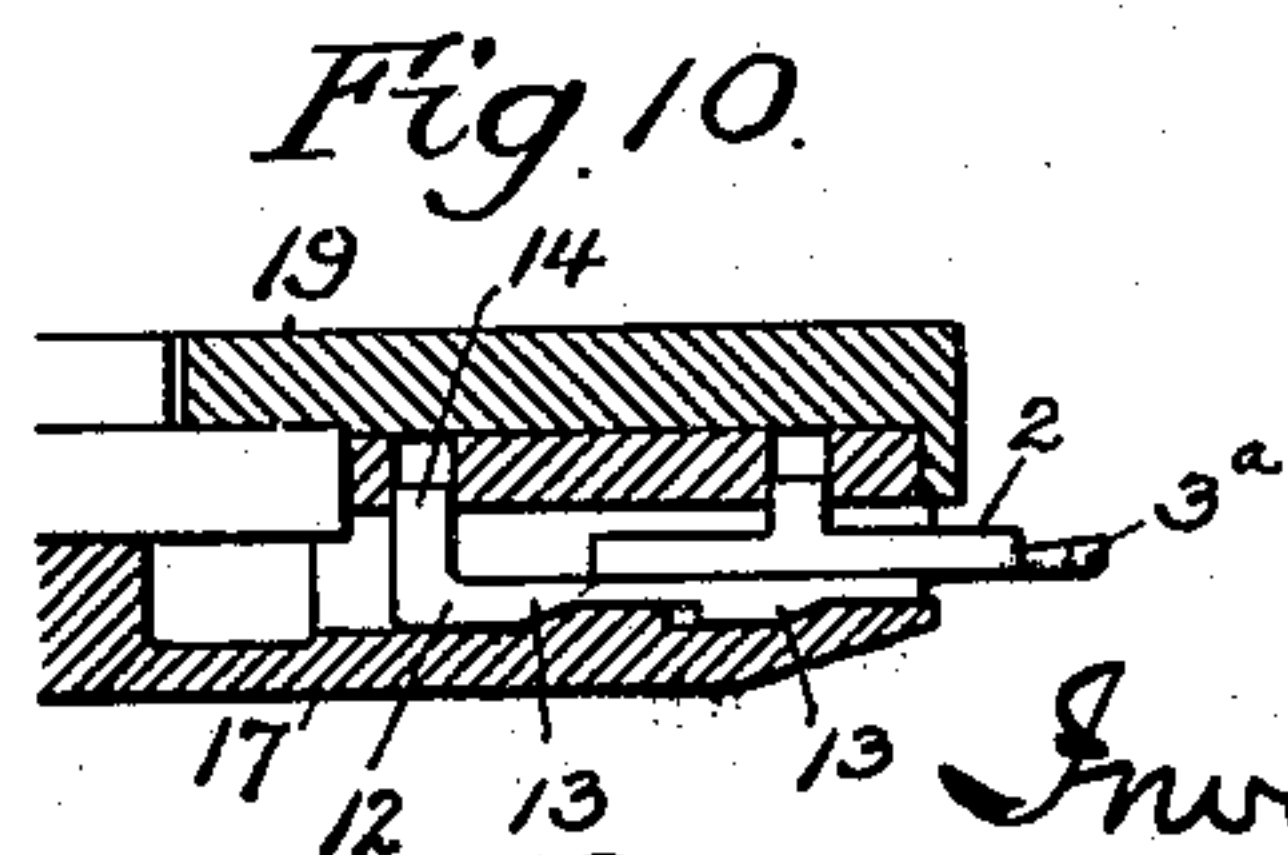
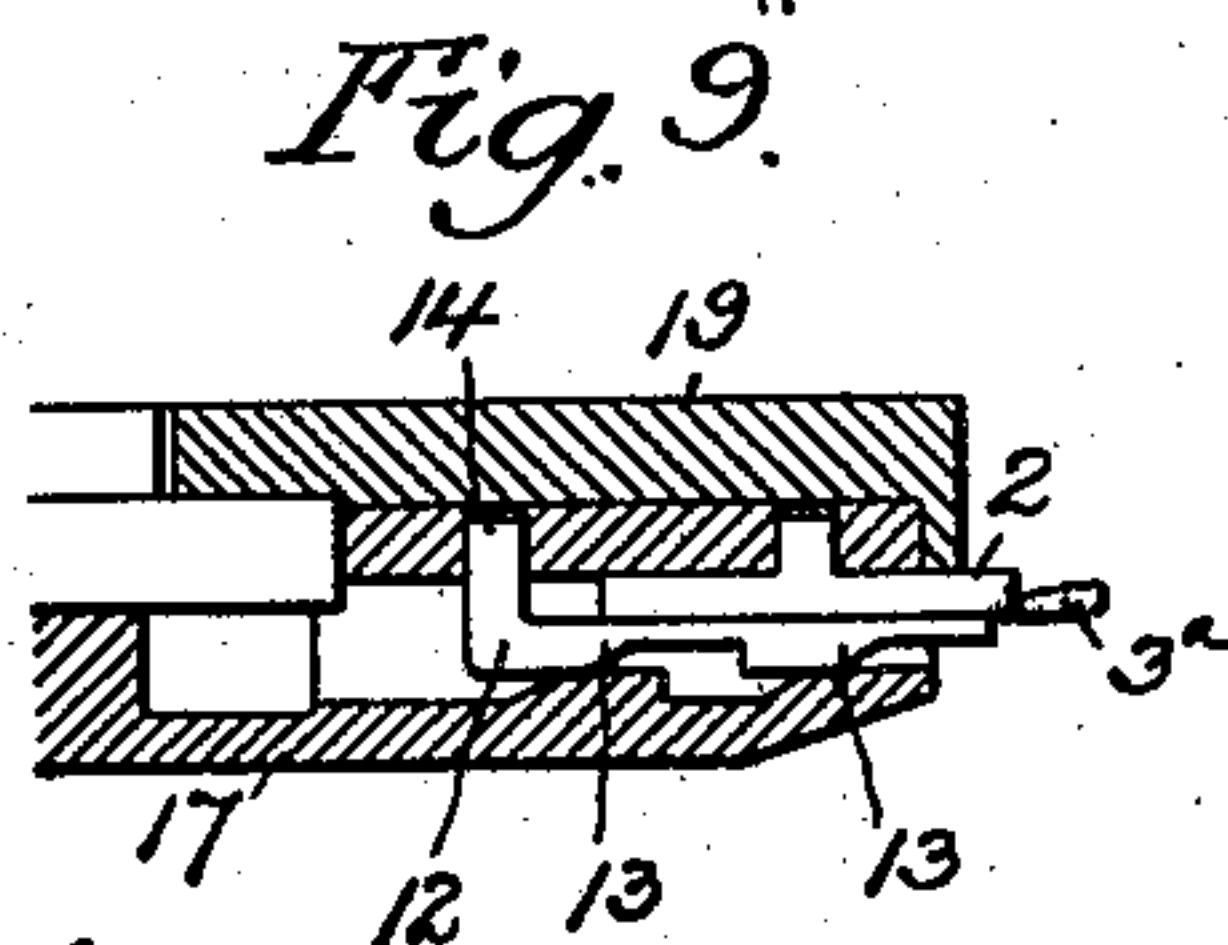
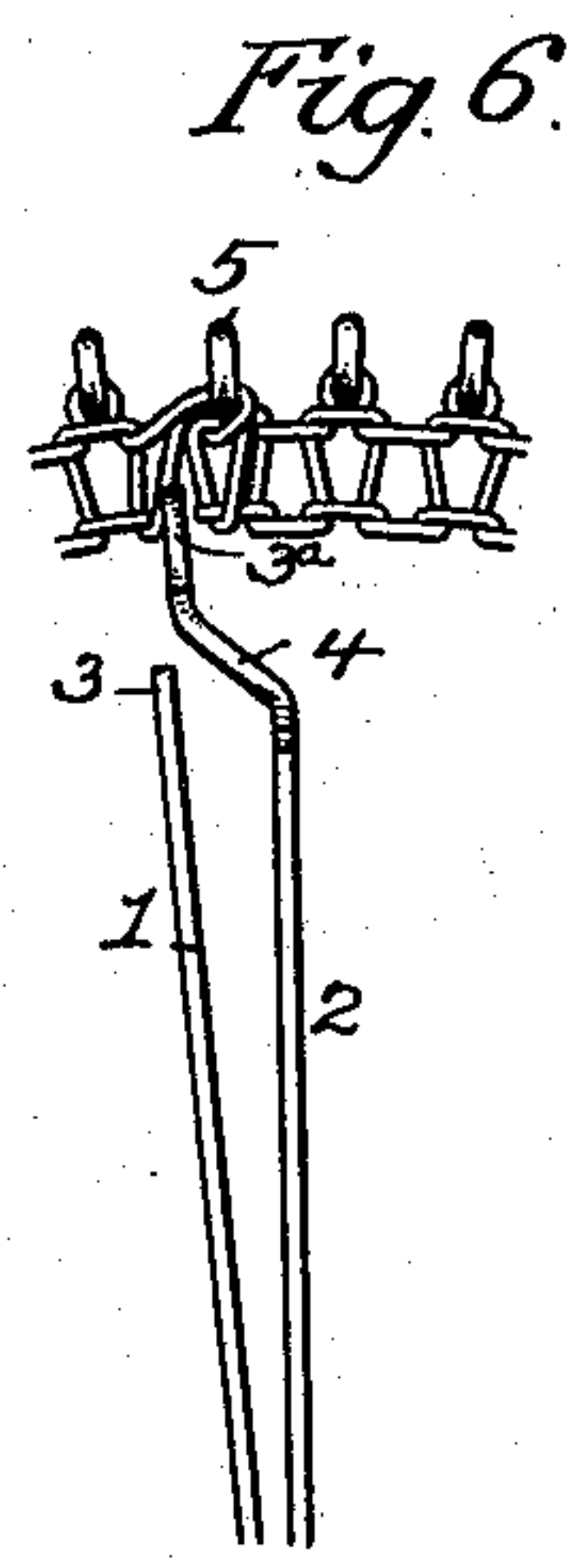
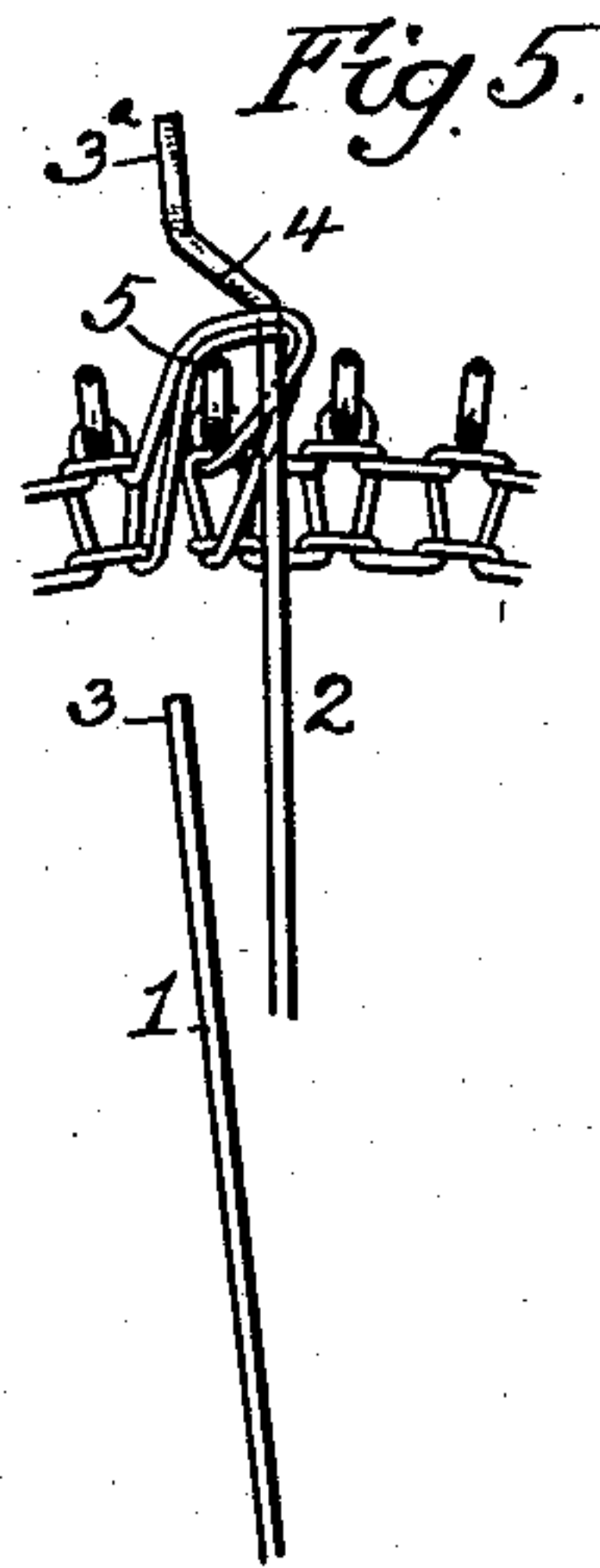
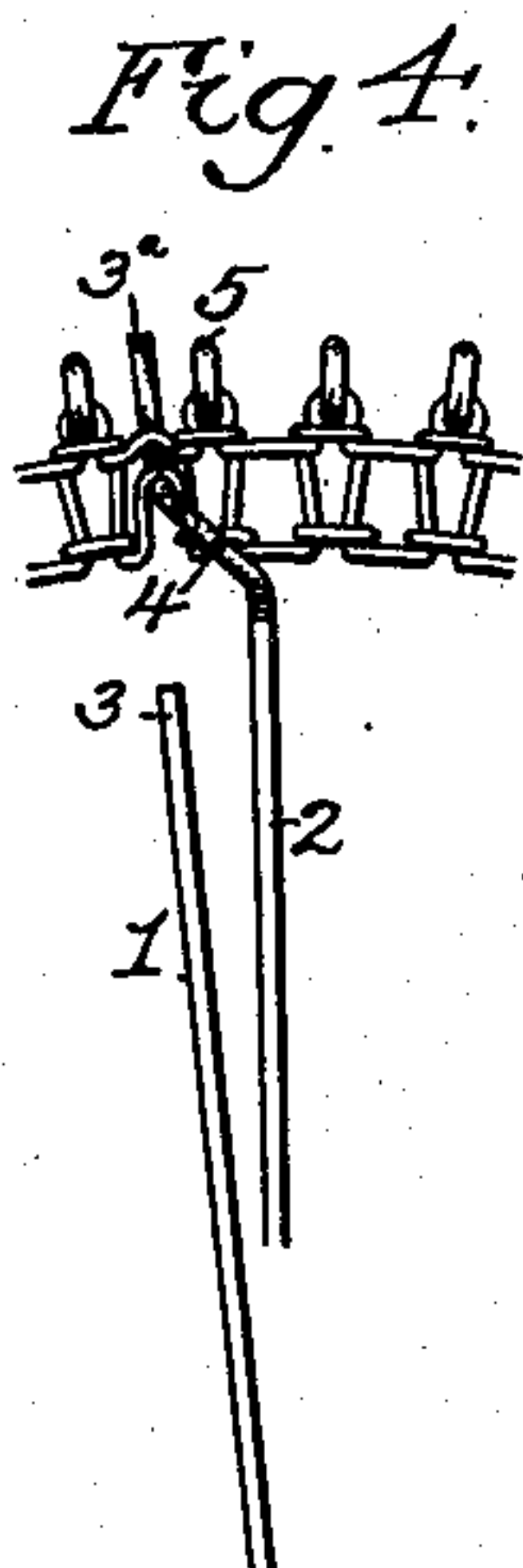
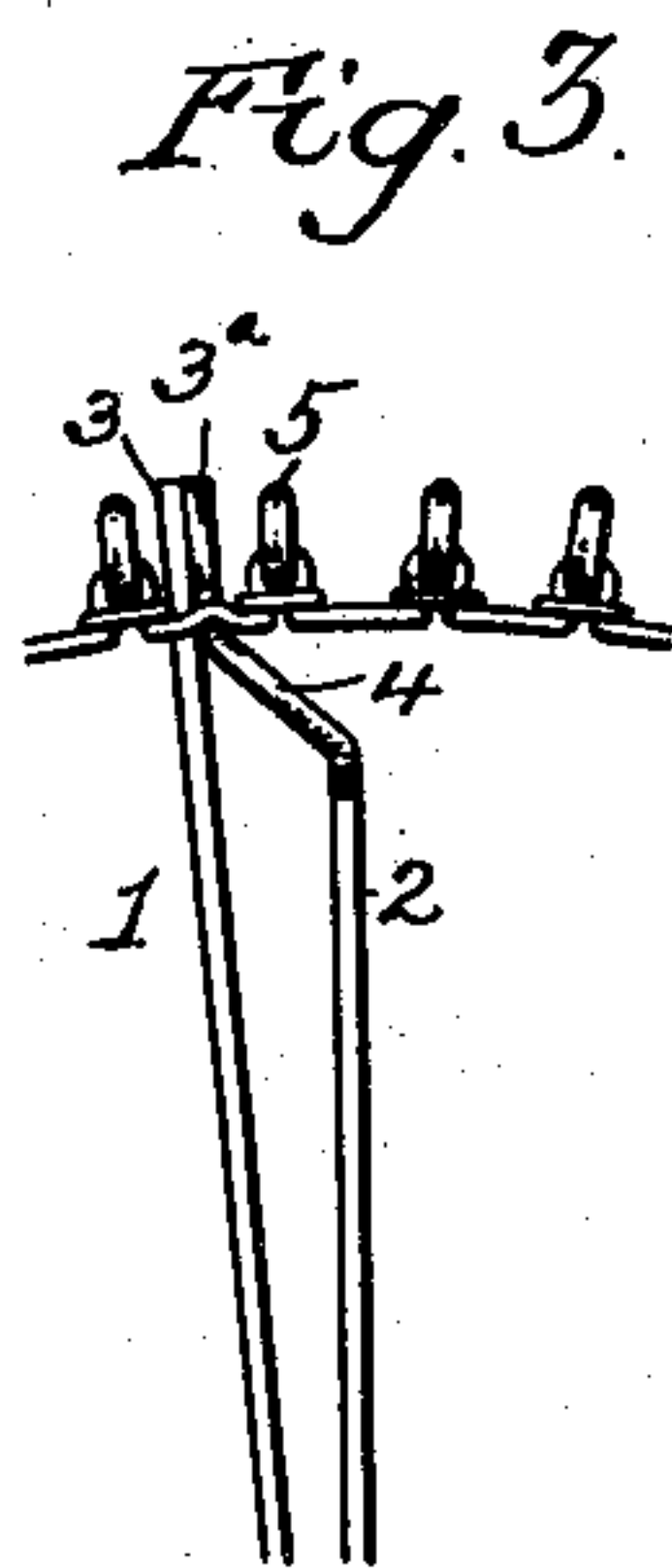
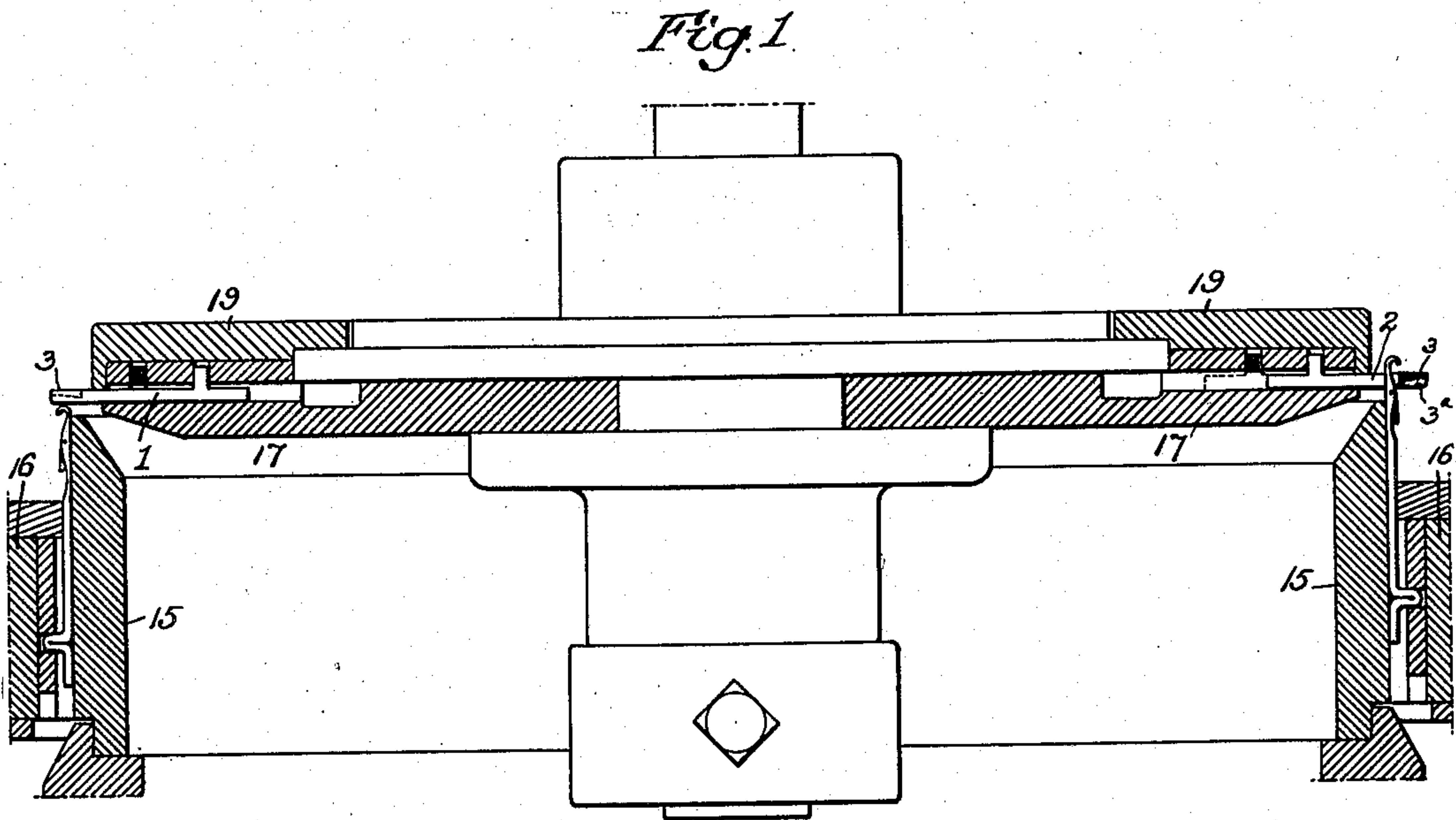


R. W. SCOTT.
KNITTING MACHINE.
APPLICATION FILED JAN. 31, 1908.

919,962.

Patented Apr. 27, 1909.
2 SHEETS—SHEET 1.



Witnesses
Harry L. Smith
Kamilton D. Turner

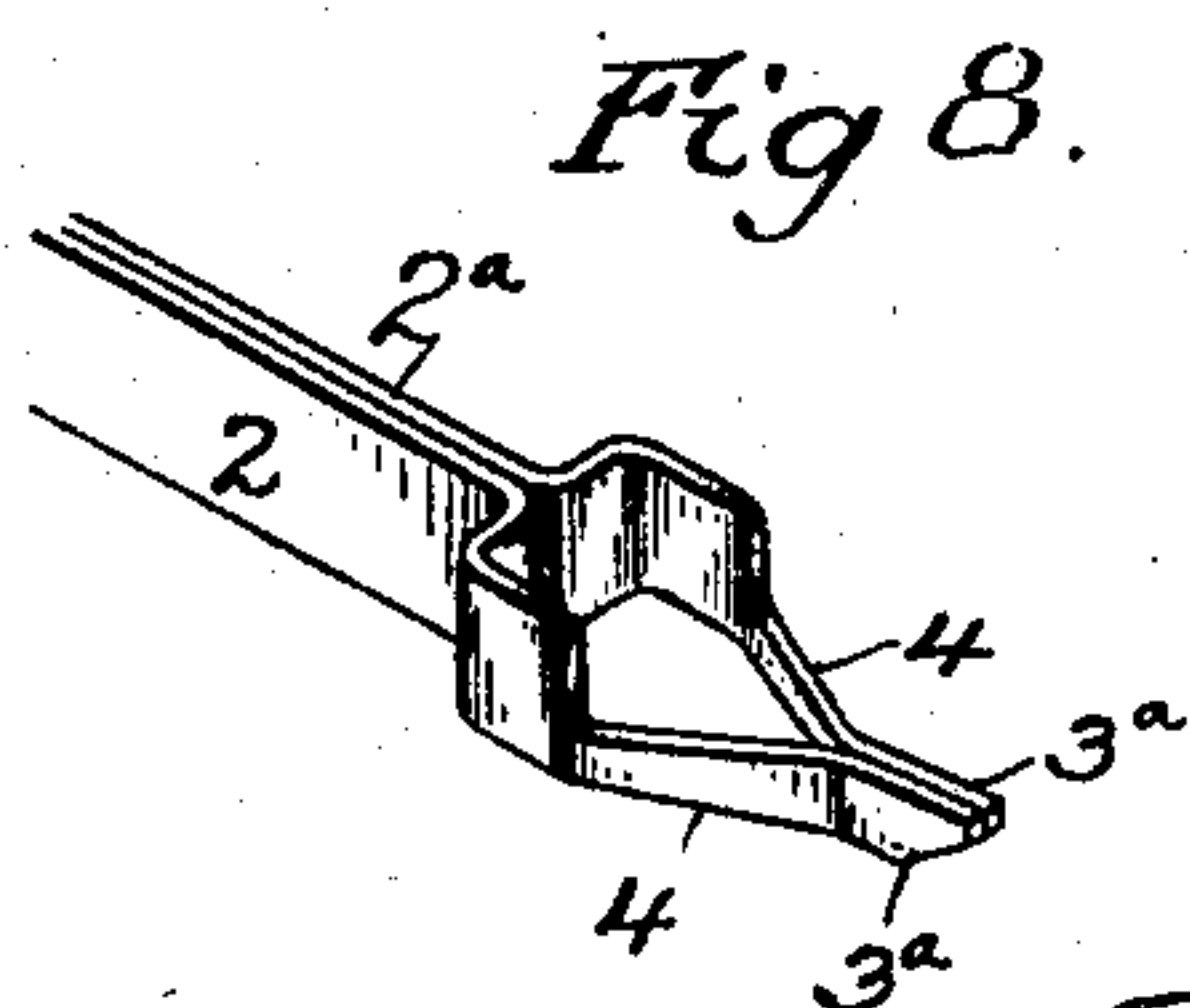
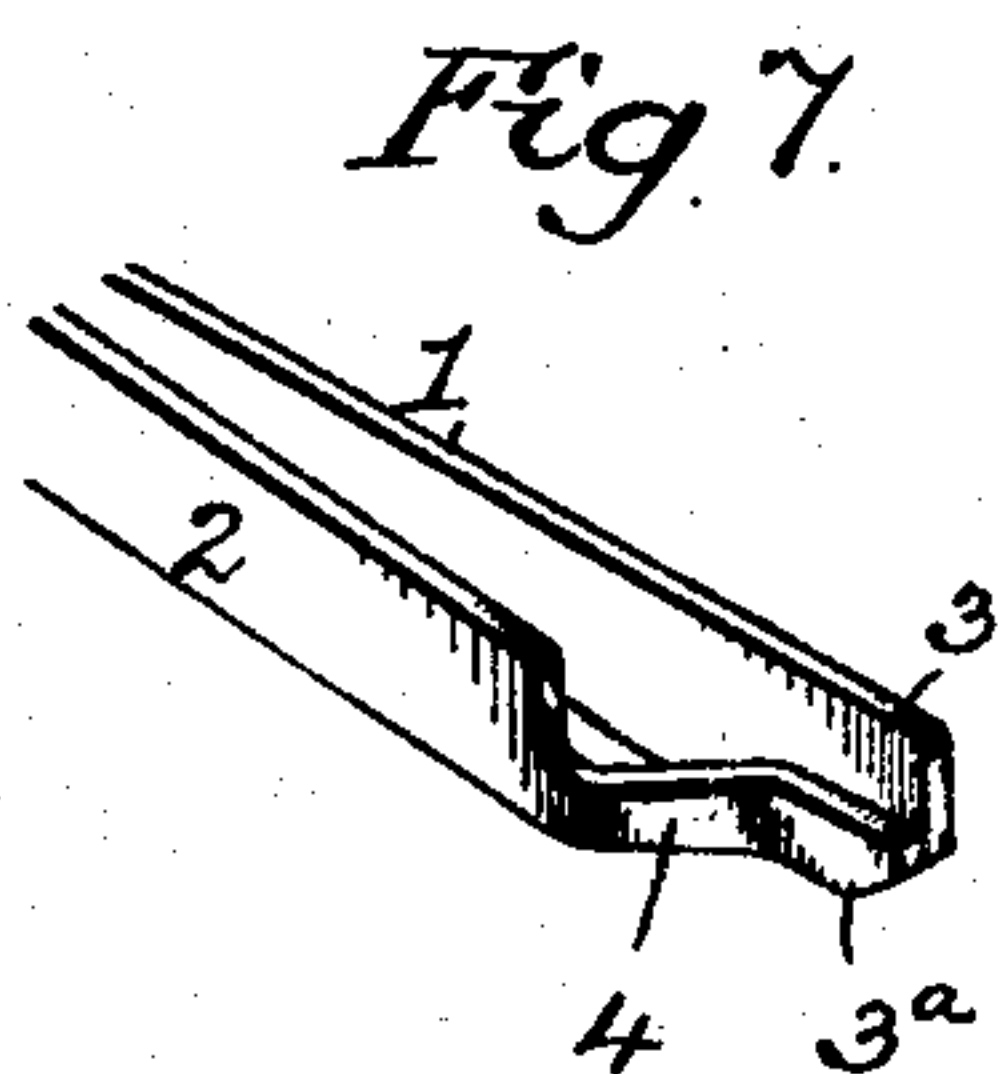
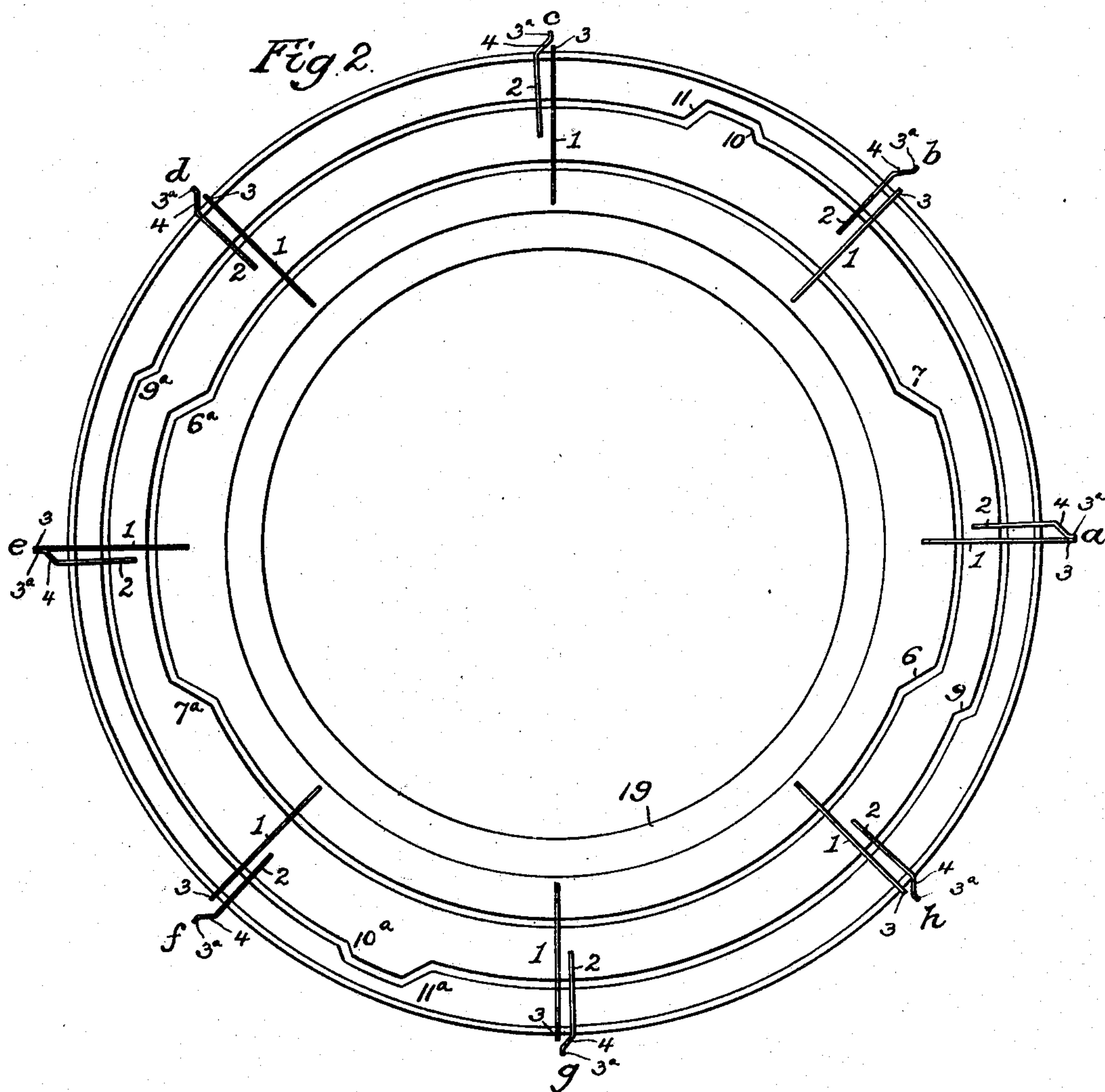
Inventor
Robert W. Scott
by his Attorneys
Smith & Frazier

R. W. SCOTT.
KNITTING MACHINE.
APPLICATION FILED JAN. 31, 1908.

919,962.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 2.



Witnesses
Harry L. Smith
Hamilton D. Turner

Inventor
Robert W. Scott
by his attorneys
Smith & Bazier

UNITED STATES PATENT OFFICE.

ROBERT W. SCOTT, OF LEEDS POINT, NEW JERSEY, ASSIGNOR OF ONE-HALF TO LOUIS N. D. WILLIAMS, OF OGONTZ, PENNSYLVANIA.

KNITTING-MACHINE.

No. 919,962.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed January 31, 1908. Serial No. 413,686.

To all whom it may concern:

Be it known that I, ROBERT W. SCOTT, a citizen of the United States, residing in Leeds Point, Atlantic county, New Jersey, have invented certain Improvements in Knitting-Machines, of which the following is a specification.

My invention consists of certain improvements in the knitting machine forming the subject of my Letters Patent No. 846,430, dated March 5th, 1907, the object of my invention being to provide for the making of larger or less obstructed eyelet holes than those in the web produced by the previously patented machine. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view of sufficient of the machine for producing the fabric to illustrate my present invention; Fig. 2 is an inverted plan view of the cam ring which operates the transfer points; Figs. 3, 4, 5, and 6 are views on an enlarged scale illustrating the operation of the machine in the production of that type of web in which the sinker wale loops are transferred to an adjoining needle wale; Fig. 7 is a perspective view of the transfer points used in connection with the machine for effecting such transfer; Fig. 8 is a perspective view of the points for effecting transfer of the sinker-wale loops into needle wales on each side of the same, and Figs. 9 and 10 are sectional views illustrating a modification of my invention.

The present invention relates to a machine for the production of that type of fabric in which sinker wale loops of successive courses are transferred either into an adjoining needle wale or into needle wales on each side of the sinker wale.

Formerly, the sinker wale yarn in both courses was laid upon the same transfer point, disposed to deflect the sinker-wale loops to right or left, or upon a pair of similar transfer points, disposed to spread the sinker-wale loops in both directions, and, in consequence, the loop first applied to the transfer point or points was subjected to greater tension than the loop subsequently applied, because, before the transfer of the loops, the course from which the first loop was drawn had been cast off and drawn forward with the web, and therefore this first loop was compelled to rob the needle wales

on each side of the same, with the effect of shortening the stitches of said wales or drawing the wales together and thereby contracting the size of the eyelet hole, the tension of the first loop of the transferred pair, in the case of their transfer into a single needle wale, causing said first loop to be drawn diagonally across the eyelet hole, thereby obstructing the same, as shown at *e*, in Fig. 1 of my Letters Patent No. 846,353, and when the sinker wale loops were transferred into needle wales on each side of the same, the tendency of the tension upon the first loop of the pair to shorten the stitches in the adjoining needle wales, or to draw said needle wales toward each other, had the effect of decreasing the area of the eyelet hole correspondingly. If, on the other hand, the first loop was drawn long enough to overcome this objection, the second loop would be too loose and would slacken the stitches on either side of the sinker wale, or drop down across and obstruct the eyelet hole.

So far as the construction of the needle cylinder or other carrier, its needles, and the cams for operating the same are concerned, they may be similar to those of the previously patented machine, and may operate in the same manner as before, the novel feature of the present machine consisting in the modified construction of the transfer points and the means for operating the same.

In carrying out my present invention I provide a greater length of yarn for the formation of the first loop than for the formation of the second, and I thereby relieve the tension upon said first loop or prevent the slackening of the succeeding loop and therefore overcome the objections before noted as arising from these causes. In order to affect this result in a machine for effecting transfer of the loops into a needle wale on one side of the same, I employ, wherever a transfer is to be effected, a pair of transfer points 1 and 2, the point 1 having the yarn-receiving portion 3 of greater depth than the yarn-receiving portion 3^a of the other point.

The yarn for forming the first loop of the pair to be transferred can be applied to both points, as shown, for instance, in Fig. 3, but before reaching the next yarn feed the point 1 is withdrawn, whereby the yarn for forming the second loop is applied only

to the reduced portion 3^a of the point 2, as shown in Fig. 4, the second loop being consequently shorter than the first and the latter being long enough to compensate for the carrying forward of the course from which it was drawn, whereby both of the transferred loops may be under corresponding tension and no robbing and consequent shortening of the stitches of adjoining needle wales will take place, nor will there be any tendency to draw the needle wales toward each other or to slacken the upper loop and the stitches adjacent thereto, unobstructed eyelet holes of full area being consequently produced.

By preference, the point 1 consists simply of a straight bar with butt for the action of the cams whereby it is projected and retracted, the transfer point 2 having the inclined member 4, whereby, when said point is projected as shown in Fig. 5, the sinker wale loops hanging upon the same will be deflected laterally into position for engagement with the adjoining needle 5 in the same manner as before, the point being retracted, as shown in Fig. 6, after the needle has properly engaged the loops. As the movements of the point 1, therefore, are different from the movements of the point 2, independent cams are employed for operating the same, and in Fig. 2 I have illustrated cams available for the purpose, the cams 6 and 6^a being the projecting cams for the points 1, the cams 7 and 7^a the retracting cams for said points, the cams 9 and 9^a those for effecting the initial projection of the points 2 to position for receiving the sinker wale loops, the cams 10 and 10^a those intended for effecting the final or transfer projection of said points, and the cams 11 and 11^a those for effecting the retraction of the points 2 after the transfer.

The cam ring shown is intended for use in connection with an eight feed machine, both points being projected to the loop-receiving position at the feeds *a* and *e*, the points 1 being retracted at the feeds *b* and *f*, the points 2 being further projected after passing the feeds *b* and *f*, in order to transfer their loops to the adjoining needle and being then retracted, and both sets of points being retracted at the feeds *c* and *d*, and *g* and *h*, in order to provide for the formation of plain courses of stitches between the courses in which the eyelet holes are formed, it being understood, of course, that there may be as many of these intervening feeds as the number of such plain courses to be produced.

In Fig. 2, I have shown one pair of transfer points at each feed, but it will be understood that in operating the machine the transfer points will be located wherever it is desired to produce eyelet holes in the web.

The needles are mounted as usual to re-

ciprocate vertically in a cylinder 15 and operated by cams in a cam ring 16, and the transfer points are mounted to reciprocate radially in a dial 17, and are operated by cams in a dial cap 19, as shown in Fig. 1.

In producing that class of fabric in which the sinker wale loops are laterally spread so as to engage with a needle wale on each side of the same, a pair of transfer points 2 and 2^a are used, as shown for instance in Fig. 8, these points being first projected to such an extent that the initial sinker wale loop will be formed upon the forward portions of the diverging members 4 of the points, after which said points are slightly retracted, in order that the next sinker wale loop may be formed upon the contiguous ends 3^a of the points, and then said points are first fully projected and then fully retracted in order to transfer the loops to adjoining needles.

While in the use of the points 1 and 2 it is advisable to project both of the points for receiving the initial loop in order to insure the engagement of said loop by the point 2, said initial loop may, if desired, be formed over the point 1 only, and the point 2 may then be projected so as to engage this loop either before or after the retraction of the point 1 and before the application of the second loop, the objection to this arrangement being the possibility of the point 2 failing to properly enter the initial loop, which objection cannot apply when said loop is formed on said point as well as upon the point 1.

When the points 2 and 2^a are used, the stems or shanks of said points are, by preference, disposed closely side by side in order that they may work in the same groove and be operated by the same cams.

A single transfer point only may be used, if, in addition to its longitudinal reciprocating movement, it has a rising and falling movement, so that at different feeds it will occupy different relations to the draw-down points of the needles. Such rising and falling movement may be effected in different ways, and in Figs. 9 and 10 I have shown for the purpose a jack 12 upon which the transfer point rests, this jack being guided in the same groove as the transfer point, and having one or more beveled portions 13 for engagement with corresponding bevels in the base of the groove, whereby it will, as it is reciprocated by the action of the cams on its butt 14, be caused to rise and fall in the groove and will carry the transfer point with it.

Sinker wale loops in more than two adjoining courses of the web may also be transferred simultaneously to an adjoining needle wale or wales, each loop being of a different length from the others. This would simply involve the use of a plurality of points 1 of different depths, or successive adjustment

of the jack 12, so as to lower it by a succession of movements instead of one.

It is preferable, in most cases, to bevel the top of each point from the end of the same back to the shoulder at the base of the inclined member 4, in order to gradually lessen the depth of the point and thus slacken the sinker wale loops during the transfer operation, the lateral stretching or displacement of the loops incident to their transfer being thereby facilitated.

I claim:—

1. The combination, in a knitting machine, of needles, means for knitting thereupon, means for forming between adjoining needles first a relatively long sinker wale loop in one course and then a shorter sinker wale loop in the next course, both loops being under similar tension and means for transferring said sinker wale loops simultaneously to an adjoining needle or needles.

2. The combination, in a knitting machine, of needles, means for knitting thereupon, means for forming between adjoining needles first a relatively long sinker wale loop in one course and then a shorter sinker wale loop in the next course, both loops being under similar tension means for transferring said sinker wale loops simultaneously to an adjoining needle or needles, and means for forming one or more plain courses between the courses in which the transfer is effected.

3. The combination, in a knitting machine, of needles, means for knitting thereupon, means for forming between adjoining needles first a relatively long sinker wale loop in one course and then a shorter sinker wale loop in the next course, both loops being under similar tension means for transferring said sinker wale loops simultaneously to an adjoining needle or needles, and means for forming one or more plain wales and one or more plain courses between the wales and courses in which the transfer is effected.

4. The combination, in a knitting machine, of needles, means for knitting thereupon, means for applying the yarn of one course between adjoining needles to a loop-forming device bearing a certain relation to said needles, means for applying the yarn of a succeeding course, between said needles to a loop-forming device bearing a different relation to said needles, and means for si-

multaneously transferring said loops to an adjoining needle or needles.

5. The combination, in a knitting machine, of needles, means for knitting thereupon, transfer points, one having a yarn-receiving portion of greater height than the other, means for retracting said point after it has received its loop, whereby the next loop will be formed upon the lower point only, and means for operating the latter point so as to transfer both loops to an adjoining needle.

6. The combination, in a knitting machine, of needles, means for knitting thereupon, a pair of transfer points for receiving sinker wale loops, one of said transfer points having the yarn-receiving portion of greater height than the other, and the latter point having a transfer member, and cams for operating the transfer points independently.

7. The combination, in a knitting machine, of needles, means for knitting thereupon, a pair of points for receiving sinker wale loops, one of said points having a higher loop-receiving portion than the other, and means for projecting both of the points to receive the first loop and then retracting the high point before the application of a succeeding loop.

8. The combination, in a knitting machine, of needles, means for knitting thereupon, a pair of points for receiving sinker wale loops, one of said points having a higher loop-receiving portion than the other, and the latter having a transfer member, means for projecting both of the points to receive the first loop, means for retracting the high point before the application of the succeeding loop, and means for projecting the low point to effect transfer of the loops thereon onto an adjoining needle.

9. The within described loop transfer point for knitting machines, said point having an outer loop receiving member, an inclined transfer member, and a beveled top, whereby it is of greater depth at the loop-receiving member than at the base of said inclined transfer member.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ROBERT W. SCOTT.

Witnesses:

HAMILTON D. TURNER,
KATE A. BEADLE.