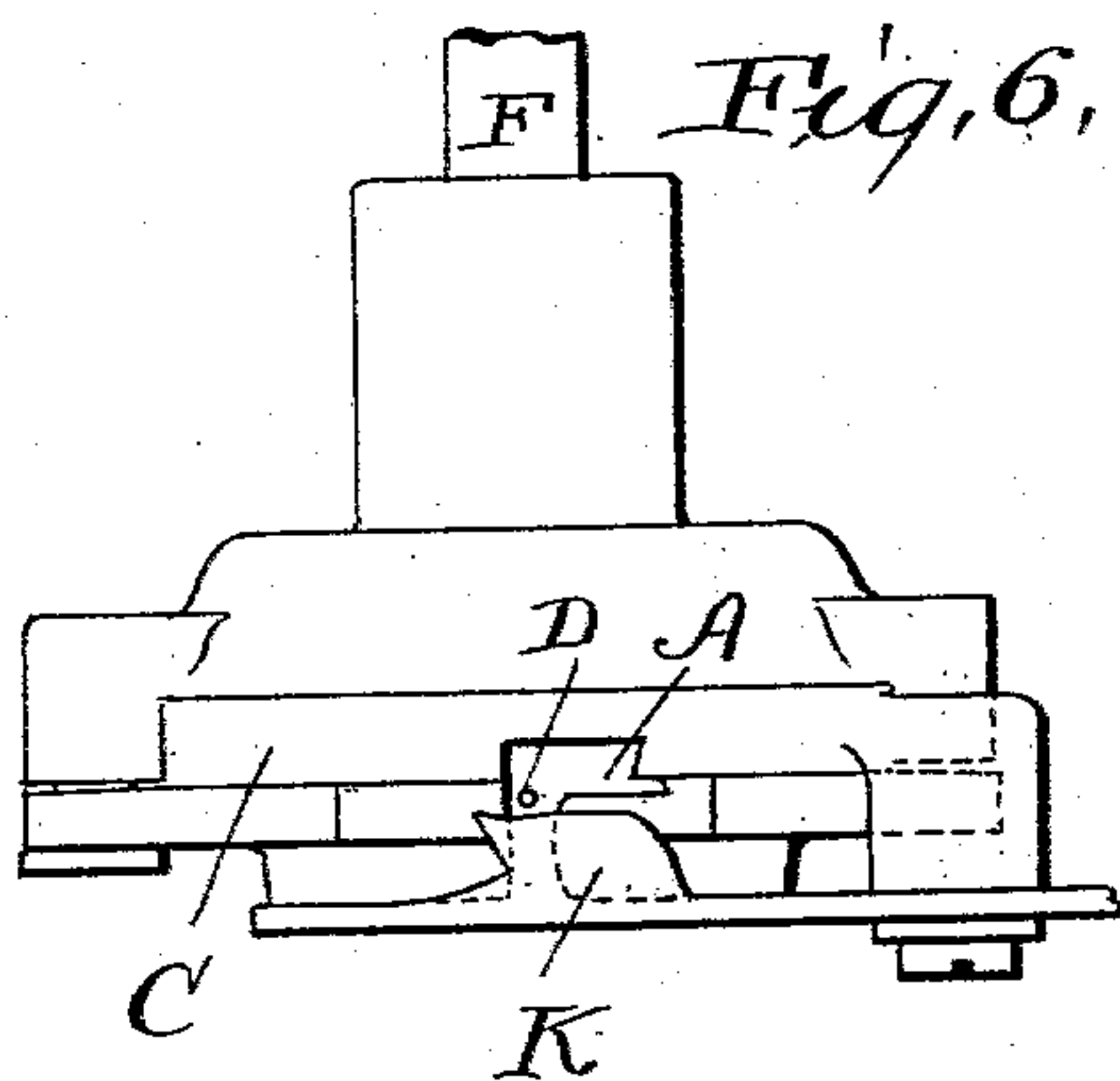
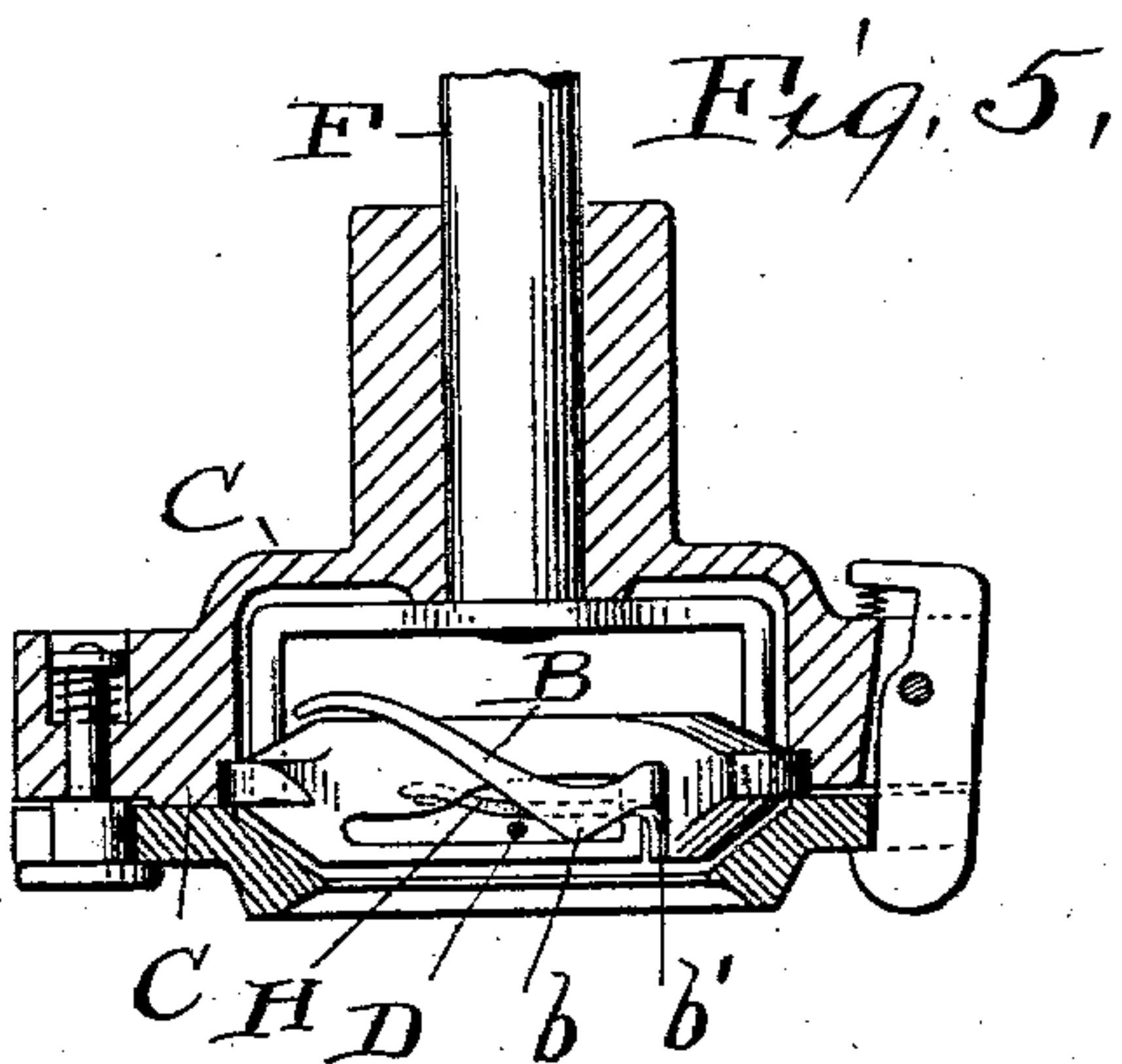
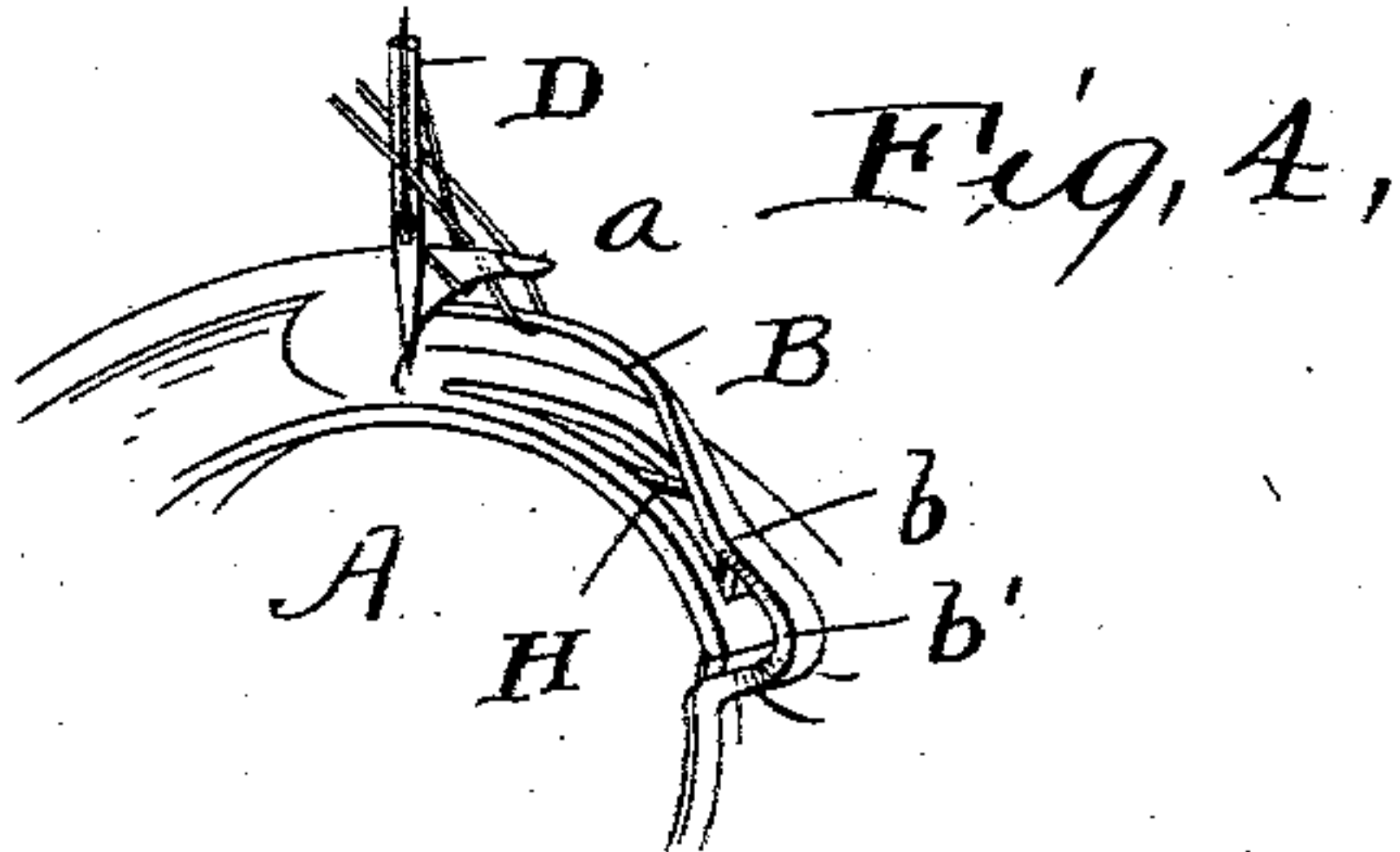
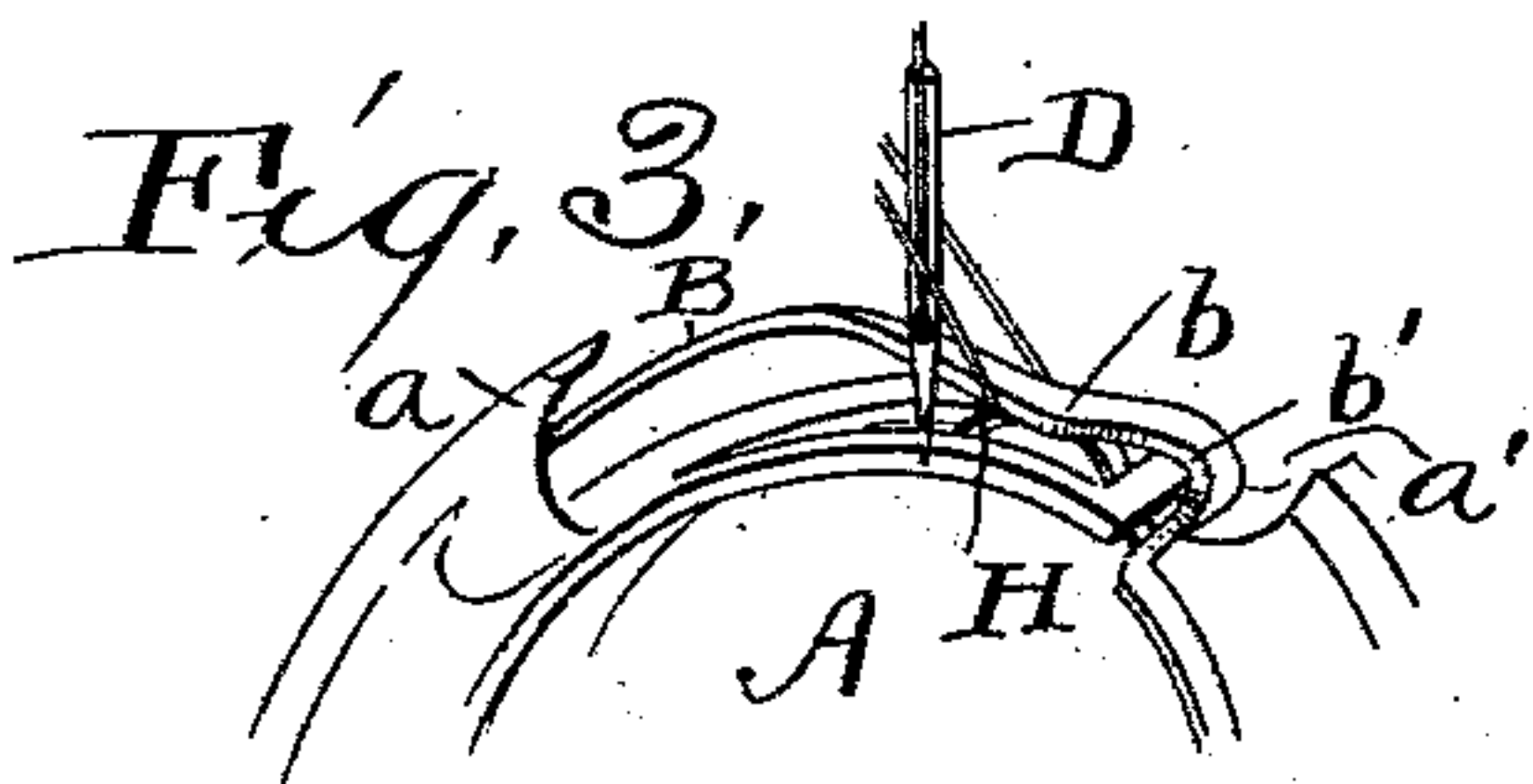
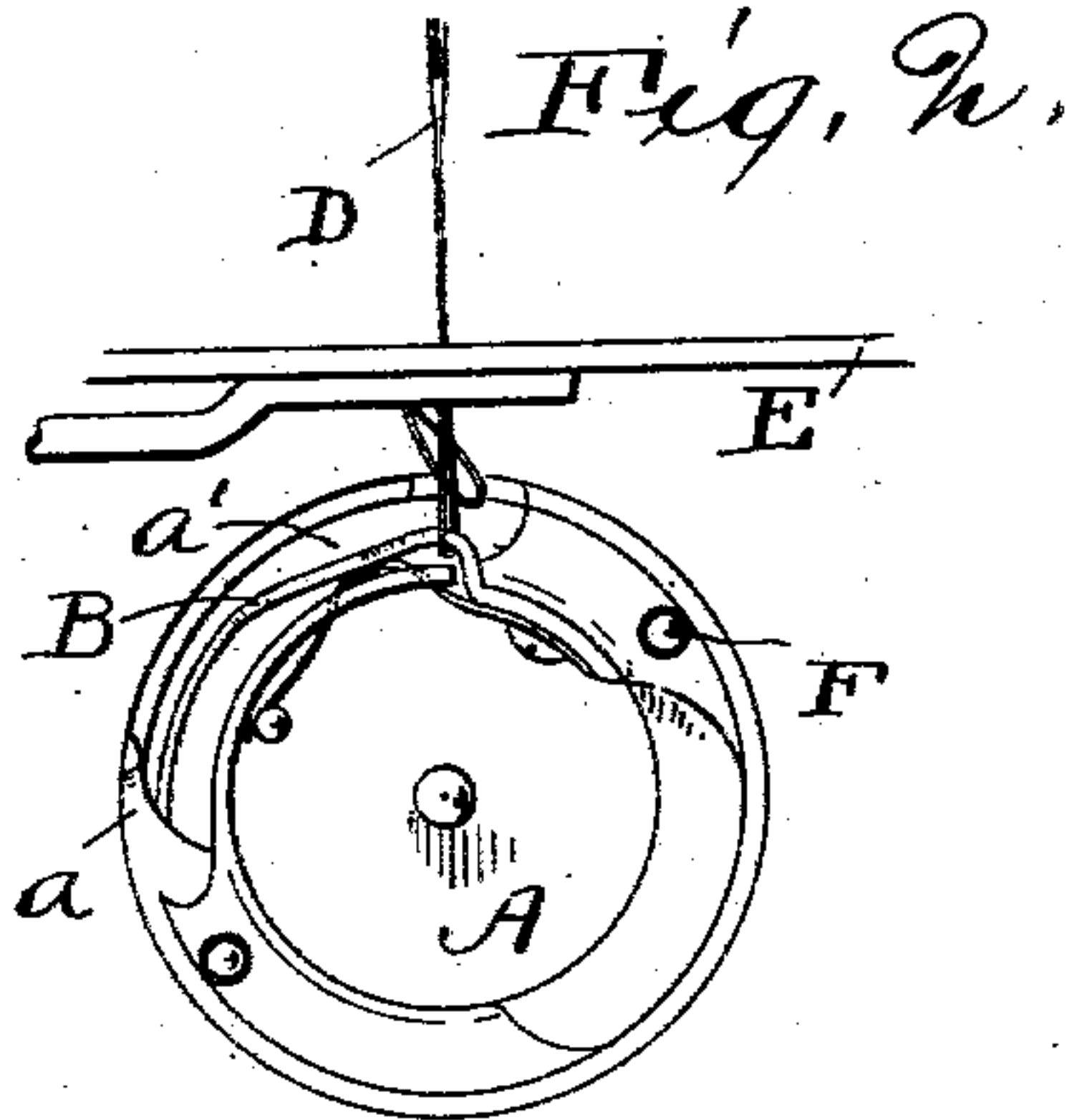
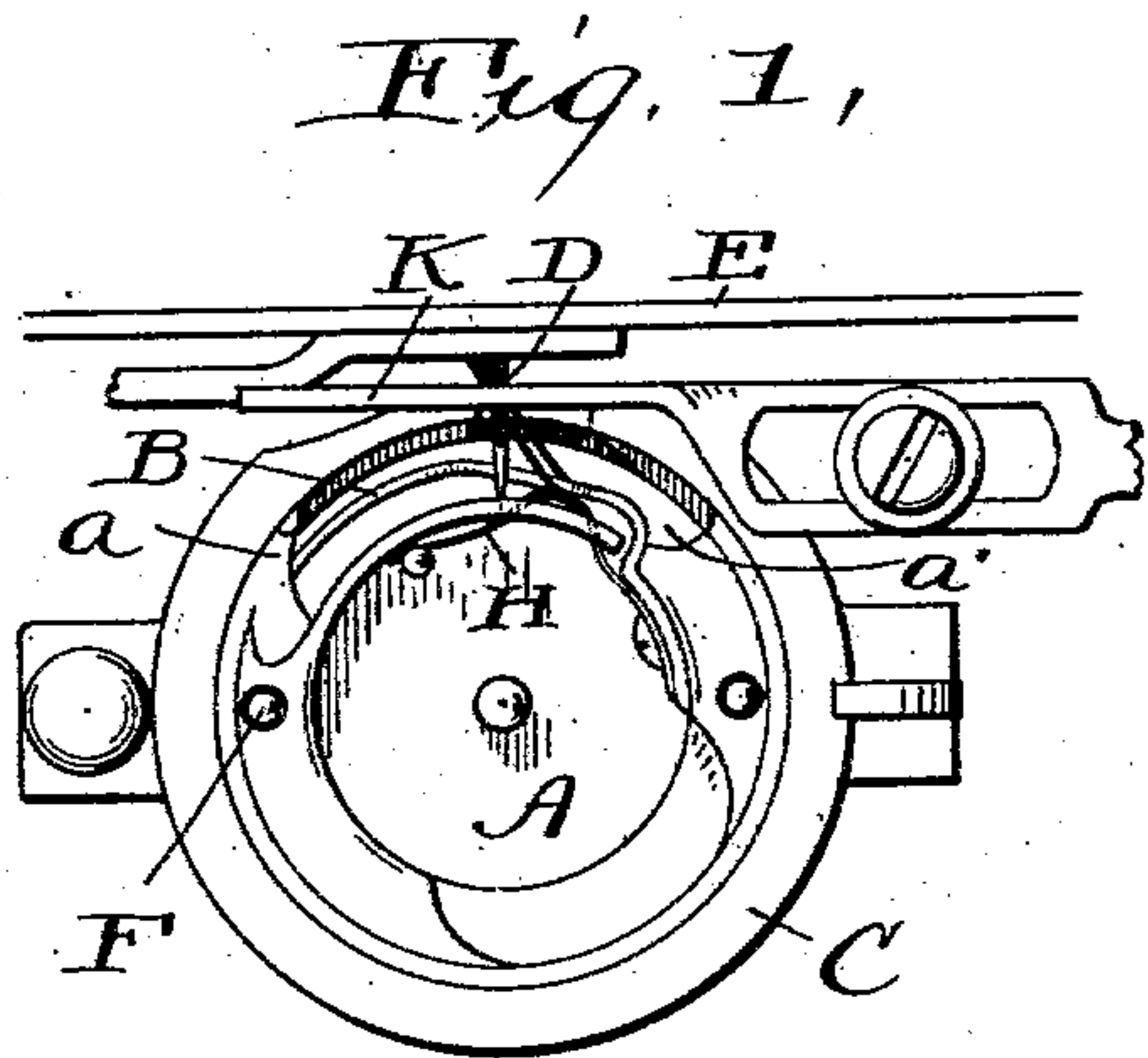


No. 743,876.

PATENTED NOV. 10, 1903.

J. O. HUFFMAN.  
SEWING MACHINE SHUTTLE.  
APPLICATION FILED AUG. 23, 1902.

NO MODEL.



Witnesses.  
E. B. Gilchrist  
N. L. Presman

Inventor.  
John O. Huffman,  
By his Attorneys,  
Shuroton & Bates.



# UNITED STATES PATENT OFFICE.

JOHN O. HUFFMAN, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

## SEWING-MACHINE SHUTTLE.

SPECIFICATION forming part of Letters Patent No. 743,876, dated November 10, 1903.

Application filed August 23, 1902. Serial No. 120,771. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN O. HUFFMAN, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Sewing-Machine Shuttles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The invention relates to a shuttle or loop-taker adapted for making chain-stitches in a rotary sewing-machine. As shown, the improvement is applied to a shuttle which is designed for use in a sewing-machine for making lock-stitches, wherefore the same sewing-machine by the mere interchanging of shuttles can be caused to make lock-stitches or chain-stitches, as desired.

The primary object of my invention is to insure the regular formation of the chain-stitch by holding each loop in such position that the next loop shall certainly be threaded through it by the needle and when so threaded shall be caught by the shuttle-hook, while the loop first formed is deflected out of the range of said hook.

The invention, which is hereinafter described in detail, may be here summarized as consisting of the construction and combination of parts pointed out in the claims.

In the drawings, Figure 1 is an end view of a shuttle embodying my invention and the associated parts of a sewing-machine which cooperate with it. In this view the cap which retains the shuttle in the shuttle-housing is removed and the parts are shown in the position they occupy when the needle is at approximately the lowest point of its movement. Fig. 2 is a view of the shuttle, showing its position in respect to the needle and the loops when the needle is at the highest point. Fig. 3 is a perspective view of the part of the shuttle embodying my invention when the needle and shuttle are in substantially the same relative position as shown in Fig. 1. Fig. 4 is a similar view of the same parts, showing the relative position of the needle, shuttle, and loops just as the shuttle-hook is entering a loop. Figs. 5 and 6 are plan views, the former showing the inclosing shuttle-housing in section.

Referring to the parts by letters, A represents a shuttle rotatably mounted in a shuttle-housing C, F a shuttle-driver, D the vertical reciprocating needle, E the needle-plate, and K the pull-off, all of the foregoing parts being of familiar form. Secured to the shuttle at a proper point in advance of the hook  $\alpha$  is the bent finger B, the functions of which are to spread each loop and hold it in the position for the needle to pass through it and to then deflect said loop so that the shuttle-hook will not enter it, but will enter the new loop, which has been threaded through it by the needle. This finger extends from its base or point of connection with the shuttle around toward and slightly past the hook  $\alpha$  and lies within the notch  $\alpha'$ , formed in the periphery of the shuttle in advance of said hook. Secured also to the shuttle is a light spring H, which bears against the under side of this finger in the widest part  $b$  thereof.

The operation of the described mechanism is as follows: The needle carries the thread down, and, as the needle raises, it leaves a loop through which the hook passes, and therefore as the shuttle revolves the entire shuttle passes through this loop. When the position of the shuttle permits it, the thread is drawn upward by the usual mechanism and the loop, which will of course now be below the finger B, takes the position shown in Fig. 2. The part of the finger with which the loop is now engaging is narrow, and its front edge  $b'$  (assuming for clearness of description that that part of the shuttle which is presented to the observer in Figs. 1 and 2 is the front side thereof) is behind a vertical plane, in which the rear edge of the pull-off K lies, wherefore the pull-off may make its usual movement into the position shown in Fig. 1 without touching the loop. As the shuttle rotates further the widest part  $b$  of the finger will be drawn through the loop, wherefore the loop will be spread, as shown in Fig. 3, and held in a position where the descending needle will certainly pass through it. It is necessary that this loop shall be certainly held in this position until the needle is well through it, and it is for the purpose of so holding the loop that the spring H is provided. This spring has such tension that it holds the loop,



as shown, until the needle is well through it and then yields to the pull upon the thread and allows the loop to pass it, whereupon the loop passing along this finger is drawn backward out of the range of the hook *a*, the finger itself being curved backward, substantially as shown in Fig. 5. Just after the hook has entered the newly-formed loop the finger B releases the loop which has been embracing it, whereupon said loop is tightened to form the stitch by the mechanism usually employed for this purpose. The spring H is bent, as shown, and one end is attached to the shuttle, while the other end engages with a short stud or pin I, secured to the shuttle, and thus a displacement of the spring is prevented.

Having described my invention, I claim—

1. In a sewing-machine, the combination with a rotary shuttle, of a loop spreading and deflecting finger secured thereto, and a spring also secured to the shuttle and adapted to press lightly against the under side of said finger, substantially as and for the purpose specified.

2. In a sewing-machine, the combination with a rotary shuttle having a hook and a peripheral notch in advance of said hook, of a loop spreading and deflecting finger secured to the inner side of the shuttle and extending through said notch and toward and slightly

beyond said hook, said finger having on the outer side of the shuttle a portion bulged out on one side, and extending across the plane of revolution of the point of said hook, and then continuing at an angle recrossing said plane and extending beyond the point of the hook and being at its end slightly curved toward said hook, and a spring secured to the shuttle and bearing on the under side of said finger, substantially as and for the purpose specified.

3. In a sewing-machine, the combination with a rotary shuttle having a hook and a peripheral notch in advance of said hook, of a loop spreading and deflecting finger secured to the shuttle and extending in advance of said notch toward and slightly past the shuttle-hook, said finger being bent backward near its base and then widened out and from this wide part toward its end curved backward beyond the range of the hook, and a bent leaf-spring fastened at one end to the shuttle and bearing near its middle point against the under side of the widest part of said finger.

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

JOHN O. HUFFMAN.

Witnesses:

E. B. GILCHRIST,  
E. L. THURSTON.