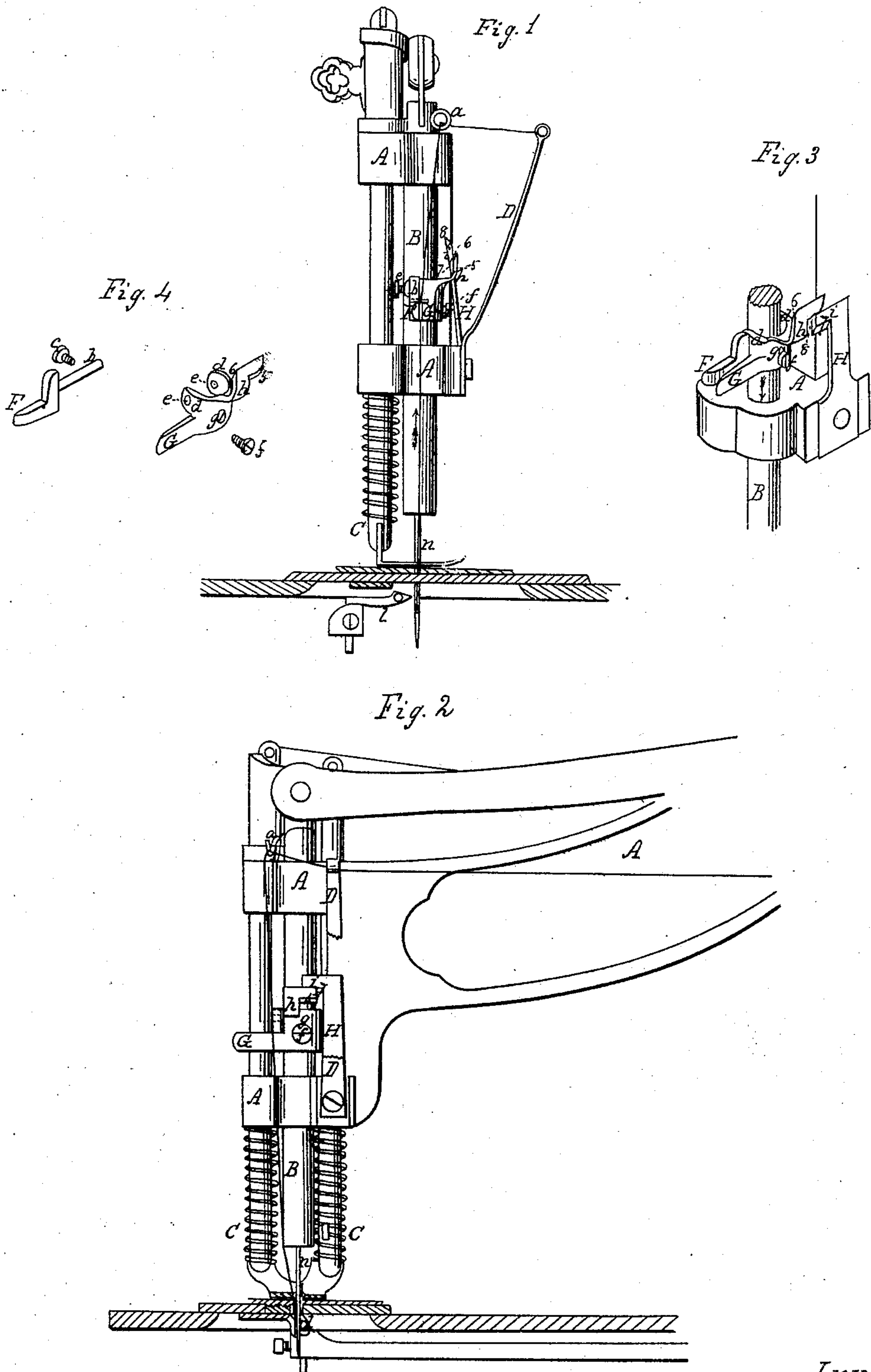


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C. W. WILLIAMS.
SEWING MACHINE.



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IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. 31,423, dated February 12, 1861.

To all whom it may concern:

Be it known that I, C. W. WILLIAMS, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Sewing-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to the use of a clamping device attached to the bar or carrier of the perforating-needle for the purpose of clamping the thread of the said needle firmly against the said bar or carrier during the first part of the ascent or withdrawing movement of the said needle, and so causing the thread to be drawn up through the cloth with the needle and preventing any loop from being thrown out on the wrong side of the needle and preventing the thread from being drawn back through the eye of the said needle and thereby insuring a proper quantity of slack being thrown out from the said needle on the proper side for the entry of the looping device. By the means heretofore used for operating such a clamping device it is made to clamp the thread at one stage of the downward or perforating movement of the needle, which is very objectionable; and my invention consists in certain improved means of operating the said clamping device, whereby it is caused to clamp the thread at a certain stage of the stitch-making operation, as hereinafter explained, but is prevented clamping the thread during the perforating movement of the needle and during any greater portion of the withdrawing movement than is necessary.

To enable others skilled in the art to make and use my invention, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side view of the needle-bar, the clamping device, and the parts of the machine thereto adjacent. Fig. 2 is a front view of the same. Fig. 3 is a perspective view of the clamping device and its immediate appendages. Fig. 4 is a perspective view of the principal details of the said device.

Similar letters of reference indicate corresponding parts in the several figures.

A is part of the stationary arm of the machine carrying or containing the guides for the needle-bar B.

C C are two pressers.

D is a spring attached to the arm A for taking up the slack of the needle-thread as the said thread is drawn up through the cloth.

a is a stationary thread-guide on the top of the arm A.

F and G are the principal portions of the thread-clamping device, consisting of two jaws attached to the needle-bar B, the jaw F being fixed relatively to the bar and the jaw G movable for the purpose of clamping and unclamping the thread. The jaw F is secured to the needle-bar by being made with a pin, b, which is inserted through a hole drilled transversely through the bar and is secured therein by a set-screw, c. The jaw G is made with lugs d, to fit the sides of the bar, and is secured to the bar by the pin b passing loosely through holes e e in the said lugs, the said pin thus serving as a pivot, upon which the jaw G has the slight amount of swinging movement which is necessary for the clamping and unclamping of the thread passing between it and the jaw F. This swinging movement is controlled by a set-screw, f, passing through a hole, g, in the jaw and screwing into the needle-bar. The jaw G is also furnished with a tongue, h, which stands out from the needle-bar, and which has an outward bevel, 5, from its lower edge and an inward bevel, 6, from its upper edge.

H is an elastic, but not too flexible, switch, secured to the arm A, and having the piece i at its upper end made with an outward bevel, 7, from its lower edge, and an inward bevel, 8, from its upper edge. This switch is so arranged that almost as soon as the needle-bar commences rising the upper bevel, 6, of the tongue h of the jaw G comes in contact with the lower bevel, 7, of the switch, and as the needle-bar continues rising the said tongue is caused to pass outside of the switch, as shown in Fig. 1; but that as the needle-bar descends the lower bevel, 5, of the said tongue h strikes the upper bevel, 8, of the switch, as shown in Fig. 3, and the said tongue is so caused to pass inside of the switch. The effect produced by the above-mentioned operation of the tongue h and switch is as follows: The thread represented in red color in Figs. 1 and 2 comes from a suitably-arranged spool through any suitable tension device, through an eye at the extremity of the take-up spring D, through the fixed guide a, and from thence between the

jaws F G of the clamping device to the eye of the perforating-needle *n*. No pressure is produced upon the thread when the tongue *h* is out of contact with the switch, as the jaw G then hangs perfectly loose; but in the upward movement of the needle-bar to withdraw the needle from the cloth the pressure of the switch against the inside of the tongue *h*, as the latter passes it, is made to force the jaw G toward the jaw F, and so to cause the thread to be clamped between the said jaws. This clamping operation, which only continues during the first part of the upward movement of the needle, prevents the friction of the cloth producing a slackness of the thread on the opposite side to that on which the under needle, *l*, or other looping device works, and also prevents the take-up spring from drawing the thread back through the eye of the needle and so insures the throwing out of the loop on the proper side of the needle and at the proper time for the looping device to enter it. It is not to this operation, however, that my invention so particularly relates, as to the prevention of a similar clamping operation taking place as the needle descends. This prevention is effected by the tongue *h* passing inside of the switch, which, by the pressure it produces on the outside of the tongue, holds the

jaw G as far away from F as the set-screw permits, and so causes the thread to be left free during the whole of the descent of the needle, and thereby the liability of the breakage of the thread, which is consequent upon its being positively clamped at any stage of the descent or perforating movement of the needle, is obviated.

I do not claim to be the first inventor of a clamp to hold the thread during a part of the motion of the needle; neither do I claim to be the first to operate such a clamp by means of an oppositely-beveled spring-switch; but

What I claim as new and of my invention, and desire to secure by Letters Patent, is—

The peculiar combination of the jaws F and G, doubly-beveled tongue *h*, and doubly-beveled switch H *i*, the said parts being constructed and arranged as herein shown and described, and operating in the manner explained, to cause the clamping of the thread during the early stage of the withdrawing of the needle and prevent the clamping thereof during the downward stroke.

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Witnesses:

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