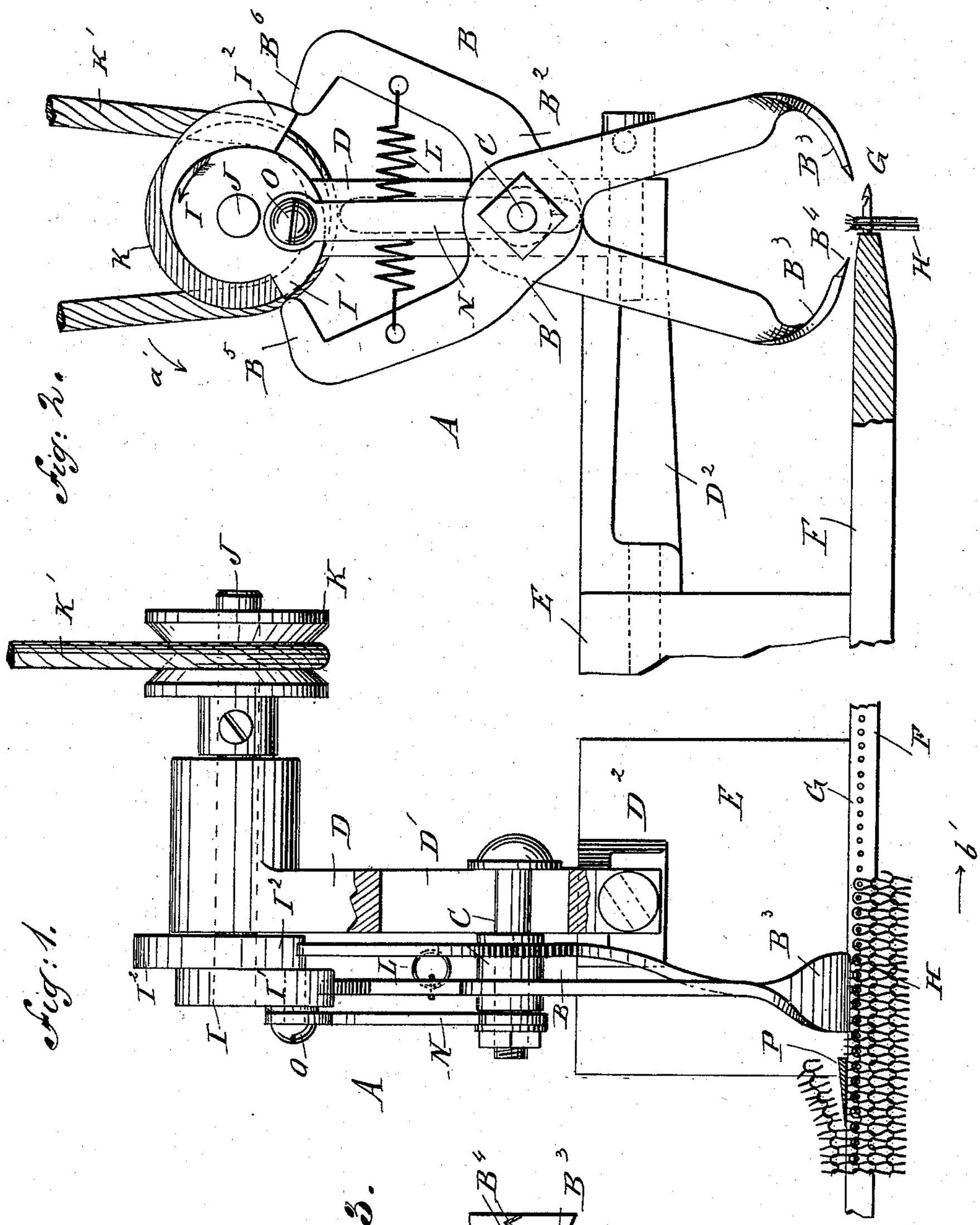
(No Model.)

R. E. ELLENWOOD.

ATTACHMENT FOR LOOPING MACHINES.

No. 406,638. Patented July 9, 1889.



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ATTACHMENT FOR LOOPING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 406,638, dated July 9, 1889.

Application filed November 3, 1888. Serial No. 289,898. (No model.)

To all whom it may concern:

Be it known that I, RAYMOND EDWARD ELLENWOOD, of Cohoes, in the county of Albany and State of New York, have invented a new and Improved Attachment for Looping-Machines, of which the following is a full, clear, and exact description.

The invention relates to looping-machines for uniting knit fabrics; and its object is to provide a new and improved attachment for removing the surplus material above the impaling-needles previous to looping.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a front elevation of the improvement with parts broken out. Fig. 2 is an end elevation of the same, and Fig. 3 is an inverted plan view of the lower end of the tongs when closed.

The improved attachment A is provided with a pair of tongs B, having its members B′ and B^2 pivoted on a pin C, mounted to slide vertically in a slot D′, formed in the frame D, held on a bracket D^2, secured to the central boss E, on which turns the needle-plate F of the looping-machine, of any approved construction. The bracket D^2 thus supports the attachment above the needle-plate F, so that the lower ends of the tongs B, when in their lowermost position, are directly above the impaling-needles G, secured radially in the usual manner in the rim of the needle-plate F.

Each lower end B^3 of the members B′ and B^2 of the tongs B is provided with a row of teeth B^4, arranged in such a manner that when the ends B^3 are closed or interlocked, as illustrated in Fig. 3, the teeth B^4 of one member fit snugly into the corresponding notches formed by the teeth on the opposite member. The teeth B^4 are tapered, so that each tooth B^4 comes to a point at its outermost end, as is plainly shown in Figs. 2 and 3.

On the upper ends of the members B′ and B^2 of the tongs B are formed inwardly-projecting lugs B^5 and B^6, respectively, engaging the rims of the cams I′ and I^2, respectively, formed on a wheel I, secured on a shaft J, mounted to rotate in suitable bearings formed in the frame D.

At one end of the shaft J is secured a pulley K, over which passes a belt K′, connected with suitable devices for imparting a rotary motion to the shaft J. The belt K′ preferably passes over a pulley secured on one of the shafts of the looping-machine.

The lugs B^5 and B^6 are held in contact with the cams of the wheel I by means of a coiled spring L, secured by its ends to the upper ends of the members B′ and B^2 of the tongs B. With the pin C, forming the pivot for the tongs B, is connected a pitman N, also pivotally connected to a crank-pin O, secured in the front face of the wheel I. The crank-pin O is located midway between the highest points of the cams I′ and I^2.

The operation is as follows: When the attachment A is in the position shown in Figs. 1 and 2, the crank-pin O is in its lowermost position, and consequently holds the tongs B in their lowermost position, so that the lower ends of the tongs are directly above the impaling-needles G. The lower ends are open, as shown in Fig. 2, and the fabric above the impaling-needles having been previously cut by a knife P of any approved construction, short pieces of thread remain in the loops on the impaling-needles. When the shaft J now turns in the direction of the arrow *a′*, the lugs B^5 and B^6 of the tongs B pass over the highest ends of the cams I′ and I^2 by the action of the spring L, so that the lower ends B^3 of the members B′ and B^2 of the tongs B are closed, and the teeth B^4 grasp the remaining short pieces of thread in the loops on the impaling-needles. A further movement of the shaft J in the direction above indicated causes an upward motion of the tongs B by the pitman N, the members B′ and B^2 of the tongs remaining closed until the lugs B^5 and B^6 again come in contact with the cam parts I′ and I^2 of the wheel I. This takes place when the tongs B are nearly in their uppermost position—that is, when the cam-pin O is nearly on top. The members B′ and B^2 are now opened by the cam parts I′ and I^2 and drop the removed surplus thread previously

grasped. At this time the crank-pin O has passed its uppermost position, is moved downward, and imparts a downward sliding motion by the pitman N to the pin C, so that the tongs B are again lowered, and their lower ends are fully opened by the cams I′ and I² until they again assume the position shown in Fig. 2. The above-described operation is then repeated.

It is understood that when the tongs B move up and down, as above described, the needle-disk F moves forward in the direction of the arrow *b′*, so that when the teeth B⁴ again close above the impaling-needles they come in contact with new surplus short threads moved under the ends B⁵ by the movement of the disk F in the direction of the arrow *b′*. It will be seen that the two parts of the knit fabric to be united are entirely cleaned of all surplus material, so that the looper can act freely for uniting the same.

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

1. An attachment for looping-machines, comprising a pair of vertically-movable tongs, a rotary cam between the upper ends of the tongs to rock the two members thereof on their pivot, means for closing the tongs, and a positive connection between the cam and the tongs for raising and lowering said tongs, substantially as set forth.

2. An attachment for looping-machines, comprising a pair of tongs adapted to engage with their lower ends the surplus material above the impaling-needles, a cam-wheel for opening and a spring for closing said tongs, and a pitman pivotally connected with the pivot of the said tongs, and also connected with a crank-pin on the cam-wheel, substantially as shown and described.

3. An attachment for looping-machines, comprising a pair of tongs adapted to engage with their lower ends the surplus material above the impaling-needles, a fixed frame having a slot in which is held to slide the pivot of the said tongs, a cam-wheel having a rotary motion and serving to open said tongs, a spring for closing the tongs, and a pitman pivotally connected with the pivot of the said tongs and with a crank-pin on the said cam-wheel, substantially as shown and described.

4. An attachment for looping-machines, comprising a pair of tongs adapted to engage with their lower ends the surplus material above the impaling-needles, a fixed frame having a slot in which is held to slide the pivot of the said tongs, a cam-wheel having a rotary motion and serving to open and close said tongs, a pitman pivotally connected with the pivot of the said tongs and with a crank-pin on the said cam-wheel, and a spring for closing said pair of tongs, substantially as shown and described.

5. An attachment for looping-machines, comprising a frame having a vertical slot, a pair of tongs adapted to engage with their lower ends the surplus material above the impaling-needles, the pivot of said tongs being held to slide in the said vertical slot, a cam-wheel secured to a shaft mounted to rotate in the said frame and serving to open the upper ends of the said tongs, a spring connected with the upper ends of the said tongs to close the same, a pitman pivotally connected with the said pivot-pin of the tongs, and a crank-pin secured on the face of the said cam-wheel and pivotally connected with the said pitman, substantially as shown and described.

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Witnesses:
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