

No. 686.956

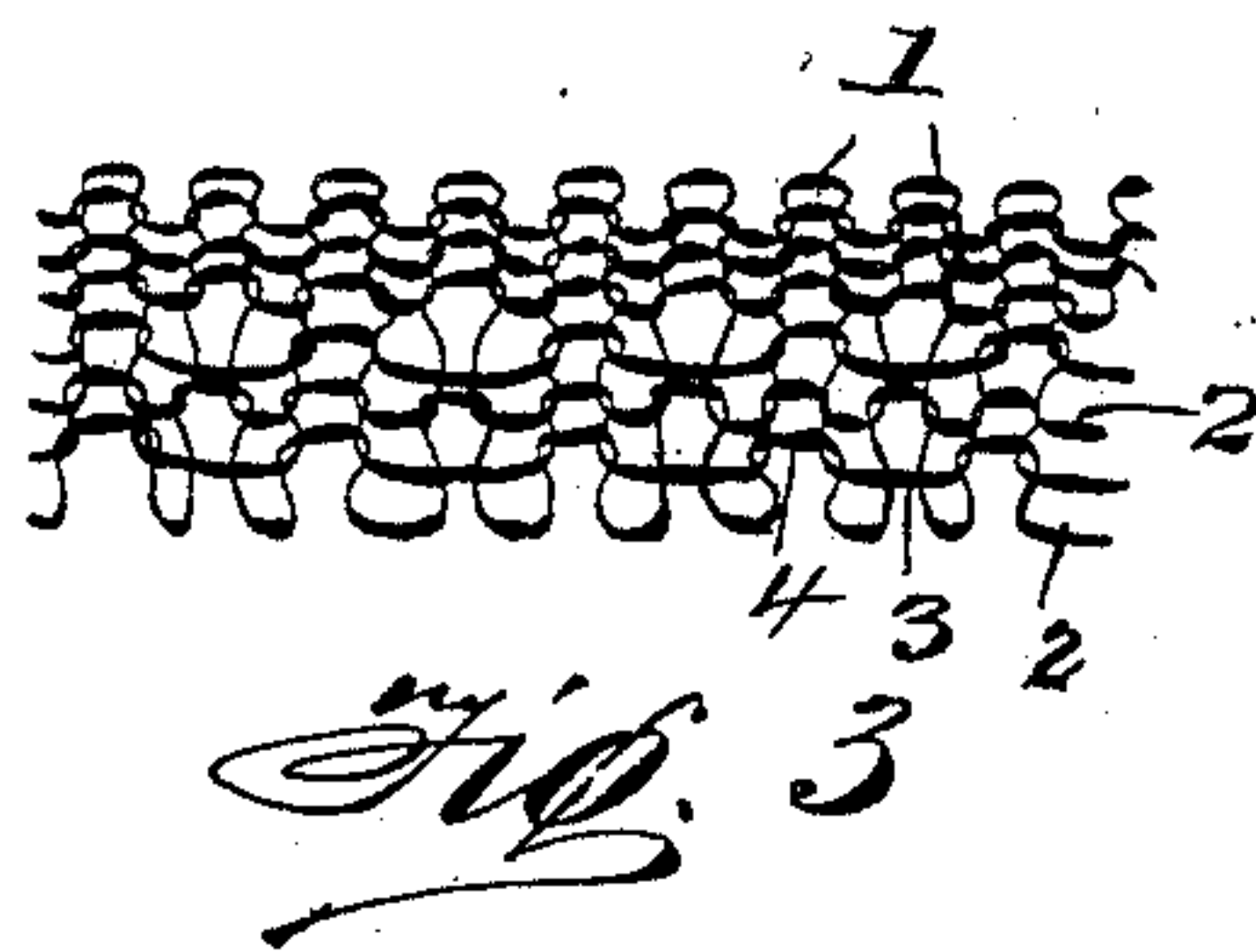
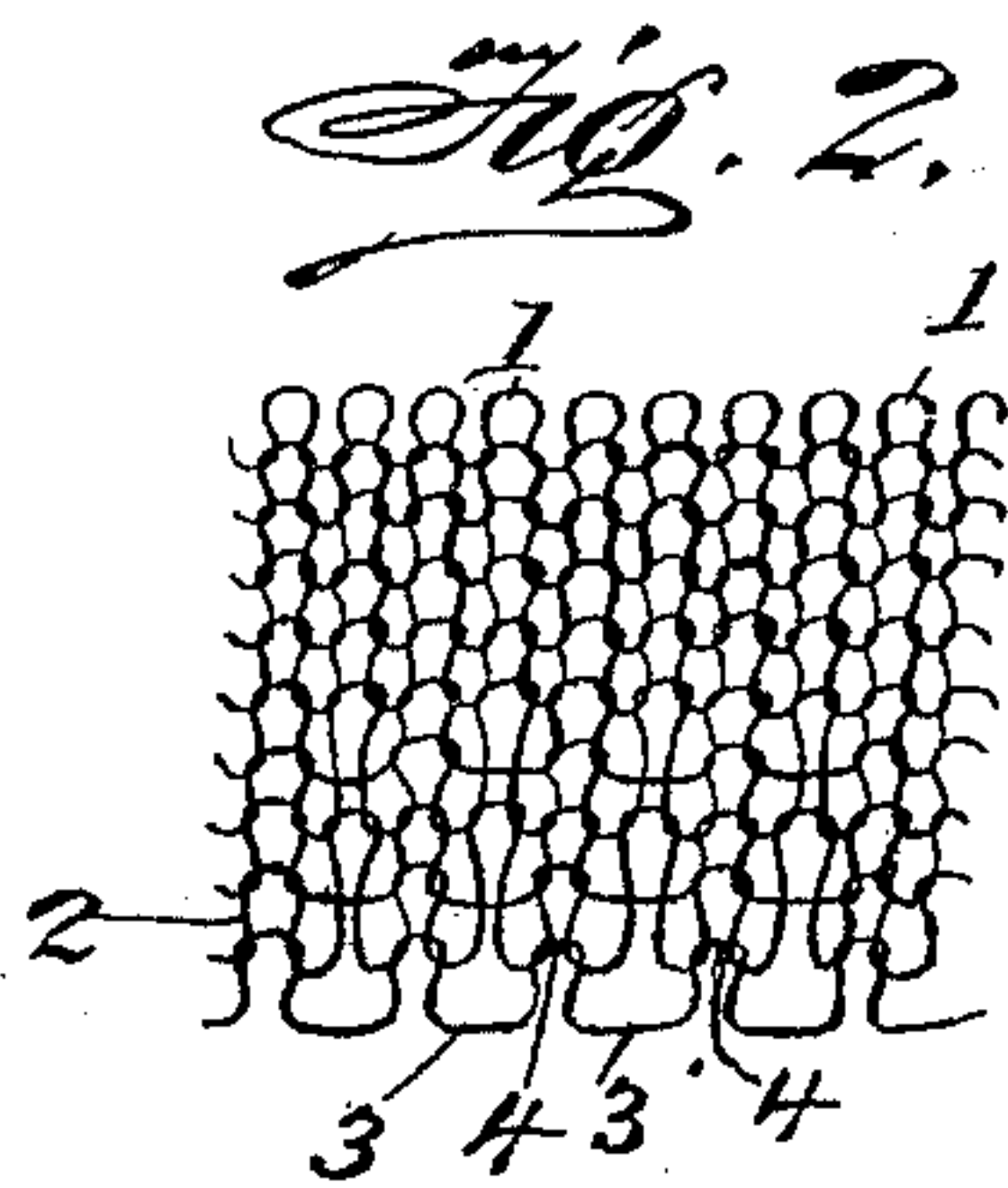
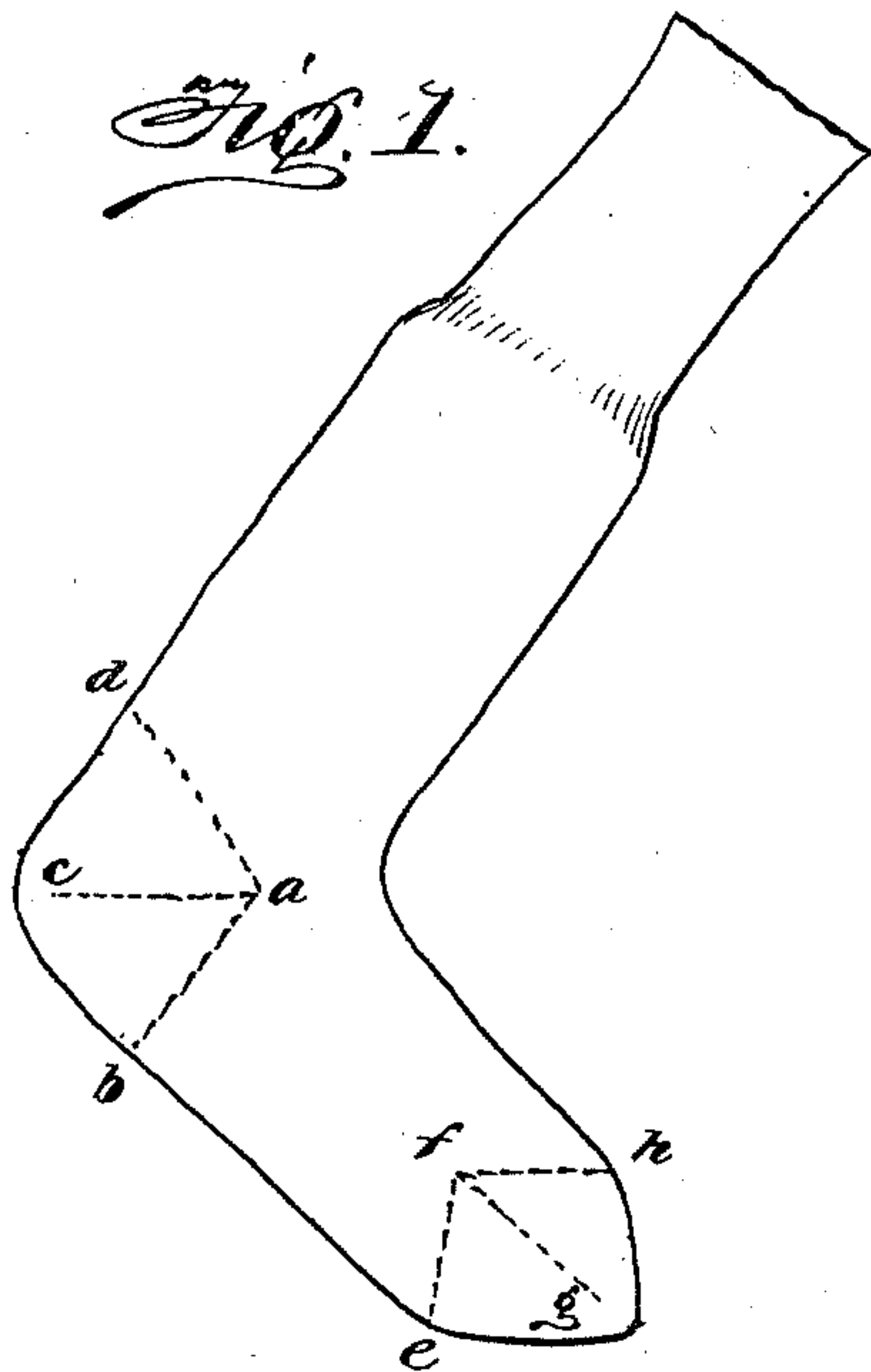
Patented Nov. 19, 1901.

B. T. STEBER.
STOCKING.

(Application filed Mar. 23, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses
E. S. Galt
A. L. Sims,

Inventor
Bernard T. Steber

By
Mason Francis Lawrence,

Attorneys

No. 686,956.

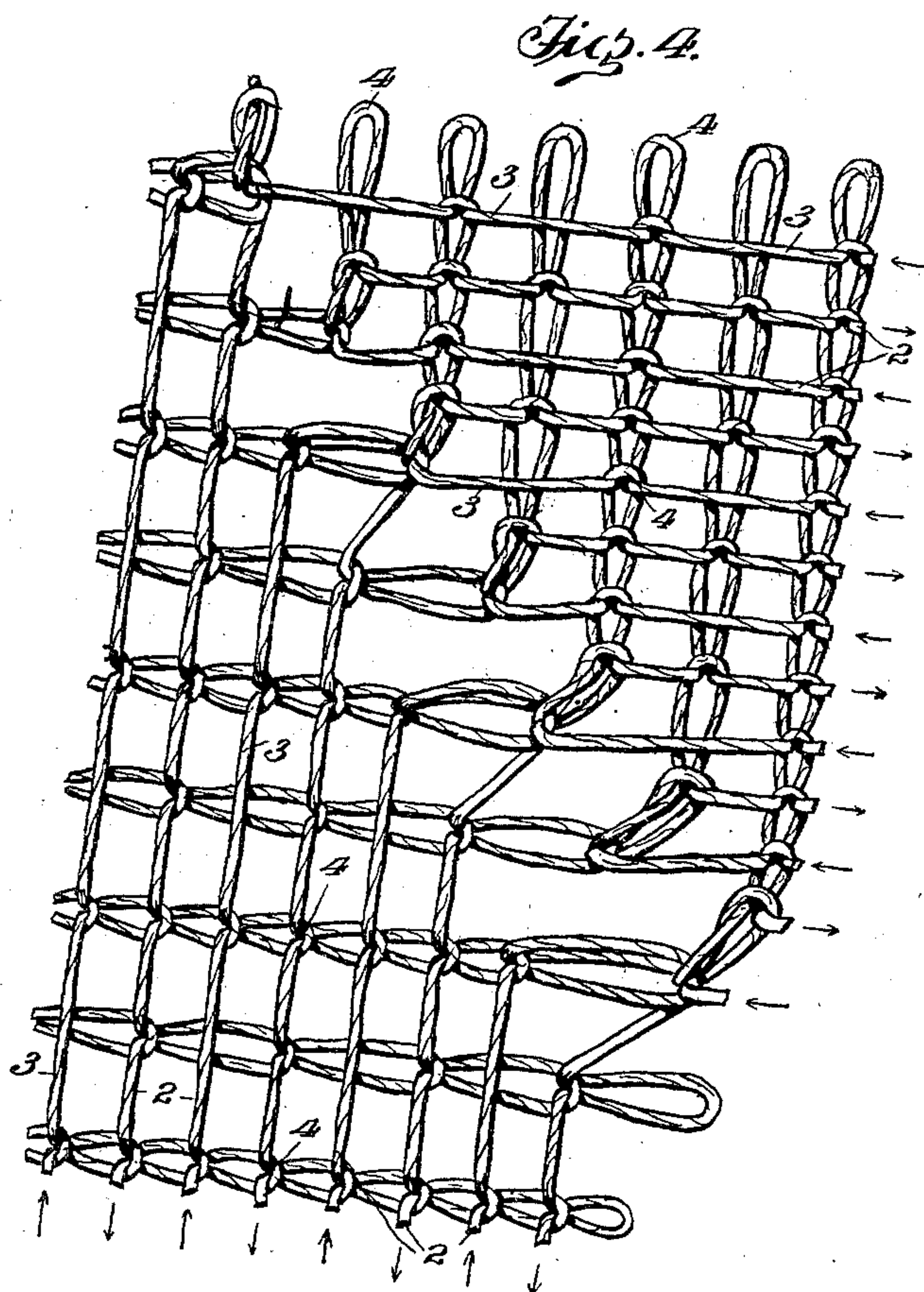
Patented Nov. 19, 1901.

B. T. STEBER.
STOCKING.

(Application filed Mar. 23, 1901.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses
L. G. Handy
Everance

Inventor
Bernard T. Steber,
By
Mason, Merrick & Lawrence,
Attorneys

UNITED STATES PATENT OFFICE.

BERNARD T. STEBER, OF UTICA, NEW YORK.

STOCKING.

SPECIFICATION forming part of Letters Patent No. 686,956, dated November 19, 1901.

Application filed March 23, 1901. Serial No. 52,600. (No specimens.)

To all whom it may concern:

Be it known that I, BERNARD T. STEBER, a citizen of the United States, residing at Utica, in the county of Oneida and State of New York, have invented certain new and useful Improvements in 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.

My invention relates to improvements in stockings, socks, or like fabrics, and has particular reference to the manner of knitting certain portions of the said fabric.

It consists in a conical fabric formed of triangular sections knitted with a tuck-stitch, having loops extending on one side and stitches drawn on the other side, said triangular sections being connected together along two of their edges at every course to form a completed cone-shaped fabric.

It further consists in certain other novel constructions, combinations, and arrangements of parts, as will be fully described herein-after.

In the accompanying drawings, Figure 1 is a side elevation of a stocking with the cone-shaped toe and heel portions indicated thereon. Fig. 2 is an elongated diagrammatical view of the knitting-stitches used in the formation of such a fabric. Fig. 3 is a reversed view of the same, showing the way the stitches appear from the back of the fabric. Fig. 4 is a detail view showing, on an enlarged scale, the loops by which the triangular sections are joined, together with some of the neighboring fabric.

This invention is designed to make possible the production of stockings, socks, or like fabrics which shall have heels and toes knitted in a different manner from the remainder of the fabric for producing a firm and well-wearing fabric at these points. I contemplate forming all the other portions of the stocking or sock save the heel and toe with a common flat stitch or a rib-stitch or any other that may be desired; but when the heel or toe is reached I change whatever stitch is being used to what is called the "lock-stitch," or one which is formed by knitting all the working needles in one direction and then working every alternate needle in the reverse

direction, and so on until the conical fabric comprising the heel or toe shall have been completed. By this means I am enabled to produce a very desirable and strongly-knitted heel or toe from a single thread and one which cannot feel uncomfortable to the wearer, as one knitted surface will feel very much the same as another, the stitch forming a mock rib on one side of the fabric only and tightly-drawn wales on the other side.

In knitting stockings a well-known process is to stitch the leg portion with all the needles of the knitting-machine, especially when employing a cylindrical machine, until the point is reached at which it is desired to begin knitting the heel. One-half of the needles of the machine are then thrown out of action for a time and knitting is begun, say, from a line *a d*, Fig. 1, and as the knitting progresses needles are thrown out from each end of each stroke, the knitting operation being a back-and-forth movement at this point. Needles are thrown out at each end of the stroke until a suitable point—say *c*—is reached, after which the needles are successively thrown into operation at each end of the course until the line *a b* is reached, when the heel of the fabric will be completed. Care must be taken in joining the edges of the triangular portions *a b c* and *a c d* along the line *a c* to make all the needles which come at the ends of the courses in knitting the section *a c d* come into play; otherwise there would be holes formed in the fabric along said line *a c*. After this all the needles of the machine are thrown into action and the knitting of the foot portion progresses as before. This is continued until the toe is reached, which is knitted in two triangular sections *e f g* and *g f h*, as indicated in Fig. 1. In order to produce the peculiar stitch which I prefer to use in the producing of the conical fabrics constituting the heel or toe of the stocking or like fabric, as soon as the line *a d* is reached in the knitting operation and one-half of the knitting-needles have been thrown out of operation I commence knitting the first triangular section of the heel by knitting one way with all the active needles operating. As soon as one course, however, has been completed I begin to return upon the next course. I so arrange every alternate needle that it will not rise to release

its loops from its latch and take fresh yarn. Thus every other needle will perform the knitting operation in this course. The next course, however, is knitted with all the active
 5 needles in operation again, after which the full course will again be knitted with only every other needle. The courses will thus alternate until the whole conical fabric comprising the heel or toe has been completed.
 10 The stitches produced by such an operation of the needles will be understood by reference to Figs. 2 and 3 of the drawings. The stitches indicated in the upper part of Fig. 2 show the loops 11 thereof as produced when an ordinary
 15 flat stitch is being used. When the conical portion of the fabric is reached, the stitch is altered, however, only courses of stitches, as 2 2, remaining like the stitches shown in 1 1, whereas every alternate course of stitches is
 20 formed with a long loop 3 and a short loop 4, as illustrated. The long loops in these alternate stitches are produced by preventing the rising of the alternate needles during the stitching operation, as above described. As seen in Fig.
 25 3 of the drawings, the long loops form a series of broad wales on the inside of the fabric, while the other loops form wales the same size as the wales of the ordinary flat knitting illustrated in the upper parts of Figs. 2 and
 30 3. Because of the skipping of the stitches where the alternate needles have not operated and the reaching of the stitches in alternate courses across the long stitches the fabric will be of a somewhat heavier and
 35 closer-woven texture than the remainder of the stocking and will have a greater wearing quality than the ordinary plain stitch will afford. I find that such a stitch in practice forms an ideal heel and toe for a stocking or
 40 sock, the loops being all on the outside of the fabric, presenting mock ribs on the said outer side and wales on the inner side, drawn tight from alternate to alternate stitches.

It will be noticed that in using a tuck-
 45 stitch to form the triangular section constituting this heel I can either draw tight the portions which span from alternate needle to alternate needle of the strand of yarn used in knitting the course which is knitted

with alternate needles only, or I can pull 50 down these same portions with the hooks of the inactive needles, thus forming bent spanning portions. I find that the heel made of straight or tightly-drawn portions is the strongest, and as the conically-knitted heel 55 gives me the proper amount of space for the heel of the stocking I prefer to draw these spanning portions of yarn tightly, which span from alternate needle to alternate needle, thus forming a strong fabric with but little 60 give. Such a stitch may be produced by any knitting-machine which is capable of having its needles operated in the manner above described; but I find that a knitting-machine provided with actuating-cams such as those 65 described and illustrated in an application filed by me February 14, 1901, for Letters Patent, bearing Serial No. 47,335, is adapted for producing the lock-stitch in the heel, toe, or conical fabric, as heretofore set forth. It 70 will be evident that such a stitch can be used in any conical fabric besides in the heels and toes of stockings where it is desired to strengthen the article produced and make a good wearing-surface. 75

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A conical fabric formed of triangular sections knitted with a tuck-stitch, having loops 80 extending on one side and stitches drawn on the other side, the said triangular sections being knitted together along two of their edges at every course to form a completed cone-shaped fabric, substantially as described. 85

2. A conical fabric for forming the heels or toes of stockings comprising fabric tucked at every other course and made in triangular sections, knitted together at every course 90 along their edges, the tuck-stitches occurring in alternate wales, substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

BERNARD T. STEBER.

Witnesses:

MARIE GUELICH,
 FRANK STEBER.