

No. 618,597.

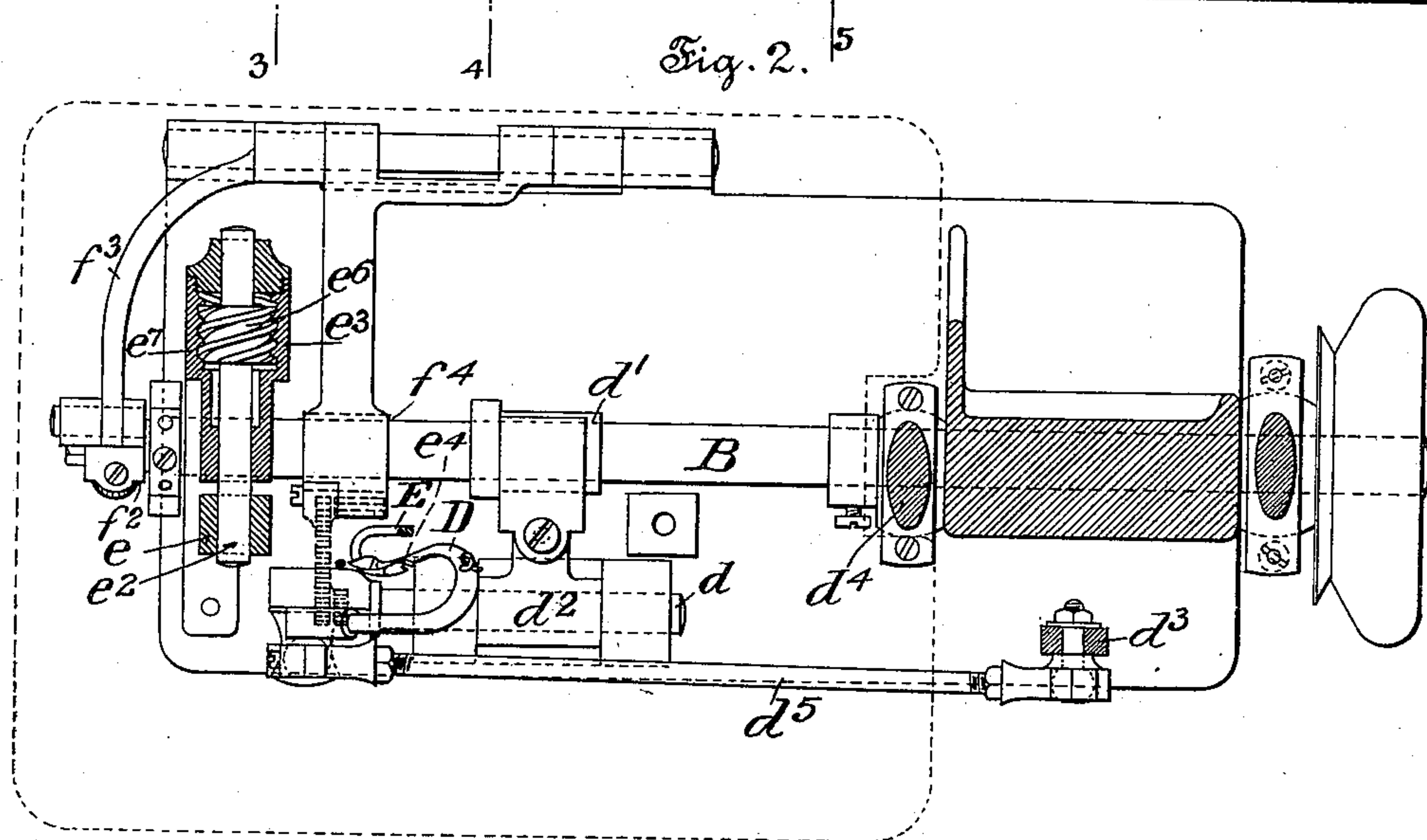
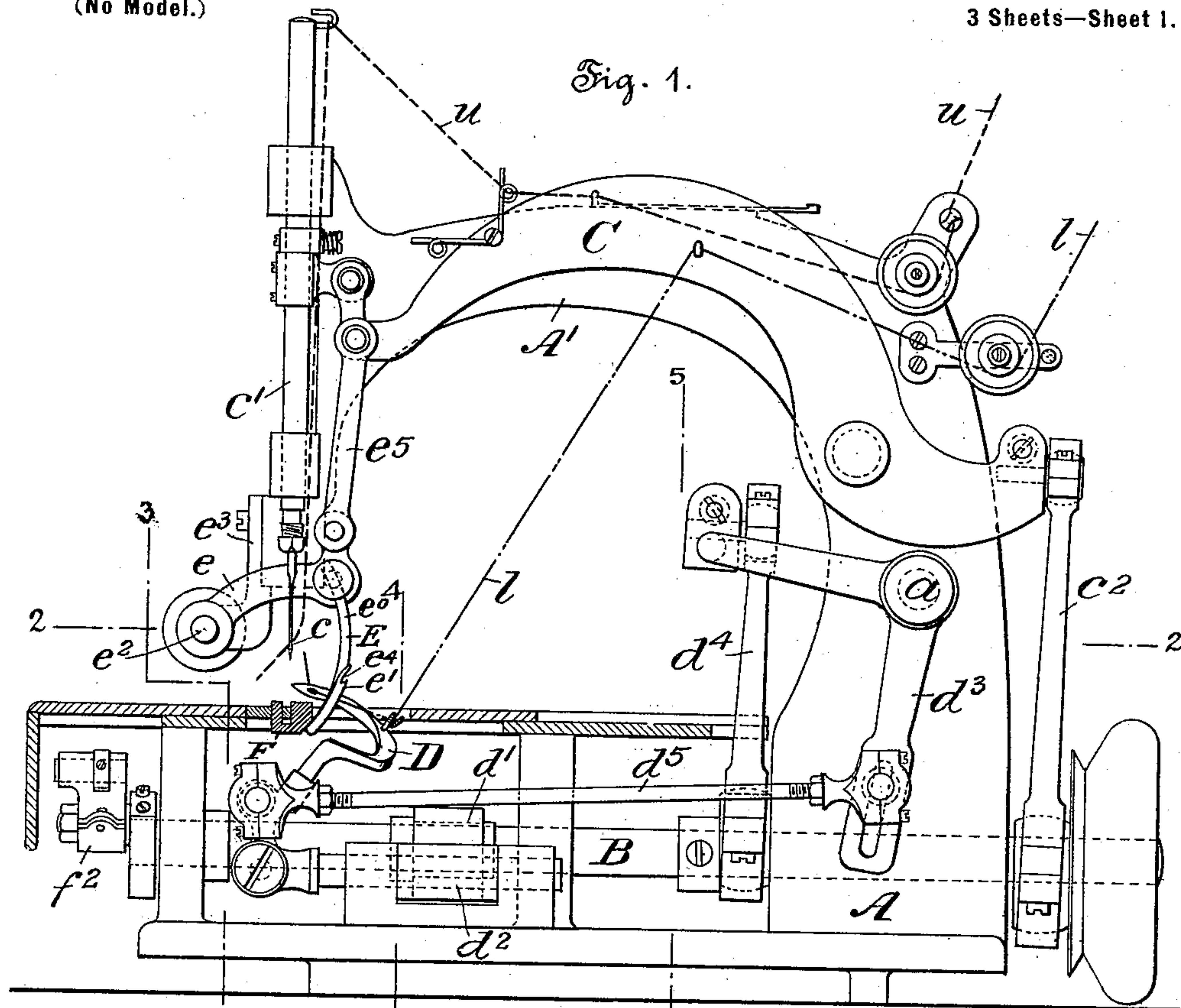
Patented Jan. 31, 1899.

D. C. BELLIS.
OVERSEAM SEWING MACHINE.

(Application filed Aug. 19, 1897.)

(No Model.)

3 Sheets—Sheet 1.



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3 Sheets—Sheet 3.

Fig. 8.

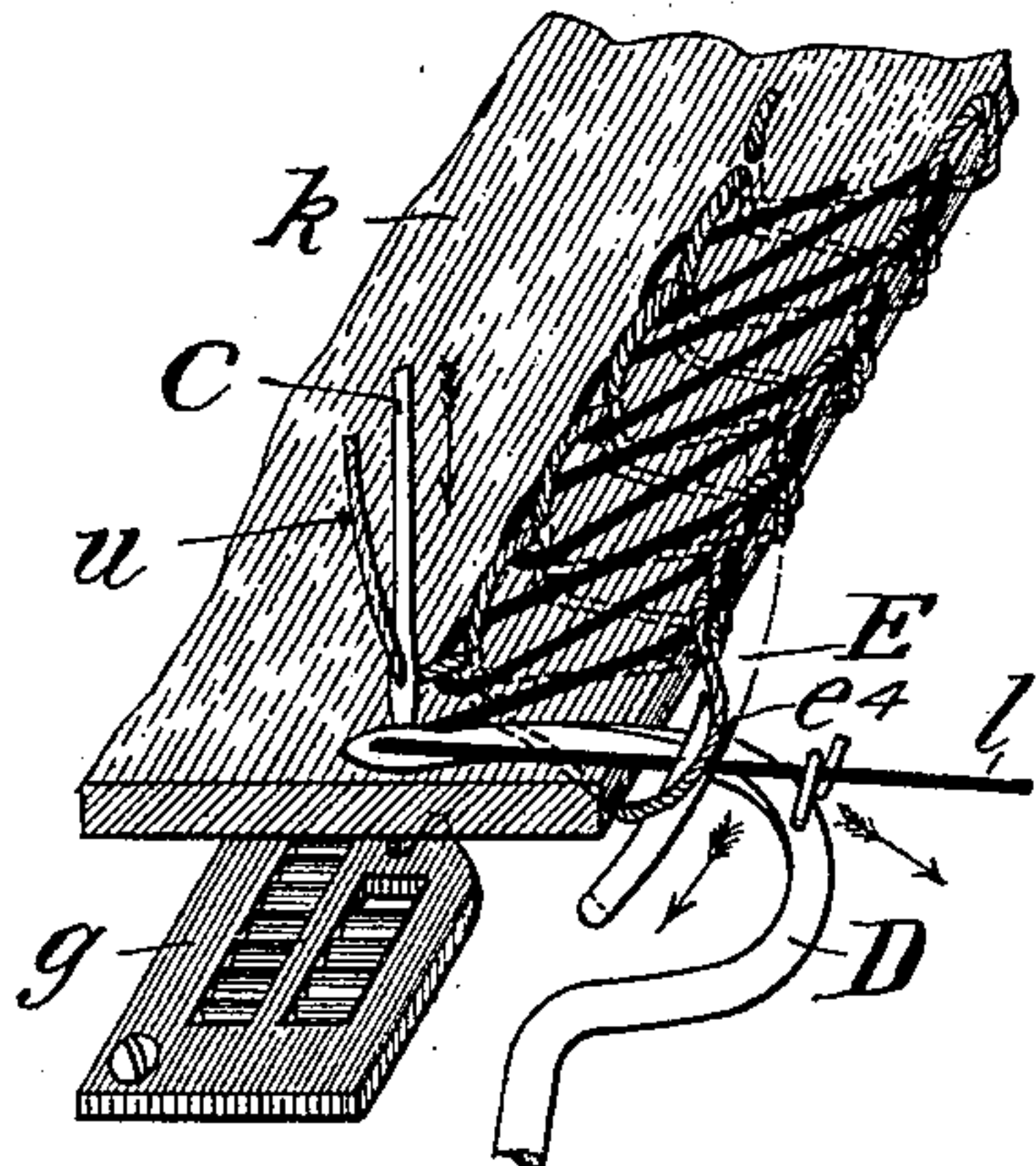


Fig. 9.

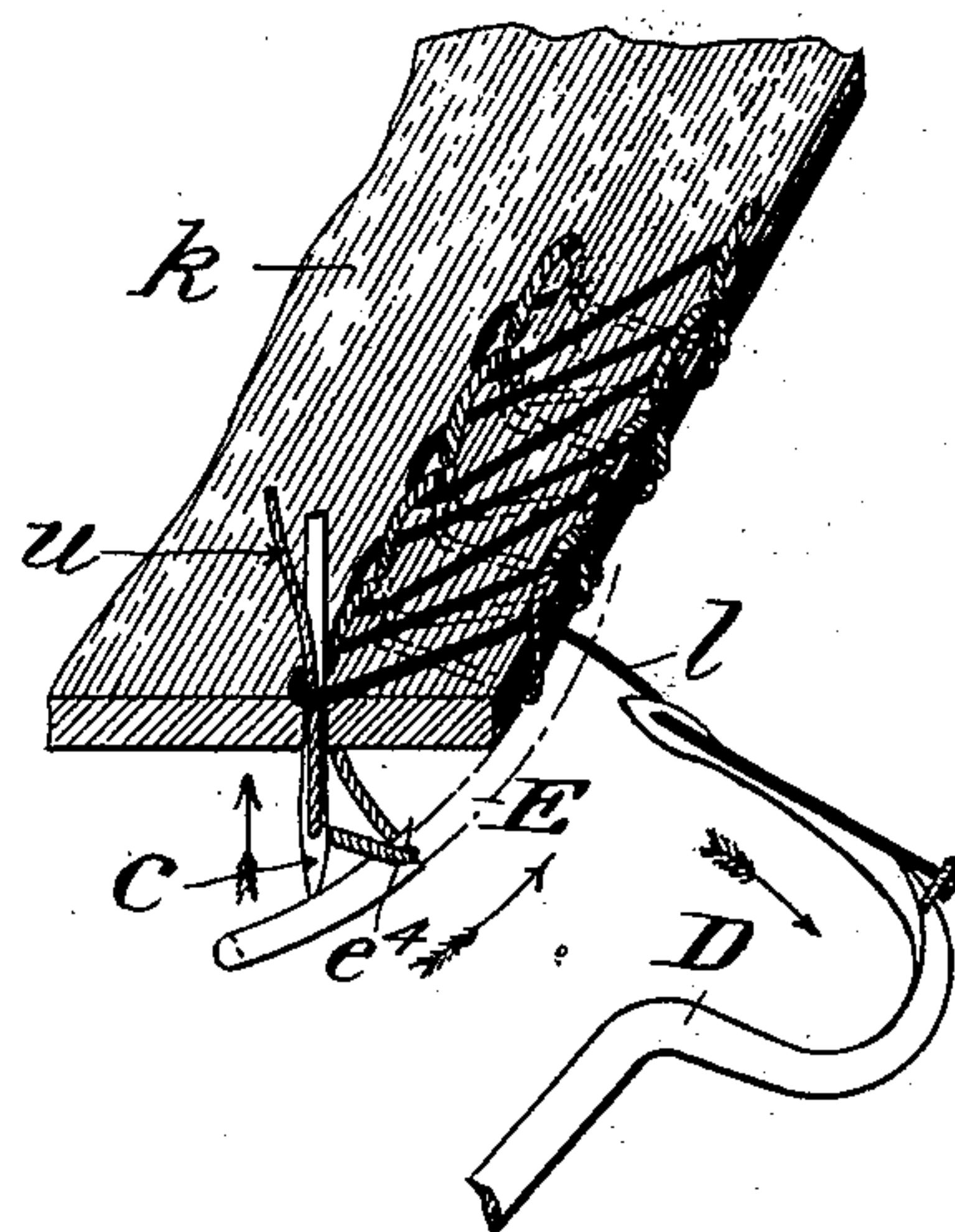
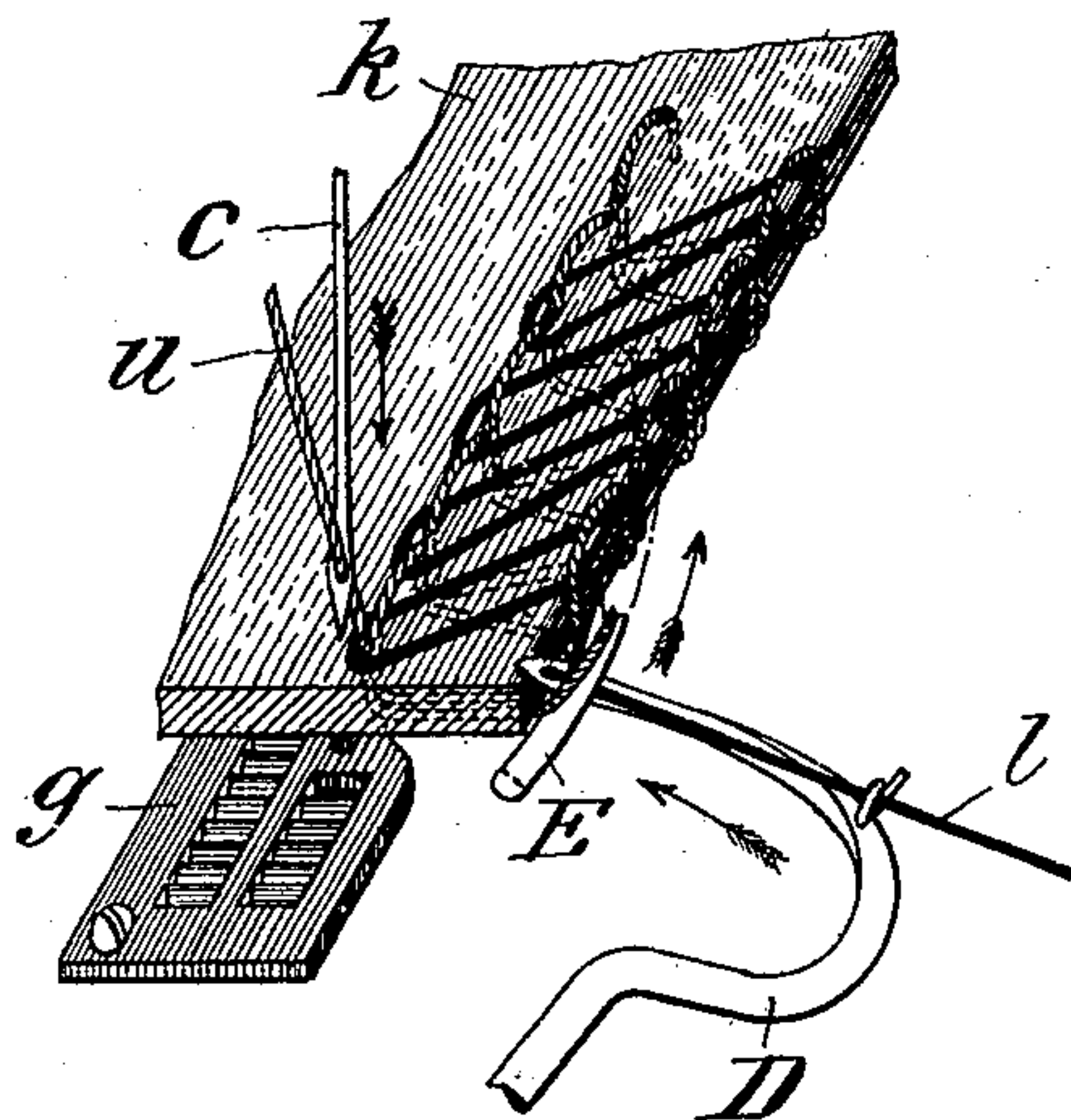


Fig. 10.



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UNITED STATES PATENT OFFICE.

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OVERSEAM SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 618,597, dated January 31, 1899.

Application filed August 19, 1897. Serial No. 648,742. (No model.)

To all whom it may concern:

Be it known that I, DAVID C. BELLIS, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented new and useful Improvements in Overseam Sewing-Machines, of which the following is a specification.

My invention relates to sewing-machines adapted to bind the edges of knit or other fabrics to prevent them from raveling; and the object of the invention is to provide suitable mechanism to insure a high speed of the machine.

My invention consists in a sewing-machine of the combination of a stitching-needle carrying the upper thread, a looper carrying the lower thread pivoted below the cloth-plate and receiving two motions, with a looping-hook for the upper thread journaled in a bracket above the cloth-plate and receiving two motions to act in conjunction with the thread-carrying looper and the stitching-needle, and means for operating the said looping-hook from the main shaft of the machine.

My invention further consists of the improvements hereinafter described, and pointed out in the claims.

The improvements will be more fully understood taken in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a front elevation of a sewing-machine embodying my improvements. Fig. 2 is a horizontal section of the machine, taken at the line 2 2 of Fig. 1 and having the cloth-plate indicated by dotted lines. Figs. 3, 4, and 5 are vertical sections on the lines 3 3, 4 4, and 5 5, respectively, of Fig. 1. Fig. 6 is a plan view of the throat-plate. Fig. 7 is a view showing the presser-foot; and Figs. 8, 9, and 10 are perspective views showing the formation of overseam-stitches as produced by my improved machine.

Referring now to the drawings for a further description of my invention, A is the frame of the machine; B, the main shaft; C, the needle-bar arm; *c*, the needle; *c'*, the needle-bar, and *c²* the eccentric-rod, having ball-and-socket connections between the main shaft B and needle-bar arm C.

D is the thread-carrying looper for the lower thread, pivoted to a rock-shaft *d*, receiving vi-

bratory motion from the main shaft B by the eccentric *d'* and lever *d²*, Figs. 1, 2, and 4.

d³ is a right-angular lever pivoted to the frame A at *a* and receiving reciprocating motion from the main shaft B by the eccentric-rod *d⁴*, and *d⁵* is a pitman connecting the thread-carrying looper D with one arm of the right-angular lever *d³* to oscillate the looper D and perform the functions in producing the overseam-stitch, as shown in Figs. 8 to 10 and as hereinafter described. The connection of pitman *d⁵* with lever *d⁴* is adjustable, so as to change the throw of the thread-carrying looper D.

E is a looping-hook adapted to take a loop from the thread of the stitching-needle *c* and bring it above the edge of the fabric *k*, for a purpose to be hereinafter described. This hook E, having the shape of a U, is adjustably attached with its long leg *e⁰* to one end of an oscillating arm *e*, secured to a rock-shaft *e²*, journaled in a bracket-bearing *e³* of the head *a* of the machine-arm A', while the short leg *e'* is provided with the notch *e⁴* to engage the thread or yarn *u*.

Movement is imparted to the hook E and arm *e* from the vibrating needle-bar arm C by a link *e⁵*, pivoted to the said arm C and arm *e*, so that the hook E, which is U-shaped, Fig. 3, as before mentioned, and bent in an arc, Fig. 1, described from the center of the rock-shaft *e²*, is operated in the same arc.

To move the looping-hook E transversely of the machine, the rock-shaft *e²* is provided with a male screw *e⁶* and the bearing or bracket *e³* with a corresponding female screw *e⁷* of such pitch as that at every oscillation the arm *e* the hook E is thrown a certain distance toward or away from the center line of the needle *c*, as will be more fully described.

F is the feeding device, constructed and operated in any suitable manner, comprising the feed-bar *f*, hinged to a vibrating plate *f'*, operated from the main shaft B by the eccentric *f²* and eccentric-rod *f³*.

f⁴ is an eccentric on the main shaft B for raising the feed end of the feed-bar *f* at predetermined intervals.

g, Fig. 6, is a throat-plate for guiding the feed and stitching-needle, and is provided with the tongue *g'* to retain the needle or upper thread *u* in position below the fabric.

h, Figs. 3 and 7, is a presser-foot actuated by a spring h' in the usual manner, and this foot is provided with a tongue h^2 to retain the thread l of the thread-carrying looper in position on top of the fabric.

The operation of my improved stitch-forming mechanism, comprising the combination of the stitching - needle, thread - carrying looper, and looping-hook, is as follows: In Figs. 8, 9, and 10 is illustrated a piece of fabric k , provided with an overseam-stitch border on one of its edges and showing also the various positions of the stitching-needle c , thread-carrying looper D , and looping-hook E . In Fig. 8 the stitching-needle c , carrying the upper thread u , is descending to secure the lower thread l , which is held behind the needle c , onto the top or face of the fabric k , the hook E having held a loop of the upper thread u beyond the edge of the fabric and in such a manner as that the thread-carrying looper D could pass through the same. By further descending of the stitching-needle c the thread-carrying looper D swings away from the needle c in the direction of the arrow and the hook E descends in its oscillatory movement, as shown by its arrow, until it is in position, together with the needle c , so that its notched and free end e^4 can engage a loop of the upper thread u , formed in rear of the needle c and below the throat-plate g , as shown in Fig. 9. As the stitching-needle c ascends the thread-carrying looper D moves still farther away from the needle to provide proper slack in the lower thread l to form the next loop thereof, while the looping-hook E ascends in its oscillatory movement and takes a loop of the upper thread u with it. The looper D , then moving in the direction of its arrow, Fig. 10, with the lower thread l , passes between the thread u and inner side of the hook and presents such loop of the lower thread l to the stitching-needle c , so as to be secured by the upper thread u and as illustrated in Fig. 8.

I am aware that the overseam-stitch produced by my improved stitch-forming mechanism is not new, nor do I lay claim to the thread-carrying looper D , feeding device, or other mechanism; but

What I do claim as new, and desire to secure by Letters Patent, is—

1. In a sewing-machine in combination with a needle-bar arm, a stitching-needle carrying a thread, a feeding device, a presser-foot and a thread-carrying looper having its free end moving in two directions over the top of the throat-plate of the machine, of a looping-

hook adapted to engage a loop, below the throat-plate, formed in the thread carried by the stitching-needle, and to bring such loop over the edge of a fabric, so that the said thread-carrying looper can pass between the inner side of the hook and the loop of the upper thread carried thereby, an arm to which said looping-hook is secured, a rock-shaft located above the cloth-plate and carrying said arm, a journal-bearing for said rock-shaft, a male screw on said shaft, a female screw in the journal-bearing and a link between said needle-bar arm and the arm of the rock-shaft, to reciprocate the said shaft and move it longitudinally, substantially as described and for the purposes set forth.

2. In a sewing-machine in combination with a needle-bar arm, a thread-carrying stitching-needle, a feeding device, a presser-foot and a thread-carrying looper having its free end to move in two directions over the top of the cloth-plate of the machine, of a looping-hook adapted to engage a loop below the throat-plate, formed in the thread carried by the stitching-needle, and to bring such loop over the edge of a fabric, so that the said thread-carrying looper can pass between the inner side of the hook and the said loop of the upper thread carried thereby, a shaft journaled in a bracket secured on the said machine-frame above the cloth-plate, an arm secured at one end to said shaft and carrying at its free end the looping-hook, a link between the needle-bar arm and said looping-hook arm, a male screw on said shaft and a female screw in said shaft-bearing, substantially as and for the purposes set forth.

3. In a sewing-machine in combination with a needle and feeding mechanism, a cloth-plate, a thread-carrying looper and its actuating devices arranged below the said cloth-plate, of a U-shaped looping-hook, an arm to which said hook is secured, and a shaft located above the cloth-plate, said shaft operating to oscillate the said looping-hook in an arc concentric with the said shaft, and means for moving the said shaft longitudinally to change the position of the looping-hook with respect of the planes in which the needle and the thread - carrying looper move, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two subscribing witnesses.

DAVID C. BELLIS.

Witnesses:

FOSTER M. VOORHEES,
GEORGE SCHMIDT, Jr.