May 1, 1945. H. KORBER 2,374,758

PRODUCTION OF REGULAR GOODS IN FLAT KNITTING MACHINES

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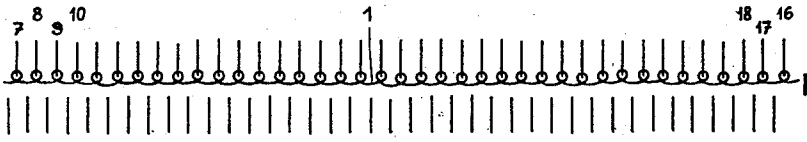


Fig.1

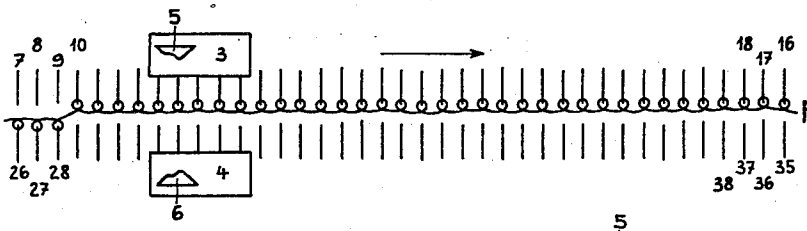


Fig.2

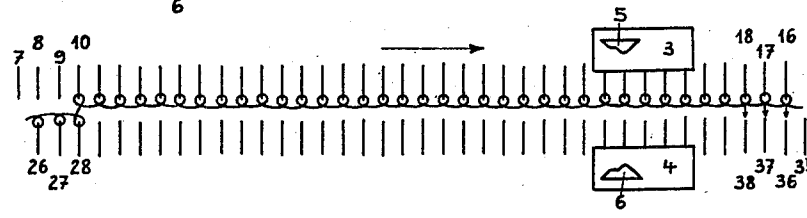


Fig.3

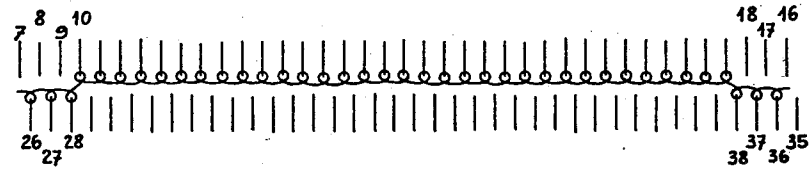


Fig.4

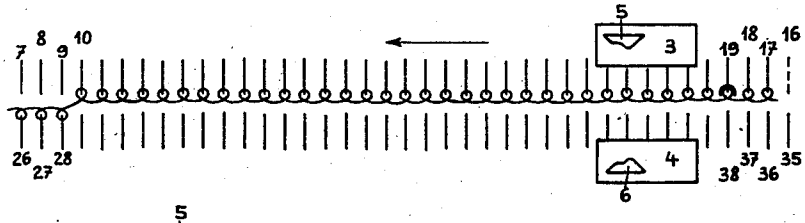


Fig.5

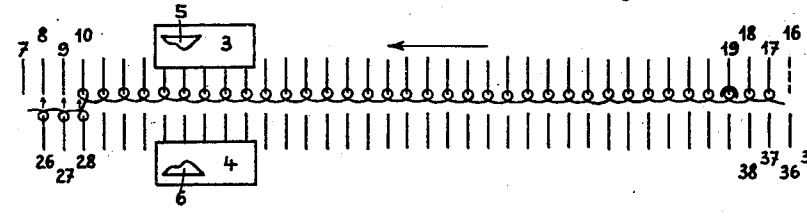


Fig.6

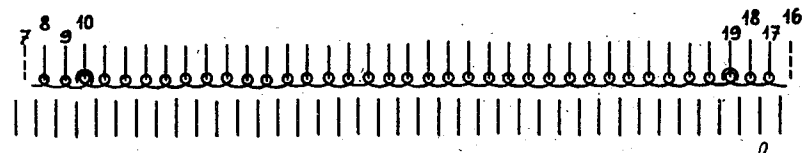


Fig.7

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PRODUCTION OF REGULAR GOODS IN FLAT KNITTING MACHINES

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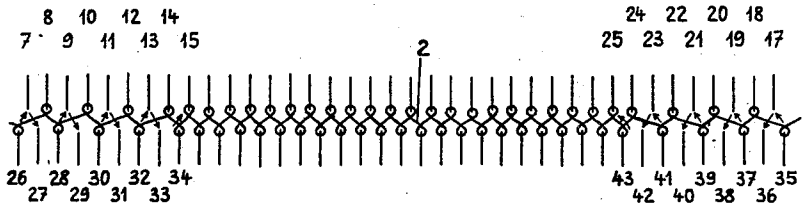


Fig.8

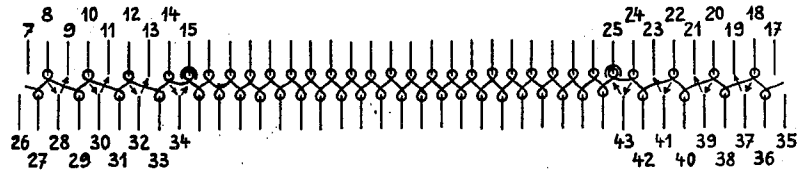


Fig.9

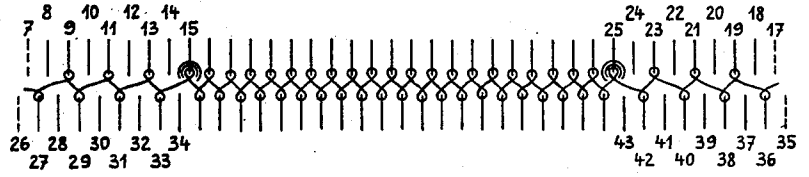


Fig.10

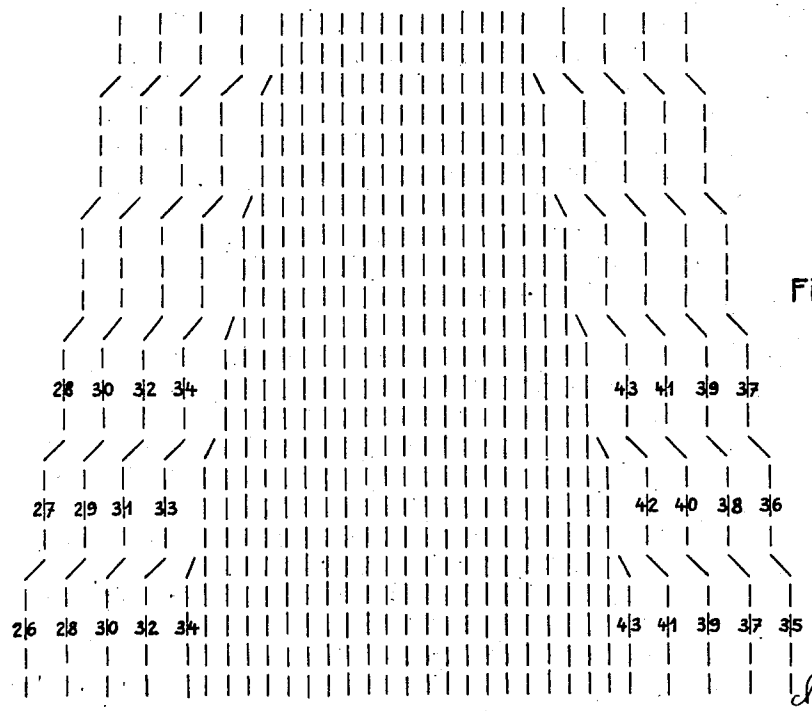


Fig.11

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PRODUCTION OF REGULAR GOODS IN FLAT KNITTING MACHINES

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Application December 8, 1943, Serial No. 513,404
In Germany June 24, 1942

3 Claims. (Cl. 66—70)

This invention relates to the production of regular narrowed plain or ribbed goods having been narrowed by transfer of loops by means of the knitting needles and needle bed racking or shogging in flat knitting machines. By tickling off the loops it is intended besides producing perfectly fashioned knitware to economize in knitting yarn. In the known methods of producing regular narrowed plain or ribbed goods in flat knitting machines the loops to be tickled off are transferred from the knitting needles to coverers or transfer fingers, for the purpose of being received by the collateral knitting needles upon racking of the devices concerned. To this end, therefore, extra devices for transferring the needle loops to be tickled off by means of coverers or fingers are arranged above the knitting needles in parallel relation to the latter. It is also possible to produce narrowed plain articles in the conventional flat knitting machines by transferring the loops to be tickled off to the opposed front needle row in order to be received by the collateral knitting needles of the rear needle row after the front needle row has been racked. By this means the tickling off of one loop per one edge of the article requires the slide to perform one traverse so that both article edges thus require the slide to perform two traverses.

In the method according to the present invention it is required that for obtaining the desired result each time before the transferring pair of lock portions, in travelling in its direction of movement, arrives at the next following article edge the needle beds must be racked one time.

In this way it is possible to tickle off the loops mechanically in relatively simple manner so that the working efficiency is accordingly great.

For the production of narrowed ribbed ware, advantageously, at the article edge to be narrowed only each alternate needle is operated. The narrowing at both article edges can be carried out in such manner that, per slide traverse, always two racking movements are performed, so that per slide traverse at each article edge narrowing by one loop is effected, even then when at the same time several articles are produced in the machine conjointly.

The accompanying drawings serve for partly illustrating the method according to this invention, only the parts of the flat knitting machine necessary for a proper understanding of the invention being shown.

In the drawings:

Figs. 1 to 7 serve for explaining the production of narrowed plain ware;

Figs. 8 to 10 the way of producing narrowed ribbed ware, and

Fig. 11 is a schematic representation of the rows of loops of narrowed ribbed ware.

The numeral 1 (Fig. 1) designates the plain loops, the numeral 2 in Fig. 8 refers to ribbed ware loops, the numeral 3 denotes the rear lock cam plate, 4 the front lock cam plate, the numerals 5 and 6 denote the rear and the front transfer lock portions respectively, 7 to 25 the needles of the rear needle row, and 26 to 43 the needles of the front needle row.

For producing plain ware narrowed at both edges the mode of procedure is as follows:

Assuming that all the plain loops 1 (Fig. 1) are hooked to the needle hooks of the rear row of needles. Prior to the transferring pair of locks 3, 4 moving in the direction of the arrow shown in Fig. 2, the front needle row is racked in a known manner to the right, in consequence whereof, the needles 26, 27 and 28 come to lie in opposed relation to the needles 7 to 9, in such manner, that in the course of the movement of the transfer lock pair 3, 4 the loops held by the needles 7 to 9 are transferred to the needles 26 to 28, in known manner. In the course of the further movement of the transfer lock pair 3, 4 in the direction of the arrow until it arrives in the position shown in Fig. 3 the front needle row is again racked to the right, in such manner, that the needles 36 to 38 come to lie opposite to the needles 16 to 18, so that the loops on the needles 18 to 16 are transferred to the needles 38 to 36 as the transfer lock pair 3, 4 passes by said needles.

Upon the termination of the traverse of the slide from left to right three edge loops of each of the two ware edges have thus been transferred to the front needles, as evident from Fig. 4.

A similar working operation is performed as the slide traverses from the right to the left hand side, as evident from Figs. 5 and 6. By this means the loops are transferred from the front needles to the rear needles, namely the loops on the needles 36, 37, 38 and 28, 27, 26 to the needles 17, 18, 19 and 10, 9, 8 respectively. On the termination of the slide traverse the needles 10 and 19 carry two complete loops (Fig. 7), whereas the two edge needles 7 and 16 have been emptied and put out of action, that is, the edge of the ware has been narrowed by one loop. Prior to the slide beginning to move from left to right and from right to left, as well as in the course of each slide movement the front needle row is accordingly racked. The knitting is then

continued by means of the rear needles again and the narrowing repeated in accordance with the pattern anew. This mode of working is continued until the article is given the required narrowed width.

The production of ribbed ware narrowed on both sides is effected as follows:

Prior to the narrowing beginning in the ribbed knitware, at the edges of the latter to be narrowed, automatically each alternate needle is emptied in known manner, for example, the rear needles 7, 9, 11, 13, 17, 19, 21, 23 and the front needles 27, 29, 31, 33, 36, 38, 40 and 42. At the edges of the ware knitting is done only with each alternate needle while the narrowing operation is kept up, as indicated by arrows in Fig. 8. The narrowing is effected in a manner similar to that previously described, that is, racking of the needle beds always takes place before the transfer lock pair reaches the next following ware edge while travelling in its direction of movement. In the course of the movement of the transfer lock pair from left to right the loops on the front needles 26, 28, 30, 32, 34 and 43, 41, 39, 37, 35 are transferred to the rear needles 7, 9, 11, 13, 15 and 25, 23, 21, 19, 17 respectively. If then the transfer lock pair moves from right to left the loops on the rear needles 17, 19, 21, 23 and 13, 11, 9, 7 are transferred to the front needles 36, 38, 40, 42 and 33, 31, 29, 27 respectively (Fig. 8). Similar operations also take place, as indicated in Fig. 9, whereby in the course of the slide traverse from left to right the loops on the rear needles 8, 10, 12, 14 and 24, 22, 20, 18 are transferred to the front needles 28, 30, 32, 34 and 43, 41, 39, 37 respectively. As the slide traverses from right to left the loops on the front needles 37, 39, 41, 43 and 34, 32, 30, 28 are transferred to the rear needles 19, 21, 23, 25 and 15, 13, 11 and 9. After the completion of two slide traverses the edge loops of both needle rows have thus each been transferred in the direction towards the middle for one loop division. Each of the needles 15 and 25 then holds three complete loops, as shown in Fig. 10, whereas the needles 7, 26, 17 and 35 are brought out of action. After the knitting has been kept up again with the needles arranged as shown in Fig. 10, the mode of procedure described above is repeated in accordance with the pattern. Fig. 11, which is self-explanatory, shows schematically the rows of loops of the ribbed ware narrowed on both edges. The numerals entered refer to the needles by which the respective loops have been formed.

I claim:

1. In a method of knitting narrowed selvedged goods, such as plain and ribbed goods in cam slide machines with loop transfer cam portions and relatively longitudinally shiftable flat bed halves collaterally guiding front and rear knitting needles the steps of shifting the front and rear needles transversely relatively to each other each time and then initiating the transfer of loops between said differently arranged needles in the end portion of traversing movement for effecting said transfer at the respective edge of the goods in course of being narrowed.

2. In a method of knitting narrowed selvedged ribbed goods in cam slide machines with loop transfer cam portions and relatively longitudinally shiftable flat bed halves collaterally guiding front and rear knitting needles the steps of shifting the front and rear needles transversely relatively to each other, after each of said shiftings of the needles initiating the transfer of loops between said differently arranged needles in the end portion of traversing movement for effecting said transfer at the respective edge of the goods in course of being narrowed, and working at said edge only with alternate collateral needles.

3. In a method of knitting narrowed selvedged goods, such as plain and ribbed goods in cam slide machines with loop transfer cam portions and relatively longitudinally shiftable flat bed halves collaterally guiding front and rear knitting needles the steps of shifting the front and rear needles transversely relatively to each other, and after each of said shiftings of the needles initiating the transfer of loops between said differently arranged needles in each end portion of traversing movement for effecting said transfer at both edges of the goods in course of being narrowed each by one loop.

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