties, also in this weave, the fixing of the plush threads increases, which improves the quality of knitwear. The proposed method is easy to implement and does not reduce machine performance.

List of Used Literature

1. Dalidovich A.S. Fundamentals of the theory of knitting. - M.: Light industry, 1970.
2. Vehicle certificate (11) 490881. Flat turning machine. A.S. Dalidovich and M.M. Mukimov. 11/05/75. Bulletin No. 41
3. Mukimov M.M. Development and substantiation of the technology of plush knitwear on double knitting machines Dis.doc. Gulyaeva G., Mukimov M. Production technology shape-resistant plush jersey. // Zh. News of universities. Light industry technology. 2017. -№ 1. Vainer. Patent holder MMIPCO LLC. Published 03/14/2019
4. US Patent No. US 2019/0078241. "POWERAIR" INSULATINGFABRIC William Michael Rose, Gary S. Smith, Marina Kozera, William Patz, Gadalia 5. 1. Jurabayev.N.N, Shogofurov.Sh.Sh, Kholikov.K.M, Meliboev. U.X (2021). Study of the fabric structure influence on the physical-mechanical and technological properties of knitted products. In E3S Web of Conferences (Vol. 304, p. 03030). EDP Sciences.
6. Musaeva M.M., Khankhadzhaeva N.R., Mukimov M.M. The method of obtaining purl interlock knitwear on a circular machine. // Problems of textiles. - Tashkent.-2016.-№4
7. Patent UZ No. FAP 01060. Cl. 8 D 04 BXRK7. Single-sided plush jersey. Gulyaeva G.Kh., Mukimov M.M. Appl. 06/20/2014 Published 29.01.2016
8 Kholikov, K.M; Zhuraboev, A.T.; Shogofurov, Sh.Sh; Abduvaliev, D.M. (2020) Comprehensive assessment of the two-layer knitwear quality. The Way of Science. 2020. No. 1(71).
9. Gulyaeva G., Mukimov M. Method of improving hygienic properties of form stable knitted fabrics. / International III Forum of Innovative Ideas, technologies and projects-2017.: collection of materials. -10-12 May 2017r. Tashkent.
10. Gulyaeva G., Mukimov M. Shape-resistant plush jersey of lightweight structure. / Innovative technologies in the textile and light industry.: Collection of materials MNPK. -21-22 November 2017. - Vitebsk. -Belarus.
11. Kholikov K.M. Double-sided plated plush jersey based on press weave // Textile Problems. - Tashkent. -2006. - N°1.

12. Juraboev, A.T.; Kholiqov, Q.M; Shog'ofurov, Sh. Sh (2020) The study of the technological parameters of double layer knitwear with various methods of connecting layers. ACADEMICIA: An International Multidisciplinary Research Journal. Year: 2020, V10.Issue4. Pages 397-404

13. Mirsadikov M. M. Development of a knitting mechanism for working double-sided plush knitwear // problems of the textile industry and ways to solve them. - 2021.

14. Shalov I.I., Dalidovich A.S., Kudryavin L.A. Knitwear technology. Moscow: Legprombytizdat, 1986.

15. Mirsadikov M. M. Improved production method split plush knitwear //problems of the textile industry and ways to solve them. 2021. 16. Mukimov M.M. Culinary plush jersey. Moscow: Legpromby tizdat. 1991.