

Jan. 26, 1932.

C. W. STOUT

1,843,100

KNITTED ARTICLE AND METHOD OF MAKING SAME

Filed May 24, 1930

4 Sheets-Sheet 1

Fig. 1.

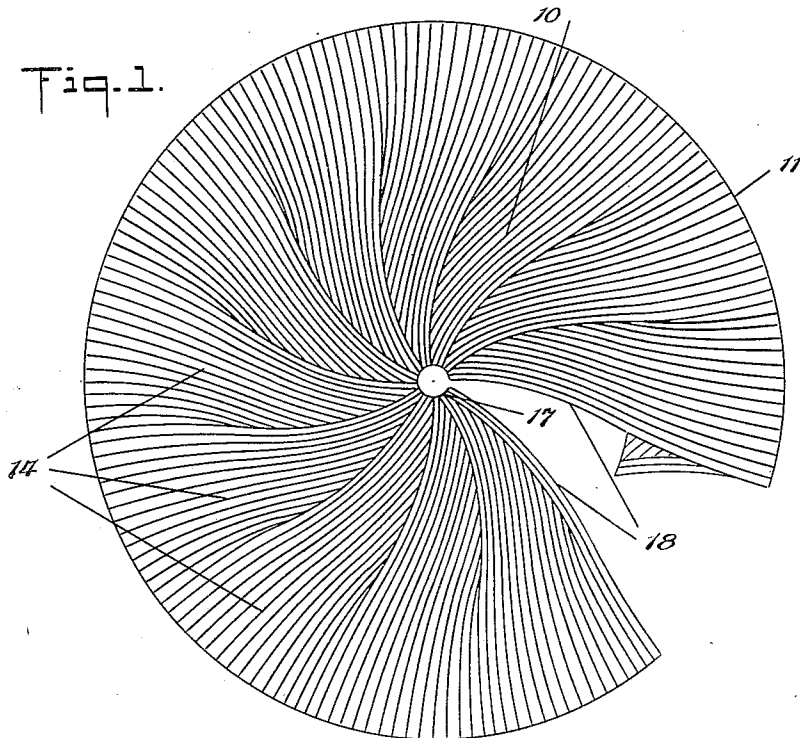
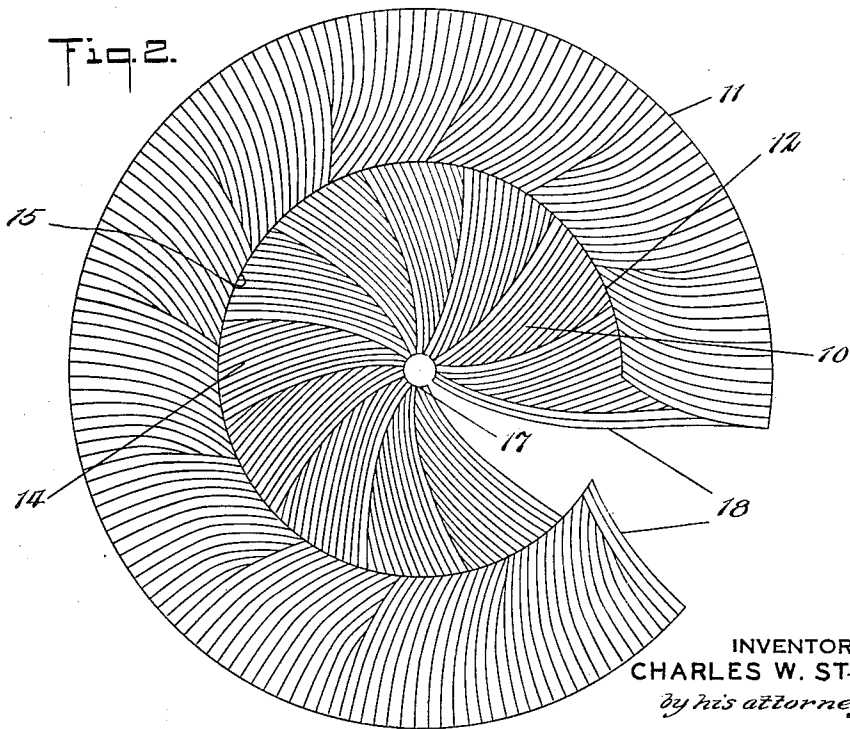


Fig. 2.



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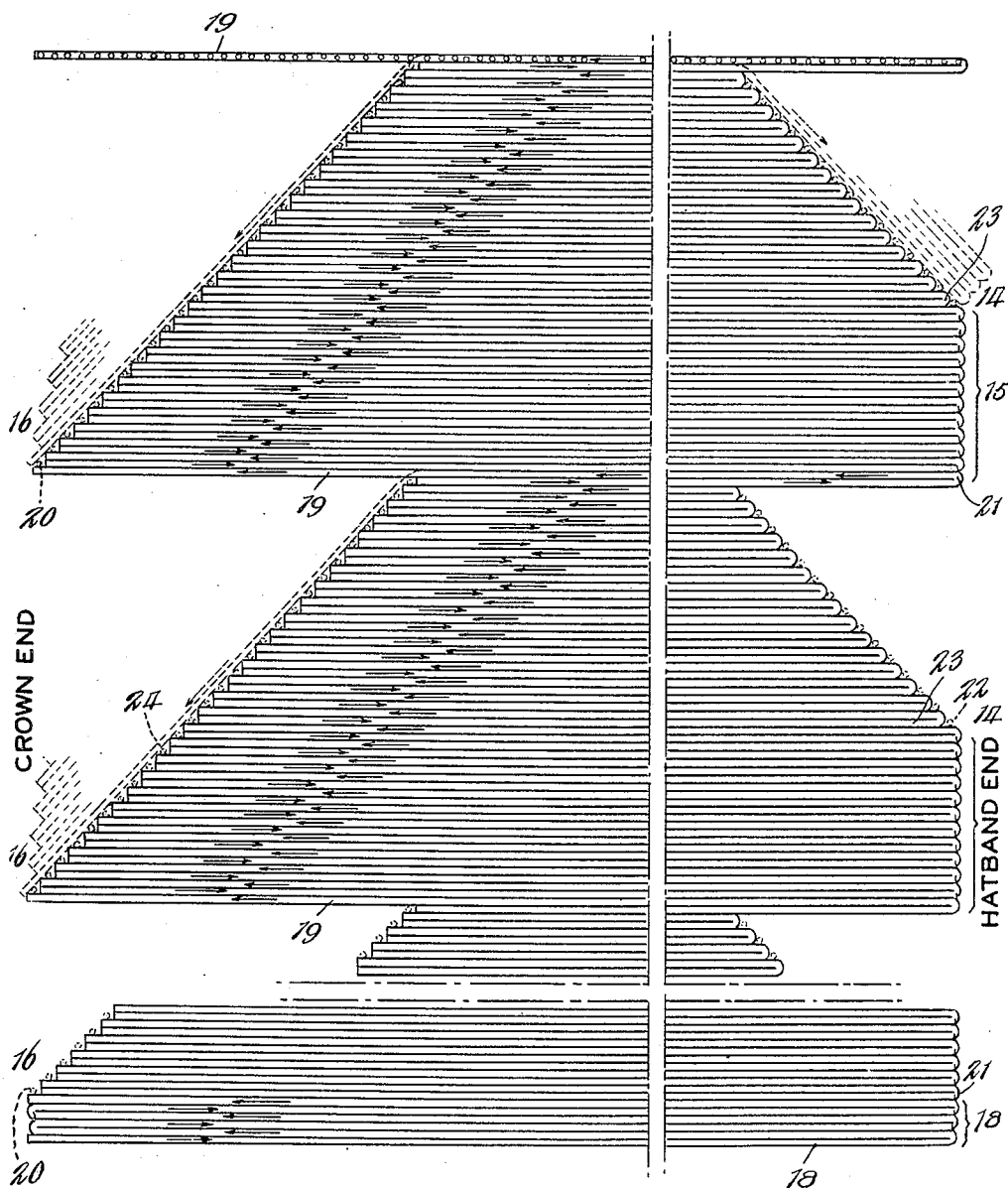


Fig. 3.

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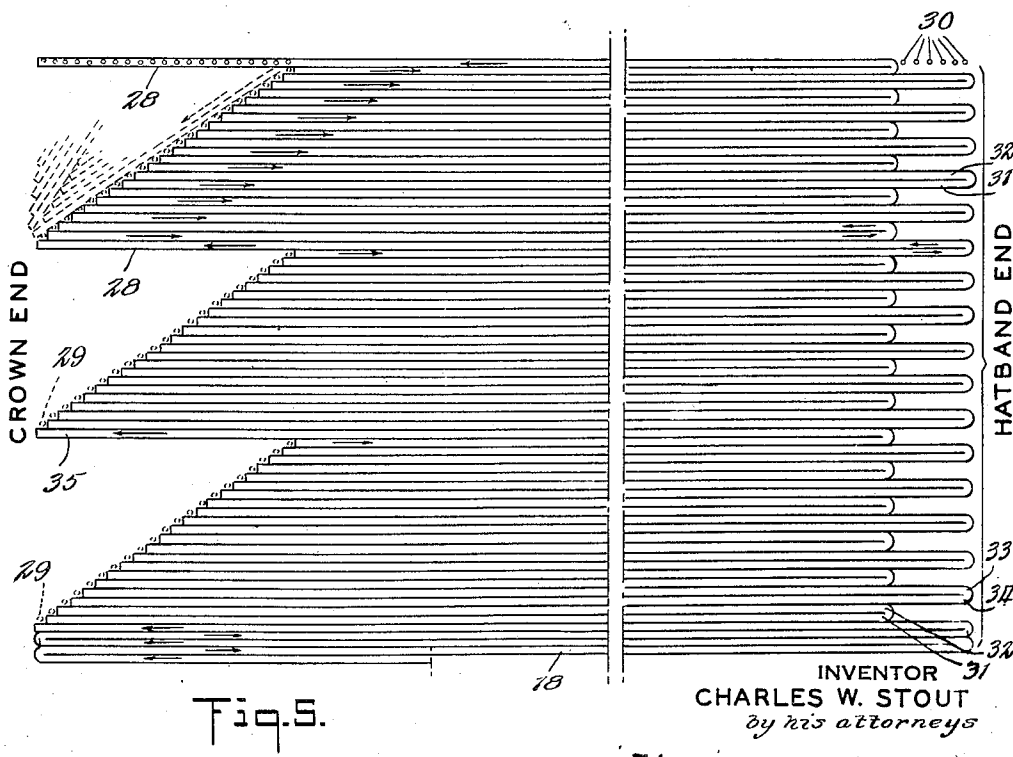
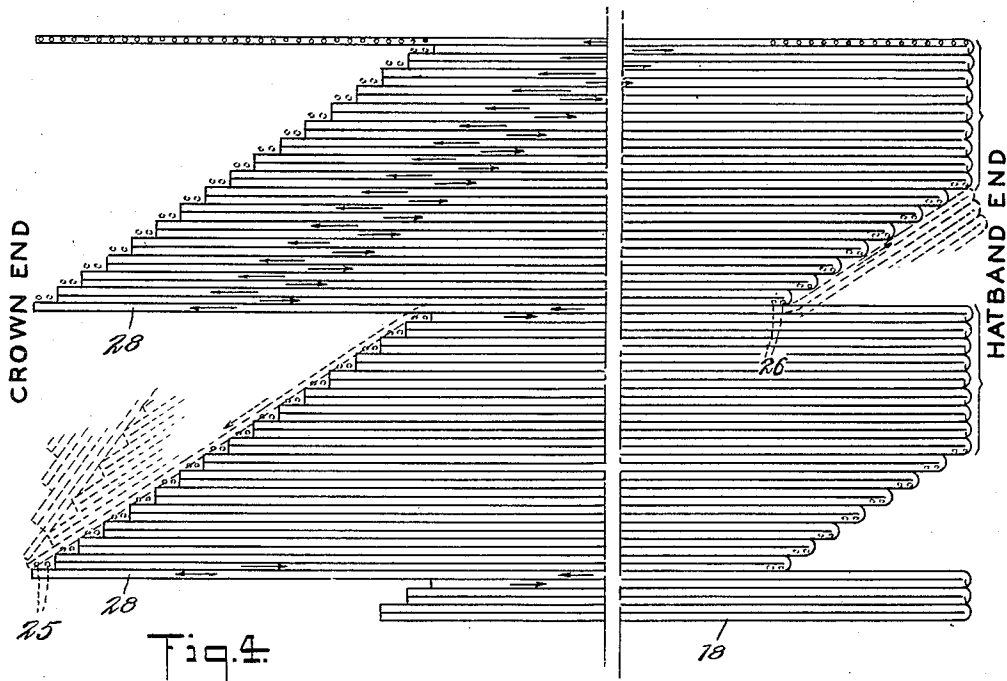
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4 Sheets-Sheet 3



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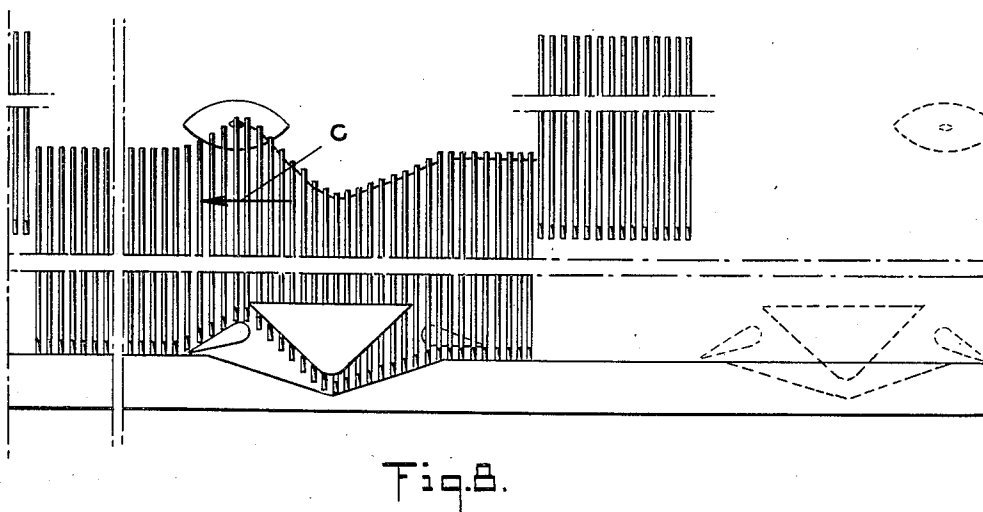
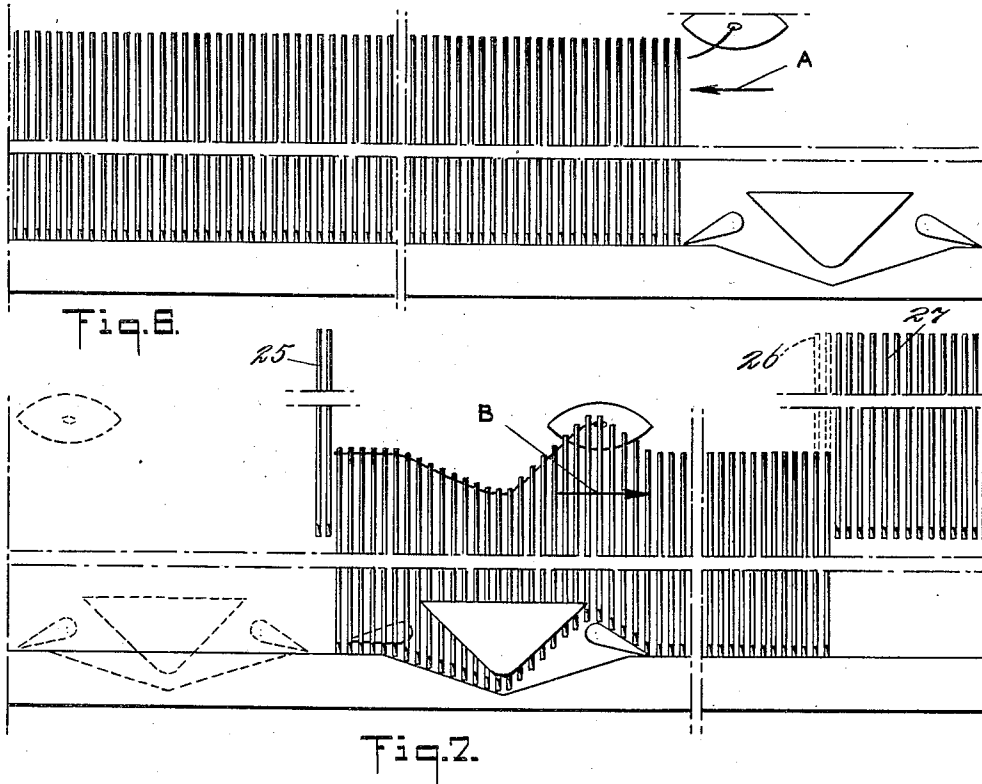
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KNITTED ARTICLE AND METHOD OF MAKING SAME

Filed May 24, 1930

4 Sheets-Sheet 4



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# UNITED STATES PATENT OFFICE

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## KNITTED ARTICLE AND METHOD OF MAKING SAME

Application filed May 24, 1930. Serial No. 455,393.

This invention relates to knitted articles, such as béret caps, and the method of making same. One object of the invention is the economic production of a béret cap by knitting a plurality of similarly shaped segments or gores in integral succession to form the entire cap with a selvedge for the hatband. According to the invention the segments are knit by reciprocatory knitting and the two ends of each segment are tapered dissimilarly to provide the hatband and the necessary difference in length from the crown of the cap to the point of maximum diameter and from the maximum diameter to the hatband.

In the drawings Fig. 1 is a plan view of a béret cap before being seamed up made in accordance with my invention;

Fig. 2 is a bottom view of the cap shown in Fig. 1;

Fig. 3 is a schematic representation of one method of manipulating the courses and needles in successive segments of a cap in accordance with the invention, the knitting progressing from bottom to top of the figure.

Fig. 4 is a view similar to Fig. 3 showing the manner of knitting courses in a cap according to Figs. 1 and 2;

Fig. 5 is a view similar to Figs. 3 and 4 showing a third method of knitting my novel cap;

Figs. 6, 7 and 8 are developments of part of the needle circle of a circular hand knitting machine, at various points in knitting a cap in accordance with Figs. 1 and 4: Fig. 6 showing the yarn guide and knitting cams about to begin a course in the direction of the arrow A on all the needles, Fig. 7 showing the machine beginning the course in the direction of arrow B which is the first partial course of a gore made according to the method of Figs. 1 and 4, while Fig. 8 shows the machine beginning the next course in the direction of the arrow C toward the hatband.

One of the difficulties of knitting béret caps has heretofore been the expense and labor of obtaining segments of the proper shape and joining them together. According to my invention the segments are knit in integral suc-

cession, of the proper shape and completely joined together in a process of reciprocatory knitting which leaves a selvedge edge for the hatband and only requires the looping together of the first and last courses of the cap and the single loops at the crown.

Referring now to the drawings, I shall first describe the cap. The cap is of the usual shape, namely a crown 10 from which the cloth radiates to the maximum diameter 11 of the article and a comparatively short portion contracting therefrom to the hatband 12. The cap is composed of a plurality of segments or gores 14 each tapered at both ends and interknit with its neighbors from one end to the other. I prefer to taper each end of a gore at one side only. I make the widest part of each gore—which corresponds to the maximum diameter 11 of the cap—much nearer the hatband end than the crown. This aids in giving the correct shape to the hat. I also make the taper at the hatband end shorter and make this end 15 very blunt instead of a point, the blunt ends of all the gores constituting the hatband 12 of the cap. The gores are knit in such manner that the ends 15 are selvedge edges. The crown end 16 of each gore is tapered to a point each consisting of a single loop. These loops form a small opening 17 in the finished hat which can be used to fasten in a tassel or other ornament. The first and last gores are knit with loopers courses 18 in order that they may be looped together after the knitting is completed.

There are three methods of knitting the cap shown in the drawings, and I shall first explain the method shown in Fig. 3. As already mentioned, the cap is knit throughout by reciprocatory knitting and in the process of knitting according to my methods the gores are shaped completely joined to their neighbors. The method shown in Fig. 3 is particularly suited for a circular knitting machine, that of Fig. 4 for either a circular or flat knitting machine and that of Fig. 5 for a flat knitting machine. Figs. 6, 7 and 8 further illustrate the methods applied to a circular hand knitting machine and are merely to show basic principles of the meth-

ods. For the sake of clarity a single row of stitches will hereafter be termed a "course" and the full course of stitches joining two gores together will be termed a cast-off course. It will be obvious that the machine can be arranged to begin the knitting at either the crown end 16 or the hatband end 15 but once it has been decided which end of the machine is to be the crown end and in which direction the gores are to be knit the direction of the cast-off course 19 is also determined. This cast-off course—not the loopers courses 18—should begin at the hatband end 15 and run to the crown end 16 in the examples shown in the drawings,—assuming that the knitting is proceeding from the bottom to the top of each figure. If it were knit the other way the formation at the end of certain courses would not be satisfactory. The little arrows in the drawings indicate the direction of knitting.

Beginning at the bottom of Fig. 3, where the knitting begins six loopers courses 18 are made on all the needles, the knitting ending at the crown end. At the beginning of the last looper course the needles and cams are in the position shown in Fig. 6. These courses are later used to unite the first gore to the last gore. The taper at the crown end of the gore is then begun by first raising out of action the end needle 20 at the crown end. A course 21 is then knit from crown to hatband taking in all the needles at the hatband end. A return course to the crown is knit on the same group of needles after which the active needle adjacent needle 20 is raised out of action and two more courses knit—one from crown to hatband and another back again. These operations continue until the desired length of selvage 15 for the hatband has been knit. In Fig. 3 the two whole gores 14 show 24 courses, i. e., 12 reciprocations including one course on all the needles in the selvage 15. The description of this method from this point on can best be seen in the middle gore of Fig. 3. At the completion of these 24 courses eleven needles are out of action and the last course was toward the crown end. Before beginning the next course another needle is lifted out of action at the crown end as heretofore, and the narrowing at the hatband is begun by lifting out the end needle 22. As a result the course 23 knit thereafter is shorter at both ends than its predecessor. The return course from hatband to crown is knit without lifting any more needles out of action. These operations continue until 15 double courses shortened at both ends have been knit and the desired amount of taper has been obtained at both the hatband and crown ends. Before knitting the next course towards the hatband the usual narrowing can be made at the crown end and all the 15 idle needles at the hatband end are thrown into action as a group. This

brings the knitting back in line with the blunt end 15 of the gore and picks up all the stitches on the hatband taper. The next course is the so-called cast-off course 19. Before it is knit all the 27 idle needles at the crown end are brought down into action thus making the cast-off course a full one, i. e. on all the needles. This finishes the gore and leaves the machine ready to raise the needle 20 and knit the course 21 of the next gore. The actual relation of the cast-off course to the taper at the crown is indicated by the dotted line 24.

When the final gore has been finished and the cast-off course knit some loopers courses are knit on the cast-off course. The loopers courses on the first and last gores are then looped together and the single loops form the opening 17 for the tassel.

In the second method of knitting the cap there are two respects in which the manipulations have been changed. In the first place the tapering at both the crown and hatband ends is accomplished two needles at a time. In the second place the taper of the hatband begins with the taper of the crown rather than after the selvage blunt end for the hatband has been made. Thus the blunt hatband end is opposite the shorter portion of the crown taper. Stated in another way, the crown and hatband tapers are no longer opposed, one increasing and the other decreasing the amount of active needles simultaneously. Assuming that the loopers courses attached to the first gore are being knit and that the last full course is about to begin, the machine is in the position shown in Fig. 6. When this course 28—which goes from the hatband toward the crown—has been knit, the two needles 25 at the crown end, and the two needles 26 and the fourteen needles 27 at the hatband end are raised out of action (see Fig. 7). The machine then proceeds to knit a course as shown in Fig. 7 (the dotted position of the yarn feed and cams shows their relation to the needles at the completion of the previous course). This course differs from the corresponding course following the cast-off course 28 made at the end of each gore when using this method, in that it contains two less stitches. This difference is due to the fact that it is mechanically convenient to drop the two needles 26 into action at the hatband end before beginning the first course after a cast-off course. This is not mechanically necessary at the beginning of the first gore. The second course after the first full course corresponding to the cast-off courses 28 is made by manipulating the needles and cams as shown in Fig. 8 of the drawings. When this course has been finished two needles are raised out of action at the crown end and simultaneously two are lowered into action at the hatband end. Two more courses are then knit and two more

needles raised out of action at the crown and two more lowered into action at the hat band, this cycle of operation continuing until all the needles are in action at the hatband. The selvedge is then made while continuing the last needles out of action at the crown end at the same rate, and the example shown in the drawings nine double courses are in the selvedge and thirty-two needles are out of action at the crown end when the cast-off course 28 is made.

The third method is that illustrated in Fig. 5 and is more particularly adapted to employment on flat knitting machines. It differs from both previous methods in that the contraction from the maximum diameter to the hatband is accomplished in a fewer number of wales. By referring to Fig. 3 it will be seen that the hatband taper is obtained in a somewhat different manner. According to this method alternate courses from the crown to the hatband and the return course of the same length are six courses shorter than the adjacent pair of courses on each side. By thus making alternate pairs of courses short and long at the hatband end the total number of stitches in the six end wales is cut in half and the necessary shaping obtained.

Referring specifically to Fig. 5, after the loopers courses are completed with the knitting ending at the crown one needle 29 is thrown up at the crown and six needles 30 are thrown up at the hatband and then a course 31 knit on the remaining needles. Before the return course 32 toward the crown is made another needle is raised at the crown end. After this pair of short hatband courses is completed a pair of long courses 33, 34 is knit continuing raising one needle at the crown end after each oscillation, i. e. each course. In the example shown in Fig. 5 the crown is shortened 20 courses before the gore is ended by a cast-off course 35. These cast-off courses differ from those in the two previous examples in that at the hatband end they are six stitches short and taken with the preceding course form a short pair. Thus the selvedge of the entire cap is produced from a continuous alternation of long and short pairs. In the example shown in the drawings a number of courses in the gores are so arranged that alternate cast-off courses are long but this is immaterial since the selvedge is the continuous alteration of long and short pairs already mentioned.

It will be obvious that my invention provides a simple and economic method of producing a knitted article such as a cap by reciprocating knitting, it being possible to shape the cap and knit the gores together in the regular process of knitting and have selvedge edges for the hatband and selvedge loops for the crown.

In my co-pending application for patent Ser. No. 471,457, filed July 29, 1930, I have

shown and described a machine in which my above-described method may be carried out and the product made.

Many modifications will occur to those skilled in the art which do not depart from the scope of my invention.

What I claim is:

1. A knitted article comprising a plurality of segments converging to a point at one end and tapered to a blunt end at the other, said segments being interknit from blunt end to point.

2. A knitted article comprising a plurality of segments tapered to a point at one end and tapered to a blunt end at the other, said segments being interknit from blunt end to point, the taper at the blunt end being shorter than at the pointed end.

3. A knitted cap comprising a plurality of tapered segments, the crown ends of the segments being tapered substantially to a point and the hat band ends converging to blunt ends which constitute the hat band, said segments being interknit from point to blunt end.

4. A knitted cap comprising a plurality of tapered segments, the crown ends of the segments being tapered substantially to a point and the hat band ends converging to blunt selvedge ends, said segments being interknit from point to blunt end.

5. A knitted cap comprising a plurality of segments, each course in each segment being varied in length from its neighbor at one end but a plurality of the courses being of the maximum length at the other end, said maximum length ends being interknit to form a selvedge at the hat band end of the cap.

6. A process for knitting caps of a plurality of integral segments comprising the steps of knitting a plurality of courses by reciprocating knitting, adding to one end of the group of active needles and subtracting from the other end, forming a selvedge on the end added to by continuing the subtraction after the adding has stopped, always keeping the stitches on needles thrown out of action, and subsequently throwing the idle needles back into action as a group and throwing the added needles out of action as a group and beginning another segment in integral succession.

7. A knitted cap comprising a plurality of segments tapered at both ends and interknit from end to end, one end of each segment being located at the crown of the cap and the taper at the other end of each segment being shorter than the taper at the crown end.

8. A knitted cap comprising a plurality of segments tapered to a point at one end and containing at the other end a plurality of courses less in number than the maximum number of courses in the segments, the maximum number of wales in each segment extending nearer said blunt end than said

pointed end and said segments being interknit throughout their length.

9. A process for knitting caps of a plurality of integral segments, comprising the steps of knitting reciprocatingly a plurality of courses on a group of needles varied at both ends to produce a segment tapered substantially to a point at one end and tapered to produce a blunt portion at the other end, holding on any needles thrown out of action the stitches last formed thereon and subsequently knitting such stitches to the courses of an adjacent tapered segment.

10. A knitted cap comprising a plurality of tapered segments interknit along their entire sides, the crown ends of the segments being tapered substantially to a point, the hat band ends of the segments being tapered to blunt selvedge ends and the maximum number of wales in each segment extending nearer the hat band ends than the crown ends.

In testimony whereof I have signed my name to this specification.

CHARLES WILSON STOUT.