F. CECKA.

METHOD OF MAKING SOCKS OR STOCKINGS.

APPLICATION FILED SEPT. 8, 1914.

1,219,252.

Patented Mar. 13, 1917.

2 SHEETS—SHEET 1.

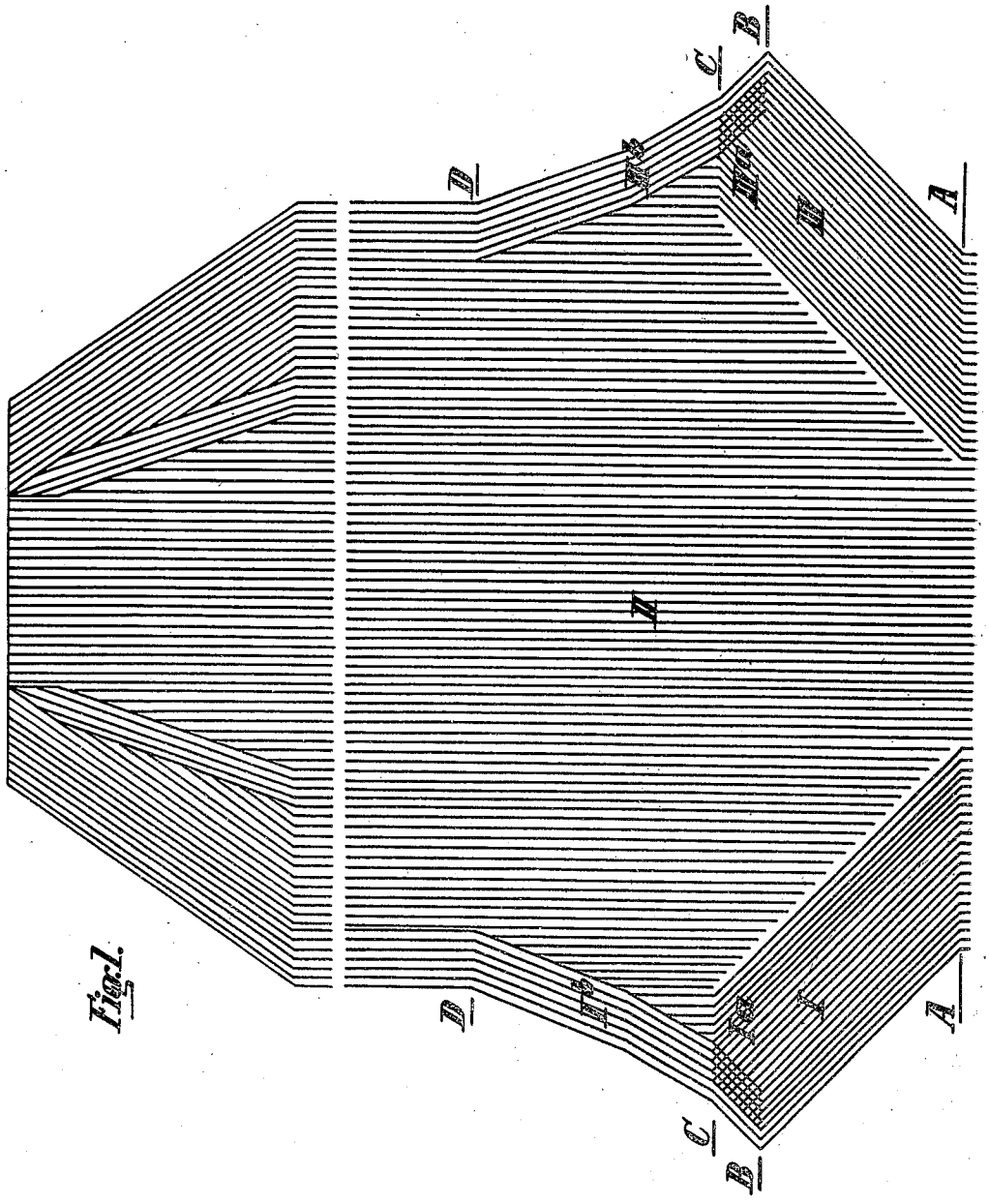


Fig. 1.

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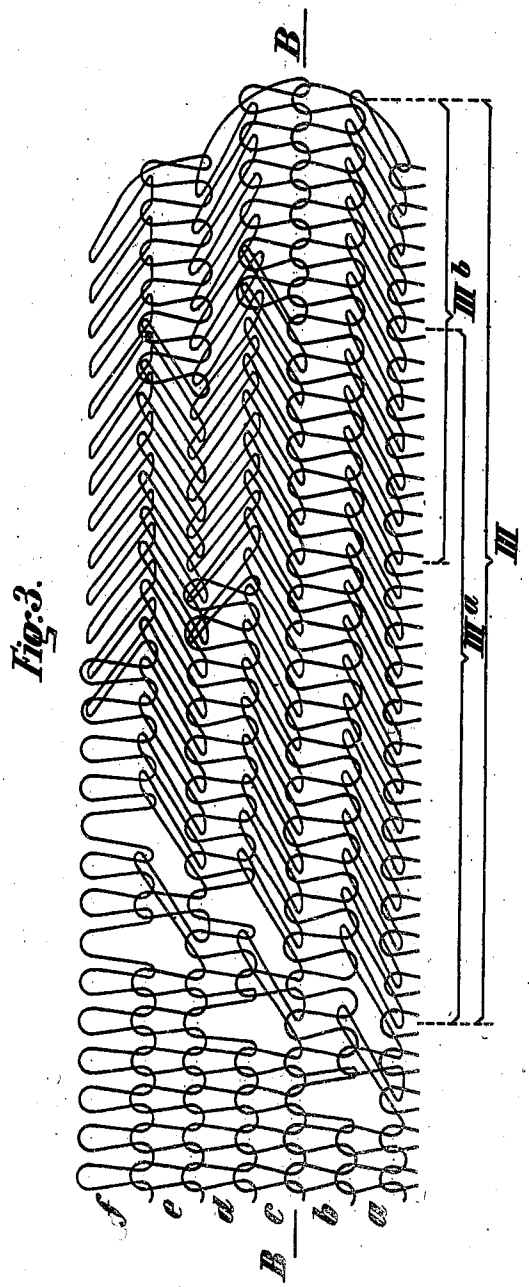


Fig. 3.

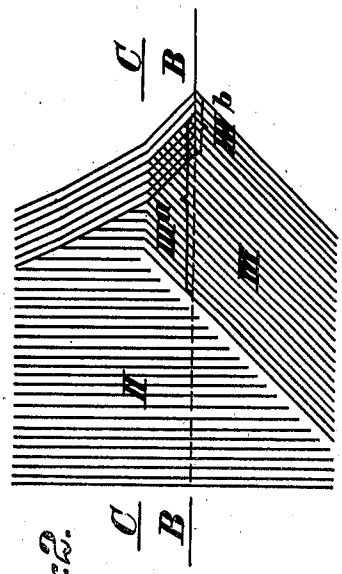


Fig. 2.

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UNITED STATES PATENT OFFICE.

FRANZ CECKA, OF CHEMNITZ, GERMANY, ASSIGNOR TO THE FIRM OF SCHUBERT & SALZER MASCHINENFABRIK, AKTIENGESELLSCHAFT, OF CHEMNITZ, GERMANY.

METHOD OF MAKING SOCKS OR STOCKINGS.

1,219,252. Specification of Letters Patent. Patented Mar. 13, 1917.

Application filed September 8, 1914. Serial No. 860,641.

To all whom it may concern:

Be it known that I, FRANZ CECKA, a citizen of the German Empire, residing at Chemnitz, in the Kingdom of Saxony, Germany, have invented certain new and useful Improvements in Methods of Making Socks or Stockings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in stockings or socks and in the method of making the same. The object of the improvements is to provide a method for making stockings or socks on flat hosiery frames in a single operation and without removing the work from the frame.

Heretofore in the manufacture of stockings or socks on flat hosiery frames the leg of the stocking or sock was first made and removed from the frame and brought on a special machine for making the foot. This was necessary, because otherwise it was not possible to make a heel of the proper form. In another method, after completing the leg the medial part of the needles was thrown out of operation, whereupon by means of two thread guides at first the heel was knit and finally the foot was completed.

The object of the present improvements is to provide a method by means of which a stocking having a heel of the proper form can be made in a single operation by means of a thread guide and without temporarily throwing a part of the needles out of operation.

In order that according to my improved method the heel can be made, the work must be broadened for which purpose a part of the row of loops is widened at each side of the blank. Thereafter for knitting the heel the blank must again be narrowed which narrowing operation must rapidly proceed, whereupon slow narrowing follows for passing over to the foot.

If the blank is at first widened, and thereafter narrowed, the form of the heel is not such as is usual and is obtained by the known knitting operation, but it is too short. When knitting a heel of the ordinary length the form of the stocking after sewing the blank together is not the usual one. In my improved method a stocking of the ordinary form is produced by starting the narrowing operation for making the cap during the last part of the widening operation, so that widening and narrowing is simultaneously performed on a part of the frame.

In order that my invention be more clearly understood an example embodying the same is illustrated in a diagrammatical way in the accompanying drawings, in which the same letters of reference have been used in all the views to indicate corresponding parts.

In said drawings—

Figure 1, is a diagrammatical view showing a part of the leg, the heel, foot and toe of the blank, the lines of the figure indicating the direction in which the loops are formed,

Fig. 2, is a similar view of a part of Fig. 1,

Fig. 3, is a view of the part illustrated in Fig. 2, and showing the loops.

Referring to the example illustrated after the leg portion of the blank has been completed to the line A—A, the loops are divided into three groups I, II, and III. In the medial group II knitting is continued in the same way, while the rows of loops of the group I are widened out to the left and the rows of loops of the group III are widened out to the right, so that the blank is gradually broadened. After the blank has thus been knit up to the line B—B, the groups I and III are again subdivided into groups I^a, I^b and III^a, III^b, and the groups I^a and III^a are farther widened out, while the groups I^b and III^b are narrowed. After the blank has thus been knitted to the line C—C, the loops of the groups I^a and III^a are added to the group II and knitting is continued in the said groups without narrowing or widening, while in the group I^b and III^b narrowing is continued to the line D—D. Thereafter the foot of the blank is knitted with uniform breadth, and finally the toe is made.

The part of the blank which is located between the lines B—B and C—C is made by simultaneously narrowing and widening the blank, which may be done in different ways.

As shown in Fig. 3 the group III com-

prises 25 loops which are divided in the row B—B into a sub-group III[a] comprising 19 loops and into a group III[b] comprising 13 loops. The loops of the group III[a] which are located at the right are within the space of the seven left hand loops of group III[b], and the said groups engage each other. As it is not possible at the same time to widen and narrow the said seven loops, the group III[a] is first widened, the seven loops of group III[b] being simultaneously widened, while the remaining six loops located at the right are unaffected, as appears from row *c*. In the next row of loops group III[b] is narrowed, seven loops of group III[a] being simultaneously narrowed, and the other ones being unaffected, as is shown in row *d*. In the same way the groups are alternately widened and narrowed, the number of the loops which are being widened being gradually reduced, so that the row being widened is always the same number of loops away from the margin, which number is four in the example shown in the figures.

In the example shown widening can take place only in the second, fourth, sixth, etc., rows, and the loops are widened over two needles.

For widening and narrowing a tickler of a corresponding breadth may be used. Within the section inclosed between lines A—A and B—B the tickler operates for example in such a way, that at first the group I is widened to the left, and thereafter group III to the right. After these widening operations knitting takes place. The tickler may also be constructed in two sections, so that at the same time one section widens group I to the left and group III to the right.

If widening takes place over two needles, this may be done in two widening operations over one needle, or in a single widening operation. The number of the widening and narrowing operations can be different.

In the example shown from row B—B widening and narrowing are alternately performed. Therefore widening and narrowing may be performed in such a way, that a tickler of sufficient breadth is used which narrows in group I[b] and widens in group III[a] in one operation, because both operations are performed in the same direction of movement, and in the next row group I[a] can be widened while group III[b] is simultaneously narrowed. The fact that the rows are offset from each other has no influence on the fabric itself. If desired widening and narrowing can at first be performed to the left and thereafter to the right, or the said operations are performed simultaneously on both sides by means of a single tickler.

The goods can be reinforced at suitable parts, which is done by any known or preferred method.

For widening and narrowing a single broad tickler or a tickler which is made in two sections may be used. In the former case widening at both sides on the part from A—A to line B—B must be performed in two operations, for which purpose group I is at first widened to the left, thereafter group III to the right, and finally knitting is performed. If the tickler is made in two sections, widening can be performed simultaneously at both sides.

The operation of the covering needles is regulated by means of a Jacquard pattern or by other suitable means.

I claim herein as my invention:

1. The method of knitting socks, stockings, and the like, which consists in knitting the leg, regularly knitting the inner set of loops to form a part of the foot, widening the outer sets of loops to form the heel, thereafter continuing the regular knitting of the part of the foot, widening a part of each of the outer sets of loops and simultaneously narrowing another part of each of the outer sets of loops, and finally completing the foot.

2. The method of knitting socks, stockings, and the like, which consists in knitting the leg, regularly knitting the inner set of loops to form a part of the foot, widening the outer sets of loops to form the heel, hanging loops for regular knitting on the portions being widened, thereafter continuing the regular knitting of the part of the foot, widening a part of each of the outer sets of loops and simultaneously narrowing another part of each of the outer sets of loops, and finally completing the foot.

3. The method of knitting socks, stockings, and the like, which consists in knitting the leg, regularly knitting the inner set of loops to form a part of the foot, widening the outer sets of loops to form the heel, thereafter continuing the regular knitting of the part of the foot, alternately in successive rows widening the inner and medial parts while regularly knitting the outer part of each of the outer sets of loops and regularly knitting said inner part while regularly knitting said medial and outer parts, the number of the loops of the inner part being gradually reduced as narrowing of the outer parts proceeds, and finally completing the foot.

4. The method of knitting socks, stockings, and the like, which consists in knitting the leg, regularly knitting the inner set of loops to form a part of the foot, widening the outer sets of loops to form the heel, thereafter continuing the regular knitting of the part of the foot, alternately in successive rows widening the inner and medial

part while regularly knitting the outer part of each of the outer sets of loops and regularly knitting said inner part while regularly knitting said medial and outer parts, the number of the loops of the inner part being gradually reduced as narrowing of the outer part proceeds, and narrowing and widening being performed a distance corresponding to the double distance of two adjacent loops, and finally completing the foot.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

FRANZ CECKA.

Witnesses:
T. E. STEGER,
M. ROTHE.