

(No Model.)

R. G. WOODWARD.
LOOPER FOR SEWING MACHINES.

No. 541,518.

Patented June 25, 1895.

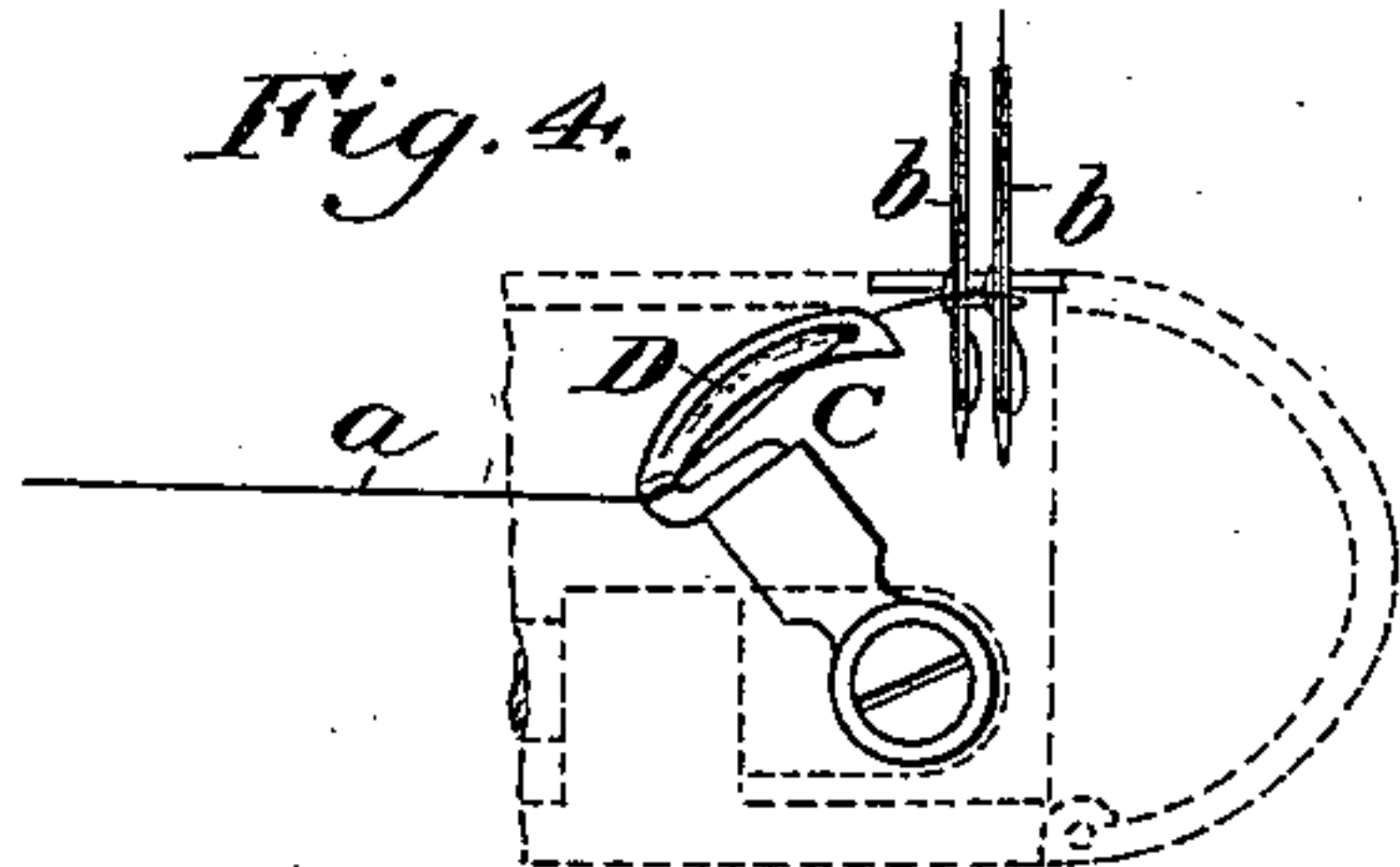
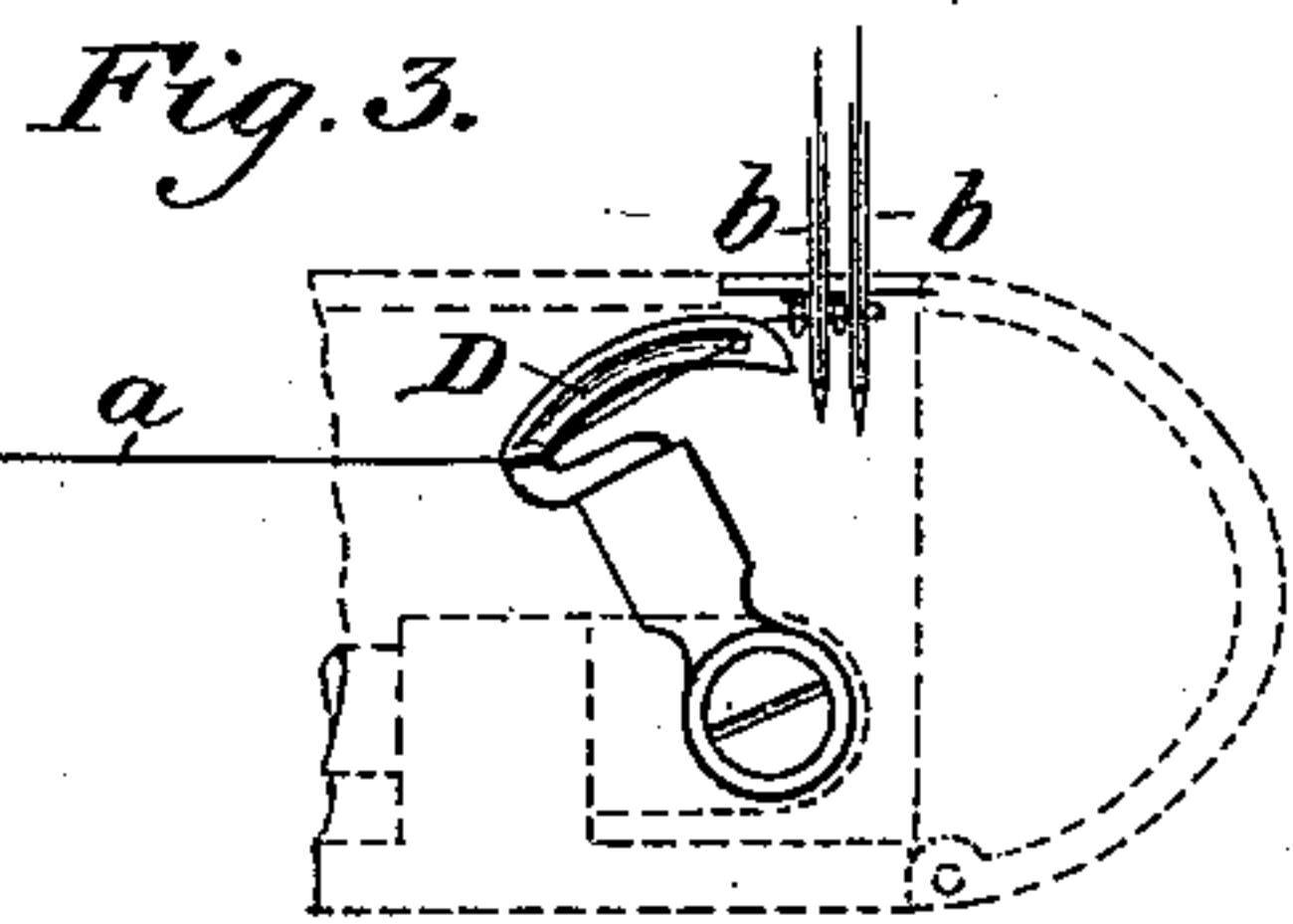
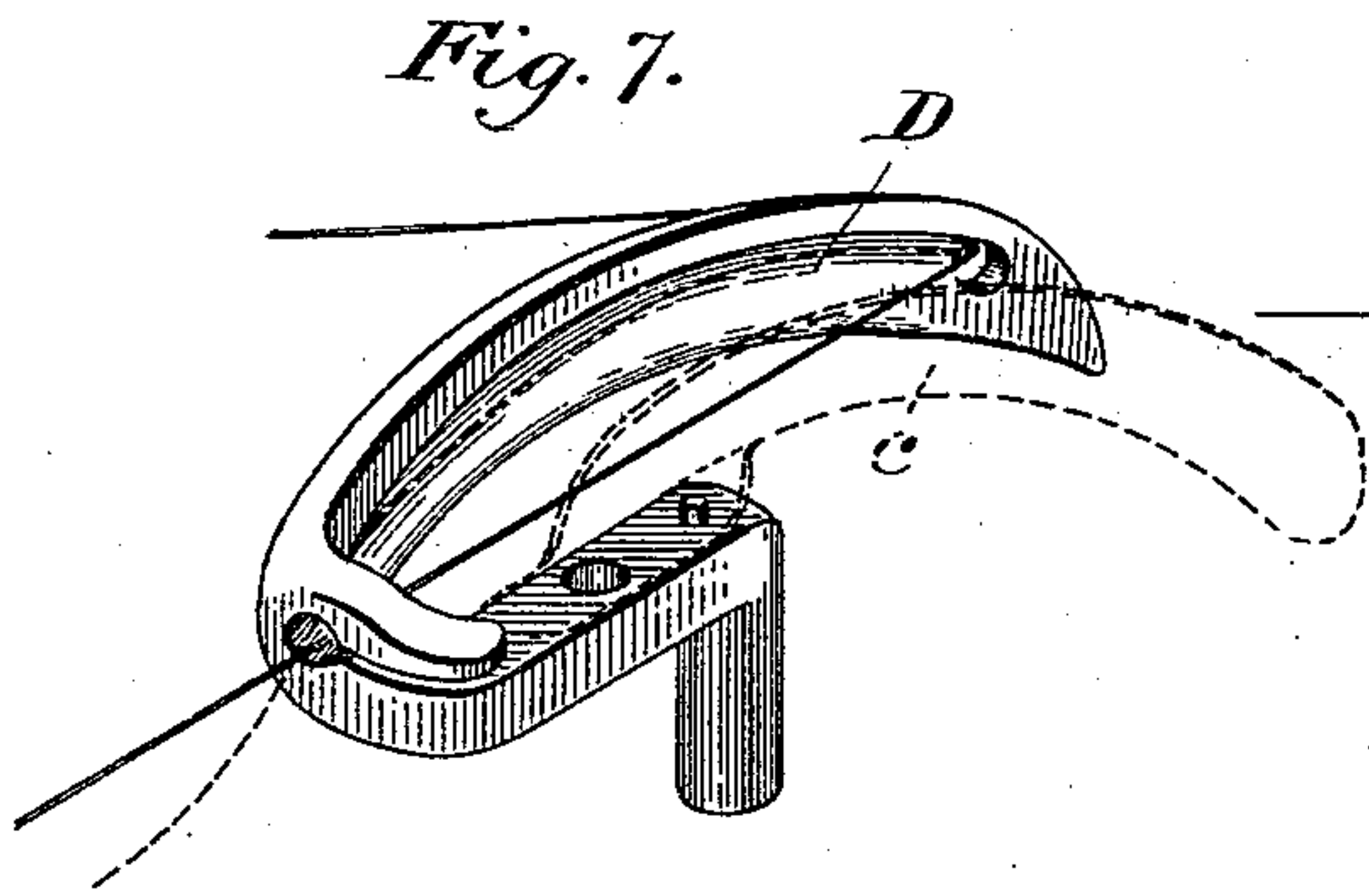
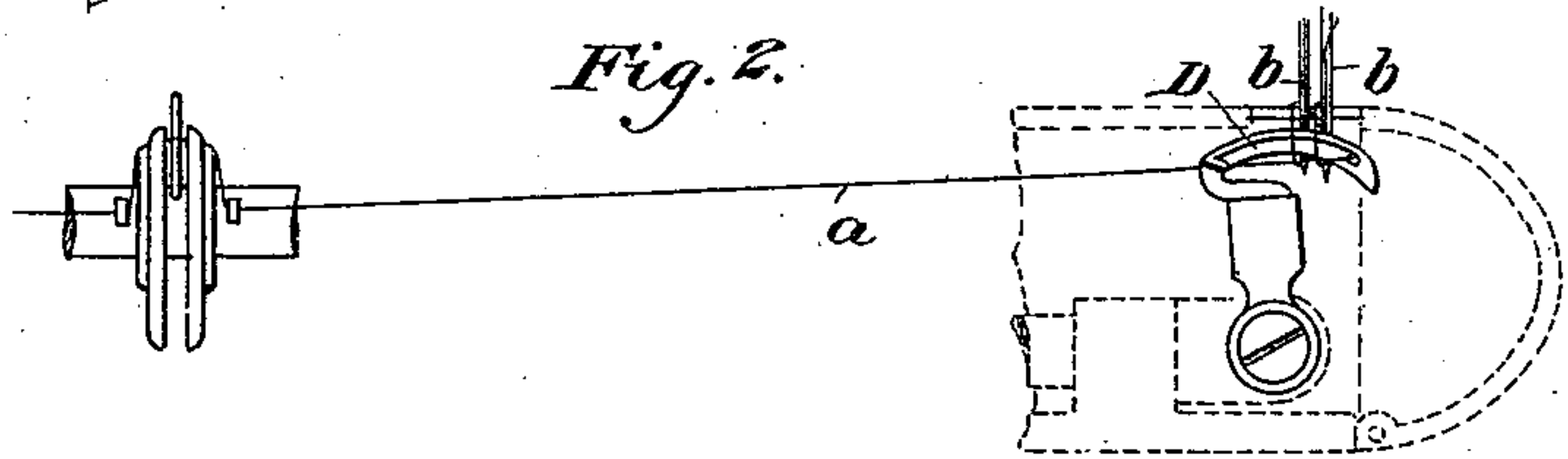
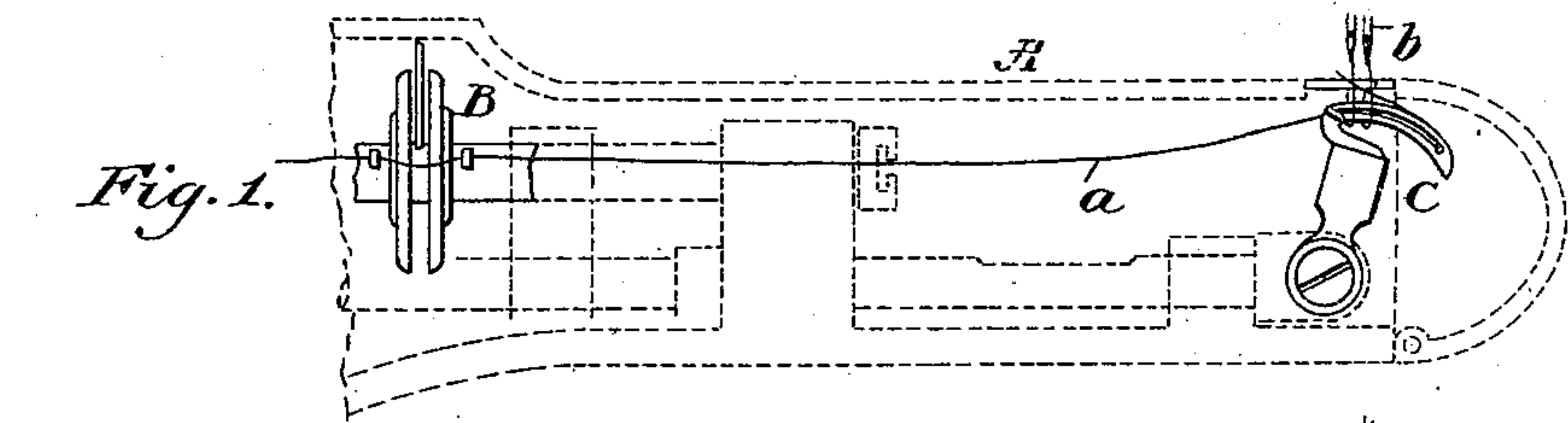


Fig. 8.

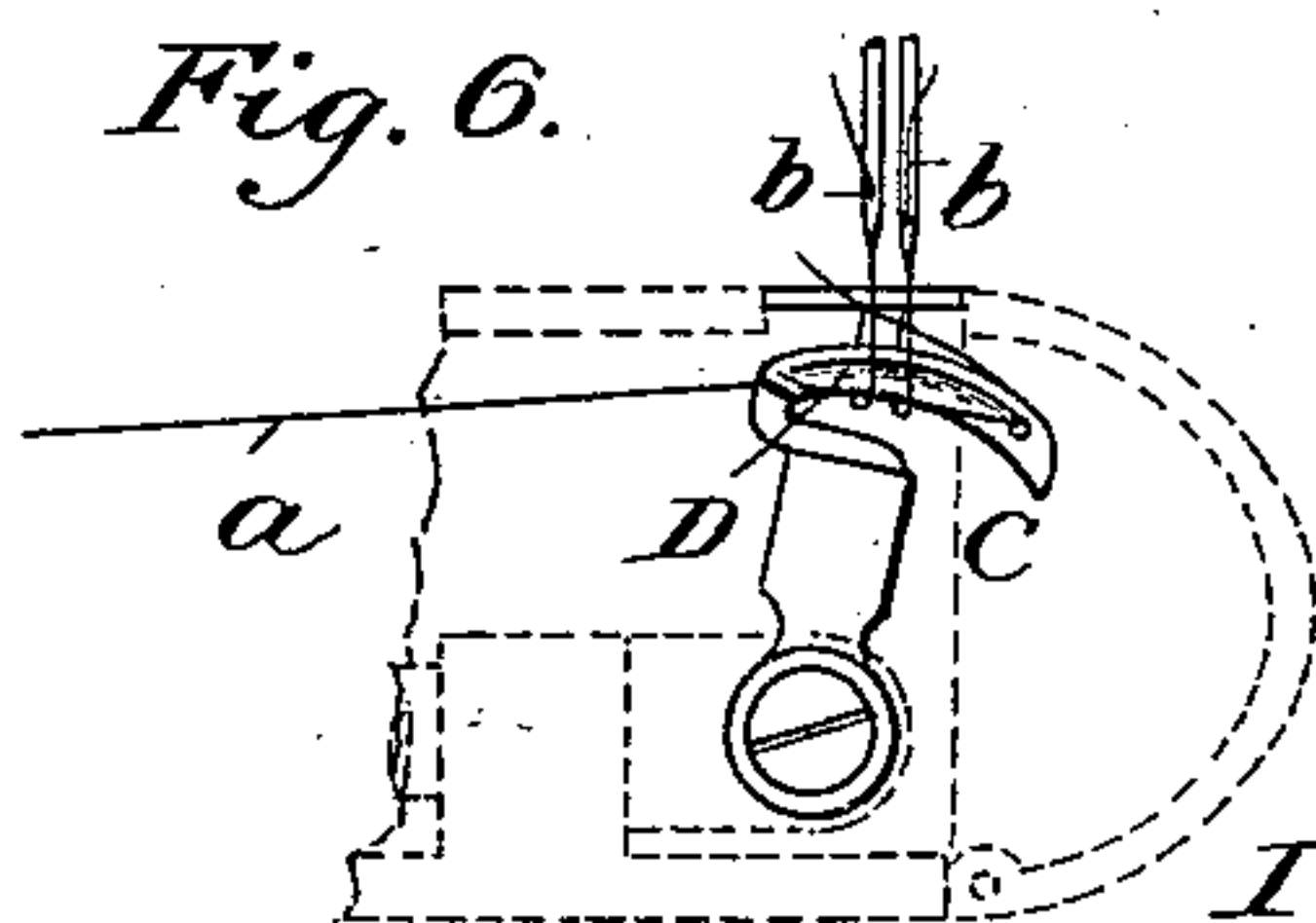
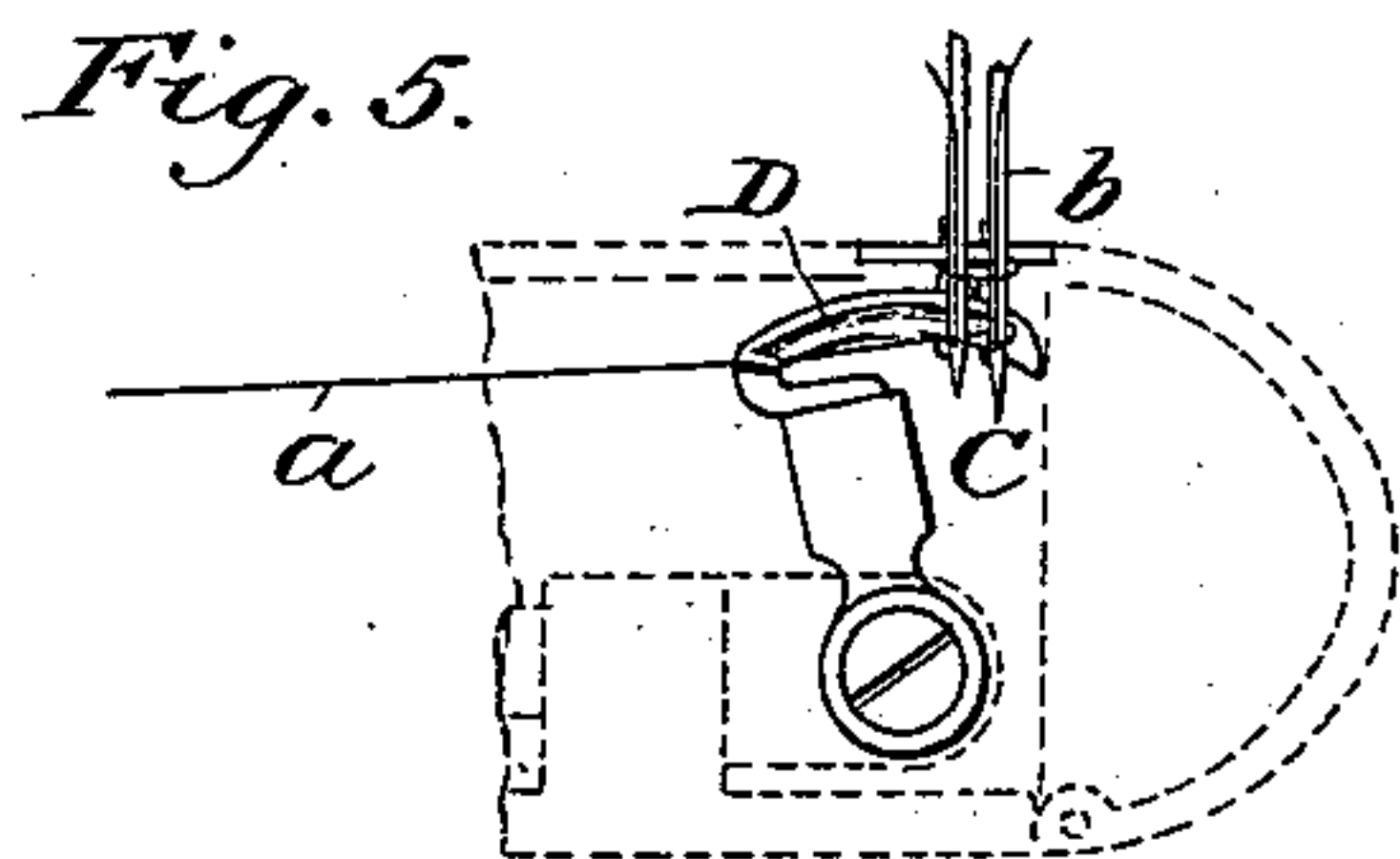
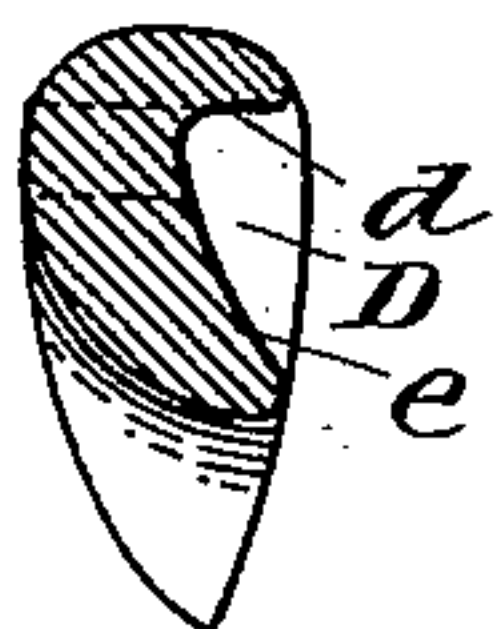
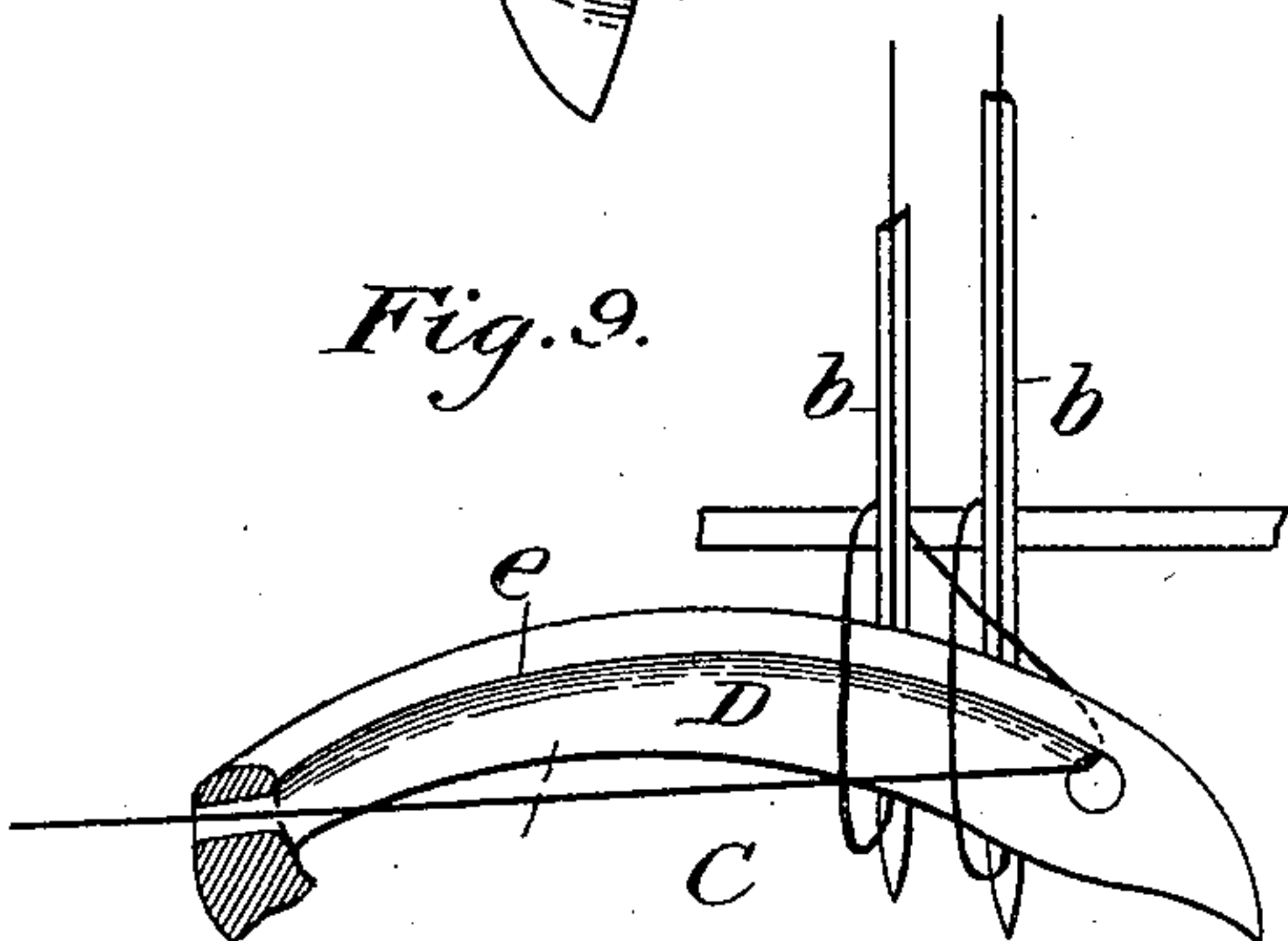


Fig. 9.



Witnesses

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UNITED STATES PATENT OFFICE.

RUSSEL G. WOODWARD, OF WAUKEGAN, ASSIGNOR TO THE UNION SPECIAL SEWING MACHINE COMPANY, OF CHICAGO, ILLINOIS.

LOOPER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 541,518, dated June 25, 1895.

Application filed July 15, 1893. Serial No. 480,584. (No model.)

To all whom it may concern:

Be it known that I, RUSSEL G. WOODWARD, a citizen of the United States, residing at Waukegan, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Sewing-Machine Loopers, of which the following is a description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to sewing machines and particularly to the construction of a thread carrying device for carrying a thread which co-operates with complemental stitch forming mechanism to form the stitch.

As ordinarily constructed whether used for carrying an under thread through the loop of the upper thread upon the under surface of the fabric, or for carrying the under thread over the edge as in certain types of machines, the looper as constructed while holding the thread proper in its forward movement, does not by reason of its shape allow the thread to hang properly during its backward movement, hence causing the dropping of stitches. This difficulty has been by me particularly noticed in the operation of what are known as cylinder vamping machines, in which a curved looper carrying the under thread is used, co-operating with the upper, thread-carrying needles to form the chain stitch, and arises as follows: The groove in said loopers as heretofore constructed is made rounded in cross section so that the top and bottom sides of said groove are of equal length and serve to hold the thread in place. Thus while the looper is going forward the thread lies in the groove. When, however, it begins its return movement, it is desirable that the thread should readily come out of the groove by the action of the take-up and hang as a chord of the curve marked out by the looper. This acts as a friction to the upper thread which would at that time be around the looper and prevent it from moving too fast. The difficulty has been, owing to the shape of the groove, that the under side thereof has acted as a rest for the under thread, and frequently the take-up fails to pull it out of the groove at the proper time, thereby causing the drop-

ping of stitches. While as above stated, this difficulty has been noticed principally in the use of the cylinder vamping machines, it will be understood that it may exist in the use of loopers or hooks such as shown in Patent No. 472,095, and I therefore consider my invention broad enough to include any thread carrying device which co-operates with complemental stitch forming mechanism to form the stitch.

The object of the present invention, therefore is to provide a thread carrying device of such construction that this danger will be obviated, and it consists in the matters hereinafter described and referred to in the appended claims.

In the accompanying drawings, which illustrate my invention, Figure 1 shows the take-up and the position of the thread, the looper being in position for the loops of the upper thread to descend through the loop of the under thread at the rear side of the looper. Fig. 2 shows the needles and loops of upper thread entering the loop of the under or looper thread. Fig. 3 shows the looper retracted from the loops of the upper thread preparatory to moving the looper laterally in the direction of the feed. Fig. 4 shows the needles and loops of thread thrown out from the eyes of the needles by a full descent and partial rise of the needles. Fig. 5 shows the looper and loop of its thread as passed through the two loops of thread carried by two needles, the looper passing close to the rear sides of the two needles or the farthest sides of the two needles in the direction of the feed. Fig. 6 represents the two needles raised and the feed as taking place, the loops of the needle-threads being held closely by the looper. Fig. 7 is a perspective view of my improved looper. Fig. 8 is a cross-section, and Fig. 9 is an enlarged view of a portion of Fig. 2.

In the drawings, A represents a portion of the bed plate or casing of a cylinder vamping machine, the same being shown in dotted lines. B represents the ordinary rotary take-up mechanism similar to that shown in Patent No. 299,569, and C represents the looper carrying the under thread *a* and supported upon a rocking crank frame in the usual man-

ner. The needles are shown at *b*, and *c* is the guard finger shown in dotted lines in Fig. 7 traveling with the looper.

The looper is provided with the usual eyes 5 in rear and front through which the under thread passes. It also has a groove *D* in which the thread lies while the looper is moving forward, but this groove instead of being alike on its top and bottom sides and rounded 10 as in the usual way or formed with a three sided groove by means of a transverse flange, a vertical part and then a transverse flange as shown for example in Patent No. 115,656, is formed in cross section as shown in Fig. 8, 15 the upper edge of the groove being preferably straight leaving the looper with a flange, while beginning at the inner edge of said flange the looper is beveled as at *e* leaving the groove angular in shape; its inner edge being formed 20 out of that part of the body portion of the looper adjacent to the said inner edge of the flange or shoulder and on a single plane whether curved or straight herein shown almost perpendicular thus making in effect the 25 groove approximately L shape in cross section. It will be understood of course that the term "approximately" is broad enough to cover the groove if it is entirely inverted L shape in cross section.

30 By this construction it will be seen that in the forward movement of the looper the thread will lie within the groove, while in the rearward movement, owing to the peculiar shape of the groove, the thread will be readily 35 pulled out of the same by the rotary take-up, thus hanging in a straight line between the two eyes of the looper, thereby acting as a friction to the upper thread which is around the looper and prevent its moving forward 40 too fast.

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

45 1. In a sewing machine, the combination with a take up mechanism, of a thread carrying device and complementary switch forming mechanism, said thread carrying device having a groove of approximately an inverted L- 50 shape in cross section formed on its face in the direction of its length, with means for

guiding the thread into the groove, whereby in the forward movement of the thread carrying device the thread lies against the upper side of the groove, but when the take up acts becomes readily disengaged therefrom; 55 substantially as described.

2. In a sewing machine, in combination with suitable take up mechanism, a longitudinal looper having a groove of an approximately 60 inverted L-shape in cross section formed on its face in the direction of its length, and means for guiding the thread located adjacent the ends of the groove, whereby in the forward movement of the looper the thread lies in the groove against its upper side, but 65 in the rearward movement will become disengaged therefrom; substantially as described.

3. In a sewing machine, in combination with the vertically reciprocating needles carrying upper threads, and a take up mechanism, a 70 longitudinal under thread carrying looper having a groove of an approximately inverted L-shape in cross section formed on its face in the direction of its length, and provided with thread eyes located adjacent either end of the 75 groove for guiding the thread into said groove; substantially as described.

4. A longitudinal looper provided with a groove of an approximately inverted L-shape 80 in cross section formed on its face in the direction of its length, and having means for guiding the thread located adjacent the ends of the groove; substantially as described.

5. A curved longitudinal looper having means for guiding the thread and also having 85 a groove conforming to the shape of the looper and of an approximately inverted L-shape in cross section formed on the face of the looper in the direction of its length; substantially as described. 90

6. In a sewing machine, a longitudinal looper having a groove formed on its face of approximately an inverted L-shape in cross section; substantially as described.

In testimony whereof I affix my signature 95 in presence of two witnesses.

RUSSEL G. WOODWARD.

Witnesses:

CHESTER MCNEIL,
MORTON MCNEIL.