Aug. 13, 1935. A. HAUSMAN 2,011,538

METHOD OF FORMING A KNIT FABRIC

Filed Jan. 6, 1934

Fig. 1.

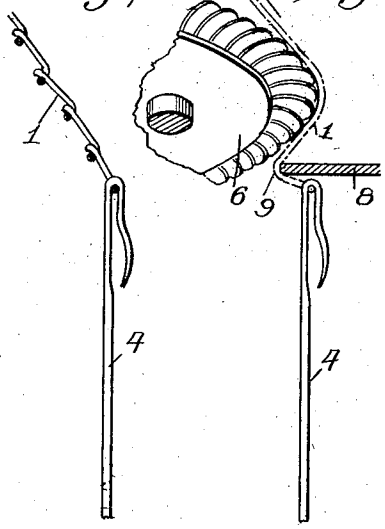


Fig. 2.

Fig. 3.

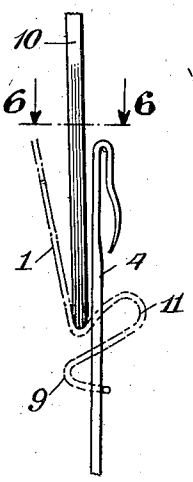


Fig. 4.

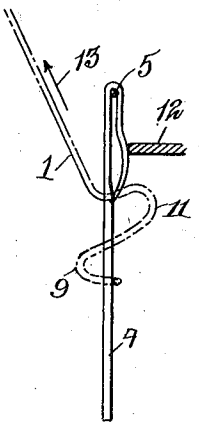


Fig. 5.

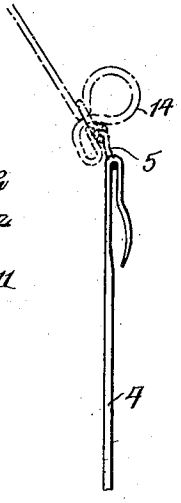


Fig. 6.

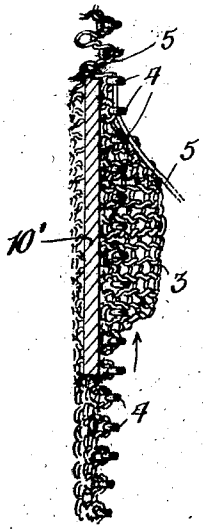


Fig. 8.

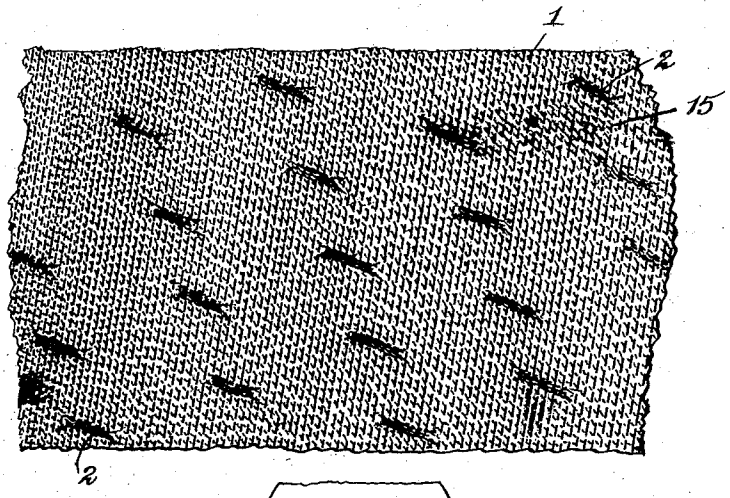
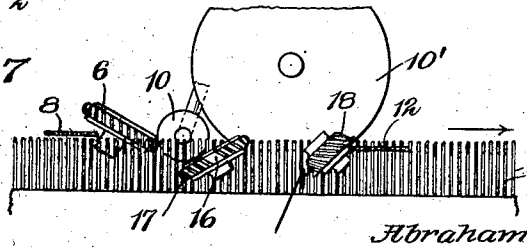


Fig. 7



WITNESSES

George Naylor

A. L. Ritchie

INVENTOR

Abraham Hausman

BY

Munn, Anderson, Starkey, Foster & Liddy

ATTORNEYS

Patented Aug. 13, 1935 2,011,538

UNITED STATES PATENT OFFICE

2,011,538

METHOD OF FORMING A KNIT FABRIC

Abraham Hausman, Brooklyn, N. Y., assignor to Hillcrest Mills, Inc., New York, N. Y., a corporation of New York

Application January 6, 1934, Serial No. 705,603

2 Claims. (Cl. 66—169)

This invention relates to an improved method of forming fabric wherein the usual knit fabric is presented, and in addition ornamental protuberances at desired points.

An object of the invention is to provide an improved method of forming protuberances on knit fabric at spaced points.

An additional object of the invention is to provide an improved method of forming a knitted fabric wherein the knitted body of the usual type is presented and at the same time folded over portions are provided to give different ornamental effects.

In the accompanying drawing—

Figure 1 is a fragmentary view showing one needle of a circular knitting machine with part of a piece of the fabric associated therewith;

Figure 2 shows the arrangement of the needle and fabric as illustrated in Figure 1, and in addition certain other mechanism of a knitting machine for producing a folded over condition of the fabric;

Figure 3 is a view of part of the machine shown in Figure 2, but illustrating the next step in the formation of the fabric;

Figure 4 is a view similar to Figure 3 but showing a further step in the formation of the fabric;

Figure 5 is a view similar to Figure 4 but showing an additional or final step in the formation of the fabric;

Figure 6 is a sectional view through Figure 3 substantially on the line 6—6 illustrating how a holding yarn is knitted in to maintain certain folds or protuberances in place;

Figure 7 is a fragmentary side view of the machine indicated in Figures 1 to 5, showing the groups of wheels and other attachments used in forming the fabric;

Figure 8 is a plan view of a piece of fabric constructed according to the present invention.

Referring to the accompanying drawing by numerals, 1 indicates a piece of fabric which is knitted on a well known circular machine, the body of the fabric being of the usual knit structure now well known. However, at desired points there are provided folds or protuberances 2 which are formed according to the present invention. In forming the members 2 a portion 3 of the fabric 15 as shown in Figure 6 is folded over and then the various needles 4 are caused to pass through this folded over portion while in folded over position as clearly illustrated in Figure 3. A yarn 5 is then knitted in which locks the portion 3 so that the finished product will remain as shown in Figure 8 with protuberances 2 scattered over the fabric but in regular order.

In knitting the fabric 1 the same is knit on a circular knitting machine now in common use provided with a number of needles 4, as shown in Figures 1 to 7, and the fabric 1 extends upwardly from the needles. This fabric kept under some desirable tension. After a certain amount of the fabric has been knitted and it is desired to produce one of the protuberances 2, the wheel 6 is caused to hold the fabric as shown in Figure 2. The auxiliary cam 8 is new and coacts with the wheel 6 which is also new, so as to force the fabric into position 9. As the fabric leaves the wheel 6 and cam 8 a second new wheel 10 comes into use and engages the fabric 1 forcing the same downwardly as shown in Figure 3, whereby the portion 9 will remain substantially in its original position, but the loop 11 will be projected. It will be noticed that the loop 11 and portion 9 and the parts engaged by wheel 10 are all knit completely, and consequently when these parts are forced downwardly the needles 4 protrude through the complete fabric as shown in Figure 6.

As shown in Figure 7 the wheel 10 is spaced a short distance from wheel 10', which latter wheel is old and in common use. It will be understood that the fabric 1 and the needles 4 all rotate at the same speed, so that when the fabric leaves wheel 10 it begins to be moved upwardly, and all the fabric will move upwardly except those portions opposite the open space 16 on wheel 17. The size of the open space 16 determines the length of the section 3 or the protuberance 2. As the fabric passes the wheel 16 the part which is still protruding, namely, part 3, will be held down by wheel 10', and immediately before the parts leave wheel 10' the yarn 5 will be caught by the needles 4 during the regular knitting operation as the wheel 18 functions, said wheel 18 being old and well known. As the parts leave the wheel 10' the cam 12 closes the eyes of the needles so that after the yarn 5 has been positioned as shown in Figure 4, the fabric may be pulled upwardly as indicated by the arrow 13.

When in its extreme upper position there is presented a small loop 14 which is the same as the portion 3 or the protuberance 2 except that it is on an enlarged scale. This loop does not remain in its position but is flattened down by reason of the tension on the parts, so that it looks like a short ridge, as indicated in Figure 2. The machine then continues to complete the fabric in the usual way so as to form the body 15. It

will therefore be seen that in forming the fabric 1, the body is knit in the usual manner and at certain intervals mechanism pushes down small batches of the knit fabric over certain of the needles and then a yarn is knit into these batches so as to hold them permanently in place. In this way when a yarn is knitted into these batches or looped over portions, a construction is presented at the bases of the looped over portions which will act as a retaining seam to hold the parts in their folded over position when the fabric has been completed. In a single knitting machine a number of the devices shown in Figures 1 to 5 may be used according to the size of the machine, and a number of protuberances 2 as desired formed in the fabric. It will be noted that the fabric is knit throughout and the protuberances are formed before the fabric leaves the machine but after the fabric has been knit. It will be evident that a large folded portion or a small folded over portion may be provided as shown in Figure 6 without departing from the spirit of the invention.

As indicated in Figure 7 there is one complete group which is adapted at certain intervals to form a protuberance 2. In many machines there would be a large number of these groups as, for instance, ten groups to one machine, and consequently there would be as many protuberances 2 for each revolution as there are groups. It is evident that a larger or smaller number might be used without departing from the spirit of the invention, and the protuberances could be spaced closer together or further apart.

I claim:

1. The method of forming a fabric having a knit body and a number of ornamental protuberances thereon, consisting in knitting said body for a certain distance, looping short sections of said knit body over certain of the needles of the knitting machine, knitting a yarn through the base of said looped over portions, and then knitting said body in the regular manner.

2. The method of forming a knit fabric, comprising the knitting of the body on a well-known knitting machine with loops in the usual manner, folding spaced portions of the knit fabric over the needles of the machine, and then continuing the knitting operation so that certain loops of yarn will extend through said folded spaced portions at their bases so as to act as retaining seams.

ABRAHAM HAUSMAN.